

Shear beam

For rated loads up to 10,000 kg

Model F3831

WIKA data sheet FO 51.21



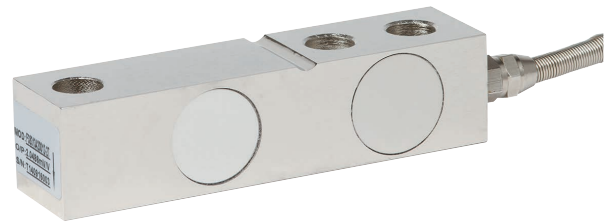
For further approvals,
see page 3

Applications

- Floor scales
- Weigh feeders
- Platform scales
- Laboratory technology
- Vessel weighing

Special features

- Rated load 500 ... 10,000 kg [1,102 ... 22,046 lb]
- Material of the measuring body is steel or stainless steel
- High long-term stability
- High side load tolerance



Shear beam, model F3831

Description

The model F3831 shear beam is suitable for static and dynamic measuring requirements in both tension and compression force direction. It serves for determining shear forces or weights in diverse application areas.

This shear beam is used in industrial weighing and laboratory technology, and also in the process industry, and features high measurement accuracy. By mounting on one or more model F3831 shear beams, platforms, tanks and vessels can be weighed very precisely.

Various load feet and mounting kits are available for mounting or attachment to the base.

Depending on the application, corresponding approvals are available.

The material of the measuring body is optionally steel or stainless steel. An mV/V signal is available as a standard output signal, which can be amplified to an analogue signal using a cable amplifier or summed via a junction box. A junction box with up to four inputs is available for combining several shear beams.

The measured weight can be displayed using a weighing indicator.

In combination with the model NETRIS®F radio unit, the measured values of the instrument can be transmitted wirelessly. This radio unit can be used to realise solutions for web-based remote monitoring.

Specifications

Basic information	
Standard	In accordance with directive VDI/VDE/DKD 2638
Material of the measuring body	<ul style="list-style-type: none"> ■ Steel ■ Stainless steel

Measuring element	
Type of measuring element	Strain gauge
Working range	Determination of shear forces or weights in tension or compression force direction
Input resistance R_e	$385 \pm 10 \Omega$
Output resistance R_a	$350 \pm 5 \Omega$

Accuracy specifications	
Relative linearity error d_{lin}	$\pm 0.03 \% F_{nom}$
Relative repeatability error in unchanged mounting position b_{rg}	$\pm 0.03 \% F_{nom}$
Relative reversibility error v	$\pm 0.03 \% F_{nom}$
Relative creep, 30 min at F_{nom}	$\pm 0.03 \% F_{nom}$
Relative deviation of zero signal $d_{s,0}$	$\pm 2 \% F_{nom}$
Temperature effect on zero signal TC_0	$\leq \pm 0.025 \% / 10 K$
Temperature effect on characteristic value TC_C	$\leq \pm 0.025 \% / 10 K$

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	$200 \% F_{nom}$

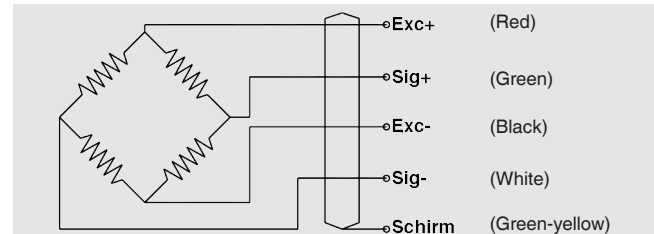
Output signal	
Rated characteristic value C_{nom}	$2.0 \pm 0.02 mV/V$
Supply voltage U_B	DC 5 ... 10 V (max. 15 V)

Electrical connection		
Connection type	Cable	
Cable diameter	≤ 5 t [11,023 lb]	5 mm [0.197 in]
	> 5 t [11,023 lb]	6 mm [0.236 in]
Cable length	6,000 mm [236 in]	
Insulation resistance R_{is}	≥ 5,000 MΩ / DC 100 V	
Material	PVC	

Pin assignment

For products with raw signals (mV/V)

Signal		Cable colour
Exc+	Supply voltage +	Red
Exc-	Supply voltage -	Black
Sig+	Signal +	Green
Sig-	Signal -	White
Shield ⊕	Shield	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]
Ingress protection per IEC/EN 60529	IP67/IP68

Approvals

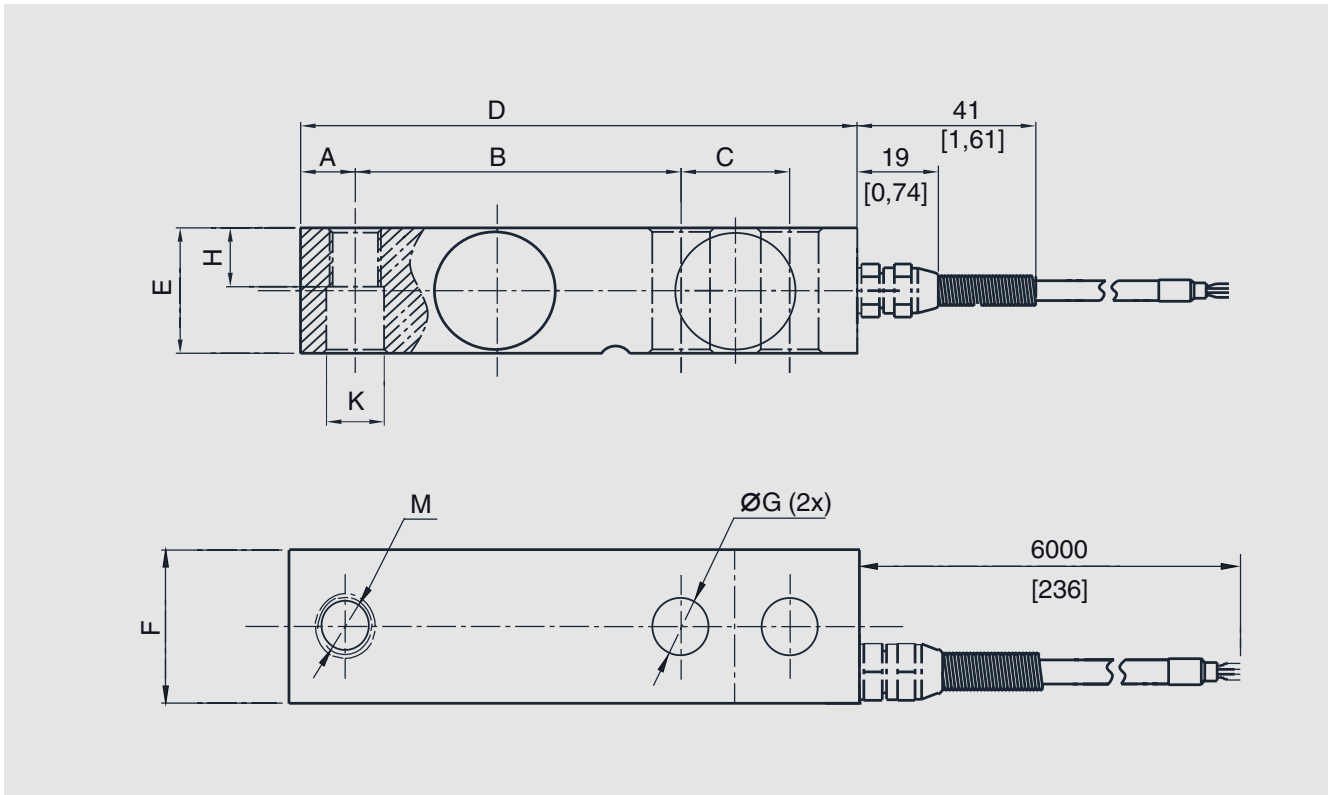
Logo	Description	Region
CE	EU declaration of conformity	European Union
	RoHS directive	
EAC	EAC	Eurasian Economic Community
	RoHS directive	

Optional approvals

Logo	Description	Region
Ex NEPSI	NEPSI Hazardous areas - Ex Zone 0 gas Ex ia IIC T4 Ga	China

→ For approvals and certificates, see website

Dimensions in mm [in]









Rated load in kg	Dimensions in mm										Weight in kg
	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	1
3,000, 5,000	19	95.3	38.1	171.5	38.1	38.1	20	26	20	M18 x 1.5	1.9
7,500, 10,000	25.3	124	50.8	225.5	50.8	50.8	27	25.4	27	M24 x 2	4.5

Rated load in lb	Dimensions in inch										Weight in lb
	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	2.4
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	4.18
16,534, 22,046	0.99	4.88	2	8.87	2	2	1.06	1	1.06	M24 x 2	9.92

Dimensioning: The customer-specific drawing of the respective order number has priority.

Accessories

Model	Description	Order number
 FA205	Mounting kit for shear or bending beams → See data sheet AC 50.17	On request
 B1940	Analogue cable amplifier → See data sheet FO 58.04	64440308
 B6578	Junction box for load cells → See data sheet FO 58.02	64418893
 FE430	Weighing indicator → See data sheet AC 50.14	14671552
 NETRIS®F	Radio unit with BLE and LoRaWAN® for force measuring instruments → See data sheet AC 40.10	On request
 EZE53	Connectors with moulded cable Straight or angled version, 4- or 5-pin → See data sheet AC 50.08	On request

→ WIKA accessories can be found online at www.wika.de

Ordering information

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

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