

## Data sheet

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Multi component  
Transducer

Serie LVS

(10 – 250 kN)

(100 – 5000 N·m)



### Benefits/Application

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- Accuracy class 0.1
- Very high-cycle fatigue resistant up to 80 % of nominal load
- Little weight
- For static and dynamic loads
- Compact construction
- Largely flexible combination of forces and moments

### Options/Accessories

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- Optional solid or plug-in connection
- As a 3- or 6- component transducer available

# Technical data

Type			10	25	50	100	250	
Accuracy class								0,1
Basic forces <sup>4)</sup> (100% fatigue endurance all components simultaneously)	dynamic ~	$F_{dyn,x}$	2	5	10	20	50	
		$F_{dyn,y}$	2	5	10	20	50	
		$F_{dyn,z}$	10	25	50	100	250	
Basic torques <sup>4)</sup> (100% fatigue endurance all components simultaneously)	dynamic ~	$M_{dyn,x}$	100	250	500	1500	5000	
		$M_{dyn,y}$	100	250	500	1500	5000	
		$M_{dyn,z}$	100	250	500	1500	5000	
Sensitivity								1,0
Equivalence forces <sup>4)</sup> (single, static)	static —	$F_{max,x}$	4	10	20	40	100	
		$F_{max,y}$	4	10	20	40	100	
		$F_{max,z}$	20	50	100	200	500	
Equivalence torques <sup>4)</sup> (single, static)	static —	$M_{max,x}$	200	500	1000	3000	10000	
		$M_{max,y}$	200	500	1000	3000	10000	
		$M_{max,z}$	200	500	1000	3000	10000	
Linearity error								0,1
Hysteresis								0,05
Repeatability (f.s.)								0,01
Creep								0,05
Crosstalk <sup>3)</sup>								typisch <1
Temperature effect on characteristic value per 10 K								0,2
Temperature effect on zero signal per 10 K								0,08
Input resistance								400 - 800
Output resistance								350 - 700
Insulation resistance								>10 <sup>9</sup>
Operating range of excitation voltage								5 - 12
IP-Protection (DIN EN 60529)								50
Rated displacement crosswise			0,025	0,033	0,043	0,042	0,0625	
Rated displacement axial			0,015	0,02	0,027	0,037	0,062	
Spring stiffness crosswise			80	150	230	480	800	
Spring stiffness axial			640	1230	1880	2690	4030	
Mass			0,6	0,6	0,6	2,1	4,9	
Proportionate moving mass			0,3	0,3	0,3	1,1	2,6	
Fundamental resonant frequency			2,8	3,9	5	3,6	3	
Rated temperature range								10 - 60
Operating temperature range								5 - 80

Metrological data

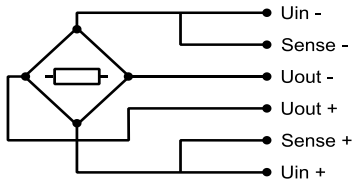
Electrical data

Mechanical data

- 1) Valid for pluggable connection
- 2) Valid for permanent cable connection
- 3) "Crosstalk" is the percentage of a signal that a channel outputs when another component is loaded at 100% of its rated load
- 4) Other permissible load cases see calculation formula for load combinations

Table 1: Technical data

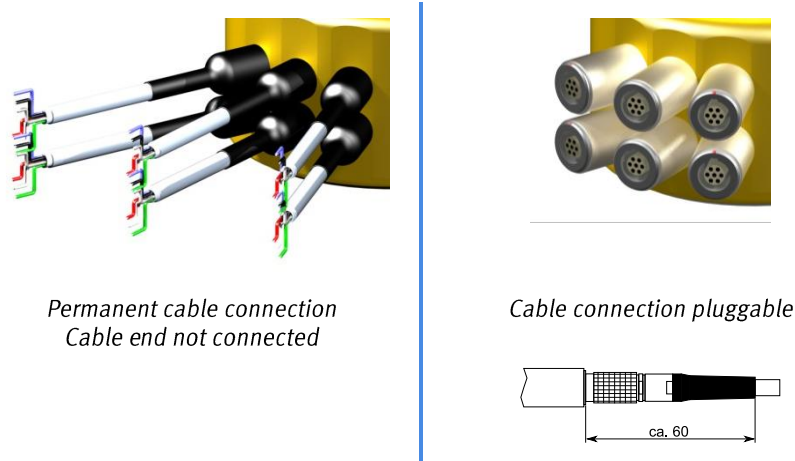
# Cable connection



Permanent connection <sup>3)</sup> end not connected		Connection pluggable <sup>1)2)</sup>	
Grey cable Ø 6,5 mm <sup>4)</sup>		7-pin LEMO Series 0 Female: - Male:	
Connection		Color	Pin
Supply voltage (+)	U <sub>in+</sub>	blue	3
Supply voltage (-)	U <sub>in-</sub>	black	2
Measurement signal (+)	U <sub>out+</sub>	white	1
Measurement signal (-)	U <sub>out-</sub>	red	4
Sense (+)	Sense+	green	5
Sense (-)	Sense-	grey	6
Shielding		yellow	Housing

- 1) View too weldingside
- 2) Female LEMO S.A. Typ: EGG.1B.307.CLL; Male: FGG.1B.307.CLA.D72
- 3) Gray cable with cable fitting PG7
- 4) twisted pairs, 3 x 2 x 0,25 mm<sup>2</sup>, temperature range: -35 °C to 90 °C

Table 2: Electrical connection



Permanent cable connection  
Cable end not connected

Cable connection pluggable

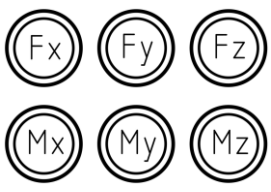
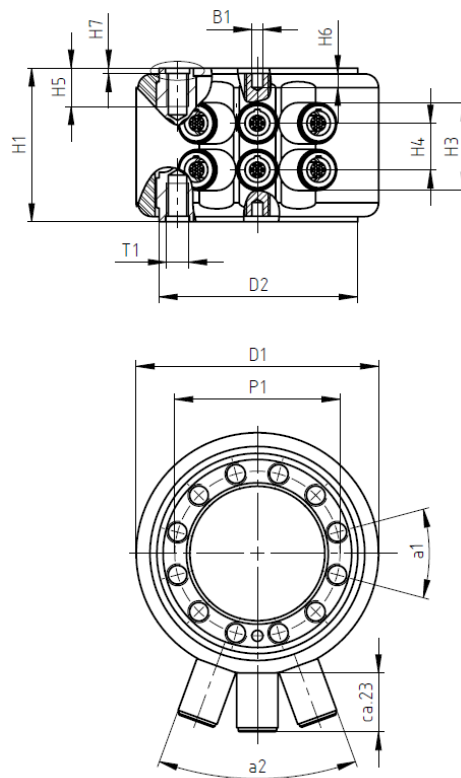


Table 3: Pin assignment

# Mating dimensions



Type			10 - 50	100	250
Bore	$\varnothing B_1$	mm		$\varnothing 4$ H7	
Diameter	$\varnothing D_1$	mm	$\varnothing 88$	$\varnothing 124$	$\varnothing 169$
Diameter	$\varnothing D_2$	mm	$\varnothing 73$	$\varnothing 110$	$\varnothing 154$
Pitch circle diameter	$\varnothing P_1$	mm	$\varnothing 60$	$\varnothing 90$	$\varnothing 130$
Thread	$T_1$		M8	M12	M16
Height	$H_1$	mm	56	70	92
Height	$H_2$	mm	27,5	33	46
Height	$H_3$	mm		32	
Height	$H_4$	mm		17	
Height	$H_5$	mm	14	18	22
Height	$H_6$	mm		7	
Height	$H_7$	mm		2	
Angle	$a_1$			$30^\circ$	
Angle	$a_2$			$40^\circ$	

Table 4: Dimensions

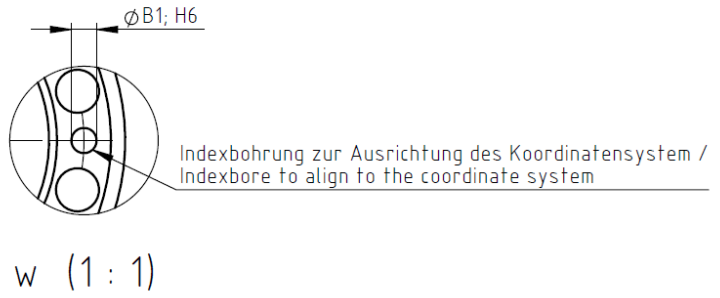
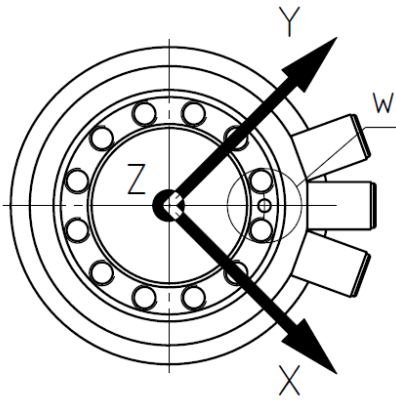
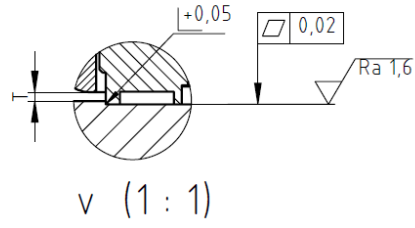
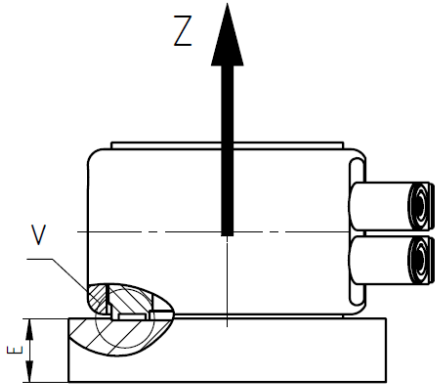


Table 5: Coordinate system and alignment

# Load combinations

The following formula can be used to evaluate a load collective that rises.

Note, for

- **Statically** combined loads:  
When calculating the maximum value of the load score “P”, each component may not exceed the equivalent load ( $F_{max}$ ;  $M_{max}$ ) in question.
- **Dynamically** combined loads (varying):  
When calculating the maximum value of the load score “P”, each component may not exceed  $1.6 \cdot F_{dyn}$  or  $1.6 \cdot M_{dyn}$  of the load in question.

$$P = \left( \frac{\sqrt{F_x^2 + F_y^2}}{F_{max\_x;y}} + \frac{|F_z|}{F_{max\_z}} + \frac{\sqrt{M_x^2 + M_y^2}}{M_{max\_x;y}} + \frac{|M_z|}{M_{max\_z}} \right) * 100$$

Typ		10	25	50	100	250
zulässig dynamisch	Punkte	241	241	241	241	241
zulässig statisch	Punkte	386	386	241	368	290

Table 6: Load values