

Product Data Sheet

UT-1000 Series Heavy-Duty Indexing Turntables

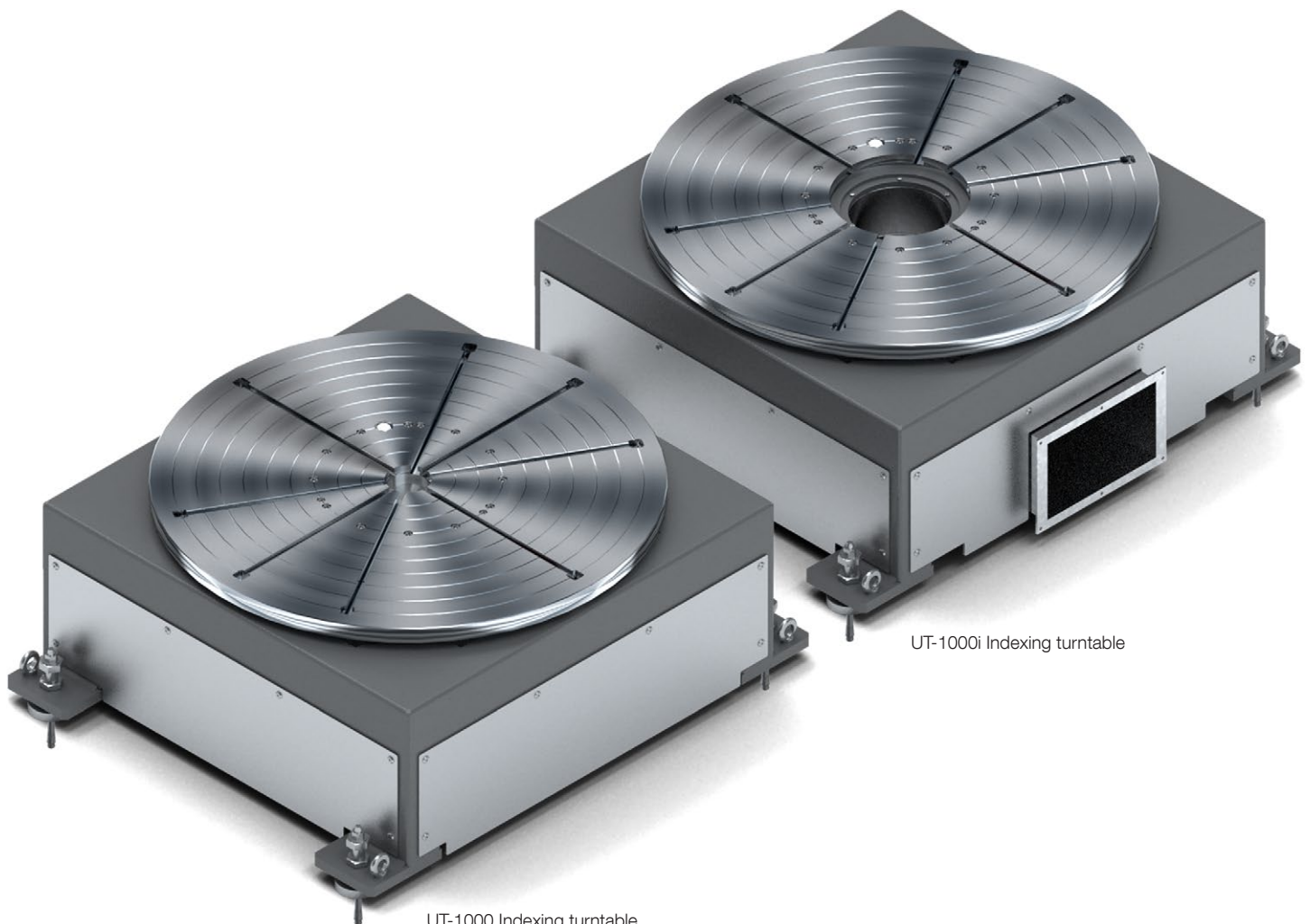
The UT-1000 is a single-axis, heavy-duty indexing turntable designed to withstand the rigors of thermal spray processing. UT-1000 is designed to precisely, accurately and repeatedly position large, heavy parts, even if the load is significantly asymmetrical. UT-1000 can be configured for integration with a robot, with the UT-1000 axis programmable as part of the robotic motion program.

The Oerlikon Metco UT-1000 Turntable is designed to hold rotationally symmetrical workpieces such as shafts, turbine parts or other workpieces that must be rotated or positioned during the coating process. Asymmetrical parts can also be rotated, within the allowable mass moment of inertia range of the turntable.

The UT-1000 is modular in its design. The 4 / 6-slot aluminum, 1100 mm (43.3 in) face plate is configured to hold a wide range of parts. In addition, options are available to expand the functionality of the UT-1000.

Rotation is completely integrated and recognized as robotic axes. This makes the UT-1000 suitable for a wide variety of applications. Thus, the rotational or indexing movement of the UT-1000 is coordinated with the robot movement, allowing even geometrically complex surfaces to be coated. Both clockwise and counterclockwise rotation is supported.

A second model, the **UT-1000i**, incorporates an onboard exhaust duct with a diameter of 300 mm (11.8 in) capable of extracting up to 3500 m³/h (123 600 ft³/h).



UT-1000 Indexing turntable

UT-1000i Indexing turntable

1 General Description

1.1 Construction

The UT-1000 consists of the following main components:

1. Chassis
2. Rotation unit
3. Face plate

Rotational movement is controlled, allowing for accurate and fast rotation and positioning of the workpiece in either a clockwise or counterclockwise direction. Various rotational drives are available, depending on the application.

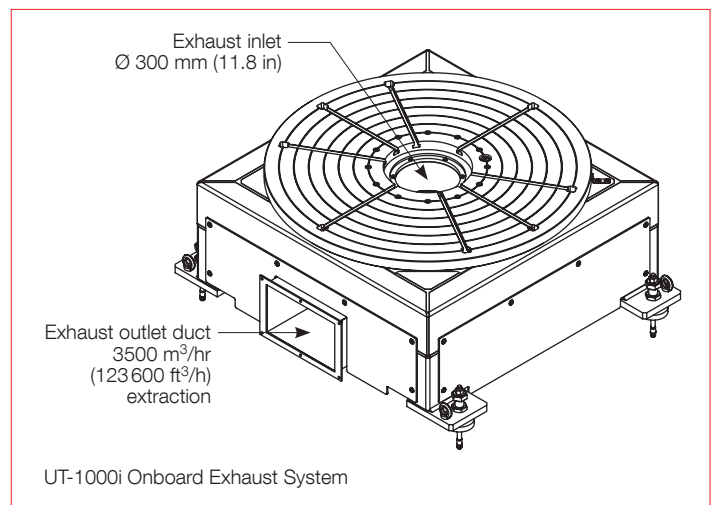
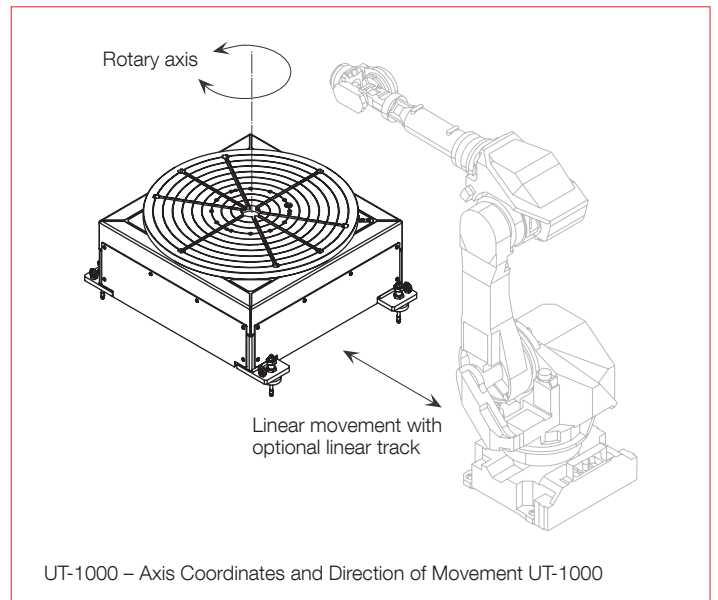
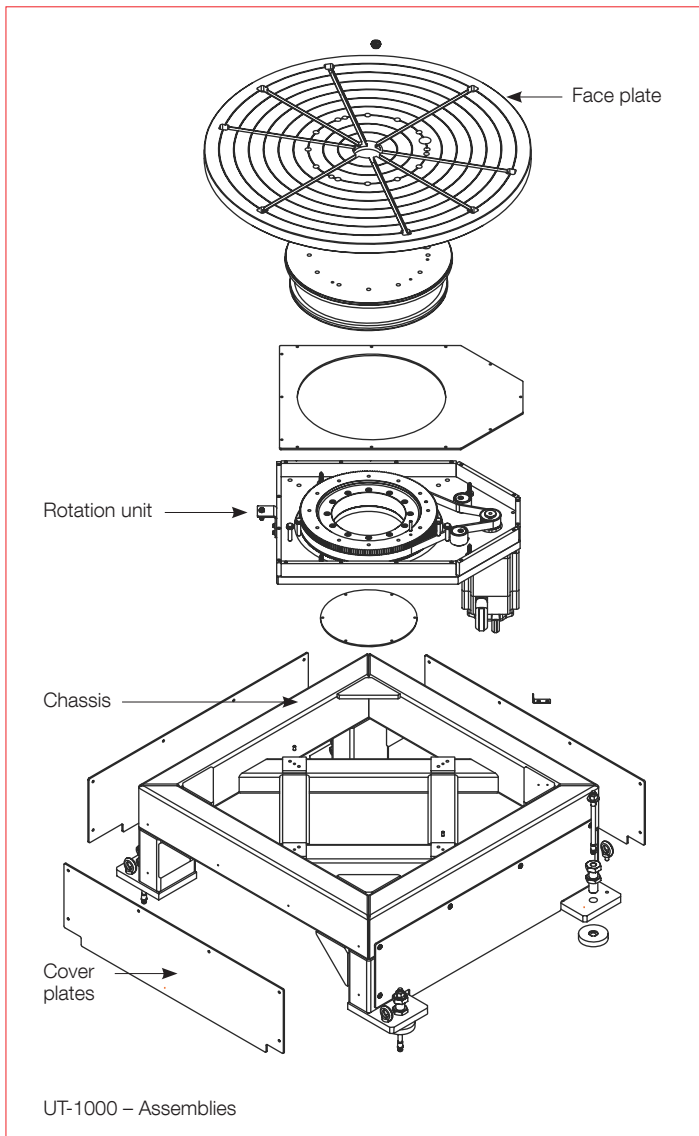
The standard face plate is made of aluminum and precision manufactured with DIN T-slots for holding the workpiece.

1.2 Operating Modes

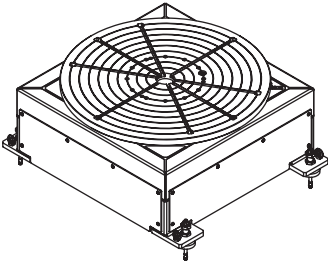
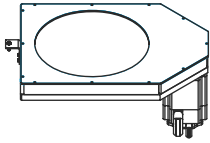
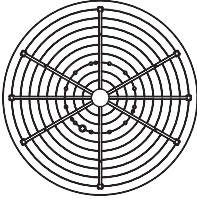
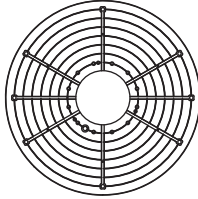
The rotary axis can be coordinated with the robot. The specific modes are:

- Index positioning to predefined locations. The position of the face plate is coordinated with the movement of the robot axes. The turntable can be indexed clockwise or counterclockwise.
- Face plate rotated at a predefined speed. The robot controller starts the motion program at a predefined speed. The robot software allows a free choice of speeds in a clockwise or counterclockwise direction.

The movement of the axis can be programmed in either “teach” or off-line mode, depending on the control mode.



1.3 Overview of Configuration Options

Positioning	Rotational Drive	Face Plates	
 <p data-bbox="209 692 341 714">Rotation, Index</p>	 <p data-bbox="525 607 794 714"> Rotational drive motors for: ■ ABB Robots (Siemens drive) ■ FANUC Robots ■ Yasakawa Robots </p>	 <p data-bbox="948 618 1145 714"> UT-1000 4 / 6 DIN T-Slots Ø 1100 mm (43.3 in) Aluminum </p>	 <p data-bbox="1257 618 1455 714"> UT-1000i 4 / 6 DIN T-Slots Ø 1100 mm (43.3 in) Aluminum </p>

2 Features and Benefits

Effective

- Stable rotational part handling for thermal spray systems
- Allows accurate rotation and indexing in clockwise and counterclockwise directions
- Automated servo drive rotation

Efficient

- Accepts parts as heavy as 1000 kg (2204 lb)
- Positioning accuracy within $\pm 0.1^\circ$
- Maximum moment of inertia of 300 kg·m² (7119 lb·ft²)
- Maximum workpiece diameter of 2500 mm (98.4 in)
- Maximum centripetal force of 2000 N (450 lbf)
- Robot teaching tool allows quick set up of motion program and aids in calibration

Economical

- Long life parts require little to no maintenance with bearings designed to last for 16,000 hours
- Modular construction allows for simple and cost-effective upgrades and changes

Environmental

- Zero-speed monitoring warns operator if the motor is turning but the face plate is not turning
- Heavy-duty anchor system prevents tipping and ensures perfect stability
- Full integration into the E-stop circuit of the thermal spray system ensures operator safety
- UT-1000i optimizes air flow for internal spraying of very large parts with its onboard exhaust system

3 Options and Accessories

Oerlikon Metco also offers a wide range of additional options and accessories, as well as customized features on request. Please refer to the product manual and the parts list for a complete list of spare parts.

Manual chuck attachment (Model UT-1000 only)

The manual chuck attaches to the faceplate for easy mounting and coating of small, rotationally symmetrical workpieces.

Manual chuck

Chuck capacity	5 to 250 mm	0.19 to 9.84 in
max. workpiece mass	50 kg	110.23 lb
max. mass moment of inertia	0.75 kg·m ²	17.8 lb·ft ²

High-speed chuck attachment (Model UT-1000 only)

The high-speed chuck attachment allows workpieces to be coated at higher rotational speeds.

High speed chuck attachment

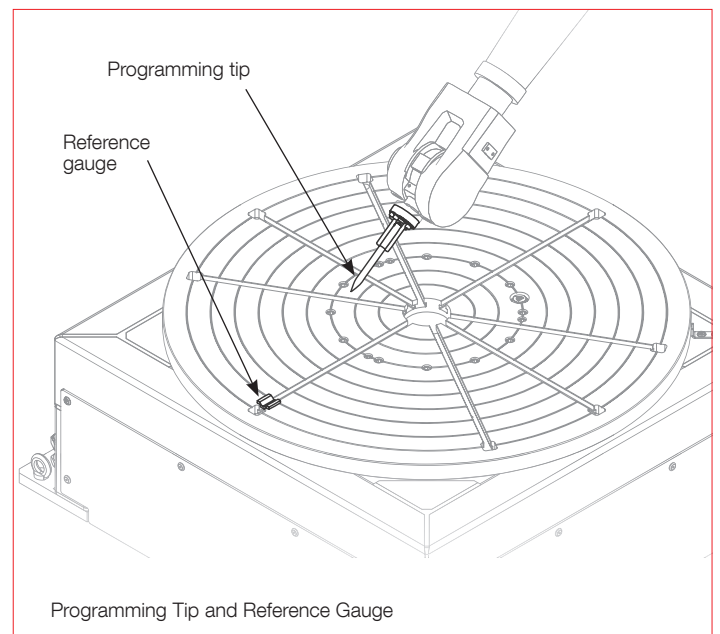
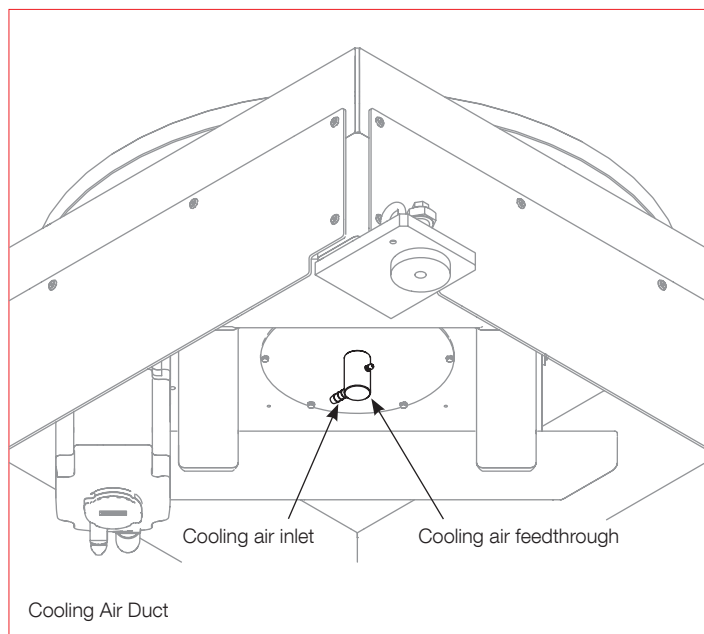
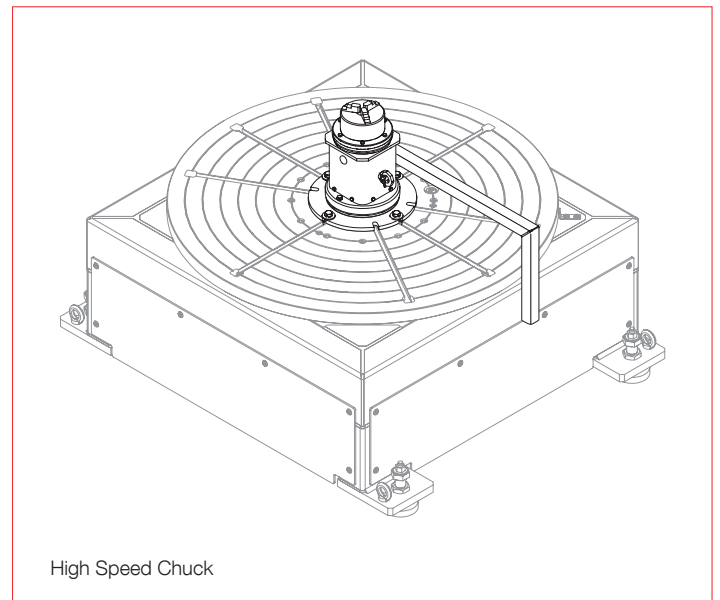
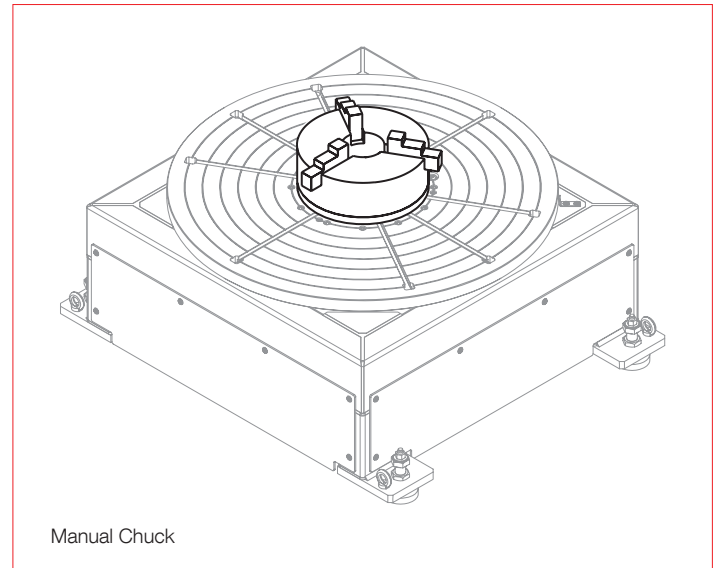
Rotational speed	35 to 2100 rpm	
Chuck capacity	3 to 125 mm	0.12 to 4.92 in
max. load (depending on rpm)	25 kg	55.12 lb
max. mass moment of inertia	0.075 kg·m ²	1.78 lb·ft ²

Programming Tip and Reference Gauge

The programming tip and reference gauge locate the position of the turntable face plate within the coordinate system of the robot.

Cooling Air Duct (Model UT-1000 only)

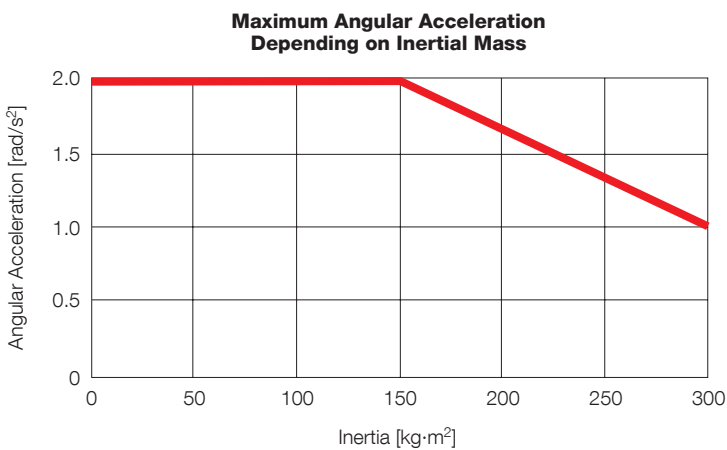
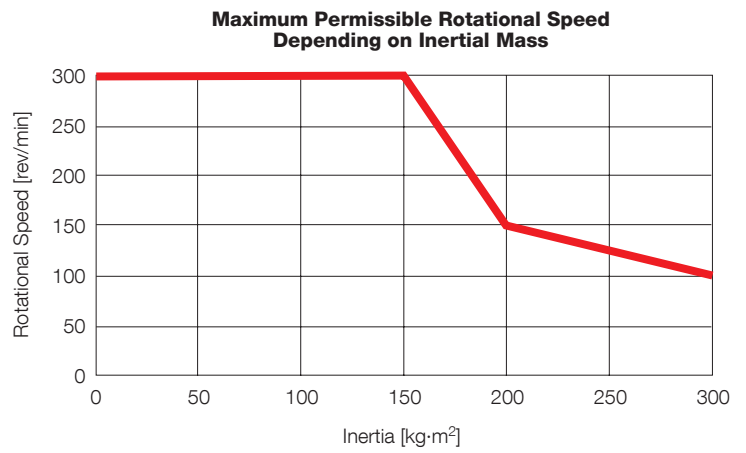
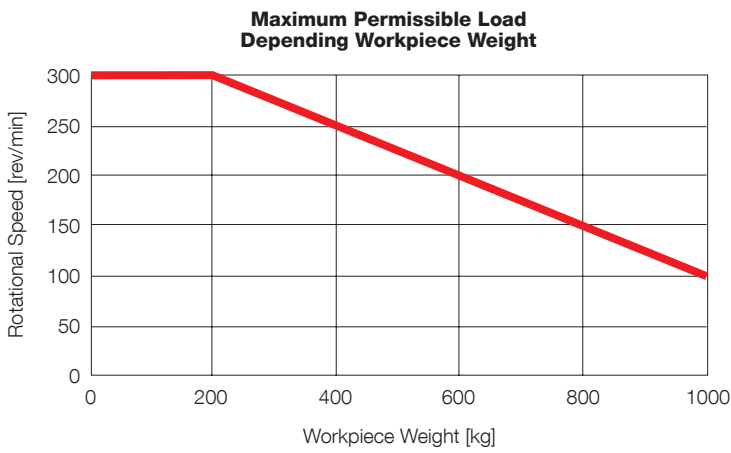
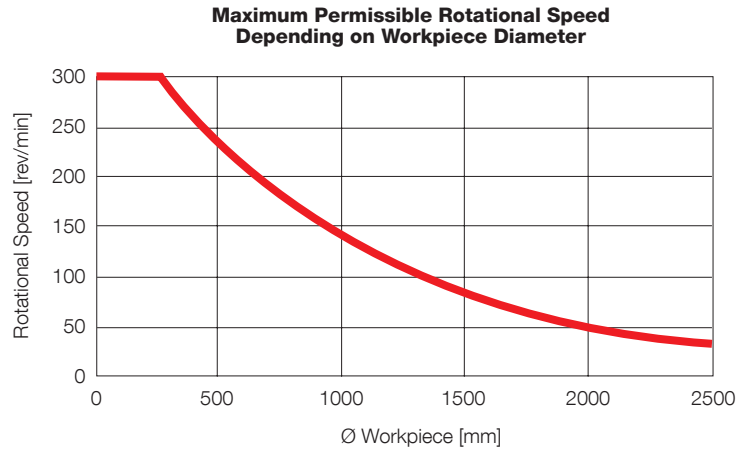
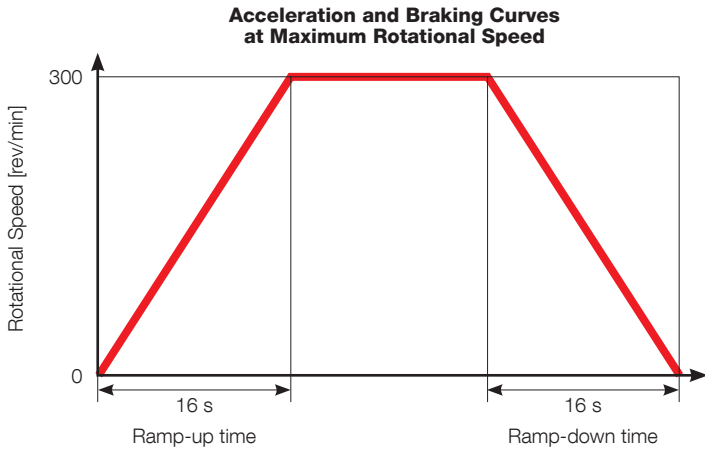
The optionally available cooling air duct provides inner workpiece cooling.



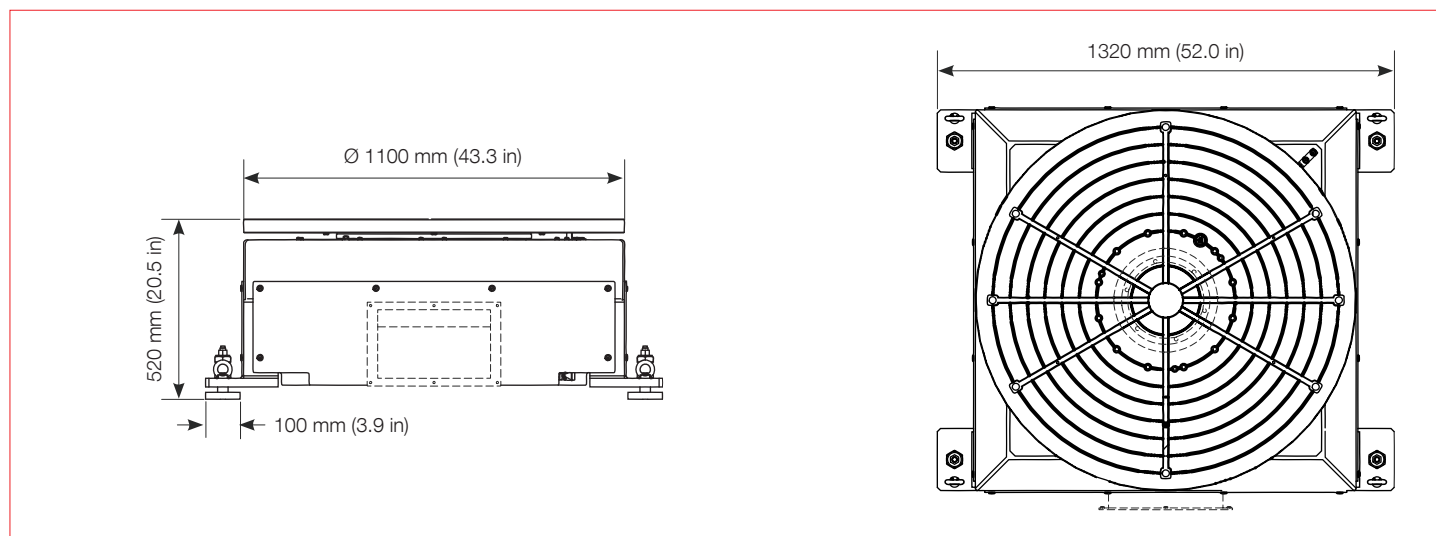
4 Technical Data

4.1 Operating Regions

These diagrams indicate maximum permissible operating conditions.



4.2 Dimensions



4.3 Specifications

Weight and Payload		
Total Weight	750 kg	1653 lb
Max. Payload ^a	1000 kg	2204 lb
Max. Moment of Inertia About the Rotational Axis ^{a, b}	300 kg·m ²	7119 lb·ft ²
Max. Workpiece Ø	2500 mm	98.4 in
Installation Type	heavy duty ground anchors	
Rotational Axis		
Min. Rotational Speed ^b	5 rpm	
Max. Rotational Speed ^b	300 rpm	
Rotational Speed Precision ^b	± 2 rpm	
Rotational Direction	clockwise or counterclockwise	
Max. Acceleration ^b	19 rpm/s	
Acceleration Time to Max Rotational Speed ^{a, b}	16 s	
Positioning ^b	± 0.1°	
Drive Data		
Rated Torque – Rotational Drive ^b (Pre-Transmission)	48 N·m	26.5 lbf·ft
Power Consumption – Rotational Drive ^b	8.2 kW	
Environmental Conditions		
Temperature	+10 to +40 °C	+50 to +104 °F
Humidity	< 75 %; non-condensing	
Exhaust Capability (Model UT-1000i only)		
Inlet size	300 mm	11.8 in
Max. Extraction Rate	3500 m ³ /h	123 600 ft ³ /h

^a See section 4.1 Operating Regions for limitations
^b Depending on the control system