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Strain Gage Load Cell

Type 4576A...

for Tension and Compressive Forces, 0,5 ... 200 kN

This tension and compression sensor Type 4576A... with its compact construction is designed for heavy-duty use in rough environments as well as for laboratory and test purposes.

- Measuring ranges from 0 ... 0,5 kN up to 0 ... 200 kN
- Accuracy better than 0,25 %FSO
- Made of stainless steel
- Simple mounting
- Compact size

Description

Strain gages are applied to the flexural diaphragms in the load cell and deliver a bridge output voltage that is directly proportional to the measurand during concentric load application. Load cells Type 4576A... operate using strain gage technology. The measuring unit contains an applied strain gage full bridge which converts the affecting energy to an electrical signal.
A metric thread is cut in the middle axis through which the measurement force is fed either by means of a load button or an application-related screw part.
Lateral forces within an angular range of ±2,5 ° to the horizontal can be neglected. In case of greater lateral forces, constructive methods must be taken to lead the lateral forces away from the sensor (for example by levers held by roller bearings, movable bearings). To obtain best results, the load cell Type 4576A... must be mounted on a plane flat surface. The use of the integral screw holes guarantees a simple mounting possibility for the sensor. The strain gage load cell is available for nine different measuring ranges from 0 ... 0,5 kN to 0 ... 200 kN.

Application

Tension and compression load cell Type 4576A... is an all-round instrument for both static and dynamic measurements. Made of corrosion resistant steel, the sensor can be integrated easity into existing structures.

Applications include:
- Press-fit operations
- Draw-pull forces
- Spring power measurements
- Measurements of cutting forces
- Force measurements on mounting devices
- Functional tests

Technical Data

Measurement direction (calibration in compression direction)		tension/ compression
Measuring ranges	kN	0 ... 0,5 up to 0 ... 200
Limiting force	%	150
Rupture force	%	>250
Dynamic load	%	70 (recommended) 100 (maximum)
Operating temperature range	°C	–30 ... 80
Rated temperature range	°C	15 ... 70
Accuracy (Combined value for non-linearity, hysteresis and repeatability)	%FSO	≤±0,25
Temperature influence		
On zero	%FSO/K	≤0,02
On span	%FSO/K	≤0,02
Weight	kg	≈0,25 ... 5,2
Material		stainless steel 1.4542
Degree of protection:		(IEC/EN 60529)
Measuring ranges up to 10 kN		IP52
Measuring ranges up of 20 kN		IP67
Cable port:		
Measuring ranges up to 50 kN		radial
Measuring ranges of 100 kN		tangential
Mounting:		
Measuring ranges up to 2 kN		3 clearance holes with edges for three-point-support
Measuring ranges of 5 kN		6 or 8 clearance holes

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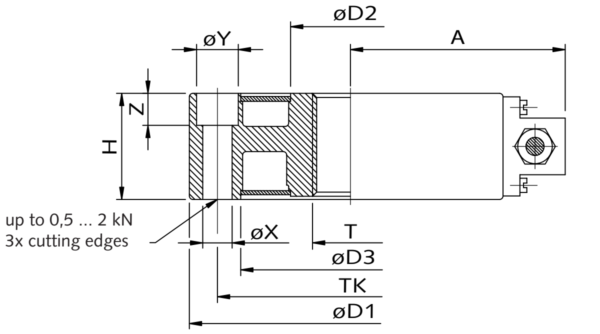
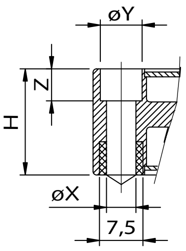
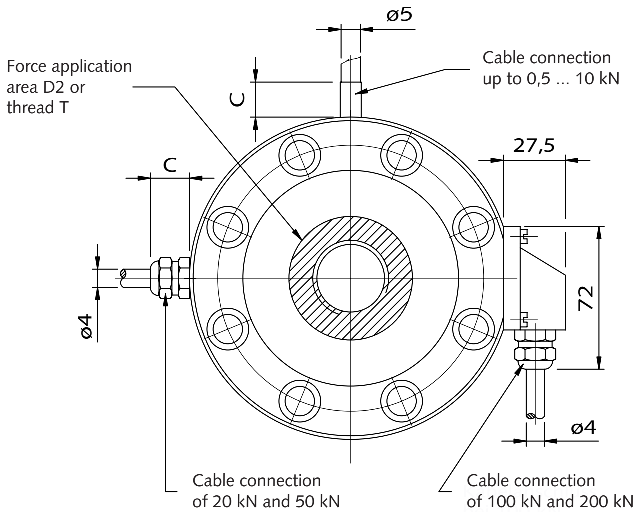
Dimensions

Measuring Range [kN]	Dimensions [mm]										Threaded Hole T	Holes X on TK	Weight [kg]	Natural frequency [kHz]
	øD1	øD2	øD3	H	A	C	TK	øX	øY	Z				
0 ... 0,5	54,5	15	35,5	16	–	10	45	4,5	8	4,6	M8x1,25	3	0,25	>2
0 ... 1	54,5	15	35,5	16	–	10	45	4,5	8	4,6	M8x1,25	3	0,25	>3
0 ... 2	54,5	15	35,5	16	–	10	45	4,5	8	4,6	M8x1,25	3	0,25	>5
0 ... 5	54,5	15	35,5	16	–	10	45	4,5	8	4,6	M8x1,25	6	0,25	>8
0 ... 10	54,5	15	35,5	16	–	10	45	4,5	8	4,6	M8x1,25	6	0,25	>12
0 ... 20	79	22	59	25	–	15	68	4,5	8	4,6	M12x1,5	8	0,65	>4
0 ... 50	119	44	94	35	–	15	105	6,6	11	6,8	M24x1,5	8	2	>3
0 ... 100	155	60	109	50	105	–	129	13,5	20	13	M36x3	8	5	>3
0 ... 200	155	60	109	50	105	–	129	13,5	20	13	M36x3	8	5	>5





Note:
Measuring ranges ≤2 kN are equipped with edges within the clearance holes, so they are 1,5 mm higher.



Assembly Requirements for Support Area:

Height		≈sensor height
Hardness	HRC	60
Evenness	µm	<20
Parallelism	µm	<50
Mechanical strength of screws		12.9

Electrical Specifications

Bridge resistance:		
Foil strain gage, full bridge circuit	Ω	350 nominal*
Supply voltage:		
recommended	VDC	5
maximum	VDC	10
Sensitivity	mV/V	1,5 ±0,25 % standardized
Optional sensitivity	mV/V	1,0 ±0,25 % standardized

* Deviations may occur.

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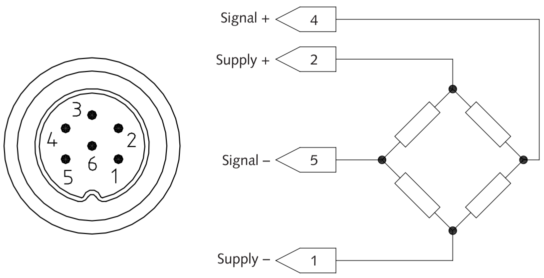
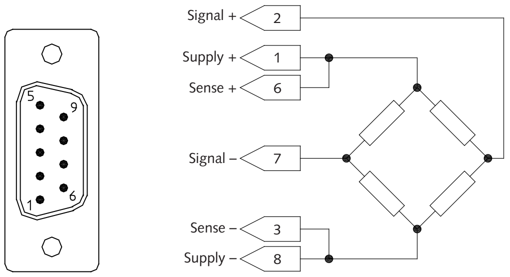
Electrical Connection C1

approx. 3 m shielded, highly flexible cable, 6 pin M16 circular connector



Electrical Connection C3

approx. 3 m shielded, highly flexible cable, 9 pin D-Sub connector



Included Accessories

- None

Optional Accessories

Optional Accessories	Type
• Connection cable, 5 m, 6 pin/6 pin	KSM071860-5
• Connection cable, 5 m, 6 pin/open ends	KSM103820-5

Ordering Key

Type 4576A ☐ ☐ ☐

Measuring Range [kN]

0,5	**0,5**
1	**1**
2	**2**
5	**5**
10	**10**
20	**20**
50	**50**
100	**100**
200	**200**

Sensitivity

Sensitivity 1,5 mV/V (standard)	**N**
Sensitivity 1 mV/V (option)	**S**

Connector Plug

6 pin M16 circular connector[1)]	**C1**
9 pin D-Sub connector[2)]	**C3**

Advice for connector plug C1 and C3

[1)] C1 connector is applicable for DMF-P family

[2)] C3 connector is applicable for maXYmos family

Ordering Example: Type 4576A10SC1

Load cell Type 4576A..., measuring range 0 ... 10 kN, with option sensitivity 1 mV/V, with connector plug 6 pin M16 circular connector.

Ordering Example: Type 4576A20NC3

Load cell Type 4576A..., measuring range 0 ... 20 kN, with sensitivity (standard) 1,5 mV/V, with connector plug 9 pin D-Sub connector.

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