

KAB Force Transducer

Applications

- Mechanical engineering
- Measurement of bending forces



Features

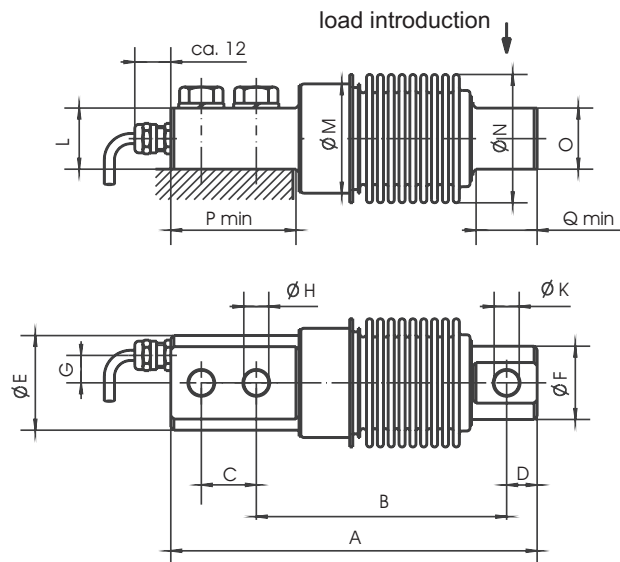
- 100N up to 10kN
- Made from stainless steel
- Hermetically sealed enclosure (IP 67)



Options

- Integrated amplifier with standard signal
- CANopen interface
- ATEX-Certificate

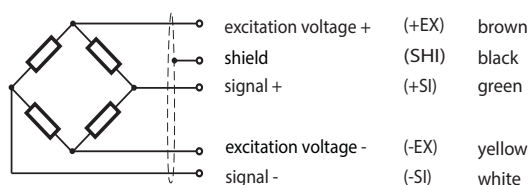
Dimensions (mm)



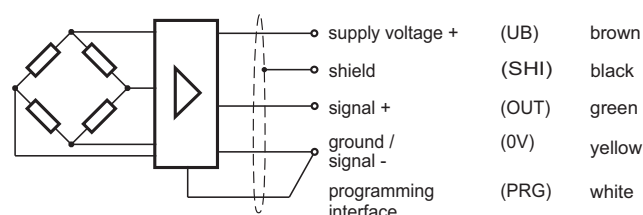
Rated Force	A	B	C	D	E	F	G	H	K	L	M	N	O	P	Q	Rated display / mm	Weight
100N ... 500N																0.3	
1kN	120	82±0.1	18±0.1	10	∅31	∅24	9	∅8.2	∅8.2 _{0.1}	20	∅35.8	∅42±0.5	20	41	20	0.24	0.6 kg
2kN																0.28	
5kN	210	133±0.1	40±0.1	22	∅48	∅34	15	∅13	∅11±0.1	40	∅55	∅55±0.6	25	68.5	42.5	0.4	2.3 kg
10kN																0.6	

Wiring Code

Cable length 3m



Compressive load is positive change of signal.



with integrated amplifier
(0V and PRG to be connected by the customer)

Specification

Accuracy Class	% F _{nom}	0.1	0.05	0.2 ¹⁾ with Integrated Amplifier
Rated force (F _{nom})	kN	0.1/ 0.2/ 0.5/ 1/ 2/ 5/ 10		0.1/ 0.2/ 0.5/ 1/ 2/ 5/ 10
Maximum operating force (F _G)	% F _{nom}	150		150
Breaking force (F _B)	% F _{nom}	> 300		> 300
Lateral force limit (F _Q)	% F _{nom}	100		100
Rated characteristic value (C _{nom})	mV/V	2.000 ± 0.002		
Relative deviation of zero signal	%	≤ 1		
Reference excitation voltage (U _{ref})	VDC	10		
Input resistance (R _e)	Ω	380 ± 30		
Output resistance (R _a)	Ω	352 ± 1.5		
Insulation resistance (R _{is})	Ω	> 5 x 10 ⁹		
Relative linearity error (d _{lin}) ¹⁾	%	≤ 0.1	≤ 0.05	0.1
Relative reversibility error (v) ¹⁾	%	≤ 0.1	≤ 0.05	
Temperature effect on zero signal (TK ₀)	%/10K	≤ 0.05	≤ 0.025	0.2
Temperature effect on characterist. value (TK _c)	%/10K	≤ 0.10	≤ 0.05	
TK output signal under load	%/10K			0.1
Relative creep over 30 minutes (d _{cr, F+E})	%	≤ 0.10	≤ 0.05	0.2
Tolerance of output signal	%			0.1
Tolerance of zero signal	%			≤ 1
Reference temperature (T _{ref})	°C	+23		+23
Rated temperature range (B _{T, nom})	°C	-20 ... +60		-20 ... +60
Operating temperature range (B _{T, G})	°C	-30 ... +70		-30 ... +70
Storage temperature range (B _{T, s})	°C	-40 ... +70		-40 ... +70
Environmental protection (EN 60529)		IP 67		IP 67
Supply voltage	VDC			19 ... 28
Input current	mA			35 (at 24V)
Output signal for compression force (0...F _N)				11 ... 15
Alternatively:				20 (at 12V)
- Voltage output (max. load: 5mA)	V			0 ... 10
- Current output (max. resistance)	mA			4 ... 20 (300 Ω)
Output signal for tension or pressure force (-F _N ...F _N)				4 ... 20 (100 Ω)
- Voltage output	V			-10 ... +10
				-5 ... +5

All data according to VDI/VDE/DKD 2638

1) Accuracy class 0.1% on request

Order Example

Type Code	Description
KAB-E/1kN/0.2/24V/0 ... 10V	Force transducer 1kN with 0.2% accuracy and integrated amplifier
	Output signal
	Supply voltage
	Accuracy class
	Rated load
	E = Integrated amplifier
	Model

Load Cell KAB

Special Features

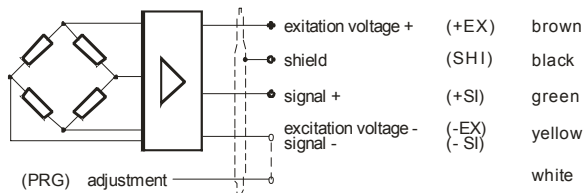
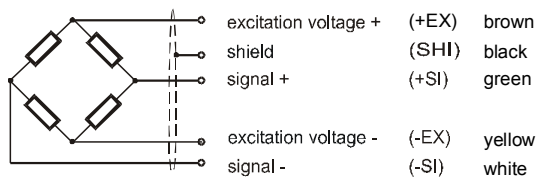
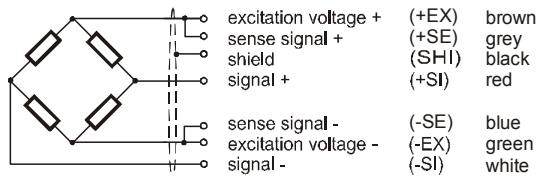
- Approved for use in calibrated weighing systems class III (PTB Test Report)
- Hermetically sealed case (IP 67)
- Made of stainless steel
- Option: integrated Amplifier
- Option: Explosion protection test



Dimensions

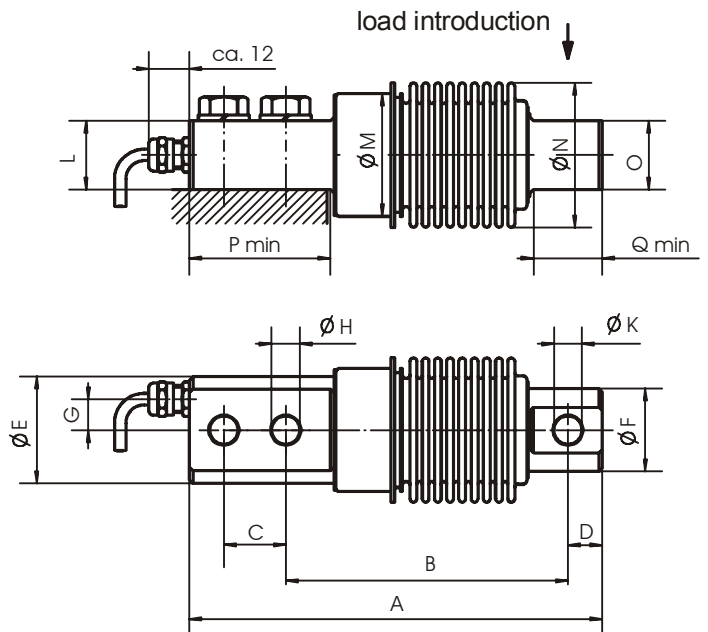
Wiring Code

Cable length 3 m



With integrated amplifier

Compressive load is positive change of signal.



Rated load	A	B	C	D	E	F	G	H	K	L	M	N	O	P	Q	Rated displacement / mm	Weight
KAB 100N...500N (10...50kg)	120	82±0,1	18±0,1	10	∅31	∅24	9	∅8,2	∅8,2 -0,1	20	∅35,8	∅42±0,5	20	41	20	0,3	0,6kg
KAB 1kN (100kg)																0,24	
KAB 2kN (200kg)																0,28	
KAB 5kN (500kg)	210	133±0,1	40±0,1	22	∅48	∅34	15	∅13	∅11±0,1	40	∅55	∅55±0,6	25	68,5	42,5	0,4	2,3kg
KAB 10kN (1000kg)																0,6	

Specifications

Load cells

Accuracy class		0,1	0,05	C1	C3 ¹⁾	0,2 ⁴⁾ with integrated amplifier	
Rated load (=F _N)	kN	0,1/0,2/0,5/1/2/5/10				0,1/0,2/0,5/1/2/5/10	
Rated load (=F _N)	kg	10/20/50/100/200/500/1000					
Safe overload	%F _N	150				150	
Ultimate overload	%F _N	>300				>300	
Safe side load	%F _N	100				100	
Minimum range of use	%F _N					18	
Reference temperature	°C	+23				+23	
Compensated temperature range Operating temperature range	°C	-20 +60		-10 +40		-20 ... +60	
Storage temperature range	°C	-30 . . . +70				-30 ... +70	
Environmental protection (EN 60529)		IP 67				IP 67	
Sensitivity (=S)	mV/V	2,000 ± 0,002					
Zero balance	%S	≤1					
Max. excitation voltage	V	12					
Input resistance	Ω	380 ± 30					
Output resistance	Ω	352 ± 1,5					
Insulation resistance	Ω	> 5 · 10 ⁹					
Combined error ²⁾	%S					≤0,030	≤0,021
Nonlinearity ³⁾	%S	≤0,1	≤0,05			0,1	
Hysteresis ³⁾	%S	≤0,1	≤0,05				
Tolerance of output signal	%					0,1	
Tolerance of zero signal	%					≤1	
Temperature effect on zero/10K	%S	≤0,05 ≤0,025		≤0,025 ≤0,008		0,2	
Temperature effect on output/10K	%S	≤0,10 ≤0,05		≤0,017 ≤0,008			
Tolerance of output signal under load	%S/10K					0,1	
Creep in 30 minutes	%S	≤0,10 ≤0,05		≤0,049 ≤0,024		0,2	
Excitation voltage	VDC					19 ... 28	11 ... 15
Input current	mA					35 (at 24V)	20 (at 12V)
Output signal for tensile or compressive force (0...F _N)							
Alternatively:							
-Voltage output	V					0 ... 10	0 ... 5
-Current output	mA					4 ... 20	4 ... 20
						(max. burden 300Ω)	(max. burden 100Ω)
Output signal for tensile and compressive force (-F _N ...F _N)							
- Voltage output	V					-10 ... +10	-5 ... +5

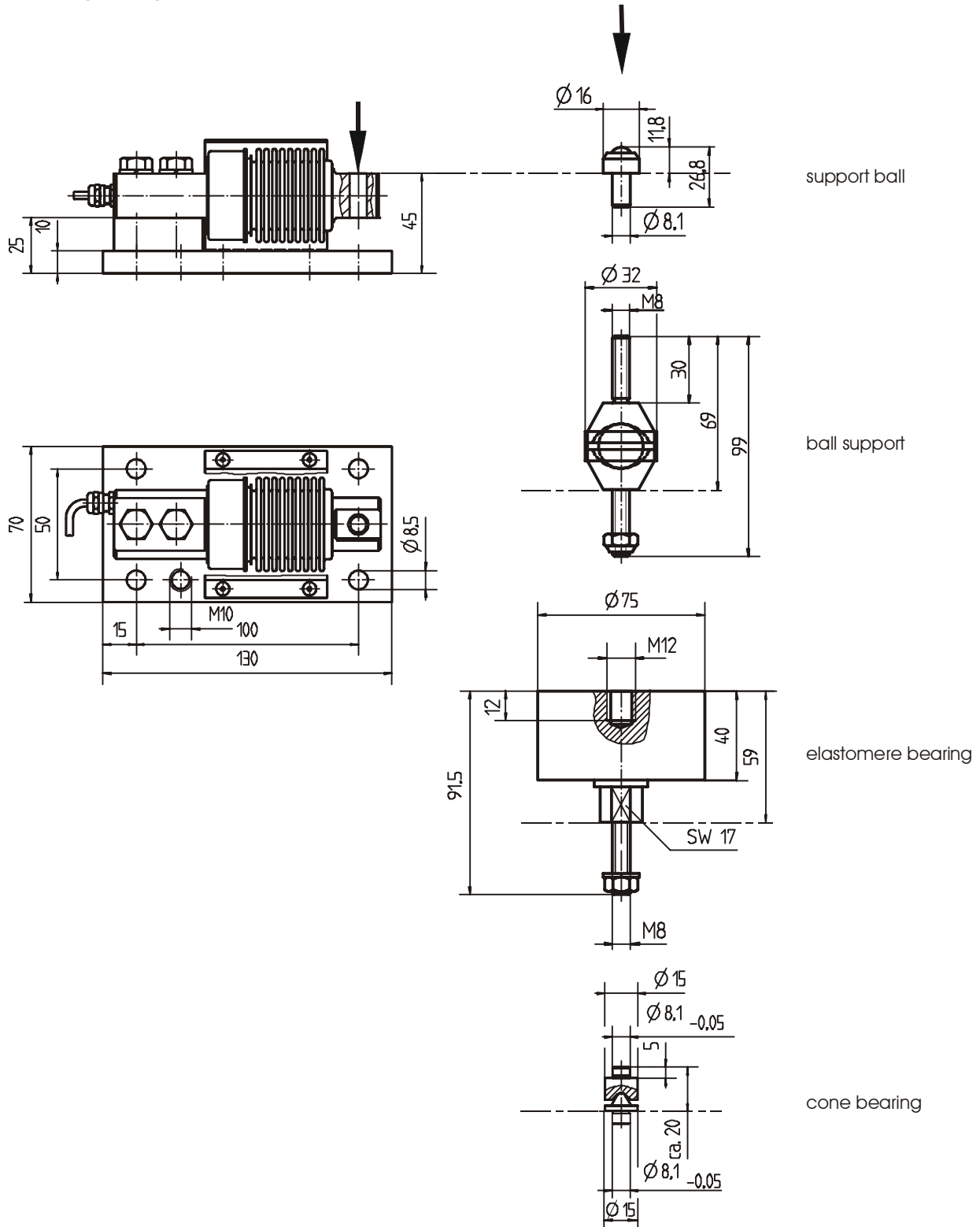
- 1) Test Report Nr. 1.13-93.167
 2) According to VDI / VDE 2637
 3) According to VDI / VDE 2638
 4) Accuracy class 0,1 on inquiry

Type code / Order example

KAB/100kg/C3 (Load Cell)
KAB/1kN/0,2 (Force transducer)
KAB-E/1kN/0,2/24V/0...10V (with integrated amplifier)

Appliances for Installation and Mounting (Examples)

KAB 10kg...200kg (100N ... 2kN)

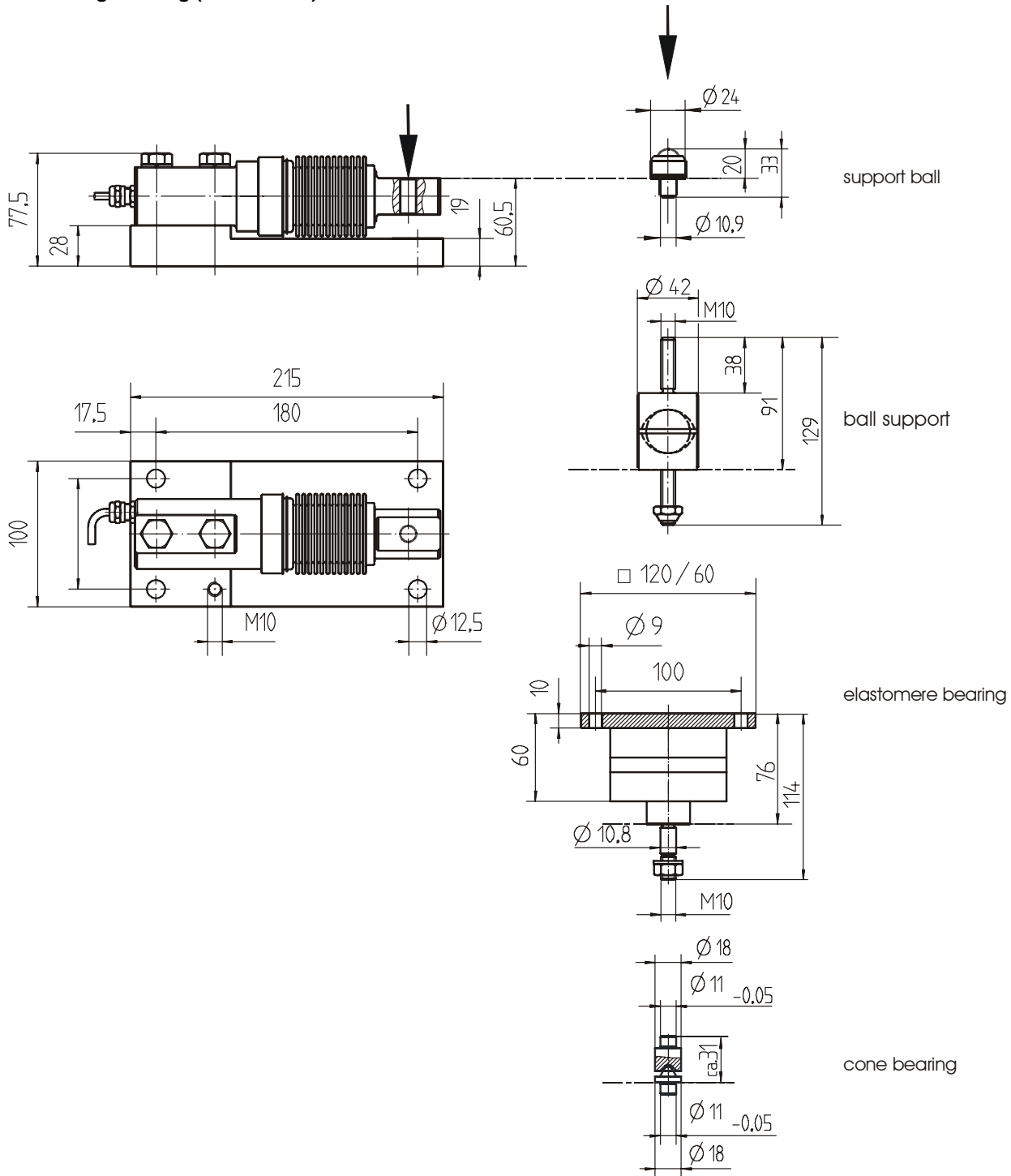


Accessories / Options for KAB 10kg...200kg (100N ... 2kN)

	Type code	Description
Mounting trestle	XKM 001	Mounting trestle with protective enclosure for KAB 100N...2kN (10kg...200kg)
Support ball	XKM 106.01	Support ball for KAB 100N...2kN (10kg...200kg)
Ball support	XKM 102	Ball support for KAB 50N...2kN
Elastomere bearing	XKM 053.01⁵⁾	Elastomere bearing for KAB 100N (10kg), 200N (20kg), 500N (50kg) transverse stiffness 70N/mm
	XKM 053.03⁵⁾	Elastomere bearing for KAB 1kN (100kg) and 2kN (200kg) transverse stiffness 300N/mm
Cone bearing	XKM 060	Cone bearing for KAB 100N...2kN (10kg...200kg)
Protective cable	XKC 009.01	Protective cable for KAB 100N...2kN (10kg...200kg)
Ex-protection test	XKC 100	Explosion protection test - Authorisation II 2 G EEx ib IIC T4 with EG-Certificate of Conformity TÜV 97 ATEX 1181 for KAB 100N/10kg, 200N/20kg, 500N/50kg, 1kN/100kg, 2kN/200kg

5) for platform size (1000x1000)mm with 4 load cells

KAB 500kg...1000kg (5kN ... 10kN)



Accessories / Options for KAB 500kg...1000kg (5kN ... 10kN)

	Type code	Description
Mounting trestle	XKM 005	Mounting trestle for KAB 5kN / 10kN (500kg / 1000kg)
Support ball	XKM 107.01	Support ball for KAB 5kN / 10kN (500kg / 1000kg)
Ball support	XKM 103	Ball support for KAB 5kN / 10kN (500kg / 1000kg)
Elastomere bearing	XKM 051.01⁶⁾	Elastomere bearing for KAB 5kN (500kg) transverse stiffness 1200N/mm
	XKM 051.02⁶⁾	Elastomere bearing for KAB 10kN (1000kg) transverse stiffness 3000N/mm
Cone bearing	XKM 061	Cone bearing for KAB 5kN...10kN (500kg...1000kg)
Protective cable	XKC 009.02	Protective cable for KAB 5kN...10kN (500kg...1000kg)
Ex-protection test	XKC 100	Explosion protection test - Authorisation II 2 G EEx ib IIC T4 with EG-Certificate of Conformity TÜV 97 ATEX 1181 for KAB 5kN/500kg, 10kN/1t

6) for platform size (1500 x 1500) mm with 4 load cells