

Key Features

- Air-Bearing Spindle with Direct Drive
- Load Capacity axial 2,700 N
- Runout < 0.1 µm
- Velocity 5,000 rpm
- Water-Cooled



Air-Bearing Spindle EZ-8212

Concept and Design

The EZ-8212 spindle is equipped with a powerful torque motor (Tecnotion) and reaches speeds of up to 5,000 rpm.

At high speeds, the air bearing must be cooled. For this purpose, there are four cooling channels in the rotor, which can be supplied via an external rotary union. The coolant inlet is located at the rear of the spindle, the outlet at the spindle nose; the exiting cooling water can thus be used to cool the substrate.

The motor is cooled by a separate cooling circuit, both ports are located on the rear of the spindle.

2 channels for gaseous media (vacuum or compressed air) are fed to the spindle nose via an integrated rotary union.

The spindle was developed for wafer grinding applications. A labyrinth seal ensures unimpaired operation in unclean environments.

With a radial and axial motion error of less than 200 nm, the spindle is suitable for a wide range of high-precision machining processes.

The spindle is equipped with an incremental angle measuring system (Heidenhain TTR ERM) with 512 lines. There are no restrictions regarding the mounting position.

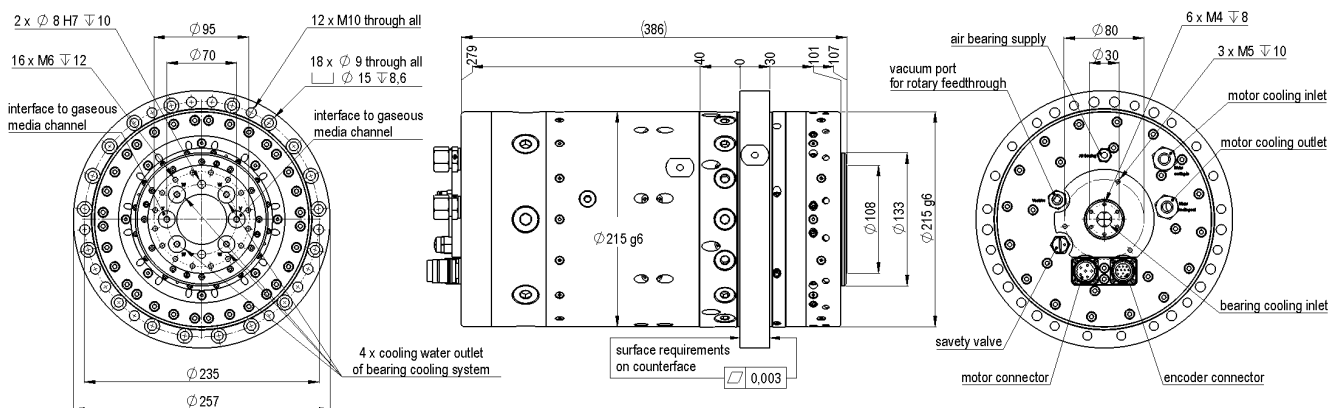
Applications

Wafer processing, in test systems, applications with high concentricity requirements.

Drive Control

We offer the spindle EZ-8212 with the following drive controller:

- Kollmorgen AKD



Specifications

Type	Unit	Value
Turning Range	°	> 360 (unlimited)
Error Motion axial (in the center)	µm	< 0.2
Error Motion radial (at 20 mm height)	µm	< 0.2
Axial Runout (at the mounting surface)	µm	< 1
Max. Speed	rpm	5,000
Mechanical Data	Unit	Value
Mounting Position		unrestricted
Diameter x Height	mm	258 x 386
Aperture	mm	50
Moving Mass (rotor)	kg	24.5
Total Mass	kg	60
Max. Load Capacity axial push/pull	N	2,700
Nominal Load Capacity axial push/pull	N	2,000
Max. Load Capacity radial	N	1,200
Nominal Load Capacity radial	N	1,000
Stiffness axial	N/µm	400
Stiffness radial	N/µm	100
Resistance Against Tilt	Nm/µrad	3
Max. Moment of Tilt	Nm	150
Material		aluminium anodized / stainless steel
Encoder		Value
Type		incremental
Lines per Revolution		512
Output Signal		1Vpp
Drive	Unit	Value
Type		synchronous, iron-core
Supply Voltage	V _{DC}	max. 560
Nominal Torque at 4200 U/min	Nm	28
Nominal Current at Nominal Torque (with cooling)	A _{rms}	30.8
Interfaces and Environment	Unit	Value
Supply Pressure	bar	5
Air Consumption	Sl/min	ca. 60
Feedthrough for Vacuum/Compressed Air	number of outputs	2
Cable Length	m	1
Clean Room Suitability		applicable
Drive Control		Value
Standard		Kollmorgen AKD

Subject to technical modifications and typographical errors.