

For more efficiency.



Assembly and Sensor Technology

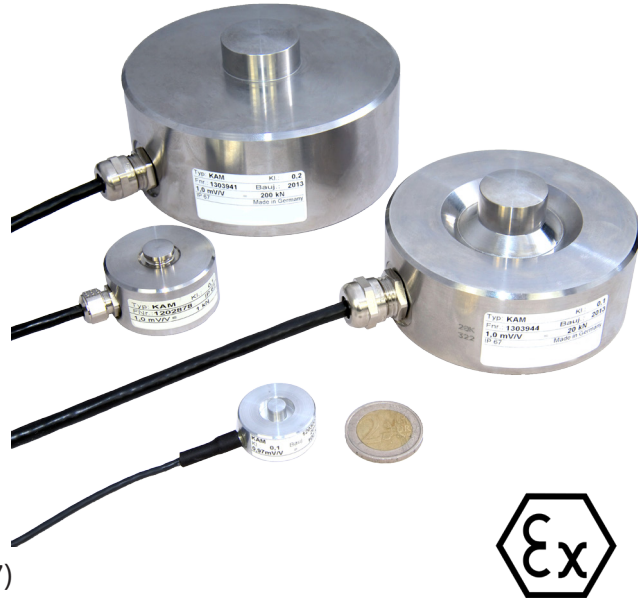
# KAM Force transducer

## Application

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

## Features

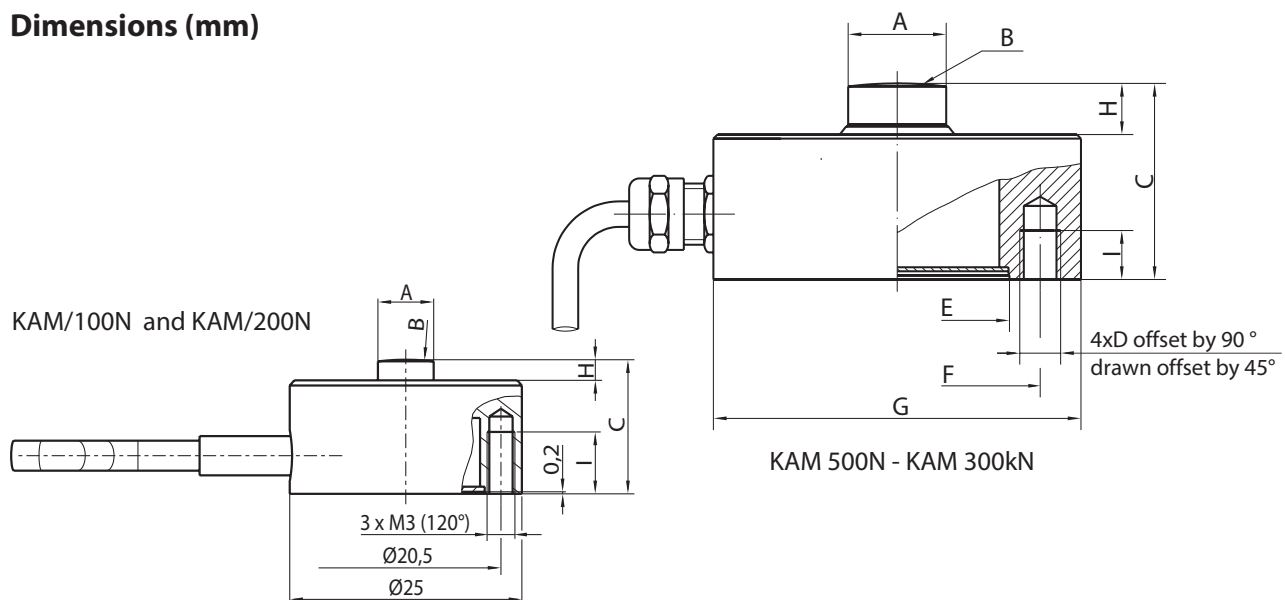
- 100N up to 300kN
- Small dimensions
- Made from stainless steel and aluminium (<500N)
- Hermetically sealed enclosure (IP 65 resp. IP 67)



## Options

- Integrated amplifier with standard signal for force transducer 500N ... 200kN
- ATEX-Certificate

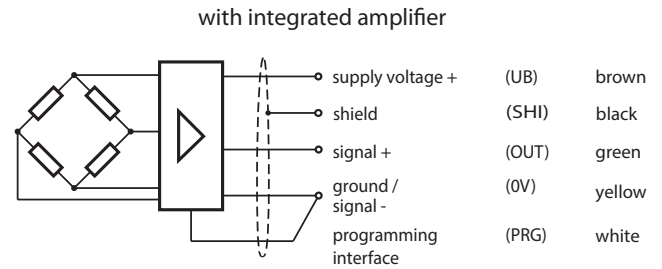
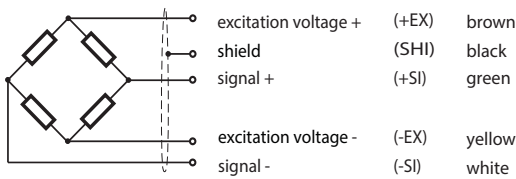
## Dimensions (mm)



Rated Force	A	B	C	D	F	G	H	I	Rated Displacement / mm	Weight
100N/ 200N 0.5kN ... 10kN	Ø6-0.1	R13	13	M3	Ø20.5	Ø25	2	0.6	0.02	0.16 kg
20kN/ 50kN	Ø11-0.1	R50	25	M4	Ø30	Ø40	4	10	0.02	0.25 kg
100kN/ 200kN/ 300kN	Ø24-0.1	R100	48	M10	Ø70	Ø90	12.5	12	0.02	1.80 kg
	Ø32-0.1	R160	60	M12	Ø90	Ø115	12.5	12	0.02	3.20 kg

## Wiring Code

Cable length 1.5m



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

## Specifications

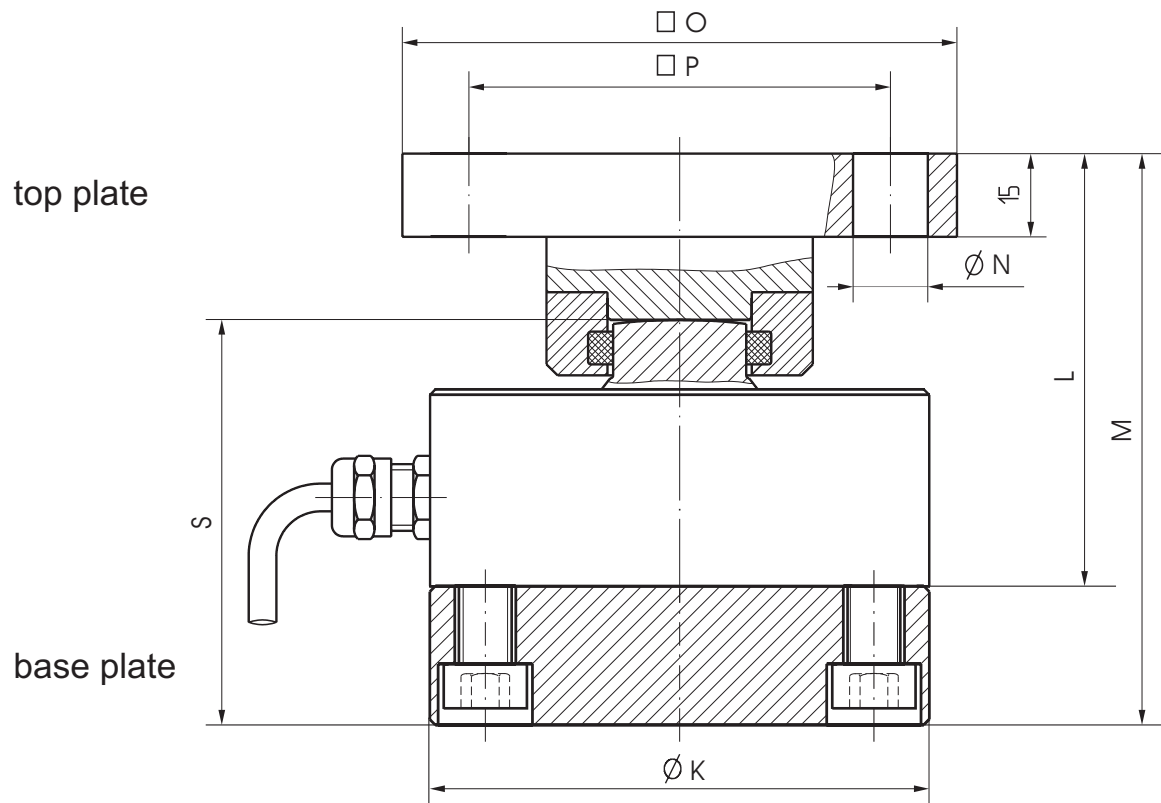
Accuracy Class	% F <sub>nom</sub>	0.2	0.1	0.2 with Integrated Amplifier
Rated load (F <sub>nom</sub> )	N	100 <sup>1)</sup> / 200 <sup>1)</sup> / 500		500
Rated load (F <sub>nom</sub> )	kN	1/ 2/ 5/ 10/ 20/ 50		1/ 2/ 5/ 10/ 20/ 50
Rated load (F <sub>nom</sub> )	kN	100 / 200*/ 300*		100 / 200
Maximum operating 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>O</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 x 10 <sup>9</sup>		
Relative linearity error (d <sub>lin</sub> ) <sup>1)</sup>	%	≤ 0.2	≤ 0.1	0.2
Relative reversibility error (v) <sup>1)</sup>	%	≤ 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> )				11 ... 15
Alternatively:				20 (at 12V)
- Voltage output (max. load: 5mA)	V			0 ... 10
- Current output	mA			0 ... 5
- Maximum resistance	Ω			4 ... 20
				300
				100

All data according to VDI/VDE/DKD 2638

\*) only accuracy class 0.2 % from E.

1) IP 65 for KAM100N/ 200N

## Appliances for Installation and Mounting



Rated Force in kN	K	L	M	N	O	P	S
0.5 bis 10	$\varnothing 40-0.1$	55	67	$\varnothing 6.6$	50	37.5	37
20/ 50	$\varnothing 90-0.1$	78	103	$\varnothing 13.5$	100	76	73
100/ 200/ 300	$\varnothing 115-0.1$	90	120	$\varnothing 13.5$	100	76	90

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

Type Code	Description
KAM/100N/0.1	Force transducer 100N with 0.1% accuracy class
	Accuracy class
	Rated force
	Model

### 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
	Output signal
	Supply voltage
	Accuracy class
	Rated load
	E = Integrated amplifier
	Model

### 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
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 (IP 68) at force transducer Cable 5m for XKC 044.01 6-pin plug (TEDS) connected to force transducer	
ATEX-Certificate	KAM-EX	only for KAM 1kN ... 200kN. Please note ATEX-datasheet!	