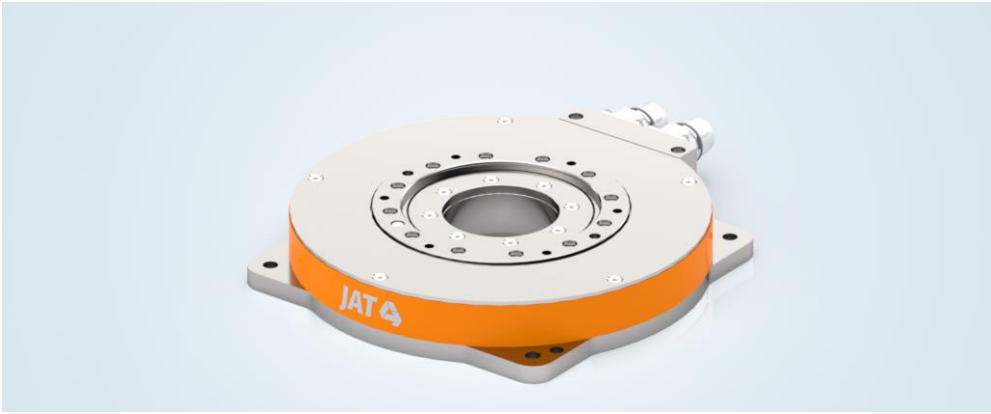
JENAER ANTRIEBSTECHNIK

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

www.jat-gmbh.de

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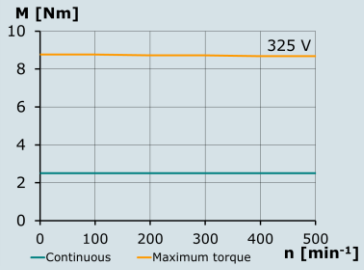
Rotary Table System Series HRT-160

→ Technical data

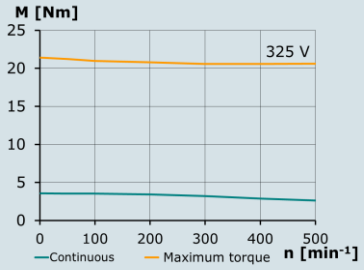
			Series HRT-160-17	Series HRT-160-25	Series HRT-160-34	Series HRT-160-60
Rated Values					(preliminary)	(preliminary)
Max. rated DC link voltage		V_{DC}	325	325	325	560
Peak torque (c.d.f. 5%) [1]		Nm	8,8	21,4	34,1	106,2
Maximum speed [2]		min^{-1}	500	500	500	t.b.d.
Rated torque [1]		Nm	2,5	3,4	7,8	18,2
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 / ±5 (±2,5)[5]	±3 / ±5 (±2,5)[5]	±3 / ±5 (±2,5)[5]	±3 / ±5 (±2,5)[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^2x10^{-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 (standard)			18 Bit	18 Bit	18 Bit	18 Bit
Resolution (maximum) [5]			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
5. under preparation

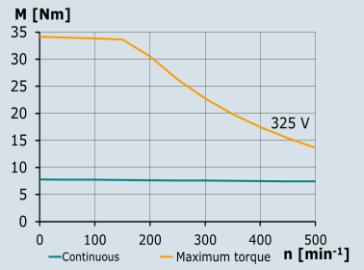
Characteristic HRT-160-17/ECOVARIO® 414



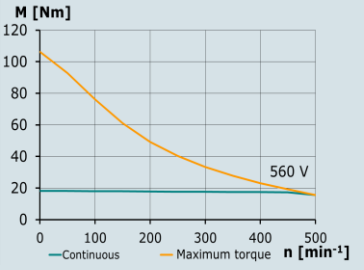
Characteristic HRT-160-25/ECOVARIO® 414



Characteristic HRT-160-34/ECOVARIO® 414



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

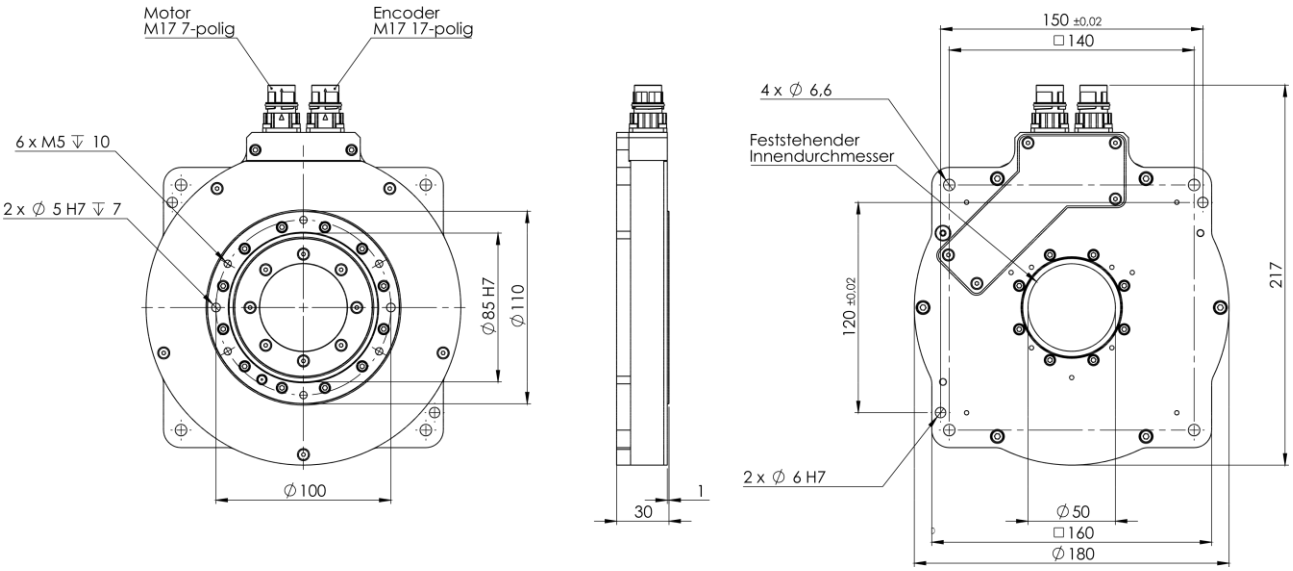


Rotary Table System Series HRT-160

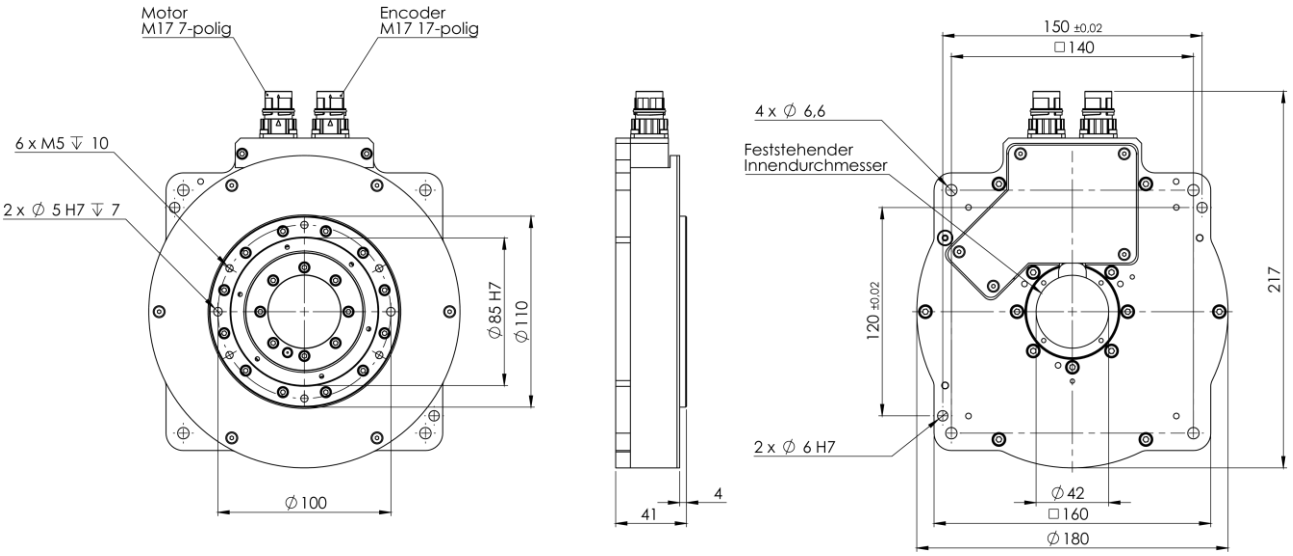
→ Dimensions

		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	50	t.b.d.
Weight without brake	kg	2,1 / 2,5*	3,2 / 3,6*	4,3 / 5,0*	t.b.d.
Weight with brake	kg	-	3,5 / 3,9*	4,6 / 5,3*	t.b.d.
*) with option "Improved radial and axial run-out"					

HRT-160-17:



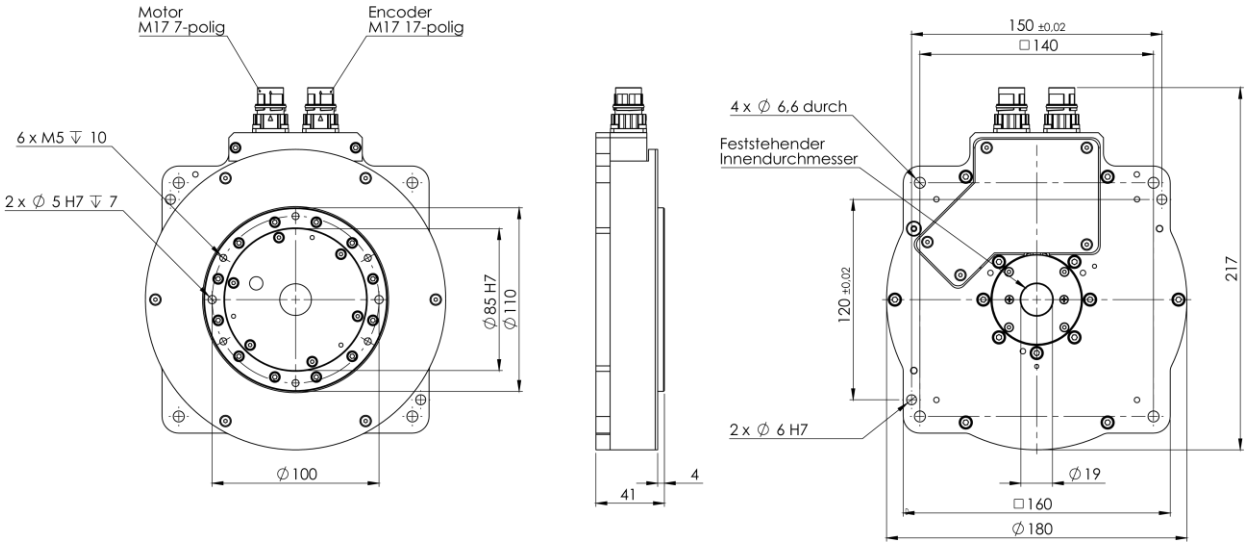
HRT-160-25:



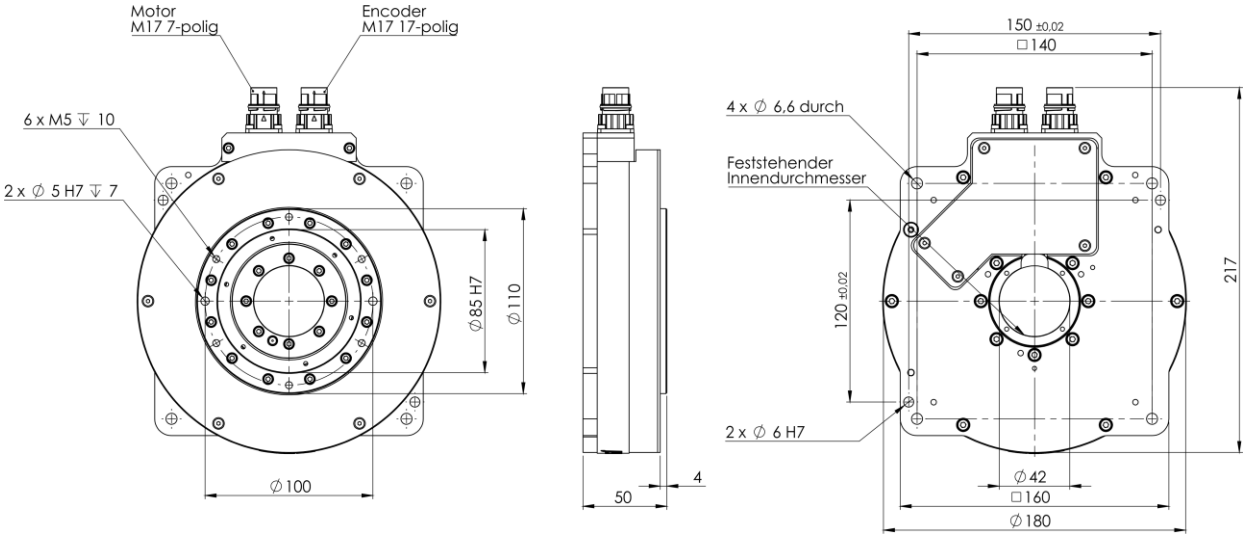
Rotary Table System Series HRT-160

→ Dimensions

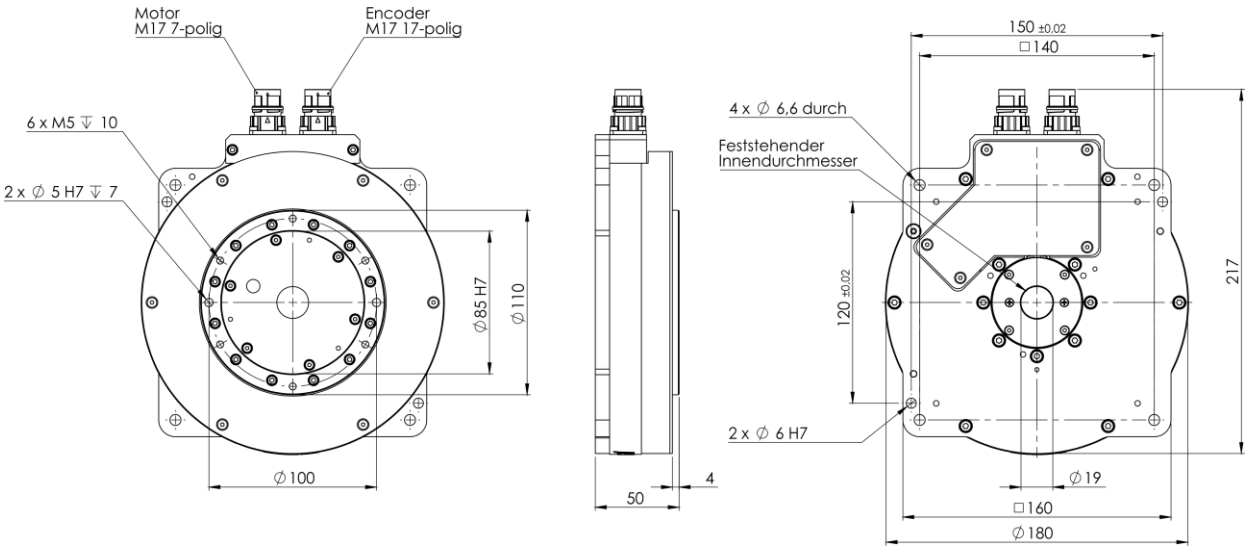
HRT-160-25 with brake:



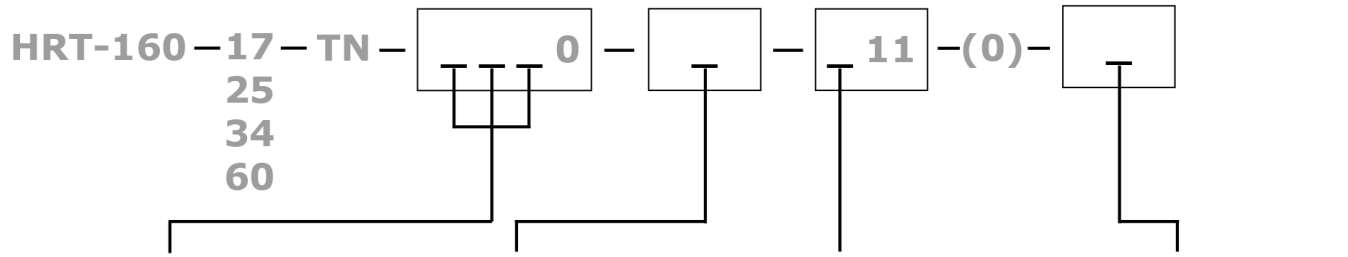
HRT-160-34:



HRT-160-34 with brake:



→ Ordering key



Measuring system	
500	Incremental 532 000 inc/rev
E04	Absolute 18 bit
E15	Absolute 21 bit *
*) under preparation	

Holding brake	
0	Without brake
7	Holding brake 2 Nm *
*) available for HRT-160-25, HRT-160-34 and HRT-160-60	

Connector outlet	
R	Radial (default)
A	Axial

Option	
2	Default
4	Improved radial and axial run-out

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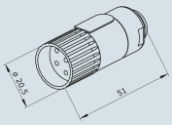
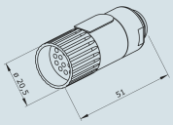
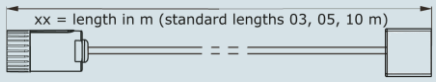
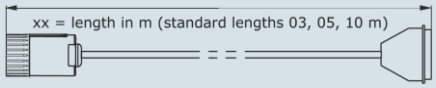
→ Accessories

Mating connector set 70.070 (for cables made by customer)	
Motor mating connector M17	
Encoder mating connector M17	

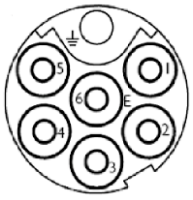
Cable assemblies		
Motor cable (for ECOVARIO® 414) MOT61-133-523-0xx-100	Ø 8,2 mm; trailing capability from bend radius > 80 mm	
Motor cable (for ECOVARIO® 616) MOT67-133-523-0xx-100	Ø 8,2 mm; trailing capability from bend radius > 80 mm	
Motor/brake cable (for ECOVARIO® 414) MOT63-134-523-0xx-100	Ø 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

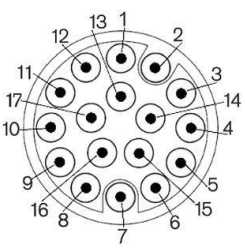
Assignment motor(/brake) cable

Connection	Motor connector pin M17	Motor (/brake) cable wire MOT61/63	Motor (/brake) cable wire MOT67/68
Phase U	4	3	1
Phase V	1	1	2
Phase W	5	4	3
Brake + (optional)	3	black (MOT63)	black (MOT68)
Brake - (optional)	6	white (MOT63)	white (MOT68)
PE	7	gn/ye	gn/ye
Shield	Housing	Shield	Shield

Motor connector:



Encoder connector:



Assignment incremental encoder cable

Connection	Encoder conn. pin	Encoder cable wire	Pin D-Sub 9 pin /HD 15 pins
+5V	15	brown	1
GND	16	white	6
Channel A	1	green	2
Channel /A	2	yellow	7
Channel B	3	grey	3
Channel /B	4	pink	8
Channel N	5	blue	4
Channel /N	6	red	9
PTC	7	violet	5
PTC	8	black	6 / 10
Shield*	Housing	bare	Shroud

Assignment absolute encoder cable

Connection	Encoder conn. pin	Encoder cable wire	Pin D-Sub HD (15 pins)
+Up	13	brown	1
GND	16	white	6
Channel CLK	11	green	14
Channel /CLK	12	yellow	15
Sens S-	17	grey	11
Sens S+	14	pink	12
Channel DAT	9	blue	4
Channel /DAT	10	red	9
PTC	7	violet	5
PTC	8	black	10
Shield	Housing	bare	Shroud

*) D-Sub HD 15 pins: additional bridges in connector, double shielding

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