

Data Sheet | Force Transducer Series KL

Nominal Force
5 - 100 N



Variant with fixed measuring cable



Variante with connection socket

Applications | Key Facts

- ▶ Compression and tensile forces for low rated forces
- ▶ Accuracy class: 0.03 | precise and reliable measurements
- ▶ Overload protection: 10-fold
- ▶ Mounting: fast and easy from one side

Options | Accessories

- ▶ Fixed connection socket or fixed measuring cable with open ends
- ▶ Screw set for easy and quick mounting

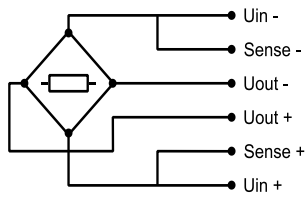
Technical Data | 5 – 100 N

		$\pm F_{nom}$	N	5	10	20	50	100
Metrological Data	Nominal force compression/tension							
	Accuracy class			0.03				
	Linearity error	d_{lin}	%	0.03				
	Hysteresis	h	%	0.02				
	Reproducibility		%	0.005				
	Creep		%	0.025				
	Temperature effect on characteristic value per 10 K	TK_C	%/10 K	0.04				
	Temperature effect on zero signal per 10 K	TK_0	%/10 K	0.025				
	Eccentricity effect		%/mm	0.015				
	Bending moment effect		%/(0.1·N·m)	0.2	0.1	0.05	0.02	0.01
	Lateral force effect		%/(0.1·F _{nom})	0.02				
	Characteristic value difference, tension/compression force	d_{ZD}	%	0.1				
	Electrical Data	Rated characteristic value	C_{nom}	mV/V	2			
Characteristic value tolerance		d_c	%	0.2				
Zero signal deviation		$d_{S,0}$	%	0.5				
Input resistance		R_e	Ω	820				
Output resistance		R_a	Ω	600 - 700				
Insulation resistance		R_{is}	Ω	> 10 ⁹				
Operating range of excitation voltage		$B_{U,G}$	V	5 - 12				
Protection (DIN EN 60529)				50				

Technical Data | 5 – 100 N

Mechanical Data	Nominal force compression/tension	$\pm F_{nom}$	N	5	10	20	50	100
	Rated Displacement	s_{nom}	mm	0.54	0.45	0.31	0.22	0.18
	Spring rigidity	c_{ax}	N/mm	9	22	63	231	549
	Mass	m	kg	0.3				
	Proportionate moving mass	m_{mess}	kg	0.04				
	Fundamental resonant frequency	f_G	Hz	80	120	200	380	600
Limits	Force limit		%	150				
	Breaking force		%	300	275			250
	Lateral force limit		%	1900	1200	800	500	300
	Permissible eccentricity	e_G	mm	100	70	50	40	30
	Bending moment limit	$M_{b\,zul}$	N·m	0.5	0.7	1.1	1.9	2.8
	Rated temperature range	$B_{T,nom}$	°C	10 – 40				
	Operating temperature range	$B_{T,G}$	°C	-10 – +50				

Cable Connection | 5 – 100 N

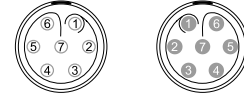


Permanent connection
end not connected

SMC: grey | Ø 6.5 mm |
twisted in pairs |
3 x 2 x 0.25 mm² |
-35 °C to +90 °C

Connection
pluggable¹⁾²⁾

7-pin LEMO Series 0
Female: - Male:



Connection		Wire colour	Pin
Supply voltage (+)	U _{in+}	SMC: blue	3
Supply voltage (-)	U _{in-}	SMC: black	2
Measurement signal (+)	U _{out+}	SMC: white	1
Measurement signal (-)	U _{out-}	SMC: red	4
Sense (+)	Sense+	SMC: green	5
Sense (-)	Sense-	SMC: grey	6
Shielding		SMC: yellow	Housing

1) View too weldingside

2) Female LEMO S.A. Typ: EGG.1B.307.CLL; Male: FGG.1B.307.CLA.D72



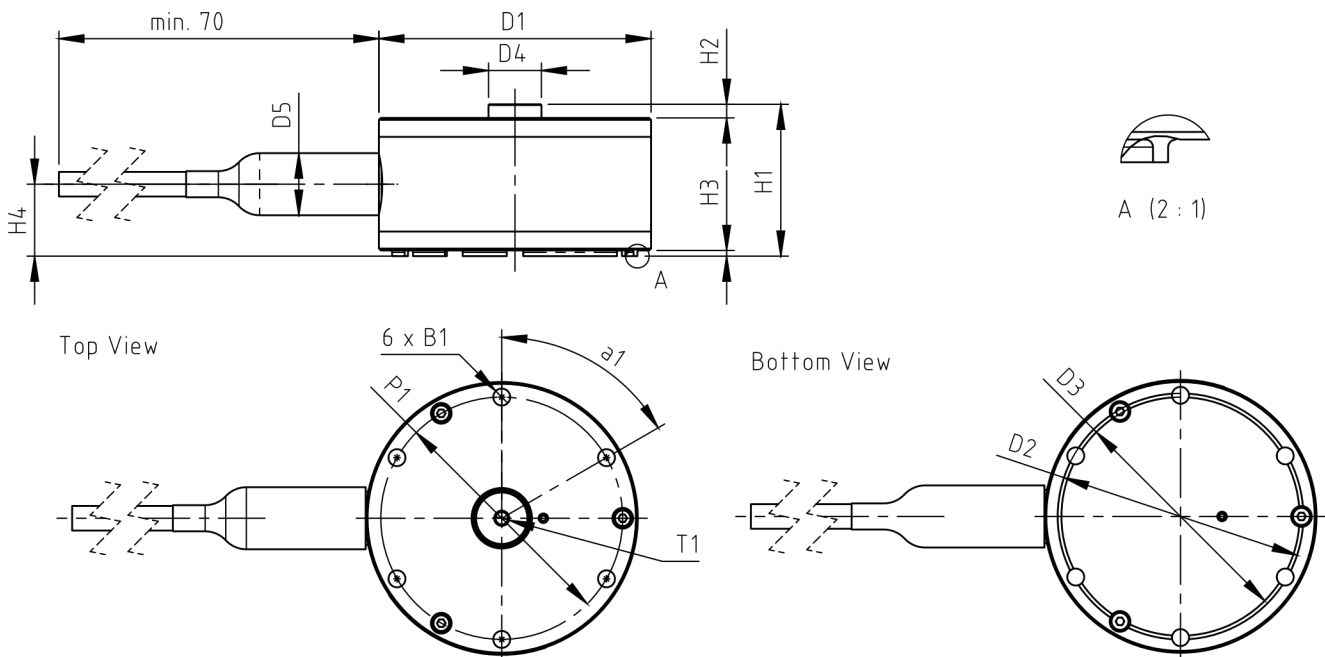
► Fixed mounted measuring cables with open ends



► Pluggable cable connection

Mating dimensions*fixed measuring cable | 5 – 100 N

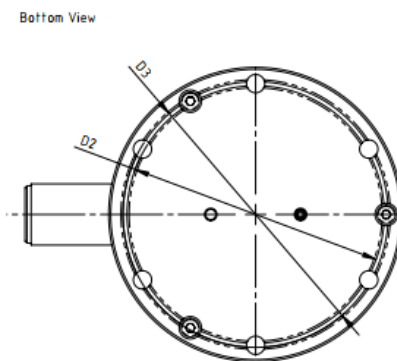
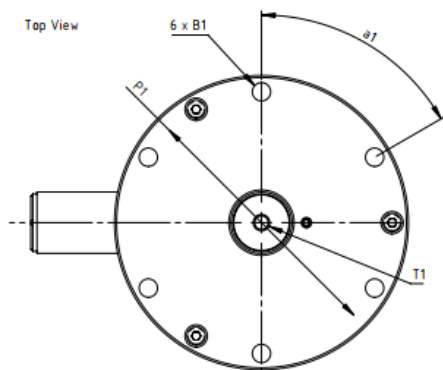
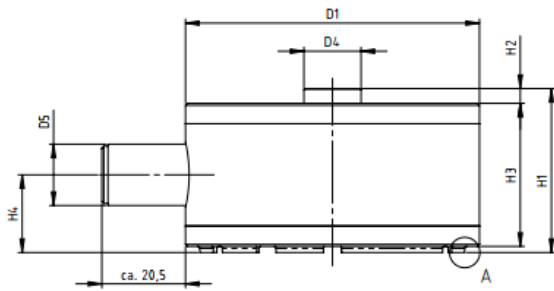
► Force transducer Series KL with fixed measuring cable



Nominal force compression/tension	$\pm F_{nom}$	kN	
Bore	$\varnothing B_1$	mm	6 x 4.5
Diameter	$\varnothing D_1$	mm	72
Diameter	$\varnothing D_2$	mm	65
Diameter	$\varnothing D_3$	mm	63
Diameter	$\varnothing D_4$	mm	14
Diameter	$\varnothing D_5$	mm	17
Pitch circle diameter	$\varnothing P_1$	mm	64
Thread	T_1		M4, 8 mm
Height	H_1	mm	40.1
Height	H_2	mm	3.6
Height	H_3	mm	1.5
Height	H_4	mm	19
Angle	a_1		6 x 60°

Mating dimensions*pluggable connection | 5 – 100 N

► Force transducer Series KL with pluggable connection



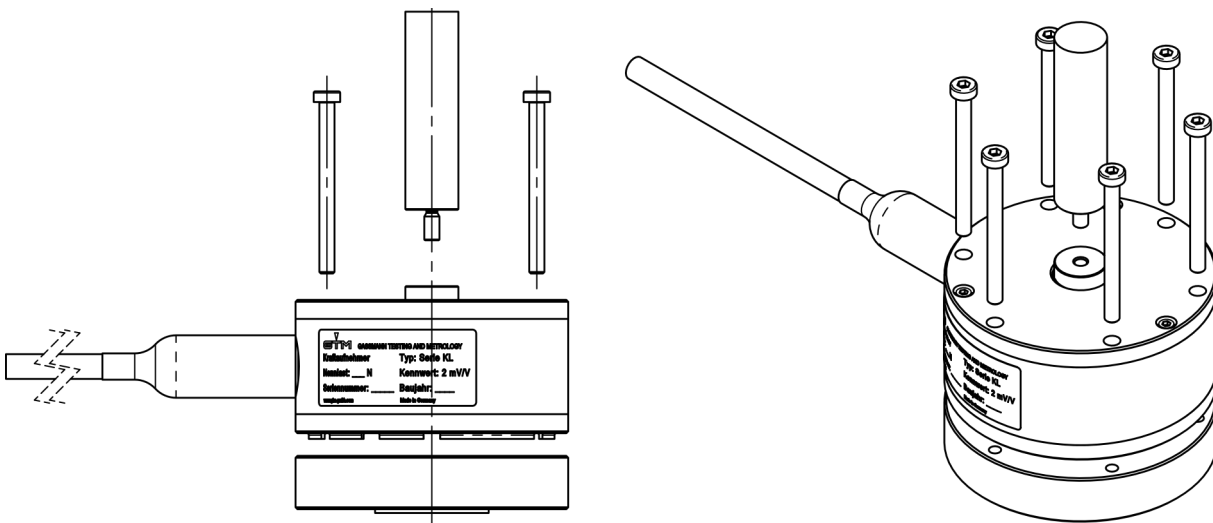
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Angle	a_1		6 x 60°

Mounting screws

Connection	Nominal force	Screw size	Screw quality	Fastening torque	Surface pressure ¹⁾
-	N	-	-	N·m	N/mm ²
Thread	5 - 100	M4	A2-70	3	20
Flange	5 - 100	M4	A2-70	3	100



1) Surface pressure on the contact area as a result of the max. Fastening torque

Unidirectional mounting option



Order Numbers | Standard variants

► Force transducer Series KL

Nominal force	Description	Variant	Order number
Variants with fixed measuring cable with open ends			
5 N	Force transducer Series KL 5 N		S-KL-K005-CAB
10 N	Force transducer Series KL 10 N		S-KL-K010-CAB
20 N	Force transducer Series KL 20 N		S-KL-K020-CAB
50 N	Force transducer Series KL 50 N		S-KL-K050-CAB
100 N	Force transducer Series KL 100 N		S-KL-K100-CAB
Variants with pluggable cable connection			
5 N	Force transducer Series KL 5 N		S-KL-K005-PLU
10 N	Force transducer Series KL 10 N		S-KL-K010-PLU
20 N	Force transducer Series KL 20 N		S-KL-K020-PLU
50 N	Force transducer Series KL 50 N		S-KL-K050-PLU
100 N	Force transducer Series KL 100 N		S-KL-K100-PLU

Notes

CAB = fixed measuring cable, 5m shielded, type SMC, 6-wire technology, cable end open
 PLU = pluggable connection LEMO P Push-Pull

Order Numbers | Accessories

Description	Order number
Measuring cable	
Standard measuring cable grey 5 m shielded and twisted in pairs cable sheath Ø 6.5 mm 6-wire technology transducer connection: straight plug (male) type LEMO 7-pole push-pull cable end amplifier: open	S-CAB-SMC-L-5M-F
Configurable measuring cable type SMC, DMC, TMC, FMC in different lengths with different connectors	C-CAB-...
Accessories	
Screw set consisting of 6 pieces Screw type ISO 4762 M4 x 45 A2-70	S-MA-KL-BS

Subject to change without notice. All information describes our products in general terms. They do not represent agreed quality in the sense of § 434 Para. 1 of the BGB (German Civil Code).

Illustrations may differ from originals.



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