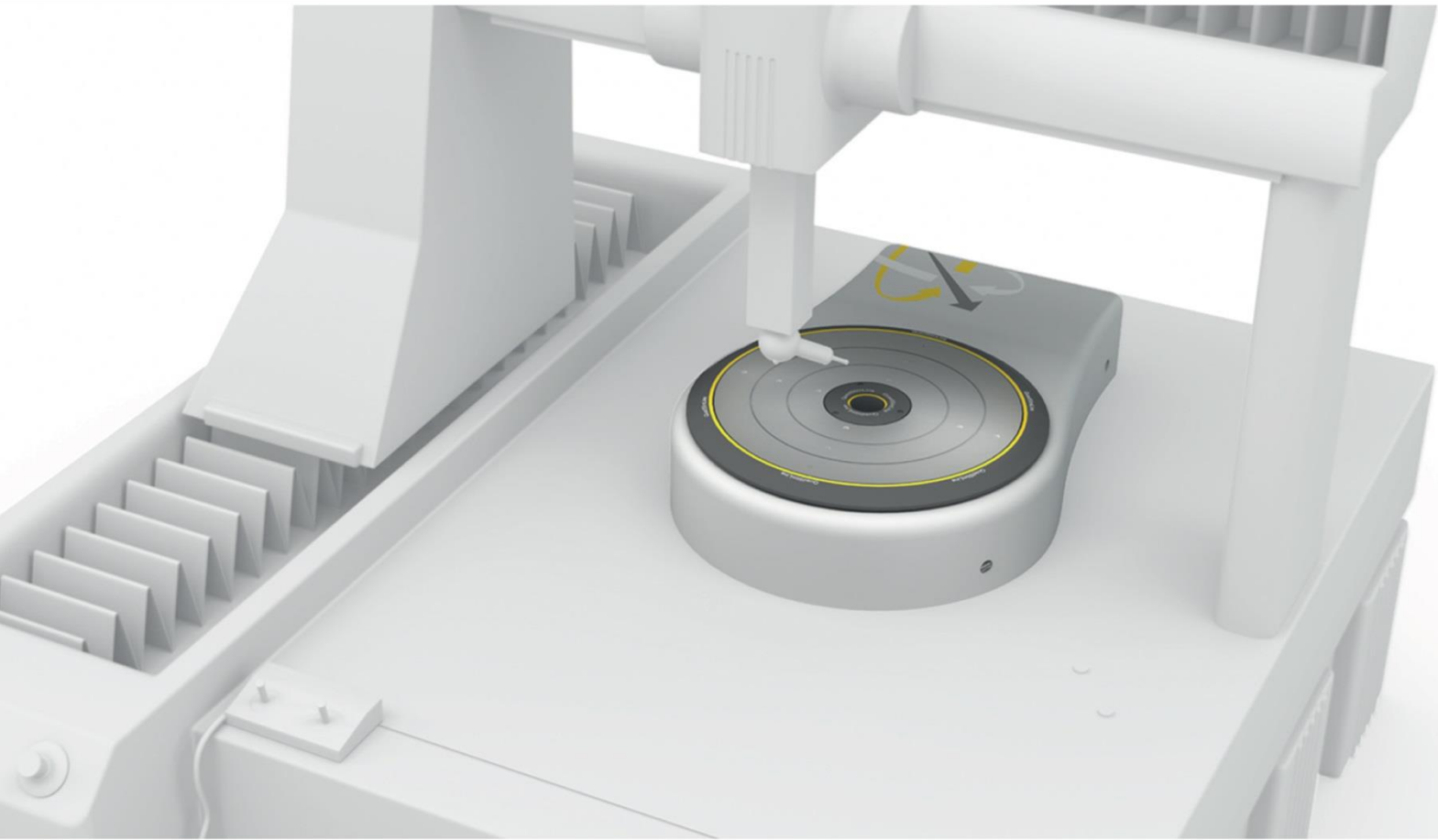


5.0 PCD



Quadrant Range

Additional axis for any high precision Coordinate Measuring Machine



Increase your CMM's application range, effective measuring volume, flexibility, productivity and efficiency while simplifying your measuring procedures for symmetrical or prismatic components.

www.rpiuk.com

The Quadrant Series capabilities support your measurement process by delivering new levels of accuracy, flexibility and performance

Reduced Inspection Times

The integration of the Quadrant 4th axis to your machine simplifies your measuring procedures significantly reducing your customer's process times.

Proven Reliability

With over 500 installations world wide the Quadrant series has proven to be reliable over high duty cycles while operating in the shop floor environment.

High Loading Capacity

The Quadrant's cleverly designed bearing assemblies not only guarantees the highest precision available but a very high load carry capability.

ISO 10360-3

Mechanical improvements have reduced the table's influence on Radial (FR), Tangential (FT) and Axial (FA) system errors.

Provides Reduced Measurement Uncertainty

The combination of sub arc second positioning accuracy and bearing geometry of less than 0.0005mm ensures a minimum impact on your process measurement uncertainty.

Improved Thermal Stability

The introduction of the rotary axis reduces the number and size of linear moves helping to increase accuracy and improve overall thermal stability.



Quadrant Series features have been designed to help you get the job done

Air Floatation Base

Air pads can be integrated into the base to enable the rotary table to glide effortlessly over flat level surfaces.

Range of Sizes and Bearing Configuration

Standard sizes range from Ø250mm to Ø1000mm available with 2 bearing configuration to better suit your individual requirements.

Low Profile Design

The QuadSlimLine range has been specifically designed with the lowest possible profile to minimise its impact on the machine's measurement volume.

Improved Positional Accuracy

The option to further improve positional accuracy reduces the table's impact on ISO 10360-3 FR, FT and FA system errors.

Fully Integrated Solution

The Quadrant range is designed to be fully integrated directly with your existing machine control or via our third party QuadMotion control.

Sunk Into CMM's Granite

QuadMatic virtually eliminates impact on CMM's available measurement volume by sinking directly into the CMM's granite base.

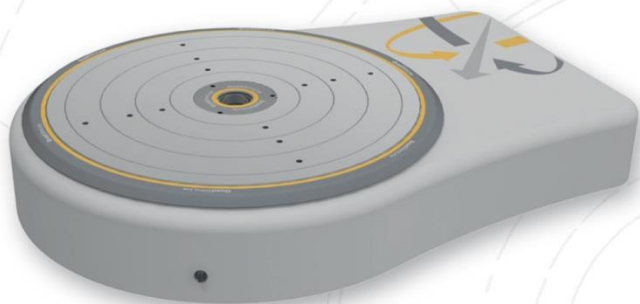
Introduction

The Quadrant range of precision rotary axes have been specifically developed as an additional axis for any high precision Coordinate Measuring Machine to simplify the measurement of symmetrical or prismatic components including scanning applications by simplifying your measuring procedures, increasing your CMM's application range and effective measuring volume which in turn increases the flexibility, productivity and efficiency of your CMM.

RANGE INCLUDES

QuadSlimLine

(Low Profile)



QuadUniversal

(Automotive and scanning applications)



QuadMatic

(Mechanical and Air Lubricated Bearings)



QuadDualPurpose

(Axis Horizontal or Vertical)



About RPI

Early FERRANTI Merlin CMM
with R Series rotary axis

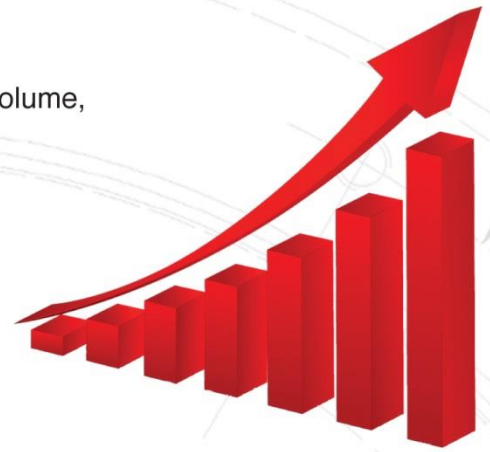


About RPI

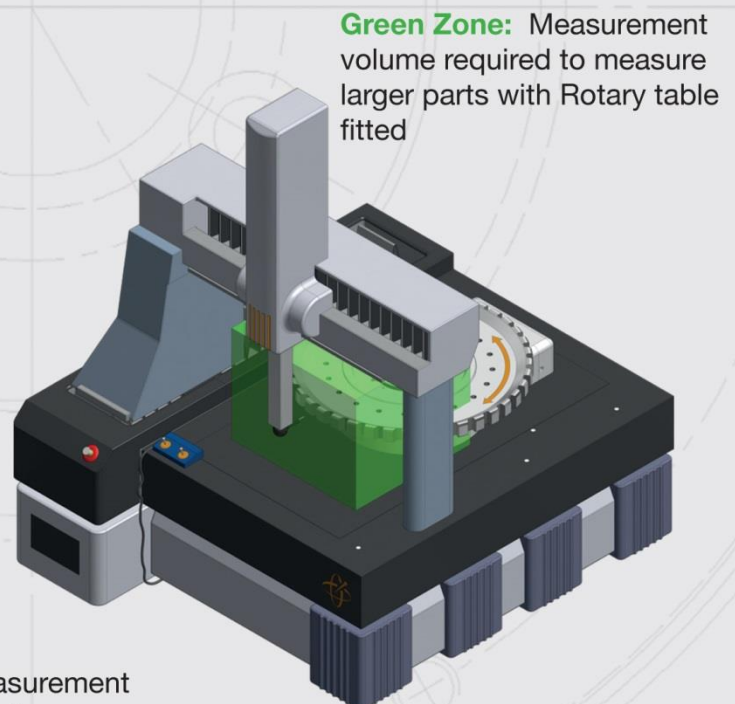
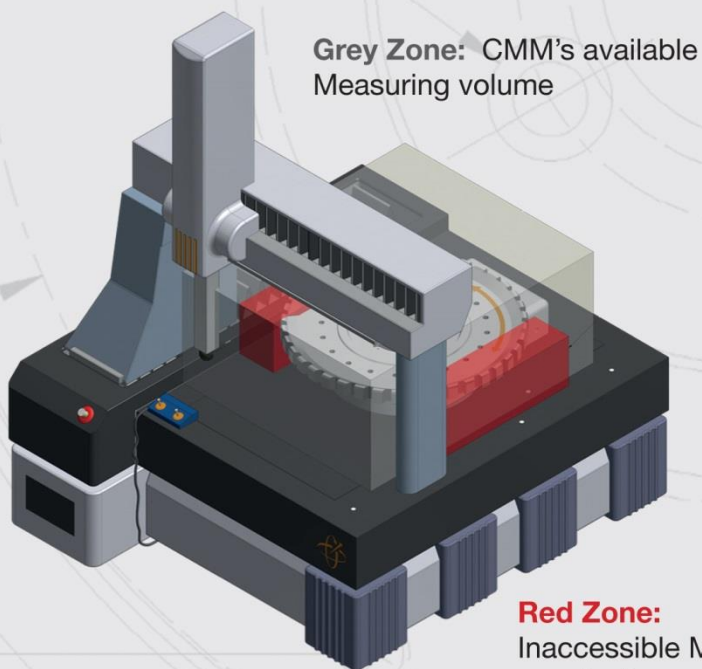
- Over 75 years of engineering heritage underpins our rotary innovation
- Leading the world in rotary measurement since 1940
- Specialist developer of high precision rotary devices for inspection and manufacturing systems
- Supplying tables to the CMM market since 1977
- Over 500 systems supplied world wide into the CMM market
- New range reflects experience gained from working with all the leading CMM manufacturers

Increase Competitive Advantage

- Simplifying your measuring procedures
- Increase your CMM's application range, effective measuring volume, flexibility, productivity and efficiency
- Much simpler stylus system is required
- Measuring times are reduced
- Visibility is increased
- Programming much more straight forward
- Smaller linear moves increase overall accuracy and reduce the influence from temperature
- Quadrant range shop floor compatible
- Significant mechanical improvements reduce the table's influence on ISO 10360-3 Radial(FR), Tangential(FT) and Axial(FA) system errors
- QuadSlimLine design reduces impact on CMM's available measurement volume
- QuadDualPurpose horizontal or vertical rotary axis
- QuadMatic sunken directly into machine granite

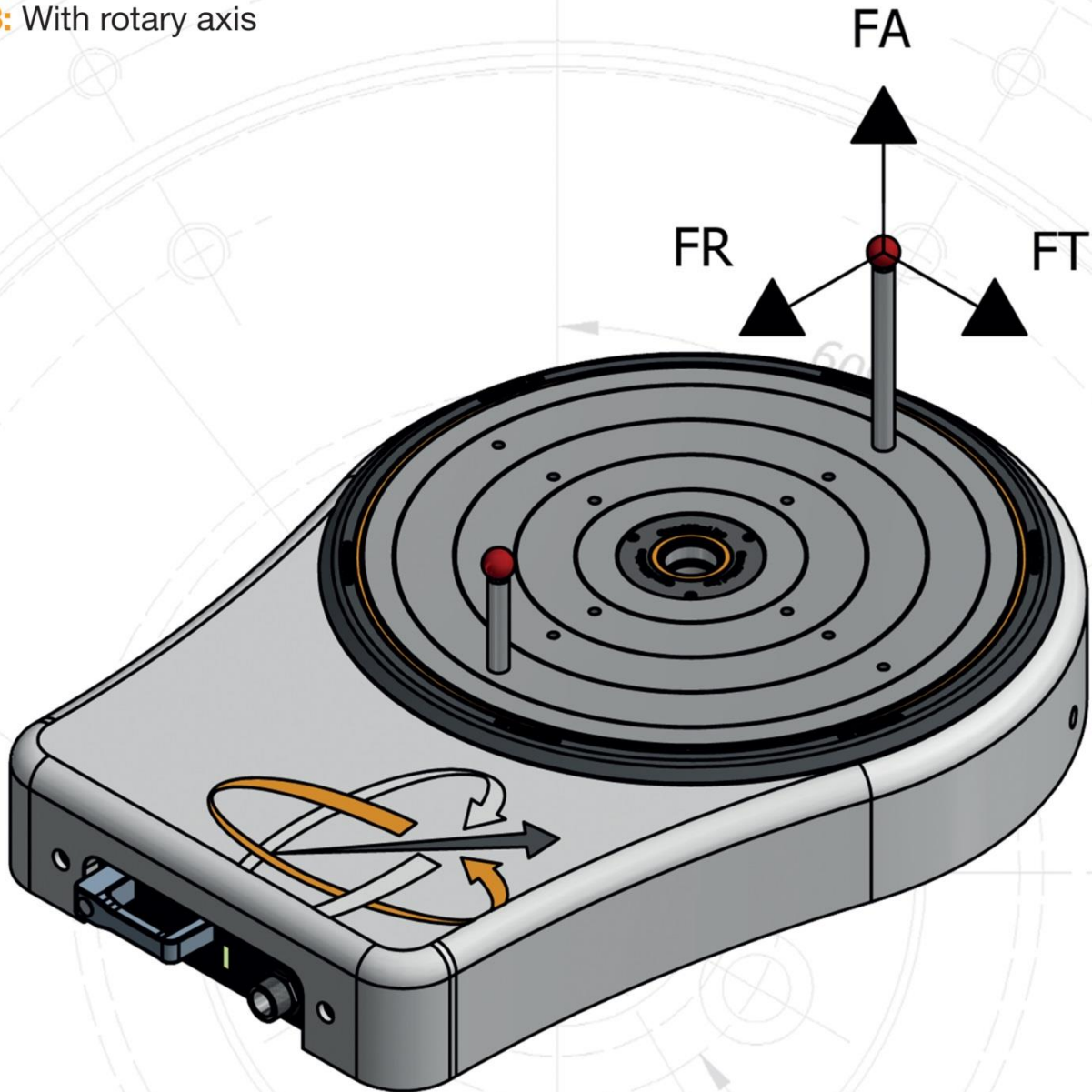


Increasing your CMM's application range and effective measuring volume which in turn increases the flexibility, productivity and efficiency of your CMM



ISO 10360 Part 3

ISO 10360: CMM Acceptance and reverification test
Part 3: With rotary axis



- Significant mechanical improvements have reduced the Radial Rotary Table error (FR) and Axial Rotary Table error (FA) reducing its impact on the CMM's overall system error
- Significant electronic improvements have reduce the Tangential Table error (FT) reducing its impact on the CMM's overall system error
- The smaller linear moves required when using a rotary table help to reduce the influence from temperature on the overall system error

QuadMotion Control System

Don't have a fourth axis on your CMM controller?
Why not use the RPI QuadMotion Control System



Features and Capabilities

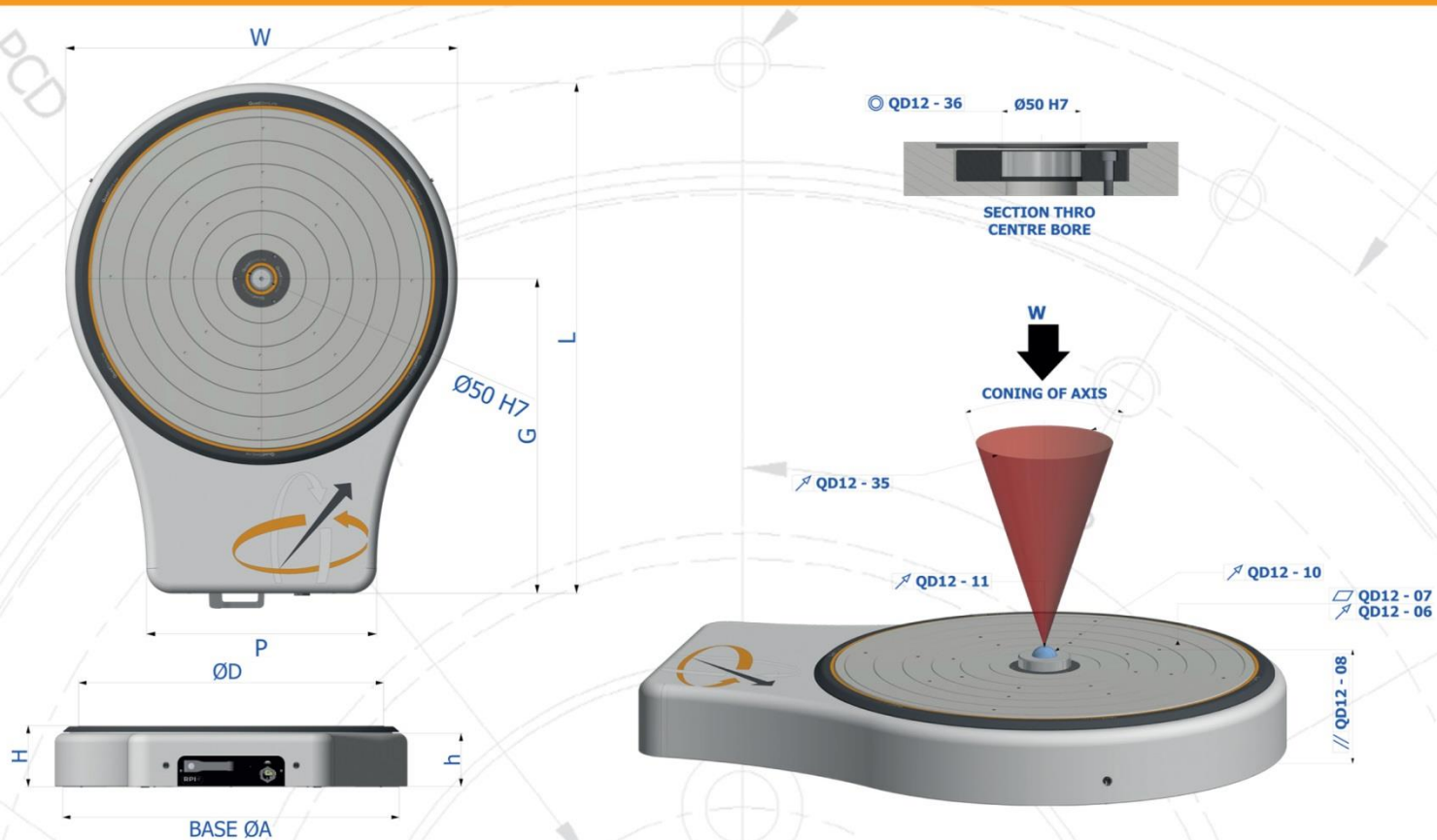
- Digital servo controller for RPI products
- Closed loop brushed or brushless control
- Compatible with both mechanical and air bearing rotary tables
- Optional error compensation of encoded axis
- Automatic operation of axis clamps
- Remote operation via RS232 or Ethernet
- 19" rack and free standing enclosure options

INTERFACE

Type	Encoder Output	Encoder ppr (x200 interpolation)	Motor Type	Home Switch	Fail Safe Pneumatic Clamp	Base Float	3rd Party Interface
QuadSlimLine	TTL	7,200,000	Brushed Servomotor	Proximity Sensor (PNP Normally Open)	NA	Optional	QuadMotion
QuadUniversal	TTL	7,200,000	Brushed Servomotor	Proximity Sensor (PNP Normally Open)	NA	Optional	QuadMotion
QuadDualPurpose	TTL	7,200,000	Brushed Servomotor	Proximity Sensor (PNP Normally Open)	Optional (24v Solenoid Valve)	NA	QuadMotion
QuadMatic	TTL	7,200,000	Brushed Servomotor	Proximity Sensor (PNP Normally Open)	NA	Optional	QuadMotion
QuadAirMatic	TTL	7,200,000	Brushed Torque Motor	Proximity Sensor (PNP Normally Open)	NA	Optional	QuadMotion

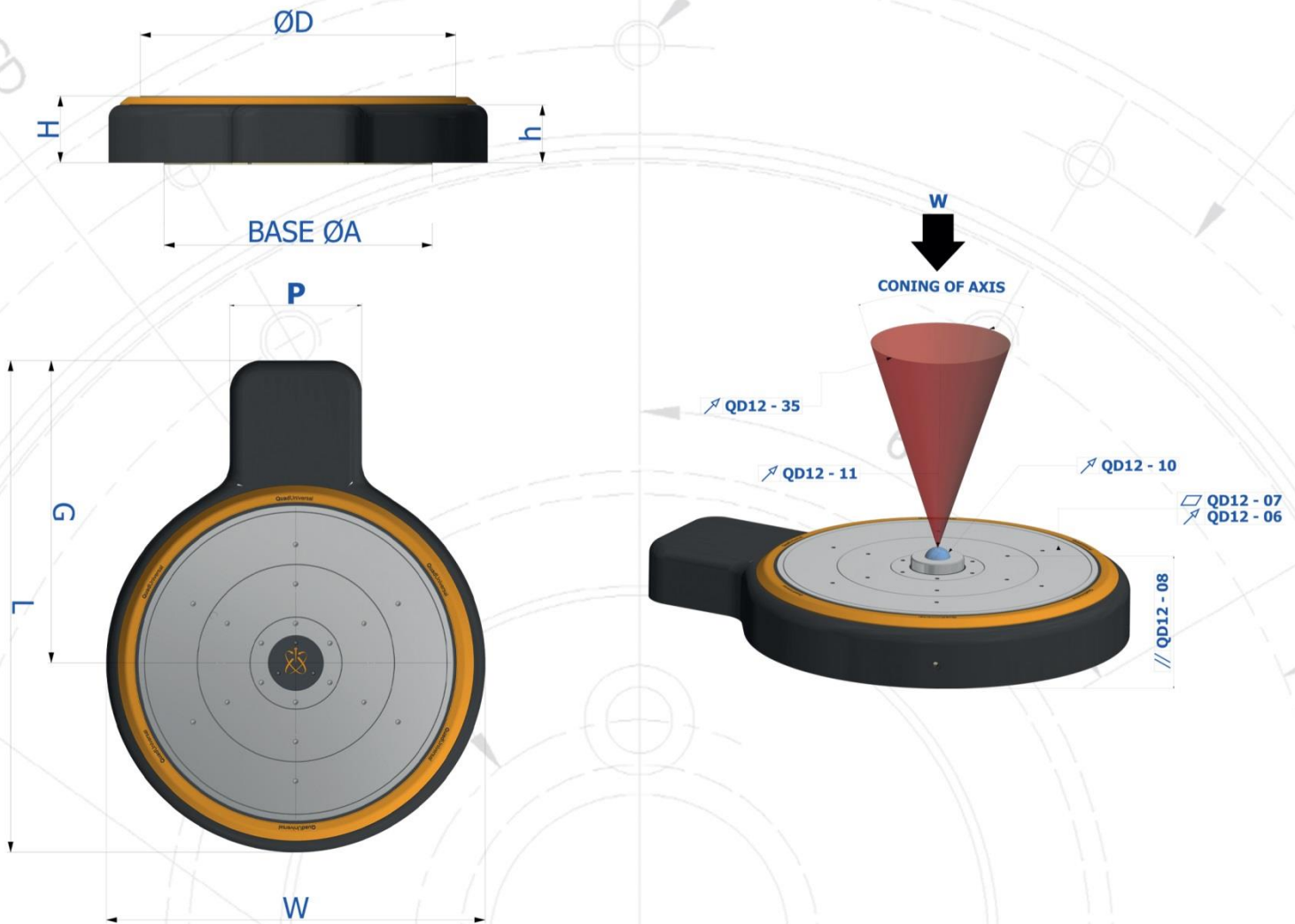
*After 4x evaluation in QuadMotion Control

QuadSlimline Technical Information



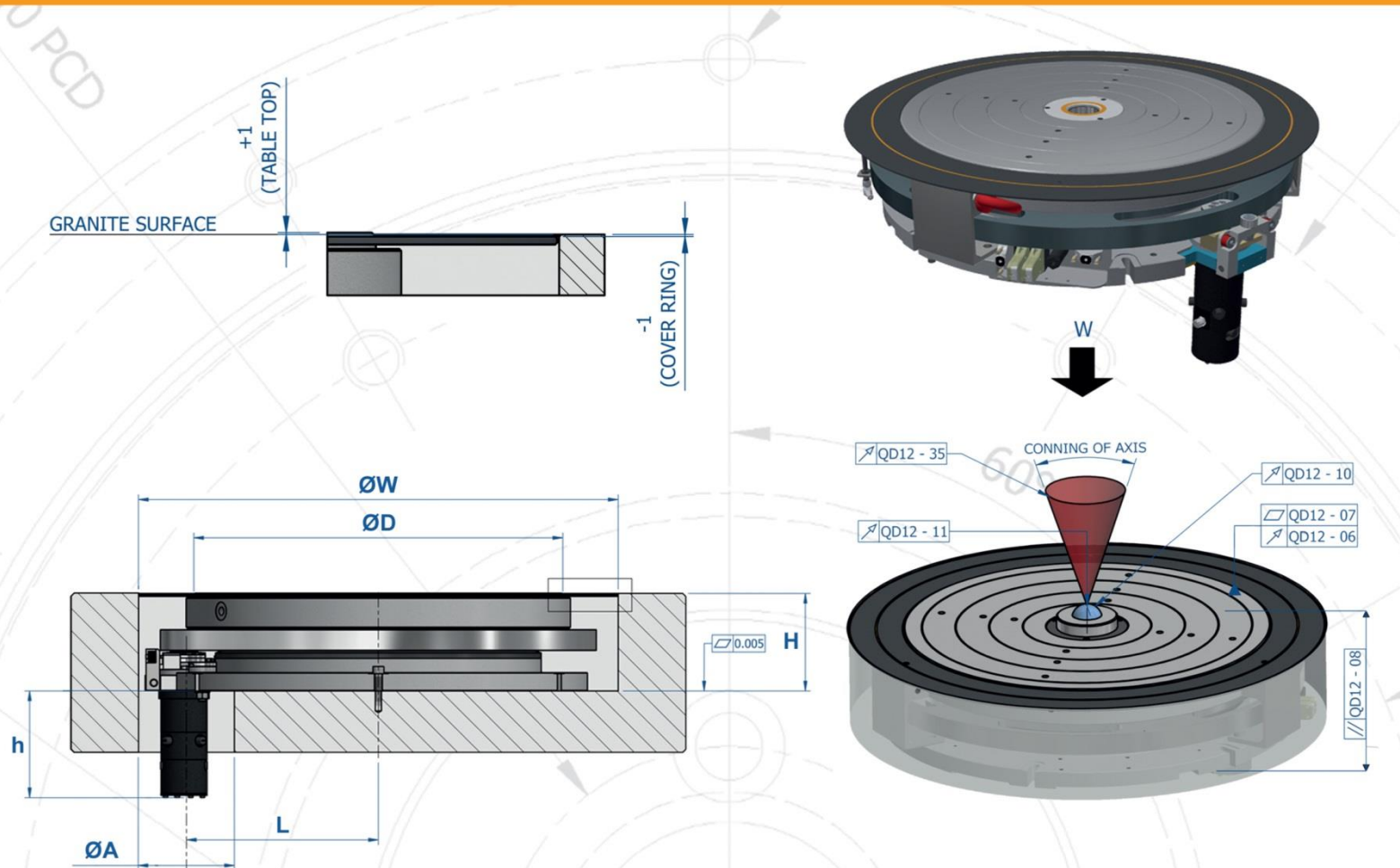
Technical Data	QD	Units	QuadSlimLine 400		QuadSlimLine 600		QuadSlimLine 800		QuadSlimLine 1000		
			Grade 1	Grade 2	Grade1	Grade 2	Grade 1	Grade 2	Grade 1	Grade 2	
Load Capacity		Kgs	1000		1700		3000		5000		
Maximum Tilt Movement		Nm	550		1500		4000		7000		
Coning of Table Axis	12-35	Arc seconds	+/-0.5								
Maximum Acceleration @ Min Inertia		Rad/s ²	13.94		3.55		1.69		0.69		
Maximum Acceleration @ Max Inertia		Rad/s ²	0.85		0.32		0.15		0.09		
Maximum Polar Inertia		kgm ²	20		65		205		440		
Angular Positioning Accuracy		Arc seconds	2 (optional 1, 5, 10)								
Angular Resolution (Options Available)	12-56	Arc seconds	0.09								
Angular Repeatability	12-57	Arc seconds	0.5								
Drive Ratio			354:1		508:1		660:1		818:1		
Maximum rpm		rpm	5		5		4		3		
Rotation Error of Table Top	12-06	mm	0.002		0.002		0.002				
Flatness of Table Top	12-07	mm	0.003	0.005	0.003	0.005	0.004	0.008	0.005	0.008	
Parallelism of Table Top to Base	12-08	mm	0.002		0.002		0.002				
Radial Runout of Table Axis	12-10	mm	0.0004	0.0005	0.0004	0.0005	0.0004	0.0005	0.0004	0.0005	
Axial Runout of Table Axis	12-11	mm	0.0002		0.0002		0.0002		0.0002		
Concentricity of Centre Bore	12-36	mm	0.0025								
			Dimensions								
			ØA	ØD	G	H	h	L	P	W	Weight
Units			mm								kgs
QuadSlimLine 400			480	400	500	150	130	760	370	520	125
QuadSlimLine 600			680	600	640	160	140	1000		720	370
QuadSlimLine 800			880	800	740		1200	540		920	600
QuadSlimLine 1000			1080	1000	880	200	180	1400		1120	1150
Flexible Tooling Interface			HSK, Lanh, Schunk, Gewefa (other options available on request)								

QuadUniversal Technical Information



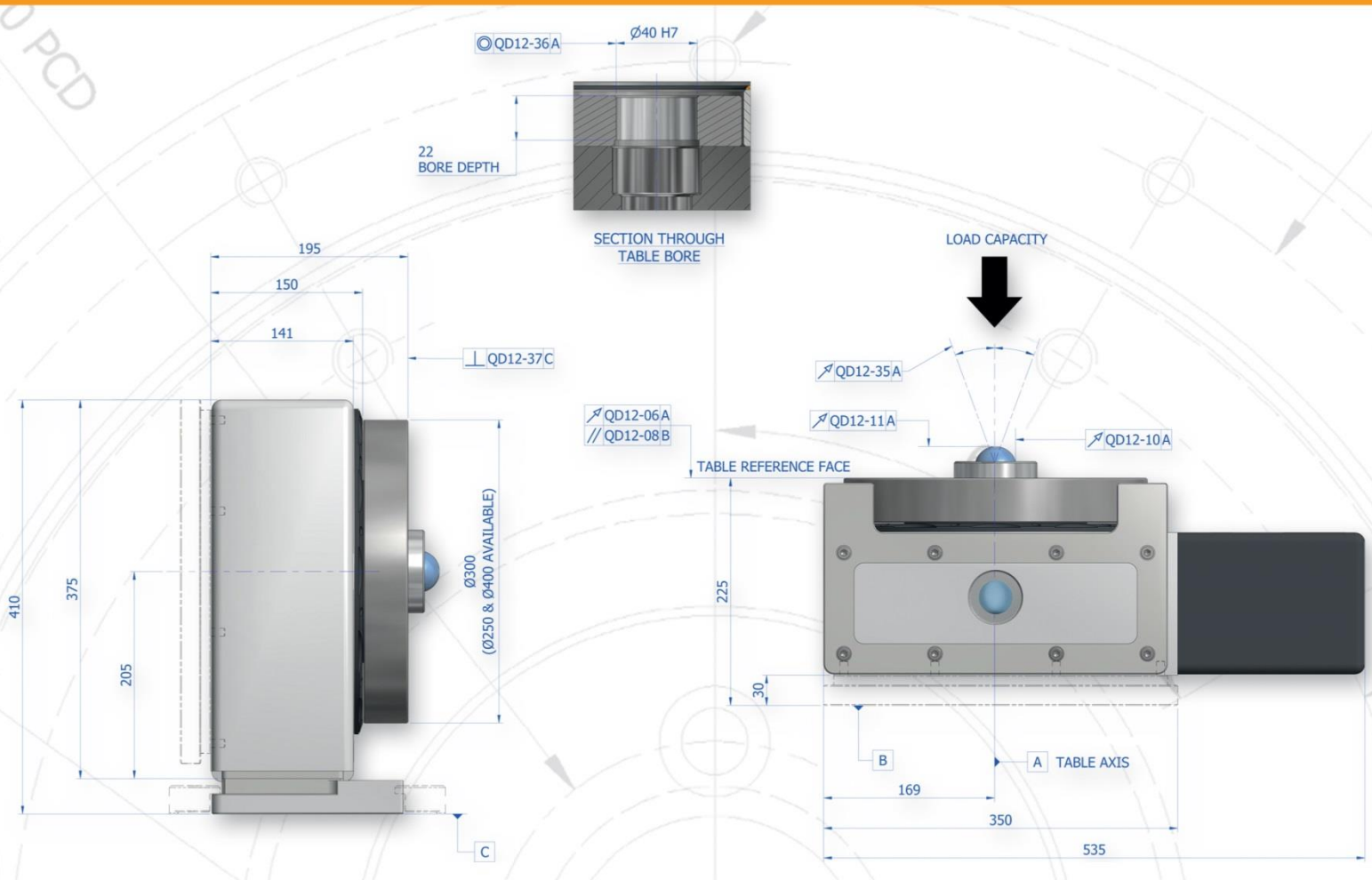
Technical Data	QD	Units	QuadUniversal 600						
Load Capacity		Kgs	100						
Maximum Tilt Movement		Nm	30						
Coning of Table Axis	12-35	Arc seconds	+/-1						
Maximum Acceleration @ Min Inertia		Rad/s ²	10						
Maximum Acceleration @ Max Inertia		Rad/s ²	2						
Maximum Polar Inertia		kgm ²	7.6						
Angular Positioning Accuracy		Arc seconds	6.5						
Angular Resolution (Options Available)	12-56	Arc seconds	0.18						
Angular Repeatability	12-57	Arc seconds	+/-1						
Drive Ratio			600:1						
Maximum rpm		rpm	5						
Rotation Error of Table Top	12-06	mm	0.010						
Flatness of Table Top	12-07	mm	0.010						
Parallelism of Table Top to Base	12-08	mm	0.015						
Radial Runout of Table Axis	12-10	mm	0.001						
Axial Runout of Table Axis	12-11	mm	0.001						
Dimensions									
	ØA	ØD	G	H	h	L	P	W	Weight
Units	mm								kgs
QuadUniversal 600	480	600	575	130	113	935	250	720	95
Flexible Tooling Interface	HSK, Lanh, Schunk, Gewefa (other options available on request)								

QuadMatic Technical Information



Technical Data	QD	Units	QuadMatic 400MB	QuadMatic 600MB	QuadMatic 800MB	QuadMatic 1000MB	
Load Capacity		Kgs	1000	1700	3000	5000	
Maximum Tilt Movement		Nm	550	1500	4000	7000	
Coning of Table Axis	12-35	Arc seconds	+/-0.5				
Maximum Acceleration @ Min Inertia		Rad/s ²	13.94	3.86	1.57	0.66	
Maximum Acceleration @ Max Inertia		Rad/s ²	0.85	0.35	0.18	0.08	
Maximum Polar Inertia		kgm ²	20	65	205	440	
Angular Positioning Accuracy		Arc seconds	2				
Angular Resolution (Options Available)	12-56	Arc seconds	0.18, 0.09, 0.018				
Angular Repeatability	12-57	Arc seconds	0.5				
Drive Ratio			430:1	546:1	700:1	853:1	
Maximum rpm		rpm	5	4.5	4	3	
Rotation Error of Table Top	12-06						
Flatness of Table Top	12-07	mm	0.005	0.005	0.008	0.008	
Parallelism of Table Top to Base	12-08						
Radial Runout of Table Axis	12-10	mm	0.0005				
Axial Runout of Table Axis	12-11						
Concentricity of Centre Bore	12-36	mm	0.0025				
Dimensions							
	ØA	ØD	ØW	H	h	L	Weight
Units	mm						kgs
QuadMatic 400	162	400	630	149	175	250	125
QuadMatic 600		600	780			315	370
QuadMatic 800		800	980			415	600
QuadMatic 1000		1000	1180	199		515	1150
Flexible Tooling Interface	HSK, Lanh, Schunk, Gewefa (other options available on request)						

QuadDualPurpose Technical Information



Technical Data	QD	Units	QuadDualPurpose
Centre Line Height		mm	230
Load Capacity		kgs	1000
Maximum Polar Inertia (Rotary)		kgm ²	40
Maximum Tilt Moment		Nm	500
Maximum rpm		rpm	4
Spindle Rotation Error	12-06	mm	0.005
Parallelism*	12-08	mm	0.006
Angular Positioning Accuracy	12-09	Arc seconds	2 (Optional QuadDualPurpose+ 1)
Angular Repeatability		Arc seconds	+/-0.2
Resolution	12-56	Arc seconds	0.2
Clamp Shift (Fitted as option)		Arc seconds	2
Radial Runout of Table Axis	12-10	mm	0.0005
Axial Runout of Table Axis	12-11	mm	0.0006
Coning of Table Axis	12-35	Arc seconds	+/-0.5
Concentricity of Centre Bore	12-36	mm	0.0025
Squareness of Spindle Face	12-37	mm	0.004
Table Weight		kgs	116
Table Top Options		mm	$\varnothing 250, 300, 400$
Flexible Tooling Interface			HSK, Lang, Schunk, Gewefa (other options available on request)

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