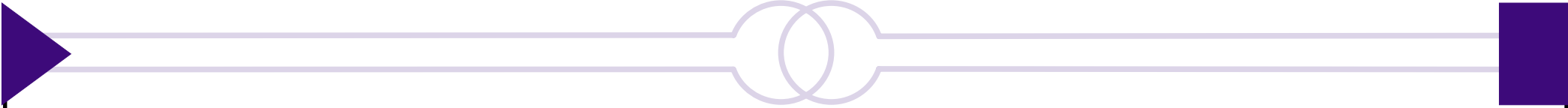




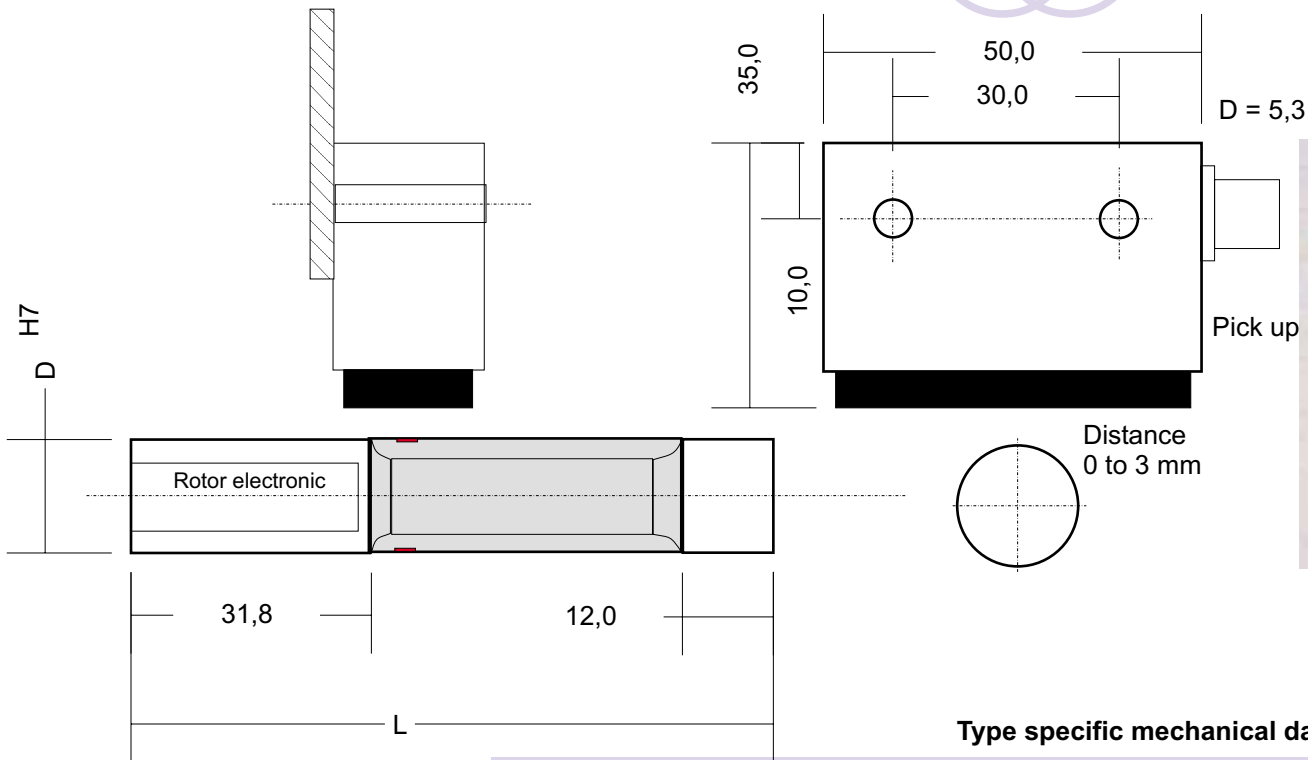
Torque Measuring Transducer



Miniature Torque Measuring Shaft without Bearings (0,5 Nm to 500 Nm)

Characteristics:

- * Coupling with Lenze clamping elements**
- * Very small moment of inertia**
- * Accuracy 0,1%**
- * Signal transmission via Sensortelemetry**
- * Completely encapsulated**
- * Rotational speed up to 30,000 rpm**
- * Temperature range -30 to 125°C**

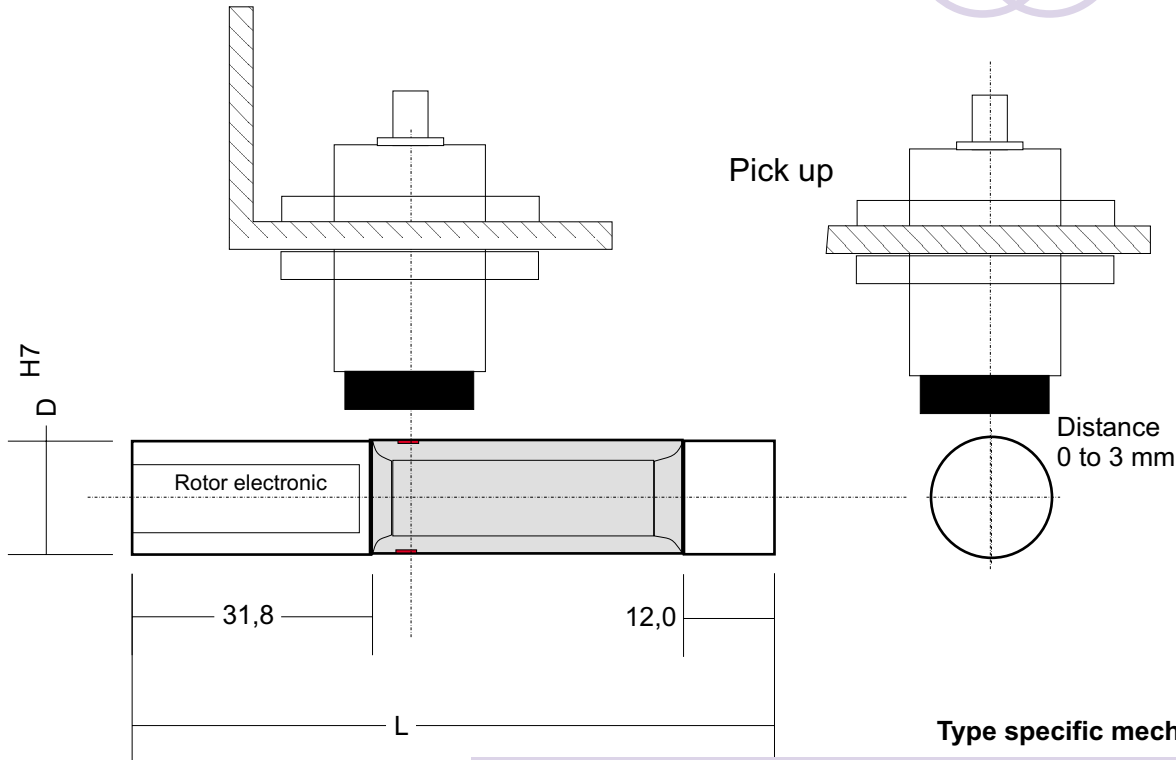


Torque measuring shaft



Type specific mechanical data (Typ MWS....)

M_{nom} (Nm)	1	5	10	20	50	100	200	500
Diameter D (mm)	15	15	15	15	15	20	25	35
length L (mm)	85	85	85	85	85	120	150	200
Weight (Rotor) (kg):	0.15	0.15	0.2	0.4	0.4	0.4	0.4	0.4
Inertia (10^{-6} kgm ²):	1,45	1,5	1,7	3	6	10	25	110
(With/without speed system)								
Torsional stiffness (Nm/°):	0,04	0,04	0,04	0,08	0,20	0,40	0,80	2,00
Torsional angle related to M_{nom} (°):	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Axial stiffness (kN/mm) c_a :	5	5	7	9	12	15	18	21
Radial stiffness (kN/mm) c_r :	30	30	40	50	200	400	500	600
Bending moment stiffness (kNm/°) c_b :	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Max. axial load (kN):	0.06	0.10	0.14	0.18	0.37	0.75	0.75	0.75
Max. radial load (kN):	0.06	0.06	0.14	0.18	0.30	0.50	0.65	0.8
Max. bending moment (kNm):	0.01	0.05	0.07	0.15	0.20	0.40	0.60	0.70
Max. excursion at max. axial force (mm):	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	<0.08	<0.08
Balance quality level (DIN ISO 1940):	G2.5							
Max. speed (rpm):	50,000	50,000	20,000	20,000	20,000	18,000	16,000	14,000
Highspeed option (rpm):	100,000	100,000	80,000	80,000	80,000	36,000	32,000	28,000
Speed acquisition (inductive, teeth/turn):	6	6	6	6	10	12	14	16



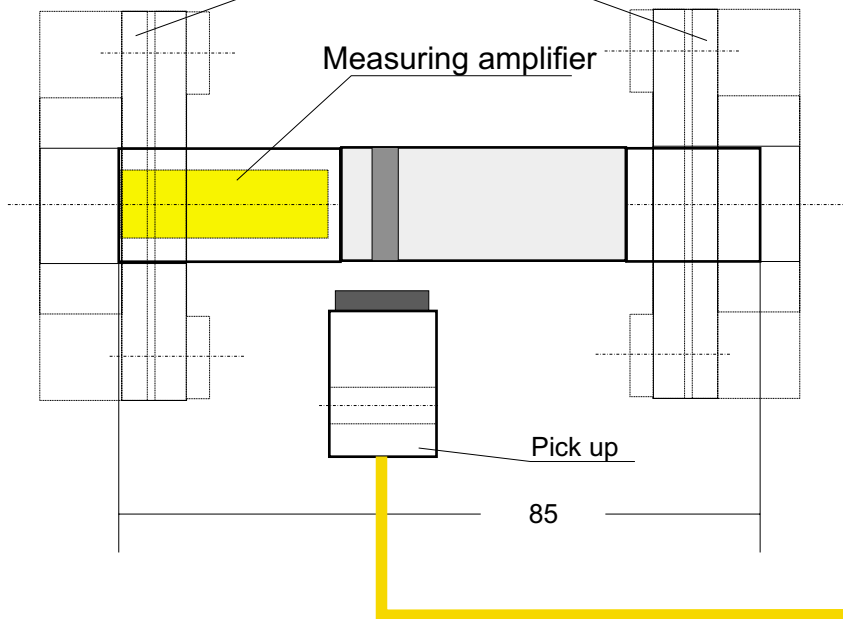
Torque measuring shaft



Type specific mechanical data (Typ MWS....)

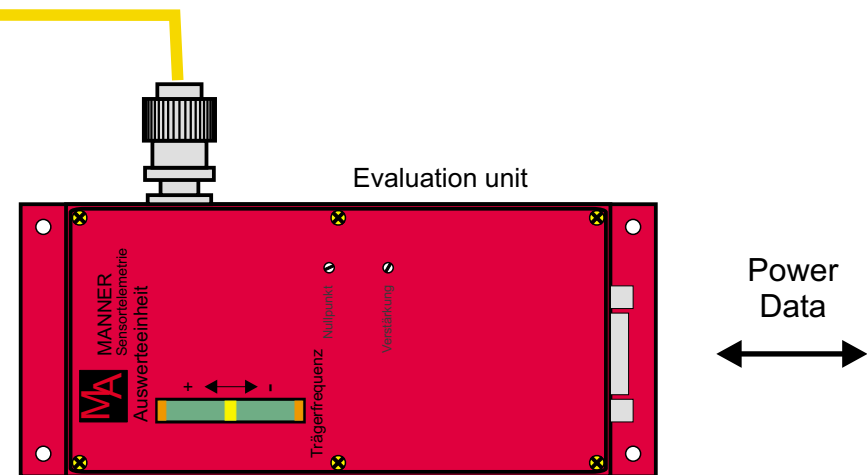
M_{nom} (Nm)	1	5	10	20	50	100	200	500
Diameter D(mm)	15	15	15	15	15	20	25	35
length L (mm)	85	85	85	85	85	120	150	200
Weight (Rotor) (kg):	0.15	0.15	0.2	0.4	0.4	0.4	0.4	0.4
Inertia (10 ⁻⁶ kgm ²):	1,45	1,5	1,7	3	6	10	25	110
<small>(With/without speed system)</small>								
Torsional stiffness (Nm/°):	0,04	0,04	0,04	0,08	0,20	0,40	0,80	2,00
Torsional angle related to M _{nom} (°):	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Axial stiffness (kN/mm) c _a :	5	5	7	9	12	15	18	21
Radial stiffness (kN/mm) c _r :	30	30	40	50	200	400	500	600
Bending moment stiffness (kNm/°) c _b :	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Max. axial load (kN):	0.06	0.10	0.14	0.18	0.37	0.75	0.75	0.75
Max. radial load (kN):	0.06	0.06	0.14	0.18	0.30	0.50	0.65	0.8
Max. bending moment (kNm):	0.01	0.05	0.07	0.15	0.20	0.40	0.60	0.70
Max. excursion at max. axial force (mm):	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	<0.08	<0.08
Balance quality level (DIN ISO 1940):	G2.5							
Max. speed (rpm):	50,000	50,000	20,000	20,000	20,000	18,000	16,000	14,000
Highspeed option (rpm):	100,000	100,000	80,000	80,000	80,000	36,000	32,000	28,000
Speed acquisition (inductive, teeth/turn):	6	6	6	6	10	12	14	16

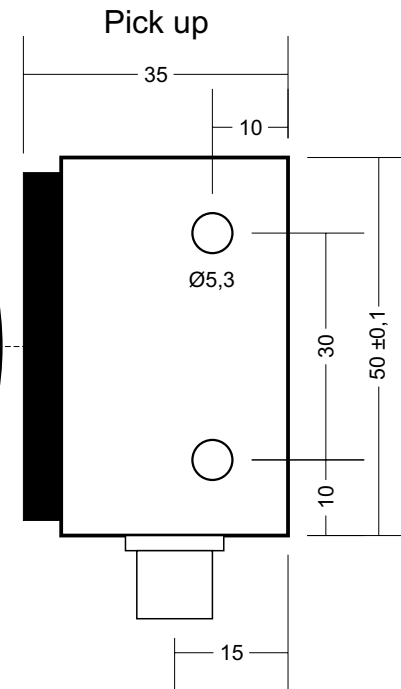
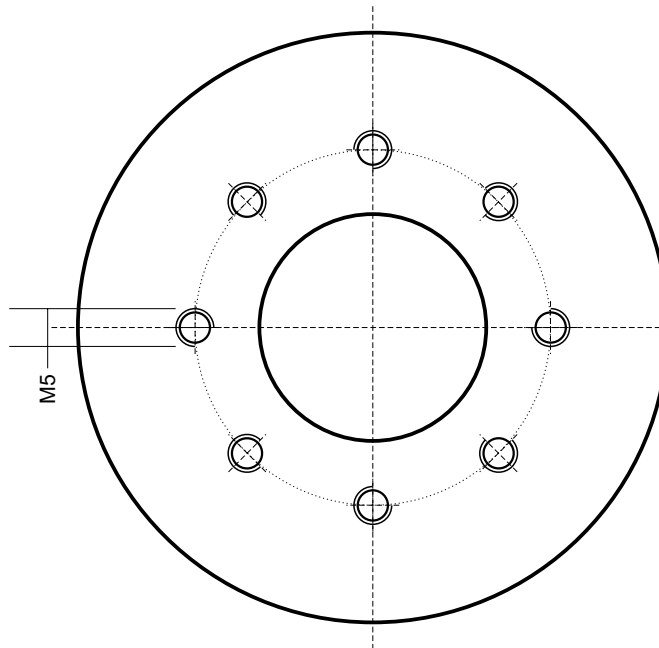
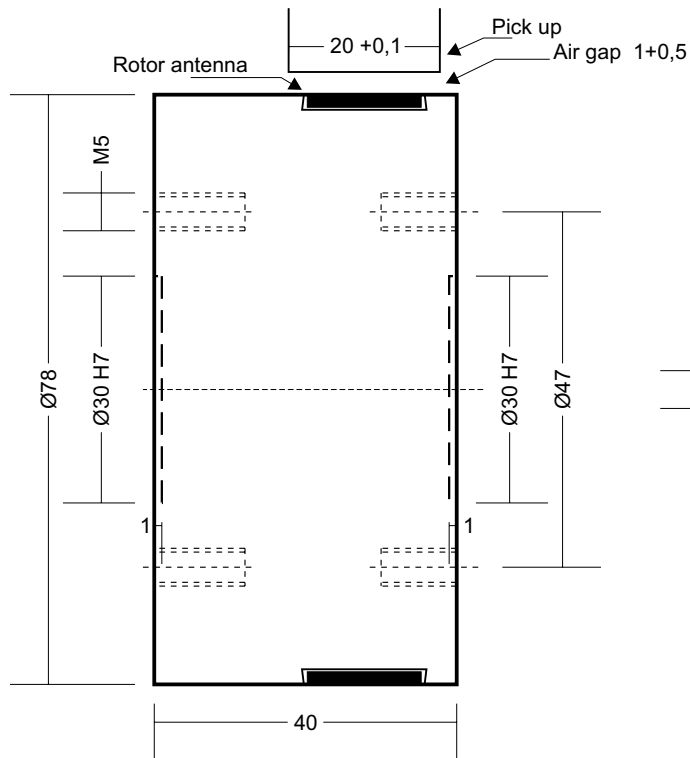
e. g. Clamping element Lenze
ETP-Techno 015



Torque measuring shaft

- Measuring range: 5 Nm
- Measuring range: 10 Nm
- Measuring range: 20 Nm
- Measuring range: 50 Nm
- Measuring range: 100 Nm
- Measuring range: 200 Nm
- Measuring range: 500 Nm



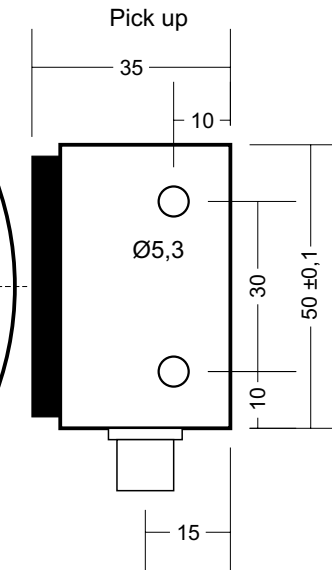
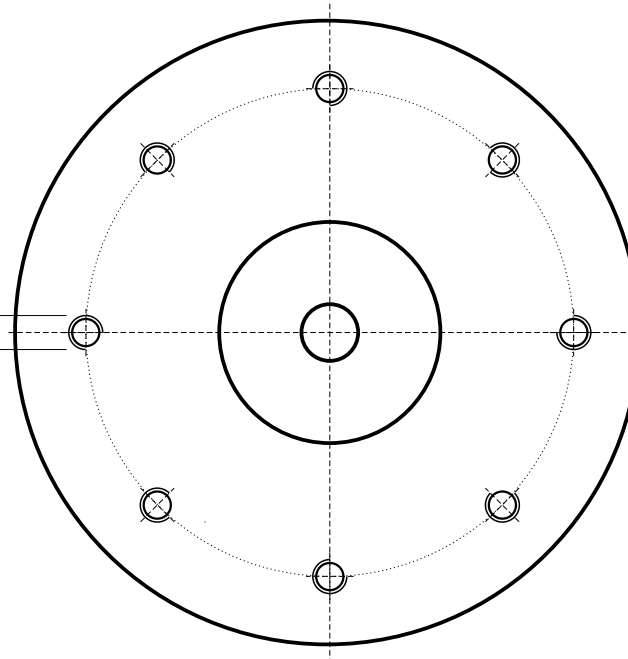
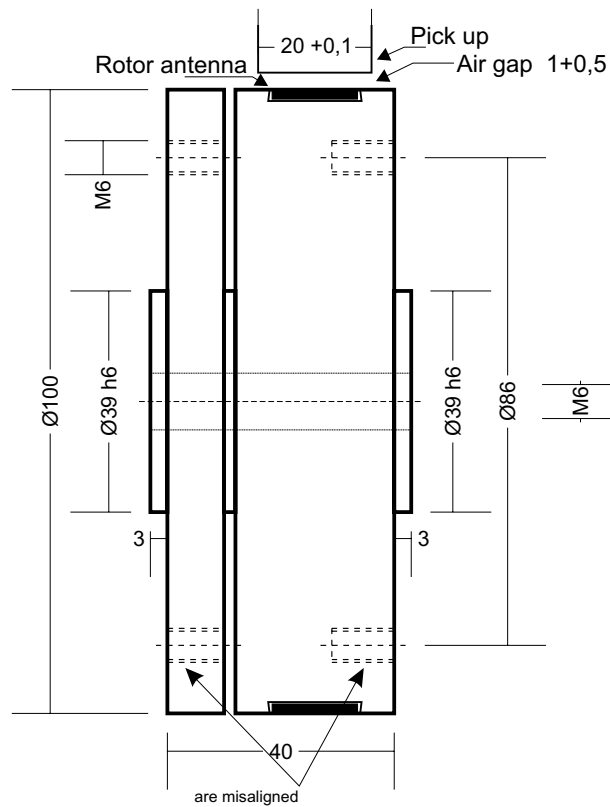


Torque measuring flange

Measuring range: 20 Nm
 Measuring range: 50 Nm
 Measuring range: 100 Nm

Type specific mechanical data

M_{nom} (Nm)	20	50	100
Weight (Rotor) (kg):	0.4	0.4	0.4
Inertia (kgm ²):	0.0002	0.0002	0.0002
<small>(With/without speed system)</small>			
Torsional stiffness (kNm/°):	4	5	6
Torsional angle related to M_{nom} (°):	0.01	0.01	0.01
Axial stiffness (kN/mm) c_a :	156	156	156
Radial stiffness (kN/mm) c_r :	50	200	400
Bending moment stiffness (kNm/°) c_b :	0.35	0.35	0.35
Max. axial load (kN):	0.18	0.37	0.75
Max. radial load (kN):	0.18	0.37	0.75
Max. bending moment (kNm):	0.18	0.37	0.75
Max. excursion at max. axial force (mm):	<0.04	<0.04	<0.08
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 option)		
Max. speed (rpm):	14,000	14,000	14,000
Highspeed option (rpm):	18,000	18,000	18,000
Speed acquisition (inductive, teeth/turn):	64	64	64
Hollow shaft (option):	---	---	---



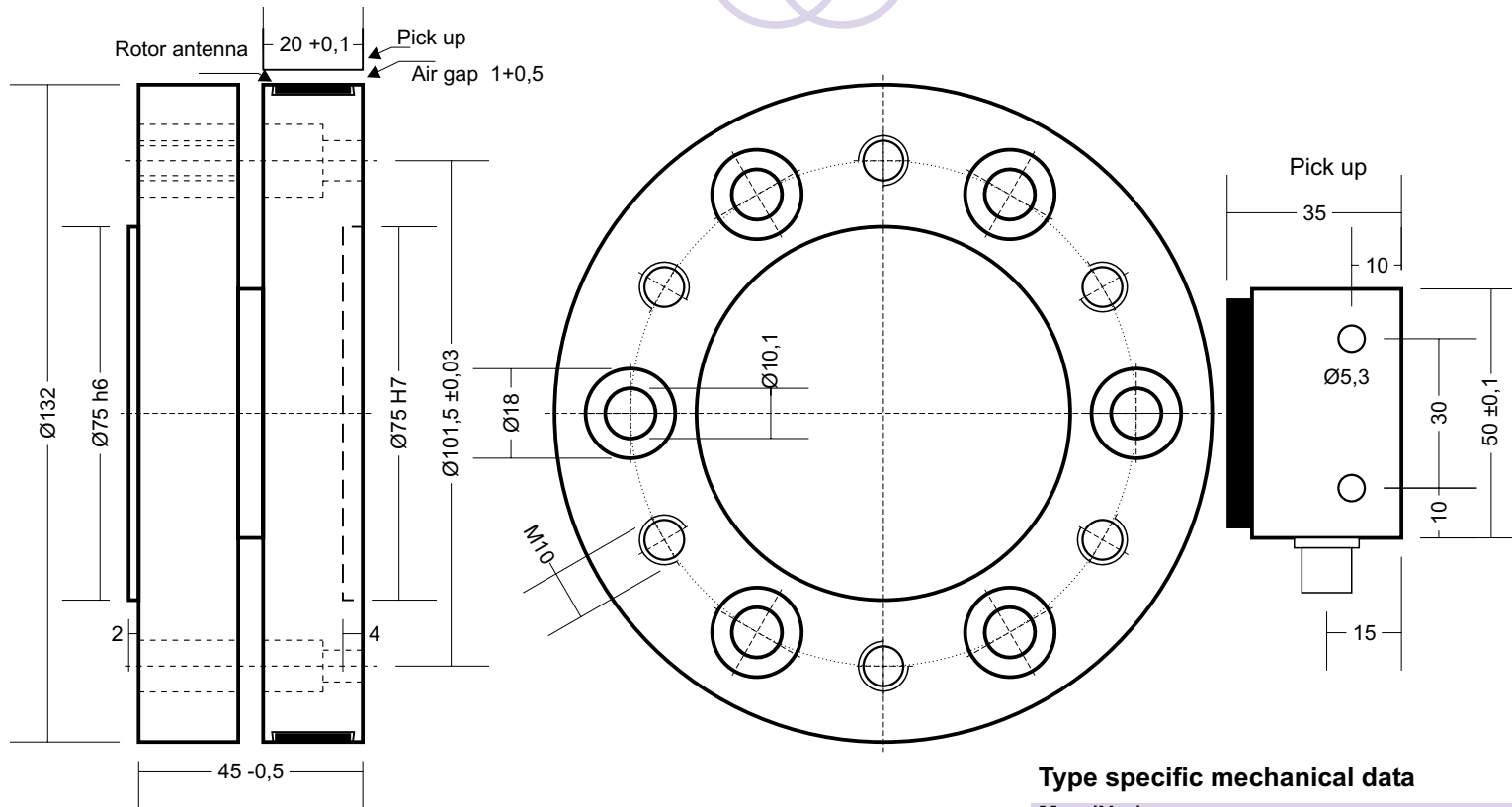
Torque measuring flange

Measuring range: 100 Nm

Measuring range: 200 Nm

Type specific mechanical data

M_{nom} (Nm)	100	200
Weight (Rotor) (kg):	1.6	1.7
Inertia (kgm^2):	0.0025	0.0026
<i>(With/without speed system)</i>		
Torsional stiffness ($kNm/^\circ$):	10	20
Torsional angle related to M_{nom} ($^\circ$):	0.01	0.01
Axial stiffness (kN/mm) c_a :	90	180
Radial stiffness (kN/mm) c_r :	400	800
Bending moment stiffness ($kNm/^\circ$) c_b :	2	4
Max. axial load (kN):	0.75	1.5
Max. radial load (kN):	0,75	1.5
Max. bending moment (kNm):	0.75	1.5
Max. excursion at max. axial force (mm):	<0.04	<0.08
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 option)	
Max. speed (rpm):	12,000	12,000
Highspeed option (rpm):	18,000	18,000
Speed acquisition (inductive, teeth/turn):	64	64
Hollow shaft (option):	yes	yes

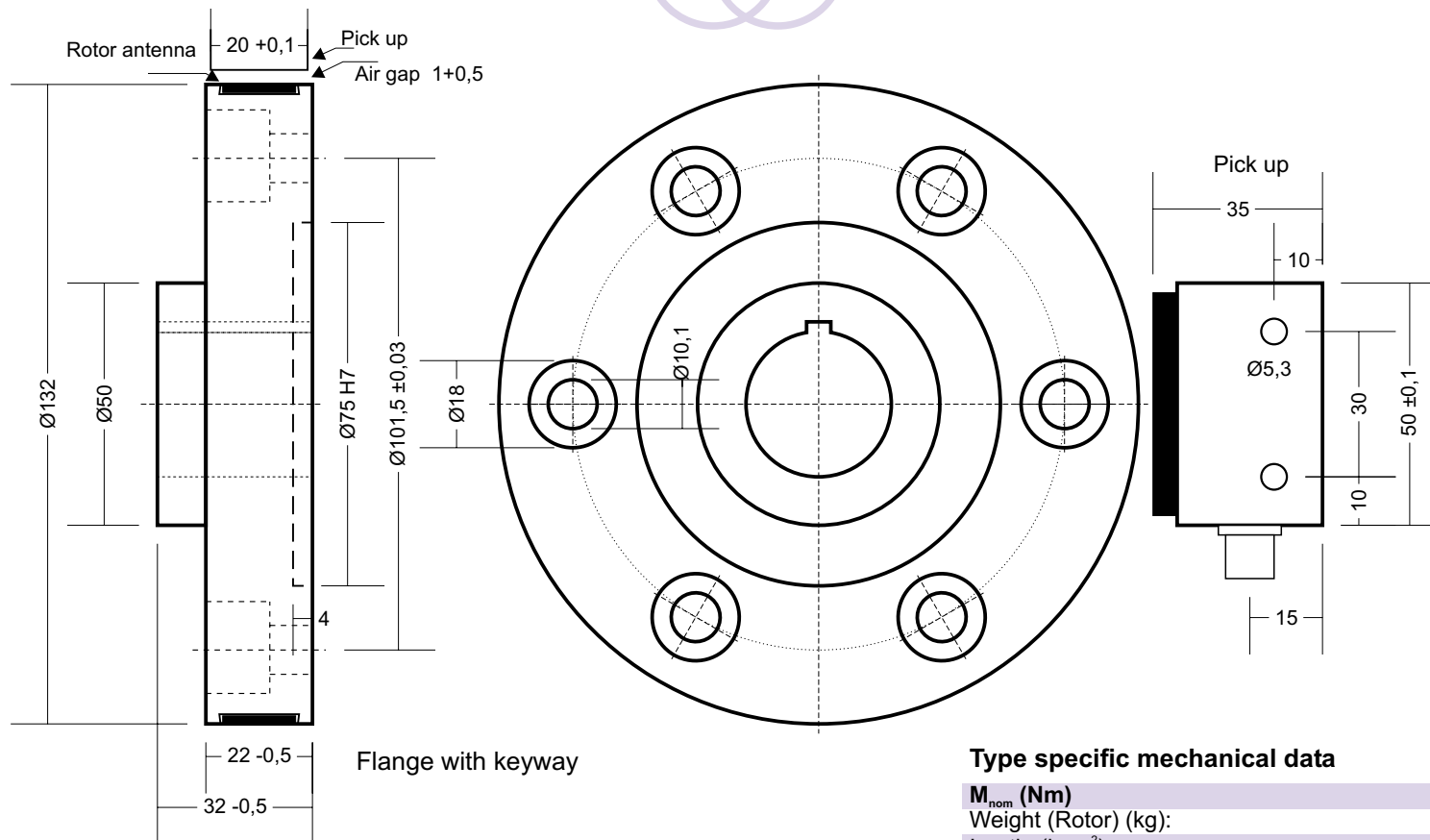


Torque measuring flange

Measuring range: 500 Nm
 Measuring range: 1000 Nm

Type specific mechanical data

M_{nom} (Nm)	500	1000
Weight (Rotor) (kg):	2.9	3
Inertia (kgm ²):	0.009	0.01
<small>(With/without speed system)</small>		
Torsional stiffness (kNm/°):	52	105
Torsional angle related to M _{nom} (°):	0.01	0.01
Axial stiffness (kN/mm) c _a :	90	180
Radial stiffness (kN/mm) c _r :	400	800
Bending moment stiffness (kNm/°) c _b :	2	4
Max. axial load (kN):	3.7	7.5
Max. radial load (kN):	3.7	7.5
Max. bending moment (kNm):	3.7	7.5
Max. excursion at max. axial force (mm):	<0.04	<0.08
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 option)	
Max. speed (rpm):	12,000	12,000
Highspeed option (rpm):	16,000	16,000
Speed acquisition (inductive, teeth/turn):	90	90
Hollow shaft (option):	yes	yes



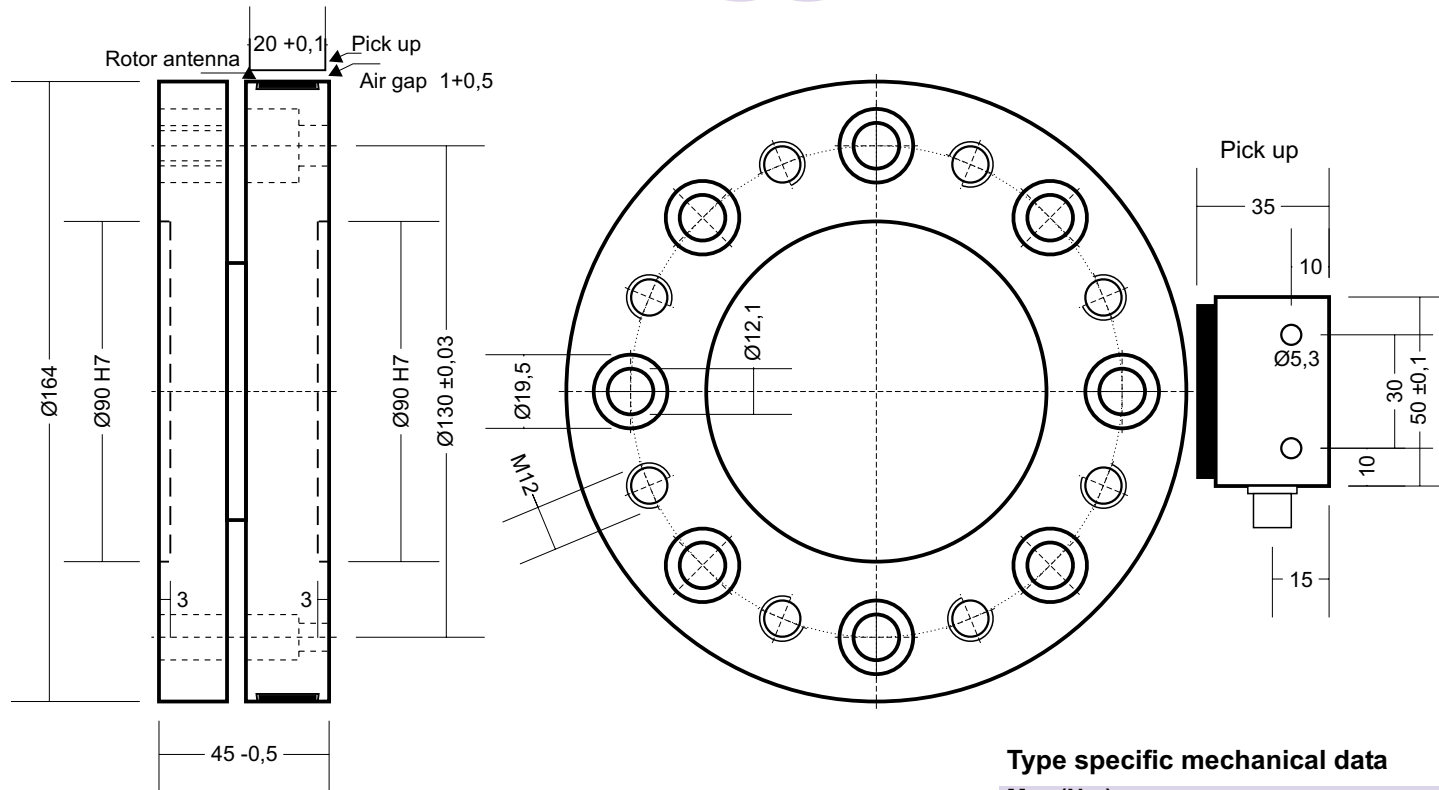
Torque measuring flange

Measuring range: 500 Nm

Measuring range: 1000 Nm

Type specific mechanical data

M_{nom} (Nm)	500	1,000
Weight (Rotor) (kg):	2.0	2.1
Inertia (kgm ²):	0.005	0.006
<small>(With/without speed system)</small>		
Torsional stiffness (kNm/°):	52	105
Torsional angle related to M _{nom} (°):	0.01	0.01
Axial stiffness (kN/mm) c _a :	90	180
Radial stiffness (kN/mm) c _r :	400	800
Bending moment stiffness (kNm/°) c _b :	2	4
Max. axial load (kN):	3.7	7.5
Max. radial load (kN):	3.7	7.5
Max. bending moment (kNm):	3.7	7.5
Max. excursion at max. axial force (mm):	<0.04	<0.08
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 option)	
Max. speed (rpm):	12,000	12,000
Highspeed option (rpm):	16,000	16,000
Speed acquisition (inductive, teeth/turn):	90	90
Hollow shaft (option):	yes	yes

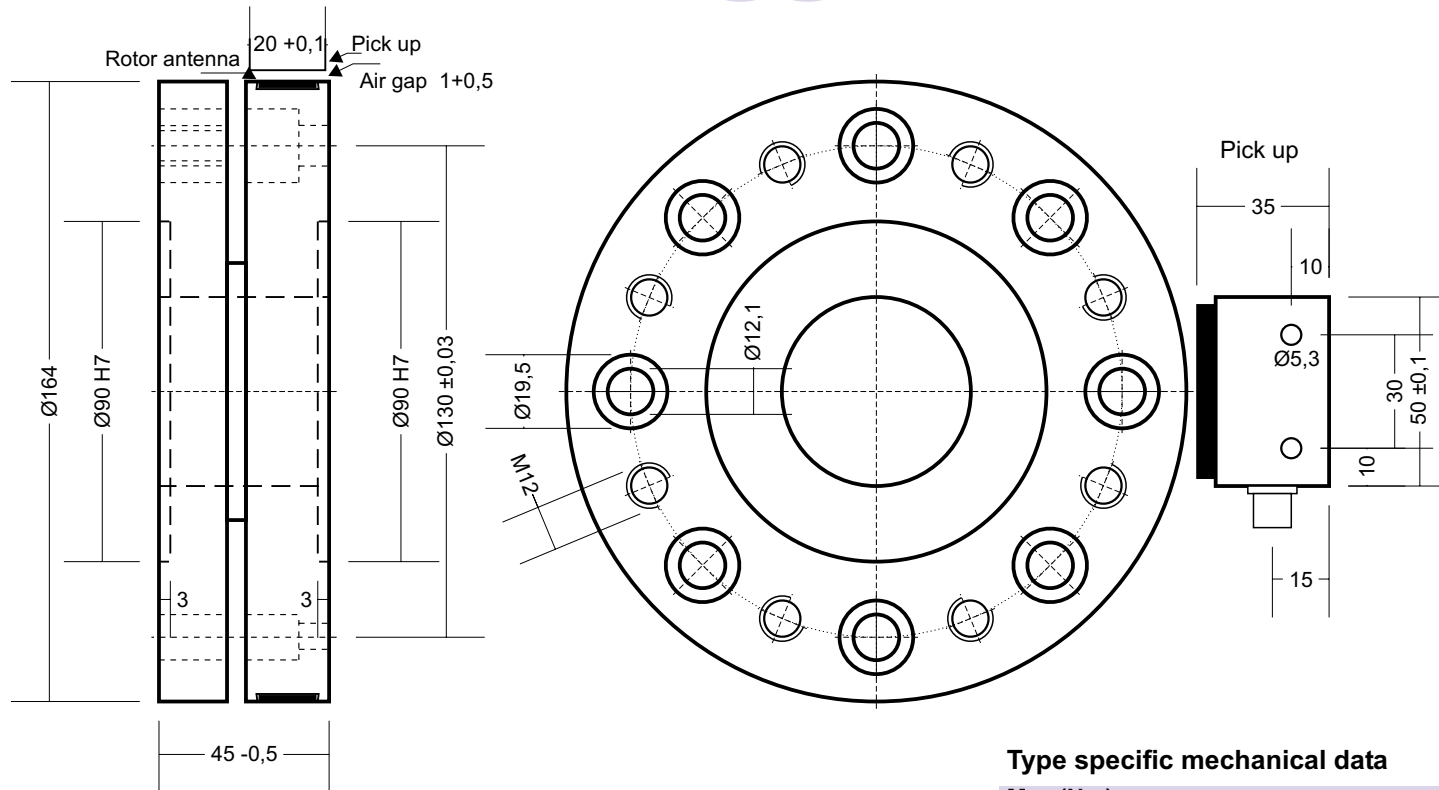


Torque measuring flange

Measuring range: 1 kNm
 Measuring range: 2 kNm
 Measuring range: 3 kNm

Type specific mechanical data

M_{nom} (Nm)	1,000	2,000	3,000
Weight (Rotor) (kg):	4.6	4.8	5.0
Inertia (kgm ²):	0.018	0.019	0.020
<small>(With/without speed system)</small>			
Torsional stiffness (kNm/°):	105	210	315
Torsional angle related to M _{nom} (°):	0.01	0.01	0.01
Axial stiffness (kN/mm) c _a :	180	350	540
Radial stiffness (kN/mm) c _r :	800	1,300	2,400
Bending moment stiffness (kNm/°) c _b :	2	4	6
Max. axial load (kN):	7.5	15	21
Max. radial load (kN):	7.5	15	21
Max. bending moment (kNm):	7.5	15	21
Max. excursion at max. axial force (mm):	<0.04	<0.08	<0.12
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 Option)		
Max. speed (rpm):	8,000	8,000	8,000
Highspeed option (rpm):	13,000	13,000	13,000
Speed acquisition (inductive, teeth/turn):	120	120	120
Hollow shaft (option):	yes	yes	yes



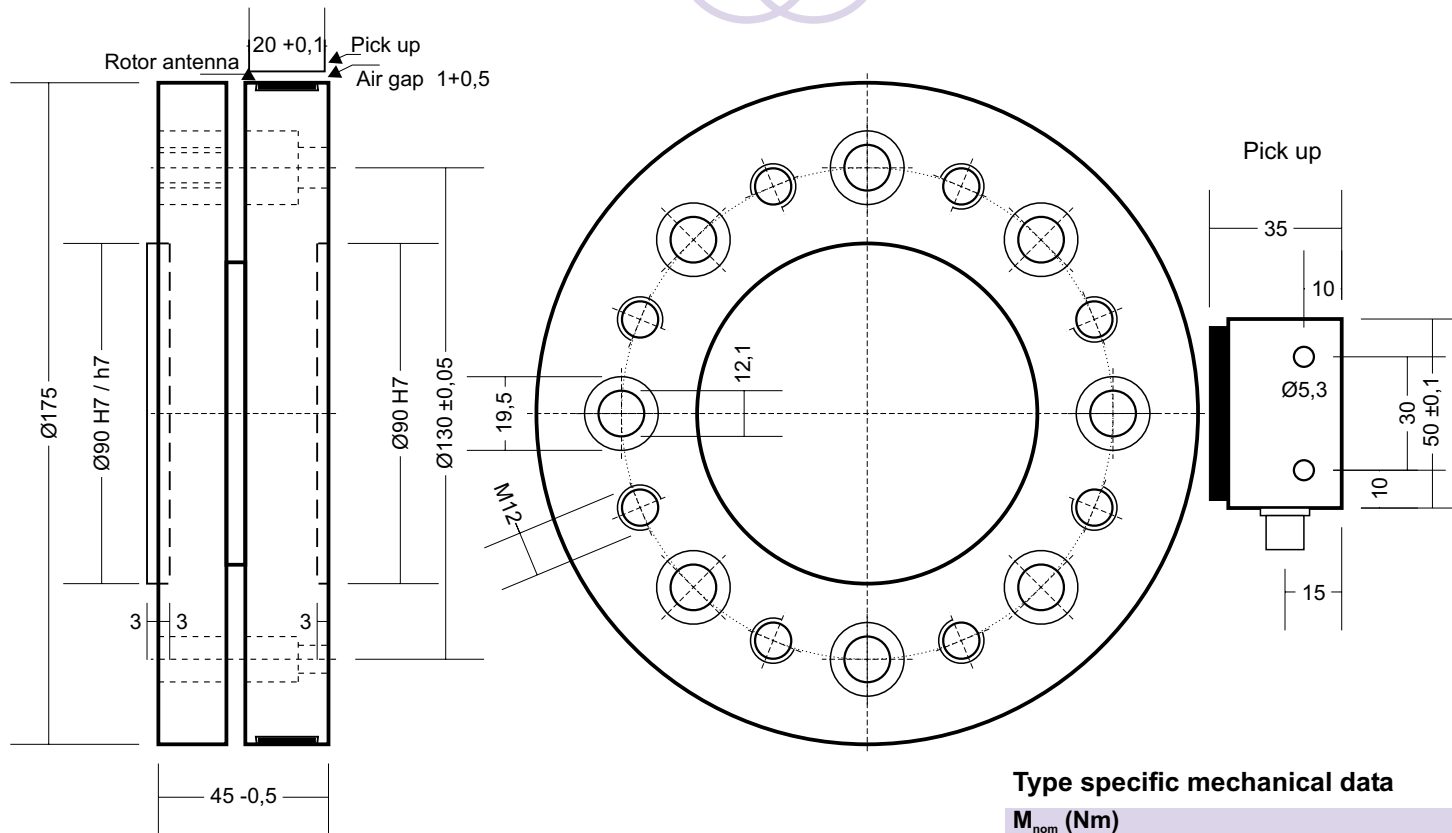
Torque measuring flange

Measuring range: 1 kNm
 Measuring range: 2 kNm
 Measuring range: 3 kNm

Hollow shaft

Type specific mechanical data

M_{nom} (Nm)	1,000	2,000	3,000
Weight (Rotor) (kg):	4.0	4.2	4.3
Inertia (kgm ²):	0.017	0.018	0.019
<small>(With/without speed system)</small>			
Torsional stiffness (kNm/°):	105	210	315
Torsional angle related to M _{nom} (°):	0.01	0.01	0.01
Axial stiffness (kN/mm) c _a :	180	350	540
Radial stiffness (kN/mm) c _r :	800	1,300	2,400
Bending moment stiffness (kNm/°) c _b :	2	4	6
Max. axial load (kN):	7.5	15	21
Max. radial load (kN):	7.5	15	21
Max. bending moment (kNm):	7.5	15	21
Max. excursion at max. axial force (mm):	<0.04	<0.08	<0.12
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 Option)		
Max. speed (rpm):	8,000	8,000	8,000
Highspeed option (rpm):	13,000	13,000	13,000
Speed acquisition (inductive, teeth/turn):	120	120	120
Hollow shaft (option):	---	---	---



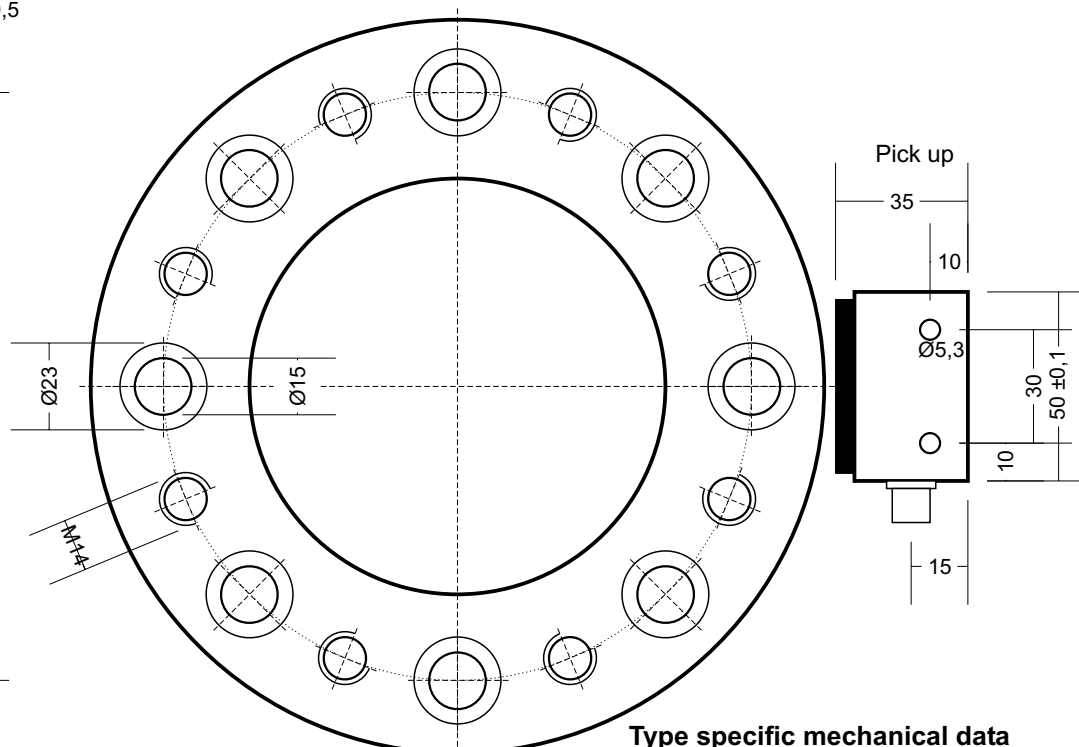
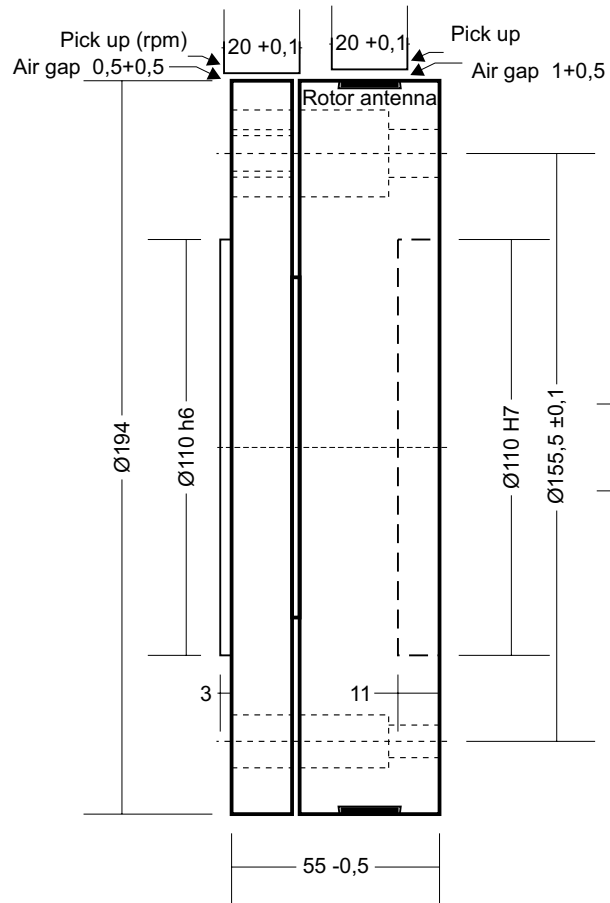
Torque measuring flange

Measuring range: 2 kNm

Measuring range: 3 kNm

Type specific mechanical data

M_{nom} (Nm)	2,000	3,000
Weight (Rotor) (kg):	5.2	5.3
Inertia (kgm ²):	0.028	0.030
<small>(With/without speed system)</small>		
Torsional stiffness (kNm/°):	210	315
Torsional angle related to M_{nom} (°):	0.01	0.01
Axial stiffness (kN/mm) c_a :	350	540
Radial stiffness (kN/mm) c_r :	1,300	2,400
Bending moment stiffness (kNm/°) c_b :	4	6
Max. axial load (kN):	15	21
Max. radial load (kN):	15	21
Max. bending moment (kNm):	15	21
Max. excursion at max. axial force (mm):	<0.08	<0.12
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 option)	
Max. speed (rpm):	8,000	8,000
Highspeed option (rpm):	13,000	13,000
Speed acquisition (inductive, teeth/turn):	120	120
Hollow shaft (option):	yes	yes

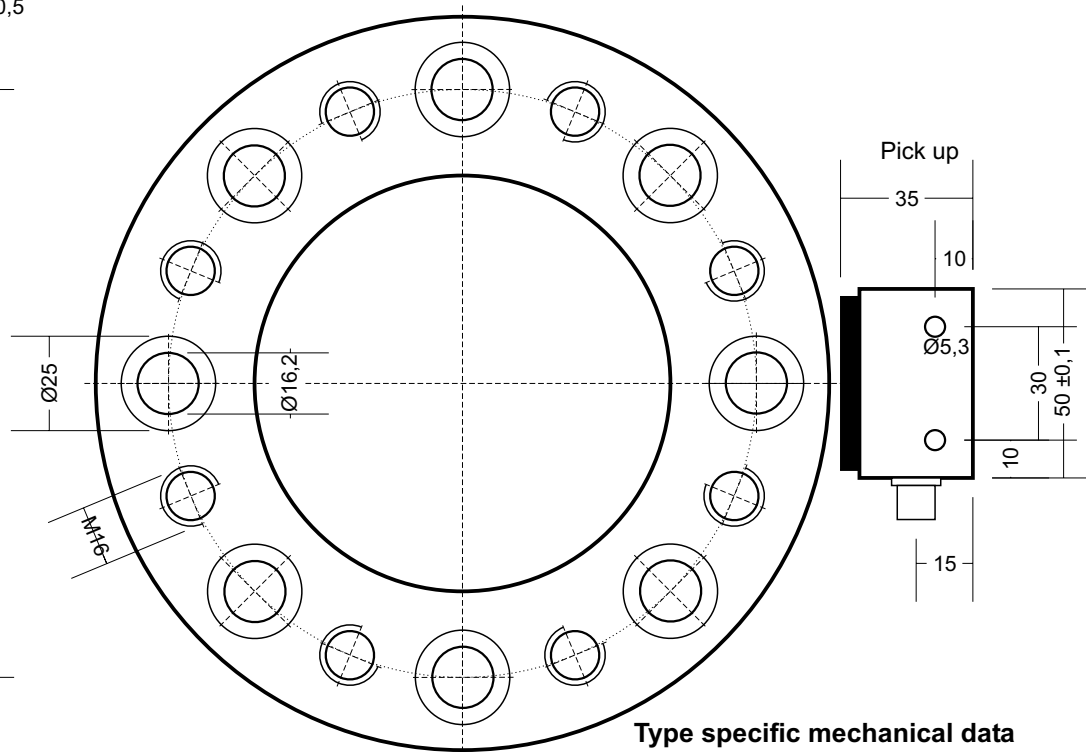
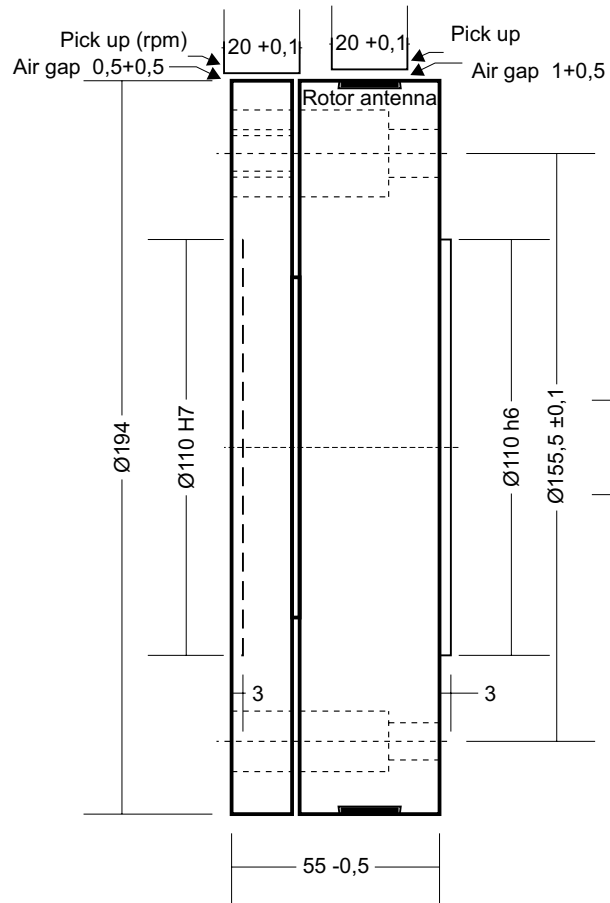


Torque measuring flange

Measuring range: 5 kNm

Type specific mechanical data

M_{nom} (Nm)	5,000
Weight (Rotor) (kg):	10.5
Inertia (kgm ²):	0.0614
<small>(With/without speed system)</small>	
Torsional stiffness (kNm/°):	500
Torsional angle related to M _{nom} (°):	0.01
Axial stiffness (kN/mm) c _a :	900
Radial stiffness (kN/mm) c _r :	4,000
Bending moment stiffness (kNm/°) c _b :	10
Max. axial load (kN):	38
Max. radial load (kN):	38
Max. bending moment (kNm):	38
Max. excursion at max. axial force (mm):	<0.04
Balance quality level (DIN ISO 1940):	G6.3 (G2.5 Option)
Max. speed (rpm):	8,000
Highspeed option (rpm):	12,000
Speed acquisition (inductive, teeth/turn):	120
Hollow shaft (option):	yes

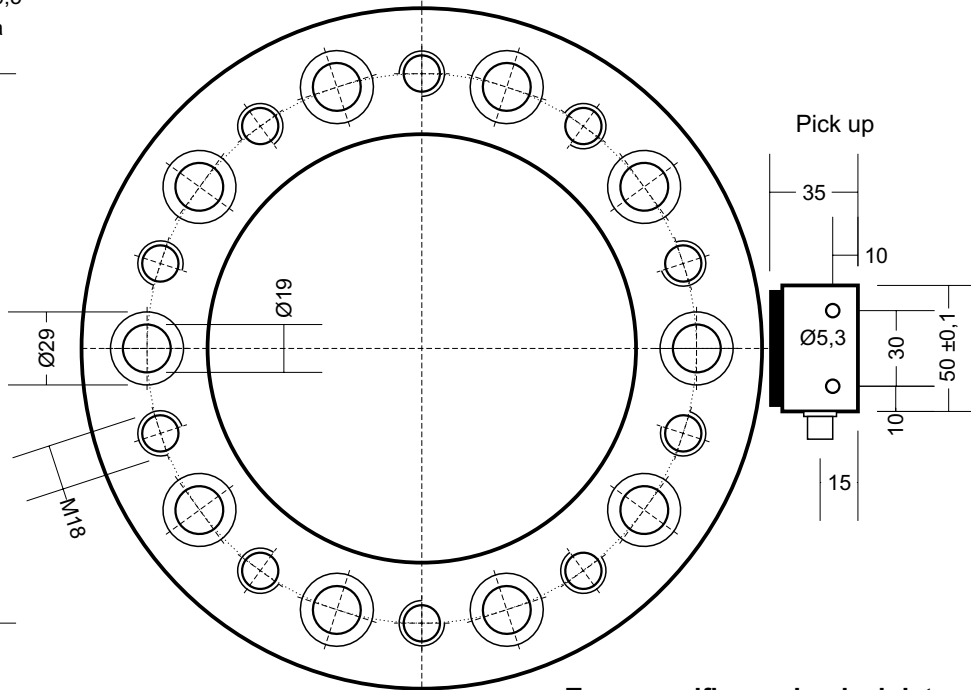
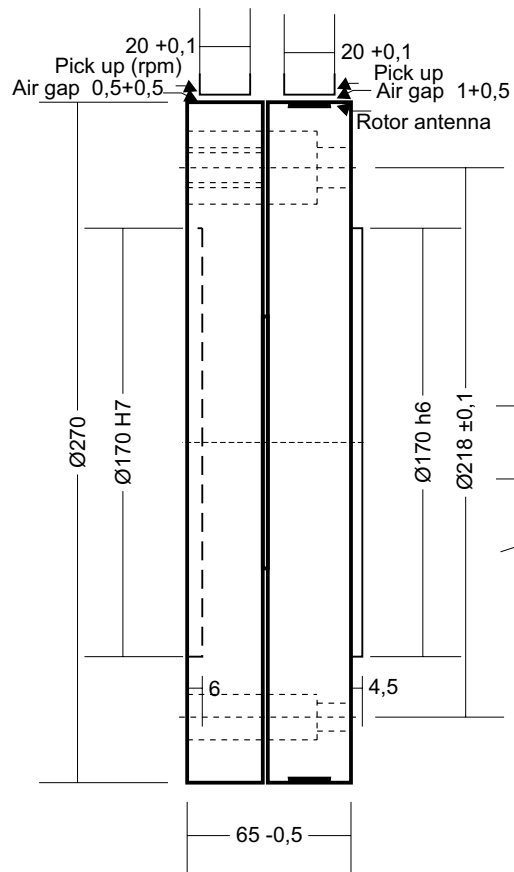


Torque measuring flange

Measuring range: 10/15 kNm

Type specific mechanical data

M_{nom} (Nm)	10,000/15000
Weight (Rotor) (kg):	10.3
Inertia (kgm ²):	0.062
<small>(With/without speed system)</small>	
Torsional stiffness (kNm/°):	1,050
Torsional angle related to M _{nom} (°):	0.01
Axial stiffness (kN/mm) c _a :	1,800
Radial stiffness (kN/mm) c _r :	8,000
Bending moment stiffness (kNm/°) c _b :	20
Max. axial load (kN):	75
Max. radial load (kN):	75
Max. bending moment (kNm):	75
Max. excursion at max. axial force (mm):	<0.08
Balance quality level (DIN ISO 1940):	G6.3
Max. speed (rpm):	6,000
Highspeed option (rpm):	9,000
Speed acquisition (inductive, teeth/turn):	120
Hollow shaft (option):	yes

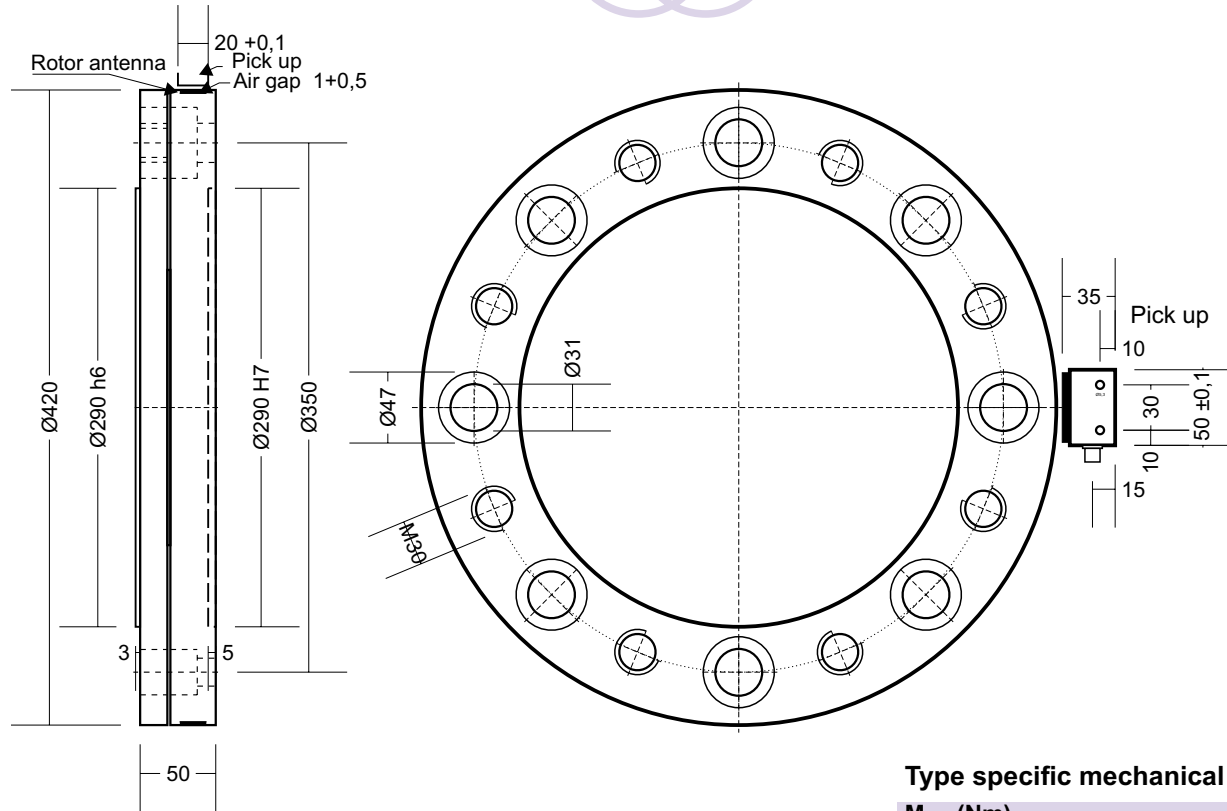


Torque measuring flange

Measuring range: 20 kNm

Type specific mechanical data

M_{nom} (Nm)	20,000
Weight (Rotor) (kg):	19.4
Inertia (kgm^2):	0.251
<small>(With/without speed system)</small>	
Torsional stiffness ($kNm/^\circ$):	2,000
Torsional angle related to M_{nom} ($^\circ$):	0.01
Axial stiffness (kN/mm) c_a :	3,600
Radial stiffness (kN/mm) c_r :	16,000
Bending moment stiffness ($kNm/^\circ$) c_b :	40
Max. axial load (kN):	150
Max. radial load (kN):	150
Max. bending moment (kNm):	150
Max. excursion at max. axial force (mm):	<0.08
Balance quality level (DIN ISO 1940):	G6.3
Max. speed (rpm):	4,000
Highspeed option (rpm):	7,000
Speed acquisition (inductive, teeth/turn):	270
Hollow shaft (option):	yes

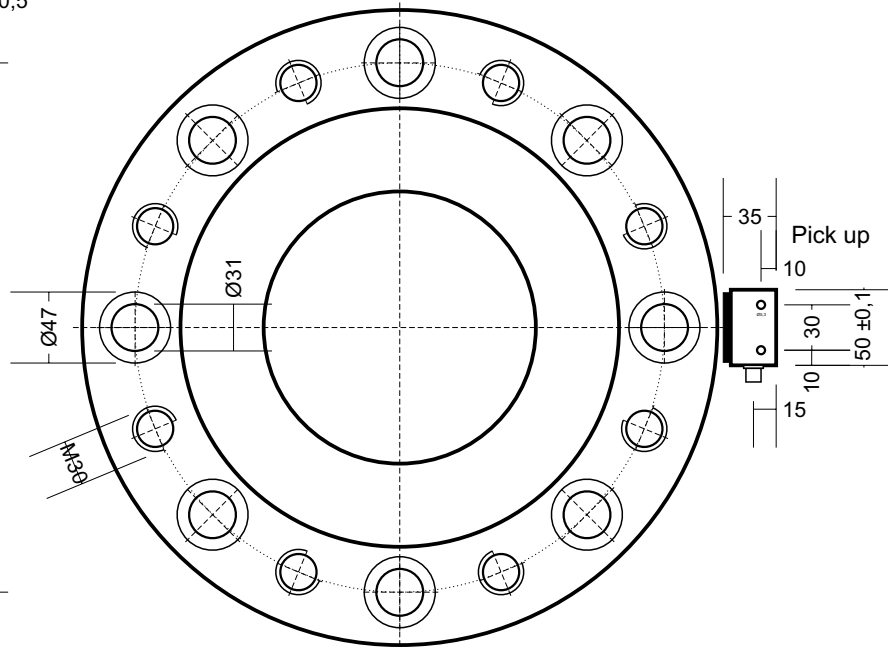
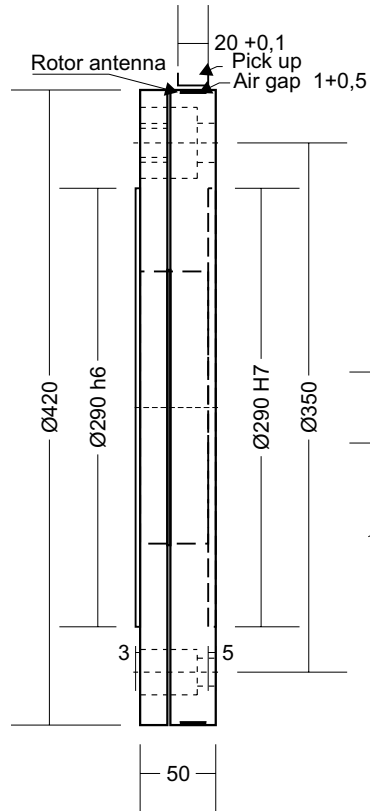


Torque measuring flange

Measuring range: 25 kNm
 Measuring range: 50 kNm
 Measuring range: 75 kNm

Type specific mechanical data

M_{nom} (Nm)	25,000	50,000	75,000
Weight (Rotor) (kg):	45	46	48
Inertia (kgm ²):	1.05	1.07	1.09
<i>(With/without speed system)</i>			
Torsional stiffness (kNm/°):	2,500	5,000	7,500
Torsional angle related to M_{nom} (°):	0.01	0.01	0.01
Axial stiffness (kN/mm) c_a :	3,600	3,600	3,600
Radial stiffness (kN/mm) c_r :	12,000	16,000	24,000
Bending moment stiffness (kNm/°) c_b :	40	40	40
Max. axial load (kN):	170	200	240
Max. radial load (kN):	170	200	240
Max. bending moment (kNm):	170	200	240
Max. excursion at max. axial force (mm):	<0.15	<0.15	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)		
Max. speed (rpm):	4,000	4,000	4,000
Highspeed option (rpm):	7,000	7,000	7,000
Speed acquisition (inductive, teeth/turn):	360	360	360
Hollow shaft (option):	yes	yes	yes



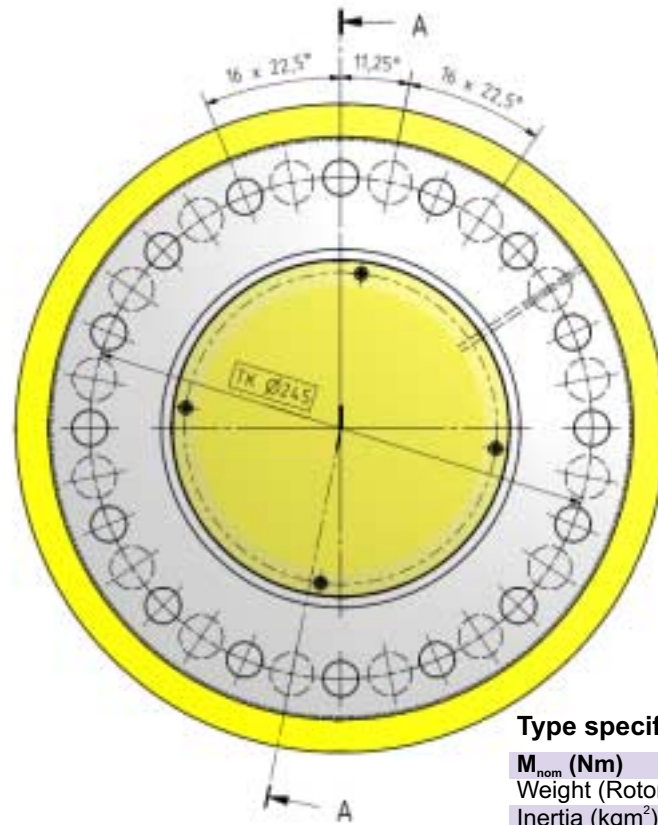
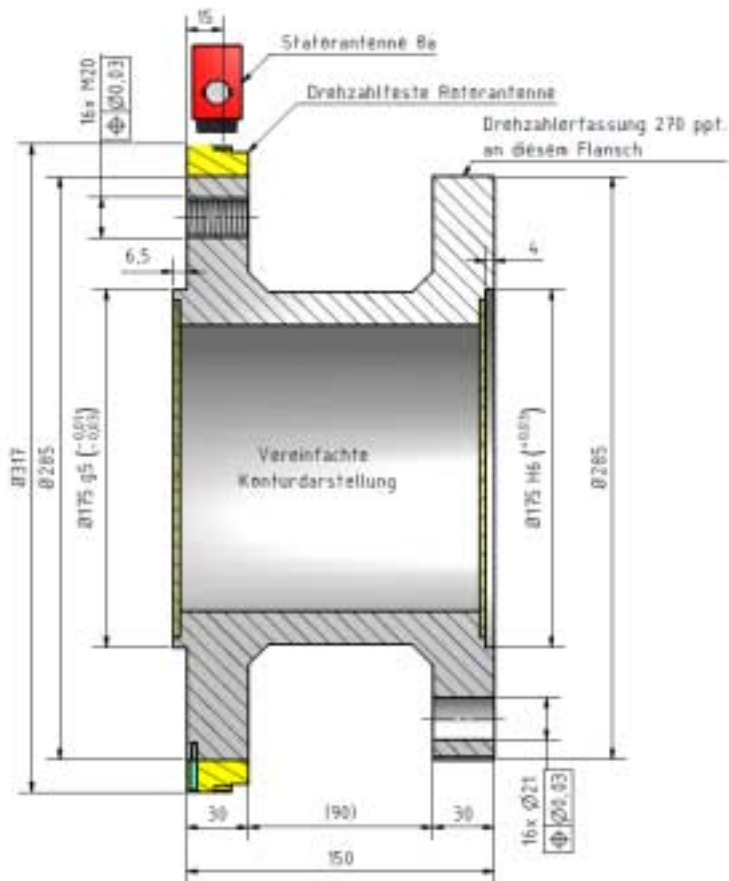
Type specific mechanical data

M_{nom} (Nm)	25,000	50,000	75,000
Weight (Rotor) (kg):	45	46	48
Inertia (kgm ²):	1.05	1.07	1.09
<i>(With/without speed system)</i>			
Torsional stiffness (kNm/°):	2,500	5,000	7,500
Torsional angle related to M_{nom} (°):	0.01	0.01	0.01
Axial stiffness (kN/mm) c_a :	3,600	3,600	3,600
Radial stiffness (kN/mm) c_r :	12,000	16,000	24,000
Bending moment stiffness (kNm/°) c_b :	40	40	40
Max. axial load (kN):	170	200	240
Max. radial load (kN):	170	200	240
Max. bending moment (kNm):	170	200	240
Max. excursion at max. axial force (mm):	<0.15	<0.15	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)		
Max. speed (rpm):	4,000	4,000	4,000
Highspeed option (rpm):	7,000	7,000	7,000
Speed acquisition (inductive, teeth/turn):	360	360	360
Hollow shaft (option):	---	---	---

Torque measuring flange

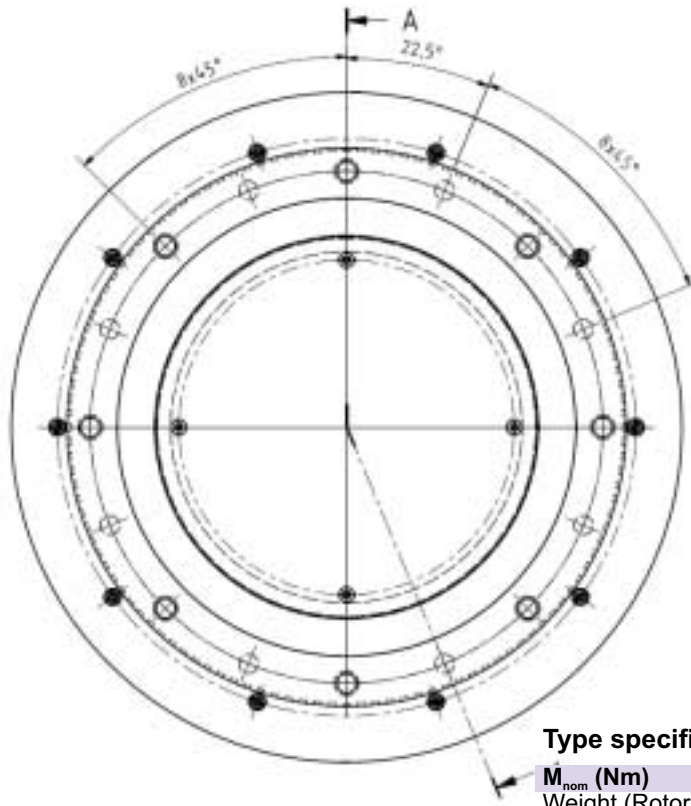
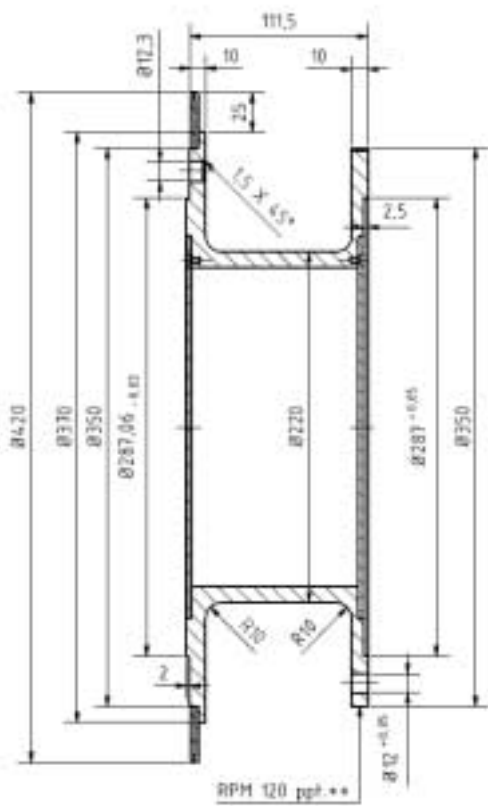
Measuring range: 25 kNm
 Measuring range: 50 kNm
 Measuring range: 75 kNm

Hollow shaft



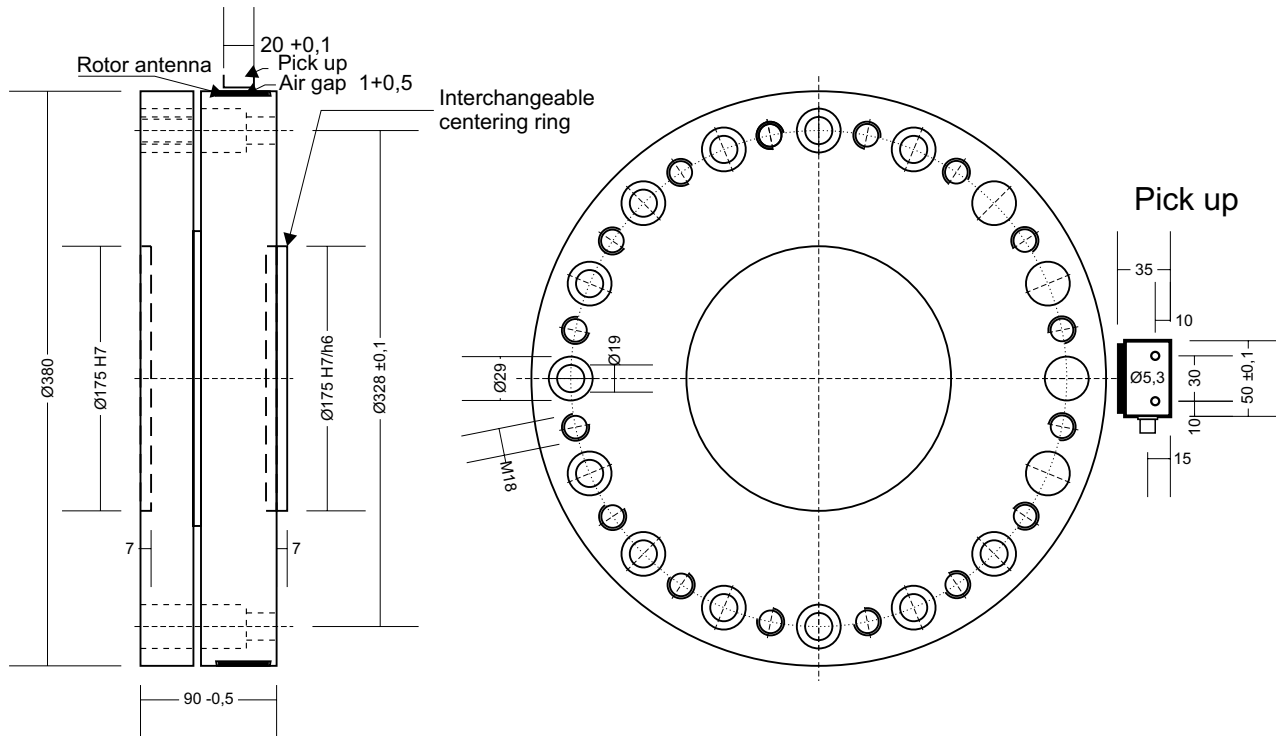
Type specific mechanical data

M_{nom} (Nm)	20,000	50,000
Weight (Rotor) (kg):	45	46
Inertia (kgm ²):	1.05	1.07
<small>(With/without speed system)</small>		
Torsional stiffness (kNm/°):	2,500	5,000
Torsional angle related to M _{nom} (°):	0.01	0.01
Axial stiffness (kN/mm) c _a :	3,600	3,600
Radial stiffness (kN/mm) c _r :	12,000	16,000
Bending moment stiffness (kNm/°) c _b :	40	40
Max. axial load (kN):	170	200
Max. radial load (kN):	170	200
Max. bending moment (kNm):	170	200
Max. excursion at max. axial force (mm):	<0.15	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)	
Max. speed (rpm):	4,000	4,000
Highspeed option (rpm):	7,000	7,000
Speed acquisition (inductive, teeth/turn):	360	360
Hollow shaft (option):	---	---



Type specific mechanical data

M_{nom} (Nm)	25,000	50,000	75,000
Weight (Rotor) (kg):	45	46	48
Inertia (kgm^2):	1.05	1.07	1.09
<small>(With/without speed system)</small>			
Torsional stiffness ($\text{kNm}/^\circ$):	2,500	5,000	7,500
Torsional angle related to M_{nom} ($^\circ$):	0.01	0.01	0.01
Axial stiffness (kN/mm) c_a :	3,600	3,600	3,600
Radial stiffness (kN/mm) c_r :	12,000	16,000	24,000
Bending moment stiffness ($\text{kNm}/^\circ$) c_b :	40	40	40
Max. axial load (kN):	170	200	240
Max. radial load (kN):	170	200	240
Max. bending moment (kNm):	170	200	240
Max. excursion at max. axial force (mm):	<0.15	<0.15	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)		
Max. speed (rpm):	4,000	4,000	4,000
Highspeed option (rpm):	7,000	7,000	7,000
Speed acquisition (inductive, teeth/turn):	360	360	360
Hollow shaft (option):	---	---	---

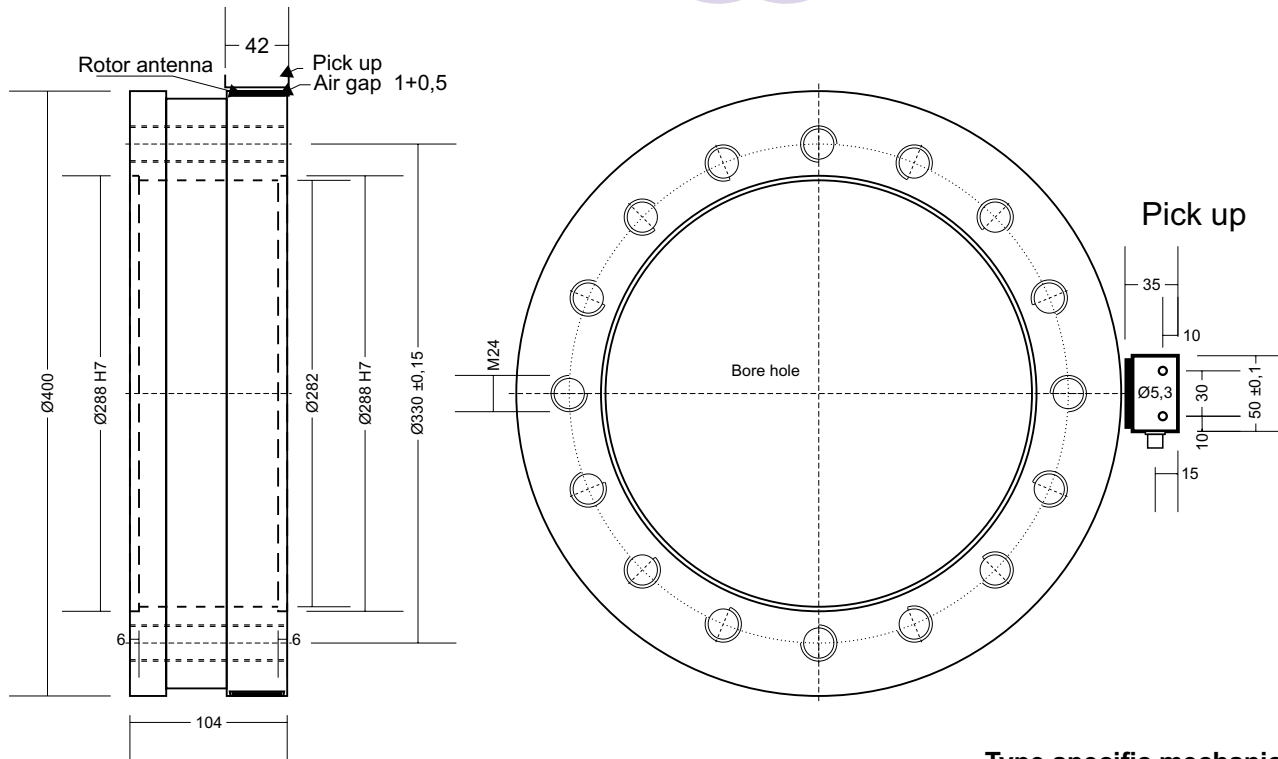


Torque measuring flange

Measuring range: 50 kNm

Type specific mechanical data

M_{nom} (Nm)	50,000
Weight (Rotor) (kg):	42
Inertia (kgm ²):	1.1
<small>(With/without speed system)</small>	
Torsional stiffness (kNm/°):	5,000
Torsional angle related to M _{nom} (°):	0.01
Axial stiffness (kN/mm) c _a :	6,000
Radial stiffness (kN/mm) c _r :	20,000
Bending moment stiffness (kNm/°) c _b :	80
Max. axial load (kN):	350
Max. radial load (kN):	350
Max. bending moment (kNm):	350
Max. excursion at max. axial force (mm):	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)
Max. speed (rpm):	3,000
Highspeed option (rpm):	4,000
Speed acquisition (inductive, teeth/turn):	360
Hollow shaft (option):	yes



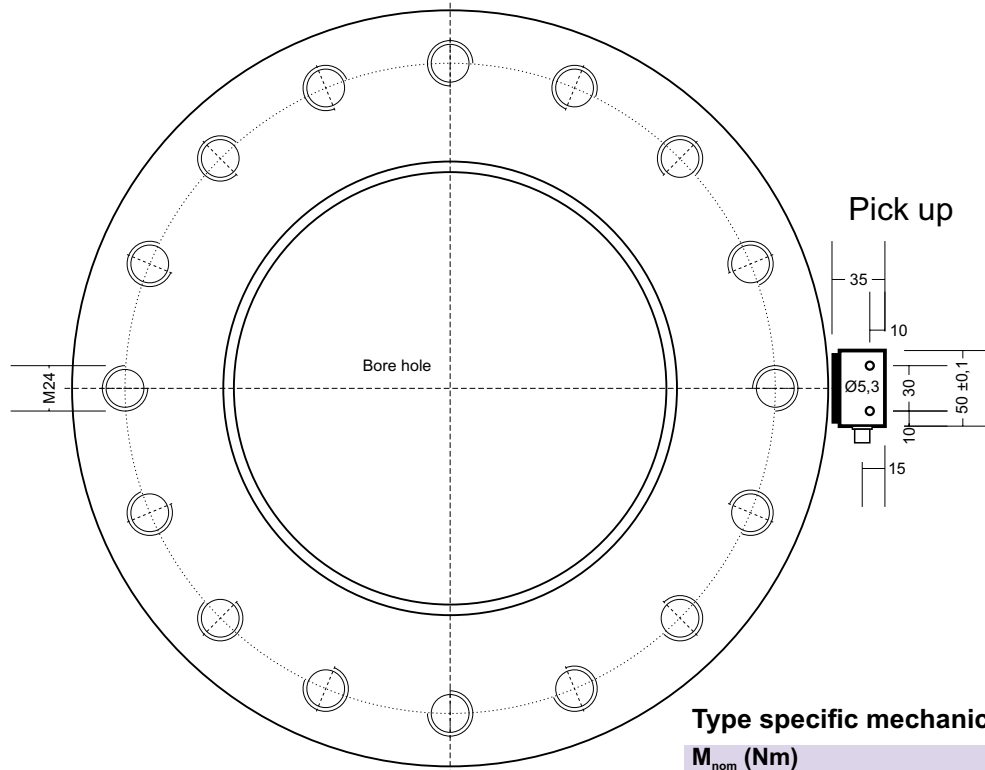
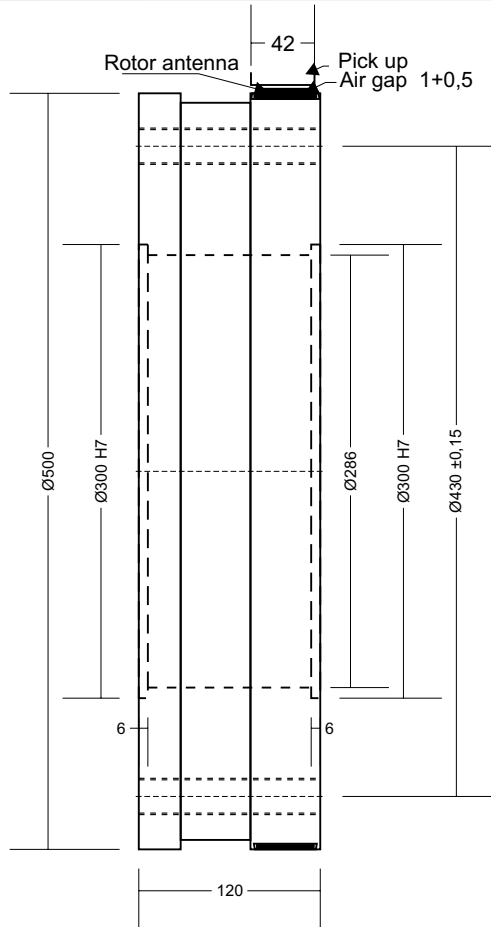
Torque measuring flange

Measuring range: 100 kNm

Measuring range: 150 kNm

Type specific mechanical data

M_{nom} (Nm)	100,000	150,000
Weight (Rotor) (kg):	38	40
Inertia (kgm ²):	1.29	1.45
<small>(With/without speed system)</small>		
Torsional stiffness (kNm/°):	10,000	15,000
Torsional angle related to M _{nom} (°):	0.01	0.01
Axial stiffness (kN/mm) c _a :	5,000	7,000
Radial stiffness (kN/mm) c _r :	20,000	25,000
Bending moment stiffness (kNm/°) c _b :	160	240
Max. axial load (kN):	400	600
Max. radial load (kN):	400	600
Max. bending moment (kNm):	400	600
Max. excursion at max. axial force (mm):	<0.15	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)	
Max. speed (rpm):	2,000	2,000
Highspeed option (rpm):	3,000	3,000
Speed acquisition (inductive, teeth/turn):	360	360
Hollow shaft (option):	---	---



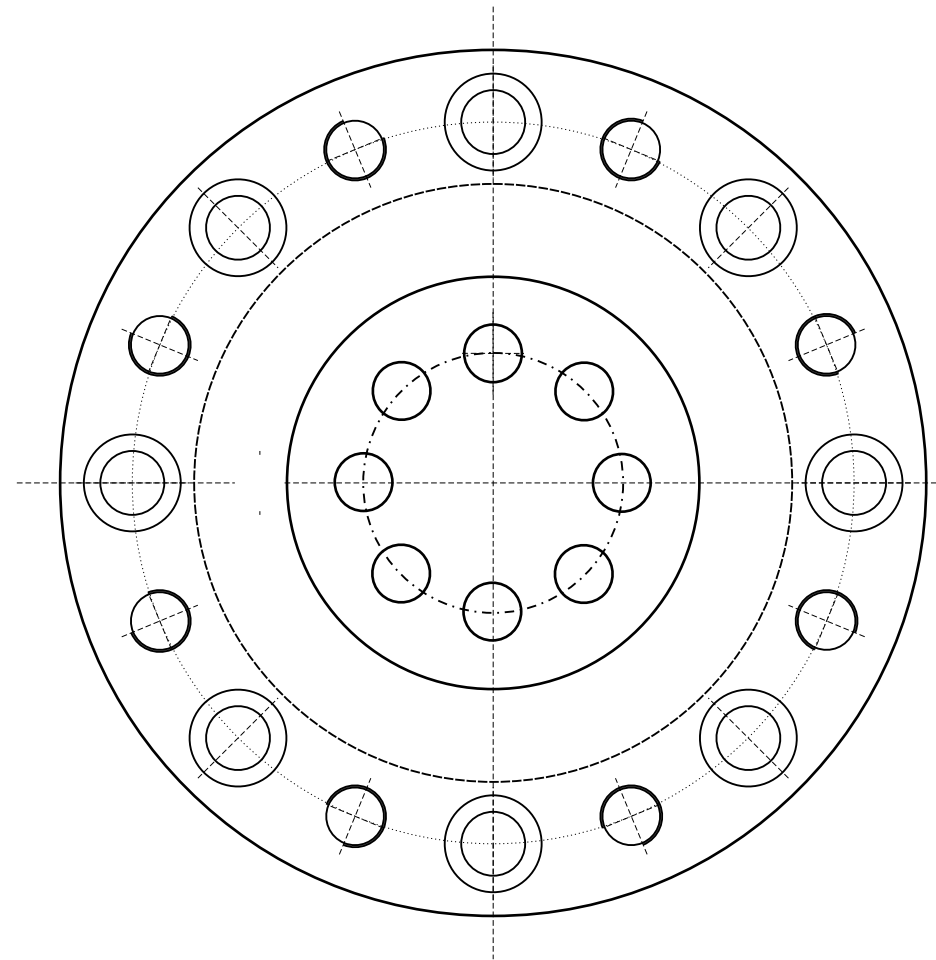
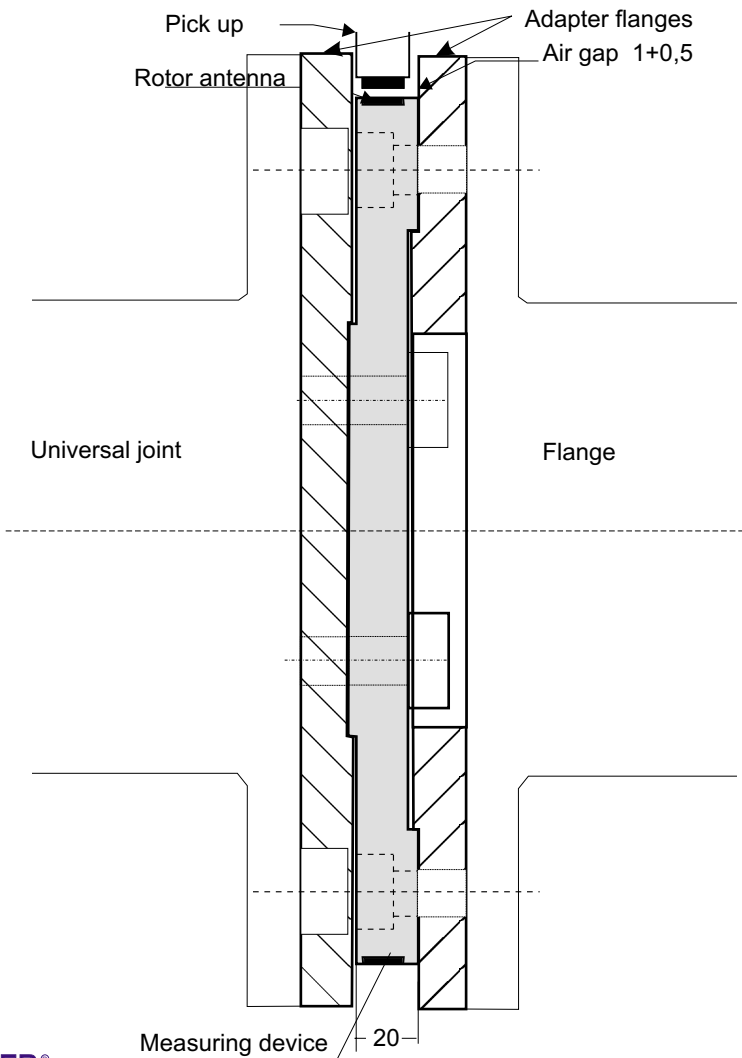
Torque measuring flange

Measuring range: 250 kNm

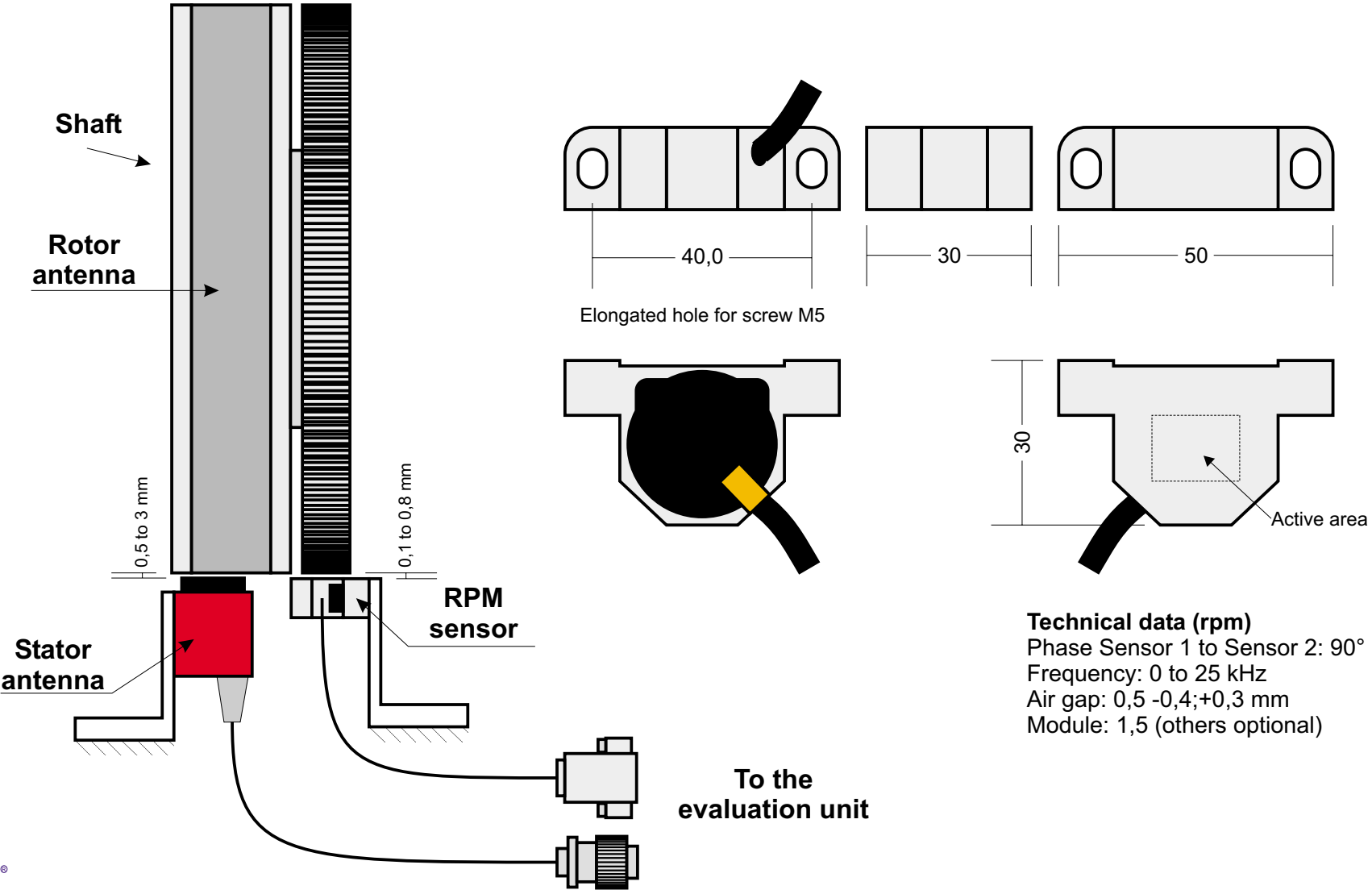
Type specific mechanical data

M_{nom} (Nm)	250,000
Weight (Rotor) (kg):	60
Inertia (kgm^2):	2
<small>(With/without speed system)</small>	
Torsional stiffness ($kNm/^\circ$):	25,000
Torsional angle related to M_{nom} ($^\circ$):	0.01
Axial stiffness (kN/mm) c_a :	11,000
Radial stiffness (kN/mm) c_r :	40,000
Bending moment stiffness ($kNm/^\circ$) c_b :	400
Max. axial load (kN):	1,000
Max. radial load (kN):	1,000
Max. bending moment (kNm):	1,000
Max. excursion at max. axial force (mm):	<0.15
Balance quality level (DIN ISO 1940):	G9.4 (G6.3 Option)
Max. speed (rpm):	1,700
Highspeed option (rpm):	2,000
Speed acquisition (inductive, teeth/turn):	480
Hollow shaft (option):	---

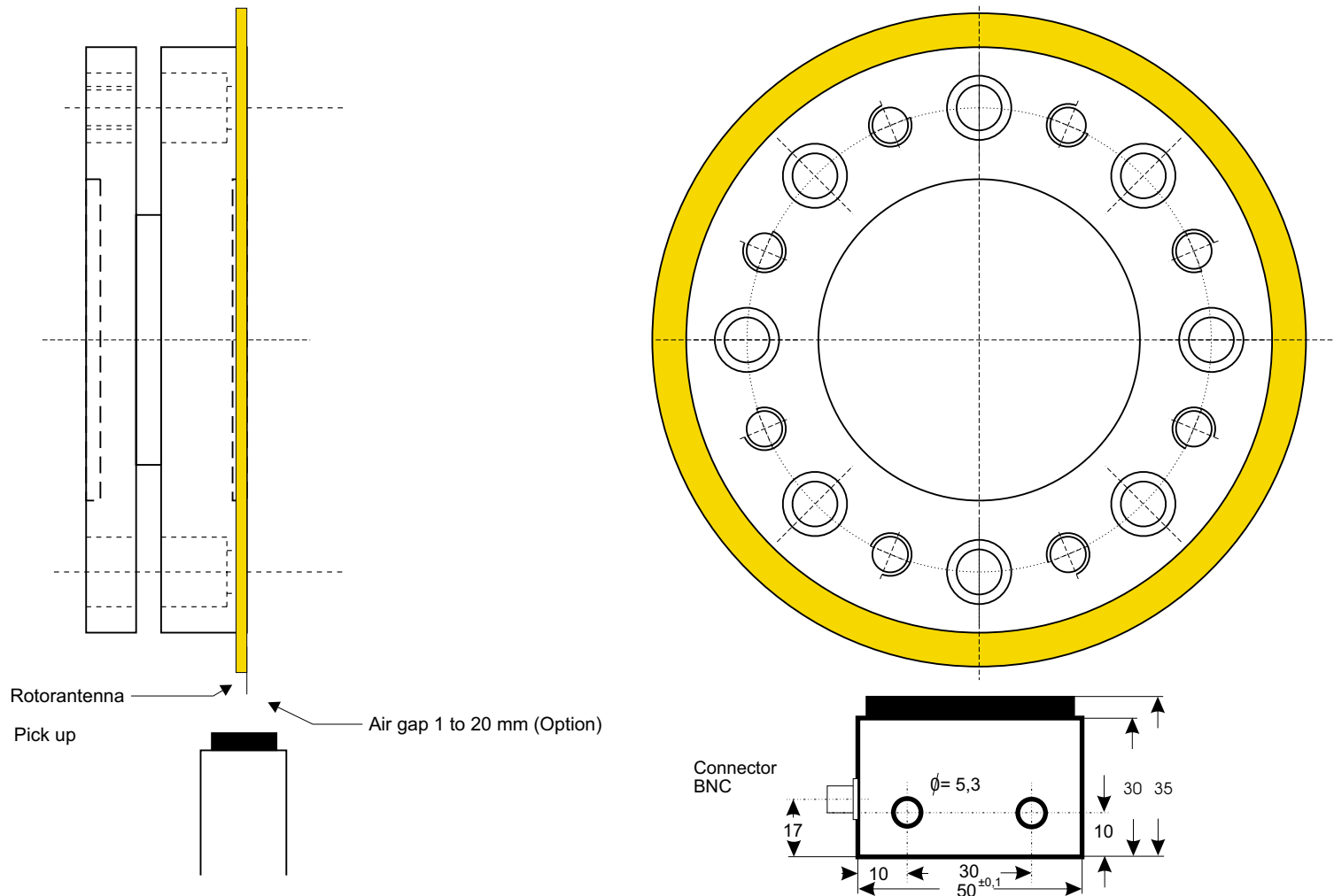
Torque Measuring Flange



Measuring Rotational Speed

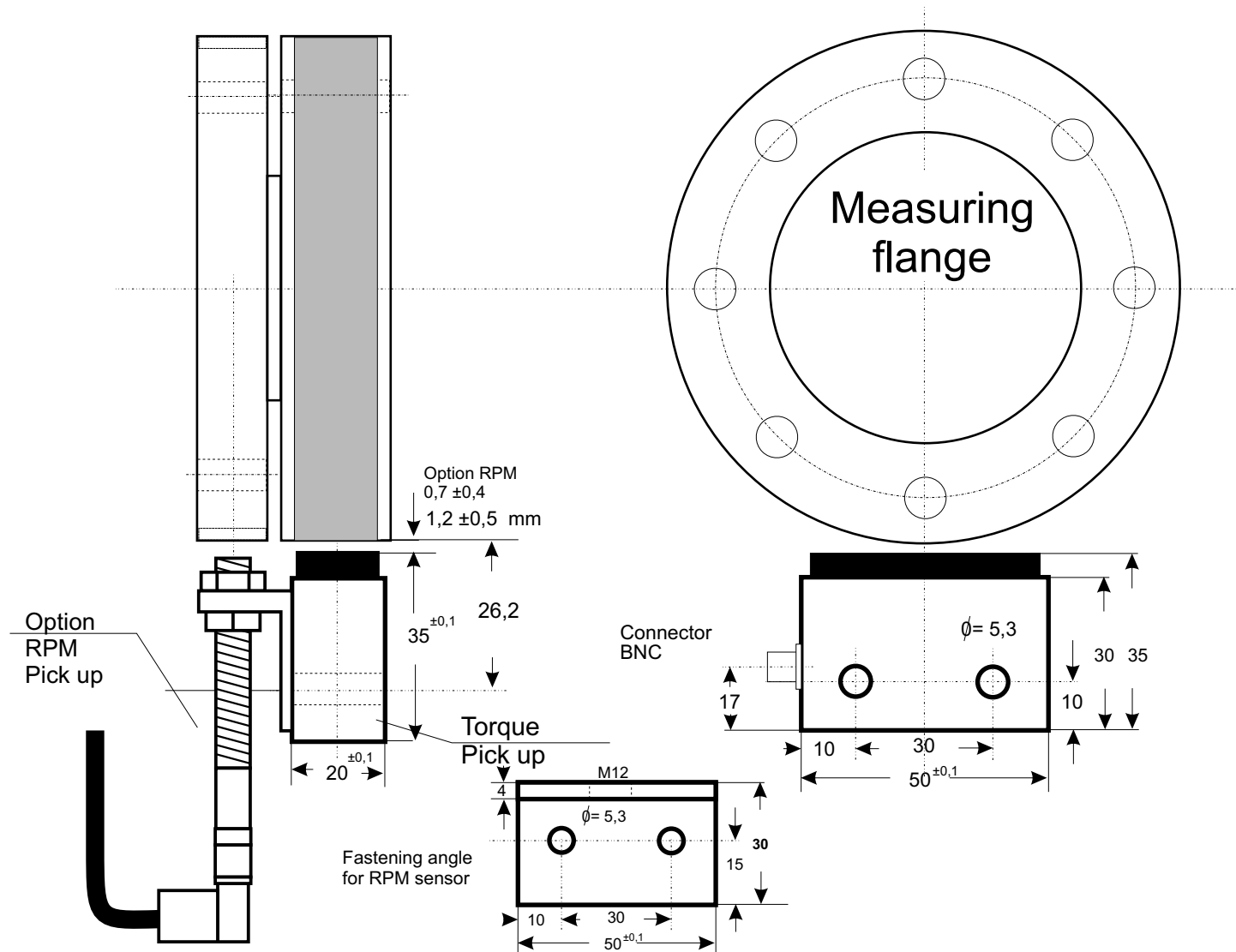


Application for Big Axial Movements and High Speed



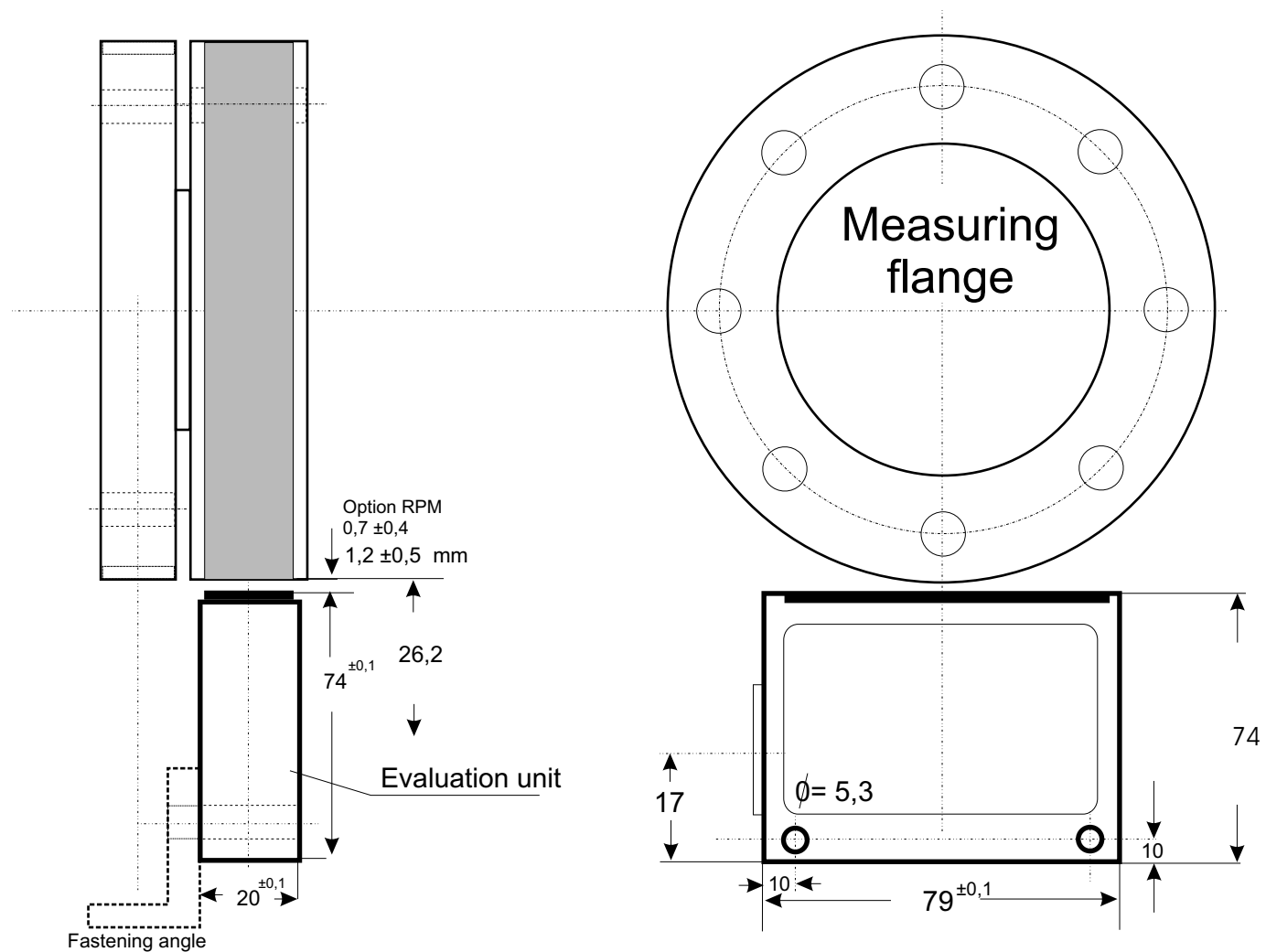
Measuring Torque and Rotational Speed

(Alternative)

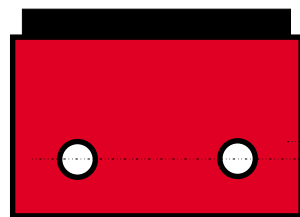
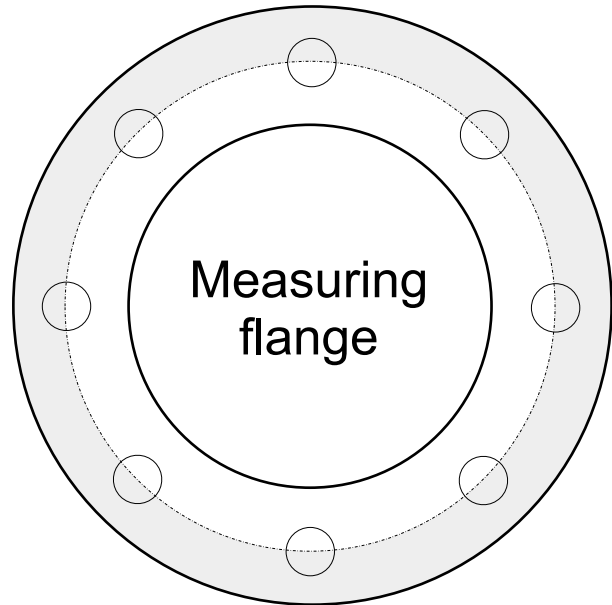


Measuring Torque and Rotational Speed

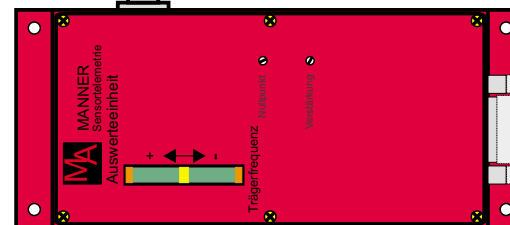
(Alternative / Evaluation unit)



Torque Measuring System with Compact Evaluation Unit

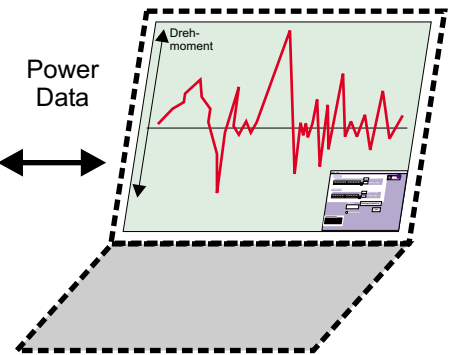


Connector BNC



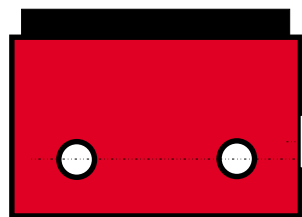
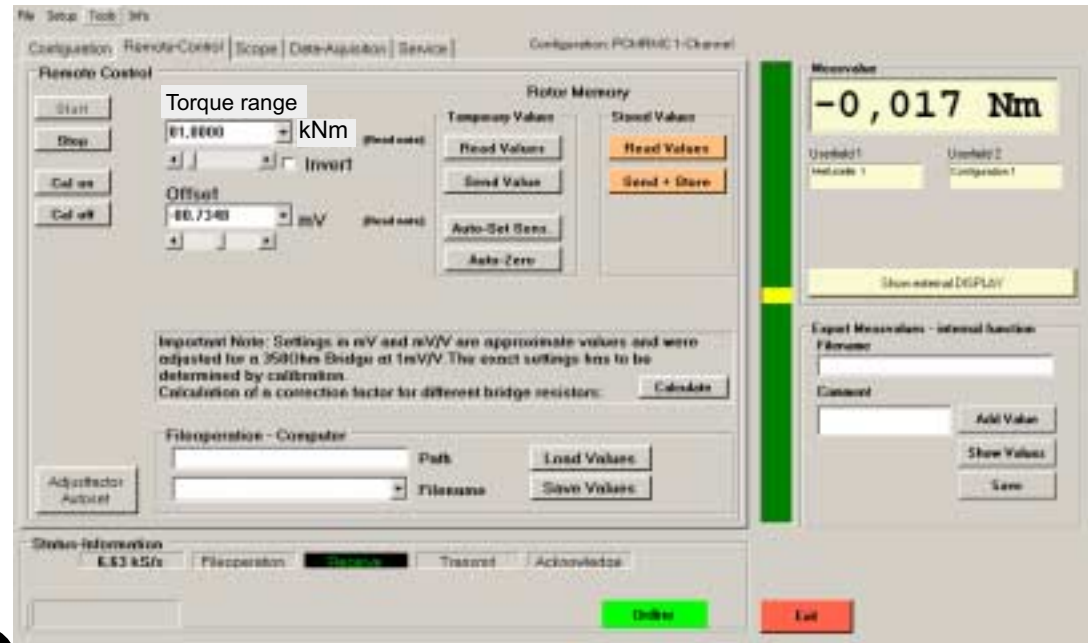
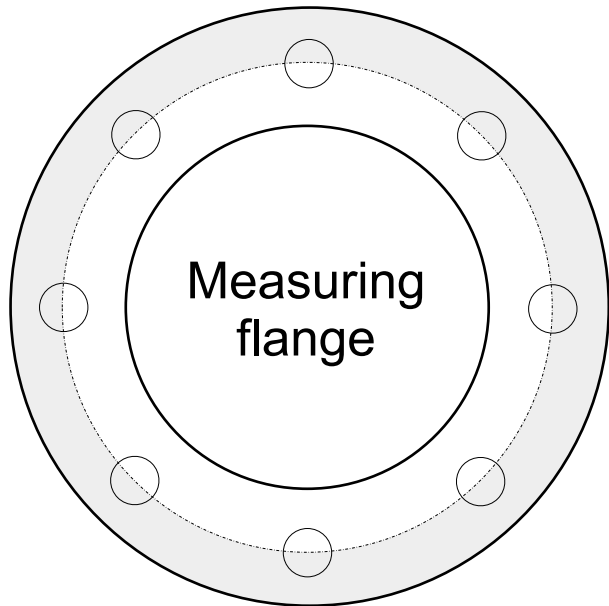
Optional Interface USB/CAN/TCP/IP

Power Data

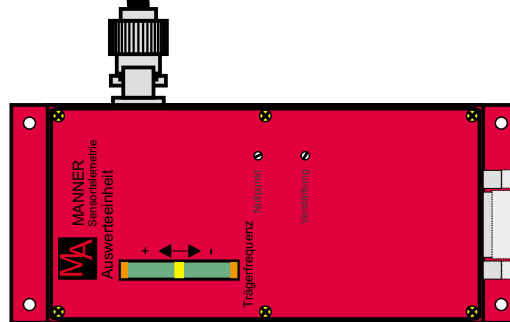


Option

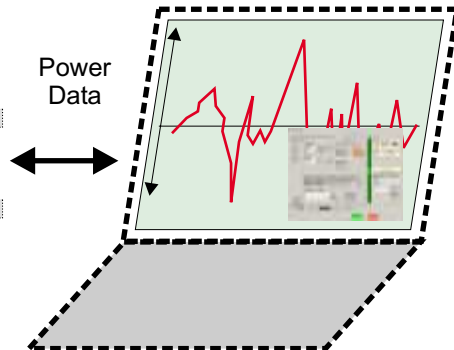
Torque Measuring System with Compact Evaluation Unit



Connector BNC

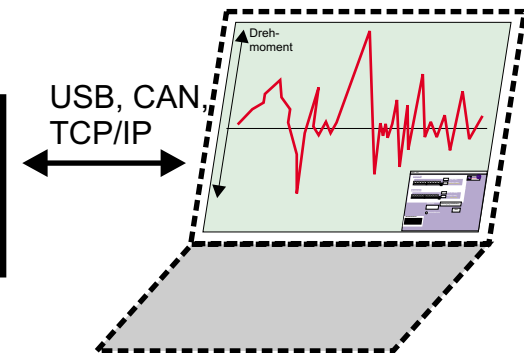
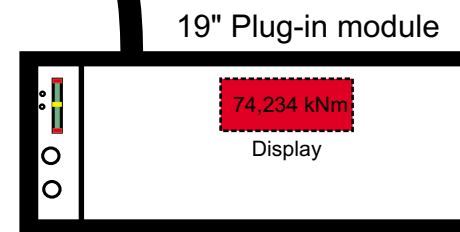
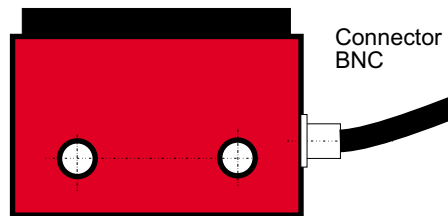
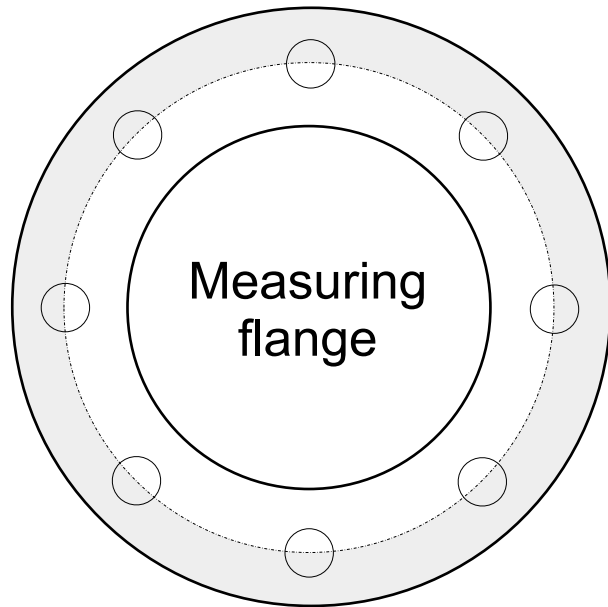


Power Data

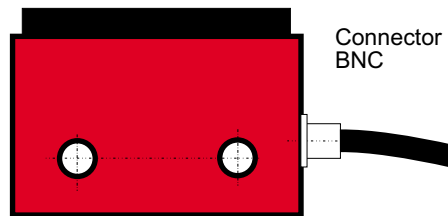
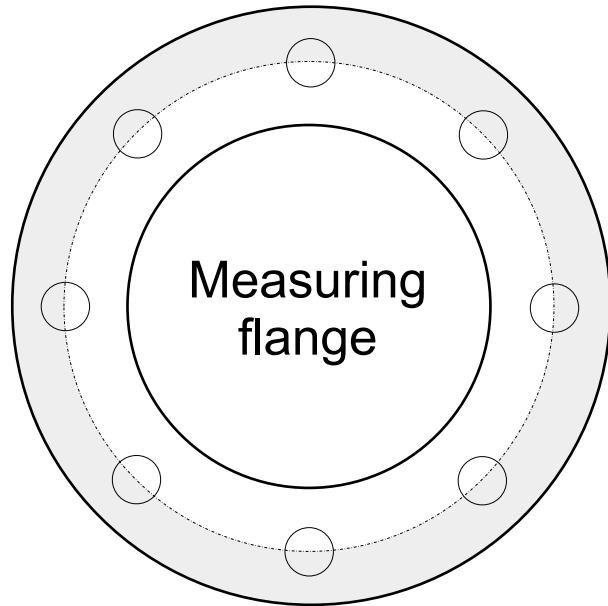


Option

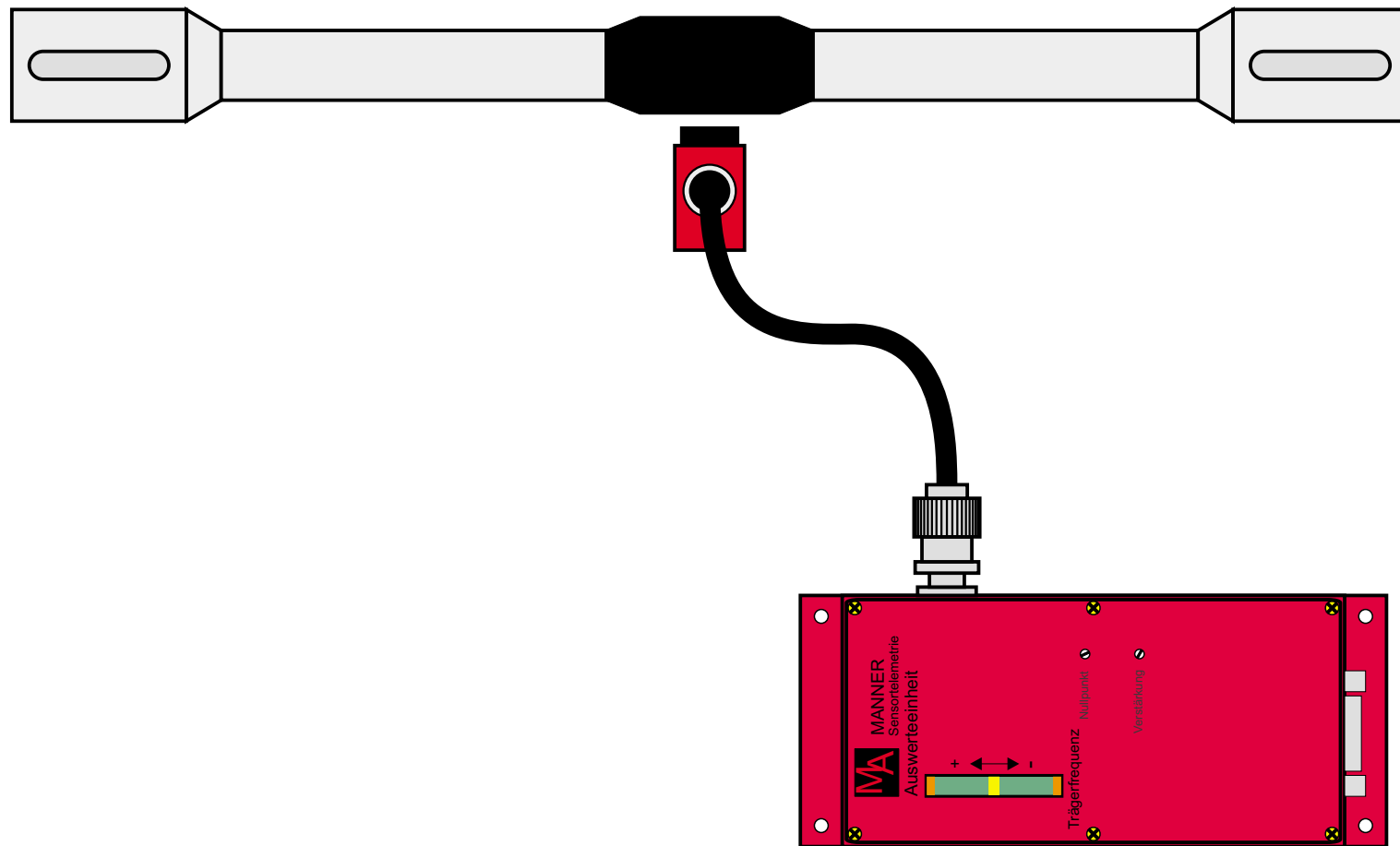
Torque Measuring System with 19" Evaluation Unit



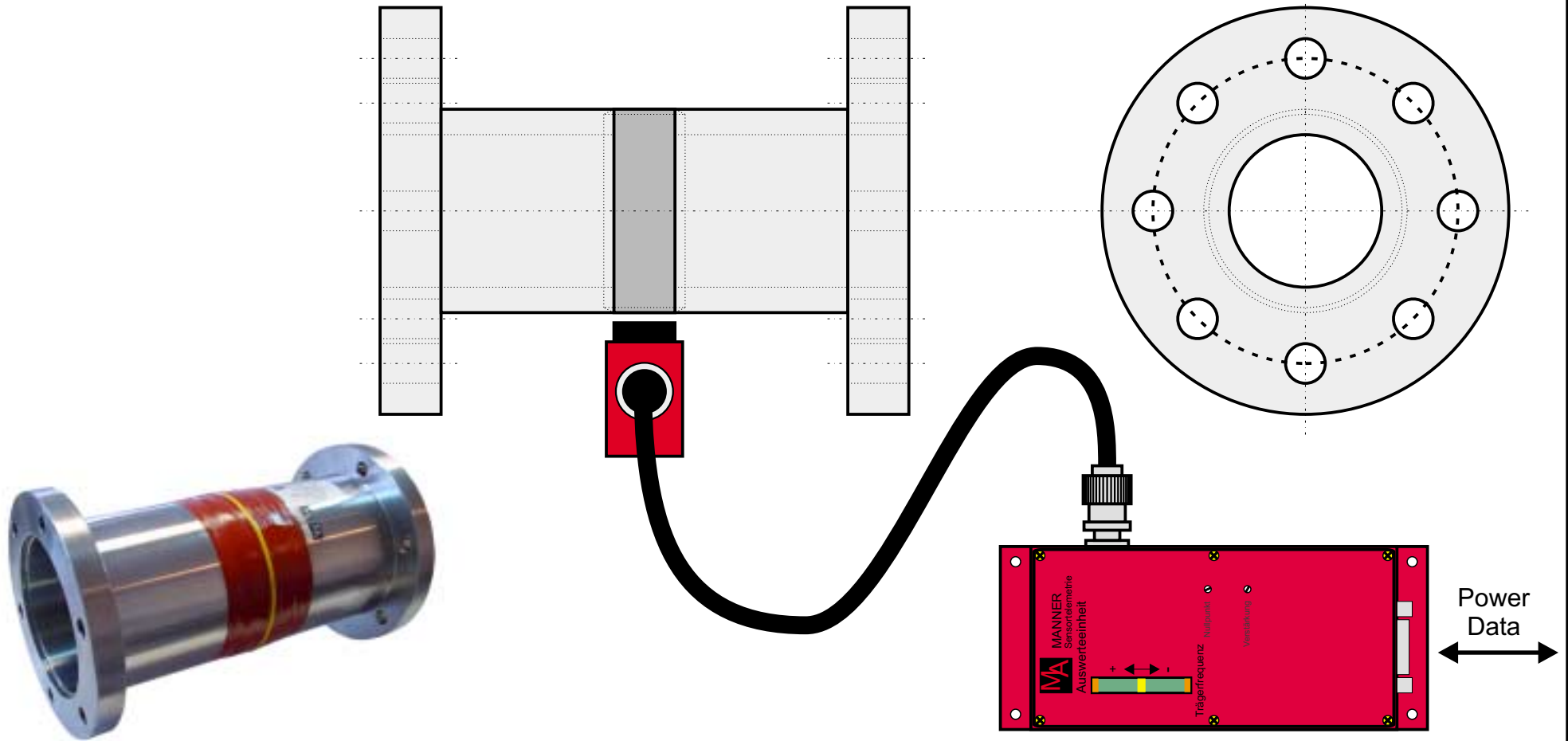
Torque Measuring System with 19" Plug-In Board



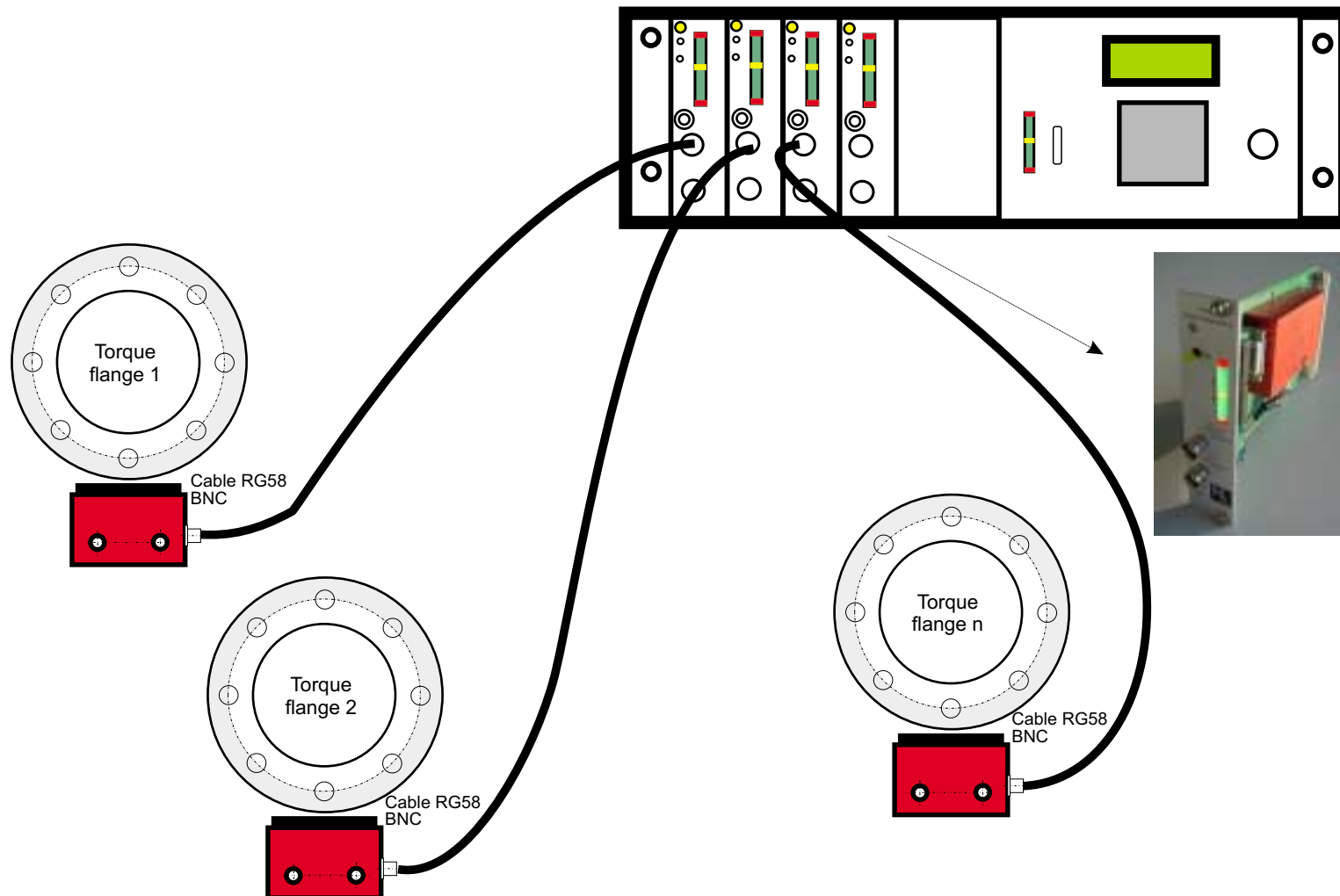
Measuring shaft



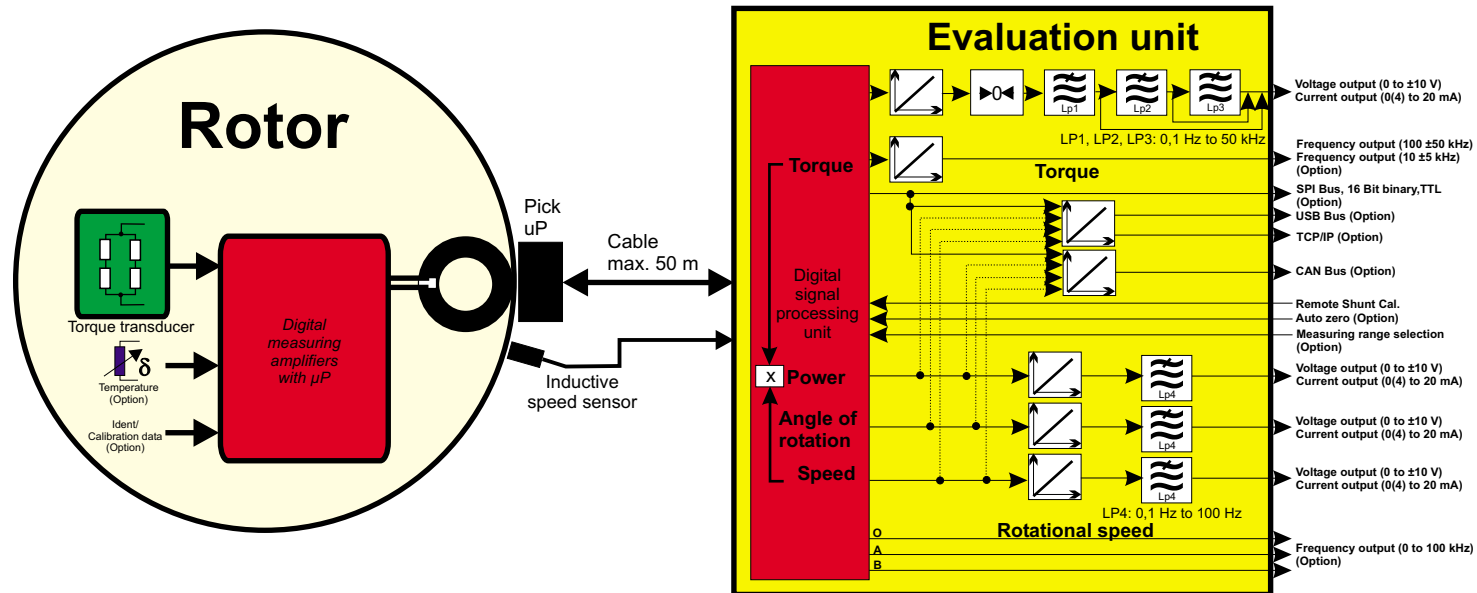
Measuring Flange



Configuration



Block Diagram / Signal Flow of Digital Torque Meter



Compact evaluation unit

General Specification Torque Transducer MW...

Torque

Deviation of Linearity including hysteresis (total system, related to M_{Nom})

Digital / analog: <0.2 % (0.1 %, 0.005 % Option)

Repeatability

(DIN 1319, standard deviation): <±0.03 %

Available Output Signals

Voltage: 0 to ±10 V (rated to torque range), $R_{internal} = 50 \Omega$

Current: 0(4) to 20 mA (rated to torque range), max. load = 300 Ω

Frequency: 100 ±50 kHz (rated to torque range), $R_{internal} = 50 \Omega$

SPI Bus (Data, Clock, Frame)

USB Bus

CAN Bus

Available Signal Bandwidth (Low pass filter 5th order Bessel):

Group delay time:

Bandwidth	Frequency / Digital	Analog
10 Hz (-3 dB):	60 ms	100 ms
100 Hz (-3 dB):	6 ms	10 ms
1 kHz (-3 dB):	600 μs	1,000 μs
10 kHz (-3 dB):	120 μ s	200 μ s
50 kHz (-3 dB):	20 μ s	40 μ s

Option switchable low pass filter

Resolution electrical signal: 16 Bit

Residual signal ripple output voltage: <5 mV

Remote controlled shunt signal: 80 % of M_{Nom}

Temperature drift per 10 K of the output signal

Zero point (rated to M_{Nom} , total system)

Analog output: ±0.05 % (±0.01 % Option)

Digital / frequency output: ±0.04 % (±0.005 % Option)

Signal span (rated to M_{Nom} , total system)

Analog output: ±0.05 % (±0.02 % Option)

Digital / frequency output: ±0.04 % (±0.01 % Option)

Long-term drift over 48 hours (voltage output): <3 mV

EMC: Emission per EN6126

RFI voltage \ power \ field strength: Class A

Immunity from interference (EN61326-1)

Electromagnetic field: 30 V/m

Magnetic field: 50 A/m

ESD: 10 kV

Degree of protection (EN 60529): IP54 (IP65 Option)

Reference temperature: 23 °C

Working temperature: -10 to +85 °C (-45 to +160 °C Option)

Storage temperature: -25 to +90 °C (-55 to +170 °C Option)

Vibration resistance: 1,000 g for 1 h

Impact resistance: 2,000 g

Balance quality per DIN ISO 1940: see type

Max. axial displacement (flange to pick up): <1.5 mm

Max. radial distance (flange to pick up): 0.3 to 2 mm (0 to 20 mm)

Max. loads

Max. torque (related to M_{Nom}): 400 % (800 % Option)

Breaking torque (related to M_{Nom}): 800 % (1600 % Option)

Oscillation (peak to peak) DIN 50100 (related to M_{Nom}): 300 %

Speed system

Type: massive toothed rim, inductive pick up

Number of increments: see special data sheet

Outputs

1 trace: digital TTL

2 trace: digital TTL, 90° phase shift (Option)

Analog output range: 0 to +10 V, related to speed $_{Nom}$ (Option), $R_{internal} = 50 \Omega$

Bandwidth: 100 Hz (-3dB)

Group delay time (digital): <10 μ s

Temperature drift: <0.02 % of related speed $_{Nom}$

Pick up 8a

Weight: 0.1 kg

Dimensions: 50 x 35 x 20 mm (60 x 55 x 40 mm Option)

Receivers

(available types)

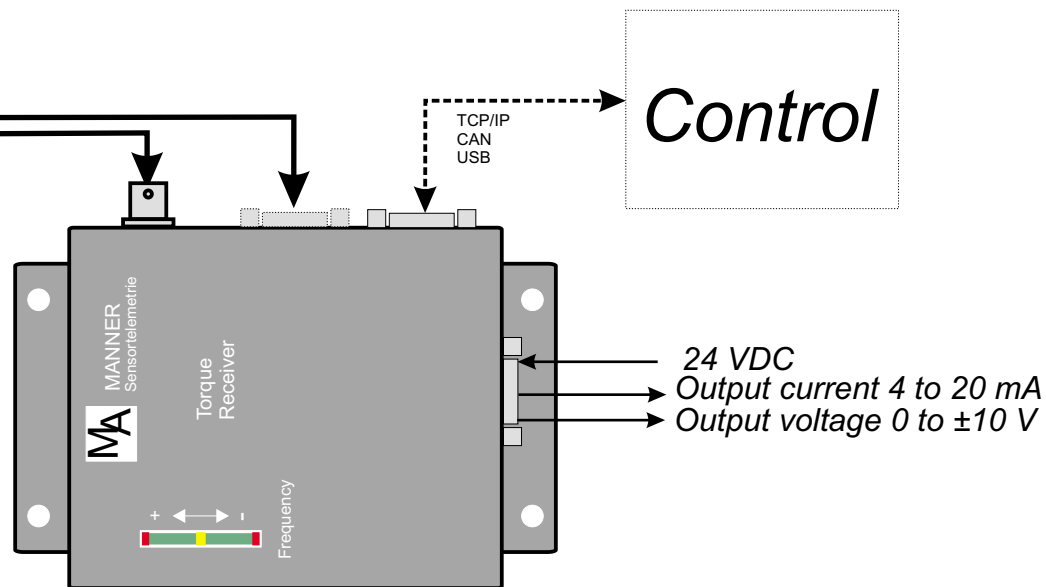
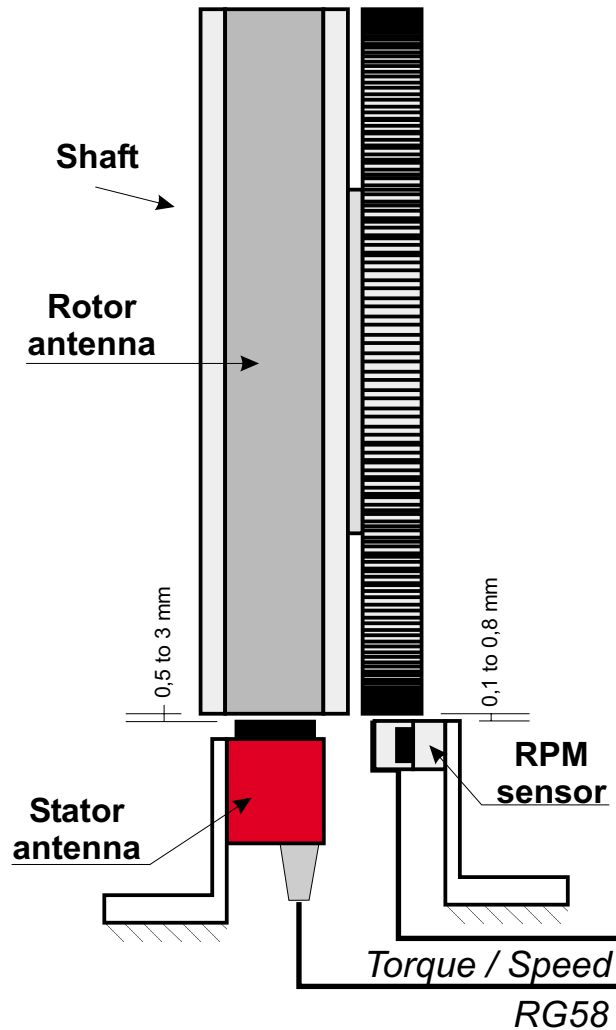
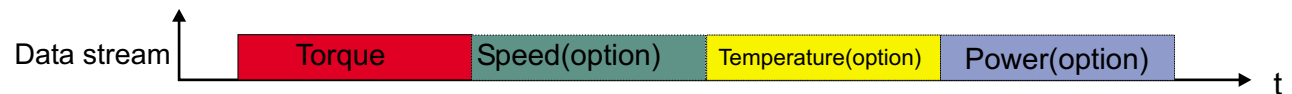
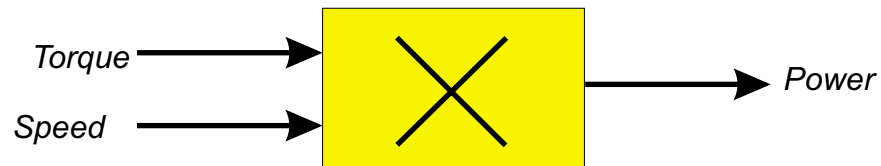
Receiver compact supply: 24 V DC, 1 A, (9 to 36 V DC Option)

Receiver plug-in card 19" Rack supply: ±15 V DC, 1 A

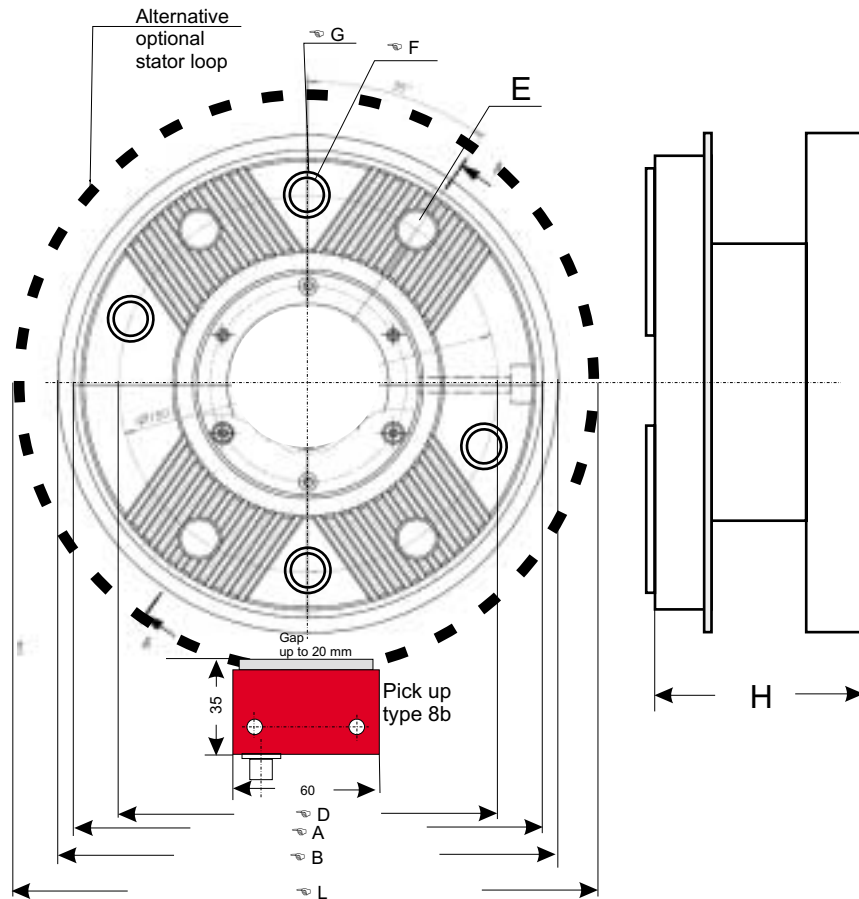
19" Rack supply: 90 to 270 V AC, 50 / 60 Hz

Online Power Calculation

* Online power calculation by the evaluation unit
Online multiplication of torque and speed



Flanges with X-Toothing



Type X-Toothing according to ISO 12667		MWK_ 5kNm KV120	MWK_ 10kNm KV150	MWK_ 20kNm KV165	MWK_ 30kNm KV180	MWK_ 40kNm KV200
☞ A	mm	120h7	150h7	165h7	180h7	200h7
☞ B	mm	132h7	162h7	177h7	192h7	212h7
☞ C	mm	132h7	162h7	177h7	192h7	212h7
☞ D	mm	100	130	140	150	165
☞ E	mm	M10x1	M12	M12	M14	M14
☞ F	mm	11	13	13	15	15
☞ G	mm	18	20	20	22	22
☞ H	mm	50	50	55	60	60
☞ I	mm	140	170	185	200	220
opt. ☞ K	mm	166	194	209	244	244