Shear beam
With integrated amplifier, up to 10,000 kg [22,046 lb]
Model F3841

EAC

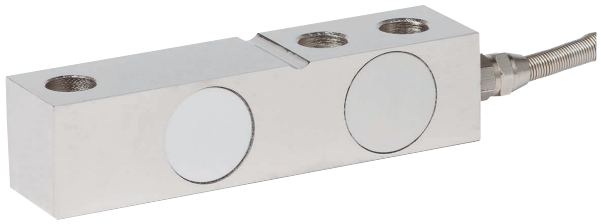
For further approvals,
see page 4

Applications

- Industrial weighing technology
- Platform and dosing scales
- Laboratory and measurement technology
- Process industry
- Tank and vessel weighing

Special features

- Rated load of 250 ... 10,000 kg [551 ... 22,046 lb]
- For static and dynamic measuring requirements
- Material of the measuring body is steel or stainless steel
- High long-term stability
- High side load tolerance



Shear beam, model F3841

Description

The model F3841 shear beam is a variant of the model F3831 shear beam that is amplified to an 4 ... 20 mA output signal. The integration of the amplifier into the existing case eliminates the use of a cable amplifier. The electromagnetic compatibility (EMC) is higher as well.

The instrument is suitable for precise static and dynamic force measurement in tension and compression force direction. It is ideal for measuring shear forces and weight in a variety of application areas.

The instrument is used in industrial weighing and laboratory technology, in the agricultural sector and in the process industry.

Mounting is carried out directly between the object to be weighed and the fastening, ensuring a reliable and stable force transmission.

For use on platforms, various load feet and mounting kits are available, which enable flexible integration into different system environments.

Depending on the application, corresponding approvals are available.

WIKA

Smart in sensing

Data sheets showing similar products:
Shear beam with thin-film technology; models F3301, F33C1; see data sheet FO 51.42
Shear beam to 2,000 kg; model F3201; see data sheet FO 51.72
Shear beam to 10,000 kg; model F3831; see data sheet FO 51.21

Specifications

Basic information	
Standard	In accordance with directive VDI/VDE/DKD 2638
Material of the measuring body	Steel
	Stainless steel
Ingress protection per IEC/EN 60529	IP66
Weight	
250 ... 2,500 kg [551 ... 5,511 lb]	1 kg [2.40 lb]
3,000 ... 5,000 kg [6,613 ... 11,023 lb]	1.9 kg [4.18 lb]
7,500 ... 10,000 kg [16,543 ... 22,046 lb]	4.5 kg [9.92 lb]

Measuring element	
Type of measuring element	Strain gauge
Range of use	Determination of shear forces or weights in tension and compression force direction
Input resistance R_e	385 ±10 Ω
Output resistance R_a	350 ±5 Ω
Force introduction	Elastic deformation per tension and compression forces

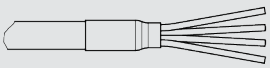
Accuracy specifications	
Relative linearity error d_{lin}	± 0.5 % F_{nom}
Relative repeatability error in unchanged mounting position b_{rg}	± 0.5 % F_{nom}
Relative reversibility error v	± 0.5 % F_{nom}
Relative creep, 30 min at F_{nom}	± 0.5 % F_{nom}
Relative deviation of zero signal $d_{S,0}$	±2 % F_{nom}
Temperature effect on zero signal TC_0	≤ ±0.25 % / 10 K
Temperature effect on characteristic value TC_C	≤ ±0.25 % / 10 K

Rated load F_{nom}	
kg	**lb**
250	551
500	1,102
750	1,653
1,000	2,204
1,500	3,306
2,000	4,409
2,500	5,511
3,000	6,613
5,000	11,023
7,500	16,534
10,000	22,046

Further details on the rated load	
Force limit F_L	150 % F_{nom}
Breaking force F_B	200 % F_{nom}

Output signal	
Rated characteristic value C_{nom}	■ 4 … 20 mA, 2-wire ■ 4 … 20 mA, 3-wire ■ DC 0 … 10 V, 3-wire ■ CANopen®
Load	■ 4 ... 20 mA, 2-wire: < (U_B – 8,75 VDC) / 0,024 A Ω ■ 4 ... 20 mA, 3-wire: < (U_B – 7 VDC) / 0,024 A Ω ■ DC 0 … 10 V, 3-wire: (Signal span / 10 VDC) × 17 kΩ
Supply voltage U_B	■ DC 9 ... 36 V for current output ■ DC 13 ... 36 V for voltage output ■ DC 9 ... 36 V for CANopen®

Electrical connection	
Connection type	Cable outlet, flying leads
Cable diameter	5 mm [0.197 in]
Cable length	6 m [19.68 ft]
Insulation resistance R_{is}	≥ 5,000 MΩ / DC 100 V
Material	PVC

Pin assignment		Cable colour
	**Exc_+**	RD
	Exc_-	BK
	Sig_+	GN
	Sig_-	WH
	Shield ⏚	GNYE

Cable colours are only valid when using the standard WIKA cable.

Legend

BK	Black	Exc_+	Positive excitation voltage
GN	Green	Exc_-	Negative excitation voltage
RD	Red	Sig_+	Positive signal output
WH	White	Sig_-	Negative signal output
GNYE	Green-yellow		

Operating conditions	
Rated temperature range $B_{T,}$ nom	-10 … +40 °C [14 ... 104 °F]
Operating temperature range $B_{T, G}$	-20 … +80 °C [-4 ... +176 °F]
Storage temperature range	-20 ... +70 °C [-4 ... +158 °F]
Humidity	35 ... 85 % relative humidity
Condensation	Non-condensing

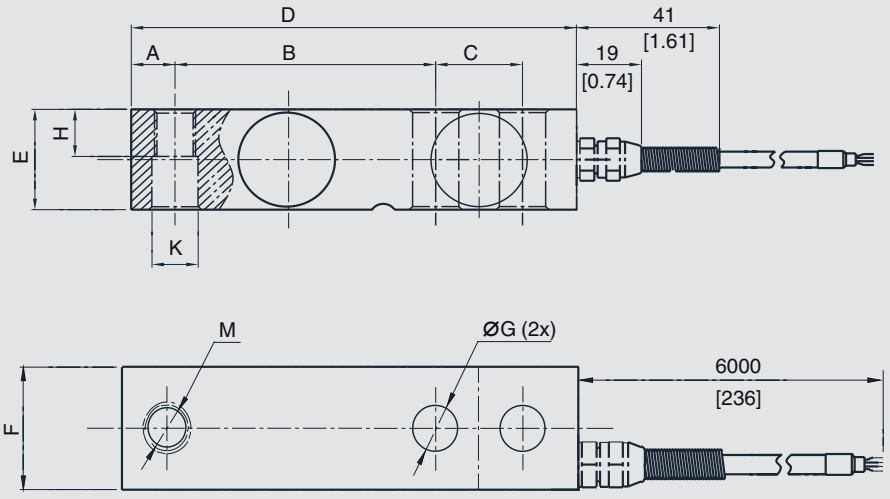
Packaging and instrument labelling	
Packaging	Individual packaging
Instrument labelling (product label)	See operating instructions OI_14541444 for models F33x1_F383x_F3841

Approvals

Logo	Description	Region
CE	**EU declaration of conformity**	European Union
	EMC Directive EN 61326 emission (group 1, class A) and immunity (industrial environment)	
	RoHS directive	
EAC	**EAC**	Eurasian Economic Community
	EMC Directive	
	RoHS directive	

→ For approvals and certificates, see website

Dimensions in mm [in]



Rated load in kg	Dimensions in mm									
	A	B	C	D	E	F	ØG	H	ØK	M
250 ... 2,500	12.7	76.2	25.4	130	31.8	31.8	13	15.7	13.5	M12 x 1.75
3,000, 5,000	19	95.3	38.1	171.5	38.1	38.1	20	26	20	M18 x 1.5
7,500, 10,000	25.3	124	50.8	225.5	50.8	50.8	27	25.4	27	M24 x 2

Rated load in lb	Dimensions in Inch									
	A	B	C	D	E	F	ØG	H	ØK	M
551 ... 5,511	0.5	3	1	5.11	1.25	1.25	0.51	0.61	0.53	M12 x 1.75
6,613, 11,023	0.74	3.75	1.5	6.75	1.5	31.5	0.78	1.02	0.78	M18 x 1.5
16,534, 22,046	0.99	4.88	2	8.87	2	2	1.06	1	1.06	M24 x 2

Accessories

Model		Description	Order number
	**FA205**	Mounting kit for shear or bending beams → See data sheet AC 50.17	On request
	**EZE53**	Connectors with moulded cable Straight or angled version, 4- or 5-pin → See data sheet AC 50.08	On request

→ For WIKA accessories, see www.wika.de

Ordering information

Model / Material / Accuracy / Rated load / Output signal / Electrical connection / Operating conditions / Approvals / Dimensions / Accessories

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