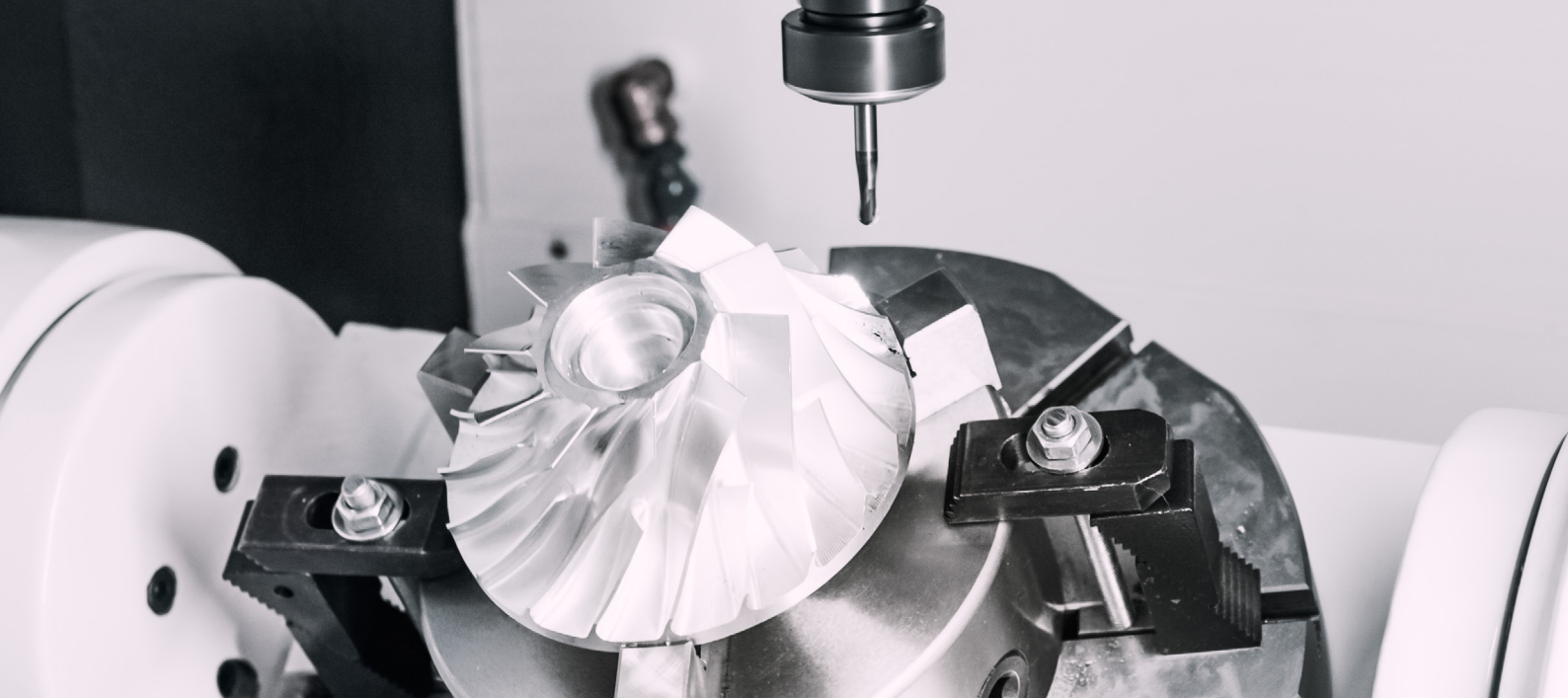




We pioneer motion

Axial angular contact ball bearings with  
integrated angular measuring system – ZKLDFMI



## Optimum pair: ZKLDF axial angular contact ball bearing and MHI angular measuring system

For decades, Schaeffler has been proving its role as a market-leading system supplier in machine tools and industrial automation with its innovative solutions for applications in screw drives, main spindles, rotary tables, feed axes, and workpiece and tool axes.

The bearing components alone are not the decisive factor for the success of these systems – rather, it is the integration of important functions such as driving, locating, guiding, measuring, sealing, and lubricating into an optimum system solution. Our rotary table and rotary axis bearings with and without integral angular measuring system offer you a particularly simple and safe way to do this.

▷ You can find out more  
in our publication:  
**„High Precision Bearings  
for Combined Loads“**

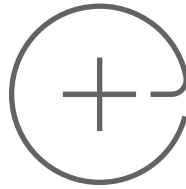
### **With integral incremental angular measuring system**

As with all the other angular measuring systems from Schaeffler for the machine tool sector, an inductive AMOSIN® angular measuring system is also used in ZKLDFMI bearings – now as a new incremental variant. The measuring ring with its dimensional scale is applied to the precision ground and perfectly true-running bearing inner ring. The greatest possible measurement accuracy is achieved by positioning the measuring system in the bearing plane. The measuring head is screw mounted directly to the stationary bearing outer ring and not to the machine. This eliminates the need for additional design measures on the machine housing.

The inductive measuring system is particularly resistant to lubricants and magnetic fields. The maximum speed of the ZKLDF bearing can be fully utilized due to the high output frequency of the incremental measuring head. The central passage is not influenced by the measuring system, which ensures design freedom for the media feed-throughs.



MHI axial measuring head



#### Customer benefits

- Excellent machining results for high product quality
- Simple to mount with plug and play function
- Space-saving and robust design
- Increased machine availability
- Design freedom due to large free central passage

#### Features

- Measuring system integrated into the bearing
- Optimally positioned incremental angular measuring system
- Immune to greases, oils, coolant, and magnetic fields

#### Cost savings

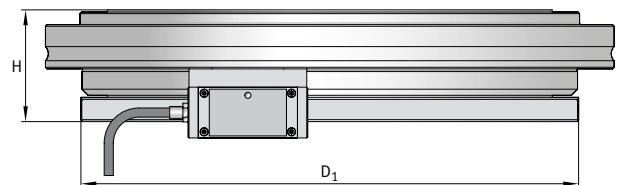
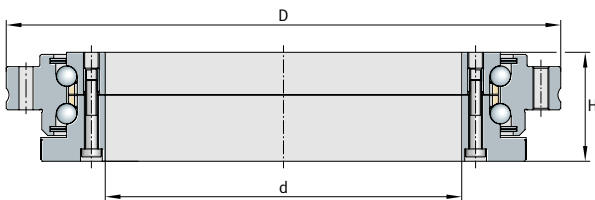
- Design
  - Small number of components, increased flexibility
- Mounting
  - Alignment of measuring system and adjacent parts is not required
- Maintenance
  - Rapid replacement due to plug and play

### ZKLDF and ZKLDFMI-series axial angular contact ball bearings

Our axial angular contact ball bearings ZKLDF (without measuring system) and ZKLDFMI (with incremental angular measuring system) have particularly low friction and are manufactured with high radial and axial runout accuracy. They have high thermal stability during operation and are suitable for very high speeds and large accelerations. The two rows of balls in an O arrangement ensure a high axial and radial load carrying capacity and high tilting rigidity.

Customers use these precision bearings preferably in CNC machines for machining non-ferrous metals, wood, plastics, and in highly dynamic rotary indexing tables. There are also interesting applications in the semiconductor industry.

### Axial angular contact ball bearings with incremental angular measuring system



Designation <sup>2)</sup>	Main dimensions			Limiting speed $n_G$ min <sup>-1</sup>	System accuracy <sup>3)</sup>		Mass m kg	
	d mm	D mm	D1 <sup>1)</sup> mm		H mm	without compensation arcsec		with compensation arcsec
ZKLDFMI150	150	240	214,5	52	3600	+/- 12,6	+/- 5,8	7,1
ZKLDFMI180	180	280	245,1	55	3500	+/- 11,9	+/- 5,1	9,5
ZKLDFMI200	200	300	274,4	57	3200	+/- 10,6	+/- 4,6	12,3
ZKLDFMI260	260	385	346,9	67	2400	+/- 8,4	+/- 3,6	22,5
ZKLDFMI325	325	450	415,1	72	2000	+/- 7,5	+/- 3,0	29,5
ZKLDFMI395	395	525	487,7	77	1600	+/- 6,4	+/- 2,6	38,5
ZKLDFMI460	460	600	560,9	82	1400	+/- 5,5	+/- 2,2	54

<sup>1)</sup> Outside diameter of the bearing inner ring including measuring ring

<sup>2)</sup> The performance data regarding basic load ratings and rigidities for the ZKLDF rotary table bearing can be found in the publication [TPI120](#)

<sup>3)</sup> Angular resolution and system accuracy: see publication [TPI120](#) from page 65 onwards

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