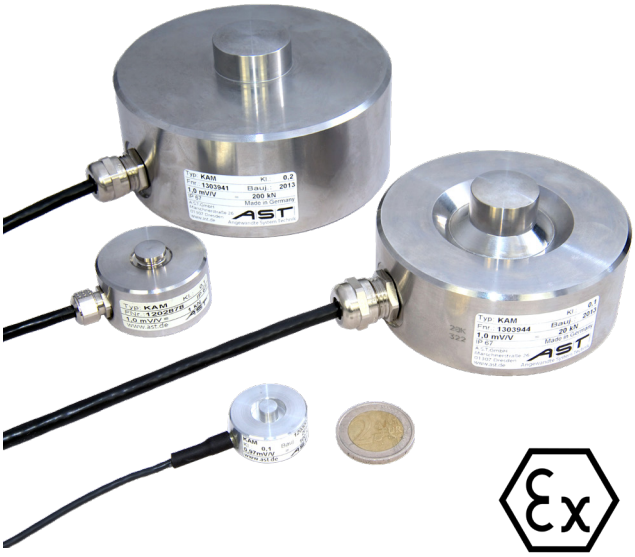
AST Gruppe
Angewandte System Technik

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

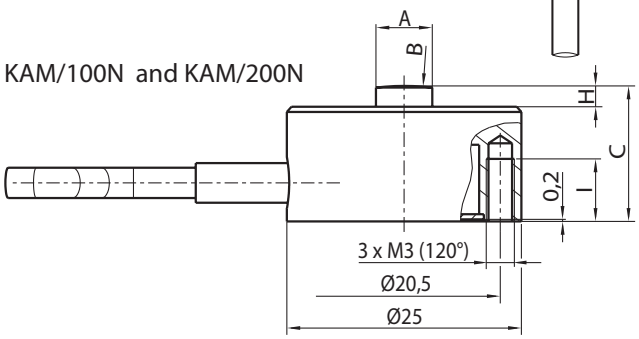
- 100N up to 300kN
- Small dimensions
- Made from stainless steel and aluminium (<500N)
- Hermetically sealed enclosure (IP 67)

Options

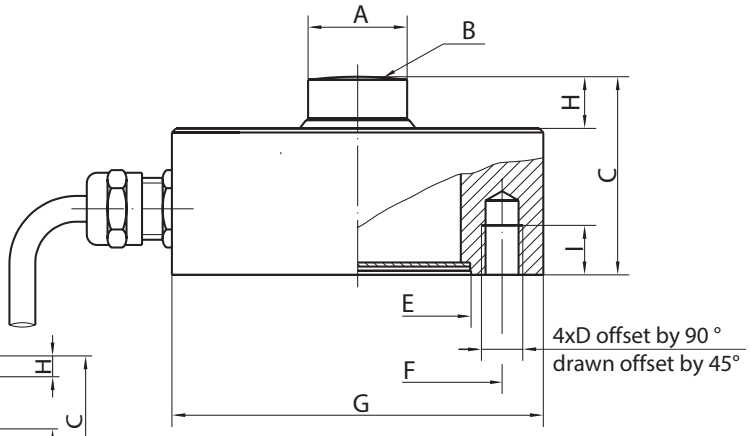
- Integrated amplifier with standard signal for force transducer 500N ... 300kN
- CANopen interface (500N ... 300kN)
- ATEX-Certificate

Dimensions (mm)

KAM/100N and KAM/200N



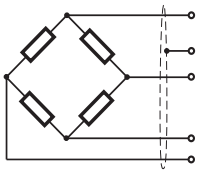
KAM 500N - KAM 300kN



Rated Force	A	B	C	D	E	F	G	H	I	Rated Displacement / mm	Weight
100N/ 200N	Ø6-0.1	R30	13	M3	Ø17	Ø20.5	Ø25	2	6	0.02	0.16 kg
0.5kN ... 10kN	Ø11-0.1	R50	25	M4	Ø24,5	Ø30	Ø40	4	10	0.02	0.25 kg
20kN/ 50kN	Ø24-0.1	R100	48	M10	Ø55	Ø70	Ø90	12.5	12	0.02	1.80 kg
100kN/ 200kN/ 300kN	Ø32-0.1	R160	60	M12	Ø68	Ø90	Ø115	12.5	16	0.02	3.20 kg

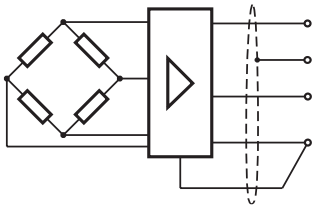
Wiring Code

Cable length 1.5m



excitation voltage +	(+EX)	brown
shield	(SHI)	black
signal +	(+SI)	green
excitation voltage -	(-EX)	yellow
signal -	(-SI)	white

with integrated amplifier



supply voltage +	(UB)	brown
shield	(SHI)	black
signal +	(OUT)	green
ground / signal -	(0V)	yellow
programming interface	(PRG)	white

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

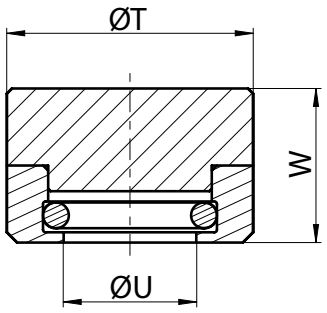
Specifications

Accuracy Class	**% F_{nom}**	**0.2**	**0.1**	**0.2 with Integrated Amplifier**	
Rated load (F_{nom})	N	100/ 200/ 500		500	
Rated load (F_{nom})	kN	1/ 2/ 5/ 10/ 20/ 50		1/ 2/ 5/ 10/ 20/ 50	
Rated load (F_{nom})	kN	100 / 200[1]/ 300[2]		100 / 200/ 300	
Maximum operating force (F_G)	% F_{nom}	150		150	
Breaking force (F_B)	% F_{nom}	> 300		> 300	
Lateral force limit (F_Q)	% F_{nom}	50		50	
Rated characteristic value (C_{nom})	mV/V	1.000 ± 0.005			
Relative deviation of zero signal	%	≤ 3			
Reference excitation voltage (U_{ref})	VDC	5			
Range of supply voltage	VDC	10 (≤10kN), 20 (≥20kN)			
Input resistance (R_e)	Ω	380 ± 30 (≤10kN), 760 ± 60 (≥20kN)			
Output resistance (R_a)	Ω	352 ± 1.5 (≤10kN), 706 ± 6 (≥20kN)			
Insulation reistance (R_{is})	Ω	> 5 x 10^9			
Relative linearity error (d_{lin})	%	≤ 0.2	≤ 0.1	0.2	
Relative reversibility error (v)	%	≤ 0.2	≤ 0.1		
Temperature effect on zero signal (TK_0)	%/10K	≤ 0.2	≤ 0.1	0.2	
Temperature effect on character. value (TK_C)	%/10K	≤ 0.2	≤ 0.1		
TK of output signal under load	%/10K			0.2	
Relative creep over 30 minutes ($d_{cr, F+E}$)	%	≤ 0.2	≤ 0.1	0.2	
Tolerance of output signal	%			0.2	
Tolerance of zero signal	%			≤ 3	
Reference temperature (T_{ref})	°C	+23		+23	
Rated temperature range ($B_{T, nom}$)	°C	-25 ... +60		-25 ... +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	11 ... 15
Input current	mA			35 (at 24V)	20 (at 12V)
Output signal for compression load (0...F_N)					
Alternatively:					
- Voltage output (max. load: 5mA)	V			0 ... 10	0 ... 5
- Current output	mA			4 ... 20	4 ... 20
- Maximum resistance	Ω			300	100

All data accoring to VDI/VDE/DKD 2638

1) only accuracy class 0.2 % from E.
2) only accuracy class 0.5 % from E.

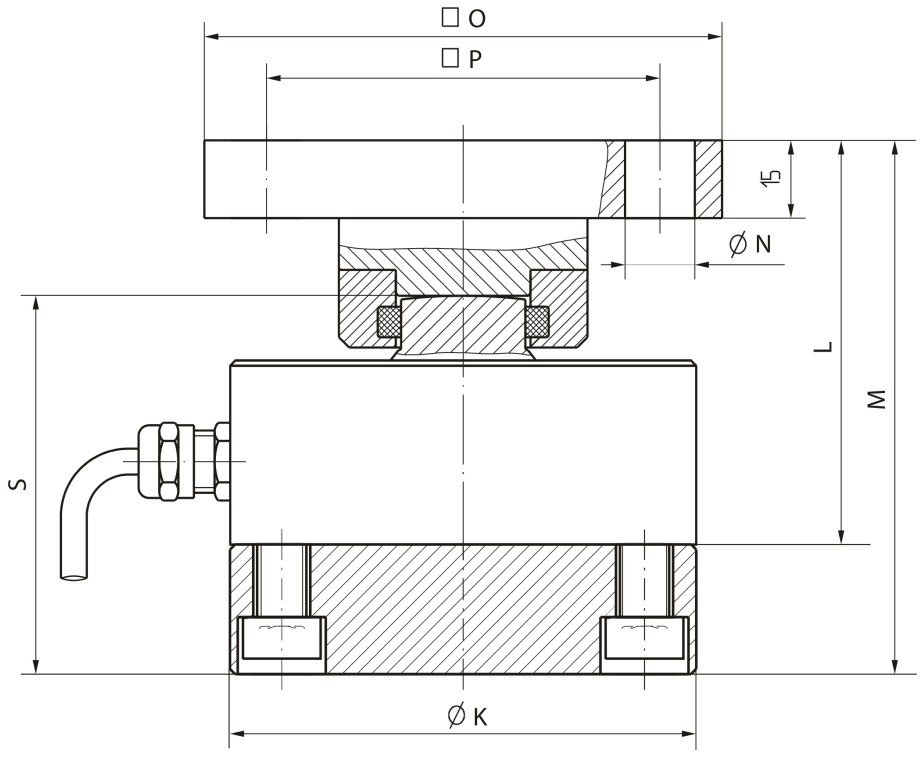
Appliances for Installation and Mounting



Pressure piece, comlete - 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 Accuracy class Rated force Model	Force transducer 100N with 0.1% accuracy class

Order Example for KAM

Type Code	Description
KAM-E/1kN/0.2/24V/0 ...10V Output signal Supply voltage Accuracy class Rated load E = Integrated amplifier Model	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 hyteresis 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 con nections 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!	