AVENTICS

Piston rod cylinders ► Tie rod cylinder

Series 167

Brochure

Accessories

Accessories overview

Cylinder mountings

Series 167

Piston rod mountings

Sensors and sensor mountings, accessories

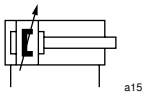
Other accessories

Tie rod cylinder ISO 6431, Series 167

► Ports: G 1/8 - G 1/2 ► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread

Standards	ISO 6431
Compressed air connection	Internal thread
Working pressure min./max.	2 bar / 10 bar
Ambient temperature min./max.	-20 °C / +75 °C
Medium temperature min./max.	-20 °C / +75 °C
Medium	Compressed air
Max. particle size	50 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Pressure for determining piston forces	6 bar

1676_021



a15

Materials:	
Cylinder tube	Aluminum, anodized
Piston rod	chrome-plated
Front cover	Aluminum
End cover	Aluminum
Seal	Acrylonitrile butadiene rubber

Technical Remarks

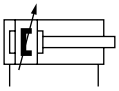
- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of compressed air must remain constant during the life cycle.
- Use only the approved oils from AVENTICS, see chapter „Technical information“.
- Ø25 mm is not according to ISO 6431

Piston Ø		[mm]	25	32	40	50	63
Retracting piston force		[N]	230	420	640	990	1680
Extracting piston force		[N]	300	480	760	1180	1860
Cushioning length		[mm]	11	13.5	15	17	16.5
Cushioning energy		[J]	2.3	-	-	-	-
Weight	0 mm stroke	[kg]	0.27	0.45	0.76	1.1	1.7
	+10 mm stroke	[kg]	0.018	0.021	0.032	0.042	0.054
Stroke max.		[mm]	1500	1500	1600	1600	1600

Piston Ø		[mm]	80	100			
Retracting piston force		[N]	2720	4230			
Extracting piston force		[N]	3000	4680			
Cushioning length		[mm]	19.5	19.5			
Cushioning energy		[J]	-	-			
Weight	0 mm stroke	[kg]	2.5	3.7			
	+10 mm stroke	[kg]	0.072	0.1			
Stroke max.		[mm]	1700	1700			

Tie rod cylinder ISO 6431, Series 167

► Ports: G 1/8 - G 1/2 ► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread



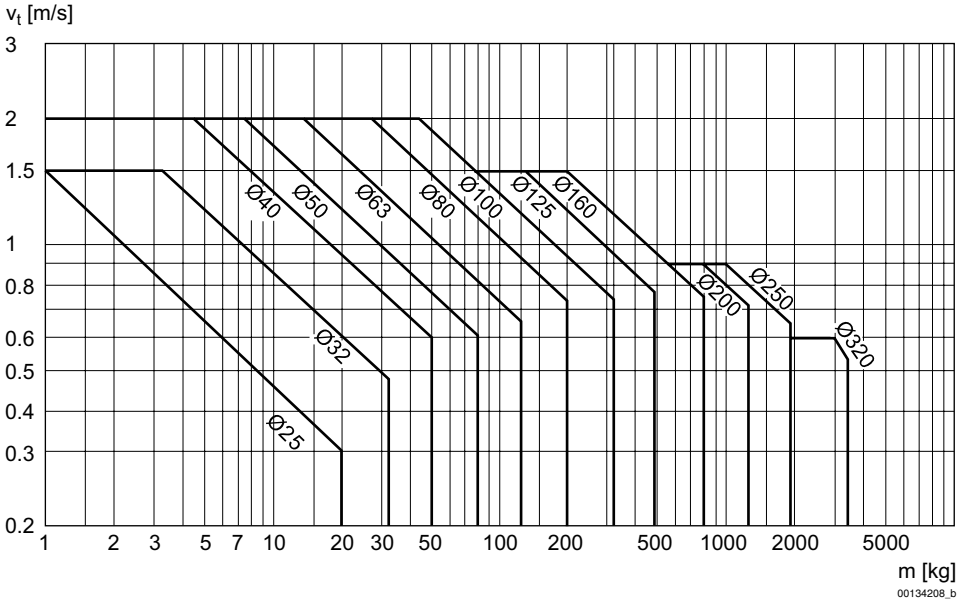
Piston Ø Piston rod thread Ports	25 M10x1,25 G 1/8	32 M10x1,25 G 1/8	40 M12x1,25 G 1/4	50 M16x1,5 G 1/4	63 M16x1,5 G 3/8
Stroke 25	**1670202000**	**1670302000**	**1670402000**	**1670502000**	**1670602000**
50	**1670205000**	**1670305000**	**1670405000**	**1670505000**	**1670605000**
80	**1670208000**	**1670308000**	**1670408000**	**1670508000**	**1670608000**
100	**1670210000**	**1670310000**	**1670410000**	**1670510000**	**1670610000**
125	**1670212000**	**1670312000**	**1670412000**	**1670512000**	1670612000
160	1670216000	**1670316000**	**1670416000**	**1670516000**	**1670616000**
200	**1670220000**	**1670320000**	**1670420000**	**1670520000**	**1670620000**
250	**1670225000**	1670325000	**1670425000**	**1670525000**	**1670625000**
320	-	-	-	**1670532000**	**1670632000**
400	-	-	-	1670540000	1670640000
500	-	-	-	**1670550000**	**1670650000**
Piston Ø Piston rod thread Ports	**80 M20x1,5 G 3/8**	**100 M20x1,5 G 1/2**			
Stroke 25	**1670802000**	1671002000			
50	**1670805000**	**1671005000**			
80	**1670808000**	**1671008000**			
100	**1670810000**	**1671010000**			
125	**1670812000**	**1671012000**			
160	**1670816000**	**1671016000**			
200	**1670820000**	**1671020000**			
250	**1670825000**	**1671025000**			
320	**1670832000**	**1671032000**			
400	**1670840000**	**1671040000**			
500	**1670850000**	**1671050000**			

Configurable product	
	This product is configurable. Please use our Internet configurator at http://www.aventics.com or contact the nearest AVENTICS sales office.

Tie rod cylinder ISO 6431, Series 167

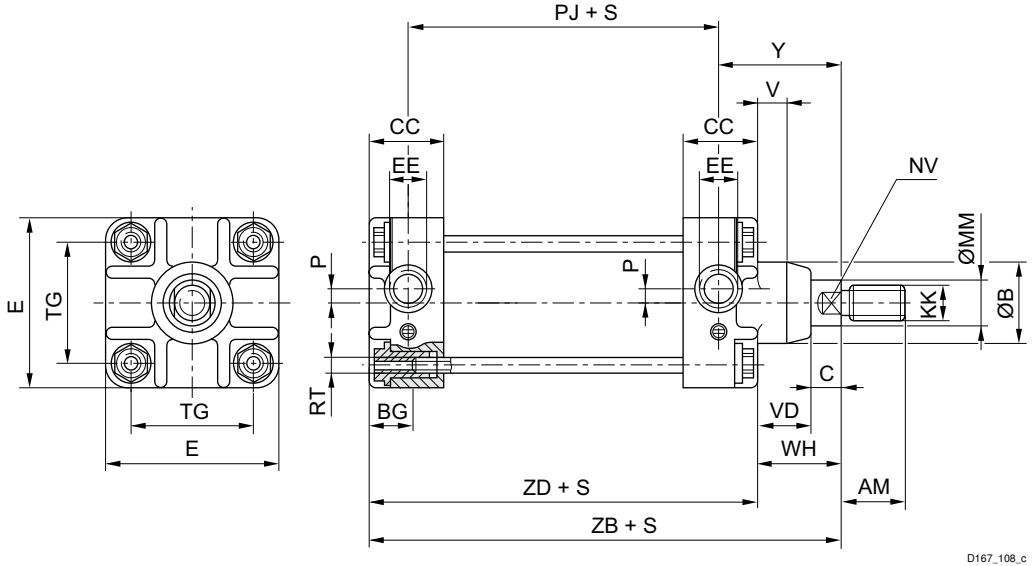
► Ports: G 1/8 - G 1/2 ► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread

Cushioning diagram



V = velocity [m/s]
m = mass

Dimensions



Piston Ø	AM	Ø B h12	BG	C	CC	E	EE	KK	Ø MM	NV	P	PJ	RT
25	22	23	12	8	20,0	40	G 1/8	M10x1,25	12	10	–	58	M5
32	22	25	12	10	27,5	47	G 1/8	M10x1,25	12	10	4	65	M5
40	24	35	15	13	30,0	56	G 1/4	M12x1,25	16	13	4	69	M6
50	32	40	15	15	30,0	63	G 1/4	M16x1,5	20	17	4	72	M6
63	32	40	19	14	34,0	81	G 3/8	M16x1,5	20	17	6	79	M8
80	40	48	19	16	36,0	95	G 3/8	M20x1,5	25	22	9	86	M8

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information

Tie rod cylinder ISO 6431, Series 167

► Ports: G 1/8 - G 1/2 ► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread

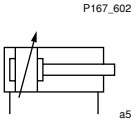
Piston Ø	AM	Ø B h12	BG	C	CC	E	EE	KK	Ø MM	NV	P	PJ	RT
100	40	55	23	16	40,0	115	G 1/2	M20x1,5	25	22	12	100	M10

Piston Ø	TG	TS 1)	V	VD	WH	Y	ZB	ZD
25	27	+2/–1	–	16	24	31	98 ±1,2	74
32	32	+2/–0	5	16	26	41	120 ±1,2	94
40	40	+2/–0	5	20	33	48	132 ±1,2	99
50	46	+2/–0	6	23	38	54	142 ±1,2	104
63	59	+2,5/–0	6	27	41	58	154 ±1,4	113
80	73	+2,5/–0	8	32	48	67	172 ±1,4	124
100	90	+2,5/–0	8	37	53	70	187 ±1,4	134

1) TS = stroke tolerance

Tie rod cylinder ISO 6431, Series 167-53

► double-acting ► Cushioning: pneumatically, adjustable ► Piston rod: external thread ► heat resistant



Standards	ISO 6431
Working pressure min./max.	2 bar / 10 bar
Ambient temperature min./max.	-20°C / +120°C
Medium temperature min./max.	-20°C / +120°C
Medium	Compressed air
Max. particle size	50 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Pressure for determining piston forces	6 bar

Materials:	
Cylinder tube	Aluminum, anodized
Piston rod	Stainless steel, chrome-plated
Front cover	Aluminum
End cover	Aluminum
Seal	Fluorocaoutchouc

Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of compressed air must remain constant during the life cycle.
- Use only the approved oils from AVENTICS, see chapter „Technical information“.
- Ø25 mm is not according to ISO 6431

Piston Ø		[mm]	25	32	40	50	63
Retracting piston force		[N]	230	420	636	990	1680
Extracting piston force		[N]	300	480	756	1176	1860
Cushioning length		[mm]	11	13.5	15	17	16.5
Cushioning energy		[J]	2.3	-	-	-	-
Weight	0 mm stroke	[kg]	0.27	0.45	0.76	1.1	1.7
	+10 mm stroke	[kg]	0.018	0.021	0.032	0.042	0.054
Stroke max.		[mm]	1500	1500	1600	1600	1600

Piston Ø		[mm]	80	100			
Retracting piston force		[N]	2718	4230			
Extracting piston force		[N]	3000	4680			
Cushioning length		[mm]	19.5	19.5			
Cushioning energy		[J]	-	-			
Weight	0 mm stroke	[kg]	2.5	3.7			
	+10 mm stroke	[kg]	0.072	0.1			
Stroke max.		[mm]	1700	1700			

Configurable product

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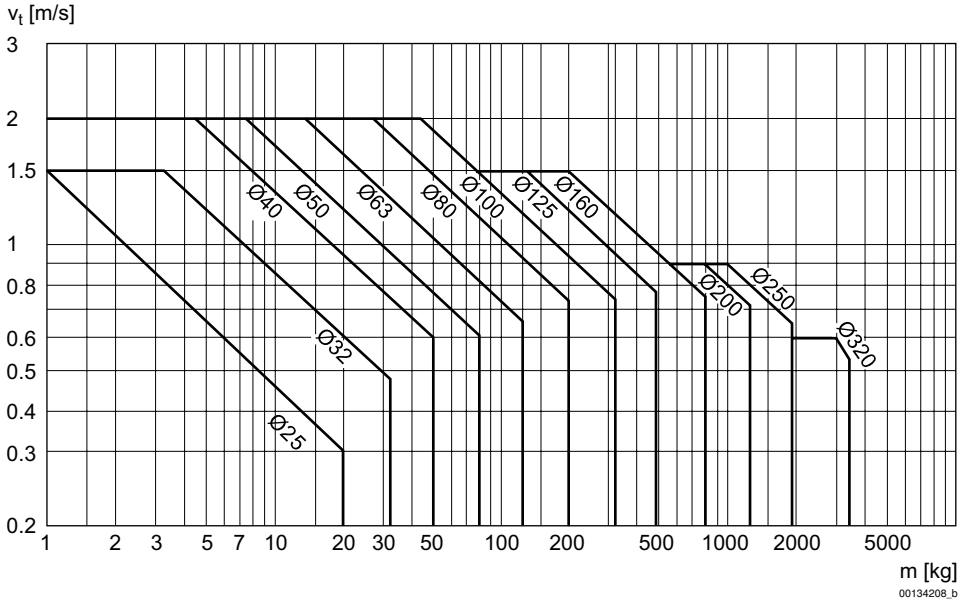
Tie rod cylinder ISO 6431, Series 167-53

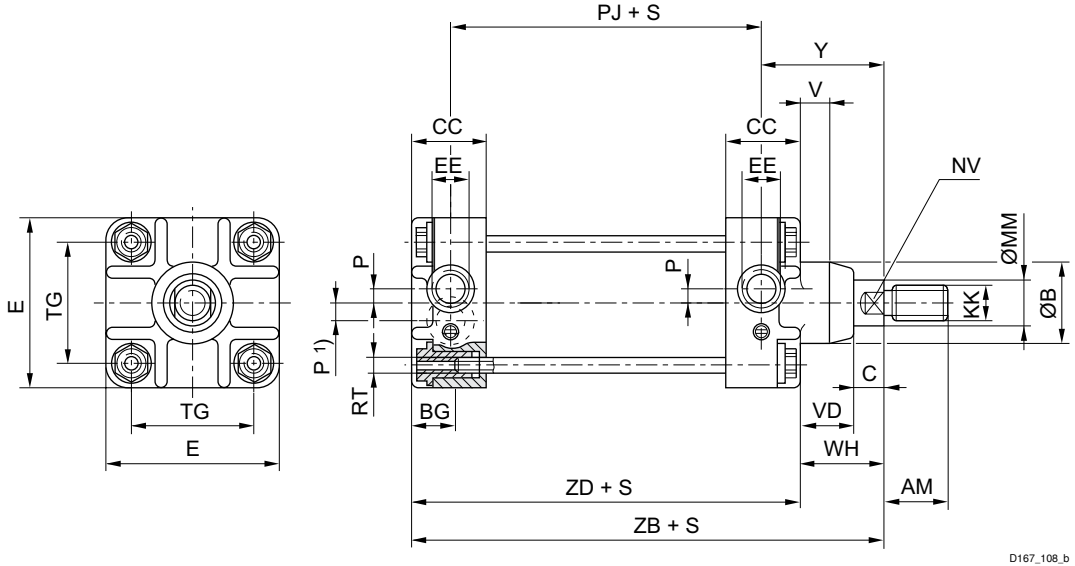
► double-acting ► Cushioning: pneumatically, adjustable ► Piston rod: external thread ► heat resistant

Cushioning diagram



V = velocity [m/s]
m = mass

Dimensions



S = stroke
P 1) = for cylinder Ø 250 and 320 mm

Ø	AM	Ø B h12	BG	C	CC	E	EE	KK	Ø MM	NV	P	PJ	RT
25	22	23	12	8	20,0	40	G 1/8	M10x1,25	12	10	–	58	M5
32	22	25	12	10	27,5	47	G 1/8	M10x1,25	12	10	4	65	M5
40	24	35	15	13	30,0	56	G 1/4	M12x1,25	16	13	4	69	M6
50	32	40	15	15	30,0	63	G 1/4	M16x1,5	20	17	4	72	M6

Tie rod cylinder ISO 6431, Series 167-53

► double-acting ► Cushioning: pneumatically, adjustable ► Piston rod: external thread ► heat resistant

Ø	AM	Ø B h12	BG	C	CC	E	EE	KK	Ø MM	NV	P	PJ	RT
63	32	40	19	14	34,0	81	G 3/8	M16x1,5	20	17	6	79	M8
80	40	48	19	16	36,0	95	G 3/8	M20x1,5	25	22	9	86	M8
100	40	55	23	16	40,0	115	G 1/2	M20x1,5	25	22	12	100	M10

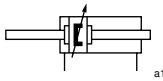
Ø	TG	TS 1)	V	VD	WH	Y	ZB	ZD
25	27	+2/–1	–	16	24	31	98 ±1,2	74
32	32	+2/–0	5	16	26	41	120 ±1,2	94
40	40	+2/–0	5	20	33	48	132 ±1,2	99
50	46	+2/–0	6	23	38	54	142 ±1,2	104
63	59	+2,5/–0	6	27	41	58	154 ±1,4	113
80	73	+2,5/–0	8	32	48	67	172 ±1,4	124
100	90	+2,5/–0	8	37	53	70	187 ±1,4	134

1) TS = stroke tolerance

Tie rod cylinder ISO 6431, Series 167-51

► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread, through

P167_603



a17

Standards	ISO 6431
Working pressure min./max.	2 bar / 10 bar
Ambient temperature min./max.	-20°C / +75°C
Medium temperature min./max.	-20°C / +75°C
Medium	Compressed air
Max. particle size	50 µm
Oil content of compressed air	0 mg/m³ - 5 mg/m³
Pressure for determining piston forces	6 bar

Materials:	
Cylinder tube	Aluminum, anodized
Piston rod	Stainless steel, chrome-plated
Front cover	Aluminum
End cover	Aluminum
Seal	Acrylonitrile butadiene rubber

Technical Remarks

- The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C.
- The oil content of compressed air must remain constant during the life cycle.
- Use only the approved oils from AVENTICS, see chapter „Technical information“.
- Ø25 mm is not according to ISO 6431

Piston Ø		[mm]	25	32	40	50	63
Retracting piston force		[N]	230	420	640	990	1680
Extracting piston force		[N]	230	420	640	990	1680
Cushioning length		[mm]	11	13.5	15	17	16.5
Cushioning energy		[J]	2.3	-	-	-	-
Weight	0 mm stroke	[kg]	0.35	0.52	0.88	1.3	2
	+10 mm stroke	[kg]	0.028	0.03	0.048	0.067	0.079

Piston Ø		[mm]	80	100			
Retracting piston force		[N]	2720	4230			
Extracting piston force		[N]	2720	4230			
Cushioning length		[mm]	19.5	22			
Cushioning energy		[J]	-	-			
Weight	0 mm stroke	[kg]	3	4.3			
	+10 mm stroke	[kg]	0.11	0.14			

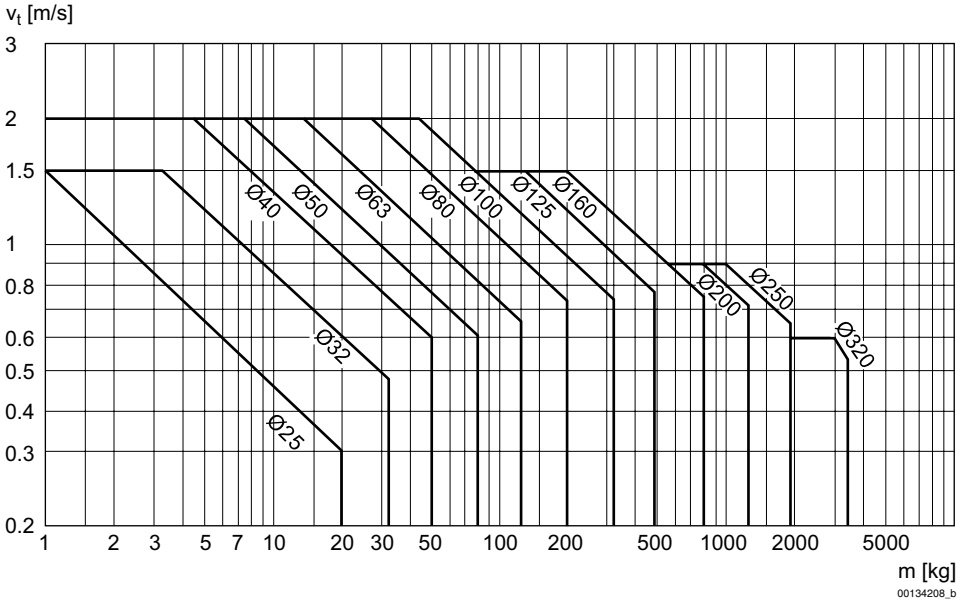
Configurable product

This product is configurable. Please use our Internet configurator at http://www.aventics.com or contact the nearest AVENTICS sales office.

Tie rod cylinder ISO 6431, Series 167-51

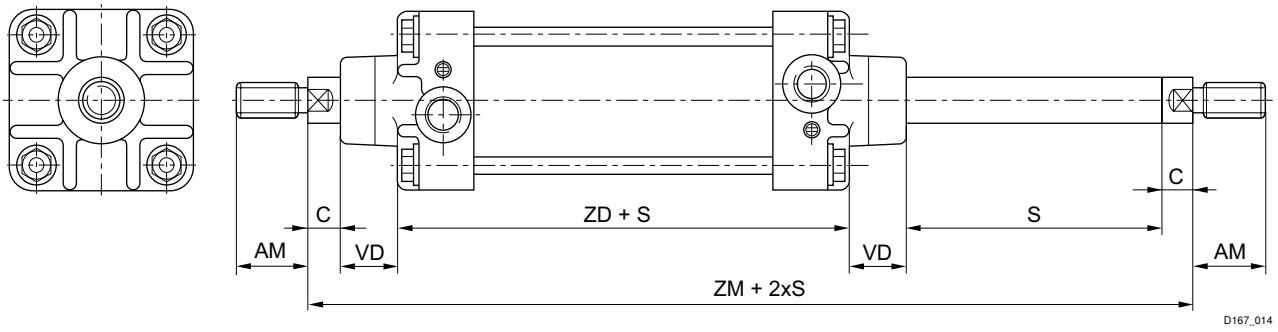
► double-acting ► with magnetic piston ► Cushioning: pneumatically, adjustable ► Piston rod: external thread, through

Cushioning diagram



V = velocity [m/s]
m = mass

Dimensions



S = stroke

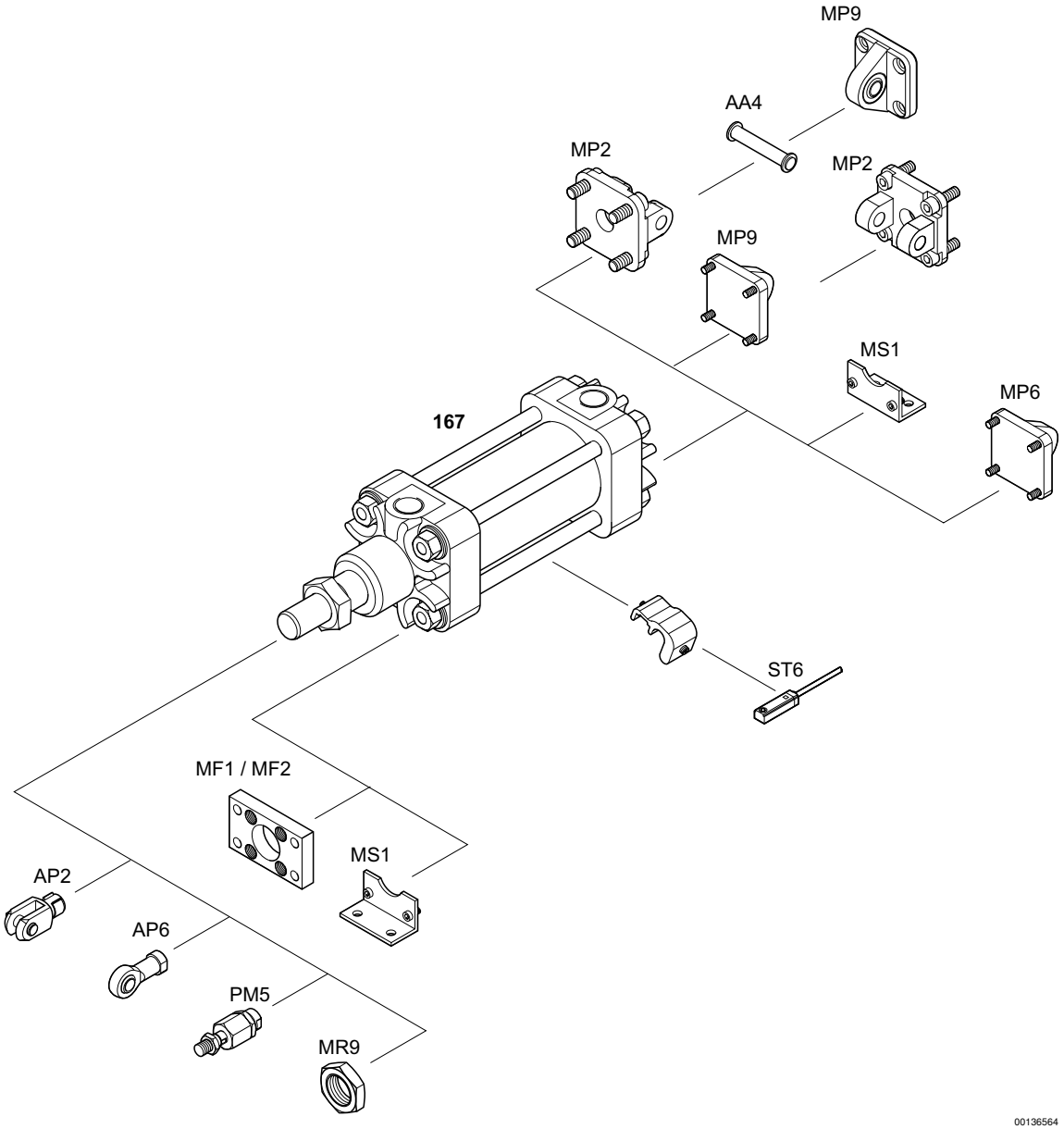
Ø	C	AM	VD	ZM	ZD									
25	8	22	16	122	74									
32	10	22	16	146	94									
40	13	24	20	165	99									
50	15	32	23	180	104									
63	14	32	27	195	112									
80	16	40	32	220	124									
100	16	40	37	240	134									

For additional technical data please see the relevant data sheets for the standard version.

Series 167
Accessories

Accessories overview

Overview drawing

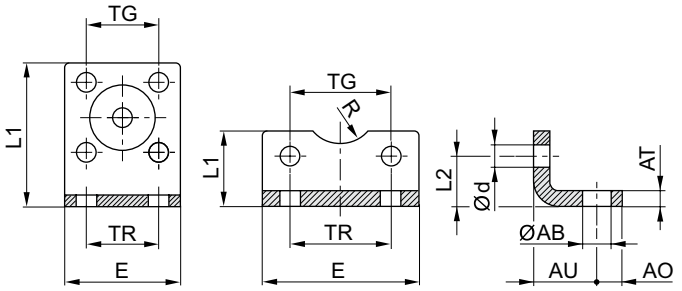


NOTE:
This overview drawing is only for orientation to see where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.

Series 167
Accessories

Foot mounting, Series MS1

00105808



Ø16 **Ø20 - 320**

00126387

Scope of delivery: 2 foot mountings incl. mounting screws

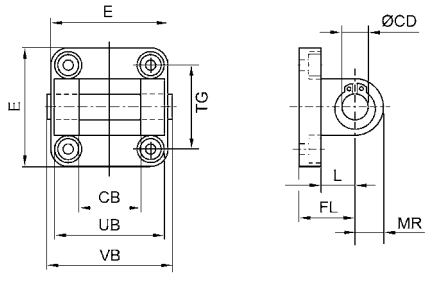
Part No.	Piston Ø	For series	ØAB	AO	AT	AU ±0,2	Ød	E	L1	L2
3682202000	25	ICL 167	7	8	4	22	5.5	40	21	11.5
3662203000	32	167	7	8	5	24	5.5	47	26	16
3662204000	40	167	9	11	5	31	6.6	56	28	16
3662205000	50	167	9	12	6	33	6.6	63	35	22
3662206000	63	167	9	12	6	36	9	81	40	20.5
3662208000	80	167	12	15	8	43	9	95	45	26.5
3662210000	100	167	14	17	10	43	11	115	50	26

Part No.	Piston Ø	R	TG	TR							
3682202000	25	13.5	27	26							
3662203000	32	15	32	32							
3662204000	40	20	40	36							
3662205000	50	23	46	45							
3662206000	63	23	59	50							
3662208000	80	26	73	63							
3662210000	100	32	90	75							

Material: Steel
Surface: galvanized

Clevis mounting, Series MP2
► for rear eye MP9 with rubber bushing

00128881



00126400_b

Scope of delivery: clevis mounting incl. pivot pins and mounting screws

Series 167
Accessories

Part No.	Piston Ø	CB H14	Ø CD H9	E 1)	FL ±0,2	L 2)	MR	UB h14	VB	TG	
3672902000	25	18	10	40	20	14	9	36	41	27	
3672903000	32	26	10	46	22	16	10	45	50	32	
3672904000	40	28	12	56	28	15.5	13	52	57	40	
3672905000	50	32	12	63	28	15.5	13	60	65	46	
3672906000	63	40	16	81	36	20.5	17	70	76	59	
3672908000	80	50	16	95	38	20.5	17	90	96	73	
3672910000	100	60	20	115	43	25	21	110	117	90	

1) Max.
2) Min.
Material: Aluminum

Bolts, AA4

Fig. 1

00105158

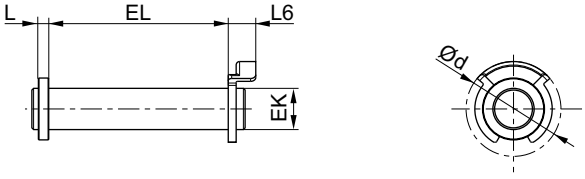
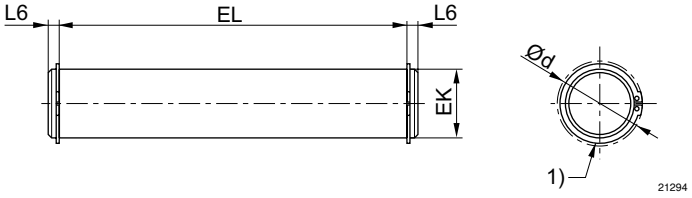


Fig. 2



21294

Scope of delivery: pivot pins incl. circlips
1) circlip DIN 471

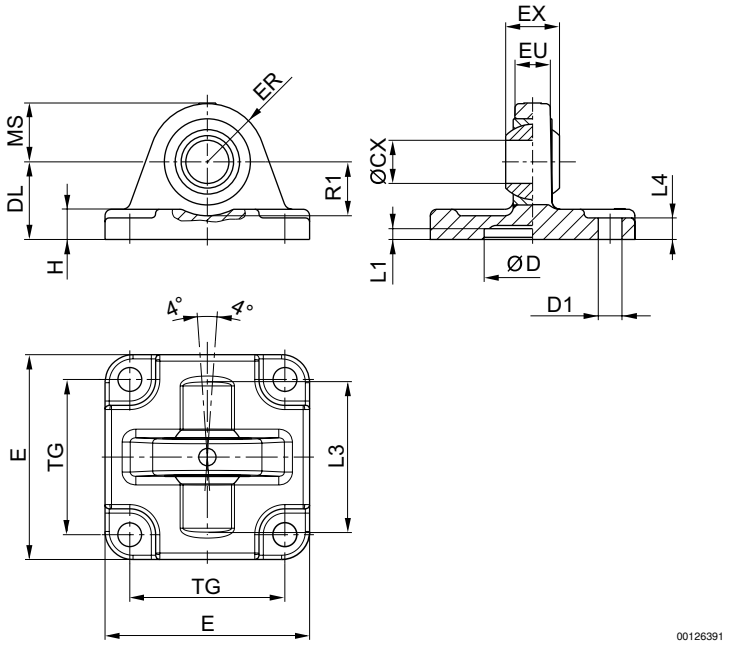
Part No.	Piston Ø	Ø d 2)	EK e8	EL	L 2)	L6 2)	Weight [kg]	Fig.			
3661302000	25, 32	19	25	29.2	-	2,4	0.02	Fig. 2			
3661303000	40, 50	21	12	34.4	-	2,8	0.03	Fig. 2			
3661304000	63, 80	28	16	48.4	-	2,8	0.08	Fig. 2			
3661306000	100	40	20	58.4	-	3,3	0.16	Fig. 2			

2) Max.
Material: Steel
Surface: nitrocarburized

Series 167
Accessories

Rear eye, Series MP6
► With ball joint and foot

24548



00126391

Scope of delivery: clevis incl. mounting screws

Part No.	Piston Ø	ØCX H7	ØD H11	ØD1 H13	DL ±0,2	E	EX –0,1	ER	EU	H	L1 1)	L3
3663602000	25	10 H9	20	5.5	20	40	9	14	8	6	0,5	36
3663603000	32	10 J8	25	5.5	22	46	9	15	8	6	0,5	42
3663604000	40	12	30	6.6	28	55	12	17	9,5	8	0,5	48
3663605000	50	12	40	6.6	28	62	12	17	9,5	9	0,5	55
3663606000	63	16	55	9	36	80	16	25	12,5	11	0,5	70
3663608000	80	16	70	9	38	94	16	28	12,5	12	0.5	80
3663610000	100	20	90	11	43	114	20	35	16	15	0,5	100

Part No.	L4	MS -0,5	R1 1)	TG	Bearing	Standardiza-tion	Weight [kg]	Note		
3663602000	6	14	15	27	Stainless steel	ISO 21287	0.1	2)		
3663603000	6	15	16	32	-	-	0.1	-		
3663604000	8	17	16	40	-	-	0.1	-		
3663605000	9	17	18	46	-	-	0.2	-		
3663606000	11	25	21	59	-	-	0.3	-		
3663608000	12	28	21	73	-	-	0.5	-		
3663610000	15	35	28	90	-	-	0.8	-		

1) Min.
2) Surface: forged
Material: Aluminum

Series 167
Accessories

Rear eye, Series MP9
► With rubber bushing

IM0043848

Fig. 1

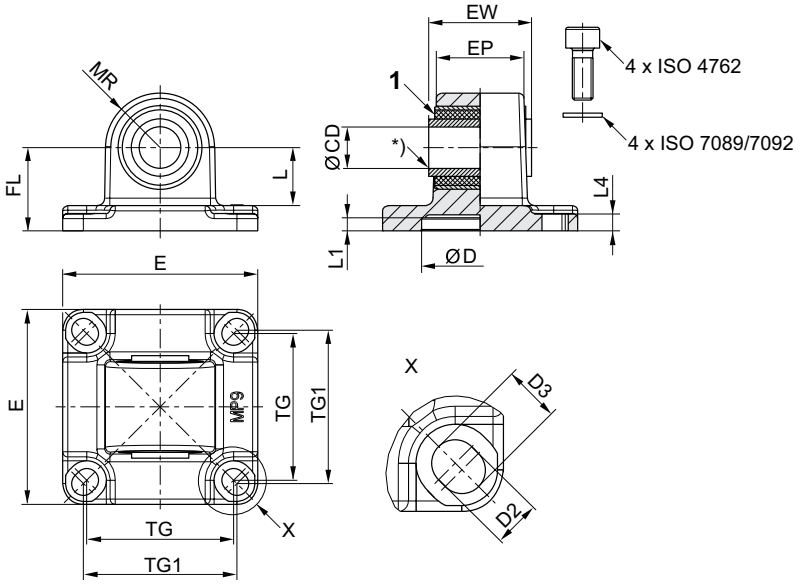
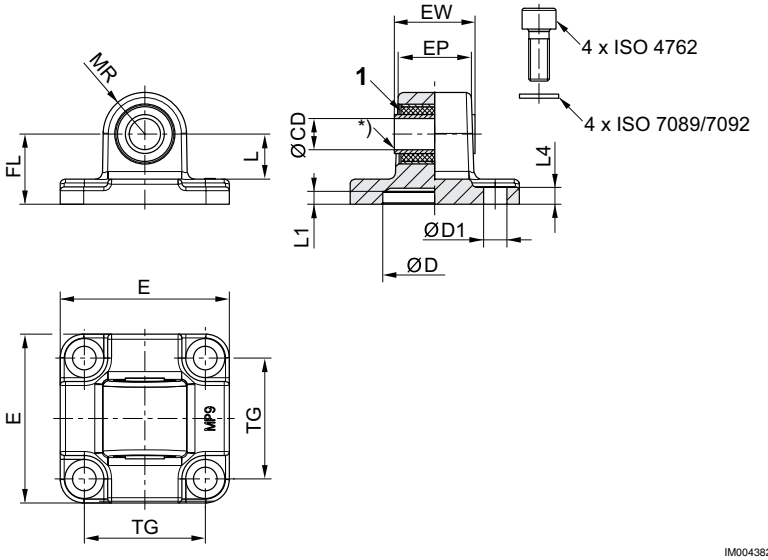


Fig. 2



IM0043825

1) Rubber bushing
* Plain bearing material: bronze (Ø125: steel, galvanized)
Scope of delivery: clevis incl. mounting screws

Part No.	Piston Ø	CD H11	CD H9	E	EW	EP	TG	TG1 ±0,2	FL ±0,2	MR	L 1)	L1
3683202000	25	10	–	40	17.5	14.5	26	27	20	12.5	14.8	3
3683203000	32	10	–	46	25.5	18.9	32.5	–	22	12.5	13.8	5
3683204000	40	–	12	53	27	23.5	38	40	25	15	16.3	5
3663205000	50	–	12	65	31	28	46	–	27	16	17.3	5
3683206000	63	–	16	75	39.5	33.5	56.5	59	32	21	22.3	5
3663208000	80	–	16	94.5	49.5	43	73	–	36	22	21.8	5

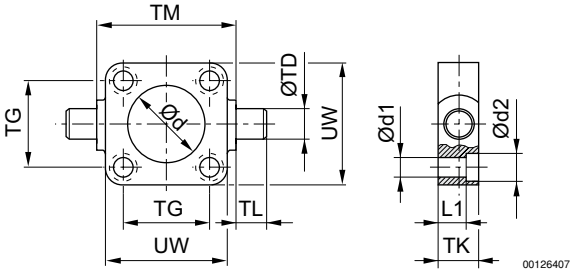
Series 167
Accessories

Part No.	Piston Ø	CD H11	CD H9	E	EW	EP	TG	TG1 ±0,2	FL ±0,2	MR	L 1)	L1
3683210000	100	–	20	114	59.5	54	89	90	41	25	25.8	5

Part No.	L4	D H11	D1 H13	D2 -0,2	D3 -0,2	Standardization	Weight [kg]	Fig.	Note
3683202000	3	18	–	5.5	6.2	ISO 21287	0.063	Fig. 1	2) 4)
3683203000	5.5	30	6.6	–	–	ISO 15552	0.092	Fig. 2	3) 5)
3683204000	5.5	35	–	6.6	8	ISO 15552	0.143	Fig. 1	3) 5)
3663205000	6.5	40	6.6	–	–	-	0.203	Fig. 2	3) 5)
3683206000	6.5	45	–	9	10.8	ISO 15552	0.411	Fig. 1	3) 5)
3663208000	10	45	8.5	–	–	-	0.619	Fig. 2	3) 5)
3683210000	10	55	–	11	11.7	ISO 15552	0.956	Fig. 1	3) 5)

1) Min.
2) CAD files *_iso.* (suitable for cylinders according to ISO 21287) and *_167.* (suitable for 167 series cylinders)
3) suitable for 167 series cylinders
4) Material: Die-cast aluminum
5) Material: Aluminum (forged)

Trunnion mounting, front or rear, Series MT5, MT6



The delivered product may vary from that in the illustration.
Scope of delivery: trunnion mounting incl. mounting screws

00128925

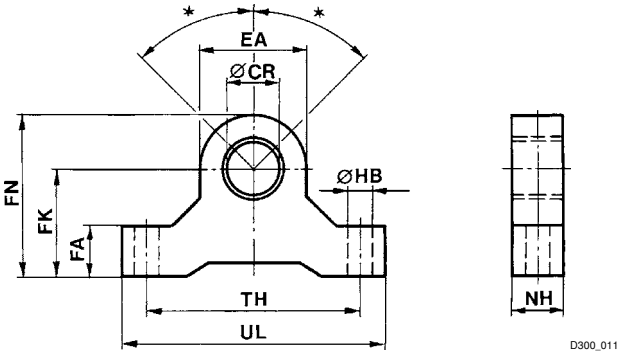
Part No.	Piston Ø	Ø d H11	Ø d1	Ø d2	L1	TD e9	TG ±0,2	TK	TL h14	TM h14	UW
3672803000	32	30	6.6	11	7.5	12	32.5	16	12	50	48
3672804000	40	35	6.6	11	10	16	38	20	16	63	55
3672805000	50	40	9	15	12	16	46.5	24	16	75	65
3672806000	63	45	9	15	12	20	56.5	24	20	90	75
3672808000	80	45	11	18	14	20	72	28	20	110	100
3672810000	100	55	11	18	19	25	89	38	25	132	120

Material: Steel

Series 167
Accessories

Eye brackets


P300_012



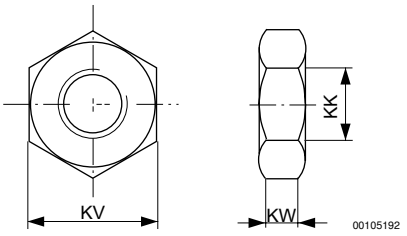
* Max. pendulum movement for cylinders with rear eye MP6 with ball joint: ±45°

Part No.	Ø CR H8	EA	FA	FK ±0,1	FN	HB	NH	TH	UL			
3671202000	10	16	10	21	29	5.5	10	27	37			
3671203000	12	19	11	22	32	6.6	11	44	55			
3671204000	16	28	16	35	49	9	16	65	82			
3671206000	20	38	19	40	59	9	19	80	99			
3671210000	25	46	22	48	71	11	22	96	118			
Material: Aluminum												

Series 167
Accessories

Nut for piston rod, Series MR9

00105168



00105192

Part No.	KK	KV	KW	Material	Surface	Weight	Note			
						[kg]				
3590304000	M12x1,25	18	6	Stainless steel	-	0.02	-			
3590305000	M16x1,5	24	8	Stainless steel	-	0.03	1)			
3590308000	M20x1,5	30	10	Stainless steel	-	0.05	-			
8103190394	M24x2	36	12	Steel	galvanized	0.06	-			
8103190434	M48x2	75	24	Steel	galvanized	0.4	-			

1) 3590305000 can also be used as an MR3, nut for cylinder mounting.

Rod clevis, Series AP2
► galvanized steel

00105171

Fig. 1

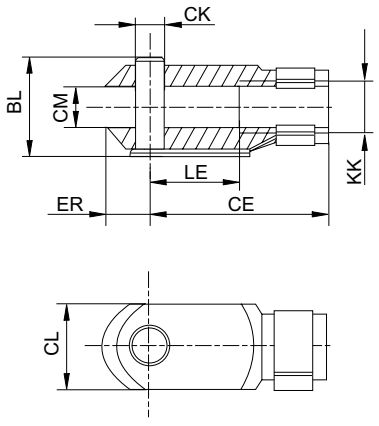
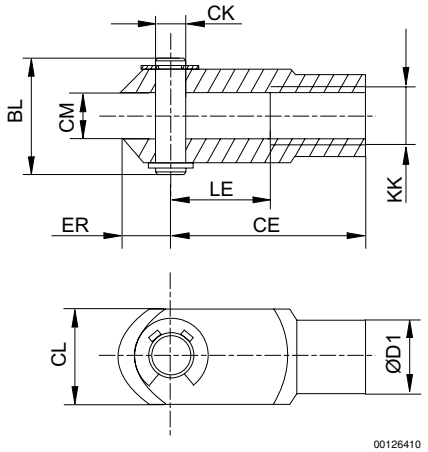


Fig. 2



00126410

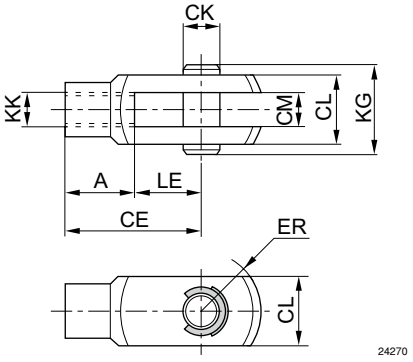
Part No.	KK	BL	CE	ØCK e11	CL	CM	ØD1	ER	LE	Material
1822122024	M10x1,25	26	40	10	20	10	18	12	20	Steel
1822122025	M12x1,25	31	48	12	24	12	20	14	24	Steel
1822122005	M16x1,5	39	64	16	32	16	26	19	32	Steel
1822122004	M20x1,5	50	80	20	40	20	34	20	40	Steel
1827001493	M27x2	68	110	30	55	30	48	38	54	Steel
1827001471	M36x2	80	144	35	70	35	60	57	72	Steel
1827001472	M42x2	98	168	40	85	40	70	64	84	Steel

Series 167
Accessories

Part No.	Surface	Weight	Fig.								
		[kg]									
1822122024	galvanized	0.1	Fig. 1								
1822122025	galvanized	0.16	Fig. 1								
1822122005	galvanized	0.4	Fig. 1								
1822122004	galvanized	0.7	Fig. 1								
1827001493	galvanized	2	Fig. 2								
1827001471	galvanized	3.5	Fig. 2								
1827001472	galvanized	6.6	Fig. 2								

Rod clevis with lock washer, Series AP2
► **Stainless steel**

P300_006



24270

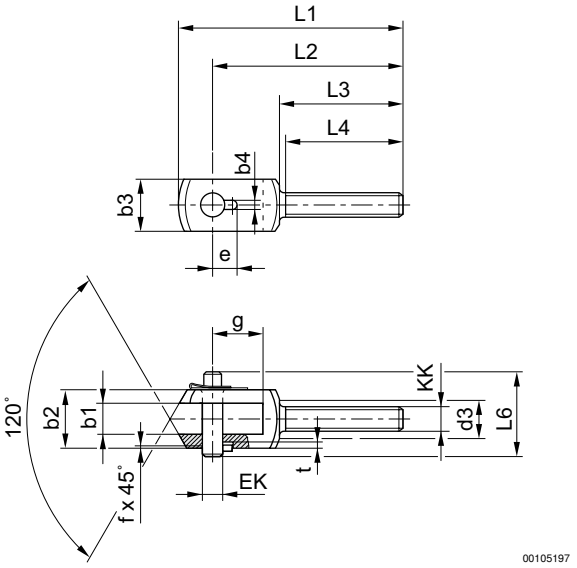
Part No.	KK	A	CE	CK e8	CL	CM B12	ER	KG	LE	Material
3590502000	M10x1,25	20	40	10	20	10	12	26	20	Stainless steel
3590504000	M12x1,25	24	48	12	24	12	14	31	24	Stainless steel
3590505000	M16x1,5	32	64	16	32	16	19	39	32	Stainless steel
3590508000	M20x1,5	40	80	20	40	20	20	49	40	Stainless steel

Part No.	Weight											
	[kg]											
3590502000	0.1											
3590504000	0.16											
3590505000	0.4											
3590508000	0.7											

Series 167
Accessories

Rod clevis, Series PM6
► galvanized steel

00105173



00105197

Scope of delivery incl. bolt

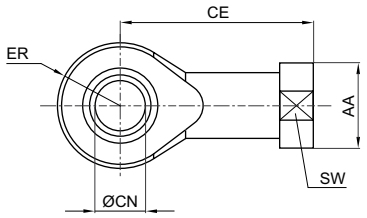
Part No.	KK	b1 B12	b2 d12	b3	b4 +0,2	d3	e +0,3	EK	f	g	L1	L2
1822122032	M10x1,25	14	28	20	3.3	17	11.5	10	0.7	20	90	78
1822122033	M12x1,25	16	30	25	4.3	19	12	12	1	26	108	92
1822122034	M16x1,5	21	40	35	4.3	24	14	16	1	31	129	108
1822122035	M20x1,5	25	50	40	4.3	30	16	20	1	43	156	131

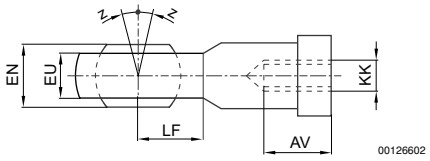
Part No.	L3	L4 +1	L6	t +0,2	Material	Surface
1822122032	53	50	35	3	Steel	galvanized
1822122033	58	55	39	3	Steel	galvanized
1822122034	65	62	50	3	Steel	galvanized
1822122035	73	69	60	3	Steel	galvanized

Series 167
Accessories

Ball eye rod end with flange, Series AP6
► galvanized steel

00105172





00126602

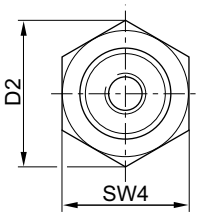
Part No.	KK	AA	AV min.	CE	Ø CN H7	EN –0,1	ER	EU max.	LF	SW	Z [°] max.
1822124003	M10x1,25	19	15	43	10	14	14	11.5	14	17	4
1822124004	M12x1,25	22	18	50	12	16	16	12.5	16	19	4
1822124005	M16x1,5	27	24	64	16	21	21	15.5	21	22	4
1822124006	M20x1,5	34	30	77	20	25	25	18.5	25	30	4
1822124013	M27x2	50	45	110	30	37	35	27	35	41	4
1822124008	M36x2	60	56	125	35	43	40	32	40	50	4
1822124009	M42x2	69	60	142	40	49	45.5	37	45	55	4
8958208842	M48x2	75	65	160	50	60	58	45	60	65	6

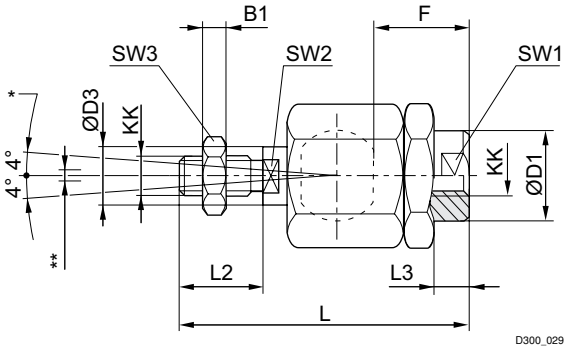
Part No.	Material	Surface	Weight
			[kg]
1822124003	Steel	galvanized	0.07
1822124004	Steel	galvanized	0.12
1822124005	Steel	galvanized	0.21
1822124006	Steel	galvanized	0.38
1822124013	Steel	galvanized	1.17
1822124008	Steel	galvanized	2
1822124009	Steel	galvanized	3.4
8958208842	Steel	galvanized	5.2

Series 167
Accessories

Flexible spherical coupling, Series PM5

00105169





* Angle joint
** Radial joint from 0,5 - 2 mm
Axial play set to 0.05 to 0.2 mm

Part No.	KK	B1	Ø D1	D2	Ø D3	F	L ±2	L2	L3 ±1	SW1	SW2	SW3
1826409002	M10x1,25	6	21.5	34	14	23	73	20	7.5	19	12	17
1826409003	M12x1,25	7	21.5	34	14	28	77	24	13	19	12	19
1826409004	M16x1,5	8	33.5	47	22	32	108	32	9	30	19	24
1826409005	M20x1,5	10	33.5	47	22	42	122	40	19	30	19	30
1826409006	M27x2	13.5	62	62	28	48	147	54	14	32	24	41
1826409007	M36x2	18	80	80	38	86	241	72	18.2	50	36	55
R412007729	M42x2	21	64	98	42	96	271	82	20	60	36	65

Part No.	SW4	Material	Surface	Weight							
				[kg]							
1826409002	30	Steel	galvanized	0.21							
1826409003	30	Steel	galvanized	0.21							
1826409004	41	Steel	galvanized	0.65							
1826409005	41	Steel	galvanized	0.68							
1826409006	55	Steel	galvanized	1.7							
1826409007	75	Steel	galvanized	5.4							
R412007729	85	Steel	galvanized	8.76							

Series 167
Accessories

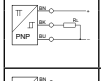
Sensor, Series ST6
► 6 mm T-slot ► with cable ► open cable ends, 2-pin, open cable ends, 3-pin

24712

Certificates	CE declaration of conformity cULus RoHS
Ambient temperature min./max.	-30 °C / +80 °C
Protection class	IP65, IP67, IP69K
Switching point precision [mm]	±0,1
Switching logic	NO (make contact)
Switching capacity	Reed, 2-pin: max. 10 W Reed, 3-pin: max. 6 W
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

Technical Remarks

- No cULus certification for 230 V variant.

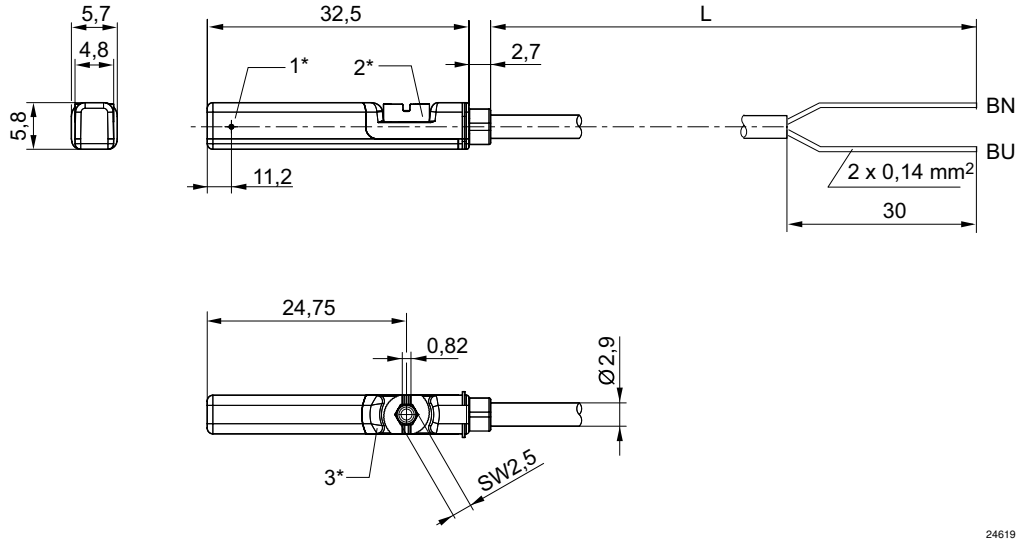
	Type of contact	Cable length	DC operating voltage min./max.	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Part No.
		[m]	[V DC]	[V AC]		[A]	[A]	
	Reed	3	10 / 230	10 / 230	I*Rs	0.13	0.13	**R412022866**
	Reed	3 5 10	10 / 30	10 / 30	I*Rs	0.3	0.5	**R412022869** **R412022870** **R412022871**
	electronic PNP	3 5 10	10 / 30	-	≤ 2,5 V	0.13	-	**R412022853** **R412022855** **R412022857**
	electronic NPN	3 5	10 / 30	-	≤ 2,5 V	0.13	-	**R412022849** **R412022850**

Part No.	Max. switching frequency kHz	Operating current, not switched	Operating current, switched	Fig.	Note
R412022866	< 0,4	-	-	Fig. 1	1); 3)
R412022869 **R412022870** **R412022871**	< 0,4	-	-	Fig. 2	2); 3)
R412022853 **R412022855** **R412022857**	< 1,0	< 8 mA	< 30 mA	Fig. 2	2); 4)
R412022849 **R412022850**	< 1,0	< 8 mA	< 30 mA	Fig. 2	2); 4)

1) interfaces: open cable ends; 2-pin
2) interfaces: open cable ends; 3-pin
3) Protected against polarity reversal
4) short circuit resistant / Protected against polarity reversal

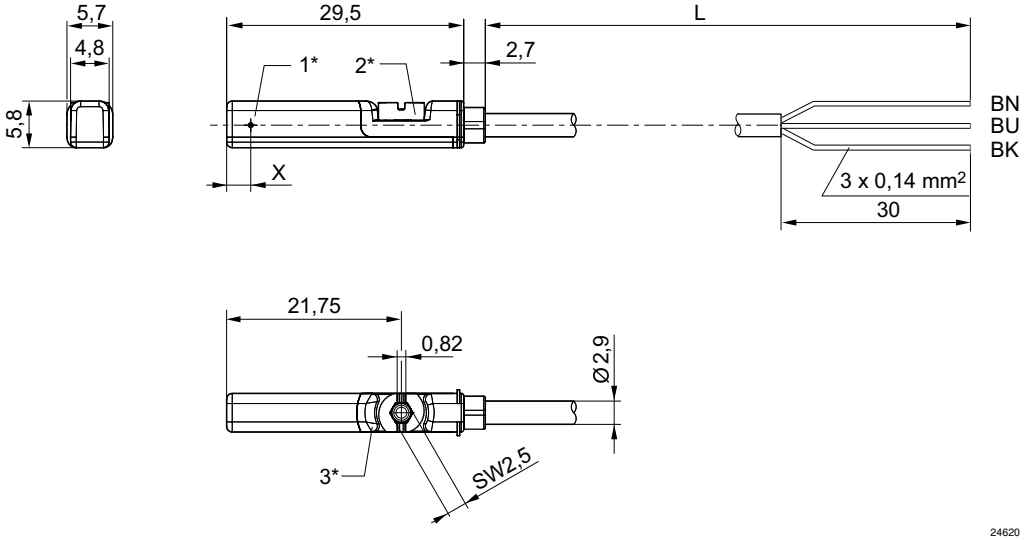
Series 167
Accessories

Fig. 1



1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
BN=brown, BU=blue

Fig. 2



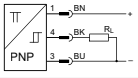
1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
BN = brown, BK = black, BU = blue
X = electronic: 11,6 mm, Reed: 8,3 mm

Series 167
Accessories

Sensor, Series ST6
► 6 mm T-slot ► with cable ► open cable ends, 3-pin ► ATEX certified

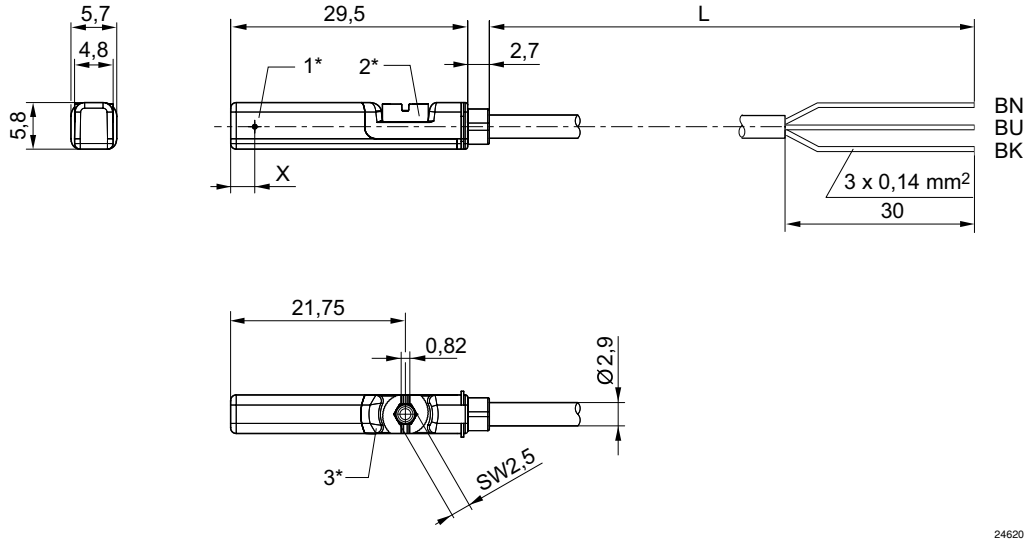
24712

Certificates	CE declaration of conformity cULus RoHS
ATEX	II 3G Ex nA op is IIC T4 Gc X II 3D Ex tc IIIC T135°C Dc X
Ambient temperature min./max.	-20°C / +50°C
Protection class	IP67
Switching point precision [mm]	±0,1
Quiescent current (without load)	< 10 mA
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

	Type of contact	Cable length	Voltage drop U at Imax	DC switching current, max.	Max. switching frequency kHz	Part No.
		[m]		[A]		
	electronic PNP	3 5	≤ 2,5 V	0.1	< 1,0	**R412022854** **R412022856**
interfaces: open cable ends; 3-pin short circuit resistant / Protected against polarity reversal						

Series 167
Accessories

Dimensions



1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
BN = brown, BK = black, BU = blue
X = electronic: 11.6 mm

Sensor, Series ST6
► 6 mm T-slot ► with cable ► Plug, M8, 3-pin, with knurled screw


24713

Certificates	CE declaration of conformity cULus RoHS
Ambient temperature min./max.	-30 °C / +80 °C
Protection class	IP65, IP67
Switching point precision [mm]	±0,1
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
Switching capacity	Reed, 3-pin: max. 6 W
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Locking screw	Stainless steel

	Type of contact	Cable sheath	Cable length	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Part No.
			[m]	[V AC]		[A]	[A]	
	Reed	Polyurethane	0.3	10 / 30	I*Rs	0.3	0.5	**R412022873**
		Polyvinyl chloride	0.3					**R412022875**
		Polyurethane	0.5					**R412022874**

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information

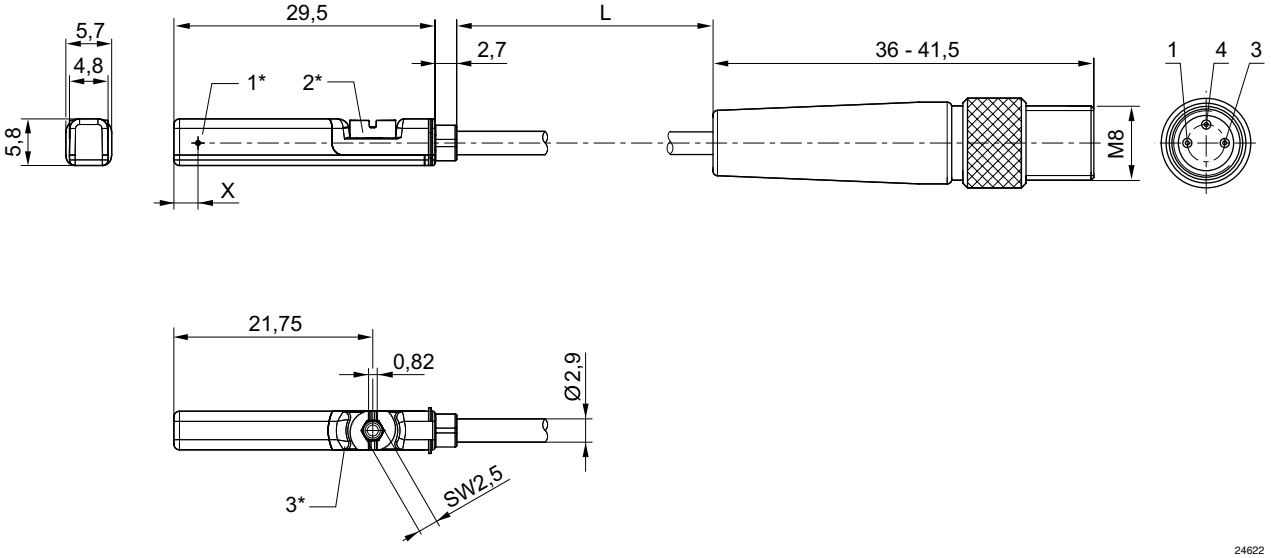
Series 167
Accessories

	Type of contact	Cable sheath	Cable length	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Part No.
			[m]	[V AC]		[A]	[A]	
	electronic PNP	Polyurethane	0.3	-	≤ 2,5 V	0.13	-	**R412022859**
		Polyvinyl chloride	0.3					**R412022862**
		Polyurethane	0.5					**R412022861**
	electronic NPN	Polyurethane	0.3	-	≤ 2,5 V	0.13	-	**R412022852**

Part No.	Max. switching frequency kHz	Operating current, not switched	Operating current, switched	Note
R412022873 **R412022875** **R412022874**	< 0,4	-	-	1)
R412022859 **R412022862** **R412022861**	< 1,0	< 8 mA	< 30 mA	2)
R412022852	< 1,0	< 8 mA	< 30 mA	2)

1) Protected against polarity reversal
2) short circuit resistant / Protected against polarity reversal
interfaces: Plug; M8; 3-pin; with knurled screw

Dimensions



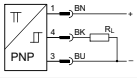
1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
X = electronic: 11,6 mm, Reed: 8,3 mm
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT)

Series 167
Accessories

Sensor, Series ST6
► 6 mm T-slot ► with cable ► Plug, M8, 3-pin, with knurled screw ► ATEX certified

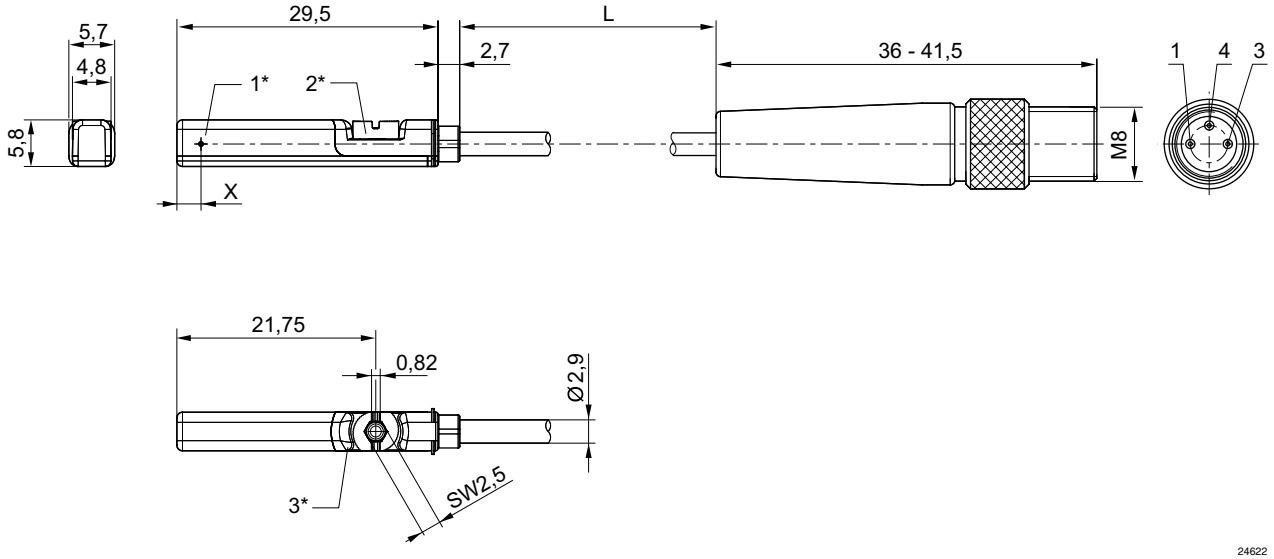
24713

Certificates	CE declaration of conformity cULus RoHS
ATEX	II 3G Ex nA op is IIC T4 Gc X II 3D Ex tc IIIC T135°C Dc X
Ambient temperature min./max.	-20°C / +50°C
Protection class	IP67
Switching point precision [mm]	±0,1
Quiescent current (without load)	< 10 mA
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

	Type of contact	Cable length	Voltage drop U at Imax	DC switching current, max.	Max. switching frequency kHz	Part No.
		[m]		[A]		
	electronic PNP	0.3	≤ 2,5 V	0.1	< 1,0	**R412022860**
interfaces: Plug; M8; 3-pin; with knurled screw short circuit resistant / Protected against polarity reversal						

Series 167
Accessories

Dimensions



1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
X = PNP: 11,6 mm
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT)

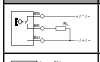
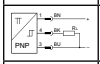
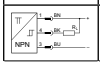
Sensor, Series ST6
► 6 mm T-slot ► with cable ► Plug, M8, 3-pin


24742

Certificates	CE declaration of conformity cULus RoHS
Ambient temperature min./max.	-30°C / +80°C
Protection class	IP65, IP67
Switching point precision [mm]	±0,1
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
Switching capacity	Reed, 2-pin: max. 10 W Reed, 3-pin: max. 6 W
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

	Type of contact	Cable length	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Max. switching frequency kHz	Part No.
		[m]	[V AC]		[A]	[A]		
	Reed	0.3	10 / 30	I*Rs	0.13	0.13	< 0,4	**R412022868**

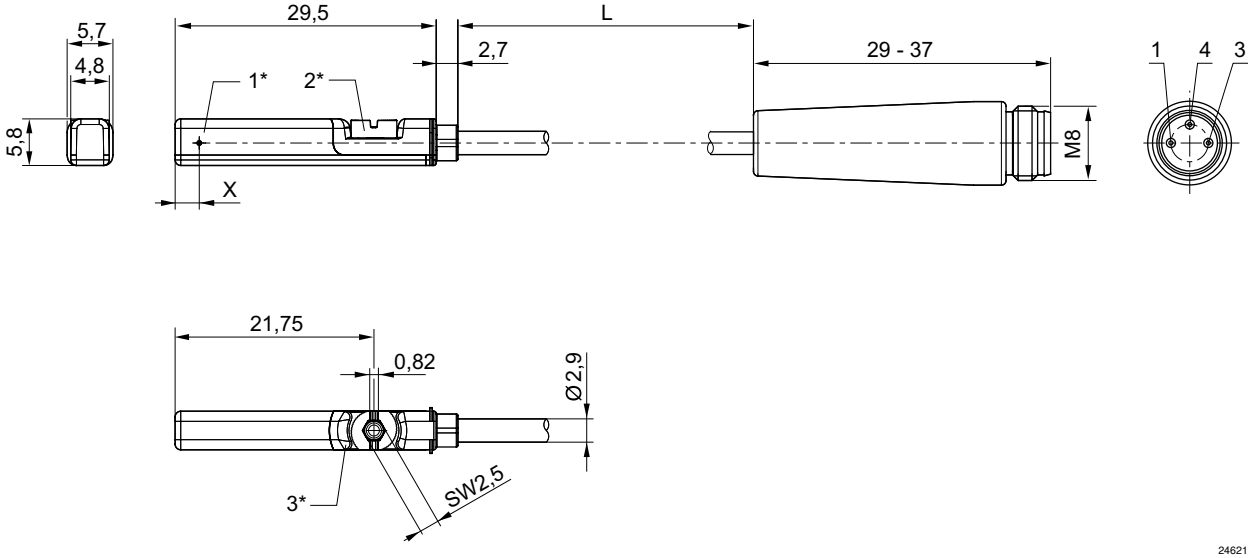
Series 167
Accessories

	Type of contact	Cable length	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Max. switching frequency kHz	Part No.
		[m]	[V AC]		[A]	[A]		
	Reed	0.3	10 / 30	I*Rs	0.3	0.5	< 0,4	**R412022872**
	electronic PNP	0.3	-	≤ 2,5 V	0.13	-	< 1,0	**R412022858**
	electronic NPN	0.3	-	≤ 2,5 V	0.13	-	< 1,0	**R412022851**

Part No.	Operating current, not switched	Operating current, switched	Note
R412022868	-	-	1)
R412022872	-	-	1)
R412022858	< 8 mA	< 30 mA	2)
R412022851	< 8 mA	< 30 mA	2)

1) Protected against polarity reversal
2) short circuit resistant / Protected against polarity reversal
interfaces: Plug; M8; 3-pin

Dimensions



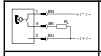
1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
X = electronic: 11,6 mm, Reed: 8,3 mm
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT)

Series 167
Accessories

Sensor, Series ST6
► 6 mm T-slot ► with cable ► Plug, M12, 3-pin, with knurled screw

24714

Certificates	CE declaration of conformity cULus RoHS
Ambient temperature min./max.	-30 °C / +80 °C
Protection class	IP65, IP67
Switching point precision [mm]	±0,1
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
Switching capacity	Reed, 3-pin: max. 6 W
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

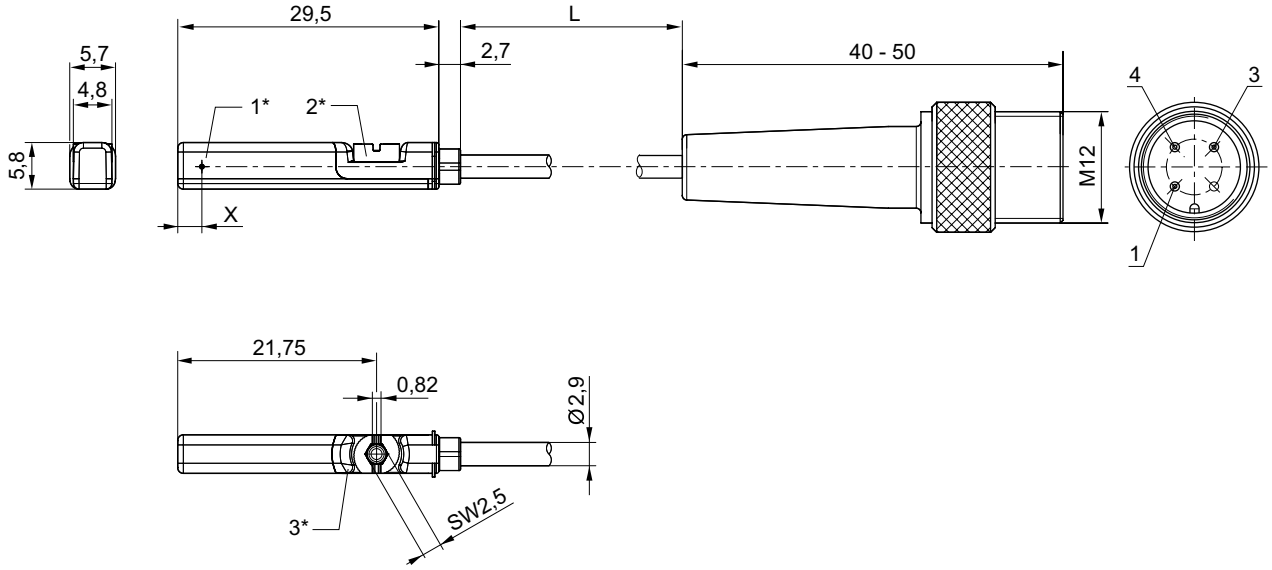
	Type of contact	Cable length	Operational voltage AC min./max.	Voltage drop U at Imax	DC switching current, max.	AC switching current, max.	Max. switching frequency kHz	Part No.
		[m]	[V AC]		[A]	[A]		
	Reed	0.3	10 / 30	I*Rs	0.3	0.5	< 0,4	**R412022876**
	electronic PNP	0.1 0.3 3 5	-	≤ 2,5 V	0.13	-	< 1,0	**R412022879** **R412022863** **R412022877** **R412022878**

Part No.	Operating current, not switched	Operating current, switched	Note
R412022876	-	-	1)
R412022879 **R412022863** **R412022877** **R412022878**	< 8 mA	< 30 mA	2)

1) Protected against polarity reversal
2) short circuit resistant / Protected against polarity reversal
interfaces: Plug; M12; 3-pin; with knurled screw

Series 167
Accessories

Dimensions



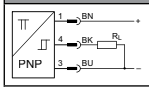
1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
X = PNP: 11,6 mm, reed: 8,3 mm
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT)

Sensor, Series ST6
► 6 mm T-slot ► with cable ► Plug, M12, 3-pin, with knurled screw ► ATEX certified

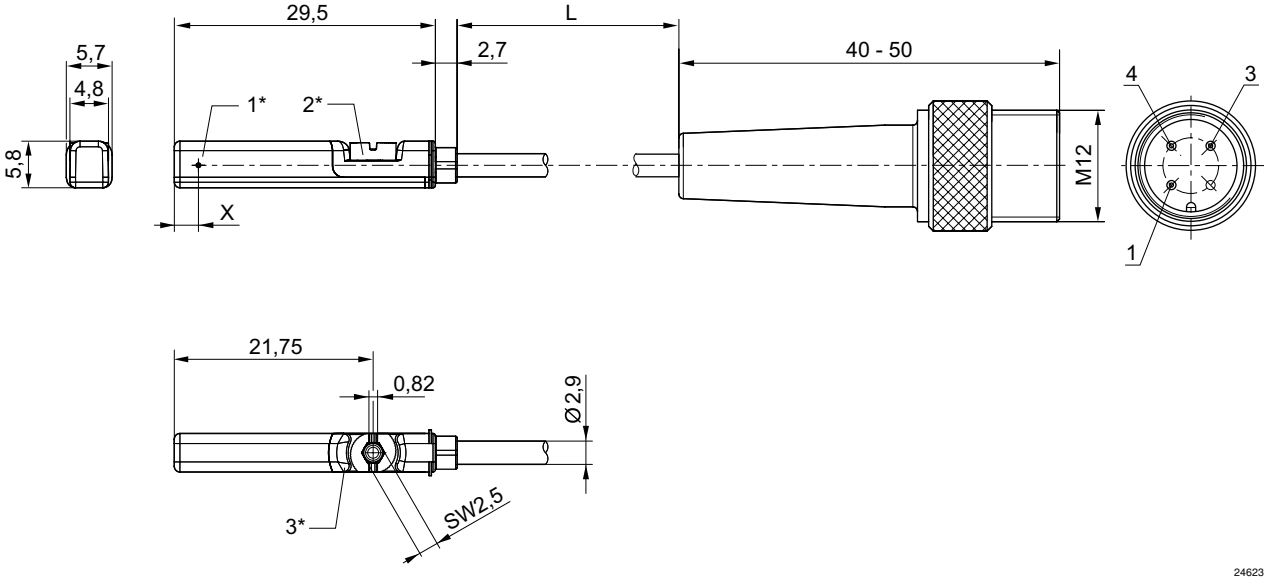

24714

Certificates	CE declaration of conformity cULus RoHS
ATEX	II 3G Ex nA op is IIC T4 Gc X II 3D Ex tc IIIC T135°C Dc X
Ambient temperature min./max.	-20°C / +50°C
Protection class	IP67
Switching point precision [mm]	±0,1
Quiescent current (without load)	< 10 mA
DC operating voltage min./max.	10 V DC - 30 V DC
Switching logic	NO (make contact)
LED status display	Yellow
Vibration resistance	10 - 55 Hz, 1 mm
Shock resistance	30 g / 11 ms
Materials:	
Housing	Polyamide
Cable sheath	Polyurethane
Locking screw	Stainless steel

Series 167
Accessories

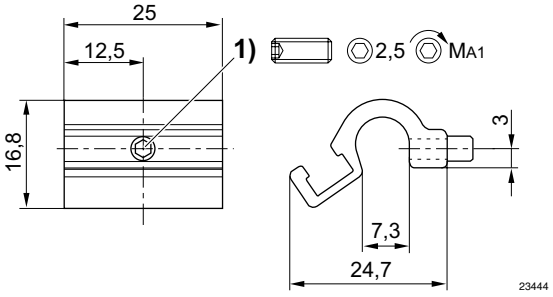
	Type of contact	Cable length	Voltage drop U at Imax	DC switching current, max.	Max. switching frequency kHz	Part No.
		[m]		[A]		
	electronic PNP	0.3	≤ 2,5 V	0.1	< 1,0	**R412022864**
interfaces: Plug; M12; 3-pin; with knurled screw short circuit resistant / Protected against polarity reversal						

Dimensions



1* = switching point 2* = locking screw 3* = LED window, transparent
L = cable length
X = PNP: 11,6 mm
Pin assignment: 1 = (+), 3 = (-), 4 = (OUT)

Sensor mounting, Series CB1
► for Series ST6, SM6 ► to mount on cylinder Series 167



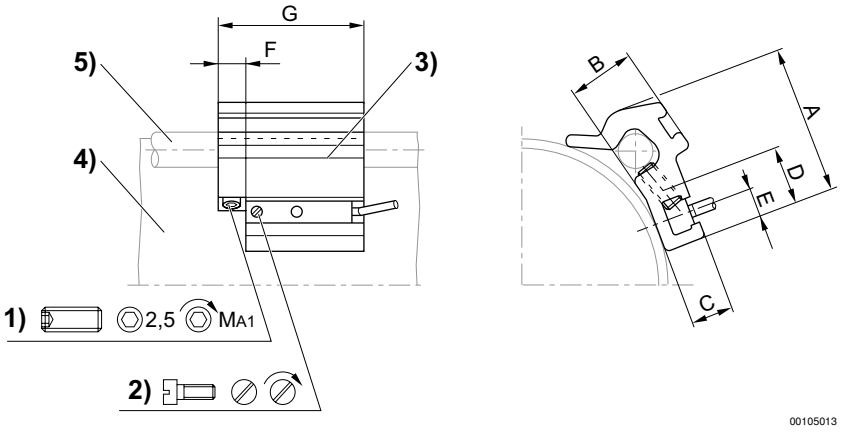
1) Mounting screw

Series 167
Accessories

Part No.	Cylinders Ø [mm]	For series	MA1 [Nm]	Material	Weight [kg]	Delivery quantity [Piece]		
R412022357	25	ST6, SM6	1 + 0,3	Aluminum	0.01	1		

Sensor mounting, Series CB1
► for Series ST6, SM6 ► to mount on cylinder TRB, C12P, 167, CVI, TRR, 523

103627



1) Clamping threaded pin 2) Mounting screw for sensor 3) Sensor 4) Cylinder profile 5) Tie rod

Part No.	Cylinders Ø [mm]	For series	A	B	C	D	E	F	G	1)	MA1 [Nm]
1827020282	32 - 40	ST6, SM6	26	10	7	14	5	8	40	M5x8	2 ±0,2
1827020283	50 - 63	ST6, SM6	32.5	15.5	7	14	5	8	40	M5x10	2 ±0,2
1827020284	80 - 100	ST6, SM6	43	17	6.9	14	5	8	40	M5x16	2 ±0,2

Part No.	Material	Weight [kg]								
1827020282	Aluminum	0.016								
1827020283	Aluminum	0.029								
1827020284	Aluminum	0.042								

Series 167
Accessories

Connecting cable, Series CN2
► Socket, M8, 3-pin, straight ► open cable ends, 3-pin

00107009_b

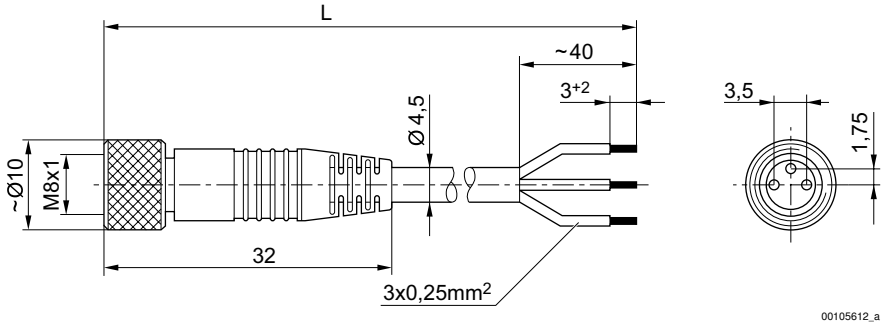
Ambient temperature min./max.	-40 °C / +85 °C
Protection class	IP65
Materials:	
Cable sheath	Polyurethane

Technical Remarks

- The specified protection class is only valid in assembled and tested state.

Max. current	Number of wires	Wire cross-section	Cable-Ø	Cable length L	Weight	Part No.
[A]		[mm²]	[mm]	[m]	[kg]	
				3	0.091	**1834484166**
4	3	0.24	4.5	5	0.145	**1834484168**
				10	0.33	**1834484247**

Dimensions

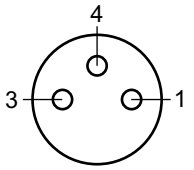


00105612_a

L = length

Series 167
Accessories

Pin assignment



Buchse_3-polig

(1) BN=brown
(3) BU=blue
(4) BK=black

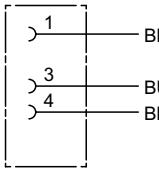
Connecting cable, Series CN2
► Socket, M8x1, 3-pin, angled ► open cable ends, 3-pin

00107009_c

Ambient temperature min./max.	-40 °C / +85 °C
Protection class	IP65
Materials:	
Cable sheath	Polyurethane

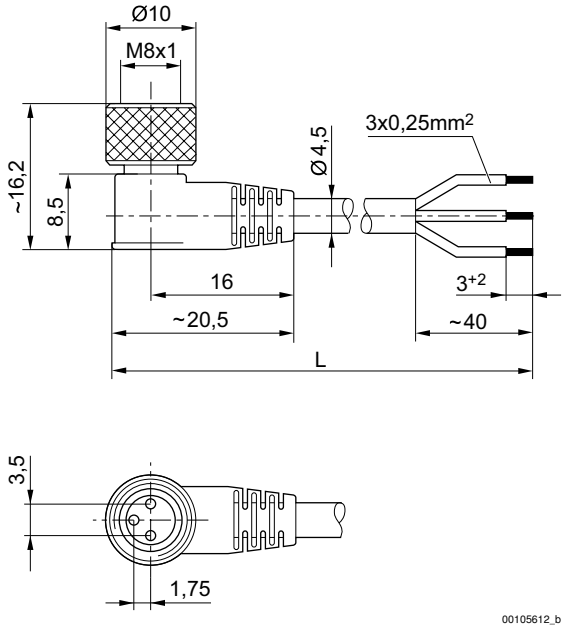
Technical Remarks

- The specified protection class is only valid in assembled and tested state.

	Max. current	Number of wires	Wire cross-section	Cable-Ø	Cable length L	Weight	Part No.
	[A]		[mm²]	[mm]	[m]	[kg]	
	4	3	0.24	4.5	3	0.092	**1834484167**
					5	0.141	**1834484169**
					10	0.276	**1834484248**

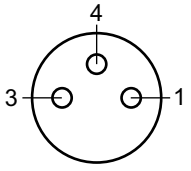
Series 167
Accessories

Dimensions



L = length

Pin assignment



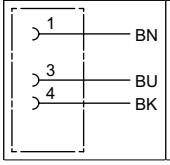
(1) BN=brown
(3) BU=blue
(4) BK=black

Socket, M8x1, Series CN2
► **Socket, M8x1, 3-pin**

Ambient temperature min./max.	-25°C / +80°C
Protection class	IP67
Materials:	
Housing	Polyamide

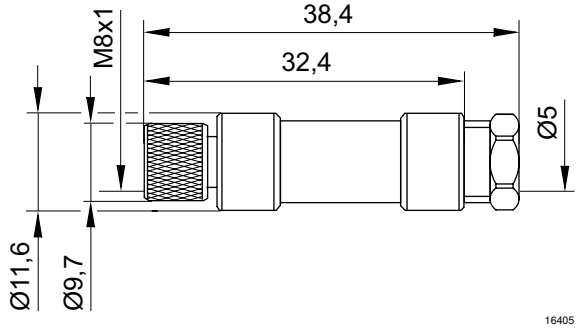
Series 167
Accessories

Technical Remarks
■ The specified protection class is only valid in assembled and tested state.

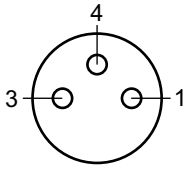
	Operational voltage	Max. current	Cable exit	suitable cable-Ø min./max	number of plug options 1	Housing color	Part No.
	AC						
	[V]	[A]		[mm]			
	48	4	straight	3.5 / 5	1 position	Black	**1834484173**

Part No.	Weight
	[kg]
1834484173	0.008

Dimensions



Pin assignment



Series 167
Accessories

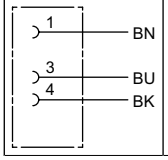
Socket, M8x1, Series CN2
► Socket, M8x1, 3-pin, angled

16406

Ambient temperature min./max.	-25°C / +85°C
Protection class	IP65
Materials:	
Housing	Polyamide

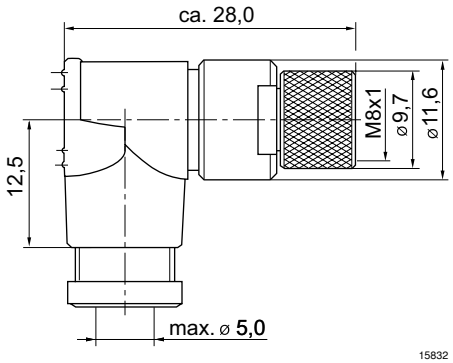
Technical Remarks

- The specified protection class is only valid in assembled and tested state.

	Operational voltage	Max. current	Contact assignment	Cable exit	suitable cable-Ø min./max	number of plug options 1	Part No.
	AC						
	[V]	[A]			[mm]		
	48	4	3	angled 90°	3.5 / 5	1 position	**1834484174**

Part No.	Housing color	Weight
		[kg]
1834484174	Black	0.008

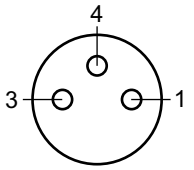
Dimensions



15832

Series 167
Accessories

Pin assignment



Buchse_3-polig

Series 167
Accessories

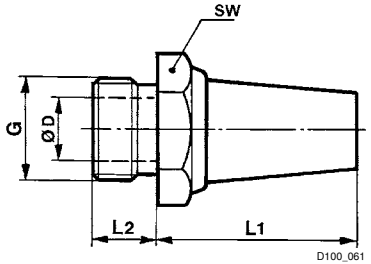
Silencers, Series SI1
► Sintered bronze

P100_060

Working pressure min./max.	0 bar / 10 bar
Ambient temperature min./max.	-25°C / +80°C
Medium	Compressed air
Materials:	
Silencers	Sintered bronze
Thread	Brass

Compressed air connection	Sound pressure level	Qn	Order quantity	Weight	Part No.
	[dB]	[l/min]	[piece]	[kg]	
G 1/8	75	1500	10	0.01	**1827000000**
G 1/4	79	2900	10	0.02	**1827000001**
G 3/8	84	5900	5	0.05	**1827000002**
G 1/2	90	7100	2	0.08	**1827000003**

Dimensions



D100_061

Part No.	Port G	SW	Ø D	L1	L2							
1827000000	G 1/8	13	6	18	6							
1827000001	G 1/4	17	8.5	25	8							
1827000002	G 3/8	22	12	34	10							
1827000003	G 1/2	27	14.5	44	12							

Sound pressure level measured at 6 bar at 1 m distance

Series 167
Accessories

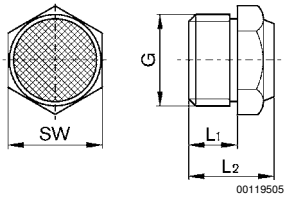
Silencers, Series SI1
► Sintered bronze

P100_037

Working pressure min./max.	0 bar / 10 bar
Ambient temperature min./max.	-25 °C / +80 °C
Medium	Compressed air
Materials:	
Silencers	Sintered bronze
Thread	Brass

Compressed air connection	Sound pressure level	Qn	Order quantity	Weight	Part No.
	[dB]	[l/min]	[piece]	[kg]	
G 1/8	85	640	10	0.001	**1827000031**
G 1/4	88	900	10	0.01	**1827000033**
G 3/8	90	1750	5	0.016	**1827000034**
G 1/2	85	2000	2	0.035	**1827000035**

Dimensions



Part No.	Port G	L1	L2	SW								
1827000031	G 1/8	6	11.5	13								
1827000033	G 1/4	8	13.5	17								
1827000034	G 3/8	10	17.5	22								
1827000035	G 1/2	12	19.5	27								

Sound pressure level measured at 6 bar at 1 m distance

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27-04-2017