

Data sheet

Force transducer

Series RF-I

(160 kN – 4000 kN)



Benefits/Application

- Accuracy class 0,05
- Very high-cycle fatigue resistant up to 100 % of nominal load
- Extremely robust against side forces and bending moments
- For static and dynamic tensile and compressive forces
- Outstanding overload-tolerance
- Easy assembling, lots of possibilities

Options/Accessories

- Second redundant measuring circuit
- Bending moment circuits

Technical data 160 kN – 4000 kN

Nominal force compression/tension	$\pm F_{nom}$	kN	160	250	400	630	1000	1600	2500	4000
Accuracy class							0,05			
Force measurement range		%					1 - 100			
Linearity error	d_{lin}	%					0,05			
Interpolation error	f_c	%					0,4			
Hysteresis	h	%					0,1			
Reversibility error	v	%					0,5			
Repeatability (f.s.)		%					0,005			
Creep		%					0,025			
Temperature effect on characteristic value per 10 K	TK_C	%/10 K					0,05			
Temperature effect on zero signal per 10 K	TK_0	%/10 K					0,05			
Eccentricity effect		%/mm					0,02			
Lateral force effect		%/(0,1·F _{nom})					0,2			
Torque effect		%/(mm·F _{nom})					0,005			
Characteristic value difference, tension/compression force	d_{ZD}	%					1			
Rated characteristic value	C_{nom}	mV/V					1,6			
Characteristic value tolerance	d_c	%					0,2			
Zero signal deviation	$d_{s,0}$	%					0,7			
Input resistance	R_e	Ω					ca. 760			
Output resistance	R_a	Ω					ca. 600			
Insulation resistance	R_{is}	Ω					>10 ⁹			
Operating range of excitation voltage	$B_{U,G}$	V					5 - 12			
Protection (DIN EN 60529)							IP 67 ²⁾			IP 54 ¹⁾

Metrological Data

Electrical Data

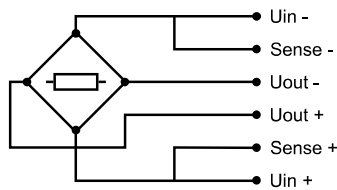
160 kN – 4000 kN

Mechanical Data	Nominal force compression/tension	$\pm F_{nom}$	kN	160	250	400	630	1000	1600	2500	4000	
	Rated Displacement	s_{nom}	mm	0,07	0,1	0,12	0,18	0,22	0,25	0,26	0,27	
	Spring rigidity	c_{ax}	kN/mm	2286	2500	3333	3500	4454	6400	9615	14815	
	Mass	m	kg	6	20		70		56	96	158	
	Proportionate moving mass	m_{mess}	kg	1,5	5,1	5,5	23,2	28	22	35	74	
	Fundamental resonant frequency	f_G	kHz	6,2	3,5	3,9	2		2,4	2,6	2,3	
	Permissible oscillation stress		%	± 100								
Limits	Force limit		%	150								
	Breaking force		%	300								
	Lateral force limit		%	80								
	Permissible eccentricity	e_G	mm	15								
	Bending moment limit	$M_{b\,zul}$	kN·m	2,4	3,75	6	9,45	15	24	37,5	60	
	Rated temperature range	$B_{T,nom}$	°C	10 - 60								
	Operating temperature range	$B_{T,G}$	°C	-10 – +80								

1) Plug -in connection

2) Permanent connection

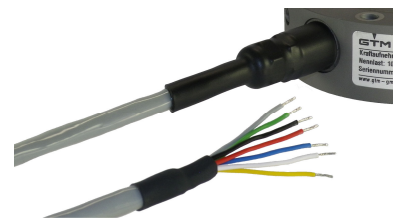
Cable connection



Permanent connection
end not connected

Grey cable
Ø 6,5 mm
6 x 0,25 mm²
Temperature range: -35 °C to +90 °C

Connection		Wire colour
Supply voltage (+)	U_{in+}	blue
Supply voltage (-)	U_{in-}	black
Measurement signal (+)	U_{out+}	white
Measurement signal (-)	U_{out-}	red
Sense (+)	$Sense+$	green
Sense (-)	$Sense-$	grey
Shielding		yellow



*Permanent connection
end not connected*

- Cable length 5m
- More cable types and lengths on request

Option: 2.Measuring circuit

- In case of two circuits the technical data are similarly valid for both circuits

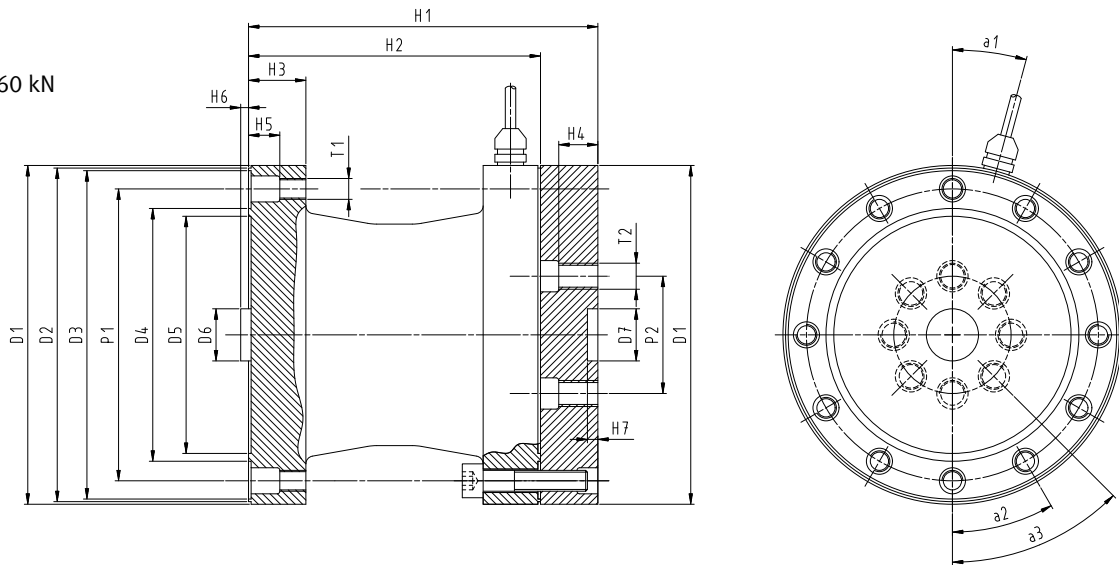
Option: Bending moment

Rated bending moment	Mb_{nom}	N·m	$F_{nom} \cdot 10 \text{ mm}$
Reproducibility		%	0,01
Temperature effect on characteristic value per 10 K	TK_C	%/10 K	0,2
Temperature effect on zero signal per 10 K	TK_0	%/10 K	0,2
Rated characteristic value	C_{nom}	mV/V	ca. 1
Input resistance	R_e	Ω	400
Operating range of excitation voltage	$B_{U,G}$	V	12

Mating dimensions

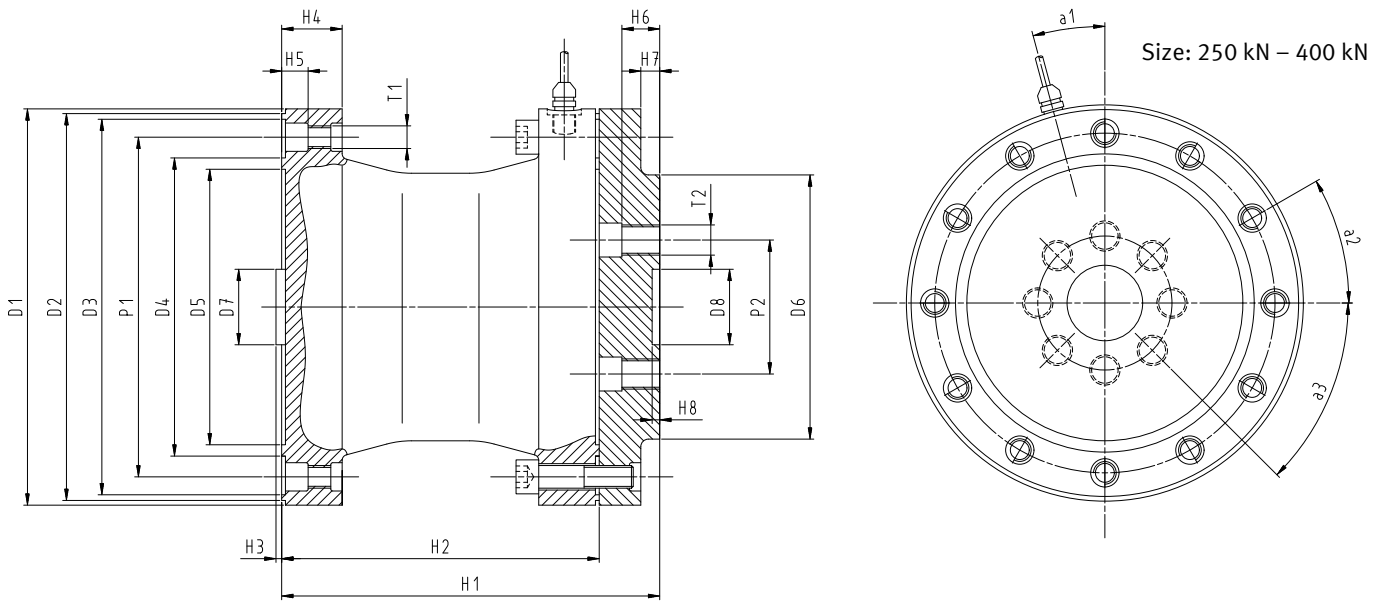
up to 160 kN

Size: 160 kN

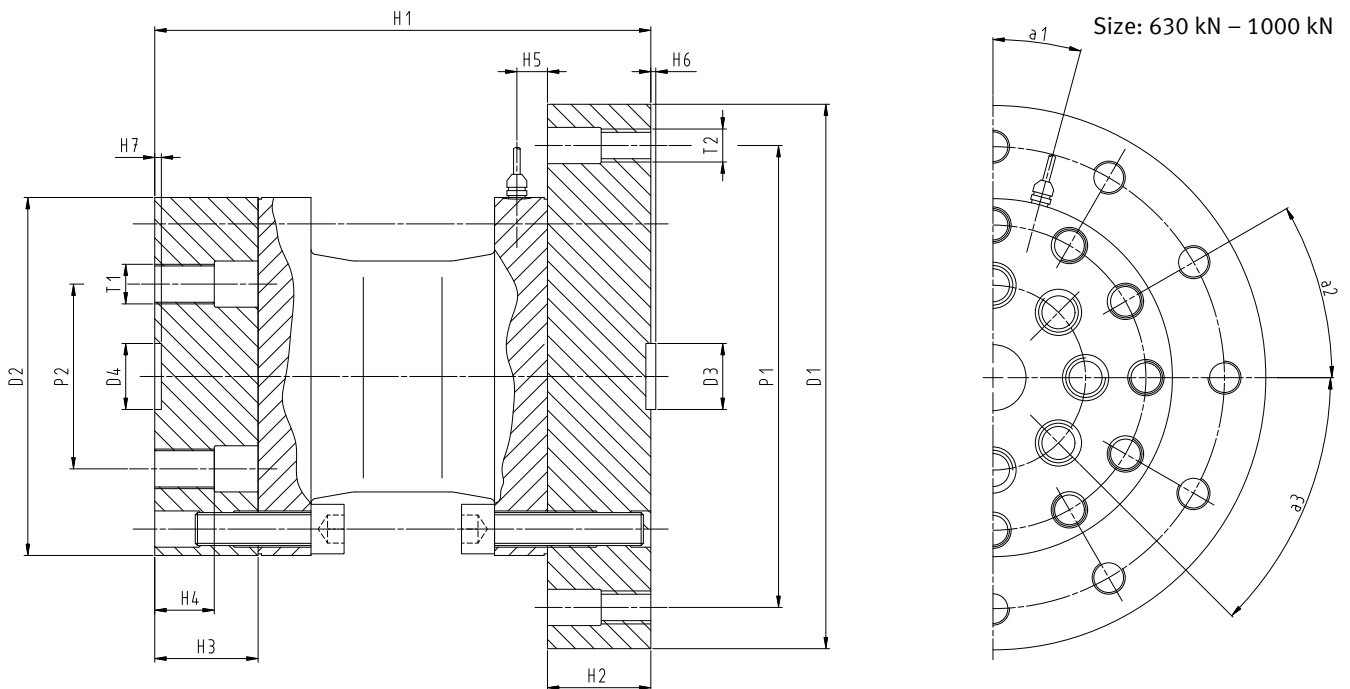


Nominal force compression/tension	$\pm F_{nom}$	kN	160
Diameter	$\varnothing D_1$	mm	130
Diameter	$\varnothing D_2$	mm	128
Diameter	$\varnothing D_3$	mm	126
Diameter	$\varnothing D_4$	mm	97
Diameter	$\varnothing D_5$	mm	91
Diameter	$\varnothing D_6$	mm	20 _{h6}
Diameter	$\varnothing D_7$	mm	20 _{H7}
Pitch circle diameter	$\varnothing P_1$	mm	112
Pitch circle diameter	$\varnothing P$	mm	45
Thread	T_1		M8
Thread	T_2		M10
Height	H_1	mm	138
Height	H_2	mm	116
Height	H_3	mm	22
Height	H_4	mm	15
Height	H_5	mm	12
Height	H_6	mm	3
Height	H_7	mm	4
Angle	a_1		15°
Angle	a_2		30°
Angle	a_3		45°

bis 400 kN



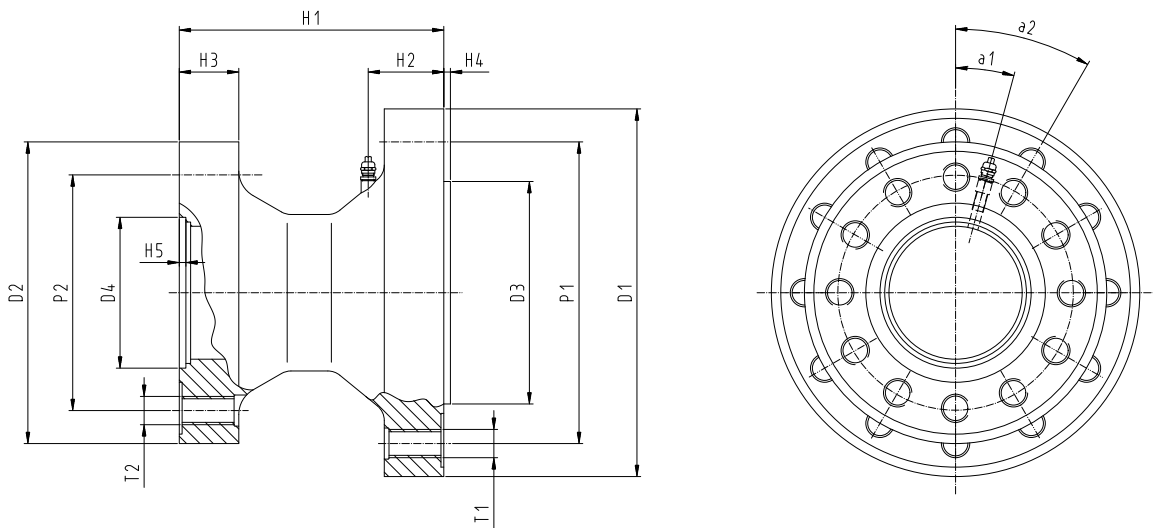
Nominal force compression/tension	$\pm F_{nom}$	kN	250	400
Diameter	$\varnothing D_1$	mm	210	
Diameter	$\varnothing D_2$	mm	205	
Diameter	$\varnothing D_3$	mm	199	
Diameter	$\varnothing D_4$	mm	158	
Diameter	$\varnothing D_5$	mm	146	
Diameter	$\varnothing D_6$	mm	140	
Diameter	$\varnothing D_7$	mm	40 _{h6}	
Diameter	$\varnothing D_8$	mm	40 _{H7}	
Pitch circle diameter	$\varnothing P_1$	mm	180	
Pitch circle diameter	$\varnothing P$	mm	71	
Thread	T_1		M12	
Thread	T_2		M16	
Height	H_1	mm	200	
Height	H_2	mm	168	
Height	H_3	mm	3	
Height	H_4	mm	32	
Height	H_5	mm	14	
Height	H_6	mm	20	
Height	H_7	mm	10	
Height	H_8	mm	4	
Angle	a_1		15°	
Angle	a_2		30°	
Angle	a_3		45°	



Nominal force compression/tension	$\pm F_{nom}$	kN	630	1000
Diameter	$\varnothing D_1$	mm	330	
Diameter	$\varnothing D_2$	mm	217	240
Diameter	$\varnothing D_3$	mm	40 _{h6}	
Diameter	$\varnothing D_4$	mm	40 _{H7}	
Pitch circle diameter	$\varnothing P_1$	mm	280	
Pitch circle diameter	$\varnothing P_2$	mm	112	
Thread	T_1		M20	M24
Thread	T_2		M20	
Height	H_1	mm	300	317
Height	H_2	mm	62,5	42,5
Height	H_3	mm	62,5	42,5
Height	H_4	mm	36	30
Height	H_5	mm	18,5	21
Height	H_6	mm	3	
Height	H_7	mm	4	
Angle	a_1		15°	
Angle	a_2		30°	
Angle	a_3		45°	

bis 4000 kN

Size: 1600 kN – 4000 kN



Nominal force compression/tension	$\pm F_{nom}$	kN	1600	2500	4000
Diameter	$\varnothing D_1$	mm	309	390	482
Diameter	$\varnothing D_2$	mm	254	320	413
Diameter	$\varnothing D_3$	mm	190 _{g6}	236 _{g6}	290 _{h6}
Diameter	$\varnothing D_4$	mm	132 _{H7}	160 _{H7}	200 _{H7}
Pitch circle diameter	$\varnothing P_1$	mm	255	320	400
Pitch circle diameter	$\varnothing P_2$	mm	200	250	315
Thread	T_1		M24	M30	M42
Thread	T_2		M24	M30	M42
Height	H_1	mm	280		393
Height	H_2	mm	70	80	100
Height	H_3	mm	50	63	73
Height	H_4	mm	7		
Height	H_5	mm	7		8
Angle	a_1		15°		
Angle	a_2		30°		

Änderungen vorbehalten. Alle Angaben beschreiben unsere Produkte in allgemeiner Form. Sie stellen keine vereinbarte Beschaffenheit im Sinne des § 434 Abs. 1 BGB dar.



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