

PAINTING ROBOTS



Rotary atomizer with air bearings for automotive painting lines

The Company

GAT Gesellschaft für Antriebstechnik mbH is an internationally operating company with 18 sales offices worldwide which offers great competence and reliability with about 40 years of experience in the fluid- and sealing technology industry.

A team of 200 employees develops, produces and markets rotary unions, slip rings, air bearing precision spindles, test rig components and systems for internal minimum quantity lubrication.

Technically sophisticated products are not available off-the-shelf. A team of qualified consultant engineers and product specialists is always available to find a competent and quick solution to our customers' problems. We enjoy the trust of customers from engineering companies, plant construction, the automotive, energy production and aeronautics industries and many other branches of industry worldwide.

The Quality

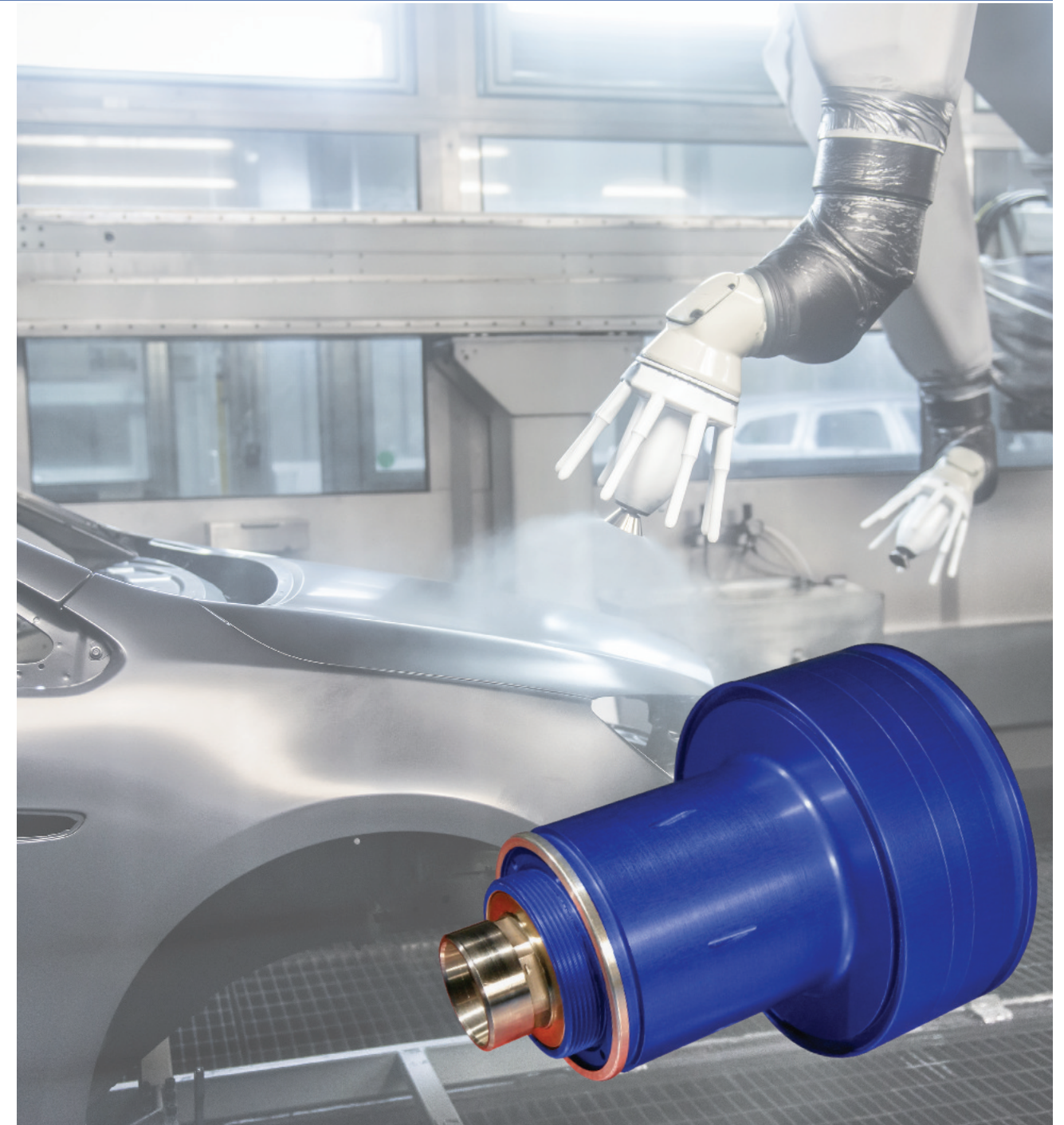
From the receipt of the raw materials to the release of the final product, our entire production process is subject to the strictest quality controls. For example, when measuring the individual components, a variety of electronic precision measuring instruments are used. Every delivered product is tested on modern, computer-controlled test benches under practical conditions, in order to guarantee the quality and operational reliability of the product. After all, in the end, quality is the deciding factor.



GAT[®]

Gesellschaft für
Antriebstechnik mbH

Industriestraße 11
65366 Geisenheim (Germany)
Phone: +49 (0) 6722 93788-0
Fax: +49 (0) 6722 93788-110
e-Mail: info@gat-mbh.de
Internet: www.gat-mbh.de



Your partner for technologically advanced
air bearings, rotary unions and slip rings



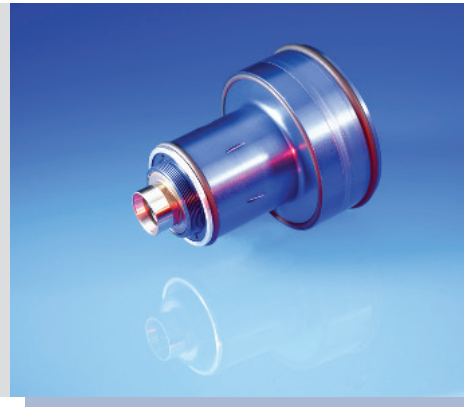
GAT[®]

Gesellschaft für
Antriebstechnik mbH

Rotospray Z70

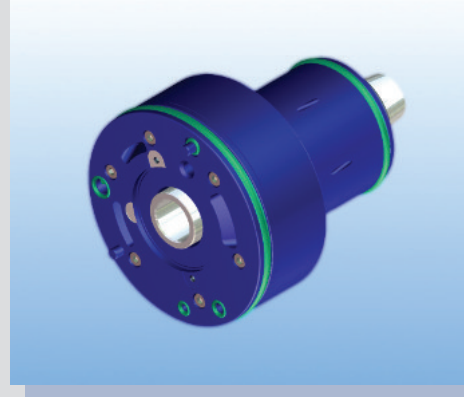
Product features

- Air bearing rotary atomiser
- Atomising power max. 1,200 ml H₂O/min at 70,000 rpm
- High load capacity for robot applications
- Special bearing material guarantees robustness
- Aerodynamically-enhanced high-performance turbine
- Low air consumption
- Integrated optical encoder
- Development of customer-specific air bearings



Design and function

The construction of our rotary atomiser is based on an aerostatic air bearing system that consists of radial and axial bearings fitted with micro jets. The radial bearing has a high load capacity of up to 96 N at the front end of the shaft, specially designed for use with robots (up to 3G). The bearing surfaces are made from special materials with very good failsafe running capability to be able to cope with shaft touch down. A pneumatic radial turbine drives the atomisers. The turbine blade geometry has been perfectly adapted to air inflow and exhaust speeds. The turbine air inlet has been designed to ensure minimum pressure drop, from the connection right up to the blade. This means that the turbine blades are exposed to higher pressure, and this leads to considerably improved performance. A high-contrast axial encoder ring has been incorporated for speed sensing with an operating wavelengths of 880 nm or 650 nm.



Applications

The Rotospray Z70 und Z70 HP rotary atomisers have been designed for paint atomization in automated paint streets. The load capacity of the air bearing has been improved continuously to be able to absorb the high acceleration speeds that occur during robotic painting. The turbine power is twice that of conventional products, allowing large quantities of lacquer to be atomised, even at high speeds.

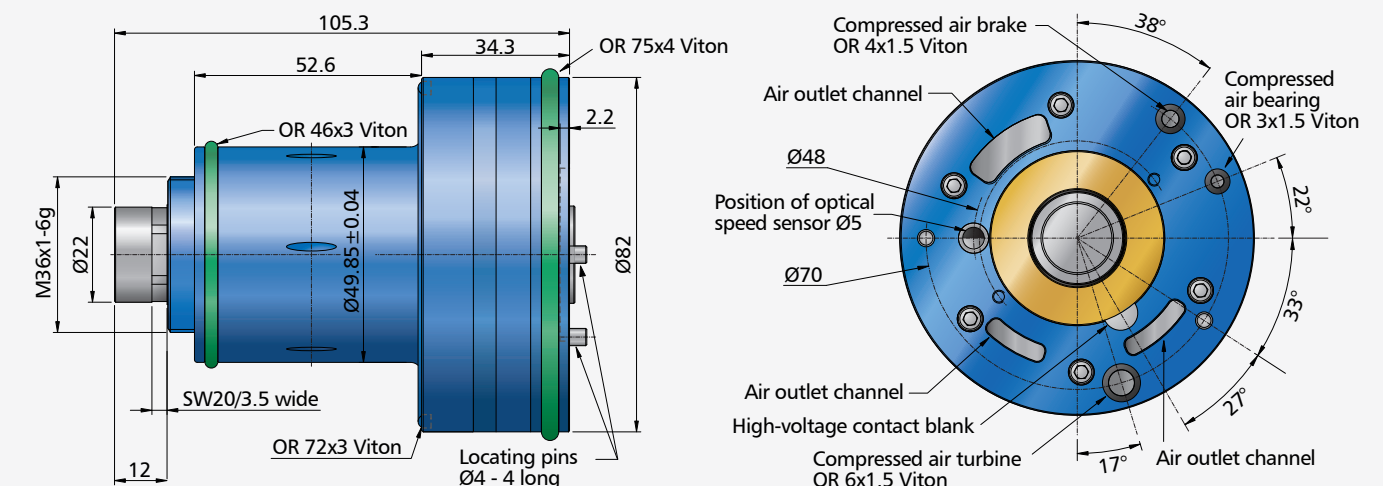


Versions

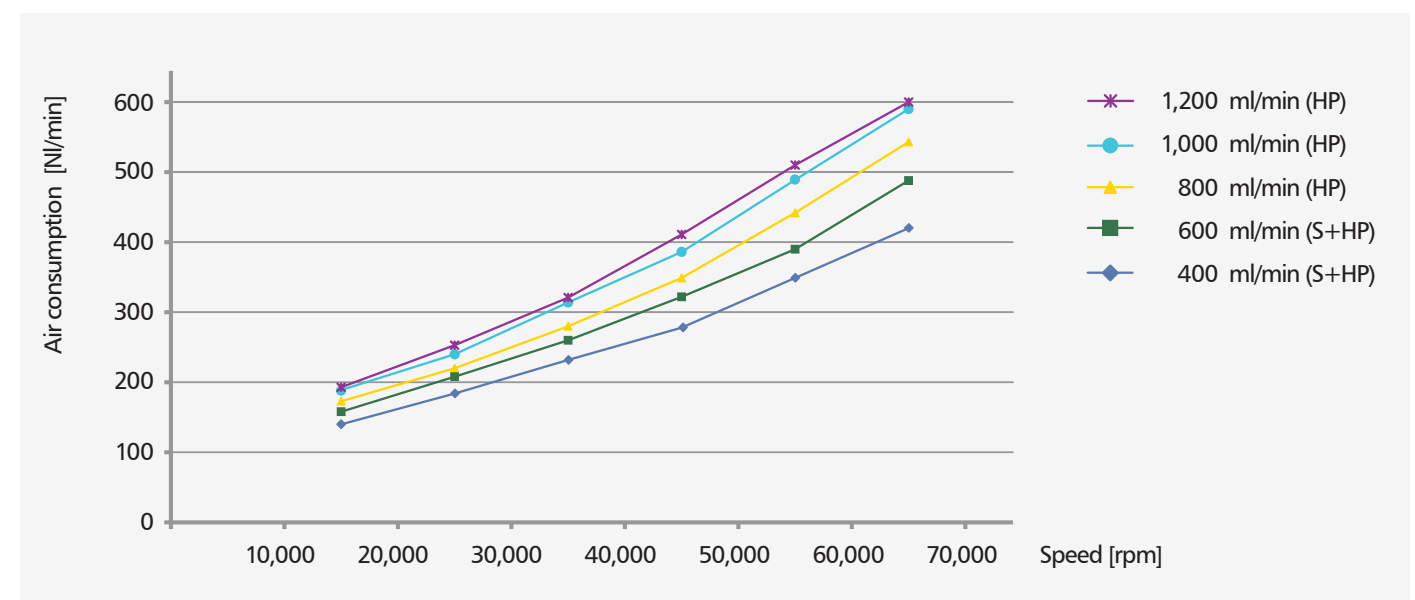
The interface of the Rotospray rotary atomiser can be customized. Customer specific air bearing designs can be developed as well for other precision or high-speed applications in semi-conductor production, metrology and positioning system technology.

Rotospray Z70

Rotospray Z70



Turbine air consumption with a load of 400-1,200 ml/min H₂O, D55 bell



Technical data

ROTOPRAY®	Z70-10000B (S)	Z70-14603B (HP)
Max. speed (rpm)	70,000	
Max. flow rate (ml/min)	600 ¹⁾ *	1,200 ¹⁾ *
Radial load capacity (N)	82	96
Axial load capacity (N)	158	174
Bearing air pressure (bar)	6	
Bearing air consumption approx. (Nl/min)	85	
Turbine air pressure approx. (bar)	5.5	5.2
Turbine air consumption approx. (Nl/min)	470	620
Bell diameter (mm)	55 - 70	55 - 70

¹⁾ at 70,000 rpm, 55 mm bell, medium: water