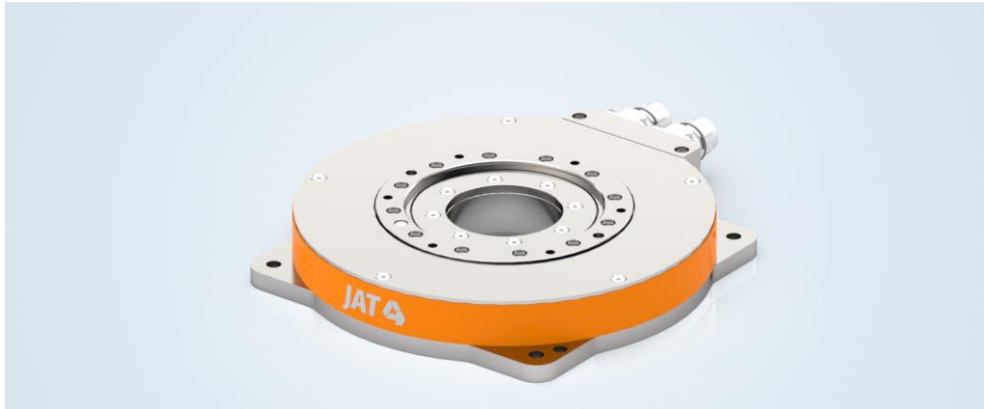


Rotary Table System Series HRT-160

Innovative design for highest dynamic and precision



Compact design

Example HRT-160-17: Ultra thin – build height 30 mm



Highest torque density

Smaller packing means lowering footprint



Low cogging value

Smooth motion and positioning accuracy



No backlash

Highest stiffness



Integrated measuring system

Incremental or absolute value encoder, different types

Rotary table - ready to install

Mechanically & electrically ready for connection

M17 connectors

Direct drive

Precise & no backlash

Innovative design

Reduced moving mass for low inertia

Low cogging value

Smooth running characteristics

Customer specific modifications possible

Use with servo amplifiers:

ECOVARIO® 414

ECOVARIO® 616(D)

Field bus interfaces:

CANopen, EtherCAT, Profibus, Profinet, Ethernet, RS232, RS485

Rotary Table System Series HRT-160

→ Technical data

		Series HRT-160-17	Series HRT-160-25	Series HRT-160-34	Series HRT-160-60	
Rated Values				(preliminary)	(preliminary)	
Max. rated DC link voltage	V _{DC}	325	325	325	560	
Peak torque (c.d.f. 5%) ¹⁾	Nm	8,8	21,4	34,1	106,2	
Maximum speed ²⁾	min ⁻¹	500	500	500	t.b.d.	
Rated torque ¹⁾	Nm	2,5	3,4	7,8	18,2	
Max. current (per phase, c.d.f. 5%) ¹⁾	A _{RMS}	14	14	14	16	
Rated current (per phase) ¹⁾	A _{RMS}	2,9	2,3	3,2	2,7	
Repeatability ²⁾ with encoder incremental / absolute	arcsec	±3 / ±2,5	±3 / ±2,5	±3 / ±2,5	±3 / ±2,5	
Radial eccentricity	standard	µm	< 25	< 35	t.b.d.	t.b.d.
	optional	µm	< 10	< 10	t.b.d.	t.b.d.
Axial eccentricity	standard	µm	< 25	< 35	t.b.d.	t.b.d.
	optional	µm	< 10	< 10	t.b.d.	t.b.d.

Technical Data Motor

Torque constant	Nm/A	0,85	1,5	2,44	6,74
Voltage constant	V/1000 min ⁻¹	59,3	122,8	209	556
Winding resistance	Ω	5,4	7,4	10,9	24,6
Winding inductivity	mH	8,9	14,2	30	95,8
Number of pole pairs	2p	18	18	18	18
Motor inertia	kgm ² x10 ⁻³	1,19	2,3	3,04	t.b.d.
Max. axial load	N	400 ³⁾	750 ³⁾	750 ³⁾	t.b.d.
Max. radial load	N	250 ³⁾	500 ³⁾	500 ³⁾	t.b.d.
Topple torque	Nm	10 ⁴⁾	50 ⁴⁾	50 ⁴⁾	t.b.d.
Holding brake	Nm	-	2 (Option)	2 (Option)	2 (Option)

Incremental Encoder

Resolution (standard) ²⁾	inc/rev	532 000	532 000	532 000	532 000
Resolution (maximum) ²⁾	inc/rev	1 945 600	1 945 000	1 945 000	1 945 000
Operating voltage	V _{DC}	5 (±10%)			
Signal specification		RS422			

Absolute Value Encoder

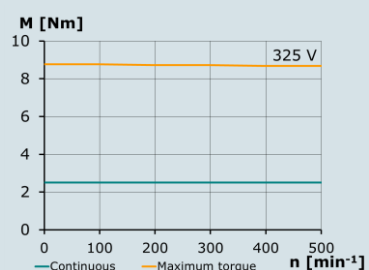
Resolution		21 Bit	21 Bit	21 Bit	21 Bit
Operating voltage	V _{DC}	5 (±5%)			
Protocol		BiSS C			

Environmental Conditions

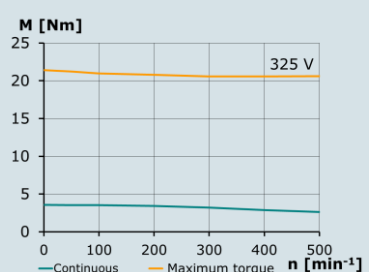
Ambient temperature		0 ... 40 °C			
Temperature switch-off sensor		PTC, 105 °C			
Protection class		IP40			

1. Mounting flange 250 mm x 250 mm / thickness 20 mm
2. Depends on the measuring system
3. speed: 300 min⁻¹, a higher individual load leads to a limitation of the bearing life
4. speed: 300 min⁻¹ with maximum load, different application must be calculated

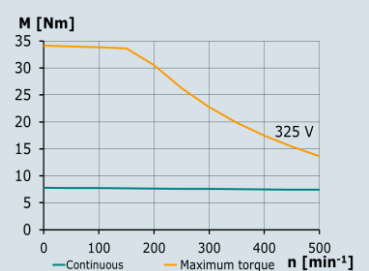
Characteristic HRT-160-17/ECOVARIO® 414



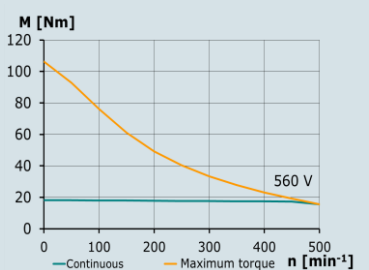
Characteristic HRT-160-25/ECOVARIO® 414



Characteristic HRT-160-34/ECOVARIO® 414



Characteristic HRT-160-60/ECOVARIO® 616(D)



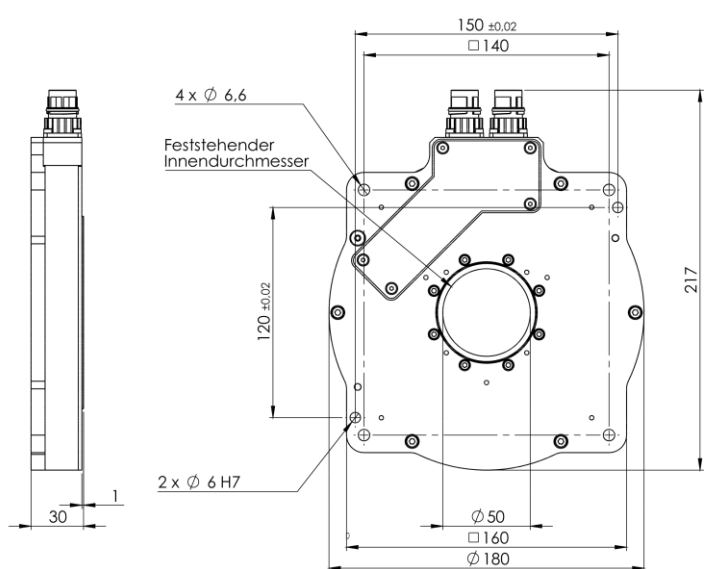
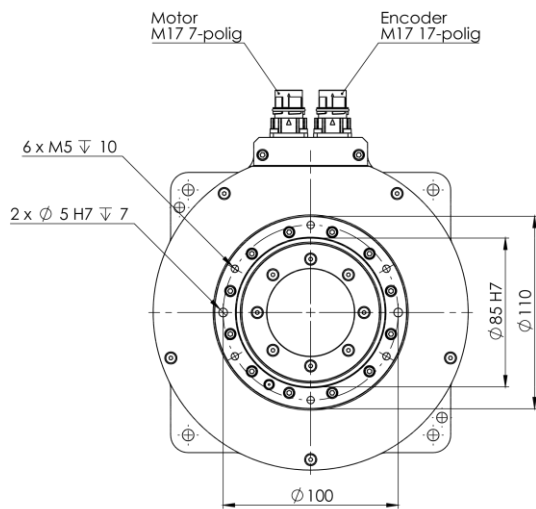
Rotary Table System Series HRT-160

→ Dimensions

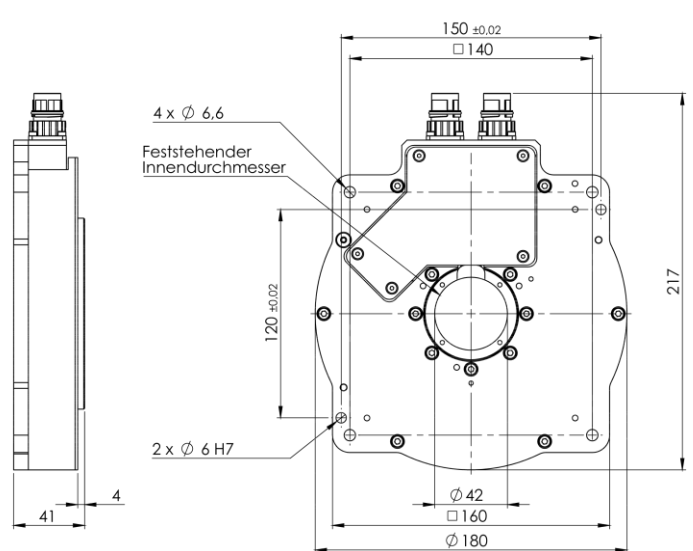
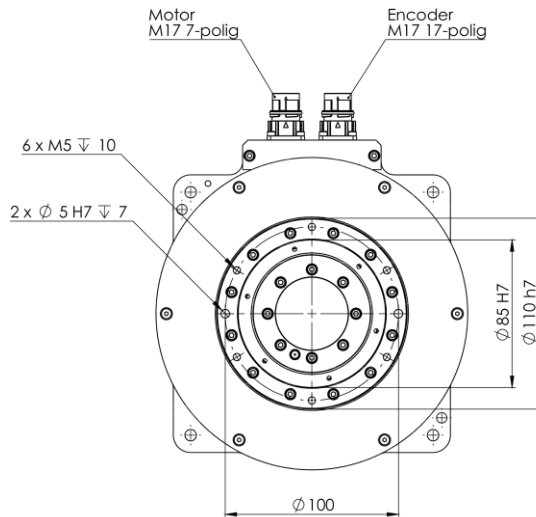
		Series HRT-160-17	Series HRT-160-25	Series HRT-160-34	Series HRT-160-60
Outer diameter	mm	180	180	180	180
Height	mm	30	41	55	t.b.d.
Weight without brake	kg	2,1 / 2,5*	3,2 / 3,6*	3,7 / 4,4*	t.b.d.
Weight with brake	kg	-	3,5 / 3,9*	4,0 / 4,7*	t.b.d.

*) with option "Improved radial and axial run-out"

HRT-160-17:



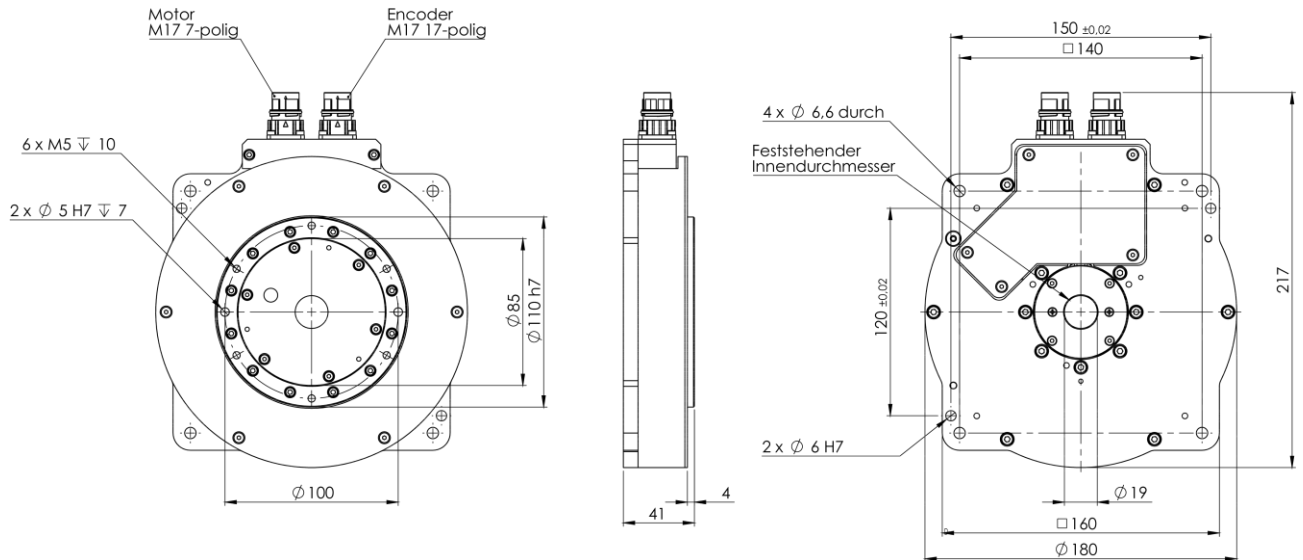
HRT-160-25:



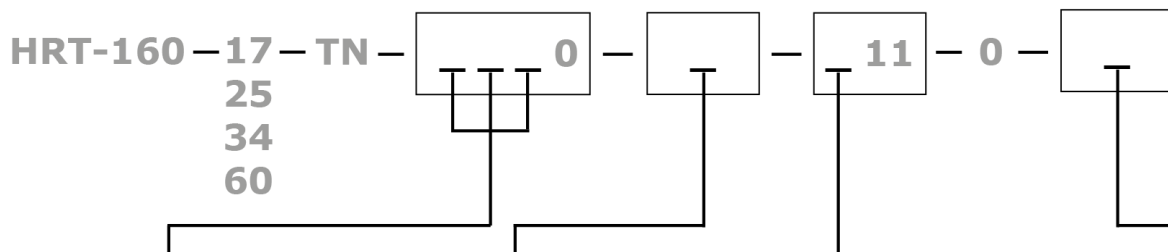
Rotary Table System Series HRT-160

→ Dimensions

HRT-160-25 with brake:



→ Ordering key



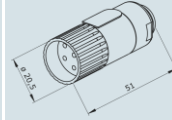
Measuring system		Holding brake		Connector outlet		Option	
500	Incremental 532 000 inc/rev	0	Without brake	R	Radial (default)	2	Default
E15	Absolute 21 bit	7	Holding brake 2 Nm *	A	Axial	4	Improved radial and axial run-out
		*) available for HRT-160-25, HRT-160-34 and HRT-160-60					

Rotary Table System Series HRT-160

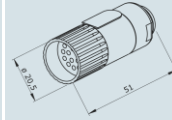
→ Accessories

Mating connector set 70.070 (for cables made by customer)

Motor mating connector M17



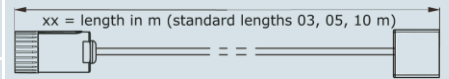
Encoder mating connector M17



Cable assemblies

Motor cable (for ECOVARIO® 414)
MOT61-133-523-0xx-100

Ø 8,9 mm; trailing capability from bend radius > 90 mm



Motor cable (for ECOVARIO® 616)
MOT67-133-523-0xx-100

Ø ca. 8,9 mm; trailing capability from bend radius > 90 mm

Motor/brake cable (for ECOVARIO® 414)
MOT63-134-523-0xx-100

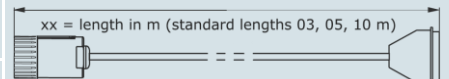
Ø 10,8 mm; trailing capability from bend radius > 105 mm

Motor/brake cable (for ECOVARIO® 616)
MOT68-134-523-0xx-100

Ø ca. 10,8 mm; trailing capability from bend radius > 105 mm

Incremental encoder cable (ECOVARIO® 414)
INK65-491-525-0xx-000

Ø 9,5 mm; trailing capability from bend radius > 90 mm



Incremental encoder cable (ECOVARIO® 616)
INK65-305-525-0xx-000

Ø 9,5 mm; trailing capability from bend radius > 90 mm

Absolute encoder cable
ABS65-300-525-0xx-000

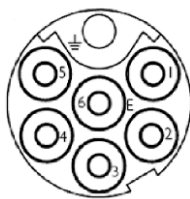
Ø 9,5 mm; trailing capability from bend radius > 90 mm

→ Connector and cable assignment

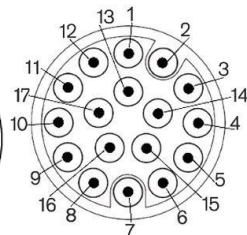
Motor connector M17 assignment

Pin	Signal
1	Phase U
2	-
3	Brake + (option)
4	Phase V
5	Phase W
6	Brake - (option)
7	PE

Motor connector:



Encoder connector:



Encoder connector M17 assignment (Ink/SinCos encoder)

Pin	Signal	Pin	Signal
1	A+ / Sin+	10	-
2	A- / Sin-	11	-
3	B+ / Cos+	12	-
4	B- / Cos-	13	-
5	Z+	14	-
6	Z-	15	+5 V
7	PTC*	16	GND
8	PTC*	17	-
9	-		

*) not 2nd measuring system connector

Encoder connector M17 assignment (Absolute value encoder)

Pin	Signal	Pin	Signal
1	-	10	Channel /DAT
2	-	11	Channel CLK
3	-	12	Channel /CLK
4	-	13	+U _p
5	-	14	Sens S+
6	-	15	-
7	PTC*	16	GND
8	PTC*	17	Sens S-
9	Channel DAT		

*) not 2nd measuring system connector