

# KAM Force transducer

## Application

- Measurement of pressure forces in machines and equipment
- Assembly technology
- Grinding and polishing machines
- Automation technology
- Overload protection
- Semiconductor manufacturing

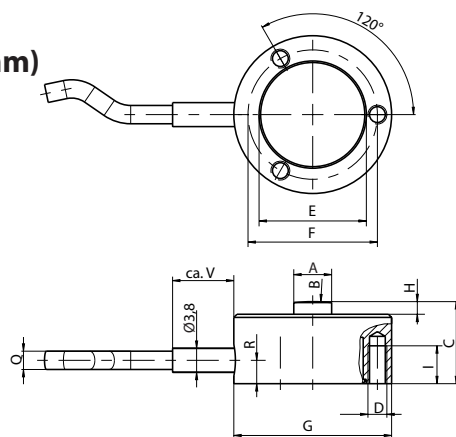
## Features

- 100N up to 300kN
- Small dimensions
- Made from stainless steel and aluminium (<500N)
- Hermetically sealed enclosure (IP 67)

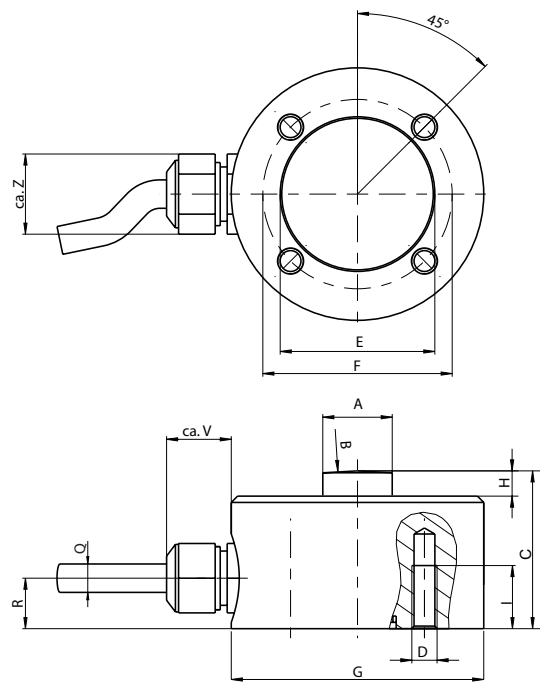
## Options

- Integrated amplifier with standard signal for force transducer 500N ... 300kN
- CANopen interface (500N ... 300kN)
- redundant system
- ATEX-Certificate

## Dimensions (mm)



KAM/100N and KAM/200N



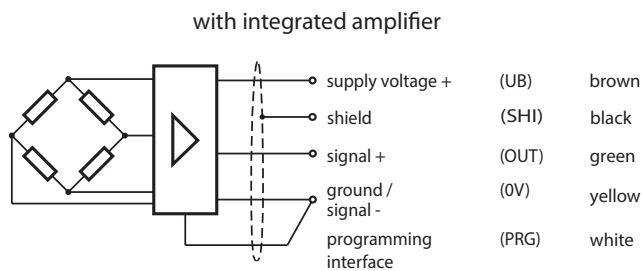
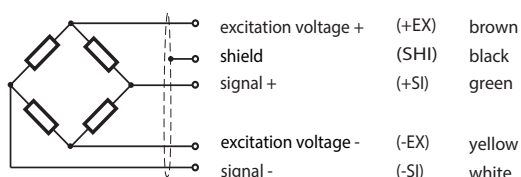
KAM 500N - KAM 300kN



Rated Force in kN	A	B	C	D	E	F	G	H	I	Q	R	V	Z	Rated Displacement / mm	Bending radius (cable fixed/ free moving) / mm	Weight/ kg
0,1/ 0,2	Ø6-0.1	R30	13	M3	Ø17+0.05	Ø20,5	Ø25	2	6	Ø2.9	3.7	9.7	3.8	0.02	≥30	0.16
0,5 bis 10	Ø11-0.1	R50	25-0,25	M4	Ø24,5+0.2	Ø30	Ø40-0.2	4	10	Ø4.5	8	10	12.7	0.02	≥27/ ≥67.5	0.25
20/ 50	Ø24-0.1	R100	48	M10	Ø55+0.05	Ø70	Ø90-0.3	12,5	12	Ø5.3	13.5	17.5	19	0.02	≥32/ ≥80	1.80
100/200/300	Ø32-0.1	R160	60	M12	Ø68	Ø90	Ø115-0.4	12,5	16	Ø5.3	16	17.5	19	0.02	≥32/ ≥80	3.20

## Wiring Code

Cable length 1.5m with free cable ends



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

## Specifications

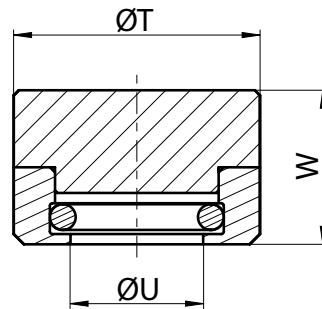
Accuracy Class	% F <sub>nom</sub>	0.2	0.1	0.2 with Integrated Amplifier
Rated load (F <sub>nom</sub> )	N	100/ 200/ 500		500
Rated load (F <sub>nom</sub> )	kN	1/ 2/ 5/ 10/ 20/ 50		1/ 2/ 5/ 10/ 20/ 50
Rated load (F <sub>nom</sub> )	kN	100 / 200 <sup>1)</sup> / 300 <sup>2)</sup>		100 / 200/ 300
Maximum operating force (F <sub>G</sub> )	% F <sub>nom</sub>	150		150
Breaking force (F <sub>B</sub> )	% F <sub>nom</sub>	> 300		> 300
Lateral force limit (F <sub>Q</sub> )	% F <sub>nom</sub>	50		50
Rated characteristic value (C <sub>nom</sub> )	mV/V	1.000 ± 0.005		
Relative deviation of zero signal	%	≤ 3		
Reference excitation voltage (U <sub>ref</sub> )	VDC	5		
Range of supply voltage	VDC	10 (≤10kN), 20 (≥20kN)		
Input resistance (R <sub>e</sub> )	Ω	380 ± 30 (≤10kN), 760 ± 60 (≥20kN)		
Output resistance (R <sub>a</sub> )	Ω	352 ± 1.5 (≤10kN), 706 ± 6 (≥20kN)		
Insulation resistance (R <sub>is</sub> )	Ω	> 5 × 10 <sup>9</sup>		
Relative linearity error (d <sub>lin</sub> )	%	≤ 0.2	≤ 0.1	0.2
Relative reversibility error (v)	%	≤ 0.2	≤ 0.1	
Temperature effect on zero signal (TK <sub>0</sub> )	%/10K	≤ 0.2	≤ 0.1	0.2
Temperature effect on character. value (TK <sub>c</sub> )	%/10K	≤ 0.2	≤ 0.1	
TK of output signal under load	%/10K			0.2
Relative creep over 30 minutes (d <sub>cr, F+E</sub> )	%	≤ 0.2	≤ 0.1	0.2
Tolerance of output signal	%			0.2
Tolerance of zero signal	%			≤ 3
Reference temperature (T <sub>ref</sub> )	°C	+23		+23
Rated temperature range (B <sub>T, nom</sub> )	°C	-25 ... +60		-25 ... +60
Operating temperature range (B <sub>T, G</sub> )	°C	-30 ... +70		-30 ... +70
Storage temperature range (B <sub>T, S</sub> )	°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 load (0...F <sub>N</sub> )				
Alternatively:				
- Voltage output (max. load: 5mA)	V			0 ... 10
- Current output	mA			4 ... 20
- Maximum resistance	Ω			300

All data according to VDI/VDE/DKD 2638

1) only accuracy class 0.2 % from E.

2) only accuracy class 0.5 % from E.

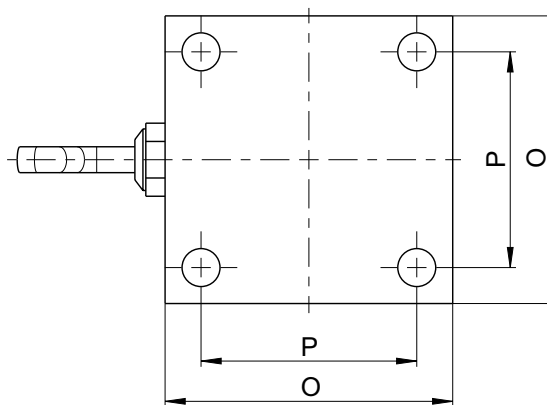
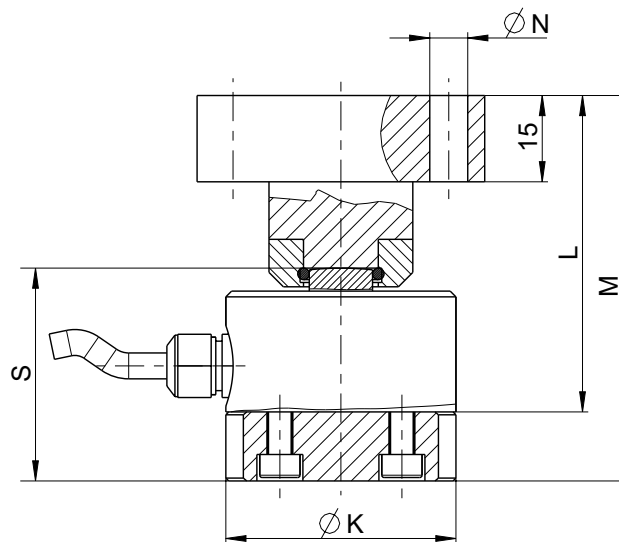
## Appliances for Installation and Mounting



Pressure piece, complete - XKM 123 ... XKM 125

top plate  
XKM 070 ... XKM 072

base plate  
XKM 094 ... XKM 096



Rated Force in kN	K	L	M	N	O	P	S	T	U	W
0.5 to 10	Ø40-0.1	55	67	Ø6.6	50	37.5	37	Ø25	Ø13	23.25
20/ 50	Ø90-0.1	78	103	Ø13.5	100	76	73	Ø48-0.1	Ø26	30
100/ 200/ 300	Ø115-0.1	90	120	Ø13.5	100	76	90	Ø48-0.1	Ø34	29.5

### Order Example for KAM/100N and KAM/200N only without amplifier

Type Code	Description
KAM/100N/0.1	Force transducer 100N with 0.1% accuracy class

### Order Example for KAM

Type Code	Description
KAM-E/1kN/0.2/24V/0 ...10V	Force transducer 1kN with 0.2% accuracy and integrated amplifier

### Accessoires / Options

	Type Code	Description	
Top plate	XKM 072 XKM 070 XKM 071	for 0.5kN up to 10kN for 20kN and 50kN for 100kN/ 200kN/ 300kN	To avoid side load introduction and deformation due to high surface pressure
Base plate	XKM 096 XKM 094 XKM 095	for 0.5kN up to 10kN for 20kN/ 50kN for 100kN/ 200kN/ 300kN	To avoid hysteresis effect at not fixed-on transducers
Pressure piece, complete	XKM 123 XKM 124 XKM 125	for 0.5kN up to 10kN for 20kN and 50kN for 100kN/ 200kN/ 300kN	
Plug and cable	XKC 041 XKC 044.01 XKC 046.03 XKC 071	6-pin plug connected to sensor cable ( z. B. AE 703) 5-pin flange plug on sensor body (from 20kN!) enables releasable connections at force transducer Cable 5m for XKC 044.01 6-pin plug (TEDS) connected to force transducer	
ATEX-Certificate	KAM-EX KAM-E-EX	only for 1kN ... 200kN. Please note ATEX-data sheet! only for 1kN ... 200kN. Please note data sheet ATEX with integrated amplifier!	
CANopen interface	KAM-DI	for 500N ... 300kN Please note data sheet „Force Transducer with CANopen Interface“!	