Release-Notes CM 3.112

New functions

Data

- Import - Surface data (CAD): ACIS formats up to version 25 are now supported. [CT-5769]
- Import - Surface data (CAD): CATIA V5: The formats R8 – R24 are now supported. [CT-5769]
- Import - Surface data (CAD): Inventor (Autodesk): The formats V11 – 2015 are now supported. [CT-5769]
- Import - Surface data (CAD): Parasolid: The formats 10 – 26 are now supported. [CT-5769]

Periphery

- Leica AT402: The Leica LaserTracker AT401/402 is now supported in Metrosoft CM. [CT-5634]

Release-Notes CM 3.111

New functions

Data

- Import - Surface data (CAD): ACIS formats up to version 24 are now supported. [CT-5754]
- Import - Surface data (CAD): Siemens NX (Unigraphics): The formats NX1 to NX9 are now supported. [CT-5754]
- Import - Surface data (CAD): Solid Edge: This CAD converter is available again. Formats up to version v20 and ST6 are supported. [CT-5754]
- Import - Surface data (CAD): SolidWorks): The formats 2003 -2014 are now supported. [CT-5754]
- Import - Surface data (CAD): Parasolid: The format versions 14 – 26 are now supported. [CT-5754]
- Import - Surface data (CAD): Inventor (Autodesk): The format versions V11 - 2014 are now supported. [CT-5754]

Part inspection programming, DMIS

- The function "Export point cloud" that is teachable with the PHOENIX II sensor is now also available for DMOS programs.
  The new command is:
  DMESW/COMAND,'POINTCLOUDEXPORT, ON'
  or
  DMESW/COMAND,'POINTCLOUDEXPORT, OFF'. [CT-5603]

Machine

- PHOENIX II: The division of the slider that allows to set the amplification (Gain) has been increased from 9 to 64 levels. [CT-5709]

Installation

- Others: If one tries to install Metrosoft CM 3.111 on a Windows XP or Windows 8 computer, a message is displayed that the corresponding operating system is not supported by Metrosoft CM 3.111; the installation is aborted. [CT-5755]
- Others: The current "Renishaw PH10M-iQ PLUS calibration DLL" in the version 1.0.11 is delivered and installed with Metrosoft CM 3.111. [CT-5748]

Bugs fixed

3D Graphic window

- Display: If measurement attributes of a layer were edited in the SURF element graphics, the error message "Exception error of the server" could be displayed in the geometric graphics linked with the nominal surface; Metrosoft CM froze. The problem has been fixed. [CT-5745]
- Insert: On computers of the type "HP Mobile Workstation" with "Windows 7 x64" the window "Save auxiliary elements (*.sax) could sometimes be blocked when saving a SAX file for the first time. The dialog did not react anymore. The problem has been fixed. [CT-5720]

Data

- Import - Surface data (CAD): CATIA V5: It could occur that macros included in CATIA V5 models were ignored and certain CATIA V5 models were not displayed correctly.

  Further it could occur that, when the option "Convert surface orientation" was deactivated with CATIA V4 data sets, some surfaces were not properly trimmed and the model became holey; surfaces could not be picked anymore. The problems have been fixed. [CT-5762] [CT-5568] [CT-5206]
- Import - Surface data (CAD): Parasolid: It could occur that certain Parasolid files could not be imported or the files were not converted correctly. The problems have been fixed. [CT-5758] [CT-4988]
- Import - Surface data (CAD): Siemens NX: It could occur that certain Siemens NX files could not be converted correctly or if the Siemens NX files contained different coordinate systems, only the standard coordinate system was available for selection. The problems have been fixed. [CT-5743] [CT-5742]
- Import - Surface data (CAD): IGES: It could occur that certain IGES files could not be imported properly or the files was not converted correctly. The problems have been fixed. [CT-5585] [CT-5143]

Probe

- Probe change with PHOENIX II: It could occur that, after changing the probe to PHOENIX II, the probe ID showed a "*" and the probe type was not switched to optical sensor. The problem has been fixed. [CT-5708]

Periphery

- PHOENIX II: Several improvements have been implemented. [CT-5735]
- Articulating probing system - Renishaw PH9 / PH10: It could occur that, after installing Metrosoft CM 3.110 and subsequent installation of the Renishaw DLL for the PH10-iQ from "...\CM3\Drivers\Renishaw\PH10-iQ\PH10IQ_Install.msi", an error message was displayed after starting Metrosoft CM 3.110. The problem has been fixed. [CT-5764]
- FARO USB: It was possible that in certain cases the calibration data was not read from the connected measuring arm but the calibration data of a previously connected measuring arm was used.

  It was also possible that in some rare cases no event sound was played when measuring probe points. The problem have been fixed. [CT-5712] [CT-5707]

Release-Notes CM 3.110

New functions

Feature determination

- Position of the element: Evaluate in polar coordinates [F2]: Now all 3 components (R, αx and βxy) are activated in the dialog by default; before only R was activated. [CT-5603]
- ISO 1101 : Perpendicularity: The perpendicularity of a plane in reference to an axis can now also be calculated considering the form deviation. To do so, the option "Measured points" is to be selected under effective length. [CT-5202]

System

- Country settings: Dialog and report language "Slovak" is available again. [CT-5699]

Data

- Import - Surface data (CAD): New CAD converter for Audtodesk Inventor formats V11 to 2013. [CT-5688]
- Import - Surface data (CAD): The Solid Edge CAD converter is no longer available.
- Import - Surface data (CAD): CATIA V5: Element names created in CATIA V5 are adopted during the conversion into the ACIS (SAT, SAB) format. [CT-5167]
- Import - Surface data (CAD): CATIA V5: The formats R6 to R22 are now supported. [CT-5693]
- Import - Surface data (CAD): Parasolid: The formats 14 to 25 are now supported. [CT-5693]
- Import - Surface data (CAD): ProEngineer: The formats 16 to Creo 2.0 are now supported. [CT-5651]
- Import - Surface data (CAD): Siemens NX (Unigraphics): The formats NX1 to NX8 are now supported. [CT-5627]
- Import - Surface data (CAD): SolidWorks: The formats 2003 to 2013 are now supported. [CT-5693]

Probe

- Other: The Renishaw probe head PH10-iQ is supported. The PH10-iQ includes a CAA file which is used for the automatic compensation. By doing so, all 720 positions can be used after calibrating only 6 angle positions. [CT-492] [CT-954]

Periphery

- Phoenix Sensor: The new PHOENIX II sensor has been integrated. The functionality is very similar to the functionality that is available with the existing Phoenix I sensor. The automatic exposure setting as well as the point calculation for gap and flush are not available yet. [CT-5701]
- Machine - Leica emScon: LaserTracker: It is now possible to assign different commands to all 4 buttons of the new Leica T-Probe. [CT-3244]
- Machine - Leica emScon: LaserTracker: The trigger signal of the triggered probe "T-Mac Probe" is now supported. [CT-5555]
- Machine - Creaform HandyPROBE: The manual and mobile measuring machine Creaform C-Track & HandyProbe is now supported. [CT-5593]
- Machine - Romer Absolute Arm: The manual and mobile Romer Absolute measuring arm is now supported. [CT-5611]

- Machine - Romer Multi Gage RDS: The manual and mobile Romer Multi Gage RDS is now supported. [CT-5611]
- Machine - TESA Multi Gage RDS: The manual and mobile TESA Multi Gage RDS is now supported. [CT-5611]

CmConfig

- Configure machine: Further WENZEL CMM models for the display in the 3D graphics and the offline programming have been integrated: LH (2G) 65 (750), LH (2G) 87 (1000) and LH (2G) 108 (1600). [CT-5702]

Bugs fixed

DMIS Interpreter

- Execute: If during the execution of a DMIS program on a duplex system, a collision occurred on the slave machine and the program had to be stopped or CM had to be terminated, features were missing afterwards in the merged DMO file. The problem has been fixed. [CT-5690]

System

- DME Server: I++ DME Server: In I++ DME, each command is assigned a unique identifier. This way, the client can clearly assign the commands to its calls. Holos as an I++ DME Client uses for certain commands the same identifiers. If they were sent very quickly one after the other, it could happen that the server flagged these identifiers as already used. The problem has been fixed. [CT-5689]

Data

- Import - Surface data (CAD): Siemens NX: It could occur that the import of Siemens NX files failed. The problem has been fixed. [CT-5658]
- Import - Surface data (CAD): IGES: The following problems have beend fixed:
  - Not all elements were correctly transfomred into mm with IGES files in inch format.
  - Certain IGES files could not be converted anymore (still importable in CM 3.80).
  - Certain IGES files with point sequence 106-2 could not be converted.

  [CT-5638] [CT-5664] [CT-5666] [CT-5678] [CT-5661]

Coordinate systems

- Save current CS into DB, save PCS into DB: It could occur that when a current PCS was saved using the option "Use PCS as model PCS", the following error messages was displayed: "Unknown error!, Serious error [HandleMeError]". If the dialog was confirmed with OK, the error message was displayed again. The problem has been fixed. [CT-5622]
- Define coordinate system out of several points: If one is working with inch, the nominal values of the selected elements were not displayed correctly (in mm instead inch) in the RPS dialog "Define work piece coordinate system out of several points". The problem has been fixed. [CT-5686]
- 3D Bestfit for CS optimization: Only 3 decimal places were displayed in the input fields under "Target geometry" in the dialog "3D Bestfit for CS optimization", no matter what settings were selected for the number of decimal places and length units under System > Country Settings. However, if more then 3 decimal places were entered, they were saved correctly with the element. The display problem has been fixed. [CT-5687]

Machine

- Mulit machine mode: DIP MMB: With complex loops for the iterative spacial alignment in DMIS programs (CRSLCT/ALL), it could happen that the part inspection program halted at different synchroniszation poiints with the message "Wait for other machine" and then deadlocked. The problem has been fixed. [CT-5691]

Release-Notes CM 3.100 SP1

New functions

3D Graphic window

- Output graphics view: It is now possible to output point boxes with minimal and maximal deviation. [CT-5680]

Measurement of free-form surfaces

- Free-form alignment/Bestfit/Pre-alignment [F7]: The Bestfit result (Min. point distance, Max. point distance, average point distance, Translation and Rotation) can now be saved into the file "BestfitResult.dat".

  Example file:
  ```
  [Bestfit]
  MaxDev=169.255
  MaxDevNr=4
  AvgDev=63.822
  Translation.x=-93.895
  Translation.y=41.635
  Translation.z=28.319
  ;-- Rotation in Grad (not as radiant)!
  Rotation.x=-4.575
  Rotation.y=11.016
  Rotation.z=-16.795
  ```

  The file is stored in the CM directory "Common files" (by default '\cm3\Data'). [CT-5519]

Reports

- Print out report header: The size of the dialog window for the report header variables is now automatically adjusted to the length of the description text. The adjusted size is saved. [CT-5588]

System

- DME Server: Renishaw MODUS metrology software as I++ DME Client: In order to transmit motion commands (probe point, intermediate point) faster to the server, MODUS does not comply with the I++ DME specification. The command sequence procedure has been changed in a way that Metrosoft CM I++ DME Server now accepts this optimized commands. [CT-5576]
- DME Server: In I++ DME, machine settings are assigned to a probe system. After each probe system change, the settings which were active during the calibration are activated. This behavior is not always desired. It is now possible to adjust this behavior with a registry entry:

  Registry Entry:
  Key: HKEY_LOCAL_MACHINE\Software\Metromec\Cm\x.x.x.x\Driver\DMEServer
  Value Name: ResetToolProperties

  Meaning:
  ResetToolProperties = 0 → do not activate the tool properties of the calibration
  ResetToolProperties = 1 → activate the tool properties of the calibration. (default value)

  [CT-5597]
- DME Server: The pre-travel and over-travels are now hidden in CM as I++ DME Server. [CT-5621]
- DME Server: It is now possible to display/hide scanning using a rotary table via I++ DME. [CT-5533]
- I++ DME Server: Support of GeCo controller has been improved. [CT-5007]

Data

- Export Q-DAS: It is now possible to export the variables "Program-Number {MP}" and "Program-Name {MPNAME}" into a Q-DAS file. The field "Part Inspection Program-DMIS {MPDMISVER}" has been removed from the selection list. The MP fields are only solved if a PIP is executed.

  Note:
  {MP} = "Number / Name"
  {MPIDENT} = "No"
  {MPNAME} = "Name"

  [CT-5567]

Probe

- Display/change probe system: The scanning sensor RSH175 (REVO stylus holder) is now available in the probe catalog. [CT-5574]

Periphery

- Machine - Zeiss CMM-OS: The function keys F1 - F12 of the Zeiss control panel are now available for Metrosoft CM. The configuration of the Zeiss control panel is possible via the "HT100.dat" file. [CT-5629]

Bugs fixed

Measurement of geometrical elements

- Measure circle/cylinder: Collisions could occur with the automatic measurement of a circle if the start point of the probe was positioned above the center of the circle to be measured and this position was not set as start point. The problem has been fixed. [CT-5578]
- Measure circle/cylinder: With the measurement of a circle/cylinder on the equator of a reference sphere, a collision could occur after the third point as the circle almost was positioned on the nominal element and therefore the internal correction direction became to inaccurate. The problem has been fixed. [CT-5582]
- Relative Measurement: Relative intermediate point within an element measurement did not work anymore since 3.90 SP1 when executing a program taught in an earlier version. (TimeOut Error). The problem has been fixed. [CT-5635]

Measurement of free-form surfaces

- Import surface data, Load CAD data (SAT): If curves that were not saved correctly existed in a SAT file, the file sometimes could not be loaded. The problem has been fixed. [CT-5668]
- Measure free-form surfaces: If points were inserted on a CAD model without vector, and then measured with C'n'M, the position which was to be approached depended on the viewing direction active during clicking. Therefore different points were approached if a previously clicked or imported point was defined in different views. The problem has been fixed. [CT-5665]
- Measure free-form surfaces: It was possible that the CMM moved uncontrollable if a circle was manually measured within an actual surface. The problem has been fixed. [CT-5652]
- Measure free-form surfaces: If a relative surface point in a actual surface was recorded in CM 3.90 SP1, it sometimes happened that the corresponding PIP did not work properly when executin in CM 3.100. The problem has been fixed. [CT-5650]
- Free-form alignment/Bestfit/Pre-alignment [F7]: A restricted Bestfit with B deviation minimal and only with translation in X axis sometimes failed. The problem has been fixed. [CT-5489] [CT-5483]

Processing

- N-Point construction: If two cone halves were measured and then constructed to a single cone, the error message "N-point construction not possible!" was displayed. The problem has been fixed. [CT-5586]

Feature determination

- ISO1101: Perpendicularity: In some cases, an Access Violation could be displayed if elements were saved without points and then one tried to evaluate their perpendicularity. The problem has been fixed. [CT-5669]
- ISO1101: Position tolerance: In rare cases the effective tolerance was not displayed anymore in the feature box of the graphical report. The problem has been fixed. [CT-5573]

Coordinate systems

- 3D Bestfit for CS optimization: Since CM 3.90, the direction for surface points could not be entered anymore in the field "Define set point geometry" in the element selection of the function "3D Bestfit for CS optimization". The problem has been fixed. [CT-5569]

Reports

- Export measurement results as DMIS file, Create DMO file: If a DMO measurement result file was created, all features were written into the CM report buffer. As the report buffer is never deleted during the use of the DIP, the error message "Index out of Bound 16380" as displayed when multiple DMIS programs with many features were executed. The problem has been fixed. [CT-5631]

Part inspection programming, DMIS

- Create or edit PIP: In some cases a PIP did not work correctly anymore when a graphical report was aborted during the programming. The problem has been fixed. [CT-3709]
- Execute PIP: In CM 3.90 SP1 an error message (Event Timeout Error) was sometimes displayed during the execution of DMIS programs with the command DMESW/COMAND,'GOTOREL. The problem has been fixed. [CT-5563]
- Execute PIP: In some rare cases it happened, that the execution of very large DMIS files on a SQL server took more and more time. The problem has been fixed. [CT-5454]

DMIS Interpreter (DIP)

- Execute: If a section of another DMIS program was "copied over" an existing section of another DMIS program using Copy/Insert, the start and stop markers which were defined after the "Insertion" were sometimes ignored. The program started at the beginning. The problem has been fixed. [CT-5600]

System

- DME Server: In rare cases no error dialog was displayed when a collision occurred and the entire system froze. The problem has been fixed. [CT-5342]
- DME Server: It could occur that CM did not start completely as I++ DME Server in connection with QUINDOS metrology software and a rotary table and the entire system froze. The problem has been fixed. [CT-5617]

Data

- Export - VDA geometrical elements: An error in the VDA export for the element CIRCLE has been fixed. [CT-5591]
- Export Q-DAS: If a Q-DAS export was executed via a part inspection program into a non existing directory, no error message was displayed, Now an error message is displayed if the field catalog cannot be read and/or the Q-DAS export file cannot be created. [CT-5675]
- Import – Surface data (CAD): IGES: The conversion of IGES files failed in rare cases. The problem has been fixed. [CT-5672] [CT-5673] [CT-5674] [CT-5604] [CT-5681]

Machine

- Position machine: After an update from CM 3.80 SP1 to CM 3.100, the absolute positioning of the machine did not work anymore if a PHS was used. The problem has been fixed. [CT-5618]

Periphery

- Machine - Zeiss CMM-OS: It was possible that in rare cases a collision occurred during the probe changing procedure. The problem has been fixed. [CT-4836]
- Machine - Zeiss CMM-OS: The changing sequence of the automatic probe changes with RDS-CAA was erroneous. The problem has been fixed. [CT-5616]

- Machine - Zeiss CMM-OS: The CMM did not stop when it was moved outside the limits and therefore collisions could occur. The problem has been fixed. [CT-5657]
- Machine - Zeiss CMM-OS: It was possible that CM froze while CM was reading in the CMM-OS probe data. The problem has been fixed. [CT-5637]
- Temperature measuring device - WPT100: It was possible that from time to time an error message (invalid telegram) was displayed. The problem has been fixed. [CT-5630]
- PHOENIX: During the startup of CM 3.100, the PHONIX error message "class not registered" was displayed in rare cases. The problem has been fixed. [CT-5553]

Release-Notes CM 3.100

New functions

3D Graphic window

- Edit: Mirror assemblies: If an assembly (nominal element) consisting out of several CAD files was mirrored, all CAD elements have been converted and saved into a single file. Now, the whole assembly is mirrored so that each individual file (Ref:) is mirrored. [CT-5351]
- Settings: Faceting: The faceting of CAD models has been improved with the ACIS version R20 to R21 update. The faceting levels "rough" and "medium" are now better in quality with the same memory use and calculation time. The level "fine" stayed more or less the same. We recommend using faceting level "medium", especially with larger CAD models. [QT-1193]

Reports

- Load protocol line [F3]: Several new protocol line templates (*.pln) have been integrated. [CT-5537]

Measurement of geometrical elements

- Measure circle/cylinder: Automatic spiral measurement of a circle: It is now possible to measure circles with a spiral point distribution, which simplifies the measurement of threaded holes. The pitch can be entered clockwise or counterclockwise, just as for the measurement of a cylinder. The measurement can be executed with triggered probe systems. [CT-5284]

Part inspection programming, DMIS

- Jump to jump label or sentence number: It is now possible to execute a conditional jump in a PIP on a basis of one or several features from the database. A maximum of 100 features can be selected. If more features are needed, one may achieve this with an appropriate program structure. [CT-5457]

System

- I++ DME Server: It is now possible to scan with an active rotary table using the GeCo controller via the I++ DME interface. [CT-5533]

Data

- Import – Surface data (CAD): Unigraphics: The Unigraphics CAD converter has been renamed Siemens NX converter. CAD files up to format NX 7.5 can now be imported. [CT-5283]
- Import – Surface data (CAD): ProEngineer: CAD files up to format Wildfire 5 can be imported. [CT-5442]

Machine

- Position machine: It is now possible to activate or deactivate individual axes for the machine positioning. It is also possible to position the machine in polar coordinates via the position dialog. [CT-3408] [CT-4347]
- FARO measuring arm and FARO Laser Tracker: A FARO USB measuring arm may now also be used in connection with a FARO Laser Tracker. Special settings can be set in the "FaroTrackArm.dat" in the INIT directory. [CT-5441]
- FARO Laser Tracker: The leveling function (perpendicular axis) included in the Faro Laser Tracker is now supported in Metrosoft CM. For that purpose the direction vector of the Laser Tracker

perpendicular axis is read out. Metrosoft CM automatically creates a theoretical plane with this direction vector. The element receives the next free number and the name "NIVEAU_PLANE". This theoretical plane then has to be set as the primary direction. This is required in order to use the Laser Tracker as perpendicular basis, e.g. for the machine leveling. [CT-5507]

Probe

- Rotate probe head: PHS: A Renishaw PHS can now be rotated via the HT400/HT100. In order to rotate it with the joystick (HT400/HT100), the functionality has to be activated by assigning the value F24 to a function button in the Ht100.dat (Init directory) file. The file then looks as follows:

  ```
  [FKEYS]
  F1=0D
  F2=87
  F10=1B
  ```

  In this case F2 is set to F24 (Hexadecimal 87). [CT-5535]

Periphery

- Other: Pointmaster: Pointmaster 5.0 has been integrated. 3D volume data from computer tomographs can now be evaluated in Metrosoft CM. [CT-5398]
- Machine - WPC 2010/2020/2030/2040: The firmware check has been improved. Now a message is displayed if the firmware does not support an appropriate functionality yet. [CT-5523]
- Machine - I++ DME Server: I++ DME Client (REVO): A rotary table can now be rotated without rotating the overlying PCS. [CT-5430]

DME Server

- Other: The TCP/IP speed has been improved. I++ DME commands are now executed between 10 to 100 times faster. [CT-5516]
- Other: Now the function "move on circular path" for PosMoves is available.

  ```
  I++ DME command descriptions:
  CZPositionOnCylinder
  ====================
  The client uses this method to make a circle move.
  ->     CZPositionOnCylinder (X(), Y(), Z(), x(), y(), z(), IJK(), R())
  Parameters:
  X(), Y(), Z()   is the nominal center point of the circle
  x(), y(), z()    is a point on the circle radius where the move ends
  IJK()        is the normal vector of the circle plane
  R()         Bool = 0      move shorter distance
        Bool = 1          move longer distance
  Data            None
  Errors                    Errors of the enumerated methods.  [CT-5525]
  ```

- Other: The following - not in the official I++ DME specification contained - commands are now supported in the I++ DME client:

  - Tool.ProbeType
  - Tool.EOffsetX, Tool.EOffsetY, Tool.EOffsetZ

  These commands deliver information about the used probe systems. Using this information, Modus (measuring software from Renishaw) adjusts its user interface to the probe. [CT-5544]

Bugs fixed

3D Graphics window

- Edit: Mirroring: Auxiliary elements of the type "Curve" were not mirrored. Thus curves had to be recreated on mirrored surfaces. By doing so it could occur that edge and offset curves could not be created all the way. Further it could occur that memory usage increased after loading a model hat had been mirrored with the option "Keep existing elements". The problems have been fixed. [CT-4142] [CT-4143] [CT-5416]

Measurement of geometrical elements

- Measure plane: If a plane was measured in GRIPS with the distribution "Curve", CMSURF could freeze if the option " Safety plane after each scan path" was set. The problem has been fixed. [CT-5558]

Measurement of free-form surfaces

- Measure free-form curve: If a surface point element containing several points was imported with the function "Adopt element in free-form surface", the probe radius was corrected into the wrong direction. Thus the projection of the probe points onto the surface could result in high deviations. The problem has been fixed. [CT-5522]
- Adopt edge point into free-form: Imported edge points that were positioned on an edge curve in a free-form surface were not projected onto the edge curve after mirroring the PIP: The problem has been fixed. [CT-5394]

Data

- Import – Surface data (CAD): ProEngineer converter. It could occur that certain ProEngineer files could not be converted. The problem has been fixed. [CT-5287]
- Import – Surface data (CAD): Siemens NX/Unigraphics converter. It could occur that certain Unigraphics files were faceted wrong. The problem has been fixed. [CT-5434]

Periphery

- Probe changer: I++ DME Server: If a probe system change (multi changer) was aborted via the I++ DME interface, the current move was aborted but the change was subsequently continued. The problem has been fixed. [CT-5354]
- Machine - I++ DME Server: I++ DME Client (REVO): REVO edge points were taught without a valid probe head orientation in connection with a rotary table. The problem has been fixed. [CT- 5429]

Release-Notes CM 3.90 SP2

New functions

System

- User levels: User levels have been optimized. It is now possible to activate/deactivate the remote control in user levels 3 and 4. In addition, the general error handling in user level 3 and 4 has been improved. The remote control issues have been eliminated. [CT-5514] [CT-5515] [CT-5513]

Data

- Export Q-DAS: The variable fields program number {MP} and program name {MPNAMEW} are now available for the Q-DAS export. The MP fields are only resolved if a PIP is executed. [CT-5567]

Probe

- Display/edit probe system: The Renishaw REVO stylus holder RSH175 has been added to the probe catalog. [CT-5574]

Bugs fixed

3D Graphics window

- Edit: No description for the import element was displayed in the import dialog when mirroring CAD models with Windows 7. The problem has been fixed. [CT-5608]
- Report: The effective tolerance was not outputted in the feature box for an ISO 1101 position tolerance with square tolerance zone. The nominal tolerance was outputted in the effective tolerance column. The problem has been fixed. [CT-5573]

Measurement of geometrical elements

- Measure circle/cylinder: Measure circle on outside cone: It could occur that a wrong diameter was calculated when measuring a circle on an outside cone. If "F8 AUTO" was not activated when executing part inspection programs in triggered mode with a scanning probe, the special calcualtion "Circle on sphere" was not executed. The problem has been fixed. [CT-5526]
- Measure plane: If a plane was measured in GRIPS with the distribution "Curve", CMSURF could freeze if the option " Safety plane after each scan path" was set. The problem has been fixed. [CT-5561]

Measurement of free-form surfaces

- Bestfit: It could occur that a limited Bestfit with edge points minimal in B deviation and only one translation in the x axis failed. The problem has been fixed. [CT-5483]
- Measure free-form curve: SURF edge point measurement: It could occur that, after measuring edge points on an edge curve and then deleting the edge curve and subsequently displaying the element graphics, an exception error message was displayed. The problem has been fixed. [CT-5542]
- Measure free-form curves: Mirrored edge curves: It could occur that no edge points respectively neither start nor end points could be created on mirrored edge curves. The problem has been fixed. [CT-5382]

Processing

- N-Point construction: It partially was not possible to calculate a cone out of the probe points of two cone halves. The problem has been fixed. [CT-5586]

Coordinate system

- 3D Bestfit for optimized coordinate system: The direction for surface points could not be entered anymore in the element selection "Define set point geometry". The problem has been fixed. [CT-5569]

Part inspection programming, DMIS

- Execute PIP: It could occur that the repeated execution of a DMIS program - with many local work pieces coordinate systems - on a SQL server was getting slower and slower. The problem has been fixed. [CT-5454]
- Execute PIP: When executing a part inspection program from label to label, the part inspection program did not stop at the second label anymore. The problem has been fixed. [CT-5605]

DMIS Interpreter (DIP)

- Execute: With start from a start mark, the program started from a wrong position if program code was inserted before the start mark. Even tough the start mark was visually moved down by the inserted

sentences, the program still started from the original line of the start mark. The problem has been fixed. [CT-5600]

- Execute: When a DMIS program was executed with RMEAS/... and the position of the relatively measured elements was output into a DMO file, erroneous nominal values were written into the DMO file. The nominal values were calculated using the relative reference instead of using the nominal values from the program. The problem has been fixed. [CT-5541]

System

- DME Server: It could happen that no error dialog was displayed with a collision when scanning with a rotary table and Quindos. This led to a "Deadlock". The problem has been fixed. [CT-5342]
- DME Server: PcDmis was sending a "Reset error" (ClearAllErrors) to the server at the end of a manual measuring sequence. This "ClearAllErrors" led to the abortion of the retraction of the manual probe point and thus the controller signaled "Probe open". The problem has been fixed. [CT-5530]

Reports

- Export measurement results in DMIS file: The error handling for the DMIS export has been improved. ID/Name are outputted in the error message for missing elements. [CT-5580]
- Export measurement results in DMIS file: When using a SQL database in multi machine mode, the actual values of elements whose name (LABEL) ended with an "underline" (e.g. HHMRD0113_) were assigned to the wrong feature. The problem has been fixed. [CT-5581]
- Export measurement results in DMIS file: It might happen that after executing several DMIS programs the error message "Index out of bound 16380" is displayed because log buffer overflowed. The problem can be avoided with the entry BufferFillMode=1 in the CmWin.ini. [CT-5631]

Data

- Export: VDA geometrical elements: With the VDA export/import of circles, a radius with negative sign represents an inside circle. With the entry VDAExportCircleAbsolute=1 in the CmWin.ini one can now set that the radius is always exported as a positive integer. By doing so, the converter VDAIGS.EXE will always work correctly. [CT-5591]
- IGES converter: Certain IGES data sets could not be converted with the IGES converter. The problem has been fixed. [CT-5482] [CT-5604]

Periphery

- Machine - I++ DME Server: I++ DME Client: "CNC positioning" lead to a deadlock because an invalid I++ DME command was sent to the server and subsequently the error handling did not work properly anymore. The error handling has been improved and the problem fixed. [CT-5489]
- Machine - WPC 2010/2020/2030/2040: If a rotary table was always rotated in the same direction, an overflow could occur in the WPC driver after about 214 rotations when scanning. Thus scan points were not registered anymore by the controller. In order to continue to work, Metrosoft CM had to be terminated and the controller switched off. The problem has been fixed. [CT- 5511]
- Machine - Faro USB arm: Depending on the country settings, errors (date/time format errors) could occur during the import of measuring arm probe systems. The problem has been fixed. [CT-5538]

Release-Notes CM 3.90 SP1

New functions

General

- Metrokey: Time limited Metrokeys are reported as such during the start of Metrosoft CM. [CT-4972]
- Working with big CAD models: More memory (RAM) can be used for converting and loading of big CAD models. 32 Bit applications running under Windows normally can use a maximum of 2 GB RAM. This limit has been increased to 3 GB (Win x86) respectively to 4 GB (Win x64). In order to become effective, at least 4 GB RAM has to be installed and specific settings (LARGE_ADDRESS_AWARE) are necessary in Win x86. No specific settings are required in Win x64. [CT-5404]

Measurement of geometrical elements

- Measure cone: The limit of the opening angle for the measurement of a cone with a scanning probe system has been increased from 150° to 175°, analog to triggered probe systems. [CT-5387]

Reports

- DMIS results output: Report header variables can now be output in a DMO file with a field length that is customized to the variable contents. Place holders are now replaced with the field contents in the report header as long as the report header file has the file extension ".DMO". [CT-5446]

Data

- Import – surface data (CAD): CATIA V5 converter: Files up to version R20 are now supported. [CT-5476]
- Import – surface data (CAD): Unigraphics Konverter: Files up to version NX 7.5 are now supported. [CT-5475]
- Import – surface data (CAD): Solid Edge converter: Files up to version v20 and ST2 are now supported. [CT-5426]
- Import – surface data (CAD): SolidWorks converter: Files up to version 2010 are now supported. [CT-5426]

Machine

- Machine initialization: The dialog during the initialization has been revised in order to reduce the collision risk. [CT-3826]
- Temperature compensation: The work piece temperature compensation has now been integrated into the I++ DME client. The command "C0001 SetProp(Part.XPanCoefficient(11.5))" is now learnable. [CT-5346]

Periphery

- Machine - Faro Laser Tracker: Functions can now be executed with the function buttons on the Faro Laser Tracker even if the focus is set on the graphics window. [CT-5455]
- Rotary table - WPC 2010/2020 Rot: The position of an active (not clamped) rotary table can be changed during error handling (Emergency Off, Probe open, and so on). The option "Rotate rotary table to last position" is now available in the CMM Error dialog. This option rotates the rotary table to the last position and sends the correct angle to the transformation chain. [CT-5461]

CmConfig

- CMConfig: Configure machine: More Wenzel CMM models for the display in the 3D Graphics and the offline programming have been integrated: LH 108 (3000), LH 2015 (4000 & 5000), LH 54 (1000), LHF 3020 (5000 & 6000), RA 3021 -X +Y (6000, previous RA 3021 R), RA 3021 -X -Y (6000, previous RA 3021 L), RS plus 3021 -X +Y (6000, previous RS 3021 R), RS plus 3021 -X -Y (6000, previous RS 3021 L) und Smart (1000). [CT-4761] [CT-5456]

Bugs fixed

3D Graphic window

- Edit: The automatic consideration of the material thickness can be activated in the dialog "Element data [Surface…]". It could occur that the automatic consideration of the material thickness was deactivated after exiting the dialog with OK and reopening it and therefore wasn't considered. The problem has been fixed. [CT-5473]
- Display: The height of cylindrical probes was displayed incorrectly by the value of the disc thickness. The problem was purely visual and has been fixed. [CT-4717]

Measurement of geometrical elements

- Measure surface point: If the measuring mode "Dialog" was selected in the "Definitions for surface point", but during measurement of the surface point the dialog was terminated with ESC and the surface point subsequently measured with the joystick, the probe point was then taught into the PIP with the values of the dialog instead of the values measured with the joystick. The problem has been fixed. [CT-4005]
- Set intermediate point [F4]: If an intermediate point was set on the Renishaw operating panel during programming with REVO, the direction for the rotate/swivel head was not correctly (wrong CS) written into the PIP. This caused the REVO to be positioned in a wrong direction to the work piece when executing the intermediate point. The problem has been fixed. [CT-5388]
- Set intermediate point [F4]: If a RSP3 (SP25) is used on the REVO, each swivel/rotation position has to be calibrated. The 5 axis intermediate points (with direction) were executed with 5 axes with the use of a RPS3 and therefore not calibrated positions were approached. Now only 3 axis intermediate points can be taught with this configuration. [CT-5397]
- Others: When editing intermediate points in a GRIPS distribution in a certain way it could occur that CM froze. The problem has been fixed. [CT-5445]

Measurement of free-form surfaces

- Measure free-form curve: It was possible that probe points got lost when scanning actual curves in the area of sharp edges and probe point numbering in the element graphics was not updated correctly. This led to erroneous alignments, if free-form alignments were executed during the measurement and the element graphics was open during the process. The problem has been fixed. [CT-5408]

Feature determination

- ISO1101/ASME Y14.5: Position tolerance: The actual value for the feature "ISO1101 position tolerance with MMC" was calculated wrong in CM 3.90 if the references were selected in a certain order. The problem has been fixed. [CT-5433]

Part inspection programming, DMIS

- Execute PIP: If an error occurred during the execution of a PIP, for example a collision, it could occur that the probe (PH10) rotated unexpectedly during the error handling. The problem has been fixed. [CT-5432]
- Execute PIP: If in a DMIS Main PIP with 2 carriages two subroutines containing the same carriage definitions were called, it could happen that the second subroutine adopted wrong carriage definitions. The problem has been fixed. [CT-5458]
- Execute PIP: If in a PIP relative circles were measured in an actual surface and thereby intermediate points inserted automatically, it could occur that the machine moved to wrong values. The problem has been fixed. [CT-5459]

- Import PIP from DMIS file [F2]: If a DMIS program that contained the function "Move machine" (DMESW/COMAND,'LEAP,0,FASET(1),FASET(2)') was converted into CM, multiple erroneous program sentences were created. The problem has been fixed. [CT-5462]
- Mirror PIP [F4]: If a PIP with DMIS origin for the left vehicle (-Y) was mirrored in order to use it for the right vehicle side (+Y), the leading sign was not mirrored in the program sentence that created the local PCS with "Primary direction -Y". The problem has been fixed. [CT-5306]

DMIS Interpreter (DIP)

- View: The DIP could freeze when one tried to monitor CHAR variables in the variable window. The problem has been fixed. [CT-5364]
- Execute: With DMIS programs that worked with the unit "Inch" (UNITS/INCH), the values read with the command OBTAIN/FA were written in the unit "Millimeter" (mm) into the output files by error. The problem has been fixed. [CT-5471]

Data

- Data management, SQL Manager: The CM SQL Manger did not work properly on 64-bit operating systems (Windows 7 and Vista). It now works properly as long as it is executed with administrator rights. [CT-5385]
- If the "Microsoft SQL Server 2008 Express Edition" was used the CM SQL Manager could not be started anymore. The error message "SQL Server Manager for Metrosoft CM ERROR! Missing Microsoft SQL Server Objects" was displayed. The problem has been fixed. [CT-5133]
- Data management: Metrosoft CM could freeze or generate an error message when elements were exported into a text file (txt, csv, tab, asc) using [F12]. This was independent on the settings in the control panel (decimal marker and others). The problem has been fixed. [CT-5449]
- Data management: The output format *.csv (Excel) was depending on the region and language settings of the operating system. This could lead to problems in certain cases. The problem has been fixed. [CT-5481]
- Import – surface data (CAD), IGES converter: Certain IGES data sets could not be converted. The problem has been fixed. [CT-5482] [CT-5500] [CT-5411]
- Import – surface data (CAD), Unigraphics: Certain UG NX6 data sets could not be converted. The problem has been solved. [CT-5497]
- Import – surface data (CAD): During the conversion of STEP and ProE model data in inches, the conversion was wrong and the models were displayed too small. The problem has been fixed. [CT-5479]

Machine

- Offline programming: It is possible to also define the angles of the REVO besides X, Y and Z (5 axis positioning) in the dialog "Position machine". The angle positions of the REVO were not updated in the 3D graphics when the machine was in offline mode. The problem has been fixed. [PT-5439]

Probe

- Calibrate probe system: The calibration of a SP25 on a PEM extension did not work properly. The problem has been fixed. [CT-5383]
- Calibrate probe system: If one tried to calibrate a probe system in Metrosoft CM as I++ DME client, it was possible that CM froze after confirming the dialog "This command is not supported". The problem has been fixed. [CT-5447]
- Load probe system: It was possible that TP200 disc probes with long carbon extensions could start vibrating after a probe change on the ACR3, which could lead to the error dialog "Probe open". The problem has been fixed. [CT-4811]

Periphery

- Machine - I++ DME Server: The rotary table is handled by the server in I++ DME. This means its alignment and calculation are handled by the I++ DME server. If consequently CMM and rotary table were initialized in Metrosoft CM, an undesired rotary table angle was in the CM transformation chain which could lead to errors in the calculation of positioning commands and measuring points. The problem has been fixed. [CT-5428]
- Machine - I++ DME Server: When measuring a cone in GRIPS, the probing vector was adopted correctly into the PIP. However, when the PIP was executed, the probing vector was rotated which lead to a collision during the cone measurement. The problem has been fixed. [CT-5431]
- Machine - Faro Laser Tracker: It was not possible to measure any leading points with the new remote control (Link, previously Gyrotools). The problem has been fixed. [CT-5453]

Release-Notes CM 3.90

New Functions

General

- Quick Selection Table: It is now possible to activate the function "Select measurement" in the tab "Parameter" when configuring a button on the quick selection table. This function allows to select the measurement in which the part inspection program is to be executed before executing the part inspection program via the quick selection table. [CT-3330]

3D Graphic window

- View: Now the mouse wheel can be used to zoom in the 3D graphics. [CT-1996]
- View: The function "Zoom – Window" can now be activated by pressing the right and left mouse button simultaneously.[CT-4992]
- Edit: It is now possible to invert the surface direction of CAD models that were converted with the option "Convert surface orientation". In order to do so, one or several surfaces of the CAD model have to be selected in the 3D graphics and then be inverted using the function "Invert surface orientation" in the menu "Edit". [CT-4718] [CT-5055]
- Display: The metrological relevant data contained in the CAD model (dimensioning with tolerances, refernces and general drawing notes) from CATIA V5 files are directly displayed after the conversion in the 3D graphics. This PMI (Product Manufacturing Information) data are placed as CAD objects (lines and text) on their own layer. The layer names correspond with the views defined in the CATIA V5 model. [CT-2545]
- Display: Surface backsides of CAD models that were converted with the option "Convert surface orientation" are now colored with an individual color in the 3D graphics. The color can be adjusted in the 3D graphics settings" under "Color definition". [CT-4950]

Measurement of geometrical elements

- Measure Circle/Cylinder: It is now possible to measure a circle on a cone or sphere surface. The deviation that is caused due to the non cylindrical surface and the pullout of the measuring probe system from the circle plane, is mathematically corrected. Thus it is possible to evaluate the roundness of cones and spheres. [CT-5273]
- Measure sphere: With the scanning of a sphere, the locked probing area has been reduced from 60° to new 5°. Thus circular paths can be defined closer to the pole, independently from scan method known or unknown. With scan method unknown the controller limit for the probing area is about 30°. The controller is not able to lead the CMM unknown on a circular path towards the pole with smaller angles. [CT-5358]

Measurement of free-form surfaces

- Measure free-form surface: It is now possible to activate the option" Consider surface orientation (inside/outside) with surface selection" in the "Specifications for measuring free-form surfaces". Only those surfaces are taken into consideration as possible nominal surfaces that come into question due to the probing direction. This is helpful, especially with the measurement of sheet metal parts that are available as Solid CAD models. The points are automatically projected onto the correct side of the model depending on their probing direction. [CT-4723]

Feature determination

- Min Max feature: It is now possible to calculate and output the minimal (Min) or maximal (Max) value from a list of elements and features. The created feature is then saved as a new Min Max feature. [CT-4766] [CT-5018]

Coordinate system

- Other: When creating a pallet or rotary table coordinate system, the date and time of the saving is stored in the data base. Date and time are also displayed in the "Load coordinate system" dialog and the info window (hint) when the mouse is moved over the PLCS/RCS number in the user interface. [CT-3135]
- 3D Bestfit for optimized CS: It is now possible to use elements measured with Phoenix in the function "3D Bestfit for optimized CS". As these elements do not contain any points, the parameters are used for the Bestfit. [CT-4888]
- 3D Bestfit for optimized CS: It is now possible to use parameters instead of probe points for the calculation in the function "3D Bestfit for optimized CS". One can select if the element is to be reduced to a point or a plane. [CT-5291]

Part inspection programming, DMIS

- Call PIP as subroutine: It is now possible to select multiple subroutines in the dialog "Call PIP as subroutine". These subroutines can be sorted in the dialog and then be taught in a single step into the main program. Thus one does not to have to open this dialog for each individual subroutine. [CT-4595]
- Export PIP to DMIS file [F3]: The export to a DMIS file has been optimized. [CT-4500] [CT-4642]

DMIS Interpreter (DIP)

- Execute: F() = FEAT/CPARLN,... for the measurement of rectangle and slot is supported. The measured element is not created by construction but using the Gaussian compensation calculation for rectangle/slot. [CT-1540]
- Execute: RMEAS/...VECBLD,... for the measurement of surface points (POINT), circle (CIRCLE), arc (ARC), sphere (SPHERE) and rectangle/slot (CPARLN) relatively to a reference element which is measured automatically before the measurement (VECBLD) is now supported. The measured reference element is only active during the element measurement and is not saved into the database. [CT-4940] [CT-4111] [CT-4941] [CT-4942] [CT-4943]
- Execute: PTMEAS and GOTO are now approached relatively in RMEAS/CIRCLE. [CT-4995]
- Execute: Measuring window (WINDEF) and exposure time (LITDEF) are now learned if a DMIS program is programmed directly in the DMIS interpreter with the Phoenix sensor. [CT-4868] [CT-4923]
- Execute: Now D()=LOCATE/... for the creation of coordinate systems using Bestfit is supported. [CT-4112] [CT-4926] [CT-5064]
- Execute: Now MA()=MATDEF/... for the definition how the elements are handled in LOCATE is supported. [CT-5064]
- Execute: Now global variables for the exchange of values between the individual carriages in multi machine mode are supported. [CT-930]
- Execute: The value assignment of variables in DMIS programs with iterative alignment in the MMB has been optimized. [CT-5256]
- Execute with parameter modification: It is now possible to edit/adjust the measuring window (WINDEF) and the exposure time (LITDEF) in Phoenix DMIS programs when executing with parameter modification. [CT-4894]

System

- User: It is now possible to enter a operator initial that consist out of maximal 10 characters (previously 6). [CT-2990]
- DME Mode (Server): I++ DME Server: The interface has been enhanced for double carriage machines with rotary tablet. [CT-4933]
- DME Mode (Server): I++ DME Server: Calibration programs can now be started from a Client. [CT-4934]
- DME Server: The version 1.7 is now supported additionally to the I++ DME versions 1.4, 1.4.1, 1.4.2, 1.4.3, 1.5 and 1.6. [CT-5004]

Data

- Import/Export - VDA files: Path and file name of a VDA file for the export and import can be as long as 260 characters (previously 80 characters). [CT-1981] [CT-5096]
- Import – Surface data (CAD): With the conversion of assemblies in the ProEngineer format (*.ASM) or in the CATIA V5 format (*.CATProduct), the single parts (*.PRT, *.CATPart) are converted as individual ACIS files (SAB, SAT). These files are combined automatically as assembly in a nominal element. The individual parts can be displayed or hided in the graphics via the layer management. The layer structure of the parts remains. [CT-4792] [CT-3771]
- Import – Surface data (CAD): It is now possible to convert inside/outside information of surfaces with the option "Convert surface orientation". The orientation of the surfaces is displayed in the 3 D graphics and can be taken into consideration for the nominal point calculation during the free-form surface. This is helpful, especially with the measurement of sheet metal parts that are available as Solid CAD models. [CT-4949] [CT-5055]
- Import – Surface data (CAD): New CAD converter for SolidWorks format versions 1999-2009. [CT-3180]
- Import – Surface data (CAD): New CAD converter for Solid Edge format up to version v20. [CT-4899]
- Import – Surface data (CAD): ProEngineer format is supported up to WildFire4. [CT-5117] [CT-5118]
- Import – Surface data (CAD): ACIS format is now supported up to version 20. [CT-5250] [CT-4967]
- Export - Q-DAS: The K-field list has been extended with K0014 and K0017. [CT-5293]

Machine

- Machine settings: The machine now also moves relatively to the last measured point to the retraction distance with a scanning probe system, just the way it has been introduced in Metrosoft CM 3.70 with triggered probe systems. Until now, the machine moved to the retraction distance relatively to the last taught end point in the PIP with scanning probe systems. This could sometimes lead to collisions (retraction distance smaller than assembly part deviation). In order to use this functionality, the WPC firmware version >= 25.21 is required. [CT-3633] [CT-4160]

Probe

- Other: The SP25 module SM25-5 and the corresponding SH25-5 from Renishaw can be used now. This module allows the use of longer start probes. [CT-5122]
- Load probe system: When loading a probe system with an active PHS probe head, it is now possible, to select if the probe position is to be kept or if a desired position is to be swiveled to. This can be helpful for example, if different styli of a star probe are saved under individual probe system numbers. [CT-3754]
- Load probe system: The mode "AUTO on" is not automatically activated by default when an optical probe system is loaded. [CT-5242]

- Probe change: After a probe has been deposited into a slot during a probe change with SCP80, the machine does not move back to the leading point but moves directly to the next slot. Thus the time needed for the changing procedure is minimized. In order to avoid collisions, traverse paths have to be used between the changers. [CT-4675]

Periphery

- Faro Laser Tracker: The Faro Laser Tracker is now integrated into Metrosoft CM. [CT-4473]
- I++ DME Server: (CM as I++ DME Client): The version 1.7 is now supported additionally to the I++ DME versions 1.4, 1.4.1, 1.4.2, 1.4.3, 1.5 and 1.6. [CT-5005]
- I++ DME Server: (CM as I++ DME Client): The special BMW / Hexagon I++ DME Server is supported. Therewith it is possible to load probe systems using their numbers (I++ DME usually uses the names of the probe systems). [CT-5151]
- WPC2040: It is now possible to use the WPC2040 controller in compatibility mode with existing communication protocol (RS232). [CT-4079]
- Probe type – Self centering probe: It is now possible to measure the deepest point in a center hole (3D) or in a V groove or gearing with centering plane (2D) with a scanning probe system (probe type "Self centering"). In order to use the self centering measurement, the probe type has to be activated in CmConfig and the WPC firmware version >= 25.47 has to be installed on the WPC controller. [CT-615]
- Phoenix Sensor: The new Phoenix Server IV has been integrated and is required in order to use the Phoenix sensor with Metrosoft CM 3.90. [CT-5192]
- Phoenix Sensor: The Phoenix sensor calibration has been optimized. [CT-4869]
- Phoenix Sensor: A sand glass is displayed during the element calculation, the dialog is locked for user input and the results are hidden out until the new results are available. [CT-4994]
- Phoenix Sensor: It is now possible to save the image raw data of the Phoenix sensor (6 single images). The image raw data can be used for remote error analysis. [CT-5180]
- Phoenix Sensor: The threaded hole and slot measurement has been optimized. [CT-5182] [CT-5085]
- Phoenix Sensor: Surface points that were taught with the Phoenix sensor have now a direction in the PIP. For this reason the surface points taught with Phoenix can now also be executed with triggered probes. [CT-5249]
- Phoenix Sensor: An element can now be re-measured manually if it could not be measured during the program execution. Therefore the option "Repeat element – manually" has been unlocked in the error dialog. [CT-5001]
- Phoenix: The offline programming and the execution with parameter modification for the Phoenix sensor has been optimized. [CT-4903] [CT-5084] [CT-5177] [CT-5181] [CT-5223]
- Metris Arm: The Metris measuring arm (former Garda Arm) is now connected with a MCA interface to Metrosoft CM. [CT-4997]
- Romer-CimCoreWinRDS: The Romer-CimCore measuring arm can now be used with a TP20 probe system under WinRDS 5.1. (CT-5198)

Installation

- CMConfig: Configure machine: Additional CMM model for the display in the 3D graphics and offline programming has been integrated: LH 108 (2500). [CT-5322]

Release-Notes CM 3.80 SP4

New Functions

System

- Country settings: The dialog and report language "Slovak" is available. [CT-5406]

Data

- Import – Surface data (CAD): Unigraphics / Parasolid converter: Files up to version NX7 (Unigraphics) and version 22 (Parasolid) are now supported. [CT-5414]

Bugs fixed

General

- Quick selection table: It could occur that the DIP window was not opened when starting a DMIS program via the quick selection table. The problem has been fixed. [CT-5363]

Measurement of free-form surfaces

- Measure free-form surface: It could occur that the width of a slot became negative when the slot was measured as geometrical element and then was imported into a free-form surface in a PIP. The problem has been fixed. [CT-5298]
- Measure free-form curve: It could occur that on mirrored edge curves the probing vectors of an actual curve were inverted The problem has been fixed. [CT-5369]
- Measure free-form curve: After changing a CAD model (replaced with a new name in the nominal element due to new revision) problems during the execution of the PIP occurred. Points were projected onto wrong curves or surface points became curve points. Reason was that the intersection curves in the SAX file were no more matching the CAD Model. The problem has been fixed. [CT-5371]
- Measure free-form curve: If an actual curve was measured with a too small search distance (probe point is farther away than the search distance), the clicked or taught curve was not found. The point was projected onto the nearest curve. If this was a free curve, curve points instead of surface points were created. The problem has been fixed. [CT-5376]

Processing

- Create connection element out of several elements: It could occur that maximum inscribed circles were incorrectly calculated. The problem has been fixed. [CT-5187]

Coordinate systems

- Determine secondary direction of CS: It could occur that Metrosoft CM froze without error message if an unfavorable element or an element missing in the database was used. Now a corresponding dialog is displayed. [CT-4847] [CT-5336]

Part inspection programming, DMIS

- Execute PIP: In manual sections of the PIP (CNC off) it could occur that the CMM switched to Scan mode and started moving. The problem has been fixed. [CT-5435]
- Execute PIP: CMM error (e.g. collision) that occurred during the definition of new CMM parameters were not displayed anymore. Metrosoft CM froze. The problem has been fixed. [CT-5325]
- Execute PIP as subroutine: In Metrosoft CM 3.80 SP3 it could occur that not all DMO files were created when DMIS programs were called as subroutines in a PIP. The problem has been fixed. [CT-5366]
- Loop within PIP: A loop with the option "Increase measurement" always jumped to the first line regardless of the taught jump mark or line number. The problem only occurred with CM 3.80 SP3 installed from the installation CD. The problem has been fixed. [CT-5355]

DMIS Interpreter (DIP)

- Execute: The CM PIP command "DMESW/COMAND,'BRANCH,0,START1,2"' could not be executed in the DMIS interpreter. The error message "Jump mark not found" was displayed. The problem has been fixed. [CT-5339]

- Execute: It could occur that the command "OPEN/DID()" did not work properly with DMIS programs. The problem has been fixed. [CT-5423]
- Execute: It could sporadically occur that Metrosoft CM froze during the execution of DMIS programs and had to be restarted. The problem has been fixed. [CT-5425]

System

- DME Modus (Server): I++ DME Server: If the I++ DME command "GoTo(Tool.Alignment(0, 0, 1))" was used on a CMM with PHS and Metrolog as I++ DME client, an error message was displayed. The problem has been fixed. [CT-5368]
- DME Modus (Server): I++ DME Server: It could occur that the machine settings were not properly set (synchronized) with Metrolog as I++ DME client. The problem has been fixed. [CT-5380]
- DME Modus (Server): I++ DME Server: If predefined probe systems of I++ DME (e.g. RefTool) were used with MCosmos as I++ DME client, the handling of these probe system did not work correctly in Metrosoft CM. The problem has been fixed. [CT-5412]

Data

- Data management: Copy to, Copy from: The error message "Database error, CopyError" was displayed in Metrosoft CM when copying between two SQL databases if the database paths included identical computer names. The problem has been fixed [CT-5370]
- Export – DMIS results: It could occur that (FA) data from the wrong element were written into the DMO file if several elements existed with the same name. The problem has been fixed. [CT-5299]
- Import – Surface data (CAD): IGES converter: It could occur that surfaces in the group 308 were converted twice or not at all. The problem has been fixed. [CT-5268]
- Import – Surface data (CAD): Unigraphics converter: It could occur that individual surfaces were converted with an incorrect faceting. The problem has been fixed. [CT-5413]
- Converter – Surface data: CATIAV5 converter: It could occur that individual surfaces were converted with a displacement. The problem has been fixed. [CT-5374]

Probe

- Calibrate probe system: Probe systems on PHS systems that had been calibrated on the master reference sphere (X0/Y0/Z0) could be assigned to an incorrect origin if during the start of Metrosoft CM a relocated reference sphere was loaded and then one switched to the Master reference sphere. Existing pallet coordinate system became unusable due to the incorrect origin. The problem has been fixed. [CT-5321]

Special

- External in-/output: CM-IO: The sequence control of a PIP via jumps that are controlled by external inputs was erroneous. It could occur that a command that directly follows was executed before the jump. The problem has been fixed. [CT-4660]

Release-Notes CM 3.80 SP3

New functions

General

- Quick selection table: The function "Cancel batch mode" is now also available for user level 4. [PT-5123]

DMIS Interpreter (DIP)

- Execute: The syntax check has been quickened and a progress bar was integrated. [PT-5155] [PT-5156]

System

- Country settings: The dialog and report language "Japanese" is available again. Japanese has been revised and integrated again. [PT-5185]
- Country settings: The Polish help has been updated. [PT-4697]

Data

- Import – Surface data (CAD): CATIA V5 Converter: Files up to version R19 are supported now. [PT-5092]

Machine

- Machine settings: The diagnosis tool for the Faro USB arm can be called via the tab "Measuring arm". [PT-5141] [PT-5184]

Periphery

- Probe type - Phoenix: If a measurement with the Phoenix sensor fails (CantFitFeature) it is automatically repeated. [PT-5142]

Installation

- CMConfig: Configure Machine. Additional CMM model for the display in the 3D Graphics and the offline programming has been integrated: LH 65 (2000). [PT-5269]

Bugs fixed

General

- Element functions: The function "Display/edit element number and designation" could not be called up directly after the calibration of a probe system. The problem has been fixed. [PT-4687]

Measurement of geometrical elements

- Measure plane: The intermediate points of scanning paths were calculated wrong when the active WCS did not correspond with the model CS. The problem has been fixed. [PT-5006]

Measurement of free-form surfaces

- Measure free-form surface: It could occur that Metrosoft CM 3.80 SP2 crashed as soon as CAD points were selected using Click'n'Measure with mouse drag (rubber band) and edge points were among the selected CAD points. The problem has been fixed.. [PT-5144]
- Import surface data: CATIA V5 converter: It was possible that after the conversion of CATIA V5 files surfaces were located at wrong (moved) positions or were missing. The problems have been fixed. [PT-5189] [PT-5261]
- Import surface data: IGES converter: It was possible that after the conversion of IGES files surfaces were missing. The problem has been fixed. [PT-5220]
- Adopt element in free-form element: The deviation vector of the point was not drawn into the 3D graphics with the correct direction. The vector was pointing in normal direction of the imported element and not in the direction of the deviation. The problem has been fixed. [PT-5221]
- Adopt element in free-form element: The diameter of a circle imported into an actual surface was not adopted with the execution of a PIP. Thus the diameter of the circle with which the import had been taught was always reported. The problem has been fixed. [PT-5112]

Feature determination

- ISO1101/ ASME Y14.5: Symmetry tolerance: It could occur that the actual values was output as "Nan" with the evaluation of a symmetry tolerance of a defined CS. The problem has been fixed. [PT-5199]

Coordinate system

- Load new CS from database: The element numbers which were used for the determination of the primary and secondary direction as well as for the origin were not refreshed in the dialog when a CS was selected. The problem has been fixed. [PT-4708]

Reports

- Prefix in numerical reports: The prefix for diameter and radius were output wrong in the numerical report in Korean. The problem has been fixed. The prefixes are now integrated into the language resources and therefore can be defined individual for any language. [PT-5236]
- Export measuring results in DMIS file: Since CM 3.80 no FA() were output with a "subsequent" DMO export. The problem has been fixed. [PT-5115]

Part inspection programming, DMIS

- Load PIP via click in status line: If the display in output window 2 was not set to "Part inspection program", an empty status window was displayed when clicking on the PIP number in the status window. The problem has been fixed. [PT-5163]

- Execute PIP with parameter modification: One has the option to take over the current CMM position in the dialog when executing with parameter modification on an intermediate point. If this function was used offline with GRIPS, wrong coordinates ware taken over. The problem has been fixed. [PT-4435]

DMIS Interpreter (DIP)

- The DMIS command xx=VALUE/TA(),DEV returned with a positive deviation 0.000. With a negative deviation the correct value was returned (negative deviation). The problem has been fixed. [PT-5127]
- It could occur that, with the execution of DMIS programs which read and write files, the DIP crashed and CM froze without any error message. The problem has been fixed. [PT-5152]
- With enabled terminal output (DISPLY/TERM,..) characteristics from the slave carriage were missing in the DMO file. The DMO was not merged. The problem has been fixed. [PT-5157]
- With coordinate system functions it could occur that the message "Coordinate system cannot be determined, Element is missing in database" was displayed even tough the element was. The mapping from name to number has been revised and the problem has been fixed. [PT-5158]
- The syntax check displays now an error if the same jump label is defined more than once. [PT-5164]
- The DMIS command "CALIB/SENS,S(probe system),FA(reference sphere),'RCALIB/..." was executed without having loaded the defined reference sphere. The problem has been fixed. [PT-5173]
- Wrong values were assigned to variables in a double carriage alignment program. The problem has been fixed. PT-5193]
- It could occur in double carriage DMIS programs that instead of FA(), F() was output for the distances in the DMO file. The problem has been fixed. [PT-4524]

System

- DME mode (Server): I++ DME server: Problems with the memory management could occur when Metrosoft CM was in use for a long period (>24h) without a restart. The error message "ShareAlloc(xxx): out of Memory" was displayed. The problem has been fixed. [PT-5172]
- Country settings: Japanese: Wrong characters and symbols were displayed even tough using a Japanese Windows XP. The problem has been fixed. [PT-5185]

Data

- Data management, SQL Manager: During the connection establishment between Metrosoft CM and a SQL server timeout errors occurred increasingly. This was leading to a crash of the SQL manager or to a connection error message. Now the default value of 60 seconds defined by Microsoft is used. The value can be adjusted in the CmWini.ini file. [PT-5200]
- Export – VDA geometrical elements: If a PIP containing a VDA export was created and the option TMAT was selected, the TMAT was output correctly into the export file. If CM was terminated and started again, TMAT was not output anymore when the program was executed. The problem has been fixed. [PT-5203]

Machine

- Offline programming: The virtual joystick did not work on machines with WPC2000 controller. The problem has been fixed. [PT-4707]

Probe

- Calibrate probe system: Scanning probe systems: Certain probe positions (stylus directions) could not be calibrated without collision. The problem has been fixed. [PT-4782]

- Calibrate probe system with PIP: It was possible that, after a restart of Metrosoft CM, during the execution of a calibration program that had been taught relative to the reference sphere a collision with the reference sphere occurred. The problem has been fixed. [PT-4743]
- Calibrate probe system with DMIS program: It was possible that the changer data was saved faultily to the probe system when a calibration program was executed in the DIP. The problem has been fixed. [PT-1282]

Output

- Report settings: If the geometrical graphics was opened on the second monitor and characteristics were created without an existing path for the configured report file, a crash occurred. The error dialog "Cannot create report file" was not displayed and CM froze. The problem has been fixed. [PT-5082]

Periphery

- Probe Head - Renishaw PHS: The deflection compensation with the manual calibration of individual positions (not using a PIP) has been optimized. [PT-5048]
- Probe Head - Renishaw PHS: The deflection compensation with the use of start probes has been optimized. [PT-5140]

Release-Notes CM 3.80 SP2

New functions

Reports

- Define report line: Additional informative data for features can now be disabled in the report via the setting "infodata=0" in the section "[Special]. This concerns e.g. the nominal and actual position (vector components X, Y, Z) with the "ISO1101/ASME Position" and the "Position of a surface point". [PT-1429] [PT-4931]
- Print out report header: The button "keep" for non taught variables, which was introduced in CM 3.80, is hidden again by default. It can be displayed with the entry
  [output]
  ShowExtraColum=1
  in the CmWin.ini. [PT-4912]
- Text protocol: Display tolerance utilization: With features that are only a little bit out of tolerance and have a rounded deviation of 100%, the deviation graphics (-----.-----*) was displayed in the column "Tolerance utilization" instead of the numerical deviation value (outside of tolerance). The problem has been fixed. [PT-5069] [PT-5088]

DMIS Interpreter (DIP)

- DMIS Settings, DMIS Results Export: One now can define if the corresponding DMIS command RECALL/DA and RECALL/D should be output with a change of the coordinate system. [PT-4900]
- RMEAS/POINT for the relative measurement of surface points is now supported. [PT-1542]

System

- Country settings: Help and Manual for "Simplified Chinese" integrated (Manual only if installed from CD). [CT-4104]

Data

- Import – Surface Data (CAD): Unigraphics Converter: Now formats up to version NX6 are supported. [PT-5009]
- Import – Surface Data (CAD): INS (Inspection Control List) Converter: Now 14 instead of 10 characters of the element name are imported. Therefore the code for the measurement strategy is recognizable in the name. [PT-4845]

Machine

- CAA Compensation: Now also reversal errors can be compensated. In order to do so, a new mmcaa32.dll was integrated. [PT-5079]

Installation

- CMConfig: Configure Machine. Additional CMM models for the display in the 3D Graphics and the offline programming have been integrated:
  LH 54 (600), LH 1010 (2000), LH 1210 (2500), LH 1512 (4000). [PT-5050]

Bugs fixed

3D Graphic window

- Edit: Position work piece: It could occur that the positioning of a work piece got lost in CM 3.80 SP1. The problem has been fixed. [PT-4891] [PT-4913]
- Edit: Mirror: If a .sax file was mirrored in CM 3.80, the direction of the auxiliary points was not mirrored anymore. The problem has been fixed. [PT-5044]
- Display: Layer: It could occur that the layer status (On/Off) was not saved and restored correctly in CM 3.80 SP1. The problem has been fixed. [PT-4917]

Measurement of free-form surfaces

- Measure free-form surface: Measure AUTO actual surface: With the creation of an UV distribution on a CATIA V5 (CATPArt) data file which was converted by CM 3.80, it could occur that after the selection of the surface(s) and the release of the distribution function a CM error message was displayed at once. If the message was confirmed several further error messages appeared and CM froze. The problem has been fixed .[PT-4890]
- Measure free-form curve: Under certain circumstances it could occur that the points were not projected onto the curve during the execution of a PIP. The reference to the curve was lost temporarily. The problem has been fixed. [PT-4915]
- Measure unknown curve: With the calculation of a curve out of measured point with very small point distances, loops still could occur and the calculation took very long. The curve calculation has been improved. [PT-4948]
- Load new coordinate system out of the database with the option "Keep nominal points": If a coordinate system with the option "Keep nominal points" was loaded into an actual surface, the probe points were recalculated wrongly which led to a deviation in the area of the probe radius. The problem has been fixed. [PT-4904]

Processing

- Create a construction element using several elements: The button "Connect curves for graphical representation" is visible again with the linkage of actual curves. Since CM 3.70 the button was displayed by mistake with the construction of BAFF curves. [PT-5090]

Feature determination

- Position of a surface point: If the feature was used for points of an actual surface which were imported previously using the function "Adopt element into actual surface" with the option "Enter nominal values" / "Measured points", all deviations were positive since CM 3.80. The import points did not have any negative deviations anymore. The problem has been fixed. [PT-5038]

Reports

- Load protocol header: The file name of the currently used protocol header is now displayed again in the input field. This applies also with Execute part inspection program with parameter modification. [PT-4954]
- Print out report header: When the report header variables are saved, the file extension .dat is added automatically to the entered file name in case the user did not enter it. [PT-5089]
- Under certain circumstances it could occur that in the first feature the range of the element from the previous measurement was printed out. The problem has been fixed. [PT-4998]

- Export measurement results in DMIS file: If a relative point was evaluated using the feature "Position of a surface point", it was outputted as FEAT/bb instead of FEAT/POINT into the DMO file. The problem has been fixed. [PT-4748]

Part inspection programming, DMIS

- Execute scan PIP: During the execution of a part inspection program in CM 3.80, the error messages "Insufficient points! Element cannot be saved" or "Not enough probe points, regression calculation not possible" were displayed while scanning geometrical elements. The error messages appeared before the scan of the element was started. The problem has been fixed. [PT-4826]
- Execute scan PIP: During the execution of a part inspection program in CM 3.80 it could occur that curve elements were skipped. The CMM moved directly to the next intermediate point without scanning the curve which often led to a collision. The problem has been fixed. [PT-4897]

DMIS Interpreter (DIP)

- Execution: PTMEAS and GOTO were not approached relatively in RMEAS/CIRCLE. The problem has been fixed. [PT-4995]

System

- DME Mode (Server): I++ DME Server: Rotary tables were not automatically initialized with the machine but only after the confirmation of a CM (I++ DME Server) dialog. The problem has been fixed. [PT-5000]
- DME Mode (Server): I++ DME Server: MCosmos (Mitutoyo) queries the machine settings in a special way (via BaseTool). In doing so wrong machine settings were sent to the client. The problem has been fixed. [PT-5011]
- DME Mode (Server): I++ DME Server: After the reception of a manual probe point, PcDmis sent immediately a "Joystick ON" to the server. Therefore the retraction was aborted and the message "Probe open" was displayed from the controller. The problem has been fixed. [PT-5071]

Data

- Data management, SQL databases: If SQL databases were created or converted, no indexing was carried out. Therefore features were created very slowly. The problem has been fixed. Newly created SQL databases are indexed automatically. Older database will be indexed during the conversion. [PT-4886]
- Import – Surface Data (CAD): VDA Converter: It could occur that the layers were not converted correctly with the import of a VDA data file which was created using CATIA V4 and then had been exported into the VDA format. The problem has been fixed. [PT-4991]
- Import – Surface Data (CAD): IGES Converter: Some IGES data files could not be converted correctly with CM 3.80 SP1. For example, trimmed surfaces were displayed untrimmed. The problem has been fixed. [PT-4911] [PT-5060]
- Import – Surface Data (CAD): CATIA V4 Converter: It could occur that surfaces were lost with the import of CATIA V4 files. The problem has been fixed. [PT-4356]
- Import – Surface Data (CAD): CATIA V5 Converter: It could occur that surfaces were missing or displayed too small with the import of CATIA V5 files. The problem has been fixed. [PT-4898]
- Import – Surface Data (CAD): Unigraphics Converter: It could occur that too many and duplicated curves were converted with the import of Unigraphics files which contained several drawings. The problem has been fixed. [PT-5014]

Machine

- Joystick direction: If the option "Automatic update when changing coordinate system" was activated with older drivers (WPC2010, Metrocon S, Metrocount 3, etc.) in the joystick direction settings, an error message "Exception from CMMCMAIN_47" could occur. The problem has been fixed. [PT-4821]
- Move work piece: A work piece could only be moved once. If the function was executed a second time in order to move the work piece again, the first movement was not taken into account. Therefore the coordinates of the elements measured thereafter were not calculated correctly. The problem has been fixed. [PT-5024]

Periphery

- Machine – Zeiss CMM-OS: Probe systems could not be imported into Metrosoft CM due to a wrong time format in CMM-OS. As a short term correction in CMM-OS was not possible, the import of probe systems in Metrosoft CM has been modified to be more error-tolerant. [PT-4862]
- Machine – WPC 2020/2030: With the new driver (FW>= 23.26) no sound was played if a collision occurred. Now the Windows sound "Critical Stop" is played independently from the WPC driver version. [PT-5076]
-

Release-Notes CM 3.80 SP1

New functions

DMIS Interpreter (DIP)

- DMIS syntax expansion: Repeating loops with DO / ENDDO within a MEAS / ENDMES block are allowed. Due to this expansion flexible point distributions, e.g. within a circle, are possible. [PT-4837]

Data

- Import – Surface data (CAD): CATIA V5: Formats up to version R18 are now supported. [PT-4762]

Installation

- CMConfig: Configure measuring machine: New CMM model for the display in the 3D graphics and the offline programming integrated: LH65 (1200)
-

Bugs Fixed

General

- Help: Display table of contents [F1]: If the help was called while a GRIPS dialog was open, an error message was displayed and the help window could not be opened. The problem has been fixed. [PT-4817]

3D Graphic window

- Other: If a probe system with a probe radius < 0.000 was loaded while the 3D graphics was displayed, an error message "Fatal exception error of the server". The problem has been fixed. [PT-4784]
- Display: If during the automatic setting of a rotation point (center graphics window) no surface was found, a jerky displacement (jumping) of the model occurred. The same effect could also be observed during the creation of a graphical report, if a point/characteristic box was inserted afterwards and the rotation point was located on a gap of the model instead on a surface. The problem has been fixed. [PT-4740]
- Display: It could occur on carriage machines that the PHS with Phoenix sensor was displayed incorrectly in the 3D graphics. The assembly direction on the quill did not match even tough the settings in CmConfig were correct. Therefore the Phoenix measuring window was not displayed correctly either. The problems have been fixed. [PT-4834, PT-4838, PT-4839]
- Report: If a CM 3.70 database was converted up to CM 3.80 and then a PIP with graphical report was executed, the coordinate cross was not displayed on the report. The problem has been fixed. [PT-4747]
- Report: Under certain circumstances an Exception EInvalidOp in module CMMPTDLL.DL could occur during the execution with parameter modification of a graphical report. The problem has been fixed. [PT-4806]

Measurement of free-form surfaces

- Measure unknown curve: It was possible that during the calculation of the curve out of the measured points loops were created. The curve calculation has been optimized. [PT-4808]
- Measure free-form surface: After the update to CM 3.80 it could occur that clicked points in Click'n'Measure were not set on the model or the surface but wide above or below of the clicked surface. Therefore it was not possible to measure them. The problem has been fixed. [PT-4825]
- Measure free-form surface: After the update to CM 3.80 the clicked CAD points in Click'n'Measure were not colorized anymore. Therefore it was not clearly visible if the CAD point was hit. The problem has been fixed. [PT-4798]
- Measure free-form surface: Measure AUTO actual surface: A Runtime Error in CmSurf could occur during the UV-distribution on certain surfaces. The problem has been fixed. [PT-4851]

Coordinate systems

- Define CS out of several points: If an element "surface point projection", which was created by a DMIS program, was selected, the first point of the surface point was automatically adopted as suggestion into the dialog. As a surface point projection does not have any probe points, incorrect values were inserted into the fields X, Y, Z. The problem has been fixed. [PT-4756]

Feature determination

- ISO1101 / ASME Y14.5: Profile of any line/surface: With asymmetrical surface tolerance the entered tolerance is not output correctly in several modules, e.g. in the database, in the statistics, with Q-DAS export. The problem has been fixed. [PT-4855]

Part inspection programming, DMIS

- Execute PIP: It could occur, that during the learning and executing of a PIP, the display of the current sentence numbers was not refreshed anymore. The problem has been fixed. [PT-4807]
- Execute PIP: EOdbcQuery Exception with the use of a Microsoft SQL Server database due to values, which were smaller than 1E-308. The problem has been fixed.. [PT-4858]

DMIS Interpreter (DIP)

- Execute: If the distance has been extracted out of the distance feature with OBTAIN, the distance of the X axis has always been output even tough the feature was marked with YAXIS. The distance out of Y and Z could not be adopted with OBTAIN. The feature itself was correct. The problem has been fixed. [PT-4820]
- Execute: The input dialog for the values of the variables is not displayed during the output of inspection report headers with variables. The problem has been fixed. [PT-4824]

System

- DME mode (Server): I++ DME Server: If a probe system change failed (with multi probe changer) an error dialog was displayed which informed the user that something failed. The I++ DME Server reported a successful probe system change to the I++ DME Client. This inevitably led to collisions. The problem has been fixed.
  If a probe system change fails now, a DirtyFlag (*) next to the probe system number is displayed. [PT-4577]
- DME mode (Server): I++ DME Server: If a probe system is loaded using the I++ DME interface, the associated machine settings are activated. It could occur that some probe system had saved void values and the settings in CM were set to 0 provided that the values were stored with wrong decimal separator (, instead of .) in the database. The problem has been fixed. [PT-4633]
- DME mode (Server): I++ DME Server: The menu entry "Probe system calibration settings" was not activated in the I++ DME Server via the module CM-DME-SERVER. Therefore it was not possible, while using a scanning probe system, to switch between new calibration and re-calibration with a "regular" customer key. The problem has been fixed. PT-4672]
- DME mode (Server): I++ DME Server: The function "Display/modify all selected datasets" [F5] was not activated in the I++ DME Server via the module CM-DME-SERVER. Therefore it was not possible to change the name of the probe system with "regular" customer keys. The problem has been fixed. [PT 4673]
- DME mode (Server): I++ DME Server: If a 4 axis move (XYZR) or a probe system change (with probe changer) was executed after a scan via I++ DME, a collision could occur. The problem has been fixed. [PT-4781]
- DME mode (Server): I++ DME Server: If the I++ DME Client sent scanning commands with an I++ DME tag larger than 2047, Metrosoft CM did not send anymore scanning points to the I++ DME Client. The problem has been fixed. [PT-4788]
- DME mode (Server): I++ DME Server: According to the I++ DME specification, tags between 1 and 99999 are allowed. The Metrosoft CM I++ DME Server displayed an error message as soon as a tag was larger than 9999. The problem has been fixed. [PT-4799]

Data

- Data management: Copy to, copy from: During copying a PIP, the synchronized data linkage pointing to CAD models (reassignments) got lost due to the copying of the nominal element at the same time. The problem has been fixed. [PT-4794]
- Import – Surface data (CAD): IGES: With CM 3.80 some IGES datasets could not be converted or the converted data was not complete. The problems have been fixed. [PT-4655] [PT-4789] [PT-4835] [PT-4841]
- Import – Surface data (CAD): DXF Converter: Radii are displayed incorrectly, are located in the wrong plane. The problem has been fixed. [PT-4865]
- Statistic: Excel inspection report: Incorrect export with the use of Office 2007. The problem has been fixed. [PT-4842]

Machine

- Offline programming: It was possible to switch from offline to online mode during the execution of a PIP using the icon on the GUI. This represented a source of danger as it was possible that CNC machines could start to move without warning. The problem has been fixed. The online/offline mode can not be changed anymore during the execution of a PIP and the execution with parameter modification. [PT-4381]

Probe

- Calibrate probe system: If a probe was manually calibrated on a machine with an ACR3 or ACR1 as single changer, the database contained a 0 (zero) in the column "Changer" and therefore no slot was defined. The problem has been fixed. [PT-4810]
- Load probe system: If a probe system was loaded and a probe change was supposed to occur in two (or more) probe changers, the multiple probe changer did not change if no traverse path was defined. The problem has been fixed. [PT-4769]

Periphery

- Probe head – manual: Under certain circumstances it was possible that during the start of a manual machine with manual rotate/swivel head, after confirming the dialog which queried the probe head angles, a DSLIB error message was displayed. The problem has been fixed. [PT-4773]
- Machine – GearTec driver: It could occur that during a probe system change the TransfMat, in the MeDriver, was not filled and an "empty" TransfMat was sent to the driver. The problem has been fixed. [PT-4751]
- Machine – Zeiss CMM-OS: Probe systems could not be imported into Metrosoft CM due to a wrong time format in CMM-OS. As a short term correction in CMM-OS was not possible, the import of probe systems in Metrosoft CM has been modified to be more error-tolerant. [PT-4862]
- PHOENIX sensor: The icons for the measurement of geometrical elements were now and then inactive when switching into programming mode after a PIP execution. [PT-3668]
- Phoenix Sensor: Several improvements for "Set automatic exposure". [PT-4677]
- Phoenix Sensor: Right after the calibration of the Phoenix a wrong sphere position was taught into the part inspection program. The problem has been fixed. [PT-4691]

CmConfig

- It could occur that after an update installation of Metrosoft CM 3.80 the field "Machine" was empty in CmConfig and the device settings of the previous installation were not adopted. With the function "Adopt data from CM Version 3.xx" the settings were not adopted either. The problem has been fixed. [PT-4783] [PT-4785]

Special

- Measurement for external evaluation: The evolution method for the measurement of flush and gap with Phoenix did not always work properly as the created auxiliary points P1-P3 in CM were of the type "point import". Therefore they always stayed within the reference coordinate system. Now points of the type "probed" are created. These elements adapt themselves to the changes in the coordinate system. [PT-4698]

Release-Notes CM 3.80

New functions

General

- Others: SQL Server 2005: SQL Server 2005 is supported. With SQL Server 2005, the database performance is massively improved when multiple clients (CMM) execute an individual part inspection program. [PT-4289] [PT-4291] [PT-4468]
- Quick selection table: Programs from different databases can now be started using a global quick selection table. [PT-605] [PT-3639]
- Quick selection table: If a PIP from a different work piece is started with the option "No new measurement", it will be executed by default in measurement 1. Now one can define with a registry entry that the PIP is started in the latest measurement. [PT-4345]

3D Graphic window

- Edit: Position work piece: The CAD model linked with the measurement can now be rotated and positioned on the CAD Model. [PT-4122]
- View: Now the centre of rotation is placed automatically in the centre of the graphics window with all graphics functions that change the current view (rotate, pan, zoom). [PT-4433]
- Display, mouse pointer coordinates: Now the distance to a clicked point can be displayed with the display of the mouse pointer coordinates. Thus a distance measurement is possible. [PT-2602]
- Display, Tolerance zone: Now one can select in the 3D settings if the tolerance band of a plane nominal curve should be displayed as an offset curve. If the button "Offset curve to plane nominal curve" is not activated the tolerance band will be displayed as hitherto as an offset curve to a spline curve through the nominal points. [PT-4033]
- Display: The traverse paths (positioning, measuring and probe movements) can now be displayed in the 3D graphics. [PT-1984] [PT-3247]
- Display: The swivel range of the current probe head / probe system can now be displayed in the 3D graphic. [PT-1046]
- Display: The measuring machine can now be displayed with several options:
- Measuring machine (displays the CMM configured in CmConfig)
- Quill (displays the quill)
- Probe Head (displays the probe head)
- Configuration (displays the complete probe configuration including stylus)
If "Draw" is activated, the measuring sphere is displayed in its current size independently from the selected options. [PT-2552] [PT-4055]
- Display, 3D Graphics Settings: The colour spectrum can now be inverted with a button in the colour definitions. [PT-3972]
- Display: The form error of geometrical elements can now be displayed chromatically. The connection of the actual points (with lines or surfaces) as well as the flowing colour (colour spectrum) is effective for the element in the left element window in the geometric graphics. [PT-2502]
- Display: 3D Graphics Settings: CAD points (also auxiliary elements) can now be displayed enlarged. [PT-3427]
- Report: The material thickness is now always displayed in the first column in SURF measuring point boxes. Therefore an output of the material thickness is also possible with no nominal value column. [PT-4232]
- Report: Statistic boxes: The output of the number can now be disabled in the field No./Name/Type. This setting is stored in the report template (GPL). [PT-4416]

- Report: In the geometrical graphics statistic boxes a nominal value column can now be displayed. [PT-1213]
- Report: One can now select in the geometrical graphics statistic boxes if in the field Average, Min and Max, the actual values or the deviations to the nominal values is displayed. This setting is stored in the report template (GPL). [PT-2401]

Measurement of geometrical elements

- Specification for element measurement and storage: Nominal element linkage in PIP: Now the CAD-file and the corresponding facets are only reloaded at the start of a PIP if these data are not already in the memory. Thus the start of the PIP is accelerated and the waiting time is reduced. [PT-4226]
- Specification for element measurement and storage: New button for the activation of the collision detection with GRIPS and execute PIP in offline mode. [PT-2482]

Measurement of free-form surfaces

- Set intermediate point [F4]: By pressing the V-key it is now possible to draw a point, clicked on a surface, perpendicularly away with the mouse or to move it to its target position during the graphical insertion of an intermediate point in SURF and Geometry
- Measure free-form surfaces: Multiple measuring points can now be selected at the same time and be added to or deleted from already selected points using an area selection with Click'n'Measure. The points selected using the area selection will be sorted automatically for an optimal traverse path. [PT-4101]
- Measure free-form surfaces: If imported or inserted points (surface points, edge points, relative points, etc.) are clicked with Click'n'Measure the moving direction is now determined consistently through the direction of the click. [PT-4455]
- Measure free-form curves: The 3D curves contained in the CAD can now be clicked directly (start and end point) and be measured as actual curves. [PT-350] [PT-3530]

Processing

- Create min/max-point: Now one can differentiate if it is a point min or a point max through the element type. This also is effective for the min/max plane. [PT-3658]

Coordinate systems

- Define coordinate system out of several points in the net: With a new button (lock) RPS elements now can be selected without changing their coordinates. If this button is activated, the coordinates of an element are not changed with its selection. If data is loaded from a file this button does not have any effect, which means that the coordinates are always refreshed. [PT-4030]

Feature determination

- Position of a surface point (actual surface): Depending on the button "Create feature for A/B deviation" the 3 lines with d A B are now put out instead of the 4 lines with d X Y Z with edge point, circle, rectangle, slot, relative point and 3D curve point. With the Q-DAS export a d A B feature is split in 3 features analogue to a feature with vectorial position [X Y Z]. [PT-4235] [PT-4531]

Reports

- Load protocol header [F2]: Load protocol header: Now a preview of the protocol header is displayed in the open dialogue. The preview can also be magnified. [PT-4173]
- Protokollkopf ausgeben: Neu kann der Inhalt der Protokollvariablen in eine Datei gespeichert und später wieder geladen werden. [PT-4061]

- Print out protocol header: The content of the protocol variables can now be saved in a file and be reloaded at a later time. [PT-4061]
- Print out protocol header: One now can select if the protocol header variables should be saved within a work piece pro part inspection program (as hitherto) or if they should be 'taught / saved' pro measurement
  The selection of the query of the protocol header variables is set in the CmWin.ini:
  [output]
  ; 0 -> wwwwpppp.DAT (wwww=work piece number pppp=PIP-number)
  ; 1 -> WPwwww_m.DAT (wwww=work piece number m=Measurement number)
  ; +--> contains unlearned variables (are beeign queried multiple times)
  ; WPwwww.DAT (wwww= work piece number)
  ; +--> cotains learned variables (are being queried during edition/change of PIP)
  ; VarNameSchema=1 (0 as hitherto (default), 1 new)
  If "VarNameSchema=1" is set, the 'taught' variables are saved in a file "WPwwww.dat". The variables which are not taught are saved in a file "<WPwwww_m.dat". With the new button "retain" the further query of a protocol header variable can be suppressed. Thus the content of the protocol header variables has to be print out only once per measurement, which for example is an advantage with the graphical reporting over multiple pages. [PT-4341]
- Print test report (VDA-EMPB): Additional test report templates are now available. With these it is now possible, amongst others, to adopt the name of the features into the initial sample report an to print them out:
  Hitherto templates:

EMPB_V3_de.rpt	VDA-EMPB V3, German
EMPB_V3_en.rpt	VDA-EMPB V3, English
EMPB_V3C_de.rpt	VDA-EMPB V3, colour with deviation, German
EMPB_V3C_en.rpt	VDA-EMPB V3, colour with deviation, English

  Added templates:

EMPB_V3CS_de.rpt	VDA-EMPB V3, colour without deviation, German
EMPB_N_V3_de.rpt	VDA-EMPB V3, with feature name, German
EMPB_N_V3_en.rpt	VDA-EMPB V3, with feature name, English
EMPB_N_V3C_de.rpt	VDA-EMPB V3, colour with deviation and feature name, German
EMPB_N_V3C_en.rpt	VDA-EMPB V3, colour with deviation and feature name, English
EMPB_N_V3CS_de.rpt	VDA-EMPB V3, colour without deviation, with feature name, German

  [PT-1372] [PT-4187] [PT-4188]
- Export measurement results as DMIS file: It is now possible to create DMO files out of DMIS (sub) programs afterwards. The DMIS programs have to be free from syntax errors in order to create the desired files. Else the export is aborted without message. As the name of the tolerance is used for the features in DMIS, it is possible to create several features with the same name. The button "Use numbers for feature search" in the DMIS settings can be used in that case. The DMIS program can not be altered after the measurement which should be exported. Else one accesses a wrong feature due to a changed number. Neither loops nor jumps are allowed within the DMIS program. Further restrictions are describe in the CM Help. [PT-4482]

Part inspection programming, DMIS

- Create or edit PIP: Edit PIP: Element numbers and names of measured elements can now be edited within a PIP using Edit (right mouse button). [PT-3225] [PT-3879]
- Execute PIP with parameter modification: Edit PIP: Now the distances from relative probe and intermediate points can be edited continuously (Geometry as well as SURF PIP) with ExeVar or Edit. [PT-2563] [PT-3725]
- Terminate PIP: If the PIP is terminated within an actual surface (actual curve), the already measured points are now saved within the actual surface. [PT-3440]
- Jump to label or sentence number: Two additional conditions can now be selected for the jump:
  - All features within +/- [ ]% of the tolerances
  - Feature(s) outside +/- [ ]% of the tolerance

  [PT-4358]

- Execute PIP: A warning dialogue that the DMIS program is started either from the beginning or from the start mark set in the DIP, is now displayed if a DMIS program is started out of the PIP window. [PT-4475]

DMIS Interpreter (DIP)

- Further development of the DIP: Working within the DIP has become more comfortable with the following new functions:
  - Edit: Edit command:
    for probe points, intermediate points, machine settings and load probe system
  - Edit: Insert command:
    for probe points, intermediate points and load probe system
  - Execute: Execute with parameter modification:
    for probe points, intermediate points, machine settings and load probe system
    Settings: PTMEAS, GOTO, SNSET, ACLRAT, FEDRAT, SNSLCT, RECALL
  - Execute: Teach:
    DMIS programs can now be created or edited using the teach-in mode

  The functions "Edit command" and "Insert command" as well as "Settings for the execution with parameter modification" are also available in the pause mode.
  In the pause mode one can select if the DMIS program shall be execute normally or with parameter modification.
  [PT-2149] [PT-2646] [PT-2647] [PT-2648] [PT-3189]
- DMIS range of functionality:
- SNSET/CLRSRF,FA(),dist and SNSET/CLRSRF,DAT(),dist for security planes are supported. [PT-3896] [PT-4068]
- SCSNS( ) for the read out of the current probe system is supported. [PT-3849]
- DEVICE, DID, OPEN, READ, WRITE, CLOSE for file handling operations are supported. [PT-1794] [PT-3195] [PT-4037]
- OBTAIN/S() and OBTAIN/SA() in order to read the probe head angels and the probe sphere diameter are supported. [PT-4069]
- DMESW/COMAND,'JOB,NUMBER,nnn' and DMESW/COMAND,'JOB, NAME,sss' for loading or creation of a measurement have been implemented. [PT-1946]
- FEDRAT/SCNVEL,var2: Now MPM, IPM and IPS as minor word var2 are also supported besides MMPS. [PT-4036]
- FLY/Radius and FLY/OFF are ignored in the syntax check which means there are not put out as syntax errors anymore. [PT-4113]

System

- Country settings: new dialogue and inspection report language "(Republic of Korea)" and "Simplified Chinese" added. Dialogue and repot langauges which have not been maintained currently " Japanese", "Suomi (Finnish)" and "Traditional Chinese" removed. [PT-4195] [PT-4668]
- DME mode (Server): I++ DME Server: Additional to the I++ DME version 1.4.1, 1.4.2, 1.4.3 the version 1.5 and 1.6 are now supported too. [PT-4048] [PT-4203]
- DME mode (Server): I++ DME Server: Interface has been expanded to support rotary table functionality. [PT-3921]

Data

- Data management: Copy to, Copy from: Now one can copy in a PIP relatively to the current database path. With work piece, measurement and actual value a zero (0) can be entered as source or target number. With a zero (0) the current work piece/measurement number will be inserted. Thus, as an example, it is now possible to copy the elements or the actual values of the current measurement in an external database. [PT-358]

- Data management: Database tables: The following additional columns are now available in the database tables:
  - Range with elements
  - Deviation with features
  - A/B-deviation with edge point, circle, rectangle, slot within an actual surface
  - Dimensions with circle, rectangle, slot within an actual surface

  [PT-934] [PT-2911] [PT-507] [PT-4132]
- Export: I++ DMS: Now target and actual values of points from measured actual surfaces can be exported into a XLM file. [PT-3618]
- Export: Q-DAS: The tolerance bonus of features with MMC/LMC conditions is now subtracted from the deviation instead of adding it to the tolerance. Therefore the tolerance remains stable and the MMC/LMC feature can be evaluated statistically. [PT-4337]
- Import – surface data (CAD): ACIS: Formats up to version 17 are now supported. [PT-4200]
- Import – surface data (CAD): CATIA V5: Formats up to version R17 are now supported.
- Import – surface data (CAD): Parasolid: Formats up to version 18 are now supported.
- Import – surface data (CAD): ProEngineer: Formats up to version WildFire3 are now supported.
- Import – surface data (CAD): Unigraphics: Formats up to version NX5 are now supported. [PT-4432]
- Statistics: The tolerance bonus of features with MMC/LMC conditions is now subtracted from the deviation instead of adding it to the tolerance. Therefore the tolerance remains stable and the MMC/LMC feature can be evaluated statistically. [PT-4337]

Machine

- Offline settings: Now probe points can be afflicted with random errors (deviation to the target value) with the execution of a PIP in offline mode. The value of the deviation can be set using the distribution function and the range of scattering. [PT-3208] [PT-3491] [PT-3642]
- Further development of the offline programming , GRIPS:
  [2518] [PT-3638] and the following points:
- A virtual joystick for the movement of the CMM/probe has been integrated. [PT-2550]
- The CMM defined in CmConfig can be displayed with its corresponding components in the 3D graphics. [PT-2552]
- The work piece (imported CAD model) can be placed (positioned and rotated) on the virtual CMM in the 3D graphics. [PT-4122]
- The collision detection can be activated with the execution of a PIP in offline mode (GRIPS and SURF). [PT-2482]
- The traverse paths of a complete PIP can be displayed graphically. [PT-3247]

Probe

- Calibrate probe system: The calibration of scanning probes has been accelerated (less scan paths, new Renishaw Scanning DLL). [PT-3832]
- Automatic calibration of probe system: The name of new probe systems can now be generated automatically. If the checkbox "Generate name automatically" is activated, the name of the reference probe system will be supplemented with the angle position Axx.x_Bxx.x and be used as probe system name. [PT-4085]
- Show/modify probe system: The offset values (X,Y, Z, in stylus direction) entered in the "Show/modify probe system" dialogue can be taught into a part inspection program. [PT-3854]
- Load probe system: In the dialogue "Load probe system" the current probe changer configuration will now also be displayed. Together with the already displayed information how the probe changer units (configurations) of the probe system to be loaded are built together, the user now can check, before

he confirms, if the CMM will move to the probe changer in order to execute a probe change or not. [PT-4222]

- Calibrate probe changer: Calibrate MPC: Now also a change start point can be additionally defined to the traverse paths. This point will be travelled to before every probe change. Therefore collisions with multiple slightly offset changer can be avoided. [PT-3859] [PT-4076]

Output

- Graphics report template: Now a confirmation dialogue will be displayed if one saves an edited graphics report template under the original name. Therefore an overwriting by error can be better avoided. [PT-4114]

Periphery

- Machine – API Laser Tracker: Drivers to adopt measuring points has been integrated. [PT-3837]
- Machine – CimCore measuring arm: New drivers for CimCore measuring arm have been integrated. [PT-4140]
- Machine – I++ DME Server (CM as I++ DME Client): Now also palette coordinate systems (PCS) can be used. [PT-4051]
- Machine – I++ DME Server (CM as I++ DME Client): Additional to the I++ DME version 1.4, 1.4.1, 1.4.2, 1.4.3 the version 1.5 and 1.6 are now supported too. [PT-4049] [PT-4204]
- Machine – I++ DME Server (CM as I++ DME Client): Functionality for rotary tables have been expanded. [PT-3922]
- Motorized Probe Head – Renishaw RTP20: Probe head with the functionality of a rotate/swivel head has been integrated. [PT-3935]
- Motorized Probe Head – Renishaw REVO: Now Head Touches, Sweep- and Surface-Scans are supported in CM as a I++ DME Client. [PT-3980] [PT-3536]
- Phoenix Sensor: Now the exposure times on a reference surface can be set using "optimize". [PT-4110]
- Phoenix Sensor: A Phoenix Server Version ≥ 3.0.0.2 is required.

Installation

- CMConfig: Configure measuring machine: The CMM model for the display in the 3D graphics and the offline programming can be selected. [PT-2552]

Release-Notes CM 3.70 SP4

New functions

Measurement of geometrical elements

- Measurement of geometrical elements with GRIPS: The names of the geometrical elements which are to be measured are now adopted from the element data of the CAD model. [PT-4016]
- Measure a circle with Phoenix: The image evaluation (standard or threaded hole) for circle measurements with Phoenix sensor can now be selected. [PT-3806]

Measurement of free-form surfaces

- Measurement of free-form surfaces, measure a surface point relatively: In the "Definitions for measuring of free-form elements" a button "Move to and evaluate as surface point with C'n'M" can be activated in the tab sheet "Measure 3", with which the relative point can be approached perpendicular to the surface, calculated as surface point and be saved. Thus relative points on surfaces which are not perpendicular to the reference surface can be approached in surface direction. This relative point is evaluated and calculated like a surface point. [PT-2147] [PT-4177] [PT-2381]

Processing

- Create a construction element using several elements: Now with the target element circle, cylinder, cone and sphere one can determine if an inside or outside element should be created. [PT-3684]

Part inspection programming, DMIS

- Import PIP from DMIS file: In the DMIS settings a button "Convert CMM-OS-Probe" can now be activated which allows the imported probe systems to be converted in order to ensure the compatibility of the DMIS programs with CMM-OS. [PT-3940]
- Execute PIP: If a CM part inspection program which calls DMIS programs as subroutines is started, all start/stop marks existing in the DIP are now deleted. This prevents that only a part of the subroutines is executed which can lead to collisions. [PT-4018]
- Execute PIP, Phoenix: If a failed element measurement is aborted with ESC, the dialogue "CMM-Error" is now displayed automatically [PT-3850]

System

- Country settings: "Taiwanese" has been changed to "Traditional Chinese". [PT-4087]

Data

- Import surface data (CAD): Inspection plan files in the INS-format which were exported with Audiplan (CATIA V4) can now be imported into Metrosoft CM. [PT-4095]

Periphery

- Probe changer - Renishaw SCR200, MPC: If the SCR200 is configured as a multiple probe changer the Hall-sensor (in the middle of the SCR200) is not approached anymore when changing probes. Now the probe moves directly to the defined pre-point of the corresponding slot. [PT-3647]
- Manual control panel - Wenzel HT100 / HT400: Now the function keys [F] of the HT100 / HT400 can be used for the operation of CM no matter if the CM window is active or not. [PT-3584]

- Motorized probe head - Renishaw PHS: It is now possible to define two different PHS limits if a tactile (e.g. TP20) and a Phoenix sensor are used on a PHS. Therewith the largest possible rotate angle can be used. The configuration can be carried out in the WPDAT.PMC. If these entries are missing the default values are being used.
  ;CMDMAX=182
  ;CMDMIN=-182
  ;CMEMAX=138
  ;CMEMIN=-120
  [PT-2493]

Installation

- Windows Vista: Metrosoft CM 3.70 SP4 can now also be installed and used with Windows Vista. The tightened security measures for the registration of components (e.g. CmSurf.exe) have been considered. [PT-4077]

CM Help

- Use the help with Windows Vista: The format of the Metrosoft Help has been changed from HLP to CHM (compiled HTML help file) as Windows Vista does not support the HLP-format anymore. [PT-4043]
- Russian (Russia) Help integrated [PT-4081]
- Hungarian (Hungary) Help integrated [PT-4081]

Bugs Fixed

3D Graphic window

- Report: Protocol, headers with a path of more than 120 characters were not printed out. The problem has been fixed. [PT-4025]
- Report, SURF report: The creation of a graphical report with high point numbers (>1000) could last long. The report creation has been optimized. [PT-4159]
- Report, GEO report: The feature box of a geometrical feature with a procentual deviation of 100% but a numerical deviation within the tolerances was wrongly displayed and printed out in red (outside of tolerance). The problem has been fixed.. [PT-4241]

Measurement of geometrical elements

- Measure a surface point, Phoenix: The measurement of a surface point with Phoenix and measurement method "Dialogue input" was not possible. The problem has been fixed. [PT-3887]
- Measure a surface point: If a surface point was measured with GRIPS the material thickness defined in geometry was not considered into the calculation. The problem has been fixed. [PT-4046]

Measurement of free-form surfaces

- Measure an unknown curve: With the measurement of an unknown curve and AUTO [F8] activated and certain WPC firmware it could occur that the probe executed a wrong back move (not in the direction of the measured point) and therefore stopped right on the work piece. The problem has been fixed with WPC firmware 23.48. [PT-3907]
- Set intermediate point [F4]: If a free-form surface was measured using Click'n'Measure, the collision detection did not work after an intermediate point was set via the manual control panel HT100/400 or via the computer keyboard as long as the focus was set on the collision detection dialogue and one did not switch to the CM main window. In CM 3.60 the activation of the CM main window was not necessary. The problem has been fixed. [PT-3904]

Coordinate systems

- Export difference between 2 coordinate systems: With the manual export the last used filename is suggested again like in CM 3.60. If the function is teached, the filename "EXPDAT0041????.MES" is suggested. [PT-4098]

Feature determination

- Position of a surface point: In the feature dialogue "Position of a surface point" a smaller value could be entered in the field fort the upper tolerance than in the field fort he lower tolerance. Such an input UTol < LTol is not allowed. Now the entries are being checked and the lower tolerance is corrected automatically if necessary. [PT-4047]

Reports

- Print test report (VDA-ISR): The deviation of the position features (e.g. angularity) was reported incorrect if the file EMPB_V3C_de.rpt was selected as test report template. The problem has been fixed. [PT-4191]

Part inspection programming, DMIS

- Create or edit PIP: If one tried to insert a new PIP sentence in an older PIP (created with CM 3.50) under certain circumstances a ODBC error message could be displayed. The problem has been fixed.. [PT-4064]
- Execute a PIP: With the execution of part inspection programs it rarely could happen that intermediate points were not approached. The problem "MoveActive Gap" has been fixed in the WPC firmware 23.60. [PT-4088]
- Execute a PIP: With the execution of part inspection programs it could rarely happen that the PH10M rotated before it reached the intermediate point position where the rotation should have been executed. The rotation during the approaching could lead to collisions. The problem "MoveActive Gap" has been fixed in the WPC firmware 23.59. [PT-4125]
- Execute a PIP: With the execution of DMIS programs via the CM RCI interface a deadlock occurred sporadically at the end of the execution. The problem has been fixed. [PT-4139]
- Execute a PIP: In very rare cases it could occur that CM froze during the execution of a PIP. The problem has been fixed. [PT-4149]
- Recall PIP for use as subroutine: If a DMIS program containing subroutine calls was started via the quick selection table it could happen that only the subroutine was executed and the program was terminated without going back to the main program. The problem has been fixed.[PT-3592]
- Graphical user support: If the command "Display image" was used in a PIP an Exception error message could be displayed when executing a lot of measurements. The resource problem has been fixed. [PT-4147]
- Export PIP to DMIS file [F3]: The keywords "GET" and "PUT" for multi machines data transfer has been exchanged in the CM 3.70 DMIS parser (DIP). The problem has been fixed and the state of CM 3.60 was re-established. [PT-4019]
- Switch between the PIP operating modes [F12]: It could happen that CM froze if, after executing a command (e.g. Position measuring machine), the function key [F12] (on the keyboard, not the button with the mouse) had been pushed several (3) times consecutively. The problem has been fixed. [PT-4062]

DMIS Interpreter (DIP)

- Execute: It could occur that wrong intermediate points were approached with the circle measurement in MODE/AUTO,PROG,MAN. The problem has been fixed. [PT-3772]
- Execute: If theoretical elements whose ID were handed over as variables were created in a DMIS program, the theoretical elements already existing in the DB were not overwritten with the execution. The problem has been fixed. [PT-4126]

System

- Country setting, Dialogue language: Italiano (Italian) [IT]: Some linguistic corrections were made in the Italian texts.. [PT-4099]
- DME Mode (Server): I++ DME Server: If an I++ DME client sent several commands one after the other to the server they were answered in the order of the tags (numerical value) and not in the order how they were received. The problem has been fixed. [PT-3990]
- DME Mode (Server): I++ DME Server: Error messages of the I++ DME server were sometimes displayed with a large delay (up to 15 seconds). The problem has been fixed. [PT-3888]

Data

- Data management, Export list, PIP into text file: If part inspection programs were exported via [F12] into a text file it could occur that CM froze without error message. The problem has been fixed. [PT-4044]

- Statistics, Excel examination report: If an Excel examination report was created with more than 988 features only data up to line 1000 were displayed in the Excel sheet (988 features and 12 lines header data) The problem has been fixed. [PT-4008]

Machine

- Measuring machine settings, Phoenix: The option "Exposure time automatic" had a direct influence on the display of the live image which lead to a slow image formation. The problem has been fixed. [PT-3987]
- Offline programming, Phoenix: If elements were measured offline with Phoenix they were all at the same position. The problem has been fixed. [PT-4091]
- Offline programming, Phoenix: The probe points were not "approached" with the creation and execution of a Phoenix PIP in offline mode. However, the intermediate points were "approached" correctly. The problem has been fixed.. [PT-4092]
- Offline programming, Phoenix: If the PHS was rotated during the creation of a Phoenix PIP in offline mode, the image window was not refreshed in the geometrical graphics. The image window was only displayed in the correct direction after the programming mode on/off was changed. The problem has been fixed. [PT-4094]

Probe

- Load probe system: With the teaching of "Load probe system" a WTX-Exception could occur under certain circumstances. The problem has been fixed. [PT-4060]

Special

- External programs: In the input field "Program parameter" in the dialogue "Configure external programs" only as many characters could be entered as long as the input field was. Depending on the height and length relation of the CM windows the number of characters varied. The problem has been fixed. [PT-4131]

Periphery

- Phoenix, manual measurement: Only 1 image could be taken with the manual measurement [F2] if the exposure time was set to "automatic" in the machine settings.The problem has been fixed. [PT-3868]
- Measuring machine – Faro USB: If a country setting which used a slash as date separator (e.g. 04/08/06) was used in the Windows operating system the following error message was displayed after the termination ([OK]) of the Faro calibration software: " '01.01.70 00:00:00' is not a valid day or time". The problem has been fixed. [PT-3884]
- Measuring machine – Faro USB: The FaroArm initialization dialogue was not displayed automatically after starting up Metrosoft CM. Further the calling of the FaroArm initialization dialogues did not work via the function "Calibrate probe system" nor via the menu respectively by clicking on the reference sphere symbol. The problem has been fixed. [PT-3948]
- Measuring machine – Zeiss CMM-OS: The CMM-OS error message "EF1007 Bay Undefinded" was displayed during the start up of Metrosoft CM SP3. After confirming the error message CM 3.70 SP3 froze. The problem has been fixed. [PT-4138]
- Measuring machine – WPS Silma: Under certain circumstances it could occur that during a PIP sequence the virtual CMM unexpectedly moved to the home position and the error message "CMM out of limits" was displayed. The problem has been fixed. [PT-4108]
- Probe changer – Multiple probe changers: The SCP80 probe changer only worked with fitting positions in XY but for instance not with fitting position in ZX. The problem has been fixed. [PT-4221]
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Release-Notes CM 3.70 SP3

New functions

Measurement of free-form surfaces

- Measurement of unknown curve, BAFF: If the suggested step widths with the automatic measurement of an unknown curve (BAFF) are adapted, the new values are now kept even with a recall. [PT-3635]

Reports

- Export measurement results as DMIS file: Now the DMIS Export (DMO) can be carried out using the Faurecia format. [PT-3949]

Part inspection programmin, DMIS

- Recall part inspection program for use as a subroutine: DMIS DIP: Now transfer scans (scan without measuring points) are possible in DMIS. Therefore the DMIS command "PAMEAS/……..,REMOVE,ALL" can be used. [PT-3961]

DMIS Interpreter (DIP)

- Execute: The optional Minor SPHERE is allowed with the DMIS command SNSDEF/PROBE. [PT-3964]

Data

- Export - VDA geometrical elements, VDA Export: The number of positions after decimal points in the TMAT has been raised to 10. [PT-3965]
- Import – free-form data (CAD): CATIA V5: The CATIA V5 R16 -SP4-HF3 format is now supported. [PT-3892]
- Import - free-form date (CAD): Unigraphics: The Unigraphics NX4 format is now supported. [PT-3572]

Machine

- Offline programming, GRIPS: Rotary tables are now integrated in GRIPS. Several changes, upgrades and corrections have been carried out in order to create part inspection programs with rotary table offline. [PT-1961] [PT-3929]

Special

- Measurement for external evaluation (flush and gap): Flushs which are measured with Phoenix are now evaluated with an algebraic sign. This means that the flush value now is either positive or negative. For that purpose one has to select the reference surface with a mouse click in the preview window. This function can be taught. [PT-3804]
- Measurement for external evaluation (flush and gap): Now the manual measurement of gaps with the Phoenix sensor can now also be carried out using several images (multishot). [PT-3669]

Bugs fixed

3D Graphic window

- Display: If an absolute plane free-form surface (plane) was measured automatically as a free form surface, the chromatic colouring was not correct. The problem has been fixed. [PT-3953]

Measurement of free-form surfaces

- Measure free-form surface, set intermediate point: When a free-form surface was measured using Click'n'Measure it was not possible to set an intermediate point via the manual control panel HT100/400 or the keyboard of the PC as long as the focus was set on the dialogue of the collision and not changed to the CM main window. In CM 3.60 it was not necessary to activate the CM main window. The problem has been fixed. [PT-3904]
- Measure free-form surface, Measure an edge point: During the measurement of edge points in an actual surface with Click'n'Measure, the references for reference point and edge point are taught into the PIP. If the CAD model was changed later in a way that the surface references received different numbers, the edge points were measured with "Execute PIP with parameter modification" and projection rule "Search range" indeed but were not stored in the data base. The problem has been fixed. [PT 3992]
- Measure free-form surface, Measure an edge point in PIP: Under certain circumstances the tolerances of the edge points were not adapted correctly from PIP sentences which have been created in CM 3.70 (including SP1, SP2). The problem has been fixed. [PT-3934]
- Measure free-form surface, Measure an edge point in PIP: With the execution of a PIP with projection rule "Search range" activated and an assembly with multiple model files, the edge point received the wrong reference (first model file). In contrast the surface reference was ok. As a result the surface reference and the model reference did not match together. The edge point was projected into the wrong surface if the false references were adapted into the PIP with an execution with parameter modification. The problem which only occurred with CM 3.70 SP2 has been fixed. [PT-3970]

Processing

- Create a projection element: Under certain conditions (prehistory) it could occur that either no result was calculated or a wrong element type had been displayed. The problem has been fixed. [PT-3649]

Feature determination

- ISO1101 / ASME Y14.5: Position tolerance: If the position of a plane was evaluated using reference elements, the entered and the calculated effective length were substituted with each other when the dialogue was confirmed by clicking OK. [PT-4023]
- ISO1101 / ASME Y14.5: Profile of any Line / Surface: With the input of asymmetrical tolerances the lower tolerance was set symmetrical to the upper tolerance as soon as the focus left the input field for the upper tolerance. Now the lower tolerance is only automatically corrected after the upper tolerance is changed. [PT-4024]

Reports

- Print out report header: Since CM 3.70 CM could crash when the dialogue for the query of the report header variables was confirmed. The problem has been fixed. [PT-3952]

Part inspection programming, DMIS

- Execute a PIP with parameter modification: The 3D graphics could not be used anymore if an actual surface was executed via "Execute with parameter modification" and the dialogue for the modification of an intermediate point was open. This problem did not occur in CM 3.60. Even with opened probe point dialogue the 3D graphics window was still useable. The problems have been fixed. [PT-3911]

- Execute a PIP with parameter modification: The parameter of surface points which were measured in AUTO mode could not be modified with "Execute with parameter modification". The problem has been fixed. In addition now one can see in the PIP if a surface point was measured with AUTO mode on or not (supplementary AUTO). [PT-3927]
- Import PIP from DMIS file [F2]: If a DMIS program (created with IDA) had been imported into CM and was converted into the CM PIP format at the same time, the nominal value of the width of the slot was halved. The problem has been fixed.[PT-4004]
- Export PIP in DMIS file [F3]: With the export of an offset line the closing apostrophe in the corresponding DMESW/COMAND,OFFSETLINE was missing. The problem has been fixed. [PT-3918]

DMIS Interpreter (DIP)

- Execute: If a DMIS program is called as a subroutine, the OBTAIN command with @ variable did not work properly. The problem has been fixed. [PT-3962]
- Execute: During the error handling within the DIP while executing a DMIS program CM could crash. The error handling has been generally improved. [PT-3899]
- Execute: DMESW/COMAND,'RPS6P,... with only bestfit lead to an exception. If a bestfit had been taught with the function "Define coordinate system out of several points in the net" and then was exported into DMIS, a crash with an exception error message could occur with the execution of the created DMESW COMAND. The problem has been fixed [PT-3902]
- If a big number (>20) of DMIS files were opened and executed in the DIP and then the DMIS Interpreter window was closed an "Access violation" error message was displayed. [PT-3721]

System

- DME mode (Server): I++ DME Server: The measuring machine setting "Scan Speed" is now stored with the probe system and is automatically activated as soon as the probe system is reloaded. [PT-3894]
- DME mode (Server): I++ DME Server: The measuring machine setting "Retraction distance (checkbox)" is now stored correctly with the probe system and therefore set identically if the probe system is reloaded. [PT-3895]
- DME mode (Server): I++ DME Server: Automatic calibration of probe system: If the module "PROG" was not existing on the Metrokey, the function "Automatic calibration of probe system" could be called via the text menu. The context menu (A) besides the reference sphere with the same purpose was not available. The problem has been fixed. [PT-3890]

Data

- Change data base: If one tried to open a SQL data base which had been created with a newer CM version or which wasn't a CM data base at all, a wrong error message was displayed. The problem has been fixed. [PT-3981]
- Change data base: An undefined character string in brackets was displayed at the end of SQL data bases entries in the list with the latest used data bases (only with SQL Server 2005). The problem has been fixed. [PT-3839]
- Change data base: It could occur that CM crashed when a SQL data base, which was located on a SQL Server 2005, was used. [PT-3842]
  The storage of an element into the SQL Server 2005 data base after its measurement did not always work properly. An exception error occurred and as a subsequent fault an ESLib error message was displayed. [PT-3966]
  These problems have been fixed. CM can now be used together with a SQL Server 2005.
- Import surface data (CAD), CATIA V5: During the conversion of CATPart models the layer colors were not converted. The problem has been fixed. [PT-3552]

- Import surface data (CAD), DXF: With DXF files which included rational splines, the conversion did not work properly. Rational splines are now supported.[PT-3840]
- Import surface data (CAD), IGES: Under certain circumstances IGES files could not be converted properly. The problem has been fixed. [PT-3593]
- Import surface data (CAD), IGES: IGS files which included elements with long names could not be converted from CM 3.60 on. The problem has been fixed . [PT-3774]

Machîne

- Multiple machines operation: It could occur that the communication between the SyncServer and CM was aborted. This led to a deadlock during the PIP/DMIS program sequence and CM froze. The problem has been fixed. [PT-3924]
- Multiple machines operation: Multiple security zones: With the use of multiple security zones it theoretically and in very special, rare cases could come to collisions. The problem has been fixed. [PT-3914]
- Multiple machines operation: Multiple security zones: Now the security zones are read correctly out of a definition file (e.g. SecurityZones.txt) even if in the country settings of the operating system a "comma" is set as a decimal separator. [PT-3930]
- Offline programming: If the offline button was activated on a CMM (working offline), a connected rotary table would still rotate. The problem has been fixed. [PT-3928]

Probe

- Switch probe type in PIP: If a scanning probe system was loaded in a PIP and in the following sentence the probe type was changed to "triggered" and right after that an element was measured, it could occur that the element which was supposed to be measured triggered was measured scanned. The time problem within the probe type switching has been fixed. [PT-3977]
- Load probe system: Load a Phoenix with PHS out of an ACR2: If a Phoenix was exchanged with an ACR2, an error message "Probe open" was displayed frequently during the lock drive in –Z just right after the sensor was recognized. The problem has been fixed. [PT-3901]
- Probe system calibration, PHS: The calculation (correction) of the bend for the Phoenix sensor as well as for star probes has been optimized and therefore the accuracy has been improved. [PT-3954]
- Probe system calibration: If a stylus of a star probe was calibrated with AUTO [F8], it could, under certain circumstances (with certain prehistory), happen that the CMM travelled to a wrong position (into reference sphere or to home position). If the measurement direction is not consistent with the stylus direction a corresponding message is now displayed. [PT-3955]

Periphery

- Measuring machine - Romer GDS: The button for the probe point measurement did not always work properly via the WIFI interface. The problem has been fixed. [PT-3644]
- Measuring machine - WPS Silma: Due to the serial communication of the WPS Silma driver the processor load could rise up to 100% if the graphics was moved rapidly in Silma. The problem has been fixed. [PT-3984]

CmConfig

- DB programs: CM SQL Manager: If the new "Microsoft SQL Server 2005 Express Edition" was used, the external SQL programs "Service Manager" and "Server Configurator" could not be started via the "SQL CM Manager". In both cases an error message was displayed. The problem has been fixed. [PT-3841]

Release-Notes CM 3.70 SP2

New functions

Measurement of geometrical elements

- Measure a surface point with PHOENIX sensor. The determined parameter are stored in the database also as a point. Therefore correct X, Y, Z values are suggested in the function "Define coordinate system out of several points" for example. [PT-3720]

Part inspection programming, DMIS

- PIP Listing in output window 2: The empty line at the end of a PIP is now marked with <–>. [PT-3905]
- Import PIP from DMIS file [F2]: In the dialogue the focus is now set directly on the last loaded program. Therewith the parameters for the import can be changed right away. [PT-3733]
- Import PIP from DMIS file [F2], DMIS Import: The start button is now labeled with the way of import (Link or Convert). [PT-3816]

DMIS Interpreter (DIP)

- DMIS settings, DMIS execution (DIP): One can now configure if the output should result in one (1) combined DMO file or if each DMIS program should created still their own DMO file. [PT-3665]
- DMESW/COMAND,'VDAEXP, ...: With the VDA Import/Export the file path can now be inserted as variable. In doing so the file path has to be entered in double apostrophes or as an expression. This is imperative for all DMESW commands which use file paths. [PT-3660]
- WINDEF (for PHOENIX ROI) so far was only integrated in AUTO-Mode (MODE/AUTO,PROG,MAN). Now it can also be used in MODE/PROG,MAN and MODE/MAN. [PT-3820]

Data

- Import surface date (CAD), ProE: Assemblies in *.asm format are now also supported. [PT-3856]

Machine

- Multiple machines operation: Now more than 2 security zones can be defined. An example file (SecurityZones.txt) with security zones is located in the Init folder. This file can be copied, renamed (e.g. "…cm3/sys/sz.ini") and be adapted to your own needs. The file also contains a documentation how to call the SyncServer in order to activate the security zones. [PT-3872]

Probe

- Show/modify probe system: The probe catalogue has been complemented with the M5 5-way cube and a SH80 stylus holder with only one dock in –Z. [PT-3485]
- Show/modify probe system: The probe catalogue has been complemented with M4/M5 joints as well as with several discoidal and cylindrical probes. [PT-3853]

Output

- Page layout for inspection reports: Under "Page layout for inspection reports" a multiline header/footer can be defined. A line break has to be entered using \n. [PT-3803]
- Page layout for inspection reports: Features within tolerance can now be printed in a regular font while features outside tolerance can be printed bold (Settings in CmWin.ini). Thus readability is improved with black/white reports. [PT-3807]

Periphery

- Measuring machine - Garda:
  - The measuring arm has to be initialized within the Garda software CMS and cannot be initialized in Metrosoft CM. [PT-3687].
  - Scanning is supported (with fixed probe). [PT-3651].
  - The mouse can be controlled with the Garda measuring arm; it is activated and deactivated via "Machine – Settings – Measuring arm – Mouse Control ON". [PT-3685].
  - The two buttons on the Garda arm may also be used now in Metrosoft CM for the functions "F2 Accept current point from measuring machine" and "F3 Delete last measured point". [PT-3616]
- Measuring machine - Leica emScon: The function "Relocate work piece" was disabled with a Leica Laser-Tracker. Now this function can be used as well. [PT-3622]

Bugs Fixed

General

- Quick selection table: It could occur that the username remained in the quick selection table and only the measurement name was deleted even though the "Supress Defaults" button in the registry was set to "1". [PT-3713]
- Others: At the start up of CM the error message "List index out of bounds (0)" could occur as a result of a not found protocol template. [PT-3629]

3D Graphic window

- Display: It was possible that the ACIS Graphics Kernel crashed while deleting a layer which had not been saved yet. [PT-3830]
- Display: 3D graphics settings, Geometric graphic, Dimensionless elements (general and points): With the measuring unit Inch, the limits of the input boxes were not transformed to Inch. [PT-3860]
- Report: When executing a PIP which included a graphics report with graphics boxes (image files such as BMP, JPG or WMF) it could occur that the graphics boxes were not displayed. [PT-3664]
- In CM imported and for GRIPS linked CAD models were sometimes still displayed in the geometric graphics even though the linkage had been deleted. [PT-3626]
- CM could crash if several nominal elements which consisted of multiple CAD models were displayed repeatedly in the 3D graphics. [PT-3706]
- Sometimes non existing layers (originating from a previous work piece) or hidden layers were displayed in the 3D graphics. [PT-3819]

Measurement of geometrical elements

- Measure a surface point, PHOENIX within a PIP: The measurement window (ROI) of a surface point was not stored in the PIP. [PT-3871]
- Measure a line/plane: The filter which were set under " Specifications for element measurement and storage" did not work in all probing directions. [PT-3886]

Measurement of free-form surfaces

- Adopt element into actual surface: While executing a PIP the D-deviation of imported points has not been recalculated occasionally and the deviation of the imported points has been output instead. [PT-3779]
- Measurement of profiles: The names of edge points have not always been adopted correctly while converting a PIP from CM 3.6 to CM 3.7. [PT-3844]

- Measurement of unknown curve, AUTO Profile with trigger probe, teached in a PIP: Since CM 3.70 the points of the profile are filtered before the element is stored to avoid loops. The filter distance was set to the minimal step width. Now, the filter distance is set to 50% of the minimal step width. Thus should prevent that the element created during programming has less points then PIP sentences. This effect is not totally ruled out because the not filtered points are taught in the PIP and during PIP execution no filtering occurs. [PT-3876]

Processing

- Filter element [F6], Filter a cone: The position of the apex was being moved and the deviation vectors were displayed too long when a cone was filtered. [PT-3731]

Feature determination

- Position of a surface point: If surface points of an actual element were evaluated with the feature "position of a surface point" in a subprogram and recorded in a DMO file, the error message "Application Error..." was displayed. [PT-3838]
- ISO1101 / ASME Y14.5: Position tolerance: The position of a plane with border planes has been calculated false if an effective length instead of a border plane had been entered before. [PT-3707]

Reports

- Print out report header: During the output of a protocol header with a variable query CM could freeze as soon as the dialogue with the variable query was confirmed with "OK" or "ESC". [PT-3908]

Part inspection programming, DMIS

- Execute PIP with PHOENIX Sensor: With the travel of a CMM during execution of a PIP an image was taken occasionally. This led to the error message "Cant Fit Feature" .[PT-3688]
- Execute PIP with parameter modification: If the offline button was set on a machine with PHS and then a PIP was executed with parameter modification, then CM crashed without an error message. [PT-3752]
- Execute PIP with parameter modification, PHOENIX. If a surface point was selected in a PIP and executed with parameter modification while the probe type PHOENIX was activated, the teached sentences of the surface point and further PIP sentences before the surface point were deleted. With other elements only the probe points from the measurement block were removed. [PT-3865]
- Execute PIP with parameter modification: In a mirrored PIP it was not possible to assign new surface references to the relative teached edge points (actual curve) with the function "Execute PIP with parameter modification. [PT-3882]
- Loop within PIP: No loops could be set to a label that was found in a sentence higher than 9'999. The unnecessary sentence number check also is removed in the PIP functions 'Execute a PIP', 'Execute with parameter modification' and 'Jump to'. [PT-3880]
- PIP List box: After copy / paste of PIP sentences it could occur under certain circumstances that the displayed selection of the PIP sentences did not correspond with the internal selection. Therefore when executing a PIP it could happened, that the PIP did not start from the selected line but from line 1. It also could occur that all lines starting from line 1 to the selected line were deleted instead deleting the selected single line. [PT-3809]
- Import PIP from DMIS file [F2]: When importing DMIS programs with activated automatic numbering, the method "manually" did not work with the first imported file, as the manually set numbers were not taken over. [PT-3737]
- Import PIP from DMIS file [F2], DMIS import: With the automatic naming sometimes the same PIP-numbers were suggested instead of consecutive numbers. [PT-3738]
- Others: In the PIP dialogue "Button for PIP execution" the focus was set on "ESC". Now the focus is again set on "OK". [PT-3727]

- Others: With large dialogue fonts the column "Function" in the PIP display window had been extended due to certain functions and thus hid the following columns. [PT-3756]

DMIS Interpreter (DIP)

- Execute: The PIP froze after the command SNSLCT with an error message "ESLIB.SendErrorToES". [PT-3631]
- Execute: During the error handling within the DIP while executing a DMIS program CM could crash. The error handling has been generally improved. [PT-3761]
- EXTFIL/DMIS with variable led to an incomprehensible syntax error message. This error message has been replaced with the error message "String expected". [PT-3551]
- TOL/ANGLB : 2D projection angles can now also be executed in the DIP. [PT-3715]
- Not justified syntax errors with the commands ACOS and SQRT eliminated. [PT-3648]
- The syntax highlighting with ASSIGN commands has been realized. [PT-3683]
- If several theoretical elements with the same label were created in a DMIS program for temporary use, the already existing element was used instead of overwriting it with the new element. [PT-3716]
- The following problems have been fixed: [PT-3582]
  - Changing a probe system in a subroutine did not work
  - In path features no variables could be used (P(@var)=PATH/UNKNOWN... did not work)
  - With boolean variables the value .False. could not been passed
- If several DMIS subroutines were called out of a CM main program, and one changed back and forth during their execution in the DIP between the DMIS files loaded in the DIP (Register PIP window), the execution sequence could get messed up and a message appeared saying that the sub program was already in execution. [PT-3682]

System

- DME Modus (Server): I++ DME Server: Metrosoft CM as DME Server delivered the data of the first stylus to the client, even if another stylus was activated. [PT-3677]
- DME Modus (Server): I++DME Server: Measuring machine settings: Contrary to the SCAN speed, the SCAN increment was not taken over correctly when scanning with the Quindos client. [PT-3589]
- DME Modus (Server): I++DME Server: Load probe system: With a configured multiple probe changer (MPC), the travel behaviour after the change can be selected in the dialogue. In the I++ DME Server Mode the client can not select these options which led to a collision under certain circumstances, as the default value was set to <move back directly>. Now the default value is set to <move back along itinerary>. Thus the user can ensure that the probe is located at a position where the newly loaded probe system can also be located. [PT-3610]

Data

- Import surface data (CAD): With Windows 2000, the selection for coordinate systems was not displayed even though several coordinate systems were included in the CAD data. [PT-3704]
- Import surface data (CAD), UG: If a UG file (*prt) in inch was converted the resulting ACIS file was with a factor of 25.4 too small. [PT-3870]
- Import - VDA geometrical elements: When multiple MDI points were imported as profile with probe type "scanning probe" active, the imported points were filtered by mistake depending on how the point distribution was set in the "Measuring machine settings – Scan method". [PT-3748]

Machine

- Offline programming, GRIPS: Measure a line: The distance to the edges for the probed points has not been considered with the measurement of a line in GRIPS. [PT-3603]

- Switch axis drives on/off: With the new WPC driver (CmDrvWpc.dll) and decoupled axis drives, no more probe points could be measured. [PT-3694]
- Multiple machines operation: Undesired points of synchronization at the beginning and the end of a DMIS program can now be deactivated in the DMIS settings. [PT-3559, PT3765]
- Multiple machines operation: It occurred that a "Wait message" was displayed even though no carriage was located in the security zone. [PT-3705]
- Multiple carriage operation: The carriage change with 2 Elecnet PCI did not always work. [PT-3695]
- Temperature compensation: Under very special circumstances it could occur that the coefficient of expansion of the Y axis was changed during runtime of CM. After a CM restart, the correct value was displayed again. [PT-3141] [PT-3598]

Probe

- Calibrate probe system, Calibrate discoidal probe: The error message "RenishawScanningProbeCT.SetCalibData: Invalid Data (null)!" was displayed after the calibration of a discoidal probe with the SP80. [PT-3663]
- Calibrate probe system, PHS: The calibration ranges of PHS probe systems have been reduced using new calculation algorithms. This is particularly evident with horizontal styli on star probes using HighForce TP20 modules. [PT-3305] [PT-3502]
- Calibrate probe system, PHS: With the probe system calibration of a PHS in AUTO F8 mode the bend was taught into the PIP with the value 0 by mistake. This caused the probe system to be calibrated and saved without bend value during the execution of the calibration PIP. [PT-3702]
- Calibrate probe system, PHS: When calibrating a stylus on a PHS, the dialogue "Selection of probe extension" opens now instead of an empty input field with the bending value of this probe system saved last. [PT-3726]
- Calibrate probe system, PHS: When calibrating a stylus on a PHS with "F8 AUTO", the position of the reference sphere sometimes was calculated wrong and therefore probing was wrong. The problem occurred primarily with the horizontal styli of a star probe. In addition to that, optimizing the PHS control parameters (Wpdat.pmc) helps to improve the results. [PT-3747]
- Calibrate probe system, PHS in PIP: The difference in quality when calibrating with/without PIP was eliminated. [PT-3729]
- Calibrate probe system, PHOENIX Sensor: When executing a PHOENIX calibration program the error message "E_ORIENTATION_CALCULATION" could be displayed. [PT-3567]
- Automatic calibration of probe system, Execute calibration program: When executing a calibration program created in CM 3.70 with AUTO F8 or matrix, a collision occurred in case the measuring distance was <= the stylus radius. [PT-3679]
- Calibrate probe system: During the calibration of a scanning probe a wrong English text was displayed in the help line. The translation has bee completed. [PT-3612]
- Show/modify probe system, PHS probe system: When inputting a probe offset in the dialogue "Show/modify probe system" the probe system stayed unchanged, i.e. the offset was not being considered in the calculation. [PT-3650]
- Show/modify probe system, Star probe on PHS: If the styli direction of the PHS are changed in the dialogue "Show/modify probe system", the entered values are now kept and not being reset. [PT-3517]
- Load probe system, Load PHS: It could occur that after loading a PHS probe system - either directly after starting CM or out of another slot – a wrong length was displayed if a multiple changer was installed. [PT-3811]
- Rotate probe head: If the module "CM-MPH" was missing on the Metrokey, the probe head symbol on the right of the probe tree was not visible. [PT-3691]

- Rotate probe head, rotate PHS with joystick: If "Rotate with Joystick" was activated in the dialogue "Show/modify probe head", the emergency off and other CMM error message dialogues could not be acknowledged. [PT-3717]
- Calibrate motorized probe head, PHS: The user specific settings were no longer saved in the PHS calibration dialogue. If the dialogue was reopened, the default values were displayed instead. [PT-3692]
- Calibrate motorized probe head, PHS: When the dialogue "Calibrate PHS motorized probe head" was called several times consecutively, an angle changed and the dialogue quit with "ESC" and then the PHS calibration was started without any other angle adaptations, a wrong point distribution was calculated on the sphere following the first automatically probed points. This led to a collision. [PT-3701]
- Calibrate motorized probe head, PHS: If the probe system did not correspond with the direction of the first position of the PHS calibration while calling the PHS calibration, the error message "Probing direction and stylus direction do not correspond!" was displayed. [PT-3708]

Output

- Inspection report settings, Create a DMO-file: If in a CM main program several DMIS sub routines linked to the DIP were called, which wrote the results in one single DMO-file, the DMO-file was created incompletely. [PT-3665]
- Inspection report settings, Create a DMO-file: When executing a PIP with the PHOENIX sensor an incomplete DMO-file was created (missing actual values, needless ENDMES). [PT-3758]
- Inspection report settings: When teaching "Inspection report settings" into a PIP with deactivated DMO output, the DMO path was taught nevertheless but not displayed. If a PIP then was executed with activated DMO output, a wrong DMO path was sometimes used. [PT-3855]
- Inspection report settings, Output DMIS results: It occasionally occurred that a DMO file which was created while executing a PIP stayed locked and could not been deleted, renamed nor moved. [PT-3873]
- Display feature data: The feature data were not displayed completely in the window if a very large font (e.g. 22, bold) was selected in the country settings. [PT-3719]

Special

- Measurement for external evaluation: The function "Measurement for external evaluation" is now only active when additionally to the PHOENIX sensor the function group " Measurement of geometrical elements" is activated too. [PT-3670]

Periphery

- Motorized probe head – Renishaw PHS: On machines with PHS and CMM relocation (as carriage adjustment) the PHS could not be calibrated with the function " Calibrate motorized probe head" as after the first localization of the sphere a software limit error occurred. However the PHS calibration with the PIP did work. Now correct working PIP's for PHS calibration can be created with an active CMM relocation too. [PT-3689]
- Probe changer, Multiple probe changers: A probe change in a multiple probe change rack could unintentionally change the speeds which were defined in the measurement machine settings if after a start of CM the speed was changed and a probe change executed consequently. [PT-3646]
- Rotary table - WPC 2010/2020 Rot: From time to time two error messages "Exception from CmMeDriver" appeared while shutting down Metrosoft CM. This error only appeared with activated rotary table and a new MeDriver. [PT-3690]
- Autochange rack, Multiple autochange racks: While changing probes with a SCP80, the wait was sometimes to short. It may now be adapted in CmWin.ini. [PT-3724]

Release-Notes CM 3.70 SP 1

Bugs Fixed

3D Graphic window

- Report: Create multiple pages, define sample page: The information for the display of the boxes is now readout of the PIP and not out of the report template file (*.gpl). [PT-3591]

Processing

- Create a construction element using several elements: Target element line, calculation with element parameter: Lines through element parameters are calculated again, like before CM 3.70, as spatial lines. The problem that connection lines without a reference could not be created anymore has been fixed with it. [PT-3601]

Part inspection programming, DMIS

- Execute part inspection program: The problem that some PIP sentences with features, which originate from CM 3.20 or older, include impossible reference elements after the conversion of the DB, has been fixed. [PT-3609]
- Execute part inspection program : A probe change between PHOENIX and TP2 or TP20 now also works in a PIP. [PT-3512]
- Display or print part inspection program: With sentences "Create a construction element using several elements" the reference element is now displayed with circle or line if the element has a reference. [PT-3596]

DMIS Interpreter (DIP)

- SCNMOD/ON and SCNMOD/OFF (equals probe type switching) is now supported correctly. [PT-3619]

System

- DME Mode (Server): I++ DME Server: Parameter Q (for quality of the measuring point) is now also supported. PT-3585]

Machine

- Measuring machine settings: Scanning: Scan method "unknown": The problem that the end body parameters (type, size, direction) are stored incorrectly into the data base with a PIP sentence (Scan…) and therefore while executing a PIP the scan movement possibly did not stop at the taught position has been fixed. [PT-3620]

Probe

- Calibrate probe system: Calibrate disc probe: The calibration of disc probes with SP25 is now also working with long styli (Module SM 25-3 and SM25-4). [PT-3621]

Release-Notes CM 3.70

New functions

General

- Quick selection table: Each measurement database has its own homepage. It is not required anymore to define the same quick selection table as homepage with a database change. [PT-1756]
- Quick selection table: Configure button: With the execution of a PIP from the quick selection table, the measurement name and/or the user can be queried. [PT-1871] [PT-2364] [PT-3355]
- General position dialogue and general direction dialogue: Both dialogues contain several options to enter a position or direction.
  The dialogues are available among others in the following functions:
  - 3D bestfit for CS optimisation KS [PT-360]
  - Rotate probe head [PT-617] [PT-1478]
  - Enter a theoretical element [PT-2520]
- Status bar: By clicking with the mouse in the corresponding area of the status bar, the following functions can be activated directly:
  - Position measuring machine
  - Load probe system from database
  - Position rotary table
  - Rotate probe head
  - Load part inspection program

  [PT-2713]
- Status bar: The actual coordinate system can be deleted via the function "Load coordinate system" by entering an empty value [PT-3329]

3D Graphic window

- General, Snap function: The snap function is generally enabled with clicking in the graphics. It can be disabled temporarily by holding down the Ctrl–key. [PT-629] [PT-1863] [PT-2095]
- Edit: Element-/probe point data: Measurement attributes for edge points can now be allocated to edge curves. [PT-2016]
- View: Intersection, Select intersection plane: In the geometrical graphics, an intersection plane can be selected in order to display a CAD model intersected. [PT-2682]
- Display, Layer management: A single layer can be activated with the new function "Activate only this layer". In order to activate all layers again, the new function "Activate all Layers" can be used. [PT-3097]
- Display: Mouse pointer coordinates: The position of the mouse pointer coordinates on the CAD model can be displayed. [PT-629] [PT-677] [PT-2091]
- Display: 3D Graphics settings, Geometrical graphics, Element display: Quick selection of left and/or right element window. It can be defined if the geometrical graphics shall be automatically refreshed and/or if the corresponding elements are zoomed in with a change of the left and/or right element window. [PT-1419]
- Display: 3D Graphics settings, Representation: The three facet qualities (Fine / Medium / Rough) have been improved, so that details of large parts are accurately displayed as well. [PT-1285] [PT-2784] [PT-3513]
- Insert: Point, surface point, edge point and sphere can now also be created by mouse clicking. All elements which can be created by clicking can now also be inserted using the numerical input. [PT-2096]

- Insert: Numerical input, Surface point: Now a surface point can be entered with 2 default coordinates and one direction. The third coordinate will be determined by "shooting" the point on the CAD model in the given direction. [PT-252] [PT-1858]
- Insert: Intersection curve, edge curve and offset curve can now also be inserted in the geometrical graphics. [PT-2682]
- Insert: The insert tool for points, circle, etc. stays active until it is closed with the right mouse button. Thereby several elements of the same type can be created consecutively. [PT-2802]
- Report: Prepare view: Several boxes (point, parameter, feature, text, graphic and statistic boxes) can be selected and then edited at the same time. [PT-643] [PT-1033] [PT-1994]
- Report: Prepare view: One now can create several report pages, on which the point- or feature boxes can be arranged, automatically. [PT-644] [PT-927]
- Report: Prepare view: While creating a graphical report the multi function tool (rotate, move, zoom) is not active anymore. [PT-3040]
- Report: Prepare view: The point box distribution "manual, keep old ones" and "manual, delete old ones" has been eliminated. [PT-3503]
- New version of ACIS® Graphic - Kernel (ACIS 15.0.7) [PT-3480]

Measurement of geometrical elements

- GRIPS: Measure a plane: It is now possible to measure a plane on a curved surface. [PT-2546] [PT-3433]
- Theoretical elements: The direction of theoretical elements is in every case permanently written into the PIP sentence. Old PIP sentences, which take over the direction from an actual element are no longer supported. This is indicated with an accordant error message. [PT-3481]

Measurement of free-form surfaces

- Measure unknown curve: The probe radius compensated points of a scanned profile (scanning or BAFF AUTO) are now filtered with the minimal point distance. Thereby loops, which were caused by a non consistent sequence of the probe radius compensated points with small profile radii, are prevented. [PT-2620] [PT-705]
- Measure unknown curve: Scan profile: Start and end point of the scan of a profile are taught into the PIP again. Therefore they can be edited later. [PT-2676]
- Definition for measuring free-form elements: Measure 1: Now a safety distance for the collision detection with Click'n'Measure can be defined. [PT-710] [PT-1957] [PT-3067]
- Measure free-form surface: Measure AUTO actual surface: The automatic point distribution (Grid- or UV-distribution) on selected surfaces has been realized. [PT-603] [PT-1412]
- Measure free-form surface: Measure AUTO actual surface: Boarder points for the automatic point distribution are drawn with clicking. [PT-1524] [PT-2040]
- Measure free-form surface: Click'n'Measure: Edge points can now also be measured with Click'n'Measure. [PT-506]
- Measure free-form surface: Click'n'Measure: As long as the Click'n'Measure Tool [F6] is activated, surface points can be inserted. They automatically will be selected as Click'n'Measure point. With the new possibility to project points on the CAD model during the input, Click'n'Measure points can be set exactly on 2 coordinates, the third will be determined. [PT-1858]
- Measure free-form surface: Click'n'Measure: Relative points can also be measured with Click'n'Measure now. [PT-232] [PT-1342]
- Measure free-form surface: Adopt element into actual surface: New option "Create intersection point". Thereby an intersection point can be calculated between a line (axis) and a surface of the CAD model. [PT-1346] [PT-2548]

- Measure free-form surface: Adopt element into actual surface: During the import of surface points, their direction is now used to determine the sign of the deviation. [PT-2757]
- Measure free-form curve: Offset curves and cylindrical intersection curves can now be measured with scanning probe systems using the scanning method "known". [PT-2477] [PT-2821]
- Measure free-form curve: Measure edge curve: An additional surface point can now be measured with a defined distance to the edge. This additional surface point can also be measured when using Click'n'Measure for an edge point. [PT-489]
- Measure free-form curve: Measure edge curve: Reference points on small border surfaces are set on the bordering surface now. Thus edge points can also be measured on the trimming edge of small surfaces. [PT-1028] [PT-1621]
- Measure free-form curve: Measure edge curve: If the checkbox "Adopt measuring attributes from CAD file " is activated, the measurement attributes are taken out of the edge curve while programming or executing part inspection programs. The edge curve is taught as reference for the edge point. [PT-2008]
- Measure free-form curve: Measure edge curve: The tolerance of a reference point of an edge point can now be changed using "Edit" in the part inspection program. [PT-2007].
- Measure free-form curve: The probe radius compensated points of an actual curve (scanning or triggering) are now filtered with the minimal point distance. Thereby loops are prevented, which were caused by a non consistent sequence of the probe radius compensated points with small profile radii. [PT-3091].

Processing

- Filter element [F6]: In addition to the elements circle, cylinder, line and plane, the elements cone, sphere and plane/line can also be filtered with the filter function and taught into the PIP. [PT-1308] [PT-1460] [PT-2408] [PT-2471]
- Filter element [F6]: The magnification of the graphical display can now be set in the dialogue. [PT-3352] [PT-3353]]
- Create a construction element using several elements: The calculation of the geometrical target element can either be done using the element parameter (up to now) or using the element points (new). [PT-1459]
- Create min/max-point: New processing function integrated. [PT-547]

Coordinate systems

- Export difference between 2 coordinate systems: The file extensions *.MES, *.E or *.W are selectable. [PT-1371]
- Export difference between 2 coordinate systems: The function is now teachable. [PT-2137]
- Define coordinate system out of several points in the net: The actual-coordinates of the elements are taken over in the dialogue as suggestion for the target coordinates. If a surface point is selected as element, then point 1 is automatically inserted. [PT-1069] [PT-2519]
- Define coordinate system out of several points in the net: The selected elements, their target coordinates and selections can be saved in a file and reloaded later. [PT-1913] [PT-2914]
- Define coordinate system out of several points in the net: Points of actual surfaces and actual curves can now be used. [PT-3273]
- 3D bestfit for CS optimisation: With the switch [F9] of the function group "Feature determination", the rounding of nominal values can be activated or deactivated. [PT-3383]

Feature determination

- Position of an element: With negative nominal values the features can now be evaluated using the absolute values. For this, the CMWIN.INI file contains the following new entry:

```
[ CH ]
; Vectorial position: Feature values with negative nominal values are considered as
  absolute values
; 1 = for deviation
; 2 = for tolerance
; 4 = for nominal values
; 8 = for actual values
; (for combinations values add
;  e.g. all values (Deviation&Tolerances&Nominal_values&Actual_values) = 1+2+4+8 = 15)
;PositionMirrorXAxis = 15
;PositionMirrorYAxis = 15
;PositionMirrorZAxis = 15
```

[PT-588] [PT-1537] [PT-2225]

- ISO1101 / ASME Y14.5: Position tolerance: The evaluation of a position can now also take place using the ASME Y14.5 reference system, (Datum Reference Frame). [PT-1743] [PT-2373] [PT-2398]
- ISO1101 / ASME Y14.5: Position tolerance: The switch setting "circular or square tolerance zone" is kept. [PT-3376]
- Activate/Deactivate rounding of nominal values: New switch [F9] has been implemented. This switch affects feature dialogues and the 3D bestfit for CS optimisation. [PT-2024] [PT-3383]

Inspection reports

- Output of text/image: Now also a image file can be inserted into an inspection report. [PT-2920]
- Others: In order to be able to output the used CAD data in a report (text and graphics) a new report variable {CADELEM}. has been created. [PT-2921]

Part inspection programming, DMIS

- Create or edit a part inspection program: Part inspection program sentences are not buffered any more (100 sentences). They are stored right away into the database in order to prevent data loss. [PT-2554]
- Create or edit a part inspection program: Drawing and comment can be entered directly. [PT-2728]
- Relative measuring on/off [F7]: Edge points are moved to relatively now too. [PT-1343]
- Import part inspection program from DMIS file [F2] / Export part inspection program to DMIS file [F3]:
  Various settings can be set in a new dialogue "DMIS Settings" for
  - DMIS Program Import
  - DMIS Program Export
  - DMIS Program Execution (DIP)
  - DMIS Results Export

  , which previously could be partially set as converter options in the CmWin.ini.
  Further one can define by which method the automatic numbering (starting values) of the elements, coordinate systems, features, probe systems and reference spheres shall be done (import starts with). These numbers (starting values) are stored in the data management on the level part inspection program.
  Additionally an automatic naming for import and export can be defined.
  [PT-1314] [PT-1327] [PT-1730] [PT-2628] [PT-2631] [PT-2632] [PT-2640] [PT-2641] [PT-2651] [PT-2633] [PT-2690] [PT-3064]
- Import part inspection program from DMIS file [F2]: Several DMIS files can be selected and imported at once respectively converted into CM format. [PT-2484] [PT-2630]
- Export part inspection program to DMIS file [F3]: Several CM PIP can be selected and exported, respectively converted into the DMIS format at once. [PT-2639]
- Edit scan: Scans can now be edited within the PIP using "Edit". [PT-3348]

DMIS Interpreter (DIP)

- Execute: Stop: The CMM is stopped immediately with this command. [PT-3281]
- DMIS range of functions:
- MEAS/POINT, F(..),0 is supported in order to adopt the actual probe position as probe point (number of probe points = 0) [PT-2457]
- DMESW/COMAND, 'JUMPTO, …' for loops in part inspection programs.[PT-3116]]

System

- DME mode (Server): The interface has been enhanced for scanning und PHS mode (supported DME versions: 1.4.1, 1.4.2 and 1.4.3) [PT-2345]

Data

- Data management: The modification index of a part inspection program (date, time, operator, modification index) can be edited. The function is activated with a registry entry. [PT-2761] [PT-3357]
- Data management: Specify sorting for data records [F3]. The defined sorting for data records can be saved for all lists with "Save settings". [PT-3324]
- Change data base: The previously used databases are displayed in a list. Therefore a database change can be executed faster and easier. [PT-2326] [PT-2751]
- Import - Free-form data (CAD), CATIA V5: The converter supports the formats from version R5 up to R16.
- Import - Free-form data (CAD), DXF: New converters (DXF = Data eXchange Format, of AutoCAD) for the import of profiles as nominal element integrated. [PT-2549]
- Import - Free-form data (CAD), VDA, IGES, ProE, CATIAV4, CATIAV5, Unigraphics: New converter option "Select CAD coordinate system". If the CAD model contains several coordinate systems, one can select with which coordinate system the CAD data should be imported. [PT-1387] [PT-1622] [PT-2399]
- Import - Free-form data (CAD), CATIA V4, STEP, ProE: New converter option "Adjust converter data during conversion". The conversion can be accelerated by deactivating this option. [PT-2351] [PT-2498]
- Statistics settings, Filter: New checkbox "Ignore features without tolerance zone". By activating/deactivating this checkbox, one can define if features without tolerance zone should be displayed or not. [PT-2294] [PT-2907]

Machine

- Measuring machine settings: The switch settings "teach" / "do not teach " are saved at run time of CM. With the new main switch all switch settings can be set to "teach" or "do not teach" altogether. [PT-3185]
- Measuring machine settings: A retraction distance can now additionally be defined with the measuring und search distance. This only has an effect on controllers which are designed for this feature. This is the case for WPC 2030 (respectively any WPC controller with FLEX CPU, FW 1.17a or 1.17tc) up from FW 22.84. [PT-1145] [PT-1340] [PT-3106]
- Measuring machine settings: Scanning: End body End point plane: A plane can be used as end body for scanning unknown. The end point plane has only an effect on controllers which are designed for this feature. This is the case for WPC 2030 up from FW 23.09. [PT-2822]
- Relocate measuring machine / Relocate work piece: Both functions can now be executed with only one element. In doing so a translation only is calculated but no rotation. [PT-2770]
- Rotate rotary table only in idle position: The switch has been removed as newer controllers are not supporting it anymore. Now the rotary table is always positioned in idle position. [PT-2756]

- Offline programming: Now the actual position of the probe is suggested in the dialogs for entering an intermediate point or a probe point. [PT-3118].

Probe

- Calibrate probe system: Discoidal and flat cylindrical styli can now also be calibrated automatically. This can be done with triggered as well as with scanning probe systems. [PT-2049]
- Calibrate probe system: Scanning probe systems now are always calibrated "known", independently from the settings "known" / "unknown". [PT-3370]
- Calibrate probe system: AUTO F8 calibration of a star probe on a PHS is now possible. [PT-2734]
- Showm/modify probe systems: It is now possible to show/modify probe systems and to switch styli with PHS using the user interface (probe tree). [PT-3134]]
- Optimize probe system: New teachable function for automated optimization / correction of a stylus diameter of a calibrated probe system, based on a measured element with known nominal value (size). [PT-953] [PT-1414]
- Adjust probe system: New teachable function for the automated adjustment of the position (offset) of a calibrated stylus based on two measured elements. In the same time the stylus diameter can be optimized / corrected also. [PT-953] [PT-1414]
- Load probe system: Load a probe system with PH 10 out of an ACR3: After the stylus change, the probe head PH 10 is loosened and snapped in again. (Only with new MPC ACR3 driver) [PT-2938]
- Rotate probe head: The different probe heads MPH, PHS and REVO are now operated all over the same dialogue with identical extended functionality. Rotating is possible using the input for:
  - angles
  - reference element
  - direction

  Thereby, styli can also be rotated in normal direction of a surface or any desired element on the CAD model. With indexed probe heads, the nearest possible angle is suggested. [PT-617] [PT-1442] [PT-1478]
- Rotate probe head only in idle position: This switch has been removed as newer controllers are not supporting it anymore. Now the probe head is always rotated in idle position [PT-2756]
- Calibrate motorized probe head: The PHS motorized probe head calibration now is executed semi-automatically after the number of spheres with their rotation and pivot angles (positions) has been entered. [PT-601] [PT-1667]

Output

- Configure printer/plotter: Defined printers for text- and graphics output and their settings can now be taught in the PIP.. [PT-369] [PT-2729]

Periphery

- I++ DME Client: Functionality expanded for scanning and the Renishaw probe heads PHS and REVO (supported I++ DME versions 1.4, 1.4.1, 1.4.2, 1.4.3). [PT-2346]
- Measuring machine – Faro USB: New SDK version 5.0 integrated. Scanning is now also supported. [PT-1592] [PT-1844]

- Wenzel WPC2020/2030: For operation with scanning probe systems (Renishaw SP600, SP25, SP80 and Wenzel Phoenix) as well as for the I++ DME Server, a WPC firmware version >= 23.26 is imperatively required. This firmware contains several optimisation and improvments, which have an influence on probing behaviour, scanning, performance and accuracy. On starting up CM, the firmware version is checked and, depending on the result, the old or the new WPC driver is started. If the CM configuration does not match the firmware version, a corresponding warning ist displayed.

SCAN	PHS	FW < 22.54	FW < 23.26	FW >= 23.26
no	no	ok; "old" driver	ok.; Warning	ok
no	yes	ok; "old" driver	Error; Abort	ok
yes	no	Error; Abort	Error; Abort	ok
yes	yes	Error; Abort	Error; Abort	not possible (FW check ok)

[PT-3017] [PT-3483].

- Phoenix Sensor:
- Live image: A crosshair can be displayed in the middle of the screen as positioning aid. [PT-1852]
- Live image: The live image (pre view) can be rotated. [PT-2882]
- Manual measurement: Manual measurement without GRIPS and CAD model is now possible. The following elements are supported: surface point, plane, circle, rectangle, slot, sphere, edge point.
- Measurement with GRIPS: Additionally to the elements surface point, plane, circle, rectangle and slot, also the elements cylinder outside (bolts), sphere and edge point can be measured.
- Measurement with GRIPS: The distribution of the images for the measurement of an element can now also be made manually.
- Gap and concision: Over the menu Special "Measurement for external evaluation" images can be taken in order for gap and concision evaluation. The evaluation can be either executed within CM (distances of automatically to CM over turned auxiliary points) or external (results in a csv-file).
- Calibration: If a Phoenix sensor is mounted on a PH10, the calibration can be made using the function "Automatic calibration of probe system". [PT-2422]

Installation

- CMConfig: Measuring probe configuration: The maximum and minimum probe deflection range for scanning probes can now be defined. [PT-3188]

Release-Notes CM 3.60 SP 3

New functions

DMIS Interpreter, DMIS

- Execute, Export measurement results as DMIS file: The inscription format (DMO output) in accordance with DC specifications: F(label) can now be output with the same name like T(label). The settings can be set in the Cmwin.ini. [PT-3519]

Periphery

- Measurement machine – Zeiss CMM-OS: The CMM-OS driver has been updated and supports now also CMM-OS version 3.2. [PT-3405] [PT-3467]

Bugs Fixed

3D Graphic window

- Display: With certain graphics cards probe points of an element measured with GRIPS have been displayed transparent. The problem has been fixed. [PT-3166]
- Insert, SURF: The problem that, in exceptional cases, edge curves could not be inserted with activated CM-BORD module has been fixed. [PT-3504]
- Reporting: Chromatic surfaces with less than 256 points are displayed in the printout again. [PT-3292]

Measurement of geometrical elements

- Measure a surface point: Surface points which are measured with surrounding points and a radius of less than 0.5mm are now evaluated with the correct direction. [PT-3288]
- Measure a circle/cylinder: Maximum inscribed circles whose points are located in a sector smaller than 180° are calculated again in the same way like in CM 3.50t. [PT-2966] [PT-3248]
- Measure a circle/cylinder with "AUTO" mode: With the execution of the PIP the circles are projected correctly into the taught reference. [PT-3325]
- Measure a cone: Cones which are located on a coordinate axis can now also be measured with GRIPS. [PT-3384]

Measurement of free-form surfaces

- Measurement of profiles: The functions of the module CM-BORD now work properly no matter if CM-BAFF and/or CM-CURVE are activated on the metrokey. [PT-3511]

Coordinate systems

- 3D bestfit for CS optimisation: The 3D bestfit is now calculated correctly again with the use of planes. [PT-3255]

Inspection report

- Print inspection report: A GDI-handle-leak which could lead to an error message during the printing of an inspection report has been fixed.. [PT-3253]

Part inspection programming, DMIS

- Execute with parameter modification: The problem that, with the execution of a PIP with parameter modification on a Mora CMM, the machine stalled has been fixed. [PT-3359]
- Part inspection program mirror: Scan paths within scanning elements are now also mirrored. [PT-3553]

System

- Terminate program: With configured ACR2 probe changers (not MPC) error messages were displayed casually while terminating CM. This problem has been fixed. [PT-2810]

Data

- Export, Q-DAS: The number of decimal places to be output can now be configured using the field K2002. The default value for the number of decimal places is again 6. [PT-3263] [PT-3442]

Machine

- Relocate measuring machine: The problem that CM casually crashed during the calculation of the machine relocation has been fixed. [PT-3547]
- Temperature compensation: With calibration of a probe system in a PIP the temperature compensation has been optimised. Now there are no more differences regarding the temperature compensation while calibrating with or without PIP. [PT-3568]

Probe

- Automatic calibration of probe system…: The problem that with an AUTO [F8] calibration of a new probe system on a Mora CMM, the reference sphere has not been calculated correctly has been fixed. [PT-3358]
- Show/modify probe system…: Since CM 3.60 SP2 an exception error message was displayed after calling up the function twice. [PT-3335]
- Calibrate motorized probe head: If a PHS calibration is aborted, the CAA is now activated again automatically. [PT-3466]

Periphery

- IBRit measuring device interface (1DMV): With the call of the function "Enter user-specified feature [F11"] the error message "EMVA RS-232 receiving error" could be displayed. The problem has been fixed. [PT-3287]

Release-Notes CM 3.60 SP 2

New functions

Machine

- Relocate measuring machine / Relocate work piece: The functions can now be executed with only one element. In doing so a translation only is calculated but no rotation. [PT-2910]

Installation

- CMConfig, Interface, Selection, Multi carriage/-machines: An existing measuring machine relocation (carriage adjustment) can be deleted from the registry with a button. [PT-3079]

Bugs fixed

3D Graphic window

- Display: The problem of the non display of the grid and the coordinate cross on computers equipped with NVIDEA GeForce FX5200 graphics cards has been fixed. [PT-2897]

Measurement of geometrical elements

- Measure a circle/cylinder: Scanning known, Search mode: With scanning a circle known and input of only one reference element and the measurement depth, it could occur that the probe was searching the start point in the air. The problem has been fixed. [PT-2953]

Measurement of free-form surfaces

- Measure free-form surface: Click'n'Measure [F6]: If probe points were probed with C'n'M in offline mode (GRIPS) a collision warning for each probe point was displayed. If this warning was confirmed with "Ignore", the created point had a deviation which corresponded to the probe radius. The problem has been fixed. [PT-2996]

Processing

- Create a construction element using several elements: Cylinder using several point/plane elements in a part inspection program: In order to prevent a wrong direction of the cylinder with an unfavourable point distribution, the direction for the cylinder out of the PIP is used as start value for the regression calculation. [PT-2909]

Part inspection programming, DMIS

- Execute part inspection program with parameter modification: A resource leak, which led to an access violation in the graphical output of inspection results, has been fixed. [PT-2653]
- Execute part inspection program with parameter modification: In the graphical output of inspection results (geometrical graphics) several additional parameter or feature boxes have been invisibly inserted (only white). [PT-3136]
- Cut, copy, insert and delete PIP sentences: It could occur, that wrong or too many PIP sentences had been deleted. The problem has been fixed.
  If more than one PIP sentence is selected, the warning before deletion will now display the number of selected entries (to be deleted). [PT-2929]

System

- Remote control: Remote Control Interface (RCI): CM could not be operated by remote control in CM 3.60. The problem has been fixed. [PT-2952]

Data

- Data management: SQL data base: With the selection of a work piece, longer idle time could occur. The problem has been fixed. [PT-3050]

Machine

- Relocate measuring system: The calculated relocation matrix is directly written into the registry by clicking on [OK]. [PT-3079]
- Temperature compensation: The problem, that the temperature compensation has been deactivated after the calibration if no CAA compensation file exists, has been fixed. [PT-3013]

Probe

- Calibrate probe system (PHS): The accuracy of the calibration (position of the reference sphere with remeasurement) has been improved with PHS machines equipped with WPC FW >= 22.54 and active CAA3. [PT-2906]
- Automatic calibration of probe system: A known calibration of the SP25 with the module SM25-4 was not possible. The problem has been fixed. [PT-3025]
- Automatic calibration of probe system: The motorized probe head angles of the probe systems are being written correctly into the database also with the angle settings degree, minutes, seconds (° ' "). [PT-3005] (additional corrections from [PT-2476])
- Show/modify probe system: Components: The display (length) of the stylus holder SH25-3 and SH25-4 has been corrected. [PT-3089]
- Probe change: ACR2: The probe change between PHOENIX and a trigger probe system works from FW22.78 (FW23.20) properly. [PT-2932]
- Probe change: SCP80: The dislocation of the stylus holder SH80 in the SCP80 changer which occurred with the backing out with roundcorner has been fixed. [PT-2982]

Output

- Print inspection report, VDA initial sample report: The error that umlauts were not displayed correctly in an inspection report, has been fixed. [PT-2991]

Special

- External bestfit CS, Baltic: Due to an improved import routine, blank lines now accepted within the import file. [PT-3009]

Periphery

- Renishaw UCC1: In CM 3.60 the control of the PH10 using the PH10 card which is integrated in UCC1 did not work anymore. The problem has been fixed. [PT-2599]
- SCP80 Probe changer: It could occur that the stylus holder SH80 wouldn't sink down fast enough. Thus the stylus holder could be pulled forward while moving out of the SP80. Now a delay in tenths of a second can be defined in the CmWin.ini for moving out.
  ```
  [MPC]
  SCP80Delay=10          ; (Default: 10 = 1s)
  ```
  [PT-3149]

- Multiple probe changer (MPC): The change velocity which has been set in CmConfig has partially not been considered. The problem has been fixed. [PT-3150]

Release-Notes CM 3.60 SP 1

New Functions

3D Graphic window

- Reporting: In the graphical output of inspection results with statistic boxes, connecting lines are now drawn between the two reference elements if "Display connection lines " is activated. [PT-2142]
- Reporting: The scaling of the line diagram and the bar chart in the statistic boxes (actual element / work piece statistics) is being geared to the statistic settings.
  The selected diagram range determines the following scale
  - ±3 sigma or min..max → tolerance range AND min/max-range (equivalent to CM 3.5x)
  - Zone, tolerance zone or action limits → ONLY tolerance range (equivalent to CM 3.60)

  Alternatively the following CMWIN.INI entry can be used for a permanent setting which steers the statistic settings:

  ```
  [Statistic]
  ScaleModeY=0        ;( → Min/Max)
  ScaleModeY=1        ;( → ONLY tolerance rangr)
  ```

  [PT-2572]

Data

- Import surface data (CAD), CATVIA V5: The converter supports the formats from version R5 to R14. [PT-2569]
- Import surface data (CAD), Unigraphics: The converter supports the formats up to version NX3. [PT-2103]
- Statistics settings, Filter: New selection choice to hide features with deviation out of / within of x % of the tolerance. [PT-2530]

Probe

- Switch probe type: New, the switching to "triggered probe" is also teachable within an element in the part inspection program. Therewith the probe type can be changed after loading a scanning probe (for example SP25) within an element measurement, so further points can be probed in the trigger mode. The switching to a different probe type (for example fixed probe, edge tool, scanning probe,…) is still not teachable. [PT-2474] [PT-2796]
- Show/modify probe system: The direction of the styli is also editable with an active configuration (graphical display). Changes in the direction only have an effect on the calibration values, not on the graphical display. [PT-2683]

Periphery

- Leica emScon: The number of decimal places for the limit of the check measurement (to be found on the "Laser Tracker 2" – Register/Tabsheet of the measuring machine dialog) is set permanently to the maximum number of decimal places and is not anymore bound to the user specific CM settings. [PT-2445]

Bugs Fixed

General

- Windows / Dialogs disappear in the background. A "general" adjustment prevents dialogs from disappearing behind the Metrosoft CM main window. [PT-2318]

- Access Violation during starting CM: Are a lot of external programs configured under "Special" (length of all descriptions > 512 characters), there will be no longer a "Access Violation". [PT-2674]

3D Graphic window

- Reporting: The dialog to edit a marking box is no longer displayed in the middle of the screens in dual-screen mode. [PT-2528]
- Reporting: With the graphical output of inspections results of features in the geometric graphic in a part inspection program, the element representation can not be lost anymore. [PT-2586]
- Reporting: With executing a PIP in CM 3.60 which derives from CM 3.50 or older, the coordinate axes have always been displayed and printed in the top left. This has been fixed. [PT-2686]
- Editing: Element-/measuring point data, edit surface reference: The surface reference (number) of the actual points now is being displayed with identical numbers, like in the data management in the column “Reference”. [PT-2605]

Measurement of geometrical elements

- Measure circle/cylinder: Scanning known: In any case the starting point will no longer be searched parallel to the machine axis instead in the direction of the reference element. [PT-2443]
- Measure circle/cylinder: Scanning unknown: On certain computers the Circle-Scan has not been started due to a timing problem of the WPC controller. The CMM stood still. [PT-2626]
  The problem has been solved with the WPC Firmware; therefore it is mandatory to use the WPC Firmware version 22.75. [WPC-26]
- Measure cylinder: Scanning unknown: Error with spiral scan (Helix) unknown has been fixed. It was traveled partly on wrong paths or fitfully. [PT-2772]
- Measure circle/cylinder: With PHS and AUTO [F8], the search movement, to determine the diameter, is driven correctly even without entry of radius and starting point, the retraction is performed without collision. [PT-2747]

Measurement of free-form surfaces

- Measurement of free-form surfaces: If, during the measurement of an actual surface, one moves out of the CMM software limits by joystick, the measurement will not be aborted anymore and further points can be measured. Appeared only in CM 3.60. [PT-2490]
- Measurement of free-form surfaces: Measure a circle in an actual surface with PHS and AUTO [F8] activated: The search movement to determine the diameter is driven correctly, the retraction is performed without collision. [PT-2747]
- Measure unknown curve: The automatic measurement of a profile (BAFF Search-modus) now also works with the new WPC driver (MeDriver) out of CM 3.60. [PT-2669]
- Measure unknown curve: Scan profile: During the measurement of a unknown curve with a scanning probe system, the message "Target window can not be reached“ appears, no matter which SCAN-settings were made. [PT-2656]
  The problem has been solved with the WPC Firmware; therefore it is mandatory to use the WPC Firmware version 22.75. [WPC-25]
- Measure unknown curve: Scan profile: During the measurement of a unknown curve with a scanning probe system, it could occur that no points were probed. [PT-2657]
  The problem has been solved with the WPC Firmware; therefore it is mandatory to use the WPC Firmware version 22.75. [WPC-26]
- Measure unknown curve: Scan profile: During the measurement of an unknown curve with a scanning probe system, it could occur that after probing the direction point, the probe moved into the wrong direction. [PT-2662]
  The problem has been solved with the WPC Firmware; therefore it is mandatory to use the WPC Firmware version 22.75. [WPC-26]

Processing

- Create an intersection ... : All mathematical solutions are shown with an intersection between a curve and a plane. [PT-2588]

Feature determination

- Size of an element (e.g. diameter): If just the width of the slot or rectangle is out of tolerance and it is being reported, the width is recognized as being out of tolerance. Appeared only in CM 3.60. [PT-2433]
- ISO1101 / ASME Y14.5: Position tolerance: With a square tolerance zone, the correct actual tolerance is exported into the protocol. The deviation has always been calculated correctly. [PT-2574]
- ISO1101 / ASME Y14.5: Profile of any line/surface and surface form: Evaluation with unequally distributed (asymmetrically) tolerance corrected. [PT-2746]
- ISO 1101 / ASME Y14.5: Profile of any line/surface and surface form: The reported value of the tolerance exceeding with an unequally distributed (asymmetrically) tolerance has been fixed. [PT-2773]

Part inspection programming, DMIS

- Execute part inspection program: Program stop without error message (with new fast PCs the Task MeDriver disappeared suddenly) fixed. [PT-2392]
- Execute part inspection program: The PIP manipulation to connect two scanning elements into one scanning element does not work anymore in CM 3.60 and a in CM 3.50 manipulated PIP does not work in CM 3.60 anymore. Risk of collision! Now the execution of a manipulated PIP is being stopped with an adequate error message and a hint that the PIP has to be adapted. [PT-2440]
- Execute part inspection program: In calibration programs of scanning probes (scanning) the surveillance of the maximal accepted range is based on the range of the scanning calibration and not anymore on the range of the triggered calibration. [PT-2710]
- Execute part inspection program: The PIP sentences "Change to stylus" and "Load probe system", which have been learned with a single-changer and are executed with a configured multiple-changer (Multiple probe changers, MPC), now leads to the adequate error message. The PIP is stopped, whereby collisions are avoided. [PT-1256]
- Execute part inspection program with parameter modification: If the PIP is aborted [F12] on a sentence “Load probe system…” the probe system will not be loaded anymore. Thereby no unwanted probe rotation will be made. [PT-2535]
- Execute part inspection program: EWtxException (Exception from CmSurf) with PIP sentence "Load probe system" with new, very fast pc’s is fixed. [PT-2740]
- Execute part inspection program: The error handling with the execution of positioning commands (edge points) has been improved. Upcoming errors at the controller are recognized in CM and the PIP can be aborted. [PT-2395] [PT-2515]
- Import part inspection program out of a DMIS-file [F2]: In DMIS programs which have been created with DMISGEN (BMW) and were subsequently converted (import) into a CM PIP, now a projection of the auxiliary elements is executed with executing the macro elements rectangle and slot (e.g. created with DMESW/COMAND, 'BEGINMACRO, RECTANGLE, FA()'). [PT-2664]
- Export part inspection program into a DMIS-file [F3]: No additional space character will be added to comments between $$ and the first character of the comment with the DMIS export. [PT-2447]
- Export part inspection program into a DMIS-file [F3]: Now the path for the DMO file (from protocol settings) is being written into the DMESW/COMAND, 'PROTOSET with the DMIS export. Before the path got lost. [PT-2448]

DMIS Interpreter (DIP)

- Run, Syntax check: A label consisting out of a number higher than 9999 will now be interpreted as a name instead of a number in CM. Thereby the error message that the number is to big can not occur anymore. [PT-2595]

System

- Country settings, Dialogue language: (Italiano) [IT]: Wrong Italian texts are corrected. [PT-2583]
- Country settings, Dialogue language: Japanese [JA] und Taiwan [TW]: Missing texts completed with English texts. [PT-2541]

Data

- Data management, Export [F12]: The error message which occurred under certain circumstances, has been eliminated. [PT-2380]
- Data management, Copy data to …, Copy data from …: Copied actual values (inspection plan) were missing in the statistics, as a necessary information was not being copied. [PT-2679]
- Import surface data (CAD), IGES: Error while converting, faceting and displaying of individual surfaces fixed. [PT-2473] [PT-2582] [PT-2654]
- Import surface data (CAD), Unigraphics: Converter improved, in rare cases too many elements have been displayed, respectively may not have been translated correctly. [PT-2575]
- Import - VDA geometrical elements: With the import of a PSET to a circle the calculation of the reference plane has been optimized. [PT-2593]
- Export - Q-DAS: Access violation with Q-DAS-Export of very many features eliminated. As soon as more than 1000 features are selected, a warning will be displayed. [PT-2597]
- Statistics, Excel-Export: The Visual Basic runtime error with the creating of an Excel actual value examination report when only 1 feature was selected has been eliminated. [PT-2472]
- Statistics: With the polar evaluated feature "Position of an element", the nominal and actual values are reported wrong in the trend chart, the histogram and on the data page (converted twice). [PT-2666]
- Statistics: The error message "List index out of bounds(9)", which appeared with opening the statistics of a special measurement selection and missing measurements, has been eliminated. [PT-2700]

Machine

- Axis drives on (off): The correct dialog is called again (on <> off) as well as [OK] and [ESC] are working correctly. [PT-2581]
- Measuring machine settings: Scanning, Pre-travel: With known scanning of a circle with an active pre-travel, the machine stopped shortly at the end of the pre-travel instead of continuing scanning with a constant velocity. The short stop has been eliminated. [PT-2495]
- CAA settings: The error message "CAA File does not fit to Metrokey" is not being display in the middle of the two screens while starting up CM in dual-monitor use. [PT-2503]
- Temperature compensation: The default temperatures from the TempCompMan.dat will be read and used correctly in any case while starting up CM. [PT-2798]
- Position rotary table: While positioning a rotary (CNC) often a slight wrong position has been moved to. Now the entered rotary angle is being reached more exactly. [PT-2712]
- Position rotary table: With the new WPC driver, the brake of the rotary table locked and unlocked uncontrolled, which means it could occur, that the rotary table was locked although it should have been unlocked and contrariwise. [PT-2801]

Probe

- Calibrate probe system: The possible shaft collision with the SP25M calibration at the angle A90 / B0 and valid security range, has been eliminated. [PT-2527]
- Calibrate probe system: AUTO [F8]: The calibration now also works with the old WPC driver (FW < 22.54) after a probe change with a multiple changer. [PT-2481]
- Calibrate probe system: AUTO [F8] Calibration of a star probe (stylus at right angle to the sensor direction) now is also possible on the PHS. [PT-2486]

- Automatic calibration of probe system: The angles of the motorized probe head of the probe systems are correctly written into the data base with the angel settings degree, minutes, seconds (° ' "). [PT-2476]
- Automatic calibration of probe system: The automatic calibration is possible with probe systems out of an older version of CM (SysDB <= CM 3.50), as the stylus direction is adapted correctly. [PT-2570]
- Automatic calibration of probe system: The wrongly displayed error message "At first, please define the mounting position of the sensor!..." while calibrating a PHS probe system has been eliminated. [PT-2478]
- Show/modify probe system: Enter offset: The entered stylus offset of a PHS probe system is being considered while rotating. The offset is being recalculated for every PHS position. [PT-2624]
- Load probe system: If a new probe system was loaded while measuring en element, the stylus was possibly not active anymore. This has been corrected. [PT-2439] [PT-2474]
- Rotate probe head: The error handling with the “PHS error” (for example after a collision) has been improved. [PT-2749]
- Calibrate motorized probe head, PHS: After calibrating a PHS motorized probe head or initializing a PHS, under no circumstances a restart of the CNC is needed to prevent that a loaded probe system does have an offset. [PT-2536] [PT-2538]
- Others: A scanning probe (SP25) can be reset even if the warning message "Probe still deviated! Reset scanning probe?" after "Activate override..." (out of the CMM error dialog) is confirmed. [PT-2580]

Output

- Configure output of probe points: The settings in the dialog do not get lost anymore, which means by opening the dialog again, the previously defined settings are active. [PT-2655]

Special

- External programs: With execution with parameter modification of a learned sentence "External program" the originally defined working directory does not get lost anymore.[PT-2479]
- Sensor adjustment: The Phoenix sensor adjustment can be aborted with [ESC] anytime. [PT-2424]

Periphery

- Wenzel WPC2020/2030: For the scanning probe system (Renishaw SP600, SP25, SP80), the WPC Firmware version 22.75 is required, as it contains multiple updates. With the start of CM it is still checked for FW 22.54.
  In case the Renishaw PHS is in use with the FW 22.54, FW 22.75 is required likewise, otherwise it should be worked on with the same Firmware version (e.g. 12.57).
- Wenzel WPC2020/2030 with rotary table: With opening the dialog “Position rotary table”, the brake of the rotary table locked and unlocked uncontrolled, which means it could occur, that the rotary table was locked although it should have been unlocked and contrariwise. [PT-2801]
- Wenzel WPT100 Temperature box: While starting a PIP, the error message “Erroneous string received from temperature box..” could occur, if a periodically temperature query was executed practically at the same time the as the temperature query which is executed due to the start of the PIP. [PT-2689]
- Measuring machine – Faro USB: The hardware configuration dialog from FARO is also being called up in the foreground with first start of CM. [PT-2455]
- Measuring machine – Faro USB: After starting CM, the latest loaded probe system is being displayed as suggestion in the dialog "Load probe system". [PT-2460]
- Measuring machine - Leica emScon: With scanning in grid mode, the problem of wrong coordinates through a lack of transformation of the PCS, has been fixed.[PT-2446]

- Measuring machine - Leica emScon: CM can be started also without a T-probe and the corresponding hardware (camera) and does not freeze at 78%. [PT-2507]
- Measuring machine - Renishaw UCC1: With measuring in GRIPS online the probing points are adapted with direction and therefore the stylus diameter can be compensated. [PT-2611]
- Measuring machine - Zeiss CMM-OS: CM can be restarted several times. With a restart CM does not freeze with the dialog "ODialogs.Tdialog.Execute () failed" at 98%. [PT-2568]

- Phoenix Sensor:
- Measurement of geometrical elements: Measure circle/cylinder with Phoenix sensor: If an element can not be measured, no element with the parameter 0 is being created. [PT-2428]
- Measurement of geometrical elements: Measure rectangle, slot with a Phoenix sensor: The position of the element (rectangle, slot) is being calculated correctly also with a plane element as reference, respectively projected into this plane. [PT-2431]
- Measurement of geometrical elements: Measure plane with Phoenix sensor: If in the GRIPS dialog for the measurement of a circle or a rectangle, an element is selected as reference instead of entering the parameters, and a plane is measured subsequently, this plane will have a direction. [PT-2671]
- Part Inspection programming, DMIS: Mirror PIP [F4]: The Phoenix sensor measurement windows with surface points are also being mirrored. [PT-2483]

Installation

- CMConfig: Help, Installation instruction: The interface description has been updated to version CM 3.60. [PT-2625]

Release-Notes CM 3.60

New Functions

General

- Facelifting of the Graphical User Interface: The appearance of Metrosoft CM is modernized. The icons on blue background (Function groups, functions, function keys) are renewed. When operating under XP, dialogues and operating controls such as tab sheets, buttons, checkboxes and spin buttons correspond to the modern XP style.
  In order to have all icons visible on the symbol bars at any time, a minimal screen resolution of 1027x768 is recommended..
- Up to 30'000 points may be measured per element (formerly 10'000 max.).

3D Graphic window

- Open graphic window / File, reload model: Progress is displayed while loading CAD file. [PT-1413]
- File / Graphics output: During graphical reporting, the established views may be printed using this function without having to close reporting, which e.g. allows a test print. [PT-479]
- Insert: Direction of auxiliary elements (point, circle, rectangle, slot) may easily be toggled when inserting or editing. [PT-1691]
- View: Combined tool (rotate, pan, zoom) remains active all the time and is no longer deactivated by right mouse click. [PT-1341]
- Tolerances and tolerance band: Colour may be set differently for positive und negative deviations. This affects point symbols with deviation vectors as well as point boxes in graphical reporting. [PT-876] [PT-1029]
- Display, settings, colour definitions, colour spectrum: A colour spectrum may be defined for continuous colour transition limited by two colours (upper and lower limit).
- Display, settings, point display: In addition to the existing classifications "within warning limits", "within tolerances" and "out of tolerances", colours of the actual points may be set to continuous transition,. The tint of the actual points (point and deviation vector)" varies linearly to the amount of their deviation within a defined colour spectrum. Therefore, either the tolerance of each actual point or globally defined spectrum limits may be used for the calculation of the tint.
- Display, settings, point display: By means of "limit to ", the number of points displayed in geometric elements may be limited to a max. number. This increases the efficiency of the graphics, since representing a big number of point symbols results in intensive processing.
- Display, settings, connect actual points: Actual points in an actual surface can now not only be connected to lines, but also to a surface. The actual points are connected and projected over the CAD model with a triangular surface net. This surface is coloured according to the colours of the actual points, whereby the colour is interpolated within the facets (triangular). This often is referred to as "wrong colour representation". [PT-370] [PT-1086]
- Display, colour spectrum: The legend of the colour spectrum may be placed into the graphic window with a mouse click.
- Display, probe: In addition to the configured probe system, the probe head and quill may be switched on and off separately.
- Display, settings, representation, network grid: If a network grid is represented by intercept of axis, the intercept position of the coordinate system axis (cross-over point of the axis) can be defined. [PT-1344]
- Report: Inspection report settings "All features", "Only features out of tolerance" and "Features with deviations out of + / -%" are taken into consideration for graphic reporting too. This applies for

features in geometric graphics as well as for points in element graphics (Free form elements). [PT-198] [PT-497] [PT-940] [PT-978]

- Report, prepare view, content: Elements to be reported may be easily selected by means of the selection width such that e.g. only every 2nd, 3d or nth point is reported. In addition to that, the list of elements may be sorted by clicking on the column headers. [PT-496]
- Report, statistic box: Frame colour of the statistic boxes is drawn according to the colour of the maximum deviation contained in it. [PT-2100]
- Report, surface statistic: Functionality of face and measurement selection has been extended.
- Report, statistic boxes, display connection line: Statistic boxes for element-, workpiece- and surface statistics have two connection lines to the points with the largest negative and positive deviation (min/max points) [PT-1368] [PT-2113]
- New version of ACIS® Graphic - Kernel (ACIS 14.0.2)

Measurement of geometrical elements

- GRIPS: In offline programming, intermediate points may be set with the mouse outside of an element measurement in a graphically interactive way. [PT-307] [PT-623] [PT-1562]
- GRIPS: If the element marked on the CAD model doesn't correspond with the element to be measured, the operator is informed of with the message "Mismatch of marker on CAD model and element to be measured!". [PT-1683]
- GRIPS Scanning: On the basis of CAD models, the following elements can be measured graphically interactive with a scanning probe online on the CMM, or programmed offline [PT-639]:
  - line
  - line/plane
  - circle
  - circle/cylinder
  - cylinder
  - cone
  - sphere
- Measure plane: In scanning mode, two additional options are available: "Polyline (open)" and "Curve (open spline)". [PT-1061]

Measurement of free-form surfaces

- Measure free form surface: In offline programming, intermediate points may be set with the mouse in a graphically interactive way. [PT-307] [PT-623] [PT-1562]
- Measure free form surface: Collision detection when measuring with Click'n'Measure has been accelerated. [PT-1681]

Coordinate systems

- Define coordinate system out of several points (RPS): Nominal coordinates can now be taken over from a CAD model (3D graphic). This is helpful when determining a model PCS by means of a RPS adjustment. [PT-1601]
- ISO1101 / ASME Y14.5: Symmetry tolerance: A line may be used as reference element. [PT-1463]
- ISO1101 / ASME Y14.5, Profile of any line: If this feature is applied to a freeform curve, then the deviation is calculated directly from the freeform curve. A reference element is not required, since the CAD model is contained as nominal element. [PT-1154] [PT-1465]
- ISO1101 / ASME Y14.5: Surface tolerance: If this feature is applied to a freeform surface, then the deviation is calculated directly from the freeform surface. A reference element is not required, since the CAD model is contained as nominal element. [PT-1154] [PT-1465]

Part inspection programming, DMIS

- In CM part inspection program window, the new functions
  - cut
  - copy
  - paste
  - search

  allow easy editing of part inspection programs. [PT-364], [PT-477], [PT-599]
- Create or edit part inspection programs: Button [new...] enters the next free program number into input field.
- Execute part inspection program: If a motorized probe head is available and it is not calibrated, an error message appears when executing a calibration PIP relative to the reference sphere. After that, execution of the PIP is terminated. [PT-1805]
- AUTO Mode for element measurement: Known in DMIS as MODE/AUTO,PROG,MAN, this mode results in part inspection programs that do not contain probe points. Probe points and itineraries are calculated based on the parameters for element measurement and the actual probe system stored in the PIP. Because of that, clearly shorter, more flexible and, conditionally, sensor independent (switch/scanning/optical type) may be created. Parameters for element measurement may easily be modified by editing or execution with parameter modification. [PT-763]
- Export part inspection program to DMIS file / Export measurement results to DMIS file: The headers of the DMI and DMO files contain CM version and converter options. [PT-1712]
- Import PIP from 3D file [F5]: Functionality and corresponding CM-3D2CM module have been completely removed from Metrosoft CM. 3D programs imported in earlier versions of CM may still be executed. [PT-1623]

DMIS Interpreter (DIP)

- DMIS Functional range:
- DMIS4 commands (PAMEAS, PATH/UNKNOWN | LINE | ARC | HELICAL) required for scanning programs are implemented.
- TOL/PROFP for determination of the position of a surface point in normal direction is implemented analogue to TOL/PROFS, in both DIP and DMIS Import. [PT-1541]
- DMESW/BESTFIT is supported in the DIP. [PT-573]
- TOL/WIDTH, lotol, uptol, [LONG, SHORT] for feature "length / width" of slot and rectangle is supported. [PT-1545]
- CZ and CZSLCT for safety zones are accepted by the syntax check, but have no effect. [PT-1735]
- OBTAIN/F is supported in the DIP; up to now only OBTAIN/FA was possible. [PT-1657]
- @ Operator for labels is supported in the command CONST. [PT-1945]
- @ Operator for labels is supported in the commands OBTAIN und VALUE. [PT-1376]
- @ Operator for labels is supported in the commands RECALL/SA, RECALL/D, RECALL/DA, SAVE/SA, SAVE/D, SAVE/DA, SNSLCT/S and SNSLCT/SA. [PT-1822]
- Allowed commands within a measurement (MEAS - ENDMES) have been extended. [PT-571]

System

- Directories: Definition of system directories is simplified by use of a Windows standard component. The path may either be entered directly in the dialogue or edited. Furthermore, new binders may be created. [PT-1739]
- Terminate program, compress database: Prior to compression of the database, a backup copy is created automatically (.backupBC). [PT-2099]

- DME Mode (Server): Format: I++ DME interface (Version 1.4.1) is supported additionally.

Data

- Data management, SQL database: Processing speed while creating features has been optimized. The size of the SQL database no longer has an effect on the speed. [PT-523] [PT-1073]
- Data management: The reference of points in a freeform surface or freeform curve is displayed. R = Reference (reference number of the CAD model, analogue to assemblies), F = Face (face number), C = Curve (curve number) [PT-1493]
- Data management, copy to, copy from: Features and actual values of the inspection plan may be copied from one database to another. [PT-777]
- Data management, change database: Warning message added when changing system database. This one points out the fact that certain data such as probe head and probe changer calibration are not read again (actualized) and therefore will not match the new system database. [PT-2163]
- Export / Import: Probe systems may be exported and imported with necessary information for automatic calibration such as nr., name, rotation/swivel angle, group and graphical information (without calibration data). [PT-879] In this way, probe systems may be easily transmitted from one CMM to another. [PT-1053]
- Export - Q-DAS: Q-DAS export has been extended. Any K-fields may be defined. During export, these K-fields are read or a default value is exported. [PT-475] [PT-613] [PT-1287] [PT-1301] [PT-1335]
- Export - Q-DAS: During Q-DAS export in DFD / DFX format, when using option "Measurement only actual, new file ", only the DFX file is exported in case a DFD file exists already. [PT-2198]
- Export - Q-DAS: Export out of a part inspection program is no longer limited to 50 features. The new limit depends on the selection of the features (block creation). [PT-1508]
- Import freeform data (CAD), ProEngineer: Converter supports formats of versions 16 to Wildfire2. [PT-1355] [PT-1363]
- Import freeform data (CAD), CATIA V5: Converter supports formats of versions R5 to R13
- Import freeform data (CAD), Parasolid: Converter supports formats up to version 15
- Import freeform data (CAD), Unigraphics: Converter supports formats up to version NX2; Curves and points are converted [PT-1315]
- Import freeform data (CAD), user format: Converter supports LTT element (tolerances linked to surfaces, Link To Tolerance). This is an extension of the DC ASCII feature interface. [PT-504]
- Statistics: Features in the overview window may be sorted according to specific BMW criteria. [PT-776]
- Statistics settings, Excel export: The appearance of an Excel actual value examination report may be configured in the statistics settings. Features may be arranged in rows or columns. It is possible to select the export of actual values or deviations. Furthermore, the XLT template for the Excel examination reports may be selected. [PT-914] [PT-1119]

Machine

- AUTO on: Switch integrated for activating / deactivating the AUTO mode in a part inspection program.
- Measuring machine settings, scan method: Scanning of known path causes CMM to follow an exactly prescribed path. Due to that, essentially higher scan velocities are possible. The switch is also active during calibration of scanning probes, therefore making calibration noticeably more efficient and secure.
- Measuring machine settings, exposure time: For the optical Phoenix sensor, exposure times for laser lines and gray tones may be set and optimized.

- Relocate measuring system / Relocate workpiece: The relocation may be calculated using more than three points in order to increase precision (min. 3, max. 99). [PT-1639]
- CAA settings: The CAA files used are displayed together with their paths.
- CAA settings: The Wenzel compensation file cm-caaw.vo2 was extended, thus necessitating a conversion into the new format. [PT-1338]
- Temperature compensation: Basis temperature values may be configured in the file TempCompMan.dat (e.g. for rooms that are not air-conditioned at 20°C) [PT-754]
- Offline programming, graphical programming on: Intermediate points may be set graphically interactive with the mouse. [PT-307] [PT-623] [PT-1562]
- Offline programming, settings: For simulation of measurement execution, a delay per probe point may be set. [PT-1477] [PT-1771]

Probe

- Calibrate probe system / Automatic calibration of probe system: Mounting direction (shaft) of reference sphere is taken into account when calibrating touch trigger probes and scanning probes. Probe points are thus distributed optimally on the reference sphere depending on the stylus direction. The safety zone around the mounting shaft is excluded. [PT-947] [PT-1561]
- Probe system calibration settings: For calibration of scanning probes, it is possible to choose between new calibration or recalibration. The quick recalibration assumes a calibrated scanning probe system. Position and probe tip diameter are redefined, whereas the characteristic lines are adopted from the existing probe system.
- Reference sphere, settings: It is possible to define a safety zone around the mounting shaft of the reference sphere, which is taken into account during calibration. [PT-253]
- Probe type: The Phoenix sensor has been integrated, whereas the ORS ring laser and the OLS line scanner have been removed.
- Show/modify probe system: Probe systems may be assembled graphically interactive using template- and user catalogue for representation in the 3D graphic.
- Rotate probe head: The mounting position of the MPH (PH10) can be configured in the rotate dialogue. Because of that, operation is simplified especially on carriage CMMs in multi machine mode. [PT-1137]
- Calibrate probe changer, FCR25: Calibration of FCR25 channels is possible with TM25-20 and TP20, this in addition to the SP25.
- Calibrate probe changer: Multiple probe changer (MPC): The actual probe system may be assembled interactively in several steps. Prior to changing, a plausibility check for the connections is carried out. [PT-668]
- Probe Changer: Multiple probe changer (MPC), FCR25: New components SM25-4 und SH25-4 integrated. [PT-1939]
- Calibrate motorized probe head, PHS: At the end of the PHS motorized probe head calibration, the quality of the calibration is displayed. By means of this value, the operator decides whether calibration was successful or not. In addition to that, the results are stored in a log file "PHS Calib.log". [PT-1792]
- Scanning probes: New method implemented for resetting the probe excursion. Formerly, probe excursion was reset by means of the emergency stop, whereas now the dialogue "Reset scanning probe?" appears. [PT-1439]

Output

- Inspection report settings: "All features", "Only features out of tolerance" and "Features with deviations out of + / -%" are taken into consideration for graphic reporting too. This applies to features in geometric graphics as well as to points in element graphics (Free form elements). [PT-198] [PT-497] [PT-940] [PT-978]

- Inspection report settings: By means of an inverting switch it is possible now to report "Only features within tolerance " and "Features with deviations within +/-%". This applies to features in geometric graphics as well as to points in element graphics (Free form elements). [PT-1530]

Special

- Sensor adjustments: The optical components of the Phoenix sensor may be adjusted using a calibration normal.
- VANE probe: removed completely from Metrosoft CM. [PT-1198]

Periphery

- Wenzel WPC2020/2030: For operation with scanning probe systems (Renishaw SP600, SP25, SP80 and Wenzel Phoenix) as well as for the I++ DME Server, a WPC firmware version >= 22.54 is imperatively required. On starting up CM, the firmware version is checked and, depending on the result, the correct WPC driver is started. If the CM configuration does not match the firmware version, a corresponding warning ist displayed. The firmware version 22.54 contains several improvements, such as probing optimization, scanning, performance, ...
- Wenzel Phoenix sensor: The optical Phoenix sensor has been fully integrated. Available are functions for settings of optical parameters, calibration and element measurement. Automatic measurement operations may be executed in CM part inspection programs as well as in DMIS programs.
- HT400: Function keys F1 – F12 may be configured in HT100.dat. Previously, only F1 – F10 were supported. [PT-1686]
- Renishaw SCP600 probe changer: Driver integrated (Multiple probe changer) [PT-2069]
- Leica emScon: Driver extended. The Leica LaserTracker may now be operated with a T-probe and in scanning mode. [PT-1366]
- Leica emScon: When measuring a freeform surface (SURF), a lead point may be set for each point in order to determine probing direction. [PT-1391]
- Mora Gemodek: Function keys F1-F8 of the manual box are supported. [PT-1898]
- Romer GDS: New version of GDSDLL integrated, which supports the new Sigma arm. Additionally, this version no longer requires a dongle. [PT-2084]
- I++ DME Client driver (version 1.4 and 1.4.1) integrated.
- Simulator: The functionality in simulator mode has been extended:
  - The Renishaw PHS probe head may be simulated.
  - Calibration of probe head may be accessed and simulated.

Installation

- Windows NT4.0 is no longer supported; an installation of CM is no longer possible.
  Reason: In CM 3.60, new techniques and components integrated as a standard in Windows XP are used; these are missing in Windows NT 4.0. Additionally, Microsoft officially no longer supports Windows NT 4.0 since February 2002. [PT-1929]
- Rights: Metrosoft CM no longer needs writing access on the WPC directory (WPDAT.PMC); a reading access is sufficient. [PT-1497]
- Metrokey driver (version 5.42 for parallel and USB key) is installed directly with Metrosoft CM, respectively actualized during an update.
- New SQL 2000 SP3a MSDE are delivered with the CM Installation-CD (German and English Version). [PT-1980]
- CmConfig, Installation, configure Metrokey driver: Metrokey driver version 5.42 (for parallel and USB Sentinel key) integrated. [PT-1759]

- CmConfig: The installation hints (Metrosoft CM Configure Help) may be accessed easily and directly by means of [F1]. [PT-1777]
- CmConfig, Interface Selection, Measuring, Simulator: The simulated probe head can be selected. Therefore, the Renishaw PHS may now be used offline too (with simulator). [PT-503] [PT-1048]
- CMConfig, Interface Selection, Measuring, Configure measuring machine: Direction, width and length of the quill may be configured for graphical representation in CM.
- CMConfig, Interface selection, probe: Representation of probe head and type of motorized head may be configured for graphical representation in CM.
-

Release-Notes CM 3.50 SP 3

New Functions

Feature determination

- Position of a surface point: It can be selected if the feature name is created automatically out of the point name. [PT-2034]

Part inspection programming, DMIS

- Execute Part Inspection Program, Error dialogue CMM: New option "Translate PCS". Translating the PCS during the execution of a PIP allows to avoid further collisions caused by workpiece deviations. [PT-1723]

Bugs fixed

General

- CM User interface mixed up, toolbars with icons of function groups and functions covered by a white field (pnlSrfMeas): Problem will no longer occur [PT-1571] [PT-1633]
- Start of Metrosoft CM: Exception in GDI32.dll when using new, fast PCs is eliminated. [PT-1752] [PT-1905]

Measurement of free-form surfaces

- Measure free form surface: The B-deviation of circle, rectangle and slot could be calculated wrong when using Click'n'Measure in CM 3.50 SP2. [PT-1702]
- Measure free form surface: Collision detection in Click'n'Measure: Algorithm optimized in order to prevent wrong collision detections at the clicked spot. [PT-2158]

Processing

- Create extract element out of a curve: In CM 3.50, the search window did relate to the machine coordinate system instead of being calculated relative to the active coordinate system. [PT-1781]

Feature determination

- ISO1101 / ASME Y14.5: Concentricity / Coaxiality: Wrong calculation of concentricity of imported elements as the coordinate system was translated. [PT-1977]
- ISO1101 / ASME Y14.5: Position tolerance: When evaluating using the probed points (effective length), the nominal position (actual values) is not rounded up again. Therefore, actual values remain stable when changing between the different definitions of the effective length. [PT-1652]

Part inspection programming, DMIS

- DMIS Interpreter (DIP): When executing a Multi Machine/Carriage Mode DMIS program, two consecutive carriage selection instructions "CRSLCT / CR()" no longer cause the carriages to wait on each other, thus causing the DMIS program to pause. [PT-1613]
- Loop within PIP: Element incrementing now works correctly for extract elements too. [PT-1689]

- The signs of edge points and relative points in mirrored SURF PIP are no longer reversed by mistake when editing via right mouse button or execution with parameter modification. The problem occurred since CM 3.50 SP1. [PT-1586] [PT-1784] [PT-1944] [PT-2053]

Data

- Change data base: Error message "is not a valid date" no longer appears when changing to a CM 3.20 data base. [PT-2026]
- Data management: As of CM 3.50, actual values of the ISO 1101 position tolerance features are saved in a different way. When converting a data base from CM 3.4x or older, existing actual values are converted into the new format.
  If a data base from CM 3.4x or older has been converted with CM 3.50 (SP1, SP2) already, then the possibility exists to convert the older actual values using a additional program. For that purpose, please get in touch with your vendor of Metrosoft CM. [PT-1839]
- Q-DAS Export und Statistics Excel examination report: Date/Time stamp was not correct for certain data in the Q-DAS file in the value line (Actual value) and in the Excel examination report. [PT-1673]

Machine

- Multiple carriage / Multiple machine settings: Carriage Nr. 1 now is always the master [PT-1733]
- CAA settings: An "Error Date" of the CAA compensation file could be displayed although the file was present. This is no longer possible. In case the file can really not be accessed, an "Error File Access" is displayed. [PT-1745]
- Relocate measuring system: Following "Recall", the "OK" and "Calculate relocation" buttons are active right away. Input of a non existing element is intercepted; therefore deadlocks are no longer possible. [PT-1446]
- Temperature compensation with Wenzel WPT100: Display sequence was optimised in the register "Sensors" and the CMM difference is calculated from the MMC sensors only. [PT-1694]

Special

- External programs: External programs in PIP were in some cases not executed correctly, as the working directory was no more taught in the PIP since CM 3.50. [PT-1695]

Periphery

- Machine - WPZ50: Measure free form surface: The probing vectors of the surface points sometimes pointed in the wrong direction, thus too big deviations occurred when measuring free form surfaces. The WPZ50 driver was adapted to the WPZ 50 firmware delivered. [PT-1504] [PT-1661]
- Machine - WPS Silma: Wrong stylus identification on a star probe corrected. Stylus numbers are now attributed in CM according to the Silma names. [PT-1978]
- Machine - DEA Chorus NT: In CM 3.50 (SP1, SP2), the functions for "Probe changer" and "Load reference sphere " were not active and could not be executed. [PT-1891]
- Machine - LK: On starting up CM, positioning to the home position can be prevented in the LK dialogue with [ESC]. With [OK], CM will not block up any more. In addition to that, a dead lock caused by an MPC task requesting information too early from the controller was resolved. [PT-1403] [PT-1538] [PT-1649]
- Machine– LK: Deadlocks when executing PIP were eliminated with corrections in the LK DLL; communication CM <-> LK2000+ is no longer aborted. [PT-1486]
- Machine - LK: The icon for the motorized probe head (MPH) is displayed all the time in Windows XP too. [PT-1500]
- Machine - Renishaw UCC1: The measuring distance set in CM is active in joystick mode too. [PT-1856]

- Machine - Tri Mesures: With CM 3.50 (SP1, SP2), no connection to the motorized probe head could be established. [PT-1678]

Installation

- CmConfig: Interface – Selection: A selected I/O Server was not always displayed [PT-1219]
-

Release-Notes CM 3.50 SP 2

New Functions

Measurement of free-form surfaces

- Measure free-form surface: Measurement with material thickness compensation for Click'n'Measure and manual measurement in consideration of the auxiliary element direction and the switch "Adopt measuring attributes from CAD file" optimized [PT-1598]

Feature determination

- In ISO1101 / ASME Y14.5 features, where size compensation is possible, the dimension features Diameter, Radius, Length/Width(*) and Distance(*) are additionally allowed for size compensation (MMC, LMC). In addition to, features for size compensation must no longer refer to the tolerated or the reference element.
  (*) features are only allowed for size compensation if only one component (e.g. Length, Width, [X], [Y], [Z], [R]) is evaluated.
- Position of a surface point [Actual surface]: The names of the points within an Actual surface are newly taken automatically as names for the features. If a point has no name, the name of the feature is given by the old technique. [PT-106]

Inspection Reports

- Print test report, VDA initial sample report (EMPB): New Report template (Rev. 3.0) in English integrated. [PT-286]

Bug Fixed

General

- Coordinate display and status line: After update to CM 3.50 the coordinate display is inexistent and can not be activated [PT-1466]
- Quick selection table: Execute a part inspection program via Batch mode: wrong PIP-Name is displayed in Batch mode list [PT-1350]

3D Graphic window

- Display: Direction vector of auxiliary elements (from CM < 3.50) is not displayed [PT-1583]

Measurement of free-form surfaces

- Measure free-form surface: Click'n'Measure: The parameters after click onto an auxiliary element (circle, rectangle, slot) are always displayed with positive direction vector. → New, the defined direction of the auxiliary element is displayed always, independent of the clicking direction. [PT-1584]
- Measure free-form surface: If the switch [F6] Click'n'Measure is pressed when manually measuring a surface point (without C'n'M), the measuring attributes of the CAD file (surface) are not taken into account. [PT-1596]
- Measure free-form surface: Measuring machine stops without an error message during the execution of a PIP measuring a circle, rectangle or slot within SURF. [PT-1627]
- Measure free-form curve: Edge curve: the first edge point gets a wrong tolerance [PT-1595]

- Measure free-form surface: Adopt element into actual surface: With the setting "Calculate nominal point using direction in PIP" the location of a cylinder can now be projected correctly in direction of the cylinder axis onto a surface. [PT-1346]

Feature determination

- Nominal/actual comparison between elements: Evaluation of "Profile measured" to "Profile Import" (reference) can be wrong if a coordinate system is active. If the active coordinate system was rotated in relation to the machine coordinates, the points of the profile were projected into a wrong plane. [PT-1602]
- ISO1101 / ASME Y14.5: Profile tolerance: see above [PT-1602]
- ISO1101 / ASME Y14.5: Position tolerance: When evaluating with 3 reference elements the result can be wrong if a part coordinate system is active. The temporary internal coordinate system, which is defined by the Primary-, Secondary- und Tertiary-reference, could be dependent on an active PCS. [PT-1581]

Inspection Reports

- Print test report (VDA): In the new initial sample report the %-deviation of zero limited features (ISO1101 / ASME) is wrong [PT-1615]

Part inspection programming, DMIS

- Execute a PIP: Part inspection program can stop without an error message when executing a sentence "Load probe system" or "Change to stylus", if before one ore several program lines within a free-form measurement were marked and executed. [PT-1574]
- Export PIP to DMIS file [F3]: The number of a coordinate system is exported as label → With the old converter the name of a coordinate system is exported as label as it was in CM 3.41. [PT-1634]

Data

- Statistics: The actual values of the feature "ISO1101 / ASME Position tolerance" applied on a point element and evaluated in only one direction are not correctly taken over in the statistic, the whole deviation (in all directions) is calculated and displayed. [PT-1631]

Probe

- Automatic probe system calibration: The calibration of scanning probes (SP25, SP600) using the function "Automatic probe system calibration" (Matrix) is less accurate than the calibration using the function "AUTO [F8] probe system calibration". → The difference of the calibration was caused by the calculated and therefore to inaccurate default position of the reference sphere. Therefore the position of the reference sphere is now always determined first by single point probing. [PT-1404].
- Automatic probe system calibration: The calibration of scanning probes (SP25, SP600) using the function "Automatic probe system calibration" (Matrix) does not work if the PH10 is not mounted in standard direction or is mounted on a CMM with rotated counting direction. → The PH10 mounting direction (CmConfig) is now considered in the calibration routine. [PT-1416]

Periphery

- Measuring device – Faro: FARO Driver Dialog: English translation is missed → the English texts are also implemented in the language DLL which are part of SP1 (French (FR), Italian (IT) and Dutch (NL)). [PT-1567]

Release-Notes CM 3.50 SP 1

New Functions

System

- Country settings: Dialog- and Inspection report language: new, completed language DLL integrated for German (DE), English (EN), French (FR), Italian (IT), Dutch (NL) [PT-1418]

Machine

- Relocate workpiece: Functions the same as "Relocate measuring machine", but after the relocation all probe systems can be used [PT-1262]
- Delete workpiece relocation

Periphery

- Leica emScon: Driver integrated, with the Leica LaserTracker single points can be measured [PT-1366]
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Bug Fixed

3D Graphic window

- Edit: Mirror CAD Models defective or not possible. [PT-1255] [PT-1401] [PT-1424]
- Insert: Nominal value of the inserted element are rounded to the adjusted decimal places [PT-1431]
- Report: Comments in measuring point box are no longer broken and protruding out of the box [PT-1310]
- Report: In surface statistic boxes the signs are always positive [PT-1425]

Measurement of geometrical elements

- Circle/Cylinder or Cylinder measurement: Scanning: Incorrect probe radius correction, when PCS is turned 90° to the MCS [PT-1426]

Measurement of free-form surfaces

- Create nominal element out of actual values: If the geometric graphic was previously opened the nominal elements are saved in MCS instead of PCS [PT-1304]

Feature determination

- Size of an element: During the reporting from length and width of a rectangle or slot in inch, the tolerance value of the length is doubly converted, when only the nominal value of the width was previously edited [PT-1361]
- Position of an element: Reporting in polar coordinates and configuration 0..360° the angle deviation is incorrectly reported [PT-1326]
- ISO1101 / ASME Y14.5: Profile tolerance: Reporting in inch the tolerance value is doubly converted [PT-1353]

- ISO1101 / ASME Y14.5: Parallelism: The parallelism between two planes does not always work correctly, the deviation is zero [PT-1288]
- ISO1101 / ASME Y14.5: Parallelism: The parallelism between two planes: Actual value changes by switching the method how the working length is defined [PT-1476]
- ISO1101 / ASME Y14.5: Position tolerance: Reporting in inch the tolerance value is doubly converted [PT-1349]

Inspection Reports

- Print out report line: Text in Dutch print out report line to long [PT-1408]

Part inspection programming, DMIS

- Import part inspection program from DMIS file [F2]: Configuration from "Start Import with" has no effect if using the new converter [PT-1362]
- Export part inspection program to DMIS file [F3]: By repeated Import / Export probe system commands are multiplied → Load probe system, change probe and rotate probe system are new exported into one (1) SNSLCT command [PT-1383]
- Export part inspection program to DMIS file [F3]: The name of the probe system are exported as labels → New: Using the old converter the probe system number is always used as label [PT-1318]

DMIS Interpreter (DIP)

- Run: OBTAIN/FA() from Cone: Delivers center of gravity point instead of apex point [PT-1296]

System

- Country settings: Dialog- and Inspection report language: Flemish is Dutch → Vlaams changed to Nederlands [PT-1330]

Data

- Statistic: Feature "Projection angle between two elements" is falsely evaluated if angle indication is set to degree, minutes, seconds [PT-1292]

Machine

- Rotary Table configuration: By angle display [° ' "] only the limit +180° / -180° is possible, not 0° / 360° [PT-1251]

Probe

- Calibrate auto change rack: Calibrating FCR 25 with 12 channels not always possible because the offset is to big [PT-1381]
- Calibrate auto change rack: Calibrating FCR 25 with the SM25-2 or SM25-3 Module: with incorrectly entered stylus length the FCR25 is falsely calibrated → the to be entered stylus length has been better defined [PT-1306]

Periphery

- Metrocount 3 / WPZ 200: occasional crash from CmDrvMc3.exe with WPZ100 [PT-1392]
- Romer GDS: Large variation while measuring with Renishaw trigger probe [PT-1483]

- Rotate head - Manual: CM blocks when a stylus is loaded during the start of CM [PT-1275]
-

Release-Notes CM 3.50

New Functions

General

- Information Symbol bar, Temperature: Displays the portal support temperature
- Output window 1: Icons for "Activate offline programming on/off" and "Material thickness compensation on/off" in the off state are newly (lightly visible) displayed. [PT-304]
- Output window 1: Icon for "Show/define motorized probe head" is also displayed in simulator mode
- Output window 2: Context menu: Menu entry <<DMIS-Terminal>> has been removed
- Status line, active coordinate system display: the dirty-flag (Star) is set when the PCS is set in the counter simulation over the function “Set selected axes to zero” or set selected axes. [PT-78]
- Status line, Display off: The function for activating and deactivating the coordinate display" has been removed
- Status line, Dimension unit: Displays the linear dimension unit (mm / Inch)
- Status line, Rotary table display: Displays the actual rotary table angle
- Status line, Motorized probe head display: Displays the actual rotator and pivoting angle
- General Use, Spin Buttons(arrow up/down in the input window value): activated through clicking and holding down the left mouse button. The value can be increased or decreased. [PT-113]

3D Graphic window

- System Menu, Graphic window: Fix window, prohibits the automatic adjustment of the window size while executing a SURF part inspection program with Circles, Rectangle, Slot. [PT-171]
- Edit, Element-/ probe point data: The properties inserted from parameters and additionally loaded auxiliary elements (Point, Circle, Rectangle Slot, Cylinder) can be edited.
- Edit, Element data: Definition and edition of CAD Measurement attributes (Name, Tolerance, material thickness) of inserted parameters and additionally loaded auxiliary elements
- Edit, probed point data: New option "Interrupt representation before point". The new option can be activated / deactivated over "Data management: Display / edit all marked Data [F5]", "Edit Part Inspection Program" or "Execute with parameter modification".
- View, Zoom, Scale: Correction factors for the monitor X- and Y-Axes, so that graphic reporting can be printed exact to scale independent from the active printer and the monitor resolution [PT-1157]
- View, load / save views: The number of graphical views is no longer limited to 12, any amount may now be saved
- Display: The direction of auxiliary elements Circle, Rectangle and Slot are graphically displayed
- Display, CAD Model: The display options (Solid model, Wire frame, Polygon) can be chosen separately for geometric elements and CAD Model (Geometric graphic linked with CAD Model)
- Display, Probe: The active probe is displayed with the effective probe tip diameter and shaft in the effective direction.
- Display, Settings: Dialog changed and expanded:
  - Colour definition for traverse path (travel path, probed points, intermediate points)
  - Representation contains settings for Network grid, Tolerance zone, Facets
  - Coordinates systems: Configuration for the display from "CAD model” and "active PCS"
  - Geometric graphic: Configuration for the element display and the dimensionless elements (General and Points) [PT-531]

- Display, Layer: Definition and edition of CAD Measurement attributes (Tolerance, Material thickness) on the layer.
- Insert: The characterics of the attached auxiliary elements (Point, Circle, Rectangle, Slot, Cylinder) can be edited directly after being inserted.
- Report, Prepare view: Through the linkage of the geometric graphic with the CAD-Model, a graphical report from geometry with the display of a CAD-Model is possible.
- Report, Prepare view: 3D Graphic settings are learned into the part inspection program with the graphical output. [PT-378]
- Report, Prepare view: Deviation of the nominal coordinates (X, Y, Z) through the new option "No Axis deviations" in the marking box can be blanked out. [PT-147]
- Report, Prepare view: Graphical reporting from geometry statistic can be taught into the part inspection program. When executing the PIP the statistic settings (Measurement selection) can be adjusted.
- Report, Prepare view: Actual element work piece statistic is teachable into the part inspection program. When execution the PIP the statistic settings can be (Measurement selection) adjusted.
- Report, Insert surface statistic box: In a surface statistic box surface points from many elements (actual surface and actual curve) from different measurements be gathered and statistically evaluated (Face Statistic). The selection of the surface point is based on the selected surface. (Face references).
- New version of ACIS® Graphic - Kernel (ACIS 8.0.10)

Measurement of geometrical elements

- Specification for element measuring and storage: Nominal element (CAD Model) and Model-PCS with measurement linkage, resp. Delete linkage
  The CAD model is displayed through the geometric graphic and can be used for alignment, measurement, and reporting.
- On the basis of CAD Models the following elements can be graphically measured interactively either online with the CMM or programmed offline:
  - Surface point
  - Point
  - Point/Plane
  - Line
  - Line/Plane
  - Circle
  - Circle/Cylinder
  - Cylinder
  - Cone
  - Sphere
- On the Basis of CAD models...
  - Measurement sequences can be created, executed, controlled and edited
  - Parameters like Number of Points, Method, Edge distance, Safety plane, Probed plane, Sector, etc. can be given
  - Measurement and Intermediate points can be interactively graphically edited
- Automatic measurement with measuring probe (Scanning)
  - All elements with OpenGL preview for visualizing scan path
  - Option "Lift probe" for the operation between the scan path
  - Plane circular: Optimised, now the nominal value can be edited [PT-624]
  - Cylinder: Extra scan path: Axial lines and Spiral formed
  - Sphere: New Scanable
- Automatic measurement, calibration, digitalisation activate/deactivate: AUTO [F8] function key stays active. After an element measurement or calibration is made with [F8] active, the Auto-Mode does not automatically deactivate.

Measurement of free-form surfaces

- Definition for measuring free-form elements, Adopt measuring attributes from CAD file:
  - Measurement attributes are considered during the measurement of actual surfaces and actual curves. The probing direction is used for the correct application of unsymmetrical tolerances and material thickness compensation.
  - The settings are taught into the part inspection program. [PT-730]
- Free-form curve (actual curve) measurement: New Option "Connect curve for graphical display"
- Free-form curve (actual curve) measurement: A measurement of actual curves is now only possible on plane free curves and no longer possible on spatial curves. [PT-312]
- Actual surface / Free form curve (actual curve) measurement: The "Check several solutions" [F9] button can be turned off inside a selection dialogs. [PT-1166]
- Actual surface / Free form curve (actual curve) measurement, relative measurement activate / deactivate [F11]: switch setting is saved over “Save settings" [PT-173]
- Actual surface measurement: New option (Edge distance, Measuring distance, Search distance) for Circle, Rectangle and Slot automatic measurement
- Actual surface measurement: Function “CNC-Measurement with Click-n-Measure [F6] deactivated when AUTO [F8] is activated. This prevents EsLib error messages when surrounding points through C’n’M are being measured.

Processing

- Creating a construction element using several elements: New option " Connect curve for graphical representation " with Free-form curve (actual curve).

Coordinate systems

- Rotary-Coordinate system: The active rotary coordinate system is displayed analogue to Part-Coordinate system and Pallet-Coordinate system in the status line. The display can be used to load a rotary table coordinate system from the database.

Feature determination

- Characteristics according to Dimensioning and Tolerancing (FD&T) ISO 1101 resp. ASME Y14.5M-1994: Additional reporting possibilities:
- Graphical interactive Display (OpenGL Graphic) the tolerance zone and the considered element (the tolerated element, reference element and the limitation element).
- Multiple references: The cooridinate system for the relevant evaluation can be defined by means of a multiple plane reference system. Characteristics: Line Form, Surface Form and Position tolerance.
- Size variation (Maximum- / Minimum-Material principle, MMC / LMC) for the tolerated element, also applicable for all reference elements. Characteristics: Straightness, Parallelism, Perpendicularity, Angularity and Positions tolerance. For the size compensation new characteristic difference can also be consulted.
- Limitation element allows a dynamic calculation of the work zone and work length. This allows the Tolerance zone to be exactly bounded (limited) resp. projected.
- The Form of the tolerance zone can be chosen for suitable characteristics (ex. for Parallelism, between two axes or for Position of Cylinders).
- Optional calculation of the deviation considered for single measured points of the tolerated element instead of the compensated element. Characteristics: Parallelism and Position tolerance applied to the element plane.
- Profile of any line: compare actual curve – nominal curve, applicable for unknown curve (Profile, Grid curve, 3D curve), synchronous or asynchronous tolerance zone.

- Surface tolerance: compare actual surface – Nominal surface, applicable for point surface, synchronous or asynchronous tolerance zone.
- Circularity/ cylindricity according to ISO 1101 / ASME Y14.5: Sphere is allowed as a tolerated element [PT-992]

Part inspection programming, DMIS

- Part inspection program - Display, Edit applied to probed points of free form curves (actual curve) or free form surfaces (actual surface): New Option "Use on all marked data sentences". With this option the Material thickness and Tolerance for all the same point types can be changed.
- Part Inspection Program-Display: Point number from free form-elements (Profile, Form curve, 3D curve, Point surface, actual curve, actual surface) are displayed [PT-455]
- Calibration program for measuring probe (Scanning):
  New: a calibration program for measuring probes (incl. Star probes) can be created with reference to the reference sphere (relative) or with reference to machine origin (absolute).
- Recall Part Inspection Program for use as a subroutine: DMIS (DIP) Program can be called out of a CM part inspection program as a subroutine. Thus e.g. part inspection programs generated in learn mode can be supplemented with small flexible DMIS programs. Thus you can use the full advantages of the free DMIS programming integrated into CM.
- Relative measuring activate / deactivate [F7]: Switch setting is saved over "Save settings" [PT-173]
- Switch between the PIP operating modes [F12]: Activated in User level 4 [PT-214]

DMIS Interpreter (DIP)

- Optimised interaction of the Metrosoft CM User interface and the DIP window. Now it can be used comfortable and efficient on a single monitor system even the DMIS Interpreter was designed for a dual monitor system.
- File, Open from database: Opens an integrated DMIS Program from the current work piece out of the database.
- File, save all: saves all open files.
- Edit, Activate / Deactivate marked text: To comment out DMIS sentences.
- Edit: The following functions from Run were replaced in Edit:
  - Show execution point
  - Goto Startline
  - Goto Stopline
- Edit, Search for from Cursor: Function removed
- View: The following integrated window can be activated and docked onto the DIP window:
  - Messages
  - Variables
  - Monitored Variables
  - Probe systems
  - DMIS Terminal

  When these windows are not docked the font can be defined over system menu.
- View, Messages: Displays Position and type of Syntax error in the program.
- View, Variable: Displays the actual value of the variable in the DMIS Program.
- View, Monitored Variables: Allows the direct monitoring of the values for selected variables during a program execution.
- View, Probe systems: Displays a probe system list containing all the probe systems in the program. The probe system list can be printed resp. exported in an Editor.
- View, DMIS Terminal: for Text inputs and outputs during program execution

- Run: Functions to run-in and execute DMIS Programs:
  - Pause
  - Stop (replaces Reset)
  - Single step
  - Execute from cursor position
  - Execute unto cursor position
  - Settings for selective stop
  - Breakpoint ON/OFF
  - Delete all breakpoints
- Extras: The following function from View were placed in Extras:
  - Display line numbers
  - Set font
- Help: DMIS Interpreter Help: Direct jump into Metrosoft CM Help Theme DMIS Interpreter
- DMIS source code window (Editor): PopUp Menu expanded. The following functions are available:
  - Cut
  - Copy
  - Paste
  - Select all
  - Deactivate marked text
  - Activate marked text
  - Show execution point
  - Goto start position
  - Goto stop position
  - Start position on/off
  - Stop position on/off
  - Single step
  - Execute from cursor position
  - Execute to cursor position
  - Breakpoint ON/OFF
- DMIS Command: Call subroutine of DMIS Program (CALL/EXTERN, DMIS, 'DMIS_File')
- DMIS Command: Execute of external program (*.EXE, *.COM, *.BAT etc.) (CALL/EXTERN, SYS)
- DMIS Command: Points, Circles and Spheres can be measured in MODE/AUTO, PROG, MAN. when in the DMIS program ENDMES comes directly after MEAS. This means no probed points (PTMEAS) occurs within the element. The probed points are computed and executed through CM.
- DMIS Command: Probe system commands are handled accordingly to the DMIS 4.0 standard:
  - S () uncalibrated, defined, calculated sensor
  - SA () calibrated Sensor in system data base

System

- Country settings: Selectable range angle display: -180...+180 or 0...+360.
  Application in dialogs, examination, report of the following features in polar mode:
  - Position of an element (Vectorial Position)
  - Position tolerance according to ISO1101 / ASME Y14.5
- DME Modus, Metrosoft DME Server: Interface between external measuring software and the Metrosoft CM supported CMM Hardware.
  Between DME Mode and CM Mode can easily be switched.
- DME Server Basic functionality:
  - Connection of a Client with DME Server
  - Information-Window (status indication) in Output window 1
  - DME Event protocol with different viewable levels in Output window 2
  - Multiple machine operation DME Server (only CMM alignment, no synchronisation and no Collision protection)
  - Stop the actual measurement

- DME Server, supports Format: Zeiss CMM-OS Interface (developed for Holos NT Version 2.2.12, enhanced to Version 2.4)

Data

- Data management, Measurement data, Inspection plan, Characteristic: Characteristic "Position of surface point": The display of the actual value is supplemented with the vectorial deviation V.
- Data management, System data, Probe system: New column "Group" displayed. Using the function "Display edit all marked data records [F5]" the group of a probe system can be edited. [PT-309]
- Copy data to, out of data management: Function is activated in User level 2 [PT-399]
- Statistic – Overview window: An unlimited amount of characteristics can be displayed in the Statistic overview. The previous limit of 50 characteristics is cancelled.
- Statistic diagram: control limit are displayed in the following diagrams:
  - Trend diagram
  - Histogram
  - X-bar chart
- Statistic-settings, Filter: new actual value filter for the last N measurements
- Statistic-settings, Diagram: Action limits (control limits) can be chosen as Limits for diagrams
- Statistic-settings, Diagram: Diagram settings for
  - Action limits (Control limits)
  - Help lines for: Grid vertically, Grid horizontally, Nominal value, Target value, Mean value, Upper and lower action limits. Upper and lower tolerances, +/- 3 sigma
  - Text output of: Nominal value, Target value, Mean value
- Statistic, Generate Excel examination report: The inspection report is exported into an Excel File (Microsoft ® Excel 97 or higher must be installed)
- Statistic, Create Excel actual value examination report: The inspection report is exported with the actual value of selected characteristics into an Excel File (Microsoft ® Excel 97 or higher must be installed)
- Import Surface data (CAD), CATIA V5: Converter for CATIA V5 Files (*.CAT part) and components (*.CAT product) in the Version R5 – R11
- Import Surface data (CAD), IGES: Converter supports elementary surfaces (Plane 190, Cylinder 192, Cone 194, Sphere 196, Torus 198)
- Import Surface data (CAD), ProE: Converter creates a Log file
- Import Surface data (CAD), Unigraphics: Converter supports NX2 Format

Machine

- Axis drives activate /deactivate: Text instruction after Axis drives activated amended with the message "Following dismounting of PH9/10 resp. PHS the motorized probe head must be calibrated." [PT-224]
- Manual temperature compensation: Work piece and Machine temperature compensation are merged to one function:
  - Materials with their coefficient of expansion are stored in a list
  - The work piece material can be selected in the dialog. The machine material is defined in a configurations file from the CMM manufacturer.
  - Configuration file for CMM type, Material (for X-, Y-, Z-Axes and Portal) and Portal length
- Automatic Temperature compensation (with WPT100 unit):
  - Materials with their coefficient of expansion are stored in a list
  - The work piece material, the active work piece sensors and the work piece related temperature-limits can be defined in the dialog. The machine material is defined in a configurations file from the CMM manufacturer.

- Display of the Temperatures (actual-values) for each activated sensor and the Temperatures-differences per axes, work piece or CMM.
- Updating the Temperatures (Sensor read outs) is configurable and teachable: periodically all (unit of time), per element, onec, at the beginning of PIP
- Warnings when a temperature limit is exceeded.
- Configuration file for CMM-Type, active sensor, Temperature-limit, Material (for X-, Y-, Z-Axes and Portal) and Portal length

- Counter simulation: Icons for Auto sequence, Turn Axes, Exchange coordinate axes
- Counter simulation: Data adoption by Auto sequence (The selected axes are stepwise set to zero or to the pre-set value)
- Counter simulation: Exchange coordinate axes, created in a new right turning coordinate system (similar to axes rotation
- Counter simulation: Settings expanded:
  - Display last probed point permanently
  - Display actual probe system and part coordinate system
  - Display window always on top
- Counter simulation: Load PCS, The function can be called out of the Popup Menu of the counter simulation
- Multiple machine operations, SyncServerCM: Protection against accidental closing integrated [PT-515]

Probe

- Reference sphere, settings: Angle probing area also affects the calibration of measuring (scanning) probe systems (replaces CmWin.ini entry "CalibOver") [PT-626]
- Show or modify probe system: Enter a probe Offset in X, Y and Z [PT-413]
- Rotate probe head: Rotate to reference direction also available for Renishaw PH9 / PH10
- Load / store probe system: Probe systems can exist out of components of many probe changers (ex. SP600M in ACR3, different SP600 probe shaft holder in SCR600)
- Load probe system: New options in connecting with multiple probe changer [PT-377]:
  After the change
  - move back directly
  - move back along travel path
  - stop in front of probe changer
- Calibrate auto change rack: New dialog for multiple probe changer [PT-377]:
  - Position correction for each changer and channel (fine tuning)
  - Deactivate single channels
  - Define travel path between the changers, set path points
- Recalibrate auto change rack: function removed
- Change probe: New dialog for multiple probe changer [PT-377]:
  - Display actual configuration
  - Definition / display the channel contents (ex. TP20)
  - Options: slow change, change step by step, move to initial position after change

Output

- Inspection report settings, Output DMIS results: The DMO-File is appended if the file already exists and the part inspection program was not started from the beginning (Sentence 1). [PT-925, PT-882]

Periphery

- Wenzel WPC2020/2030: WPC Firmware Version 21.61 is required for the use of a measuring probe system (Renishaw SP600, SP25, SP80).
  The Firmware contains many improvements for scanning.
- Wenzel WPC2010: Measuring Probe system (Renishaw SP600, SP25, SP80) can no longer be used with this firmware.
- Wenzel WPC2020/2030: Performance increase through "buffered moves".
  With this technology (look ahead, move blending) enormous time saving capabilities (up to 35%) are possible regardless if measuring with trigger or measuring probes.
- Wenzel WPC2020/2030: Connection over TCP/IP (Ethernet) [PT-956]
- Multiple probe changer (MPC) [PT-377]:
  - Use of several probe changer (Amount and Type) on one CMM
  - Driver integrated
  - Configuration in CMConfig: <Multiple autochange racks>
  - Support for the following probe changer:
  Renishaw ACR1 active (max. 1 changer), ACR1 passive, ACR2, ACR3, FCR25, MCR20, SCP80, SCR200, SCR600, SCR800 and manual changer
- Renishaw SP25: officially supported
- Renishaw SP80: officially supported
- Renishaw FCR25:
  - driver integrated (Multiple probe changer)
  - Change of SM25-x / TM25-20, SH25-x and TP20 modules
- Renishaw SCP80: driver integrated (Multiple probe changer)
- Wenzel HT400: Support for HT400 RC (wireless, Bluetooth connection over receiver at the serial interface RS-232)
- DEA Chorus NT: The not needed reference sphere removed [PT-98]

Installation

- CMConfig, Interface, Selection, Multi carriage /-machines: CMM Alignment can be selected independently from the mode of operation. This is needed for CMM alignment with DME-Server
- Faro USB Arm: Driver SDK Version 3.1 is delivered on Metrosoft CM – Installation CD [PT-581]
-

Bug Fixed

Hint:
The following entries were semi automatically exported out of the ProblemTracker.
The complete information is referenced over the PT number.

General

- General Use: Spin-Buttons (arrow up/down in the input window) is activated through clicking and holding down the left mouse button [PT-113]
- General Use: Input window with Spin-Buttons: incorrect spin, if released directly after the input
- Output window 1: Element graphic: Point number after deleting points out of the data base incorrect [PT-126]
- Output window 2: Part inspection program window: Functions in menü disabled when the function is also disabled, ex. during manual element measurement [PT- 57]

- Quick selection table: Incorrect quick selection table after changing database, Quick selction table will be automatically closed when changing database [PT-107]

3D Graphic window

- Other: Element graphic no longer closes automatically if data management is quit with ESC [PT-229]
- Edit: Delete point from a geometry element: minimum amount of probed points are examined and if necessary a hint is given [PT-156]
- Display, Perspective: Click (Picking) on model in perspective display not possible [PT-657]
- Display, Layer: New empty Layer: CM hangs [PT-807]
- Display, Settings: Colour incorrectly displayed [PT-44]
- Display, Settings (geometric graphic): Refresh has different effects [PT-530]
- Display, Settings (geometric graphic): Element filter turns all layers on [PT-405]
- Insert, Creating an Intersection curve: Intersection curve inside and outside from material are connected [PT-316]
- Report, Prepare view: Error message with Hungarian country settings [PT-812]
- Report, Prepare view: Scaling the comment window: Text cut off [PT-71]
- Report, Prepare view: Character size for text box when reporting in the geometric or element graphic: The last used character size is recommended [PT-199]
- Report, Prepare view: Work piece statistic with bar diagram, measurement displaced [PT-452]
- Report, Prepare view: Statistic Box: Measurement number with frames not possible [PT-108]
- Report, Prepare view: Statistic box to small when displaying Nr., Feature name and characteristic type. Characteristic type is not given out when the place is not sufficient [PT-791]
- Report, Prepare view: The "Sheet configuration" selection is disabled during reporting [PT-1269]

Measurement of geometrical elements

- Specifications for element measurement and storage: move back after deleting a measured point [PT-17]
- Measure a surface point: Coordinates of a surface point are in the parameter window incorrectly displayed when switch "Calculate parameters after each point" is not set [PT-961]
- Measure Circle/Cylinder: Collision during automatic Circle measurement. Caused by recalculation of the circle parameter after the first probed point [PT-110]
- Measure Cylinder: Delete points out of a Cylinder with many probed points. Element is no longer correctly calculated [PT-67]
- Measure Cylinder: Cylinder automatic spiral measurement, if only one helix is measured the cylinder direction can tilt [PT-382]
- Measure sphere: Scanning: In the measurement dialog no OpenGL preview refresh [PT-566]
- Measure Rectangle: Element number of the "Basis element" to high [PT-50]
- 2D Elements measurement: Scanning of 2D Elements not applicable [PT-388]
- Terminate element measurement (STOP) [F5]: when STOP [F5] is activated before the minimal number of points is reached, manual measurement is stopped [PT-591]
- Terminate element measurement (STOP) [F5]: STOP [F5] before the minimal number of points is reached: invalid parameters in database [PT-589]
- Activate/ Deactivate automatic measurement, etc. [F8]: AUTO Sphere: number of probed points according to [F9] [F10] [F11] not taken over [PT-153]

- Activate/ Deactivate automatic measurement, etc. [F8]: Preset values in the AUTO Dialogs with scanning not consistent [PT-163]
- Activate/ Deactivate automatic measurement, etc [F8]: Automatic / repetition Circle measurement change of reference element not possible [PT-69]

Measurement of free-form surfaces

- Free form- alignment / Bestfit / approximate alignment [F7]: Exception by Bestfit with Edge points [PT-197]
- Free form- alignment / Bestfit / approximate alignment [F7]: After Bestfit, vector of actual point points in the wrong direction [PT-691]
- Definition for measuring free-form surfaces: Global setting "Edge point: Reference point 1) store" over rules the learned PIP sentence [PT-1018]
- Approximate alignment: Window to display the measured points (Measurement bar) can not be moved, led to chaos in the CM surface [PT-48]
- Measure Free form surface: Surrounding points On/Off during measurement with Click'n'Measure: blocks CM [PT-85]
- Measure Free form surface: Relative points are graphically not translated after CS-translation [PT-247]
- Measure Free form surface: Nominal element is destroyed after non existing points are deleted (Refresh Problem) [PT-428]
- Measure Free form surface: After AUTO Relative point the probe is no longer active: only with the new WPC2020 driver [PT-430, PT-12]
- Measure Free form surface: Edge point are wrongly projected on the work piece after executing a mirrored PIP [PT-699]
- Measure Free form surface: Click'n'Measure is disabled when measuring surface points inside an actual curve [PT-670]
- Measure Free form surface: Edge points are always automatically relative measured, displayed through switch [F11] revised [PT-196]
- Measure Free form surface: Wrong projection when scanning on interrupted intersection curves (multiple start- and end point) [PT-55]
- Adopt element into actual surface: Incorrect probe point projection [PT-49]
- Adopt element into actual surface: Points of a profile incorrectly projected [PT-149]
- Adopt element into actual surface: Incorrect point number (surface point). [PT-183]
- Adopt element into actual surface: Error when using different CS [PT-154]

Processing

- Create intersection element ... : Point Intersection calculated between a Circle and a Line has no direction [PT-393]
- Create intersection element ... : Cone with theoretical line -> creates incorrect symbol in element window [PT-64]
- Create tangential element: Error message: Tangential element on two Cylinders [PT-112]
- Create construction element using several elements: Create plane out of three theoretical points does not work [PT-884]
- Create construction element using several elements: Cylinder out of surface points construction does not work in every case [PT-148]

Coordinate systems

- Define coordinate system out of several points (in the net): Incorrect validating of the dialog inputs [PT-116]

Feature determination

- Position of an element: Polar evaluation: Tolerance cannot be set in Position dialog to +/- 0.00 [PT-669]
- Position of a surface points: Existing feature with a name can not be overwritten [PT-306]
- ISO1101 / ASME Y14.5 Position tolerance: Features are created without MMC, LMC, when diameter characteristic is missing [PT-207]
- ISO1101 / ASME Y14.5 Symmetry tolerance: Symmetry of a symmetry point and a theoretical plane not possible [PT-375]

Inspection Report

- Print out report line: No Error message if protocol line is missing [PT-93]
- Output of Text: By the output of a text line a blank line is always inserted. [PT-711]

Part inspection programming, DMIS

- Create or edit PIP: Sentence "Close Form" is with the deletion (Backspace) of a graphical report not deleted [PT-70]
- Create or edit PIP: Sentence: Rotate probe head: no angle change -> no new sentence created [PT-115]
- Execute PIP: After a change in work piece an incorrect measurement number is recommended [PT-181]
- Execute PIP: PIP with curve points after the 2. Measurement points are not saved in the DB [PT-241]
- Execute PIP: PIP continuous though probe changer is not calibrated [PT-63]
- Execute PIP: loss of the local CS and subsequent crash- moves in direction of the calibration sphere [PT-441]
- Execute PIP: "Abort / reset" does not work with the message "Out of limits" [PT-467]
- Execute PIP: WPC2020 driver: Error handling: Continue/ignore probed point not taken over [PT-527]
- Execute PIP with Parameter modification: Statistic box disappears [PT-1176]
- Execute PIP with Parameter modification: Incorrect recommendation for channel by probe change [PT-52]
- Execute PIP with Parameter modification: Large and small spelling in identifier not changeable [PT-195]
- Execute PIP with Parameter modification: Coordinates from probed points in the PIP unintentionally changed [PT-762]
- Execute PIP with Parameter modification: In actual surface imported points cannot be changed [PT-79]
- Execute PIP with Parameter modification: ESC- key handles itself differently than the ESC-Button in the element dialog [PT-715]
- Execute PIP with Parameter modification: Relative reference is not displayed in the PIP sentence [PT-738]
- Execute PIP with Parameter modification: No dialog if coordinate system or probe system does not exist, behaves differently than in PIP Execution [PT-802]

- Show or Print PIP: ISO 1101 Symmetry tolerance: Reference element in PIP listing is not viewable [PT-9]
- Measure according to model: target name not taken over, when Element type is an actual surface or actual curve [PT-559]
- Measure according to model: Executing a measurement of an actual curve learned through measure according to model works only one time [PT-647]
- Loop within PIP: nn in Jump to in PIP sentence loop is displayed as 1 (nnDWi -> 1DWi) [PT-280]
- Graphical user support in a PIP: Dialog not correctly displayed during the playing of a sound file. [PT-166]
- Import PIP from DMIS File [F2]: Syntax error because of missing probe system [PT-94]
- Import PIP from DMIS File [F2]: Syntax check: Error by RECALL/SA () [PT-103]
- Import PIP from DMIS File [F2]: Converter generates incorrect feature number (first feature has ID 0) [PT-269]
- Import PIP from DMIS File [F2]: DMESW/COMAND were not correctly recognized [PT-212]
- Import PIP from DMIS File [F2]: "Incorrect" Error message by DMIS Import [PT-109]
- Export PIP to DMIS File [F3]: DMIS Export: Wrong parameter by Circle/Cylinder and Line/Plane [PT-420]
- Export PIP to DMIS File [F3]: DMIS Export in Inch: Coordinate value were always in mm exported [PT-394]
- Export PIP to DMIS File [F3]: DMIS Probe system names were not given out [PT-539]
- PIP Mirror [F4]: Graphical Reporting: View in the geometric graphic not mirrored [PT-700]
- Positioning Help for measured points [F10]: Position help with Zeiss MZ 1050/60/70: Probe is always active [PT-1026]
- Positioning Help for measured points [F10]: Position help can not be deactivated [PT-379]

System

- Operator: Offline SURF PIP in User level 4: Error message "Invalid Function" [PT-302]
- Pass word: Incorrect user level when no entry is made into the dialog. [PT-215]
- Remote control: CMControl RCI: Action with machine position: starts in incorrect position [PT-391]

Data

- Other: Overwriting of measured elements: Old points stay in data base [PT-445]
- Data management, Measurement, Part inspection program. Column Modification: Name of "last change from" is not complete, only 5 characters instead of 6 [PT-1008]
- Data management, Measurement, Part inspection program. Column Modification: modification index and abbreviation is not actualised by editing PIP [PT-1030]
- Data management, Measurement, Inspection plan, Characteristic: Print [F11], Output Protocol features: characteristic missing [PT-400]
- Data management, Measurement, Inspection plan, Characteristic: Print [F11], Output Protocol features: Selection "Measurement All" does not work [PT-152]
- Export, Q-DAS: CmUiMain crashes, when Q-DAS Export executed with open (viewable) statistic diagrams [PT-490]
- Import - VDA geometrical elements: No syntax check, thus errors in CMCCMain [PT-105]
- Import – Free-form data (CAD), IGES: surface missing [PT-577]

- Import – Free-form data (CAD), IGES: Error with converting [PT-119]
- Import – Free-form data (CAD), IGES: Plane surface missing [PT-432]
- Import – Free-form data (CAD), IGES: Files are incorrectly converted [PT-124]
- Import – Free-form data (CAD), IGES: Files not completely converted [PT-425]
- Import – Free-form data (CAD), IGES: Curves on layers are not connected, a free form curve measurement not possible [PT-435]
- Import – Free-form data (CAD), Unigraphics: Files with curves not translated [PT-917]
- Import – Free-form data (CAD), Unigraphics: UG- Data compressed and uncompressed cannot be read [PT-817]
- Import – Free-form data (CAD), Unigraphics: Incorrect error message (Metrokey error) when importing a defective UG File with Userkey, Error message adjusted [PT-944]
- Import – Free-form data (CAD), No message if file (Path > 50 characters) already existing, files are overwritten [PT-834]

Machine

- Position measuring machine: Position CNC is executed by "Master"-Client only, if the PIP sentence is located in a General part (MMM with one database is configured). [PT-1267]
- Machine settings: Resolution with Elecnet PCI not adjustable [PT-422]
- Joystick direction: Joystick positioning direction in PCS with rotary table recalculated [PT-1]
- CAA settings: Calibration offset by active tilt angle compensation [PT-1143, PT-1070]
- Temperature compensation: displays the portal support over WPT-100 [PT-222]
- Rotary table settings: Online rotary table lets you rotate outside of the rotary table dialog, in doing so the new positions are not read [PT-1097]
- Initialize rotary table: rotary table initialize with Initialize measuring machine: combination [PT-282]
- Position rotary table: different behavior by rotation angle entries > 360° [PT-510]
- Multiple machine operation: Dead lock with 2 security area [PT-4]

Probe

- Automatic calibration of probe system: Country settings, Dialog language English: Wrong probe system number in Dialog, "Overwrite probe system" [PT-418]
- Calibrate probe system: angled probe calibrated with AUTO F8: Message incorrect probing direction [PT-464]
- Calibrate probe system: SP600 calibration cannot be stopped with [<-] [PT-217]
- Reference sphere – create new: After creating a reference sphere the CM user interface is in a limited condition and cannot be terminated [PT-586]
- Show/modify probe system: When a dialog is open and over it another error appears, the error dialog disappears [PT-967]
- Store probe system: Star (DirtyFlag) remains by the probe system number inside an execution of a PIP. [PT-132]
- Calibrate motorized probe head: CM hangs during PHS Homing when the PIP is stopped with [F12] [PT-521]

Output

- Specify page layout (margins, header/ footer line) for inspection reports header: Protocol header variable not prompted and not given out [PT-550]
- Display Feature data: Feature data window not displayed even though it is activated. [PT-439]

Periphery

- Other - 1DMV: User defined feature: Problem with PIP creation and execution [PT-60]
- Rotary table - WPC 2010/2020 Rot: Incorrect rotational direction by physical rotational direction CCW [PT-995]
- Machine - Faro USB Arm: Save probe system with a new number: Data is lost [PT-427]
- Machine - WPC 2010 / 2020: After emergency stop CMM positions itself without manipulation of Servo On [PT-150]
- Machine - SILMA WPS: Probe changer: First probe change without a loaded virtual probe, CM blocks [PT-517]
- Probe type – Measuring probe: SP600 calibration: Cancel not possible [PT-574]
- Probe changer - Renishaw ACR3: No warning (Check probe system) after a change is aborted [PT-58]
- Temperature measuring machine - WPT100: During an update the WPT100.dat is actualized with reasonable default value [PT-568]

Release-Notes CM 3.41 SP 4

New functions

Machine

- The CAA Algorithm has been modified to fulfill the requirements of WENZEL Präzision (TKu).

Periphery

- Renishaw UCC1: Driver update Renishaw UCC1 Software Version 4.1.5, with integrated rotary table functionality. [PT-349]

Bug fixed

Measurement of free-form surfaces

- Measurement of surfaces: When all points are displayed in the element graphic and the point after the measurement are reloaded with a large number of points holes develop. [PT-553]
- Measurement of profiles: While measuring with the SP600 an incorrect start direction could be created allowing the SP600 to wrongly scan over the work piece. [PT-712]

Inspection reports

- EMPB: Prints correctly under Windows XP. [PT-123]
- EMPB: The >10% deviation error in EMPB_V3C_de.rpt has been corrected. This error occurred together with the "Country Settings" "German" and the decimal space "Comma". [PT-285]
- Print Report, VDA (EMPB) Empty report page error has been corrected. [PT-728]

Part inspection programming, DMIS

- DMIS Interpreter: Pallet Coordinate Systems can be correctly loaded over their name. [PT-707]
- DMIS Interpreter: After starting the execution of a DMIS Part Inspection Program the coordinate system will always set to part coordinate system. [PT-937]
- DMIS Import, old converter: Different syntax errors with CONST statements. [PT-818]
- DMIS Import, Export: Different syntax error while Importing and Exporting DMIS programs. [PT-898]

Probe

- Automatic probe system calibration: The calibration of the scanning probe systems (SP600, SP25) executes the same travel path as in the calibration of trigger probe (ex. TP200). [PT-632]
- ACR Calibration did not work properly with an active PLCS. [PT-945]

Periphery

- Renishaw SP600, SP25, SP80: Position Offset of the probe system after the calibration from a scanning probe system eliminated. These only occurred in CM 3.41 SP3. [PT-532, PT-561, PT-562]
- DEA-Chorus: Click and Measure now works with Chorus-NT 5.4. [PT-97]

- DEA-Chorus: It is no longer necessary to click the start button after every probed point when the DEA steering is in manual mode. [PT-714]
- DEA-Chorus: All probe data is correctly read including those with a negative rotation angle. After selection no error message will be displayed. [PT-99, PT-100]
- DEA-Chorus, Zeiss CMM-OS: The cause of the incorrect probe diameter has been corrected. [PT-101]
- Faro USB Arm: After the starting the Faro Software from Metrosoft CM, when saving the probe data there comes an error message, data loss and other effects. This has been corrected. [PT-870]
- Faro USB Arm: The incorrect probe radius error corrected. [PT-904]
- Faro USB Arm: During the European Winter Time the time of the probe calibration was saved an hour later in the data base. [PT-1089]
- Faro USB Arm: Due to incorrect date and time formats different error messages occurred. [PT-1035, PT-1090]
- Garda Arm: Origin of the incorrect measurement results have been corrected. [PT-698]
- LK: CMM Deadlock when measuring surface points is corrected. [PT-772]
- LK: By activating diagnostic tools (ME Debug level) an Exception error no longer occurs. [PT-983]
- Mora Gemodek: Upon the collision of an actual surface the error message can be accepted and the measurement continued. [PT-102]
- Mora Gemodek: Automatic Edge point measurement or circle measurement the CMM remains staying. [PT-1004]
- WPC2020, new driver. The configuration for the tilt-angle compensation had no action. [PT-1098]
- WPS Silma: The measuring distance and the retract distance is now considered. [PT-986]
- Zeiss CMM-OS: When saving the probe system no incorrect angle value will be displayed or respectively saved. [PT-376]
- Zeiss CMM-OS: An amplified synchronization with the CMM-OS was built for the after a collision the CMM remains staying problem. [PT-534]
- Zeiss CMM-OS: After selecting "Position measuring machine" the "CMM-OS is not ready" error has been corrected. [PT-558]

Release-Notes CM 3.41 SP 3

New functions

Periphery

- FARO USB Arm (Platinum, Titanium): Driver integrated, needs FARO SDK 3.1 [PT-87]
- Status CMM Controller: Driver integrated again [PT-403]
- Renishaw SP25: supported (for internal tests only)
- Renishaw SP80: supported (for internal tests only)

Bug fixed

Measurement of free-form surfaces

- Measurement of profiles: Measurement with scanning probe takes place in the demanded plane on intersection planes not perpendicular to the CAD surfaces [PT-142, PT-287]

Coordinate systems

- Coordinate system rotation: Number of decimal places from the dialog "country settings" is doubled for better accuracy (maximum 10 characters) [PT-348]

Inspection reports

- Print inspection report: Reports are printed with the same width on all pages [PT-383]
- Export Measurement results as DMIS file: Correct results with relative measurement and automatic output from a PIP [PT-266]

Part inspection programming, DMIS

- Execute a PIP with parameter modification: Element parameters may be also changed in from DMIS imported programs. Thereby the "DMIS" PIP sentence is converted into a "CM" PIP sentence [PT-263]
- Import PIP from DMIS file [F2]: The fields (Element, coordinate system, etc.) under "Start Import with" are functioning. Exception: The number will be taken 1:1, if the label of a probe system is a number [PT-267]
- Import PIP from DMIS file [F2], convert in CM format: When overwriting an existing PIP, the old PIP will be deleted first [PT-345]
- DMIS Interpreter [F8]: The syntax check for "load probe system" commands (SNSLCT) will be only executed for the active arm, when multi machine mode is activated [PT-463]

Data management

- Copy from: Adapted PIP sentence in respect of source and target database [PT-268]

Machine

- Position rotary table: Rotational direction "shortest distance" works again if OK is pressed in the dialog without positioning the rotary table before [PT-347]

- Position rotary table: Number of decimal places from the dialog "country settings" is doubled for better accuracy (maximum 10 characters) [PT-348]
- Position rotary table: When deactivating joystick mode the rotation angle is set to 0.000 if type of rotation is relative. This prevents an additional rotation when pressing OK [PT-347]

Probe

- Settings for probe system calibration: PIP with probe points and intermediate points "relative to reference sphere" are executed again. It is no longer checked if the probe stylus is calibrated [PT-283]
- Store probe system, load probe system, calibrate probe system, show/modify probe system, modify stylus diameter: Several correction concerning the message "probe tip not calibrated" [PT-81, PT-144, PT-265, PT-274, PT-421]
- Rotate probe head: No freezing, when a scanning probe system was loaded straight before [PT-509]

Periphery

- Wenzel WPC2010/2020: WPC Firmware Version 21.41 is mandatory for scanning probes (Renishaw SP600, SP25, SP80).
  The Firmware contains several optimizations and improvements for scanning.
- Renishaw SP600, SP25, SP80: Diverse optimizations and improvements for calibration and measuring with scanning probes [PT-130, PT-151, PT-155, PT-216, PT-332, PT-337, PT-338, PT-339, PT-423, PT-440, PT-520]:
  - Preset probe excursion takes effect in trigger mode
  - Preset probe excursion takes effect in calibration
  - Calibration can be improved by repetition
  - Measuring deviations in dependency on probe excursion eliminated
  - Measuring deviations between scanning and trigger mode eliminated
- LK: "B axis overflow" problem with motorized probe head solved [PT-271, PT-272]
- Renishaw SCR200: Backmove Parameter in APC.DAT is also used for the start position to approach the hall sensor [PT-281]
- WPC2020 "new" driver, "scanning probe" active: Correct error handling when using the option "repeat element measurement, manual" [PT-320]
- WPS Silma: Probe configurations, problem with special characters (wrong probe stylus direction) solved [PT-270]
- Tri-Mesures: works, also with MPH (separate serial interface) [PT-374]
-

Release-Notes CM 3.41 SP 2

New functions

Data management

- Import freeform surfaces (CAD), CATIA V4: Usage of the new InterOp converters from Spatial
- Import freeform surfaces (CAD), CATIA V4: Conversion of colors and names
- Import freeform surfaces (CAD), CATIA V4: Conversion of layers

Bug fixed

General

- Dialogs can no longer disappear behind other windows or dialogs [PT-20, PT-21, PT-161, PT-162, PT-177, PT-186, PT-208]
- Function Toolbar: no longer autonomous moving [PT-160]

Measurement of free-form surfaces

- Measurement of free-form surfaces (profiles), Adopt element into actual surface: Part inspection program sentences from older CM Versions (<= CM 3.3x) are executed correctly [PT-242]

Part inspection programming, DMIS

- DMIS Program Import, convert in CM Format: Correct alignment when using a N-point construction line for the secondary direction [PT-204]
- DMIS Program Import: Distance (X-Y-Z) is determined with algebraic sign (+/-) by default. The default value for "[DMIS] - DistanceAbsolute" was changed from 1 to 0. [PT-237]
- DMIS Programm Export: Using the option useOldExport the PIP sentence "Dialog" is exported as TEXT/OPER and no longer as TEXT/DIALOG [PT-205]
- Execute a part inspection program with parameter modification: The names of surface points are correctly changed in an imported DMIS program [PT-179]

Data management

- Export VDA geometrical elements: Exception 'EaccessViolation' in DSmainTask when exporting several measured actual curves or profiles [PT-234]
- Export Q-DAS: One-digit time (e.g. 7:23:12) are exported correct [PT-245]

Periphery

- Renishaw SCR600: Correct Metrokey inquiry [PT-172]
- Zeiss C98: CNC mode warranted [PT-157]
- Wenzel WPT100: Expansion coefficient in Wpt100.dat are used with correct factor (10^{-6}). Since CM 3.41 they were incorrectly converted by 10^{-5} [PT-262]

Installation

- Registry-Key for PHS D- und E-Angle adjusted, this was affecting the torsion compensation as well [PT-219]

Release-Notes CM 3.41 SP 1

Bug fixed

Measurement of geometrical elements

- Cone automatic measurement: correct measurement direction within a part inspection program if an outside cone was generated via AUTO [F8] with 6 points [PT-131]

Part inspection programming, DMIS

- Create a part inspection program: Creating a calibration program using the function "Automatic probe system calibration" the program sentence "Rotate probe head " is generated again [PT-114]

Data management

- Microsoft SQL® databases (MSDE) (module CM-SQL): Opening a SQL database using a BMW-License-Metrokey [PT-136, PT-143]

Periphery

- Renishaw SP600, WPC2020: WPC2020 Firmware Version 20.89 is mandatory [PT-134, PT-135, PT-137, PT-139, PT-141]
- Zeiss CMM-OS: Error with "Load probe system" corrected [PT-86]
- DEA NT-Chorus: Error with "Load probe system" corrected [PT-86]

Release-Notes 3.41

New functions

General

- Output window 1, reference sphere symbol: New context menu to switch to the function "automatic calibration of probe system". The 'A' next to the reference sphere indicates, that the option is active
- 3D Graphic: New version of ACIS® Graphic - Kernel (ACIS 8.0.7)
- Graphical reporting: new graphics symbols (Datum target and Unilateral line tolerance) added in the template sheet configuration files (*.GPL)
- CM Help: new language: Portuguese

Measurement of geometrical elements

- Direct call of "measuring machine settings" from the "Auto" dialogs

Part inspection programming, DMIS

- DIP: Multiple declaration of feature nominal
- CONST...TR...: Extended with POINT, CIRCLE, CONE, CYLNDR, LINE, PLANE, SPHERE

Data management

- Import freeform surfaces (CAD), CATIA V4, ProE and STEP: Usage of the new InterOp converters from Spatial
- Import freeform surfaces (CAD), ProE und STEP: Conversion of colours and names
- Import freeform surfaces (CAD), ProE: Support / Conversion of files in all ProE 2000 formats, including encrypted formats
- Import freeform surfaces (CAD), IGES:
  - Conversion of shell entity 514
  - Conversion of colour definition entity 314
- Statistic settings: The dialogs "statistic settings" and "select statistic diagrams ..." merged to one dialog
- Statistic settings: Pp/Ppk added
- Statistic settings: Cm/Cmk, Pp/Ppk or Cp/Cpk must be selected explicit
- Statistic settings: All settings may be changed, even with activated statistic [B-3713]

Probe

- Show/Modify probe system: Dialog revised
- Change probe stylus:
  - Warning if selected stylus is not calibrated
  - Warning if the calibration date of the selected stylus is more than 1 day older than the youngest stylus within the probe system

  (The two warnings do not appear during execution of a part inspection program)

Output

- Report template of VDA initial sample report updated (new Rev. 3.0)
  - Report extended with evaluation data
  - Values out of tolerance are printed in different colour and underlined

Periphery

- ElecNet PCI counter card: Driver integrated, available for Windows 2000 und XP
- Renishaw TP20 / MCR20: Support for TP20NI probe body (not magnetic) [B-3777]
- Renishaw SP600, WPC2020: WPC2020 Firmware Version 20.74 needed
- Renishaw SP600, general improvements:
  - Improved accuracy for calibration an measurement
  - Improved endpoint detection for scanning
- Renishaw SP600, extended measuring machine settings:
  - No probe point collection during approach and run-out
  - Probe deflection automatic or user-defined
  - Area (radius) for endpoint detection automatic or user-defined
- Renishaw SP600: Star- and angled probes supported
- Renishaw SP600, sphere scanning:
  - Concentric circles
  - Axial lines
  - Graphic preview of the scanning lines inside the dialog
  - Scan paths according to ISO10360-4 with special evaluation for the efficiency statement of scanning CMMs
- LK CMM drivers:
  - Update to the new version 5.4 of the LK drivers
  - Calibrate motorized probe head integrated
  - Automatic calibration of probe head integrated
  - Joystick direction integrated
- WPT100: Extended machine temperature compensation for bridge-type CMM

Bug fixed

General

- 3D graphic, geometric graphic, report elements: Cone vertex is reported (was center of gravity) [B-3687]
- 3D graphic, report, prepare view, box distribution as table: Optimized in several columns [B-3688]
- 3D graphic, report, prepare view, marking box: Comments may have a maximum length of 128 characters [B-3741]
- 3D graphic, report, prepare view, marking box: Correct usage of the comma as a decimal sign for the adjustment of the font size [B-3795]
- 3D Graphic, freeform graphic, edit, mirror: Correct treatment of layers with activated option "keep existing elements" [B-3766]
- Element graphic, settings: The magnification may be edited [B-3691]
- Element graphic: Planes are also displayed as wire model [B-3750]

Measurement of free-form surfaces

- Adopt element into actual surface: mm <-> inch conversion [I-4459]

- Freeform-Bestfit [F7]: no Exception, if ESC was pressed in the dialog "Definitions for freeform bestfit" before a bestfit was performed (outside of measuring free form-elements) [PT-43]

Coordinate systems

- Define origin for coordinate system: Correct Initialization [B-3690]

Feature determination

- ISO 1101 Position tolerance with MMC / LMC: The additional tolerance (bonus) is limited by the tolerance of size of the tolerated element and/or the reference element. [B-3788]
-

Inspection reports

- Output of text: Texts will be merged to one line when executing part inspection programs which have been imported from Metrosoft 3D with an older Metrosoft CM version, when using the 3D report line at the same time [B-3770]

Part inspection programming, DMIS

- Execute part inspection program: The start values for the regression calculation are only taken from the element parameters in the part inspection program, when scanning geometric elements. [B-3785]
- Execute part inspection program: Correct projection of probe points when measuring an actual curve with the intersection curves taken from the CAD file (not created in Metrosoft CM), when executing part inspection programs, which have been created before Metrosoft CM 3.40 [B-3786]
- Measurement according to model: Correct point type when using N-point constructed actual surfaces [B-3705]
- DMIS TEXT/OUTFIL: Long lines are handled correctly [B-3706]
- DMIS program import, convert in CM Format: Programs can be edited and extended in Metrosoft CM [B-3727, B-3749]
- DMIS program import, convert in CM Format: Alignment problem (wrong direction of coordinate system axis) solved [B-3784]
- DMIS program import, merged and converted: Theoretical elements out of Feature Nominal are always created with correct coordinate system transformation [PT-22]
- Part inspection program mirror: The nominal points from the function "Define coordinate system out of several points in the network" are also mirrored [B-3738]

Data management

- Import freeform surfaces (CAD), IGES: Several corrections and improvements [B-3751, B-3752, B-3754, B-3765]
- Statistics, Data page: Nominal value = 0.000 is shown comprehensible for the characteristics "ISO1101 Position tolerance" and "Position of a surface point" [PT-42]

Machine

- Position rotary table: Rotation by entering the angle after rotating with the joystick [B-3779]
- Multi carriage mode, switch carriage: Correct scale resolution when using a Metrocount 3 or WPZ 50 counter [B-3763]
- Multi carriage mode, SyncServerCm: Support of Windows XP [B-3769]

Periphery

- All drivers with serial communication: Potential risk when using the comma as decimal separator eliminated [I-4432]
- LK CMM drivers: Several bug fixes [I-4373 to I-4382, B-3634, B-3636, B-3638, B-3728, B-3792]
- Renishaw PHS: Calibrate probe system at shifted position also available for WPC2010/2020 (Firmware 12.xx) driver (was only integrated for Firmware 20.xx) [I-4451]
- Renishaw PHS: Correct adoption of probe systems from Metrosoft CM 3.3x [B-3729]
- Renishaw SCR200: The Back move in APC.dat may be set to a smaller values than 50mm. The smallest value is 16mm. Values smaller than that are set automatically to 16mm [I-4389]
- Wenzel WPC2000: Works with ACR1 probe changer [B-3755]
- Wenzel WPC2010/2020 (Firmware 20.xx) : Rotary table functionality (ROT) also available for this driver [I-4452, I-4453]
- Wenzel WPC2010/2020 Firmware 20.xx: Probe is active after error message "out of limits" [B-3701]
- Wenzel WPC2010/2020 Firmware 20.xx: Improved error handling when a PICS error occurs [B-3711]
- Wenzel WPT100: Timeout problem solved by changing the communication [B-3795]
- Zeiss CMM-OS: Several bug fixes [I-4437 - I-4440]
- CAA settings, compensation for rotary table: The compensation file (Rot.Dat) for the rotary table (ROT2 and ROT3) is read in all cases (there were problems with newer PCs) [B-3783]

Release-Notes CM 3.40 SP 3

Bug fixed

General

- This Service Pack includes also all bug fixes from Service Pack 1 and 2

Periphery

- Renishaw PHS: Rotate and swivel dialog works again [I-4445]
- SCR800: Several bugs fixed [B-3762]
- Mora Gemodek ANC39 and ANC40 Controller: Menu "Probe / Automatic calibration of probe system ..." enabled [B-3757]

Release-Notes CM 3.40 SP 2

Bug fixed

General

- This Service Pack includes also all bug fixes from Service Pack 1

Measurement of free-form surfaces

- Circle, rectangle and slot in actual surface: B-deviation is also calculated and displayed correctly (display was B = 0.000) without recalculate (with Bestfit, load CS, …) [I-4435]
- Load CAD model (element graphic on): no error message "file does not exist" with existing file in relative path [B-3731]
- Measurement of profiles (Actual curve): Definition of point distribution by curvepoints works again [B-3753]

Probe

- Rotate probe head: Error message "out of limits" when using the comma as decimal sign in country settings [B-3721, B-3722]

Periphery

- Metroterm C: works again [B-3719]
- Metrocon M: works again [B-3724]
- Renishaw ACR3:
  - Calibration:
    50µm move works reliable [B-3698]
    Immersion depth can be adjusted to deviant Hardware via APC.dat [B-3718]
    Z-Height is considered individually for each port [B-3718]
  - Change probe: no error message "Probe open" [B-3699, B-3700]
- Renishaw SP600:
  - new Renishaw Calibration Version 1.20
  - CAA improved for Scanning
- Romer GDS
  - The configuration file can be selected in CmConfig [B-3573]
  - Trigger probe is supported [B-3678]
  - Starting CM is also possible when the arm stays in the mechanical stop [B-3681]
  - Romer GDS with 7. axis is supported [B-3686]
- Zeiss C98: works again [B-3723]
- Zeiss MZ 1050/60/70: works again [B-3723]
- Zeiss CMM-OS, Error handling at collision: error code 167 is recognised as collision, "CMM error dialog" will be displayed [B-3717]

Release-Notes CM 3.40 SP 1

New functions

General

- Installed Service Packs are displayed (Start dialog, Application title, About Metrosoft CM)

Bug fixed

Feature determination

- ISO 1101 Concentricity / Coaxiality: valid reference elements are compatible with prior CM Versions [B-3692]

Machine

- CAA3 Tilt angle compensation: The "Editeur" input values are used in CM 3.40 too [B-3704]

Release-Notes CM 3.40

New functions

General

- Operating Metrosoft CM, Quick Info (Hints): Indicate additional data if the mouse pointer is positioned over an object. For example:
  - Complete database path
  - Element Name, Coordinate system, Probe system, PIP,…
- 3D Graphic: New version of Mathematic - Kernel (ACIS 7.0)
- 3D Graphic, File, Reload model: loads complete CAD Model or element graphic new
- 3D Graphic, Edit, Point mode On, Marking, Deleting: Deletes Points from an element (out of the database)
- 3D Graphic, Edit, Extend marking, Line or Circle: Help function for the Extract Function (Functions group Processing)
- 3D Graphic, Edit, Treat curve: Edit function for Unknown Curve
  - Insert Kink
  - Insert Interrupt
  - Open/close curve
- 3D Graphic, Edit, Point mode On, Show element data: Changing points on a actual surface or actual curve
  - Name
  - Tolerance
  - Material thickness
  - Reference surface
- 3D Graphic, Edit, show element data (Point mode off): Function remains active until the dialog is closed, or the function is terminated (right mouse button)
- 3D Graphic, View: Intersection (Clipping):
  - Move picture plane
  - Choose intersect plane
  - Deactivate intersect plane
- 3D Graphic, view: Last view
- 3D Graphic, view: next view
- 3D Graphic, Display Layer: Administration from Layers in CAD Model, including
  - On / Off (teachable in view)
  - Create new
  - Assign element
  - Assign colour
- 3D Graphic, Display, Hidden edges: Visible, invisible or weakly shown
- 3D Graphic, Display, Curve: Display/hide free curves
- 3D Graphic, Display, Auxiliary elements: Display/hide Help element (circle, intersection ...)
- 3D Graphic, Display, Setting, Point display: Vectorial deviation is also displayed for items in the geometric graphic
- 3D Graphic, Insert, Numerical input: Element name
  3D Graphic, Insert, Numerical input: Insert point element
  - Point
  - Point-Vector

- Load quick selection table, select homepage: The homepage can only be set with this function, in "load quick selection table", the checkbox is disabled

Measurement of geometrical elements

- Specifications for element measurement and storage, Calculation: Filter-methods completely revised [B-3535]
- Circle/Cylinder automatic measurement: Return to start height after every probed point
- Cone automatic measurement: Return to start height after every probed point
- Cylinder automatic measurement: Return to start height after every probed point
- Circle (2D) automatic measurement: Return to start height after every probed point
- Automatic element measurement: Improved endpoint detection when scanning

Measurement of free-form surfaces

- Measure unknown curve: Insert Kink [F9]
- Measure unknown curve: Insert Interrupt [F10]
- Measure unknown curve: Grid curve (manual and automatic)
- Measure unknown curve: 3D curve (manual)
- Measure unknown curve: : Improved endpoint detection when scanning
- Load additional ACIS files to the current graphic: Add CAD files directly in available formats (eg. IGES, VDA, …)
- Load additional ACIS files to the current graphic: Converter options configurable
- Load additional ACIS files to the current graphic: Modifications are updated automatically in the 3D Graphic when confirming the dialog
- Definition for the Measurement of free form surfaces: Dialog revised and extended
  - Register General: Probe direction with surface selection consideration.
  - Register Tolerance 1: Relative point, Form curve point added, similar to edge point
  - Register Measure 1: Collision detection with Click 'n Measure (until now the function: "CNC select measured point with the mouse")
  - Register Measure 1: Measuring attribute taken from CAD file (Tolerance, Material thickness)
  - Register Measure 2: Probe depth definition for Relative point und Edge point
  - Register Measure 2: Store Reference point (surface point) for edge point and relative point
- Measurement free form surfaces, perpendicular edge point: Point on edge can be automatically measured with [F8].
- Measurement of free form surfaces, Relative point: Function implemented
- Measurement of free form surfaces, 3D curve point: Measurement of 3D curve points, selection over measurement symbol tool bar
- Measurement of free form surfaces (Free form curve), adopt element to actual element: Project point onto CAD Model
- CONT [F6]: Warning, that the correct coordinate system must be active [B-3119]
- Free form -Bestfit [F7]: Executed as a single function (outside of measuring free form-elements)

Processing

- Create Intersection element from two elements: Intersection from Plane Curve, Net curve or Form curve with a plane

- Create connection element: This function no longer produces perpendicular elements, but there is a new function that produces perpendicular elements
- Create perpendicular element: Constructs a line or plane perpendicular to another element
- Create parallel element: Construct a line or plane parallel to another element
- Create tangential element:
  - Construct tangent line to circles
  - Tangential line through a point (or to a point reduced element) to a circle
  - Tangential plane through a point (or to a point reduced element) to a circle
  - Circle through a point (or to a point reduced element) tangential to a line
  - Circle tangential between 2 lines, line and circle or 2 circles
- Create extract element out of a curve: From the points of a profile, a net curve or actual curve, a circle or a line is constructed
- Create top of cone
- Filter element [F6]: Median, Low pass, or Median and Low pass filter methods for diverse element types

Feature determination

- Icons for the functions "new report", "new line", "insert page break" and "print inspection report" (before only available in the "Output" menu)
- Nominal-/Actual-comparison between Elements: Comparison between two grid or two 3D Curves
- Distance between elements: In case of an axis related determination (X-Y-Z) the feature can be calculated with algebraic sign or absolute by using the switches [DMIS] DistanceAbsolute and [CH] DistanceAbsolute

Inspection reports

- Output of text: The output of blank lines is possible for both "simple text" and "text file"
- Print out report header: blank lines are possible when using a text file
- Export Measurement results in DMIS File: supports long identifiers (labels) according to DMIS 4.0

Part inspection programming, DMIS

- PIP Create or modify: direct Input of drawing number and comment
- Create, Edit or Execute a PIP: Maximum length of a PIP is 65535 (was 9999)
- Execute PIP with parameter modification: Surface reference and name of probed points of an actual surface or curve may be changed
- Execute PIP with parameter modification: graphic report may be changed [B-3630]
- Export PIP from DMIS / Export PIP to DMIS: Support of long identifiers (labels) according to DMIS 4.0
- Part inspection program mirror: the positions of point boxes of a graphic report are mirrored
- DMIS Interpreter with own user interface
  - Comfortable Editor with Syntax check
  - Editor function for search and replace, Use of the temporary file, bookmarks, and much more.
  - Quick and Easy Syntax check from DMIS-Programs
  - No conversion necessary in CM-Format (direct DMIS execution)
  - Accelerated execution based on the DMIS text file
- Repair part inspection program [F9]: Function to repair the carriage membership for multi carriage mode and multi machine operation [B-3517]

- Display settings for part inspection programs, Origin: CM Version and MP Number are additionally displayed
- Edit (context menu in output window 2): Name from probed points of an actual surface or curve may be changed
- DMIS-Terminal (context menu in output window 2): Window for In/output during the execution of a DMIS program (e.g. TEXT/QUERY)
- DMIS 4.0 Support High language construction :
  - Declaration and use of one-dimensional field variables (BOOL, INTGR, REAL, char, VECTOR, etc.)
  - Declaration of linear field variables
  - Allocation of values with Variable with ASSIGNS
  - Use of variables with the @-operator in place of label designations
  - Use of printouts in place of values of the number
  - Use of values, variables, functions and operators in printouts
  - Nesting printouts by means of brackets
  - Arithmetic-Operations (+, -, *, /,)
  - Compare Operations (.EG., .NE., .LT., .LE., .GT., .GE.)
  - Logic Operations (.AND., .OR., .NOT.)
  - Arithmetic Functions (ABS(x), EXP(x), LN(x), LOG(x), etc.)
  - Conversion Functions (DBLE(x), CHR(x), DTOR(x), INT(x), etc.)
  - Trigonometry Functions (ASIN(x), ACOS(x), ATAN(x), etc.)
  - Vector Functions (VCROSS(v1, v2), VDOT(v1, v2), VMAG(v), etc.)
  - String Functions (CONCAT(str, var_3), INDX(str, sstr), LEN(str), etc.)
  - System Functions (SDATE(),STIME())
  - Decision structures with IF . ELSE ... ENDIF blocks
  - Loop construction with DO ... ENDDO blocks
  - Unlimited nesting level of decision structures and loop constructions
  - Call of subroutines with any transfer parameters (CALL M(), MACRO..ENDMAC)
  - Access to item and feature data with VALUE and OBTAIN ·
  - Support from CALIB … ENDMES blocks
  - FEAT/ARC supported
  - DMESW/COMAND with Variables and Print out
  - Additional Protocol variables (DI()=DMEID, MD()=MFGDEF, etc.)
  - Extensions of the instruction REPORT and OUTPUT

System

- Country settings: New dialog and inspection report language: Portuguese
- Directory: The various CAD directories have been combined in the directory "CAD Import"

Data management

- Metrosoft CM databases (ACCESS, SQL) contain a "version history". Thereby the examination of the data base version is simplified and it can prevent in the future that a newer CM database can be opened with an older CM version what could result in data leakage
- Microsoft SQL® databases (MSDE) (module CM-SQL). By the application of the Microsoft SQL® data base format it is now possible that several CM workstations can access the same database. The new data constructively affects the handling multi-machines or multi-carriage mode operations
- The CM SQL manager (Metrosoft CMConfig) offers the necessary functions for Metrosoft CM to use the Microsoft SQL® server Desktop engine (MSDE) for the application of Metrosoft CM. It is also possible to convert Access databases into the SQL format
- Data management, system data: Reference sphere table for the management of several reference spheres

- Data management, all marked data records display/modify: The field "name" of work piece, measurement, item, etc, may be long up to 64 characters. Exception: Names of probed points (actual surface or – curve) can be 15 characters maximum
- Data management, all marked data records display/modify: Comment and drawing number of work piece and PIP may be up to 254 characters long
- New work piece: Direct input of drawing and comment
- Change Database: Change the system database (CmDbSys.mdb) over file type
- Change Database: Choose between Microsoft Access® and Microsoft SQL® Databases
- Copy data from external CM database, Create external data: If the target drive is not available, the target can be chosen [B-3463]
- Export Q-DAS: Features are exported into the current q-das ASCII transfer format (DFQ, DFD/DFX). The function may be taught in a PIP
- Import Surface data (CAD): Improved CAD converter (especially UG and IGES)
- Import Surface data (CAD), Import from CAD data in freely definable user formats: Functionality over Measurement attributes (Tolerances, Material thickness) extended
- Import Surface data (CAD): Layer conversion (VDA-FS, IGES, Unigraphics)
- Import Surface data (CAD): Colour conversion (IGES, STEP, Unigraphics, Parasolid)
- Import Surface data (CAD):
  - Converter Options configurable
  - "local copy" removed, adjustable now in the converter option dialog
- Converter Option:
  - "Alternative converter" removed
  - " Create local copy of file " added
  - Repair data added
  - Extension and cleaning of the filter options
  - Selectable definition file for user format
- Converter Surface data: Converter options configurable

Machine

- CAA settings: Displaying the active and inactive Metrokey modules

Probe

- Reference sphere, Recall: Load a reference sphere from the database
- Reference sphere, Create new: Create a reference sphere and save the data in the system database
- Reference sphere, Settings: Show/Change reference sphere configurations
- Probe type: ORS Optical ring sensor
- Probe type: Metris Optical line scanner
- Calibrate probe system: New calibration routine for Renishaw SP600 according to the Renishaw recommendation
- Display of the active probe system: Undefined and changed probe systems are marked with a * (asterisk)

Output

- The menu items for report are combined in a submenu and completed accordingly to the Icons in the Functions group, Inspection reports (inspection report to printer).

Periphery

- MicroScribe arm: Driver integrated
- Silma VCMM / WPS
  - Support for star probes
  - Automatic element measurement
  - Change probe system inside an element [B-3615]
  - Support of several other function for measurement
- Wenzel WPC 2010 / 2020: Driver for firmware version <= 12.xx
- Wenzel WPC 2010 / 2020: Driver for firmware version >= 20.xx
- Wenzel WPZ50: driver integrated
- Zeiss CMM-OS: Extended with Zeiss RDS CAA [B-3679]
- Renishaw PHS: Calibration at moved Reference sphere is possible [B-3337]
- Renishaw PHS: Rotate and swivel with HT-100 joystick box (requires Firmware Version 20.56)
- Renishaw ACR3: Driver integrated, back move distance and change cycle speed may be adjusted in APC.DAT
- Renishaw SCR800: Calibration data are stored into the database (new calibration is essential), back move distance and change cycle speed may be adjusted in APC.DAT
- Renishaw MCR20: back move distance and change cycle speed may be adjusted in APC.DAT
- Renishaw SCR200: back move distance and change cycle speed may be adjusted in APC.DAT
- Renishaw SCR600 Probe changer: driver integrated, back move distance and change cycle speed may be adjusted in APC.DAT
- Renishaw SP600: Improved accuracy with new calibration procedure
- Renishaw SP600: Improved end point detection
- Metris Optical line scanner
  - Configuration
  - Calibration
  - Measurement of geometric elements: circle/cylinder, circle, rectangle, slot
- Wolf & Beck ORS Optical ring sensor
  - Configuration
  - Calibration
  - Measurement of geometric elements: circle/cylinder, circle, rectangle, slot

Installation

- Microsoft SQL® Server 2000 Desktop Engine (MSDE): Version 8.00.194 + Service Pack 1 (8.00.384)
- Demo database with examples in subdirectory ...\Examples

Bug fixed

General

- Quick selection table: Homepage cannot be overridden [B-3620]
- 3D Graphic, Edit, Mirror: The direction of point vector elements are also reflected [B-3656]
- 3D Graphic, Report, Create View: Text boxes are always updated [B-3560]
- 3D Graphic, Report, Create View: Surface points with total-deviation off, the box is always marked in black [B-3647]

- 3D Graphic, Report, Template: Comments are saved [B-3654]

Measurement of free-form surfaces

- Free form curve measurement, Offset curve, cylinder intersection element: The measured points are with manual probing projected on the offset curve. [B-3608]
- Free form curve measurement, Click 'n' Measure [F6]: While probing surface points the material thickness is considered [I-4124]
- Free form curve measurement, Click 'n' Measure [F6]: When clicking on points which do not have a direction, the direction from the surface nearest to the start is taken [I-4273]
- Free form curve measurement, Material thickness On/Off [F10]: Switch cannot be switched on or off during set -, rectangle or slotted hole - measurement [B-3570]

Processing

- Create a construction element using several elements: Plane from 3 theoretical points (any coordinate) produced [B-3648]

Coordinate systems

- Graphic display of part coordinate system: Is updated in the geometric graphic with each change of the PCS [B-3577]

Feature determination

- Enter user-specified feature: The feature number may be taught and changed in a PIP [I-4173, I-4225]

Inspection reports

- Output of text and Print out report header : Single variables are also output [B-3555]

Part inspection programming, DMIS

- Generate PIP: Using Inch, the measuring and search distance taught separately are converted correctly [B-3619]
- Execute PIP: The PIP can be continued with "Continue/Ignore" or "Repeat element" when a CMM error occurs inside a freeform element [B-3505]
- PIP execute from… to… : Free form elements are also stored when "end of measurement" is executed [B-3597]
- PIP execute with parameter modification: The Element name can also be overwritten with DMIS imported programs [B-3589]
- PIP execute with parameter modification: The direction from edge points can be changed with surrounding points [B-3629]
- Graphic user support in PIP: Long names (maximum 255 characters) [B-3590]

Data management

- Copy data to external CM database: : Mirrored and reassigned files are also copied, when the option "include external data" is active [B-3602]
- Change Database: Measurement 1 of current work piece date is kept[B-3641]
- Print Statistic: Number of places for year is based on country configurations [B-3618]

- Statistic: Fp value removed, because it is not relevant anymore [B-3665]

Probe

- Probe system automatic calibration: Correct Probe head angle with adjustment degree, minutes, seconds [B-3502]

Output

- Inspection report settings: long names (maximum 255 Characters) for report file and output of DMIS results [B-3546]
- Inspection report settings, output DMIS results: correct end-of-file mark, therefore no overwriting with new files [B-3652]

Periphery

- DEA NT-Chorus: Long names for probe systems implemented, because of that there is no error message anymore when you start Metrosoft CM [B-3653]
- LK: diverse corrections [B-3633, B-3635 und B-3637]
- Metrocount 3: Measuring distance may be bigger than 1 millimetre [B-3584]
- Metrocount 6-1: In Metromc6.dat are not allowed to have a negative sign with the resolution. The reversal of the counting direction must be made by the Jumper on the Metrocount 6-1 card [B-3571]
- Schneider Projector: Country settings for the decimal character are considered. [I-4100]
- Wenzel WPC2010: "Move Blending" is disabled automatically, when measuring a profile in the auto mode [B-3549]
- Wenzel WPZ50: Measurement of circles inside a freeform element works also with activated fixed probe [B-3644]
- Zeiss CMM-OS: diverse corrections [B-3559, B-3627, B-3628, B-3631, B-3661, B-3662, B-3663, B-3664]
- Manual rotating head: A and B Angles are stored in the probe system [B-3587]

Installation

- Metrosoft CM installation, User defined: English is no longer shown under choose language. It cannot be chosen and will always be installed [B-3660]

Release-Notes CM 3.32

New functions

Periphery

- Garda Arm: Driver implemented
- Silma VCMM / WPS: Support for probe changers

Bug fixed

General

- Quick Selection Table, configure button: Text are completely represented [I-4223]
- 3D graphic, report, prepare view: Problem solved when modifying several boxes [B-3499, B-3595]

Measurement of free-form surfaces

- Measure a profile: Bestfit works also with CAD curves, which exist of several single curves [B-3583]

Inspection reports

- Print out report header: Memory leak solved [B-3674]

Part inspection programming, DMIS

- Import part inspection program form DMIS file: Improved performance [I-4234]
- Import part inspection program form DMIS file: Several extensions and corrections [I-4232, I-4233, I-4234, I-4235, I-4239, I-4240, I-4241]

System

- Country settings, Vlaams (Flemisch) [NL]: Text corrections (e.g. "%s" removed)
- Country settings, inspection report language: Fonts are updated correctly and initialised when restarting Metrosoft CM [B-3640]

Data management

- Conversion of Metrosoft CM 3.1x databases: Improved handling for double data items and improved performance
- Synchronize file name / path: Change to original file is possible [B-3558]
- Import, free form surfaces (CAD), Catia V4: Conversion of "not root" elements
- qs-STAT (Q-DAS) Export: ISO 1101 Angularity is exported correctly [B-3624]

Machine

- Joystick positioning direction, WPC 2010: also works with Pantec Firmware 20.x [I-4159]
- Multi machines operation: No carriage dead-lock through synchronisation [B-3569]

Probe

- Probe head calibration: also works at shifted reference sphere, for Metrosoft CM 3.31 a Patch is available [B-3556]

Output

- Inspection report settings: "Selective reporting" is saved with "Save settings" [B-3625]

Periphery

- DEA Chorus NT: Several corrections for "Common Firmware"
- Metrocount 3: Switching between fixed probe and touch probe is also possible when a WPZ50 is connected [B-3593]
- Renishaw ACR1: Probe Interface On / Off, necessary when using a Renishaw SP600
- Robocon 3: Synchronisation from actual and last Position with relative positioning [B-3541]
- Silma VCMM / WPS: Change probe system during measurement of an element [B-3615]
- Silma VCMM / WPS: Texts for new error messages
- WTX: correction for TCP/IP handling
- Zeiss CMM-OS: Synchronisation problems solved

Release-Notes CM 3.31

New Functions

General

- ACIS 6.3 kernel built in

Measurement of free-form surfaces

- Mirror model data: The reference number of the surfaces is kept, when the option " keep existing elements" is switched off. Because of that the mirrored PIP can be executed directly using the option " Use stored reference surfaces " [B-3444, B-3477]
- Mirror model data: At the end of the process a new nominal element is produced [B-3491]
- Circle, rectangle, slot on actual surface: Default is now "measure plane with 3 points" [B-3496]

Inspection Reports

- Additional protocol line: Simple_D.pln, Simple_E.pln, Simple_F.pln (number, feature, nominal value, tolerance, actual value, difference, tolerance utilization)

Part Inspection programming, DMIS

- DMIS: ROTDEF, ROTAB Functions for rotary table
- DMIS Program Import: Functions in polar coordinates

System

- Country settings: New dialog and inspection report language: Japanese
- Country settings: New dialog and inspection report language: Polish

Data management

- Import, VDA geometric elements: Maximum length of file name is now 13 letters plus extension (e.g. 1234567890.vda), longer file names can not be left in the dialog [I-4095, B-3411]
- Import, free-form surface data (CAD): New IGES converter. The old converter is available under converter options, use alternative converter
- Import, free-form surface data (CAD): Improved progress display during conversion [I-4162]
- Import, free-form surface data (CAD): Reads DaimlerChrysler feature files(*.ASC)
- Statistic Settings, Measurement Selection: The sequence of the measurements is user defined

Machine

- Counter Simulation: Easier to use. It now has its own symbol list
- Settings Multi Machine operations: New checkbox "PIP, no synchronizing when changing to a general section"

Probe

- Calibrate motorized probe head (PH9/10): now works on shifted reference sphere [B-3489]

Periphery

- Status CNC controller: Metromec continues to deliver this driver. However, it will no longer be supported. It is found under unsupported drivers

Bug Fixed

General

- 3D Graphic settings: Geometric Graphic Element Filter: Corrected action when all elements are filtered at the same time [B-3487]
- Quick selection table, Configure button, Text: The checkbox "Center" can be deactivated [B-3465]
- Quick selection table, Configure button: Previous configurations remain after a new configuration has been made [B-3495]

Measurement of free-form surfaces

- Mirror model data: all surfaces cleanly mirrored[B-3497]
- Measurement of free-form curve: Correct handling of vector directions with curves which exists from individual circles coming from one IGES file [B-3498]
- Measurement of profile, edge curve: the material thickness B will be considered when material thickness A is switched off [B-3506]
- Measurement of profile: The material thickness button[F10] can be switched on and off unlimited amount of times [B-3545]

Processing

- Offset-plane: Stack problem fixed [B-3544]

Feature determination

- Position of the surface point of an actual surface: The tolerances are taken during the execution of the PIP from the actual surface [B-3481]

Part Inspection Program, DMIS

- Create PIP: Correction in aborting of circle, rectangle or slotted hole within a actual surface [B-3453]
- DMIS Program Import: With multi machines the features are ordered to the active machine/carriage [B-3521]
- PIP mirror: Tolerance and material thickness of an actual surface which were taught in cm 3.1x and 3.2x are correctly used [B-3471]
- PIP mirror: Correct refresh in the PIP display [B-3528]

System

- Metroterm settings: Keyboard layout can be selected using a Masterkey [I-4140]

Data management

- All marked data records display/modify: The dimension tolerances (diameter, length, width of circle, rectangle and slot of a actual surface can be changed [B-3456]

- Copy from: using the checkbox "create external data" brings an error message when the letter of the drive does not exist[B-3463]
- Change data base: When converting a Metrosoft CM 3.2x data base the names of probe systems in a PIP are taken over [I-4127]
- Change data base: The graphic window is always initialized and freshly loaded [I-4133]
- Import (CAD data) surfaces: Various improvements for the conversion of CAD files [B-3452, B-3468]

Machine

- Temperature compensation: The material designation and the expansion coefficient can be saved with "Save settings" [B-3455]
- Multi-machine operation: While using 2 data bases the process and feature functions on both measuring stands is executed [I-4129]
- Multi-machine operation, Data transfer: Element rows have gaps (e.g. 1,2,3,6,7,8,9) so they can be exchanged again [B-3492]
- Multi-machine operation, Data transfer: Part coordinate system can be exchanged again [B-3534]
- Multi-machine operation, Data transfer: Irregular "PIP Freezing" corrected [B-3543]
- Multi-machine operation, carriage selection: The PIP sentence which switches " multi-machine operation; to "all, Stands", serves as the synchronisation point. When a PIP is started inside a "all Stands" section there is no further synchronization [B-3514]
- CAA3 Tilt angle compensation: The "Editeur" input values are set off correctly. [B-3548]

Probe

- Rotate PHS: correct error handling, if it rotates to a collision [B-3493]
- Rotate PHS: No inadvertent rotating with activation of the counter simulation or multi-machine settings [B-3515]

Output

- Inspection Report Setting, Output DMIS Results: No control characters written in the .DMO file [B-3504]
- Graphics output, Prepare view: During the execution of PIP prepared in cm 3.1x or 3.2x, the diagram output are now in the correct size [B-3464]
- Graphic output, manual, keep old ones: Boxes not used are not drawn into the left upper corner. Also points can be inserted manually the first time. [B-3485, B-3486]
- Graphics output, Prepare View: Correct handling of length and comment with the output of features of the geometric graphic [B-3503]
- Graphics output, Prepare View: Correct scaling von graphic boxes [B-3530]
- Graphics output, Prepare View: Executing a PIP the text boxes are printed out at the taught position [B-3531]
- Graphics output, create template: when an existing template is stored or modified under a new name the comments are also copied [B-3532]

Periphery

- DEA Chorus NT: Support Common Firmware
- Mora Gemodek ANC39 und ANC40 Controller: diverse driver corrections [B-3507, B-3508, B-3509, B-3510, B-3511, B-3512]

- Tri-Mesures: The internal PH9/10 steering was removed from the driver. The PH9/10 from now on will be activated by the PH9/10 driver
- Zeiss CMM-OS: Diverse corrections with the driver [B-3525, B-3526, B-3527]
- MetroconS and WPC 2000: Correct Position of touching vector with CAA [B-3547]

Installation

- CMConfig: Correct Function with PIPE und TCP/IP configuration with Windows 2000 [I-4128]
- CMConfig: Correct Function while installing the Metrocount 6 drivers [B-3460
-

Release-Notes CM 3.30

New functions

General

- Wenzel CAA compensation file: Data format has been changed
  Because of the format change from Wenzel Präzision GmbH, the error compensation file (CM-CAAW.VOL) must be converted into a new format. The converted data will be stored in the file CM-CAAW.VO2.
- 3D graphic, general extensions:
  - Reduction of memory consumption
  - Faster deletion of big CAD models when a another CAD model is loaded
  - Faster loading of CAD models (see facets)
  - Facet file may be created during conversion or after
  - Facets may be loaded from file (*.SAF), therefore facets must not be recalculated
  - CAD model may be displayed in three different qualities (fine, medium, rough)
  - Accelerated select and hide/show functions [B-3140]
  - Free points may be selected, deleted and hided
  - Transparent display mode
  - Improved highlighting of edges with edge offset
  - Improved visualisation of edges in solid display mode with selectable colour
- 3D geometric graphic:
  - Info boxes for elements and characteristics with symbol, number and name
  - Way of displaying the info boxes is configurable
  - Frame of characteristics info boxes drawn in deviation colour (green, red)
  - Filtering of elements
  - Hidden info boxes may be brought in the foreground
  - BAFF profiles are displayed
- CM Help:
  - additional table of contents
  - Help topics and Help are shown in the same window in two columns
  - Improved search tools
  - Structure as in manual
  - Complete Help is on installation CD-ROM as PDF file
- Path and file names in UNC-Notation
- Add new language Taiwan (simplified Chinese)

Measurement of geometrical elements

- Automatic cone measurement: Inside and outside
- Automatic sphere measurement: Inside and outside
- Specifications for element measurement and storage, tab sheet calculation: Median und FFT filter for circles and cylinders, which are scanned with the Renishaw SP600
- Scanning of line/plane, plane, circle/cylinder, cylinder with scanning probe SP600

Measurement of free-form surfaces

- Scanning of profiles (plane curves) and actual curves with scanning probe SP600
- Extended tolerance input: surface points, edges, circle, rectangle, slot and imported points
- Graphical display of the deviation vectors A and B for edge point, circle, rectangle and slot

- Freeform Bestfit:
  - Dialogue completely revised
  - Tolerances, deviations and maximal correction values may be taken into account
- Automatic measurement of rectangle and slot (Click & Measure)
- Insert intersection curve: cylindrical intersections
- Insertion and automatic measurement of edge curves
- Insertion and automatic measurement of offset curves

Coordinate systems

- 3D Bestfit for optimised CS:
  - Dialogue completely revised
  - Degrees of freedom may be limited
  - Tolerances, deviations and maximal correction values may be taken into account
- Save coordinate system: Connect PCS with PLCS and save as PLCS

Part inspection programming, DMIS

- Labels, usable with:
  - Execute part inspection programs
  - Execute part inspection programs with parameter modification
  - Execute part inspection programs as a subroutine
  - Loops within a part inspection program
  - Jump to label or sentence number
- Jump to label or sentence number:
  - unconditional jump
  - Jump, if all features are within tolerance
  - Jump, if one or more feature(s) is(are) out of tolerance
- Edit (popup menu in output window 2): Tolerances and material thickness of actual surfaces and curves may be changed
- Multiple carriage mode: Selection of carriage is teachable
- Multiple carriage and machines operation:
  - Uniform part inspection programs
  - Full DMIS 3.0 und 4.0 compatibility
  - One PIP controls all machines
  - Clear visual structure of the PIP with colours
- Multiple machines operation:
  - Common PIP sections are executed on all machines
  - PIP sections for the own machine are only executed on this machine
- Load PIP through popup menu in output window 2
- Edit (popup menu in output window 2): The border distance of relative edge points may be changed
- Execute PIP with parameter modification: The border distance of relative edge points may be changed
- DMIS program export: DMESW/COMAND,’PROTOSET,…’ (Inspection report settings)
- DMIS program export: Alignment commands with theoretical elements are exported as nominal feature F( ) [B-3125]
- DMIS program export: Modify stylus diameter is exported as DMESW/COMAND,'STYLUSDIAM, Stylus, Diam' [B-3189]
- DMIS program import: Alignment commands with theoretical elements F() are possible [B-3126]

- Insert comments in a PIP: With functions in the popup menu in output window 2, comments may be inserted inside an element [I-4010]

System

- Country settings: New dialogue and inspection report language: Taiwan (simplified Chinese)
- Remote control: Activation of the Remote Control Interface (CM-RCI)
- Save settings: All global program settings are stored in the registry and not in CmUiMain.cfg file anymore. The settings are automatically adapted, if an update is made from Metrosoft CM 3.x to CM 3.30.
- 3D graphic settings: Settings may be done without having the graphic on the screen

Data management

- Data management: clearly arranged display of the data base hierarchy (tree view), Measuring and system data are separated
- Display/edit data records: Tolerances of probe points of an actual surface or curve
- Data base settings:
  - Confirm deletion and modification of data records
  - Management of external data
  - Backup of data base
- Display relationship: Used files, probe systems, PLCS and RCS are shown
- Synchronise file relations: Synchronisation of external files
- Feature with actual value (table): All measuring results from a workpiece in one table
- Copy data to external data base: Include external data (CAD files, report headers etc. are zipped into the data base), Relief for the exchange of PIPs between two CMMs
- Copy data from external data base: Create external data (unzip CAD files, report headers etc.), Relief for the exchange of PIPs between two CMMs
- Export list: Support of many Office formats, including dBase, Microsoft Excel und Access
- Import surface data (CAD): New VDA-FS converter, the previous converter may be activated with the converter option "use alternative converter"
- CAD Converter for Unigraphics and Parasolid (Solid Edge, Solid Works, CadKey, EdgeCAM, Unigraphics CAM)
- Import surface data and store it as CM element: The converter option settings are stored into the log-file
- Import surface data and store it as CM element: File with the extension *.Model are imported directly, without renaming the file first in *.EXP [I-4056]

Machine

- Measuring machine settings: Values may be taught individually into a PIP
- Measuring machine settings, tab sheet scanning: Scanning speed, time interval, Step width, chordal height, ignore points after start, follow on
- CAA1: Rotary table angle linearisation has been implemented
- Multiple carriage mode, Multiple machines operation:
  - Completely revised
  - Comfortable configuration in CMConfig instead of the CNCDUPLX.DAT file
  - Visualisation of the active carriage in the CM status line
  - Switching between carriages through icon in CM status line

- Multiple machine operation:
  - usable for 1..n CMMs
  - Data exchange through common database
  - Synchronisation and collision detection with server application
  - Box shaped safety area as collision protection
  - Synchronisation of all carriages when a common PIP section is entered
  - Creation of processed elements and characteristics over all carriages
  - DMIS results output and reporting over all carriages

Probe

- Probe system calibration settings: Teach probe and intermediate points relative to the reference sphere. Because of that, PIPs for probe calibration may be exchanged between similar CMMs.
- Probe type, scanning probe SP600 from Renishaw
  - Applicable with stiff probe head or PH10 from Renishaw
  - Own calibration routine, Execution with existing function
  - Rotate probe head: calibration matrix is set according to the probe tip direction
  - Single point measurement and scanning (about 25 points/sec)
  - Automatic change of the probe interface (maximal 2 different WPC2010 probe systems)
  - All scanning functions are teachable
- Probe type, edge tool: Special probe for Leica V-Stars and Metronor, cylindrical (shaft) probing for edge points, circle, rectangle and slot
- PHS probe system calibration: Deflection of the PHS extension is teachable
- PHS Rotation: Rotate to reference element with any CMM type and PHS mounting position
- PHS probe head calibration: calibration routine has been automated

Output

- Inspection report settings: Automatic DMIS results output during the execution of a PIP, like the report file output
- Graphics output: The output of the element graphic is teachable
- Graphic report of the 3D geometric graphic: Characteristics may be reported with feature boxes, similar operation as with a free form surface
- Graphic report of the 3D geometric graphic: Feature or parameter box may be inserted by clicking on the info box when the reporting function is active
- Page layout for inspection reports: The settings for printer, paper size and portrait or landscape is taken only for the standard reports (text)
- Graphic report template: The settings for printer, paper size and portrait or landscape is taken only for the graphic reports

Special

- External Input/Output: see periphery

Periphery

- Remote Control Interface (CM-RCI): Metrosoft CM may be controlled from a process control system. The interface is DCOM. A Description is available with the SDK CM-RCI.
- External II/O devices: An I/O channel may be controlled from a PIP or the PIP can wait for an external signal. The interface is limited to digital I/O. It is necessary, that a COM server is available for the corresponding hardware. Check SDK CM-IO for more information.
- Mora Gemodek ANC39 and ANC40 driver

- Renishaw ACR1 passive driver
- Zeiss CMM-OS, version 1.3 driver
- PHS: Configuration dialogue for mounting and counting direction in CMConfig
- PHS: Values for deflection and compensation of the arm torsion of arm type CMMs may be configured in an own dialogue in CMConfig. When updating from Metrosoft CM 3.x to CM 3.30 the existing values for deflection are not taken from the CMWin.ini file. The official values from Renishaw are taken as a default. This list may be extended and changed.
- ACR2: PHS and ACR2 may be mounted in any position and direction, configurable in CMConfig
- MCR20: Calibration routine has been changed. In this case, probe changers, where the front sheets are deflected up to 2mm (105° instead of 90°), can be calibrated without problems.
- Removed drivers (no longer supported)
  - Imetric Photogrammetrical System
  - Disc Polar Arm
  - Status CNC Controller

Installation

- The installation program checks, if Microsoft Windows NT4.0 or Windows 2000 is installed
- CMConfig: Several extensions in appliance selection
- CMConfig, Metrokey test program: Information, that a Masterkey is invalid
- Metrokey (Sentinel) driver: Version 5.39
- ODBC driver: MDAC 2.5 SP1
- New subdirectory ..\DOC: Release Notes and Metrosoft CM manual in PDF format
- Manual probe changer: The Metrokey protection has been removed. The manual probe changer may now also be used without a probe changer module [I-4112]

Bug fixed

General

- 3D Graphic: Correct displaying of perspective views [I-4020]
- 3D Graphic, edit / display element data: VDA-FS names of elements are shown [B-3346]
- Minimising the Metrosoft CM window is possible with active 3D graphic window [B-3062]
- Material thickness: The material thickness is always shown and stored with the maximum number of digits [B-3443]
- Display element in left window with arrow buttons: The arrow buttons will be disbled, when the end of the list is reached. [B-3112]

Measurement of geometrical elements

- Measurement of surface points with dialogue input: Can be used with a rotary table angle <> 0° as well [B-3333]
- Measurement of surface points with surrounding points: Works also with small radius [B-3370]

Measurement of free-form surfaces

- Adopt geometrical element to actual surface: Element point/plane is imported [B-3328]
- Insert, cylinder: The diameter is shown correctly in the parameter dialogue [B-3422]

- Bestfit of an actual surface or curve: correction to set point value, NOT to the Nominal value anymore
- Measure actual curve: Loops in tolerance bands will be removed. Tolerance bands are drawn as a closed curve when the [SHIFT] key is pressed when the tolerance band is activated.
- Edge points: Always positive fore sign for the d deviation [B-3160]

Processing

- Offset plane: Planes with a negative fore sign may be created [B-3241, B-3413]
- Intersection: The information, outside or inside is kept, when a sphere or cone is intersected with a plane [B-3410]
- Intersection point between line/plane and plane: New calculation method (intersection instead of projection) [B-3205]

Coordinate systems

- 3D Bestfit for optimised CS: The comma (",") is allowed as a decimal sign [I-4097]
- Export difference between 2 coordinate systems: [CR] + [LF] added again at the end of the file (Patch available for Metrosoft CM 3.21) [B-3440]

Feature determination

- ISO 1101 runout / overall runout tolerance: correct text when creating a report, the calculation was always correct [B-3289]
- ISO 1101 position tolerance: may be used with points of an actual surface [B-3415]
- Position of a surface point from an actual surface: Actual surfaces with more than 100 points may be printed in one step [B-3421]

Inspection reports

- Print test report (initial sample report): Measurement may be selected [B-3338, I-4086]
- Print graphic report: Preview also in paper format A3 [B-3185]
- Create graphic report: Unlimited number and length for comments, comments are stored in the report template and not in the CMSymbols.dat file anymore [B-3234, B-3377]
- Create graphic report: The mean value in statistics boxes is drawn according the first trend line, was always d deviation [B-3417]

Part inspection programming, DMIS

- Create PIP: material thickness higher than 32.7mm may be taught for probe points of actual surfaces [B-3409]
- Execute PIP: If there is a collision during moving to an intermediate point and the next sentence has to do a rotation of the PH10, this sentence is not executed [I-3972]
- Execute PIP: Correct path for report header and line, copy data base from (to) and show image for PIPs which are taught with Metrosoft CM 2.39 und CM 2.39-1 (Patch available for Metrosoft CM 3.21) [B-3428]
- Execute PIP with parameter modification: The border distance of relative edge points may taught by probing the point on the edge [B-3350]
- Execute PIP with parameter modification: Nominal element of an actual surface or curve may be changed [B-3407]
- Execute PIP with parameter modification: The modification index is incremented [B-3427]

- Execute PIP with parameter modification: The names of rectangles and slots may be changed [B-3445]
- Measuring according to model: Minimum circumscribed and maximum inscribed circles may be taught in a PIP [B-3322]
- Insert comment into a PIP: Comments may be modified with the edit function from the popup menu in output window 2 [B-3389]
- Delete PIP sentences: The modification index is incremented, if PIP sentences are deleted through the popup menu in output window 2 or in the data management [B-3426]
- DMIS program export: DMESW/COMAND,'MPHPOS, … Output with setting degrees, minutes, seconds is possible [B-3207]
- DMIS program export: Existing DAT Labels are not overwritten [B-3380]
- DMIS program import: "$" characters inside a text are allowed [B-3347]
- DMIS program export: correct DAT Labels , if more than one axis is set as origin with one element [B-3430]
- DMIS program export: Correct secondary direction export when using PLCS [B-3431]

System

- Country settings: special characters in Czech dialogue language are fully supported [B-3401]
- Passwords, template for graphic report: Modification only in user level 1 [B-3372]

Data management

- Open data base (change DB, copy from ...): Message, if the data base is write-protected, e.g. from CD-ROM [I-4074]
- Sort data records: When loading elements with the arrow buttons into the left window, the sorting of the elements corresponds to the setting made with [F3]. The actual setting may be stored with the save settings command. [I-3660,.I-4047]
- Edit [F5] and delete [F6] data records: Functions are available immediately, without selecting the data records several times [B-3165]
- qs-Stat export: The workpiece name at position 12 has been deleted from the DFI file, because this field is reserved for other information [B-3423]
- Statistics ISO 1101 Angularity: The tolerance is outputted in millimetres [B-3392]
- Statistics data page: Depending on the random sample scope, only Cp/Cpk or Cm/Cmk is outputted [B-3434]

Machine

- Offline programming: Click & Measure with circle, rectangle and slot [B-3398, B-3405]

Probe

- Automatic calibration of PH10 probe system: Existing probe systems may be overwritten, as long they are not used in the actual group [B-3425]
- Reference sphere settings: The diameter is always shown and stored with the maximum number of digits [B-3442]

Output

- Page layout for inspection reports: Printer and paper format may be set up [B-3110, B-3343]

Installation

- Metrocount 6: Metrosoft CM can be correctly installed to a folder with long path and space characters [I-4113]

Release-Notes CM 3.21

New functions

Periphery

- PHS: Calibration routine for mirrored PHS systems (CMPHSD1 and CMPHSE1 in WPDAT.PMC)
- PHS: PHS may be mounted in any position (CMPHSD1 and CMPHSE1 in WPDAT.PMC)
- PHS: counting direction configurable (CMPHSDIRD and CMPHSDIRE in WPDAT.PMC, without these parameters, the default setting are active)
- ACR2 probe changer: may be mounted in any position and direction, e.g. on bridge CMM. The PHS Position for the changing cycle can be defined (CMPHSANGD and CMPHSANGE in WPDAT.PMC, without these parameters, the default setting are active)

Bug fixed

Measurement of free-form surfaces

- Edge points with material thickness compensation in A and B: The sign for probing direction is always calculated correctly [B-3326]

Coordinate systems

- Coordinate system rotation: Angles are calculated correctly, without rounding problem, which came from the division field in the dialogue [I-4084]

Part inspection programming, DMIS

- Execute PIP with Metrocon S: The PIP waits for the confirmation of the error dialogue, if an error (collision, no probe point found) has occurred [I-4080, B-3344]
- Execute PIP: Element can be measured again in manual mode after an error (collision, no probe point found) has occurred [I-4081, B-3344]
- Execute PIP with graphic report: Point boxes are drawn in a similar size as in Metrosoft CM 3.1x, if the PIP has been made in Metrosoft CM .31x [B-3374]
- Execute PIP with DMIS programs: Optimised handling of the direction (positive or negative) when defining co-ordinate systems (primary- and secondary direction), with DMIS programs which contain local co-ordinate systems [B-3124, B-1134]

Data management

- Change database: ISO 1101 position tolerance characteristics are converted correctly, if you change to a CM 3.1x database [B-3351]
- Import free form surfaces (CAD): Converters have been revised, improvements especially in the conversion of CATIA files [B-3353]
- Change database: Workpieces which are found twice in a CM 3.1x database, are also converted into the actual database format (only one version of course).

Installation

- CMConfig, convert CM 2.xx database: ISO 1101 position tolerance characteristics are converted correctly [B-3351]
- CMConfig, convert CM 2.xx database: The B-angle of a PH 10 probe system is converted correctly [B-3352]

Release-Notes CM 3.20

New functions

General

- Starting Metrosoft CM: If no valid data base is found, another one can be opened or a new one can be created.
- MPH Symbol is only displayed on the user interface if a MPH is configured.
- MIH Symbol is displayed on the use interface if a the manually indexable head is configured.
- Quick selection table: Configure button: Text can be centered.

Measurement of geometrical elements

- Geometric graphic:
  - The geometrical elements within a measurement are displayed in a geometric graphic
  - Graphic functions corresponding to "Element graphics" in "measurement of free-form surface"
  - Display element number / name
  - Delete elements from the data base
  - Load element in left element window
  - Color definitions for the elements in left and right element window
- Automatic measuring of a plane:
  - Number of border points 3 .. 100 → the measuring area can be defined more specific
  - Definition for point distribution:
  - Mesh (rectangular grid)
  - Along a polygon, points distributed along straight lines between the border points
  - Along spline curves, points distributed along spline curves defined by the border points
  - Circles
  - Preview of the point distribution before measuring
- Automatic measurement of a circle/cylinder:
  - Inside or outside circle/cylinder selectable
  - Starting values for position and radius/diameter can be defined
  - Arc of a circle/cylinder (sector) can be measured
  - Improved measuring algorithm: Location and diameter are calculated after three points.
- Automatic measurement of a cylinder:
  - Inside or outside circle/cylinder selectable
  - Starting values for position and radius/diameter can be defined
  - Arc of a cylinder (sector) can be measured
  - Definition for point distribution:
  - Circles
  - Axial lines
  - Spiral: with input of pitch and direction of rotation
  - Improved measuring algorithm: Location and diameter are calculated after three points.

Measurement of free-form surfaces

- Automatic measurement of a profile (unknown plane curves)
  (supported controller: Metrocon S, WPC 2000, WPC 2010)
- Element graphics for profiles (plane curves): Graphic functions corresponding to SURF graphic
- Create nominal element out of actual values: Create a nominal curve out of a measured profile (plane curve)

- Measure a profile (plane curve) with on-line nominal/actual comparison (corresponding to measure actual curve)
- Measure a profile with on-line nominal/actual comparison: Definition for point distribution:
  - Delete / add specific points interactively
  - Use points of an existing element (profile, actual curve) for the distribution
- Bestfit: profiles (plane curves) to nominal elements
- Automatic measurement of surface points and circles (Click and Measure):
  - CNC measuring points (surface points) can be selected by mouse
  - Circles can be selected by mouse
  - Collision check between probe and CNC measuring point
- Load additional ACIS files to the current graphic:
  - Define standard auxiliary file (*.sax)
  - "Change Color": a right mouse button menu replaced the button
  - Modify CAD file (new name or path) without changing the reference number

Processing

- Create a construction element using several elements:
  - Profiles und point surfaces can be created
  - Maximum number of elements has increased from 80 to 240.

Coordinate systems

- In the coordinate display and status line the change of a loaded coordinate system is marked with a * .
- Define coordinate system out of several points:
  - Number of elements increased from 3 to 6 (RPS - alignment)
  - A new regression algorithm is used
- Coordinate system rotation: Rotation angle can be defined by division.
- 3D bestfit for CS optimization: Point elements can be used

Feature determination

- Position of an element circle/cylinder: Non projected position (center of gravity) can be reportet.

Inspection reports

- Export measurement results as DMIS file: Export actual surfaces as geometric elements: Actual and nominal values, element type (point, circle, rectangle, slot), position, direction, dimension
- Export measurement results as DMIS file: Export actual surfaces as geometric elements: new BMW label format

Part inspection programming, DMIS

- Relative measuring on/off:
  The measuring points of the elements: Line/plane, circle/cylinder as well as circle, rectangle, slot and edge point in free form measurement are probed relative to the reference element.
- GOTO or loop within part inspection program: Increased flexibility through different counters for measuring, processing and feature determination.
- The interlacing of loops and subroutines has increased from 3 to 10.
- Measuring points and intermediate points can be edited directly in the part inspection program window.

- Execute a PIP: Load protocol header: Error message if the taught protocol header does not exist.
- Execute a PIP: Load protocol line: Error message if the taught protocol line does not exist.
- Mirror a PIP: In the graphical report the zoom zone in the view is mirrored.
- Mirror a PIP: The nominal values of geometrical elements adopted to actual surface are mirrored.

System

- Country settings: The date can be reported with 2- or 4- digit year number.

Data management

- Statistics: Create test report: Additionally to the number the name and type of the feature is reported.
- Converter options: Converted CAD data can be saved in CM 3.1x format.

Machine

- Joystick direction: Selectable with WPC 2010
  - along machine coordinates
  - along actual coordinate system
  - along a reference direction
- Relocate measuring system (frog leap)

Probe

- Automatic calibration of probe system
- Cancel shifting of reference sphere: Security question before deleting.
- Rotate PHS to a reference element
- Settings of reference sphere: Additionally to the diameter of the reference sphere the probing area (angle) for the automatic calibration can be defined.
- Show or modify probe system: Range, date and time of each calibration is displayed. These data is stored in the data base.
- Rotate probe head: The probe head can be rotated graphically interactive.
- Calibrate motorized probe head: Required for automatic calibration of probe system with MPH.

Output / Report

- Graphical report of geometrical elements: With element related parameter boxes, corresponding to measurement of free-form surfaces.
- Graphical report: views of geometric and freeform graphics can be mixed in one report.
- Graphical report of plane curves with on-line nominal/actual comparison.
- Report/prepare view: output in given scale. The scale can be set in the menu View/Zoom/Scale or in the toolbar "View".
- Statistics in graphic report:
  - Workpiece statistics: a measuring point of an actual element is viewed over several measurements.
  - Element statistics: several measuring points of an actual element are summarized
- Report/prepare view: insert statistic box

Periphery

- Manual probe head (MIH)
- Manual probe change (manual autochange rack)
- Renishaw UCC1 driver integrated
- Zeiss CMM-OS driver integrated
- WPC 2010: If the measuring machine is already initialized, the dialog "Initialize measuring machine" is skipped during starting up CM. Requires firmware version 7.9 or higher.
- PH50 has to be selected in CM Config: " Automatic calibration of probe system " not available.
- FARO Arm: Starting up CM, the fixed probe (on/off) is set accordingly the saved settings. [F-0340]

Installation

- CM Config: Database tools: Conversion: Revise old database to actual version: The database format CM 1.3x or CM 2.xx can be selected for the source database.

Bug fixed

General

- Part inspection program window: The font selected in "System > Country settings" is used in part inspection program window. [I-3170]
- Graphics window: "Picking" selects the nearest surface. If still a surface from the back is picked, we recommend to change the display settings to 65535 colors and the installation of the latest graphic card driver (also a beta driver). [I-3955]
- Status line: In CS and PIP display the font size has been adjusted for 4 digit numbers. [F-0364]

Measurement of free-form surfaces

- Circle, rectangle, slot within a actual surface: Reference element is marked, selection menu if more than one potential reference element within search range. [I-3729] [I-3956]
- Accelerated graphic display during mirroring or loading a SAX file.
- Specifications for measuring free-form surfaces with on-line nominal/actual comparison: The A and B values for the material thickness are stored. [F-0387]

Feature determination

- Nominal/actual comparison between elements: Works between 2 profiles (plane curves) and between a profile and an actual curve. [I-3959]

Part inspection programming, DMIS

- Graphical user support: all WMF files are displayed. [I-3419] [I-3891] [I-3925]
- Execute a PIP: Increased speed by processing and feature determination. [B-3050]
- GOTO or loop within part inspection program: Elements are incremented in subroutines. [B-3102]
- GOTO or loop within part inspection program: By increasing the measurement in a loop, the measurement number can not be higher than 9999. [B-3104]
- Execution with parameter modification: Probe point correction in an actual surface: New label on the button for tolerance and material thickness modification. [F-0114]

- Display settings / Details: The B material thickness is also displayed [F-0256]
- DMIS: "Load view" produces a correct command (DMESW/COMAND,'GVIEW..')
- DMIS: "Surface bestfit" produces a correct command (DMESW/COMAND,'BESTFIT..')

Data management

- Specify sorting for data records: Workpieces can be sorted by drawing number. [I-3247]
- Statistic data page: Optimized calculation of the capability indices (Cp, Cpk, Cm, Cmk) of zero-limited characteristics (e.g. ISO1101 true position). [B-3299]
- Copy of nominal elements: The contained views are copied [F-0278]

Probe

- Change probe: Correct saving in every case, also if the current channel has the same number as the new channel [F-0341]

Output / Report

- Graphical report: The B material thickness can be printed in the point boxes.. [F-0116]
-

Release-Notes CM 3.13

Differences to CM 3.13, April 6th 2000

General

- Printing problems, problems in the printer settings or problems starting other applications while CM is running are solved.

Measurement of geometrical elements

- Measuring surface point: surface points in a part inspection program which was created in an earlier CM-Version (CM3.12 or earlier) using the function 'Measurement according to model' are probed in correct direction.

Feature determination

- ISO1101 Radial / axial runout: correct calculation even if a coordinate system is activated. [F-0337]
- Min. and max. point spacing as well as span of the element: correct calculation with VDA imported elements and activated coordinate system.

New functions

General

- Metrokey Field Update
- Starting Metrosoft CM in Simulator Mode: Metrosoft CM can be started in the simulator mode with the parameter /s, without changing the settings in CMConfig

Measurement of geometrical elements

- Measuring surface point: new option "shift to set point", similar to "Fix two co-ordinates" [I-3876]
- Selection of reference element: The last measured element is the proposal [I-3213]

Measurement of free-form surfaces

- Material thickness compensation: Selectable for A or B, or A and B respectively. Additional numerical value for material thickness in B direction.
- Converter options: Extended options for VDA and IGES [B-3181, B-3202]
- CAD Converter for CATIA, STEP and ProEngineer
- Edit / Mirror: The auxiliary elements circle, cylinder, rectangle and slot will be mirrored [B-3270]

Inspection reports

- Graphic report: Point boxes for circle / rectangle and slot can contain the actual values for the size (D/L x W).
- DMIS results export: export actual surfaces as standard geometric element, actual- and nominal value, element type (point, circle, rectangle, slot), position, direction and dimension [B-3245]
- DMIS results export: export actual surfaces as standard geometric element, new BMW label format [B-3249]

Part inspection programming, DMIS

- DMIS: SNSMNT instruction implemented
- Execute PIP: Execution aborted, when the reference element (e.g. of a circle/cylinder) is missing in the actual measurement [I-3963]
- Mirror PIP: Co-ordinate system functions in the PLCS are mirrored as well, which means it has now the same functionality as with PCS [B-3035]

System

- Passwords: The popup menu in the output window 2 is disabled in user level 2, 3 and 4, PIPs can only be edited in user level 1 [I-3988, B-3274]

Data management

- Statistic-settings: additional actual value filter "Job selection"
- Statistic diagrams settings:
  - Selectable form of representation for trend diagram
  - Additional diagram limit (Band) to get a comparable scaling
- Statistic trend diagram: output as line or bar diagram
  additional numerical output of minimum, maximum, tolerance, nominal and set value, as long they are in the displayed area
- Statistic printout: Extended options for the page layout
- Statistic diagrams: The scaling is now based on the country settings (mm or Inch)
- Statistic data page: optimised output of variance/standard deviation and capability indices
- Copy database to: Checkbox to set the target database equal to the source database
- VDA Export: The values are exported either in mm or inch, depending on the country settings [BÄ-DB-15] [B-3187]

Machine

- Multiple machines data transfer: When importing data the next free element number in the database is the proposal [B-3121, B-1092]
- Multiple machines data transfer: When exporting, elements can be selected from the database [B-3121, B-1092]
- Multiple machines data transfer: The palette co-ordinate system is clearly marked as reference co-ordinate system [B-3121, B-1092]

Probe

- APC calibration: The reference element is selectable. The APC can now be mounted in other positions than the XY plane. [I-3950]

Periphery

- Romer arm: GDS driver integrated
- Tri-Mesures driver integrated
- Silma Virtual CMM driver integrated
- HT100: Sound implemented (from firmware version 2.5.1).
- HT100: Axis locking with key combination [Shift][X,Y,Z,C] (from firmware version 2.5.1).

- WPC2010: No CNC moves, when CMM is not initialized (from Firmware Version 7.9).
- WPC2010: Scribing and measuring with axis drives switched off [WP-ÄA002]
- WPC2010: Error message, indication of axis [WP-ÄA002]
- WPC2010: The "initialize CMM" dialogue is skipped if the CMM is already initialized (from Firmware Version 7.9).
- Faro arm: measurement of a dummy point for the probe radius compensation, if the fixed probe is on [B-3251]
- WPC 2000: Function "Axis drives on/off" implemented [I-3967]
- WPC 2000: Execute PIP CNC mode, beep for probe points implemented [I-3968]

Bug fixed

General

- Quit CM: Problem with Screen flickering followed with software crash solved [B-3178]

Measurement of geometrical elements

- Theoretical elements: Correct adoption of values, if inch is selected in country setting [B-3188]
- Automatic circle measurement with PHS: Probe moves parallel to the reference plane [B-3169]. Bug already fixed in CM 3.12.

Measurement of free-form surfaces

- Measure slot on CAD model: works also with slots, which have been inserted with numerical input [I-3930]
- Print graphic report: CAD model is also printed in the defined colours, when it is displayed as wire model [B-3174]
- Display as solid model: no runtime error with special CAD files [B-3177, B-3203]
- Bestfit: Correct calculation of the nominal values with circles which have been imported with CAD file itself [B-3168, B-3277]
- Edge point with any angle: Calculation has been corrected [B-3214]
- Edge points: Optimised calculation of the nominal value [B-3235]
- Graphic report: The tolerance is also printed, if the total deviation has been switched off [B-3253]

Processing

- Create a construction element using several elements: Correct behaviour, if the elements to process do not exist. [I-3945]
- 3D Bestfit for CS optimisation (geometric Bestfit): Correct function when the country setting is in inch [B-3182]

Coordinate systems

- Define origin with cylinder or cone: The chosen axes are set correctly to Zero [B-3217, B-3162]

Feature determination

- Position of a surface point: The tolerance is converted correctly when working in inches [B-3192]

- Min. und Max. point spacing and range of an element: Correct function when working in inches [B-3268]

Inspection reports

- DMIS results export: Correct element direction with circle, rectangle and slot in an actual surface [B-3129]

Part inspection programming, DMIS

- DMIS: Instruction for the evaluation direction of surface points revised [I-3528, B-1292]
- Positioning help: Function "Always on top" corrected [I-3900]
- Mirror PIP: Position measuring machine, PCS, absolute and relative is also mirrored [B-3063]
- Execute PIP with parameter modification: Measuring and search distance, measuring velocity and acceleration, positioning velocity and acceleration can be also modified if they are imported from a DMIS file [B-3247]
- DMIS program export: SAVE/D(), RECALL/D() exported as SAVE/DA(), RECALL/DA() [B-3228]
- DMIS program export: SAVE/S(), RECALL/S() exported as SAVE/SA(), RECALL/SA() [B-3228]
- DMIS Program export: DMESW/COMAND,‘SETCOORDSYS,WKS‘ is left out before PCS instructions. The standard setting is PCS [B-3230]
- DMIS program export: All co-ordinate system instructions with DAT() use a clear label [B-3232]

System

- Passwords: The quick selection table is recalled, if a PIP has been aborted [B-3082]

Data management

- Statistic Histogram: Correct output of the frequency outside the displayed area
- Import free form surfaces (CAD): Correct function of VDA import under Windows 98 [B-3180]
- Copy Database to: Copies to floppy disk are possible [B-3266]
- VDA export: Sets of probe points of an element can be exported [B-3183]

Machine

- Counter simulation: "Display measured points can be activated / deactivated more than once (no ESLIB error) [I-3888]
- Measuring machine settings: The resolution and the sign (+/-) can be set when using a MZ 1050/60/70 counter [B-3190, B-3194]
- Multiple machines data transfer: Actual surfaces are exported an imported with the probe points [B-3204]
- Position measuring machine, relative with PHS: Target position is calculated correctly [B-3238]

Probe

- Rotate PHS: The parameter window is displayed correct [B-3197]
- APC / SCR probe change: The field "actual channel" can be edited [B-3272]

Periphery

- Robocon 3: Correct dialogue, when probe points have been taken too slow [I-3676]
- Robocon 3: Correct handling of the error dialogue [B-3175]
- Aicon, Imetric, Krypton, Metronor: The fixed probe can be switched on and off [B-3069]
- PHS with TP 20: Correct function when changing the probe module [B-3167]
- FARO arm: No display of the calibration data, when CNC on or or off is selected [B-3171]
- WPC 2010 error dialogue "Start the controller again" while printing [I-3951, B-3213]
- MZ 1070: Correct Homing [B-3186]
- SCR200, MCR20: The calibration of the probe changer can be aborted [I-3971]
- MPH, WPC2010: Correct error message and possibility to shutdown Metrosoft CM, if the serial port has not been configured correctly.
- WPC2010: Error message if a position measuring machine command has been sent to the controller, if it has not been initialised.
- ACR2probe change: The actual channel can be edited [B-3272]
- Metrocon S: Error message "Probe open" is processed correctly [B-3105]
- Romer Arm: Correct display of the positioning help [B-3250]

Release-Notes CM 3.12

New functions

Measurement of free-form surfaces

- Load additional ACIS files to current graphic: By means of the context menu (right mouse button) the active rewritable auxiliary file (*.sax) may be defined [I-3913].
- Graphics report: The point box colour is determined by the biggest deviation, which is visible in the point box [B-3117, B-1057].
- Graphics report: Template for US letter paper format.

Part inspection programming, DMIS

- Execute a PIP with parameter modification: It is now possible to input or change the for DMIS relevant element parameters (feature nominal).

Data management

- Converter surface data: Horizontal scroll bar added in order to enable the complete reading of long file names [B-3114].

Periphery

- WPT - 100: Driver for the Wenzel temperature recording
- MZ 1050/60/70: In drivers for Zeiss 1050/60/70 axes without reference marks max be set in order to enable the homing. To that purpose, the file Cm3\init\MZ1060.dat must be overwritten manually in case of an update and the parameter be set to ReferenceMarks?=0 E.g. if there is no reference mark on the X-axis: ReferenceMarksX=0 [B-3107]
- Robocon 3: Softwarelimits in Metronrx.dat are no longer in increments, but in mm [B-3151]. This change has already been incorporated into CM 3.10. For CM 3.12, the description in Metronrx.dat has been adapted.
- WPC 2010: Display of the Pantec firmware version in the menu "Metrosoft CM/About Metrosoft CM" [I-3926]
- LK: Driver for the following LK measuring machines: Manual, Cupe, Micron Drive, LK 2000, LK 2000-5, LK 3000, LK 4000

Bug fixed

General

- Register Metrokey: Register form has been revised and may be printed again [B-3108]. Extended functions in order to allow sending the form by Email.
- Sound board: Sequence and length of the sounds (measured point, range trend ...) have been revised [I-3496, I-3518].
- Backspace key on keyboard works again [I-3895, B-3166].
- Compressing of the data base works under Windows 98 too [I-3899].
- Quick selection table: correct display of the pictures [B-3149]

Measurement of geometrical elements

- Measuring surface point: Improved calculation (without fixing coordinates) [I-3876]
- If the first element during measuring is assigned e.g. no. 100, the following elements will be numbered in ascending order [I-3842].
- Measuring a profile with online nominal/actual comparison: Improved calculation of intermediate points [I-3919].

Measurement of free-form surfaces

- Measure circle on CAD Model: If the circle is stored additionally as a geometric element, the next free element number will be proposed [I-3803, I-3836]
- Measure a profile (BAFF): Direction vectors of the points are stored with correct sign [I-3881].
- Graphics report: The tolerance colours on the screen graphics are identically with the graphics report [I-3904, B-3095].
- Measure edge points with material thickness compensation: Correct calculation of the material thickness, if it will be changed in between one-sided (only reference surface) and double-sided (reference surface and edge) material thickness [I-3907].
- Graphics report: The size of the tolerance fields (upper tol, lower tol) has been optimised (reduced in size) [B-3049].
- CM-Surf window: Correct graphic display after a graphics output, if only a profile had been displayed [B-3057].
- Approximate alignment: Progress beam for point measurement is continually updated [B-3075].
- Bestfit: Problem with "Floating Point Overflow" is solved [B-3113].
- Import surface data IGES: Converter revised [B-4142, B-3145]
- Mirror data: Problem with the solid model display with some mirrored data is solved [B-4143, B-3157].

Coordinate systems

- Define CS alignment in grid with 3 points: Error message is displayed, if the elements are not existing [B-3092, I-3928].
- Define CS alignment in grid with 3 points: The fixed values stay again fix [B-3132, B-3142, B-3158].
- Define primary direction, secondary direction or origin during a PIP execution: The PIP can be terminated, if the element is not available [B-3101, B-1196].

Feature determination

- Length, width of a rectangle or slot: Correct formatting when outputting a protocol line or the characteristic data in mask, if only length or with will be output [I-3894, B-3133].

Part inspection programming, DMIS

- DMIS program import: The number of sentences is correct [B-3058].
- Switch between the PIP operating modes: Display from the actual sentence [B-3060].
- Execute a PIP: The display remains at the actual sentence [B-3120, B-1080].
- Delete PIP sentences with right mouse button: Security question, if the option is set in the data management [B-3150].
- Create a PIP with circle, rectangle or slot in a actual surface: Correct behaviour when one of the functions is aborted [I-3456, B-3122, B-3123 , B-3131].

- Measurement according to model: It is again possible to use actual surfaces and actual curves in a PIP [I-3743].
- Execute a PIP: No loss of PIP sentences [B-3093]

System

- Country settings: Dialogue- and inspection report language can be set individually [I-387,I-3896].
- Metroterm settings: The volume of the Metroterm E can be adjusted [B-3043].

Data management

- Copy data base: Copy on floppy disc works also in Windows 98 [B-3147].
- Statistic page output: Correct output of all the diagrams with more than 10 features [B-3138].

Machine

- Position measuring machine: Adaptation to big coordinate values [B-3041].
- Rotary table and surface point with fixing 2 coordinates in a loop: Point will be taken correct in a PIP execution [B-3093].

Probe

- ACR 2 probe changer: The CMM has before and after the change the same position [I-3901, B-3088].
- ACR 2 probe changer: Other changes are possible, if there has been a error at the last change (e.g. collision) [I-3902, B-3090].
- ACR 2 probe changer: It is not possible to make a change, if the slot is not calibrated [I-3903].
- ACR 2 probe changer: The collision protection is only at the actual change deactivated [B-3091].
- Load PHS probe system: Correct display of stylus length, if the probe system is selected from the list box [B-3056].

Periphery

- WPC 2010: If the Pantec firmware is not loaded, an error message is displayed while starting CM [I-3805].
- WPC 2010: Q1012 will be correct initialised with the Pantec firmware 12.28. No adaptation in Metrosoft CM [I-3924].
- WPC 2010: "Buffer full" bit from the controller will be correct handled [I-3927].
- WPC 2010: Are the software limits of the actual WPDAT.PMC and the limits in the controller different, is a warning displayed [B-3055].
- Metrocount 6: Multi carriage mode works again [B-3136].
- SCR 200: Warning dialogue, that the probe system has to be checked, if the probe system change failed.
- Rotate PHS: Correct function if the PHS had not been initialised. Because of this bug fix, the resulting errors do not occur any more [I-3890, B-3086, I-3887, B-3089].
- Chorus NT with Renishaw APC: Problem with collision during probe change is solved [B-3023].
- Metrocount 6: Inclination angle compensation in Metromc6.dat is again activated [B-3170].

Release-Notes CM 3.11

New functions

General

- Q-DAS-statistics: All features are exported into only one DFI file
- Icon for star probe when using a PHS: PHS is shown instead of the normal star probe. The rotation dialogue is called by clicking on the PHS icon. The PH 10 icon has been removed for that reason.
- PHS icon being shown with a red cross means that the PHS is not calibrated. This feature requires the use of WPC 2010 firmware 12.27 and the setting of the variable Q1012=0 in WPDAT.PMC.

Measurement of free-form surfaces

- Progress display for the VDA conversion
- Conversion of MDI elements
- Faster and more reliable VDA conversion by use of ACIS 5.2
- Measure a profile with on line nominal/actual comparison: Several start- and end-points can be defined on a intersection curve [I-3859]

Part inspection programming, DMIS

- Part inspection program will **never** be changed when in execution mode, even not in case of an error or after a modification via data management.
- Execute part inspection program with parameter modification (right hand mouse button):
  A single sentence can be altered (exception: sentence #1).

System

- Terminate CM: Checkbox for compressing the database [I-3806]

Data management

- Function "Current data base path" only changes the current part inspection program if the workpiece changes too.
- Converter options: Switching on/off the conversion of independent surfaces, profiles and points

Machine

- Extension of counter simulation
  Display of axis information (DRO)
  Hold probe radius compensated DRO reading for a limited time when probing
- Improved operation (window now always visible, revised menu)

Probe

- Calibration of PHS: When calibrating the D-axis, angle E is set to 45° (0° in CM 3.10). Existing PHS calibration PIPs must be deleted and programmed again.
- Rotate PHS: Dialogue has been rearranged. Angles can be entered directly in the graphic, by means of the slider control or manually.

- Load or rotate PHS probe system: If the PHS is not initialized, an error message will appear saying that it cannot be rotated

Bug fixed

Measurement of geometrical elements

- Selection of the reference element: You may enter element numbers of several places [B-3046]

Measurement of free-form surfaces

- View: Separation of the functions last view and standard view [I-3860]
- Edge points: Complete storage of the references in the part inspection program [I-3869]
- Elimination of graphic elements: Auxiliary elements (circle, rectangle, slot) are completely deleted [I-3874]
- Import surface data and store as CM-element: The VDA converter has been completely redesigned [B-3038]
- Measure a profile with on-line nominal/actual comparison: optimised point distribution at constant chordheight [B-3042]
- Measure circle on CAD model with material thickness compensation: The position of the circle uses the material thickness defined for free form surfaces, while the diameter uses the definition for geometrical elements [B-3066, B-1231].
- Adopt geometrical element to actual surface: Correct treatment of the deviation after a best-fit [B-3068]
- Combined tool and zoom window: The workpiece is no longer cut [B-3072]
- Report/Prepare view: No exception by server when no point is visible in actual view [B-3077]
- Report/Prepare view: Identical number of point-boxes in dialogue and preview [I-3783]
- Report/Prepare view: Superfluous fields for point-boxes removed [I-3849]
- Report/Prepare view: Output of point-boxes in correct colour even with asymmetric tolerances (B-3044]
- Report/Prepare view: Correct number of point-boxes when „Display hidden points“ is switched off [B-3080]
- Edge points with material thickness compensation and surrounding points are calculated correctly, i.e. the thickness of the material is taken into consideration [B-3081]

Feature determination

- Coaxiality: Correct output of the element number when using 2 planes as working length [I-3862]
- Position tolerance ISO 1101 polar: Correct evaluation when reporting from database. Identical results as during feature determination [B-3047]

Inspection reports

- Report header always contains actual information [B-3040]
- Support of the report language for graphics reporting
- Following a new installation, the standard report header as well as the report line are defined [I-3708]

Part inspection programming, DMIS

- Positioning help can be set to "Always in the foreground" [B-3039]
- Positioning help: The privileged direction for surface points now only occurs in one axis (the one with the greatest component, as 2 axis cannot be moved simultaneously on a manual measuring machine) I-3878]
- Execute part inspection program: Error message "Element not found in database" due to elements stored with a wrong number does not happen any more [I-3861]
- Jump to sentence entered in the listbox during creating, executing or executing a program with parameter modifications; when recalling a program as a subroutine or when programming a GoTo/loop [B-3064]

System

- Country settings: Correct separation of dialogue and reporting languages [B-3863]

Data management

- Delete data records: No software crash when deleting voluminous data [B-3030]
- Data management at the point level: The points are corrected by the amount of the probe radius and represented in the actual coordinate system [B-3045]
- Export of VDA geometrical elements: Correct output in any part coordinate system without loading it beforehand and optional output of the TMAT component [I-3865]
- Export of VDA geometrical elements: no comma at the end of a MDI or PSET element [I-3875]
- Conversion of free form surfaces is no longer stopped by error dialogues
- Converter options: Correct execution of the options after a new installation [B-3071]

Probe

- Calibrate and store probe system: Styli are always stored at the correct number [B-3024]

Periphery

- PHS: Automatic measuring of planes and lines works near the software limits too[I-3761]
- PHS: Arm vector for CAA3 integrated [B-3052]
- PHS: Measured point is always registered with correct PHS angle. For that purpose, WPC 2010 firmware 12.27 is required. No modification was necessary In Metrosoft CM [I-3787, I-3815]

Installation

- CM-Config, conversion of database: Correct number of points at actual surfaces and actual points [I-3718]
- Metrocount 6: Correct de-installation of the driver (CMPORTIO), even if the installation was carried out at an address already used by the system [I-3867]
- Setup type normal: All available languages are installed [I-3872]
- Installation of the Sentinel driver possible under Windows 9x too [B-3053]

Release-Notes CM 3.10

New functions

General

- Software is completely realised in 32 bit
- New graphics kernel for CM-SURF: ACIS from SPATIAL TECHNOLOGY INC.
- New relational database with ODBC access (Microsoft Access)
- Modernised user interface according to Microsoft guidelines
- CM main window: Size and position is free adjustable (screen resolution minimum 800 x 600)
- New toolbars: movable, docked or free (not docked), position can be stored with "Save settings"
- Probe system graphic stays on screen in all main functions
- Dialogues are movable
- Quick Information (Hints) with text of the online help line
- Coordinate values in status line and output window 2 with title X, Y, Z
- long filenames are permitted
- Quick selection tables with either 4, 9 or 12 buttons
- Quick selection table: home page definable
- Quick selection table: Buttons can be configured for PIP execution, call home page, last page or load quick selection table. With this functionality, the individual quick selection tables can be combined to a tree structure
- Quick selection table: button can either show text or pictures. In addition to the standard graphic formats (bmp, pcx, gif, tif, wmf, jpg, ...), sound and video files (wav, mov, ...) can be used as well
- Quick selection table: batch mode for PIP execution
- Acoustic signals through sound card, PC speaker, Metroterm or HT100
- Acoustic signals for the sound cards can be defined with the control panel of Microsoft Windows

Measurement of geometrical elements

- Specification for element measurement and storage:
- Circle fitting methods: least squares, minimum circumscribed or maximum inscribed
- Storage interval for measured points is 1000 (196 in CM 2.x)
- Measure of a circle/cylinder and circle (2D): Circle fitting methods: least squares, minimum circumscribed or maximum inscribed
- External measurement value: available with VANE probe system (Sair Technics)

Measurement of free-form surfaces

- Use of a new graphic and mathematics kernel (ACIS from Spatial Technology Inc.)
- Simultaneous use of surface and volume models
- New graphic window with own menu and toolbars
- File: Save CAD model as, Graphics output (print)

- Edit: Select, Cancel selection, Invert selection, Delete, Mirror, Display element data
- View: Combined tool (rotate, zoom, pan), Rotate (interactive, X-axis, Y-axis, Z-axis, set rotation centre), Pan, Zoom (interactive, all, window, zoom out, zoom in, move clip plane), Standard views (top, bottom, left, right, front, back, ISO Southeast, ISO Southwest, ISO Northwest, ISO Northeast), Load/save views, Perpendicular on element, Last view, Redraw, Toolbars
- Display: Solid. Wire frame, Polygon, Perspective, Boundaries, Hide, Show all, Coordinate axes, Network grid, Tolerance zone, Connect actual points, Connect nominal points, Probe point number, Probe, Options (colour definitions, point display, network grid, connect points)
- Insert: Circle, Cylinder, Rectangle, Slot, Intersection, Numerical input
- Report: Template, Prepare view, Print report, Cancel report, Insert point box, Insert text box, Insert graphics box, Arrange point boxes
- Toolbars: File, Edit, View, Standard views, Display, Insert, Report, Large buttons, Flat buttons, Show hints
- Import surface data and store it as CM element
- New designed dialogue
- Use of CAD models with NURBS (non-uniform rational B-Splines)
- VDA: Conversion of VDA files into the internally used ACIS format (SAB or SAT) and storage as CM element
- IGES: Conversion of IGES files into the internally used ACIS format (SAB or SAT) and storage as CM element
- ACIS: Import of existing ACIS files (SAB oder SAT) and storage as CM element. A local copy of the file can be created
- Converter options (menu "File")
- General: Save as binary file
- IGES: Heal defective trim curves, Close surface boundaries, Convert non-geometric entities
- VDA: Heal trimmed surfaces
- Standard settings
- Standalone converter with bi-directional conversion for VDA and IGES files (CmCadConv.exe)
- Load additional ACIS files to the current graphic / Create or edit nominal element
- Approximate alignment: Definition and measurement of the approximate alignment points in one step (measurement preparation not necessary anymore)
- Insert intersection curve on CAD model: The definition and measurement has been split into two functions. Creation of several intersections in one step (e.g. intersection in XY-plane, offset in Z = 850mm, 5 intersections, distance between intersections = 10mm). The intersection plane and the offset can also be defined interactive by clicking into the graphic.
- Measure a profile with on-line nominal/actual comparison:
- Definition for point distribution: manual, number of curve points, curve length, chord length, chord height
- Start and end point repeatable (multiple intersection curves)
- Graphics report: Extended functionality for point boxes, text and graphic boxes, improved presentation of the nominal/actual comparison of intersection curves (profiles)
- Graphics report teachable in PIP: Each object of the graphics report creates a PIP sentence where the position, size and content is stored. With this functionality, identical reports can be done.

Part inspection programming, DMIS

- Improved handling for part inspection programming through pop-up menu (right mouse button)
- Selection of PIP sentences directly in the PIP display for:
- Insert (edit), delete, terminate insert (edit) mode
- Execute PIP in new measurement, same measurement or parameter modification
- Display settings for part inspection program:
- Format: CM Standard or CM DMIS
- Show origin: PIP sentence from CM 2.x or DMIS
- Show details: Displays the parameters from elements and characteristics
- Faster refresh of the PIP display
- Graphical user support in a PIP (display image): extended multimedia formats for graphic, sound and video (bmp, pcx, gif, tif, wmf, jpg, wav, mov, ...)

System

- Directories: new structure and system directories
- Save settings: Saves user specific settings in the actual Windows user profile. Each Windows user profile has its own settings.
- Metromec Standard: Resets the user interface to standard settings

Data management

- Use of ODBC database, Microsoft Access
- Separation of the system data (probe systems, probe changer, rotary table and pallet coordinate systems) from the measuring data. The system data are stored in an own data base (CmDbSys.mdb)
- Converter options for the conversion of CAD files

Machine

- CAA settings: New dialogue for easier configuration and display of the actual compensation files
- Volumetric compensation CAA3 (mathematics for the compensation)
- Rotate rotary table only in idle position

Probe

- Modify stylus offset
- Modify stylus diameter: own function in menu, teachable in PIP
- Change probe APC/SCR: teachable in PIP
- PHS calibration
- PHS probe head from Renishaw: The position of the probe tip is calculated automatically in any position of the probe head. The errors of the probe head axes and the deflexion of the probe are compensated (probe extension up to 750mm). Because of that, measuring in any position of the PHS is possible without calibration.

Output

- graphics report template: Create/edit templates for graphics report

- Graphics report: extended functionality for point boxes, text boxes and graphic boxes, improved presentation of the nominal/actual comparison of intersection curves (profiles)
- graphics report ist teachable in PIP: Each object of the graphics report creates a PIP sentence where the position, size and content is stored. With this functionality, identical reports can be done.

Special

- VANE probe (SAir Technics)
- VANE probe on
- Calibrate VANE probe
- Initialise VANE probe
- Calculate stator ring

Periphery

- Optimised driver for WPC2010
- Communication with RS-232, Pipe or TCP/IP (depends on the driver)
- Available driver list in CM Config help
- New or optimised driver:
- AICON: Driver for photogrammetry system
- DEA Chorus: One (1) PC solution
- Leica V-Stars: Driver for photogrammetry system (TCP/IP communication)
- Romer WinRDS: Driver adjusted for new WinRDS
- Zeiss / Stiefelmayer: new driver for MZ1050 / MZ1060 / MZ 1070
- WPC2010 ROT: rotary table (4th Axis)
- PHS1 probe head from Renishaw: any position without calibration
- ACR2 probe changing system for PHS1 from Renishaw
- VANE probe from SAir Technics: new compensation of the mounting offset

Installation

- Easy Installation from CD-ROM, HTML installation menu
- Remove software in control panel > add/remove programs > remove
- CM Config Program:
- Sys Info NT, Windows NT diagnostics can be started directly
- CM Config device selection:
- WPC2010 configuration file: All parameters are read from the Wpdat.pmc file. Select the correct path. The Metromcs.dat file is not read anymore.
- CM Config database tools:
- Convert database: converts a CM 2.x Database into a CM 3 database
- Compress database
- Repair database
- CM Config installation:

- Adopt data from CM 2.x : Copies the configuration from an existing CM 2.x installation
- New Metrokey driver from Sentinel (Version 5.37)

Release-Notes CM 2.39-1

Bugs fixed

Processing

- Create a symmetry plane between two planes
  The location of a symmetry plane of almost parallel planes is calculated the same way as before the bugfix B-1294 [B-1305]

Coordinate systems

- Export difference between 2 coordinate systems: Since CM 2.37, correct calculation according to AGIESOFT ML 2.0 standard [I-1063]

Feature determination

- User-specified feature: Option 1 DMV (electronic measuring instruments: slide gauge, micrometer etc.) works again [I-1070]
- Position tolerance ISO 1101 polar: Correct calculation if characteristics are printed from the data base. Same results as during the feature determination. [B-1308]

Peripherals

- Metrocon S, WPC2000, WPC2010: Out of limits warning during automatic measurement of circle /cylinder [I-1067]
- WPC2000 unknown error, no communication, incorrect initialisation (homing) while starting CM. New firmware answers differently on the "HALLO" command [B-1307]
- PHS Synchronisation during swivelling. PHS angles can not be read to early.
-

Release-Notes CM 2.39

New functions

Periphery

- Leica Axyz driver
- Disc Polar driver: An additional point has to be taken per element to determine the element direction.
- Logfile for serial communication: Activation for each channel in CMConfig under Interface/Serial connection

Bug fixed

Measurement of free-form surfaces

- Adopt projected circle to actual surface, correct position information [B-1263]

Processing

- Create a symmetry plane between two planes
- If two planes intersect (two solutions), then the position of the symmetry plane was not calculated correctly [B-1294]

Coordinate systems

- Export difference between two coordinate systems: Memory leak corrected [B-1066]

Part inspection programming, DMIS

- DMIS export: ‘---‘ in comments will be correctly exported [B-1250]
- DMIS results export: Correct progress display at PIP subroutine call [B-1065]
- DMIS results export: Error messages at creating coordinate systems (Element not found in the data base) will be suppressed [B-1277]
- DMIS: Goto / Loop in part inspection program: additional parameter to increment elements and features. Changed order of parameters [B-1250]

Machine

- Incline compensation (Wenzel): Operational sign error for the left arm (multiple carriage CMM) corrected [B-1250]

Probe

- Change probe system while measuring an actual surface [B-1251].

Periphery

- Robocon 3:
- Probing problems by executing a part inspection program ("Timing problems" between Metrocount 6 and Robocon led to deadlocks)

- Software limits reactivated
- Automatic circle measurement: The uncontrolled behave came from the controller, critical combinations of measurement velocity and search distance are now evaded by the driver.
- WPC 2010:
- Correct communication mode by initialisation (I3=2)
- Metrosoft CM can be terminated, if the controller is not initialised
- PHS:
- "Home offset correction"
- Modified calibration process for the " Home offset correction " (new dialogue and automation of the PHS position settings).
- Defective measurement results by execution a part inspection program. After a swivel a point was calculated with wrong PHS angles.
- Improved swivel dialogue: new picture and proper lettering of axis
- Communication error „No response from CMM“ corrected (Metrocon S, WPC 2000 and WPC2010) [B-1276]
- Romer: The function „right mouse button“ is supported. Popup menus can be open over the Romer arm
- Error handling: „Collision“ and „Probe open“ while executing a part inspection program [B-1289]
- Metrocon S: When an error dialogue was confirmed after more then 30 seconds, CM locked up.
- Metrocon S, WPC 2000 and 2010 with PH9/10: After a confirmation of the error dialogue „Probe open“ the CM was blocked.

Release-Notes CM 2.38

New functions

Measurement of geometrical elements

- Surface point measurement with dialog input: The parameters can be adopted from an existing element from the data base.
- Measurement of the surface point with dialog input: The nominal values are written into the part inspection program. In the case of a measurement with surrounding points, this applies to the position only (direction from surrounding points), without surrounding points this applies to both the position and the direction. The modification (positioning aid) which was made on CM 2.34 is thereby cancelled.

Measurement of free-form surfaces

- Reference of an actual point (= nominal surface) can be modified in the PIP through execution with parameter modification. [B-364]
- If no reference element is found when a circle, rectangle or slot is measured, then the corresponding CAD element can be defined during the measurement.
- Circles, rectangles and slots are always processed with a search range, since the number of the reference element can be modified by model modifications or new definitions. [B-392]

Inspection reports

- Export measurement results in DMIS file: Inspection report header “CM_DMIS.PHD“ for querying all standardised DMIS REPORT variables.
- DMIS measurement results export: Consideration of the inspection report setting "Selective report"
- DMIS measurement results export: Output of the inspection results of border points in surface measurement
- DMIS measurement results export: Output of the inspection results of subroutine contents to interlacing level 10, elements and features not in the same part inspection program
- DMIS measurement results export: output in accordance with VOLVO convention
- Place holders for inspection report headers:
- {MPMODNR}PIP modification status [B-1193]
- {MPMODUSER}PIP modification operator [B-1193]
- {MPMODDATE}PIP modification date [B-1193]
- {MPMODTIME}PIP modification time [B-1193]

Part inspection programming, DMIS

- Execution with parameter modification: configurable (filter function)
- DMIS function "Check inspection report", DMESW/COMAND,’PROTOCHECK’
- Calibrate probe system: display "displaced reference sphere" in the teach-in record if calibration has to be carried out at the displaced reference sphere.
- DMIS function "Rectangle/slot construction": Execution of part inspection program with parameter modification possible. [B402]

- DMIS: REPORT instructions

System

- Country settings: Hungarian dialog and printer texts
- Country settings: Czech dialog and printer texts
- Passwords: It is possible to initialise the measuring machine in user level 4

Measuring machine

- Initialise measuring machine: can be executed in user level 4

Output

- Feature data in window: setting is stored. The output window only appears together with the first feature.

Periphery

- MCR20 driver
- ACR2 driver
- PHS home & measured point correction
- PHS incorrect position correction & swivel dialog
- MZ1060 configurable time response (see MZ1060.DAT)
- WPC2010 rotary table driver
- HT100 in machine selection of CM Config added
- ROMER: Adaption for new WinRDS from ROMER

Installation

- New driver for Metrokey (Sentinel V5.34) under Windows NT 4.0.
  Substantially reduces the reading time of the Metrokey under Windows NT.

Bugs fixed

Measurement of geometrical elements

- Point distribution: stability problems rectified [I-1009]
- Automatic measurement: correct function when a CNC rotary table is used [I-1026, B-1165]
- Circle/cylinder, straight line/plane, point/plane: correct reference with rotated rotary table [B-1184]

Measurement of free-form surfaces

- Adoption of geometrical elements in actual surface: Correct point numbering when additional points are measured. [B-403]
- Border point: The first measured point determines the reference surface, this is maintained [I-1013]
- Surface best-fit: The function can be run when only circles have been selected. [I-1032]

Processing

- Create a construction element using several elements: Is now contained in BAG module, previously PROG was required. [I-1018]

Coordinate systems

- Set coordinate system factors: Correct function when several probe systems are used. [B-1140]

Feature determination

- ISO 1101 position tolerance on planes: The evaluation is carried out in one axis. The coordinate values of the other two axes can be input. [B-1149]

Inspection reports

- DMIS results export: Correct output of FA and TA when a "DmisGen" PIP is used, in which the element numbers correspond with the measurement. [B-1171]
- DMIS results export: Correct handling of "CONST/POINT" instructions [B-1239]
- DMIS results export: Correct export with the application of CONST/POINT, F(), MOVEPT, FA(), and CONST/POINT,F(), TR, FA() [B-1209]

Part inspection programming, DMIS

- Execute PIP: Error in CMSTDLL.DLL with several n-point constructions of actual surfaces rectified [B-394]
- Execute PIP: Circle, rectangle, slot are teachable following STOP/CONT in an actual surface.
- Execute PIP from the line: within an actual surface: points which are no longer measured are adopted from the data base or the part inspection program without any modification. [B-387]
- Execute PIP: from ... to: within an actual surface: Functions such as dialogs, intermediate points, load coordinate system etc. are not executed if they lie outside the Start / End position of the PIP. [B-391]
- Execute PIP: from ... to: within an actual surface: The points outside the Start / End position of the PIP are adopted without new projections. [B-405]
- Execute PIP with parameter modification: Correct function when "Current position” is used in the case of the intermediate point correction with the national setting length measurements in inches. [BB-1222]
- Jump/loop within the PIP: With the function “Move point“, both the element number of the element created and the reference element are counted up. [B1195]
- Jump/loop within the PIP: When setting the primary direction, secondary direction or origin, the elements used are counted up. [B-1229]
- Jump/loop within the PIP: With the function "Create construction element using several elements", the element number of the element created, the reference (e.g. plane) and the elements to be constructed are counted up. [B-1047, I-1024]
- Jump/loop within the PIP: Maintenance of the Maximum Material Principle (MMC) with determination of the position tolerance in accordance with ISO 1101 with the counting up of the reference element and the tolerated element, as well as creation of a new feature number. [B1194]
- Jump/loop within the PIP: When rectangles are measured, the number of the rectangle created and the associated straight lines are counted up. [B-1242]
- Display of the dialog ‘Range too big’ for the calibration of a probe during the execution of a PIP. The PIP operating mode can be modified. [B-1018]
- Execute PIP: If the option “Use stored reference surfaces” has been selected for "Definitions for the measurement of free-form surfaces with nominal/actual comparison on-line”, a dialog appears in

which a selection can be made as to whether the point should be recalculated over a search range in the event that the reference element has not been found. [B-1117]

- DMIS Import: incorrect reference with imported circles [B-404]
- DMIS import: With FEAT/ LINE,BND, ... the correct direction is adopted. Problems occurred primarily with theoretical straight lines.
- DMIS Export: In the case of cones, the position of the apex of the cone is output. Previously it was the centre of gravity which was output. [B-1167]
- Graphic user guide: Correct handling of the directories [B-1223]

System

- Passwords: PIPs with the 2D elements to be measured are also executed in password level 4 without an error message. [B-1161]

Data management

- Display/modify all marked data records: It is no longer possible for the incorrect dialog to be initially confirmed. The “Confirm” dialog remains in the foreground until it has been closed by means of [OK] or [ESC]. [B-1084, I-1025]
- Copying: Long part inspection programs are correctly copied, no loss of individual records. [B-1174]

Measuring machine

- Position rotary table: Rotation to 0 or 360° possible, when degrees, minutes and seconds are set. [I-1031]

Probe

- Only swivel probe head in idle position: setting is stored [B-311]

Output

- Set up graphic page: Point boxes can be created which contain the comment field only. [B-1043]

Periphery

- WPC 2000, WPC 2010, Metrocon S: Increased performance in the case of manual probing [B-1082, B-1083]
- Metrocount 3: Increased performance in the case of probing [B-1082, B-1083]
- Metroterm E: No loss in performance for the system [B-1082, B-1083]
- Tri Mesures Controller: PH9/10 can be used again.
-

Release-Notes CM 2.37

New functions

- Part inspection programming, DMIS
- Execute a part inspection program with parameter modification: tolerance and material thickness can be changed to actual surfaces for edge points.
- The function “Insert dialogue or comments into the part inspection program“ is included in the BAG basic module
-

System

- Country settings: Hungaria dialogue and inspection report texts
- Country settings: Czech dialogue and inspection report texts

Periphery

- Leica INKA 3D driver

Bug fixed

General

- Error handling during start-up and termination of Metrosoft CM: equipment failure information is displayed in plain text as far as possible
- Exiting Metrosoft CM in case of equipment failure: the exit procedure has been simplified in that the error messages are displayed on the screen with a time lag

Measurement of geometrical elements

- Enter a the theoretical element: also works with rotary table angles other than 0 degrees

Measurement of free-form surfaces

- Configure graphic page: the actual surface in the element window1 can be changed even before outputting of inspection results is completed (this is a pointless exercise, however, and therefore not advisable)
- Create circle on CAD model: the centre of the circle is displayed with a cross
- Connect actual points: this function can also be switched off in the measurement preparation
- Connect actual points: protection violation within this function has been eliminated
- Bestfit: Right calculation from the Bestfit of border point with any angle to reference surface. This error only occurred in the CM versions 2.35 and 2.36
-
-

Processing

- Measure a profile with on-line nominal/actual comparison: this function can also be performed with combined nominal data (via the function "Load additional IFM files to the current graphic")

Coordinate systems

- Store absolute PCS with rotary table: "Save absolute PCS" now combines the rotary table coordinate system (with angle of rotation = 0), pallet and part coordinate system into a single part coordinate system which it then activates accordingly. The pallet and rotary table coordinate system and rotary table angle are deleted or reset to 0 degrees. The current PCS refers to a rotary table angle of 0 degrees, as all other angles of rotation are meaningless in the absence of an active rotary table coordinate system (origin or rotation coordinate)
- Store the pallet coordinate system: works correctly if you execute a PIP via a best-fit function or "Define coordinate system alignment in grid with 3 points“, regardless of which switch (F5,F6,F7) is activated in the coordinate system main group
- Coordinate system translation: also works with rotary table angles other than 0 degrees

Feature determination

- Nominal/actual comparison between elements: protection violation within Windows 95 has been eliminated

Part inspection programming, DMIS

- Execute a part inspection program: correct approach to intermediate points and display of dialogues after an error handling routine (collision, probe not closed, etc.). This error only occurred in the CM versions 2.35 and 2.36
- Execute a part inspection program with time optimisation (ExeFast): a PIP can be restarted after cancelling without PIP stoppages (e.g. cancelling dialogue with ESC and restarting PIP)

Probe

- Load probe system: if an error occurs during the loading of the probe system, the new probe system is loaded from the database in each case. A dialogue window appears containing the message "Please check that the correct probe system is loaded!", after which the user is given the opportunity to change the probe manually

Periphery

- WPC 2010: Measured point buffer implemented - prevents points from being lost during manual measuring
- WPC 2010: If an axis is moved outside the software limits, the error message disappears automatically as soon as the axis is back within the limits again
- Zeiss DLL re-integrated, MZ1060 & C98.
- APC, SCR200, SCR800 & Zeiss autochange rack error handling (see also under Probe)

Release-Notes CM 2.36

Bug fixed

Periphery

- Metrocount 6: Debugger messages switched off

Release-Notes CM 2.35

New functions

General

- The commands “Insert dialogue/commentary” and “Insert picture” can also be found in the context menu of the parameter and graphic window.

Measurement of free-form surfaces

- Options menu output window 1, submenu with further graphic functions: connect actual points
- Adopt geometrical element into actual surface: function teachable
- Calculation of the nominal point: in the case of measured points which no longer lie on a SURF or a FACE, the SURF or FACE are extended in such a way that a nominal point is found. Setting via file IFMVIEW.INI: FaceEdge=0. When FaceEdge=1 (standard setting), points beyond the edge of the surface continue to be ignored as before.

Processing

- Create a construction element using several elements, construction of several actual surfaces to one actual surface: dialogue to select the nominal element, independent from the actual surface or actual curve you want to link.
- In the case of an n-point linkage of actual surfaces, attention is drawn to the fact that all surfaces must be stored in the same CS.

Coordinate systems

- Recall coordinate systems in an actual surface: checkbox for "Secure nominal values”. If the checkbox is activated, the actual points are no longer projected normally to the CAD surface and the nominal points are adopted directly from the coordinate system last recalled.

Inspection reports

- DMIS Measurement results export: Reporting of border points, circles, rectangles and slots for free-form measurements
- DMIS results export: Output of inspection results for n-point linked actual surfaces
- DMIS results export: Output of inspection results for subroutine contents to interlacing level 10

Part inspection programming, DMIS

- Measurement of free-form surfaces: circle, rectangle, slot teachable
- Part inspection programming, PIP display in output window 2: output of the material thickness for the measured points of actual surfaces and actual curves, provided that the material thickness compensation is active for the corresponding point.
- Execute PIP with parameter modification: the tolerance and material thickness of the surface points in actual surfaces and actual curves can be modified.

Machine

- Multi machine mode: The function “Multi machine mode data exchange” permits the transmission of element or coordinate system blocks with discontinuous numbers. For this, Point 1.3 in the configuration file CNCDUPLX.DAT must be configured in accordance with the instructions.

Output

- Insert page break: automatic protocol line is not printed if switch [output] SpecialOptions=7 in CMWIN.INI is set
- Set up inspection report page: header line / footer line freely configurable

Periphery

- Metrocount 6 - Inclination compensation
- WPC2010 16 bit driver
- PHS driver
- FARO swivel arm driver

Installation

- Metrokey: new Metrokey driver (Sentinel) for Windows 95 and Windows NT 4.0. This driver rectifies problems with printers which work in bi-directional mode (e.g. HP Deskjet 690). Installation as usual with the CMConfig Program.

Bug fixed

General

- Element graphics plane: Length and width are converted from mm into inch
- Module EXTMP: Functions "Statistics", "Statistics settings", "Select statistics diagrams”, "Country settings", "Copy from", "Inspection report settings" and "External programs\Adjust" also enabled
- Material thickness compensation: the value for the measurement of standard geometrical elements and free-form surfaces can be input separately (different values). The ON/OFF switch applies to both main functions however.
- Coordinate display and status line: in the case of "Display off", the coordinates are output in the correct coordinate system in output window 2
- Ending of Metrosoft CM: Correct ending of the software even after the function "Create circle on CAD model" has been used.

Measurement of geometrical elements

- Surface point: When executing a part inspection program and when surrounding points are engaged, the probe radius is rectified correctly

Measurement of free-form surfaces

- Color of measured points: is correct even if during the measurement graphic elements are faded in and faded out
- Create circle / slot on CAD model by clicking points: if points are clicked on a element "circle" the calculation is based on the real circle parameters and not on the displayed segments

- Create circle on CAD model by clicking points: the created circles are always in the corresponding surface (face, surf). Circles with direction close to a main direction were projected wrong.
- Measure circle on CAD model: element graphics in output window 2 aligned to the right
- Actual surfaces can comprise imported points only (Actual surface has not hitherto been stored).
- A surface point is always projected normally onto the SURF. Previously, points outside a FACE were projected onto the edge of the FACE.
- Newly defined elements in the surface model (circle/rectangle/slot) are displayed as a coloured cross.
- During the circle definition, the directional information occasionally got lost. (The circle was only displayed as a point).
- Correct management of the material thickness in the case of border points.
- Correct function report group following slot measurement in the SURF
- Border points: autochange between reference point and measured border point also possible with different probe diameters

Coordinate systems

- Correct teaching and processing of the settings for the individual coordinate best fit.

Feature determination

- ISO1101 Position tolerance: Minimum-Material-Principle LMC
- Position of the surface point [actual surface]: tolerance utilisation is also output for points which were adopted into the actual surface with “Adopt geometrical element into actual surface”
- Projection angle: features in the ZX plane are also printed in red if they are outside the tolerance

Inspection reports

- Creating and printing test reports: VDA initial sample report: adjusted to printable area of Inkjet printer
- DMIS results export: correct output of the inspection results for actual surface points which have been created by adopting standard geometrical elements.

Part inspection programming, DMIS

- When changing the CS within an actual surface measurement, the points are recalculated
- Execute PIP with parameter modification: if the offline programming is engaged, temporary elements in surface measurements (e.g. circle which is not to be stored on DB) are not requested

Data management

- Print data records: Date and time format in header line corresponds to system country settings
- VDA Export: Coordinate transformation matrix (TMAT) is no longer output
- VDA/IGES converter (CAD): Conversion of several computers to a network drive OK
- Print inspection report from DB: also works when “Feature data in window” is activated
- Delete data records: measured points of geometrical element (circle/cylinder and cylinder in particular) can be deleted immediately after they have been measured.

Machine

- Offline programming on: PIP time optimized execution (EXE Fast): CMM doesn't move

- Multi machine mode: data exchange of actual surfaces and actual curves possible.
- CNC on: status (tick) is correctly displayed

Probe

- Swivel probe (MPH) into idle position: status display (tick) corresponds with actual setting

Output

- Print inspection report: Date and time format in header line corresponds to system country settings
- Inspection report settings: only features out of tolerance / features with deviation out of +- %: if no feature is in protocol buffer, inspection report (protocol header and protocol line) will not be printed

Periphery

- CAA: When a probe calibration is aborted, the CAA has been disengaged first.
- CAA: Correct CAA initialisation when starting Metrosoft CM, initialisation prior to the recall of the first probe
- Robocon 3: In the window "Information about Metrosoft CM", the correct controller is output

Release-Notes CM 2.34

New functions

Processing

- Create a construction element comprising several elements: Several actual surfaces and (or) actual curves can be linked to form one element

Coordinate systems

- Export difference from 2 coordinate systems: Format from AGIE-ASCII1 changed to AGIE-ASCII3
- Export difference from 2 coordinate systems: switch in CMWIN.INI [Systemsettings] Agie=1 (default : Agie ASCII 3) Agie=0 (Agie ASCII 1)

Parts inspection programming, DMIS

- DMIS: Instructions for macro elements (rectangle and slot) extended by reference element
- DMIS: Macro elements appear in the DMIS measuring result export DMIS 3.0 conformingly as FEAT/CPARLN
- DMIS: SAVE and RECALL for coordinate systems: Parameter DA() available (DMIS 3.0)

System

- Metroterm settings: Switch in CMWIN.INI [Systemsettings] mtermmsgfilter=0 (default) mtermmsgfilter=1 (LED off)

Peripheral equipment

- FARO driver
- Zeiss autochange rack driver

Bug fixed

Measurement of free-form surfaces

- Adopt geometrical element into actual surface: Actual element consisting exclusively of imported geometrical elements may be stored on the data base
- Definition dialog to measure an actual surface: All 10 characters of the name will be stored on the data base
- Bestfit: Mathematics to calculate the initial values
- Bestfit: If new circles are created on the CAD model during measuring, a subsequent Bestfit no longer leads to the message "Couldn't load Bestfit program"
- Calculation of edge points: Mathematics optimized

Feature determination

- Position: Double conversion of the tolerances (mm -> inches) corrected when the nominal values are changed

Inspection reports

- Report features from data base: For the feature "Position of the surface point" of an actual surface, the deviation is correctly recorded

Parts inspection programming, DMIS

- Positioning aid: Surface points, retain 2 coordinates: The positioning aid redirects to the measured point and no longer to the entered coordinates
- Execute PIP with many CS commands: Protection violation can be defeated, if the LED on the Metroterm is switched off (refer to: New functions, system)

Data management

- Export: Export measurement results in DMIS file: Protection violation can be defeated, if the LED on the Metroterm is switched off (refer to: New functions, system)
- Import: VDA regulated surfaces: with the exception of point surfaces, a max. of the first 196 points are imported per element. (Limitation depends on system!)
- Import: Import parts inspection program from DMIS file: Empty lines in large DMIS files no longer lead to the message "Unknown Minorword"
- Statistics settings: Actual value filter is correctly taken into consideration when the statistics is called up
- Statistics: Data page: Standard deviation and variance are converted into inches
- Statistics: Data page: Correct indication of the area of the measuring numbers and the number of samplings

Release Notes CM 2.33

New functions

Measurement of geometrical elements

- For the 2D elements (rectangle, slot, point, straight line, circle) a measured element can be entered as a reference
- Dialogue "Specification for element measurement and storage": Switch ‘rectangle slot: erase measured elements’ inserted

Measurement of free-form surfaces

- Take-over of geometrical elements in a free form surface
- Measuring preparation: tool bar extended by the functions ‘create rectangle and slot on CAD model by clicking on points’.
- Measuring preparation: function ‘create circle on CAD model by entering theoretical values’ extended by the elements rectangle and slot
- Free form surface measuring with on-line nominal/actual comparison: measure rectangle and slot on the CAD model
- Further graphics functions → display of element data : colour marking of the clicked element
- Optimised loading of CAD data: the graphic display will not be refreshed between measured elements, when you measure several actual surfaces or curves with the same nominal data

Coordinate systems

- Free form surface bestfit extension
  - Division of an edge point in A/B deviation
  - Division of a circles in X/Y/Z or A/B deviation

Feature determination

- Element dimension, length and width of a rectangle, length and width of a slot: length and width can be activated independent of each other
- User-specified feature: extended by option 1DMV, electronic measuring instruments (slide gauge, micrometer etc.): configuration, take over a measure value
- Position of a surface point used with an actual surface: can be taught in a PIP (each point is a sentence) and is stored in the inspection plan (note: variable nominal values)

Inspection reports

- Check part inspection report:
- - green traffic light: all features in tolerance
  - red traffic light: at least 1 feature out of tolerance
- Creating and printing of test reports
  - report templates (PRT) for initial sample report VDA

Part inspection programming, DMIS

- DMIS: perpendicular constructions: CONST/FORMG,[LINE,PLANE],F(),[PERPTO],[F(),FA()],THRU,[F(),FA()]
- DMIS: N-point linking rectangle/slot: CONST/FORMA,[..CPARLN..],F(),BF,FA(),[F(),FA()]
- DMIS: Feature 'Dimension rectangle/slot': TOL/WIDTH,REAL,REAL,REAL,REAL,REAL
- DMIS: Evaluation direction for surface points: DMESW/COMAND,'SURFPTTOLDIR...'
- DMIS: Measuring results export, output of actual surface points: new BMW name convention
- DMIS: Measuring results export: output of actual surface points through the „Vector position" feature
- Execute a PIP → Start from sentence number within one element
- Execute PIP: Load measuring system: Message if measuring system does not exist
- Execute PIP: Load coordinate system: Message if coordinate system does not exist

System

- Country settings: Flemish dialog and printer texts
- Metroterm settings: Metroterm E keyboard layout No. 14 and "Windows" key

Machine

- Switch axis drives on and off for WPC2000

Probe

- Calibrate probe: Function can also be selected through the symbol in the probe tree graphics
- Show or modify probe system: Function can also be selected through mouse click in the middle of star probe graphic

Output

- Inspection report settings: new switch "Selective reporting"

Special

- External programs: VDAIGS, program to convert VDA data (PSET, MDI, POINT, CIRCLE) into the IGES format

Periphery

- Metroterm E keyboard layout No. 14 and "Windows" key
- DEA driver
- Romer WinRDS driver.
- CAA integrated in C98 driver
- Axes ON/OFF for the C98 driver
- WPC2000 log file: WPC2000.LOG configured in METROMCS.DAT
- SCR200 backoff when changing probe can be configured: configuration parameter in SCR200.DAT

Installation

- Module 1DMV (external measuring instruments): devices selection in CMCONFIG extended by module 1DMV
- DEA driver

Bug fixed

General

- Activation of the quick selection table following the execution of a part inspection program from the quick selection table
- File handling problem under Windows 3.11 remedied
- Tool bars for SURF only visible in main function group 'Measurement of free-form surfaces'
- Functions not existing: Icon or pull down menu removed

Measurement of geometrical elements

- Surface point: the direction for a surface point is taken from the PIP when you execute a PIP without surrounding points

Measurement of free-form surfaces

- Executing PIP in free form measuring: the measured probing direction and not the probing direction stored in PIP is used for the definition of the probing radius correction under the settings ‘search range’ and ‘use reference surfaces’
- Length dimension Inch: XYZ deviations are also converted into Inch
- Measurement of point surface in PIP: direction vectors of the individual points are stored anew in the data base
- VDA import: for Circle with opening angle > 360° the syntax check has become more tolerant to errors
- Free-form surface with rectangle and material thickness compensation: the nominal point is calculated to the correct side (sign)

Processing

- N point element: incorrect display of the reference element remedied
- Offset plane: computation based on reduced elements (e.g. circle/cylinder) corrected

Coordinate systems

- Free form surface bestfit with individual coordinate bestfit: can be taught (for a max. of 20 points)
- Define zero point: In the case of a cone, the zero point is now set to the cone vertex (previous version: point of gravity)
- Rotate coordinate system (rotation): when switching the angle display (decimal to degrees, minutes, seconds) the values are correctly converted
- define coordinate system alignment in grid with 3 points: pallet coordinate system can be defined (stored)

Feature determination

- Nominal/actual comparison between two surface points: Error on elements featuring less than 6 points remedied
- ISO1101 polar position tolerance: incorrect conversion when entering the nominal values for rotation and inclination angle rectified
- Surface point position applied to actual surface: button "all data blocks" functions also under Windows 3.11
- Min-Max feature is also available for an actual surface

Part inspection programming, DMIS

- System crash when pressing the STOP key [F5] during 'Perform PIP', STOP key [F5] deactivated
- Module 3D2CM : File ‘cm_init\3d2cm.ini’ permits the following specifications:
  - Feature distance between two elements (only for 3D report under Metrosoft CM)
  - Probe radius compensation for prehit and backmove distance
- Jump/loop within a PIP: jump forward, line number problem rectified
- PIP taken over with 3D2CM, execute with edit parameter value: measuring machine settings, positioning and measuring speed can be edited
- Execution of PIP with measuring free-form surfaces and profiles: the probe radius compensation is correct
- GOTO or loop within PIP: element numbers will also be incremented for processed elements (intersection, symmetry etc.)

Data management

- Import VDA/IGES converter: Reconfigure dialog, display path of selected files
- Save list as text file: the Windows 3.11 file is closed immediately after calling up the function
- Export qs-STAT: feature denomination and unit [mm] are correctly written into the DFI file
- Statistics: all actual filters (statistics settings) will be considered when starting the statistics

Machine

- Counter simulation: "set counter" does no longer influence "rotate axes"
- Automatic error compensation CAA Tri-Mesures: calibration abortion does no longer lead to switching off the CAA
- Off-line programming ON: if off-line programming is switched on during the measuring of an element, the current measurement will be terminated and the element stored
- Off-line programming ON: with AUTO function [F5] now the border points can be entered
- Rotary table settings: when switching the angle display (decimal ↔ degrees, minutes, seconds) the conversion is correct
- Position rotary table: probe systems and probe tips can be loaded or changed in any position of the rotary table

Output

- Print inspection report, header: workpiece name is put out with 20 characters
- Measured point output ON: can now only be selected if the corresponding WTX port (RS232 interface) is configurated in CMConfig.

- Graphics output (SURF): if the marking boxes are placed out of the sheet limits no triangles will be printed

Periphery

- Robocon1 (Numerex/DRO) driver - error "directional calculation" corrected
- Metroterm E keyboard layout 05.92 n01: keys OK and ESC can be selected

Release-Notes CM 2.30/2.31/2.32

New functions

General

- Output window 1: status display for off-line programming
- Output window 1: status display for material thickness compensation
- Output window 1: change reference of an element by click on text "reference" (during measuring)
- Selection menu Output window 2: display picture
- Abort current function or undo last function: new dialog during execution of PIP "Terminate part inspection program?"

Measuring of geometrical elements

- Element parameters: optional display of the projected or the measured position for circle/cylinder and straight line/plane (function ‘Definitions for element measuring and storage’)
- Display override of defined range in a dialog (function ‘definitions of element measuring and storage’
- Material thickness compensation for geometric elements, plane curves and profiles (function ‘definitions of element measuring and storage’)
- Change reference element by a click in output window

Measuring of free form surfaces

- Profile measuring with on-line nominal/actual comparison
- Switch on/off material thickness compensation through function key F10
- Specification for measuring free-form surfaces: calculate actual points considering the following possibilities:
  -Define search range
  -Adopt stored reference surface
  -Calculation taking the probing direction into account
- Selection menu, output window 1: submenu with further graphics functions
  -Mask in axis parallel grid into the element graphics
  -Box with coordinate values around one element
  -Box with coordinate values around all elements
  -Display element data
  -Display tolerance band for all intersections
- Selection dialog when several solutions are offered: all graphics functions are selectable
- Preparation for measuring, function key **[F9]**: load another IFM file and add to current graphics
- Preparation for measuring, function key **[F10]**: store selected elements as a new IFM file
- Preparation for measuring, function key **[F8]**: reflect image of surface data and store as a new IFM file: optional storage of either the image reflected data or the source data together with the image reflected data into the source file or into a new IFM file
- Taking over the pre-alignment points into the measuring process
- Tool bar for measurement preparation: create circle on a CAD model by clicking on three points
- Tool bar for measurement preparation: create circle on a CAD model by the entry of theoretical values

- All actual points are transformed, the nominal points recomputed and the graphics redrawn when loading coordinate systems during measurement

Coordinate systems

- Free form surfaces: pre-alignment with more than 3 points
- 3D bestfit for optimized coordinate system
- Free form surface bestfit: extension offering the following possibilities:
  -Zero the deviation of a point
  -Minimize a point deviation
  -Ignore point
- Define workpiece coordinate system by 3 points (in the grid): extension offering the following possibilities:
  -Without bestfit
  -With bestfit
  -Only bestfit

Features

- Position of the surface point: position of individual actual points of an actual surface
- ISO 1101 circular/total run-out: all straight lines and coordinate system axes can serve as a reference element (exception: straight line/plane)

Reporting

- Free form surfaces: consistent remark in all explanation boxes
- Free form surfaces: graphical reporting of points from ... to ...
- Free form surfaces, print actual points from the data management system: dialog for the selection of the fields to be put out

Part inspection programming

- Teach-in functions ‘copy data from ...’, ‘copy data to ...’
- GOTO / loop within part inspection program: relative element / feature addressing
- Graphical user guide: continue with PIP while a picture is displayed
- Graphical user guide: display picture within an element (selection menu, output window 2)
- Probe calibration during the execution of manual PIP’s

System

- Country settings: font selection per language (e.g. Cyrillic characters)
- Country settings: display of angle values in 1/10 sec.
- Define passwords for four user levels
- Quit Metrosoft CM (Back to Windows): Attention: protocol buffer will be deleted

Data management

- Menu data, import: VDA/IGES free form surfaces (CAD)
- Menu data, import: VDA/IGES converter (CAD) for any number of files
- Menu data, data management: output of list contents into a text file **[F12]**

- VDA import: files from the Unix system can be directly imported (without conversion)
- Import surface data and store as a CM element: the directories are automatically converted when changing the file format

Measuring machine

- Off-line programming for edge points and profiles with on-line nominal/actual comparison
- Faster display for DRO simulation, coordinates display and positioning aid
- «temperature compensation on/off» dialogued
- settings for temperature compensation, measuring machine
- settings for temperature compensation, workpiece

Output

- Print inspection report: features out of tolerance are printed in red (only after new installation: cmwin.ini [output] badcolor = 255,0,0,0)

Periphery

- Driver status
  Select in CM CONFIG (Menu ‘Machine selection)
- C98 driver
- Select in CM CONFIG (Menu ‘Machine selection)
  Adapt METROC98.DAT file

Installation

- Interface driver for Metrokey 4 (Sentinel SuperPro) for Windows 95 and Windows NT

Bug fixed

General

- Element graphics: maximum magnification of 10'000 increased to 30'000
- Update installation: Machines = 2 is not overwritten

Measuring of free form surfaces

- Specification for measuring free-form surfaces: The actual elements can have the same name as the nominal element
- Import surface data and store it as CM element: no element number 0 can be created
- Import surface data and store it as CM element: if the IFM file cannot be created no actual element is stored
- Import surface data and store it as CM element: overwriting of IFM file when importing a file with the same name
- Border point sheet metal analysis: A and B deviation with sign (+/-)
- The definition of a free-form surface with on-line nominal/actual comparison: AUTO [F8] CONT [F6] is possible
- Measure a circle on the CAD model: measure reference plane with 1 point

Coordinate systems

- Coordinate systems graphic: display is automatically refreshed
- Load new pallet coordinate system (PLCS): eventually loaded PCS will be deleted
- Save current coordinate system (PCS) to database: with tick in checkbox "save PCS absolute" the PCS becomes the active coordinate system; RCS and PLCS will be deleted

Processing

- Create intersection element from two elements: processing of a cone and straight line with an identical normal direction is possible

Features

- Print element graphics (control surfaces): print without preview
- Load from the file and activate company-reference tolerances: self-defined tables can be loaded
- Tolerance input into features with several nominal values (coordinates): possibility to select for each coordinate, whether the tolerance should be zero or be assigned a value
- ISO1101 position tolerance: conversion mm - inch
- Position of surface point: Nominal values are not automatically roundet
- Features referring to the coordinate system elements: message: element number above 9999

Reporting

- Inspection report headers: variables are interrogated under Windows NT and Windows 3.11 (3D inspection report headers must be assigned the file ending .DAT

Part inspection programming

- Positioning aid: automatic mask-in during activation prior to start the PIP
- Execute a PIP with parameter modification: ISO1101 position tolerance: feature name can be changed
- Execute a PIP with parameter modification: intermediate point within a probe calibration with "actual position"
- Import PIP from 3D file: intersection slot-plane and rectangle-plane
- Import DMIS file: when creating a circle with N point linking, the reference is taken into consideration
- Export DMIS file: coordinate systems are exported with the correct label.
- Import DMIS file: correct consideration of the apostrophies in the text instructions (functions: text reporting, dialog in parts inspection program)
- Execute TMP (EXE-Fast): large ranges once TMP is ended in the normal EXE mode (WPC200)

System

- user defaults: user is stored with 20 characters, abbreviation with 6 characters

Data management

- VDA export: umlaut vowels and special characters will be converted (e.g. Ä turns into A etc.)
- The current data base directory will not be stored with ‘Save settings’, when it refers to a ”removable disk“ (e.g. floppy disk)

- Statistic settings: if no vector component is selected features without vector component are displayed
- Incompatibility: display of features 1.3x → 2.2x or 2.3x

Measuring Machine

- Counter simulation: set counter with probe radius compensation

Output

- Configure graphic page: invisible non-selected elements are not printed

Periphery

- Multi carriage mode: new possibility of operating several carriages with only one Metroterm
- Counter MZ1060: initialisation without reference marks
- APC1: undefined text key

Release-Notes CM 2.26

New functions

System

- Country settings: Flemish dialogue and inspection report texts
- Metroterm settings: Metroterm E foil No. 14 and "Windows" key

Bug fixed

General

- Resource problem fixed (system break-down after prolong use)
- "Save settings.." with quick selection table possible
- Activation of the quick selection table after executing a part inspection program from a quick selection table

Part inspection programming, DMIS

- 3D2CM: Feature determination: Distance plane-point
- 3D2CM: Proberadius compensation at prehit and back move
- 3D2CM: End of conversion with the command „End Program“
- 3D2CM: Set Metrokeybit EXEL

Output

- Graphics output: Problem with printing under Windows 3.11 and Windows NT fixed

Periphery

- Metroterm B: implementation of circl

Release-Notes CM 2.25

New functions

Periphery

- SCR800 driver for TP800
  Selection in CM CONFIG (unit selection menu)
- Driver for rotary table Metrocount 6 for semi-automatic rotary tables
  -Selection in CM CONFIG (unit selection menu) Edit file MEROTMC6.DAT
- Driver for rotary table Metrocon S ROT for automatic rotary tables
  -Selection in CM CONFIG (unit selection menu) Edit file MCONSROT.DAT
- Support of Windows NT 4.0

User interface

- Multi carriage mode for manual measuring machines
- Multi carriage mode: The switch is automatically set when starting Metrosoft CM providing the measuring machine is configurated in master or slave mode in the file ‘CNCDUPLX.DAT‘.
- Rotary table functions in the CMM menu
  -Rotary table settings
  -Initialize rotary table
  -Position rotary table

Part inspection programming

- Positioning of rotary table

Installation

- Metrokey: New driver for Windows 95 and Windows NT
- Rotary table driver selection in CM CONFIG

Part inspection programming

- 3D geometry bestfit: Extension of selectable elements

Bug fixed

Error message

- ‘Your MetroKey is not valid for this program version’ at valid program version

Part inspection programming

Synchronisation of Baltic and Stäubli functions

- Bestfit ‘Baltic’: Close file after function call

Data import / data export

- Import of 3D part inspection programs: take unit of measurement of corner points
- Import of 3D Part inspection programs: Measure millimetre or inch

Output

- Activate/deactivate output of points via serial interface: Output of points deactivated when starting Metrosoft CM

Periphery

- Metroterm B: Beep
- Windows NT 3.51: Change printer

Release Notes CM 2.24

New functions

Periphery

- Krypton driver
  Selection in CM CONFIG (unit selection menu)
- Support by Windows NT 2.51 and NT 4 (Beta2) for Metrocount 6

Part inspection programming

- Mirror part inspection programs: nominal values and tolerances will be mirrored
- With the **positioning aid** it is possible to select between “No target window“, “Target window only for the 1st measured point per element“ and “Target window for every measured point“ for the target window (Probe activation). If the “Surrounding points“ are switched on during measurement, the positioning aid is only active for the 1st surrounding point.

Reporting

- The output text will be edited as one (1) line when a 3D protool line is selected
- Extended 3D report line (feature number from element reference)
- Header with workpiece designation
- Field variables for text and graphic outputs are supported by the same DLL, thereby allowing the same variables to be used in the graphic headers as in the report.

Special

- 3D geometry bestfit

Installation

- Serial port: Configuration WTX-Port 1200 Baud
- Metrokey and Metrocount 6 installation for Windows NT

Bug fixed

Measuring

- Measure profile and point surface with Metrokey: BAFF without SURF
- Calibration of star probes: A change-over to the next stylus is possible, with the function ‘Repeat element’ [F6] activated, by pressing the Stop [F5] key.

Coordinate systems

- Exporting of difference between 2 coordinate systems (CM 1.35 ‘Agie-link’)

Part inspection programming

- MPH swivel in idle position in conjunction with WPC2000 (WPC2000 firmware must be version 1.1A or better)
- Mirror PIP: The function „move point“ will be mirrored
- Starting of parts inspection programs has been made more robust (no crashes; variation of execution from block No. > 1)

Reporting

- No sequence error message will be displayed if function ‘install printer / plotter’ is called up in the output menu prior to having configurated a printer under Windows.
- Violation of the protection in CTL3DV2.DLL when putting out a WMF header with free field variables under Windows 3.11.
- 3D protocol line: The reference element is edited prior to the toleranced element
- Unknown element types in 3D report line added

Data base

- DS/DC Error: dbVist.O ERROR-907/database taf/log
- DS/DC Error: dbVist.O ERROR -26/transaction already active

Periphery

- Beep adapted to Metromec standard for Metroterm C and Metrocon S combination
- MZ 1060 driver: Initialize

Data import / data export

- 3D2CM converter, positioning help with probing direction, 3D coordinate systems are converted to PCS, distance between measured points (polar / cartesian), profile point
- VDA import (geometry, PSET, MDI, POINT) - blank at line start end and line numbers having less than 8 digits are permitted.
- Diverse problems in **3D2CM** converter (positioning aid; element data reporting; report text; surface points)
- Fields which can be learnt in 3D are not converted to CM. However, when the parts inspection program is executed for the first time under CM, these fields are queried so that they are defined for all following runs.

Statistics

- All filter settings permitted before statistics are activated
- Vertical instead of horizontal arrangement of diagrams in the output.
- Fault in the Y-scale in the main window remedied.

Release-Notes CM 2.23

Measuring

- Bug fixed: Continue current element measurement

Release-Notes CM 2.20/2.21/2.22

Environment

- New WPC2000 driver
  - Selection in CM CONFIG (Menu Interface - Selection)
- New Robocon3 driver
  - Selection in CM CONFIG (Menu Interface - Selection)
- New Metroterm B driver
  - Selection in CM CONFIG (Menu Interface - Selection)
- New Numerex driver. Configuration file for the driver is METRONRX.DAT
  - Selection in CM CONFIG (Menu Interface - Selection) and DRO configuration in WTXDOS
- New Stiefelmayer MZ1060 driver. Configuration file for this driver is MZ1060.DAT
  - Selection in CM CONFIG (Menu Interface - Selection)
- New Probe Change APC driver
  - Selection in CM CONFIG (Menu Interface - Selection)
- Multiple Carriage Mode for Simulator

User Interface

- With screen resolutions higher than 800x600 pixels screen mode alternatively ‘full-screen’ or ‘window’. Select screen mode with key word **FullScreen=0** or **FullScreen=1** in section **[SystemSettings]** in „CMWIN.INI“-file.
- Controller Firmware-Version in „Metrosoft CM - About Metrosoft CM“
- Machine initialization with checkback
- Range diagram
- Graphical point distribution
- Element- and parameter-window revised (for calibration and measurement)
- Teaching of function ‘execution of external programs’ (Menu Special - External programs)

Measurement

- Surface: Solution selection -> selection list adapted corresponding to BMW specification
- Teaching of functions ‘bestfit’ and ‘graphic view’
- Bug fixed: Teaching of ‘continue measurement’ for all element types
- The parameter window will not be overwritten by the element window data after calibration
- Multiple machines operation: 3 functions in menu machine:
  - On-Off
  - Data exchange
  - Synchronisation

Coordinate systems

- Save WCS absolute

Positioning Help

- Show probe direction with arrow symbol

- The target window (green area) can be adjusted in dialog „menu machine - measuring machine settings“ with the measuring distance
- The Search distance in the dialog „menu machine - measuring machine settings“ defines the area around the teached probe point where the probed points will be accepted (LED activ) [1*)].

[1*)] Realized for **Metro*count 3/6*** , **Metro*con S*** and Wenzel **WPC2000**

Part inspection programming

- Dialog „CNC on/off“ execution at sentence number > 1: Extended by „positioning help on/off“
- Display status of imported sentence in output window of part inspection programming during import of DMIS-programs
- Offline programming
  -Graphical and numerical probe point input for freeform elements
  -Numerical probe point input for geometrical elements
  -Numerical corner points input

Features

- New min.-max. point distance feature

Inspection reports

- Freeform surface: Comment in point marking boxes

Statistic

- Statistic function in menu ‘data’:
  - Statistic on/off
  - Statistic settings
  - Statistic charts
- Supported diagrams:
  - Statistic data page
  - Trend diagram
  - Process capability chart
  - x-bar chart (SPC)
  - R-chart (SPC)
  - s-chart (SPC)
- Statistic data export in qs-STAT-format

Data Import / Export

- VDA-Export in „POINT“ format
- Teaching of function VDA-Import and VDA-Export
- Input and output of external bestfit coordinate system

Installation

- WPZ 200, WPC 2000 and Imetric driver in driver selection list

Release-Notes CM 2.16

Inspection reports

- 3D-protocol line with element reference
- Import of WMF protocol header files, produced with MS-Draw 3.x
- Element graphic for geometrical elements without SURF module

Environment

- CAA bug fixed
- CNC-positioning dialog: Rel./abs. and WCS/MCS switch
- Schneider projector driver
- Stiefelmayer 'Handachse' driver
- Metroterm C: Multiple Carriage Mode / live display in metroterm display

Installation

- New multi language configuration program (CM Config)
  -Device selection
  -Configuration of serial ports (WTXDOS)
  -Database repair and compression
  -Database index file repair program
  -Database check program
  -CM documentation files
  -Release-notes
  -Question & answer file
  -System information
- Improved registration

Coordinate system

- Reposition calibration sphere

DMIS

- Fixed bugs:
  - Define primary- and secondary direction and define origin

VDA

- Fixed bugs: VDA export element CIRCLE

Database

- Copy to / from and change data base dialog: Direct input of directory name (in the past, selection only by separate dialog)
- Copy to / from: Increased speed of copy function for floppy drive
- Fixed bug: Delete part inspection sentences → for large elements with more than 196 probe points

Part inspection programs

- Fixed bug: Dialog execute part inspection program sentence number > 999

Release-Notes CM 2.15

Operation

- Can run under Windows 95
- Load elements from DB with point parameter into the left-hand window.

Measuring

- Definition dialogue for measuring and storing elements: new switch to confirm the reference element
- Surfaces: selection of several solutions -> extended selection list
- Surfaces: measure circle on surface (teach-in not yet possible!)
- Surfaces: create circle on surface in measuring preparation: by clicking on curves
- Surfaces: VDA import -> on duty statistics in the record file (analogue IGES import)
- Best fit with circles and edge points
- Errors remedied:
  -Surfaces: set points are projected onto the surface boundary
  -Range exceeded during TMP execution -> intermediate points will be lost

Processing

- Move point (CM 1.35)
- Turning the direction of normals of free-form elements

Coordinate systems

- Alignment - network coordinates alignment with 3 points
- Coordinate system export in 3D format
- Coordinate factors

Features

- Surface point position (CM 1.35)
- Nominal value/actual value comparison: surface point (CM 1.35)
- User defined feature (CM 1.35)
- Feature data in live display window or in the parameter window
- Graphics feature (flatness / straightness / roundness)
- Errors remedied:
  -ISO angularity tolerance
  -Vector-referenced position: part inspection programming with parameter editing (e.g. vector-reference position)

Reporting

- 3D report line (3D.PLN)
- Support from CM V1.x and 3D report headers and their field variables
- Icons allowing their "teach-in" / not allowing their "teach-in" for report headers and report texts

- Report features from the data base management

Graphics / set up graphics page

- Errors remedied:
  - Error occurred during the entry of frame settings overcome
  - Error occurred during composition of the WMF file name remedied

Programming / DMIS

- Reflecting a program
- Measuring according to default values, measured points import into TMP (incl. actual surfaces)
- Graphical user guide (display of PCX-, BMP images)
- Errors remedied:
  -DMIS: Import of surface points remedied
  -DMIS: Function secondary direction
  -TMP: Teach-in block slot
  -TMP: Teach-in block report settings
  -Printing a TMP in DMIS format
  -Configuration of a quick selection table

Data base / Input Output

- VDA export of actual surfaces
- DB change
- Copy data records from ... to
- Print inspection plan / feature / actual values (analogue V1.3x)
- Errors remedied:
  -DB recovery following a program crash

Periphery

Counter simulation

- SCR200 driver
- Multi-carriage mode for Metrocount 3, Metrocount 6 and Metroterm E
- ROMER driver
- Errors remedied:
  -Text menu error compensations
  -Counter simulation: the menu window is open, operation is possible using the XYZ and number keys
  -Counter simulation: operating through Metroterm E: activate using the Shift-END key
  -ROMER driver: Left-handed operation implemented

Engineering

- 3DTOCM: Converter for 3D part inspection programs (manual version)
- Multi-carriage mode for Metroterm C with Live Display

Release-Notes CM 2.10

Operation

- User input (without password) possible (use of "user" and "username" icons in the report headers
- When terminating CM, the system allows the possibility to define whether or not the inputs are to be saved and the report buffer erased
- Measurement and/or loading of elements on a basis exceeding the part-referenced data
  This new function permits the creation of processing, features, coordinate systems and offset elements and their execution on a teach-in basis

Measuring

- Abort measuring function: Save or delete the interrogation
- Free-form surfaces with on-line nominal-actual comparison: error occurred during the computation of edge points remedied
- Free-form surfaces with on-line nominal-actual comparison: language change-over to English
- Free-form surfaces with on-line nominal-actual comparison: various errors in VDA and IGES processor overcome
- Free-form surfaces with on-line nominal-actual comparison: edge point -> values A and B (bending tension and error changed-over in the reference element)
- Free-form surfaces with on-line nominal-actual comparison: edge points -> error occurred during the erase of edge and surroundings points remedied
- Free-form surfaces with nominal-actual comparison: edge points -> switch 'curved or bent sheet' introduced into the definition dialog
- Free-form surfaces with on-line nominal-actual comparison: locking of inadmissible function keys and tool bar icons during measuring
- Measuring of point/plane: interrogation of reference element
- Square/slot: output window 1 -> length and width changed-over

Processing

Coordinate systems

- Secondary direction: for point-shaped elements (circle, point), the connection line between the current origin and the position vector of the element is calculated as the secondary direction.

Features

- Position tolerance: polar calculation
- **Error** correction with ISO286

Reporting

- Only features beyond the tolerance can be reported
- "Print report" and "new report" allow their teach-in

Programming / DMIS

- Free-form surfaces with on-line nominal-actual comparison: measuring of surface and edge points can be taught in and can be carried out with a CNC system. Tolerance / warning limits, material thickness and type of points are stored with each point.

Data base / Input output

- Geometrical elements: deletion of points from the DB management -> the calculation of element parameters is checked
- Free-form surface with on-line nominal and actual comparison: deletion of points from the DB management -> points are post-numbered, element information is updated.
- DB Recovery: following a system crash within a DB transaction, the interrupted transaction was not carried out during the following CM restart.
- VDA export/import of CM elements

Periphery

- Metrocon S: measuring of machine stoppages in conjunction with automatic elements and TMP execution remedied
- MPH swivel into position
- Metroterm C
- Romer driver

Installation

- NEW: Metrokey test program integrated into program group
- New directory structure as of V2.10 (default proposal)
  PreviouslyC:\CM2
  NewC:\METROMEC\CM
  This means that the following data has to be, in addition, manually copied:
  C:\CM2\CM_INIT*.*toC:\Metromec\CM\CM_INIT (all files)
  C:\CM2\CM_DATA*.*toC:\Metromec\CM\CM_DATA (all files)
  From now on, all further Metromec products are installed in this directory structure (e.g. Metromec Info/Show in C:\Metromec\Show).

Engineering

Languages

- Dialogue and report language: English and French are complemented
- Help system: English and French are new