

## Automated form and roughness measurement

The CNC-controlled rotation and tilt module positions the probe tips both for the form and the roughness measurements at any position on the workpiece. All measurement positions can be scanned automatically in one measurement run. There is no longer any need for operator intervention.

## Standard-conformant evaluation

With an electronically controlled probing, a probing force of down to 0.7 Nm is achieved, the standardised probing force for contact stylus instruments. High-precision guides of the measuring axes enable exact evaluations of roughness as well as profile and waviness parameters.

\* Heavier workpiece weights on request.  
All accuracy data in accordance with DIN 1101 at 20°C ± 1°C in vibration-neutral environment, filter 0 – 15 W/U LSCI or 2.5 mm LSL; 6 rpm, or 4 mm/s. Standard probe arm with 1 mm ruby sphere.  
\*\* Values as maximum deviation from the reference circle LSCI, filter 0 – 15 W/U LSC, 6 rpm.  
All proof on the standard under inclusion of the compensation method.

		HOMMEL roundscan 435	HOMMEL roundscan 455	HOMMEL roundscan 535	HOMMEL roundscan 555	HOMMEL roundscan 590
Max. workpiece diameter	mm	750 (850)				
Max. test diameter	mm	450 (550)				
Max. measurement height	mm	350	550	350	550	900
Max. load	N	600		600*		
C-axis						
Table diameter	mm	330				
Workpiece alignment		automatic				
Roundness deviation (µm + µm/mm measurement height)		µm 0,02 + 0,0005				
Roundness deviation (µm + µm/mm measurement height) **		µm 0,01 + 0,00025				
Roundness deviation (µm + µm/mm measurement radius)		µm 0,03 + 0,0005				
Roundness deviation (µm + µm/mm measurement radius) **		µm 0,015 + 0,00025				
Centring range	mm	±5				
Levelling range	°	±1				
Measuring and positioning speed	1/min	0,2 – 30				
Bearing		Luft				
Z-axis						
Measuring length	mm	350	550	350	550	900
Straightness deviation / 100 mm	µm	0,15				0,25
Straightness deviation / measuring length	µm	0,3	0,45	0,3	0,45	1,5
Parallel C-Z	µm	0,5	0,8	0,5	0,8	2,5
Measuring and positioning speed	mm/s	0,2 – 50				
R-axis						
Measuring length	mm	240				
Straightness deviation / 100 mm	µm	0,25				
Straightness deviation / measuring length	µm	0,5				
Squareness C-R	µm	0,8				
Measuring and positioning speed	mm/s	0,2 – 50				
Dimensions / weight						
Length	mm	1280		1990		
Depth	mm	700		750		
Height	mm	1135	1335	1760	1960	2310
Weight approx.	kg	485	500	650	665	685

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– Process Measurement

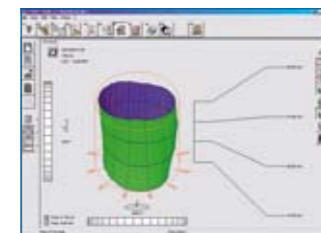
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## Evaluation with user-oriented operator guidance



### Automatic measurement runs: CNC

CNC programs are created by a learning process (teach-in) and can be adapted flexibly later.



### Analysis

Fourier analysis and informative 3D analyses are already part of the standard scope.



### Printout forms

Screen and printout forms can be designed simply and individually.

## Evaluation with the roundscan 4xx and 5xx

### Form and position parameters

Roundness • Eccentricity • Vertical and horizontal straightness • Cylinder form • Flatness • Parallelism • Conicity • Squareness • Tilt • Coaxiality • Concentricity • Run-out, axial run-out • Total run-out, total axial run-out • Fourier analysis • Diameter (option) • Thickness (option) • Ovalities (option) • Certified qs-Stat interface (option) • ASCII export (option) • Surface parameters

### Profile parameters

Linear free forms • Wavinesses • Roughness parameters • Twist parameters

HOMMEL roundscan  
form and roughness measurement  
fast, accurate, economical



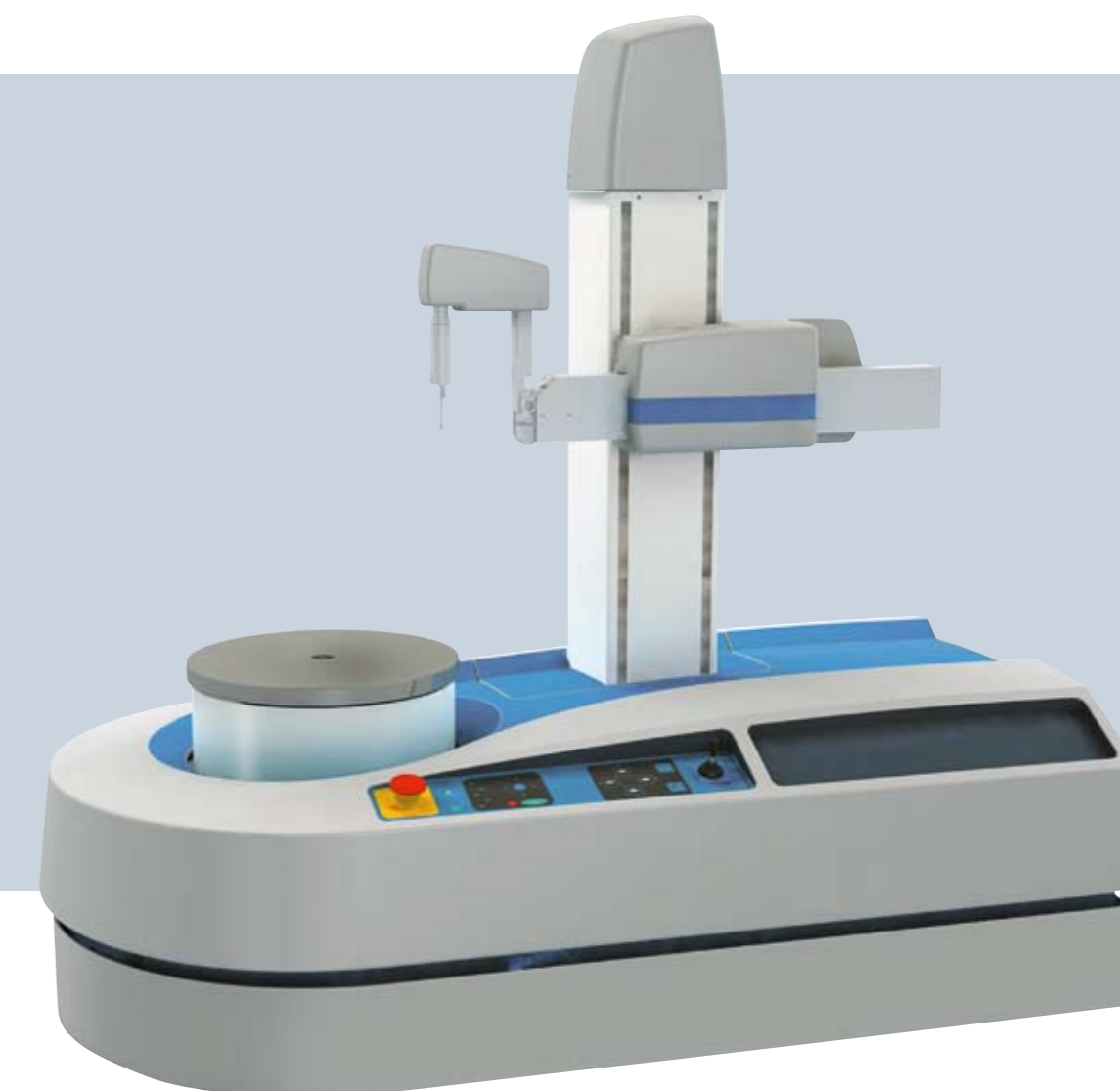
# HOMMEL roundscan 5xx

## Measuring and work station

The flexible measuring and work station HOMMEL roundscan 500 combines ergonomics, operability and measuring certainty in a unit of the highest perfection. The height adjustable and swivellable evaluation unit is totally decoupled from the measuring station and can be adjusted to the respective operation in a few seconds. The „measurement“ and „programming“ work steps have been analysed exactly from an ergonomic point of view and optimised for the comfortable standing and sitting workstation of the HOMMEL roundscan 5xx.

## Configurable for the optimum measuring situation

The vertical Z axis can be configured in three positions at the factory. Small parts – such as valves – can be measured with a small measuring circle. In connection with the rotation and tilt module, highly accurate parallelism measurements without influencing the rotary table can be guaranteed. For measuring large, heavy workpieces – such as brake discs or cam shafts – test diameters up to 540 mm, measuring heights up to 900 mm and table loads up to 100 kg are possible.



**Investment in precision and economy**  
Increasingly narrowing form and position tolerances of workpieces and the influence of the surface roughness on the functional capability of components increase the demands on the measuring instruments used in the test process. With the new generation of form measuring instruments, HOMMEL roundscan, these requirements for precision and economy are met consistently for the first time. HOMMEL roundscan – The investment for the future with combined, automatic form and roughness measurement.



**Fast throughput times**  
Very fast, CNC-controlled axes can be driven completely parallel. The HOMMEL roundscan is also equipped with a new kind of drive system for fast, automatic centring and levelling. The scanning function provides additional support here in the case of large, heavily eccentric parts. The measurement and alignment times are reduced considerably and the workpiece throughput increased greatly.



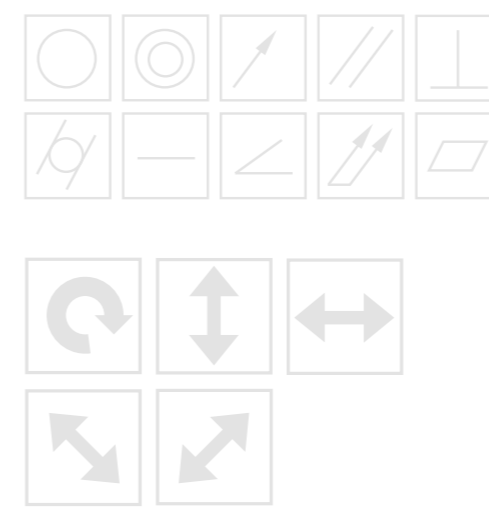
**High accuracy of the axes**  
The new generation of form measuring instruments guarantees an excellent repetitive accuracy and reproducibility of the measurement results. An excellent roundness accuracy is achieved over the whole measurement height by a newly developed compensation technique. Optional linear scales in the axes enable measuring scanning mode. Even heavily tilted conical forms can be evaluated precisely in this way.



**Simple operation**  
The integrated programming help guides you simply and reliably through all the steps in the measuring process relevant to operation. The user interface is adaptable to the individual requirements. Complex settings can be made at any time. All the important functions can be controlled on the control panel without a mouse and keyboard.



**Applications – workpiece-specific solutions**  
With innovative products and services, complex test-measurement requirements on the highest level are met. The long years of experience of Hommelwerke in the field of form measurement are incorporated in the solution of workpiece-specific measuring tasks. Precision solutions for measurements on pistons, con rods, crank shafts, gear shafts, brake discs or valves have been developed for the automotive industry for example.



# HOMMEL roundscan 4xx

## Versatile measuring station

The new, versatile HOMMEL roundscan 4xx measuring station can be adapted optimally to many different measuring tasks. Complex workpieces can also be measured easily with a manual rotation and tilt module (standard version). All the necessary positions can be set comfortably by a screening.

Optional equipment: The automated rotation and tilt module. A suitable equipment table with an integrated air damping and a measuring cell are also available for close to production application. Different probes within the scope of the extensive probe arm range and other accessories can be used depending on the measuring task.