

# STEEL RING GAUGE



HOW TO MOVE

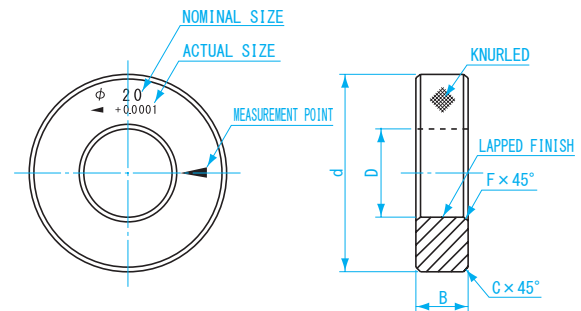
Master ring gauge for internal diameter measurement. A wide range of sizes are in stock while custom size ring gauge is also available upon request.

**SUB-ZERO (Cryogenic hardened) TREATMENT**  
**STABILIZATION TREATMENT**  
**LAPPED FINISH**

<p>Carbide for durable and long life ▶ Carbide Ring Gauge <b>P71</b></p>	<p>Free from rust and corrosion ▶ Ceramic Ring Gauge <b>P71</b></p>
<p>Non-slip and easy to handle ▶ Ring Gauge with Protective Cover <b>P72</b></p>	<p>For Serial No. Management ▶ Laser Marking <b>P120</b></p>
<p>Rust prevention ▶ Zerust Film for Steel <b>P380</b></p>	



## ● DIMENSIONS



### USE

- As a master ring gauge for "0" adjustment of measuring instruments such as bore gauge, inside micrometer, dial caliper, etc.

### MATERIAL

- Alloy tool steel

### FEATURES

- Provided with inspection report

### SPECIFICATIONS

Size (mm)	Step (mm)	Out of Roundness (μm)	Diameter Inequality (μm)	Tolerance (μm)	Hardness (HV)
1 to 30	0.1 step	0.5	1.0	± 1.0	653 } 772
Over 30 to 50		0.8	1.6	± 1.5	
Over 50 to 60	0.5 step	1.0	2.0	± 2.0	
Over 60 to 80					
Over 80 to 100					
Over 100 to 200					

- Surface roughness: Within Ra0.1μm
- Squareness: 0.05 / φ100
- Parallelism: Within 0.015mm

### <Standard Size List>

Size (mm)	Step (mm)	Size (mm)
1 to 50	0.1 step	1.0•1.1•1.2•1.3•1.4•1.5•1.6•1.7•1.8•1.9•2.0•2.1•2.2•2.3•2.4•2.5•2.6•2.7.....50.0
		50.5•51.0•51.5•52.0•52.5•53.0•53.5•54.0•54.5•55.0•55.5•56.0•56.5•57.0•57.5.....100.0
Over 50 to 100	0.5 step	105.0•110.0•115.0•120.0•125.0•130.0•135.0•140.0•145.0•150.0•155.0•160.0•165.0.....200.0

### Size List

※ Reference value

Size D (mm)	Outside Diameter d (mm)	Thickness B (mm)	Chamfering for outside diameter C (mm) <sup>a</sup>	Chamfering for inside diameter F (mm) <sup>b</sup>	Remarks	Weight
1 to 2.5	22	4	0.4	0.3	Knurled	10g
Over 2.5 to 5		5				10g
Over 5 to 10	32	8	0.8	0.5		50g
Over 10 to 15	38	10				80g
Over 15 to 20	45	12	1.2	1.0		100g
Over 20 to 25	53	14				200g
Over 25 to 32	63	16	1.5	1.5		300g
Over 32 to 40	71	18				400g
Over 40 to 50	85	20	2.0	2.0		600~700g
Over 50 to 60	100	24				0.9~1.1kg
Over 60 to 70	112		30	1.1~1.3kg		
Over 70 to 80	125	35		1.4~1.6kg		
Over 80 to 90	140		38	1.7~1.9kg		
Over 90 to 100	160	40		2.3~2.6kg		
Over 100 to 110	180		2.4	3.7~4.1kg		
Over 110 to 120	190	2.0		4.7~5.1kg		
Over 120 to 130	200		2.0	5.0~5.5kg		
Over 130 to 140	210	2.0		5.7~6.3kg		
Over 140 to 160	230		2.0	6.6~8.2kg		
Over 160 to 180	260	2.0		8.6~10kg		
Over 180 to 200	280		2.0	9.4~11kg		

# STEEL RING GAUGE LARGE SIZE



MTO product



HOWTO MOVE

Up to 520mm manufacturable. Custom size ring gauge is also available upon request.

## SUB-ZERO (Cryogenic hardened) TREATMENT STABILIZATION TREATMENT

■ Provided with aluminum case



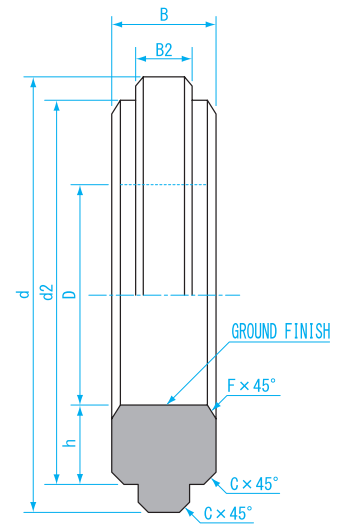
### MATERIAL

- Alloy tool steel

### FEATURES

- Provided with inspection report

### ● DIMENSIONS



### SPECIFICATIONS

Size (mm)	Step (mm)	Out of Roundness (μm)	Diameter Inequality (μm)	Tolerance (μm)	Hardness (HV)
Over 200 to 230	5.0 step	5.0	10.0	± 7.0	653 772
Over 230 to 300	10.0 step			± 8.0	
Over 300 to 400				± 9.0	
Over 400 to 500				± 10.0	
Over 500 to 520					

- Surface roughness: Within Ra0.2μm
- Squareness: 0.1/φ450
- Parallelism: Within 0.025mm

### Size List

※ Reference value

Size D (mm)	Outside Diameter (mm)		Thickness (mm)		h (mm)	Chamfering for outside diameter C (mm)*	Chamfering for inside diameter F (mm)*	Remarks	Weight (kg)
	d	d2	B	B2					
Over 200 to 230	310	250~270	45	25	20	2.0	2.5	NOT Knurled	9~10
Over 230 to 260	340	280~300							11~14
Over 260 to 290	370	310~330							11~13
Over 290 to 320	400	340~360							12~14
Over 320 to 360	440	380~410							14~16
Over 360 to 400	480	420~450							15~18
Over 400 to 450	540	460~500	50	25	25	2.5	NOT Knurled	19~24	
Over 450 to 500	600	510~550						23~29	
Over 500 to 520	660	560~600						27~33	

Order No.	Size (mm)
420500	205.0
421000	210.0
421500	215.0
422000	220.0
422500	225.0
423000	230.0
424000	240.0
425000	250.0
426000	260.0
427000	270.0
428000	280.0
429000	290.0
430000	300.0
431000	310.0
432000	320.0
433000	330.0
434000	340.0
435000	350.0

Order No.	Size (mm)
436000	360.0
437000	370.0
438000	380.0
439000	390.0
440000	400.0
441000	410.0
442000	420.0
443000	430.0
444000	440.0
445000	450.0
446000	460.0
447000	470.0
448000	480.0
449000	490.0
450000	500.0
451000	510.0
452000	520.0

## STEEL RING GAUGE SET



MTO product



HOWTO MOVE

Ring gauge set consist of frequently-used sizes

**SUB-ZERO (Cryogenic hardened) TREATMENT**  
**STABILIZATION TREATMENT**  
**LAPPED FINISH**

• For detailed accuracy and specification, please refer to Page 68 - STEEL RING GAUGE

Rust prevention ▶  
 Zerust Film for Steel  
  
**P380**



Order No.	Model No.	Nominal Size	Pieces per set	Weight (Including case)
400001	RG-1S	1.0 · 1.5 · 2.0 · 2.5 · 3.0 · 4.0 · 5.0 · 6.0 · 7.0 · 8.0 · 9.0 · 10.0	12	0.85kg
400002	RG-2S	11.0 · 12.0 · 13.0 · 14.0 · 15.0 · 16.0 · 17.0 · 18.0 · 19.0 · 20.0 · 22.0 · 24.0	12	2.45kg
400003	RG-3S	25.0 · 26.0 · 27.0 · 28.0 · 30.0 · 32.0 · 34.0 · 35.0 · 36.0 · 37.0 · 38.0 · 40.0	12	5.80kg
400004	RG-4S	42.0 · 44.0 · 45.0 · 46.0 · 47.0 · 48.0 · 50.0	7	5.85kg
400005	RG-5S	52.0 · 54.0 · 55.0 · 56.0 · 58.0 · 60.0 · 65.0	7	9.75kg
400006	RG-6S	68.0 · 70.0 · 75.0 · 80.0	4	6.85kg
400007	RG-7S	85.0 · 90.0 · 95.0 · 100.0	4	10.7 kg

BLOCK GAUGE

PIN GAUGE

PIN VISE

PIN GAUGE ACCESSORIES

RING GAUGE

PLUG GAUGE

LIMIT GAUGE

THICKNESS GAUGE

TAPER GAUGE

WELDING GAUGE

OTHER GAUGES

## STEEL RING GAUGE WITH MAINTENANCE LINE



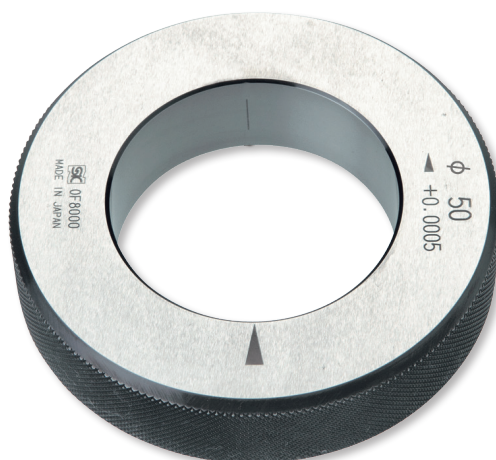
MTO product



HOWTO MOVE

Maintenance line series ring gauge now available

Rust prevention ▶  
 Zerust Film for Steel  
  
**P380**



Custom Sizes Available

Please contact us for inquiry

### MATERIAL

- Alloy tool steel

### FEATURES

- Maintenance line on steel ring gauge allows easy checking for gauge wear-out
- When line disappears, wear is more than 1μm
- Available for sizes: 15~50mm (1mm step)
- Provided with inspection report

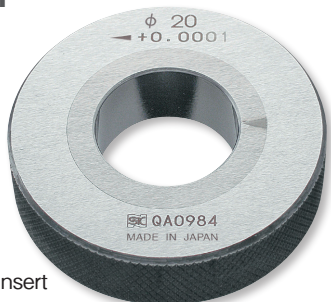
## CARBIDE RING GAUGE



HOWTO MOVE

Inner ring made of carbide, highly-durable material

### LAPPED FINISH



#### MATERIAL

- Steel with carbide insert

#### FEATURES

- Durable and long life
- The coefficient of thermal expansion is small (1/2 of steel,  $5 \times 10^{-6}/K$ ), so better tolerates temperature changes
- Less likely to be damaged due to high hardness
- Economical- Frequent periodic calibration not required
- Provided with inspection report

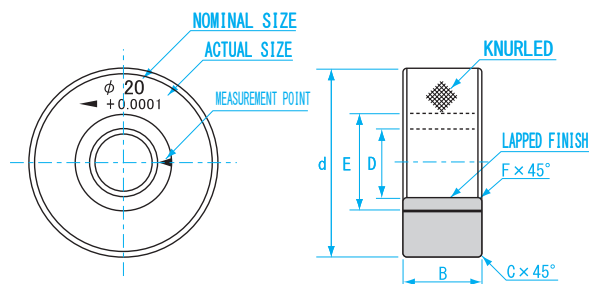
#### SPECIFICATIONS

Size (mm)	Step (mm)	Out of Roundness (μm)	Diameter Inequality (μm)	Tolerance (μm)	Hardness (HV)
1 to 30	0.5 step	0.5	1.0	±1	1,200
Over 30 to 50		0.8	1.6	±1.5	

- Surface roughness: Within Ra0.1μm
- Squareness: 0.05/φ100
- Parallelism: Within 0.015mm

Sizes available: 1.0 ~ 50.0mm (Please contact us with request)

#### ● DIMENSIONS



#### Size List

※ Reference value

Size D (mm)	Diameter of Carbide part E (mm)	Outside Diameter d (mm)	Thickness B (mm)	Chamfering for outside Diameter C (mm) <sup>1)</sup>	Chamfering for inside Diameter F (mm) <sup>2)</sup>
1 to 2.5	8	22	4	0.4	0.3
Over 2.5 to 5	11		5		
Over 5 to 10	16	32	8	0.8	0.5
Over 10 to 15	21	38	10	1.2	
Over 15 to 20	28	45	12	1.5	1.0
Over 20 to 25	33	53	14		
Over 25 to 32	40	63	16	2.0	
Over 32 to 40	50	71	18		
Over 40 to 50	60	85	20		

## CERAMIC RING GAUGE



HOWTO MOVE

Made of highly-durable material. Less affected by thermal expansion as well as free from rust.

### LAPPED FINISH



#### MATERIAL

- Ceramics

#### FEATURES

- Ceramic material is less susceptible to abrasion and aged deterioration than steel
- Free from rust and corrosion, and easy maintenance
- Non-magnetic body
- Does not deform with damage, resists scratches and forming burrs
- Lightweight and easy handling
- Size is laser marked
- Provided with inspection report

#### Material Data

List	Material	Ceramics (Zirconia)
Specific Gravity	—	6
Hardness	HV	1,250
Bending strength	MPa	1,000
Young's Modulus	GPa	200
Coefficient of thermal expansion	$10^{-6}/K$	7~8
Heat conductivity	W/m·K	3

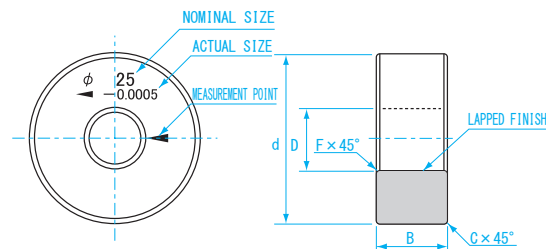
Sizes available: 3.0 ~ 50.0mm (Please contact us with request)

#### SPECIFICATIONS

Size (mm)	Step (mm)	Out of Roundness (μm)	Diameter Inequality (μm)	Tolerance (μm)
3 to 30	0.5 step	0.5	1.0	±1
Over 30 to 50		0.8	1.6	±1.5

- Surface roughness: Within Ra0.1μm
- Squareness: 0.05/φ100
- Parallelism: Within 0.015mm

#### ● DIMENSIONS



#### Size List

※ Reference value

Size D (mm)	Outside Diameter d (mm)	Thickness B (mm)	Chamfering for outside diameter C (mm) <sup>1)</sup>	Chamfering for inside diameter F (mm) <sup>2)</sup>
3 to 10	32	8	0.8	0.5
Over 10 to 15	38	10	1.2	
Over 15 to 20	45	12		1.5
Over 20 to 25	53	14		
Over 25 to 32	63	16	2.0	
Over 32 to 40	71	18		
Over 40 to 50	85	20		

## RING GAUGE WITH PROTECTIVE COVER



MTO product

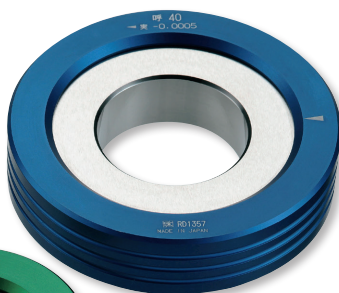
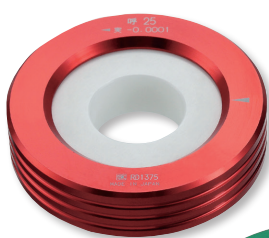


HOWTO MOVE

No-slip and easy to handle, will increase productivity

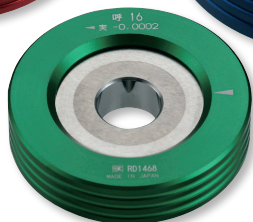
### LAPPED FINISH

CERAMIC RING GAUGE  
(with protective cover)



STEEL RING GAUGE  
(with protective cover)

CARBIDE RING GAUGE  
(with protective cover)



#### MATERIAL

- Protective cover: Anodized aluminum
- Gauge: Steel / Carbide / Ceramic

#### FEATURES

- A ring gauge embedded in Aluminum Protective Cover
- Covered gauge is easier to handle with dirty hands Less susceptible to thermal expansion when holding a gauge by hand
- Less susceptible to thermal expansion when holding a gauge by hand
- Protects from chipping when dropped
- Provided with inspection report

#### SPECIFICATIONS

Size (mm)	Step (mm)	Out of Roundness (μm)	Diameter Inequality (μm)	Tolerance (μm)
1 to 2 (Steel & Carbide only)	1.0 step	0.5	1.0	±1
Over 2 to 30				
Over 30 to 50		0.8	1.6	±1.5

- Surface roughness: Within Ra0.1 μm

Rust prevention ▶  
Zerust Film for Steel  
  
P380

BLOCK GAUGE

PIN GAUGE

PIN VISE

PIN GAUGE ACCESSORIES

RING GAUGE

PLUG GAUGE

LIMIT GAUGE

THICKNESS GAUGE

TAPER GAUGE

WELDING GAUGE

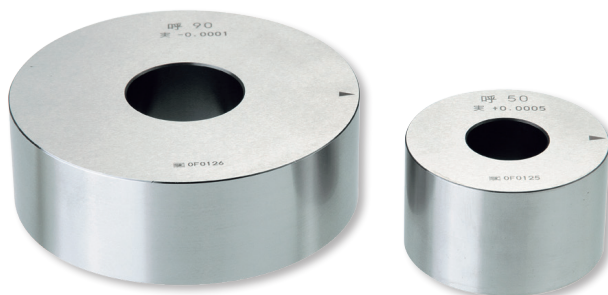
OTHER GAUGES

## STEEL RING GAUGE OD MODEL

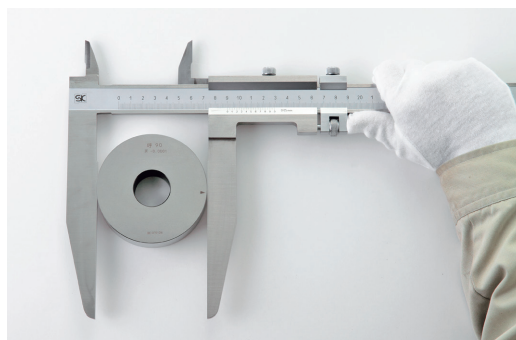


MTO product

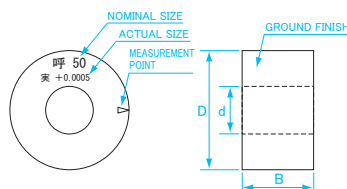
Available from φ 40-400mm. Simple calibration or 0 adjustment of outside measuring instrument.



Rust prevention ▶  
Zerust Film for Steel  
  
P380



#### ● DIMENSIONS



#### SPECIFICATIONS

SizeD (mm)	OD tolerance (μm)	Out of Roundness (μm)	Diameter Inequality (μm)	Thickness (mm)	Hole Diameter (mm)
40 to 50	±3	1.5	3	30	20
Over 50 to 70	±5	2.5	5		30
Over 70 to 100					40
Over 100 to 150					50
Over 150 to 200	±10	5	10		80
Over 200 to 300					160
Over 300 to 350					200
Over 350 to 375					250
Over 375 to 400					

#### USE

- For quick calibration of micrometer

#### MATERIAL

- Alloy tool steel

#### FEATURES

- Custom sizes are available up to φ400
- Size range: 40~400mm
- Provided with inspection report

#### SPECIFICATIONS

- Hardness: HV653~772

## SPECIAL SHAPE - MULTIPLE-STEP GAUGE

MTO product

## USE

- For quick calibration of micrometers (0~25mm)

## MATERIAL

- Alloy tool steel

## FEATURES

- OD pitch: 5·10·15·20·25mm Integrated type gauge



※Sample image

Custom Designs Available

Please contact us for inquiry

## SPECIAL SHAPE - MULTIPLE-STEP GAUGE / OD MODEL

MTO product

## USE

- For calibration or 0 adjustment

## MATERIAL

- Alloy tool steel

## FEATURES

- Size combination is arranged on request



※Sample image

Custom Designs Available

Please contact us for inquiry



BLOCK GAUGE

PIN GAUGE

PIN VISE

PIN GAUGE ACCESSORIES

RING GAUGE

PLUG GAUGE

LIMIT GAUGE

THICKNESS GAUGE

TAPER GAUGE

WELDING GAUGE

OTHER GAUGES

## SPECIAL SHAPE - STEP GAUGE / ID MODEL

MTO product

## USE

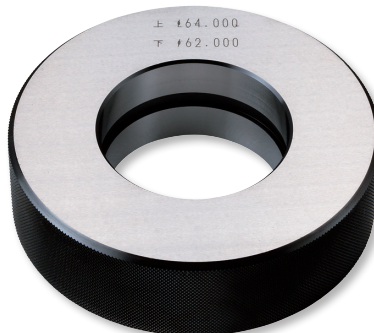
- For 0 adjustment of dial bore gauge

## MATERIAL

- Alloy tool steel

## FEATURES

- Size combination is arranged on request



※Sample image

Custom Sizes Available

Please contact us for inquiry

## SPECIAL SHAPE - CUT OUT

MTO product

## MATERIAL

- Alloy tool steel

## FEATURES

- The special shape allows to hold the ring gage with a fixture to prevent the gauge from moving



※Sample image

Custom Designs Available

Please contact us for inquiry