*blue*globe® 3.08 GB

Innovative cable glands

www.*blue*globe.org

PFLITSCH®

Competence in cable management

Competence in cable glands

PFLITSCH is well-known on the market as a competent problem solver for cable glands. With *blue***globe**® cable glands, PFLITSCH is launching their own new development of metric cable glands, presenting positive differentiation in several points from what has been offered on the market hitherto.

*blue***globe**® cable glands are primarily designed for standard applications, however, they extend the field of application of standard glands both upwards as well as downwards with regard to temperature resistance, for example.

*blue***globe**® needs not balk at comparison as far as costs are concerned either. Fewer types enable storage costs to be cut, *blue***globe**® glands can be assembled quickly and securely, are maintenance-free and in this way help to cut down on costs.

With *blue***globe**®, PFLITSCH developers have created a new generation of cable glands which will persuade even the most discerning customers through their performance.

The principle

With its unique functional principle, *blue***globe**® sets new criteria for cable glands. Combined here are maximum reliability and functionality as well as an optimum cost-benefit relationship.

The spherical *blue***globe**® sealing insert serves as a power pack. It bundles the radial forces that act from the gland outwards on to the sealing insert and inwards onto the cable. The tractive and pressure forces of the feed cable are taken up over a large surface solely via the elastic sealing insert and thus save on the cable.

This optimised distribution of forces reliably prevents the stress concentration incurred in lamellar systems. Damage to cables caused by crushing is definitely a thing of the past with *blue***globe**®.

At the same time, unsurpassed impermeability is attained, since the elastic sealing insert made of heavy-duty TPE plastic with outstanding flow properties encloses and seals the cable expansively. The sealing insert with removable inlet extends the clamping range of the cable glands, so that with only three sizes the most common clamping ranges from 4 to 32 mm cable diameter are covered without compromise.

Positive reports in the trade press

Editorial contributions have continually been reporting on the positive experiences made with *blue***globe**® glands.

What makes *blue*globe® unique

A *blue*globe® gland body
- Materials: Nickel plated brass
  Stainless steel, 1.4305 (AISI 303)
  Polyamide (PA)
- Metric connection thread
- WEEE and RoHS conformity

B Pure elastic sealing insert
Material: TPE, blue
- Temperature range -40°C up to 130°C
- Halogen and plasticiser free
- High UV-stability
- UL 94 HB
- WEEE and RoHS conformity

C Highest protection rate IP 68, up to15 bar

D Radial symmetric, large area elastic sealing
- Soft pressing by patented "globe" sealing system
- No cable damages by notching and strangling reasons
- No folding of the sealing in case of small diameters

E Inlet removable

F Brass: O-ring groove located at an outer position
PA: Self tightening area
Metric connection thread

G Highest strain relief (EN 50262 class B)

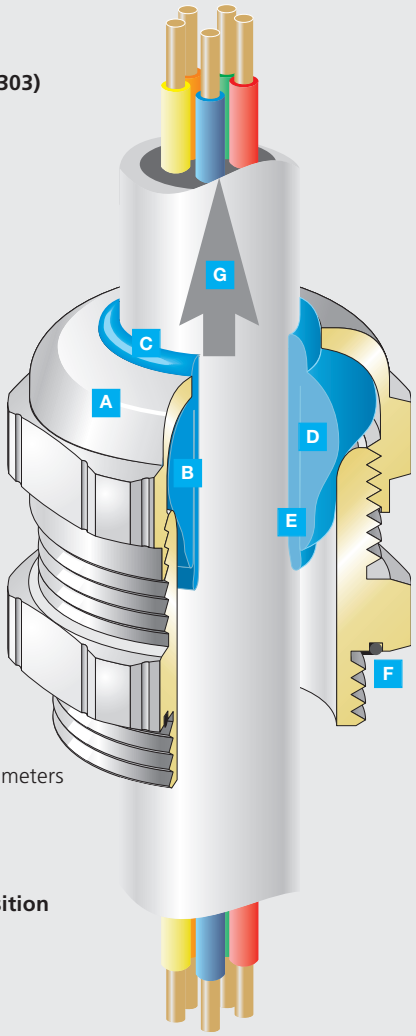
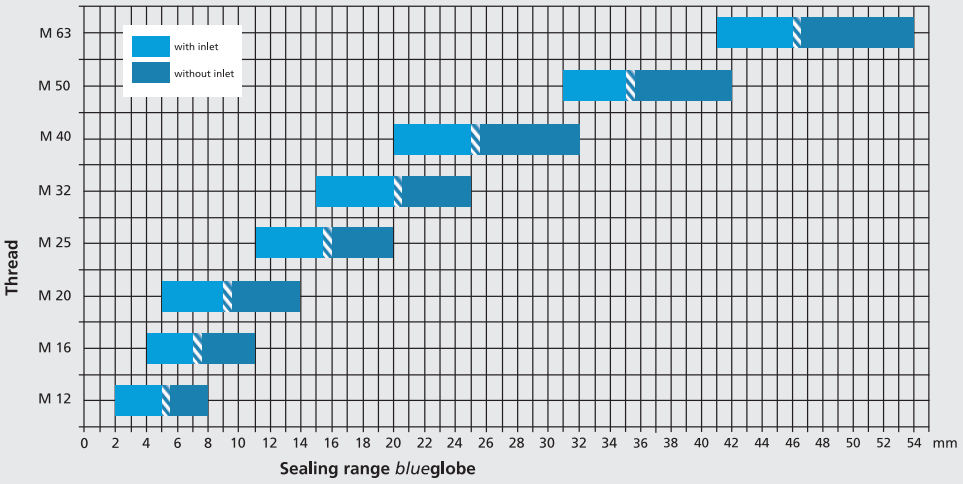


Fig.: Material brass, VDE EN 50262 and UL 514 B certified

Maximum clamping ranges



*blue*globe® has a host of strong points - including a whole range of properties that are unique – for the benefit of our customers. Here are the most crucial:

Fewer types through large clamping ranges

Eight *blue*globe® cable glands cover the clamping range of 2 - 54 mm. With only three glands, the most common range of 4 - 32 mm can be covered. At the same time, cable tolerances can be better balanced by the greater band width per gland. *blue*globe® enables expenditure for logistics, procurement, storage, pik-kup and tools to be cut by 40 percent.

Space-saving gland

*blue*globe® is designed to be especially compact and offers 30 percent more clamping range. This is why bigger cable cross sections can be used even with the same screw-in threads. More often than not, smaller, less expensive glands are adequate with the given cross section. More cable entry points can then be provided than usual on the same area.

Better strain relief than market standards

*blue*globe® is clearly better than the market standards. The extraction forces as per EN 50 262 Class B are in part surpassed by more than 150 percent. The good non-positive connection between the cable and sealing insert enables large static and dynamic forces to be taken up without the used cables being constricted and damaged. *blue*globe® glands are durable and reliable.

Exemplary identification
*blue***globe**® cable glands are ideally identified. This enables swift identification of the products for assembly and storage. Apart from material and CE identification, the thread designation is permanently embossed on the gland.

The sealing inserts are provided with the globemarker as of M20 that specifies the clamping range. This precludes any mistakes, since the sealing range can be read off and checked directly.

High-grade materials
The sealing inserts comprise TPE, the gland bodies brass, stainless steel or plastic (PA). The glands comply with RoHS ("Restriction of the use of certain hazardous substances in electrical and electronic equipment", e.g. free of heavy metals) and thus meet current EU requirements. They are – it goes without saying – halogen-free.

Through these high-grade materials, *blue***globe**® is also resistant to many media, such as native oils.

Slotted, prelodged O ring
All *blue***globe**® brass and stainless-steel glands have prelodged O rings, which make for tolerance compensation with screw-in threads and feedthroughs.
The slotting makes them remain reliably in their position and they cannot squeeze into the borehole nor outwards. They thus ensure permanently secure and wear-free sealing between the glands and enclosures.

Wear-free sealing
All *blue***globe**® plastic glands have optimally designed, ring-shaped contact surfaces on the collar, making for outstanding impermeability with and without flat sealings.

Gentle cable fixing for more operational safety
Vibrations and cable movements frequently lead to cable breaks in the area the cable is fixed in.
The unique *blue***globe**® sealing inserts ensure reliable and gentle cable fixing. They prevent cables being damaged in the glands and wires snapping, operational safety being increased.

This means dust and moisture remain quite certainly outside
*blue***globe**® complies with protection system IP 68. The glands are absolutely dust-proof and immersion-water-proof down to 150 m (15 bar).
Test samples made of PA, brass and stainless steel passed the IP69K test in accordance with DIN 40 050 Part 9 at 100 bar water pressure, 80 °C for 2 minutes in our testing laboratory.

*blue*globe® – standard cable glands with the performance plus

Maintenance-free gland
The material properties of the sealing makes tightening up of the pressure screws unnecessary. This increases assembly safety and reduces the amount of work involved.

Undetachable sealing insert
The *blue*globe® insert sealings are lodged in the pressure screws to be undetachable and thus ensure more assembly safety.

The good ozone and UV resistance enables them to be also used outside, in the chemical industry and in the foodstuffs industry. TPE sealing inserts are long-term-stable and do not release gas.

Standard high temperature resistance
*blue*globe® covers a particularly large temperature range:
Plastic executions
from -20 °C up to +120 °C
Brass and stainless steel executions
from -40 °C up to +130 °C

Thanks to *blue*globe® price-favourable standard inserts can be used in a host of applications instead of special expensive products. In the standard ranges up till now, these inserts offer even more reserves and make for more reliability.

A detachable inlet extends the clamping range
Detachable inlets make for hitherto unattained large clamping ranges.

Small cable diameter

With IP68 installations the globemarker is on the outside

... or remove the *globe*marker

Large cable diameters

With large cable diameters – remove the inlet:Insert the screwdriver vertically into the seam

Lever out the inlet

Approved for the World market
*blue***globe**® complies with all the requirements of the European market. The glands are EN-approved, certified and bear the CE sign. Only UL-listed materials are used, so there is nothing against world-wide application. UL approval is available. What is more, there is already approval for the brass and stainless steel glands with the PTB (The Federal Physical-Technical Institute) for the EX field.

Comprehensive information
The Internet pages offer extensive assistance in product selection and provide much additional information.

Competent consultation
Competent personal support and qualified consultation spell out reliability and save time and cut down on annoyances. The specialists at PFLITSCH and on the spot provide expert advice for selection of the suitable glands.

Uniform dimensions
The metal and plastic glands have the same widths across flats and widths across corners. This means that few tools are needed for assembly, work progresses more rapidly.

Easily comprehensible assembly instructions
Easily understandable assembly instructions will help even inexperienced users to work faultlessly at first go.

Accessories and tools from one source
PFLITSCH provides the tools and accessories to suit the glands. This saves time and the need to look for another supplier. We recommend assembly with PFLITSCH socket wrenches.

CAD database for more rapid planning
3D CAD data on the CADENAS platform are available for all *blue***globe**® glands. This saves planners and design engineers no end of drawing work.

No problem for customer wishes
Naturally we deal with individual customer wishes. *blue***globe**® plastic glands are thus also available in black, the stainless-steel execution in V4A as well. Semi-glands, variants and special solutions are also catered for.

Technical Data
All technical data refer to testing accordind to EN 50 262. These are confirmed by the VDE certificate 40017414 from 13. April 2006. Customers applications must be tested additionally. We like to support you with our lab.

Plastic

*blue*globe®

Polyamide, metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

Fig. 1

Sealing insert

Material	Colour
TPE	blue (RAL 5012)

Gland body

Material	Temperature range	Colour	Art.-No. suppl.
PA	-20 °C bis +120 °C	grey (RAL 7035)	-
		black (RAL 9011)	n

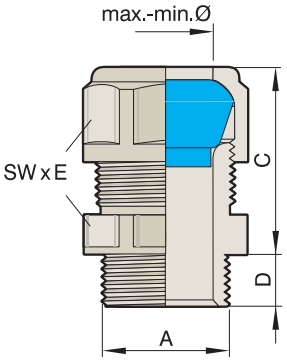


Fig. 2 with inlet

Connection thread/lenght A	D	Art.-No. Please supplement with the execution required grey = - black = n	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	8	bg 212PA	7,5 – 2	7,5 – 5	24	17x18,9	50
M16x1,5	9	bg 216PA	11 – 4	11 – 7	29	20x22,2	50
M20x1,5	9	bg 220PA	14 – 5	14 – 9	33	24x26,5	50
M25x1,5	9	bg 225PA	20 – 11	20 – 16	35	30x33	50
M32x1,5	11	bg 232PA	25 – 15	25 – 20	35	36x39,5	25
M40x1,5	12	bg 240PA	32 – 20	32 – 26	37	45x48	10
M50x1,5	15	bg 250PA	42 – 31	42 – 35	46	57x61	5
M63x1,5	15	bg 263PA	54 – 41	54 – 46	49	70x75	5

(blueglobe reaches/exceeds partly the test requirements of EN 50262, as per Pflitsch laboratory)

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File No.: E216848

CE

IP69K

RoHS

DVE *

Tightening torques for PA in Nm

Thread	M12	M16	M20	M25	M32	M40	M50	M63
pressure screw	1,5	4,5	8	10	12	14	in preparation	
double nipple	1,5	4,5	8	10	12	14	in preparation	

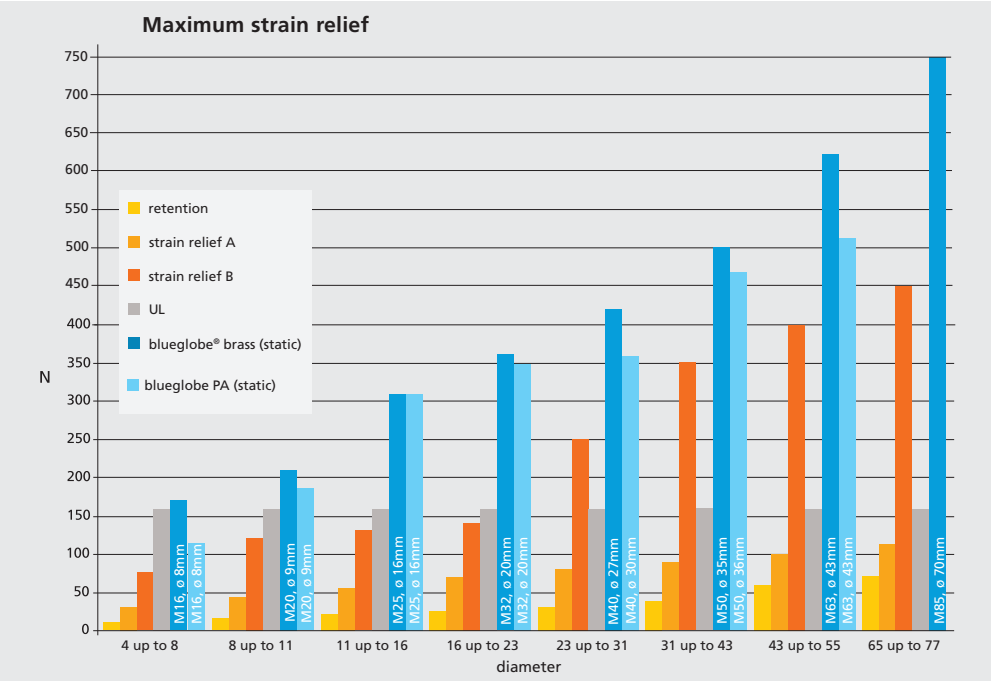

Diagram 1 (Source: PFLITSCH Laboratory)

* only in conjunction with HNBR-O-ring (Page 15) order seperate

Brass

*blue*globe®

Brass nickel plated, metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

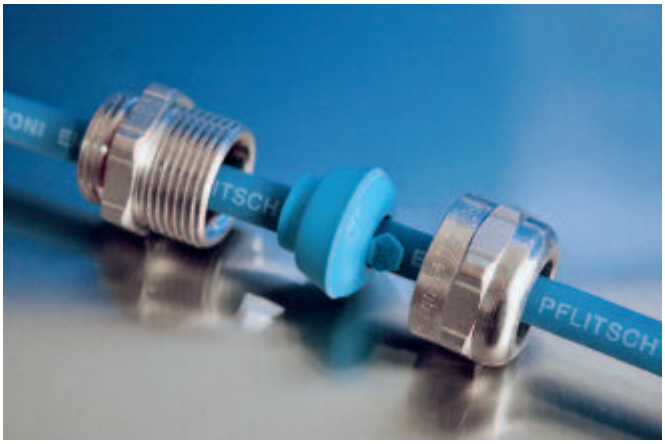

Fig. 1

Sealing insert

Material	Temperature range	Colour
TPE	-40 °C up to +130 °C	blue (RAL 5012)

Gland body

Material	Execution
brass	galv. nickel plated

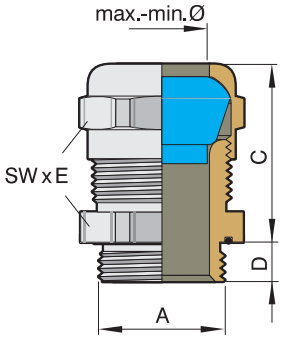

Fig. 2 with inlet

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	5	bg212 ms	8 – 2	8 – 5	21	17x18,9	50
M16x1,5	6	bg216 ms	11 – 4	11 – 7	25	20x22,2	50
M20x1,5	6,5	bg220 ms	14 – 5	14 – 9	29	24x26,5	50
M25x1,5	7,5	bg225 ms	20 – 11	20 – 16	29	30x33	50
M32x1,5	8	bg232 ms	25 – 15	25 – 20	32	36x39,5	25
M40x1,5	8	bg240 ms	32 – 20	32 – 26	35	45x48	10
M50x1,5	10	bg250 ms	42 – 31	42 – 35	35	57x61	5
M63x1,5	10	bg263 ms	54 – 41	54 – 46	38	68x72	5
M75x1,5	15	bg275 ms	65 – 54	65 – 58	48	81x87	5
M85x2	15	bg285 ms	77 – 65	77 – 70	49	95x102	1

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CE

IP69K

RoHS

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	15	bg812 ms	8 – 2	8 – 5	21	17x18,9	50
M16x1,5	15	bg816 ms	11 – 4	11 – 7	25	20x22,2	50
M20x1,5	15	bg820 ms	14 – 5	14 – 9	29	24x26,5	50
M25x1,5	15	bg825 ms	20 – 11	20 – 16	29	30x33	50
M32x1,5	15	bg832 ms	25 – 15	25 – 20	32	36x39,5	25
M40x1,5	15	bg840 ms	32 – 20	32 – 26	35	45x48	10
M50x1,5	15	bg850 ms	42 – 31	42 – 35	35	57x61	5
M63x1,5	15	bg863 ms	54 – 41	54 – 46	38	68x72	5

(blueglobe reaches/exceeds partly the test requirements of EN 50262, as per Pflitsch laboratory)

DVE

Tightening torques for brass and stainless steel pressure screws and double nipple

Thread	M12	M16	M20	M25	M32	M40	M50	M63	M75	M85
Nm	5	8	10	15	15	20	30	35	80	100

Stainless steel

*blue*globe®

Stainless steel 1.4305 (AISI 303),
metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

Sealing insert

Material	Temperature range	Colour
TPE	-40 °C up to +130 °C	blue (RAL 5012)

Gland body

Material	Execution
VA	1.4305

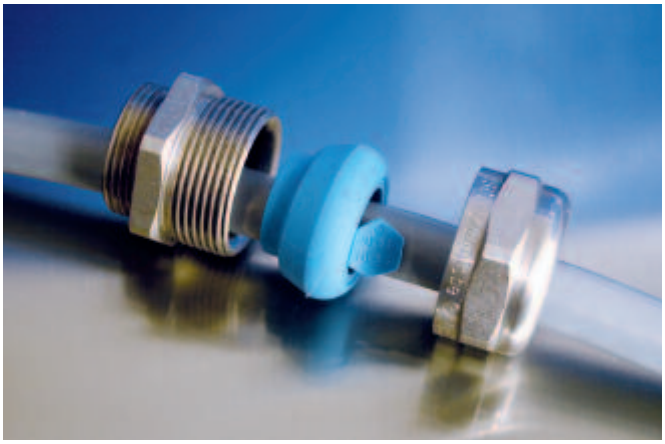

Fig. 1

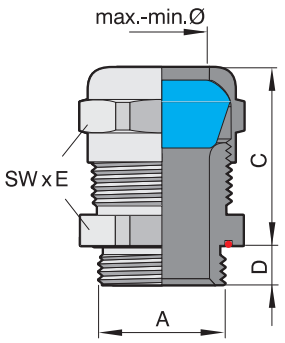

Fig. 2 without inlet

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	5	bg212 VA	8 – 2	8 – 5	21	17x18,9	50
M16x1,5	6	bg216 VA	11 – 4	11 – 7	25	20x22,2	50
M20x1,5	6,5	bg220 VA	14 – 5	14 – 9	29	24x26,5	50
M25x1,5	7,5	bg225 VA	20 – 11	20 – 16	29	30x33	50
M32x1,5	8	bg232 VA	25 – 15	25 – 20	32	36x39,5	25
M40x1,5	8	bg240 VA	32 – 20	32 – 26	35	45x48	10
M50x1,5	10	bg250 VA	42 – 31	42 – 35	35	57x60	5
M63x1,5	10	bg263 VA	54 – 41	54 – 46	38	68x72	5
M75x1,5	15	bg275 VA*	65 – 54	65 – 58	48	81x87	5
M85x2	15	bg285 VA*	77 – 65	77 – 70	49	95x102	1

(* on request)

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File No.: E216848

CE

IP69K

RoHS

DVE

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	15	bg812 VA	8 – 2	8 – 5	21	17x18,9	50
M16x1,5	15	bg816 VA	11 – 4	11 – 7	25	20x22,2	50
M20x1,5	15	bg820 VA	14 – 5	14 – 9	29	24x26,5	50
M25x1,5	15	bg825 VA	20 – 11	20 – 16	29	30x33	50
M32x1,5	15	bg832 VA	25 – 15	25 – 20	32	36x39,5	25
M40x1,5	15	bg840 VA	32 – 20	32 – 26	35	45x48	10
M50x1,5	15	bg850 VA	42 – 31	42 – 35	35	57x60	5
M63x1,5	15	bg863 VA	54 – 41	54 – 46	38	68x72	5

(blueglobe reaches/exceeds partly the test requirements of EN 50262, as per Pflitsch laboratory)

Tightening torques for brass and stainless steel pressure screws and double nipple

Thread	M12	M16	M20	M25	M32	M40	M50	M63	M75	M85
Nm	5	8	10	15	15	20	30	35	80	100

ATEX

*blue*globe® Ex e II

Brass nickel plated and stainless steel,
metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

Materials:		
Gland:	brass	galv. nickel plated
	VA	1.4305
Sealing insert:	TPE	Colour: blue (RAL 5012)

Fig. 1

Explosion protection:

Ignition protection class:	Gas	explosion-protected – e
	Dust	protection through enclosure – tD (A)
		protection class EN 60 529: IP 68 to 15 bar
Appliance group/category:	II 2 G/D	
Applicable in:	Zone 1, Zone 2, Zone 21 and 22 (conductive dust)	
Standards:	EN 60 079-0 (EN 50 014)	
	EN 60 079-7 (EN 50 019)	
	EN 50 281-1-1	
EC design test certificate-No.:	PTB 06 ATEX 1036 X	
Designation:	Ex II 2 G/D, Ex e II PTB 06 ATEX 1036 X, IP 68	
	Type and size of thread, CE 0102	

Cable Gland blueglobe® Ex e II is available for the most varied fields of application in different executions as a complete gland:

Temperature range of the sealing insert as certified:
TPE **-40 °C up to +115 °C**

The Ex cable gland can be selected with **different connecting thread lengths**:

Connection thread:	Connection thread length:
M-Thread Standard EN 60 423	see table an the following pages
M-Thread Long EN 60 423	length 15 mm

Fig. 2
Labeling pressure screw M25

Important pointer:

The glands are only admissible for the connection of rigid-laid lines and cables. The operator must ensure corresponding strain relief. The cable glands are to be mounted so that they are protected against mechanical damage (degree of the mechanical risk "high" – impact energy: 7 Joule – as per EN 60079-1).

Visit us: www.pflitsch.de

ATEX Brass

*blue*globe® Ex e II

Brass nickel plated, metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

Fig. 1

Sealing insert

Material	Temperature range	Colour
TPE	-40 °C up to +115 °C	blue (RAL 5012)

Gland body

Material	Execution
brass	galv. nickel plated

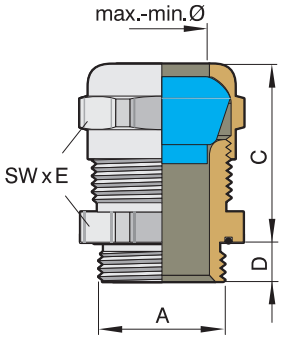

Fig. 2 with inlet

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	5	bg 212msex	8 – 3	8 – 5	21	17x18,9	50
M16x1,5	6	bg 216msex	11 – 5	11 – 7	25	20x22,2	50
M20x1,5	6,5	bg 220msex	14 – 6	14 – 9	29	24x26,5	50
M25x1,5	7,5	bg 225msex	20 – 12	20 – 15,5	29	30x33	50
M32x1,5	8	bg 232msex	25 – 16	25 – 20	32	36x39,5	25
M40x1,5	8	bg 240msex	32 – 21	32 – 26	35	45x48	10
M50x1,5	10	bg 250msex	42 – 32	42 – 35	35	57x61	5
M63x1,5	10	bg 263msex	54 – 42	54 – 46	38	68x72	5

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	15	bg 812msex	8 – 3	8 – 5	21	17x18,9	50
M16x1,5	15	bg 816msex	11 – 5	11 – 7	25	20x22,2	50
M20x1,5	15	bg 820msex	14 – 6	14 – 9	29	24x26,5	50
M25x1,5	15	bg 825msex	20 – 12	20 – 15,5	29	30x33	50
M32x1,5	15	bg 832msex	25 – 16	25 – 20	32	36x39,5	25
M40x1,5	15	bg 840msex	32 – 21	32 – 26	35	45x48	10
M50x1,5	15	bg 850msex	42 – 32	42 – 35	35	57x61	5
M63x1,5	15	bg 863msex	54 – 42	54 – 46	38	68x72	5

ATEX

CE
0102

RoHS

Tightening torques for Messing-pressure screws and double nipple

Thread	M12	M16	M20	M25	M32	M40	M50	M63
Nm	5	8	10	15	15	20	30	35

ATEX stainless steel

*blue*globe® Ex e II

Stainless steel 1.4305 (AISI 303),
metric connection thread as per EN 50262
Type of protection: IP 68, up to15 bar over the whole sealing range

Sealing insert

Material	Temperature range	Colour
TPE	-40 °C up to +115 °C	blue (RAL 5012)

Gland body

Material	Execution
VA	1.4305

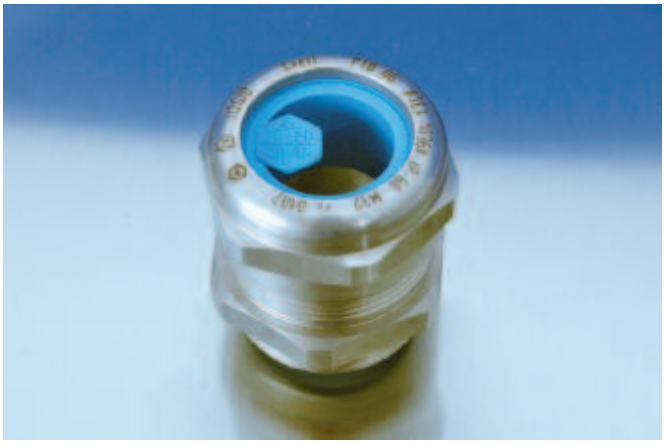

Fig. 1

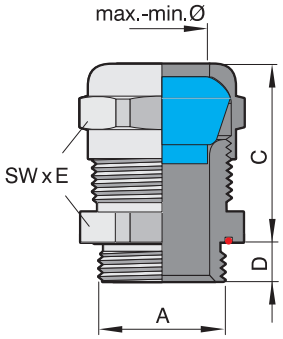

Fig. 2 with inlet

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	5	bg 212VAex	8 – 3	8 – 5	21	17x18,9	50
M16x1,5	6	bg 216VAex	11 – 5	11 – 7	25	20x22,2	50
M20x1,5	6,5	bg 220VAex	14 – 6	14 – 9	29	24x26,5	50
M25x1,5	7,5	bg 225VAex	20 – 12	20 – 15,5	29	30x33	50
M32x1,5	8	bg 232VAex	25 – 16	25 – 20	32	36x39,5	25
M40x1,5	8	bg 240VAex	32 – 21	32 – 26	35	45x48	10
M50x1,5	10	bg 250VAex	42 – 32	42 – 35	35	57x60	5
M63x1,5	10	bg 263VAex	54 – 42	54 – 46	38	68x72	5

Connection thread/lenght A	D	Art.-No.	Sealing range max./min. ø mm	Sealing range without inlet max./min. ø mm	C mm	Spanner width SW x E mm	
M12x1,5	15	bg 812VAex	8 – 3	8 – 5	21	17x18,9	50
M16x1,5	15	bg 816VAex	11 – 5	11 – 7	25	20x22,2	50
M20x1,5	15	bg 820VAex	14 – 6	14 – 9	29	24x26,5	50
M25x1,5	15	bg 825VAex	20 – 12	20 – 15,5	29	30x33	50
M32x1,5	15	bg 832VAex	25 – 16	25 – 20	32	36x39,5	25
M40x1,5	15	bg 840VAex	32 – 21	32 – 26	35	45x48	10
M50x1,5	15	bg 850VAex	42 – 32	42 – 35	35	57x60	5
M63x1,5	15	bg 863VAex	54 – 42	54 – 46	38	68x72	5

ATEX

CE
0102

RoHS

Tightening torques for stainless steel pressure screws and double nipple

Thread	M12	M16	M20	M25	M32	M40	M50	M63
Nm	5	8	10	15	15	20	30	35

Accessories

Reduction hexagonal Pg- to M-Thread

K15. Brass nickel plated,
with Pg outer thread
and M inner thread
as per EN 60 423.
Type of protection: IP 68 up to 10 bar
Variant: without O-Ring
Type of protection: IP 54

K17. Polyamide-GFK,
Colour: RAL 7035 (light grey)
with Pg outer thread
and M inner thread
as per EN 60 423.
Type of protection: IP 54
Temp.: -40 °C up to +110 °C

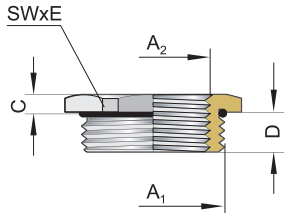

Fig. 1
Brass nickel plated with O-Ring

Rated size			Art.-No. brass nickel plated		Art.-No. Polyamide-GFK	C	Spanner width SW x E	
A_1 outer	D	A_2 inner	with O-Ring	without O-Ring	without O-Ring	mm	mm	
Pg 9	6	M12x1,5	80.09/212	8.09/212	-	3	17x18,9	50
Pg 11	6	M12x1,5	80.11/212	8.11/212	-	3	20x22,2	50
Pg 13,5	6,5	M12x1,5	80.13/212	8.13/212	-	3	24x26,7	50
Pg 13,5	6,5	M16x1,5	80.13/216	8.13/216	-	3	24x26,7	50
Pg 16	6,5	M20x1,5	80.16/220	8.16/220	-	3	24x26,7	50
Pg 21	7	M16x1,5	80.21/216	8.21/216	-	3,5	30x33,5	25
Pg 21	7	M25x1,5	80.21/225	8.21/225	-	3,5	30x33,5	25
Pg 29	8	M25x1,5	80.29/225	8.29/225	-	4	40x43,5	25
Pg 29	8/12*	M32x1,5	80.29/232	8.29/232	RED 29/232	4/7*	40x43,5	25
Pg 36	9	M32x1,5	80.36/232	8.36/232	-	5	50x54	25
Pg 36	9/14*	M40x1,5	80.36/240	8.36/240	RED 36/240	5/7*	50x54	10
Pg 42	10	M32x1,5	80.42/232	8.42/232	-	4	57x61	10
Pg 42	10/14*	M40x1,5	80.42/240	8.42/240	RED 42/240	4/7*	57x61	10
Pg 42	10	M50x1,5	80.42/250	8.42/250	-	4	57x61	10
Pg 48	10/15*	M50x1,5	80.48/250	8.48/250	RED 48/250	5,5/7*	64x89	10

*= size brass nickel plated / size Polyamide-GFK

Extension hexagonal Pg- to M-Thread

K11. Brass nickel plated,
with Pg outer thread
as per DIN 46 320
and M inner thread
as per EN 60 423.
Type of protection: IP 68 up to 10 bar

K12. Polyamide - GFK,
Colour: RAL 7035 (light grey)
with Pg outer thread
and M inner thread
as per EN 60 423.
Type of protection: IP 54
Temp.: -40 °C up to +100 °C

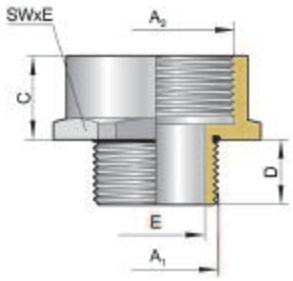

Fig. 2
Brass nickel plated

Rated size			Art.-No. brass with	Art.-No. Polyamide-GFK without	C	E	Spanner width SW x E	
A_1 outer	D	A_2 inner	O-Ring	O-Ring	mm	mm	mm	
Pg 7	9	M12x1,5	-	EW 07212	18	5,5	16x18	50
Pg 7	9	M16x1,5	-	EW 07216	18	5,5	20x22	50
Pg 9	9	M12x1,5	-	EW 09212	18	9,5	20x22	50
Pg 9	9/6*	M16x1,5	809216	EW 09216	18/10*	9,5	20x22	50
Pg 9	9	M20x1,5	-	EW 09220	18	9,5	24x27	50
Pg 11	9	M16x1,5	-	EW 11216	18	12,5	22x24	50
Pg 11	9/6*	M20x1,5	811220	EW 11220	18/10*	12,5	24x27	50
Pg 11	9	M25x1,5	-	EW 11225	18	12,5	29x32	50
Pg 13,5	10	M16x1,5	-	EW 13216	18	13,5	24x27	50
Pg 13,5	10/6*	M20x1,5	813220	EW 13220	18/10*	13,5	24x27	50
Pg 13,5	10	M25x1,5	-	EW 13225	18	13,5	29x32	50
Pg 16	10	M20x1,5	-	EW 16220	18	16,5	27x29	50
Pg 16	10/6*	M25x1,5	816225	EW 16225	18/10*	16,5	29x32	50
Pg 16	10	M32x1,5	-	EW 16232	18	16,5	36x40	50
Pg 21	12	M25x1,5	-	EW 21225	18	21,5	33x36	50
Pg 21	12/7*	M32x1,5	821232	EW 21232	18/12,5*	21,5	36x40	50
Pg 21	12	M40x1,5	-	EW 21240	18	21,5	46x51	25
Pg 29	12/8*	M40x1,5	829240	EW 29240	18/14,5*	30	46x51	25
Pg 29	12	M50x1,5	-	EW 29250	18	30	55x61	10
Pg 36	14/8*	M50x1,5	836250	EW 36250	18/14,5*	40,5	55x61	10
Pg 36	14	M63x1,5	-	EW 36263	18	40,5	68x75	10
Pg 42	14	M50x1,5	-	EW 42250	18	47,5	60x67	10
Pg 42	14	M63x1,5	-	EW 42263	18	47,5	68x75	10
Pg 48	15	M63x1,5	-	EW 48263	18	52	68x75	10

*= size brass nickel plated / size Polyamide-GFK

Accessories

Lock nut

Polyamide-GFK,
Colour: RAL 7035 (light grey),
with metric thread as per
EN 60 423.
Temp.: -40 °C up to +100 °C

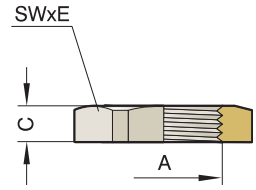

Fig. 1

Rated size A	Art.-No.	C mm	Spanner width SW x E mm	
M12x1,5	1420/212	5	17x19	50
M16x1,5	1420/216	5	22x25	50
M20x1,5	1420/220	6	26x29	50
M25x1,5	1420/225	6	32x36	50
M32x1,5	1420/232	7	41x46	50
M40x1,5	1420/240	7	50x54	25
M50x1,5	1420/250	8	60x67	10
M63x1,5	1420/263	8	75x82,3	5

Lock nut

Brass nickel plated,
with metric thread
as per EN 60 423.

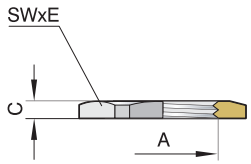

Fig. 2

Rated size A	Art.-No.	C mm	Spanner width SW x E mm	
M12x1,5	212/5	2,8	15x16,6	50
M16x1,5	216/5	2,8	19x21	50
M20x1,5	220/5	3	24x26,7	50
M25x1,5	225/5	3,5	30x33,5	50
M32x1,5	232/5	4	36x39	50
M40x1,5	240/5	5	46x50	50
M50x1,5	250/5	5	60x65	25
M63x1,5	263/5	6	70x78	10
M75x1,5	GMM 75	8	81x87	5
M85x2,0	GMM 85	8	95x102	5

Lock nut

1.4305, stainless steel,
with metric
thread as per EN 60 423.

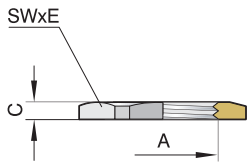

Fig. 3

Rated size A	Art.-No.	C mm	Spanner width SW x E mm	
M12x1,5	212/5stv	2,8	17x18,9	50
M16x1,5	216/5stv	3	19x21	50
M20x1,5	220/5stv	3	24x26,6	50
M25x1,5	225/5stv	4	27x29,5	50
M32x1,5	232/5stv	5	36x39	50
M40x1,5	240/5stv	5	46x50,5	50
M50x1,5	250/5stv	5	55x60	25
M63x1,5	263/5stv	5,5	68x74	10

Sealing ring flat

HNBR,
asbestos-free,
Colour: grey,
Temp.: -40 °C up to +140 °C

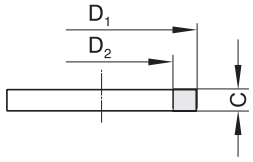

Fig. 4

Rated size	Art.-No.	C	D_1	D_2	
		mm	mm	mm	
M12x1,5	DRF 212	2	18	12	50
M16x1,5	DRF 216	2	21	16	50
M20x1,5	DRF 220	2	25	20	50
M25x1,5	DRF 225	2	31	25	50
M32x1,5	DRF 232	2	37	32	50
M40x1,5	DRF 240	2	46	40	50

Accessories

Blind plug

PVDF,
Temp.: -40 °C up to +110 °C
POM,
Temp.: -40 °C up to +135 °C
Colour: black

Fig. 1

Rated size	applicable to	Art.-No.		Shank-Ø mm	Head-Ø mm	
M12x1,5	with inlet	BObg212/5		5,2	11	50
	without inlet	BObg212/8	on request	8,2	11	50
M16x1,5	with inlet	BObg216/7		7,2	14	50
	without inlet	BObg216/11	on request	11,2	14	50
M20x1,5	with inlet	BObg220/9		9,2	17	50
	without inlet	BObg220/14	on request	14,2	17	50
M25x1,5	with inlet	BObg225/16		16,2	23	50
	without inlet	BObg225/20	on request	20,1	23	50
M32x1,5	with inlet	BObg232/20		20,2	28	50
	without inlet	BObg232/25	on request	25,1	28	50
M40x1,5	with inlet	BObg240/26		26,2	35	50
	without inlet	BObg240/32	on request	32,2	35	50

Blind disk

PA,
Colour: transparent
Application: dependent on material

Fig. 2

Rated size	Art.-No.			
M12x1,5	BS7	applicable to ...	bg212	500
M16x1,5	BS9	applicable to ...	bg216	500
M20x1,5	BS11	applicable to ...	bg220	500
M25x1,5	BS22	applicable to ...	bg225	500
M32x1,5	BS27	applicable to ...	bg232	500
M40x1,5	BS29	applicable to ...	bg240	500
M50x1,5	BS36	applicable to ...	bg250	500
M63x1,5	BS48	applicable to ...	bg263	500

M28. Socket wrench

Steel7galvanised, hardened

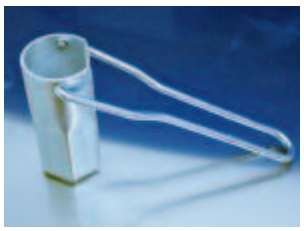

Fig. 3

To install cable glands Spanner width SW mm	Cable gland metric connection thread	Art.-No.	
17	M12	**SSG 17 g**	1
20	M16	**SSG 20 g**	1
24	M20	**SSG 24 g**	1
30	M25	**SSG 30 g**	1
36	M32	**SSG 36 g**	1
45	M40	**SSG 45 g**	1
57	M50	**SSG 57 g**	1
68	M63	**SSG 68 g**	1

Note: blueglobe cable glands with the same threadsize from brass, stainless steel and PA have constructive identically spanner width.

Assembly instruction *blue*globe®

Small cable diameter

Fig. 1
With IP68 installations ***globe***marker on the outside

Fig. 2
or removing ***globe***marker

Large cable diameter

Fig. 3
With a large cable diameter – remove inlet. Insert screwdriver vertically into separating seam

Fig. 4
Lift out the inlet

Technical appendix

Feedthroughs

Manufacturer's specifications for cable glands

Size	12	16	20	25	32	40	50	63	75	85
Thread	M12	M16	M20	M25	M32	M40	M50	M63	M75	M85
Mounting hole Ø 0/+0,3 mm	12,0	16,0	20,0	25,0	32,0	40,0	50,0	63,0	75,0	85,0

When using plastic glands in the minus temperature range, flat sealings are to be implemented.

Retention and strain relief (as per EN 50 262)

blueglobe Ms / VA – clamping ranges /mm

Thread	retention	strain relief A	strain relief B
M12	2	3 – 4	5 – 7
M16		4	5 – 11
M20		5	6 – 14
M25		11	12 – 20
M32		15	16 – 25
M40		20	21 – 32
M50		31	32 – 42
M63		41	42 – 54

blueglobe PA – clamping ranges /mm

Thread	retention	strain relief A	strain relief B
M12	2-3	4-7,5	
M16	4	5	6 – 11
M20		5	7 – 14
M25	11	12	13 – 20
M32	15		16 – 25
M40		20	21 – 30

For the smallest cable diameters there could be some reduced result due to cold flow (see also impact testing).

IP protection class tests (as per EN 50 262)

blueglobe brass / stainless steel – clamping ranges /mm

Thread	5 bar	10 bar	15 bar
M12	2	3	4 – 8
M16		4	4 – 11
M20		5	5 – 14
M25		11	12 – 20
M32		15	16 – 25
M40		20	21 – 32
M50		31	32 – 42
M63		41 – 42	42 – 54

blueglobe PA – clamping ranges /mm

Thread	5 bar	10 bar	15 bar
M12		2-3	4 – 7,5
M16		4	5 – 11
M20		5	6 – 14
M25		11	12 – 20
M32		15	16 – 25
M40		20	21 – 32
M50		-	-
M63		-	-

For the smallest cable diameters there could be some reduced result due to cold flow (see also impact testing).

Impact testing

In the case of cold shock, EN 50 262 differentiates between a total of 8 categories for drop energies between 0.2 to 20 J. The minimum requirements on the test ambient temperature is -20 °C. blueglobe was certified in accordance with Categories 3 and 6 with brass and stainless steel at -40 °C and Category 3 with PA at -20 °C, whereby the clamping range in the smallest diameter was limited by 1 mm. Flat sealings were used with PA glands.

blueglobe Ms / VA – clamping range /mm

Thread	Cold shock -40 °C	Category
M12	3 – 8	3
M16	5 – 11	6
M20	6 – 14	6
M25	12 – 20	6
M32	16 – 25	6
M40	21 – 32	6
M50	32 – 42	6
M63	42 – 54	6

blueglobe PA – clamping range /mm

Thread	Cold shock -20 °C	Category
M12	3 – 7,5	3
M16	5 – 11	3
M20	6 – 14	3
M25	12 – 20	3
M32	16 – 25	3
M40	21 – 32	3

Technical Appendix

Standards/Certifications

Sealing range:			
IP 68, up to 15 bar as per EN 50 262			
Areas of strain relief:			
	EN 50 262:	retaining power	up to 70 N
		strain relief test „Execution A“	up to 115 N
		strain relief test „Execution B“	up to 450 N
	UL/UR:	strain relief	159 N

Connecting thread		Sealing range max./min. ø	Strain relief as per UL max./min. ø
Brass and VA			
M12	bg 212ms, bg 212VA	8-5/5-2	
M16	bg 216ms, bg 216VA, bg 816ms, bg 816VA	11-7/7-4	11-9
M20	bg 220ms, bg 220VA, bg 820ms, bg 820VA	14-9/9-5	14-9
M25	bg 225ms, bg 225VA, bg 825ms, bg 825VA	20-16/16-11	20-16
M32	bg 232ms, bg 232VA, bg 832ms, bg 832VA	25-20/20-15	25-20
M40	bg 240ms, bg 240VA, bg 840ms, bg 840VA	32-26/26-20	32-23
M50	bg 250ms, bg 250VA, bg 850ms, bg 850VA	42-35-35-31	42-33
M63	bg 263ms, bg 263VA, bg 863ms, bg 863VA	54-46/46-41	54-43
PA			
M12	bg 212PA	7,5-5/5-2	
M16	bg 216PA	11-7/7-4	
M20	bg 220PA	14-9/9-5	14-9
M25	bg 225PA	20-16/16-11	20-16
M32	bg 232PA	25-20/20-15	25-20
M40	bg 240PA	32-26/26-20	
M50	bg 250PA	42-35/35-31	
M63	bg 263PA	54-46/46-41	

Retaining power and strain relief are dependent on the used cables and must be checked by the user.

Certifications

Material			
Brass	X	X	X
VA	X	X	X
PA	X	X	X

Materials

PA

Polyamides are engineering plastics for a host of technical applications and are particularly well-suited for machine elements. They possess good strength properties with a high degree of viscosity and impact resistance as well as good wear resistance. The special partial crystalline polyamide used in *blue***globe**® - with defined glass-fibre content – conforms with the current European directives WEEE and RoHS and is halogen and phosphorus-free. The PA used is a thermally stable, flame-proofed and self-extinguishing technical thermoplastic material. Certified in accordance with UL 94, Fire Class V0. The operating temperature is between -20 °C up to approx. 120 °C, briefly up to 200 °C. The incandescent inflammability temperature is at 960 °C. As a rule, polyamides have good resistance to all kinds of chemicals. With the exception of concentrated acids, only a few chemicals attack polyamides.

TPE

Thermoplastic elastomers combine the particularly highly elastic properties of the elastomers with the processing possibilities of the thermoplastics. They are multi-purpose materials suitable for a large range of application possibilities. The special TPE used by PFLITSCH for *blue***globe**® was optimised by us specifically for use in cable glands. The TPE used conforms with the current European directives WEEE and RoHS and is halogen and plasticiser-free. The inflammability limits required in UL94 are not exceeded, and TPE is certified according to UL94 HB. The operating temperature is -40 °C up to 130 °C, and the median calorific value is 26.5 MJ/kg. TPE has high UV stability and is enormously weather and ozone-resistant. Its chemical resistance is high and its tendency for cold flow slight.

Brass

Brass is an alloy of copper with zinc. Fundamental differentiation is made between pure (binary) brass and special brass. The material CuZn39Pb3 is the main alloy for machining and especially suitable for automatic machines. Brass possesses good resistance to water, vapour, various salt solutions and many organic liquids, however, not to oxidising acids. Under certain conditions (water with high Cl content, low carbon hardness and low flow rate), it may result in corrosion in the form of elution (zinc being eluted from brass). Surface treatment: Hot-dip galvanised nickel precipitates are suitable for wear and corrosion protection due to their special mechanical and chemical properties. Nickel is easily polishable and magnetic. Brass may be implemented in accordance with the European directives WEEE RoHS.

1.4305 (AISI 303)

Stainless steels are characterised by special resistance to chemically attacking watery media. A chrome content of approx. >12 % by mass allows the formation of a passive layer, suppressing rusting with normal atmospheric corrosion load. Greater chrome content and addition of other alloy elements will extend resistance to considerably more aggressive media. Optimum protection against chemical attack presupposes as smooth as possible a surface free of all kinds of impurities. The material is conform with the current directives WEEE and RoHS. Stainless steel 1.4305 in accordance with EN 10088-2 with the designation X8 Cr NiS 18-9 has the chemical composition:

Carbon	< 0,10 %
Chrome	18 %
Nickel	9 %

Terms and conditions

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What we advise both orally and in writing with regard to technical application is based on our experience and to the best of our belief; it should, however, be understood as a pointer without obligation. Working conditions and varying application conditions lying outside our sphere of influence shall preclude any warranty claims. We would recommend verifying whether the PFLITSCH product is indeed suitable for the purpose of application intended. The way the products are applied, used and processed is not a matter that we are able to control and for this very reason lies solely in your area of responsibility. Should there nevertheless be a case for liability, it shall be restricted to the value of the product supplied by us and used by you for all and any damage incurred. Our warranty refers to the constant quality of our products falling in line with our specifications according to our General Terms of Delivery and Payment.

Warranty:

We presume correct handling and treatment of the function and condition, particularly observance of the sealing ranges and fitting cable diameters, as well as the "min." and "max." torques.

Material data are based on measurements made on test bodies (not components).

The suitability of the product for the user's application with regard to load capacity (long-term application) and employment, as well as the conformity of the electrical installation and safety rules and regulations must be checked and ensured by the user under the particular practical conditions concerned. In specific cases of application, we would ask for inquiries in writing.

We reserve the right to make technical alterations.

Applications

Fig. 1 AL-KO

Fig. 2 ALCATEL hose connection

Fig. 3 Buderus abrasive engineering

Fig. 4 Wieland-Connector

Fig. 5 Lufft

Fig. 6 PFLITSCH testing laboratory: Test IP69K

*blue*globe® - Applications

ALCATEL - *railway technology, D-Arnstadt*
AL-KO - *heating appliances, D-Jettingen*
BIZERBA - saw technology, D-Balingen
Buderus - *abrasive engineering, D-Wetzlar*
Ford, *D-Köln*
HYWEMA - *lifting platforms, D-Solingen*
LECHMOTOREN, *D-Augsburg*
Lufft - measuring & control technology, *D-Fellbach*
SIEMENS - *power plants, D-Erlangen*
Wieland-Electric, *D-Bamberg*

PFLITSCH®

Competence in cable management

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