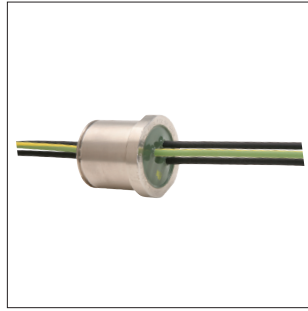




multi-core
with threaded sleeve



multi-core
with cylindrical sleeve



4-pole or 6-pole
with terminals

- Space-saving construction as many single cores are gathered in one single sleeve thus requiring only one cable entry hole.
- Motor mains and thermoprotection cables can be exited in **one** common sleeve.
- Numbered cores simplify connections and eliminate the usual "Ring out" in larger control systems.
- Coaxial and Ethernet bushings are similarly available.
- On the Ex d side, the cores are connected directly to the electrical load, intermediate terminals are no longer necessary.
- Small dimensions allow a rated insulation voltage of up to 3 kV.
- Blue cores for Ex i low power circuits.
- Permanent heat-resistance of the cores up to +110 °C.

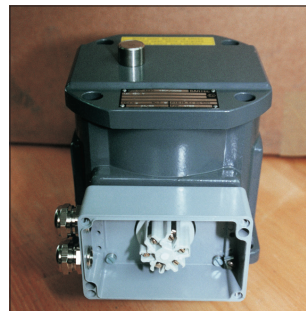
A line bushing is a component for the electrical connection between a flameproof "d" enclosure and an increased safety "e" terminal box. The bushing consists of a threaded or non-threaded metal sleeve encapsulating one or more cores providing a flameproof barrier. The lengths of these leads vary according to their applications. The depth of engagement of the threaded sleeves and the joint length of the cylindrical sleeve in the wall of the "d" enclosure must correspond to the EN 60079-0 and EN 60079-1 standards. After installation the bushing must be protected against rotation and accidental loosening. Recommendations are given under "Accessories". Our standard bushings come with threaded sleeves from M10 to M42 or with cylindrical sleeves. They are equipped with cores with a 0.2 to 120 mm² csa. and approved for nominal voltages between 250 V and 3 000 V. See also table "Electrical data". For the connection of intrinsically safe circuits in the "d" area with the terminal strip in the connection compartment we provide **line bushings with blue cores for "i" low power circuits**.

Another product of our line-bushing range is the **bushing with terminals**. Combining Ex d line bushing with an Ex e terminal we designed an element which is hardly any bigger than a normal line bushing. This bushing plus terminals reduces the size of the terminal box and, at the same time, the installation costs. The bushings plus terminals are rated for 690 V and 1 000 V and certified. We supply them with 2 to 6 poles and threaded sleeves from M 24 to M 42.

All line bushings have been tested and certified for their use in hazardous areas according to the European standards EN 60079-0, EN 60079-1 and EN 60079-7 concerning electrical operating equipment for explosion-endangered areas for above-ground (II) and underground (I) according to ATEX. BARTEC has furthermore obtained several foreign admissions for these line bushings. When the 2014/34/EU guideline comes into force on 20. April 2016, explosion protected operating equipment must be properly installed in accordance with EN 60079-14. Among other things, section 10.4.2 requires that **cast, pressure-proof cable insertions according to EN 60079-1 are used for** operating equipment with an internal ignition source for the explosion subgroup IIC and operating equipment with an enclosure volume greater than 2 dm³ in zone 1. BARTEC offers a wide range of products with EU type test certification.



Line bushings in the Ex e terminal box



Connection side of the line bushings with terminals

Line bushing

Explosion protection

Marking ATEX	⊕ II 2G Ex db IIC Gb ⊕ I M2 Ex db I Mb
Certification	EPS 13 ATEX 1619 U
Marking IECEx	Ex db IIC Gb Ex db I Mb
Certification	IECEx EPS 13.0045 U
Other approvals	INMETRO, UL, CSA, NEPSI, GOST, FM
Standard product printing	ATEX and IECEx marking. Other international imprints obtainable on request. Please specify in plain text.
Working temperature	-60 °C to +110 °C depending on the lead used and static test pressure (temperature ranges apply to the "fixed installation" of leads)

Other approvals and certificates, see www.bartec.de

Standard versions*

Cores depending on the working temperature and voltage	H07G-K radiation cross-linked polyolefin copolymer NSGAFÖU
max. number of cores	50 cores
Cross-section	0.25 mm ² to 120 mm ² AWG24 to AWG1
Sleeve size	metric: M16 x 1.5 to M42 x 1.5 non-threaded: Ø 22 mm to Ø 36 mm
Sleeve material	Metal, bare, varnished or galvanised
Rated voltage	690 V/1 000 V/3 000 V
Rated currents	see following table based on VDE 0298-04

* all other versions on request

Please use the customer requirements form at the end of the chapter!

Line bushing with terminals

Explosion protection

Marking ATEX	⊕ II 2G Ex db eb IIC Gb ⊕ I M2 Ex db eb I Mb
Certification	EPS 14 ATEX 1644 U
Marking IECEx	Ex db eb IIC Gb Ex db eb I Mb
Certification	IECEx EPS 14.0020 U
Working temperature	-60 °C to +110 °C depending on the design, terminals and lead (temperature ranges apply to the "permanent installation" of the leads)
Ambient temperature of limit switches	depending on the design and the cores/leads
Other approvals and certificates, see www.bartec.de	

Standard versions*

Cores depending on the working temperature and voltage	H07G-K radiation cross-linked polyolefin copolymer NSGAFÖU
Number of terminals	4 or 6 (depending on the cross-section)
Cross-section	0.75 mm ² /1.5 mm ² /2.5 mm ² /4 mm ² /6 mm ²
Sleeve size	metric: M16 x 1.5 to M42 x 1.5 non-threaded: Ø 22 mm to Ø 36 mm
Sleeve material	Metall, blank, lackiert oder galvanisiert
Nominal voltage	690 V/1 000 V
Rated currents	see following table based on VDE 0298-04

* all other versions on request

Please use the customer requirements form at the end of the chapter!

Technical data subject to change without notice.

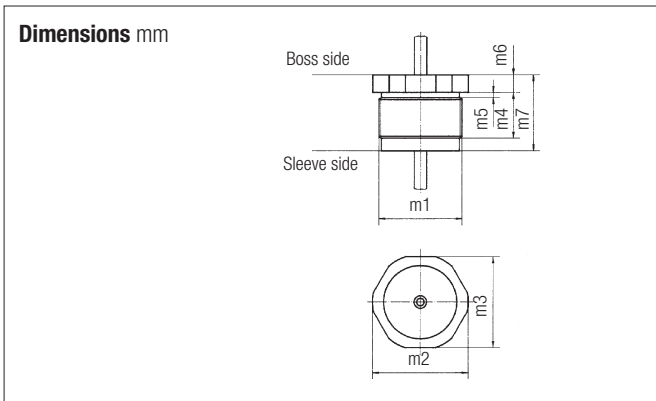
Ordering information

Sleeve type	Code no.	Nominal voltage	Code no.	Conductor, cross-section mm ²	Code no.	Sleeve size	Code no.				
threaded, metric	0	690 V	1	Special diameter	A	M 10 x 1	0				
				0.25	C						
				0.35	D	M 16 x 1	1				
				0.5	E						
				0.75	F	M 24 x 1.5 $\varnothing \geq 22$ mm	2				
				1	G						
pluggable, length of gap 12.5 mm	5	1 000 V	3	1.5	H	M33 x 1.5 $\varnothing \geq 32$ mm	3				
				2.5	J						
				4	K	M36 x 1.5	4				
				6	L						
				10	M	M38 x 1.5 $\varnothing \geq 36$ mm	5				
				16	N						
				25	P	M42 x 1.5	6				
				35	Q						
				pluggable, length of gap 25 mm	6	3 000 V	4	50	R	M12 x 1.5	C
								70	S		
95	T	M16 x 1.5	D								
120	U										
Mixed cores	Z	M20 x 1.5	E								
		M25 x 1.5	F								

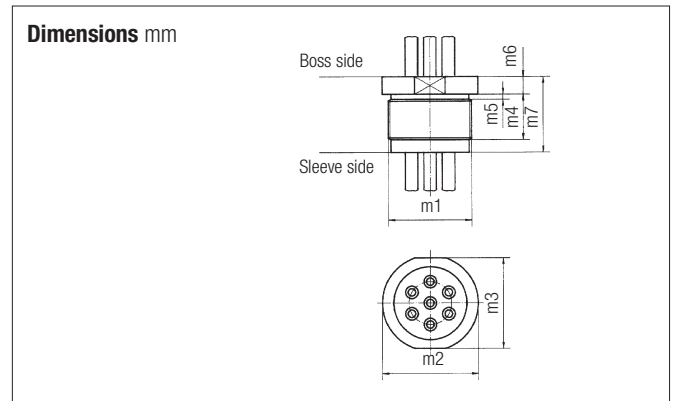
Complete order no.* 07-91 - /G
Please insert code number.

* Standard product printing: ATEX and IECEx marking.
Other international imprints obtainable on request. Please specify in plain text.
Technical data subject to change without notice.

Number of cores z. B. 02 = 2 cores; 21 = 21 cores; etc. 1 ... 50 cores
Core length: as ordered
Core identification: printed numbers



m1	m2	m3	m4	m5	m6
M10 x 1	Ø 13.5	12	16	1.5	5
M12 x 1.5	Ø 16.5	15	17	2.0	5
M16 x 1	Ø 21	19	17	1.5	5
M16 x 1.5	Ø 21	19	17	2.0	5
M24 x 1.5	Ø 29	27	19	2.0	5
M25 x 1.5	Ø 29	27	19	2.0	5
M42 x 1.5	Ø 48	46	25	2.0	7



m1	m2	m3	m4	m5	m6
M33 x 1.5	Ø 38	36	18	2.0	7
M36 x 1.5	Ø 42	40	25	2.0	7

Ordering information - cores

Number of cores	Conductor cross section (mm ²)	rated current (A) for continuous operation (reference values) ¹⁾ Max. permissible operating temperature at the conductor is 110 °C Max. current carrying capacity based on VDE 0298-4	Thread size	Dimensions m7 (mm)	Order no. Indicate core length on both boss and sleeve side in plain text.
1	0.5	7 A	M10 x 1	25	07-910 □ -E010
1	0.5		M12 x 1.5	25	07-910 □ -E01C
9	0.5		M16 x 1	25	07-910 □ -E091
9	0.5		M16 x 1.5	25	07-910 □ -E09D
19	0.5		M24 x 1.5	26	07-910 □ -E192
19	0.5		M25 x 1.5	26	07-910 □ -E19F
16	0.5		M33 x 1.5	30	07-910 □ -E163
20	0.5		M36 x 1.5	35	07-910 □ -E204
30	0.5		M38 x 1.5	36	07-910 □ -E305
40	0.5		M42 x 1.5	35	07-910 □ -E406

¹⁾ When determining the maximum current carrying capacity of the connection cores, the self-heating rate and the enclosure heating at the installation site at the max. permissible ambient temperature must be taken as a basis.

Enter code number 1 = 690 V
3 = 1000 V

Other equipment options and special sleeves on request.

It is essential to submit a customer requirements form which has been filled in correctly and completely. The form can be found in the catalogue at the end of the chapter.

Technical data subject to change without notice.

Ordering information - cores

Number of cores	Conductor cross section (mm ²)	Rated current (A) for continuous operation (reference values) ²⁾ Max. permissible operating temperature at the conductor is +110 °C Max. current carrying capacity based on VDE 0298-4	Thread size	Dimensions m 7 (mm)	Order no. Indicate core length on both boss and sleeve side in plain text.
1	0.75	15 A	M10 x 1	25	07-910 □ -F010
1	0.75		M12 x 1.5	25	07-910 □ -F01C
4	0.75		M16 x 1	25	07-910 □ -F041
4	0.75		M16 x 1.5	25	07-910 □ -F04D
11	0.75		M24 x 1.5	26	07-910 □ -F112
11	0.75		M25 x 1.5	26	07-910 □ -F11F
12	0.75		M33 x 1.5	30	07-910 □ -F123
15	0.75		M36 x 1.5	35	07-910 □ -F154
24	0.75		M38 x 1.5	36	07-910 □ -F245
25	0.75		M42 x 1.5	35	07-910 □ -F256
1	1.5	24 A	M10 x 1	25	07-910 □ -H010
1	1.5		M12 x 1.5	25	07-910 □ -H01C
3	1.5		M16 x 1	25	07-910 □ -H031
3	1.5		M16 x 1.5	25	07-910 □ -H03D
8	1.5		M24 x 1.5	26	07-910 □ -H082
8	1.5		M25 x 1.5	26	07-910 □ -H08F
12	1.5		M33 x 1.5	30	07-910 □ -H123
15	1.5		M36 x 1.5	35	07-910 □ -H154
24	1.5		M38 x 1.5	36	07-910 □ -H245
25	1.5		M42 x 1.5	35	07-910 □ -H256
3	2.5	32 A	M16 x 1	25	07-910 □ -J031
3	2.5		M16 x 1.5	25	07-910 □ -J03D
6	2.5		M24 x 1.5	26	07-910 □ -J062
6	2.5		M25 x 1.5	26	07-910 □ -J06F
8	2.5		M33 x 1.5	30	07-910 □ -J083
10	2.5		M36 x 1.5	35	07-910 □ -J104
10	2.5		M38 x 1.5	36	07-910 □ -J105
14	2.5	M42 x 1.5	35	07-910 □ -J146	
1	4	42 A	M16 x 1	25	07-910 □ -K011
1	4		M16 x 1.5	25	07-910 □ -K01D
3	4		M24 x 1.5	26	07-910 □ -K032
3	4		M25 x 1.5	26	07-910 □ -K03F
6	4		M33 x 1.5	30	07-910 □ -K063
8	4		M36 x 1.5	35	07-910 □ -K084
8	4		M38 x 1.5	36	07-910 □ -K085
12	4		M42 x 1.5	35	07-910 □ -K126
1	6	54 A	M16 x 1	25	07-910 □ -L011
1	6		M16 x 1.5	25	07-910 □ -L01D
2	6		M24 x 1.5	26	07-910 □ -L022
2	6		M25 x 1.5	26	07-910 □ -L02F
6	6		M33 x 1.5	30	07-910 □ -L063
6	6		M36 x 1.5	35	07-910 □ -L064
6	6		M38 x 1.5	36	07-910 □ -L065
8	6		M42 x 1.5	35	07-910 □ -L086
1	10	73 A	M16 x 1.5	25	07-910 □ -M011
1	10		M16 x 1.5	25	07-910 □ -M01D
1	10		M24 x 1.5	26	07-910 □ -M012
3	10		M33 x 1.5	30	07-910 □ -M033
6	10		M36 x 1.5	35	07-910 □ -M064
6	10		M38 x 1.5	36	07-910 □ -M065
8	10		M42 x 1.5	35	07-910 □ -M086
1	16		98 A	M25 x 1.5	26
3	16	M33 x 1.5		30	07-910 □ -N033
3	16	M36 x 1.5		35	07-910 □ -N034
6	16	M38 x 1.5		36	07-910 □ -N035
6	16	M42 x 1.5		35	07-910 □ -N066
1	25	129 A		M24 x 1.5	26
1	25		M25 x 1.5	26	07-910 □ -P01F
1	35	158 A	M24 x 1.5	26	07-910 □ -Q012
1	35		M25 x 1.5	26	07-910 □ -Q01F
1	50	198 A	M24 x 1.5	26	07-910 □ -R012
1	50		M25 x 1.5	26	07-910 □ -R01F
1	70	245 A	M33 x 1.5	50	07-910 □ -S013
1	70		M36 x 1.5	50	07-910 □ -S014

¹⁾ When determining the maximum current carrying capacity of the connection cores, the self-heating rate and the enclosure heating at the installation site at the max. permissible ambient temperature must be taken as a basis.

Other equipment options and special sleeves on request. It is essential to submit a customer requirements form which has been filled in correctly and completely. The form can be found in the catalogue at the end of the chapter.

Enter code number	1 = 690 V 3 = 1000 V
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Technical data subject to change without notice.

Ordering information - cores

Number of cores	Conductor cross section (mm ²)	Rated current (A) for continuous ¹⁾ operation (reference values) ¹⁾ Max. permissible operating temperature at the conductor is +90°C Max. current carrying capacity based on VDE 0298-4	Thread size	Dimensions m 7 ²⁾ (mm)	Order no. Indicate core length on both boss and sleeve side in plain text.
1	1.5	30 A	M16 x 1	25	07-9104-H011
1	1.5		M16 x 1.5	25	07-9104-H01D
2	1.5		M24 x 1.5	26	07-9104-H022
2	1.5		M25 x 1.5	26	07-9104-H02F
5	1.5		M33 x 1.5	30	07-9104-H053
6	1.5		M36 x 1.5	35	07-9104-H064
6	1.5		M38 x 1.5	36	07-9104-H065
8	1.5		M42 x 1.5	35	07-9104-H086
1	2.5	41 A	M16 x 1	25	07-9104-J011
1	2.5		M16 x 1.5	25	07-9104-J01D
5	2.5		M33 x 1.5	30	07-9104-J053
6	2.5		M36 x 1.5	35	07-9104-J064
6	2.5		M38 x 1.5	36	07-9104-J065
8	2.5		M42 x 1.5	35	07-9104-J086
1	4	55 A	M24 x 1.5	26	07-9104-K012
1	4		M25 x 1.5	26	07-9104-K01F
3	4		M33 x 1.5	30	07-9104-K033
5	4		M36 x 1.5	35	07-9104-K054
5	4		M38 x 1.5	36	07-9104-K055
6	4		M42 x 1.5	35	07-9104-K066
1	6	70 A	M24 x 1.5	26	07-9104-L012
1	6		M25 x 1.5	26	07-9104-L01F
3	6		M33 x 1.5	30	07-9104-L033
4	6		M36 x 1.5	35	07-9104-L044
4	6		M38 x 1.5	36	07-9104-L045
6	6		M42 x 1.5	35	07-9104-L066
1	10	98 A	M24 x 1.5	26	07-9104-M012
1	10		M25 x 1.5	26	07-9104-M01F
2	10		M33 x 1.5	30	07-9104-M023
3	10		M36 x 1.5	35	07-9104-M034
3	10		M38 x 1.5	36	07-9104-M035
1	16	132 A	M24 x 1.5	26	07-9104-N012
1	16		M25 x 1.5	26	07-9104-N01F
3	16		M42 x 1.5	35	07-9104-N036
1	25	176 A	M24 x 1.5	26	07-9104-P012
1	25		M25 x 1.5	26	07-9104-P01F
1	35	218 A	M33 x 1.5	30	07-9104-Q013
1	35		M38 x 1.5	30	07-9104-Q015
1	50	276 A	M33 x 1.5	50	07-9104-R013

¹⁾ When determining the maximum current carrying capacity of the connection cores, the self-heating rate and the enclosure heating at the installation site at the max. permissible ambient temperature must be taken as a basis.

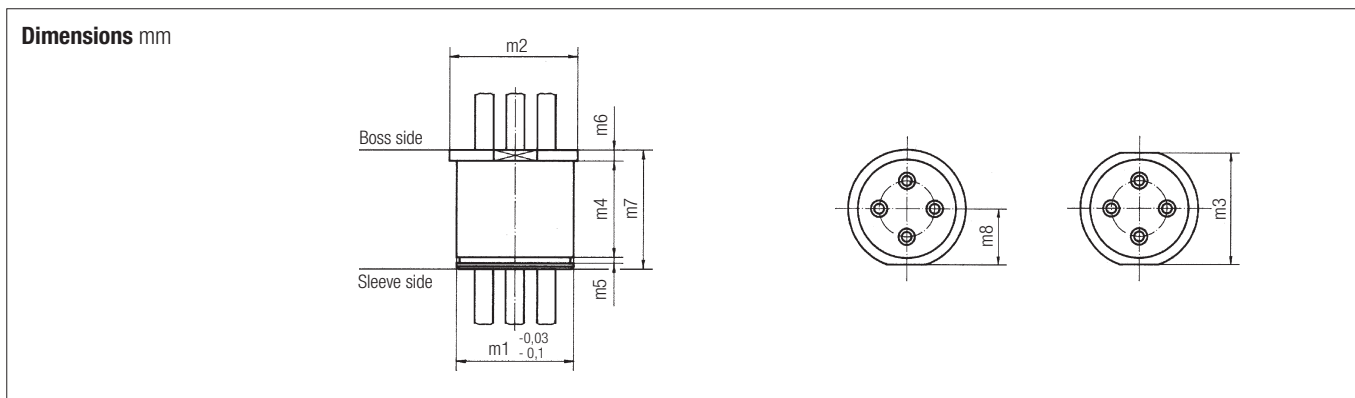
²⁾ Thread size M25 x 1.5 - Dimensions m 7 = 46 mm

Other equipment options and special sleeves on request.

It is essential to submit a customer requirements form which has been filled in correctly and completely.

The form can be found in the catalogue at the end of the chapter

Technical data subject to change without notice.



m1	Joint length L	m2	m3	m4	m5	m6	m8
Ø 22	15 mm	Ø 25	-	16.1	1.3	2	11.1 + 0.2
Ø 22	25 mm	Ø 25	-	26.1	1.3	2	11.1 + 0.2
Ø 32	25 mm	Ø 36	-	26.1	1.6	3	17.1 - 0.2
Ø 36	25 mm	Ø 42	SW 40	28.1	1.85	7	-

Ordering information Cores

Number of cores	Conductor cross section (mm ²)	Rated current (A) for continuous operation (reference values) ¹⁾ Max. permissible operating temperature at the conductor is +110°C Max. current carrying capacity based on VDE 0298-4	Sleeve size	Dimensions m7 (mm)	Order no. Joint length L = 15 mm 07-..5.- Joint length L = 25 mm 07-..6.- Indicate the core length on both the boss sleeve sides in plain text
11	0.75	15 A	Ø 22	23	07-915 □ -F112
11	0.75		Ø 22	31	07-916 □ -F112
12	0.75		Ø 32	32	07-916 □ -F123
15	0.75		Ø 36	39	07-916 □ -F155
8	1.5	24 A	Ø 22	23	07-915 □ -H082
8	1.5		Ø 22	31	07-916 □ -H082
12	1.5		Ø 32	32	07-916 □ -H123
15	1.5		Ø 36	39	07-916 □ -H155
6	2.5	32 A	Ø 22	31	07-916 □ -J062
6	2.5		Ø 32	32	07-916 □ -J063
10	2.5		Ø 36	39	07-916 □ -J105
3	4	42 A	Ø 22	31	07-916 □ -K032
6	4		Ø 32	32	07-916 □ -K063
8	4		Ø 36	39	07-916 □ -K085
2	6	54 A	Ø 22	31	07-916 □ -L022
6	6		Ø 32	32	07-916 □ -L063
8	6		Ø 36	39	07-916 □ -L085
1	10	73 A	Ø 32	32	07-916 □ -M013
6	10		Ø 36	39	07-916 □ -M065
4	16	98 A	Ø 36	39	07-916 □ -N045
1	25	129 A	Ø 36	39	07-916 □ -P015
1	35	158 A	Ø 36	39	07-916 □ -Q015
1	50	198 A	Ø 36	39	07-916 □ -R015

¹⁾ When determining the maximum current-carrying capacity of the connection cores, the self-heating rate and the enclosure heating at the installation site at the max. permissible ambient temperature must be taken as a basis

Other equipment options and special sleeves on request.

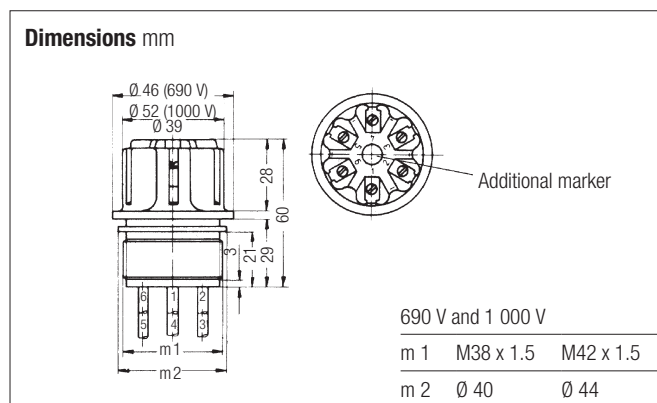
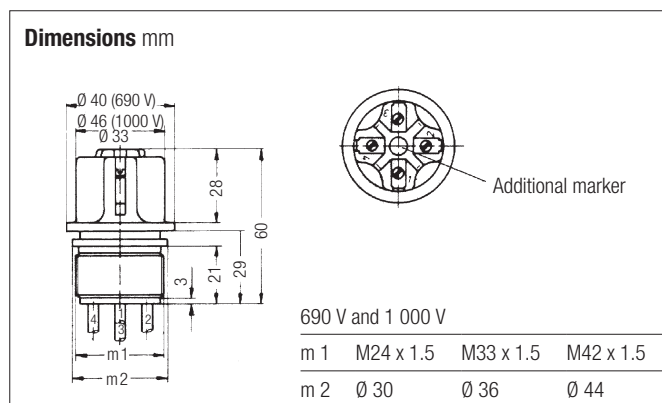
It is essential to submit a customer requirements form which has been filled in correctly and completely.

The form can be found in the catalogue at the end of the chapter.

- Note:
1. Cylindrical sleeves with joint length L = 15 mm (type 07-915*) for enclosures with a volume of ≤ 2 litres.
 2. Cylindrical sleeves with joint length L = 25 mm (type 07-916*) for enclosures with a volume of > 2 litres.

Technical data subject to change without notice.

Enter code number	1 = 690 V 3 = 1000 V
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Ordering information Cores

Rated insulation voltage	No. of terminals/ cores	Conductor cross section (mm ²)	Rated current (A) for continuous operation (reference values) ¹⁾ Max. permissible operating temperature at the conductor is +110 °C Max. current-carrying capacity based on VDE 0298-4 Table 11, Gap 2	Thread size	Order no. Core length please specify in plain text
690 V	4	0.75	11 A	M24 x 1.5	07-9304-F042
		1.5	17 A	M24 x 1.5	07-9304-H042
		2.5	23 A	M24 x 1.5	07-9304-J042
		4	31 A	M24 x 1.5	07-9304-K042
	4	0.75	11 A	M33 x 1.5	07-9304-F043
		1.5	17 A	M33 x 1.5	07-9304-H043
		2.5	23 A	M33 x 1.5	07-9304-J043
		4	31 A	M33 x 1.5	07-9304-K043
		6	40 A	M33 x 1.5	07-9304-L043
	4	0.75	11 A	M42 x 1.5	07-9304-F046
		1.5	17 A	M42 x 1.5	07-9304-H046
		2.5	23 A	M42 x 1.5	07-9304-J046
		4	31 A	M42 x 1.5	07-9304-K046
		6	40 A	M42 x 1.5	07-9304-L046
	6	0.75	11 A	M38 x 1.5	07-9304-F065
		1.5	17 A	M38 x 1.5	07-9304-H065
		2.5	23 A	M38 x 1.5	07-9304-J065
		4	31 A	M38 x 1.5	07-9304-K065
		6	40 A	M38 x 1.5	07-9304-L065
	6	0.75	11 A	M42 x 1.5	07-9304-F066
		1.5	17 A	M42 x 1.5	07-9304-H066
		2.5	23 A	M42 x 1.5	07-9304-J066
		4	31 A	M42 x 1.5	07-9304-K066
		6	40 A	M42 x 1.5	07-9304-L066
1 000 V	4	1.5	17 A	M33 x 1.5	07-9306-H043
		2.5	23 A	M33 x 1.5	07-9306-J043
		4	31 A	M33 x 1.5	07-9306-K043
		6	40 A	M33 x 1.5	07-9306-L043
	4	1.5	17 A	M42 x 1.5	07-9306-H046
		2.5	23 A	M42 x 1.5	07-9306-J046
		4	31 A	M42 x 1.5	07-9306-K046
		6	40 A	M42 x 1.5	07-9306-L046
	6	1.5	17 A	M38 x 1.5	07-9306-H065
		2.5	23 A	M38 x 1.5	07-9306-J065
	6	1.5	17 A	M42 x 1.5	07-9306-H066
		2.5	23 A	M42 x 1.5	07-9306-J066
		4	31 A	M42 x 1.5	07-9306-K066
		6	40 A	M42 x 1.5	07-9306-L066

¹⁾ When determining the maximum current-carrying capacity of the connection cores, the self-heating and enclosure heating at the site of installation at the maximum permissible ambient temperature must be assumed. The maximum tightening torque for the terminal screw is 0.8 Nm.

Other equipment options and special sleeves on request.

It is essential to submit a customer requirements form which has been filled in correctly and completely. The form can be found in the catalogue at the end of the chapter.

Technical data subject to change without notice.