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Астрахань (8512)99-46-04
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Кемерово (3842)65-04-62
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Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Киргизия (996)312-96-26-47

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
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Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
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Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
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Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Россия (495)268-04-70

Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

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Enclosure systems and accessories

Klippon® Protect

Let's connect.



Cable entries

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Cable entries

Weidmüller offers a variety of add-on components for a multitude of purposes and applications in addition to its extensive Klippon® Protect range.

In addition to brass, plastic and stainless steel cable glands, there are also sealing plugs, pressure-equalising elements, adapters and relevant accessories – such as lock nuts, flat gaskets, flat washers and earthing rings – available.

To match the assembled enclosures, the cable glands meet the requirements of IP protection classes IP54 to IP69K and can be used as required in standard industrial applications, EMC applications or even explosive risk zones, plus they comply with the approvals required for this purpose.

The Ex-certified Klippon® cable glands also allow for the connection of cables and conductors with different reinforcements with and without lead sheathing, as well as the connection of steel wire and steel tape cables. They can withstand temperatures ranging from -60°C to +180°C.

Depending on the cable gland variants and application, the cable glands, sealing plugs, adaptors, pressure-equalising elements, and accessories are manufactured and certified according to the following standards:

- IEC/EN 62444 (Construction and design)
- IEC/EN 60529 (IP protection class testing)
- IEC/EN 60079-0 (General Ex requirements)
- IEC/EN 60079-1 (Ex d Ex standard)
- IEC/EN 60079-7 (Ex e Ex standard)
- IEC/EN 60079-11 (Ex i Ex standard)
- IEC/EN 60423 (Metric thread)
- DIN 40430 (PG and NPT threads)

The range of cable glands, sealing plugs and pressure-equalising elements is available in metric (M) and high-strength (PG) threads in sizes ranging from M12 to M75 and PG7 to PG48. When choosing cable glands and sealing plugs, please refer to the table with the sealing characteristics of the O-rings, flat gaskets and seal inserts. The O-Ring or flat gasket is always intended for sealing the connecting thread on an enclosure, for example, while the seal insert of each cable gland is intended for actually sealing and crushing the connecting cable.



You should always observe the maximum drill-hole diameter when installing a cable gland, sealing plug, adaptor, or pressure compensation element (e.g. onto the gland plate of an enclosure). These must not exceed the following specified maximum values / tolerances so that the protection degree of the whole enclosure can be guaranteed. Please also refer to the instruction manual; deviating information is possible.

Through-hole information

M thread	Through-hole, in mm
M 12	12.2
M 16	16.2
M 20	20.2
M 25	25.2
M 32	32.2
M 40	40.2
M 50	50.2
M 63	63.2
M 75	75.2
PG thread	Through-hole, in mm
PG 7	12.4
PG 9	15.1
PG 11	18.5
PG 13.5	20.4
PG 16	22.5
PG 21	28.3
PG 29	37.4
PG 36	47.2
PG 42	54.2
PG 48	59.5

Overview of sealing materials for O-rings, flat gaskets as well as seal inserts

Abbreviation	Material	Trade name	Temperature range	Chemical resistance	Fire resistant	Shore	Free from halogens	UV resistance
TPE	Thermo-plastic elastomer	Santoprene	-40 °C to +130 °C	Hydrocarbons, oils, acids	UL94, HB	64	Yes	very good
CR	Chloroprene rubber	Neoprene	-40 °C to +130 °C	Mineral oils, greases, fuels	very good	40 - 90	No	very good
NBR	Nitrile rubber	Perbunan, Nitrile	-40 °C to +130 °C	Hydrocarbons, oils, acids, aliphatic solvents, greases, fuels	weak	40 - 90	No	good
EPDM	Ethylene-propylene-diene rubber	Keltan	-50 °C to +130 °C	Weather-, grease-, mineral oil-, chlorine-, and ozone resistant, hydrocarbons	weak	20 - 90		very good
FPM	Fluoro-rubber	Viton	-25 °C to +200 °C	ozone, oxygen, mineral oils, synthetic hydraulic fluids, fuels, aromatics, many organic solvents and chemicals	weak	65 - 95		good

Note: The data refer only to the sealing material, not to the entire component.

Abbreviations – technical data

Abbreviation	Technical data
A, L	Length in mm
L1	Length of thread in mm
D	Diameter in mm
S	Thickness in mm
S1, S2	Depth in mm
SW, SW1, SW2	Distance across flats in mm
KB	Clamping range in mm
KB ZE	Clamping range strain relief in mm
Thread	External thread
SUHB	Shroud / Protective cap
DR	Tightening torque in Nm
HM	Cap nut / pressure screw
Qty.	Packing unit in pieces

Product designation

Product designation	Description
VG	Cable gland
VP	Sealing plugs
KDSU	Klippon® Double Seal Universal
KDSW	Klippon® Double Seal for SWA
KDSX	Klippon® Double Seal for SWB/STA
KSG	Klippon® Standard Gland
KUB	Klippon® Universal Barrier
KSPA	Klippon® Stopping Plug Type A
KSPMH	Klippon® Stopping Plug Mushroom
KSWN	Klippon® Sealing Washer Nylon
KSWF	Klippon® Sealing Washer Red Fibre
KSP	Klippon® Shroud PVC/Silicone
SKMU	Hexagon nut
DAE	Pressure compensation element
BD	Breather drain (compensation element)
SZS	Serrated Star Washers
ZE	Strain relief
EMV	Electromagnetic compatibility
EA	Earthing ring
SKS	Spiral kink protection
GWDR	Threaded sealing ring or IP washer

Glands and accessories

The tables below provide an overview of the Weidmüller cable glands and the recommended accessories.

Standard cable glands

Material/Type	Approvals			EMC	Armouring	Thread sealing rings			Locknuts			
	IP class of protection without seal	IP class of protection with seal	Ex			CSM GWDR PO	CR GWDR...NP	O-Ring	grey SKMU...K GR	black SKMU...KSW	brass SKMU...MS	MS EMC SKMU EMV...
Plastic												
 VG ... K68	IP68 / 5 bar								•			
 VG ... K68 SKS	IP68 / 5 bar								•			
Nickel-plated brass												
 VG ... MS68		IP54, IP66, IP68 / 5 bar, IP69k						included			•	
 VGM...MS68...BG		IP68						included			•	
 VG ... MS54-ZE	IP54										•	
 VG ... EMV-4		IP66, IP68 / 5 bar, IP69k		•				included				•
 VGM...EMC...SET		IP68		•				included				•
Stainless steel												
 VG...SS68		IP54, IP66, IP68 / 5 bar, IP69k						included			•	
 VGM...SS68...BG		IP68						included			•	

Cable glands HQ

Material/Type	Approvals			EMC	Armouring	Thread sealing rings			Locknuts			
	IP class of protection without seal	IP class of protection with seal	Ex			CSM GWDR PO	CR GWDR...NP	O-Ring	grey SKMU...K GR	black SKMU...KSW	brass SKMU...MS	MS EMC SKMU EMV...
Nickel-plated brass, Ex												
 VG ... K68 ...	IP65											
Brass Ex												
 VG ... MS68 ...	IP65											
 VG ... EMV68 ...	IP65			•								

Cable glands Ex

Material/Type	Approvals			EMC	Armouring	Thread sealing rings			Locknuts			
	IP class of protection without seal	IP class of protection with seal	Ex			KSWN	CR GWDR...NP	O-Ring	grey SKMU...K GR	black SKMU...KSW	brass SKMU...MS	MS EMC SKMU EMV...
Nickel-plated brass, Ex												
 KDSU...BN/BS O NII		IP66, IP68 / 2.5 bar	Ex e/d		•			included			•	
 KUB...BS O NI *		IP66, IP68 / 10 bar	Ex e/d		•			included			•	
 KDSW...BN/BS O/L NI	IP54	IP54, IP66, IP68 / 2.5 bar	Ex e/d		•	optional					•	
 KDSX...BS O NI	IP54	IP54, IP66, IP68 / 2.5 bar	Ex e/d		•	optional					•	
 KSG...BN/BS O NI		IP66, IP68 / 2.5 bar	Ex e/d					included			•	
Plastic Ex												
 VG...EXI...7J		IP54, IP66, IP68 / 5 bar	Ex e					included		•		
 VG...EXE...7J		IP54, IP66, IP68 / 5 bar	Ex i					included		•		
Note:	* Available on request. Ex - Stainless steel glands on request											

Adaptor

Material/Type		Approvals		Thread sealing rings			Locknuts			
		IP class of protection with seal	Ex	GWDR PO	CR GWDR...NP	O-Ring	grey SKMU...K GR	black SKMU...K SW	brass SKMU...MS	MS EMC SKMU EMV...
Plastic										
	DAE M12 PA	IP66, IP68, IP69K				included				
	DAE M12 PA long	IP66, IP68, IP69K				included		•		
Stainless steel										
	DAE M12 SS	IP66, IP68, IP69K				included			•	•
Brass Ex										
	KLIPPON BDx ... B	IP66	•			included				
Stainless steel Ex										
	KLIPPON BDx ... S	IP66	•			included				

Stopping plugs

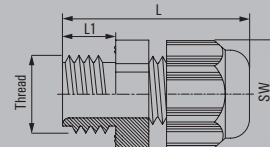
Material/Type		Approvals		Thread sealing rings			Locknuts			
		IP class of protection without seal	IP class of protection with seal	Ex	GWDR PO	CR GWDR...NR	O-Ring	grey SKMU...K GR	black SKMU...K SW	brass SKMU...MS
Plastic										
	VP ... K54	IP54	IP65					•		
Nickel-plated brass										
	VP ... MS65		IP68				included			•
Stainless steel										
	KSPMH...SSC		IP66, IP68	Ex e/d			included			•
Plastic Ex										
	VP...Ex SW	IP54, IP66	IP66, IP68	Ex e		optional			•	
Nickel-plated brass, Ex										
	VP...Ex MS		IP54, IP64, IP68	Ex e/d			included			•
Brass Ex										
	KSPMH...BSC		IP66, IP68	Ex e/d			included			•

Standard cable glands – Plastic

Cable glands – Plastic – IP68



Cable gland made of plastic with integrated strain relief for industrial applications where IP67 or IP68 protection is required. Tested and approved according to EN 62444 and UL514B.



Technical data

Material / Colour	Polyamide 6 / Light Grey / RAL 7035
Seal insert	CR
Temperature range	-40 °C...100 °C
Protection class	IP67, IP68 - 5 bar (30 min.)
Flammability rating	V-2
Note	Version with moulded sealing lip. Length L varies depending on the cable diameter used.

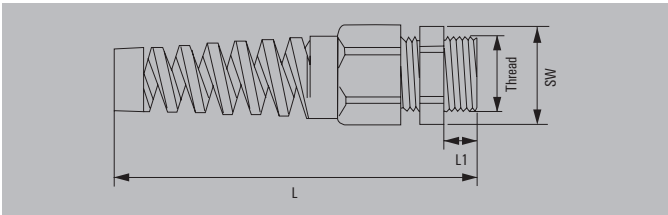
Ordering data

Type metric	Thread	KB	L/L1	SW	Qty.	Order No.
VG M12-1/K68	M 12	3-6.5	30.5 / 8	15	100	1772280000
VG M16-1/K68	M 16	4-8	34.5 / 8	19	50	1909860000
VG M16 - K 68	M 16	5-10	40 / 10	22	50	1772290000
VG M20-1/K68	M 20	6-12	39.5 / 10	24	50	1772300000
VG M25-1/K68	M 25	11-17	43 / 8	29	50	1909870000
VG M25 - K 68	M 25	13-18	47 / 10	33	25	1772310000
VG M32-1/K68	M 32	15-21	52 / 10	36	20	1909880000
VG M32 - K 68	M 32	18-25	56 / 15	42	20	1772320000
VG M40-1/K68	M 40	19-28	57 / 10	46	10	1909890000
VG M40 - K 68	M 40	22-32	69.5 / 18	53	10	1772330000
VG M50 - K 68	M 50	30-38	71 / 18	60	10	1772340000
VG M63-1/K68	M 63	34-44	71 / 18	65	10	1772350000
PG						
VG 7-K68	PG 7	3-6.5	30 / 8	15	100	1568970000
VG 9-K68	PG 9	4-8	34.5 / 8	19	50	1568980000
VG 11-K68	PG 11	5-10	37 / 8	22	50	1568990000
VG 13.5-K68	PG 13.5	6-12	39 / 10	24	50	1569000000
VG 16-K68	PG 16	10-14	41 / 10	27	50	1569010000
VG 21-K68	PG 21	13-18	48 / 11	33	25	1569020000
VG 29-K68	PG 29	18-25	52 / 11	42	20	1569030000
VG 36-K68	PG 36	22-32	64.5 / 13	53	10	1569040000
VG 42-K68	PG 42	30-38	66.5 / 13	60	10	1569050000
VG 48-K68	PG 48	34-44	67.5 / 14	65	10	1718770000

Cable glands – Plastic – SKS



Cable gland made of plastic with spiral bending protection and integrated strain relief, specially suited for moving connections. It prevents cables from bending at acute angles.



Technical data

Material / Colour	Polyamide 6 / Light Grey / RAL 7035
Seal insert	CR
Temperature range	-20 °C...100 °C
Protection class	IP68 - 5 bar (30 min.)
Flammability rating	V-2
Note	Version with moulded sealing lip Length L varies depending on the cable diameter used.

Ordering data

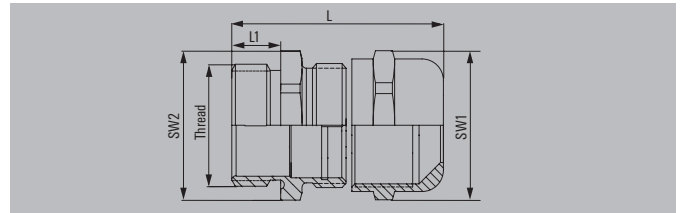
Type	Thread	KB	L/L1	SW	Qty.	Order No.
metric						
VG M12-K68 SKS	M 12	3-6.5	63.5 / 8	15	100	1776700000
VG M16-K68 SKS	M 16	5-10	94.5 / 15	22	50	1776710000
VG M20-K68 SKS 6-12	M 20	6-12	101.5 / 11	24	50	1778860000
VG M20-K68 SKS 10-14	M 20	10-14	116 / 15	27	25	1776720000
VG M25-K68 SKS	M 25	13-18	132.5 / 15	33	25	1776730000
PG						
VG 7-K68 SKS	PG 7	3-6.5	63 / 8	15	50	1720470000
VG 9-K68 SKS	PG 9	4-8	74 / 8	19	50	1720480000
VG 11-K68 SKS	PG 11	5-10	87 / 8	22	100	1720490000
VG 13.5-K68 SKS	PG 13.5	6-12	98 / 9	24	50	1720500000
VG 16-K68 SKS	PG 16	10-14	112 / 10	27	25	1720510000
VG 21-K68 SKS	PG 21	13-18	130 / 11	33	20	1720520000

Standard cable glands – Brass

Cable glands – Brass – IP68



Cable gland made of brass for industrial applications where IP68 or IP69K protection is required.



Technical data

Material	Brass, nickel-plated
O-ring / Seal insert	NBR / CR
Temperature range	-40 °C...100 °C
Clamp insert	Polyamide
Protection degree with GWDR	IP54, IP66, IP67, IP68 - 5 bar (30 min.), IP69K
Note	Length "L" varies depending on the cable diameter used; IP69K protection applies to all metric cable glands; the following thread sizes are excluded from IP69K: PG29, PG36, PG42 and PG48.

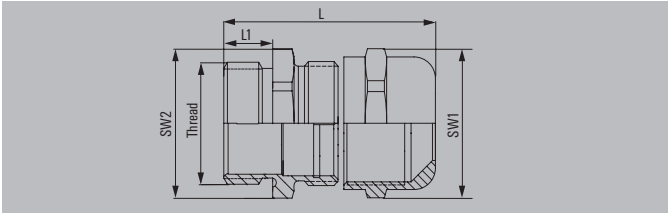
Ordering data

Type	Thread	KB	L/L1	SW1/SW2	Qty.	Order No.
metric						
VG M12 - MS 68	M 12	3-6.5	28 / 6	14 / 14	50	1772200000
VG M16 - MS 68	M 16	4-8	30 / 7	17 / 18	50	1772210000
VG M16-1/MS68	M 16	5-10	35.5 / 7	20 / 20	50	1909910000
VG M20 - MS 68	M 20	6-12	34.5 / 8	22 / 22	50	1772220000
VG M25 - MS 68	M 25	10-14	35.7 / 8	24 / 27	25	1772230000
VG M25-1/MS68	M 25	11-17	40.5 / 8	27 / 27	25	1909920000
VG M32 - MS 68	M 32	13-18	42 / 9	30 / 34	10	1772240000
VG M32-1/MS68	M 32	15-21	44 / 8	34 / 34	10	1909930000
VG M40 - MS 68	M 40	18-25	47 / 9	40 / 43	10	1772250000
VG M40-1/MS68	M 40	19-28	52.5 / 9	43 / 43	10	1909940000
VG M50 - MS 68	M 50	22-32	57 / 9	50 / 55	5	1772260000
VG M50-1/MS68	M 50	27-38	61 / 9	58 / 58	5	1909950000
VG M63 - MS 68	M 63	34-44	67 / 14	64 / 68	5	1772270000
PG (IP69K)						
VG 7-MS68	PG 7	3-6.5	28 / 6	14 / 14	50	1569060000
VG 9-MS68	PG 9	4-8	29.5 / 6	17 / 17	50	1569070000
VG 11-MS68	PG 11	5-10	32 / 6	20 / 20	50	1569080000
VG 13.5-MS68	PG 13.5	6-12	31 / 6.5	22 / 22	50	1569090000
VG 16-MS68	PG 16	10-14	34.5 / 6.5	24 / 24	25	1569100000
VG 21-MS68	PG 21	13-18	39.7 / 7.2	30 / 30	25	1569110000
PG (IP68)						
VG 29-MS68	PG 29	18-25	46.5 / 8	40 / 40	10	1569120000
VG 36-MS68	PG 36	22-32	57 / 9	50 / 50	5	1569130000
VG 42-MS68	PG 42	30-38	60.5 / 12	58 / 58	5	1569140000
VG 48-MS68	PG 48	34-44	69 / 14	64 / 64	5	1718790000

Cable glands – Brass – IP68



Cable gland made of brass with spherical sealing insert which squeezes the cable gently over a large area. This cable gland is suitable for railway applications; its sealing material conforms to the requirements of EN 45545.



Technical data

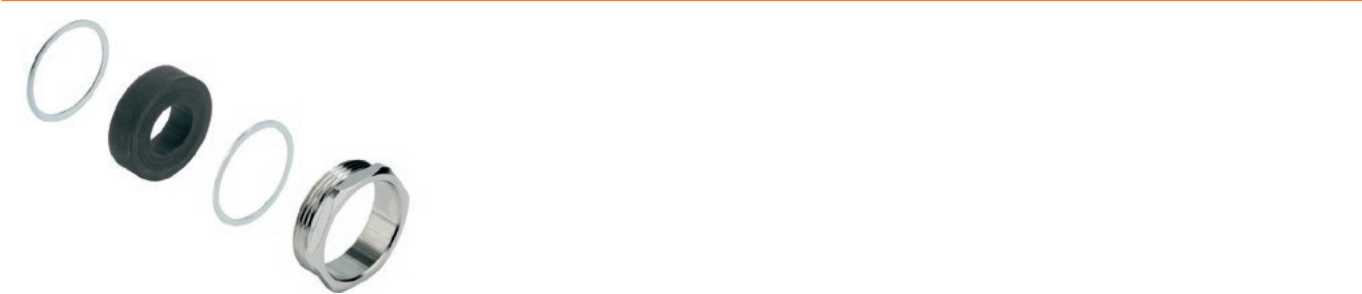
Material	Brass, nickel-plated
O-Ring / Seal insert	NBR / T80s
Temperature range	-40 °C ... 130 °C
Protection class	IP68 - 15 bar
Note	

Ordering data

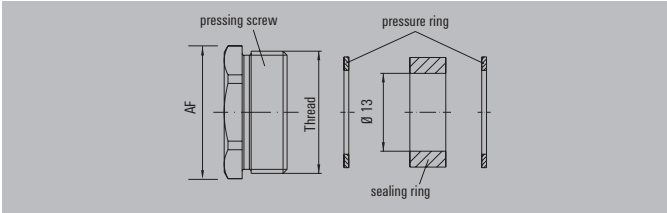
Type	Thread	KB	L/L1	SW	Qty.	Order No.
VGM25-MS68 11-20 BG	M 25	11-20	36.5 / 7.5	30	50	1193600000
VGM32-MS68 15-25 BG	M 32	15-25	40 / 8	36	25	1193610000
VGM40-MS68 20-32 BG	M 40	20-32	43 / 8	45	10	1193620000
VGM40/1-MS68 20-32 BG	M 40	20-32	82 / 8	45	10	1205890000

Standard cable glands – Brass

Clamping screws – Brass – IP65



The special cable glands (clamping screws) are designed for use in HDC RockStar® base enclosures. The seal insert used contains several removable or separable inlets.



Technical data

Clamping screw material	Brass, nickel-plated
Sealing ring material	SBR/NBR
Pressure ring material	Polyamide
Temperature range	-20 °C...60 °C
Protection class	IP65
Note	

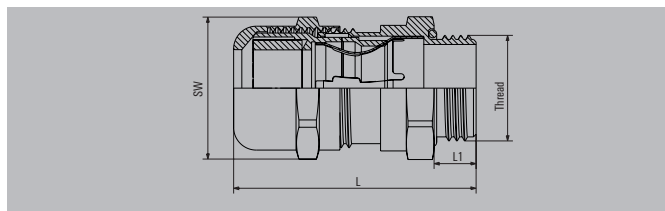
Ordering data

Type metric	Thread	Inserts in mm	SW	Qty.	Order No.
VG H M20 MS	M 20	4 / 7 / 10 / 13	20	50	1921720000
VG H M25 MS	M 25	8.5 / 11.5 / 14.5 / 18	25	25	1921740000
VG H M32 MS	M 32	16 / 19 / 22 / 25	32	20	1921760000
VG H M40 MS	M 40	23 / 26 / 29 / 32	40	10	1921770000
PG					
KV 11-M	PG 11	7.5 / 10 / 12.5	10	10	1656390000
KV 13-M	PG 13	7.5 / 10 / 12.5	10	10	1656400000
KV 16-M	PG 16	7.5 / 10 / 12.5 / 15	10	10	1656410000
KV 21-M	PG 21	10 / 13 / 16 / 19	10	10	1656420000
KV 29-M	PG 29	18 / 21 / 24 / 27	10	10	1656430000
Note					

Cable glands – Brass – EMC-4



Cable gland made of brass with EMC contact system for the particularly time-saving installation of shielded cables. It is characterised by the following features: very low installation effort, vibration-resistant and patented active contact system.



Technical data

Material	Brass, nickel-plated
O-Ring / Seal insert	NBR / CR
Temperature range	-40 °C...100 °C
Protection class	IP66, IP68 - 5 bar (30 min.), IP69K
Clamp insert	Polyamide
Note	

Ordering data

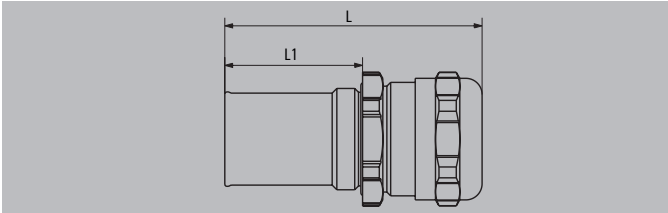
Type	Thread	KB	Shield Ø	L/L1	SW	Qty.	Order No.
VG M12 EMV-4 MS 3-6.5	M 12	3-6.5	2.00-5.00	34 / 6	14	50	2435070000
VG M16 EMV-4 MS 5-10	M 16	5-10	3.50-8.00	39 / 6	20	50	2435140000
VG M20 EMV-4 MS 6-12	M 20	6-12	4.50-10.00	38 / 6	22	50	2435150000
VG M20 EMV-4 MS 8-14	M 20	7.5-14	5.50-11.50	48 / 8	24	50	2435160000
VG M25 EMV-4 MS 10-18	M 25	10-18	7.00-14.00	51 / 8	30	25	2435170000
VG M32 EMV-4 MS 16-25	M 32	16-25	12.00-20.00	62 / 9	40	10	2435180000
VG M40 EMV-4 MS 22-32	M 40	22-32	18.00-27.00	69.5 / 9	50	5	2435190000
VG M50 EMV-4 MS 30-38	M 50	30-38	26.00-34.00	62 / 9	58	5	2435200000
VG M63 EMV-4 MS 34-44	M 63	34-44	30.00-40.00	73 / 14	68	5	2435210000

EMC cable glands

Cable glands – Brass – EMC SET



Cable gland made of brass for internal shield connection or potential equalisation; easy-to-use, permanent, secure shield connection. This cable gland is suitable for railway applications; its sealing material meets the requirements of EN 45545.



Technical data

Material	Brass, nickel-plated
O-Ring / Seal insert	NBR / T80s
Temperature range	-40 °C ... 130 °C
Protection class	IP68 - 15 bar
Note	

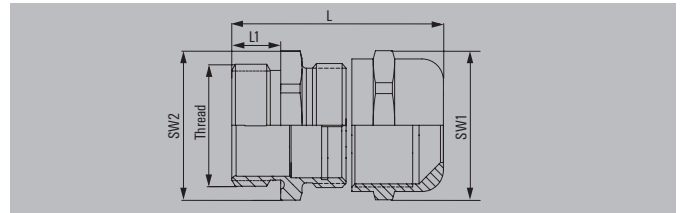
Ordering data

Type	Thread	KB	L/L1	SW	Qty.	Order No.
VGM25-MS68 EMC 11-20SET	M 25	11-20	63.5 / 34	30	1	1463720000
VGM32-MS68 EMC 15-25SET	M 32	15-25	66.5 / 34	36	1	1463730000

Cable glands – Stainless steel – IP68



Cable gland made of stainless steel for standard industrial applications that require a high degree of protection (IP68 or IP69K). These cable glands – with their resistance to impact and sea water – are also suitable for use in applications under extreme environmental conditions.



Technical data

Material	Stainless steel 1.4305 (303)
O-Ring / Seal insert	NBR / CR
Temperature range	-40 °C...100 °C
Protection class	IP54, IP66, IP67, IP68 - 5 bar (30 min.), IP69K
Note	

Ordering data

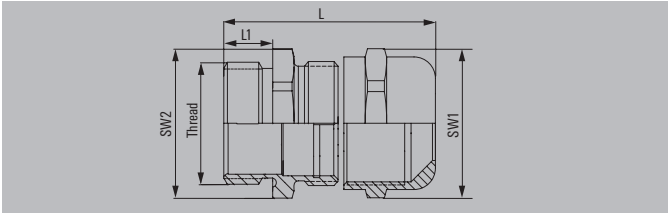
Type	Thread	KB	L/L1	SW1/SW2	Qty.	Order No.
metric						
VGM12-SS 68 KB 3-6.5	M 12	3-6.5	28 / 6	14 / 14	50	1009840000
VGM16-SS 68 KB 4-8	M 16	4-8	30 / 7	17 / 19	50	1009850000
VGM20-SS 68 KB 6-12	M 20	6-12	32 / 8	22 / 22	50	1009860000
VGM25-SS 68 KB 10-14	M 25	10-14	35.5 / 8	24 / 27	25	1009870000
VGM32-SS 68 KB 13-18	M 32	13-18	41.5 / 9	30 / 36	20	1009880000
VGM40-SS 68 KB 18-25	M 40	18-25	49.6 / 9	41 / 46	20	1009890000
VGM50-SS 68 KB 22-32	M 50	22-32	55 / 9	50 / 55	5	1009900000
VGM63-SS 68 KB 34-44	M 63	34-44	67 / 14	65 / 70	5	1009910000
PG						
VG 7-SS 68 KB 3-6.5	PG 7	3-6.5	28 / 6	14 / 14	50	1009740000
VG 9-SS 68 KB 4-8	PG 9	4-8	29 / 6	17 / 17	50	1009750000
VG 11-SS 68 KB 5-10	PG 11	5-10	31.5 / 6	22 / 22	50	1009760000
VG 16-SS 68 KB 10-14	PG 16	10-14	34 / 6.5	24 / 24	25	1009780000
VG 21-SS 68 KB 13-18	PG 21	13-18	39.7 / 7.2	30 / 30	25	1009790000
VG 29-SS 68 KB 18-25	PG 29	18-25	46.5 / 8	41 / 41	20	1009800000
VG 36-SS 68 KB 22-32	PG 36	22-32	55 / 9	50 / 50	15	1009810000

Standard cable glands – Stainless steel

Cable gland – Stainless steel – IP68



Cable gland with spherical seal insert that squeezes the cable gently over a large area. This cable gland is suitable for railway applications; its sealing material meets the requirements of EN 45545.



Technical data

Material	Stainless steel 1.4305 (303)
O-Ring / Seal insert	Silicone / T80s
Temperature range	-40 °C ... 130 °C
Protection class	IP68 - 15 bar
Note	

Ordering data

Type	Thread	KB	L/L1	SW	Qty.	Order No.
VGM25-SS68 11-20 BG	M 25	11-20	36.5 / 7.5	30	50	1193570000
VGM32-SS68 15-25 BG	M 32	15-25	40 / 8	36	25	1193580000
VGM40-SS68 20-32 BG	M 40	20-32	43 / 8	45	10	1193590000
VGM40/1-SS68 20-32 BG	M 40	20-32	82 / 8	45	10	1205920000

HQ cable glands



Cable gland especially for heavy-duty connectors of the HQ series, available in plastic, brass and as brass EMC version.

Technical data

Material	Polyamide 6
Seal insert	TPE
Temperature range	-40 °C ... 130 °C
Protection class	IP68
Note	

Ordering data

Type	Thread	KB	SW	Qty.	Order No.
Plastic					
VG 16 HQ K68 4-6.5	PG 16	4-6.5	27	1	2715990000
VG 16 HQ K68 6.5-9.5	PG 16	6.5-9.5	27	1	1273890000
VG 16 HQ K68 9-13	PG 16	9-13	27	1	1016070000
VG 16 HQ K68 11.5-15.5	PG 16	11.5-15.5	27	1	1016080000
brass					
VG 21 HQ MS68 9-13	PG 21	9-13	30	1	1016090000
VG 21 HQ MS68 11.5-15.5	PG 21	11.5-15.5	30	1	1016100000
VG 21 HQ MS68 14-18	PG 21	14-18	30	1	1016110000
EMC					
VG 21 HQ EMV68 11-15.5	PG 21	11-15.5	30	1	1016120000
VG 21 HQ EMV68 14-18	PG 21	14-18	30	1	1016130000
only for angled HQ base enclosure (order number 1003110000)					
VG16 HQ K68 9-12SH	PG 16	9-12	30	1	1045530000
VG16 HQ K68 11.5-15.5SH	PG 16	11.5-15.5	30	1	1045540000

Overview: Klippon® cable glands and selection tool

ATEX / IECEx certified cable glands

Cable Gland Type	Outer Elastomeric Seal	Inner Elastomeric Seal	Lead Option	Armour Clamp	Certification	IP Rating	Page No.
KDSU	YES	YES	NO	Universal	Ex d / Ex e	IP66, IP68	D.27
KDSW	YES	YES	YES	Steel wire	Ex d / Ex e	IP66, IP68	D.29
KDSX	YES	YES	NO	Braided	Ex d / Ex e	IP66, IP68	D.32
KUB	YES	Compound	NO	Universal	Ex d	IP66, IP68	On request
KSG	YES	NO	NO	No	Ex d / Ex e	IP66, IP68	D.33

General

Health & Safety

When Weidmüller cable glands and the accessories are used and installed as prescribed within the data sheet provided, they will not cause any danger or hazard to the health or safety of persons, animals or property. The products should be installed by suitably trained/skilled personnel and in full accordance with the relevant legislative regulations and the accepted code of practice for the industry concerned.

Warning

Weidmüller cable glands and accessories should not be used within any application other than those specified for each product, unless Weidmüller issue a statement in writing that the product is suitable for the specified application. For further information on each product, we refer you to the specific Assembly Instructions and General Arrangement drawings, which are available on request. Weidmüller takes no responsibility for any damage, injury or other consequential loss caused where the glands are not installed or used according to our Assembly Instructions.

Installation in hazardous area applications

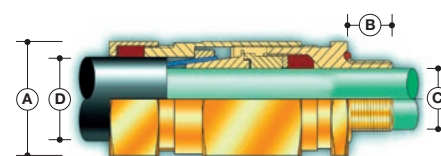
If cable glands and accessories are installed in hazardous area applications, international and national standards of the Explosion Protection have to be considered.

The KDSU type glands provide a universal armour clamp for steel wire, steel tape, screened or braided cables. An electrical bond between the cable armour and the gland is ensured. The gland can also be used to terminate un-armoured cables. In addition, the gland is fitted with two separate seals to seal the outer and inner cable insulation.

When choosing the gland with a neoprene sealing a temperature range from -35 °C to +90 °C will be achieved. Whereas the gland with silicone sealing ensures a temperature range from -60 °C to +180 °C. With both sealing materials an IP rating of IP68 to 25 metres (30 min. at 2.5 bar) is maintained. The KDSU is approved for explosion protection type of pressure-resistant encapsulation Ex d and increased safety Ex e.

Structure of the part description

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example article description	KDSU	M20	B	S	0	SC	1	G16
Meaning	[Type] = Gland type (KDSU) [a] = Entry thread (M20-M75) [b] = Material (B = brass) [c] = Seal material (S = Silicone, N = Neoprene) [d] = Continuity for lead sheath (L = yes, 0 = no) [e] = Plating (SC = self-coloured, NI = Nickel) [f] = Cable outer sheath (1 = Reduced, 2 = Standard) [ggg] = Gland size (G16-G75)							
Note	Refer to page D.22 Selection Guide Klippon® Cable Glands to determine the suitable order number							



Dimensions

Gland Size [ggg]	Entry thread [a]	Entry thread Length [B]	Max Outer Diameter [A]	Max Length	Gland Seal Range						Armour Acceptance Range	Shroud Size
					Cable Inner Sheath [C]		Cable Outer Sheath [D]					
							Standard [f] = 2		Reduced [f] = 1			
Min	Max	Min	Max	Min	Max							
G16	M20	16	28.0	78.0	3.4	8.4	9.0	13.5	6.7	10.3	0.15 - 1.25	L24
G20S	M20	16	28.0	78.0	7.2	11.7	11.5	16.0	9.4	12.5	0.15 - 1.25	L24
G20	M20	16	33.0	78.0	9.4	14.0	15.5	21.1	12.0	17.6	0.15 - 1.25	EL30
G25	M25	16	41.4	90.0	13.5	20.0	20.3	27.4	16.8	23.9	0.15 - 1.60	EL38
G32	M32	16	50.6	105.0	19.5	26.3	26.7	34.0	23.2	30.5	0.15 - 2.00	EL46
G40	M40	16	60.5	113.0	23.0	32.2	33.0	40.6	28.6	36.2	0.20 - 2.00	EL55
G50S	M50	16	71.5	125.0	28.1	38.2	39.4	46.7	34.8	42.4	0.30 - 2.50	EL65
G50	M50	16	71.5	125.0	33.1	44.1	45.7	53.2	41.1	48.5	0.30 - 2.50	EL65
G63S	M63	19	88.0	125.0	39.2	50.1	52.1	59.5	47.5	54.8	0.30 - 2.50	EL80
G63	M63	19	88.0	125.0	46.7	56.0	58.4	65.8	53.8	61.2	0.30 - 2.50	EL80
G75S	M75	19	99.0	131.0	52.1	62.0	64.8	72.2	60.2	68.0	0.30 - 2.50	EL90
G75	M75	19	99.0	131.0	58.0	68.0	71.1	78.0	66.5	73.4	0.30 - 2.50	EL90
Dimensions in mm												

Important Notes

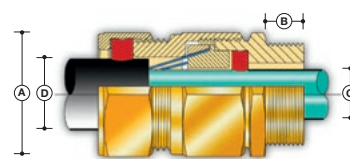
- The gland size does not necessarily equate to the entry thread size.
- In some cases several gland sizes can be chosen due to overlapping inner as well as outer cable diameters. Due to the wide range of armoured cables available, it is necessary to select the correct clamping range. This is achieved by taking the inner and outer clamping range values to determine the best fit (as close as possible to the Min/Max values average).
- All cable glands have a 1.5 mm pitch.
- For Flameproof Ex d applications the female thread into which the gland is to be fitted must achieve an engagement of at least 5 full threads in compliance with clause 5.3 of EN/IEC 60079-1.
- Where KDSU glands are fitted into non-metallic Increased Safety Ex e enclosures they must be included within the earth circuit of the system.
- Fully assembly instructions are supplied with the glands. The instructions must be read prior to installation and adhered to in full.
- When the gland is used to terminate un-armoured cables, the gland is suitable only for fixed installation.

Klippon® KDSW Cable Glands

The KDSW glands provide an armour clamp for steel wire, steel tape and lead sheathed cables. An electrical bond between the cable armour and the gland is ensured. In addition, the gland is fitted with two separate sealings to seal the outer and inner cable insulation.

When choosing the gland with a neoprene sealing a temperature range from -35 °C to +90 °C will be achieved, whereas the gland with silicone sealing ensures a temperature range from -60 °C to +180 °C. With both sealing materials an IP rating of IP66 and IP68 to 25 metres (30 min at 2.5 bar) is maintained. The KDSW gland is approved for Flameproof Ex d and Increased Safety Ex e applications.

Structure of the part description

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example article description	KDSW	M20	B	S	L	SC	1	G16
Meaning	[Type] = Gland type (KDSW) [a] = Entry thread (M20-M75) [b] = Material (B = brass) [c] = Seal material (S = Silicone, N = Neoprene) [d] = Continuity for lead sheath (L = yes, O = no) [e] = Plating (SC = self-coloured, NI = Nickel) [f] = Cable outer sheath (1 = Reduced, 2 = Standard) [ggg] = Gland size (G16-G75) 							
Note	Refer to page D.22 Selection Guide Klippon® Cable Glands to determine the suitable order number							

Dimensions

Gland Size [ggg]	Entry thread [a]	Entry thread Length [B]	Max Outer Diameter [A]	Max Length	Gland Seal Range						Armour Acceptance Range	Shroud Size
					Cable Inner Sheath [C]		Cable Outer Sheath [D]					
							Standard [f] = 2		Reduced [f] = 1			
					Min	Max	Min	Max	Min	Max		
G16	M20	16	26.5	58.0	4.0	8.4	8.4	13.5	4.9	10.0	0.90	L24
G20S	M20	16	26.5	58.0	8.0	11.7	11.5	16.0	9.4	12.5	0.90 - 1.25	L24
G20	M20	16	33.0	58.0	6.7*	14.0	15.5	21.1	12.0	17.6	0.90 - 1.25	L30
G25	M25	16	41.4	58.0	13.0	20.0	20.3	27.4	16.8	23.9	1.25 - 1.60	L38
G32	M32	16	50.6	65.0	19.0	26.3	26.7	34.0	23.2	30.5	1.60 - 2.00	L46
G40	M40	16	60.5	72.0	25.0	32.2	33.0	40.6	28.6	36.2	1.60 - 2.00	L55
G50S	M50	16	71.5	73.0	31.5	38.2	39.4	46.7	34.8	42.4	2.00 - 2.50	L65
G50	M50	16	71.5	73.0	36.5	44.1	45.7	53.2	41.1	48.5	2.00 - 2.50	L65
G63S	M63	19	88.0	76.0	42.5	50.1	52.1	59.5	47.5	54.8	2.50	L80
G63	M63	19	88.0	76.0	49.5	56.0	58.4	65.8	53.8	61.2	2.50	L80
G75S	M75	19	99.0	82.0	54.5	62.0	64.8	72.2	60.2	68.0	2.50	L90
G75	M75	19	99.0	82.0	60.5	68.0	71.1	78.0	66.5	73.4	2.5	L90
Dimensions in mm												

Important Notes

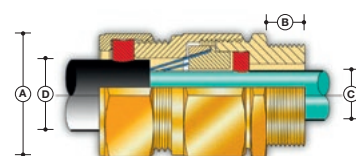
- The gland size does not necessarily equate to the entry thread size.
- In some cases several gland sizes can be chosen due to overlapping inner as well as outer cable diameters. Due to the wide range of armoured cables available, it is necessary to select the correct clamping range. This is achieved by taking the inner and outer clamping range values to determine the best fit (as close as possible to the Min/Max values average).
- All cable glands have a 1.5 mm pitch.
- For Flameproof Ex d applications the female thread into which the gland is to be fitted must achieve an engagement of at least 5 full threads in compliance with clause 5.3 of EN/IEC 60079-1.
- Where KDSW glands are fitted into non-metallic Increased Safety Ex e enclosures they must be included within the earth circuit of the system.
- Fully assembly instructions are supplied with the glands. The instructions must be read prior to installation and adhered to in full.
- When the gland is used to terminate un-armoured cables, the gland is suitable only for fixed installation.
- * KDSW gland size G20 with silicone seal, the silicone inner seal only seals to a minimum of 9,3 mm and NOT 6.7 mm.

The KDSX glands provide an armour clamp for braided cables. An electrical bond between the cable armour and the gland is ensured. In addition, the gland is fitted with two separate sealings to seal the outer and inner cable insulation.

The gland maintains a temperature range from -60 °C to +180 °C. With both sealing materials an IP rating of IP66 and IP68 to 25 metres (30 min at 2.5 bar) is maintained. The KDSX gland is approved for Flameproof Ex d and Increased Safety Ex e applications.

Structure of the part description

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example article description	KDSX	M20	B	S	0	SC	1	G16
Meaning	[Type] = Gland type (KDSX) [a] = Entry thread (M20-M75) [b] = Material (B = brass) [c] = Seal material (S = Silicone) [d] = Continuity for lead sheath (L = yes, 0 = no) [e] = Plating (SC = self-coloured, NI = Nickel) [f] = Cable outer sheath (1 = Reduced, 2 = Standard) [ggg] = Gland size (G16-G75)							
Note	Refer to page D.22 Selection Guide Klippon® Cable Glands to determine the suitable order number							



Dimensions

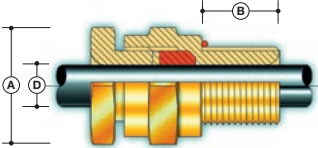
Gland Size [ggg]	Entry thread [a]	Entry thread Length [B]	Max Outer Diameter [A]	Max Length	Gland Seal Range						Armour Acceptance Range	Shroud Size
					Cable Inner Sheath [C]		Cable Outer Sheath [D]					
							Standard [f] = 2		Reduced [f] = 1			
Min	Max	Min	Max	Min	Max							
G16	M20	16	26.5	58.0	4.0	8.4	8.4	13.5	4.9	10.0	0.15 - 0.35	L24
G20S	M20	16	26.5	58.0	8.0	11.7	11.5	16.0	9.4	12.5	0.15 - 0.35	L24
G20	M20	16	33.0	58.0	6.7*	14.0	15.5	21.1	12.0	17.6	0.15 - 0.50	L30
G25	M25	16	41.4	58.0	13.0	20.0	20.3	27.4	16.8	23.9	0.15 - 0.50	L38
G32	M32	16	50.6	65.0	19.0	26.3	26.7	34.0	23.2	30.5	0.15 - 0.55	L46
G40	M40	16	60.5	72.0	25.0	32.2	33.0	40.6	28.6	36.2	0.20 - 0.60	L55
G50S	M50	16	71.5	73.0	31.5	38.2	39.4	46.7	34.8	42.4	0.20 - 0.60	L65
G50	M50	16	71.5	73.0	36.5	44.1	45.7	53.2	41.1	48.5	0.30 - 0.80	L65
G63S	M63	19	88.0	76.0	42.5	50.1	52.1	59.5	47.5	54.8	0.30 - 0.80	L80
G63	M63	19	88.0	76.0	49.5	56.0	58.4	65.8	53.8	61.2	0.30 - 0.80	L80
G75S	M75	19	99.0	82.0	54.5	62.0	64.8	72.2	60.2	68.0	0.30 - 1.00	L90
G75	M75	19	99.0	82.0	60.5	68.0	71.1	78.0	66.5	73.4	0.30 - 1.00	L90
Dimensions in mm												

Important Notes

- The gland size does not necessarily equate to the entry thread size.
- In some cases several gland sizes can be chosen due to overlapping inner as well as outer cable diameters. Due to the wide range of armoured cables available, it is necessary to select the correct clamping range. This is achieved by taking the inner and outer clamping range values to determine the best fit (as close as possible to the Min/Max values average).
- All cable glands have a 1.5 mm pitch.
- For Flameproof Ex d applications the female thread into which the gland is to be fitted must achieve an engagement of at least 5 full threads in compliance with clause 5.3 of EN/IEC 60079-1.
- Where KDSX glands are fitted into non-metallic Increased Safety Ex e enclosures they must be included within the earth circuit of the system.
- Fully assembly instructions are supplied with the glands. The instructions must be read prior to installation and adhered to in full.
- When the gland is used to terminate un-armoured cables, the gland is suitable only for fixed installation.
- * KDSX gland size G20 with silicone seal, the silicone inner seal only seals to a minimum of 9,3 mm and NOT 6.7 mm.

The KSG gland is designed to terminate un-armoured cables. When choosing the gland with a neoprene sealing a temperature range from -35 °C to +90 °C will be achieved, whereas the gland with silicone sealing ensures a temperature range from -60 °C to +180 °C. With both sealing materials an IP rating of IP66 and IP68 to 25 metres (30 min. at 2.5 bar) is maintained. The KSG type gland is approved for Flameproof Ex d and Increased Safety Ex e applications.

Structure of the part description

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example article description	KSG	M20	B	S	0	SC	2	G16
Meaning	[Type] = Gland type (KSG) [a] = Entry thread (M20-M90) [b] = Material (B = brass) [c] = Seal material (S = Silicone, N = Neoprene) [d] = Continuity for lead sheath (L = yes, 0 = no) [e] = Plating (SC = self-coloured, NI = Nickel) [f] = Cable outer sheath (2 = Standard) [ggg] = Gland size (G16-G90) 							
Note	Refer to page D.22 Selection Guide Klippon® Cable Glands to determine the suitable order number							

Dimensions

Gland Size [ggg]	Entry thread [a]	Entry thread Length [B]	Max Outer Diameter [A]	Max Length	Gland Seal Range		Shroud Size
					Cable Outer Sheath [D]		
					Standard [f] = 2		
					Min	Max	
G16	M20	16	28.0	33.0	4.0	8.4	L24
G20S	M20	16	28.0	33.0	7.2	11.7	L24
G20	M20	16	33.0	33.0	9.6	14.0	L30
G25	M25	16	41.4	33.0	13.5	20.0	L38
G32	M32	16	50.6	33.0	19.5	26.3	L46
G40	M40	16	60.5	37.0	23.0	32.2	L55
G50S	M50	16	71.5	37.0	28.2	38.2	L65
G50	M50	16	71.5	37.0	33.2	44.1	L65
G63S	M63	19	88.0	37.0	39.3	50.1	L80
G63	M63	19	88.0	37.0	46.7	56.0	L80
G75S	M75	19	99.0	37.0	52.3	62.0	L90
G75	M75	19	99.0	37.0	58.1	69.0	L90
Dimensions in mm							

Important Notes

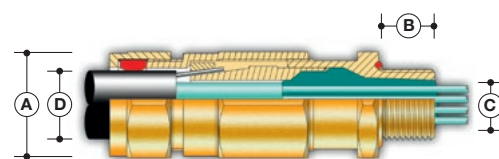
- The gland size does not necessarily equate to the entry thread size.
- In some cases several gland sizes can be chosen due to overlapping inner as well as outer cable diameters. Due to the wide range of armoured cables available, it is necessary to select the correct clamping range. This is achieved by taking the inner and outer clamping range values to determine the best fit (as close as possible to the Min/Max values average).
- All cable glands have a 1.5 mm pitch.
- For Flameproof Ex d applications the female thread into which the gland is to be fitted must achieve an engagement of at least 5 full threads in compliance with clause 5.3 of EN/IEC 60079-1.
- Where KSG glands are fitted into non-metallic Increased Safety Ex e enclosures they must be included within the earth circuit of the system.
- Fully assembly instructions are supplied with the glands. The instructions must be read prior to installation and adhered to in full.
- When the gland is used to terminate un-armoured cables, the gland is suitable only for fixed installation.

The KUB gland provide an armour clamp for steel tape, steel wire and braided cables. An electrical bond between the cable armour and the gland is ensured. The gland can also be used to terminate unarmoured cables. Additionally, the gland provides a single pull resistant seal on the outer sheath of any cable. After clamping the cable armour onto the cone, the cable has to be filled with the provided compound to seal the free spaces between the single conductors.

The gland maintains a temperature range from -60 °C to +135 °C. When filled, the gland fulfills an IP rating of IP68 to 100 metres (30 Min. at 10 bar). The KUB gland is only suitable for pressure-resistant Ex d encapsulation, and is available on request.

Structure of the part description

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example article description	KUB	M20	B	S	0	SC	1	G16
Meaning	[Type] = Gland type (KUB) [a] = Entry thread (M20-M75) [b] = Material (B = brass) [c] = Seal material (S = Silicone) [d] = Continuity for lead sheath (L = yes, 0 = no) [e] = Plating (SC = self-coloured, NI = Nickel) [f] = Cable outer sheath (1 = Reduced, 2 = Standard) [ggg] = Gland size (G16-G75)							
Note	Refer to page D.22 Selection Guide Klippon® Cable Glands to determine the suitable order number							



Dimensions

Gland Size [ggg]	Entry thread [a]	Entry thread Length [B]	Max Outer Diameter [A]	Max Length	Gland Seal Range								Armour Acceptance Range	Shroud Size
					Cable Inner Sheath [C]			Cable Outer Sheath [D]						
					Standard [f] = 2		Reduced [f] = 1							
X	Y	Z	Min	Max	Min	Max								
G16	M20	16	28.0	72.0	7	9.0	11.7	9.0	13.5	6.7	10.3	0.15 - 1.25	L24	
G20S	M20	16	28.0	72.0	8	10.4	11.7	11.5	16.0	9.4	12.5	0.15 - 1.25	L24	
G20	M20	16	33.0	73.0	14	12.5	14.0	15.5	21.1	12.0	17.6	0.15 - 1.25	EL30	
G25	M25	16	41.4	83.0	25	17.8	20.0	20.3	27.4	16.8	23.9	0.15 - 1.60	EL38	
G32	M32	16	50.6	103.0	50	23.5	26.3	26.7	34.0	23.2	30.5	0.15 - 2.00	EL46	
G40	M40	16	60.5	105.0	80	28.8	32.2	33.0	40.6	28.6	36.2	0.20 - 2.00	EL55	
G50S	M50	16	71.5	115.0	100	34.2	38.2	39.4	46.7	34.8	42.4	0.30 - 2.50	EL65	
G50	M50	16	71.5	115.0	100	39.4	44.1	45.7	53.2	41.1	48.5	0.30 - 2.50	EL65	
G63S	M63	19	88.0	115.0	120	44.8	50.1	52.1	59.5	47.5	54.8	0.30 - 2.50	EL80	
G63	M63	19	88.0	115.0	120	50.0	56.0	58.4	65.8	53.8	61.2	0.30 - 2.50	EL80	
G75S	M75	19	99.0	122.0	140	55.4	62.0	64.8	72.2	60.2	68.0	0.30 - 2.50	EL90	
G75	M75	19	99.0	122.0	140	60.8	68.0	71.1	78.0	66.5	73.4	0.30 - 2.50	EL90	
Dimensions in mm														

Important Notes

- The gland size does not necessarily equate to the entry thread size.
- In some cases several gland sizes can be chosen due to overlapping inner as well as outer cable diameters. Due to the wide range of armoured cables available, it is necessary to select the correct clamping range. This is achieved by taking the inner and outer clamping range values to determine the best fit (as close as possible to the Min/Max values average).
- X = Maximum numbers of cores
- Y = Maximum over cores
- Z = Maximum inner sheath
- All cable glands have a 1.5 mm pitch.
- For Flameproof Ex d applications the female thread into which the gland is to be fitted must achieve an engagement of at least 5 full threads in compliance with clause 5.3 of EN/IEC 60079-1.
- Where KUB glands are fitted into non-metallic Increased Safety Ex e enclosures they must be included within the earth circuit of the system
- Fully assembly instructions are supplied with the glands. The instructions must be read prior to installation and adhered to in full.
- When the gland is used to terminate un-armoured cables, the gland is suitable only for fixed installation.

Selection Guide Klippon® Cable Glands

Purpose: Generation of the article description

By selecting the suitable cable gland different factors have to be considered, such as

- The environment of the application
- The conditions inside the enclosure
- The construction of the cable

By using the Selection Guide Klippon® Cable Glands the article description will be generated following the step by step process to create the 7 character order key. From this the order number can be identified.

The order key consists out of the following attributes:

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description	KDSU	M20	B	S	0	SC	1	G16
Meaning	[Type] = Gland type (KDSU, KDSW, KDSX, KSG, KUB) [a] = Entry thread (M20-M75) [b] = Material (B = brass) [c] = Seal material (S=Silicone, N=Neoprene) [d] = Continuity for lead sheath (L = yes, 0 = no) [e] = Plating (SC = self-coloured, NI = nickel-plated) [f] = Cable outer sheath (1 = Reduced, 2 = Standard) [ggg] = Gland size (G16-G75)							

Application example

Within an Ex d application on an Off-Shore platform a suitable cable gland for the termination into an enclosure is required. Following details about the application are given:

- The enclosure will be used for the control of a motor circuit breaker
- The enclosure has a volume of 1.3 dm³ and is installed outdoor.
- The application is in the field, a place in which an explosive atmosphere is likely to occur in normal operation, occasionally (Zone 1)
- The surrounding atmosphere of the enclosure consists Ethylene (gas group IIB)
- The enclosure operates in a temperature range of -40 °C bis +45 °C
- The armour of the cable is unknown, no lead sheathed cable
- The cable outer sheath diameter is 10 mm
- The cable inner sheath diameter is 8 mm

Based on the information in the above shown example case the article description will be determined on the following pages.

1. Selection of the cable gland type [type] and continuity for lead sheath [d]

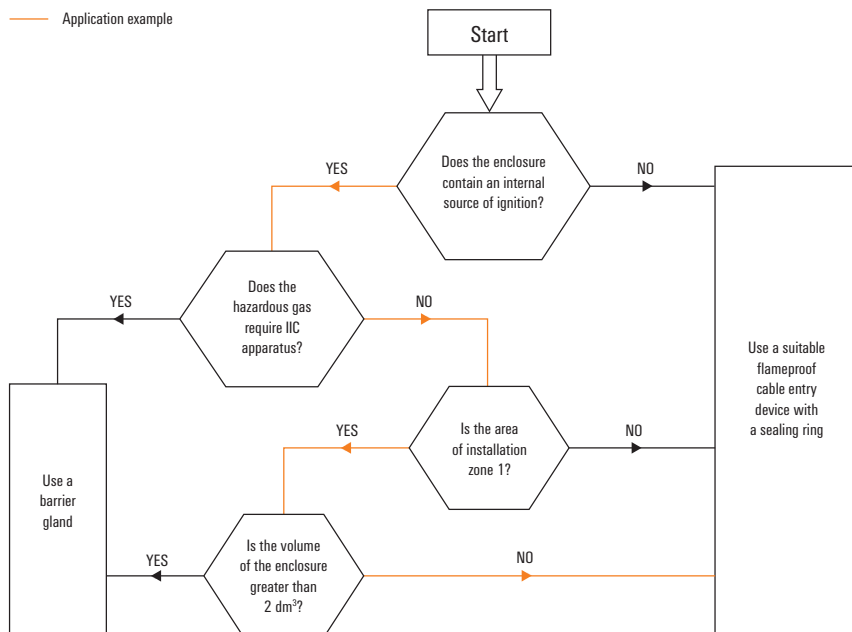
Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description								

1a) Selection of the cable gland type in regard to the ignition protection type

[Type]	Ignition Protection Type
KDSU	Ex d / Ex e
KDSW	Ex d / Ex e
KDSX	Ex d / Ex e
KSG	Ex d / Ex e
KUB	Ex d

Because it is an Ex d application all cable gland types (marked in blue) can come into consideration.

For Ex d applications the following questionnaire according to the IEC 60079-14 standard has to be passed to find out if a barrier gland ([Type]=KUB) or if a cable gland with a sealing ring ([Type]=KDSU,KDSW,KDSX) has to be used.



By passing this questionnaire with the given information of the example case the orange marked way has to be followed and the result is that a cable gland with sealing ring has to be used. Consequently the blue marked cable gland types below can come into consideration.

Gland type	Type of sealing
KDSU	Sealing ring
KDSW	Sealing ring
KDSX	Sealing ring
KSG	Sealing ring
KUB	Compound

1b) Selection of the cable gland type in regard to the continuity for lead sheath

[Type]	[d]	Continuity for lead sheath
KDSU	0	No
KDSW	L / 0	Yes
KDSX	0	No
KSG	0	No
KUB	0	No

In the example case a cable without lead sheath is to be terminated, therefore the option to clamp a lead sheathed cable is not needed. Consequently is

[d] = 0

All four gland types marked in blue can be used.

1c) Selection of the cable gland type in regard to the type of armour

[Type]	Armour
KDSU	Universal
KDSW	Steel wire, steel tape
KDSX	Braided
KSG	No armour
KUB	Universal

Because the type of armour of the cable is unknown, the cable gland type KDSU has to be selected.

Consequently is

[Type] = KDSU

The generated information has to be filled into the order key below:

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description	KDSU				0			

2. Selection of the material [b], the sealing material [c] and the plating [e] of the cable gland

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description	KDSU				0			

2a) Selection of the material [b]

All cable gland types are made from brass "b". Other materials can also be provided upon request.

Consequently is

[b] = B

2b) Selection of the sealing material [c] based on the required temperature range

The cable glands can be ordered with either a neoprene seal "N" or a silicone seal "S".

Glands with a neoprene seal can be used in a temperature range from -35 °C to +90 °C, whereas glands with silicone seal maintain a temperature range from -60 °C to +180 °C. (KUB glands are certified to a temperature of -60 °C to +135 °C).

[Type]	[c]	Seal material
KDSU	N,S	Neoprene, Silicone
KDSW	N,S	Neoprene (with continuity for lead sheath), Silicone
KDSX	S	Silicone
KSG	N,S	Neoprene, Silicone
KUB	N	Silicone (-60 °C to +135 °C)

Because the enclosure in the example case operates in a temperature range of -40 °C bis +45 °C, a cable gland with a silicone seal has to be used.

Consequently is

[c] = „S“ (Silicone)

2c) Selection of the plating [e]

All cable glands can be provided either with nickel plated surface "NI" or with self-coloured surface "SC".

In the example case the enclosure is used outdoor, therefore it can come into contact with water in form of rain, so that a cable gland with nickel plated surface as protection against corrosion and wear has to be selected. Consequently is [e] = „NI“

The generated information has to be filled into the order key below:

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description	KDSU		B	S	0	NI		

3. Selection of the entry thread [a], the cable outer sheath variant [f] and the gland size [ggg]

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Example Article Description	KDSU		B	S	0	NI		

The suitable gland size [ggg] will be selected based on the inner and outer sheath diameters of the cable. Thereby the entry thread size [a] and the cable outer sheath variant [f] result.

In the example case the following diameters are given:

Cable Outer Sheath: 10 mm (By looking into the below shown dimensions chart of the KDSU the orange marked clamping ranges (Cable Outer Sheath [D]) can be selected).

Cable Inner Sheath: 8 mm (By looking into the below shown dimensions chart of the KDSU the orange marked clamping ranges (Cable Inner Sheath [C]) can be selected).

Dimensions

Dimensions

Gland Size	Entry thread	Entry thread Length	Max Outer Diameter	Max Length	Gland Seal Range						Armour Acceptance Range	Shroud Size
					Cable Inner Sheath [C]		Cable Outer Sheath [D]					
							Standard [f]=2		Reduced [f]=1			
					[ggg]	[B]	[A]	Min	Max	Min		
G16	M20	16	28.0	78.0	3.4	8.4	9.0	13.5	6.7	10.3	0.15 - 1.25	L24
G20S	M20	16	28.0	78.0	7.2	11.7	11.5	16.0	9.4	12.5	0.15 - 1.25	L24
G20	M20	16	33.0	78.0	9.4	14.0	15.5	21.1	12.0	17.6	0.15 - 1.25	EL30
G25	M25	16	41.4	90.0	13.5	20.0	20.3	27.4	16.8	23.9	0.15 - 1.60	EL38
G32	M32	16	50.6	105.0	19.5	26.3	26.7	34.0	23.2	30.5	0.15 - 2.00	EL46
G40	M40	16	60.5	113.0	23.0	32.2	33.0	40.6	28.6	36.2	0.20 - 2.00	EL55
G50S	M50	16	71.5	125.0	28.1	38.2	39.4	46.7	34.8	42.4	0.30 - 2.50	EL65
G50	M50	16	71.5	125.0	33.1	44.1	45.7	53.2	41.1	48.5	0.30 - 2.50	EL65
G63S	M63	19	88.0	125.0	39.2	50.1	52.1	59.5	47.5	54.8	0.30 - 2.50	EL80
G63	M63	19	88.0	125.0	46.7	56.0	58.4	65.8	53.8	61.2	0.30 - 2.50	EL80
G75S	M75	19	99.0	131.0	52.1	62.0	64.8	72.2	60.2	68.0	0.30 - 2.50	EL90
G75	M75	19	99.0	131.0	58.0	68.0	71.1	78.0	66.5	73.4	0.30 - 2.50	EL90
All dimensions in mm												

By the selection of the inner [C] resp. outer [D] clamping range, a range should be used where the diameter of the cable outer and inner sheath are as near as possible to the average of the Min/Max Values. In doing so, the reduced cable outer sheath with the gland size G20S and the entry thread of M20 has to be selected.

Consequently is

[f]=1

[ggg]=G20S

[a]=M20

The generated information has to be filled into the order key below:

Order key	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]
Article description	KDSU	M20	B	S	0	NI	1	G20S

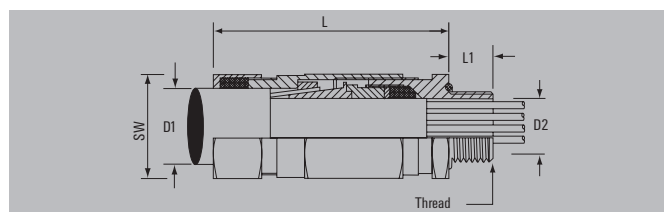
Resulting from the complete article description the relating order number (brown marked) can be determined.

Extract from table KDSU "Nickel-plated brass gland with silicone sealing" on page D.28

Order No.	Description	[Type]	[a]	[b]	[c]	[d]	[e]	[f]	[ggg]	Qty.
0930001221	KDSU M20 BS 0 NI 1 G16	KDSU	M20	B	S	0	NI	1	G16	20
0930001222	KDSU M20 BS 0 NI 2 G16	KDSU	M20	B	S	0	NI	2	G16	20
0930011223	KDSU M20 BS 0 NI 1 G20S	KDSU	M20	B	S	0	NI	1	G20S	20
0930011224	KDSU M20 BS 0 NI 2 G20S	KDSU	M20	B	S	0	NI	2	G20S	20
0930021221	KDSU M20 BS 0 NI 1 G20	KDSU	M20	B	S	0	NI	1	G20	20
...	...	...	...	...	...	...	...	...	...	...

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP68 for armoured and non-armoured cables


All-purpose cable gland for cables and lines with single-wire armouring, metal-foil armouring and braided armouring. Non-armoured cables and lines can also be connected.


Technical data

Material	Brass, nickel-plated
O-Ring / Seal insert	NBR / CR
Temperature range	-35 °C...90 °C
Degree of protection	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Single-wire armouring, Metal foil armouring, Braided armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1285X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Ordering data

Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSU M20 BN 0 NI 1 G16	M 20	6.7-10.3	3.40-8.40	0.1-1.25	78 / 16	24	L24	20	1083280000
KDSU M20 BN 0 NI 2 G16	M 20	9-13.5	3.40-8.40	0.1-1.25	78 / 16	24	L24	20	1911380000
KDSU M20 BN 0 NI 1 G20S	M 20	9.4-12.5	7.20-11.70	0.1-1.25	78 / 16	24	L24	20	1083290000
KDSU M20 BN 0 NI 2 G20S	M 20	11.5-16	7.20-11.70	0.1-1.25	78 / 16	24	L24	20	1911390000
KDSU M20 BN 0 NI 1 G20	M 20	12-17.6	9.40-14.00	0.1-1.25	78 / 16	30	EL30	20	1083320000
KDSU M20 BN 0 NI 2 G20	M 20	15.5-21.1	9.40-14.00	0.1-1.25	78 / 16	30	EL30	20	1911400000
KDSU M25 BN 0 NI 1 G25	M 25	16.8-23.9	13.50-20.00	0.1-1.6	90 / 16	38	EL38	20	1083330000
KDSU M25 BN 0 NI 2 G25	M 25	20.3-27.4	13.50-20.00	0.1-1.6	90 / 16	38	EL38	20	1911420000
KDSU M32 BN 0 NI 1 G32	M 32	23.2-30.5	19.50-26.30	0.1-2	105 / 16	46	EL46	10	1083340000
KDSU M32 BN 0 NI 2 G32	M 32	26.7-34	19.50-26.30	0.1-2	105 / 16	46	EL46	10	1911430000
KDSU M40 BN 0 NI 1 G40	M 40	28.6-36.2	23.00-32.20	0.1-2	113 / 16	55	EL55	10	1083350000
KDSU M40 BN 0 NI 2 G40	M 40	33-40.6	23.00-32.20	0.1-2	113 / 16	55	EL55	10	1911440000
KDSU M50 BN 0 NI 1 G50	M 50	41.1-48.5	33.10-44.10	0.1-2.5	125 / 16	65	EL65	1	1083370000
KDSU M50 BN 0 NI 2 G50	M 50	45.7-53.2	33.10-44.10	0.1-2.5	125 / 16	65	EL65	1	1911460000
KDSU M50 BN 0 NI 1 G50S	M 50	34.8-42.4	28.10-38.20	0.1-2.5	125 / 16	65	EL65	1	1083360000
KDSU M50 BN 0 NI 2 G50S	M 50	39.4-46.7	28.10-38.20	0.1-2.5	125 / 16	65	EL65	1	1911450000
KDSU M63 BN 0 NI 1 G63S	M 63	47.5-54.8	39.20-50.10	0.1-2.5	125 / 19	80	EL80	1	1083380000
KDSU M63 BN 0 NI 2 G63S	M 63	52.1-59.5	39.20-50.10	0.1-2.5	125 / 19	80	EL80	1	1911480000
KDSU M63 BN 0 NI 1 G63	M 63	53.8-61.2	46.70-56.00	0.1-2.5	125 / 16	80	EL80	1	1083390000
KDSU M63 BN 0 NI 2 G63	M 63	58.4-65.8	46.70-56.00	0.1-2.5	125 / 19	80	EL80	1	1911490000
KDSU M75 BN 0 NI 1 G75S	M 75	60.2-68	52.10-62.00	0.1-2.5	131 / 19	90	EL90	1	1083400000
KDSU M75 BN 0 NI 2 G75S	M 75	64.8-72.2	52.10-62.00	0.1-2.5	131 / 19	90	EL90	1	1083410000
KDSU M75 BN 0 NI 1 G75	M 75	66.5-73.4	58.00-68.00	0.1-2.5	131 / 19	90	EL90	1	1083420000
KDSU M75 BN 0 NI 2 G75	M 75	71.1-78	58.00-68.00	0.1-2.5	131 / 19	90	EL90	1	1083430000

Note

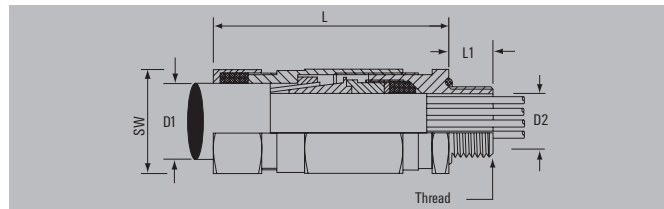
- All cable glands have a thread pitch of 1.5 mm.
- In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged.
- If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system.
- The connection cable must be laid securely and inflexibly to rule out tensile stress.

Ex-cable glands – Brass

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP68 for armoured and non-armoured cables



All-purpose cable gland for cables and lines with single-wire armouring, metal-foil armouring and braided armouring. Non-armoured cables and lines can also be connected.



Technical data

Material	Brass, nickel-plated
O-Ring / Seal insert	Silicone / Silicone
Temperature range	-60 °C...180 °C
Degree of protection	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Single-wire armouring, Metal foil armouring, Braided armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1285X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Ordering data

Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSU M20 BS 0 NI 1 G16	M 20	6.7-10.3	3.40-8.40	0.1-1.25	78 / 16	24	L24	20	0930001221
KDSU M20 BS 0 NI 2 G16	M 20	9-13.5	3.40-8.40	0.1-1.25	78 / 16	24	L24	20	0930001222
KDSU M20 BS 0 NI 1 G20	M 20	12-17.6	9.40-14.00	0.1-1.25	78 / 16	30	EL30	20	0930021221
KDSU M20 BS 0 NI 2 G20	M 20	15.5-21.1	9.40-14.00	0.1-1.25	78 / 16	30	EL30	20	0930021222
KDSU M20 BS 0 NI 1 G20S	M 20	9.4-12.5	7.20-11.70	0.1-1.25	78 / 16	24	L24	20	0930011223
KDSU M20 BS 0 NI 2 G20S	M 20	11.5-16	7.20-11.70	0.1-1.25	78 / 16	24	L24	20	0930011224
KDSU M25 BS 0 NI 1 G25	M 25	16.8-23.9	13.50-20.00	0.1-1.6	90 / 16	38	EL38	20	0930031221
KDSU M25 BS 0 NI 2 G25	M 25	20.3-27.4	13.50-20.00	0.1-1.6	90 / 16	38	EL38	1	0930031222
KDSU M32 BS 0 NI 1 G32	M 32	23.2-30.5	19.50-26.30	0.1-2	105 / 16	46	EL46	10	0930041221
KDSU M32 BS 0 NI 2 G32	M 32	26.7-34	19.50-26.30	0.1-2	105 / 16	46	EL46	10	0930041222
KDSU M40 BS 0 NI 1 G40	M 40	28.6-36.2	23.00-32.20	0.1-2	113 / 16	55	EL55	10	1136990000
KDSU M40 BS 0 NI 2 G40	M 40	33-40.6	23.00-32.20	0.1-2	113 / 16	55	EL55	10	0930051222
KDSU M50 BS 0 NI 1 G50	M 50	41.1-48.5	33.10-44.10	0.1-2.5	125 / 16	65	EL65	1	1137010000
KDSU M50 BS 0 NI 2 G50	M 50	45.7-53.2	33.10-44.10	0.1-2.5	125 / 16	65	EL65	1	1137020000
KDSU M50 BS 0 NI 1 G50S	M 50	34.8-42.4	28.10-38.20	0.1-2.5	125 / 16	65	EL65	1	1137000000
KDSU M50 BS 0 NI 2 G50S	M 50	39.4-46.7	28.10-38.20	0.1-2.5	125 / 16	65	EL65	1	0930061224
KDSU M63 BS 0 NI 1 G63	M 63	53.8-61.2	46.70-56.00	0.1-2.5	125 / 19	80	EL80	1	1137050000
KDSU M63 BS 0 NI 2 G63	M 63	58.4-65.8	46.70-56.00	0.1-2.5	125 / 19	80	EL80	1	0930091222
KDSU M63 BS 0 NI 1 G63S	M 63	47.5-54.8	39.20-50.10	0.1-2.5	125 / 19	80	EL80	1	1137030000
KDSU M63 BS 0 NI 2 G63S	M 63	52.1-59.5	39.20-50.10	0.1-2.5	125 / 19	80	EL80	1	1137040000
KDSU M75 BS 0 NI 1 G75	M 75	66.5-73.4	58.00-68.00	0.1-2.5	131 / 19	90	EL90	1	1137080000
KDSU M75 BS 0 NI 2 G75	M 75	71.1-78	58.00-68.00	0.1-2.5	131 / 19	90	EL90	1	1137090000
KDSU M75 BS 0 NI 1 G75S	M 75	60.2-68	52.10-62.00	0.1-2.5	131 / 19	90	EL90	1	1137060000
KDSU M75 BS 0 NI 2 G75S	M 75	64.8-72.2	52.10-62.00	0.1-2.5	131 / 19	90	EL90	1	1137070000

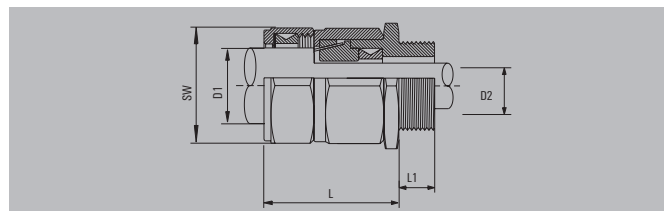
Note

- All cable glands have a thread pitch of 1.5 mm.
- In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged.
- If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system.
- The connection cable must be laid securely and inflexibly to rule out tensile stress.

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP66 / IP68 for armoured cables



Cable gland for cables and lines with single-wire armouring.



Technical data

Material	Brass, nickel-plated
Seal insert	CR
Temperature range	-35 °C...90 °C
Protection class	IP54
Protection degree with GWDR	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Single-wire armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1286X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Ordering data

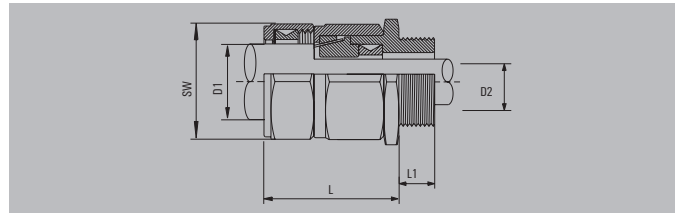
Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSW M20 BN O NI 1 G16	M 20	4.9-10.3	3.50-8.40	0.9	58 / 16	24	L24	20	1075030000
KDSW M20 BN O NI 2 G16	M 20	8.4-13.5	3.50-8.40	0.9	58 / 16	24	L24	20	1075040000
KDSW M20 BN O NI 1 G20	M 20	12-17.6	6.70-14.00	0.9-1.25	58 / 16	30	L30	20	1075070000
KDSW M20 BN O NI 2 G20	M 20	15.5-21.1	6.70-14.00	0.9-1.25	58 / 16	30	L30	20	1075080000
KDSW M20 BN O NI 1 G20S	M 20	9.4-12.5	8.00-11.70	0.9-1.25	58 / 16	30	L24	20	1075050000
KDSW M20 BN O NI 2 G20S	M 20	11.5-16	8.00-11.70	0.9-1.25	58 / 16	24	L24	20	1075060000
KDSW M25 BN O NI 1 G25	M 25	16.8-23.9	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1075090000
KDSW M25 BN O NI 2 G25	M 25	20.3-27.4	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1075110000
KDSW M32 BN O NI 1 G32	M 32	23.2-30.5	19.00-26.30	1.6-2	65 / 16	46	L46	10	1075120000
KDSW M32 BN O NI 2 G32	M 32	26.7-34	19.00-26.30	1.6-2	65 / 16	46	L46	10	1075130000
KDSW M40 BN O NI 1 G40	M 40	28.6-36.2	25.00-32.20	1.6-2	72 / 16	55	L55	10	1075140000
KDSW M40 BN O NI 2 G40	M 40	33-40.6	25.00-32.20	1.6-2	72 / 16	55	L55	10	1075150000
KDSW M50 BN O NI 1 G50	M 50	41.1-48.5	36.50-44.10	2-2.5	73 / 16	65	L65	1	1075180000
KDSW M50 BN O NI 2 G50	M 50	45.7-53.2	36.50-44.10	2-2.5	73 / 16	65	L65	1	1075190000
KDSW M50 BN O NI 1 G50S	M 50	34.8-42.4	31.50-38.20	2-2.5	73 / 16	65	L65	1	1075160000
KDSW M50 BN O NI 2 G50S	M 50	39.4-46.7	31.50-38.20	2-2.5	73 / 16	65	L65	1	1075170000
KDSW M63 BN O NI 1 G63	M 63	53.8-61.2	49.50-56.00	2.5	76 / 19	80	L80	1	1075230000
KDSW M63 BN O NI 2 G63	M 63	58.4-65.8	49.50-56.00	2.5	76 / 19	80	L80	1	1075240000
KDSW M63 BN O NI 1 G63S	M 63	47.5-54.8	42.50-50.10	2.5	76 / 19	80	L80	1	1075210000
KDSW M63 BN O NI 2 G63S	M 63	52.1-59.5	42.50-50.10	2.5	76 / 19	80	L80	1	1075220000
KDSW M75 BN O NI 1 G75	M 75	66.5-73.4	60.50-68.00	2.5	82 / 19	90	L90	1	1075270000
KDSW M75 BN O NI 2 G75	M 75	71.1-78	60.50-68.00	2.5	82 / 19	90	L90	1	1075280000
KDSW M75 BN O NI 1 G75S	M 75	60.2-68	54.50-62.00	2.5	82 / 19	90	L90	1	1075250000
KDSW M75 BN O NI 2 G75S	M 75	64.8-72.2	54.50-62.00	2.5	82 / 19	90	L90	1	1075260000
Note - All cable glands have a thread pitch of 1.5 mm. - In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged. - If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system. - The connection cable must be laid securely and inflexibly to rule out tensile stress.									

Ex-cable glands – Brass

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP66 / IP68 for armoured cables



Cable gland for cables and lines with single-wire armouring.



Technical data

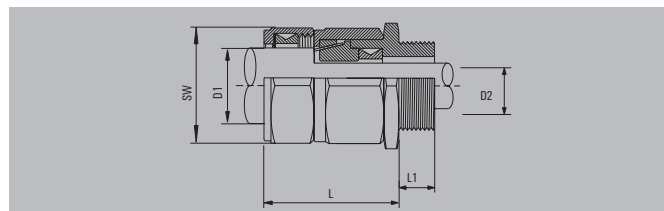
Material	Brass, nickel-plated
Seal insert	Silicone
Temperature range	-60 °C...180 °C
Protection class	IP54
Protection degree with GWDR	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Single-wire armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1286X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594
Note	

Ordering data

Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSW M20 BS 0 NI 1 G16	M 20	4.9-10.3	3.50-8.40	0.9	58 / 16	24	L24	20	1136410000
KDSW M20 BS 0 NI 2 G16	M 20	8.4-13.5	3.50-8.40	0.9	58 / 16	24	L24	20	1136420000
KDSW M20 BS 0 NI 1 G20	M 20	12-17.6	9.30-14.00	0.9-1.25	58 / 16	30	L30	20	1136450000
KDSW M20 BS 0 NI 2 G20	M 20	15.5-21.1	9.30-14.00	0.9-1.25	58 / 16	30	L30	20	1136460000
KDSW M20 BS 0 NI 1 G20S	M 20	9.4-12.5	8.00-11.70	0.9-1.25	58 / 16	30	L24	20	1136430000
KDSW M20 BS 0 NI 2 G20S	M 20	11.5-16	8.00-11.70	0.9-1.25	58 / 16	24	L24	20	1136440000
KDSW M25 BS 0 NI 1 G25	M 25	16.8-23.9	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1136470000
KDSW M25 BS 0 NI 2 G25	M 25	20.3-27.4	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1136480000
KDSW M32 BS 0 NI 1 G32	M 32	23.2-30.5	19.00-26.30	1.6-2	65 / 16	46	L46	10	1136490000
KDSW M32 BS 0 NI 2 G32	M 32	26.7-34	19.00-26.30	1.6-2	65 / 16	46	L46	10	1136510000
KDSW M40 BS 0 NI 1 G40	M 40	28.6-36.2	25.00-32.20	1.6-2	72 / 16	55	L55	10	1136520000
KDSW M40 BS 0 NI 2 G40	M 40	33-40.6	25.00-32.20	1.6-2	72 / 16	55	L55	10	1136530000
KDSW M50 BS 0 NI 1 G50	M 50	41.1-48.5	36.50-44.10	2-2.5	73 / 16	65	L65	1	1136560000
KDSW M50 BS 0 NI 2 G50	M 50	45.7-53.2	36.50-44.10	2-2.5	73 / 16	65	L65	1	1136570000
KDSW M50 BS 0 NI 1 G50S	M 50	34.8-42.4	31.50-38.20	2-2.5	73 / 16	65	L65	1	1136540000
KDSW M50 BS 0 NI 2 G50S	M 50	39.4-46.7	31.50-38.20	2-2.5	73 / 16	65	L65	1	1136550000
KDSW M63 BS 0 NI 1 G63	M 63	53.8-61.2	49.50-56.00	2.5	76 / 19	80	L80	1	1136600000
KDSW M63 BS 0 NI 2 G63	M 63	58.4-65.8	49.50-56.00	2.5	76 / 19	80	L80	1	1136610000
KDSW M63 BS 0 NI 1 G63S	M 63	47.5-54.8	42.50-50.10	2.5	76 / 19	80	L80	1	1136580000
KDSW M63 BS 0 NI 2 G63S	M 63	52.1-59.5	42.50-50.10	2.5	76 / 19	80	L80	1	1136590000
KDSW M75 BS 0 NI 1 G75	M 75	66.5-73.4	60.50-68.00	2.5	82 / 19	90	L90	1	1136640000
KDSW M75 BS 0 NI 2 G75	M 75	71.1-78	60.50-68.00	2.5	82 / 19	90	L90	1	1136650000
KDSW M75 BS 0 NI 1 G75S	M 75	60.2-68	54.50-62.00	2.5	82 / 19	90	L90	1	1136620000
KDSW M75 BS 0 NI 2 G75S	M 75	64.8-72.2	54.50-62.00	2.5	82 / 19	90	L90	1	1136630000
Note									
- All cable glands have a thread pitch of 1.5 mm. - In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged. - If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system. - The connection cable must be laid securely and inflexibly to rule out tensile stress.									

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP66 / IP68 for armoured cables


Cable gland for cables and lines with single-wire armouring and lead-sheath armouring.


Technical data

Material	Brass, nickel-plated
Seal insert	CR
Temperature range	-35 °C...90 °C
Protection class	IP54
Protection degree with GWDR	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Single-wire armouring, Lead sheath armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1286X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Ordering data

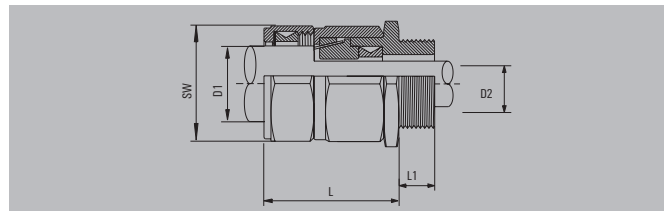
Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSW M20 BN L NI 1 G16	M 20	4.9-10.3	3.50-8.40	0.9	58 / 16	24	L24	20	1074660000
KDSW M20 BN L NI 2 G16	M 20	8.4-13.5	3.50-8.40	0.9	58 / 16	24	L24	20	1074690000
KDSW M20 BN L NI 1 G20	M 20	12-17.6	6.70-14.00	0.9-1.25	58 / 16	30	L30	20	1074760000
KDSW M20 BN L NI 2 G20	M 20	15.5-21.1	6.70-14.00	0.9-1.25	58 / 16	30	L30	20	1074780000
KDSW M20 BN L NI 1 G20S	M 20	9.4-12.5	8.00-11.70	0.9-1.25	58 / 16	24	L24	20	1074720000
KDSW M20 BN L NI 2 G20S	M 20	11.5-16	8.00-11.70	0.9-1.25	58 / 16	24	L24	20	1074740000
KDSW M25 BN L NI 1 G25	M 25	16.8-23.9	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1074810000
KDSW M25 BN L NI 2 G25	M 25	20.3-27.4	13.00-20.00	1.25-1.6	58 / 16	38	L38	20	1074830000
KDSW M32 BN L NI 1 G32	M 32	23.2-30.5	19.00-26.30	1.6-2	65 / 16	46	L46	10	1074850000
KDSW M32 BN L NI 2 G32	M 32	26.7-34	19.00-26.30	1.6-2	65 / 16	46	L46	10	1074860000
KDSW M40 BN L NI 1 G40	M 40	28.6-36.2	25.00-32.20	1.6-2	72 / 16	55	L55	10	1074870000
KDSW M40 BN L NI 2 G40	M 40	33-40.6	25.00-32.20	1.6-2	72 / 16	55	L55	10	1074880000
KDSW M50 BN L NI 1 G50	M 50	41.4-48.5	36.50-44.10	2-2.5	73 / 16	65	L65	1	1074920000
KDSW M50 BN L NI 2 G50	M 50	45.7-53.2	36.50-44.10	2-2.5	73 / 16	65	L65	1	1074930000
KDSW M50 BN L NI 1 G50S	M 50	34.8-42.4	31.50-38.20	2-2.5	73 / 16	65	L65	1	1074890000
KDSW M50 BN L NI 2 G50S	M 50	39.4-46.7	31.50-38.20	2-2.5	73 / 16	65	L65	1	1074910000
KDSW M63 BN L NI 1 G63	M 63	53.8-61.2	49.50-56.00	2.5	76 / 19	80	L80	1	1074960000
KDSW M63 BN L NI 2 G63	M 63	58.4-65.8	49.50-56.00	2.5	76 / 19	80	L80	1	1074970000
KDSW M63 BN L NI 1 G63S	M 63	47.5-54.8	42.50-50.10	2.5	76 / 19	80	L80	1	1074940000
KDSW M63 BN L NI 2 G63S	M 63	52.1-59.5	42.50-50.10	2.5	76 / 19	80	L80	1	1074950000
KDSW M75 BN L NI 1 G75	M 75	66.5-73.4	60.50-68.00	2.5	82 / 19	90	L90	1	1075010000
KDSW M75 BN L NI 2 G75	M 75	71.1-78	60.50-68.00	2.5	82 / 19	90	L90	1	1075020000
KDSW M75 BN L NI 1 G75S	M 75	60.2-68	54.50-62.00	2.5	82 / 19	90	L90	1	1074980000
KDSW M75 BN L NI 2 G75S	M 75	64.8-72.2	54.50-62.00	2.5	82 / 19	90	L90	1	1074990000
Note - All cable glands have a thread pitch of 1.5 mm. - In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged. - If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system. - The connection cable must be laid securely and inflexibly to rule out tensile stress.									

Ex-cable glands – Brass

Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP66 / IP68 for armoured cables



Cable gland for cables and lines with braided armouring.



Technical data

Material	Brass, nickel-plated
Seal insert	Silicone
Temperature range	-60 °C...180 °C
Protection class	IP54
Protection degree with GWDR	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Type of armouring	Braided armouring
Marking	ATEX: II 2G, Ex db IIC Gb, Ex eb IIC Gb, II 1D, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1286X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Ordering data

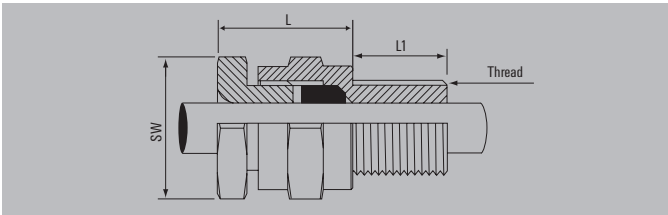
Type	Thread	D1 outer cable Ø	D2 inner cable Ø	Cable armour	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass									
KDSX M20 BS 0 NI 1 G16	M 20	4.9-10.3	3.50-8.40	0.15-0.35	58 / 16	24	L24	20	1135910000
KDSX M20 BS 0 NI 2 G16	M 20	8.4-13.5	3.50-8.40	0.15-0.35	58 / 16	24	L24	20	1135920000
KDSX M20 BS 0 NI 1 G20	M 20	12-17.6	9.30-14.00	0.15-0.5	58 / 16	30	L30	20	1135950000
KDSX M20 BS 0 NI 2 G20	M 20	15.5-21.1	9.30-14.00	0.15-0.5	58 / 16	30	L30	20	1135960000
KDSX M20 BS 0 NI 1 G20S	M 20	9.4-12.5	8.00-11.70	0.15-0.35	58 / 16	24	L24	20	1135930000
KDSX M20 BS 0 NI 2 G20S	M 20	11.5-16	8.00-11.70	0.15-0.35	58 / 16	24	L24	20	1135940000
KDSX M25 BS 0 NI 1 G25	M 25	16.8-23.9	13.00-20.00	0.15-0.5	58 / 16	38	L38	20	1135970000
KDSX M25 BS 0 NI 2 G25	M 25	20.3-27.4	13.00-20.00	0.15-0.5	58 / 16	38	L38	20	1135980000
KDSX M32 BS 0 NI 1 G32	M 32	23.2-30.5	19.00-26.30	0.15-0.55	65 / 16	46	L46	10	1135990000
KDSX M32 BS 0 NI 2 G32	M 32	26.7-34	19.00-26.30	0.15-0.55	65 / 16	46	L46	10	1136000000
KDSX M40 BS 0 NI 1 G40	M 40	28.6-36.2	25.00-32.20	0.2-0.6	72 / 16	55	L55	10	1136010000
KDSX M40 BS 0 NI 2 G40	M 40	33-40.6	25.00-32.20	0.2-0.6	72 / 16	55	L55	10	1136020000
KDSX M50 BS 0 NI 1 G50	M 50	41.1-48.5	36.50-44.10	0.5-0.8	73 / 16	65	L65	1	1136050000
KDSX M50 BS 0 NI 2 G50	M 50	45.7-53.2	36.50-44.10	0.5-0.8	73 / 16	65	L65	1	1136060000
KDSX M50 BS 0 NI 1 G50S	M 50	34.8-42.4	31.50-38.20	0.2-0.6	73 / 16	65	L65	1	1136030000
KDSX M50 BS 0 NI 2 G50S	M 50	39.4-46.7	31.50-38.20	0.2-0.6	73 / 16	65	L65	1	1136040000
KDSX M63 BS 0 NI 1 G63	M 63	53.8-61.2	49.50-56.00	0.5-0.8	76 / 19	80	L80	1	1136090000
KDSX M63 BS 0 NI 2 G63	M 63	58.4-65.8	49.50-56.00	0.5-0.8	76 / 19	80	L80	1	1136110000
KDSX M63 BS 0 NI 1 G63S	M 63	47.5-54.8	42.50-50.10	0.5-0.8	76 / 19	80	L80	1	1136070000
KDSX M63 BS 0 NI 2 G63S	M 63	52.1-59.5	42.50-50.10	0.5-0.8	76 / 19	80	L80	1	1136080000
KDSX M75 BS 0 NI 1 G75	M 75	66.5-73.4	60.50-68.00	0.5-1	82 / 19	90	L90	1	1136140000
KDSX M75 BS 0 NI 2 G75	M 75	71.1-78	60.50-68.00	0.5-1	82 / 19	90	L90	1	1136150000
KDSX M75 BS 0 NI 1 G75S	M 75	60.2-68	54.50-62.00	0.5-1	82 / 19	90	L90	1	1136120000
KDSX M75 BS 0 NI 2 G75S	M 75	64.8-72.2	54.50-62.00	0.5-1	82 / 19	90	L90	1	1136130000

Note	- All cable glands have a thread pitch of 1.5 mm. - In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged. - If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system. - The connection cable must be laid securely and inflexibly to rule out tensile stress.
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Klippon® cable glands – Nickel-plated Brass – Ex e, Ex d, IP66 / IP68 for non-armoured cables



Cable gland exclusively for non-armoured cables and lines.



Technical data

Material	Brass, nickel-plated
O-ring / Seal insert	CR / CR
Temperature range	-35 °C...90 °C
Degree of protection	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Marking	ATEX: II 2GD, Ex db IIC Gb, Ex ta IIIC Da and/or II 2 GD, Ex eb IIC Gb, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1287X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594

Note

Ordering data

Type	Thread	KB	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass							
KSG M20 BN O NI 2 G16	M 20	4-8.4	33 / 16	25	L24	20	1911510000
KSG M20 BN O NI 2 G20S	M 20	7.2-11.7	33 / 16	25	L24	20	1911540000
KSG M20 BN O NI 2 G20	M 20	9.6-14	33 / 16	30	L30	20	1911560000
KSG M25 BN O NI 2 G25	M 25	13.5-20	33 / 16	38	L38	20	1911570000
KSG M32 BN O NI 2 G32	M 32	19.5-26.3	33 / 16	46	L46	10	1911580000
KSG M40 BN O NI 2 G40	M 40	23-32.2	37 / 16	55	L55	10	1911590000
KSG M50 BN O NI 2 G50S	M 50	28.1-38.2	37 / 16	65	L65	1	1911600000
KSG M50 BN O NI 2 G50	M 50	33.1-44.1	37 / 16	65	L65	1	1911610000
KSG M63 BN O NI 2 G63S	M 63	39.2-50.1	37 / 19	80	L80	1	1911620000
KSG M63 BN O NI 2 G63	M 63	46.7-56	37 / 19	80	L80	1	1911630000
KSG M75 BN O NI 2 G75	M 75	58-68	37 / 19	90	L90	1	1075360000
KSG M75 BN O NI 2 G75S	M 75	52.1-62	37 / 19	90	L90	1	1075350000

Note

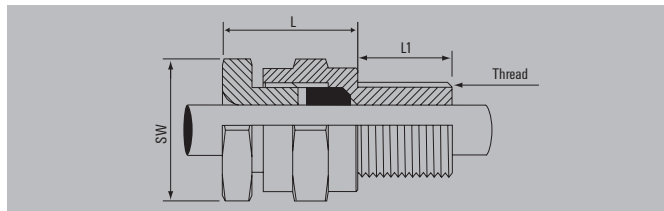
- All cable glands have a thread pitch of 1.5 mm.
- In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged.
- If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system.
- The connection cable must be laid securely and inflexibly to rule out tensile stress.

Ex-cable glands – Brass

Klippon® cable glands – Brass – Ex e, Ex d, IP66 / IP68 for non-armoured cables



Cable gland exclusively for non-armoured cables and lines.



Technical data

Material	Brass, nickel-plated
O-ring / Seal insert	Silicone / Silicone
Temperature range	-60 °C...180 °C
Degree of protection	IP66, IP68 - 2.5 bar
Water depth	25 m (30 Min.)
Marking	ATEX: II 2GD, Ex db IIC Gb, Ex ta IIIC Da and/or II 2 GD, Ex eb IIC Gb, Ex ta IIIC Da, IECEx: Ex db IIC Gb, Ex eb IIC Gb, Ex ta IIIC Da
Certificate no. (ATEX / IECEx / EAC)	SIRA 05ATEX1287X / IECEx SIR 05.0067X / RUC-DE.IT08.B.00594
Note	

Ordering data

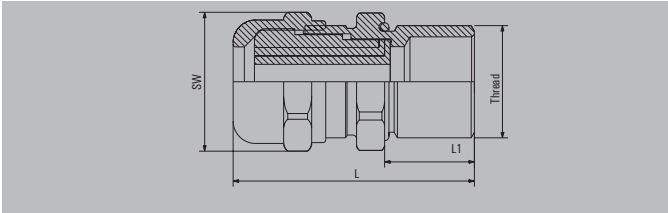
Type	Thread	KB	L/L1	SW	SUHB	Qty.	Order No.
metric, nickel-plated brass							
KSG M20 BS 0 NI 2 G16	M 20	4-8.4	33 / 16	25	L24	20	0930481222
KSG M20 BS 0 NI 2 G20	M 20	9.6-14	33 / 16	25	L30	20	0930501222
KSG M20 BS 0 NI 2 G20S	M 20	7.2-11.7	33 / 16	25	L24	20	0930491224
KSG M25 BS 0 NI 2 G25	M 25	13.5-20	33 / 16	38	L38	20	0930511222
KSG M32 BS 0 NI 2 G32	M 32	19.5-26.3	33 / 16	46	L46	10	0930521222
KSG M40 BS 0 NI 2 G40	M 40	23-32.2	37 / 16	55	L55	10	0930531222
KSG M50 BS 0 NI 2 G50	M 50	33.1-44.1	37 / 16	65	L65	1	1136670000
KSG M50 BS 0 NI 2 G50S	M 50	28.1-38.2	37 / 16	65	L65	1	1136660000
KSG M63 BS 0 NI 2 G63	M 63	46.7-56	37 / 19	80	L80	1	1136690000
KSG M63 BS 0 NI 2 G63S	M 63	39.2-50.1	37 / 19	80	L80	1	1136680000
KSG M75 BS 0 NI 2 G75	M 75	58-68	37 / 19	90	L90	1	1136710000
KSG M75 BS 0 NI 2 G75S	M 75	52.1-62	37 / 19	90	L90	1	1136700000

- Note**
- All cable glands have a thread pitch of 1.5 mm.
 - In the case of Ex d applications, the inner threads used for cable glands must meet the requirements of section 5.3 of EN/IEC 60079-1. In the screwed in position, at least 5 threads must be engaged.
 - If the cable glands are installed in non-metallic Ex e connection equipment, these must be connected to the protective earth of the system.
 - The connection cable must be laid securely and inflexibly to rule out tensile stress.

Ex cable glands – Brass – Nickel plated – Ex e, Ex d, IP 66 / IP 68 for non-armoured cables



Cable gland made from brass exclusively for non-armoured cables and lines. This Ex e/d approved screw connection has multiply divisible seal inserts (onion rings) to cover the greatest possible clamping range.



Technical data

Material	Brass, nickel-plated
O-ring / Seal insert	NBR / CR
Temperature range	-40 °C...100 °C
Degree of protection	IP66, IP68
Marking	Ex d IIC Gb, Ex e IIC Gb, Ex tb IIIC Db IP66/68

Note

Ordering data

Type	Thread	KB	L/L1	SW	Qty.	Order No.
VG M16 EXE MS	M 16	3-12	46 / 16	22	50	1460040000
VG M20 EXE MS	M 20	3-12	43 / 16	22	50	1460050000
VG M25 EXE MS	M 25	10-18	45.5 / 16	28	20	1460070000
VG M32 EXE MS	M 32	14-24	49 / 16	35	20	1460080000
VG M40 EXE MS	M 40	22-32	59 / 18	45	10	1460090000
VG M50 EXE MS	M 50	35-44	61.5 / 18	64	5	1460100000
VG M63 EXE MS	M 63	46-56	69.5 / 18	80	5	1460110000

Note

Safeguard processes in potentially explosive atmospheres

Ex cable glands for safe devices as per EN 60079-0:2012 + A11 : 2013

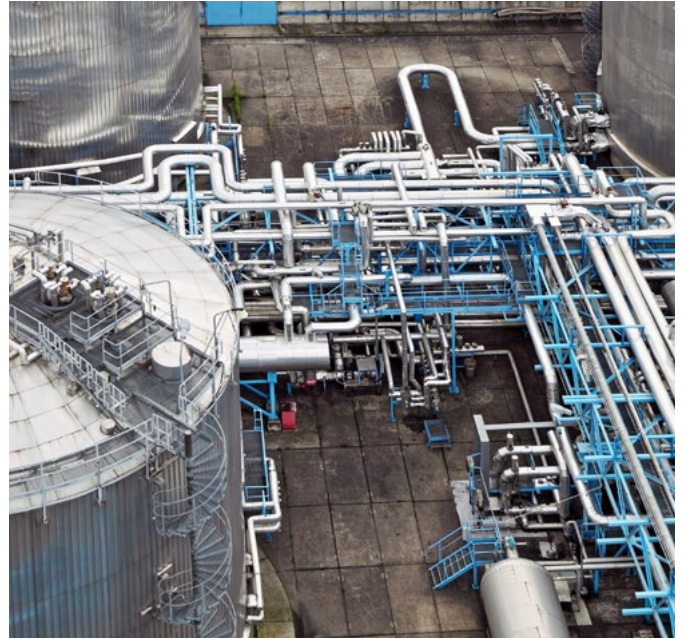
The environmental conditions in many industry and explosion-proof applications pose a real challenge for the system components. Dust, vibrations, moisture and extreme temperatures all have an impact on the installed devices and the cable glands must also be able to withstand these stresses too.

Ex cable glands from Weidmüller guarantee process reliability in demanding environments. They are designed such that they can be used universally in any enclosure series. They are also just as easy to use in both high and low-temperature environments.

With impact resistance of 7 Joules, the explosion-proof polyamide cable glands offer extremely high levels of protection against external influences such as shocks or impacts. Together with their suitability for use in an extended temperature range and their proven conformity with current standards, these cable glands ensure safe and reliable functioning in a wide range of applications.

Your special advantages:

Impact and temperature resistant: The cable glands for use in areas at risk of explosion can withstand extreme temperature conditions. They are impact-resistant up to 7 Joules and can be used in any Weidmüller enclosures, guaranteeing versatile applicability with full standard conformity.



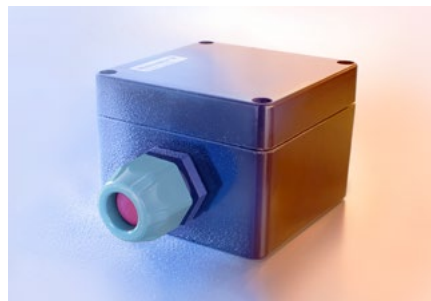
In process-intensive industries such as petrochemistry, energy production, machine construction, motor and drive technology and device components which are subjected to extremely high stresses. The cable glands can withstand even the harshest environmental conditions. Guarantee impact-resistance of up to 7 Joules over an extended temperature range.

Flexible application

Available in 8 standard sizes from M12 to M63 (additional thread types on request) and with 14 different clamping ranges, the new range of cable glands is suitable for an extremely wide range of applications.

**Resistant to high temperatures**

The cable glands have an operating temperature range of -40°C to $+70^{\circ}\text{C}$ with a chloroprene seal, and a range of as wide as -60°C to $+70^{\circ}\text{C}$ with a silicone seal.

**Extremely impact-resistant**

With impact resistance of 7 Joules, the explosion-proof cable glands offer extremely high levels of protection against external influences such as shocks or impacts, in accordance with EN 60079-0:2012 + A11 : 2013.

**Comprehensive approvals**

Whether for Ex e or Ex i applications: The plastic cable glands comply consistently with EN 60079-0:2012 + A11 : 2013 and are approved in accordance with ATEX, IECEx, EAC, and DNV GL.

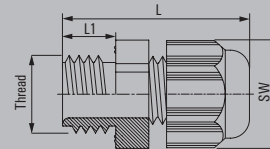


Ex-cable glands – Plastic

Ex cable glands – Plastic – Ex e, Ex i, IP66 / IP68, 7J, -40°C – +70°C



Plastic cable gland for Ex applications with integrated strain relief, especially for Ex e and Ex i applications with chloroprene seal and 7 Joule impact resistance. Complete with integral membrane seal for clean transportation and storage.



Technical data

Material	Polyamide 6
Temperature range	-40 °C...70 °C
Seal insert	CR
Protection class	IP54, IP66, IP67, IP68 - 5 bar (30 min.)
Impact resistance	7 joules in acc. with IEC 60079-0
Marking	Ex eb IIC Gb, Ex tb IIIC Db IP66/68
Note	Length "L" depends on the cable diameter used.

Ordering data

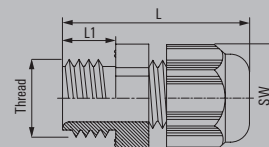
Type	Thread	KB	L/L1	SW	Qty.	Order No.
Ex e, deep black						
VG M12 EXE 4-6,5 CR7J G4	M 12	4-6.5 mm	22 / 10 mm	15 mm	100	2721930000
VG M16 EXE 5-8 CR7J G4	M 16	5-8 mm	26 / 10 mm	19 mm	50	2721940000
VG M16 EXE 6-10 CR7J G4	M 16	6-10 mm	29.5 / 10 mm	22 mm	50	2721950000
VG M20 EXE 7-12 CR7J G4	M 20	7-12 mm	30 / 10 mm	24 mm	50	2721960000
VG M20 EXE 7-13 CR7J G4	M 20	7-13 mm	33 / 10 mm	25 mm	50	2721970000
VG M20 EXE 11-14 CR7J G4	M 20	11-14 mm	30 / 10 mm	27 mm	50	2721980000
VG M25 EXE 12-17 CR7J G4	M 25	12-17 mm	34 / 10 mm	29 mm	50	2721990000
VG M25 EXE 14-18 CR7J G4	M 25	14-18 mm	35 / 10 mm	33 mm	25	2722000000
VG M32 EXE 16-21 CR7J G4	M 32	16-21 mm	42 / 10 mm	36 mm	25	2722010000
VG M32 EXE 19-25 CR7J G4	M 32	19-25 mm	40.5 / 15 mm	42 mm	20	2722020000
VG M40 EXE 20-28 CR7J G4	M 40	20-28 mm	46 / 10 mm	46 mm	15	2722030000
VG M40 EXE 23-32 CR7J G4	M 40	23-32 mm	50 / 18 mm	53 mm	10	2722040000
VG M50 EXE 31-38 CR7J G4	M 50	31-38 mm	54 / 18 mm	60 mm	10	2722050000
VG M63 EXE 35-44 CR7J G4	M 63	35-44 mm	54 / 18 mm	65 mm	10	2722060000
Ex i, light blue, deep black						
VG M12 EXI 4-6,5 CR7J G4	M 12	4-6.5 mm	22 / 10 mm	15 mm	100	2722210000
VG M16 EXI 5-8 CR7J G4	M 16	5-8 mm	26 / 10 mm	19 mm	50	2722220000
VG M16 EXI 6-10 CR7J G4	M 16	6-10 mm	29.5 / 10 mm	22 mm	50	2722230000
VG M20 EXI 7-12 CR7J G4	M 20	7-12 mm	30 / 10 mm	24 mm	50	2722240000
VG M20 EXI 7-13 CR7J G4	M 20	7-13 mm	33 / 10 mm	25 mm	50	2722250000
VG M20 EXI 11-14 CR7J G4	M 20	11-14 mm	30 / 10 mm	27 mm	50	2722260000
VG M25 EXI 12-17 CR7J G4	M 25	12-17 mm	34 / 10 mm	29 mm	50	2722270000
VG M25 EXI 14-18 CR7J G4	M 25	14-18 mm	35 / 10 mm	33 mm	25	2722280000
VG M32 EXI 16-21 CR7J G4	M 32	16-21 mm	42 / 10 mm	36 mm	25	2722290000
VG M32 EXI 19-25 CR7J G4	M 32	19-25 mm	40.5 / 15 mm	42 mm	20	2722300000
VG M40 EXI 20-28 CR7J G4	M 40	20-28 mm	46 / 10 mm	46 mm	15	2722310000
VG M40 EXI 23-32 CR7J G4	M 40	23-32 mm	50 / 18 mm	53 mm	10	2722320000
VG M50 EXI 31-38 CR7J G4	M 50	31-38 mm	54 / 18 mm	60 mm	10	2722330000
VG M63 EXI 35-44 CR7J G4	M 63	35-44 mm	54 / 18 mm	65 mm	10	2722340000

Note

Ex cable glands – Plastic – Ex e, Ex i, IP66 / IP68, 7J, -60°C – +70°C



Plastic cable gland for Ex applications with integrated strain relief, especially for Ex e and Ex i applications with silicone seal and 7 Joule impact resistance. Complete with integral membrane seal for clean transportation and storage.



Technical data

Material	Polyamide 6
Temperature range	-60 °C...70 °C
Seal insert	Silicone
Protection class	IP54, IP66, IP67, IP68 - 5 bar (30 min.)
Impact resistance	7 joules in acc. with IEC 60079-0
Marking	Ex eb IIC Gb, Ex tb IIIC Db IP66/68
Note	Length "L" depends on the cable diameter used.

Ordering data

Type	Thread	KB	L/L1	SW	Qty.	Order No.
Ex e, deep black						
VG M12 EXE 4-6,5 SI7J G4	M 12	4-6,5 mm	22 / 10 mm	15 mm	100	2722070000
VG M16 EXE 5-8 SI7J G4	M 16	5-8 mm	26 / 10 mm	19 mm	50	2722080000
VG M16 EXE 6-10 SI7J G4	M 16	6-10 mm	29,5 / 10 mm	22 mm	50	2722090000
VG M20 EXE 7-12 SI7J G4	M 20	7-12 mm	30 / 10 mm	24 mm	50	2722100000
VG M20 EXE 7-13 SI7J G4	M 20	7-13 mm	33 / 10 mm	25 mm	50	2722110000
VG M20 EXE 11-14 SI7J G4	M 20	11-14 mm	30 / 10 mm	27 mm	50	2722120000
VG M25 EXE 12-17 SI7J G4	M 25	12-17 mm	34 / 10 mm	29 mm	50	2722130000
VG M25 EXE 14-18 SI7J G4	M 25	14-18 mm	35 / 10 mm	33 mm	25	2722140000
VG M32 EXE 16-21 SI7J G4	M 32	16-21 mm	42 / 10 mm	36 mm	25	2722150000
VG M32 EXE 19-25 SI7J G4	M 32	19-25 mm	40,5 / 15 mm	42 mm	20	2722160000
VG M40 EXE 20-28 SI7J G4	M 40	20-28 mm	46 / 10 mm	46 mm	15	2722170000
VG M40 EXE 23-32 SI7J G4	M 40	23-32 mm	50 / 18 mm	53 mm	10	2722180000
VG M50 EXE 31-38 SI7J G4	M 50	31-38 mm	54 / 18 mm	60 mm	10	2722190000
VG M63 EXE 35-44 SI7J G4	M 63	35-44 mm	54 / 18 mm	65 mm	10	2722200000
Ex i, light blue, deep black						
VG M12 EXI 4-6,5 SI7J G4	M 12	4-6,5 mm	22 / 10 mm	15 mm	100	2722350000
VG M16 EXI 5-8 SI7J G4	M 16	5-8 mm	26 / 10 mm	19 mm	50	2722360000
VG M16 EXI 6-10 SI7J G4	M 16	6-10 mm	29,5 / 10 mm	22 mm	50	2722370000
VG M20 EXI 7-12 SI7J G4	M 20	7-12 mm	30 / 10 mm	24 mm	50	2722380000
VG M20 EXI 7-13 SI7J G4	M 20	7-13 mm	33 / 10 mm	25 mm	50	2722390000
VG M20 EXI 11-14 SI7J G4	M 20	11-14 mm	30 / 10 mm	27 mm	50	2722400000
VG M25 EXI 12-17 SI7J G4	M 25	12-17 mm	34 / 10 mm	29 mm	50	2722410000
VG M25 EXI 14-18 SI7J G4	M 25	14-18 mm	35 / 10 mm	33 mm	25	2722420000
VG M32 EXI 16-21 SI7J G4	M 32	16-21 mm	42 / 10 mm	36 mm	25	2722430000
VG M32 EXI 19-25 SI7J G4	M 32	19-25 mm	40,5 / 15 mm	42 mm	20	2722440000
VG M40 EXI 20-28 SI7J G4	M 40	20-28 mm	46 / 10 mm	46 mm	15	2722450000
VG M40 EXI 23-32 SI7J G4	M 40	23-32 mm	50 / 18 mm	53 mm	10	2722460000
VG M50 EXI 31-38 SI7J G4	M 50	31-38 mm	54 / 18 mm	60 mm	10	2722470000
VG M63 EXI 35-44 SI7J G4	M 63	35-44 mm	54 / 18 mm	65 mm	10	2722480000

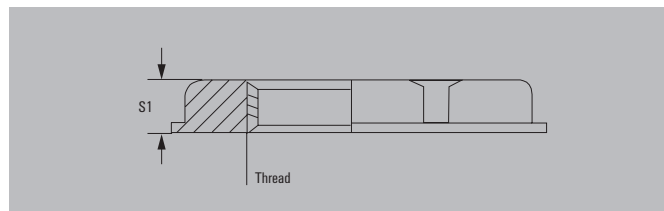
Note

Accessories – Lock nuts

Lock nuts – Plastic 7035



For fastening cable glands and accessories if no threaded hole is available. With circumferential collar to prevent damage to the substrate during installation.



Technical data

Material / Colour	Polyamid 6 (PA6 - GF30) / Light Grey / RAL 7035
Temperature range	-40 °C...100 °C
Flammability rating	V-2
Note	

Ordering data

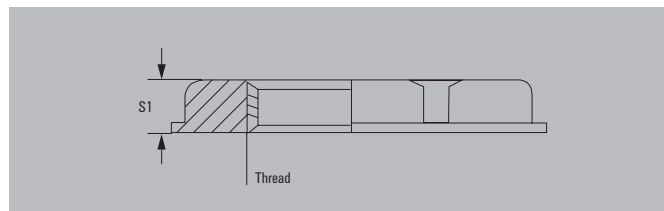
Type	Thread	S1	SW	Qty.	Order No.
metric					
SKMU M12 - K GR	M 12	5.00	18	100	1772440000
SKMU M16 - K GR	M 16	5.00	22	100	1772450000
SKMU M20 - K GR	M 20	6.00	26	100	1772460000
SKMU M25 - K GR	M 25	6.00	32	100	1772470000
SKMU M32 - K GR	M 32	7.00	41	100	1772480000
SKMU M40 - K GR	M 40	7.00	50	50	1772490000
SKMU M50 - K GR	M 50	8.00	60	10	1772500000
SKMU M63 - K GR	M 63	8.00	75	10	1772510000
PG					
SKMU PG7-K GR	PG 7	5.00	19	100	1697440000
SKMU PG9-K GR	PG 9	5.00	22	100	1697450000
SKMU PG11-K GR	PG 11	5.00	24	100	1697460000
SKMU PG 13,5-K GR	PG 13.5	6.00	27	100	1697470000
SKMU PG16-K GR	PG 16	6.00	30	100	1697480000
SKMU PG21-K GR	PG 21	7.00	36	100	1698220000
SKMU PG29-K GR	PG 29	7.00	46	50	1698230000
SKMU PG36-K GR	PG 36	8.00	60	25	1698240000
SKMU PG42-K GR	PG 42	8.00	65	25	1698250000
SKMU PG48-K GR	PG 48	8.00	70	25	1719090000

Note Further versions on request.

Lock nuts – Plastic 9005



Lock nuts with collar for preventing enclosure damage on installation. These are used to secure plastic cable glands and blanking plugs - recommended for Ex e and Ex i plastic cable glands.



Technical data

Material / Colour	Polyamid 6 (PA6 - GF30) / Deep black / RAL 9005
Temperature range	-40 °C...100 °C
Flammability rating	V-2
Note	Accessories for Ex cable glands are not subject to approval.

Ordering data

Type	Thread	S1	SW	Qty.	Order No.
metric					
SKMU M12 K SW	M 12	5.00	18	100	1806540000
SKMU M16 K SW	M 16	5.00	22	100	1736920000
SKMU M20 K SW	M 20	6.00	26	100	1736930000
SKMU M25 K SW	M 25	6.00	32	25	1736940000
SKMU M32 K SW	M 32	7.00	41	100	1736950000
SKMU M40 K SW	M 40	7.00	50	10	1736960000
SKMU M50 K SW	M 50	8.00	60	5	1736970000
SKMU M63 K SW	M 63	8.00	75	5	1736980000
PG					
SKMU PG7-K SW	PG 7	5.00	19	100	1719100000
SKMU PG9-K SW	PG 9	5.00	22	50	1719110000
SKMU PG11-K SW	PG 11	5.00	24	50	1719120000
SKMU PG13,5-K SW	PG 13.5	6.00	27	50	1719130000
SKMU PG16-K SW	PG 16	6.00	30	100	1719140000
SKMU PG21-K SW	PG 21	7.00	36	100	1719150000
SKMU PG29-K SW	PG 29	7.00	46	20	1719160000
SKMU PG36-K SW	PG 36	8.00	60	10	1719170000
SKMU PG42-K SW	PG 42	8.00	65	25	1719180000
SKMU PG48-K SW	PG 48	8.00	70	25	1719190000

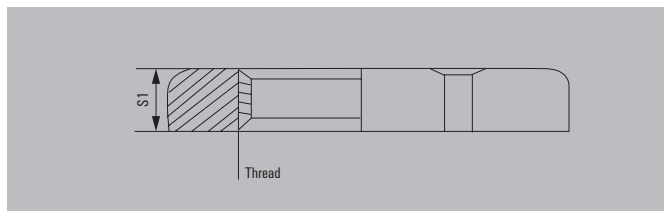
Note Further versions on request.

Accessories – Lock nuts

Lock nuts – Brass – nickel-plated



For fastening cable glands and accessories if no threaded hole is available. Recommended when working with Ex applications.



Technical data

Material	Brass, nickel-plated
Note	

Ordering data

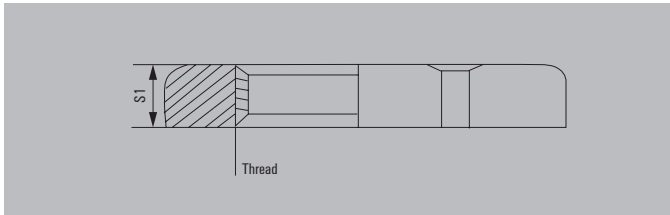
Type metric	Thread	S1	SW	Qty.	Order No.
SKMU M12 MS	M 12	2.8	14	100	1772360000
SKMU M16 MS	M 16	2.8	19	100	1736990000
SKMU M20 MS	M 20	3	24	100	1737000000
SKMU M25 MS	M 25	3	28	100	1737010000
SKMU M32 MS	M 32	4	36	100	1737020000
SKMU M40 MS	M 40	4.5	44	50	1737030000
SKMU M50 MS	M 50	5	54	25	1737040000
SKMU M63 MS	M 63	6	70	25	1737050000
SKMU M75 MS	M 75	8	85	5	1737060000
PG					
SKMU PG7-MS	PG 7	2.8	15	100	1694070000
SKMU PG9-MS	PG 9	2.8	18	100	1694080000
SKMU PG11-MS	PG 11	3	21	100	1694090000
SKMU PG13,5-MS	PG 13.5	3	23	100	1694100000
SKMU PG16-MS	PG 16	3	26	100	1694110000
SKMU PG21-MS	PG 21	3.5	32	100	1719200000
SKMU PG29-MS	PG 29	4	41	50	1719210000
SKMU PG36-MS	PG 36	5	51	50	1719220000
SKMU PG42-MS	PG 42	5	60	25	1719230000
SKMU PG48-MS	PG 48	5.5	64	10	1719240000

Note	Further versions on request.
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Lock nuts – Brass – natural



For fastening cable glands and accessories if no threaded hole is available. Recommended when working with Ex applications.



Technical data

Material	Brass
Note	

Ordering data

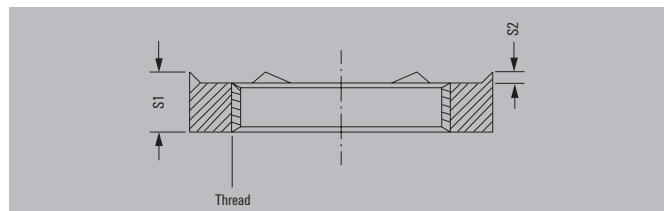
Type	Thread	S1	SW	Qty.	Order No.
metric					
SKMU M16 MS SC	M 16	4	22	50	0930640001
SKMU M20 MS SC	M 20	4	24	50	0930640002
SKMU M25 MS SC	M 25	4	30	25	0930640003
SKMU M32 MS SC	M 32	4	40	20	0930640004
SKMU M40 MS SC	M 40	4.5	50	10	0930640005
SKMU M50 MS SC	M 50	5	65	5	0930640006
SKMU M63 MS SC	M 63	6.5	75	5	0930640007
SKMU M75 MS SC	M 75	7	90	5	0930640008
Note					

Accessories – Lock nuts

Lock nuts – Brass – EMC



For fastening cable glands and accessories if no threaded hole is available. Specially equipped with 6 edges which contact the enclosure when the lock nut is tightened.



Technical data

Material	Brass, nickel-plated
Note	

Ordering data

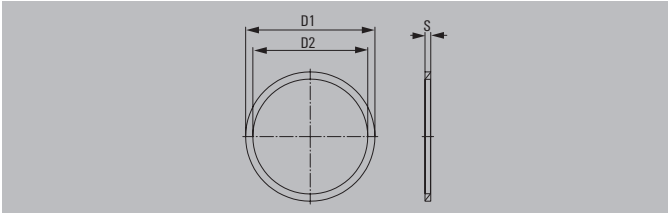
Type metric	Thread	S1	SW	Qty.	Order No.
SKMU EMV M12	M 12	3.6	15	100	1777610000
SKMU EMV M16	M 16	3.6	19	100	1777620000
SKMU EMV M20	M 20	3.6	24	100	1777630000
SKMU EMV M25	M 25	3.6	30	50	1777640000
SKMU EMV M32	M 32	4.1	36	50	1777650000
SKMU EMV M40	M 40	4.6	46	10	1777660000
SKMU EMV M50	M 50	4.6	60	10	1777670000
SKMU EMV M63	M 63	6.6	70	10	1777680000
PG					
SKMU EMV PG7	PG 7	4.7	15	20	1718900000
SKMU EMV PG9	PG 9	4.7	18	20	1718910000
SKMU EMV PG11	PG 11	4.7	21	20	1718920000
SKMU EMV PG13,5	PG 13.5	4.7	23	10	1718930000
SKMU EMV PG16	PG 16	4.7	26	10	1718940000
SKMU EMV PG21	PG 21	5.2	32	10	1718950000
SKMU EMV PG29	PG 29	5.7	41	15	1718960000
SKMU EMV PG 36	PG 36	4.6	51	1	1777710000
SKMU EMV PG 42	PG 42	4.6	58	1	1777700000
SKMU EMV PG 48	PG 48	5.6	64	1	1777690000

Note Further versions on request.

Flat IP washer – Standard – Polyethylene



For better sealing of the connection thread of a cable gland or accessory.



Technical data

Material / Colour	Polyethylene / Transparent
Temperature range	-30 °C...90 °C

Note

Ordering data

Type	Thread	D1	D2	S	Qty.	Order No.
metric						
GWDR M12-PO	M 12	16.00	12.00	2.00	50	1777920000
GWDR M16-PO	M 16	20.00	16.00	2.00	50	1777930000
GWDR M20-PO	M 20	24.00	20.00	2.00	100	1777940000
GWDR M25-PO	M 25	29.00	25.00	2.00	50	1777950000
GWDR M32-PO	M 32	36.00	32.00	2.00	50	1777960000
GWDR M40-PO	M 40	45.00	40.00	2.00	50	1777970000
GWDR M50-PO	M 50	56.00	50.00	2.00	50	1777980000
GWDR M63-PO	M 63	70.00	63.00	2.00	50	1777990000
PG						
GWDR PG7-PO	PG 7	16.50	12.50	2.00	100	1719440000
GWDR PG9-PO	PG 9	19.00	15.20	2.00	100	1719450000
GWDR PG11-PO	PG 11	22.50	18.60	2.00	100	1719460000
GWDR PG13,5-PO	PG 13.5	25.00	20.40	2.00	100	1719470000
GWDR PG16-PO	PG 16	27.00	22.50	2.00	100	1719480000
GWDR PG21-PO	PG 21	33.50	28.30	3.00	100	1719490000
GWDR PG29-PO	PG 29	43.50	37.00	3.00	50	1719500000
GWDR PG36-PO	PG 36	55.00	47.00	3.00	50	1719510000
GWDR PG42-PO	PG 42	63.00	54.00	3.00	10	1719520000
GWDR PG48-PO	PG 48	69.00	59.30	3.00	5	1719530000

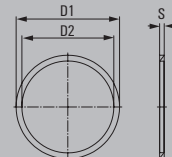
Note Further versions on request.

Accessories – Flat IP washer

Flat IP washer – Standard – Neoprene



For better sealing of the connection thread of a cable gland or accessory.



Technical data

Material / Colour	Neoprene / Deep black / RAL 9005
Temperature range	-40 °C...100 °C
Note	

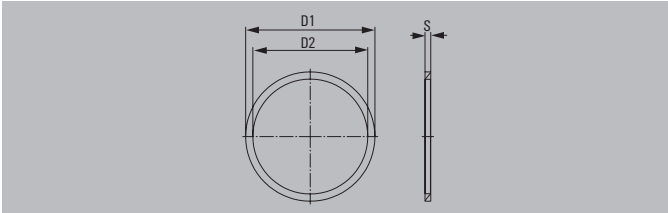
Ordering data

Type	Thread	D1	D2	S	Qty.	Order No.
metric						
GWDR M12-NP	M 12	18.00	12.00	1.20	50	1913320000
GWDR M16-NP	M 16	22.00	16.00	1.20	50	1736230000
GWDR M20-NP	M 20	24.00	20.00	1.20	50	1736240000
GWDR M25-NP	M 25	30.00	25.00	1.50	100	1736250000
GWDR M32-NP	M 32	42.00	32.00	1.50	50	1736260000
GWDR M40-NP	M 40	52.00	40.00	1.50	20	1736270000
GWDR M50-NP	M 50	63.00	50.00	1.50	20	1736280000
GWDR M63-NP	M 63	77.00	63.00	2.00	10	1736290000
PG						
GWDR PG7-NP	PG 7	17.00	11.60	1.20	100	1719540000
GWDR PG9-NP	PG 9	21.00	14.00	1.20	100	1719550000
GWDR PG11-NP	PG 11	24.00	17.00	1.20	100	1719560000
GWDR PG13,5-NP	PG 13.5	27.00	19.50	1.20	100	1719570000
GWDR PG16-NP	PG 16	30.00	22.50	1.20	100	1719580000
GWDR PG21-NP	PG 21	35.00	28.30	1.50	100	1719590000
GWDR PG29-NP	PG 29	45.00	37.00	1.50	50	1719600000
GWDR PG36-NP	PG 36	60.00	47.00	1.50	20	1719610000
GWDR PG42-NP	PG 42	65.00	54.00	1.50	10	1719620000
GWDR PG48-NP	PG 48	71.00	59.30	1.50	5	1719630000
Note	Further versions on request.					

Flat IP washer – Standard – Nylon



For better sealing of the connection thread of a cable gland or accessory.



Technical data

Material / Colour	Nylon 6 / traffic red / RAL 3020
Temperature range	-40 °C...135 °C

Note

Ordering data

Type	Thread	D1	D2	S	Qty.	Order No.
metric						
KSWN M16	M 16	25.00	16.50	2.00	25	1076630000
KSWN M20	M 20	29.40	20.70	2.00	25	0930730002
KSWN M25	M 25	38.10	25.70	2.00	25	1076640000
KSWN M32	M 32	42.50	32.50	2.00	25	1076650000
KSWN M40	M 40	52.00	40.50	2.00	25	0899780000
KSWN M50	M 50	65.00	50.50	2.00	25	0900660000
KSWN M63	M 63	79.40	63.50	2.00	25	1076660000
KSWN M75	M 75	90.50	75.50	2.00	25	1076670000

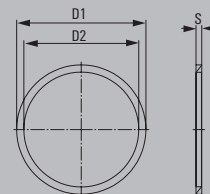
Note

Accessories – Flat IP washer

Flat IP washer – Standard – Vulcanised fibre



For better sealing of the connection thread of a cable gland or accessory.



Technical data

Material / Colour	Vulcanized fibre / brown-red / RAL 3011
Temperature range	-40 °C...95 °C
Note	

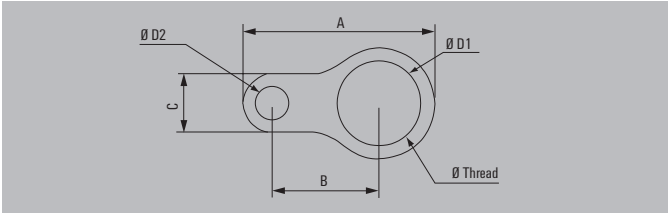
Ordering data

Type	Thread	D1	D2	S	Qty.	Order No.
metric						
KSWF M16	M 16	25.00	16.50	1.50	25	1076680000
KSWF M20	M 20	29.40	20.70	1.50	25	0899750000
KSWF M25	M 25	38.10	25.70	1.50	25	0899770000
KSWF M32	M 32	42.50	32.50	1.50	25	1076690000
KSWF M40	M 40	52.00	40.50	1.50	25	1076710000
KSWF M50	M 50	65.00	50.50	1.50	25	1076720000
KSWF M63	M 63	79.40	63.50	1.50	25	1076730000
KSWF M75	M 75	90.50	75.50	1.50	25	1076740000
Note						

Accessories – Earth tags – Brass



Earth tags are best used when a cable shielding is being tightened onto the cable gland, and when it has the same potential as another cable gland on the enclosure.



Technical data

Material	Brass, nickel-plated
Note	

Ordering data

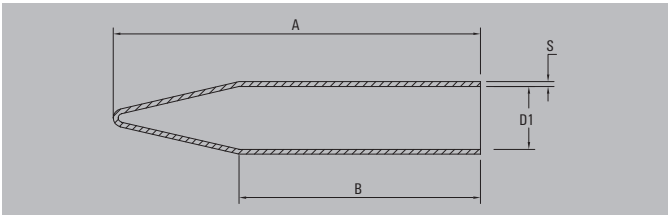
Type	Thread	A	B	C	D1	D2	Qty.	Order No.
metric, nickel-plated brass								
EA-RING MS/M 16	M 16	48.75	30.00	13.00	24.5	6.75	20	1736480000
EA-RING MS/M 20	M 20	53.8	33.00	13.00	28.6	7.00	20	1736490000
EA-RING MS/M 25	M 25	61.5	36.00	17.00	34	10.50	20	1736500000
EA-RING MS/M 32	M 32	73	41.00	22.00	42	12.20	20	1736510000
EA-RING MS/M 40	M 40	86.5	44.50	30.00	54	13.50	10	1736520000
EA-RING MS/M 50	M 50	111.5	58.00	40.00	67	13.50	10	1736530000
EA-RING MS/M 63	M 63	125.5	67.00	40.00	77	13.50	10	1736540000
EA-RING MS/M 75	M 75	137.5	73.00	40.00	89	13.50	10	1736550000
metric, brass natural								
EA-RING MS/M16 SC	M 16	50.8	31.80	12.80	25.4	6.90	20	0930710001
EA-RING MS/M20 SC	M 20	54	33.00	12.80	28.6	6.90	20	0930710002
EA-RING MS/M25 SC	M 25	60.2	36.50	12.80	34.8	6.90	20	0930710003
EA-RING MS/M32 SC	M 32	74.6	42.50	22.30	44.6	11.80	20	0930710004
EA-RING MS/M40 SC	M 40	86.7	45.40	31.70	53	13.50	10	0930710005
EA-RING MS/M50 SC	M 50	111	58.10	41.30	65.2	13.50	10	0930710006
EA-RING MS/M63 SC	M 63	128.7	66.80	41.30	82.6	13.50	10	0930710007
EA-RING MS/M75 SC	M 75	141.3	73.00	41.30	95.3	13.50	10	0930710008
Note	Further versions on request.							

Accessories – Shrouds

Accessories – Shrouds – Silicone



The cover shroud a cable gland before and after the installation. It also protects against external environmental influences.



Technical data

Material / Colour	Silicone / blue-grey / RAL 7031
Temperature range	-60 °C...200 °C
Hardness (IRHD)	60

Note

Ordering data

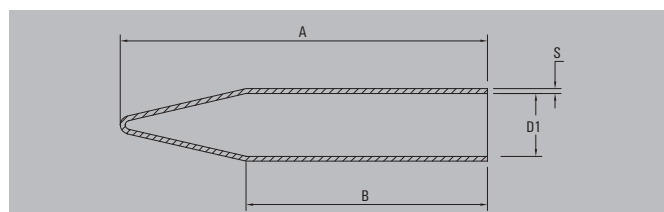
Type	A	B	D1	D2	S	Qty.	Order No.
metric							
KSP L24 S	123	70.00	25.00	28	1.50	10	0930700001
KSP L30 S	130	75.00	30.00	33	1.50	10	0930700002
KSP L38 S	130	75.00	37.00	40	1.50	10	0930700003
KSP L46 S	130	75.00	46.00	49	1.50	10	0930700004
KSP L55 S	150	85.00	55.00	58	1.50	10	0930700005
KSP L65 S	150	85.00	65.00	68	1.50	10	0930700006
KSP L80 S	150	85.00	80.00	84	2.00	10	0930700007
KSP L90 S	165	95.00	90.00	94	2.00	10	0930700008
KSP L 104 S	210	120.00	104.00	108	2.00	10	1193940000
KSP L114 S	210	120.00	114.00	118	2.00	10	1192790000

Note

Accessories – Shrouds – PVC



The cover shroud a cable gland before and after the installation. It also protects against external environmental influences.



Technical data

Material / Colour	PVC / Deep black / RAL 9005
Temperature range	-25 °C...70 °C
Hardness (Shore A)	65
Note	

Ordering data

Type	A	B	D1	D2	S	Qty.	Order No.
metric							
KSP L24	123	70.00	25.00	29	2.00	10	1736570000
KSP L30	130	75.00	30.00	34	2.00	10	1736580000
KSP L38	130	75.00	37.00	41	2.00	10	1736590000
KSP L46	130	75.00	46.00	50	2.00	10	1736600000
KSP L55	150	85.00	55.00	59	2.00	10	1736610000
KSP L65	150	85.00	65.00	69	2.00	10	1736620000
KSP L80	150	85.00	80.00	84	2.00	10	1736630000
KSP L90	165	95.00	90.00	94	2.00	10	1736640000
KSP EL30	130	80.00	30.00	34	2.00	10	1736670000
KSP EL38	175	95.00	37.00	41	2.00	10	1736680000
KSP EL46	205	105.00	46.00	50	2.00	10	1076750000
KSP EL55	220	115.00	55.00	59	2.00	10	1076760000
KSP EL65	265	125.00	65.00	69	2.00	10	1076770000
KSP EL80	280	130.00	80.00	84	2.00	10	1076780000
KSP EL90	280	140.00	90.00	94	2.00	10	1076790000

Note *These shrouds have been specially designed for the Klippon® KDSU and Klippon® KUB cable glands.

Accessories – Washers

Accessories – Serrated washers, Stainless steel



Serrated stainless-steel washers to prevent mounted cable glands from loosening. Can also be used to roughen painted or passivated surfaces.



Technical data

Material	Stainless steel 1.4404 (316L)
Note	

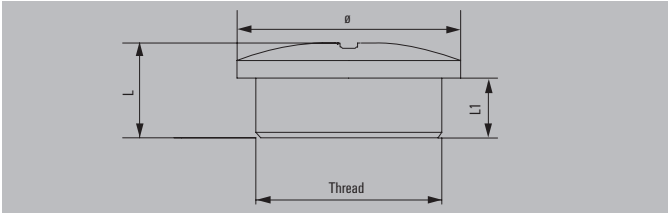
Ordering data

Type metric	Thread	D1	D2	Qty.	Order No.
SZS M16	M 16	25.5	17.30	50	1736300000
SZS M20	M 20	32.4	21.30	10	1736310000
SZS M25	M 25	37.4	25.30	10	1736320000
SZS M32	M 32	48	33.00	10	1736330000
SZS M40	M 40	60	41.00	5	1736340000
SZS M50	M 50	71	51.00	5	1736350000
SZS M63	M 63	87	64.00	5	1736360000
Note					

Blanking plugs – Plastic



Plastic blanking plug with cross-head is used to seal surplus threaded holes and to maintain the IP protection degree.



Technical data

Material / Colour	Polyamid 6 (PA6 - GF30) / Light Grey / RAL 7035
Temperature range	-40 °C...100 °C
Protection class	IP54
Flammability rating	V-2
Note	Optional sealing ring.

Ordering data

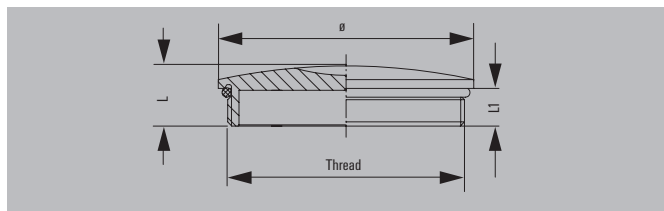
Type	Thread	L	L1	Head Ø	Qty.	Order No.
metric						
VP M12 K54	M 12	5.5	6	15.00	100	1776930000
VP M16 K54	M 16	5.5	7	20.00	100	1776920000
VP M20 K54	M 20	6.5	7	24.00	100	1776910000
VP M25 K54	M 25	7	10	30.00	100	1776900000
VP M32 K54	M 32	7	11	37.00	50	1776940000
VP M40 K54	M 40	7	13	46.00	25	1776950000
VP M50 K54	M 50	8.5	14	56.00	10	1776960000
VP M63 K54	M 63	8.5	15	69.50	50	1776970000
PG						
VP 7-K54	PG 7	8	6	15.00	100	1719250000
VP 9-K54	PG 9	9.5	5	19.00	100	0294760000
VP 11-K54	PG 11	10	6.5	22.00	100	0294860000
VP 13,5-K54	PG 13.5	10	5	25.00	100	0294960000
VP 16-K54	PG 16	10	5	27.00	100	0295060000
VP 21-K54	PG 21	12	8	33.00	50	0295160000
VP 29-K54	PG 29	11.5	8	44.00	25	0501160000
VP 36-K54	PG 36	14	10	55.00	10	0501260000
VP 42-K54	PG 42	14	10	62.00	5	0501360000
VP 48-K54	PG 48	16	12	69.00	5	1719260000
Note	Other versions available on request. The blanking plugs must be tightened "hand-tight" with the screwdriver.					

Blanking plugs

Blanking plugs – Brass – Nickel-plated



Brass blanking plug with cross-head is used to seal surplus threaded holes and to maintain the IP protection degree.



Technical data

Material	Brass, nickel-plated
O-Ring	NBR
Temperature range	-40 °C...100 °C
Protection class	IP68 - 5 bar (30 min.)

Note

Ordering data

Type metric	Thread	L	L1	Head Ø	Qty.	Order No.
VP M12-MS65	M 12	7.5	5	14.00	100	1777720000
VP M16-MS65	M 16	8	5	18.00	100	1777730000
VP M20-MS65	M 20	9.5	6	22.00	100	1777740000
VP M25-MS65	M 25	11	7	28.00	100	1777750000
VP M32-MS65	M 32	12	8	35.00	50	1777760000
VP M40-MS65	M 40	13	8	44.00	50	1777770000
VP M50-MS65	M 50	15	9	54.00	25	1777780000
VP M63-MS65	M 63	16	10	67.00	10	1777790000
PG						
VP 7-MS65	PG 7	7.5	5	15.00	100	0521600000
VP 9-MS65	PG 9	8	5	18.00	100	0294700000
VP 11-MS65	PG 11	8	5	22.00	100	0294800000
VP 13,5-MS65	PG 13.5	9	6	24.00	100	0294900000
VP 16-MS65	PG 16	9	6	26.00	100	0295000000
VP 21-MS65	PG 21	10	6	32.00	50	0295100000
VP 29-MS65	PG 29	12	8	40.00	50	0501100000
VP 36-MS65	PG 36	15	9	50.00	25	0501200000
VP 42-MS65	PG 42	16	10	57.00	25	0501300000
VP 48-MS65	PG 48	16	10	64.00	10	1719270000

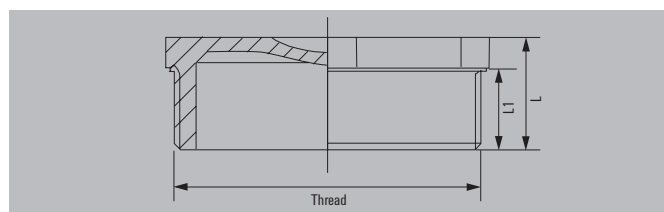
Note

Other versions available on request. The blanking plugs must be tightened "hand-tight" with the screwdriver.

Blanking plugs – Plastic – Ex e



Blanking plug with cross-head is used to seal surplus threaded holes and to maintain the IP protection degree – especially for Ex-e Ex applications.



Technical data

Material / Colour	Polyamide / Deep black / RAL 9005
Temperature range	-20 °C...80 °C
Protection class	IP54, IP66
Protection degree with GWDR	IP66, IP68
UL 94 flammability rating	V-2
Marking	Ex e II, Ex tD
Note	Optional sealing ring.

Ordering data

Type	Thread	L	L1	SW	Qty.	Order No.
metric						
VP M16-EXE SW	M 16	19	15	19	100	1737070000
VP M20-EXE SW	M 20	19	15	23	100	1737080000
VP M25-EXE SW	M 25	20	15	28	100	1737090000
VP M32-EXE SW	M 32	20.5	15	36	100	1737100000
VP M40-EXE SW	M 40	20.5	15	44	20	1737110000
VP M50-EXE SW	M 50	21	15	54	5	1737120000
VP M63-EXE SW	M 63	23.5	15	67	5	1737130000

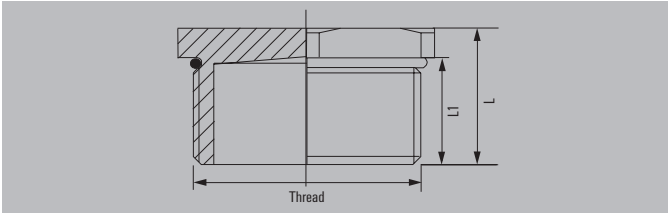
Note

Ex-Blanking plugs

Blanking plugs – Brass – Ex e, Ex d



Blanking plug is used for sealing surplus threaded holes to ensure the IP protection degree - especially for Ex-e and Ex-d applications.



Technical data

Material	Brass, nickel-plated
O-Ring	NBR
Temperature range	-40 °C...100 °C
Protection class	IP54, IP64, IP68
Marking	II 2 GD, Ex d IIC, Ex e II, Ex tD

Note

Ordering data

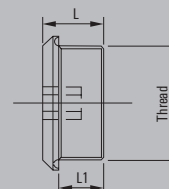
Type metric	Thread	L	L1	SW	Qty.	Order No.
VP M16 EXE MS	M 16	15	12	18	50	1210890000
VP M20 EXE MS	M 20	15	12	23	50	1210900000
VP M25 EXE MS	M 25	15.5	12	29	25	1210910000
VP M32 EXE MS	M 32	16	12	39	10	1210920000
VP M40 EXE MS	M 40	19	15	45	10	1210930000
VP M50 EXE MS	M 50	20	15	58	5	1210940000
VP M63 EXE MS	M 63	26	19	70	5	1210950000

Note

Blanking plugs – Brass and Stainless steel – Ex e, Ex d, IP66 / IP68



The KSPMH is a mushroom-shaped blanking plug with a hexagon socket. It is used to seal unused threaded holes so that cable glands can be inserted in the future. The KSPMH is approved for pressure-resistant Ex d encapsulations and increased safety Ex e applications.



Technical data

O-Ring	Silicone
Temperature range	-60 °C...200 °C
Protection class	IP66, IP68 (100 m / 168 h)
Marking	Ex d IIC Gb, Ex e IIC Gb, Ex tb IIIC Db
Note	

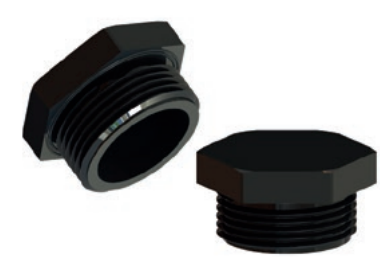
Ordering data

Type	Thread	L	L1	Qty.	Order No.
brass					
KSPMH M16 BSC	M 16	20.5	16	20	1477740000
KSPMH M20 BSC	M 20	21	16	20	1477750000
KSPMH M25 BSC	M 25	21	16	20	1477770000
KSPMH M32 BSC	M 32	21	16	10	1477780000
KSPMH M40 BSC	M 40	21.5	16	10	1477790000
KSPMH M50 BSC	M 50	21.5	16	1	1477800000
KSPMH M63 BSC	M 63	22	16	1	1477810000
KSPMH M75 BSC	M 75	22	16	1	1477830000
Stainless steel					
KSPMH M16 SSC	M 16	20.5	16	20	1477820000
KSPMH M20 SSC	M 20	21	16	20	1477840000
KSPMH M25 SSC	M 25	21	16	20	1477870000
KSPMH M32 SSC	M 32	21	16	10	1477890000
KSPMH M40 SSC	M 40	21.5	16	10	1477910000
KSPMH M50 SSC	M 50	21.5	16	1	1477930000
KSPMH M63 SSC	M 63	22	16	1	1477950000
KSPMH M75 SSC	M 75	22	16	1	1477980000

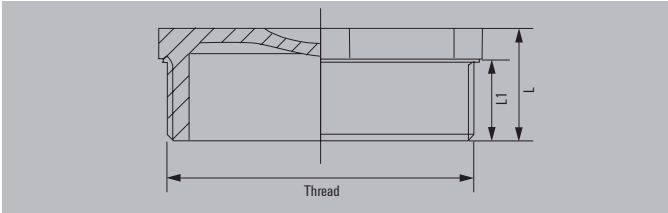
Note

Ex-Blanking plugs

Blanking plugs – Plastic – Ex e, IP66



For secure connection of unused screw-in threads or through-hole in enclosures. For Ex e applications with an impact resistance of 7 Joule in accordance with IEC 60079-0.



Technical data

Material / Colour	Polyamide 6 / Deep black / RAL 9005
O-Ring	Silicone
Temperature range	-60 °C...70 °C
Protection class	IP54, IP66, IP67, IP68 - 5 bar (30 min.)
Impact resistance	7 joules in acc. with IEC 60079-0
Marking	Ex eb IIC Gb, Ex tb IIIC Db IP66/68

Note

Ordering data

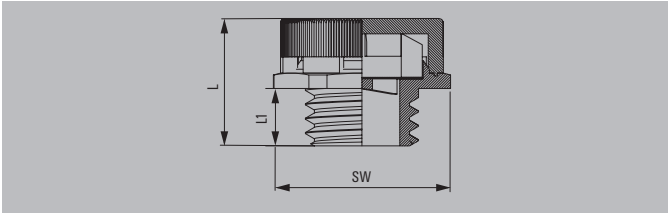
Type	Thread	L	L1	SW	Qty.	Order No.
VP M12 EX SI 7J	M 12	15	10	15	100	2066710000
VP M16 EX SI 7J	M 16	16.3	12	19	100	2066720000
VP M20 EX SI 7J	M 20	17	11	23	100	2066730000
VP M25 EX SI 7J	M 25	15.8	10	28	100	2066740000
VP M32 EX SI 7J	M 32	22.8	15	36	100	2066750000
VP M40 EX SI 7J	M 40	26.5	18	46	20	2066760000
VP M50 EX SI 7J	M 50	27.5	18	55	20	2066770000
VP M63 EX SI 7J	M 63	27.5	18	69	20	2066940000

Note

Compensation elements – Plastic – DAE



The DAE pressure-compensation element provides good ventilation for the enclosure and prevents moisture build-up. At the same time it maintains the high IP69k protection level. The membrane repels water and oil.



Technical data

Material / Colour	Polyamide 6 / Deep black / RAL 9005
O-Ring	NBR
Temperature range	-40 °C...105 °C
Protection class	IP66, IP68 (1 m / 60 min), IP69K
Air flow	0.8 l/min at 0.1 bar ΔP, up to 7.6 l/min at 1bar ΔP
Water inlet point	> 1.5 bar
UL 94 flammability rating	V-2
Note	

Ordering data

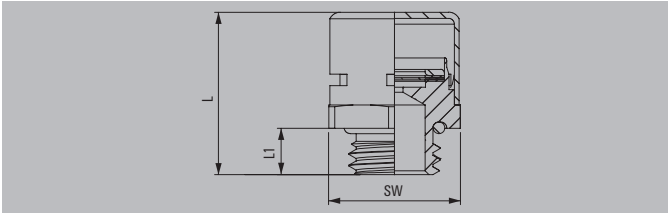
Type	Thread	L	L1	SW	Qty.	Order No.
metric						
DAE M12 PA LONG	M 12	17.4	10	17	10	1868570000
DAE M12 PA SHORT	M 12	13.4	6	17	10	1868560000
Note		Light grey version - RAL 7035 - on request.				

Compensating elements

Compensation elements – Stainless steel – DAE



The DAE pressure-compensation element provides good ventilation for the enclosure and prevents moisture build-up. At the same time it maintains the high IP69k protection level. The membrane repels water and oil.



Technical data

Material	Stainless steel 1.4305 (303)
O-Ring	NBR
Temperature range	-40 °C...105 °C
Protection class	IP66, IP68 (1 m / 60 min), IP69K
Air flow	0.4 l/min at 0.1 bar ΔP, up to 5.0 l/min at 1bar ΔP
Water inlet point	> 1.5 bar
Note	

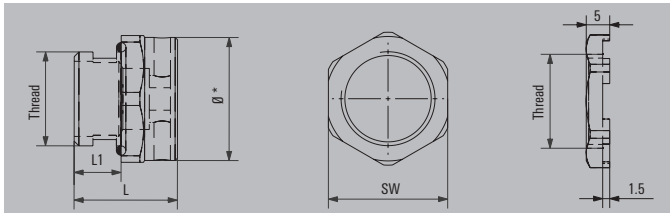
Ordering data

Type	Thread	L	L1	SW	Qty.	Order No.
metric						
DAE M12 SS	M 12	21.1	10	17	10	1868550000
Note						

Breather drains – Klippon® BDX



The BDX compensating element is used for ventilating the enclosure and preventing a buildup of moisture, particularly in Ex applications.



Technical data

Material	Brass / Stainless steel 1.4404 (316L)
Protection class	IP66
Impact resistance	7 J ATEX version
Filter	Bronze insert (90% copper, 10% tin)
Air flow	0.25 l / 1 h
Sealing	Silicone / O-Ring
Temperature range	-60 °C...200 °C
Colour	Natural
Note	

Ordering data

Type	Material	Thread	L / L1	SW	*Diameter	Qty.	Order No.
KLIPPON BDX M20 B	Brass	M 20	22 / 10	27	26.20	1	2519520000
KLIPPON BDX M20 S	Stainless steel 1.4404 (316L)	M 20	22 / 10	27	26.20	1	2519550000
KLIPPON BDX M20X15 S	Stainless steel 1.4404 (316L)	M 20	22 / 15	27	26.20	1	2519570000
KLIPPON BDX M25 S	Stainless steel 1.4404 (316L)	M 25	22 / 10	32	31.00	1	2519590000

Note

- The breather-drain is only to be fitted on the bottom side of the enclosure, aligned vertically with the thread upwards, and at the lowest point to permit proper drainage.
- The water flow rate has been tested by a water filled empty enclosure (no pressure or heat producing internal components). The water flow rate can slightly differ by influences from operational parameter and environmental conditions.
- Installation specifications and torques can be found in the installation instructions.

Cable entry system

Cable entry system	Cable Management – Cable Entry System – Cabtite	E.2
	Cable grommets	E.4
	Cable entry frames	E.5
	Divisible cable gland and accessories	E.7

Flexible and safe insertion of pre-assembled cables

Cabtite – the new modular system cable entry system

Managing pre-assembled cables is challenging for many plant manufacturers, especially when the cables run through cabinet or enclosure walls. A flexible cable entry system speeds up installation, facilitates service, and minimises downtime.

With the Cabtite cable entry system, maximal flexibility and time savings in cable management can be achieved. Assembled and unassembled cables in control cabinets, enclosures and machines are securely sealed and protected against tensile stress. The modular design consisting of a frame or cable gland, snap-in inlays and sealing elements allows quick configuration of cable entry cut-outs – without tools and with reliable sealing in IP66 according to DIN EN 60529.

Your special advantages:

- Maximum flexibility and time savings
- High IP protection class (IP66) as well NEMA 4x and 12
- Integrated strain relief acc. to DIN EN 62444
- Installation safety through simple handling with acoustic feedback
- Preservation of the manufacturer's guarantee for pre-assembled cables
- Fast adaptation of cable management in the event of system changes, service and maintenance cases



Individual assembly

Whether with frames or with separable cable glands with inlay and sealing elements: the basic modular components guarantee maximal flexibility and a wide range of variants.



High reliability

One click informs the user about the correct installation and guarantees error-free operation. The foamed-in seals guarantee high IP and NEMA protection.



No loss of warranty

Due to the cut-in sealing elements, the cables and wires are precisely encased. Existing connectors do not have to be dismantled – and the manufacturer's warranty is maintained.

Cable grommets

Cabtite SE - Sealing element small



Cable grommets
for ASI cables

The Cabtite SE sealing elements are used in the Cabtite FR frame or in the separable cable gland Cabtite CGS. The conical design allows easy installation, reliably seals gaps and provides strain relief in accordance with DIN EN 62444. For installation, the sealing elements are pressed from the inside to the outside into the snap-in inlays previously fitted in the frame or, in the case of the Cabtite CGS divisible cable gland, are placed between the cable gland half-shells. Various sealing elements with different cable diameters and geometries are available.

Technical data

Material	TPE
Halogen / Silicone	No / No
Operating temperature, min.	Light Grey: -40 °C; Deep black: -40 °C
Operating temperature, max.	Light Grey: 90 °C; Deep black: 120 °C
UL 94 flammability rating	Light Grey: V-0; Deep black: HB
Note	

Ordering data

Type	Clamping range	Qty.	Deep black Order No.	Light Grey Order No.
Individual sealing elements				
CABTITE SE 1.5-2 SML	1.5...2 mm	10	2584780000	2583360000
CABTITE SE 2-3 SML	2...3 mm	10	2584760000	2583380000
CABTITE SE 3-4 SML	3...4 mm	10	2584730000	2583400000
CABTITE SE 4-5 SML	4...5 mm	10	2584680000	2583440000
CABTITE SE 5-6 SML	5...6 mm	10	2584710000	2583450000
CABTITE SE 6-7 SML	6...7 mm	10	2584690000	2583460000
CABTITE SE 7-8 SML	7...8 mm	10	2584670000	2584660000
CABTITE SE 8-9 SML	8...9 mm	10	2584330000	2584650000
CABTITE SE 9-10 SML	9...10 mm	10	2584080000	2584630000
CABTITE SE 10-11 SML	10...11 mm	10	2584060000	2584610000
CABTITE SE 11-12 SML	11...12 mm	10	2584040000	2584600000
CABTITE SE 12-13 SML	12...13 mm	10	2584020000	2584590000
CABTITE SE 13-14 SML	13...14 mm	10	2584000000	2584570000
CABTITE SE 14-15 SML	14...15 mm	10	2583980000	2584560000
CABTITE SE 15-16 SML	15...16 mm	10	2583960000	2584550000
Special geometry ASI				
CABTITE SE 1/ASI SML		10	2583530000	2584810000
CABTITE SE 2/ASI SML		10	2583520000	2584800000
Multiple sealing element				
CABTITE SE 2/4-5 SML	4...5 mm	10	2583620000	2584900000
CABTITE SE 2/5-6 SML	5...6 mm	10	2583610000	2584890000
CABTITE SE 2/7 SML	7...8 mm	10	2583550000	2584830000
CABTITE SE 2/8 SML	8...9 mm	10	2583540000	2584820000
CABTITE SE 3/5-6 SML	5...6 mm	10	2652280000	2652290000
CABTITE SE 4/2-3 SML	2...3 mm	10	2583590000	2584870000
CABTITE SE 4/3-4 SML	3...4 mm	10	2583580000	2584860000
CABTITE SE 4/4-5 SML	4...5 mm	10	2583560000	2584840000
Cone sealing element				
CABTITE CSE 2-11 SML	2...11 mm	10	2583510000	
Blind plugs				
CABTITE BSE SML		10	2584790000	2583350000
Note				

Cabtite SE - sealing elements large



Blanking plugs

Cone sealing element

The Cabtite SE sealing elements in large design are identical in construction to those in small design. However, they can accommodate cables with a larger outer diameter.

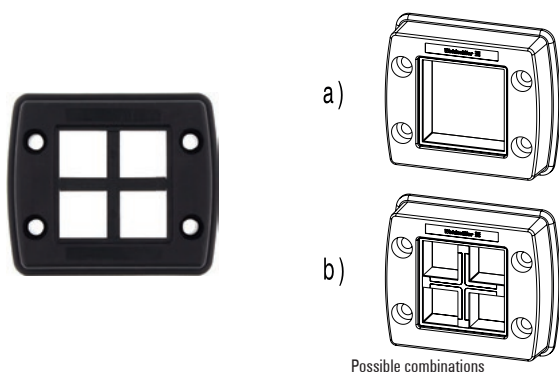
Technical data

Material	TPE
Halogen / Silicone	No / No
Operating temperature, min.	Deep black: -40 °C; Light Grey: -40 °C
Operating temperature, max.	Deep black: 120 °C; Light Grey: 90 °C
UL 94 flammability rating	Deep black: HB; Light Grey: V-0
Note	

Ordering data

Type	Clamping range	Qty.	Deep black Order No.	Light Grey Order No.
Individual sealing elements				
CABTITE SE 14-15 LRG	14...15 mm	10	2583880000	2584510000
CABTITE SE 15-16 LRG	15...16 mm	10	2583860000	2584500000
CABTITE SE 16-17 LRG	16...17 mm	10	2583850000	2584490000
CABTITE SE 17-18 LRG	17...18 mm	10	2583840000	2584480000
CABTITE SE 18-19 LRG	18...19 mm	10	2583830000	2584470000
CABTITE SE 19-20 LRG	19...20 mm	10	2583810000	2584460000
CABTITE SE 20-21 LRG	20...21 mm	10	2583790000	2584450000
CABTITE SE 21-22 LRG	21...22 mm	10	2583770000	2584440000
CABTITE SE 22-23 LRG	22...23 mm	10	2583750000	2584430000
CABTITE SE 23-24 LRG	23...24 mm	10	2583730000	2584420000
CABTITE SE 24-25 LRG	24...25 mm	10	2583710000	2584410000
CABTITE SE 25-26 LRG	25...26 mm	10	2583700000	2584400000
CABTITE SE 26-27 LRG	26...27 mm	10	2583690000	2584390000
CABTITE SE 27-28 LRG	27...28 mm	10	2583680000	2584370000
CABTITE SE 28-29 LRG	28...29 mm	10	2583670000	2584350000
CABTITE SE 29-30 LRG	29...30 mm	10	2583660000	2584380000
CABTITE SE 30-31 LRG	30...31 mm	10	2583650000	2584360000
CABTITE SE 31-32 LRG	31...32 mm	10	2583640000	2584340000
CABTITE SE 32-33 LRG	32...33 mm	10	2583630000	2584920000
CABTITE SE 33-34 LRG	33...34 mm	10	2595510000	2584910000
CABTITE SE 34-35 LRG	34...35 mm	10	2595520000	2595530000
Cone sealing element				
CABTITE CSE 7-24 LRG	7...24 mm	10	2583500000	
Blind plugs				
CABTITE BSE LRG		10	2583900000	2584520000
Note				

Cabtite FR - CABTITE FR 4-1 BK SET



The one-piece frame, consisting of a dimensionally stable, fibreglass-reinforced plastic, is quick and easy to assemble and available in four different sizes. The foamed, captive seal guarantees a high degree of impermeability to IP66, even with painted or rough surfaces. The frame sets contain the appropriate Rastinlays to realize the individual configuration (see above a or b) of small and large sealing elements. The sealing elements are not included in the frame set and must be selected to match the cable diameter.

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 / Type 12, Type 4x
UL 94 flammability rating	V-0
Note	

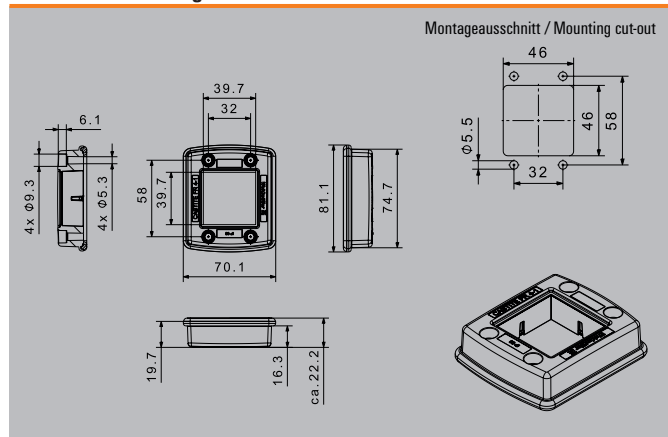
Ordering data

Type	Qty.	Order No.
Set		
CABTITE FR 4-1 BK SET	1	2583780000
Single frame (without snap-in inlay)		
CABTITE FR 4-1 BK	1	2583490000
Note The individual frames do not contain any Rastinlays or sealing elements.		

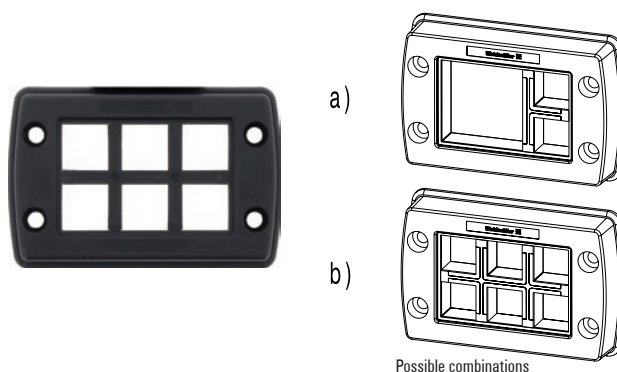
Accessories

Product type	Type	Qty.	Order No.
Locking frame (inside)	CABTITE FRL 4-1 BK	10	2584260000
Operating tool	CABTITE TOOL ATSE PA	1	2637360000
Mounting screw set	CABTITE SC M5X25 SET	1	2635120000
Note			

Dimensioned drawing



Cabtite FR - CABTITE FR 10/6 BK SET



The one-piece frame, consisting of a dimensionally stable, fibreglass-reinforced plastic, is quick and easy to assemble and available in four different sizes. The foamed, captive seal guarantees a high degree of impermeability to IP66, even with painted or rough surfaces. The frame sets contain the appropriate Rastinlays to realize the individual configuration (see above a or b) of small and large sealing elements. The sealing elements are not included in the frame set and must be selected to match the cable diameter.

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 / Type 12, Type 4x
UL 94 flammability rating	V-0
Note	

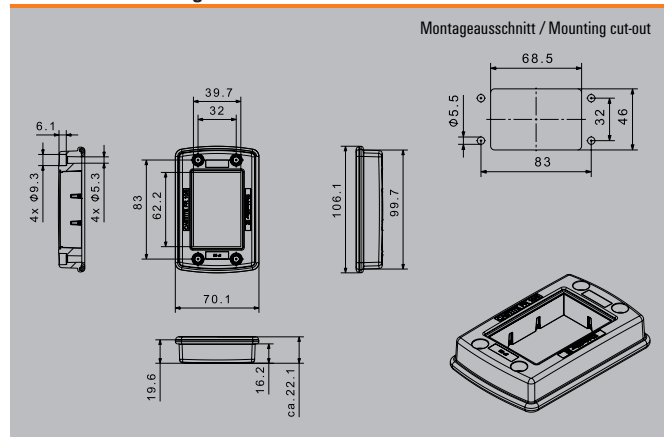
Ordering data

Type	Qty.	Order No.
Set		
CABTITE FR 10/6 BK SET	1	2583760000
Single frame (without snap-in inlay)		
CABTITE FR 10/6 BK	1	2583480000
Note The individual frames do not contain any Rastinlays or sealing elements.		

Accessories

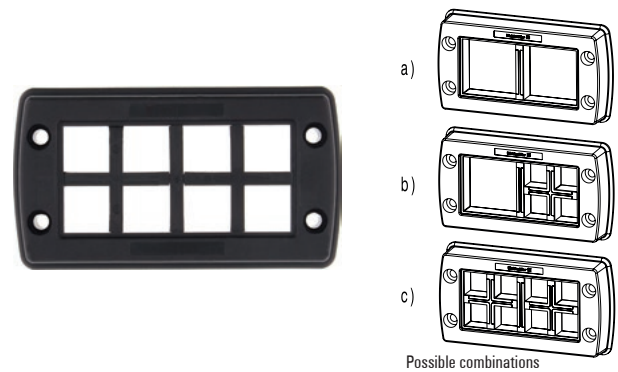
Product type	Type	Qty.	Order No.
Locking frame (inside)	CABTITE FRL 10/6 BK	10	2584240000
Operating tool	CABTITE TOOL ATSE PA	1	2637360000
Mounting screw set	CABTITE SC M5X25 SET	1	2635120000
Note			

Dimensioned drawing



Cable entry frames

Cabtite FR - CABTITE FR 16/8 BK SET



The one-piece frame, consisting of a dimensionally stable, fibreglass-reinforced plastic, is quick and easy to assemble and available in four different sizes. The foamed, captive seal guarantees a high degree of impermeability to IP66, even with painted or rough surfaces. The frame sets contain the appropriate Rastinlays to realize the individual configuration (see above a, b or c) of small and large sealing elements. The sealing elements are not included in the frame set and must be selected to match the cable diameters.

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 / Type 12, Type 4x
UL 94 flammability rating	V-0
Note	

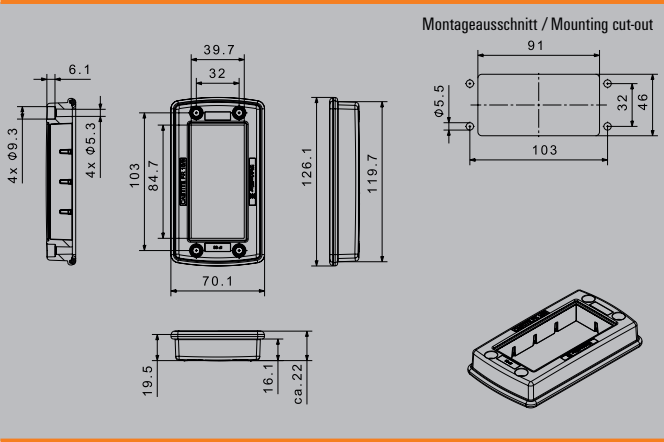
Ordering data

Type	Qty.	Order No.
Set		
CABTITE FR 16/8 BK SET	1	2583740000
Single frame (without snap-in inlay)		
CABTITE FR 16/8 BK	1	2583470000
Note	The individual frames do not contain any Rastinlays or sealing elements.	

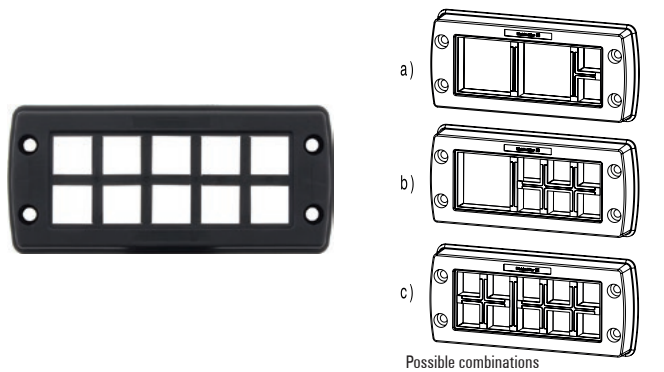
Accessories

Product type	Type	Qty.	Order No.
Locking frame (inside)	CABTITE FRL 16/8 BK	10	2584220000
Operating tool	CABTITE TOOL ATSE PA	1	2637360000
Mounting screw set	CABTITE SC M5X25 SET	1	2635120000
Note			

Dimensioned drawing



Cabtite FR - CABTITE FR 24/10 BK SET



The one-piece frame, consisting of a dimensionally stable, fibreglass-reinforced plastic, is quick and easy to assemble and available in four different sizes. The foamed, captive seal guarantees a high degree of impermeability to IP66, even with painted or rough surfaces. The frame sets contain the appropriate Rastinlays to realize the individual configuration (see above a, b or c) of small and large sealing elements. The sealing elements are not included in the frame set and must be selected to match the cable diameters.

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 / Type 12, Type 4x
UL 94 flammability rating	V-0
Note	

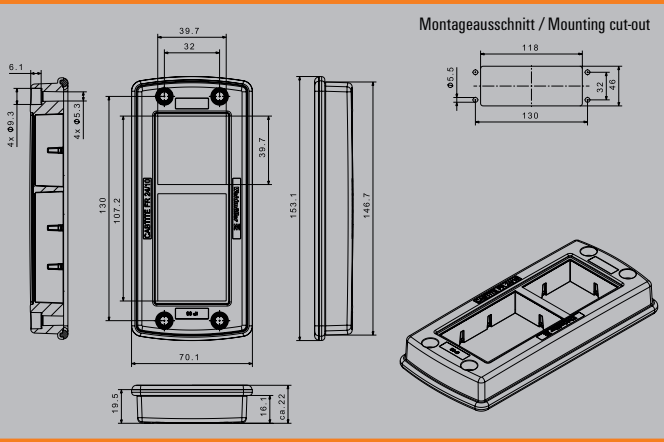
Ordering data

Type	Qty.	Order No.
Set		
CABTITE FR 24/10 BK SET	1	2583720000
Single frame (without snap-in inlay)		
CABTITE FR 24/10 BK	1	2583800000
Note	The individual frames do not contain any Rastinlays or sealing elements.	

Accessories

Product type	Type	Qty.	Order No.
Locking frame (inside)	CABTITE FRL 24/10 BK	10	2584210000
Operating tool	CABTITE TOOL ATSE PA	1	2637360000
Mounting screw set	CABTITE SC M5X25 SET	1	2635120000
Note			

Dimensioned drawing



Cabtite CGD - separable cable gland

Spare counter nut

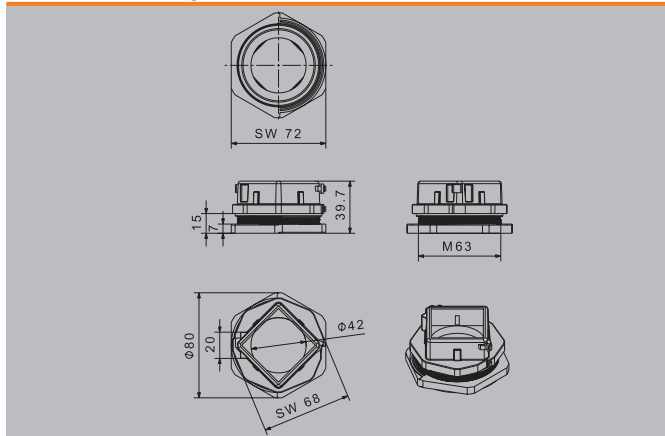
For metric through holes from M20 to M63, the Cabtite cable entry system offers separable cable glands for cables with and without plugs. In case of maintenance or changes in the system, pre-assembled cables with diameters from 2 to 35 mm can be quickly and safely inserted into switch cabinets or housings. After inserting the sealing elements (Cabtite SE), the two halves of the cable gland are simply snapped together. A likewise separable lock nut on the inside of the cabinet ensures a secure and firm hold.

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 /
UL 94 flammability rating	V-0
Note	

Ordering data

Type	Qty.	Order No.
Divisible cable gland*		
CABTITE CGS M20 BK	10	2584200000
CABTITE CGS M25 BK	10	2584180000
CABTITE CGS M32 BK	10	2584160000
CABTITE CGS M40 BK	5	2584150000
CABTITE CGS M50 BK	5	2584130000
CABTITE CGS M63 BK	5	2584120000
Articulated locknut		
CABTITE LNS M20 BK	10	2584110000
CABTITE LNS M25 BK	10	2584090000
CABTITE LNS M32 BK	10	2584070000
CABTITE LNS M40 BK	5	2584050000
CABTITE LNS M50 BK	5	2584030000
CABTITE LNS M63 BK	5	2584010000
Rastinly for M40-M63**		
CABTITE GI X BK	5	2584290000
Note		
*The cable glands are supplied with a locknut. **The snap-in insert is required to install 4 small sealing elements in the cable gland.		

Dimensioned drawing**Cabtite GI - Rastinlay**

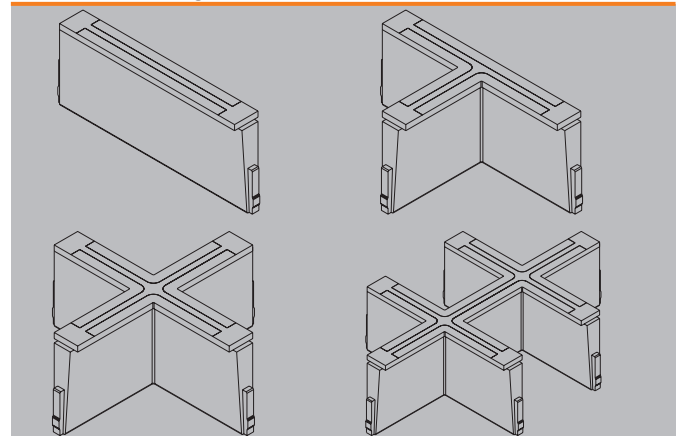
The insertable snap-in inlay allows the frame openings/cable glands to be configured as required for the small or large sealing elements used. Thus the Cabtite cable entry system can be variably configured for different requirements (cables, lines, hoses, pneumatic and hydraulic lines).

Technical data

Material	Polyamide, glass fibre-reinforced
Colour	Deep black
Operating temperature	-40...120 °C
Protection class / Protection class (UL)	IP54, IP65, IP66 /
UL 94 flammability rating	V-0
Note	

Ordering data

Type	Qty.	Order No.
CABTITE GI I BK	5	2584320000
CABTITE GI T BK	5	2584300000
CABTITE GI H BK	5	2584270000
Rastinly for M40-M63**		
CABTITE GI X BK	5	2584290000
Note		
**The locking inlay is required to install 4 small sealing elements in the cable gland.		

Dimensioned drawing

Divisible cable gland and accessories

Cabtite CR - Cable support strips (EMC)



In combination with a large number of different shield connection clamps (KLBÜ), the shield connection rails enable practical, uncomplicated and fast shielding of cables.

Cabtite BP - Blanking plug



The blind plugs are used for the safe closing of unneeded cable passages in the sealing elements.

Technical data

Material	Steel, galvanized
Colour	silver

Note

Ordering data

Type	Qty.	Order No.
CABTITE CR 4-1 EMV	10	2583950000
CABTITE CR 10/6 EMV	10	2583930000
CABTITE CR 16/8 EMV	10	2583910000
CABTITE CR 24/10 EMV	10	2583890000

Note

Technical data

Material	Polyamide
Colour	red
Operating temperature	-60...100 °C

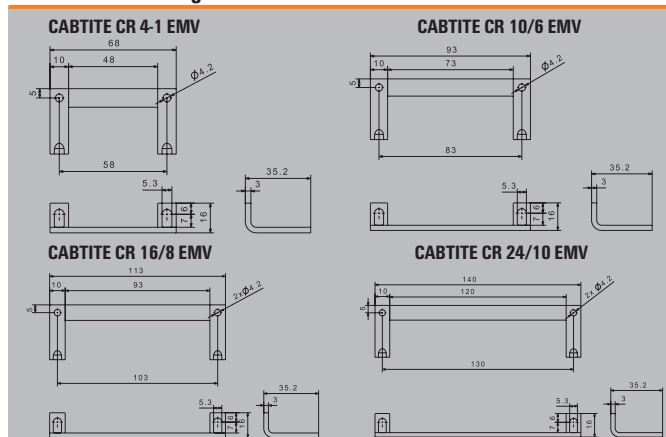
Note

Ordering data

Type	Qty.	Order No.
CABTITE BP 2MM PA	50	2652300000
CABTITE BP 3MM PA	50	2652310000
CABTITE BP 4MM PA	50	2652320000
CABTITE BP 5MM PA	50	2652330000
CABTITE BP 6MM PA	50	2652340000
CABTITE BP 7MM PA	50	2652350000
CABTITE BP 8MM PA	50	2652360000
CABTITE BP 9MM PA	50	2652370000
CABTITE BP 10MM PA	50	2652380000
CABTITE BP 12MM PA	50	2652400000
CABTITE BP 13MM PA	50	2652410000
CABTITE BP 14MM PA	50	2652420000
CABTITE BP 17MM PA	50	2652430000
CABTITE BP 20MM PA	50	2652440000
CABTITE BP 21MM PA	50	2652450000
CABTITE BP 25MM PA	50	2652460000
CABTITE BP 28MM PA	50	2652470000
CABTITE BP 35MM PA	50	2652480000

Note

Dimensioned drawing



Tools

Tools	Overview	F.2
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Tools

At Weidmüller, we have been developing and manufacturing quality tools to meet the most stringent requirements for over 30 years. When we develop new solutions, we always keep our goal in mind: to make your job easier, optimise processes and help protect the long-term productivity of your business.

The best conditions for this can be created by using perfectly coordinated products and tools from a single source. Our range includes professional manual tools for cutting, stripping, crimping, testing and screwing. The assortment is supplemented by tool sets that sensibly and efficiently combine tools and matching accessories. Our machines simplify continually recurring tasks and save valuable time.

Your special advantages:

- Increased safety thanks to the tool certification service
- Flexibility in form and function
- High level of efficiency thanks to sophisticated ergonomics and multiple actions per work process
- Profitable interplay between products and tools from a single source

Stripping tools

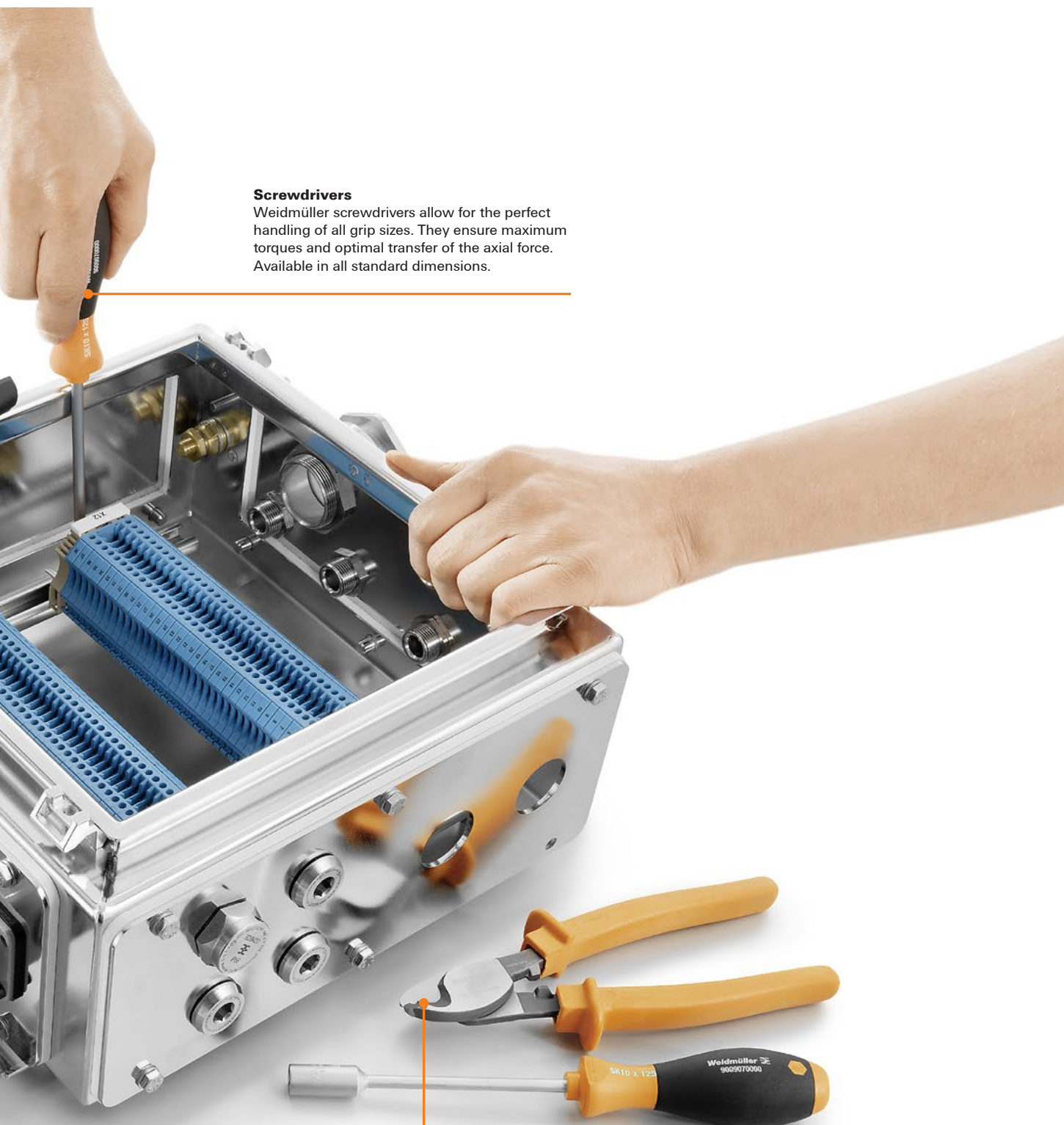
Thanks to the exact adaptation to the insulation and wire cross-section, our professional stripping tools guarantee defect-free processing with consistently reliable stripping results. With its wide range of stripping tools, Weidmüller satisfies all the criteria for professional cable processing.

Cable gland tools

The Weidmüller cable gland tools are suitable for an extremely wide range of cable glands. They enable you to tighten or loosen several rows of connections without deforming the cable glands.

Screwdrivers

Weidmüller screwdrivers allow for the perfect handling of all grip sizes. They ensure maximum torques and optimal transfer of the axial force. Available in all standard dimensions.



Cutting tools

Weidmüller is a specialist in the cutting of copper and aluminium cables. The range of products extends from cutting tools with direct force application for small cross-sections to cutting tools for large diameters.

Service and support

Service and support	Our expertise for your requirements	V.2
	Benefit from optimum support when using our products	V.4

Our expertise for your requirements

Service connects - worldwide

Automation technology functions are becoming more complex in a globally-oriented world facing ambitious targets in terms of energy efficiency and smart production. We are your equal partners for the best connections in Industrial Connectivity. Our worldwide network of industrial managers for machine construction, process automation, energy and traffic engineering and for device manufacturers know the challenges you face and can support you in your specific applications.

Training course on technologies, applications and the detailed functionality of our products is available to you locally or at our headquarter in Germany. Our personal support can answer any questions reliably and expertly. Our online services are available 365 day a year around the clock to provide answers to your questions on our products - from user documentation through software to planning tools.

In short: Weidmüller's global service combines our expertise with your requirements.





Professional advice on planning

Our global network of industrial managers has extensive experience in automation technology and electrical connectivity. This expertise allows us to assist you with advice and planning support in order to work with you on resolving the everyday challenges of your applications.



Technology and application training

Industrial automation is moving towards smart production. It faces the challenges of new technologies and applications. Our varied range of training courses develops this knowledge further or provides more in-depth information on the handling of our products and solutions. Our seminars are modular and can be customised. We can train you and your employees in our academy, on your premises if you wish or online in our webinars at any time.



Customised installation

The challenges for the future are reducing costs and increasing efficiency. This requires intelligent, individual solutions which are tailored to your requirements. We can offer a highly qualified customer-specific production service in our application centre. Whether you need modified products, pre-assembled terminal rails or complete small cabinets: we produce the solutions developed for your application quickly and flexibly.

Technical appendix

Technical appendix	Directive 1999/92/EC	W.2
	ATEX directive 2014/34/EU	W.5
	IECEx scheme	W.6
	⚠ Hazardous areas guide	W.7
	IP class of protection	W.10
	Guidelines for selecting cable glands	W.12
	Ratings plate of an empty enclosure	W.14
	Type label for enclosure assemblies	W.15

Directive 1999/92/EC

Article 137 of the European Community Formation Treaty set out the minimum standards in order to improve workers' health and safety, this can also be put at risk by explosive atmospheres. An explosive atmosphere is a mixture of air and flammable gasses, vapours, mists or dust under atmospheric conditions where, following successful ignition, the burning process will propagate throughout the whole unburned mixture.

The directive 1999/92/EC was transferred into national law. Compliance with the minimum standards contained in this directive does not guarantee that all relevant national laws are met. It is possible for local regulators to introduce more stringent requirements.

The employer is required, according to the directive 1999/92/EC, to take measures to ensure the health and safety of the employees. One measure is the division of the area into zones where explosive atmospheres could be present.

Unless the risk analysis conducted by the employer indicates otherwise, all areas where an explosive atmosphere may be present must be equipped with devices and protective systems that meet the relevant category of the ATEX directive 2014/34/EU.

In particular in these zones the following categories of equipment should be used, as long as they are suitable for use with gases, vapours, mists or dusts:

- In Zone 0 or Zone 20: category 1 devices
- In Zone 1 or Zone 21: category 1 or category 2 devices
- In Zone 2 or Zone 22: category 1, category 2 or category 3 devices

Zoning according to the directive 1999/92/EC

Explosion risk areas are classified into zones according to likelihood of explosive atmospheres occurring and their persistence.

Zone 0

An area which has a potentially explosive atmosphere that is a mixture of air and **flammable gases, vapours or mists**. The mixture is either permanently present or frequently present over long periods of time.

Zone 1

An area in which during normal operations a potentially explosive atmosphere of air and **flammable gases, vapours or mists** can occasionally form.

Zone 2

An area for which during normal operations there is at most only a short-term occurrence of a potentially explosive atmosphere of mixtures of air and **flammables gases, vapours or mists**.

Zone 20

An area where a potentially explosive atmosphere is present in the form of a **flammable dust** cloud in the air. This cloud is either permanently present or frequently present over long periods of time.

Zone 21

An area where, during normal operations, a potentially explosive atmosphere in the form of a **flammable dust** cloud in the air can occasionally form.

Zone 22

An area where, during normal operations, a potentially explosive atmosphere in the form of a **flammable dust** cloud in the air is not normally present or only present for a short time.

For the risk assessment and as well as the zoning concept described above, Ex devices themselves can be considered in an alternative process which uses the equipment protection level (EPL). These protective levels determine the internal ignition risk of a device where the sort of applied protection does not play a role.

The system of EPL classifications (Equipment Protection Level) is shown below.

Firedamp (methane) risk mines (Group I)

EPL Ma

Equipment for installation in mining applications, offering a „very high“ level of protection and which do not constitute a source of ignition during normal operation, or in the event of rarely occurring faults.

EPL Mb

Equipment for installation in a mine with a high level of protection. Has sufficient safety to ensure that there is no source of ignition in the period of time between the outbreak of gas and the time the equipment is switched off.

Gases (Group II)

EPL Ga

Equipment for explosive-risk gas atmospheres with a very high level of protection. No source of ignition is present during normal operation or when errors occur that cannot be necessarily expected on a regular basis.

EPL Gb

Equipment for explosive-risk gas atmospheres with a high level of protection. No source of ignition is present during normal operation or when errors occur that cannot be necessarily expected on a regular basis.

EPL Gc

Equipment for explosive-risk gas atmospheres with an elevated level of protection. No source of ignition is present during normal operation and it can have additional safeguards to ensure that none is present during faults which happen regularly (e. g. failure of a lamp).

Dust (Group III)

EPL Da

Equipment for combustible dust atmospheres with a very high level of protection. No source of ignition is present during normal operation or in very rare faults.

EPL Db

Equipment for combustible dust atmospheres with a high level of protection. No source of ignition is present during normal operation or when errors occur that cannot be necessarily expected on a regular basis.

EPL Dc

Equipment for combustible dust atmospheres with an elevated level of protection. No source of ignition is present during normal operation and it can have additional safeguards to ensure that none is present during faults which happen regularly (e. g. failure of a lamp).



Classification of explosive groups

Electrical devices for groups II and III are classified further as a function of the properties of the explosive atmosphere for which they are intended.

The danger of the atmosphere increases from IIA(IIIA) to IIC(IIIC) so that all equipment certified for use in IIC(IIIC) areas may also be used in IIA(IIIA) and IIB(IIIB) areas.

Classification of explosive groups

Group	Material, e.g.	Ignition energy	Group	Material
IIA	Propane	266 µJ	IIA	Flammable fluff
IIB	Ethylene	85 µJ	IIB	Non-conductive dust
IIC	Hydrogen	19 µJ	IIC	Conductive dust

Classification of zones and equipment categories

Combustible ingredients	Explosive atmospheres	Zone division	EPL safety level	Identification	
				Equipment group	Device category
Gas, mist, vapours/fumes (G / Gas)	permanent, long-term	Zone 0	Ga	II	1G
	occasionally	Zone 1	Gb	II	2G
	unlikely, short-term	Zone 2	Gc	II	3G
Dusts (D / Dust)	permanent, long-term	Zone 20	Da	II	1D
	occasionally	Zone 21	Db	II	2D
	unlikely, short-term	Zone 22	Dc	II	3D

ATEX directive 2014/34/EU

Article 96 of the Treaty on the Foundation of the European Union and Decision no. 768/2008/EU and Federal Gazette 96/309-356 govern the standardisation of legal regulations in the Member States. The ATEX directive 2014/34/EU sets out the basic requirements for health and safety protection as a directive following the new concept. It is aimed at manufacturers of equipment and components designed for used in potentially explosive atmosphere areas.

This directive had to be adopted without deviation into national law.

For Germany, this took the form of the passing of the Explosion Protection Ordinance (2015 ExVo 2015) of the Product Safety Act (ProdSG). It applies to all industrial potentially explosive areas, including mines, and also covers protection from dust-ignited explosions.

This directive sets out the requirements for the products depending on their equipment group and category. This is the category as set down by the directive 1999/92/EC applicable for each appropriate zone.

To prove conformity with the basic health and safety regulations, harmonised standards are used. If the requirements as laid out in the Official Journal of the EU are met, then it will be in compliance with the standard requirements for conformity (presumption of conformity). Various, mostly equivalent, protection types have been standardised harmoniously.

This conformity assessment process of the directives sets out different procedures. For device category 3, the manufacturer can perform the conformity assessment itself. For devices of categories 1 and 2, this conformity check must be carried out at a notified body in the form of a EC type-examination. In addition, quality assurance must be monitored for the devices of categories 1, 2 and 3.

Weidmüller has devices and components in its product range. Empty enclosures are components and are certified at the factory as such. Installing certified components does not create a certified equipment. To do this, additional tests must be carried out.

Weidmüller offers customer-specific devices available as certified solutions. The production of assembled enclosures is monitored by a notified body.

IECEx scheme

The IECEx scheme is an international certification scheme for products which meet the requirements of the international standards, e.g. the technical committee TC31's IEC standards.

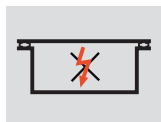
A Certificate of Conformity (CoC) refers to a test report (Ex Test Report ExTR) and on an assessment of the quality assessment report from the manufacturer (QAR).

The standards used for the production of the test report correspond almost entirely to the harmonised standards in Europe. Recent EN standards were initially adopted as IEC standards.

Protection concepts

The zoning described above provides the basis for the selection of the type of ignition protection. So, as an example, in the ATEX applicable areas, only ignition protection devices meeting Ex ia for Zone 0 (highest probability of an explosive atmosphere being present) are allowed.

Increased safety Ex e No sparks and a surface temperature limited to a safe level

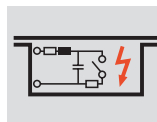


Increased safety is for products where there are no sparks produced during normal operation or in case of a failure. The surface temperature of the relevant parts is limited to a value below the ignition temperature.

Increased safety is achieved by reducing the current load and raising the isolation properties and by maintaining clearance and creepage distances above the value in an industrial application. The highest voltage permitted for this protection scheme is 11 kV (D.C. or A.C. rms).

This protection scheme is usually used for distribution cabinets..

Intrinsically safe Ex i Limited to a safe level of ignition energy

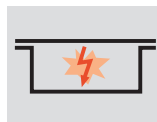


Intrinsic safety is for products where electrical energy which flows into the product, or is stored in the product, is not sufficient to ignite the surrounding explosive atmosphere. This also applies in fault conditions. The methods that achieve intrinsic safety mean that it is important that not only the devices installed in direct contact with the explosive atmosphere are constructed correctly, but also the electrical devices to which they are connected.

Intrinsically safe equipment and intrinsically safe parts of the associated equipment are divided into protection levels: ia (for zones 0, 1, and 2), ib (for zones 1 and 2), and ic (only for zone 2).

A typical application area are control and display circuits with low voltage and current.

Pressure-resistant Ex d encapsulation Limits the explosion to the inside of the enclosure

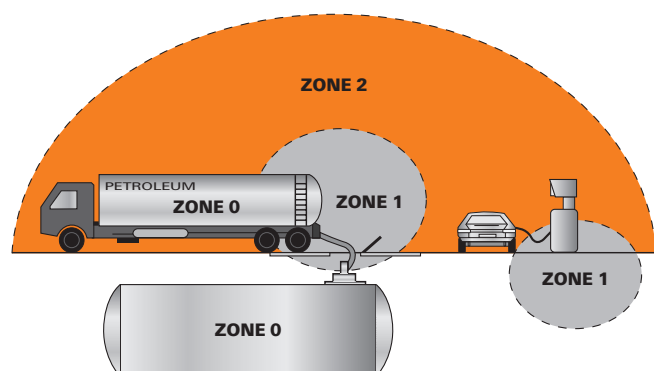


Pressure-resistant encapsulated enclosures are designed for devices where sparks are generated or which have hot surfaces which are a source of ignition during normal operation. Similarly, industrial components for use in potentially explosive atmospheres are often made suitable by encapsulating them in a pressure-resistant enclosure which otherwise could not be used.

The surrounding possibly explosive atmosphere can enter the enclosure and will produce an internal explosion during the equipment's lifespan.

The enclosure must therefore be stable enough to ensure that it is not deformed or destroyed by the pressure created. All connections of the enclosure are sized so that they cannot transmit an explosion from inside to the surrounding atmosphere. These connections are known as ignition gaps.

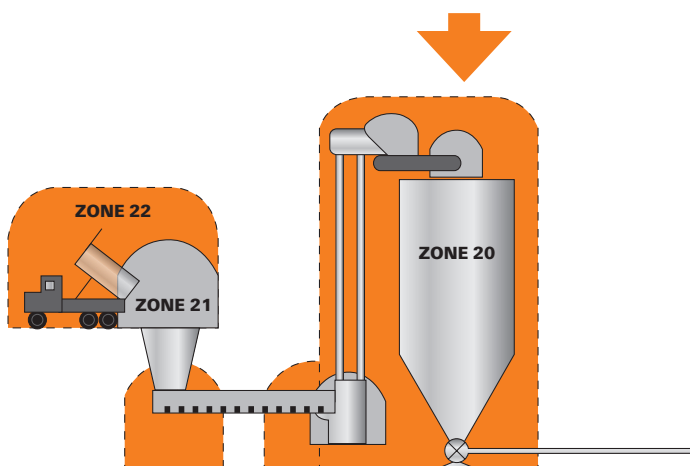
Area classification



Gas groups

IIA	e.g. Propane
IIB	e.g. Ethylene
IIC	e.g. Hydrogen

Equipment group acc. to directive 2014/34/EU		Equipment category acc. to directive 2014/34/EU		Classification of hazardous areas acc. to directive 1999/92/EG	Group acc. to IEC/EN 60079-0	Combustible materials	Equipment protection level (EPL acc. to IEC/EN 60079-0)
I	Mining	M1	very high level of protection; remain functional at occurrence of Ex-atmosphere		I	Methane, Carbon dust	Ma
I		M2	high level of protection; de-energized at occurrence of Ex-atmosphere		I		Mb
II	Other industries (except mining)	1	very high level of protection; save even in an event of rare incidents	0	II	Gases, Vapours, Mists (G)	Ga
II		2	high level of protection; save even in an event of predictable failures	1	II		Gb
II		3	normal level of protection; save during normal operation	2	II		Gc
II	Other industries (except mining)	1	very high level of protection; save even in an event of rare incidents	20	III	Dust (D)	Da
II		2	high level of protection; save even in an event of predictable failures	21	III		Db
II		3	normal level of protection; save during normal operation	22	III		Dc



Dust groups

IIIA	Combustible flyings
IIIB	Non-conductive dust
IIIC	Conductive dust

Types of Protection

Types of protection for electrical equipment in explosive gas atmospheres

Type of protection	Symbol	Main application	Norm
increased safety	eb	junction boxes, control stations for installing Ex-components (with a different type of protection), squirrel-cage motors, light fittings	IEC 60079-7 EN 60079-7 ISA 60079-7
flameproof enclosures	db	switchgears, control stations, indicating equipment, control systems, motors, transformers, heating equipment, light fittings	IEC 60079-1 EN 60079-1 ISA 60079-1
pressurized enclosures	pxb pyb pzc	switchgear and control cabinets, analysers, large motors	IEC 60079-2 EN 60079-2 ISA 60079-2
intrinsic safety	ia ib ic	instrumentation technology, fieldbus technology, sensors, actuators [Ex ib] = associated electrical apparatus - installation in the safe area	IEC 60079-11 EN 60079-11 ISA 60079-11
		intrinsically safe systems	IEC 60079-25 EN 60079-25
		FISCO: fieldbus intrinsically-safe concept	IEC 60079-27 EN 60079-27 ISA 60079-27
oil immersion	ob	transformers, starting resistors	IEC 60079-6 EN 60079-6 ISA 60079-6
powder filling	qb	sensors, display units, electronic ballasts, transmitters	IEC 60079-5 EN 60079-5 ISA 60079-5
encapsulation	ma mb mc	switchgear with small capacity, control and signalling units, display units, sensors	IEC 60079-18 EN 60079-18 ISA 60079-18
type of protection "n"	nAc nCc nRc	all electrical equipment for Zone 2 nA = non-sparking device nC = sparking devices and components nL = energy limited apparatus nR = restricted breathing enclosures	IEC 60079-15 EN 60079-15 ISA 60079-15
optical radiation	op_a op_b op_c	op is = inherently safe optical radiation op pr = protected optical radiation op sh = optical radiation interlock	IEC 60079-28 EN 60079-28

Types of protection for electrical equipment in explosive dust atmospheres

Type of protection	Symbol	Main application	Norm
protection by enclosures	ta tb tc	switchgear, control stations, junction boxes, control boxes, motors, light fittings	IEC 60079-31 EN 60079-31 ISA 60079-31
pressurization	pb pc	switchgear and control cabinets, motors	IEC 60079-2 EN 60079-2 ISA 60079-2
intrinsic safety	ia ib ic	instrumentation technology, fieldbus technology, sensors, actuators [Ex ib] = associated electrical apparatus - installation in the safe area	IEC 60079-11 EN 60079-11 ISA 60079-11
encapsulation	ma mb mc	switchgear with small capacity, control and signalling units, display units, sensors	IEC 60079-18 EN 60079-18 ISA 60079-18

Temperature class

Classification of the maximum surface temperatures into temperature classes for electrical equipment of group II

Temperature class ATEX/IECEx	Temperature class NEC/UL (AEx)	Maximum surface temperature	
T1	T1	450 °C	842 °F
T2	T2	300 °C	572 °F
	T2A	280 °C	536 °F
	T2B	260 °C	500 °F
	T2C	230 °C	446 °F
	T2D	215 °C	419 °F
T3	T3	200 °C	392 °F
	T3A	180 °C	356 °F
	T3B	165 °C	329 °F
	T3C	160 °C	320 °F
T4	T4	135 °C	275 °F
	T4A	120 °C	248 °F
T5	T5	100 °C	212 °F
T6	T6	85 °C	185 °F
IEC/DIN EN 60079-0	NEC500ff	°C	°F

Certifications worldwide



IP class of protection to DIN EN 60529

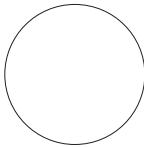
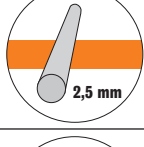
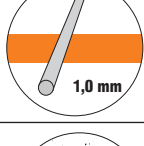
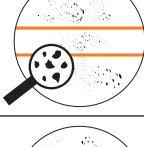
The ingress protection class or IP rating is indicated by a code consisting of the two letters IP and two digits representing the class of protection.

Example:

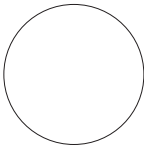
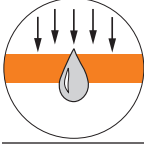
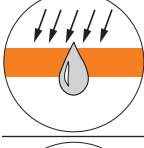
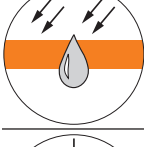
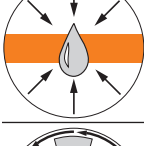
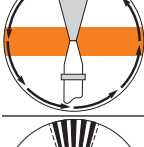
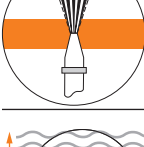
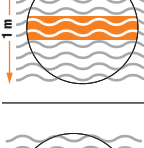
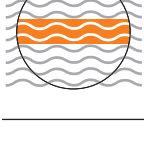
I P 6 5

2nd digit: protection from liquids
1st digit: protection from solid bodies

Protection against intrusion of external particle matter (1st digit)

Code digit		
0		No protection
1		Protection against ingress of large solid bodies with diameter > 50 mm. (Protection to prevent dangerous parts being touched with the back of the hand.)
2		Protection against ingress of large solid bodies with diameter > 12.5 mm. (Protection to prevent dangerous parts being touched with the fingers.)
3		Protection against ingress of large solid bodies with diameter > 2.5 mm. (Protection to prevent dangerous parts being touched with a tool.)
4		Protection against ingress of large solid bodies with diameter > 1 mm. (Protection to prevent dangerous parts being touched with a piece of wire.)
5		Protection against harmful deposits of dust, which cannot enter in an amount sufficient to interfere with satisfactory operation.
6		Complete protection against ingress of dust.

Protection against penetration of liquids (2nd digit)

Code digit		
0		No protection
1		Protection against drops of condensed water falling vertically.
2		Protection against drops of liquid falling at an angle of 15° with respect to the vertical.
3		Protection against drops of liquid falling at an angle of 60° with respect to the vertical.
4		Protection against liquids splashed from any direction.
5		Protection against water jets projected by a nozzle from any direction.
6		Protection against water from heavy sea on ships' decks.
7		Protection against immersion in water under defined conditions of pressure and time.
8		Protection against indefinite immersion in water under defined conditions of pressure (which must be agreed between manufacturer and user and must be more adverse than number 7).

Definition of the protection degrees according to NEMA, UL and CSA

Type	NEMA	UL	CSA
Designation	National Electrical Manufacturers Association NEMA 250-1991	Underwriters Laboratories Inc. UL 50 und UL 508	Canadian Standards Association CSA-C22.2 No. 94-M91
Type 1	Enclosure predominately for indoor use. Protection against penetration by solid foreign bodies.	Enclosure predominately for indoor use. Protection against penetration by solid foreign bodies.	Enclosure for general use. Protection against accidental contact with live components.
Type 2	Enclosure predominately for indoor use. Protection against penetration by solid foreign bodies and water.	Enclosure predominately for indoor use. Protection against penetration by solid foreign bodies and water.	Enclosure for indoor use. Protection against non-corrosive drops/splashes of liquid and foreign bodies.
Type 3	Enclosure predominately for indoor use. Protection against penetration by rainfall and dust as well as damage due to ice formation.	Enclosure predominately for indoor use. Protection against penetration by rainfall and dust as well as damage due to ice formation.	Enclosure for indoor or outdoor use. Protection against penetration by rainfall and snow as well as damage due to ice formation.
Type 3R	Enclosure predominately for indoor use. Protection against rain and snow as damage due to ice-formation.	Enclosure predominately for indoor use. Protection against rain and snow as damage due to ice-formation.	Enclosure for indoor or outdoor use. Protection against penetration by rainfall and snow as well as damage due to ice formation.
Type 3S	Enclosure predominately for indoor use. Protection against rain, snow and foreign bodies. External mechanisms can be operated despite ice accumulation.	Enclosure predominately for indoor use. Protection against rain, snow and foreign bodies. External mechanisms can be operated despite ice accumulation.	Enclosure for indoor or outdoor use. Protection against rain, snow and foreign bodies. External mechanisms can be operated despite ice accumulation.
Type 4	Enclosure for indoor or outdoor use. Protection against rain, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against rain, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against rain, snow, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.
Type 4X	Enclosure for indoor or outdoor use. Protection against corrosion, rain, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against corrosion, rain, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against rain, foreign bodies, splashing water and hose water as well as damage due to ice-formation on the outside of the enclosure.
Type 6	Enclosure for indoor or outdoor use. Protection against hose water as well as against penetration by water during immersion; protection damage due to ice formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against hose water as well as against penetration by water during immersion; protection damage due to ice formation on the outside of the enclosure.	Enclosure for indoor or outdoor use. Protection against penetration by water during immersion; protection damage due to ice formation on the outside of the enclosure.
Type 12	Enclosure for indoor use. Protection against dust accumulation, foreign bodies and non-corrosive drops of liquids.	Enclosure for indoor use. Protection against dust accumulation, foreign bodies and non-corrosive drops of liquids.	Enclosure for indoor or outdoor use. Protection against a build-up of dust, fibres and foreign bodies as well as against non-corrosive liquid drips, without pre-formed openings.
Type 13	Enclosure for indoor use. Protection against dust build-up, splashing water, oil, and non-corrosive coolants.	Enclosure for indoor use. Protection against dust build-up, splashing water, oil, and non-corrosive coolants.	Enclosure for indoor or outdoor use. Protection against a build-up of dust, fibres and foreign bodies as well as against non-corrosive liquid sprays including oil and coolants.

W

Cross-section	No. of conductors	Cable ø approx. mm
0.5 mm ²	2	5.7 - 8.7
AWG 20	3	6.0 - 9.0
	4	6.7 - 9.7
	5	7.2 - 10.2
	6	7.6 - 10.6
	7	8.0 - 10.6
	8	9.4 - 12.8
	10	9.4 - 12.8
	12	9.7 - 12.9
	14	10.2 - 13.4
	16	10.7 - 13.9
	21	12.3 - 15.1
	24	13.5 - 16.7
	30	14.3 - 17.5
	35	16.0 - 18.6
	40	16.6 - 19.2
	52	19.2 - 21.6
61	20.3 - 23.1	
80	22.9 - 25.7	
100	26.4 - 29.6	

0.75 mm ²	2	6.8 - 9.8
AWG 18	3	7.2 - 9.7
	4	7.9 - 10.3
	5	8.9 - 10.9
	6	8.9 - 12.3
	7	9.6 - 12.3
	8	10.4 - 13.8
	9	10.7 - 13.9
	10	10.4 - 13.8
	12	10.7 - 13.9
	15	12.3 - 13.5
	18	13.0 - 16.2
	21	13.6 - 16.8
	25	15.9 - 18.5
	32	17.1 - 19.7
	40	19.0 - 21.4
	50	21.3 - 24.1
	61	22.6 - 25.4
	80	26.1 - 29.3
	100	29.4 - 33.0

Metric cable glands			
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W.12 Weidmüller

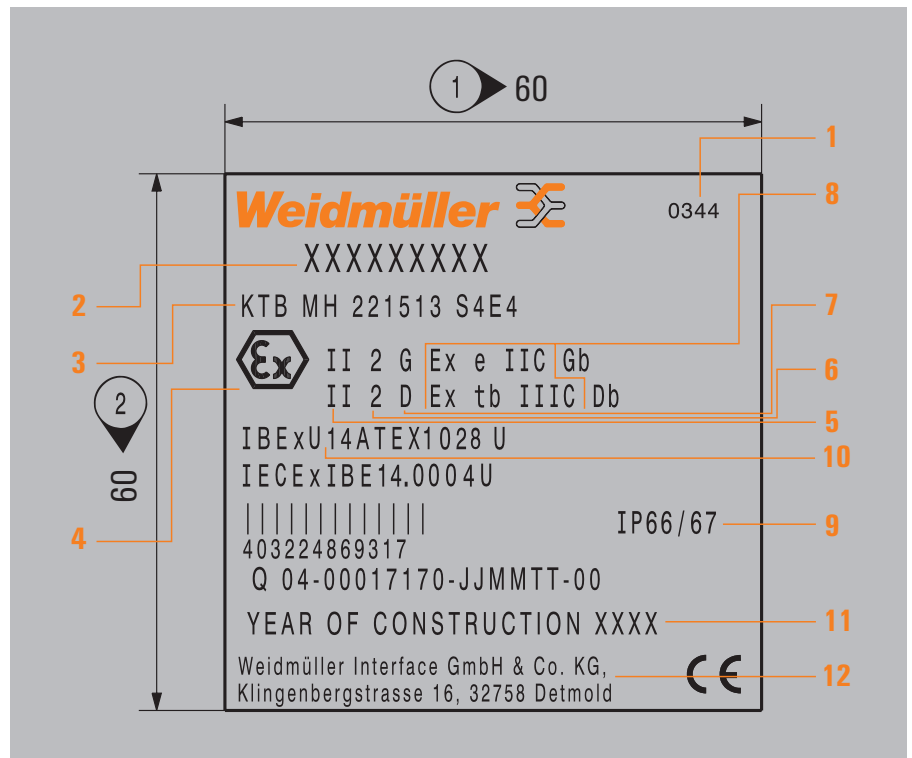
Cross-section	No. of conductors	Cable ø approx. mm	Metric cable glands				PG			
1.5 mm ²	2	8.0 - 11.0	12	16	20		9	11	13.5	16
AWG 16	3	8.7 - 11.0	16	20	25		9	11	13.5	16
	4	9.7 - 11.8	16	20	25		9	11	13.5	16
	5	10.8 - 13.0		20	25			11	13.5	16
	6	10.8 - 14.2		20	25			11	13.5	16
	7	10.8 - 14.2		20	25			11	13.5	16
	8	13.2 - 16.6			25	32			13.5	16
	11	13.6 - 16.8			25	32			13.5	16
	12	17.6 - 16.8			25	32			13.5	16
	14	14.4 - 17.6			25	32			13.5	16
	16	15.8 - 18.4			25	32			16	21
	18	16.6 - 19.2			25	32			16	21
	20	17.4 - 20.0			25	32	40		21	29
	25	20.2 - 23.0				32	40		21	29
	32	23.8 - 24.5					40			29
	34	22.6 - 25.4					40			29
	42	25.8 - 29.0					40	50		29
	50	27.0 - 30.2					40	50		29
	56	27.8 - 31.0					40	50		29
	61	28.6 - 31.8					40	50		36
	80	33.0 - 36.4						50	63	36
	90	34.6 - 37.6						50	63	36
	100	37.8 - 41.4						50	63	42
2.5 mm ²	2	9.8 - 12.8	16	20	25		9	11	13.5	16
AWG 12-14	3	10.6 - 13.4		20	25			11	13.5	16
	4	11.7 - 14.4		20	25			11	13.5	16
	5	13.0 - 16.4		20	25	32			13.5	16
	6	13.3 - 16.7			25	32			13.5	16
	7	13.3 - 16.7			25	32			13.5	16
	8	17.4 - 20.8			25	32	40			21
	11	18.0 - 20.6			25	32	40			21
	16	20.6 - 23.4				32	40			21
	18	21.7 - 24.5					40			29
	25	26.4 - 29.6					40	50		29
	34	31.3 - 33.1					40	50		36
	50	37.0 - 39.4						50	63	36
	61	39.0 - 41.5						50	63	42
4 mm ²	2	10.7 - 14.1	20	25			11	13.5	16	21
AWG 10-12	4	13.0 - 16.4		25	32			13.5	16	21
	5	14.3 - 17.7		25	32			16	21	
	7	16.2 - 19.6		25	32				21	29
	11	ca. 24.5				40			29	36

Note:

The values can differ between manufacturers. These figures should be considered as rough guidelines.

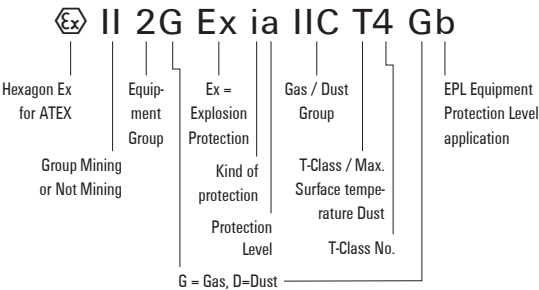
Ratings plate of an Ex-certified empty enclosure

- 1 Number of the notified body
- 2 Part No.
- 3 Part designation
- 4 Ex marking
- 5 Equipment group
- 6 Device category
- 7 • G Gas (gas)
• D flammable dust
- 8 Explosion protection type
- 9 IP ingress protection class (DIN EN 60529)
- 10 EC type-examination certificate
- 11 Year of manufacture
- 12 Name and address of manufacturer



Type label for enclosure assemblies

- 1 Certification conditions and logo
 - 2 Name and address of manufacturer
 - 3 Approval number
 - 4 Part designation
 - 5 Part No.
 - 6 Serial number
 - 7 Year of Contruction
 - 8 IP ingress protection class
 - 9 Ambient temperature
 - 10 Approval number
 - 11 Ex marking
- Example:



Weidmüller

Weidmüller Interface GmbH & Co. KG
Klingenbergstr. 16 – D 32758 Detmold


LISTED
Junction Box for HAZ. LOC.
E223792

4 Type: Klippon TB MH 303020
5 P/N: 9876543219
6 S/N: XA-DE-A-0000
7 Year of Construction: 2018

8 IP 66 NEMA TYPE: 4x

Rated voltage: 600 [V] Cable size: 4 [mm²]
Rated current: 21 [A] 9 T amb: - 20 °C ... + 55 °C

11 Class I Zone 1 AEx e IIC T4 Gb

W A R N I N G - DO NOT OPEN WHEN ENERGIZED

Weidmüller

Weidmüller Interface GmbH & Co. KG
Klingenbergstr. 16 – D 32758 Detmold


0344

4 Type: Klippon TB MH 303020
5 P/N: 9876543219
6 S/N: XA-DE-A-0000
7 Year of Construction: 2018

8 IP 66

Rated voltage: 600 [V] Cable size: 4 [mm²]
Rated current: 21 [A] 9 T amb: - 20 °C ... + 55 °C

10 IBExU14ATEX1050
11  II 2G Ex eb IIC T4 Gb

10 IECEx IBE 14.0013
11 Ex eb IIC T4 Gb

W A R N I N G - DO NOT OPEN WHEN ENERGIZED

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	Index Order No.	X.11
	Addresses worldwide	X.20

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ADAP EX M20-M16	1737560000	C.155
ADAP EX M20-M16	1737560000	C.156

B

BK 4/E	7906808000	C.116
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KLIPPPON POK 121209	1305870000	C.150	KLIPPPON STB 1.1 SS	1002750000	C.69	KSPMH M20 SSC	1477840000	C.47	KTB FS 484820 S4E2	1196270000	C.40
KLIPPPON POK 121209 EX	1306050000	C.130	KLIPPPON STB 1.1 SS E	1058820000	C.66	KSPMH M20 SSC	1477840000	C.79	KTB FS 484820 S4E3	1196280000	C.40
KLIPPPON POK 121209 EX	1306050000	C.137	KLIPPPON STB 1.1 SS E	1058820000	C.69	KSPMH M20 SSC	1477840000	C.80	KTB FS 484820 S4E4	1196290000	C.40
KLIPPPON POK 122209	1305880000	C.130	KLIPPPON STB 2 MS HT	1024990000	C.66	KSPMH M20 SSC	1477840000	D.57	KTB FS 553515 S4E0	1196300000	C.40
KLIPPPON POK 122209	1305880000	C.138	KLIPPPON STB 2 MS HT	1024990000	C.70	KSPMH M25 BSC	1477770000	D.57	KTB FS 553515 S4E1	1196310000	C.40
KLIPPPON POK 122209 EX	1306070000	C.130	KLIPPPON STB 2 SS	1002740000	C.66	KSPMH M25 SSC	1477870000	C.47	KTB FS 553515 S4E2	1196320000	C.40
KLIPPPON POK 122209 EX	1306070000	C.138	KLIPPPON STB 2 SS	1002740000	C.70	KSPMH M25 SSC	1477870000	C.81	KTB FS 553515 S4E3	1196330000	C.40
KLIPPPON POK 161609	1305890000	C.130	KLIPPPON STB 2 SS	1002740000	C.79	KSPMH M25 SSC	1477870000	D.57	KTB FS 553515 S4E4	1196340000	C.40
KLIPPPON POK 161609	1305890000	C.139	KLIPPPON STB 2 SS E	1058830000	C.66	KSPMH M32 BSC	1477780000	D.57	KTB FS 553520 S4E0	1196350000	C.40
KLIPPPON POK 161609	1305890000	C.150	KLIPPPON STB 2 SS E	1058830000	C.70	KSPMH M32 SSC	1477890000	C.45	KTB FS 553520 S4E1	1196360000	C.40
KLIPPPON POK 161609 EX	1306080000	C.130	KLIPPPON STB 2.1 MS HT	1025010000	C.66	KSPMH M32 SSC	1477890000	C.46	KTB FS 553520 S4E2	1196370000	C.40
KLIPPPON POK 161609 EX	1306080000	C.139	KLIPPPON STB 2.1 MS HT	1025010000	C.71	KSPMH M32 SSC	1477890000	D.57	KTB FS 553520 S4E3	1196380000	C.40
KLIPPPON POK 162609	1305900000	C.130	KLIPPPON STB 2.1 SS	1002730000	C.66	KSPMH M40 BSC	1477790000	D.57	KTB FS 553520 S4E4	1196390000	C.40
KLIPPPON POK 162609	1305900000	C.140	KLIPPPON STB 2.1 SS	1002730000	C.71	KSPMH M40 SSC	1477910000	C.47	KTB FS 624515 S4E0	1196400000	C.40
KLIPPPON POK 162609 EX	1306090000	C.130	KLIPPPON STB 2.1 SS E	1058840000	C.66	KSPMH M40 SSC	1477910000	D.57	KTB FS 624515 S4E1	1196410000	C.40
KLIPPPON POK 162609 EX	1306090000	C.140	KLIPPPON STB 2.1 SS E	1058840000	C.71	KSPMH M50 BSC	1477800000	D.57	KTB FS 624515 S4E2	1196420000	C.40
KLIPPPON POK 163609	1305910000	C.130	KLIPPPON STB 3 MS HT	1025020000	C.66	KSPMH M50 SSC	1477930000	D.57	KTB FS 624515 S4E3	1196430000	C.40
KLIPPPON POK 163609	1305910000	C.141	KLIPPPON STB 3 MS HT	1025020000	C.72	KSPMH M63 BSC	1477810000	D.57	KTB FS 624515 S4E4	1196440000	C.40
KLIPPPON POK 163609 EX	1306100000	C.130	KLIPPPON STB 3 SS	1002720000	C.66	KSPMH M63 SSC	1477950000	D.57	KTB FS 624520 S4E0	1196450000	C.40
KLIPPPON POK 163609 EX	1306100000	C.141	KLIPPPON STB 3 SS	1002720000	C.70	KSPMH M75 BSC	1477830000	D.57	KTB FS 624520 S4E1	1196460000	C.40
KLIPPPON POK 165609	1305920000	C.130	KLIPPPON STB 3 SS	1002720000	C.82	KSPMH M75 SSC	1477980000	D.57	KTB FS 624520 S4E2	1196470000	C.40
KLIPPPON POK 165609	1305920000	C.142	KLIPPPON STB 3 SS E	1058850000	C.66	KSWF M16	1076680000	D.48	KTB FS 624520 S4E3	1196480000	C.40
KLIPPPON POK 165609 EX	1306110000	C.130	KLIPPPON STB 3 SS E	1058850000	C.72	KSWF M20	0899750000	D.48	KTB FS 624520 S4E4	1196490000	C.40
KLIPPPON POK 165609 EX	1306110000	C.142	KLIPPPON STB 4 MS HT	1025030000	C.66	KSWF M25	0899770000	D.48	KTB FS 765015 S4E0	1196500000	C.40
KLIPPPON POK 252512	1305930000	C.130	KLIPPPON STB 4 MS HT	1025030000	C.73	KSWF M32	1076690000	D.48	KTB FS 765015 S4E1	1196510000	C.40
KLIPPPON POK 252512	1305930000	C.143	KLIPPPON STB 4 SS	1002710000	C.66	KSWF M40	1076710000	D.48	KTB FS 765015 S4E2	1196520000	C.40
KLIPPPON POK 252512 EX	1306120000	C.130	KLIPPPON STB 4 SS	1002710000	C.73	KSWF M50	1076720000	D.48	KTB FS 765015 S4E3	1196530000	C.40
KLIPPPON POK 252512 EX	1306120000	C.143	KLIPPPON STB 4 SS	1002710000	C.81	KSWF M63	1076730000	D.48	KTB FS 765015 S4E4	1196540000	C.40
KLIPPPON POK 252516	1305980000	C.130	KLIPPPON STB 4 SS E	1058860000	C.66	KSWF M75	1076740000	D.48	KTB FS 765020 S4E0	1196550000	C.40
KLIPPPON POK 252516	1305980000	C.144	KLIPPPON STB 4 SS E	1058860000	C.73	KSWN M16	1076630000	D.47	KTB FS 765020 S4E1	1196560000	C.40
KLIPPPON POK 252516 EX	1306170000	C.130	KLIPPPON STB 5 MS HT	1025040000	C.66	KSWN M20	0930730002	D.47	KTB FS 765020 S4E2	1196570000	C.40
KLIPPPON POK 252516 EX	1306170000	C.144	KLIPPPON STB 5 MS HT	1025040000	C.74	KSWN M25	1076640000	D.47	KTB FS 765020 S4E3	1196580000	C.40
KLIPPPON POK 254012	1305940000	C.130	KLIPPPON STB 5 SS	1002700000	C.66	KSWN M32	1076650000	D.47	KTB FS 765020 S4E4	1196590000	C.40
KLIPPPON POK 254012	1305940000	C.145	KLIPPPON STB 5 SS	1002700000	C.74	KSWN M40	0899780000	D.47	KTB FS 916115 S4E0	1196600000	C.40
KLIPPPON POK 254012 EX	1306130000	C.130	KLIPPPON STB 5 SS E	1058880000	C.66	KSWN M50	0900660000	D.47	KTB FS 916115 S4E1	1196610000	C.40
KLIPPPON POK 254012 EX	1306130000	C.145	KLIPPPON STB 5 SS E	1058880000	C.74	KSWN M63	1076660000	D.47	KTB FS 916115 S4E2	1196620000	C.40
KLIPPPON POK 254016	1305990000	C.130	KLIPPPON STB 6 MS HT	1025050000	C.66	KSWN M75	1076670000	D.47	KTB FS 916115 S4E3	1196630000	C.40
KLIPPPON POK 254016	1305990000	C.146	KLIPPPON STB 6 MS HT	1025050000	C.75	KTB FS 221513 S4E0	1195650000	C.40	KTB FS 916115 S4E4	1196640000	C.40
KLIPPPON POK 254016 EX	1306180000	C.130	KLIPPPON STB 6 SS	1002760000	C.66	KTB FS 221513 S4E1	1195660000	C.40	KTB FS 916120 S4E0	1196650000	C.40
KLIPPPON POK 254016 EX	1306180000	C.146	KLIPPPON STB 6 SS	1002760000	C.75	KTB FS 221513 S4E2	1195670000	C.40	KTB FS 916120 S4E1	1196660000	C.40
KLIPPPON POK 256012	1305950000	C.130	KLIPPPON STB 6 SS E	1058870000	C.66	KTB FS 221513 S4E3	1195680000	C.40	KTB FS 916120 S4E2	1196670000	C.40
KLIPPPON POK 256012	1305950000	C.147	KLIPPPON STB 6 SS E	1058870000	C.75	KTB FS 221513 S4E4	1195690000	C.40	KTB FS 916120 S4E3	1196680000	C.40
KLIPPPON POK 256012 EX	1306140000	C.130	KSG M20 BN 0 NI 2 G16	1911510000	D.33	KTB FS 262615 S4E0	1195700000	C.40	KTB FS 916120 S4E4	1196690000	C.40
KLIPPPON POK 256012 EX	1306140000	C.147	KSG M20 BN 0 NI 2 G20	1911560000	D.33	KTB FS 262615 S4E1	1195710000	C.40	KTB FS 987420 S4E0	1196700000	C.40
KLIPPPON POK 404012	1305970000	C.130	KSG M20 BS 0 NI 2 G20S	1911540000	D.33	KTB FS 262615 S4E2	1195720000	C.40	KTB FS 987420 S4E1	1196710000	C.40
KLIPPPON POK 404012	1305970000	C.148	KSG M20 BS 0 NI 2 G16	0930481222	D.34	KTB FS 262615 S4E3	1195730000	C.40	KTB FS 987420 S4E2	1196720000	C.40
KLIPPPON POK 404012 EX	1306150000	C.130	KSG M20 BS 0 NI 2 G20	0930501222	D.34	KTB FS 262615 S4E4	1195740000	C.40	KTB FS 987420 S4E3	1196730000	C.40
KLIPPPON POK 404012 EX	1306150000	C.148	KSG M20 BS 0 NI 2 G20S	0930491224	D.34	KTB FS 262620 S4E0	1195750000	C.40	KTB FS 987420 S4E4	1196740000	C.40
KLIPPPON POK1 2M16AB CSS	8000004160	C.150	KSG M25 BN 0 NI 2 G25	1911570000	D.33	KTB FS 262620 S4E1	1195760000	C.40	KTB GP 221513 AB S4	1280890000	C.44
KLIPPPON POK1 2M16AB CSS	8000004162	C.152	KSG M25 BS 0 NI 2 G25	0930511222	D.34	KTB FS 262615 S4E3	1195770000	C.40	KTB GP 221513 AB S4 6MM	1256270000	C.15
KLIPPPON POK1 M16ACSS EX	8000004223	C.150	KSG M32 BN 0 NI 2 G32	1911580000	D.33	KTB FS 262620 S4E3	1195780000	C.40	KTB GP 221513 AB S4 6MM	1256270000	C.44
KLIPPPON POK1 M16ACSS EX	8000004223	C.152	KSG M32 BS 0 NI 2 G32	0930521222	D.34	KTB FS 262620 S4E4	1195790000	C.40	KTB GP 221513 CD S4 PE	2022770000	C.15
KLIPPPON POK1 M16BCSS EX	8000004222	C.150	KSG M40 BN 0 NI 2 G40	1911590000	D.33	KTB FS 303015 S4E0	1195800000	C.40	KTB GP 221513 CD S4 6MM	1256280000	C.15
KLIPPPON POK1 M16BCSS EX	8000004222	C.152	KSG M40 BS 0 NI 2 G40	0930531222	D.34	KTB FS 303015 S4E1	1195810000	C.40	KTB GP 221513 CD S4 PE	2022930000	C.15
KLIPPPON POK2 2M20AB CSS	8000004161	C.150	KSG M50 BN 0 NI 2 G50	1911610000	D.33	KTB FS 303015 S4E2	1195820000	C.40	KTB GP 262615 AB S4	1280910000	C.45
KLIPPPON POK2 2M20AB CSS	8000004161	C.153	KSG M50 BN 0 NI 2 G50S	1911600000	D.33	KTB FS 303015 S4E3	1195830000	C.40	KTB GP 262615 AB S4 6MM	1256290000	C.16
KLIPPPON POK2 M20ACSS EX	8000004225	C.150	KSG M50 BS 0 NI 2 G50	1136670000	D.34	KTB FS 303015 S4E4	1195840000	C.40	KTB GP 262615 AB S4 6MM	1256290000	C.45
KLIPPPON POK2 M20ACSS EX	8000004225	C.153	KSG M50 BS 0 NI 2 G50S	1136660000	D.34	KTB FS 303020 S4E0	1195850000	C.40	KTB GP 262615 AB S4 PE	2022930000	C.16
KLIPPPON POK2 M20BCSS EX	8000004224	C.150	KSG M63 BN 0 NI 2 G63	1911630000	D.33	KTB FS 303020 S4E1	1195860000	C.40	KTB GP 262615 CD S4 6MM	1256310000	C.16
KLIPPPON POK2 M20BCSS EX	8000004224	C.153	KSG M63 BN 0 NI 2 G63S	1911620000	D.33	KTB FS 303020 S4E2	1195870000	C.40	KTB GP 262615 CD S4 PE	2023090000	C.16
KLIPPPON POK3 4M20AB CSS	8000004162	C.150	KSG M63 BS 0 NI 2 G63	1136690000	D.34	KTB FS 303020 S4E3	1195880000	C.40	KTB GP 262620 AB S4 6MM	1256320000	C.17
KLIPPPON POK3 4M20AB CSS	8000004162	C.154	KSG M63 BS 0 NI 2 G63S	1136680000	D.34	KTB FS 303020 S4E4	1195890000	C.40	KTB GP 262620 CD S4 PE	2023100000	C.17
KLIPPPON POK3 M20ACSS EX	8000004228	C.150	KSG M75 BN 0 NI 2 G75	1075360000	D.33	KTB FS 352615 S4E0	1195900000	C.40	KTB GP 262620 CD S4 6MM	1256330000	C.17
KLIPPPON POK3 M20ACSS EX	8000004228	C.154	KSG M75 BN 0 NI 2 G75S	1075350000	D.33	KTB FS 352615 S4E1	1195910000	C.40	KTB GP 262620 CD S4 PE	2023110000	C.17
KLIPPPON POK3 M20BCSS EX	8000004226	C.150	KSG M75 BS 0 NI 2 G75	1136710000	D.34	KTB FS 352615 S4E2	1195920000	C.40	KTB GP 303015 AB S4 6MM	1256340000	C.18
KLIPPPON POK3 M20BCSS EX											

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KTB GP 453815 AB S4 PE	2023490000	C.24
KTB GP 453815 CD S4 6MM	1256490000	C.24
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KTB GP 453820 AB S4 6MM	1256510000	C.25
KTB GP 453820 AB S4 PE	2023510000	C.25
KTB GP 453820 CD S4 6MM	1256520000	C.25
KTB GP 453820 CD S4 PE	2023520000	C.25
KTB GP 484815 AB S4 6MM	1256530000	C.26
KTB GP 484815 AB S4 PE	2023530000	C.26
KTB GP 484815 CD S4 6MM	1256540000	C.26
KTB GP 484815 CD S4 PE	2023540000	C.26
KTB GP 484820 AB S4	1281130000	C.47
KTB GP 484820 AB S4 6MM	1256550000	C.27
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KTB MH 303015 S4E3	1194730000	C.12
KTB MH 303015 S4E3	1194730000	C.18
KTB MH 303015 S4E4	1194740000	C.12

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KTB MH 303020 S4E2	1194770000	C.12
KTB MH 303020 S4E2	1194770000	C.19
KTB MH 303020 S4E3	1194780000	C.12
KTB MH 303020 S4E3	1194780000	C.19
KTB MH 303020 S4E4	1194790000	C.12
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KTBL RNHD 987420 S4E R	1314340000	C.36
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KV 16-M	1656410000	D.10
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KV 29-M	1656430000	D.10
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MF TBF	0360800000	C.174
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MOPL K11 STAHL	3073000000	C.100
MOPL K2 N FE	1905270000	C.101
MOPL K21 STAHL	3073020000	C.102
MOPL K3 BKVARIO SET	8000004497	C.116
MOPL K3 N FE	1898210000	C.103
MOPL K31 STAHL	3073040000	C.104
MOPL K32 STAHL	3073050000	C.105

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MOPL K6 STAHL	3073110000	C.111
MOPL K61 STAHL	3073120000	C.112
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MP FPC 20/30	9535930000	C.185
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MP MPC 17/25	9535580000	C.182
MP MPC 17/25	9535580000	C.183
MP TBF 19/15	9502720000	C.170
MP TBF 30/19	3018950000	C.170
MP TBF 30/30	9502730000	C.171
MP TBF 37/30	9502740000	C.171
MP TBF 49/30	9500960000	C.172
MP TBF 56/30	9500950000	C.172
MP TBF 60/30	9502750000	C.173
MP TBF 60/37	9502910000	C.174
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MPC 12/17/07 TRSP	9535300000	C.176
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2023540000	KTB GP 484815 CD S4 PE	C.26
2023580000	KTB GP 484820 AB S4 PE	C.27
2023620000	KTB GP 484820 CD S4 PE	C.27
2023660000	KTB GP 553515 AB S4 PE	C.28
2023670000	KTB GP 553515 CD S4 PE	C.28
2023740000	KTB GP 553520 AB S4 PE	C.29
2023790000	KTB GP 553520 CD S4 PE	C.29
2023820000	KTB GP 624515 AB S4 PE	C.30
2023870000	KTB GP 624515 CD S4 PE	C.30
2023880000	KTB GP 624520 AB S4 PE	C.31
2023930000	KTB GP 624520 CD S4 PE	C.31
2024040000	KTB GP 765015 AB S4 PE	C.32
2024090000	KTB GP 765015 CD S4 PE	C.32
2024100000	KTB GP 765020 AB S4 PE	C.33
2024140000	KTB GP 765020 CD S4 PE	C.33
2024150000	KTB GP 916115 AB S4 PE	C.34
2024300000	KTB GP 916115 CD S4 PE	C.34
2024470000	KTB GP 916120 AB S4 PE	C.35
2024490000	KTB GP 916120 CD S4 PE	C.35
2024560000	KTB GP 987420 AB S4 PE	C.36
2024590000	KTB GP 987420 CD S4 PE	C.36

2060000000

2066710000	VP M12 EX SI T/J	D.58
2066720000	VP M16 EX SI T/J	C.152
2066720000	VP M16 EX SI T/J	D.58
2066730000	VP M20 EX SI T/J	C.153
2066730000	VP M20 EX SI T/J	C.154
2066730000	VP M20 EX SI T/J	C.155
2066730000	VP M20 EX SI T/J	C.156
2066730000	VP M20 EX SI T/J	D.58
2066740000	VP M25 EX SI T/J	D.58
2066750000	VP M32 EX SI T/J	D.58
2066760000	VP M40 EX SI T/J	D.58
2066770000	VP M50 EX SI T/J	D.58
2066940000	VP M63 EX SI T/J	D.58

2430000000

2435070000	VG M12 EMV4 MS 3-6.5	D.11
2435140000	VG M16 EMV4 MS 5-10	D.11
2435150000	VG M20 EMV4 MS 6-12	D.11
2435160000	VG M20 EMV4 MS 8-14	D.11
2435170000	VG M25 EMV4 MS 10-18	D.11
2435180000	VG M32 EMV4 MS 16-25	D.11
2435190000	VG M40 EMV4 MS 22-32	D.11
2435200000	VG M50 EMV4 MS 30-38	D.11
2435210000	VG M63 EMV4 MS 34-44	D.11

2470000000

2470690000	KEBI QL 302015 S2B1	C.50
2470690000	KEBI QL 302015 S2B1	C.52
2470700000	KEBI QL 303015 S2B1	C.50
2470700000	KEBI QL 303015 S2B1	C.53
2470710000	KEBI QL 303022 S2B1	C.50
2470710000	KEBI QL 303022 S2B1	C.54
2470720000	KEBI QL 403015 S2B1	C.50
2470720000	KEBI QL 403015 S2B1	C.55
2470730000	KEBI QL 403022 S2B1	C.50
2470730000	KEBI QL 403022 S2B1	C.56
2470740000	KEBI QL 404022 S2B1	C.50
2470740000	KEBI QL 404022 S2B1	C.57
2470750000	KEBI QL 504022 S2B1	C.50
2470750000	KEBI QL 504022 S2B1	C.58
2470760000	KEBI QL 505022 S2B1	C.50
2470760000	KEBI QL 505022 S2B1	C.59
2470770000	KEBI QL 604022 S2B1	C.50
2470770000	KEBI QL 604022 S2B1	C.60
2470780000	KEBI QL 606022 S2B1	C.50
2470780000	KEBI QL 606022 S2B1	C.61
2470790000	KEBI QL 806022 S2B1	C.50
2470790000	KEBI QL 806022 S2B1	C.62
2470800000	KEBI QL 302015 S2B1	C.50
2470800000	KEBI QL 302015 S2B1	C.52

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2583490000	CABTITE FR 4-1 BK	E.5
2583500000	CABTITE CSE 7-24 LRG BK	E.4
2583510000	CABTITE CSE 2-11 SML BK	E.4
2583520000	CABTITE SE 2/ASI SML BK	E.4
2583530000	CABTITE SE 1/ASI SML BK	E.4
2583540000	CABTITE SE 2/8 SML BK	E.4
2583550000	CABTITE SE 2/7 SML BK	E.4
2583560000	CABTITE SE 4/4-5 SML BK	E.4
2583580000	CABTITE SE 4/3-4 SML BK	E.4
2583590000	CABTITE SE 4/2-3 SML BK	E.4
2583610000	CABTITE SE 2/5-6 SML BK	E.4
2583620000	CABTITE SE 2/4-5 SML BK	E.4
2583630000	CABTITE SE 32-33 LRG BK	E.4
2583640000	CABTITE SE 31-32 LRG BK	E.4
2583650000	CABTITE SE 30-31 LRG BK	E.4
2583660000	CABTITE SE 29-30 LRG BK	E.4
2583670000	CABTITE SE 28-29 LRG BK	E.4
2583680000	CABTITE SE 27-28 LRG BK	E.4
2583690000	CABTITE SE 26-27 LRG BK	E.4
2583700000	CABTITE SE 25-26 LRG BK	E.4
2583710000	CABTITE SE 24-25 LRG BK	E.4
2583720000	CABTITE FR 24/10 BK SET	E.6
2583730000	CABTITE SE 23-24 LRG BK	E.4
2583740000	CABTITE FR 16/8 BK SET	E.6
2583750000	CABTITE SE 22-23 LRG BK	E.4
2583760000	CABTITE FR 10/6 BK SET	E.5
2583770000	CABTITE SE 21-22 LRG BK	E.4
2583780000	CABTITE FR 4-1 BK SET	E.5
2583790000	CABTITE SE 20-21 LRG BK	E.4
2583800000	CABTITE FR 24/10 BK	E.6
2583810000	CABTITE SE 19-20 LRG BK	E.4
2583830000	CABTITE SE 18-19 LRG BK	E.4
2583840000	CABTITE SE 17-18 LRG BK	E.4
2583850000	CABTITE SE 16-17 LRG BK	E.4
2583860000	CABTITE SE 15-16 LRG BK	E.4
2583880000	CABTITE SE 14-15 LRG BK	E.4
2583890000	CABTITE CR 24/10 EMV	E.8
2583900000	CABTITE BSE LRG BK	E.4
2583910000	CABTITE CR 16/8 EMV	E.8
2583930000	CABTITE CR 10/6 EMV	E.8
2583950000	CABTITE CR 4/1 EMV	E.8
2583960000	CABTITE SE 15-16 SML BK	E.4
2583980000	CABTITE SE 14-15 SML BK	E.4
2584000000	CABTITE SE 13-14 SML BK	E.4
2584010000	CABTITE LNS M63 BK	E.7
2584020000	CABTITE SE 12-13 SML BK	E.4
2584030000	CABTITE LNS M50 BK	E.7
2584040000	CABTITE SE 11-12 SML BK	E.4
2584050000	CABTITE LNS M40 BK	E.7
2584060000	CABTITE SE 10-11 SML BK	E.4
2584070000	CABTITE LNS M32 BK	E.7
2584080000	CABTITE SE 9-10 SML BK	E.4
2584090000	CABTITE LNS M25 BK	E.7
2584110000	CABTITE LNS M20 BK	E.7
2584120000	CABTITE CGS M63 BK	E.7
2584130000	CABTITE CGS M50 BK	E.7
2584150000	CABTITE CGS M40 BK	E.7
2584160000	CABTITE CGS M32 BK	E.7
2584180000	CABTITE CGS M25 BK	E.7
2584200000	CABTITE CGS M20 BK	E.7
2584210000	CABTITE FRL 24/10 BK	E.6
2584220000	CABTITE FRL 16/8 BK	E.6
2584240000	CABTITE FRL 10/6 BK	E.5
2584260000	CABTITE FRL 4-1 BK	E.5
2584270000	CABTITE GI H BK	E.7
2584290000	CABTITE GI X BK	E.7
2584300000	CABTITE GI Y BK	E.7
2584320000	CABTITE GI I BK	E.7
2584330000	CABTITE SE 8-9 SML BK	E.4
2584340000	CABTITE SE 31-32 LRG GY	E.4
2584350000	CABTITE SE 28-29 LRG GY	E.4
2584360000	CABTITE SE 30-31 LRG GY	E.4
2584370000	CABTITE SE 27-28 LRG GY	E.4
2584380000	CABTITE SE 29-30 LRG GY	E.4
2584390000	CABTITE SE 26-27 LRG GY	E.4
2584400000	CABTITE SE 25-26 LRG GY	E.4
2584410000	CABTITE SE 24-25 LRG GY	E.4
2584420000	CABTITE SE 23-24 LRG GY	E.4
2584430000	CABTITE SE 22-23 LRG GY	E.4
2584440000	CABTITE SE 21-22 LRG GY	E.4
2584450000	CABTITE SE 20-21 LRG GY	E.4
2584460000	CABTITE SE 19-20 LRG GY	E.4
2584470000	CABTITE SE 18-19 LRG GY	E.4
2584480000	CABTITE SE 17-18 LRG GY	E.4
2584490000	CABTITE SE 16-17 LRG GY	E.4
2584500000	CABTITE SE 15-16 LRG GY	E.4
2584510000	CABTITE SE 14-15 LRG GY	E.4
2584520000	CABTITE BSE LRG GY	E.4
2584550000	CABTITE SE 15-16 SML GY	E.4
2584560000	CABTITE SE 14-15 SML GY	E.4
2584570000	CABTITE SE 13-14 SML GY	E.4
2584590000	CABTITE SE 12-13 SML GY	E.4
2584600000	CABTITE SE 11-12 SML GY	E.4
2584610000	CABTITE SE 10-11 SML GY	E.4
2584630000	CABTITE SE 9-10 SML GY	E.4
2584650000	CABTITE SE 8-9 SML GY	E.4
2584660000	CABTITE SE 7-8 SML GY	E.4
2584670000	CABTITE SE 7-8 SML BK	E.4
2584680000	CABTITE SE 4-5 SML BK	E.4

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2584690000	CABTITE SE 6-7 SML BK	E.4
2584710000	CABTITE SE 5-6 SML BK	E.4
2584730000	CABTITE SE 3-4 SML BK	E.4
2584760000	CABTITE SE 2-3 SML BK	E.4
2584780000	CABTITE SE 1.5-2 SML BK	E.4
2584790000	CABTITE BSE SML BK	E.4
2584800000	CABTITE SE 2/ASI SML GY	E.4
2584810000	CABTITE SE 1/ASI SML GY	E.4
2584820000	CABTITE SE 2/8 SML GY	E.4
2584830000	CABTITE SE 2/7 SML GY	E.4
2584840000	CABTITE SE 4/4-5 SML GY	E.4
2584860000	CABTITE SE 4/3-4 SML GY	E.4
2584870000	CABTITE SE 4/2-3 SML GY	E.4
2584880000	CABTITE SE 2/5-6 SML GY	E.4
2584900000	CABTITE SE 2/4-5 SML GY	E.4
2584910000	CABTITE SE 33-34 LRG GY	E.4
2584920000	CABTITE SE 32-33 LRG GY	E.4

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2595510000	CABTITE SE 33-34 LRG BK	E.4
2595520000	CABTITE SE 34-35 LRG BK	E.4
2595530000	CABTITE SE 34-35 LRG GY	E.4

26300000000

2635120000	CABTITE SC M5X25 SET	E.6
2635120000	CABTITE SC M5X25 SET	E.6
2637360000	CABTITE TOOL ATSE PA	E.5
2637360000	CABTITE TOOL ATSE PA	E.6

26500000000

2652280000	CABTITE SE 3/5-6 SML BK	E.4
2652290000	CABTITE SE 3/5-6 SML GY	E.4
2652300000	CABTITE BP 2MM PA	E.8
2652310000	CABTITE BP 3MM PA	E.8
2652320000	CABTITE BP 4MM PA	E.8
2652330000	CABTITE BP 5MM PA	E.8
2652340000	CABTITE BP 6MM PA	E.8
2652350000	CABTITE BP 7MM PA	E.8
2652360000	CABTITE BP 8MM PA	E.8
2652370000	CABTITE BP 9MM PA	E.8
2652380000	CABTITE BP 10MM PA	E.8
2652400000	CABTITE BP 12MM PA	E.8
2652410000	CABTITE BP 13MM PA	E.8
2652420000	CABTITE BP 14MM PA	E.8
2652430000	CABTITE BP 17MM PA	E.8
2652440000	CABTITE BP 20MM PA	E.8
2652450000	CABTITE BP 21MM PA	E.8
2652460000	CABTITE BP 25MM PA	E.8
2652470000	CABTITE BP 28MM PA	E.8
2652480000	CABTITE BP 35MM PA	E.8

27200000000

2721930000	VG M12 EXE 4-6,5 CR7J G4	D.38
2721940000	VG M16 EXE 5-8 CR7J G4	D.38
2721950000	VG M16 EXE 6-10 CR7J G4	D.38
2721960000	VG M20 EXE 7-12 CR7J G4	D.38
2721970000	VG M20 EXE 7-13 CR7J G4	D.38
2721980000	VG M20 EXE 11-14 CR7J G4	D.38
2721990000	VG M25 EXE 12-17 CR7J G4	D.38
2722000000	VG M25 EXE 14-18 CR7J G4	D.38
2722010000	VG M32 EXE 16-21 CR7J G4	D.38
2722020000	VG M32 EXE 19-25 CR7J G4	D.38
2722030000	VG M40 EXE 20-28 CR7J G4	D.38
2722040000	VG M40 EXE 23-32 CR7J G4	D.38
2722050000	VG M50 EXE 31-38 CR7J G4	D.38
2722060000	VG M63 EXE 35-44 CR7J G4	D.38
2722070000	VG M12 EXE 4-6,5 SI7J G4	D.39
2722080000	VG M16 EXE 5-8 SI7J G4	C.152
2722080000	VG M16 EXE 5-8 SI7J G4	D.39
2722090000	VG M16 EXE 6-10 SI7J G4	C.152
2722090000	VG M16 EXE 6-10 SI7J G4	D.39
2722100000	VG M20 EXE 7-12 SI7J G4	D.39
2722110000	VG M20 EXE 7-13 SI7J G4	C.153
2722110000	VG M20 EXE 7-13 SI7J G4	C.154
2722110000	VG M20 EXE 7-13 SI7J G4	C.155
2722110000	VG M20 EXE 7-13 SI7J G4	C.156
2722110000	VG M20 EXE 7-13 SI7J G4	D.39
2722120000	VG M20 EXE 11-14 SI7J G4	C.153
2722120000	VG M20 EXE 11-14 SI7J G4	C.154
2722120000	VG M20 EXE 11-14 SI7J G4	C.155
2722120000	VG M20 EXE 11-14 SI7J G4	D.39
2722130000	VG M25 EXE 12-17 SI7J G4	D.39
2722140000	VG M25 EXE 14-18 SI7J G4	D.39
2722150000	VG M32 EXE 16-21 SI7J G4	D.39
2722160000	VG M32 EXE 19-25 SI7J G4	D.39
2722170000	VG M40 EXE 20-28 SI7J G4	D.39
2722180000	VG M40 EXE 23-32 SI7J G4	D.39
2722190000	VG M50 EXE 31-38 SI7J G4	D.39
2722200000	VG M63 EXE 35-44 SI7J G4	D.39
2722210000	VG M12 EXI 4-6,5 CR7J G4	D.38
2722220000	VG M16 EXI 5-8 CR7J G4	D.38
2722230000	VG M16 EXI 6-10 CR7J G4	D.38
2722240000	VG M20 EXI 7-12 CR7J G4	D.38
2722250000	VG M20 EXI 7-13 CR7J G4	D.38

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2722260000	VG M20 EXI 11-14 CR7J G4	D.38
2722270000	VG M25 EXI 12-17 CR7J G4	D.38
2722280000	VG M25 EXI 14-18 CR7J G4	D.38
2722290000	VG M32 EXI 16-21 CR7J G4	D.38
2722300000	VG M32 EXI 19-25 CR7J G4	D.38
2722310000	VG M40 EXI 20-28 CR7J G4	D.38
2722320000	VG M40 EXI 23-32 CR7J G4	D.38
2722330000	VG M50 EXI 31-38 CR7J G4	D.38
2722340000	VG M63 EXI 35-44 CR7J G4	D.38
2722350000	VG M12 EXI 4-6,5 SI7J G4	D.39
2722360000	VG M16 EXI 5-8 SI7J G4	D.39
2722370000	VG M16 EXI 6-10 SI7J G4	D.39
2722380000	VG M20 EXI 7-12 SI7J G4	D.39
2722390000	VG M20 EXI 7-13 SI7J G4	D.39
2722400000	VG M20 EXI 11-14 SI7J G4	D.39
2722410000	VG M25 EXI 12-17 SI7J G4	D.39
2722420000	VG M25 EXI 14-18 SI7J G4	D.39
2722430000	VG M32 EXI 16-21 SI7J G4	D.39
2722440000	VG M32 EXI 19-25 SI7J G4	D.39
2722450000	VG M40 EXI 20-28 SI7J G4	D.39
2722460000	VG M40 EXI 23-32 SI7J G4	D.39
2722470000	VG M50 EXI 31-38 SI7J G4	D.39
2722480000	VG M63 EXI 35-44 SI7J G4	D.39

30100000000

3018950000	MP TBF 30/19	C.170
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30700000000

3073000000	MOPL K11 STAHL	C.100
3073020000	MOPL K21 STAHL	C.102
3073040000	MOPL K31 STAHL	C.104
3073050000	MOPL K32 STAHL	C.105
3073060000	MOPL K4 STAHL	C.106
3073070000	MOPL K41 STAHL	C.107
3073080000	MOPL K5 STAHL	C.108
3073090000	MOPL K51 STAHL	C.109
3073100000	MOPL K52 STAHL	C.110
3073110000	MOPL K6 STAHL	C.111
3073120000	MOPL K61 STAHL	C.112
3073130000	MOPL K7 STAHL	C.113
3073140000	MOPL K71 STAHL	C.114

38900000000

3896100000	SP M6 15 MSZN	C.52
3896100000	SP M6 15 MSZN	C.53
3896100000	SP M6 15 MSZN	C.54
3896100000	SP M6 15 MSZN	C.55
3896100000	SP M6 15 MSZN	C.56
3896100000	SP M6 15 MSZN	C.57
3896100000	SP M6 15 MSZN	C.58
3896100000	SP M6 15 MSZN	C.59
3896100000	SP M6 15 MSZN	C.60
3896100000	SP M6 15 MSZN	C.61
3896100000	SP M6 15 MSZN	C.62
3896200000	SP M6 20 MSZN	C.52
3896200000	SP M6 20 MSZN	C.53
3896200000	SP M6 20 MSZN	C.54
3896200000	SP M6 20 MSZN	C.55
3896200000	SP M6 20 MSZN	C.56
3896200000	SP M6 20 MSZN	C.57
3896200000	SP M6 20 MSZN	C.58
3896200000	SP M6 20 MSZN	C.59
3896200000	SP M6 20 MSZN	C.60
3896200000	SP M6 20 MSZN	C.61
3896200000	SP M6 20 MSZN	C.62
3896300000	SP M6 30 MSZN	C.52
3896300000	SP M6 30 MSZN	C.53
3896300000	SP M6 30 MSZN	C.54
3896300000	SP M6 30 MSZN	C.55
3896300000	SP M6 30 MSZN	C.56
3896300000	SP M6 30 MSZN	C.57
3896300000	SP M6 30 MSZN	C.58
3896300000	SP M6 30 MSZN	C.59
3896300000	SP M6 30 MSZN	C.60
3896300000	SP M6 30 MSZN	C.61
3896300000	SP M6 30 MSZN	C.62

79000000000

7906080000	BK 4/E	C.116
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80000000000

8000003444	KL SET 12W4 S	C.116
8000003444	KL SET 12W4 S	C.150
8000003444	KL SET 12W4 S	C.155
8000003446	KLIPPPON K41 2M25AB CSS	C.116
8000003447	KLIPPPON K41 3M20AB CSS	C.116
8000003448	KLIPPPON POK4 3M20AB CSS	C.150
8000003448	KLIPPPON POK4 3M20AB CSS	C.155
8000003589	KLIPPPON K41 M25WCSS EX	C.116
8000003591	KLIPPPON K41 M20WCSS EX	C.116
8000003593	KLIPPPON POK4 M20WCSS EX	C.150
8000003593	KLIPPPON POK4 M20WCSS EX	C.155
8000003594	KLIPPPON POK4 M20ZCSS EX	C.150
8000003594	KLIPPPON POK4 M20ZCSS EX	C.155

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8000006710	TS35X7.5 ST KTB3030 VER	C.19
8000006711	TS35X7.5 ST KTB3526 VER	C.20
8000006711	TS35X7.5 ST KTB3526 VER	C.21
8000006712	TS35X7.5 ST KTB4030 VER	C.22
8000006712	TS35X7.5 ST KTB4030 VER	C.23
8000006713	TS35X7.5 ST KTB4538 VER	C.24
8000006713	TS35X7.5 ST KTB4538 VER	C.25
8000006714	TS35X7.5 ST KTB4848 VER	C.26
8000006714	TS35X7.5 ST KTB4848 VER	C.27
8000006715	TS35X7.5 ST KTB5535 VER	C.28
8000006715	TS35X7.5 ST KTB5535 VER	C.29
8000006716	TS35X7.5 ST KTB6245 VER	C.30
8000006716	TS35X7.5 ST KTB6245 VER	C.31
8000006717	TS35X7.5 ST KTB7650 VER	C.32
8000006717	TS35X7.5 ST KTB7650 VER	C.33
8000006718	TS35X7.5 ST KTB8161 VER	C.34
8000006718	TS35X7.5 ST KTB8161 VER	C.35
8000006719	TS35X7.5 ST KTB9874 VER	C.36
8000006720	TS35X7.5 ST KTB2215 HOR	C.15
8000006721	TS35X7.5 ST KTB3526 HOR	C.16
8000006721	TS35X7.5 ST KTB3526 HOR	C.17
8000006721	TS35X7.5 ST KTB3526 HOR	C.20
8000006721	TS35X7.5 ST KTB3526 HOR	C.21
8000006722	TS35X7.5 ST KTB3030 HOR	C.18
8000006722	TS35X7.5 ST KTB3030 HOR	C.19
8000006723	TS35X7.5 ST KTB4030 HOR	C.22
8000006723	TS35X7.5 ST KTB4030 HOR	C.23
8000006724	TS35X7.5 ST KTB4538 HOR	C.24
8000006724	TS35X7.5 ST KTB4538 HOR	C.25
8000006725	TS35X7.5 ST KTB4848 HOR	C.26
8000006725	TS35X7.5 ST KTB4848 HOR	C.27
8000006726	TS35X7.5 ST KTB5535 HOR	C.28
8000006726	TS35X7.5 ST KTB5535 HOR	C.29
8000006727	TS35X7.5 ST KTB6245 HOR	C.30
8000006727	TS35X7.5 ST KTB6245 HOR	C.31
8000006728	TS35X7.5 ST KTB7650 HOR	C.32
8000006728	TS35X7.5 ST KTB7650 HOR	C.33
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