DATA SHEET

C10
Force transducer

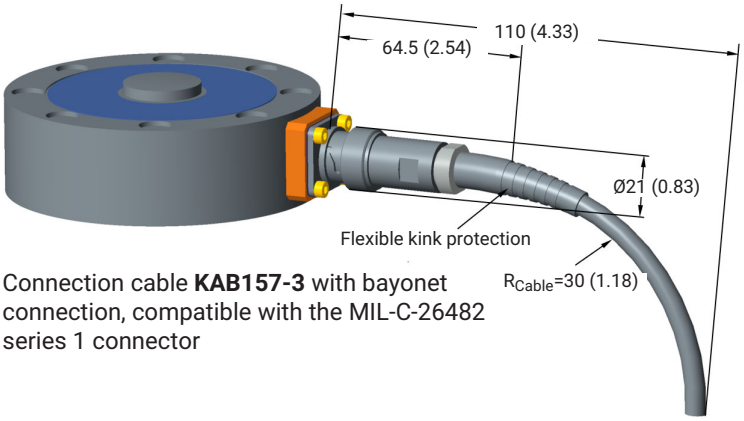
SPECIAL FEATURES

- Compressive force transducer for static and dynamic applications
- Made of non-rusting materials
- Precise (HBK accuracy class from 0.02)
- Numerous options (double bridge, TEDS, 50% calibration, various plug connector versions)
- High output signal of >4mV/V
- Available as a passive sensor (mV/V output) or active sensor with integrated amplifiers (IO-Link)

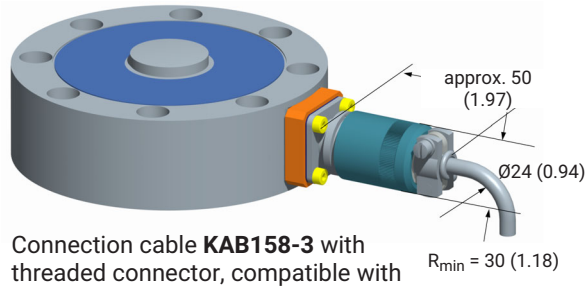
TABLE OF CONTENTS

MOUNTING DIMENSIONS OF CONNECTION VARIANTS

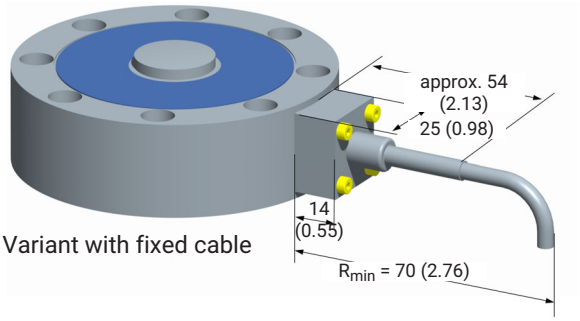
Dimensions in mm (inches)



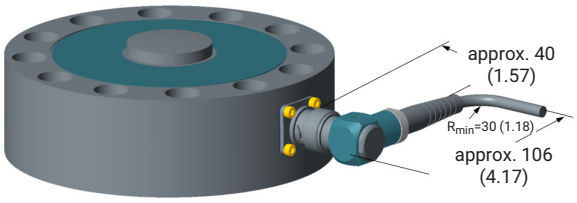
Connection cable **KAB157-3** with bayonet connection, compatible with the MIL-C-26482 series 1 connector



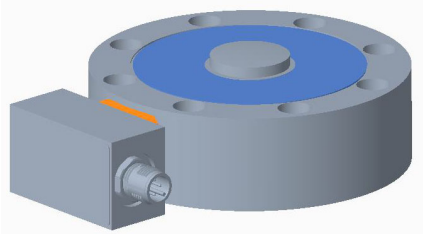
Connection cable **KAB158-3** with threaded connector, compatible with the MIL-C-26482 series 1 connector



Variant with fixed cable



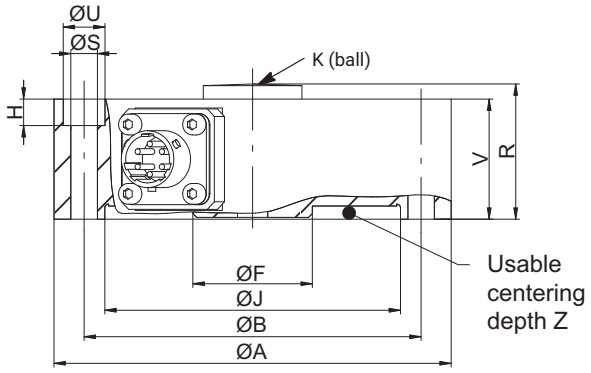
Configurable connection cable **K-CAB-F** with option of angled bayonet connector

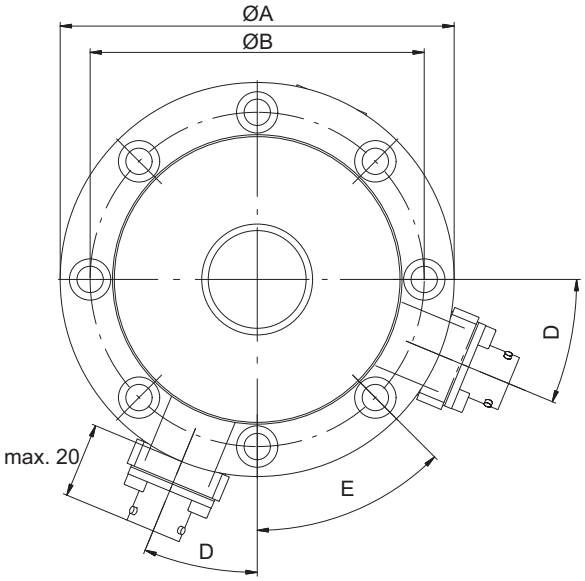


Electrical connection **00A4** with option of integrated VAIO amplifier (plug: M12, A-coded, 4 pins, male)

DIMENSIONS

Dimensions of C10 without amplifier, without foot adapter

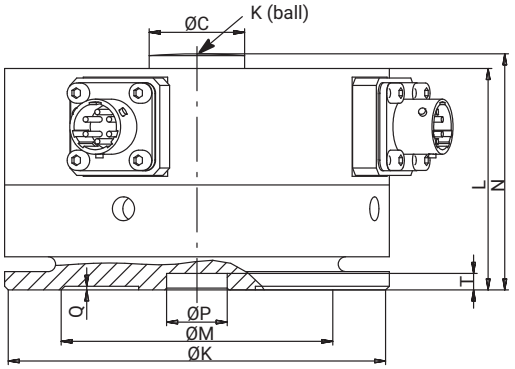


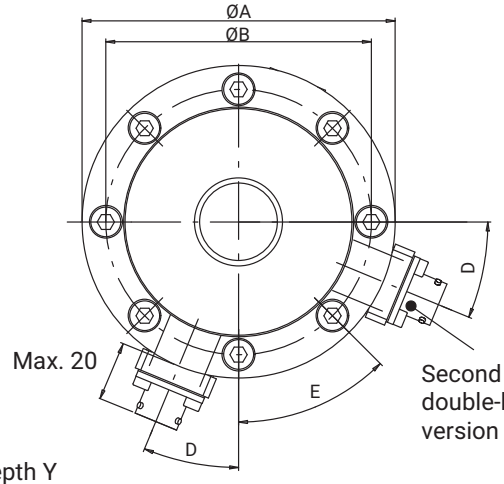


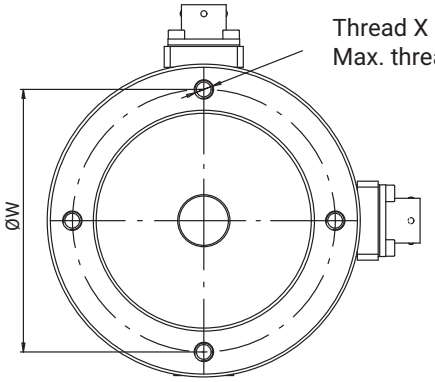
Dimensions in mm

Dimension [unit]		Nominal (rated) force					
		up to 10 kN	25 to 50 kN	100 kN	250 kN	500 kN	1 MN
ØA	[mm]	104.8	104.8	153.9	153.9	203.2	279
ØB	[mm]	88.9	88.9	130.3	130.3	165.1	229
ØS	[mm]	7	7	10.5	10.5	13.5	17
ØF	[mm]	30.4	31.5	61.2	67.3	95.5	122.2
H	[mm]	7	7	10.5	10.5	13	16.5
$ØJ^{H8}$	[mm]	78	78	111.5	111.5	143	175
K	[mm]	180	180	320	320	450	640
R	[mm]	35.7	35.7	47.5	47.5	65.2	84.7
ØU	[mm]	11	11	17	17	19	25
V	[mm]	31.7	31.7	41.4	41.4	57.2	76.2
Z	[mm]	2.5	2.5	2.5	2.5	3.5	6

Dimensions of C10 without amplifier, with foot adapter



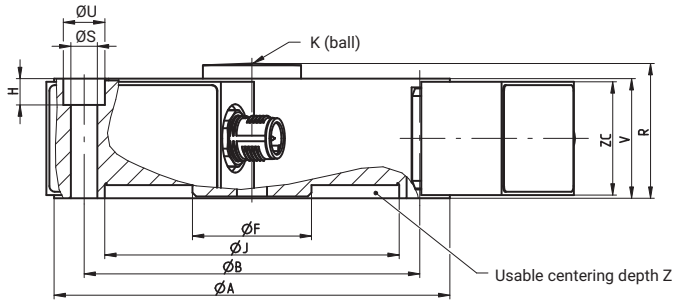


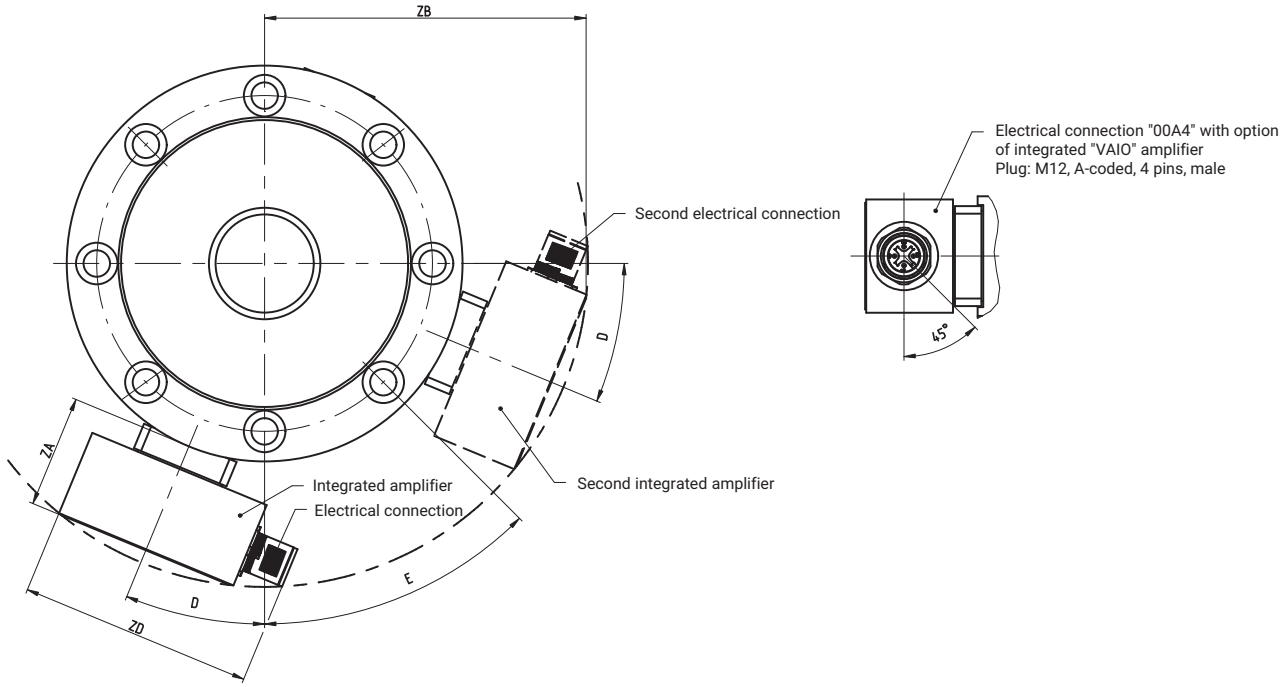


Dimensions in mm

Dimension [unit]		Nominal (rated) force					
		up to 10 kN	25 to 50 kN	100 kN	250 kN	500 kN	1 MN
ØA	[mm]	104.8	104.8	153.9	153.9	203.2	279
ØB	[mm]	88.9	88.9	130.3	130.3	165.1	229
ØC	[mm]	26	26	40	40	64	80
D	[°]	22.5	22.5	15	15	11.25	11.25
E	[°]	45	45	30	30	22.5	22.5
ØK	[mm]	102.8	102.8	151.9	151.9	201.2	277
K	mm]	180	180	320	320	450	640
L	[mm]	60.3	60.3	85.9	85.9	108	152.4
ØM	[mm]	74	74	120	120	156	210
N	[mm]	64.3	64.3	92	92	116	160.9
$ØP^{H8}$	[mm]	16.5	16.5	33.5	33.5	43	73
Q	[mm]	1	1	1	1	1	1
T	[mm]	4.5	4.5	4.5	4.5	6	8
ØW	[mm]	88	88	132	132	172	238
X		M6	M6	M8	M8	M12	M16
Y	[mm]	8.5	8.5	12	12	17.5	22.5

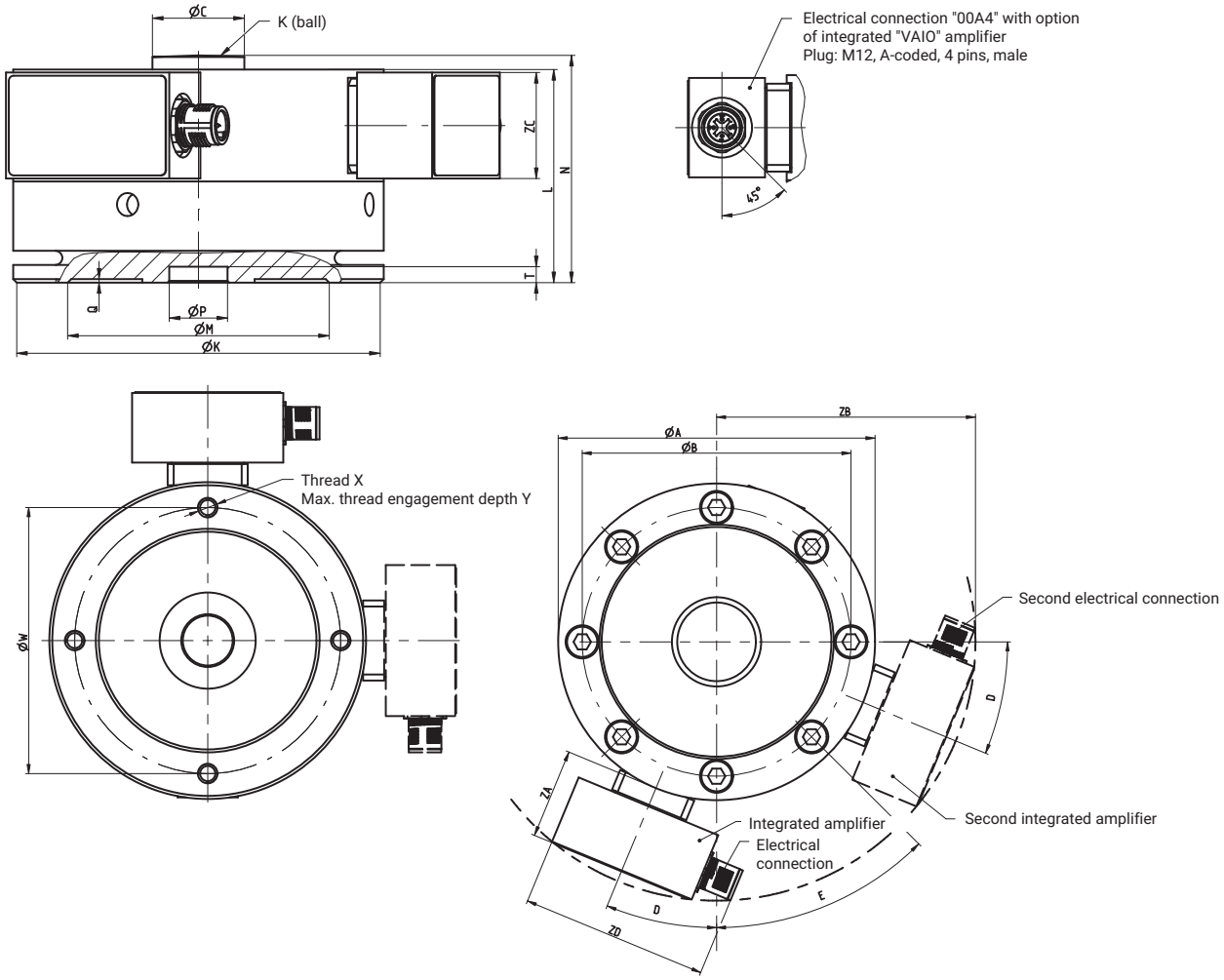
Dimensions of C10 with amplifier, without foot adapter





Dimension	Unit	Nominal (rated) force					
		up to 10 kN	25 to 50 kN	100 kN	250 kN	500 kN	1 MN
ØA	mm	104.8	104.8	153.9	153.9	203.2	279
ØB	mm	88.9	88.9	130.3	130.3	165.1	229
D	°	22.5	22.5	15	15	11.25	11.25
E	°	45	45	30	30	22.5	22.5
ØF	mm	102.8	102.8	151.9	151.9	201.2	277
ØJ^{H8}	mm	78	78	111.5	111.5	143	175
H	mm	7	7	10.5	10.5	13	16.5
K	mm	180	180	320	320	450	640
R	mm	35.7	35.7	47.5	47.5	65.2	84.7
ØS	mm	7	7	10.5	10.5	13.5	17
ØU	mm	11	11	17	17	19	25
V	mm	31.7	31.7	41.4	41.4	57.2	76.2
Z	mm	2.5	2.5	2.5	2.5	3.5	6
ZA	mm	30	30	30	30	30	30
ZB	mm	83.2	85.1	108.3	108.3	132.6	168.5
ZC	mm	30	30	30	30	30	30
ZD	mm	62	62	62	62	62	62

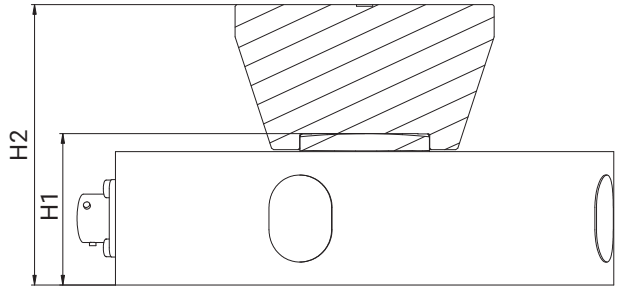
Dimensions of C10 with amplifier and foot adapter



Dimen-sion	Unit	Nominal (rated) force					
		up to 10 kN	25 to 50 kN	100 kN	250 kN	500 kN	1 MN
ØA	mm	104.8	104.8	153.9	153.9	203.2	279
ØB	mm	88.9	88.9	130.3	130.3	165.1	229
ØC	mm	26	26	40	40	64	80
D	°	22.5	22.5	15	15	11.25	11.25
E	°	45	45	30	30	22.5	22.5
ØK	mm	102.8	102.8	151.9	151.9	201.2	277
K	mm	180	180	320	320	450	640
L	mm	60.3	60.3	85.9	85.9	108	152.4
ØM	mm	74	74	120	120	156	210
N	mm	64.3	64.3	92	92	116	160.9
ØP^{H8}	mm	16.5	16.5	33.5	33.5	43	73
Q	mm	1	1	1	1	1	1
T	mm	4.5	4.5	4.5	4.5	6	8
ØW	mm	88	88	132	132	172	238
X		M6	M6	M8	M8	M12	M16
Y	mm	8.5	8.5	12	12	17.5	22.5
ZA	mm	30	30	30	30	30	30
ZB	[mm]	83.2	85.1	108.3	108.3	132.6	168.5
ZC	[mm]	30	30	30	30	30	30
ZD	[mm]	62	62	62	62	62	62

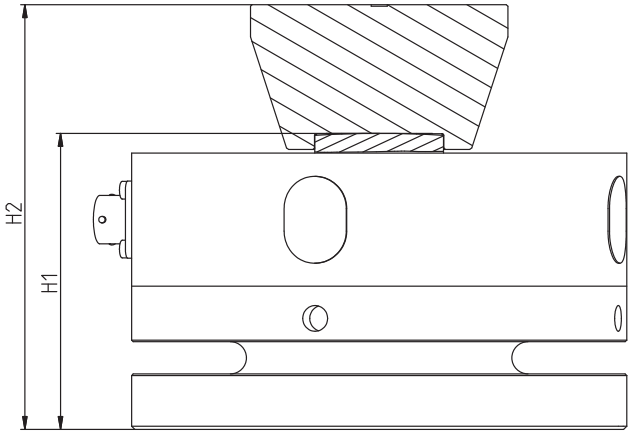
C10 dimensions, mounting heights

Mounting heights without foot adapter, with EDO3 thrust piece



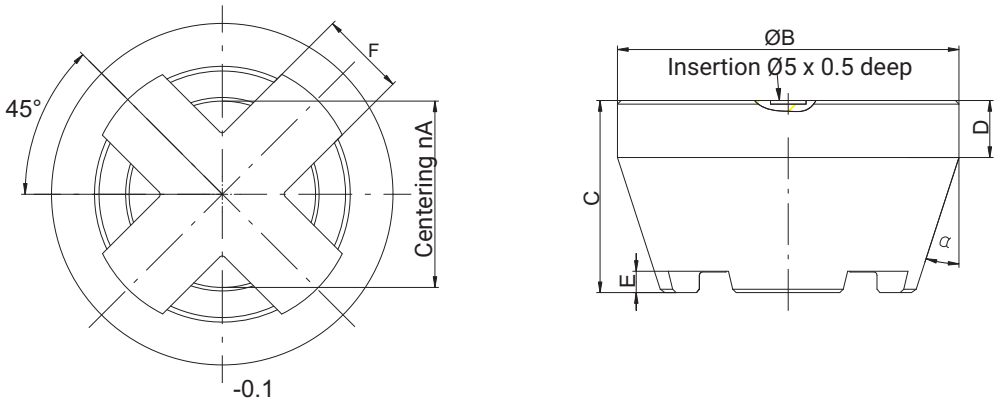
Nominal (rated) force	Height of transducer, H1 (mm)	Height of transducer and thrust piece, H2 (mm)
2.5 kN	35.7	59.7
5 kN	35.7	59.7
10 kN	35.7	59.7
25 kN	35.7	59.7
50 kN	35.7	59.7
100 kN	47.5	87.5
250 kN	47.5	87.5
500 kN	65.2	121.2
1 MN	84.7	150.7

Mounting heights with foot adapter and EDO3 thrust piece



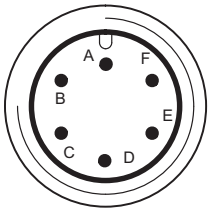
Nominal (rated) force	Height of transducer with adapter, H1 (mm)	Height of transducer, adapter and thrust piece, H2 (mm)
2.5 kN	64.3	88.3
5 kN	64.3	88.3
10 kN	64.3	88.3
25 kN	64.3	88.3
50 kN	64.3	88.3
100 kN	92.0	132.0
250 kN	92.0	132.0
500 kN	116.0	172.0
1 MN	160.9	226.9

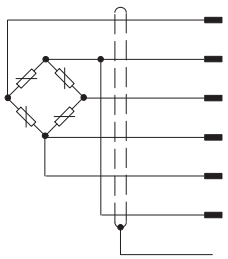
EDO3 thrust pieces for C10



Dimension [unit]		Nominal (rated) force (with 100% calibration)			
		up to 50 kN	100 to 250 kN	500 kN	1 MN
ØA	[mm]	26.2	40.2	64.2	80.2
ØB	[mm]	48	80	112	130
C	[mm]	27	45	62	72
D	[mm]	8	10	15	15
E	[mm]	3	5	6	6
F	[mm]	12	23	30	36
α	[°]	18	18	18	18
Ordering no.		1-EDO3/50KN	1-EDO3/100KN	1-EDO3/500KN	1-EDO3/1MN

Electrical connection without integrated amplifier (passive)





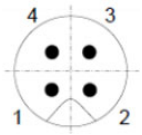
Device plug pin assignment		Cable assignment
B	Measurement signal (+)	wh (white)
D	Excitation voltage (-) (TEDS*)	bk (black)
C	Measurement signal (-)	rd (red)
A	Excitation voltage (+)	bu (blue)
F	Sense lead (+)	gn (green)
E	Sense lead (-) (TEDS*)	gy (gray)
	Cable shield, connected to housing	Shield

* Only when option T is selected (transducer identification)

Electrical connection with amplifier VAIO (IO-Link)

Pin	C10 assignment
1	Supply voltage +
2	Digital output (DI/DO pin function)
3	Supply voltage –, reference potential
4	IO-Link data (C/Q), switchover to the digital output (SIO mode) possible

Class A



Male
(device)

Specifications without amplifier with 100% calibration

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Accuracy											
HBK accuracy class			0.02			0.03	0.04				0.05
Relative reproducibility and repeatability errors in unchanged mounting position	$b_{r,g}$	%	0.025								
Relative reversibility error (hysteresis) at 0.4 F_{nom}, relative to full scale value	v	%	0.02			0.03	0.04				0.05
Non-linearity	d_{lin}	%	0.02			0.025	0.035				0.05
Relative creep over 30 min	$d_{cr, F+E}$	%	0.02								
Effect of eccentricity	d_E	%/mm	0.04								
Temperature coefficient of sensitivity	TC_S	%/10K	0.015								
Temperature coefficient of zero signal	TC_0	%/10K	0.0075								
Rated electrical output											
Rated output (nominal)	C_{nom}	mV/V	2			4					
Relative zero signal error	$d_{S,0}$	%	1								
Rated output tolerance with "adjusted rated output" option	d_c	%	0.1								
Rated output range without "adjusted rated output" option		mV/V	2 … 3			4 … 4.9					
Input resistance	R_e	Ω	> 345								
Range of the output resistance without "adjusted rated output" option	R_a	Ω	280 … 360								
Output resistance with "adjusted rated output" option	R_a	Ω	365								
Tolerance of the output resistance with "adjusted rated output" option	d_{Ra}	Ω	±0.5								
Insulation resistance	R_{Iso}	GΩ	> 2								
Operating range of the excitation voltage	$B_{U,G}$	V	0.5 … 12								
Reference excitation voltage	U_{ref}	V	5								
Connection			6-wire circuit								
Temperature											
Reference temperature	T_{ref}	°C	23								
		°F	73.4								
Nominal temperature range	$B_{T,nom}$	°C	-10 … +45								
		°F	14 … 113								
Operating temperature range	$B_{T, G}$	°C	-30 … +85								
		°F	-22 … 185								
Storage temperature range	$B_{T,S}$	°C	-30 … +85								
		°F	-22 … 185								
Characteristic mechanical quantities											
Maximum operating force	F_G	% of F_{nom}	120								
Force limit	F_L		120								
Breaking force	F_B		> 200								
Max. eccentricity	e_G	mm	10.2			9.9	9.1	14.1	12	20.6	23.9
Nominal (rated) displacement	s_{nom}	mm	0.04			0.06			0.08	0.1	0.12
Natural frequency	f_G	kHz	4.7	6.5	8.6	5.8	8.2	5.7	7.3	5.9	5.4

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Permissible oscillation stress	f_{rb}	% of F_{nom}	100								
Stiffness	c_{ax}	10^5 N/mm	0.625	1.25	2.5	4.17	8.33	16.7	31.3	50	83.3
General information											
Degree of protection as per EN 60529, with bayonet connector (standard version), jack connected to sensor			IP67								
Degree of protection as per EN 60529, with "threaded connector" option			IP64								
Degree of protection as per EN 60529, with "fixed cable" option			IP67			IP68[1)]					
Spring element material			Aluminum			Stainless steel					
Measuring point protection			Firmly glued measuring body			Hermetically-welded measuring body					
Cable (only with "fixed cable" option)			Six-wire circuit, TPE insulation. Outside diameter 5.4 mm								
Cable length		m	6 or 15								
Mechanical shock resistance as per IEC 60068-2-6											
Number		n	1000								
Duration		ms	3								
Acceleration		m/s^2	1000								
Vibrational stress as per IEC 60068-2-27											
Frequency range		Hz	5 … 65								
Duration		min	30								
Acceleration		m/s^2	150								
Weight (with adapter)	m	kg	1.24			3.24		10.7		24.1	67
		lbs	2.73			7.14		23.59		53.13	147.71
Weight (without adapter)	m	kg	0.5			1.3		3.9		10.4	28.5
		lbs	1.1			2.87		8.6		22.93	62.83

1) Test condition: 1 m water column, 100 hours

Specifications with amplifier VAIO with 100% calibration

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Accuracy											
HBK accuracy class			0.02			0.03	0.04				0.05
Relative reproducibility and repeatability errors in unchanged mounting position	$b_{r,g}$	%	0.025								
Relative reversibility error (hysteresis) at 0.4 F_{nom}	$v_{0.4}$	%	0.02			0.03	0.04				0.05
Non-linearity	d_{lin}	%	0.005							0.03	
Relative creep	$d_{cr, F+E}$	%	0.02								
Effect of eccentricity	d_E	%/mm	0.04								
Temperature coefficient of sensitivity	TC_S	%/10K	0.015								
Temperature coefficient of zero signal	TC_0	%/10K	0.006								
VAIO electrical characteristics											
Output signal, interface			IO Link standard, COM3								
Min. cycle time		ms	0.9								
Sample rate (internal)		S/s	40000								
Cut-off frequency (-3 dB)	F_G	kHz	4								
Nominal (rated) supply voltage	U_{ref}	V	24								
Operating range of the supply voltage	$B_{u,gt}$	V	19 … 30								
Maximum power consumption		mW	3200								
Noise		ppm of nominal force	With Bessel filter 1Hz: 14 With Bessel filter 10 Hz: 38 With Bessel filter 100 Hz: 117 With Bessel filter 200 Hz: 165 Without filter: 1812			With Bessel filter 1Hz: 7 With Bessel filter 10 Hz: 19 With Bessel filter 100 Hz: 58 With Bessel filter 200 Hz: 82 Without filter: 906					
Low-pass filter			Freely adjustable cut-off frequency, Bessel or Butterworth characteristic, 6th order								
Device functions											
Limit value switches			2 limit value switches, invertible, freely adjustable hysteresis, output via process data or digital output								
Digital IO			According to IO-Link Smart Sensor profile. 1 permanently available digital output, 1 output can be set to data output, then no measurement output is possible								
Slave pointer function			Yes								
Peak value memory			Yes								
Peak-to-peak memory			Yes								
Warning functions			Warning on exceeding nominal (rated) force/maximum operating force; nominal (rated) temperature/maximum operating temperature/dynamic force overshoot								
Temperature											
Reference temperature	T_{ref}	°C	23								
		°F	73.4								
Nominal temperature range	$B_{T,nom}$	°C	-10 … +45								
		°F	14 … 113								
Operating temperature range	$B_{T, G}$	°C	-10 … +60								
		°F	14 … 140								
Storage temperature range	$B_{T,S}$	°C	-25 … +85								
		°F	-13 … 185								
Characteristic mechanical quantities											
Maximum operating force	F_G	% of F_{nom}	120								
Force limit	F_L		120								
Breaking force	F_B		> 200								
Max. eccentricity	e_G	mm	10.2			9.9	9.1	14.1	12	20.6	23.9
Nominal (rated) displacement	s_{nom}	mm	0.04			0.06			0.08	0.1	0.12

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Natural frequency	f_G	kHz	4.7	6.5	8.6	5.8	8.2	5.7	7.3	5.9	5.4
Permissible oscillation stress	f_{rb}	% of F_{nom}	100								
Stiffness	c_{ax}	10^5 N/m m	0.625	1.25	2.5	4.17	8.33	16.7	31.3	50	83.3
General information											
Degree of protection as per EN 60529, with connected cable			IP67								
Spring element material			Aluminum			Stainless steel					
Material of permanently installed amplifier housing			Stainless steel								
Measuring point protection			Firmly glued measuring body			Hermetically-welded measuring body					
Mechanical shock resistance as per IEC 60068-2-6											
Number		n	1000								
Duration		ms	3								
Acceleration		m/s^2	1000								
Vibrational stress as per IEC 60068-2-27											
Frequency range		Hz	5 … 65								
Duration		min	30								
Acceleration		m/s^2	150								
Weight (without adapter, with amplifier)	m	kg	0.65			1.45		4.05		10.55	28.65
		lbs	1.43			3.2		8.93		23.26	63.16
Weight (with adapter and amplifier)	m	kg	1.39			3.39		10.85		24.25	67.15
		lbs	3.06			7.47		23.92		53.46	148.04

Specifications without amplifier with 50% calibration

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Calibration force	F_{cal}	kN	1.25	2.5	5	12.5	25	50	125	250	500
		MN									
Accuracy											
HBK accuracy class			0.02			0.03	0.04				0.05
Relative reproducibility and repeatability errors without rotation	$b_{r,g}$	%	0.025								
Relative reversibility error (hysteresis) at 0.4 F_{nom}, relative to full scale value	v	%	0.02			0.03	0.04				0.05
Non-linearity	d_{lin}	%	0.02			0.025	0.035				0.05
Relative creep over 30 min	$d_{cr, F+E}$	%	0.02								
Effect of eccentricity	d_E	%/mm	0.04								
Temperature coefficient of sensitivity	TC_S	%/10K	0.015								
Temperature coefficient of zero signal	TC_0	%/10K	0.015								
Rated electrical output											
Rated output (nominal)	C_{nom}	mV/V	1			2					
Relative zero signal error	$d_{S,0}$	%	2								
Rated output deviation with "adjusted rated output" option	d_C	%	0.1								
Rated output range without "adjusted rated output" option	C	mV/V	1 … 1.5			2 … 2.5					
Input resistance	R_e	Ω	> 345								
Range of the output resistance without "adjusted rated output" option	R_a	Ω	280 … 360								
Output resistance with "adjusted rated output" option	R_a	Ω	365								
Tolerance of the output resistance with "adjusted rated output" option	d_{Ra}	Ω	±0.5								
Insulation resistance	R_{Iso}	GΩ	> 2								
Operating range of the excitation voltage	$B_{U,G}$	V	0.5 … 12								
Reference excitation voltage	U_{ref}	V	5								
Connection			6-wire circuit								
Temperature											
Reference temperature	T_{ref}	°C	23								
		°F	73.4								
Nominal temperature range	$B_{T,nom}$	°C	-10 … +45								
		°F	14 … 113								
Operating temperature range	$B_{T, G}$	°C	-30 … +85								
		°F	-22 … 185								
Storage temperature range	$B_{T,S}$	°C	-30 … +85								
		°F	-22 … 185								
Characteristic mechanical quantities											
Maximum operating force	F_G	% of F_{cal}	240								
Force limit	F_L		240								
Breaking force	F_B		> 400								
Max. eccentricity	e_G	mm	10.2			9.9	9.1	14.1	12	20.6	23.96
Nominal (rated) displacement	s_{nom}	mm	0.02			0.03			0.04	0.05	0.06
Natural frequency	f_G	kHz	4.7	6.5	8.6	5.8	8.2	5.7	7.3	5.9	5.4

Nominal (rated) force	F_{nom}	**kN**	**2.5**	**5**	**10**	**25**	**50**	**100**	**250**	**500**	
		MN									**1**
Calibration force	F_{cal}	**kN**	**1.25**	**2.5**	**5**	**12.5**	**25**	**50**	**125**	**250**	**500**
		MN									
Permissible oscillation stress	f_{rb}	% of F_{nom}	200 (400% of the calibration force)								
Stiffness	c_{ax}	10^5 N/mm	0.625	1.25	2.5	4.17	8.33	16.7	31.3	50	83.3
General information											
Degree of protection as per EN 60529, with bayonet connector (standard version), jack connected to sensor			IP67								
Degree of protection as per EN 60529, with "threaded connector" option			IP64								
Degree of protection as per EN 60529, with "integrated cable" option			IP67			IP68[2)]					
Spring element material			Aluminum			Stainless steel					
Measuring point protection			Firmly glued measuring body			Hermetically-welded measuring body					
Cable (only with "integrated cable" option)			Six-wire circuit, TPE insulation. Outside diameter 5.4 mm								
Cable length		m	6 or 15								
Mechanical shock resistance as per IEC 60068-2-6											
Number		n	1000								
Duration		ms	3								
Acceleration		m/s^2	1000								
Vibrational stress as per IEC 60068-2-27											
Frequency range		Hz	5 … 65								
Duration		min	30								
Acceleration		m/s^2	150								
Weight (with adapter)	m	kg	1.24			3.24		10.7		24.1	67
		lbs	2.73			7.14		23.59		53.13	147.71
Weight (without adapter)	m	kg	0.5			1.3		3.9		10.4	28.5
		lbs	1.1			2.87		8.6		22.93	62.83

2) Test condition: 1 m water column, 100 hours

Specifications with amplifier VAIO with 50% calibration

Nominal (rated) force	F_{nom}	kN	2.5	5	10	25	50	100	250	500	
		MN									1
Calibration force	F_{cal}	kN	1.25	2.5	5	12.5	25	50	125	250	500
		MN									
Accuracy											
HBK accuracy class			0.02			0.03	0.04				0.05
Relative reproducibility and repeatability errors without rotation	$b_{r,g}$	%	0.025								
Relative reversibility error (hysteresis) at 0.4 F_{nom}, relative to full scale value	v	%	0.02			0.03	0.04				0.05
Non-linearity	d_{lin}	%	0.005								0.03
Relative creep	$d_{cr, F+E}$	%	0.02								
Temperature coefficient of sensitivity	TC_S	%/10K	0.015								
Temperature coefficient of zero signal	TC_0	%/10K	0.0075								
VAIO electrical characteristics											
Output signal, interface			IO Link standard, COM3								
Min. cycle time		ms	< 0.9								
Sample rate (internal)		S/s	40000								
Cut-off frequency (-3 dB)	F_G	kHz	4								
Nominal (rated) supply voltage	U_{ref}	V	24								
Operating range of the supply voltage	$B_{u,gt}$	V	19 … 30								
Maximum power consumption		mW	3200								
Noise		ppm of nominal force	With Bessel filter 1Hz: 28 With Bessel filter 10 Hz: 76 With Bessel filter 100 Hz: 234 With Bessel filter 200 Hz: 330 Without filter: 3624			With Bessel filter 1Hz: 14 With Bessel filter 10 Hz: 38 With Bessel filter 100 Hz: 117 With Bessel filter 200 Hz: 165 Without filter: 1812					
Low-pass filter			Freely adjustable cut-off frequency, Bessel or Butterworth characteristic, 6th order								
Relative rated output variation for tension/pressure	d_{zd}	%	0.03								
Device functions											
Limit value switches			2 limit value switches, invertible, freely adjustable hysteresis, output via process data or digital output								
Digital IO			According to IO-Link Smart Sensor Profile, 1 permanently available digital output, 1 output can be set to data output, then no measurement possible								
Slave pointer function			Yes								
Peak value memory			Yes								
Peak-to-peak memory			Yes								
Warning functions			Warning on exceeding nominal (rated) force/maximum operating force, nominal (rated) temperature/maximum operating temperature								
Temperature											
Reference temperature	T_{ref}	°C	23								
		°F	73.4								
Nominal temperature range	$B_{T,nom}$	°C	-10 … +45								
		°F	14 … 113								
Operating temperature range	$B_{T, G}$	°C	-10 … +60								
		°F	14 … 140								
Storage temperature range	$B_{T,S}$	°C	-25 … +85								
		°F	-13 … 185								

Calibration force	F_{cal}	kN	1.25	2.5	5	12.5	25	50	125	250	500
		MN									
Characteristic mechanical quantities											
Maximum operating force	F_G	% of F_{cal}	240								
Force limit	F_L		240								
Breaking force	F_B		> 400								
Max. eccentricity	e_G	mm	10.2			9.9	9.1	14.1	12	20.6	23.96
Nominal (rated) displacement	s_{nom}	mm	0.02			0.03			0.04	0.05	0.06
Natural frequency	f_G	kHz	4.7	6.5	8.6	5.8	8.2	5.7	7.3	5.9	5.4
Permissible oscillation stress	f_{rb}	% of F_{nom}	200 (400% of the calibration force)								
Stiffness	c_{ax}	10^5 N/mm	0.625	1.25	2.5	4.17	8.33	16.7	31.3	50	83.3
General information											
Degree of protection as per EN 60529, with connected cable			IP67								
Spring element material			Aluminum			Stainless steel					
Material of permanently installed amplifier housing			Stainless steel								
Measuring point protection			Firmly glued measuring body			Hermetically-welded measuring body					
Mechanical shock resistance as per IEC 60068-2-6											
Number		n	1000								
Duration		ms	3								
Acceleration		m/s^2	1000								
Vibrational stress as per IEC 60068-2-27											
Frequency range		Hz	5 … 65								
Duration		min	30								
Acceleration		m/s^2	150								
Weight (without adapter, with amplifier)	m	kg	0.65			1.45		4.05		10.55	28.65
		lbs	1.43			3.2		8.93		23.26	63.16
Weight (with adapter and amplifier)	m	kg	1.39			3.39		10.85		24.25	67.15
		lbs	3.06			7.47		23.92		53.46	148.04

VERSIONS AND ORDERING NUMBERS

Code	Measuring range	Ordering number
2K50	2.5 kN	1-C10/2.5kN
5K00	5 kN	1-C10/5kN
10K0	10 kN	1-C10/10kN
25K0	25 kN	1-C10/25kN
50K0	50 kN	1-C10/50kN
100K	100 kN	1-C10/100kN
250K	250 kN	1-C10/250kN
500K	500 kN	1-C10/500kN
1M00	1 MN	1-C10/1MN

The ordering numbers shown in gray are preferred types. They can be delivered rapidly.

All preferred types with bayonet plug, single bridge, without rated output adjustment, 100% calibration, without TEDS, with adapter, without plug protection, without amplifier and without firmware.
The ordering number for the preferred types is 1-C10/...
The ordering number for customized versions is K-C10-...
The ordering number example **K-C10-1M00-DB-N-5-S-N-U-00A4-00A4-X-X-VAIO-VAIO-IO03** shown below is a: C10, nominal (rated) force 1 MN with double bridge, without rated output adjustment, 50% calibration, without TEDS, without adapter, without plug protection and integrated amplifier with IO-Link output.

Nominal (rated) force	No. of measuring bridges	Rated output	Calibration	Transducer identification	Mechanical design	Plug protection	Electrical connection		Plug version for the "fixed mounted cable" option		Integrated amplifier		FFirmware
							Bridge A	Bridge B	Bridge A	Bridge B	Bridge A	Bridge B	
2.5 kN **2K50**	Single bridge **SB**	Not adjusted **N**	100% **1**	Without TEDS **S**	With adapter **W**	Without **U**	Bayonet connector **B**		Free ends **Y**		Without integrated amplifier **N**		No firmware **N**
5 kN **5K00**	Double bridge **DB**	Adjusted **J**	50% **5**	With TEDS **T**	Without adapter **N**	With **P**	Threaded connector **G**		Connector D-sub **F**		Digital amplifier: IO-Link **VAIO**		Version 2.0.8 **IO03**
10 kN **10K0**							Fixed cable (6 m) **K**		Connector HD-sub **Q**				Version 2.0.10 **IO04**
25 kN **25K0**							Fixed cable (15 m) **V**		Connector ME3106PEMV **N**				Version 2.0.12 **IO05**
50 kN **50K0**							M12 connector, 4-pin, A-coded **00A4**		Connector ODU, 14-pin **P**				
100 kN **100K**									M12 connector, 8-pin **M**				
250 kN **250K**									No cable **X**				
500 kN **500K**													
1 MN **1M00**													

Ordering example

K-C10-1M00	DB-	N-	5-	S-	N-	U-	00A4-	00A4-	X-	X-	VAIO-	VAIO-	IO03
C10, nominal (rated) force 1 MN	Double bridge	Not adjusted	Calibrated at 50% of nominal (rated) force	Without TEDS	Without adapter	Without plug protection	Measuring bridge A: M12 plug, 4-pin, A-coded	Measuring bridge B: M12 plug, 4-pin, A-coded	Measuring bridge A: No cable	Measuring bridge B: No cable	Measuring bridge A: With amplifier, digital IO-Link	Measuring bridge B: With amplifier, digital IO-Link	Firmware 2.0.8

Number of measuring bridges	For reasons of redundancy, it is necessary in devices relevant to safety to check the plausibility of the measurement signal with a second measuring bridge electrically isolated from the first one on the same measuring body. This makes it possible to connect two amplifiers working independently of one another.
Rated output	The exact sensitivity is always stated on the type plate and on the manufacturing certificate. The C10 can be calibrated to a rated output of 2 mV/V (nominal (rated) forces 2.5 kN to 10 kN) or 4 mV/V (all other nominal (rated) forces). If you select the "Rated output calibrated" option, the output resistance is also calibrated so that C10s with the same configuration and nominal (rated) force are suitable for parallel connection.
Calibration	The sensitivity of the standard version of the C10 is more than 4 mV/V for nominal (rated) forces from 25 kN (>2 mV/V for nominal (rated) forces 2.5 kN to 10 kN). If required, you have the option to calibrate the transducers to half the nominal (rated) force, so that the output signal for the calibration force is also halved.
Transducer identification	TEDS integration (integrated data sheet storing the rated outputs of the sensor) as per IEEE1451.4. TEDS only for sensors without integrated amplifier module.
Mechanical design	The C10 is delivered with an adapter as standard. Upon request, we can deliver the sensor without the foot adapter to reduce the construction height. The requirements relating to the surface quality (flatness, hardness) of the construction element on which the C10 is mounted are thus increased.
Plug protection	Mechanical protection through the installation of an additional square profile around the connector. External dimensions (WxHxD) in mm: 30 x 30 x 20.
Electrical connection, measuring bridge A	The standard version is a bayonet connector (PT02E10-6P6P-compatible). The option is also available to fit a screw-type device plug (PC02E10-6P compatible). A third variant where the force transducers are fitted with a fixed cable is also available. In this version, all C10s with a nominal (rated) force greater than or equal to 25 kN achieve protection class IP68. Sensors with a digital output (VAIO) are connected via the 4-pin M12 plug.
Electrical connection, measuring bridge B	See Electrical connection, measuring bridge A.
Plug selection for the "fixed mounted cable" option	If you have ordered the C10 with an integrated cable, you can have a male adapter assembly attached to the end of the cable, so the force sensor can be connected directly to a signal conditioner. Y = Free ends, no plug assembly F = D-sub-HD15, for connection to MGC+ (e.g. AP01) Q = HD-sub-HD15, for connecting to many HBK signal conditioners in the Quantum series (MX410, MX440, MX840) N = MS plug, for connecting to HBK signal conditioner, such as MGC+ (AP03), DMP or DK38 P = ODU plug, 14-pin, degree of protection IP68, for connection to all HBK amplifiers of the Somat XR series that are suitable for measuring full bridge circuits. M = M12 plug, 8-pin, suitable for measuring amplifiers digiBOX and DSE X = No cable
Integrated amplifier	The force transducer can also be ordered with permanently connected amplifier modules: N = Without integrated amplifier VAIO = Digital amplifier: IO-Link
Firmware version	If you order the C10 with the VAIO option, the measurement chain is always shipped with the latest firmware. N = No firmware, for sensors with analog output signal IO03 = Firmware 2.0.8 IO04 = Firmware 2.0.10 IO05 = Firmware 2.0.12

ACCESSORIES

Accessories not included in the scope of supply.

Connection cable/ground cable/thrust pieces	Ordering number
Connection cable KAB157-3; IP67 (with bayonet connector), 3 m long, outer sheath TPE; 6 x 0.25 mm^2; free ends, shielded, outside diameter 6.5 mm	1-KAB157-3
Connection cable KAB158-3; IP64 (with threaded connector), 3 m long, outer sheath TPE; 6 x 0.25 mm^2; free ends, shielded, outside diameter 6.5 mm	1-KAB158-3
Connection cable, freely configurable (cable length, plug at amplifier end, etc.)	K-CAB-F
Bayonet connector for cables with an outside diameter of 4 mm to 6.5 mm	1-CON/BS1
Bayonet connector for cables with an outside diameter of 6.5 mm or more	1-CON/BS2
Loose female connector (screw connection)	3-3312.0354
Ground cable, 400 mm	1-EEK4
Ground cable, 600 mm	1-EEK6
Ground cable, 800 mm	1-EEK8
Thrust piece for nominal (rated) forces 2.5 kN-50 kN	1-EDO3/50KN
Thrust piece for nominal (rated) forces 100 kN-250 kN	1-EDO3/100KN
Thrust piece for nominal (rated) force 500 kN	1-EDO3/500KN
Thrust piece for nominal (rated) force 1 MN	1-EDO3/1MN

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