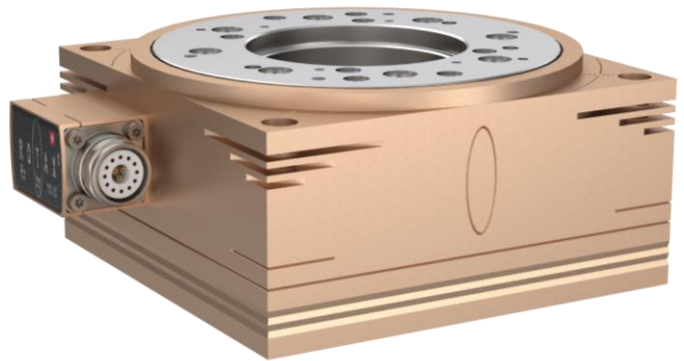


Data Sheet **ROTAX® Rxhq 110-50T4.0**

Edition 26. March 2026

Hollow Shaft Motor **ROTAX® Rxhq = high torque**



Highlights

- Compact direct drive with high torque
up to 12.0Nm (*106.2 lbf·in*)
- Flexible positioning with a repeatability
of ± 1 arcsec
- Single-turn absolute encoder
- Large hollow shaft with a diameter
of 50mm (*1.97"*)
- No wear and tear, the direct drive ensures
maximum precision over the entire service
life
- Variable one-cable connection to XENAX® in
90° grid orientation
- Torque limitation and torque monitoring
with XENAX® servo controller

General

The direct drive developed in-house impresses with its compact external dimensions and a hollow shaft with a diameter of 50 mm. Cables, vacuum or compressed air lines, light and laser beams, glass fibres or camera lenses can be guided through the hollow shaft without any problems.

The absolute measuring system allows an immediate start without previous referencing. With a resolution of 648'000 or 2'592'000inc. per revolution, repeatability of ± 1 arcsec can be achieved. The single-cable connection can be supplied in right-hand or left-hand output configuration.

Together with the patented "IForce Calibration" function, undesired cogging, weight and friction forces of the ROTAX® Rxhq direct drives can be easily compensated. This makes it possible to limit and monitor torques in processes. Together with the Forceteq® basic technology included in the XENAX® servo controller, complete torque/distance diagrams can be recorded - an additional torque sensor is not necessary.

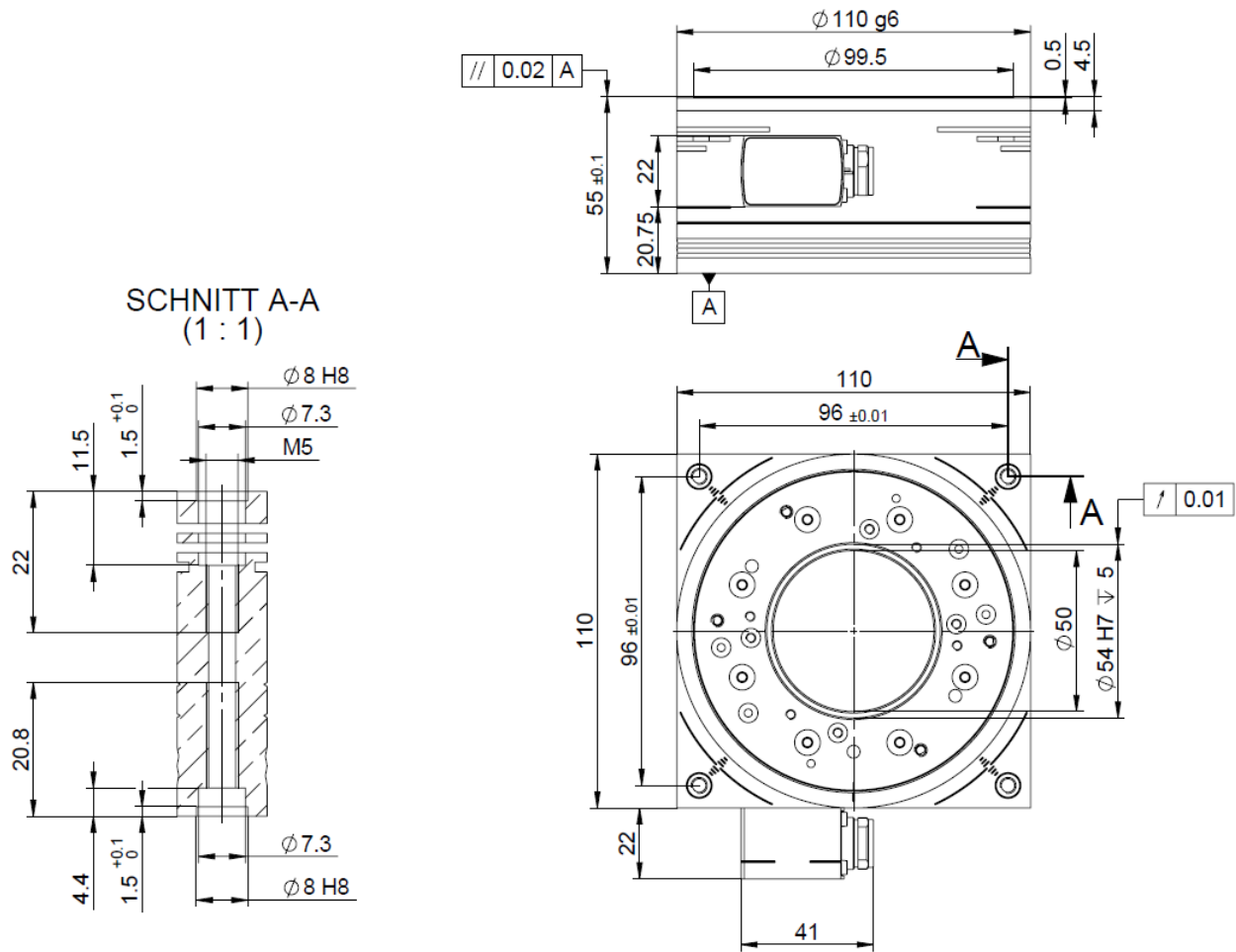
Alois Jenny
Jenny Science AG

Content

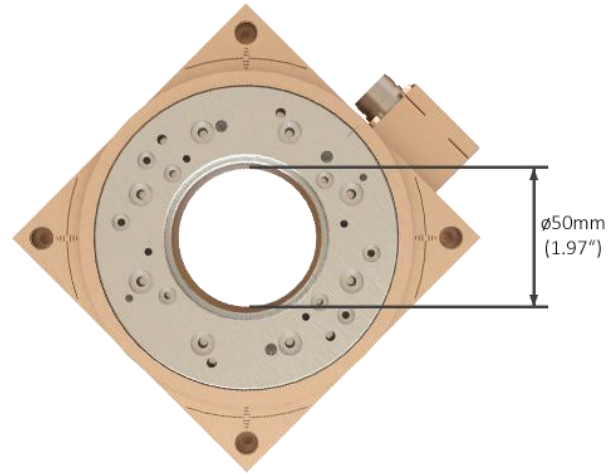
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1 Dimension ROTAX® Rxhq 110-50T4.0

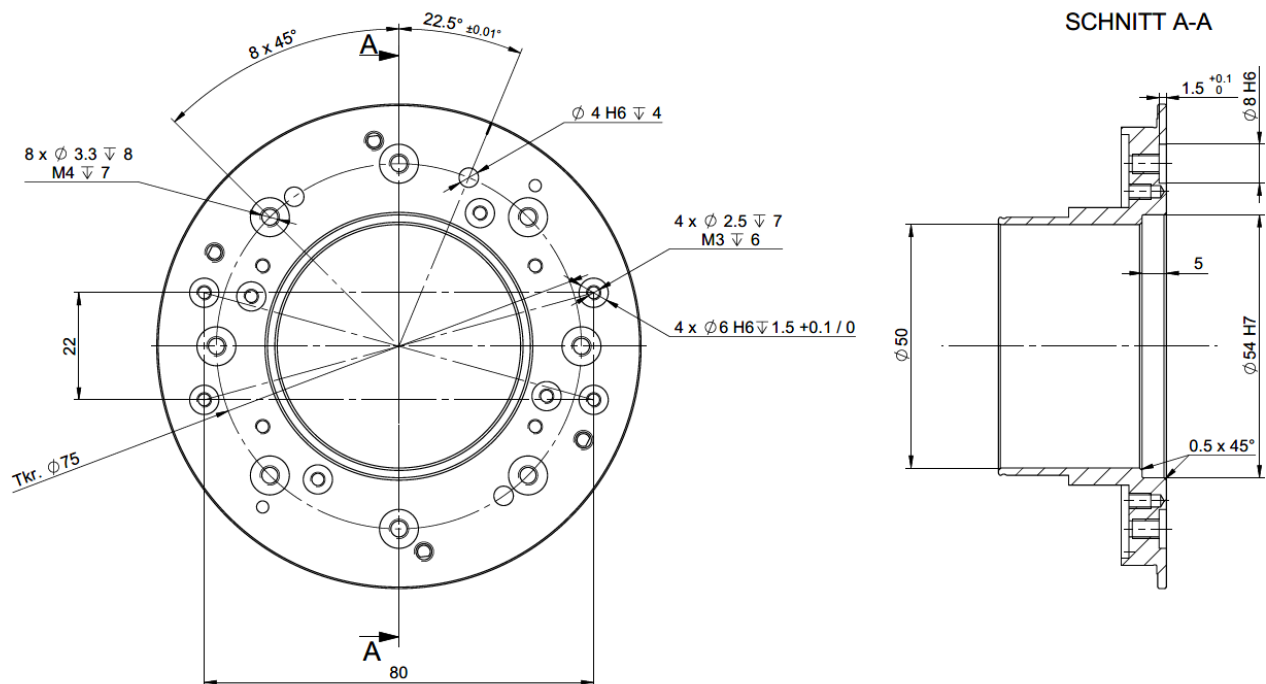
1.1 Installation dimension



1.2 Hollow shaft

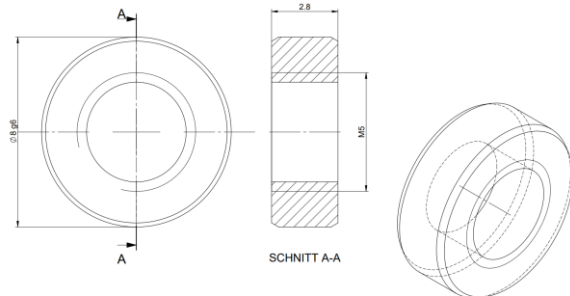


1.2.1 Front flange dimension

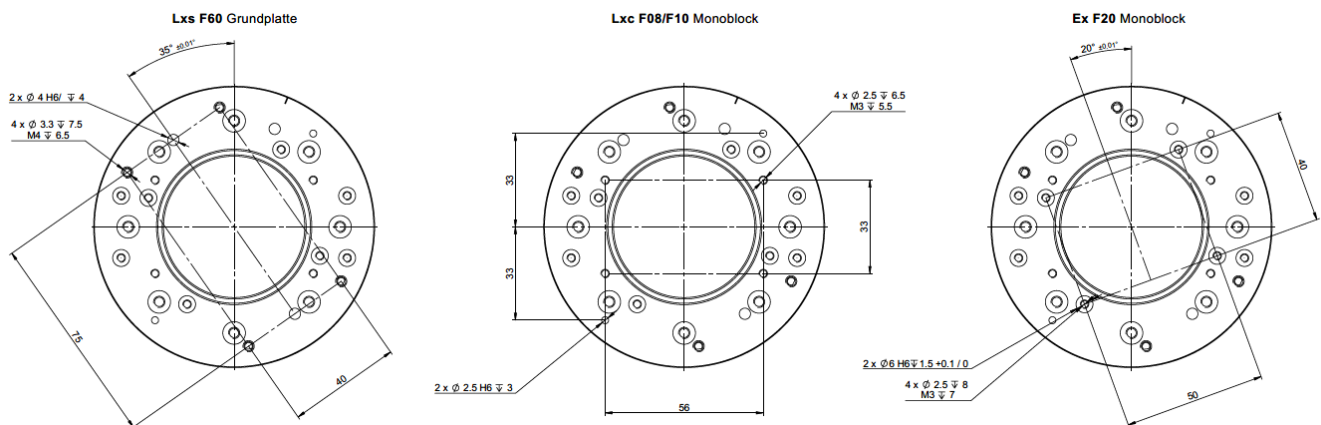


1.2.2 Centering rings

Centering rings for boreholes $\varnothing 8$ g6 x 1.5 in
Pitch circle diameter 75

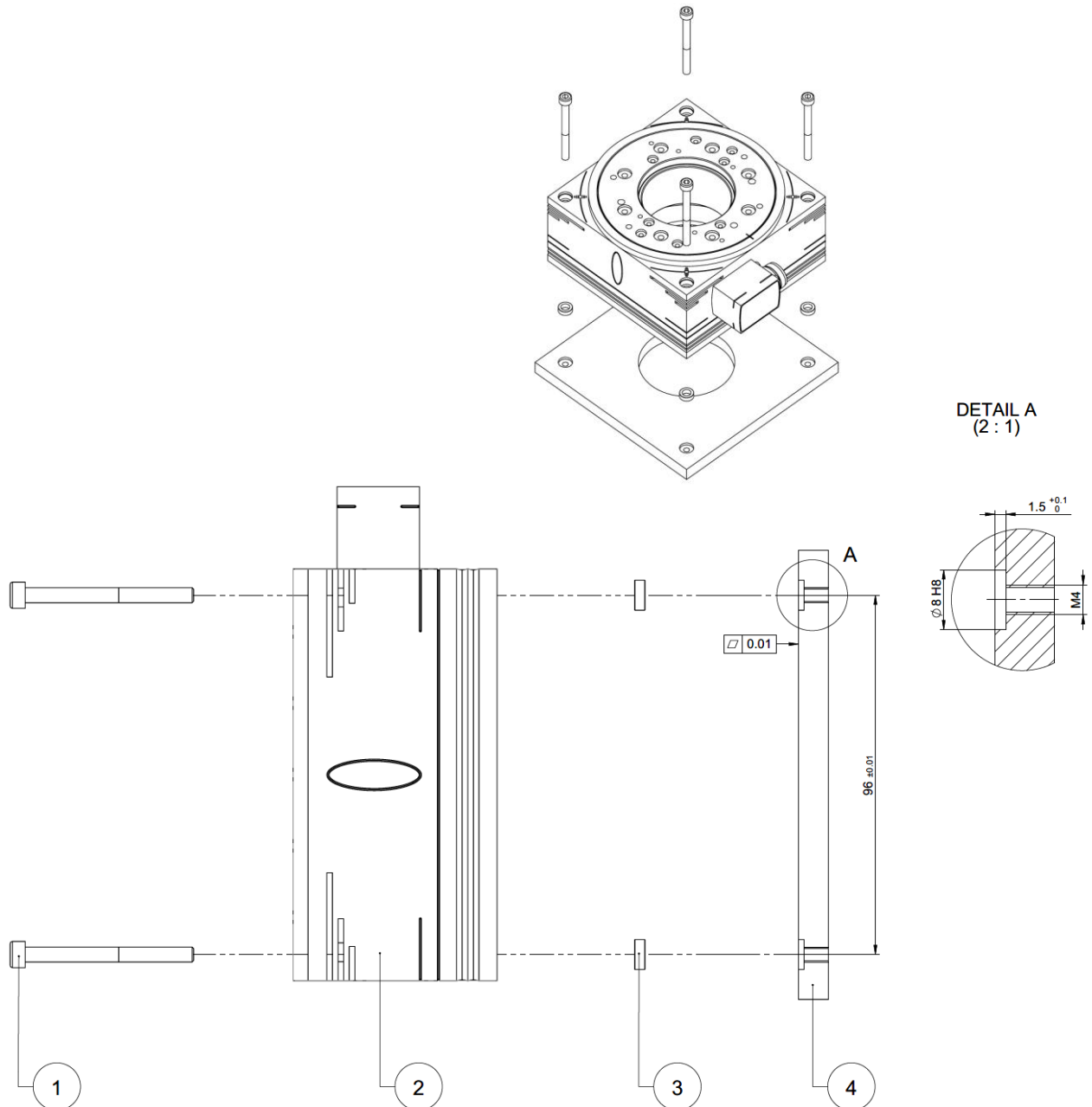


1.2.3 Hole pattern for direct assembly



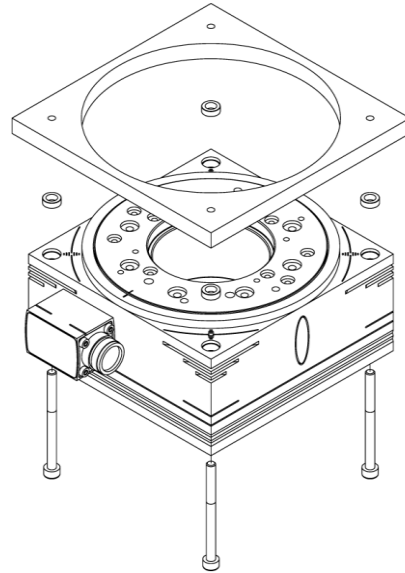
1.3 Installation options

1.3.1 Installation rear side with distance sleeves

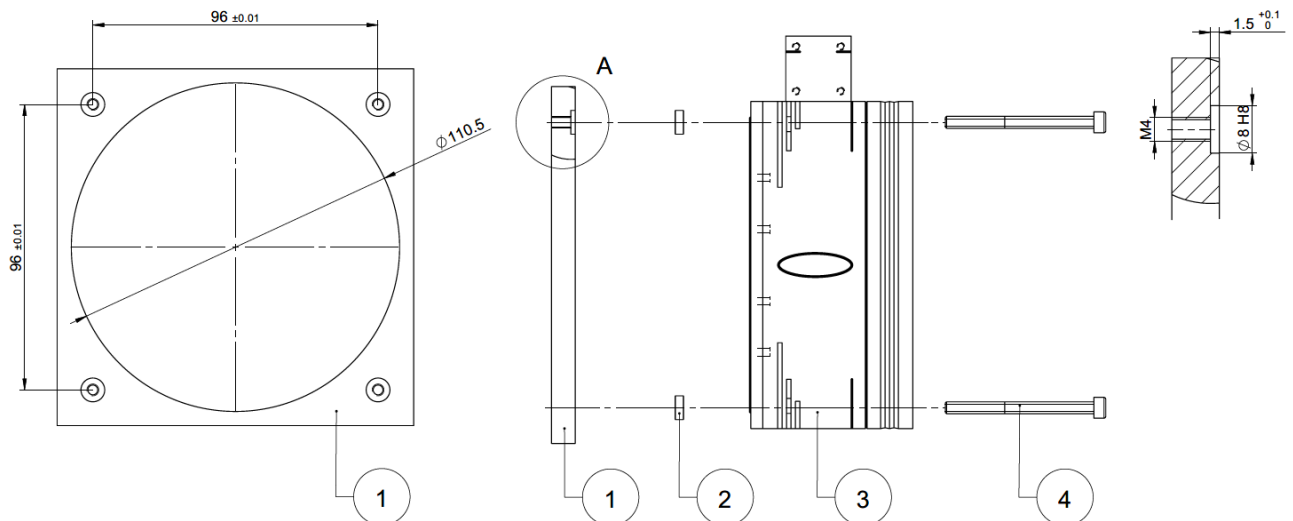


Pos.	QTY	Designation (available in a set)
1	4	Fixing screws M4x45 (max. tightening torque 2.9Nm)
2	1	ROTAX® Rxhq 110-50T4.0
3	4	Centering rings (Ø8 g6 x 2.8)
4	1	Mounting plate customer

1.3.2 Installation flange side with centering ring



DETAIL A
(2 : 1.5)

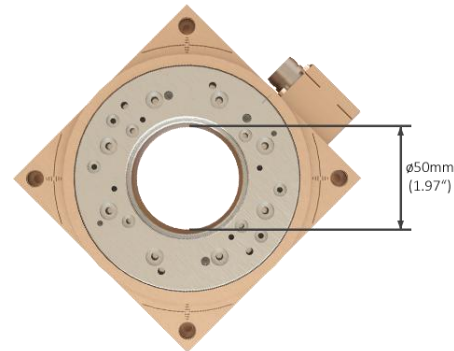


Pos.	QTY	Designation
1	1	Mounting plate, customer – Flange side
2	4	Centering ring (Ø8 g6 x 2.8)
3	1	ROTAX® Rxhq 110-50T4.0
4	4	Fixing screws M4x50 (max. tightening torque 2.9Nm)

2 Smart Praxis Oriented Details

2.1 Hollow shaft diameter 50mm (1.97")

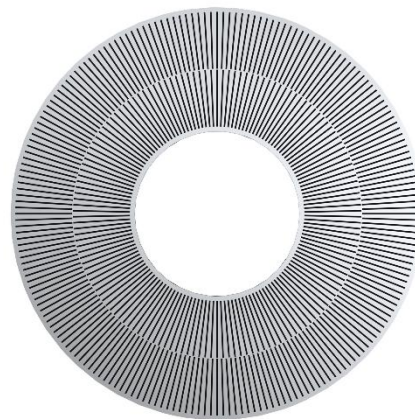
The large hollow shaft with a diameter of 50mm (1.97") offers generous space for cables, vacuum or compressed air lines, light and laser beams, glass fibres and other media.



2.2 Single-Turn Absolute Encoder

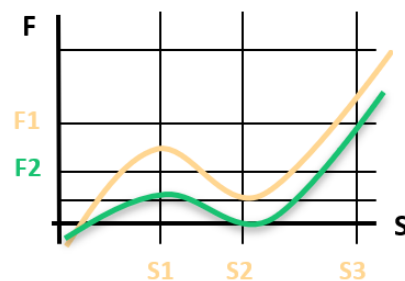
Thanks to the integrated absolute encoder with a resolution of 648'000 Inc. or 2'592'000 Inc. per revolution, repeatability of ± 4 arcsec resp. ± 1 arcsec can be achieved.

Due to the absolute position, the ROTAX® Rxhq is immediately ready for operation after power-on, no reference drive is necessary.



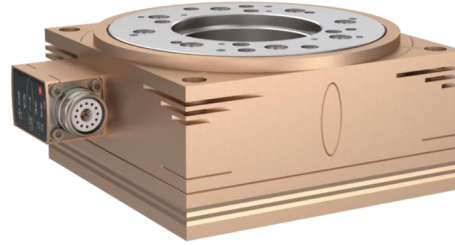
2.3 Torque limitation and torque measurement

The patented function „IForce Calibration“ is able to compensate the magnetic cogging forces, the load and the friction forces of the ROTAX® Rxhq direct drive in a very simple way. This makes it possible to limit and monitor torques in processes. Together with the XENAX® servo controller, complete torque/displacement diagrams can also be recorded - an additional sensor is not necessary.



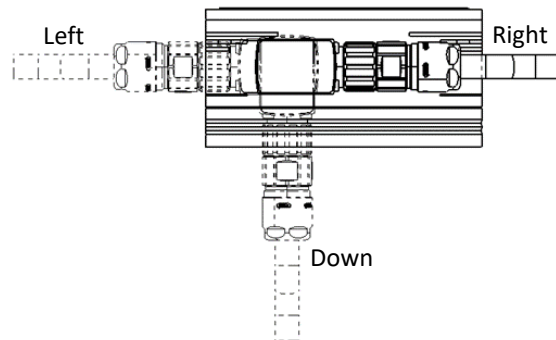
2.4 One-Cable solution

The one-cable connection from Jenny Science simplifies the whole machine cabling complexity. In addition, the cable chains are more compact and lighter, need less room and achieve higher dynamics.



2.5 Cable connection 90° pattern

The cable connection can be selected to the right, left and downwards. The corresponding article number must be specified when ordering. The cable outlet cannot be turned by yourself.



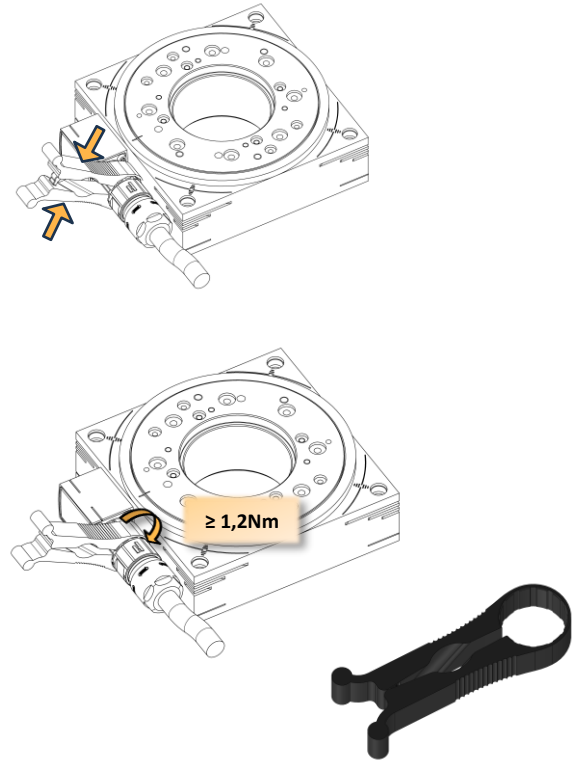
3 Cable

3.1 Connectors and Cable Strain Relief

The electrical connection to the motor is made via a screw-type connector. The supplied connection cable must be properly connected to the socket at the motor. The tightening torque of the connector must be $\geq 1,2 \text{ Nm}$ to ensure a secure mechanical and electrical connection.

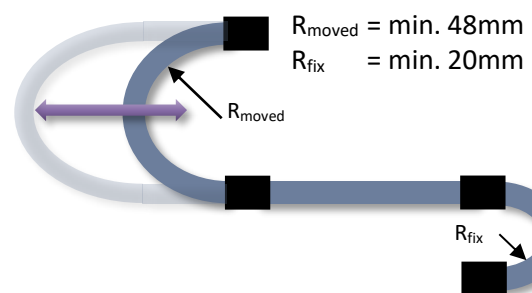
It must be ensured that no mechanical forces are transmitted to the connector via the cable. To this end, the connection cable must be strain-relieved or mechanically secured at the outer sheath immediately after the connector. The cable routing must be designed so that movements do not transmit any tension, bending or torsional forces to the connector.

Due to the limited access to the connector on the slide, tightening and loosening the connector can be difficult. To assist with this, Jenny Science AG offers a suitable installation tool as an accessory. This enables controlled tightening ($\geq 1,2 \text{ Nm}$) and easy loosening of the connector, even in confined installation spaces.



3.1 Bending Radius

For permanently moving cables, a minimum bending radius of 48mm (R_{moved}) must be maintained. The cable must be secured at the outer sheath before and after the moving section. For permanently installed cables, a single-bend radius of 20mm (R_{fix}) is applicable. The cable is not designed for torsional stress, but can withstand more than 1 million cycles at a torsion of $\pm 90^\circ$ over a length of 1m.



4 Performance data Rxhq 110-50T4.0

4.1 Technical specification

Supply voltage				24V DC	48V DC	72V DC
Nominal speed ⁽¹⁾	648'000 Inc.	n _N	rpm	180	420	650
Nominal speed ⁽¹⁾	2'592'000 Inc.	n _N	rpm	200	200	200
Stall torque		M ₀	Nm (lbf in)		4.2 (37.2)	
Nominal torque ⁽¹⁾		M _N	Nm (lbf in)		4.0 (35.4)	
Peak torque ⁽²⁾		M _P	Nm (lbf in)		12.0 (106.2)	
Nominal current ⁽¹⁾		I _N	A		6.3	
Peak current ⁽²⁾		I _P	A		20.0	

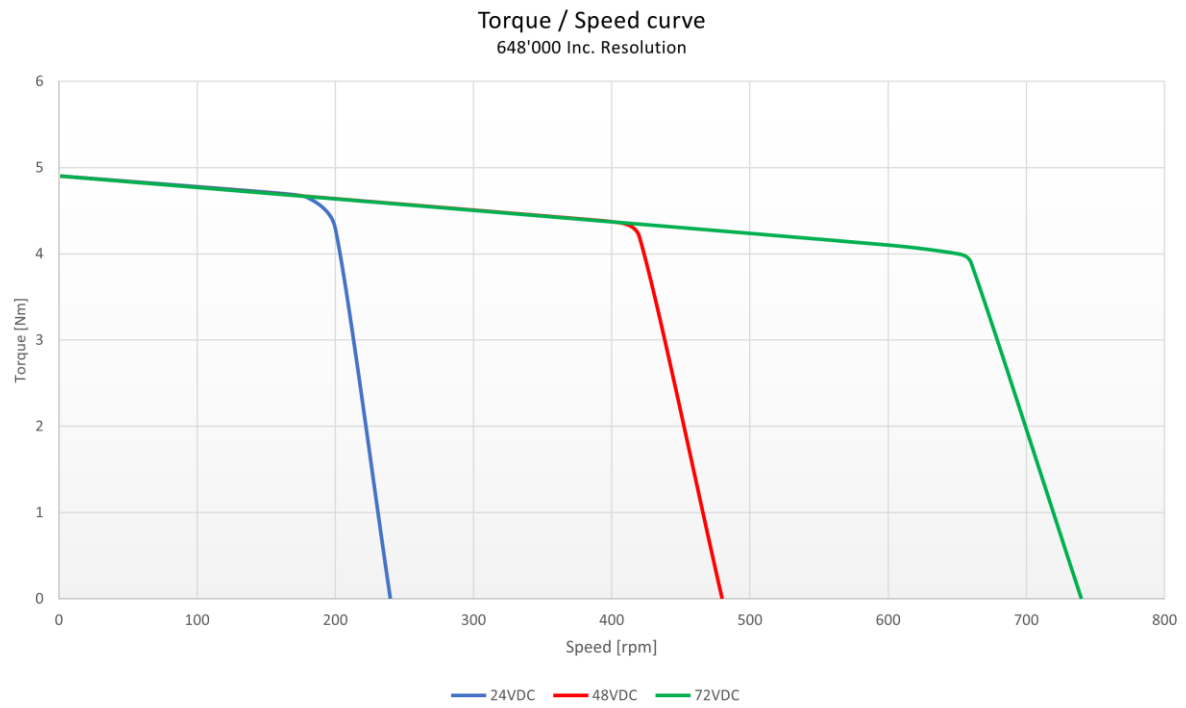
Mechanical Data

Max. axial load		N (lbf)	10'000 (2248)
Max. moment load		Nm (lbf in)	250 (2213)
Rotor moment of inertia	J _{Rot}	kg·m ² (lbs in ²)	0.001105 (3.78)
Total weight	m	g (lbs)	2250 (4.96)

(1) continuous operation with 25C° (77°F) ambient temperature and convection cooling (ambient air)

(2) peak operation (duty 10%)

4.2 Torque/Speed curve



5 Accuracy

5.1 Positioning

Resolution	648'000 Inc., Vmax 650 rpm
Bi-directional repeatability	± 4 arcsec
Absolute position accuracy	± 12 arcsec

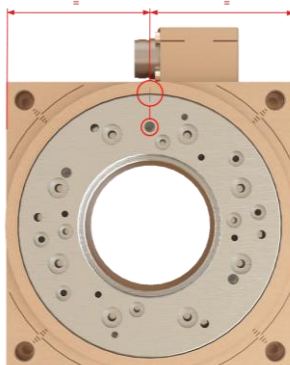
Resolution	2'592'000 Inc., Vmax 200 rpm
Bi-directional repeatability	± 1 arcsec
Absolute position accuracy	± 12 arcsec

Reference drive

With the single-turn absolute encoder the position is available immediately after power-on. Therefore, no reference drive is necessary.

Zero point absolut

For the alignment of the rotor flange, a single bore $\varnothing 4H6$ with aligned marking on the shaft and a marking on the symmetry axis of the housing is provided. The absolute zero point is in straight alignment of the two markings.



5.2 Mechanical accuracy

Runout [μm]	The ROTAX® Rxhq is delivered with the following tolerances as standard. (Smaller tolerances are possible by selection individual motors from serial production i.E $< 5\mu\text{m}$)
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Runout radial on $\varnothing 54H7$ $< 10\mu\text{m}$

Runout axial on $\varnothing 94$ $< 10\mu\text{m}$

6 Maintenance, Life time

6.1 Lubrication

The double row angular contact ball bearing of the ROTAX® Rxhq is maintenance-free and cannot be relubricated.

6.2 Life time

The ROTAX® Rxhq is a direct drive. This means no wear and tear and therefore highest precision over the whole lifetime.

Basically, the preloaded double row angular contact ball bearing is the life-determining element.

Actions with which life time can be extended:

- Trajectories with curve profiles instead of trapezoidal profiles (XENAX® Servo controller, default value S-curve profile = 20%).
- Dynamics not higher than needed.
- Completing non cycle time critical motions slower.
- Avoid pollution in the guides.

7 Safety, Enviroment

7.1 Safety with XENAX® Servo Controller

EN 61000-6-2:2005 Electromagnetic compatibility (EMC), Immunity for industrial environments	EMC Immunity Testing, Industrial Class A
EN 61326-3-1 IFA:2012 EN 61326-1, EN 61800-3, EN 50370-1	Immunity for Functional Safety Functional safety of power drive systems Electrostatic discharges ESD, Electromagnetic Fields, Fast electric transients Bursts, radio frequency common mode
EN 61000-6-3:2001 Electromagnetic compatibility (EMC), Emission standard for residential, commercial and light-industrial environments	EMC Emissions Testing, Residential Class B
EN 61326-1, EN61800-3, EN50370-1 IFA:2012	Radiated EM Field, Interference voltage Functional safety of power drive systems

7.2 Environmental Conditions

Storage and transport	No outdoor storage. Storage rooms have to be well vented and dry. Storage temperature -25°C up to +55°C (-13°F up to 131°F).
Operational temperature	5°C - 50°C (41°F - 122°F) Environment, reduction in performance at 40°C (104°F).
Operational humidity	10-90% non-condensing.
Cooling	No need of external cooling. The mechanical mounting to a flange allows additional heat dissipation thanks to thermal conduction. This allows a higher performance.
Protection category	IP 50

8 Note

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Information in this instruction manual is subject to Modifications.

Jenny Science AG
Sandblatte 11
CH-6026 Rain, Schweiz

Tel +41 (0) 41 255 25 25

www.jennyscience.ch
info@jennyscience.ch

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