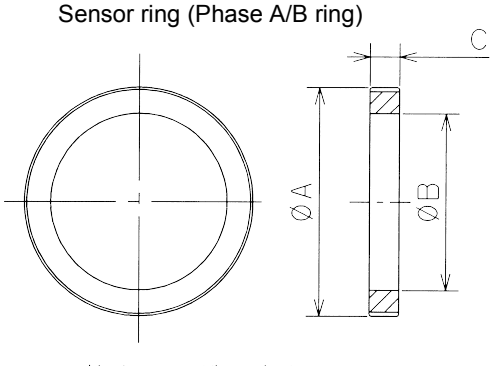
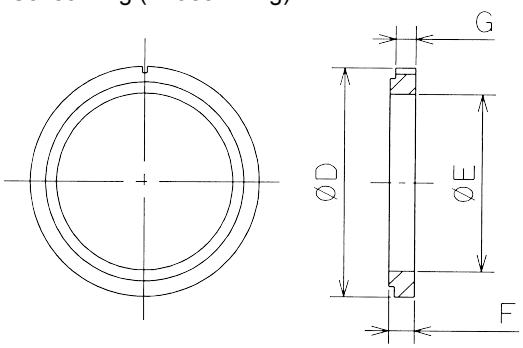
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Sensor rings

Sensor ring (Phase A/B ring)



Sensor ring (Phase Z ring)



Dimensions of sensor rings

	Phase A/B ring			Phase Z ring			
	ϕA	ϕB	C	ϕD	ϕE	F	G
Ring 1, 2	52 $^{+0.0}_{-0.020}$	40 $^{+0.016}_{-0.0}$	10±0.1	52 $^{+0.0}_{-0.020}$	40 $^{+0.016}_{-0.0}$	8.6±0.1	6.7
Ring 3, 4	103.2 $^{+0.0}_{-0.020}$	82 $^{+0.0}_{-0.018}$	10±0.1	103.2 $^{+0.0}_{-0.020}$	82 $^{+0.0}_{-0.018}$	8.6±0.1	6.7
Ring 5	154.4 $^{+0.0}_{-0.020}$	125 $^{+0.025}_{-0.0}$	10±0.1	154.4 $^{+0.0}_{-0.020}$	125 $^{+0.025}_{-0.0}$	8.6±0.1	6.7
Ring 6	205.6 $^{+0.0}_{-0.020}$	160 $^{+0.020}_{-0.005}$	10±0.1	205.6 $^{+0.0}_{-0.020}$	160 $^{+0.020}_{-0.005}$	8.6±0.1	6.7

For the dimensions of sensors, see "[α*i*BZ sensor]" above.

NOTE
- Press fit the rings around a sleeve then assemble the sleeve with the spindle.
- A used ring can be reused only once.
- The circumference of a ring has special teeth. Therefore, be careful not to deform or chip the circumference by external force.
- Check the sensor output signal. For the adjustment of the output signal, refer to Part II, "INSTALLATION," of "FANUC BUILT-IN AC SPINDLE MOTOR αi series DESCRIPTIONS (B-65292EN)."

Maximum speed of sensor rings

Ring	Ring 1	Ring 2	Ring 3	Ring 4	Ring 5	Ring 6
Sensor specification number	T201	T211	T401	T411	T511	T611
Number of teeth	128	128	256	256	384	512
Max. speed (min^{-1})	20,000	70,000	15,000	30,000	15,000	10,000

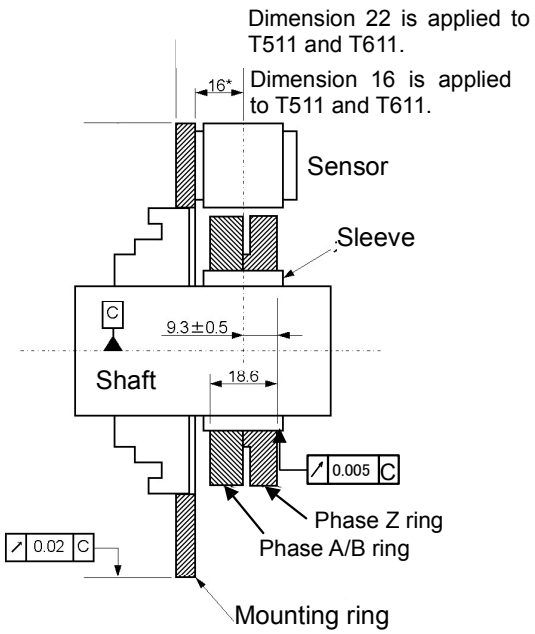
NOTE
- The interference for shrink fitting varies, depending on the maximum speed used. When designing sensor rings, see " Installing the α*i*BZ sensor"

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Installing the αiBZ sensor (conventional dimensions)

Install ring A and ring B as shown below.

- Press fit the rings around the sleeve then press fit the sleeve around the shaft. Contact the phase A/B ring with phase Z ring.
- Mount the sensor so that the distance between the mid point of the thickness of the stack of the phase A/B ring and phase Z ring (9.3 mm) and the center of the sensor is within ±0.5 mm.
- The runout of the sleeve to the center of the shaft must be within 0.005 mm.
- The runout of the mounting ring to the center of the shaft must be within 0.02 mm.



Interference

The table below indicates the interference of the sensor rings at each maximum speed.

Unit: μm

Maximum speed (min^{-1})	T201	T211	T401	T411	T511	T611
	Ring 1	Ring 2	Ring 3	Ring 4	Ring 5	Ring 6
3000	ϕ6 to ϕ32	ϕ6 to ϕ32	ϕ7 to ϕ35	ϕ7 to ϕ35	ϕ8 to ϕ43	ϕ11 to ϕ41
3500	↓	↓	↓	↓	ϕ9 to ϕ44	ϕ13 to ϕ43
4500	↓	↓	↓	↓	ϕ11 to ϕ46	ϕ19 to ϕ49
6000	↓	↓	ϕ9 to ϕ37	ϕ9 to ϕ37	ϕ15 to ϕ50	ϕ29 to ϕ59
8000	↓	↓	ϕ11 to ϕ39	ϕ11 to ϕ39	ϕ24 to ϕ59	ϕ47 to ϕ77
10000	↓	↓	ϕ14 to ϕ42	ϕ14 to ϕ42	ϕ35 to ϕ70	ϕ71 to ϕ101
12000	ϕ7 to ϕ33	ϕ7 to ϕ33	ϕ18 to ϕ46	ϕ18 to ϕ46	ϕ47 to ϕ82	
15000	ϕ8 to ϕ34	ϕ8 to ϕ34	ϕ26 to ϕ54	ϕ26 to ϕ54	ϕ71 to ϕ106	
20000	ϕ10 to ϕ36	ϕ10 to ϕ36		ϕ41 to ϕ69		
25000		ϕ12 to ϕ38		ϕ62 to ϕ90		
30000		ϕ15 to ϕ41		ϕ87 to ϕ115		
40000		ϕ23 to ϕ49				
50000		ϕ33 to ϕ59				
60000		ϕ43 to ϕ69				
70000		ϕ57 to ϕ83				

NOTE

- From the table above, select the suitable interference according to the maximum speed and the type of ring used. If an interference not listed above is applied, the ring will be damaged or loosen while the spindle rotates.
- These rings cannot be used at a speed higher than the speeds specified in the above table.