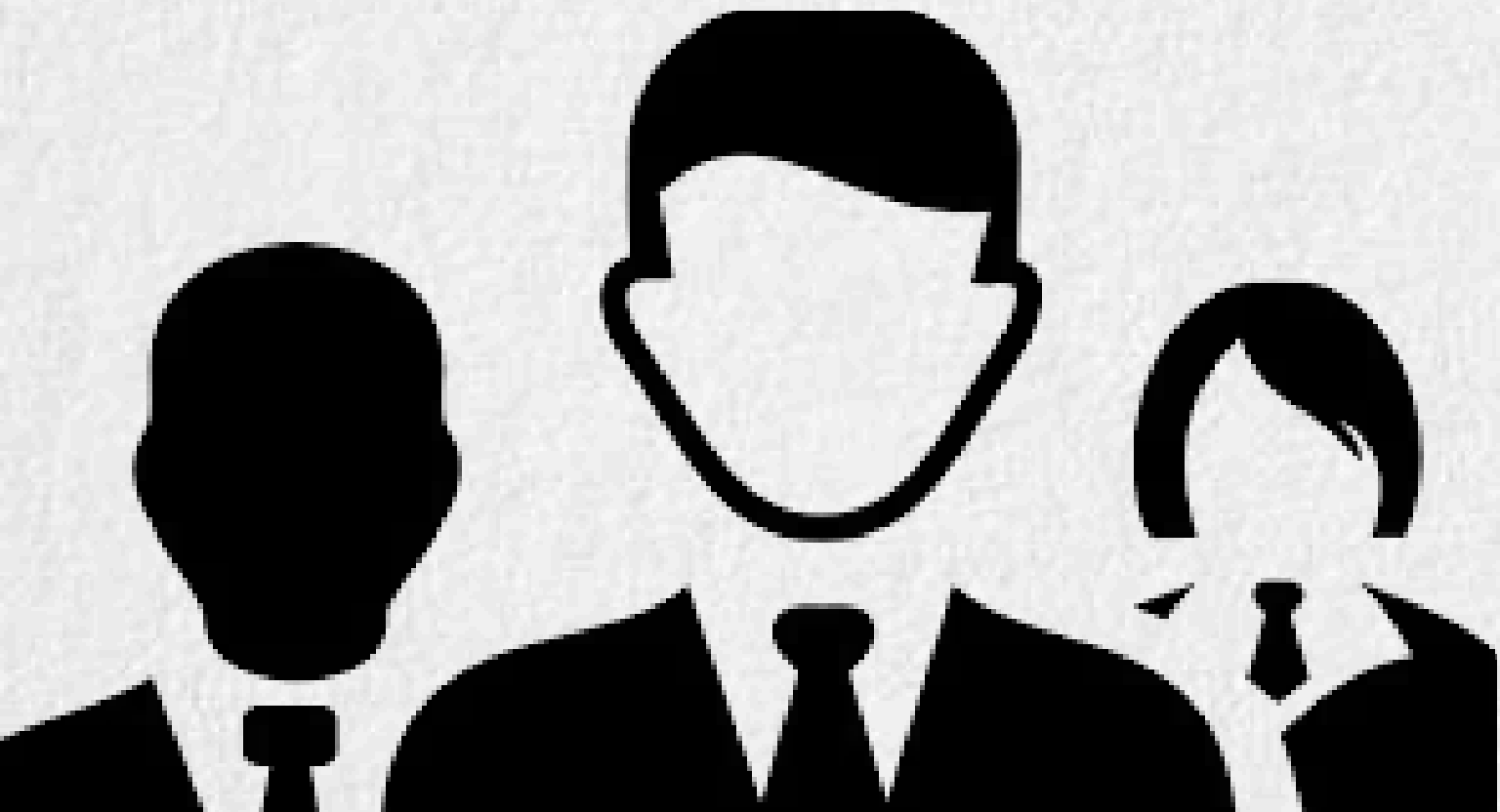


CL Engineers

www.clengineersindia.com

About Us



CL Engineers is an automation and innovation-driven engineering company specializing in precision measurement solutions and customized Special Purpose Machines. With strong expertise in mechanical and electrical engineering, the company delivers high-accuracy measuring services, including complex geometric evaluations such as square, circular, and various dimensional assessments.

**CL
Precision
Series**

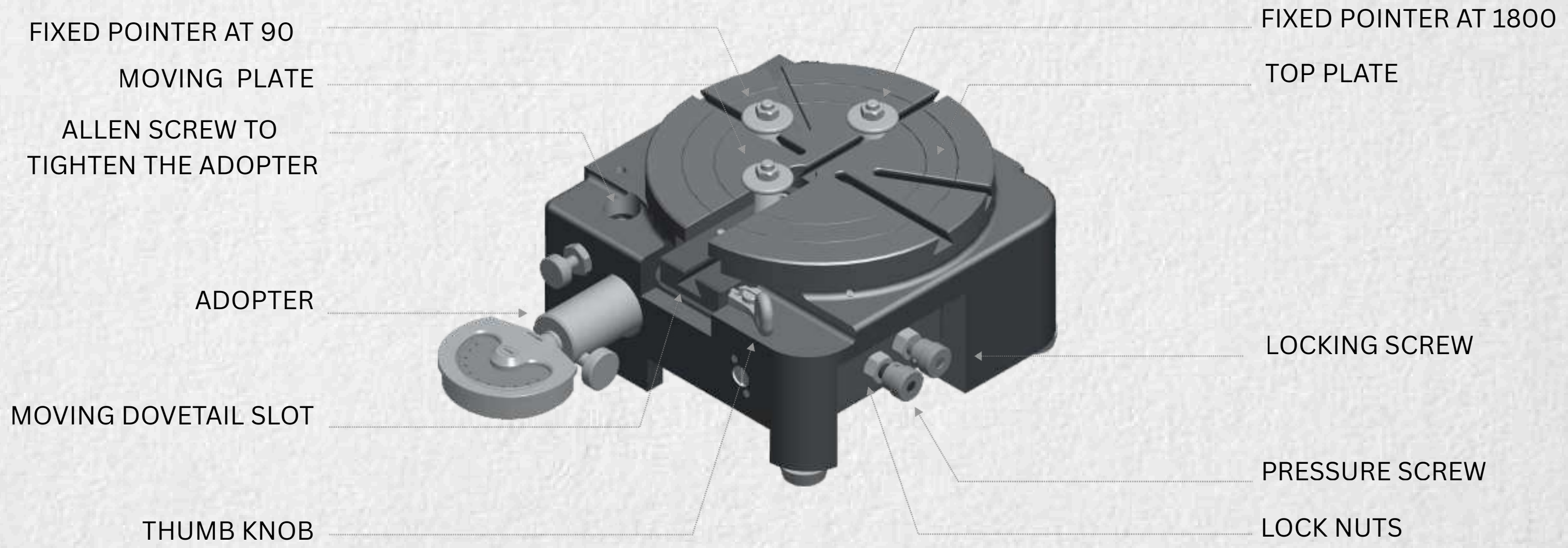
**Other
types of
Gauges**

**CL
Automatic
Machines**

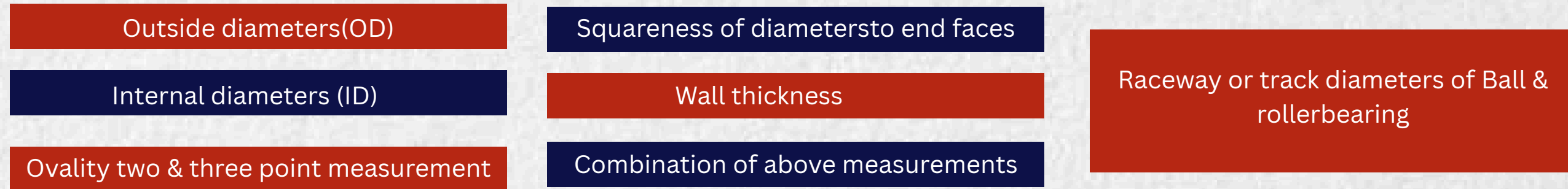
**CL
Precision
Series**

Mechanical Comparators

The comparator is tested & certified for its accuracy by Mechanical Engineering Research & Development Organization PUNE INDIA, A wing of Council of Scientific & Industrial Research India



Spinn BR-Series comparator is designed specifically for precision measurement of



And it comes in different configurations with different sizes of top plate diameters.

TECHNICAL SPECIFICATION

Comparator Model	CL BR 0 (120mm)	CL BR 1 (165mm)	CL BR 1 (200mm)	CL BR 2 (250mm)	CL BR 3 (300mm)	CL BR 3.5 (350mm)	CL BR 4 (400mm)	CL BR 4.5 (450mm)
Max measuring range outside diameter	20-145 mm	20-145 mm	20 – 180 mm	20 – 230 mm	20 – 280 mm	20 – 330 mm	20 – 380 mm	20 – 430 mm
Max measuring range internal diameter	40 – 110 mm	40 – 110 mm	40 – 110 mm	40 – 190 mm	40 – 290 mm	40 – 340 mm	40 – 390 mm	40 – 440 mm
Max measuring range internal diameter By using seating pad and measuring hooks With carbidetip.	15 – 40 mm	20 – 40 mm	20 – 40 mm	15 – 40 mm	20 – 40 mm	20 – 40 mm	20 – 40 mm	20 – 40 mm
Top plate diameter	120 mm	165 mm	200 mm	250 mm	300 mm	350 mm	400 mm	450 mm
Top plate hardness	60 – 62 HRC	60-62 HRC	60-62 HRC	60-62 HRC	60-62 HRC	60-62 HRC	60-62 HRC	60-62 HRC
Least count depending on the dial indicator	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm

CL BR - 0 Mechanical Comparator

Top Plate Diameter 120 mm. Useful for checking Inside Diameters, Outside Diameters, squareness of Face to Axis, Concentricity, Run out ovality.



BR - 0 Dia 120mm



BR - 0 with Coated Plate

SPINN BR-1 Mechanical Comparator

Top Plate Diameter 165 mm, 200 mm, plate with embeded carbide strips. Useful for checking Inside Diameters, Outside Diameters, quareness of Face to Axis, Concentricity, Run out ovality.



BR - 0 Dia 120mm



**BR-1 Dia 165mm
(with Coated Plate)**

CL Mechanical Comparator

Top Plate Diameter 165 mm, 200 mm, plate with embeded carbide strips. Useful for checking Inside Diameters, Outside Diameters, quareness of Face to Axis, Concentricity, Run out ovality.

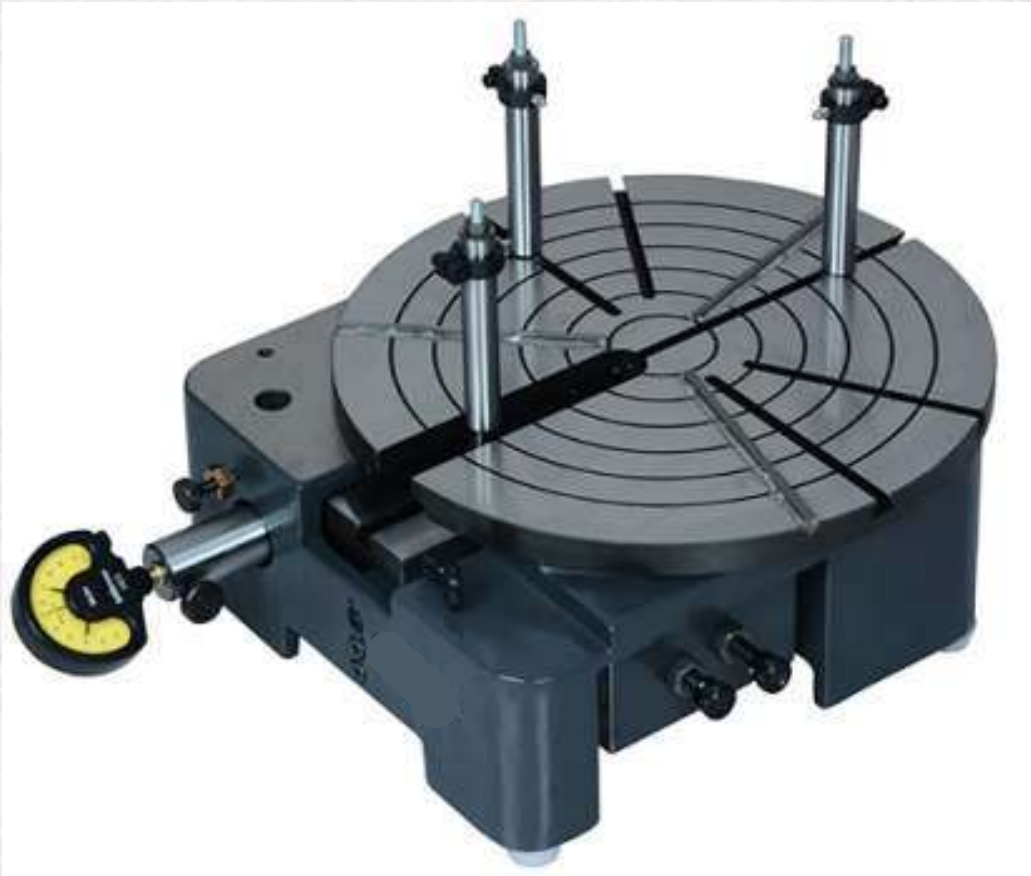


Accessories

- Spacers
- Dovetail Screw
- Measuring Discs
- Measuring Hooks
- Adaptor for Dial Indicator
- Fine Zero Adjusting Screw with Brass Nut
- Thumb Knob
- Locking Screw with Knob
- Pressure Screw with Knob
- Leaf Spring
- Tension Spring
- Triangular Pices
- Main Washer
- Concentricity Bracket



Special Accessorise

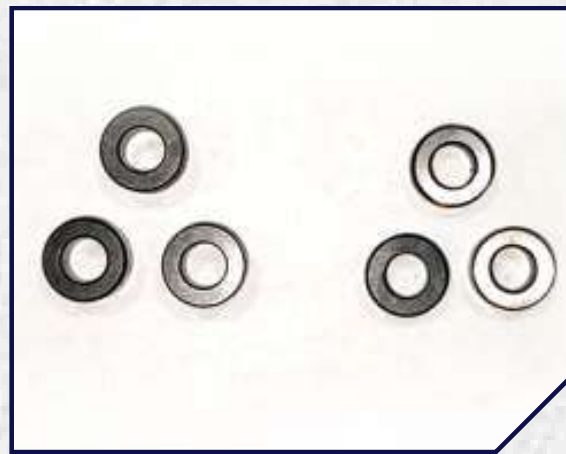


Mechanical Comparators Accessories

Sr. No.

Description

1



(Available in sizes of 1 mm to 10 mm in 0.5 mm step as standard). But can be manufactured in any size based on requirement. Material – EN31 hardened & ground.

Customizable sizing is possible

2



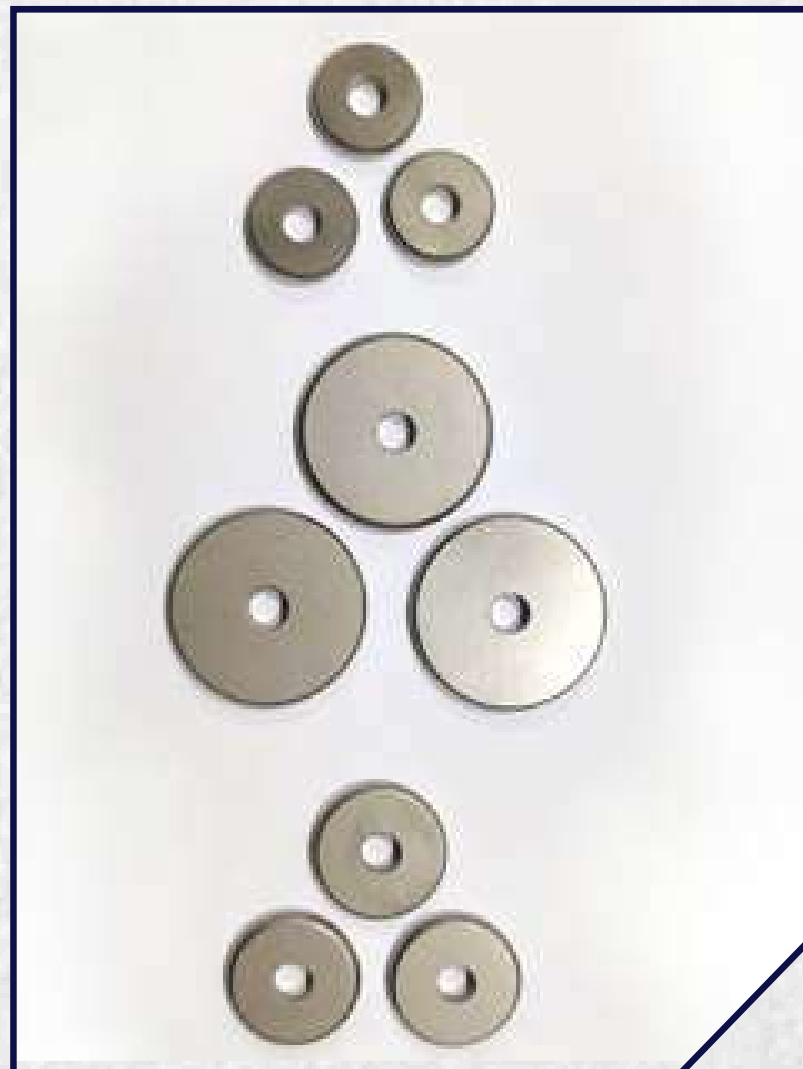
Dovetail screws with nuts
(standard set of three – 1 no 65mm & 2 Nos of 35 mm length)

Customizable sizing is possible

Mechanical Comparators Accessories

Sr. No.

3



Description

Measuring Discs (Set of three)

- Dia 15 mm
- Dia 18 mm
- Dia 20 mm
- Dia 22 mm
- Dia 25 mm
- Dia 32 mm
- Dia 40 mm
- Dia 45 mm

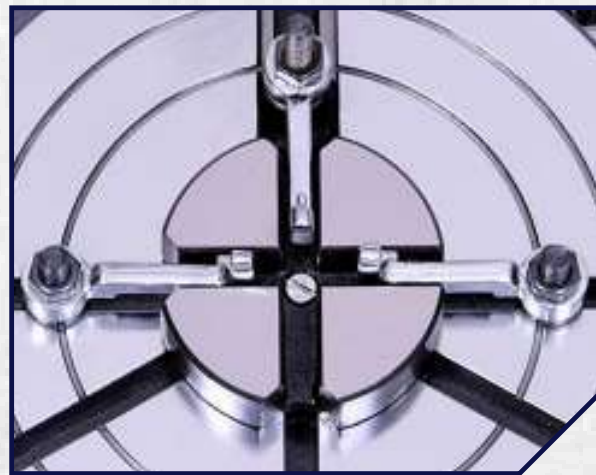
Material – EN31 hardened & ground.

Mechanical Comparators Accessories

Sr. No.

Description

4



Measuring Hooks with carbide points along with seating pad for checking internal diameter less than 50 mm

Customizable sizing is possible

5



Standard adaptor for dial indicator
Available in size OD 28 To 30 mm

Mechanical Comparators Accessories

Sr. No.

Description

6



Fine Zero Adjusting Screw with Brass

7



Thumb Knob

8



Locking screw with knob

9



Pressure screw with knob

Mechanical Comparators Accessories

Sr. No.

Description

10



Leaf spring

11



Tension Spring

12



Triangular Pieces

13



Main Washer

Mechanical Comparators Accessories

Sr. No.

14



Description

Concentricity Bracket (Additional Dial Holder Stand)

**CL
precision
Series**

Comparators Design

Comparator is Designed specifically for Precision Measurement of

Height Or Width

Groove Location

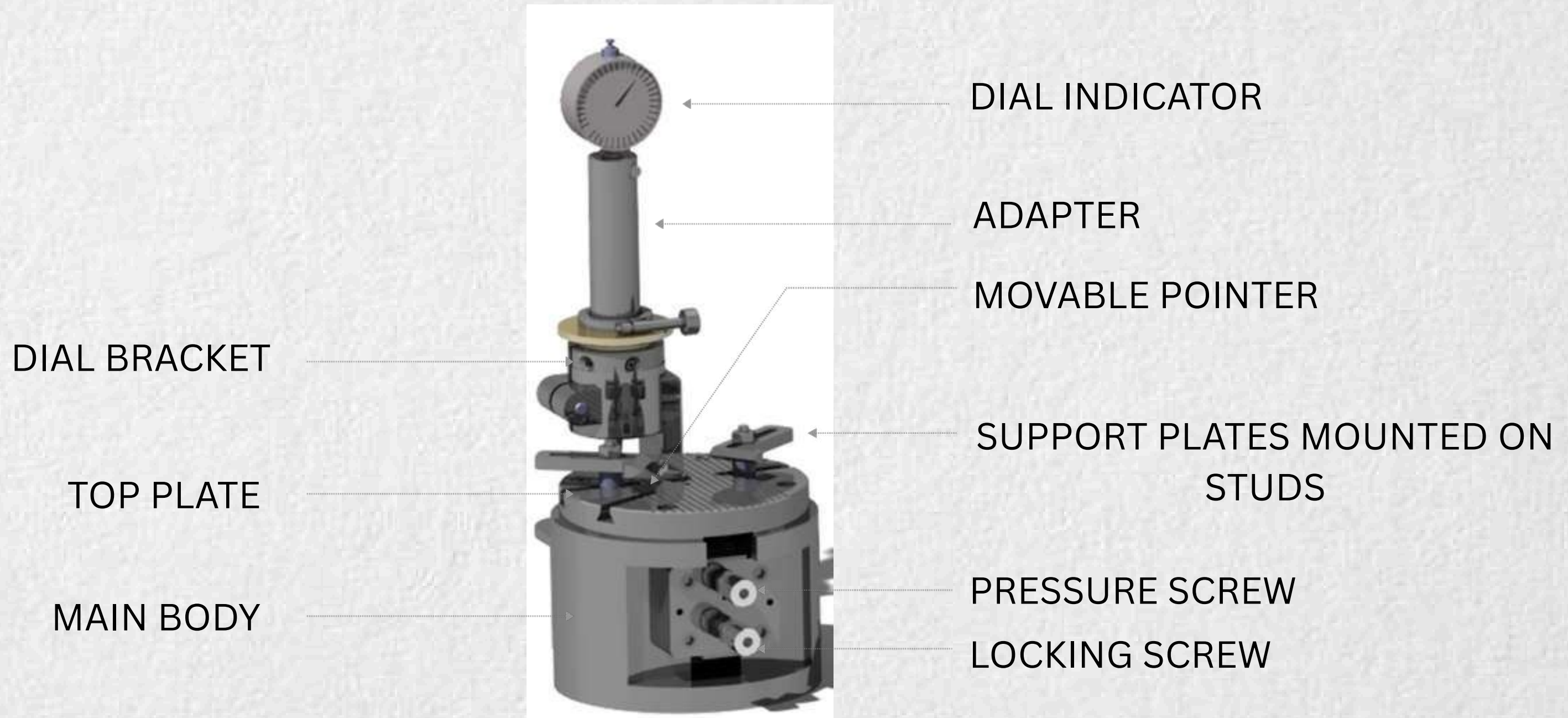
Flatness

And it comes in different configurations with different sizes of top plate diameters.

MECHANICAL COMPARATORS

Comparator Model	CL RB 1	CL RB 0 (140mm)	CL RB 1 (180mm)	CL RB 1 (200 mm)	CL RB 2 (250 mm)	CL RB 2 (300 mm)	CL RB 2 (350 mm)	CL RB 2 (400 mm)	CL RB 2 (500 mm)
Vertical Travel	0 - 10 mm	0 - 10 mm	0 - 10 mm	0 - 10 mm	0 - 12 mm	0 - 12 mm	0 - 12 mm	0 - 12 mm	0 - 12 mm
Top Plate Diameter	140 mm	165 mm	180 mm	200 mm	250 mm	300 mm	350 mm	400 mm	500 mm
Top Plate Hardness	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC	60 - 62 HRC
Least Count Depending On Dial Indicator	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm	0.01mm or 0.001 mm
Range Of Diameter Usefull For	40 mm to 100 mm	40 mm to 125 mm	40 mm to 140 mm	40 mm to 160 mm	80 mm to 200 mm	80 mm to 250 mm	80 mm to 300 mm	80 mm to 350 mm	80 mm to 450 mm

Mechanical Comparators



Mechanical Comparators & Accessories



RB 0

Dia 140 mm



RB 1

Dia 200 mm



RB 2

Dia 250 to 350 mm

RB 2

Dia 400 mm

RB 2

Dia 450 & above

Other Types Of Gauges

Width Clock Gauge

- Width clock gauge is designed to measure width or total height of component
- Available in customized sizes of top plate to accommodate different diameter of components.



Small Width Clock Gauge
OD range = upto \varnothing 80 mm
Width range = upto 75 mm



Big Width Clock Gauge
OD range = upto \varnothing 180 mm
Width range = upto 75 mm

Standard Width Gauge

- Standard Width gauge is designed to measure width or total height of component
- Available in customized sizes of top plate to accommodate different diameter of components.



Width Gauge With Carbide Plate



OD range = upto \varnothing 60 mm
Width range = upto 80 mm

Total Width Variation Measurement Gauge

- HBV is type of gauge used to Measure total width variation of component during machining process.
- Available in customized sizes of top plate to accommodate different diameter of component



Small HBV 1 Gauge

OD range = upto \varnothing 120 mm

Width range = upto 65 mm



Big HBV 1 Gauge

OD range = upto \varnothing 220 mm

Width range = upto 65 mm

Special Width Gauge

- HBV is type of gauge used to Measure total with variation of component during machining process.
- Available in customized sizes of top plate to accommodate different diameter of component



Small Special Width Gauge

OD range = upto \varnothing 130 mm

Width range = upto 80 mm



Big Special Width Gauge

OD range= upto \varnothing 200 mm

Width range = upto 145 mm

Inside Bore Gauge (Small,Medium, Big)

- HBV is type of gauge used to Measure total with variation of component during machining process.
- Available in customized sizes of top plate to accommodate different diameter of component



**Small Inside Bore
Diameter Gauge**
This gauge is used to
measure id/bore dia of
component.



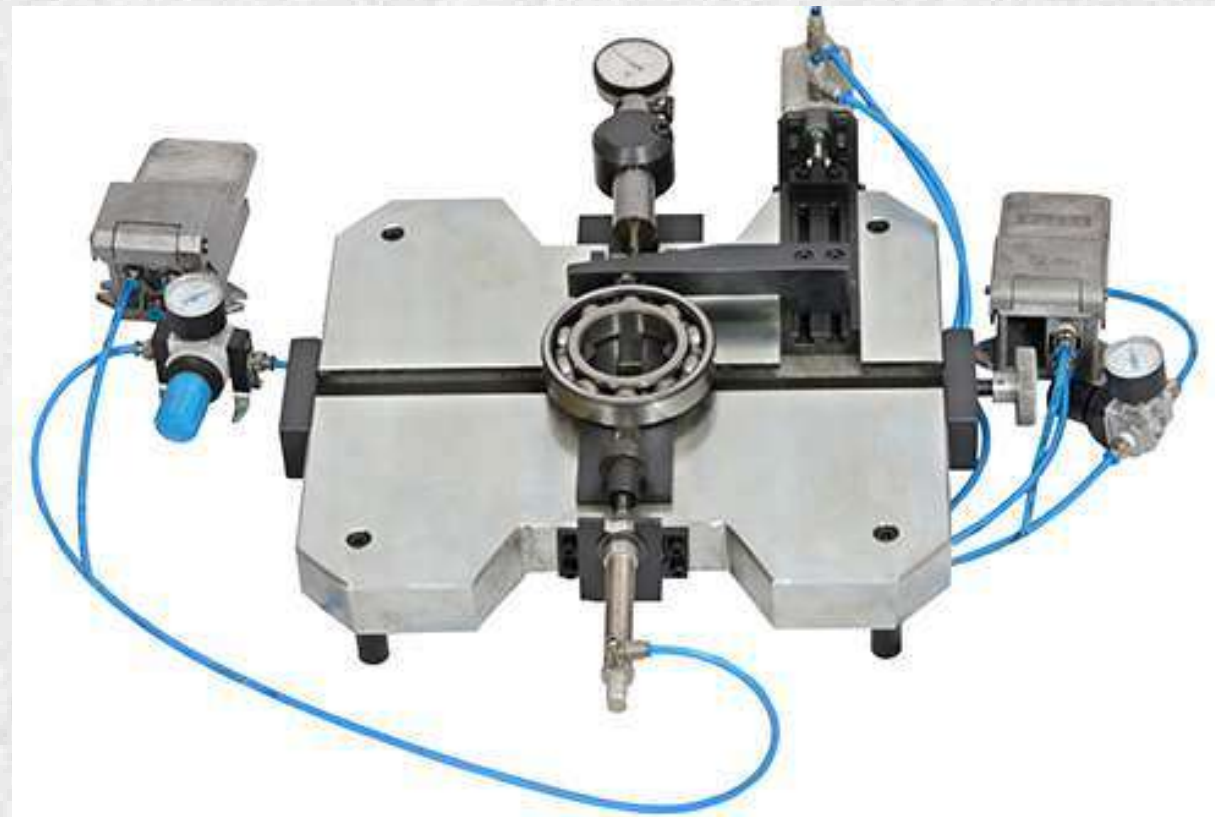
**Medium Inside Bore
Diameter Gauge**
This gauge is used to
measure id/bore dia of
component.



**Big Inside Bore
Diameter Gauge**
This gauge is used to
measure id/bore dia of
component.

Pneumatic RC Gauge for CRB & DGBB

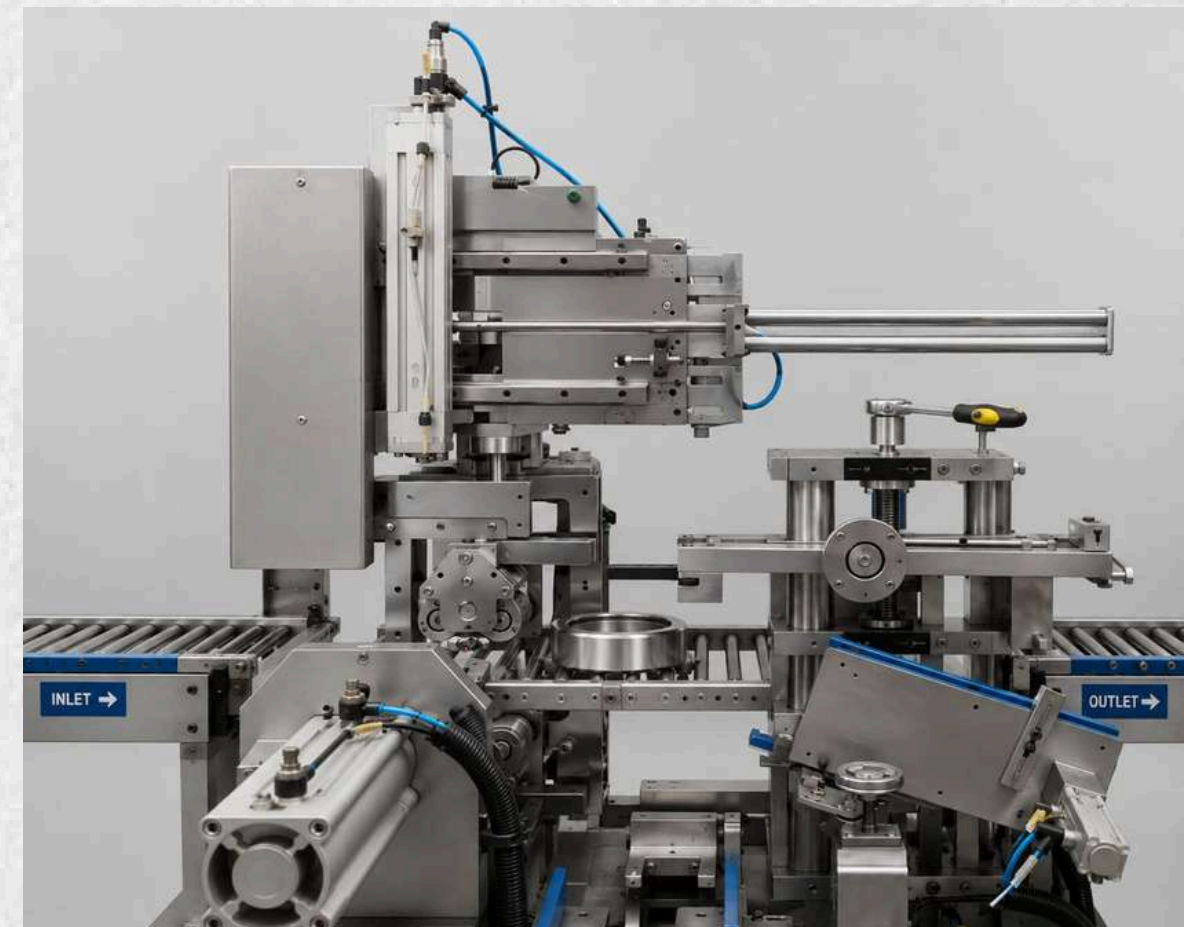
- This is Pneumatically operated radial clearancemeasurement gauge designed for CRB & DGBB types of bearings
- Size range can be customized based on requirement.



Range upto OD Ø 250 mm

Vertical RC

- This is Pneumatically operated vertical type of radial clearance measurement gauge for type of bearings.
- It is installed with load cell for exact application of load
- It is installed with DRO (digital read out) with facility of data storage & cp , cpk, values monitoring.



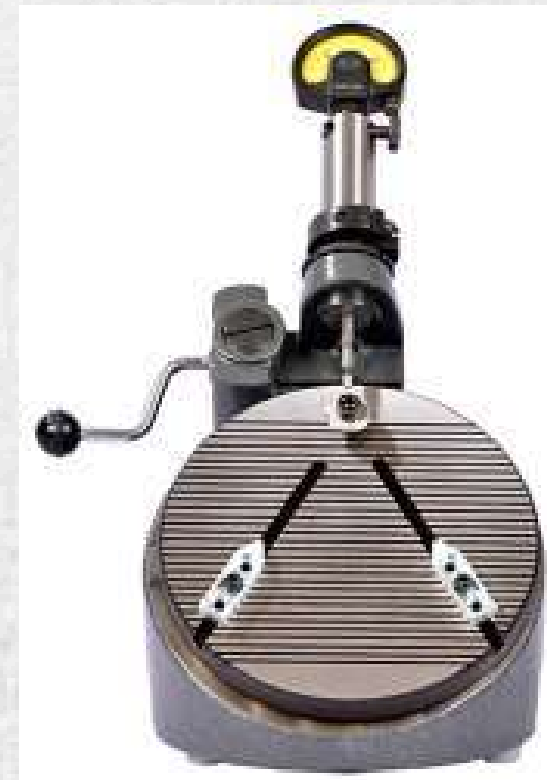
Ball / Roller Diameter Measurement Gauge

- Fixture is used to measure ball or roller diameter with fine adjustments.
- It is measured based on three-point measurement principles.
- Range designed for ball is from 3-33 mm.



Radial Run Out Gauge

- Used to measure wall thickness variation available in customized sizes of top plate
- To accommodate different diameters of components



Radial Run Out Gauge

- Used to measure wall thickness variation or radial runout of component.
- Available in customized sizes of top plate to accommodate different diameters of component.



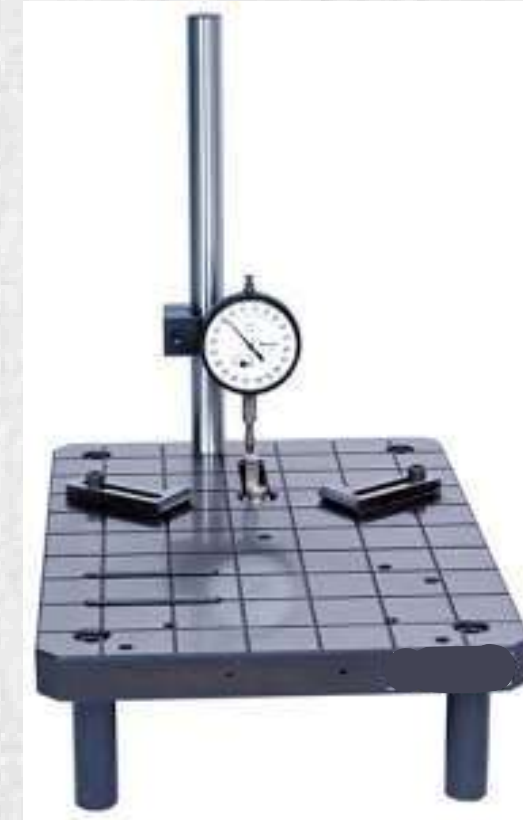
Roller Squareness Gauge

- VBI is gauge used for measurement of roller Squareness



Track Location Gauge

- Track location gauges is used to measure the groove position or track position
- Available in customized sizes of top plate to accommodate different diameter of component.



Pitch Gauge

- It used to measure groove position of outer face of range



Flatness Gauge

- This gauge is used to measure flatness or waviness of components face.
- Top plate can be customized to accommodate different dimensional range



Two Point OD Measurement Gauge

- Small two point measurement gauges this gauge is used for od measurement range of 15 mm to 70 mm
- Medium two-point measurement gauges this gauge used used for od measurement range of 30 mm to 170 mm
- Big two-point measurement gauges- this gauge is used for od measurement range of od 75 mm to 300 mm



Small OD



Medium OD



Big OD

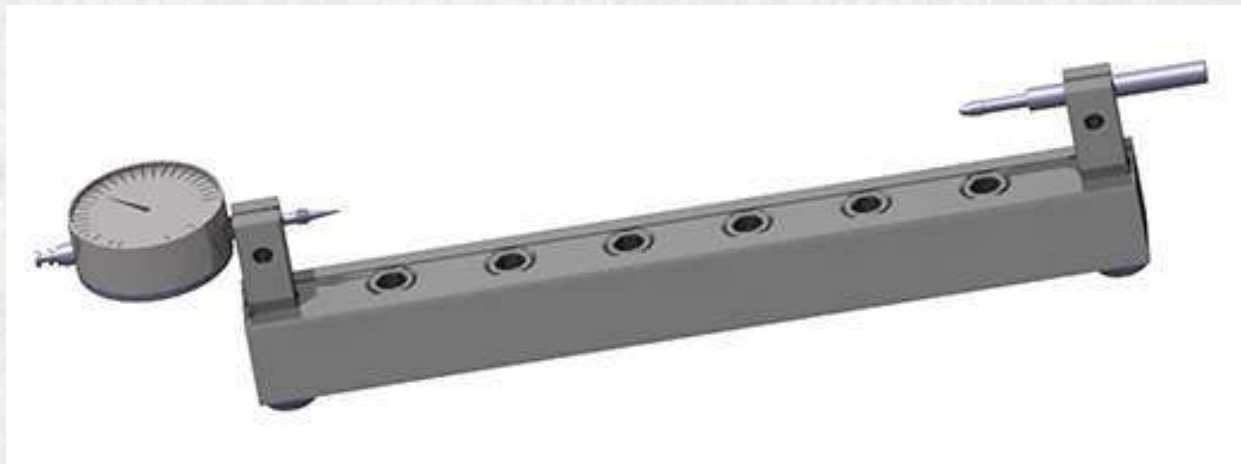
Depth Gauge

- Customized gauge to measure the depth.



Bar Gauge

- Bar gauge is used to measure diameter variation of big rings.
- Usually manufactured in range of 300 mm, 400 mm & 600 mm.



Diameter Gauge



Diameter Gauge
Ø10 - 80



Diameter Gauge
Ø60 - 130



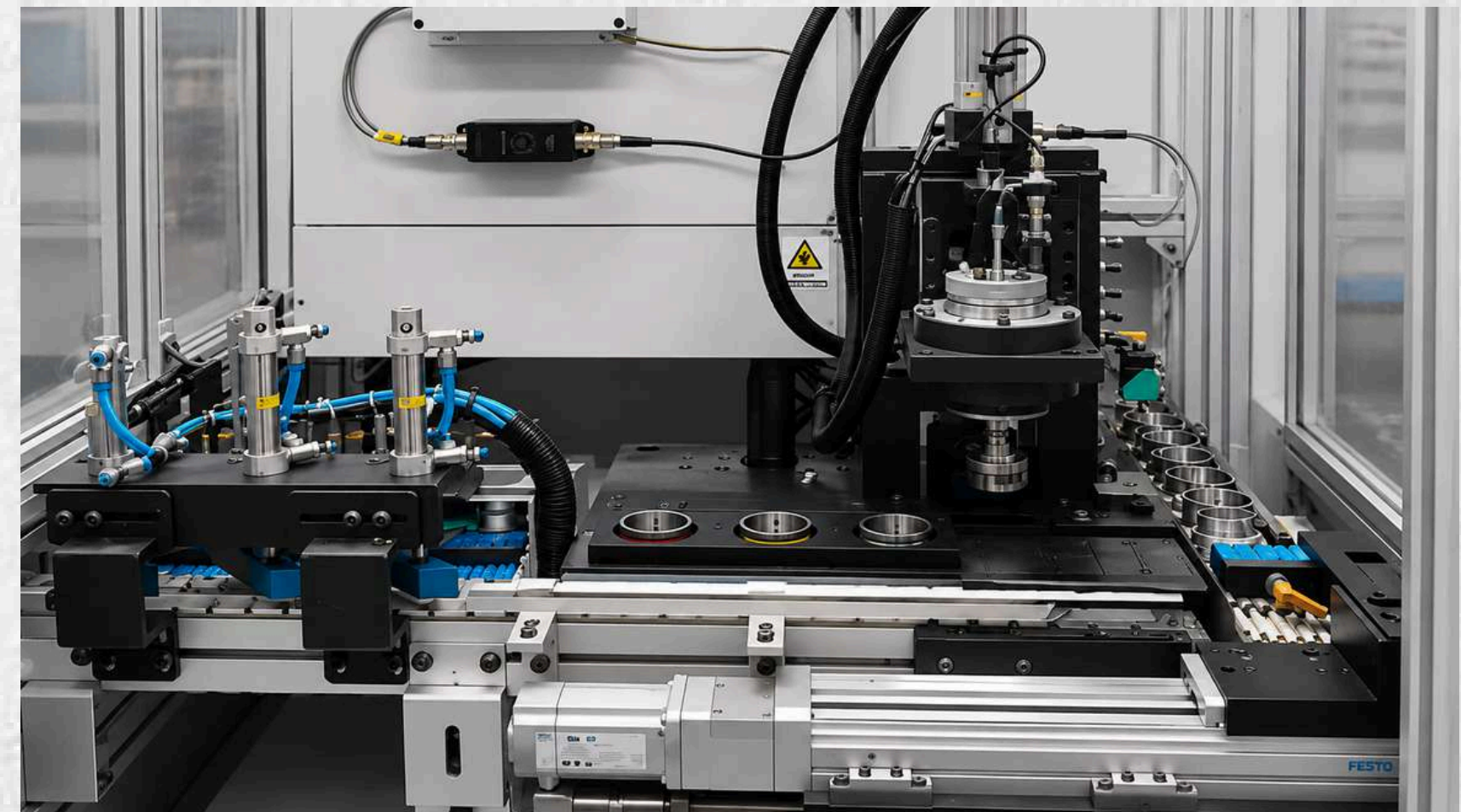
Diameter Gauge
Ø110 - 180

**CL
Automatic
Machine**

Auto Bore Gauge

- measuring machine used to check the inner diameter (bore size) of a bearing inner ring
- Checks proper fitting on shaft
- Gives fast and accurate measurement

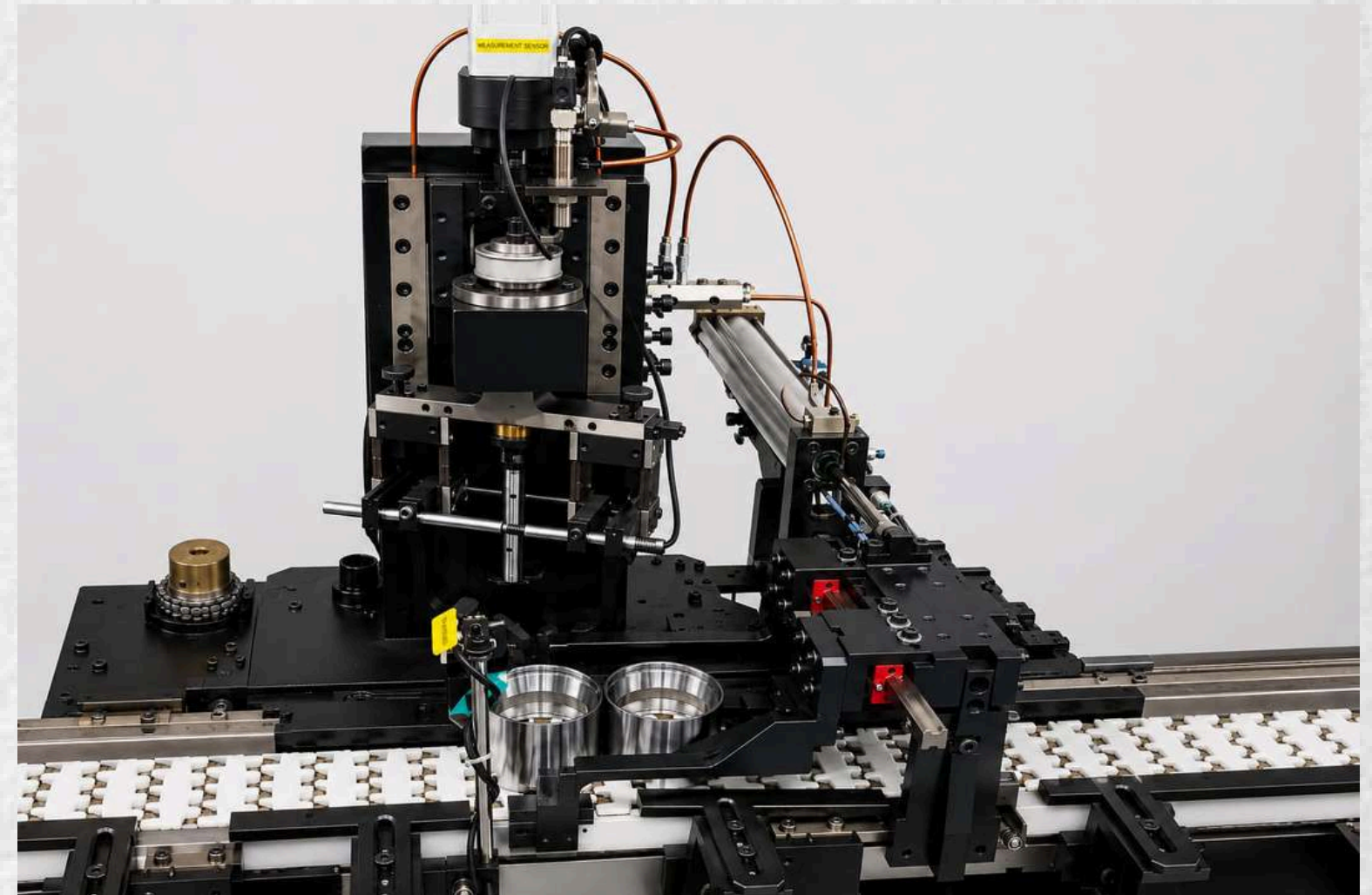
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



OD Poka Yoke

- Measures outer diameter of ring
- This machine takes reading from 3 different points
- Takes average of that 3 different readings

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



OD Width

- Measures outer diameter and ring width
- Checks both dimensions in one machine
- Provides fast and accurate measurement

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Width Measurement

- Measures bearing ring width accurately
- Ensures proper fitting and alignment in assembly
- Helps maintain smooth bearing performance

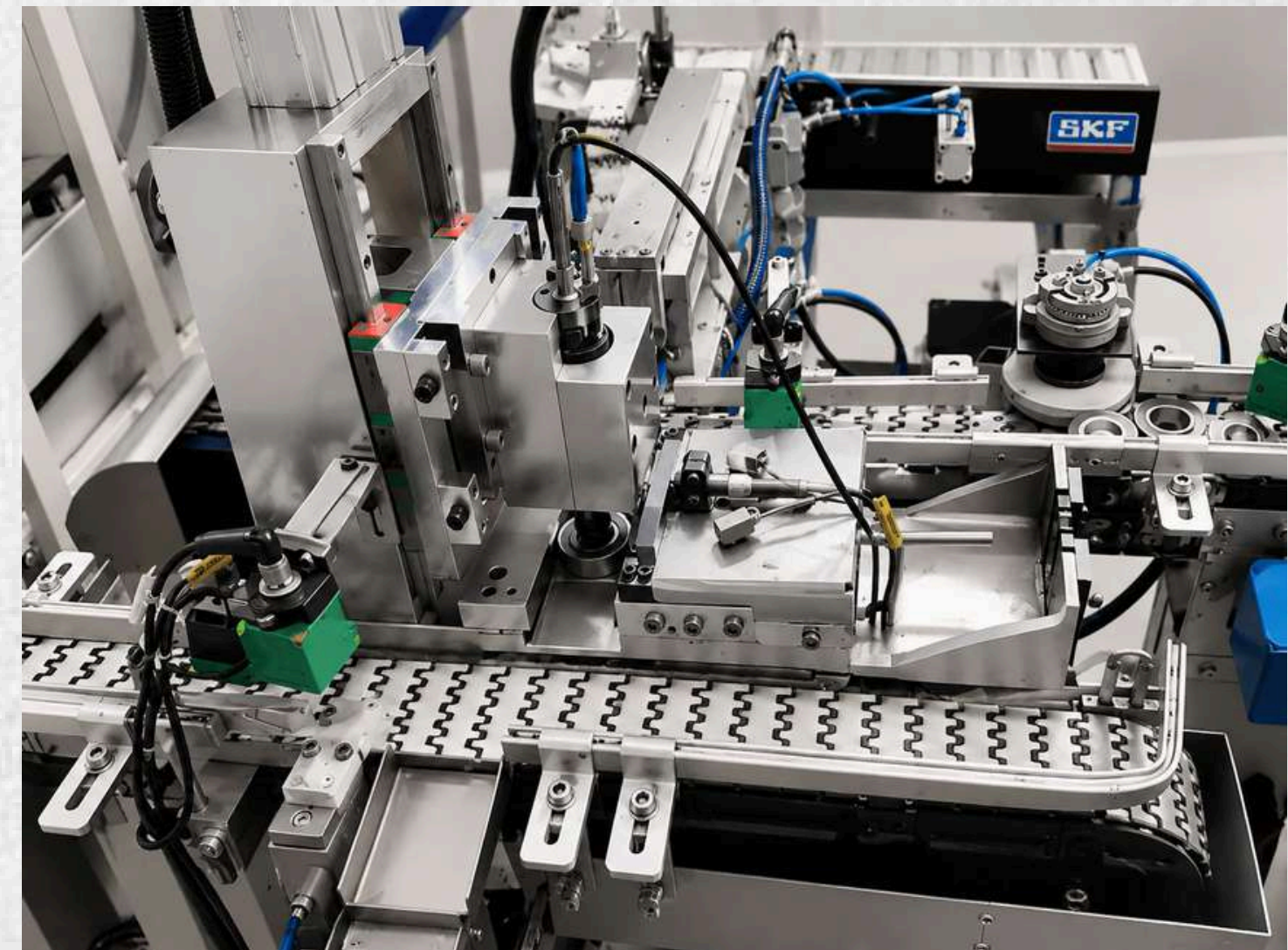
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



End of Line

- Checks bearing OD and width after assembly
- Ensures correct size before packaging
- Helps avoid defective bearing dispatch
- Used for final quality inspection before shipment

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Pre-Processor Machine

- Measures ring OD and width before grinding
- Segregates rings according to size
- Ensures correct ring selection for grinding
- Helps maintain grinding accuracy and quality

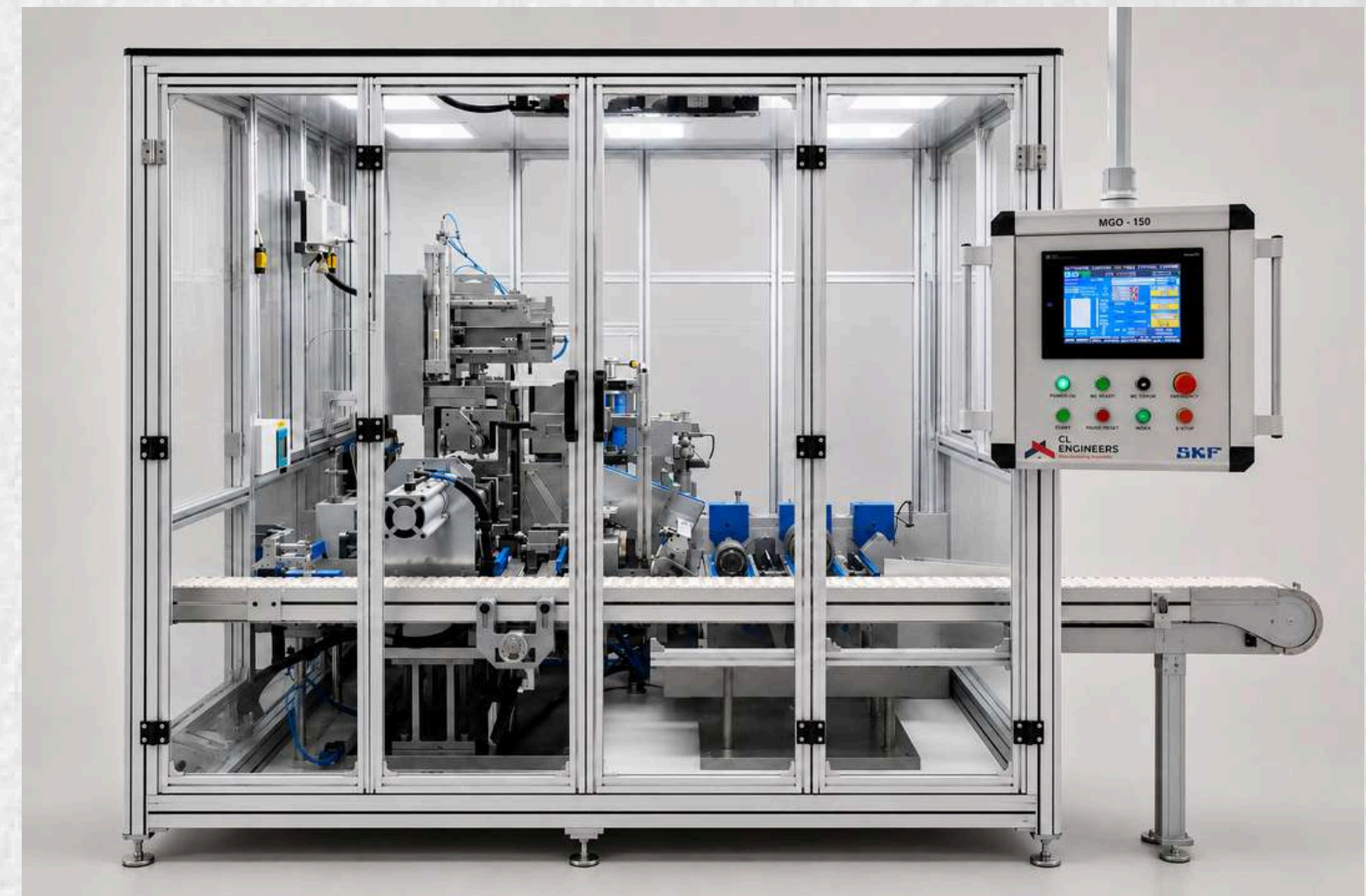
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Radial Clearance

- Measures radial clearance in bearing
- Checks gap between ball and ring
- Ensures smooth bearing performance
- Used for bearing quality inspection

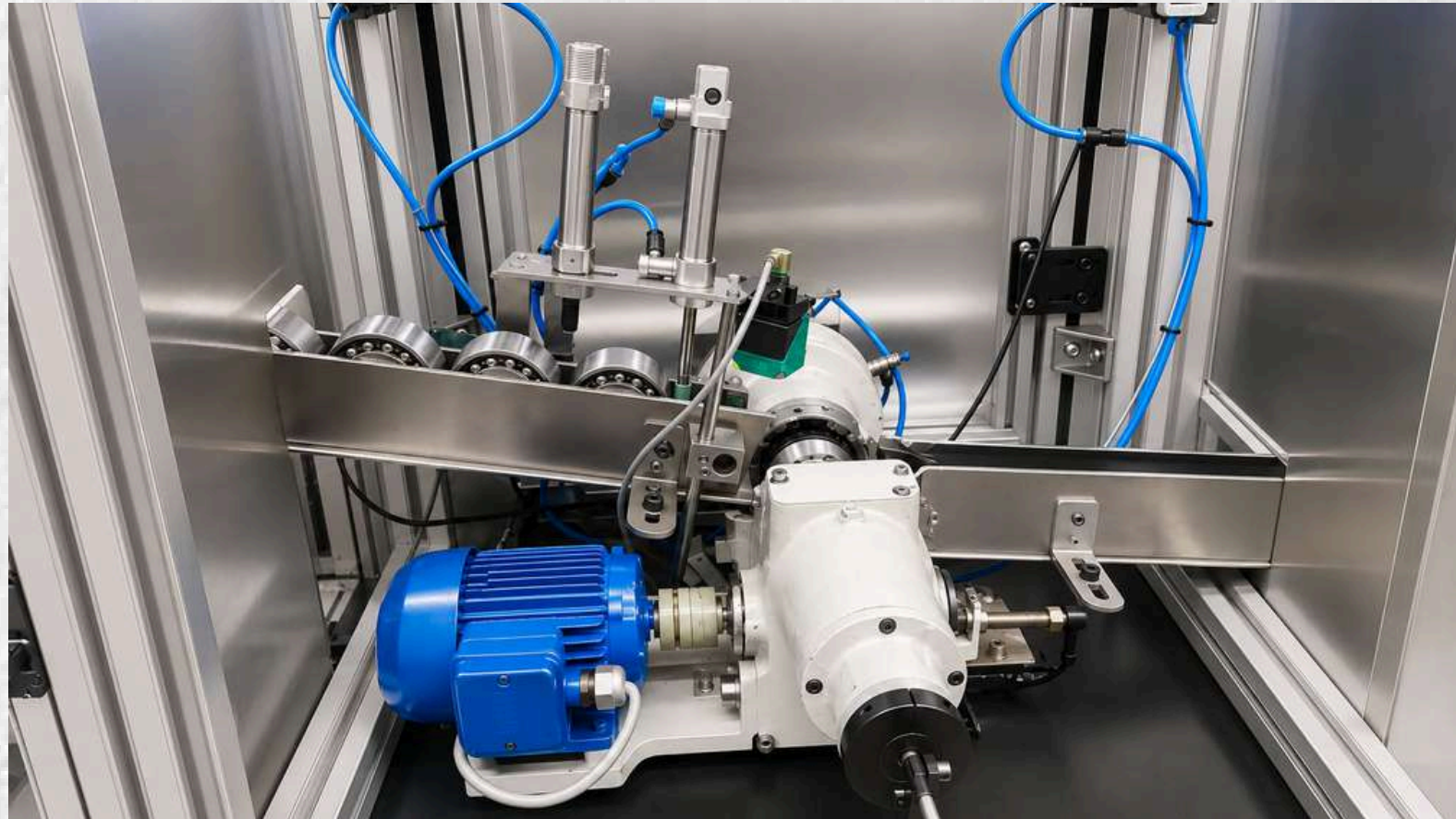
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Auto Axial Clearance

- Measures axial difference between inner and outer ring
- Checks proper ring position and alignment
- Ensures correct bearing assembly quality
- Used for final bearing inspection

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Missing Ball & rivets checking Machine

- Detects missing balls and rivets in bearing
- Checks breaking or resistance in bearing
- Ensures correct bearing assembly quality
- Used in final quality inspection before dispatch

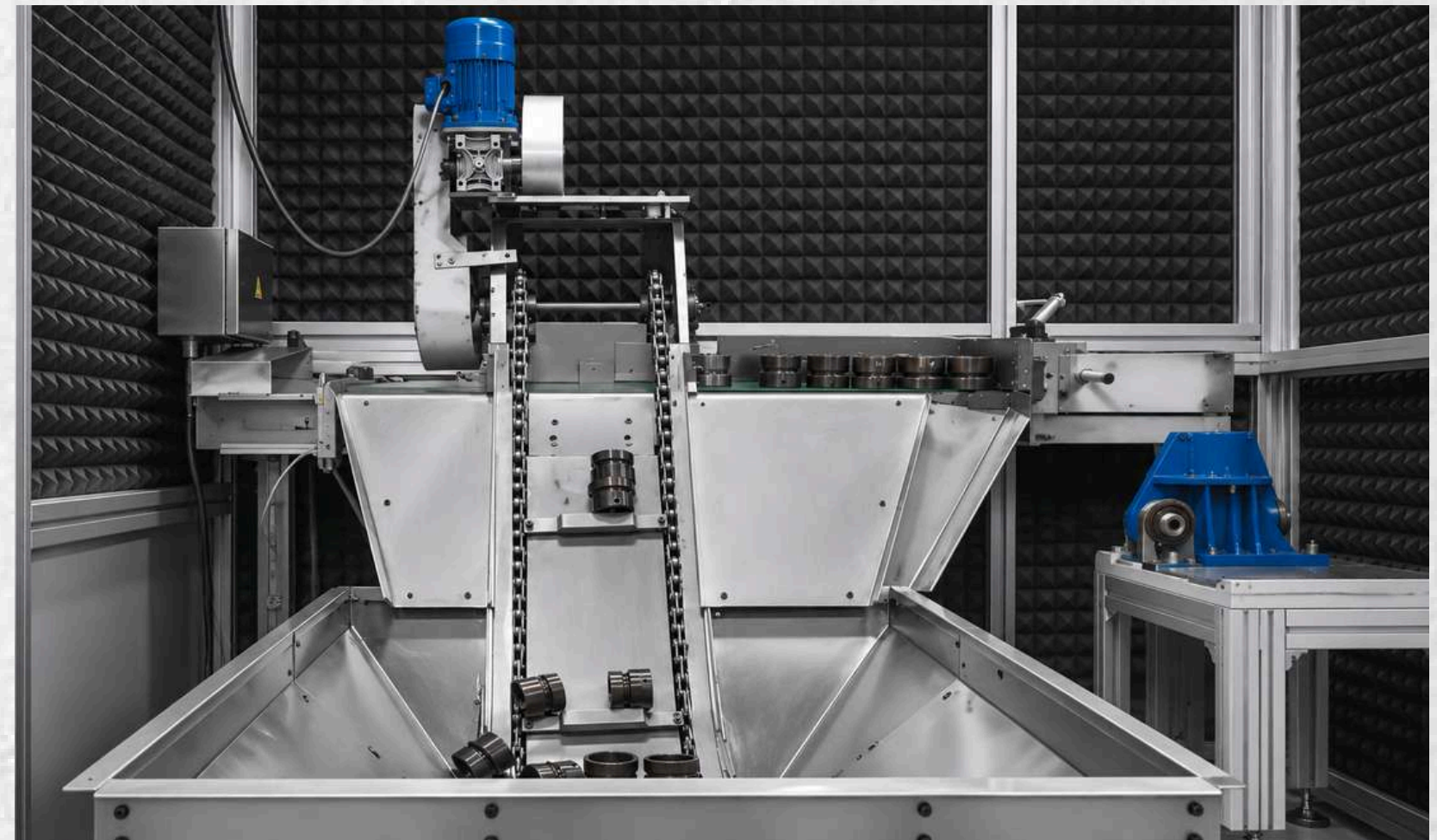
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Loader Machine

- Automatically loads bearing rings
- Checks ring width during loading
- Allow only correct rings for grinding
- Improves speed and process efficiency

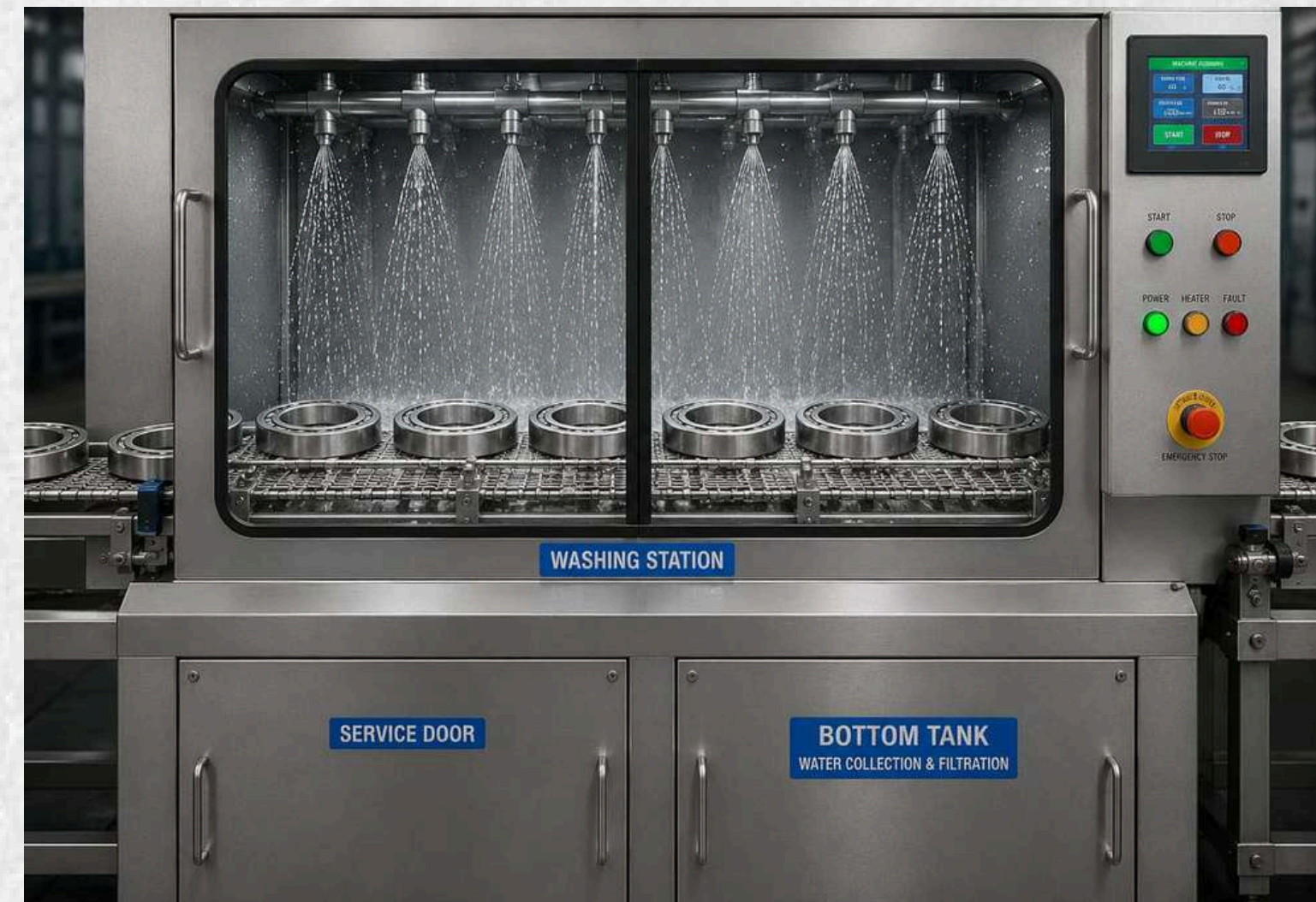
	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Washing Machine

- Washes bearing rings with water before grinding
- Removes dust and fine particles
- Prevents contamination with oil during grinding
- Ensures clean surface for better machining quality

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



NDT Machine

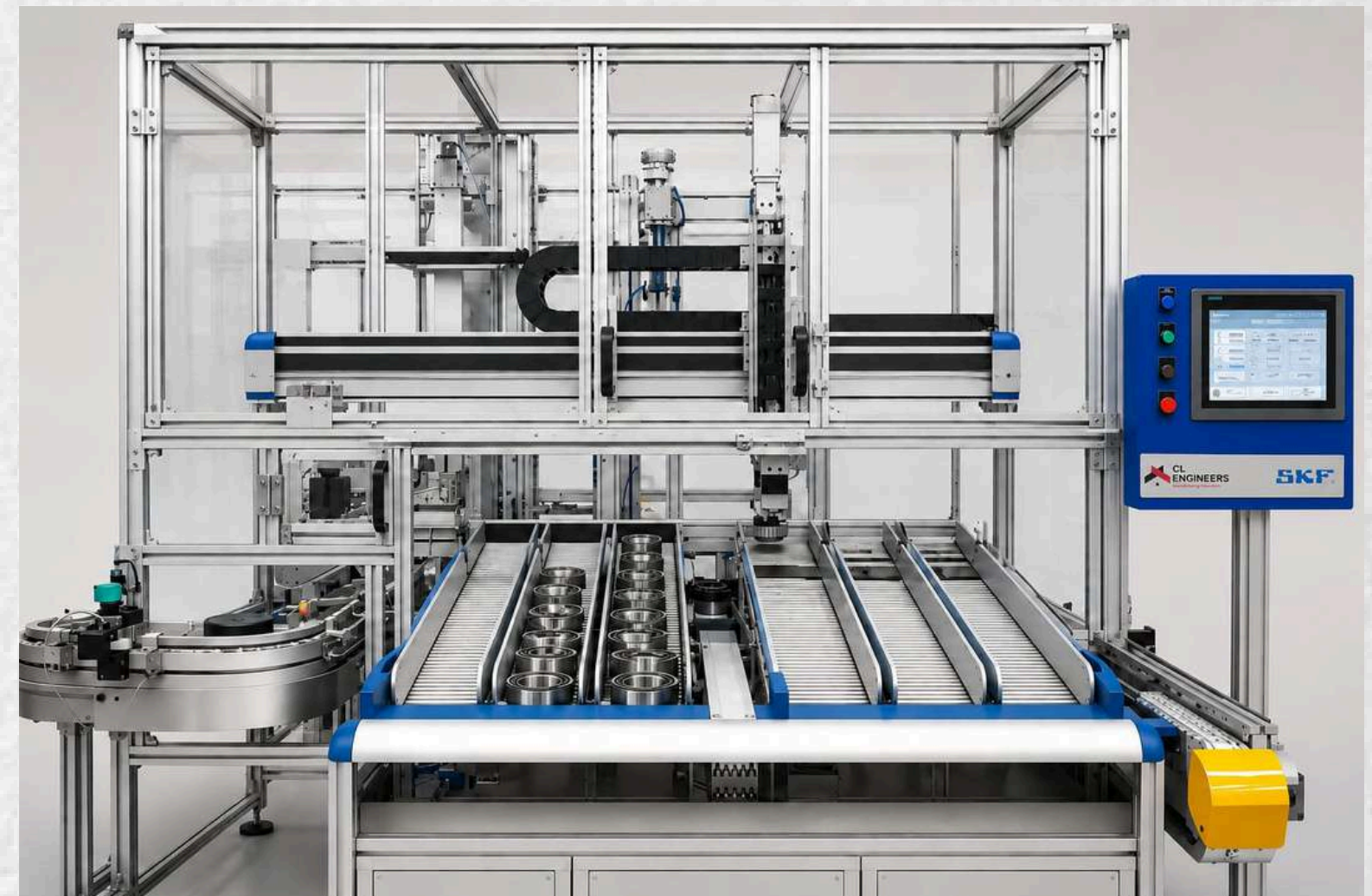
- Detects cracks and defects in bearings rings
- Checks quality without damaging parts
- Ensures only good rings move forward
- Reduces rejection and bearing failure chances

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



X Y Gantry System

- Automatically loads and unloads cup & cone
- Picks rings from conveyor line
- Places them accurately on inspection table
- Ensures smooth handling and improved process efficiency

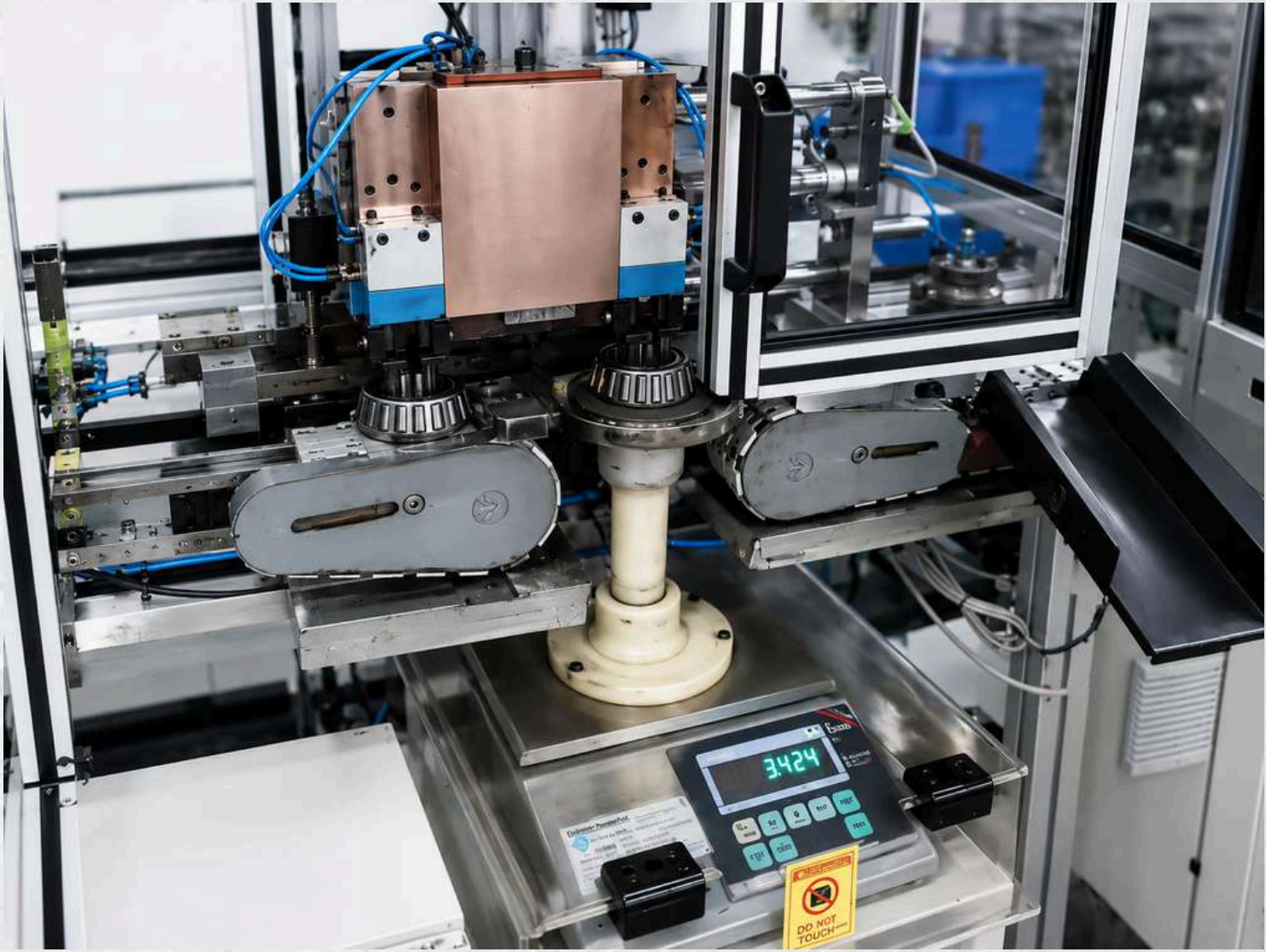


	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required

Weighing Poka Yoke

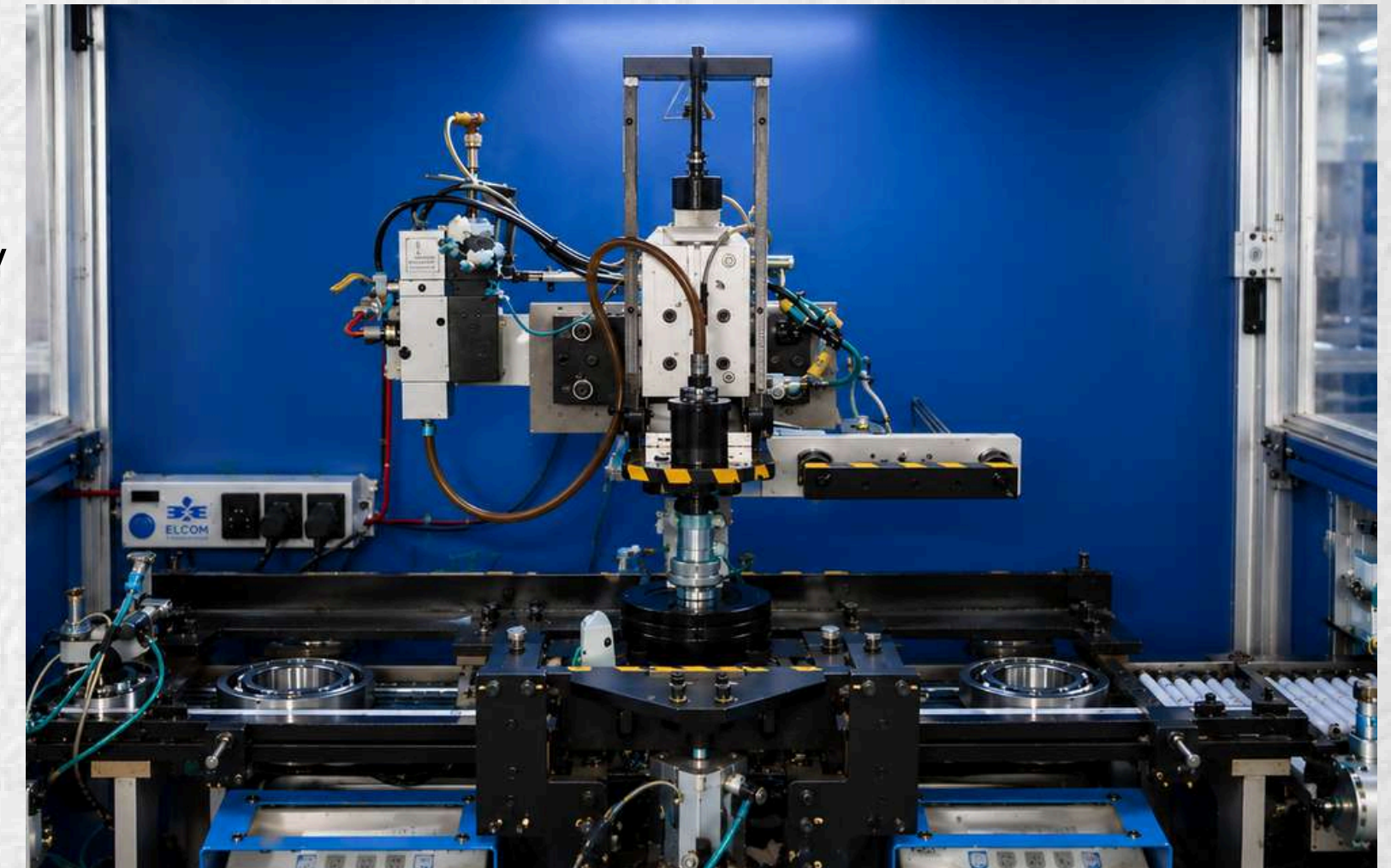
- Measure weight of bearing
- Picks bearing from conveyor line
- Places them on weighing platform
- On weight we can find is any ball, roller , cage etc missing or not

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required



Auto Greasing Machine

- Automatically fill grease in bearing
- Bearing get fix below grease inlet
- Bearing get start rotation once place on point
- Grease get added in bearing uniformly automatically and stop once cycle complete



	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required

Ball Filling Machine

- Single station for 2 process ball filling or roller filling & Cage Pressing
- Rotational platform movement for one by one bearing shifting
- Auto ball size taken according IR and OR ring size

	Range in mm	Custom Range in mm
Diameter	0 - 150 mm	150 mm & Above
Width	0 - 30 mm	30 mm & Above
Repeatability	within 1 micron	within 1 micron
R & R Value	Below 10 or as required	Below 10 or as required

