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Geomet Version Comparison Chart – version 6.66.000.020

Geomet operates in three different levels designed to match your inspection needs. These levels are known as:

- **Geomet Junior**
- **Geomet 101**
- **Geomet 301**

Geomet Junior

Geomet Junior is the entry-level full 3D-inspection system of the Geomet series, yet it is packed with most of the functions needed for basic inspection. It favors one touch access to all basic geometric elements in addition to a highly visible set of icons on the screen for intuitive measuring without extensive training. Geomet Junior includes a powerful set of Part Coordinate System (PCS) generation tools that Geomet is famous for. Geomet Junior can be upgraded to Geomet Junior Plus which includes many advanced features such as expanded stylus, PCS support and program cycling. Geomet Junior is included with the purchase of all Helmel manual Coordinate Measuring Machines.

Geomet 101

Geomet 101, our most popular package, offers great flexibility for inspecting parts in the lab or on the production floor. The graphical area on the right side of the display generates a pictorial representation of the measured features which serves as a visual guide for part programs and as a link to the final inspection results. Program writing is done in the self-teach mode, editing is easy and efficient. Geomet 101 includes a full suite of reverse engineering tools such as surface digitizing in 5 different modes. The GeoPlus option expands Geomet 101 to include powerful features such as Vector Point, customized tagging for printing and exporting and analytical tools for circular features. Geomet 101 is designed for the production environment where obtaining and tracking numerical solutions is preferred.

Geomet 301

Geomet 301, our most advanced system, offers the sophisticated user unbridled measuring power with the typical user friendliness of Geomet. It contains all the power of Geomet 101, GeoPlus and a host of other analytical tools to review and manipulate your part inspections. The time proven and inherent quality of the Geomet algorithms guarantee meaningful results when creating new and difficult relationships out of measured features and PCS's.

Geomet 301 offers an optional expansion package to unlock the power of surface point analysis against a CAD model. This power allows the user to align the CAD model with the part to be inspected. Then capturing of data points can be calculated against the model to obtain position within a profile zone.

NOTE: The CAD Expansion Package will be integrated into Geomet in late 2004. Currently Helmel provides this functionality only through the stand-alone program, GeoCAD. Geomet users will be eligible to upgrade their Geomet at that time for a special promotion price. GeoCAD users who maintain their SSC will automatically receive Geomet with CAD support.

Geomet Options

All levels of Geomet can be expanded to include advanced feature and hardware support. Some options are universal and can be used by all levels of Geomet. The following chart details the options available to Geomet.

Geomet Option Chart				
		Geomet Junior	Geomet 101	Geomet 301
1	Geomet Junior Plus	X		
2	Direct Computer Control (DCC)		X	X
3	GeoPlus	X	X	
4	Renishaw UCC Scanning Controller		X	X
5	Renishaw Stylus Racks		X (1)	X (1)
6	Motorized Probe Support		X (1)	X (1)
7	LDI Line Laser Scanner		X (1)	X (1)
8	Gauss Meter	X	X	X
9	CAD Modeling			X
10	Apollo Low Force Touch Probe	X	X	X
11	Robotic I/O Interface			X
12	CNC Tool Offset Interface			X
1 – Requires either DCC or UCC option.				

Geomet Junior Plus

By default, Geomet Junior does not "cycle" a part program and allows only one qualified stylus and one coordinate system, which can be redefined during inspections. Junior Plus expands Junior to allow unlimited Coordinate Systems, unlimited Stylus Support, Advanced PCS tools and program cycling.

GeoPlus

This option is designed to expand Geomet 101 by adding many popular features without having to upgrade to the next full version. With GeoPlus you have access to circular profiles, planar profiles and program library support. Custom printouts and ASCII exporting are handled through feature attribute tagging.

GeoPlus Expansion Module	
Circular Profile	Graphical Circle Reporting
Planar Profile	Graphical Planar Reporting
Vector Point	Surface Vector Points
Geomet Gage R&R	Link to Gage R&R External Program
Custom Print Tags	Attribute Selection for Printing
SPC ASCII Export	Attribute Selection for Exporting
Feature Offset Reporting	Applying an Offset Value to Results
Library	Import / Export / Sharing Program Steps
Fast Start Menus	On-Touch access to launching inspection Programs
Out-of-Tolerance Notification	On Screen notification when an Out-of-Tolerance condition exists.
Geomet Gage R&R is a separate program that is linked to pass results with Geomet.	

CAD Modeling

This option enables Geomet 301 to import a CAD IGES Model and perform surface point analysis. Through the standard Geomet 301 coordinate tools, the CAD model is aligned to the inspection part. Upon completion of the alignment, data points can be captured on the part and the results are compared to the nominal data from the CAD model and reported as a vector point. Surface point analysis works with data clouds collected by all the reverse engineering tools provided in Geomet.

Geomet Comparison Chart Tables

Measured Features					
	Jr.	101	GeoPlus	301	
Points 1D/2D/3D	Std.	Std.		Std.	
DCC Auto Point		DCC		DCC	
Points 2D/3D Inside/Outside Radial	Std.	Std.		Std.	
Surface Vector Points		GeoPlus	Std.	Std.	XYZ/IJK Known
Surface Vector Points		GeoPlus	Std.	Std.	XYZ Known
Surface Vector Points		GeoPlus	Std.	Std.	IJK Known
Surface Vector Points		GeoPlus	Std.	Std.	All Unknown
Surface Vector Points		GeoPlus	Std.	Std.	Import Table
Surface Vector Points				CAD	CAD Fitting
Gauss Meter Point		Gauss		Gauss	
2D Lines	Std.	Std.		Std.	
3D Constructed Lines	Std.	Std.		Std.	
DCC Auto Line		DCC		DCC	
2D Circles	Std.	Std.		Std.	
DCC Auto Circles		DCC		DCC	
Planes	Std.	Std.		Std.	
DCC Auto Plane		DCC		DCC	
Spheres	Std.	Std.		Std.	
Cylinders	Std.	Std.		Std.	
DCC Auto Cylinder		DCC		DCC	
Cones	Std.	Std.		Std.	
Slot / Web / Slot		Std.		Std.	
Oval Slot		Std.		Std.	
4 Point Intersect		Std.		Std.	
Surface Point Analysis				CAD	
Std. - Standard Feature DCC – Requires Direct Computer Control Gauss – Requires the Gauss Meter Support Option and Hardware CAD – Requires CAD Interface Option					

Reverse Engineering Tools					
	Jr.	101	GeoPlus	301	
Hard Probe Drag Scanning	Std.	Std.		Std.	GeoTracer
Touch Probe Data Clouds	Std.	Std.		Std.	
Line Auto Scan		DCC		DCC	
Radius Path Auto Scan		DCC		DCC	Cylinder Ends
4 Point Boundary Scan		DCC		DCC	
Radial Boundary Scan		DCC		DCC	
Cardinal Spline Generation	Std.	Std.		Std.	
Std. - Standard Feature DCC – Requires Direct Computer Control					

Coordinate System					
	Jr.	101	GeoPlus	301	
Orient (Primary Datum)	Std.	Std.		Std.	
Align (Secondary Datum)	Std.	Std.		Std.	
Origin (Tertiary Datum)	Std.	Std.		Std.	
Fixture Coordinate System		Std.		Std.	Unlimited No.
Wobble, Rotary Axis		Std.		Std.	
Translate, Nominal Value	Std.	Std.		Std.	
Translate, Measured Value	Std.	Std.		Std.	
Rotate PCS	Std.	Std.		Std.	
Pivot Align	Std.	Std.		Std.	
Offset Align	Std.	Std.		Std.	
Clearance CS				DCC	Offline Tools
Unlimited PCSs	Jr. Plus	Std.		Std.	
Edit PCS Translations		Std.		Std.	
Edit PCS Rotations		Std.		Std.	
Edit Offset Align		Std.		Std.	
Edit FCS Features / Assignments		Std.		Std.	
Std. - Standard Feature DCC – Requires Direct Computer Control ADV – Requires Advanced PCS and Stylus option.					

Feature Analysis					
	Jr.	101	GeoPlus	301	
Circle Profile	Jr. Plus	GeoPlus	Std.	Std.	
Circular Paper Gauge	Jr. Plus	GeoPlus	Std.	Std.	
Planar Profile	Jr. Plus	GeoPlus	Std.	Std.	
Planar Data Point Report	Jr. Plus	GeoPlus	Std.	Std.	
Data Cloud Analysis		Std.		CAD	
GeoSIM, Flexible Hard Gauge				CAD	
Targeted Vector Point				CAD	
Diameter Averaging		Std.		Std.	Math Support
Min/Max/Spread Calculations		Std.		Std.	Math Support
Inscribed Diameter		Std.		Std.	Inside/Outside
Feature Averaging				Std.	
Std. - Standard Feature GeoPlus – Requires GeoPlus Option ADV – Requires Advanced PCS and Stylus option.					

Text and Image Features					
	Jr.	101	GeoPlus	301	
Text Statements	Std.	Std.		Std.	
User Prompts	Std.	Std.		Std.	
Inline program Text Entry	Std.	Std.		Std.	
Display Image prompts	Std.	Std.		Std.	
Manual Entry Steps		Std.		Std.	
Std. – Standard Feature					

Constructions					
	Jr.	101	GeoPlus	301	
Distance (1D, 2D, 3D)	Std.	Std.		Std.	
Extended Distances				Std.	
Bisector (2D/2D)	Std.	Std.		Std.	
Bisector (3D/3D)	Std.	Std.		Std.	
Intersection	Std.	Std.		Std.	
Angle	Std.	Std.		Std.	All Features
Construct Offset Point		Std.		Std.	
Construct Line	Std.	Std.		Std.	All Features
Construct Circle	Std.	Std.		Std.	
Construct Plane	Std.	Std.		Std.	
Construct Sphere	Std.	Std.		Std.	
Construct Cylinder	Std.	Std.		Std.	
Construct Cone	Std.	Std.		Std.	
Recall Features	Std.	Std.		Std.	
Attribute Changes	Std.	Std.		Std.	
Cone Offset Diameter	Std.	Std.		Std.	
Cone Diameter at Offset	Std.	Std.		Std.	
Cone Drop Ball Fitting	Std.	Std.		Std.	
Recall PCS Components		Std.		Std.	
Cardinal Spline Generation	Std.	Std.		Std.	
Random Feature Selections		Std.		Std.	
Std. - Standard Feature GeoPlus – Requires GeoPlus Option ADV – Requires Advanced PCS and Stylus option.					

Tolerance					
	Jr.	101	GeoPlus	301	
Bilateral	Std.	Std.		Std.	
Positional RFS/LMC/MMC	Std.	Std.		Std.	
Datum Bonus Tolerance	Std.	Std.		Std.	
Circularity	Std.	Std.		Std.	
Straightness	Std.	Std.		Std.	
Perpendicularity	Std.	Std.		Std.	Feature / PCS
Parallelism	Std.	Std.		Std.	Feature / PCS
Cylindricity	Std.	Std.		Std.	
Angularity	Std.	Std.		Std.	Feature / PCS
Concentricity	Std.	Std.		Std.	Feature / PCS
Flatness	Std.	Std.		Std.	
Preset Tolerance Blocks	Jr. Plus	Std.		Std.	
Process Control Tolerance		Std.		Std.	Tol. Ctrl Zones
Out-of-Tol Interrupt	Jr. Plus			Std.	
Profile Band on Data Clouds				CAD	
Profile Color Surface Color Map				CAD	
Cylinder/Plane Runout	Std.	Std.		Std.	
Std. - Standard Feature. CAD – Requires CAD Interface Option. ADV – Requires Advanced PCS and Stylus Option. PROG – Geomet Junior programming Option.					

Probes and Sensors					
	Jr.	101	GeoPlus	301	
Hard Ball Probes	Std.	Std.		Std.	
Electronic Ball Probes	Std.	Std.		Std.	
Disc Probes	Std.	Std.		Std.	
Taper Probes	Std.	Std.		Std.	
Cylinder Probes	Std.	Std.		Std.	
Video Cross Hair	Std.	Std.		Std.	
Manual Entered Values	Std.	Std.		Std.	
LDI Line Laser Scan Probe		LDI		LDI	
SCR200 Stylus Rack		DCC		DCC	
MCR20 Stylus Rack		DCC		DCC	
Motorized Probe Heads		DCC		DCC	Renishaw
Manual Indexing Heads	Jr. Plus	Std.		Std.	
Renishaw Scanning Heads		UCC		UCC	
Manual Ball Re-Qualify	Std.	Std.		Std.	
Auto Ball Re-Qualify		DCC		DCC	
Reference Sphere Move	Std.	Std.		Std.	Recover
Unlimited Sensors	Jr. Plus	Std.		Std.	
Apollo Low Force Stylus	LOW	LOW		LOW	
Multiple Stylus db Support		Std.		Std.	
Ring Gage Qualifications		Std.		Std.	
Stylus db Edit Tool		Std.		Std.	
Std. - Standard Feature LDI – Laser Design RPS150/450 ADV – Requires Advanced PCS and Stylus option. LOW – Apollo Low Force CMM Touch Probe UCC – Requires Renishaw CMM Controller					

Reporting Formats and Controls					
	Jr.	101	GeoPlus	301	
Selective Printing	Std.	Std.		Std.	By Feature
Selective Printing	Jr. Plus	GeoPlus	Std.	Std.	By Attribute
Inch / Metric	Std.	Std.		Std.	
Radius / Diameter	Std.	Std.		Std.	
Cartesian / Polar	Std.	Std.		Std.	
SPC Export Selections	Jr. Plus	GeoPlus	Std.	Std.	
Report Offset Values	Jr. Plus	GeoPlus	Std.	Std.	
Feature Filtering/Sorting	Std.	Std.		Std.	
Out-of-Tolerance Reports		Std.		Std.	
Out-of-Tolerance Flash Msg.		Std.		Std.	
Out-of-Tolerance WaterMark		Std.		Std.	
Custom Ordered Reports				Std.	
Std. – Standard Feature GeoPlus – Requires GeoPlus Option					

Special Functions					
	Jr.	101	GeoPlus	301	
Import IGES CAD Model				CAD	
Library Files	Jr. Plus	GeoPlus	Std.	Std.	
SPC ASCII Exporting	Jr. Plus	GeoPlus	Std.	Std.	
File Locking	Jr. Plus	GeoPlus	Std.	Std.	
Auto Load Robotic Interface		I/O		I/O	
Digital I/O Interface		I/O		I/O	Programmable
CNC Tool Offset Feedback		CNC		CNC	
Multiple Stylus Probing	Jr. Plus	Std.		Std.	
Export IGES Model	Std.	Std.		Std.	
Export DXF Data Points	Std.	Std.		Std.	
Geomet Gage R&R		Enh.		Enh.	
GeoTracker		Enh.		Enh.	
WWW Help Access	Std.	Std.		Std.	
Triangle Calculator		Std.		Std.	
Customized Fast Access Start Menu		GeoPlus	Std.	Std.	
GeoStat – Real-time SPC	Enh.	Enh.	Enh.		*Jr / 101 Requires GeoPlus
Part Program Tracking				Std.	Archives Files
In-Line Math Calculator	Std.	Std.		Std.	
Std. – Standard Feature CAD – Geomet CAD option GeoPlus – Requires GeoPlus option I/O - Input / Output Digital Programmable Interface CNC – CNC Tool Offset Digital Option Enh – Enhancement Program (Stand Alone)					

Program Editing					
	Jr.	101	GeoPlus	301	
Insert Features	Std.	Std.		Std.	
Move Features	Std.	Std.		Std.	
Delete / Un-Delete	Std.	Std.		Std.	
Library Auto Link Update	Jr. Plus	GeoPlus	Std.	Std.	
Jump-To Navigation	Std.	Std.		Std.	
Assign Feature Labels	Std.	Std.		Std.	
Search on Feature Labels	Jr. Plus	Std.	Std.	Std.	
Recalling Features	Std.	Std.		Std.	Same PCS
Recalling Features	Std.	Std.		Std.	New PCS
Copy and Array Program Steps		GeoPlus	Std.	Std.	
Copy and Append Feature					
Undo Last Feature	Std.	Std.		Std.	
Edit History Tool		Std.		Std.	
Std. - Standard Feature GeoPlus – Requires GeoPlus Option					

Program Editing – Direct Computer Control Tools					
	Jr.	101	GeoPlus	301	
Optimize DCC Circles		Std.		Std.	
Offline DCC Points					
Offline DCC Circles		Std.		Std.	
Offline DCC Cylinders		Std.		Std.	
Offline DCC Lines		Std.		Std.	
Offline DCC Planes		Std.		Std.	
DCC Clearance Planes		Std.		Std.	
High Accuracy Motion Targeting		Std.		Std.	
High Accuracy Feature Averaging		Std.		Std.	Test & Re-Run
Re-Teach Motion Path	Std.	Std.		Std.	
Single Step Motion	Std.	Std.		Std.	
Motion Parameter Control	Std.	Std.		Std.	
Insert / Teach Motion Path	Std.	Std.		Std.	
Offset and Copy Motion Path	Std.	Std.		Std.	
Joystick in Part Coordinates	Std.	Std.		Std.	
MP Capture on Specified Targets				Std.	
Motion Path Test		Std.		Std.	
Feature Specific Motion Disable	Std.	Std.		Std.	
One-Step Motion Edit		Std.		Std.	
ReRun Program Steps		Std.		Std.	
Std. – Standard Feature					