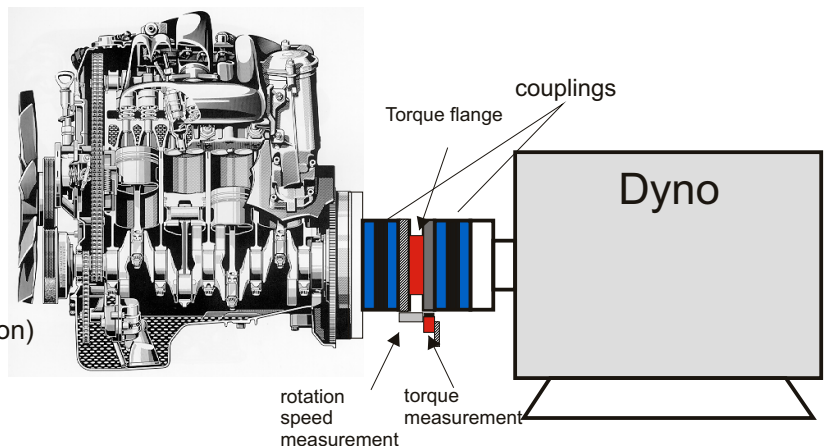


Torque measuring flange



Characteristic features:

- ✓ Nominal (rated) torques
**50N·m, 200N·m; 500N·m;
 1kN·m; 2kN·m; 3kN·m; 5kN·m;
 10kN·m**
- ✓ Nominal (rated) speeds from 10000 rpm to 25000 rpm (depending on the measuring range)
- ✓ Accuracy class 0.02
- ✓ Large measuring frequency range up to 1 kHz (optional 10 kHz (-3dB))
- ✓ Low rotor weights and moments of inertia
- ✓ Digital transmission of measured values
- ✓ Short design, compatible flange image to HBM (DIN flange)
- ✓ Temperature range -40 ... 160 ° C (optional)
- ✓ Integrated Speed acquisition (high resolution)



integrated Pick Up

- frequency(10+/-5kHz)
- strain (U) +/10V
- current (I) 4..20mA
- Remote Control
- energy
- Remote Shunt on/off

Topology



- energy
- remote shunt on/off
- torque (digital)
- temperature (digital)
- status
- remote control

Torque flange with offsetted Pick Up max. Distance: 100 m



Evaluation Unit

- Ethernet (digital)
- EtherCat (digital)
- USB (digital)
- frequency 10+/-5kHz)
- strain U) +/10V
- current (I) 4..20mA
- remote Control
- energy
- remote shunt on/off

Technical Data

Torque measuring system											
Type											
Accuracy Class		0,02									
Nominal (rated) torque M _{nom}	kNm	0,05	0,1	0,2	0,5	1	2	3	5	10	
Nominal sensitivity (range between torque = zero and nominal torque)											
Voltage output 10 V	V	+/-10									
Frequency output 60 kHz ⁶⁾	kHz	+/-30									
Digital output EtherCat 16(20) Bit	dig. value	+/-29491 (471859 ³⁾)									
Digital output EtherNet TCP/IP 16(20) Bit	dig. value	+/-29491 (471859 ³⁾)									
Digital output CAN 16(20) Bit	dig. value	+/-29491 (471859 ³⁾)									
Sensitivity tolerance (deviation of the actual output value at M _{nom} of nominal sensitivity)	%	0,05 (0,01 ¹⁾)									
Output signal at torque = zero											
Voltage output	V	0									
Frequency output 60 kHz ⁷⁾	kHz	60									
Digital output	dig. value	32768 (524288 ³⁾)									
Nominal output signal											
Voltage output											
with positive nominal torque	V	+10									
with negative nominal torque	V	-10									
Frequency Output 60 kHz ⁷⁾											
with positive nominal torque	kHz	90 (5V TTL 0/5V) (15 ⁷⁾)									
with negative nominal torque	kHz	30 (5V TTL 0/5V) (5 ⁷⁾)									
Digital output											
with positive nominal torque	dig. value	62258 (996147 ³⁾)									
with negative nominal torque	dig. value	3278 (52429 ³⁾)									
Load resistance											
Voltage output	kOhm	>2									
Frequency output 60 kHz ⁷⁾	kOhm	>10									
Long-term drift											
Voltage output	%	<+/-0,03									
Frequency output 60 kHz ⁷⁾	%	<+/-0,03									
Measurement frequency range (-3 dB)	kHz	1 (2 ⁴⁾ , 5 ⁵⁾ , 10 ⁶⁾)									
Group delay time	us	<400 (<250 ⁴⁾ , <130 ⁵⁾ , <40 ⁶⁾)									
Residual ripple (voltage output)	mV	<10									
Temperature influence per 10 °K in the nominal temperature range on the output signal, related to the actual value of signal range											
Frequency output ⁷⁾	%	+/- 0,02									
Digital output	%	+/- 0,02									
Voltage output	%	+/- 0,05									
on the zero signal, related to the nom. sensitivity											
Frequency output ⁷⁾	%	+/- 0,01 (+/-0,005 ²⁾)									
Digital output	%	+/- 0,03 (+/-0,005 ²⁾)									
Voltage output	%	+/- 0,04 (+/-0,02 ²⁾)									
Max. modulation range											
Frequency output 60kHz ⁷⁾	kHz	+/-31,62 (+/-5,27 ⁷⁾)									
Digital output	digits	+/-32768 (524288 ³⁾)									
Voltage output	V	+/-11,2									
Power supply											
Nominal supply (protective low voltage DC)	V	+20..28V									
Current consumption in measuring mode	A	< 0,7									
Current consumption in start-up mode	A	< 1A									
Rated input power	W	< 5									
Max. Cable length	m	100									

1) Option improved sensitivity tolerance
2) Option zero-drift
3) Option signal resolution 20 Bit
4) Option measuring signal bandwidth 2 kHz

5) Option measuring signal bandwidth 5 kHz
6) Option measuring signal bandwidth 10 kHz
7) Option frequency output 10 kHz +/- 5 kHz

Technical Data (Continuation 1)

Nominal torque M _{nom}	kNm	0,05	0,1	0,2	0,5	1	2	3	5	10
Linearity deviation including hysteresis, related to the nominal sensitivity										
Voltage output 10 V	%	< +/- 0,02								
Frequency output 60 kHz ⁷⁾	%	< +/- 0,02								
Digital output	%	< +/- 0,02								
Rel. Standard deviation of repeatability according to DIN 1319 in relation to output signal change (dig. output)	%	< +/0,005								
Shunt signal Tolerance of the shunt signal relative to M _{nom}		ca. 80 % von M _{nom} < +/- 0.02								
Nominal release voltage	%	80								
Limit tripping voltage	%	12								
Shunt signal on (active low)	V	< 1 (GND)								
Shunt signal	V	>2,5								
Overall accuracy relative to nominal torque M _{nom} based on 10 K temperature change (dig. output)										
60..100 % of M _{nom}	%	<±0,007								
20..60 % of M _{nom}	%	<±0,005								
0..20 % off M _{nom}	%	<±0,003								
General data										
EMC EME (Emission per EN61326–1, sec.7) RFI field strength	-	Klasse B								
Immunity from interference (EN 61326-1, table 2)										
Electromagnetic field AM	V/m	80								
Magnetic field	A/m	200								
Electrostatic discharge (ESD)										
Contact discharge	kV	20								
Air discharge	kV	10								
Fast transients (burst)	kV	1								
Shock (surge)	kV	1								
Conducted disturbances	V	10								
Degree of protection per EN 60529 Standard /Oil-resistant / waterproof ⁸⁾		Ip54 (IP67 ²⁾)								
Weight approx. Rotor approx. Stator	kg kg	0,9	0,9	1,0	2,0	2,1	4,0	4,1	6,1	10,2
Reference temperature	°C	23								
Operating temperature range	°C	-10..+70								
extended temperature range ⁹⁾	°C	-40..+160								
Storage temperature range	°C	-50..+160								
mech. shock resistance according to EN 60068-2-27										
Number of impacts	n	100								
Duration	ms	3								
Acceleration	m/s²	650								
Vibration load in 3 directions EN 60068-2-27										
Frequency range	Hz	10...2000								
Duration	h	2,5								
Acceleration (amplitude)	m/s²	200								
Nominal speed	min ⁻¹	20000			20000		15000		12000	10000
Increased speed stability ¹⁰⁾	min ⁻¹	32000			25000		18000		15000	15000
Limitations of liability ¹¹⁾										
Limit torque related M _{nom}	%	400								
Breaking torque relative to M _{nom}	%	800								
Axial limit force ¹¹⁾	kN	5	5	10	20	29	45	53	90	120
Lateral force limit ¹¹⁾	kN	1	1	2	6	8	15	17	20	24
Bending limit moment ¹¹⁾	kNm	0,03	0,03	0,1	0,3	0,36	0,8	0,9	1,2	1,7
Oscillation bandwith per DIN 50100 (peak-to-peak) ¹²⁾	kNm	0,20	0,20	0,40	1,0	2,0	4,0	5,1	8,5	1,7

8) Option protection class IP67

9) Option extended service temperature range

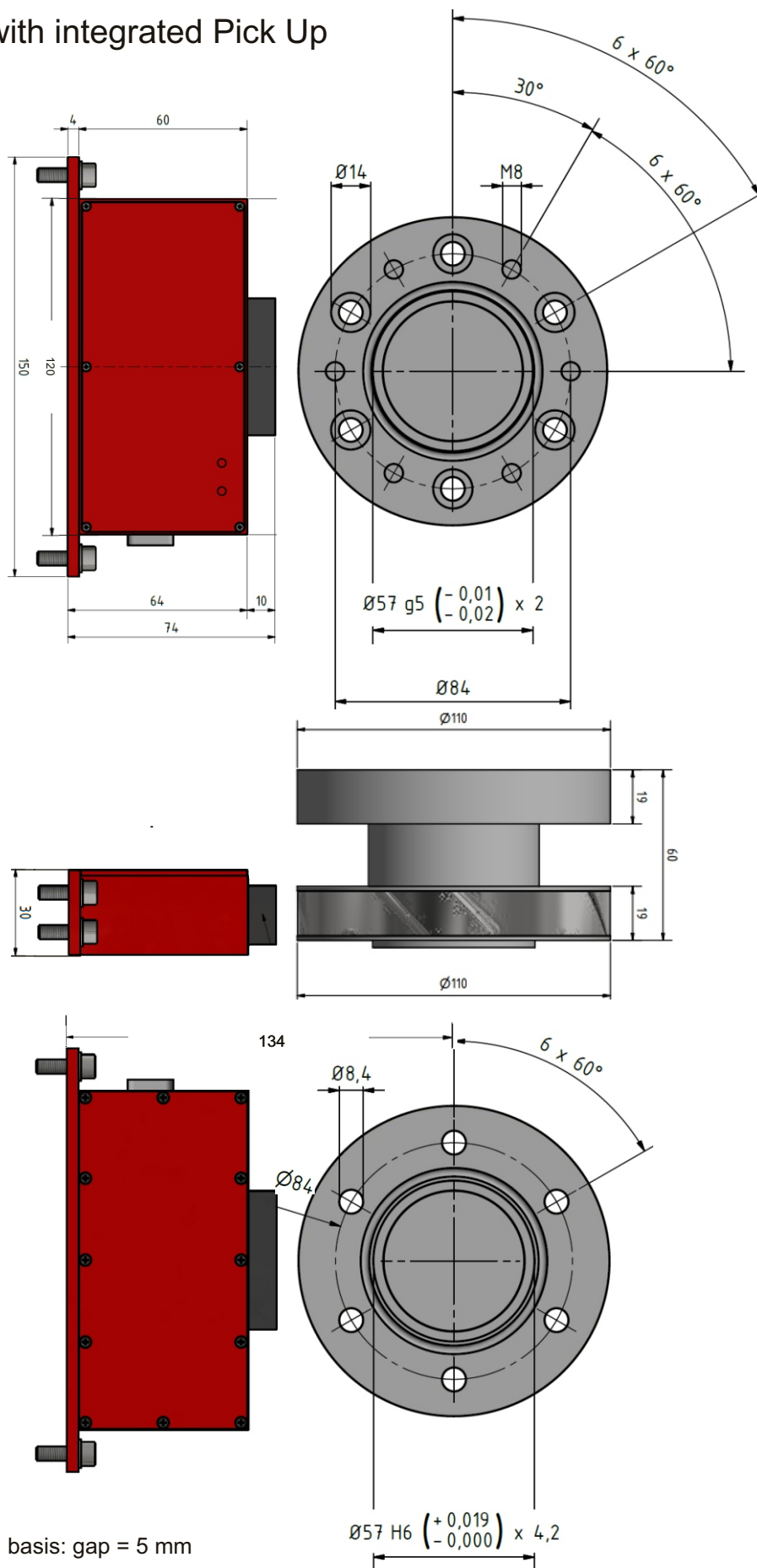
10) Option increased speed stability

11) static and dynamic

12) The nominal torque must not be exceeded

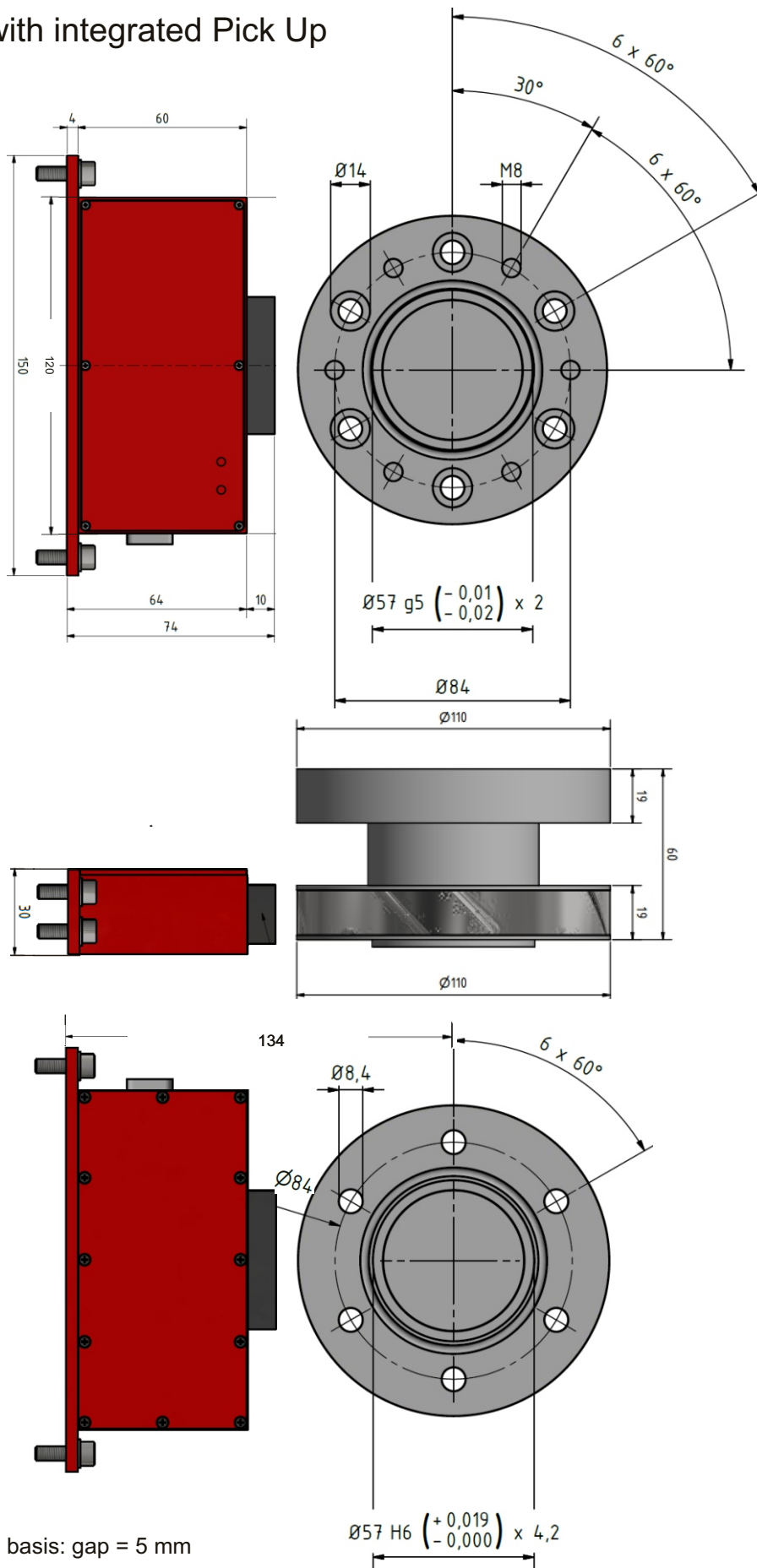
Dimensions Xtreme HP 0,05 kN·m (in mm)

Receiver with integrated Pick Up



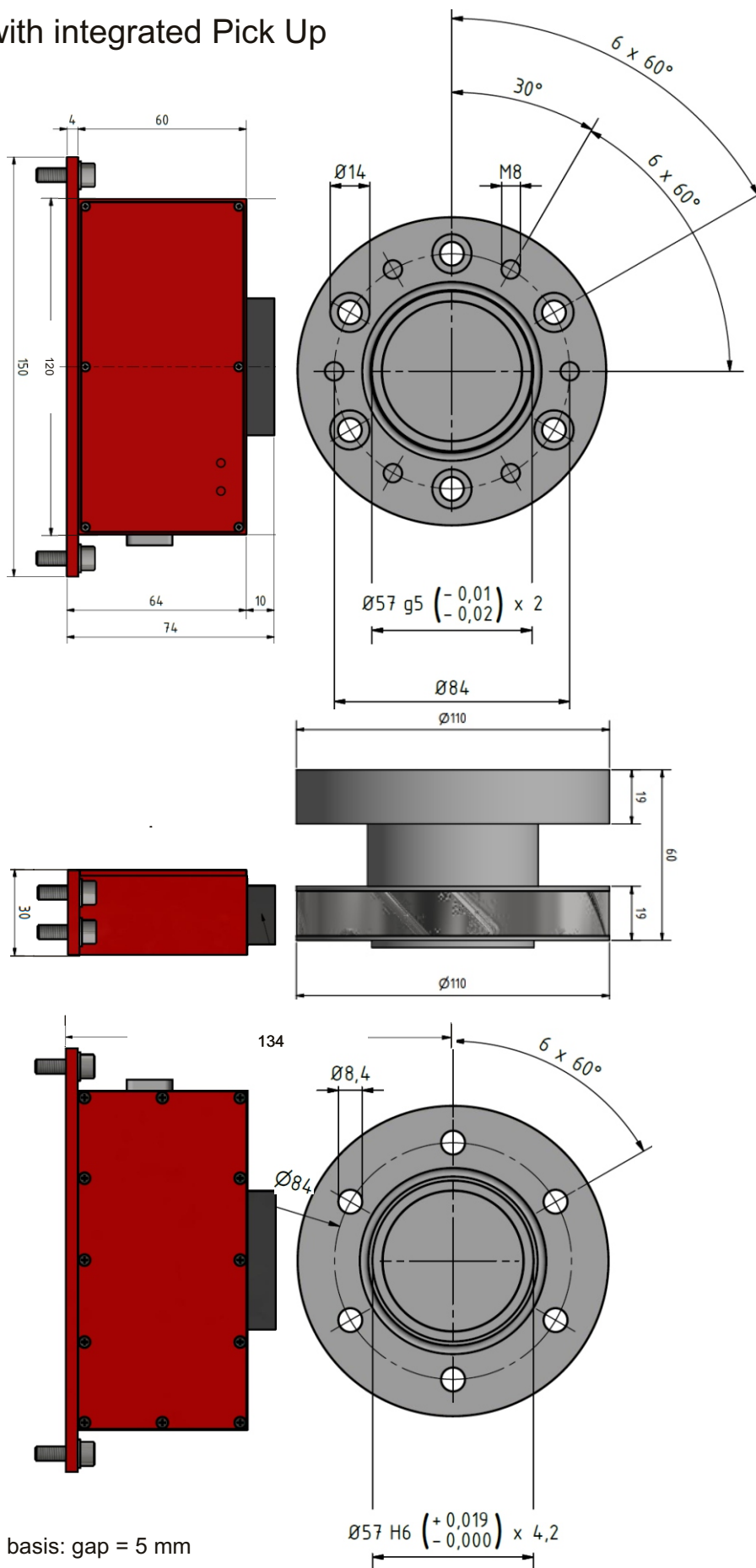
Dimensions XtremeMA HP 0,1 kN·m (in mm)

Receiver with integrated Pick Up



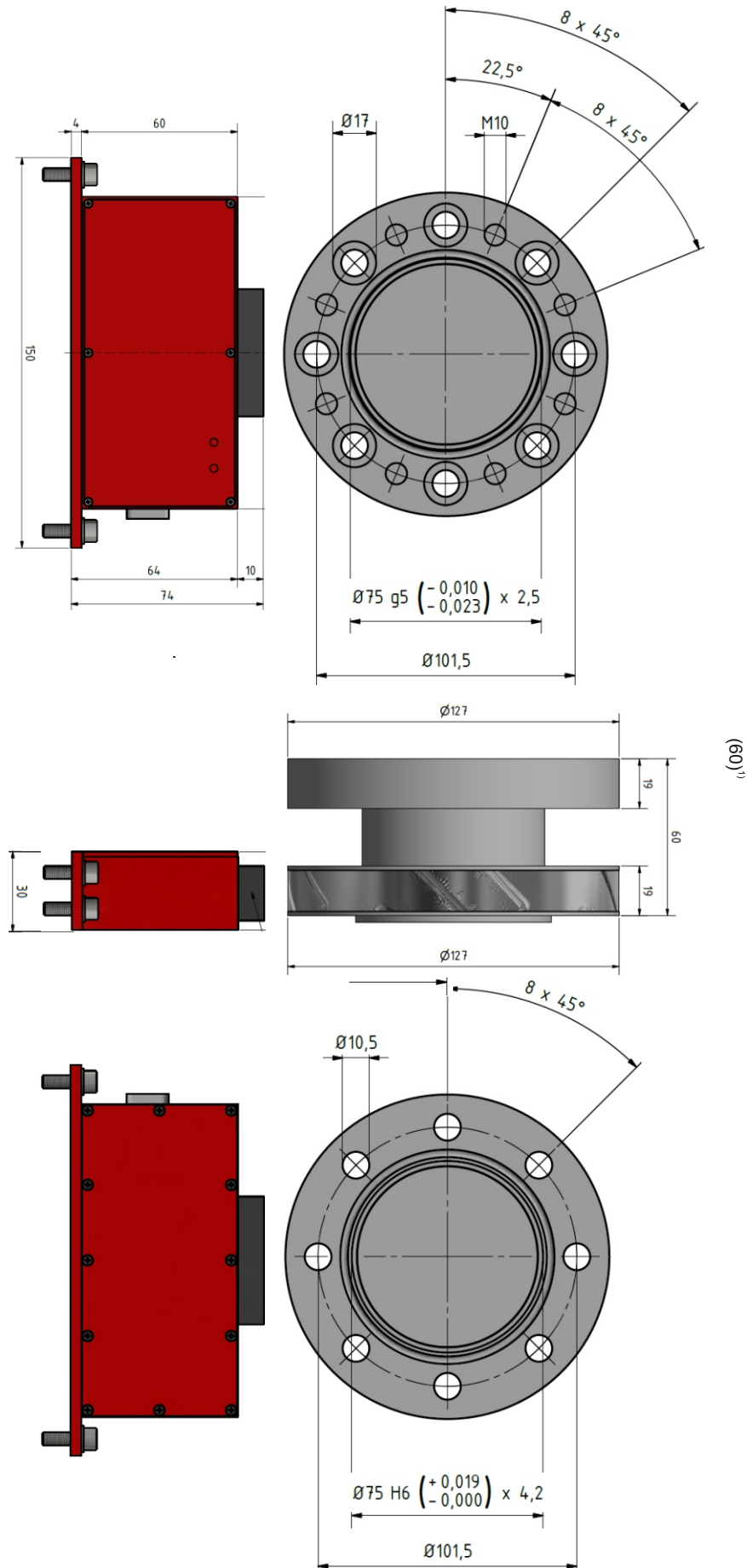
Dimensions XtremeMA HP 0,1 kN·m (in mm)

Receiver with integrated Pick Up



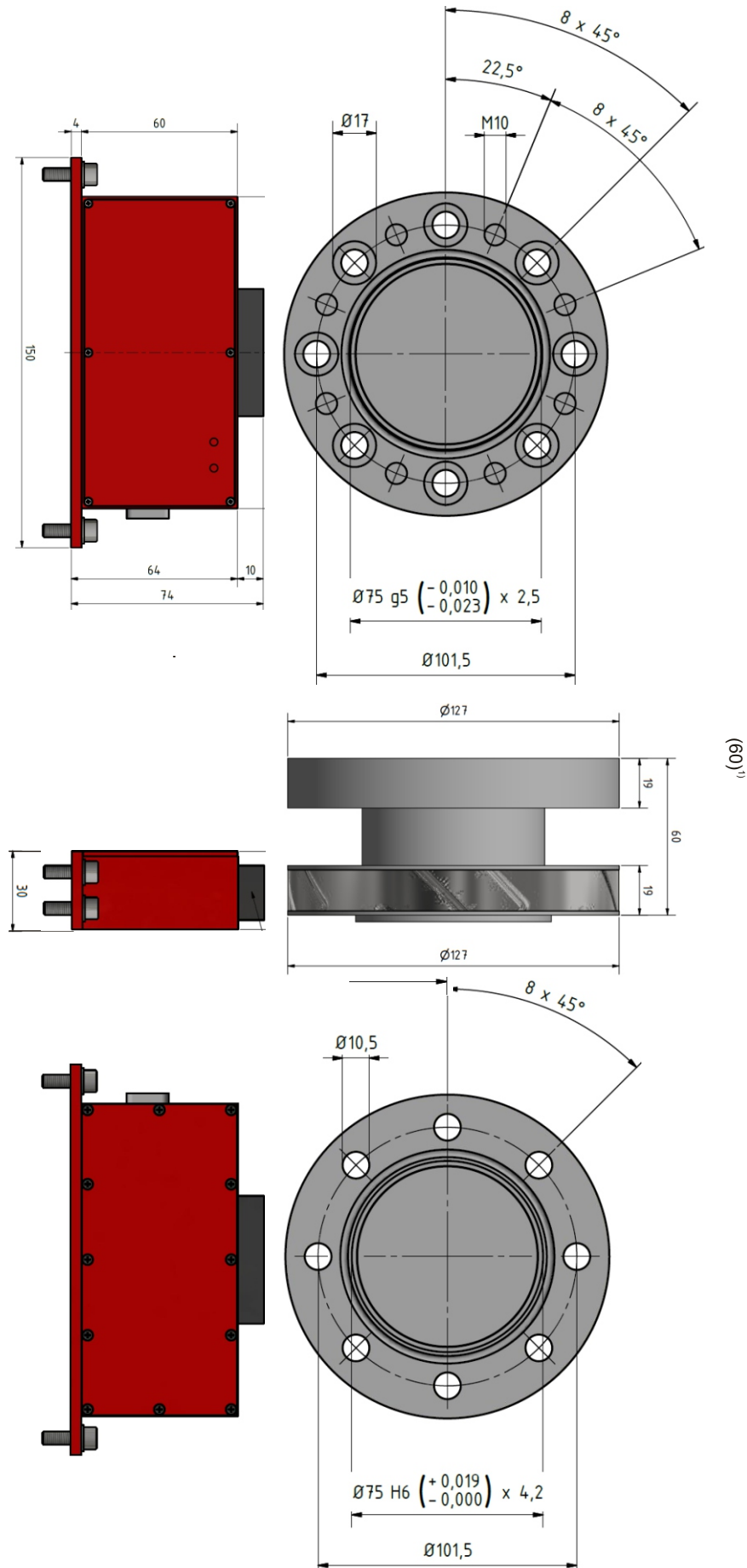
Dimensions Xtrema HP 0,5 kN·m (mm)

Receiver with integrated Pick Up



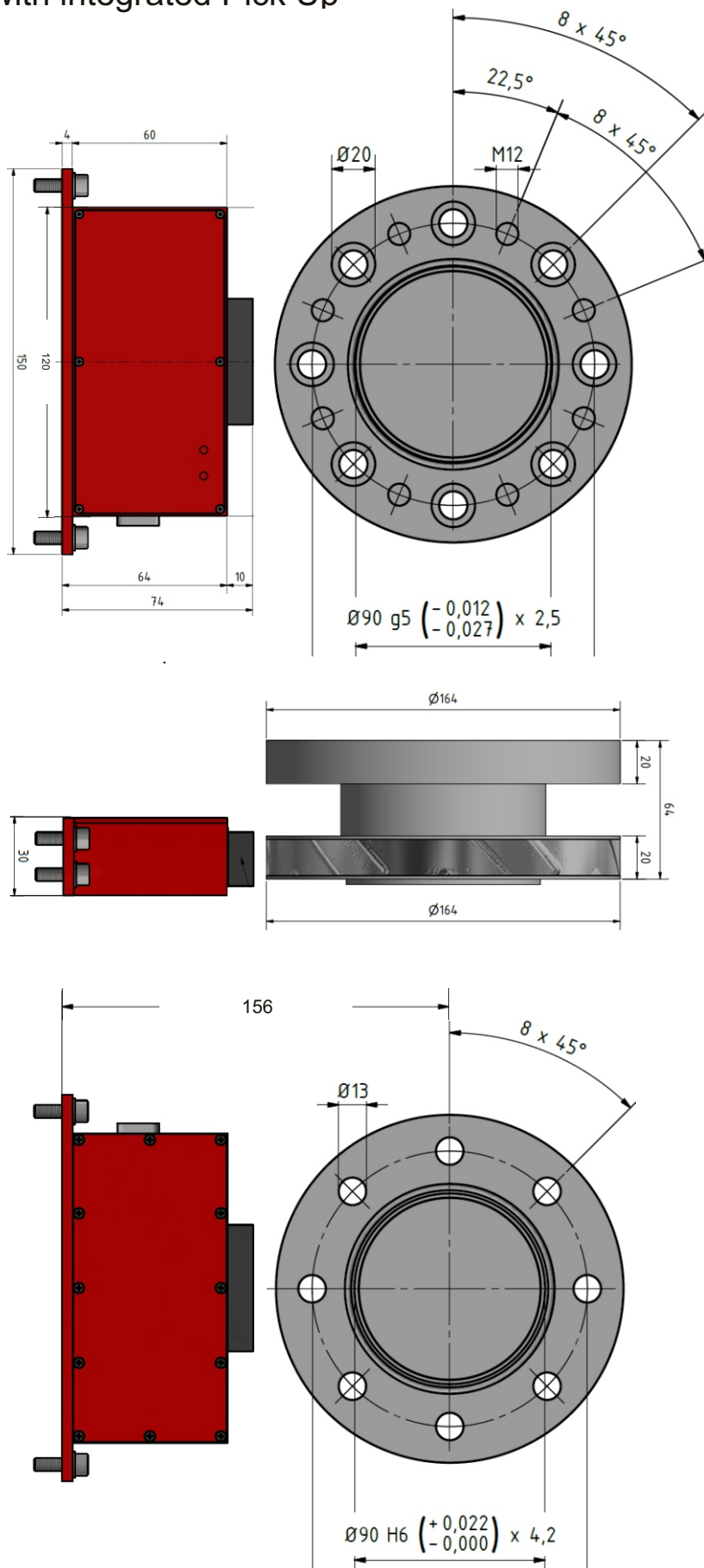
Dimensions Xtrema HP 1 kN·m (mm)

Receiver with integrated Pick Up



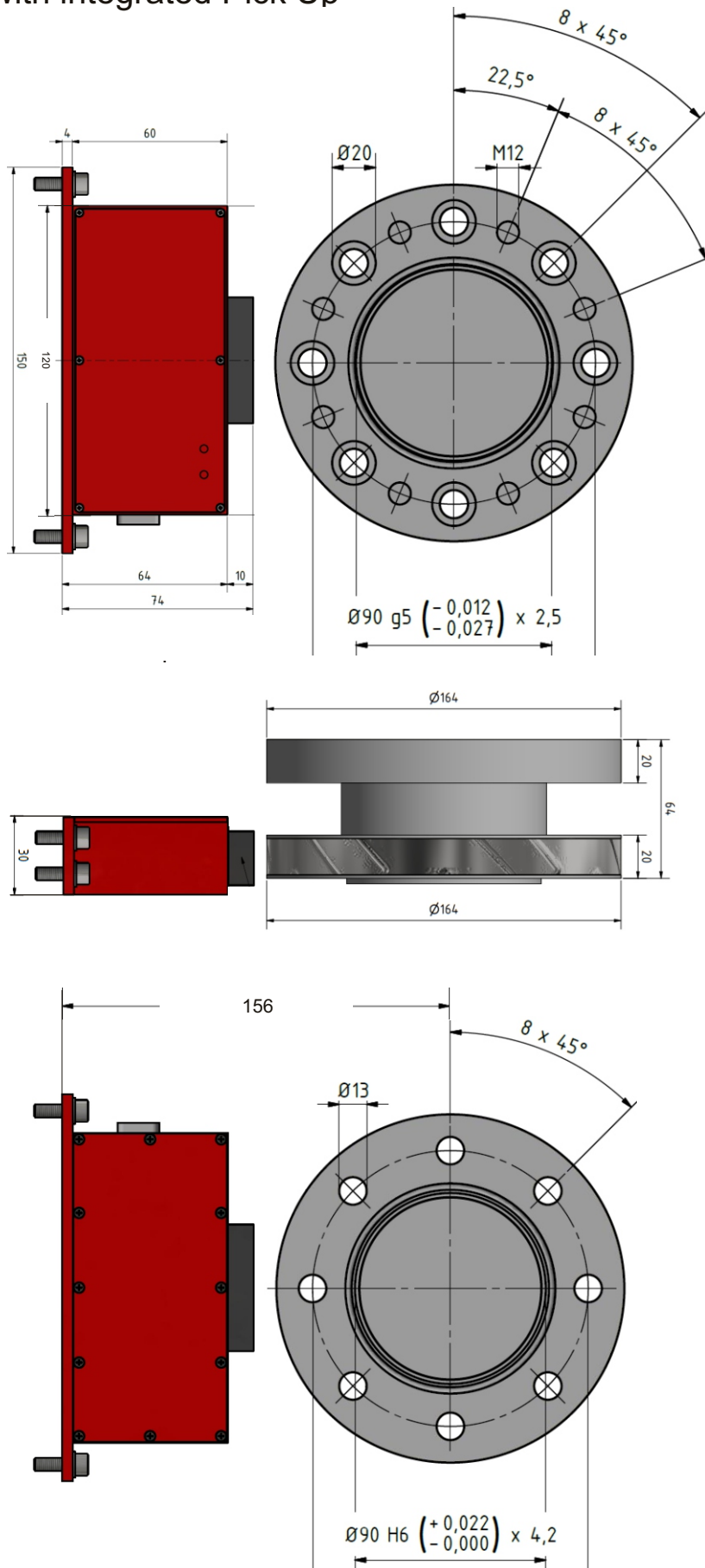
Dimensions Xtrema HP 2 kN·m (mm)

Receiver with integrated Pick Up



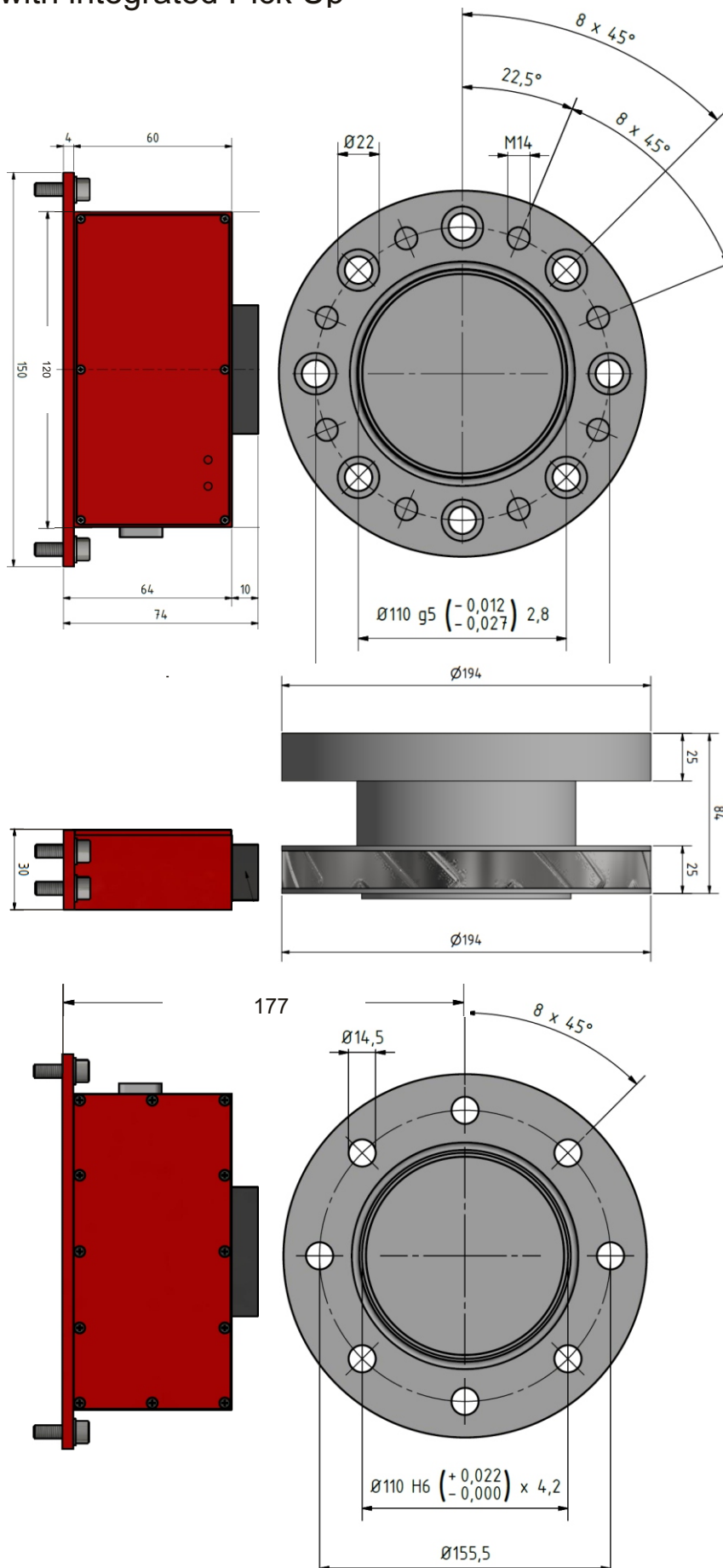
Dimensions Xtreme HP 3 kN·m (mm)

Receiver with integrated Pick Up



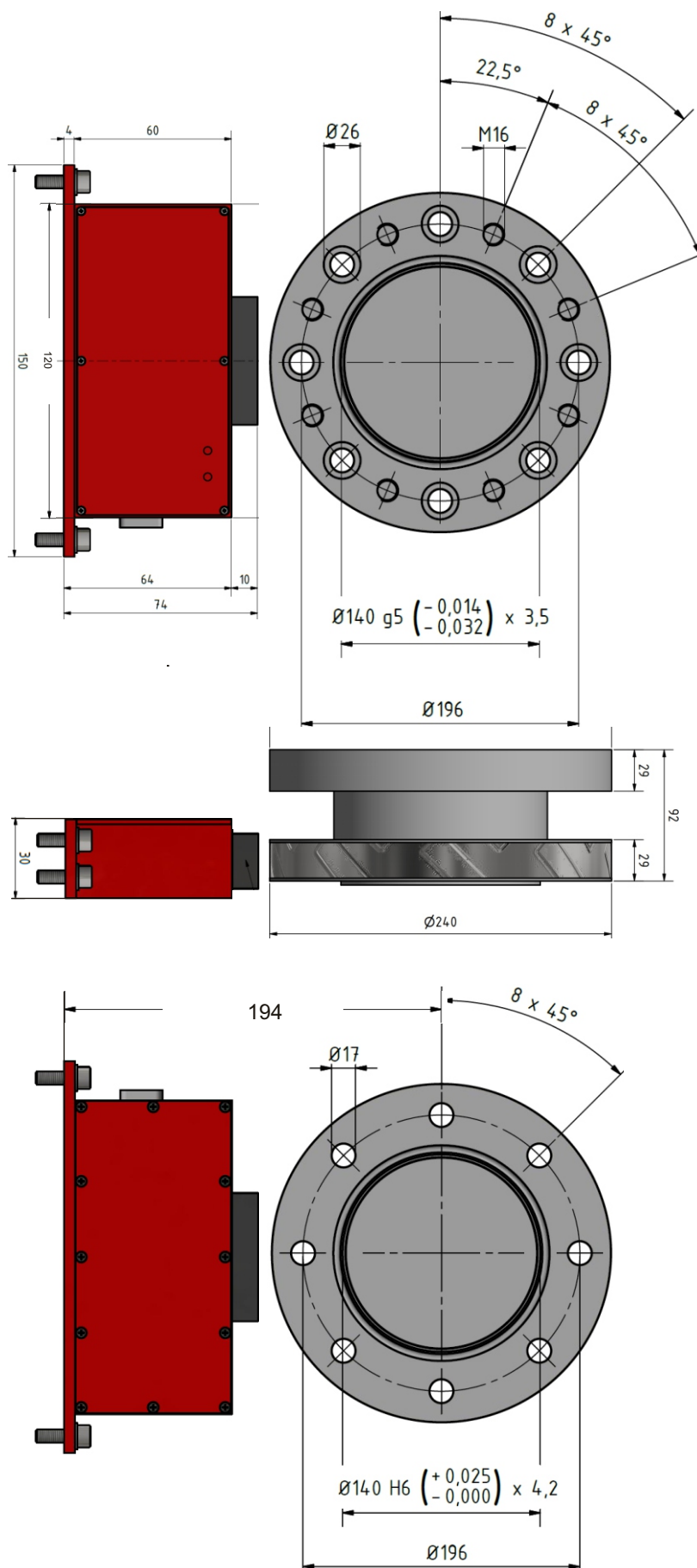
Dimensions XtremeMA HP 5 kN·m (mm)

Receiver with integrated Pick Up

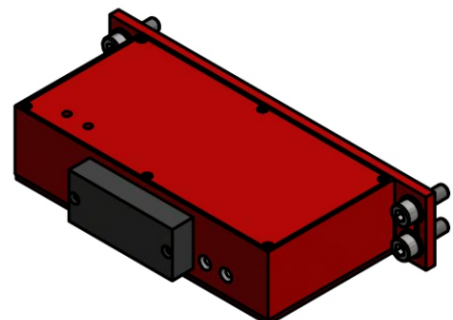
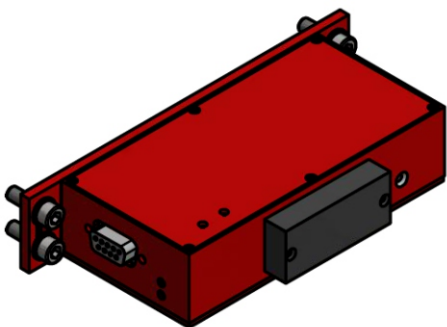
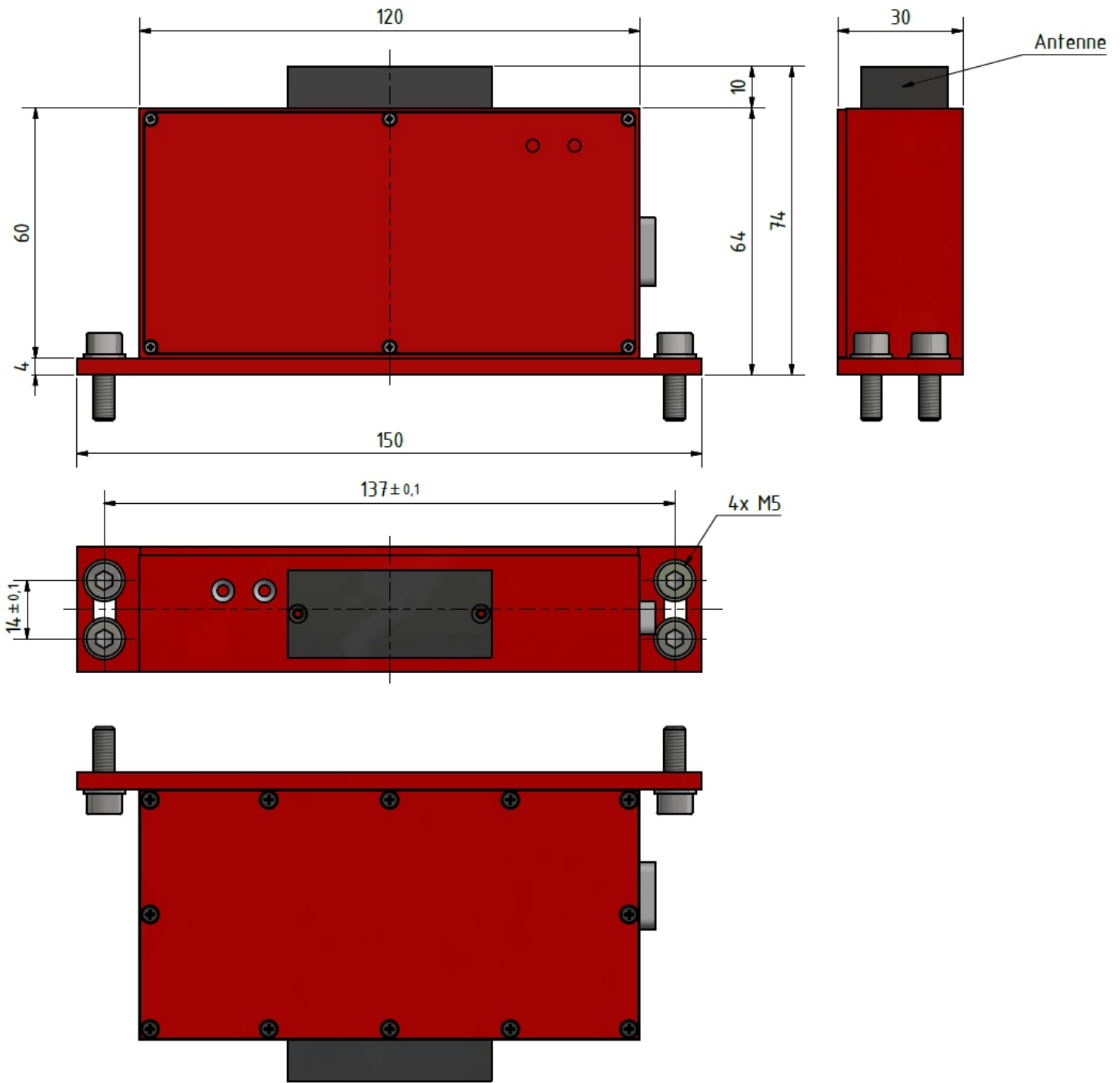


Dimensions Xtrema HP 10 kN·m (mm)

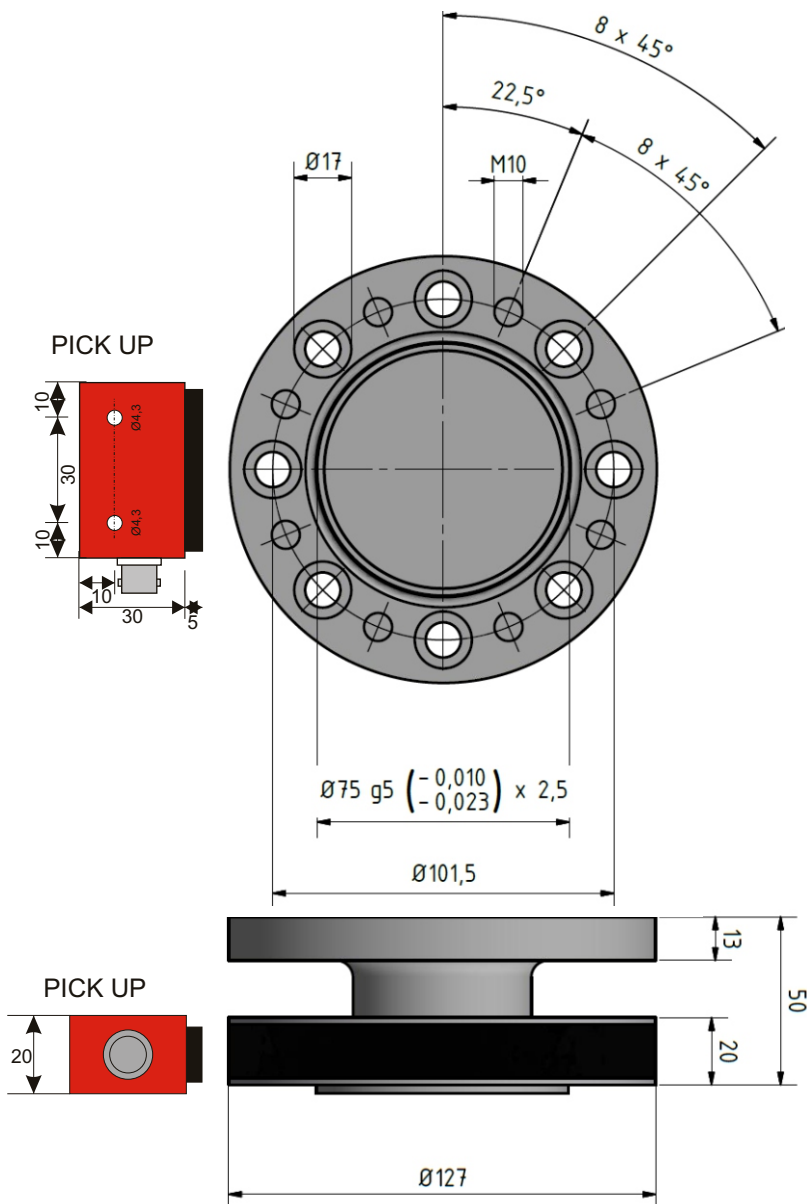
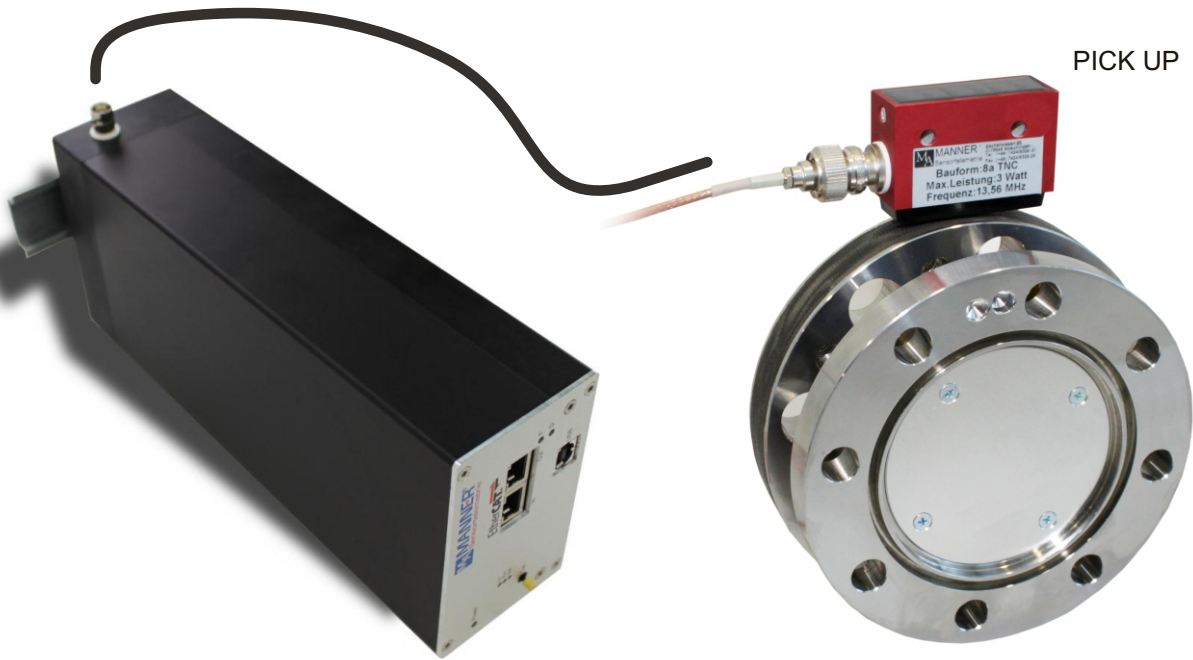
Receiver with integrated Pick Up



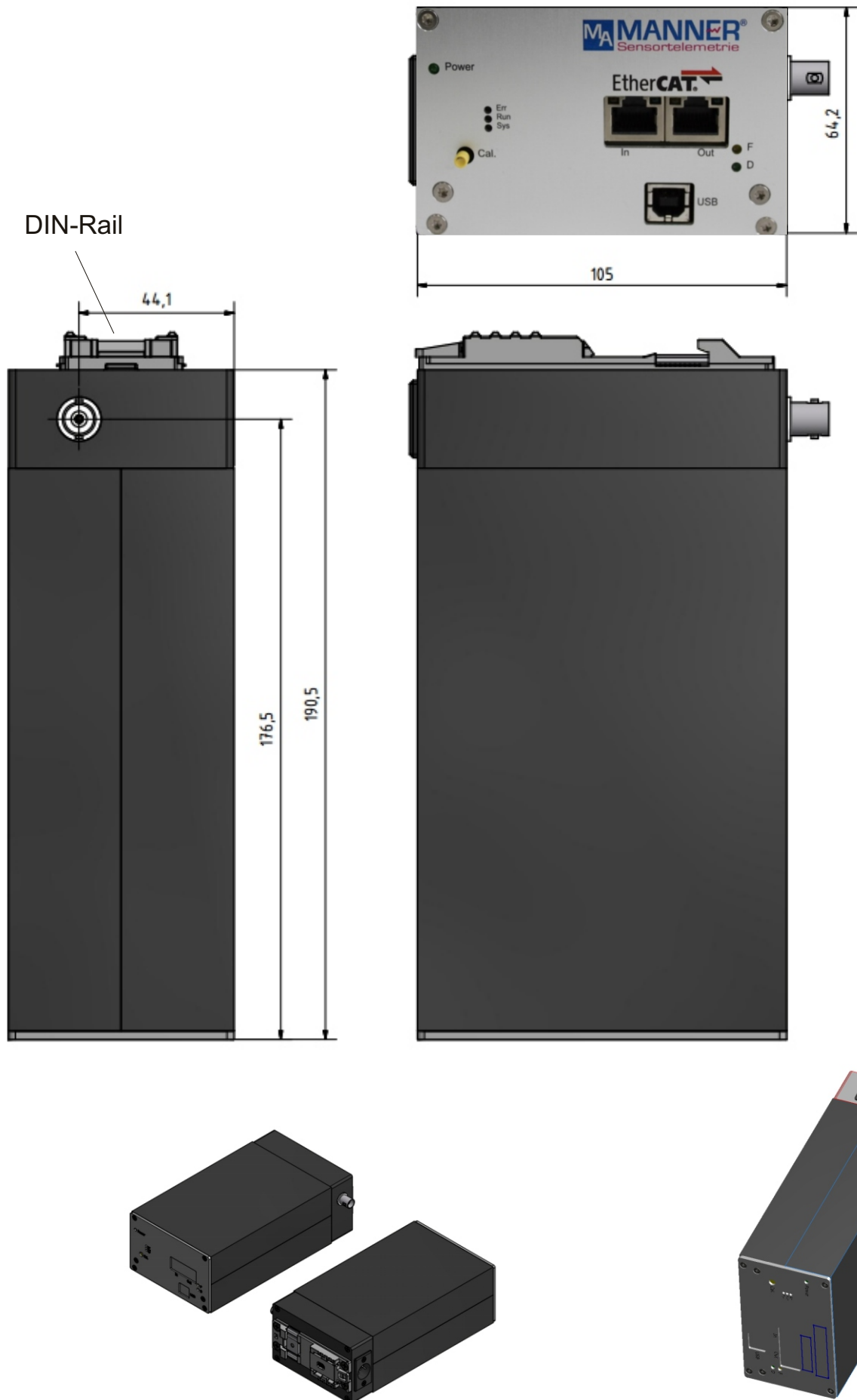
Geometry Receiver Typ MAnt integrated Pick UP



Variante offsetted Pick UP

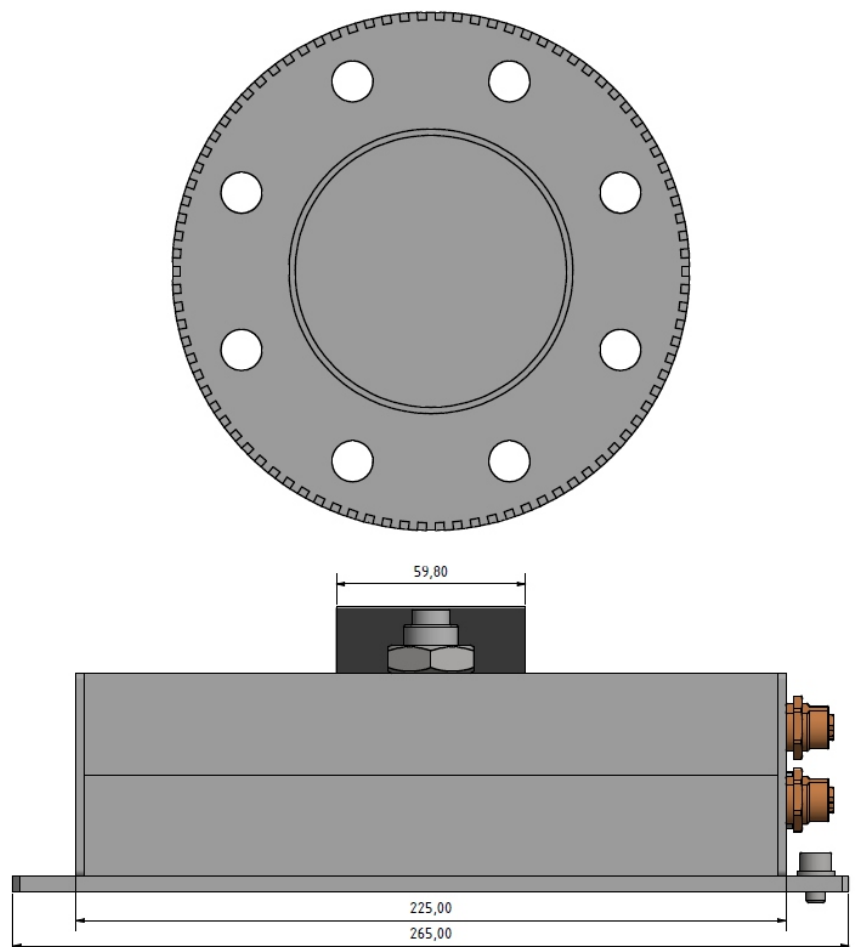
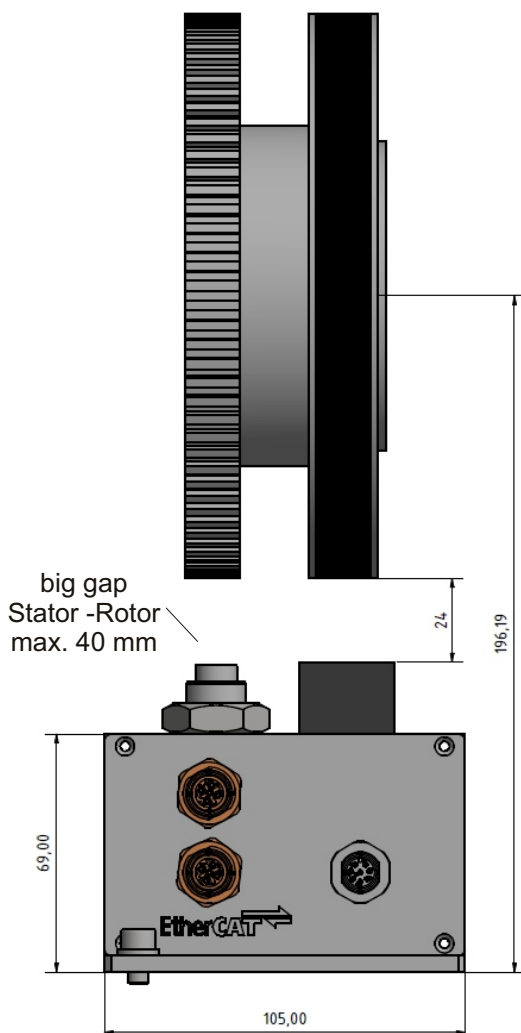
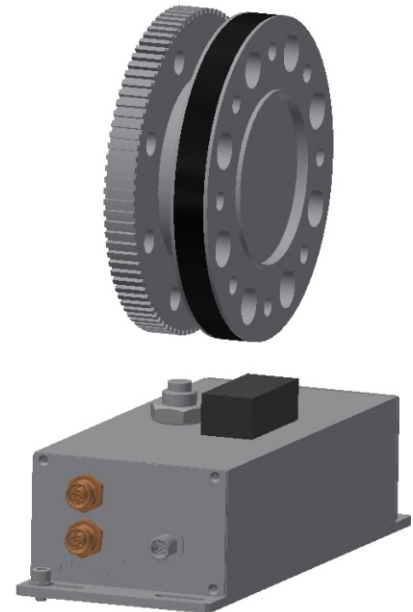


Geometry Evaluation Unit Type F



Geometry Rdeceiver Typ FAnt integrated Pick UP with big transmission range

- ✓ Pick Up with integrated Receiver (compact built up)
- ✓ integrated network connection EtherCat oder CAN
- ✓ Frequency 10+/-5kHz and analogic output
- ✓ Speed /Torque acquisition with distance flange - Pick Up up to 40 mm





Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Kalibrierlaboratorium

Manner Sensortelemetrie GmbH
Eschenwasen 20, 78549 Spaichingen

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Kalibrierungen in folgenden Bereichen durchzuführen:

Mechanische Messgrößen
– **Drehmoment**

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 22.03.2019 mit der Akkreditierungsnummer D-K-20850-01. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 2 Seiten.

Registrierungsnummer der Urkunde: **D-K-20850-01-00**

Braunschweig,
22.03.2019

Im Auftrag Dr. Heike Manke
Abteilungsleiterin

Siehe Hinweise auf der Rückseite

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