

# Altech Corp.®

*Serving the Automation & Control Industry since 1984*



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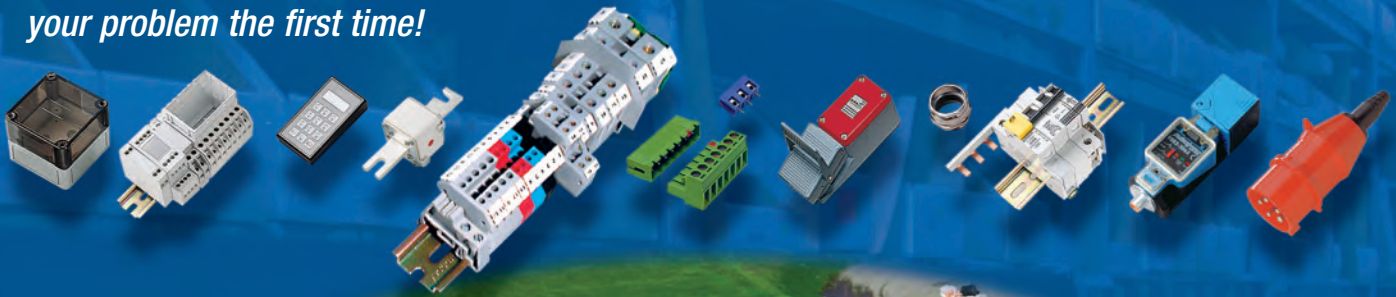
**Liquid Tight  
Strain Reliefs**



# Altech Corp.®

Since 1984, Altech Corporation has grown to become a leading supplier of automation and industrial control components. Headquartered in Flemington, NJ, Altech has an experienced staff of engineering, manufacturing and sales personnel to provide the highest quality products with superior service. This is the Altech Commitment!

With experienced Product Engineers and Customer Service personnel, Altech provides solutions to your most pressing application challenges. All with one thought in mind - *to ensure that we solve your problem the first time!*


















## Quality Commitment


















*Altech's control components meet diverse national and international standards such as UL, NEC, CSA, IEC, VDE and more. Altech provides superior customer service and delivery through Total Quality Management and Continuous Process Improvement. Altech is ISO 9001 approved. We perform these services with honesty and integrity and are committed to achieve these goals.*



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key words:  
liquid tight strain relief  
cable gland  
cord grip

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# Cable Gland Standard Straight-Through - Polyamide

key words:  
liquid tight strain relief  
cable gland  
cord grip

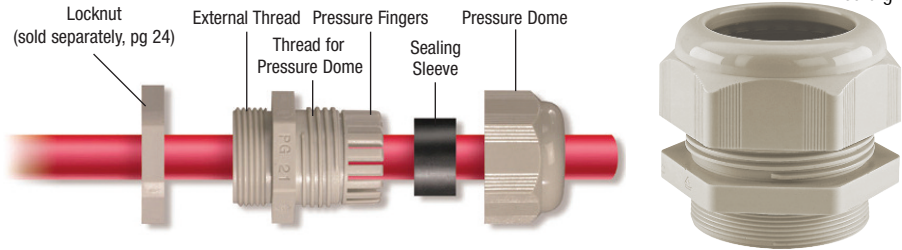
## Material:

- Body: Polyamide 6
- Seal: Neoprene

## Technical properties:

- Maximum strain relief through clamping range
- IP68 achieved without seal rings (PG and metric only)<sup>1</sup>
- Trapezoidal thread with high torque guarantees tight and permanent fit of the dome nut
- Gas tight and watertight

**Applications:** Machines and devices



## PG Thread

Outer thread	Clamping range mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
PG 7	1.5-5	5309 107	5309 207	50
PG 7	2.5-6.5	5308 707	5308 507	50
PG 9	1.5-6	5309 109	5309 209	50
PG 9	2.5-8	5308 709	5308 509	50
PG 11	2-7	5309 111	5309 211	50
PG 11	3.5-10	5308 711	5308 511	50
PG 13.5	3-9	5309 113	5309 213	50
PG 13.5	5-12	5308 713	5308 513	50
PG 16	5-12	5309 116	5309 216	50
PG 16	7-14	5308 716	5308 516	50
PG 21	7-16	5309 121	5309 221	25
PG 21	9-18	5308 721	5308 521	25
PG 29	11-21	5309 129	5309 229	20
PG 29	14-25	5308 729	5308 529	20
PG 36	13-26	5309 136	5309 236	10
PG 36	18-32	5308 736	5308 536	10
PG 42	17-31	5309 142	5309 242	5
PG 42	24-38.5	5308 737	5308 537	5
PG 48	26-39	5309 148	5309 248	5
PG 48	35-48	5308 738	5308 538	5



**Temperature Range**  
-40 to 100°C  
(-40 to 212°F)

Thread Size	Dimensions					
	H mm	E mm	L mm	ØC mm	ØP mm	ØThread mm
PG7	15	8	32	6.7	6.8	12.5
PG9	19	8	35	8.5	8.7	15.2
PG11	22	8	37	10.5	10.5	18.6
PG13.5	24	9	39	12.5	12.5	20.4
PG16	27	10	43	14.5	14.5	22.5
PG21	33	11	50	18.5	18.5	28.3
PG29	42	11	53	25.5	25.5	37.0
PG36	53	13	65	32.5	32.5	47.0
PG42	60	13	68	39.0	39.0	54.0
PG48	70	14	70	48.5	48.5	59.3

## NPT Thread

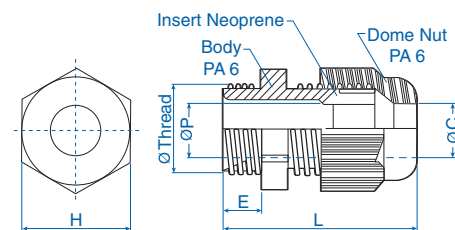
NPT 3/8"	1.5-6	5308 904	5308 924	50
NPT 3/8"	2.5-8	5308 900	5308 920	50
NPT 1/2"	3-9	5308 905	5308 925	50
NPT 1/2"	5-12	5308 901	5308 921	50
NPT 3/4"	7-16	5308 906	5308 926	20
NPT 3/4"	9-18	5308 902	5308 922	20
NPT 1"	11-21	5308 907	5308 927	20
NPT 1"	14-25	5308 903	5308 923	20

NPT 3/8	19	11	38	8.5	8.7	17.1
NPT 1/2	24	14	44	12.5	12.5	21.2
NPT 3/4	33	15	54	18.5	18.5	26.7
NPT 1	42	18	60	25.5	25.5	33.3

M12x1.5	15	8	32	6.7	6.8	12.0
M16x1.5/9	19	10	37	8.5	8.5	16.0
M16x1.5/11	22	10	39	10.5	10.5	16.0
M20x1.5/13	24	10	40	12.5	12.5	20.0
M20x1.5/16	27	10	43	14.5	14.5	20.0
M25x1.5/16	27	10	45	14.5	14.5	25.0
M25x1.5/21	33	10	49	18.5	18.5	25.0
M32x1.5	42	10	52	25.5	25.5	32.0
M40x1.5	53	10	62	32.5	32.5	40.0
M50x1.5	60	12	67	39.0	39.0	50.0
M63x1.5	70	12	68	48.5	48.5	63.0

## Metric Thread\*

M 12 x 1.5	1.5-5	5309 612	5309 712	50
M 12 x 1.5	2.5-6.5	5308 950	5308 940	50
M 16 x 1.5/9	1.5-6	5309 615	5309 715	50
M 16 x 1.5/11	2-7	5309 616	5309 716	50
M 16 x 1.5/9	2.5-8	5308 958	5308 948	50
M 16 x 1.5/11	3.5-10	5308 951	5308 941	50
M 20 x 1.5/13	3-9	5309 619	5309 719	50
M 20 x 1.5/16	5-12	5309 620	5309 720	50
M 20 x 1.5/13	5-12	5308 959	5308 949	50
M 20 x 1.5/16	7-14	5308 952	5308 942	50
M 25 x 1.5/16	5-12	5309 624	5309 724	50
M 25 x 1.5/21	7-16	5309 625	5309 725	25
M 25 x 1.5/16	7-14	5308 960	5308 962	50
M 25 x 1.5/21	9-18	5308 953	5308 943	25
M 32 x 1.5	11-21	5309 632	5309 732	20
M 32 x 1.5	14-25	5308 954	5308 944	20
M 40 x 1.5	13-26	5309 640	5309 740	10
M 40 x 1.5	18-32	5308 955	5308 945	10
M 50 x 1.5	17-31	5309 650	5309 750	5
M 50 x 1.5	24-38.5	5308 956	5308 946	5
M 63 x 1.5	26-39	5309 663	5309 763	5
M 63 x 1.5	35-48	5308 957	5308 947	5



**This is one of our most popular series and is usually kept in stock.**

\* Extended thread available consult Altech. <sup>1</sup> Seal rings for NPT sold separately, see page 35.

**Locknuts sold separately, see page 24.**



# Cable Gland *Set with Locknut Standard Straight-Through - Polyamide*

Now available with locknuts!

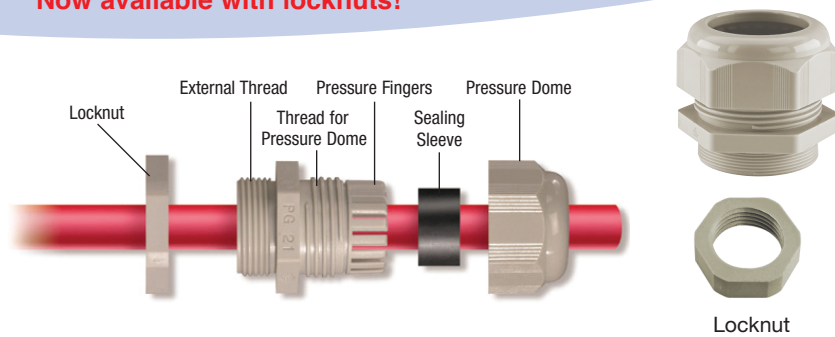
## Material:

- Body: Polyamide 6
- Seal: Neoprene

## Technical properties:

- Maximum strain relief through clamping range
- IP68 achieved without seal rings (PG and metric only)
- Seal Ring included with NPT parts
- Trapezoidal thread with high torque guarantees tight and permanent fit of the dome nut
- Gas tight and watertight

Applications: Machines and devices



## PG Thread

Outer Thread	Clamping Range mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
PG 7	1.5-5	5309 107/SET	5309 207/SET	50
PG 7	2.5-6.5	5308 707/SET	5308 507/SET	50
PG 9	1.5-6	5309 109/SET	5309 209/SET	50
PG 9	2.5-8	5308 709/SET	5308 509/SET	50
PG 11	2-7	5309 111/SET	5309 211/SET	50
PG 11	3.5-10	5308 711/SET	5308 511/SET	50
PG 13.5	3-9	5309 113/SET	5309 213/SET	50
PG 13.5	5-12	5308 713/SET	5308 513/SET	50
PG 16	5-12	5309 116/SET	5309 216/SET	50
PG 16	7-14	5308 716/SET	5308 516/SET	50
PG 21	7-16	5309 121/SET	5309 221/SET	25
PG 21	9-18	5308 729/SET	5308 521/SET	25
PG 29	11-21	5309 129/SET	5309 229/SET	20



Temperature Range
-40 to 100°C (-40 to 212°F)

## Dimensions

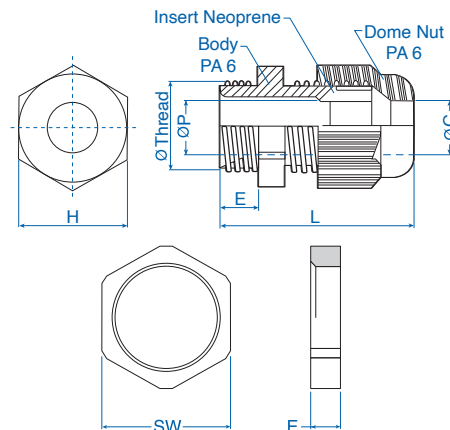
Thread Size	H mm	E mm	L mm	ØC mm	ØP mm	ØThread mm	Locknut	
							SW mm	E mm
PG7	15	8	32	6.7	6.8	12.5	19	5
PG9	19	8	35	8.5	8.7	15.2	22	5
PG11	22	8	37	10.5	10.5	18.6	24	5
PG13.5	24	9	39	12.5	12.5	20.4	27	6
PG16	27	10	43	14.5	14.5	22.5	30	6
PG21	33	11	50	18.5	18.5	28.3	36	6.5
PG29	42	11	53	25.5	25.5	37.0	46	7.5
NPT 3/8"	19	11	38	8.5	8.7	17.1	22	5
NPT 1/2"	24	14	44	12.5	12.5	21.2	27	6
NPT 3/4"	33	15	54	18.5	18.5	26.7	36	6.5
NPT 1"	42	18	60	25.5	25.5	33.3	41	7
M12x1.5	15	8	32	6.7	6.8	12.0	19	5
M16x1.5/9	19	10	37	8.5	8.5	16.0	22	5
M16x1.5/11	22	10	39	10.5	10.5	16.0	22	5
M20x1.5/13	24	10	40	12.5	12.5	20.0	24	5
M20x1.5/16	27	10	43	14.5	14.5	20.0	24	5
M25x1.5/16	27	10	45	14.5	14.5	25.0	30	6
M25x1.5/21	33	10	49	18.5	18.5	25.0	30	6
M32x1.5	42	10	52	25.5	25.5	32.0	38	7.5

## NPT Thread

Outer Thread	Clamping Range mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
NPT 3/8"	1.5-6	5308 904/SET	5308 924/SET	50
NPT 3/8"	2.5-8	5308 900/SET	5308 920/SET	50
NPT 1/2"	3-9	5308 905/SET	5308 925/SET	50
NPT 1/2"	5-12	5308 901/SET	5308 921/SET	50
NPT 3/4"	7-16	5308 906/SET	5308 926/SET	20
NPT 3/4"	9-18	5308 902/SET	5308 922/SET	20
NPT 1"	11-21	5308 907/SET	5308 927/SET	20
NPT 1"	14-25	5308 903/SET	5308 923/SET	20

## Metric Thread

Outer Thread	Clamping Range mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
M 12 x 1.5	1.5-5	5309 612/SET	5309 712/SET	50
M 12 x 1.5	2.5-6.5	5308 950/SET	5308 940/SET	50
M 16 x 1.5/9	1.5-6	5309 615/SET	5309 715/SET	50
M 16 x 1.5/11	2-7	5309 616/SET	5309 716/SET	50
M 16 x 1.5/9	2.5-8	5308 958/SET	5308 948/SET	50
M 16 x 1.5/11	3.5-10	5308 951/SET	5308 941/SET	50
M 20 x 1.5/13	3-9	5309 619/SET	5309 719/SET	50
M 20 x 1.5/16	5-12	5309 620/SET	5309 720/SET	50
M 20 x 1.5/13	5-12	5308 959/SET	5308 949/SET	50
M 20 x 1.5/16	7-14	5308 952/SET	5308 942/SET	50
M 25 x 1.5/16	5-12	5309 624/SET	5309 724/SET	50
M 25 x 1.5/21	7-16	5309 625/SET	5309 725/SET	25
M 25 x 1.5/16	7-14	5308 960/SET	5308 962/SET	50
M 25 x 1.5/21	9-18	5308 953/SET	5308 943/SET	25
M 32 x 1.5	11-21	5309 632/SET	5309 732/SET	20
M 32 x 1.5	14-25	5308 954/SET	5308 944/SET	20



**Material:**

- Body: Nickel-plated brass
- Seal: Neoprene
- Clamping insert: Polyamide 6
- Sealing ring for outer thread: Nitril

**Technical properties:**

- Seal rings included for PG and Metric sizes
- Maximum strain relief through clamp range
- Gas tight and watertight



**PG Thread\***

Outer thread	Clamping range mm	Cat. No.	Std. Pk.
PG 7	1.5-5	4220351	50
PG 7	2.5-6.5	4220307	50
PG 9	2.5-7	4220352	50
PG 9	4-9.5	4220309	50
PG 11	3-8.5	4220353	50
PG 11	6-11.5	4220311	50
PG 13.5	4-10	4220354	50
PG 13.5	7-13	4220313	50
PG 16	5-12	4220355	50
PG 16	8-15	4220316	50
PG 21	8-16	4220356	20
PG 21	11-19	4220321	20
PG 29	11-21	4220357	20
PG 29	16-26	4220329	20
PG 36	16-28	4220358	10
PG 36	22-34.5	4220336	10
PG 42	22-34	4220359	5
PG 42	27-40	4220342	5
PG 48	28-40	4220360	5
PG 48	35-48	4220348	5



Temperature Range
-40 to 100°C (-40 to 212°F)

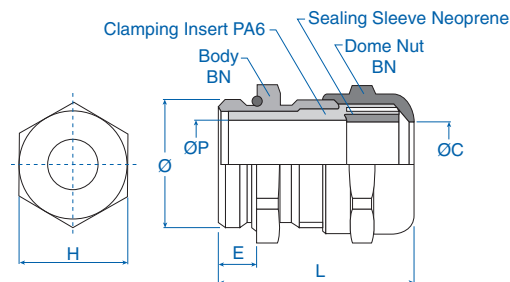
Thread Size	Dimensions					
	H mm	E mm	L mm	ØC mm	ØP mm	ØThread mm
PG7	14	5	25	6	6.6	12.5
PG9	17	6	29	9.7	10	15.2
PG11	20	6	30	11.7	12	18.6
PG13.5	22	6.5	32.5	13.2	13.5	20.4
PG16	24	6.5	34	15.2	15.5	22.5
PG21	30	7	35	19.5	19.5	28.3
PG29	40	8	38	26	26.5	37
PG36	50	9	42	34.5	35	47
PG42	58	10	47	40.5	41	54
PG48	65	10	54	48.5	50	59.3
NPT 3/8"	18	15	38	9.7	10	17.1
NPT 1/2"	23	20	46	13.2	13.5	21.2
NPT 3/4"	28	20	48	16.2	16.5	26.7
NPT 1"	36	25	55	21.5	22	33.3
M12x1.5	14	5	25	6.6	6.6	12
M16x1.5	17	5	28	9.7	10	16
M20x1.5	22	6	32	13.2	13.5	20
M25x1.5	27	7	35	16.2	16.5	25
M32x1.5	34	8	38	21.5	22	32
M40x1.5	42	8	41	27.5	28	40
M50x1.5	55	9	46	35.5	36	50
M63x1.5	65	10	54	48.5	50	63

**NPT Thread**

Outer thread	Clamping range mm	Cat. No.	Std. Pk.
NPT 3/8"	2.5-7	4220810	50
NPT 3/8"	4-9.5	4220800	50
NPT 1/2"	4-10	4220811	50
NPT 1/2"	7-13	4220801	50
NPT 3/4"	5-13	4220812	20
NPT 3/4"	8-16	4220802	20
NPT 1"	7-17	4220813	5
NPT 1"	11-21	4220803	5

**Metric Thread\***

Outer thread	Clamping range mm	Cat. No.	Std. Pk.
M 12 x 1.5	1.5-5	4220712	100
M 12 x 1.5	2.5-6.5	4220612	100
M 16 x 1.5	2.5-7	4220716	50
M 16 x 1.5	4-9.5	4220616	50
M 20 x 1.5	4-10	4220720	50
M 20 x 1.5	7-13	4220620	50
M 25 x 1.5	5-13	4220725	25
M 25 x 1.5	8-16	4220625	25
M 32 x 1.5	7-17	4220732	20
M 32 x 1.5	11-21	4220632	20
M 40 x 1.5	10-22	4220740	10
M 40 x 1.5	15-27	4220640	10
M 50 x 1.5	17-29	4220750	5
M 50 x 1.5	22-35	4220650	5
M 63 x 1.5	28-40	4220763	5
M 63 x 1.5	35-48	4220663	5



**This is one of our most popular series and is usually kept in stock.**

\* Extended thread available consult Altech

Locknuts sold separately, see page 25.



# Cable Gland *Standard Straight-Through - Stainless Steel*

## Material:

- Body: Stainless Steel 1.4404 / INOX 316L
- Seal: Neoprene
- Clamping insert: Polyamide 6
- Sealing ring for outer thread: Nitril

## Technical properties:

- Seal rings included
- Maximum strain relief through clamp range
- Gas tight- and watertight



## Metric Thread

M 12 x 1.5	1.5-5	4220860	100
M 12 x 1.5	4.5-6.5	4220850	100
M 16 x 1.5	2.5-7	4220861	50
M 16 x 1.5	5-9.5	4220851	50
M 20 x 1.5	4-10	4220862	50
M 20 x 1.5	8-13	4220852	50
M 25 x 1.5	5-13	4220863	25
M 25 x 1.5	9-16	4220853	25
M 32 x 1.5	7-17	4220864	20
M 32 x 1.5	12-21	4220854	20
M 40 x 1.5	10-22	4220865	10
M 40 x 1.5	16-27	4220855	10
M 50 x 1.5	17-29	4220866	5
M 50 x 1.5	23-35	4220856	5
M 63 x 1.5	28-40	4220867	5
M 63 x 1.5	36-48	4220857	5

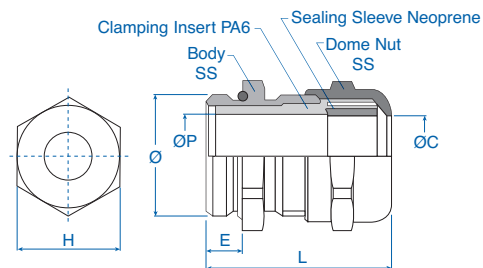
PROTECTION  
**IP68**  
RATING

## Temperature Range

-25 to 100°C  
(-13 to 212°F)

## Dimensions

Thread Size	H mm	E mm	L mm	ØC mm	ØP mm	ØThread mm
M12x1.5	14	5	25	6.6	6.6	12
M16x1.5	17	5	28	9.7	10	16
M20x1.5	22	6	32	13.2	13.5	20
M25x1.5	27	7	35	16.2	16.5	25
M32x1.5	34	8	38	21.5	22	32
M40x1.5	42	8	41	27.5	28	40
M50x1.5	55	9	46	35.5	36	50
M63x1.5	65	10	54	48.5	50	63



*Locknuts sold separately, see page 24.*

## Flat Head Sealing

**Material:**

- EPDM, black

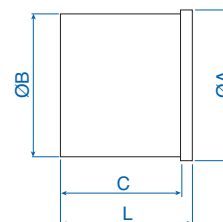
**Features:**

- For sealing cable gland entries when cables are not being installed.
- Insert into cable gland and tighten gland to seal.



Suitable for	ØA mm	ØB mm	C mm	L mm	Cat. No.	Std. Pk.
PG 9, PG 11, M 16, NPT 3/8	11.0	8.0	17.0	20.0	<b>7217701</b>	100
PG 13.5, PG 16, M 20, NPT 1/2	15.0	12.0	18.0	21.0	<b>7217702</b>	100
PG 21, M 25, NPT 3/4	18.0	15.0	19.0	22.0	<b>7217703</b>	100

Temperature Range
-40 to 130°C (-40 to 266°F)



## Multi-Conductor Sealing

**Material:**

- Neoprene, black

**Features:**

- Standard Straight-Through Polyamide Series
- Delivered separate, replaces sealing sleeve provided with gland

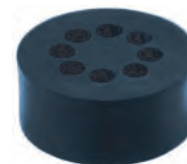
Suitable for	Hole Quantity	Hole Ø mm	ØA mm	B mm	Cat. No.	Std. Pk.
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**Multi-Conductor Seal**

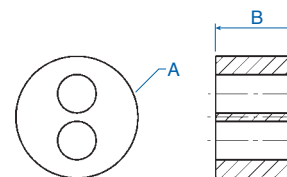
PG 11/ M 16	2	4.0	13.0	8.0	<b>8114200</b>	100
PG 16/ M 20	2	5.0	17.0	10.0	<b>8114203</b>	100
PG 16/ M 20	2	6.0	17.0	10.0	<b>8114201</b>	100
PG 16/ M 20	4	5.0	17.0	10.0	<b>8114202</b>	100
PG 21/ M 25	2	6.0	22.5	11.5	<b>8114204</b>	100
PG 21/ M 25	2	8.0	22.5	11.5	<b>8114208</b>	100
PG 21/ M 25	3	7.0	22.5	11.5	<b>8114205</b>	100
PG 21/ M 25	4	6.5	22.5	11.5	<b>8114206</b>	100
PG 21/ M 25	6	4.0	22.5	11.5	<b>8114207</b>	100
PG 29/ M 32	4	6.0	30.5	13.0	<b>8114212</b>	100
PG 29/ M 32	4	8.0	30.5	13.0	<b>8114209</b>	100
PG 29/ M 32	6	6.0	30.5	13.0	<b>8114210</b>	100
PG 29/ M 32	8	4.0	30.5	13.0	<b>8114211</b>	100

**Solid Sealing without holes**

PG 11/ M 16	—	—	13.0	8.0	<b>8114250</b>	100
PG 16/ M 20	—	—	17.0	10.0	<b>8114251</b>	100
PG 21/ M 25	—	—	22.5	11.5	<b>8114252</b>	100
PG 29/ M 32	—	—	30.5	13.0	<b>8114253</b>	100



Temperature Range
-25 to 100°C (-13 to 212°F)



**This is one of our most popular series and is usually kept in stock.**



# Cable Gland *Industrial Straight-Through - Polyamide*

## Material:

- Body: Polyamide PA 6  
25 % Glass-fiber Reinforced
- Seal: Tefabloc
- ECA clamping ring: Polycarbonate

## Characteristics:

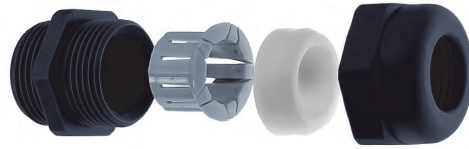
- PG/metric thread
- ECA clamping ring
- Extended thread available

## Technical properties:

- Strain relief through clamping ring
- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations

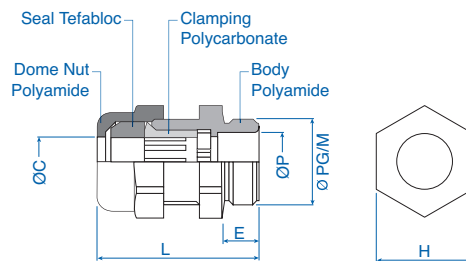


## ECA Clamping Ring Polyamide

Outer thread	Clamping range mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
<b>PG</b>				
PG 7	3-6	5313610	5313620	50
PG 9	5-8	5313611	5313621	50
PG 11	6-10	5313612	5313622	50
PG 13.5	8-12	5313613	5313623	50
PG 16	10-14	5313614	5313624	50
PG 21	11.5-18	5313615	5313625	20
PG 29	15-24	5313616	5313626	20
<b>Metric</b>				
M 16 x 1.5	5-8	5313640	5313650	50
M 20 x 1.5/13	8-12	5313641	5313651	50
M 20 x 1.5/16	10-14	5313644	5313654	50
M 25 x 1.5	11.5-18	5313642	5313652	20
M 32 x 1.5	15-24	5313643	5313653	20



**Temperature Range**  
-30 to 120°C  
(-22 to 248°F)



Thread Size	Dimensions					
	H mm	E mm	L mm	ØC mm	ØP mm	ØPG/M mm
PG7	15	8	31	6.5	7.0	12.5
PG9	19	8	32	8.5	9.0	15.2
PG11	22	8	35	11.5	11.0	18.6
PG13.5	24	9	36	12.5	13.5	20.4
PG16	27	10	40	14.5	15.0	22.5
PG21	33	11	44	18.5	19.0	28.3
PG29	42	12	55	25.0	25.0	37.0
M 16x1.5	19	8	32	8.5	9.0	16.0
M 20x1.5/13	24	9	36	12.5	13.5	20.0
M 20x1.5/16	27	9	39	14.5	15.0	20.0
M 25x1.5	33	11	44	18.5	19.0	25.0
M 32x1.5	42	12	55	25.0	25.0	32.0

*Locknuts and seal rings sold separately, see pages 24 and 35.*

# Cable Gland Industrial Flat Cable - Polyamide

### Material:

- Body: Polyamide PA 6  
25 % Glass-fiber Reinforced
- Seal: Tefabloc

### Characteristics:

- PG/metric thread
- Seal for flat cable round, angular, oval

### Technical properties:

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

### Applications:

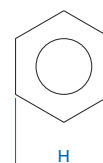
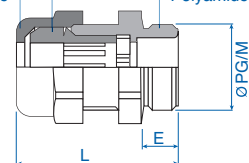
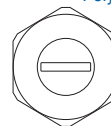
- Machines and devices
- Measuring and control engineering
- Plant installations



Seal Tefabloc

Dome Nut Polyamide

Body Polyamide



Temperature Range
-30 to 120°C (-22 to 248°F)

Flat Cable, Rounded

Flat Cable, Oval

Outer thread	Clamping range mm	Cat. No. Light Grey	Cat. No. Black	Clamping range mm	Cat. No. Light Grey	Cat. No. Black	H mm	E mm	L mm	Std. Pk.
<b>PG</b>										
PG 9	3.5 x 5.5	5320300	5320500				19	8	28	50
PG 11	2.8 x 10.5	5320305	5320505				22	8	30	50
PG 11	3.5 x 9	5320306	5320506				22	8	30	50
PG 11	4 x 6	5320307	5320507				22	8	30	50
PG 13.5	3 x 12	5320310	5320510	5 x 8	5320375	5320575	24	9	30	50
PG 13.5	5 x 11	5320311	5320511	5 x 12	5320376	5320576	24	9	30	50
PG 16	5 x 12	5320315	5320515	5 x 12	5320380	5320580	27	10	33	50
PG 16	5 x 16	5320316	5320516	5 x 15	5320382	5320582	33	10	36	50
PG 16	7.5 x 14	5320317	5320517	5.5 x 8.5	5320381	5320581	27	10	33	50
PG 16				6 x 15	5320383	5320583	33	10	36	50
PG 16	8 x 12*	5320351	5320551	7 x 14	5320384	5320584	27	10	33	50
PG 21	4 x 15*	5320355	5320555				33	11	37	20
PG 21	5 x 17	5320320	5320520	5 x 16	5320385	5320585	33	11	37	20
PG 21	7 x 18	5320321	5320521	7 x 16.5	5320386	5320586	33	11	37	20
PG 21				7 x 20	5320387	5320587	42	11	38	20
PG 21	9 x 15	5320322	5320522				33	11	37	20
PG 29	6 x 26*	5320360	5320560				55	12	50	20
PG 29	6 x 29	5320325	5320525				55	12	50	20
PG 29	7 x 26*	5320361	5320561				55	12	50	20
PG 29	8 x 25	5320326	5320526				42	12	44	20
PG 29	10 x 25	5320327	5320527				42	12	44	20
PG 29	13 x 28	5320328	5320528	10 x 27	5320390	5320590	55	12	50	20
PG 36	5 x 36*	5320365	5320565				55	18	56	20
PG 36	6 x 30	5320330	5320530	6.5 x 32	5320393	5320593	55	18	56	20
PG 36	6 x 36	5320331	5320531				55	18	56	20
PG 36	8 x 30*	5320366	5320566				55	18	56	20
PG 36	8 x 36	5320332	5320532				55	18	56	20
PG 36	11 x 34	5320333	5320533	11 x 35	5320394	5320594	55	18	56	20
PG 36	12 x 35	5320334	5320534				55	18	56	20
PG 42	5.5 x 37	5320370	5320570				65	18	60	20
PG 42	6 x 39	5320371	5320571	6 x 41	5320396	5320596	65	18	60	20
PG 42	10 x 38	5320335	5320535	9 x 38	5320397	5320597	65	18	60	20
PG 42	13 x 35	5320336	5320536				65	18	60	20
PG 42	14 x 37	5320337	5320537				65	18	60	20
PG 48	6.5 x 47	5320342	5320542				70	18	60	20
PG 48	9 x 43	5320343	5320543				70	18	60	20
PG 48	14.5 x 39	5320344	5320544				70	18	60	20
PG 48	15 x 45	5320345	5320545				70	18	60	20
<b>Metric</b>										
M 16 x 1.5	3.5 x 5.5	5320710	5320810				19	8	32	50
M 20 x 1.5	3 x 12	5320715	5320815	5 x 8	5320770	5320870	24	9	36	50
M 20 x 1.5	5 x 11	5320716	5320816	5 x 12	5320771	5320871	24	9	36	50
M 20 x 1.5	5 x 12	5320717	5320817	5.5 x 8.5	5320772	5320872	27	9	39	50
M 20 x 1.5	7.5 x 14	5320718	5320818	7 x 14	5320773	5320873	27	9	39	50
M 20 x 1.5	8 x 12*	5320785	5320885				27	9	39	50
M 25 x 1.5	4 x 15*	5320786	5320886	5 x 15	5320774	5320874	33	11	44	20
M 25 x 1.5	5 x 16	5320720	5320820	5 x 16	5320775	5320875	33	11	44	20
M 25 x 1.5	5 x 17	5320721	5320821	6 x 15	5320776	5320876	33	11	44	20
M 25 x 1.5	7 x 18	5320722	5320822	7 x 16.5	5320777	5320877	33	11	44	20
M 25 x 1.5	9 x 15	5320723	5320823				33	11	44	20
M 32 x 1.5	8 x 25	5320730	5320830	7 x 20	5320780	5320880	42	12	55	20
M 32 x 1.5	10 x 25	5320731	5320831				42	12	55	20

\* Flat Cable, angular

Locknuts and seal rings sold separately, see pages 24 and 35.



# Cable Gland Industrial Multi-Conductor (PG) - Polyamide

## Material:

- Body: Polyamide PA 6  
25 % Glass-fiber Reinforced
- Seal: Tefabloc

## Characteristics:

- PG thread
- Multi-holed seal inserts

## Temperature Range

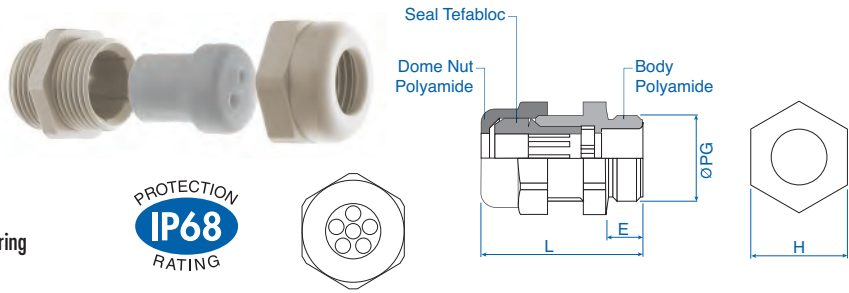
-30 to 120°C  
(-22 to 248°F)

## Technical properties:

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations



Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
PG 7	1	4	15	8	31	5315800	5315600	50
PG 7	1	5	15	8	31	5315801	5315601	50
PG 9	1	5	19	8	32	5315810	5315610	50
PG 9	2	1	19	8	32	5315811	5315611	50
PG 9	2	3	19	8	32	5315812	5315612	50
PG 9	2	3.5	19	8	32	5315813	5315613	50
PG 9	2	4	19	8	32	5315814	5315614	50
PG 9	3	3	19	8	32	5315815	5315615	50
PG 9	4	3	22	8	34	5315816	5315616	50
PG 9	4	4	22	8	34	5315817	5315617	50
PG 11	2	2.3	24	8	35	5315820	5315620	50
PG 11	2	3	24	8	35	5315821	5315621	50
PG 11	2	3.5	24	8	35	5315110	5315500	50
PG 11	2	4	24	8	35	5315822	5315622	50
PG 11	2	5	24	8	35	5315111	5315501	50
PG 11	2	6	27	8	38	5315112	5315502	50
PG 11	3	3	24	8	35	5315823	5315623	50
PG 11	3	3.5	24	8	35	5315113	5315503	50
PG 11	3	4	24	8	35	5315824	5315624	50
PG 11	3	5	27	8	38	5315114	5315504	50
PG 11	3	5.3	24	8	36	5315825	5315625	50
PG 11	4	1.5	24	8	35	5315826	5315626	50
PG 11	4	3.5	24	8	35	5315827	5315627	50
PG 11	6	2	24	8	35	5315828	5315628	50
PG 11	6	2.5	24	8	35	5315829	5315629	50
PG 13.5	2	3	24	9	36	5315830	5315630	50
PG 13.5	2	5	24	9	36	5315831	5315631	50
PG 13.5	2	6	24	9	36	5315130	5315510	50
PG 13.5	3	2	24	9	36	5315832	5315632	50
PG 13.5	3	3	24	9	36	5315833	5315633	50
PG 13.5	3	4	24	9	36	5315834	5315634	50
PG 13.5	3	5.3	24	9	36	5315835	5315635	50
PG 13.5	3	6	27	9	38	5315836	5315636	50
PG 13.5	4	3	24	9	36	5315837	5315637	50
PG 13.5	4	4	24	9	36	5315838	5315638	50
PG 13.5	4	5	27	9	38	5315839	5315639	50
PG 13.5	4	5.3	27	9	38	5315840	5315640	50
PG 13.5	6	3.5	24	9	36	5315841	5315641	50
PG 13.5	10	2	24	9	36	5315842	5315642	50
PG 16	2	4	27	10	40	5315850	5315650	50
PG 16	2	5	27	10	40	5315851	5315651	50
PG 16	2	6	27	10	40	5315852	5315652	50
PG 16	2	7	27	10	40	5315160	5315515	50
PG 16	2	8	33	10	42	5315853	5315653	50
PG 16	2	9	33	10	42	5315854	5315654	50
PG 16	3	3	27	10	40	5315855	5315655	50
PG 16	3	4	27	10	40	5315856	5315656	50
PG 16	3	5	27	10	40	5315857	5315657	50
PG 16	3	5.6	27	10	40	5315858	5315658	50
PG 16	3	6	27	10	40	5315859	5315659	50
PG 16	3	7	33	10	42	5315860	5315660	50
PG 16	3	8	33	10	42	5315861	5315661	50

Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
PG 16	4	4	27	10	40	5315862	5315662	50
PG 16	4	5	33	10	42	5315863	5315663	50
PG 16	4	6	33	10	42	5315864	5315664	50
PG 16	5	4	27	10	40	5315865	5315665	50
PG 16	5	5	27	10	40	5315866	5315666	50
PG 16	6	4	27	10	40	5315867	5315667	50
PG 16	7	4	33	10	42	5315868	5315668	50
PG 21	2	4.5	33	11	44	5315869	5315669	20
PG 21	2	8	33	11	44	5315870	5315670	20
PG 21	2	8.7	42	11	48	5315871	5315671	20
PG 21	2	9	42	11	48	5315872	5315672	20
PG 21	2	11	42	11	48	5315873	5315673	20
PG 21	3	7	33	11	44	5315210	5315520	20
PG 21	3	8	33	11	44	5315211	5315521	20
PG 21	3	9	42	11	48	5315874	5315674	20
PG 21	4	5	33	11	44	5315875	5315675	20
PG 21	4	6	33	11	44	5315212	5315522	20
PG 21	4	7.5	42	11	48	5315876	5315676	20
PG 21	4	8	42	11	48	5315213	5315523	20
PG 21	5	5	33	11	44	5315877	5315677	20
PG 21	5	6	33	11	44	5315214	5315524	20
PG 21	5	6.5	33	11	44	5315215	5315525	20
PG 21	6	4	42	11	48	5315878	5315678	20
PG 21	6	5	33	11	44	5315879	5315679	20
PG 21	6	6	42	11	48	5315216	5315526	20
PG 21	6	6.5	42	11	48	5315217	5315527	20
PG 21	6	7	42	11	48	5315218	5315528	20
PG 21	7	6	42	11	48	5315219	5315529	20
PG 21	8	4	33	11	44	5315880	5315680	20
PG 21	8	5	33	11	44	5315220	5315530	20
PG 21	11	5	42	11	48	5315221	5315531	20
PG 21	21	2	33	11	44	5315881	5315681	20
PG 21	28	3	42	11	48	5315222	5315532	20
PG 29	2	9	42	12	48	5315289	5315690	20
PG 29	2	11	42	12	48	5315891	5315691	20
PG 29	2	12	42	12	48	5315892	5315692	20
PG 29	3	9	42	12	48	5315893	5315693	20
PG 29	3	11	42	12	48	5315894	5315694	20
PG 29	4	8	42	12	48	5315290	5315540	20
PG 29	4	9	42	12	48	5315895	5315695	20
PG 29	4	10	42	12	48	5315896	5315696	20
PG 29	6	6	42	12	48	5315897	5315697	20
PG 29	6	6.5	42	12	48	5315292	5315542	20
PG 29	6	7	42	12	48	5315293	5315543	20
PG 29	7	6	42	12	48	5315294	5315544	20
PG 29	7	7	42	12	48	5315898	5315698	20
PG 29	8	5	42	12	48	5315899	5315699	20
PG 29	8	6	42	12	48	5315295	5315545	20
PG 29	10	6	42	12	48	5315900	5315700	20
PG 29	11	5	42	12	48	5315296	5315546	20
PG 29	28	3	42	12	48	5315297	5315547	20

Locknuts and seal rings sold separately, see pages 24 and 35.

**Material:**

- Body: Polyamide PA 6  
25 % Glass-fiber Reinforced
- Seal: Tefabloc

**Characteristics:**

- Metric thread
- Multi-holed seal inserts

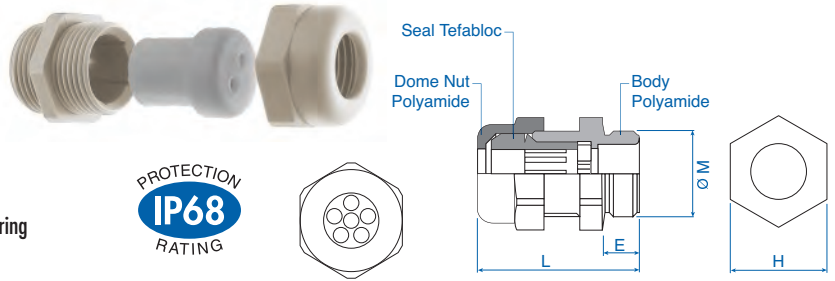
<b>Temperature Range</b>
-30 to 120°C (-22 to 248°F)

**Technical properties:**

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

**Applications:**

- Machines and devices
- Measuring and control engineering
- Plant installations



Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.	Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No. Light Grey	Cat. No. Black	Std. Pk.
M 16 x 1.5	2	1	19	8	32	5316100	5318100	50	M 25 x 1.5	4	6	33	11	44	5316305	5318305	20
M 16 x 1.5	2	3	19	8	32	5316101	5318101	50	M 25 x 1.5	5	5	33	11	44	5316306	5318306	20
M 16 x 1.5	2	3.5	19	8	32	5316102	5318102	50	M 25 x 1.5	5	6	33	11	44	5316307	5318307	20
M 16 x 1.5	2	4	19	8	32	5316103	5318103	50	M 25 x 1.5	5	6.5	33	11	44	5316308	5318308	20
M 16 x 1.5	3	3	19	8	32	5316104	5318104	50	M 25 x 1.5	6	4	33	11	44	5316309	5318309	20
M 20 x 1.5	2	3	24	9	36	5316200	5318200	50	M 25 x 1.5	6	5	33	11	44	5316310	5318310	20
M 20 x 1.5	2	4	27	9	39	5316201	5318201	50	M 25 x 1.5	8	4	33	11	44	5316311	5318311	20
M 20 x 1.5	2	5	27	9	39	5316202	5318202	50	M 25 x 1.5	8	5	33	11	44	5316312	5318312	20
M 20 x 1.5	2	6	27	9	39	5316203	5318203	50	M 25 x 1.5	21	2	33	11	44	5316313	5318313	20
M 20 x 1.5	2	7	27	9	39	5316204	5318204	50	M 32 x 1.5	2	9	42	12	55	5316400	5318400	20
M 20 x 1.5	3	2	24	9	36	5316205	5318205	50	M 32 x 1.5	2	11	42	12	55	5316401	5318401	20
M 20 x 1.5	3	3	27	9	39	5316206	5318206	50	M 32 x 1.5	2	12	42	12	55	5316402	5318402	20
M 20 x 1.5	3	4	27	9	39	5316207	5318207	50	M 32 x 1.5	3	9	42	12	55	5316403	5318403	20
M 20 x 1.5	3	5	27	9	39	5316208	5318208	50	M 32 x 1.5	3	11	42	12	55	5316404	5318404	20
M 20 x 1.5	3	5.6	27	9	39	5316209	5318209	50	M 32 x 1.5	4	8	42	12	55	5316405	5318405	20
M 20 x 1.5	3	6	27	9	39	5316210	5318210	50	M 32 x 1.5	4	9	42	12	55	5316406	5318406	20
M 20 x 1.5	4	3	24	9	36	5316211	5318211	50	M 32 x 1.5	4	10	42	12	55	5316407	5318407	20
M 20 x 1.5	4	4	27	9	39	5316212	5318212	50	M 32 x 1.5	6	6	42	12	55	5316408	5318408	20
M 20 x 1.5	5	4	27	9	39	5316213	5318213	50	M 32 x 1.5	6	6.5	42	12	55	5316409	5318409	20
M 20 x 1.5	5	5	27	9	39	5316214	5318214	50	M 32 x 1.5	6	7	42	12	55	5316410	5318410	20
M 20 x 1.5	6	3.5	24	9	36	5316215	5318215	50	M 32 x 1.5	7	6	42	12	55	5316411	5318411	20
M 20 x 1.5	6	4	27	9	39	5316216	5318216	50	M 32 x 1.5	7	7	42	12	55	5316412	5318412	20
M 20 x 1.5	10	2	24	9	36	5316217	5318217	50	M 32 x 1.5	8	5	42	12	55	5316413	5318413	20
M 25 x 1.5	2	4.5	33	11	44	5316300	5318300	20	M 32 x 1.5	8	6	42	12	55	5316414	5318414	20
M 25 x 1.5	2	8	33	11	44	5316301	5318301	20	M 32 x 1.5	10	6	42	12	55	5316415	5318415	20
M 25 x 1.5	3	7	33	11	44	5316302	5318302	20	M 32 x 1.5	11	5	42	12	55	5316416	5318416	20
M 25 x 1.5	3	8	33	11	44	5316303	5318303	20	M 32 x 1.5	28	3	42	12	55	5316417	5318417	20
M 25 x 1.5	4	5	33	11	44	5316304	5318304	20									

Locknuts and seal rings sold separately, see pages 24 and 35.



# Cable Gland *Industrial Straight-Through - PVDF*

## Material:

- Body: Polyvinylidene fluoride
- Seal: Santoprene
- ECA clamping ring: Polycarbonate

## Characteristics:

- Metric thread
- ECA clamping ring

## Temperature Range

-40 to 120°C  
(-40 to 248°F)

## Technical properties:

- No halogen
- Strain relief through clamping ring
- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts
- Chemical resistant

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations
- Food sector



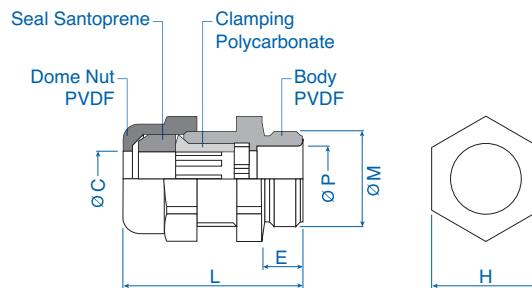
## Metric Thread

### ECA

Outer thread	Clamping range mm	Cat. No.	Std. Pk.
M 16 x 1.5	5-8	5330016	50
M 20 x 1.5/13	8-12	5330020	50
M 20 x 1.5/16	10-14	5330021	50
M 25 x 1.5	11.5-18	5330025	20
M 32 x 1.5	15-24	5330032	20

### Dimensions

Thread Size	H mm	E mm	L mm	ØC mm	ØP mm	ØM mm
M 16x1.5	19	15	39	8.5	9	16
M 20x1.5/13	24	15	42	12.5	13.5	20
M 20x1.5/16	27	15	45	14.5	15	20
M 25x1.5	33	15	48	18.5	19	25
M 32x1.5	42	15	58	25	25	32



*Locknuts and seal rings sold separately, see pages 24 and 35.*

**Material:**

- Body: Nickel-plated brass
- Seal: Tefabloc
- ECA clamping ring: Polycarbonate
- Sealing ring for outer thread: Nitril

**Characteristics:**

- PG/Metric thread
- Extended Thread available

**Temperature Range**

-25 to 120°C  
(-13 to 248°F)

**Technical properties:**

- Strain relief through clamping ring
- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

**Applications:**

- Machines and devices
- Measuring and control engineering
- Plant installations

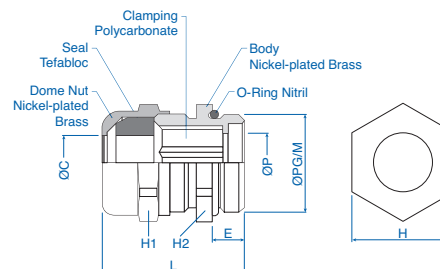


## ECA Clamping Ring Nickel-Plated Brass

**ECA**

Outer thread	Clamping range mm	Cat. No.	Std. Pk.
<b>PG</b>			
PG 7	3-6	4221079	50
PG 9	5-8	4221095	50
PG 11	6-10	4221117	50
PG 13.5	8-12	4221133	50
PG 16	9.5-14	4221168	20
PG 21	11.5-18	4221214	20
PG 29	15-24	4221290	20
PG 36*	23-30	4221362	10
PG 42*	26-35	4221427	5
PG 48*	35-40	4221486	5
<b>Metric</b>			
M 12 x 1.5	3-6	4221714	50
M 16 x 1.5/7	3-6	4221716	50
M 16 x 1.5/9	5-8	4221717	50
M 20 x 1.5/11	6-10	4221720	50
M 20 x 1.5/13	8-12	4221721	50
M 25 x 1.5/16	9.5-14	4221725	20
M 25 x 1.5/21	11.5-18	4221726	20
M 32 x 1.5/21	11.5-18	4221732	10
M 32 x 1.5/29	15-24	4221733	10
M 40 x 1.5	15-24	4221740	5
M 50 x 1.5*	23-30	4221750	5
M 63 x 1.5*	26-35	4221760	5

Thread Size	Dimensions				ØC mm	ØP mm	ØPG/M mm
	H1 mm	H2 mm	E mm	L mm			
PG7	14	14	5	24	6.5	7.2	12.5
PG9	17	17	6	25	8.5	9.2	15.2
PG11	20	20	6	26	10.5	11.2	18.6
PG13.5	22	22	6.5	28	12.5	13.1	20.4
PG16	24	24	6.5	30	15.2	15.6	22.5
PG21	30	30	7	35	18.5	20.1	28.3
PG29	40	40	8	43	25.0	26.2	37.0
PG36	50	50	9	50	30.5	33.0	47.0
PG42	58	58	10	57	35.5	40.0	54.0
PG48	64	64	10	59	40.5	47.5	59.3
M 12x1.5	14	14	7	27	6.5	7.2	12
M 16x1.5/7	14	17	7	27	6.5	7.2	16
M 16x1.5/9	17	17	7	27	8.5	9.2	16
M 20x1.5/11	20	22	7	28	10.5	11.2	20
M 20x1.5/13	22	22	7	29	12.5	13.1	20
M 25x1.5/16	24	26	8	31	15.2	15.6	25
M 25x1.5/21	30	30	8	37	18.5	20.1	25
M 32x1.5/21	30	33	8.5	38	18.5	20.1	32
M 32x1.5/29	40	40	8.5	45	25.0	26.2	32
M 40x1.5	40	42	8.5	45	25.0	26.2	40
M 50x1.5	50	55	9.5	51	30.5	33.0	50
M 63x1.5	58	70	10.5	58	30.5	40.0	63



\*Clamping ring made of polyoxymethylene (POM), temperature range -30°C to +95°C (-22°F to 203°F).

Locknuts sold separately, see page 25.

# Cable Gland Industrial Flat Cable - Nickel-Plated Brass

## Material:

- Body: Nickel-Plated Brass
- Seal: Tefabloc
- Sealing ring for outer thread: Nitril

## Characteristics:

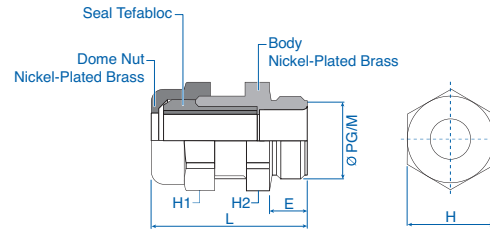
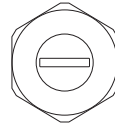
- PG/metric thread
- Seal for flat cable round, angular, oval
- Extended thread available

## Technical properties:

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations



## Temperature Range

-25 to 120°C  
(-13 to 248°F)



### Flat Cable, Rounded

### Flat Cable, Oval

Outer thread	Clamping range mm	Cat. No.	Clamping range mm	Cat. No.	H1 mm	H2 mm	E mm	L mm	Std. Pk.
<b>PG</b>									
PG 9	3.5 x 5.5	4224300			17	17	6	25	50
PG 11	2.8 x 10.5	4224305			20	20	6	26	50
PG 11	3.5 x 9	4224306			20	20	6	26	50
PG 11	4 x 6	4224307			20	20	6	26	50
PG 13.5	3 x 12	4224310	5 x 8	4224375	22	22	6.5	28	50
PG 13.5	5 x 11	4224311	5 x 12	4224376	22	22	6.5	28	50
PG 16	5 x 12	4224315	5 x 12	4224390	24	24	6.5	30	25
PG 16	7.5 x 14	4224317	5.5 x 8.5	4224380	24	24	6.5	30	25
PG 16	8 x 12*	4224351	6 x 10	4224382	24	24	6.5	30	25
PG 16			7 x 14	4224384	24	24	6.5	30	25
PG 16	5 x 16	4224316	5 x 15	4224381	30	30	6.5	35	20
PG 16			6 x 15	4224383	30	30	6.5	35	20
PG 21	5 x 17	4224320	5 x 16	4224385	30	30	7	35	20
PG 21	7 x 18	4224321	7 x 16.5	4224386	30	30	7	35	20
PG 21	9 x 15	4224322			30	30	7	35	20
PG 21	4 x 15*	4224355			30	30	7	35	20
PG 21			7 x 20	4224387	40	40	7	43	10
PG 29	8 x 25	4224326			40	40	8	43	10
PG 29	10 x 25	4224327			40	40	8	43	10
<b>Metric</b>									
M 16 x 1.5	3.5 x 5.5	4224700			17	17	7	27	50
M 20 x 1.5	2.8 x 10.5	4224705			20	22	7	28	50
M 20 x 1.5	3.5 x 9	4224706			20	22	7	28	50
M 20 x 1.5	4 x 6	4224707			20	22	7	28	50
M 20 x 1.5	3 x 12	4224710	5 x 8	4224775	22	22	7	29	50
M 20 x 1.5	5 x 11	4224711	5 x 12	4224776	22	22	7	29	50
M 25 x 1.5	5 x 12	4224715	5 x 12	4224790	24	26	8	31	20
M 25 x 1.5	7.5 x 14	4224717	5.5 x 8.5	4224780	24	26	8	31	20
M 25 x 1.5	8 x 12*	4224751	6 x 10	4224781	24	26	8	31	20
M 25 x 1.5			7 x 14	4224782	24	26	8	31	20
M 25 x 1.5	5 x 16	4224716	5 x 15	4224784	30	30	8	37	20
M 25 x 1.5	5 x 17	4224720	5 x 16	4224785	30	30	8	37	20
M 25 x 1.5	7 x 18	4224721	6 x 15	4224783	30	30	8	37	20
M 25 x 1.5	9 x 15	4224722	7 x 16.5	4224786	30	30	8	37	20
M 25 x 1.5	4 x 15*	4224755			30	30	8	37	20
M 32 x 1.5	8 x 25	4224726	7 x 20	4224787	40	33	8.5	38	10
M 32 x 1.5	10 x 25	4224727			40	33	8.5	38	10

\* Flat Cable, angular

Locknuts sold separately, see page 25.



# Cable Gland Industrial Multi-Conductor (PG) - Nickel-Plated Brass



### Material:

- Body: Nickel-Plated Brass
- Seal: Tefabloc
- Sealing ring for outer thread: Nitril

### Characteristics:

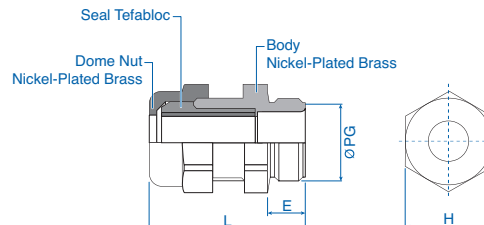
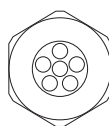
- PG thread
- Multi-holed seal inserts

### Technical properties:

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

### Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations



**Temperature Range**  
-25 to 120°C  
(-13 to 248°F)



Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No.	Std. Pk.	Outer thread	Hole Quantity	Hole diameter mm	H mm	E mm	L mm	Cat. No.	Std. Pk.
PG 7	1	4	14	5	24	4248640	50	PG 16	4	4	24	6.5	30	4248688	50
PG 7	1	5	14	5	24	4248641	50	PG 16	4	5	30	7	35	4248689	50
PG 9	1	5	17	6	25	4248642	50	PG 16	4	6	30	7	35	4248694	50
PG 9	2	1	17	6	25	4248643	50	PG 16	5	4	24	6.5	30	4248690	50
PG 9	2	3	17	6	25	4248644	50	PG 16	5	5	30	7	35	4248691	50
PG 9	2	3.5	17	6	25	4248645	50	PG 16	6	4	24	6.5	30	4248692	50
PG 9	2	4	17	6	25	4248646	50	PG 16	7	4	30	7	35	4248693	50
PG 9	3	3	17	6	25	4248647	50	PG 21	2	4.5	30	7	35	4248696	20
PG 9	4	3	20	6	26	4248648	50	PG 21	2	8	30	7	35	4248697	20
PG 9	4	4	20	6	26	4248649	50	PG 21	2	8.7	40	8	43	4248698	20
PG 11	2	2.3	20	6	26	4248650	50	PG 21	2	9	40	8	43	4248699	20
PG 11	2	3	20	6	26	4248651	50	PG 21	2	11	40	8	43	4248700	20
PG 11	2	3.5	20	6	26	4248405	50	PG 21	3	7	30	7	35	4248542	20
PG 11	2	4	20	6	26	4248652	50	PG 21	3	8	30	7	35	4248531	20
PG 11	2	5	20	6	26	4248660	50	PG 21	3	9	40	8	43	4248701	20
PG 11	2	6	24	6.5	30	4248661	50	PG 21	4	5	30	7	35	4248702	20
PG 11	3	3	20	6	26	4248653	50	PG 21	4	6	30	7	35	4248529	20
PG 11	3	3.5	20	6	26	4248407	50	PG 21	4	7.5	40	8	43	4248709	20
PG 11	3	4	20	6	26	4248654	50	PG 21	4	8	40	8	43	4248703	20
PG 11	3	5	24	6.5	30	4248662	50	PG 21	5	5	30	7	35	4248704	20
PG 11	3	5.3	22	6.5	28	4248655	50	PG 21	5	6	30	7	35	4248539	20
PG 11	4	1.5	20	6	26	4248656	50	PG 21	5	6.5	30	7	35	4248541	20
PG 11	4	3.5	20	6	26	4248657	50	PG 21	6	4	30	7	35	4248705	20
PG 11	6	2	20	6	26	4248658	50	PG 21	6	5	30	7	35	4248706	20
PG 11	6	2.5	20	6	26	4248659	50	PG 21	6	6	40	8	43	4248713	20
PG 13.5	2	3	22	6.5	28	4248663	50	PG 21	6	6.5	40	8	43	4248710	20
PG 13.5	2	5	22	6.5	28	4248664	50	PG 21	6	7	40	8	43	4248715	20
PG 13.5	2	6	22	6.5	28	4248404	50	PG 21	7	6	40	8	43	4248714	20
PG 13.5	3	2	22	6.5	28	4248665	50	PG 21	8	4	30	7	35	4248707	20
PG 13.5	3	3	22	6.5	28	4248666	50	PG 21	8	5	30	7	35	4248543	20
PG 13.5	3	4	22	6.5	28	4248667	50	PG 21	11	5	40	8	43	4248712	20
PG 13.5	3	5.3	24	6.5	30	4248668	50	PG 21	21	2	30	7	35	4248708	20
PG 13.5	3	6	24	6.5	30	4248669	50	PG 21	28	3	40	8	43	4248711	20
PG 13.5	4	3	22	6.5	28	4248670	50	PG 29	2	9	40	8	43	4248716	20
PG 13.5	4	4	22	6.5	28	4248671	50	PG 29	2	11	40	8	43	4248717	20
PG 13.5	4	5	24	6.5	30	4248673	50	PG 29	3	9	40	8	43	4248719	20
PG 13.5	4	5.3	24	6.5	30	4248672	50	PG 29	3	11	40	8	43	4248720	20
PG 13.5	6	3.5	22	6.5	28	4248674	50	PG 29	4	8	40	8	43	4248629	20
PG 13.5	10	2	22	6.5	28	4248675	50	PG 29	4	9	40	8	43	4248721	20
PG 16	2	4	24	6.5	30	4248678	50	PG 29	4	10	40	8	43	4248722	20
PG 16	2	5	24	6.5	30	4248679	50	PG 29	6	6	40	8	43	4248627	20
PG 16	2	6	24	6.5	30	4248680	50	PG 29	6	6.5	40	8	43	4248610	20
PG 16	2	7	24	6.5	30	4248409	50	PG 29	6	7	40	8	43	4248614	20
PG 16	2	8	30	7	35	4248681	50	PG 29	7	6	40	8	43	4248631	20
PG 16	2	9	30	7	35	4248682	50	PG 29	7	7	40	8	43	4248723	20
PG 16	3	3	24	6.5	30	4248683	50	PG 29	8	5	40	8	43	4248724	20
PG 16	3	4	24	6.5	30	4248684	50	PG 29	8	6	40	8	43	4248632	20
PG 16	3	5	24	6.5	30	4248677	50	PG 29	10	6	40	8	43	4248725	20
PG 16	3	5.6	24	6.5	30	4248685	50	PG 29	11	5	40	8	43	4248634	20
PG 16	3	6	24	6.5	30	4248686	50	PG 29	28	3	40	8	43	4248612	20
PG 16	3	7	30	7	35	4248695	50								
PG 16	3	8	24	6.5	30	4248687	50								

Locknuts sold separately, see page 25.

# Cable Gland Industrial Multi-Conductor (Metric) - Nickel-Plated Brass

## Material:

- Body: Nickel-Plated Brass
- Seal: Tefabloc
- Sealing ring for outer thread: Nitril

## Characteristics:

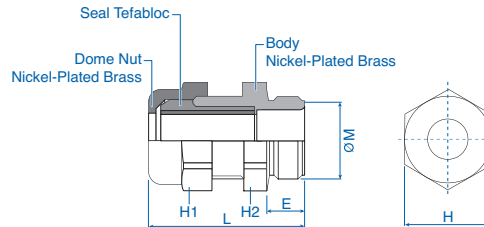
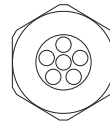
- Metric thread
- Multi-holed seal inserts
- Extended thread available

## Technical properties:

- Gas tight and watertight
- Completely twist protected
- Combinable with various sealing inserts

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations



## Temperature Range

-25 to 120°C  
(-13 to 248°F)

Outer thread	Hole Quantity	Hole diameter mm	H1 mm	H2 mm	E mm	L mm	Cat. No.	Std. Pk.
M 16 x 1.5	2	1	17	17	7	13	4249600	50
M 16 x 1.5	2	3	17	17	7	13	4249601	50
M 16 x 1.5	2	3.5	17	17	7	13	4249602	50
M 16 x 1.5	2	4	17	17	7	13	4249603	50
M 16 x 1.5	3	3	17	17	7	13	4249604	50
M 20 x 1.5	2	2.3	20	22	7	28	4249610	50
M 20 x 1.5	2	3	22	22	7	29	4249611	50
M 20 x 1.5	2	3.5	20	22	7	28	4249612	50
M 20 x 1.5	2	4	20	22	7	28	4249613	50
M 20 x 1.5	2	5	22	22	7	29	4249614	50
M 20 x 1.5	2	6	22	22	7	29	4249615	50
M 20 x 1.5	3	2	22	22	7	29	4249616	50
M 20 x 1.5	3	3	22	22	7	29	4249617	50
M 20 x 1.5	3	3.5	20	22	7	28	4249618	50
M 20 x 1.5	3	4	22	22	7	29	4249619	50
M 20 x 1.5	3	5.3	22	22	7	29	4249620	50
M 20 x 1.5	4	1.5	20	22	7	28	4249621	50
M 20 x 1.5	4	3	22	22	7	29	4249622	50
M 20 x 1.5	4	3.5	20	22	7	28	4249623	50
M 20 x 1.5	4	4	22	22	7	29	4249624	50
M 20 x 1.5	6	2	20	22	7	28	4249625	50
M 20 x 1.5	6	2.5	20	22	7	28	4249626	50
M 20 x 1.5	6	3.5	22	22	7	29	4249627	50
M 20 x 1.5	10	2	22	22	7	29	4249628	50
M 25 x 1.5	2	4	24	26	8	31	4249640	20
M 25 x 1.5	2	4.5	30	30	8	37	4249641	20
M 25 x 1.5	2	5	24	26	8	31	4249642	20
M 25 x 1.5	2	6	24	26	8	31	4249643	20
M 25 x 1.5	2	7	24	26	8	31	4249644	20
M 25 x 1.5	2	8	30	30	8	37	4249645	20
M 25 x 1.5	3	3	24	26	8	31	4249646	20
M 25 x 1.5	3	4	24	26	8	31	4249647	20
M 25 x 1.5	3	5	24	26	8	31	4249648	20
M 25 x 1.5	3	5.6	24	26	8	31	4249649	20
M 25 x 1.5	3	6	24	26	8	31	4249650	20
M 25 x 1.5	3	7	30	30	8	37	4249651	20
M 25 x 1.5	3	8	30	30	8	37	4249652	20
M 25 x 1.5	4	4	24	26	8	31	4249653	20
M 25 x 1.5	4	5	30	30	8	37	4249654	20
M 25 x 1.5	4	6	30	30	8	37	4249655	20
M 25 x 1.5	5	4	24	26	8	31	4249656	20
M 25 x 1.5	5	5	30	30	8	37	4249657	20
M 25 x 1.5	5	6	30	30	8	37	4249658	20
M 25 x 1.5	5	6.5	30	30	8	37	4249659	20
M 25 x 1.5	6	4	30	30	8	37	4249660	20
M 25 x 1.5	6	5	30	30	8	37	4249661	20
M 25 x 1.5	8	4	30	30	8	37	4249662	20
M 25 x 1.5	8	5	30	30	8	37	4249663	20
M 25 x 1.5	21	2	30	30	8	37	4249664	20

Outer thread	Hole Quantity	Hole diameter mm	H1 mm	H2 mm	E mm	L mm	Cat. No.	Std. Pk.
M 32 x 1.5	2	4.5	30	33	8.5	38	4249670	20
M 32 x 1.5	2	8	30	33	8.5	38	4249671	20
M 32 x 1.5	2	9	40	40	8.5	45	4249672	20
M 32 x 1.5	2	11	40	40	8.5	45	4249673	20
M 32 x 1.5	2	12	40	40	8.5	45	4249674	20
M 32 x 1.5	3	7	30	33	8.5	38	4249675	20
M 32 x 1.5	3	8	30	33	8.5	38	4249676	20
M 32 x 1.5	3	9	40	40	8.5	45	4249677	20
M 32 x 1.5	3	11	40	40	8.5	45	4249678	20
M 32 x 1.5	4	5	30	33	8.5	38	4249679	20
M 32 x 1.5	4	6	30	33	8.5	38	4249680	20
M 32 x 1.5	4	8	40	40	8.5	45	4249681	20
M 32 x 1.5	4	9	40	40	8.5	45	4249682	20
M 32 x 1.5	4	10	40	40	8.5	45	4249683	20
M 32 x 1.5	5	5	30	33	8.5	38	4249684	20
M 32 x 1.5	5	6	30	33	8.5	38	4249685	20
M 32 x 1.5	5	6.5	30	33	8.5	38	4249686	20
M 32 x 1.5	6	4	30	33	8.5	38	4249687	20
M 32 x 1.5	6	5	30	33	8.5	38	4249688	20
M 32 x 1.5	6	6	40	40	8.5	45	4249689	20
M 32 x 1.5	6	6.5	40	40	8.5	45	4249690	20
M 32 x 1.5	6	7	40	40	8.5	45	4249691	20
M 32 x 1.5	7	6	40	40	8.5	45	4249692	20
M 32 x 1.5	7	7	40	40	8.5	45	4249693	20
M 32 x 1.5	8	4	30	33	8.5	38	4249694	20
M 32 x 1.5	8	5	40	40	8.5	45	4249695	20
M 32 x 1.5	8	6	40	40	8.5	45	4249696	20
M 32 x 1.5	10	6	40	40	8.5	45	4249697	20
M 32 x 1.5	11	5	40	40	8.5	45	4249698	20
M 32 x 1.5	21	2	30	33	8.5	38	4249699	20
M 32 x 1.5	28	3	40	40	8.5	45	4249701	20

Locknuts sold separately, see page 25.

**Material:**

- Body: Polyamide 6
- Seal: Neoprene
- Flat Seal: Neoprene
- Color: Blue

**Technical Properties:**

- Maximum strain relief through clamping range
- Trapezoidal thread with high torque guarantees tight and permanent fit of the dome nut
- Gas tight and watertight

**Applications:**

- Explosion endangered areas
- Machines and devices
- Measuring and control engineering
- Plant installations

**Temperature Range**

-35 to 95°C  
(-31 to 203°F)



L.C.I.E.

ATEX


**ATEX Characteristics:**

**Certificate:** LCIE 07 ATEX 6082X

**Type of protection:** Ex e

**Test Standards:** EN60079-0

EN60079-7

EN61241-0

EN61241-1

**Device Group:** II

**Category:** 2 and 3

**Atmosphere:** G/D

**Zone:** 1, 2, 21 and 22

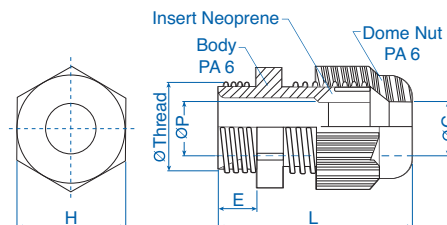
### NPT Thread

Outer thread	Clamping range mm	Cat. No. Blue	Std. Pk.
NPT 3/8"	5-8	5507760	50
NPT 1/2"	7-12	5507761	50
NPT 3/4"	12-18	5507762	20
NPT 1"	16-25	5507763	20

### Metric Thread\*

Outer thread	Clamping range mm	Cat. No. Blue	Std. Pk.
M 12 x 1.5	4-6.5	5507560	50
M 16 x 1.5/9	5-8	5507561	50
M 16 x 1.5/11	5-10	5507562	50
M 20 x 1.5/13	7-12	5507563	50
M 20 x 1.5/16	10-14	5507564	50
M 25 x 1.5/16	10-14	5507565	20
M 25 x 1.5/21	12-18	5507566	20
M 32 x 1.5	16-25	5507567	20
M 40 x 1.5	22-32	5507568	20
M 50 x 1.5	28-38.5	5507569	10
M 63 x 1.5	40-48	5507570	5

Thread Size	H mm	E mm	Dimensions			
			L mm	ØC mm	ØP mm	ØThread mm
NPT 3/8	19	11	38	8.5	8.7	17.1
NPT 1/2	24	14	44	12.5	12.5	21.2
NPT 3/4	33	15	54	18.5	18.5	26.7
NPT 1	42	18	60	25.5	25.5	33.3
M12x1.5	15	8	32	6.7	6.8	12.0
M16x1.5/9	19	10	37	8.5	8.5	16.0
M16x1.5/11	22	10	39	10.5	10.5	16.0
M20x1.5/13	24	10	40	12.5	12.5	20.0
M20x1.5/16	27	10	43	14.5	14.5	20.0
M25x1.5/16	27	10	45	14.5	14.5	25.0
M25x1.5/21	33	10	49	18.5	18.5	25.0
M32x1.5	42	10	52	25.5	25.5	32.0
M40x1.5	53	10	62	32.5	32.5	40.0
M50x1.5	60	12	67	39.0	39.0	50.0
M63x1.5	70	12	68	48.5	48.5	63.0



\* Extended thread available consult Altech

Locknuts sold separately, see page 24.



# Cable Gland ATEX - Polyamide

## Material:

- Body: Polyamide PA 6  
25 % Glass fiber Reinforced
- Seal: Neoprene
- ECA clamping ring: Polycarbonate

## Characteristics:

- PG/Metric thread
- Extended thread available
- Strain relief through clamping ring

## Applications:

- For explosion endangered areas according to EN 50014 and EN 50019
- Machines and devices
- Measuring and control engineering
- Plant installations

### Temperature Range

-20 to 55°C  
(-4 to 131°F)

## ECA Clamping Ring (Punch-out Seal)

Outer thread	Clamping range mm	Cat. No. Black	Std. Pk.
<b>PG</b>			
PG 9	3.5 - 8.5	5507050	50
PG 11	4.0 - 10.5	5507051	50
PG 13.5	5.0 - 12.5	5507052	50
PG 16	6.5 - 14.0	5507053	50
PG 21	8.0 - 18.5	5507054	20
PG 29	10.0 - 25.0	5507055	20
<b>Metric</b>			
M 16 x 1.5	3.5 - 8.5	5507250	50
M 20 x 1.5/13	5.0 - 12.5	5507251	50
M 20 x 1.5/16	6.5 - 14.0	5507252	50
M 25 x 1.5	8.0 - 18.5	5507253	20
M 32 x 1.5	10.0 - 25.0	5507254	20

Thread Size	Dimensions					
	H mm	E mm	L mm	ØC mm	ØP mm	ØPG/M mm
PG9	19	8	32	8.5	9.0	15.2
PG11	22	8	35	11.5	11.0	18.6
PG13.5	24	9	36	12.5	13.5	20.4
PG16	27	10	40	14.5	15.0	22.5
PG21	33	11	44	18.5	19.0	28.3
PG29	42	12	55	25.0	25.0	37.0
M 16x1.5	19	8	32	8.5	9.0	16.0
M 20x1.5/13	24	9	36	12.5	13.5	20.0
M 20x1.5/16	27	9	39	14.5	15.0	20.0
M 25x1.5	33	11	44	18.5	19.0	25.0
M 32x1.5	42	12	55	25.0	25.0	32.0



Gland must be mounted with flat seal and locknut.

L.C.I.E. ATEX

PROTECTION  
**IP68**  
RATING

## ATEX Characteristics:

**Certificate:** LCIE 99 ATEX 6030X

**Type of protection:** Ex e

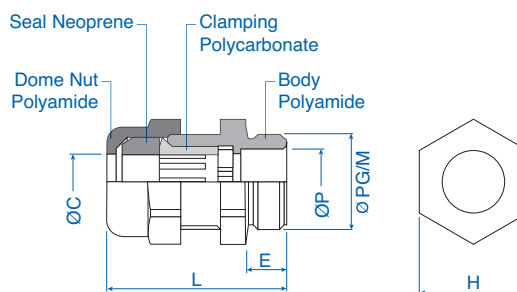
**Test Standards:** EN60079-0  
EN60079-7  
EN61241-0  
EN61241-1

**Device Group:** II

**Category:** 2 and 3

**Atmosphere:** G/D

**Zone:** 1 and 2 (21 and 22 with seal ring)



Locknuts and seal rings sold separately, see page 24 and 35.

### Material:

- Body: Nickel-plated brass
- Seal: Tefabloc
- Clamping ring for grounding connection: Tin-plated plastic
- Seal ring for outer thread: Nitril

### Characteristics:

- PG/Metric thread

### Technical properties:

- Continuous EMC protection due to tin-plated plastic
- Gas tight and watertight
- Completely twist protected

### Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations
- Telecommunications



### Temperature Range

-25 to 120°C  
(-13 to 248°F)



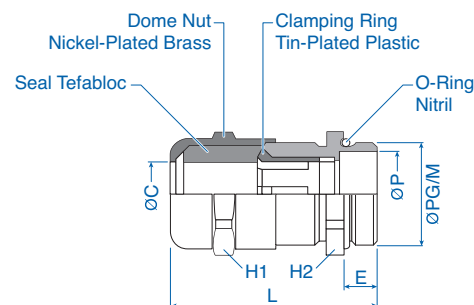
Outer thread	Cable Clamping range mm	Shield Clamping range mm	Cat. No.	Std. Pk.
<b>PG</b>				
PG 7	4 - 6.5	4 - 6.5	4264007	100
PG 9	5 - 8.5	4.5 - 8.5	4264009	50
PG 11	7 - 10.5	6 - 10.5	4264011	50
PG 13.5	8 - 12.5	8 - 12.5	4264013	50
PG 16	10 - 14.5	10 - 14.5	4264016	20
PG 21	13.5 - 18	13.5 - 18	4264021	25
PG 29	17 - 24	17 - 24	4264029	10
PG 36	24 - 30	24 - 30	4264036	10

### Metric

M 12 x 1.5/7	4 - 6.5	4 - 6.5	4264112	100
M 16 x 1.5/7	4 - 6.5	4 - 6.5	4264116	100
M 16 x 1.5/9	5 - 8.5	4.5 - 8.5	4264117	50
M 20 x 1.5/11	7 - 10.5	6 - 10.5	4264120	50
M 20 x 1.5/13	8 - 12.5	8 - 12.5	4264121	50
M 25 x 1.5/16	10 - 14.5	10 - 14.5	4264125	25
M 25 x 1.5/21	13.5 - 18	13.5 - 18	4264126	25
M 32 x 1.5/21	13.5 - 18	13.5 - 18	4264132	10
M 32 x 1.5/29	17 - 24	17 - 24	4264133	10
M 40 x 1.5/29	17 - 24	17 - 24	4264134	10
M 40 x 1.5/36	24 - 30	24 - 30	4264135	10

### Dimensions

Thread Size	H1 mm	H2 mm	E mm	L mm	ØC mm	ØP mm	ØPG/M mm
PG7	14	14	5	35	6.5	7.2	12.5
PG9	17	17	6	37	8.5	9.2	15.2
PG11	20	20	6	40	10.5	11.2	18.6
PG13.5	22	22	6.5	40	12.5	13.1	20.4
PG16	24	24	6.5	40	15.2	15.6	22.5
PG21	30	30	7	50	18.5	20.1	28.3
PG29	40	40	8	60	25.0	26.2	37.0
PG36	50	50	9	70	30.5	33.0	47.0
M 12x1.5/7	14	14	7	37	6.5	7.2	12.0
M 16x1.5/7	14	17	7	37	6.5	7.2	16.0
M 16x1.5/9	17	17	7	38	8.5	9.2	16.0
M 20x1.5/11	20	22	7	41	10.5	11.2	20.0
M 20x1.5/13	22	22	7	41	12.5	13.1	20.0
M 25x1.5/16	24	26	8	41	15.2	15.6	25.0
M 25x1.5/21	30	30	8	51	18.5	20.1	25.0
M 32x1.5/21	30	33	8.5	51.5	18.5	20.1	32.0
M 32x1.5/29	40	40	8.5	60.5	25.0	26.2	32.0
M 40x1.5/29	40	42	8.5	60.5	25.0	26.2	40.0
M 40x1.5/36	50	50	8.5	67	30.5	33.0	40.0



**This is one of our most popular series and is usually kept in stock.**

*Locknuts sold separately, see page 25.*

# Cable Gland EMC - Nickel-Plated Brass

## Material:

- Body: Nickel-plated brass
- Seal: Santoprene
- O-ring: Perbunan

## Characteristics:

- PG thread

## Technical properties:

- EMC protection due to pressure rings and circular spring
- Gas tight and watertight
- Completely twist protected

## Applications:

- Machines and devices
- Measuring and control engineering
- Plant installations



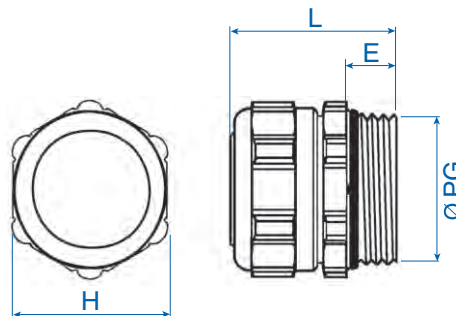
## Temperature Range

-25 to 100°C  
(-13 to 212°F)



Outer thread	Cable Clamping range mm	Shield Clamping range mm	Cat. No.	Std. Pk.
<b>PG</b>				
PG 9	4 - 6	2.5 - 6	<b>4266 003</b>	25
PG 9	6.5 - 9.5	2.2 - 6.5	<b>4266 004</b>	25
PG 9	6.5 - 9.5	3.5 - 8.5	<b>4266 005</b>	25
PG 11	7 - 10.5	4 - 8.5	<b>4266 008</b>	25
PG 13.5	6 - 9	3.5 - 7.5	<b>4266 011</b>	25
PG 13.5	7 - 10.5	4 - 8	<b>4266 013</b>	25
PG 16	6 - 10.5	6 - 9	<b>4266 014</b>	25
PG 16	8 - 12	6 - 9.5	<b>4266 018</b>	25
PG 16	10 - 14	9 - 13	<b>4266 016</b>	25
PG 21	14 - 18	12.5 - 17.5	<b>4266 025</b>	20
PG 21	17 - 20	12.5 - 17.5	<b>4266 022</b>	20
PG 29	19 - 23	15 - 21	<b>4266 028</b>	20
PG 36	25 - 29	18 - 25.5	<b>4266 031</b>	10

Thread Size	Dimensions			ØPG
	H mm	E mm	L mm	
PG9	20	6	34	15.2
PG11	24	10	41	18.6
PG13.5	24	10	41	20.4
PG16	30	11	43	22.5
PG21	30	12	44	28.3
PG29	40	13	53	37.0
PG36	50	14	61	47.0
PG42	60	15	65	54.0



**This is one of our most popular series and is usually kept in stock.**

*Locknuts sold separately, see page 25.*



**Material:**

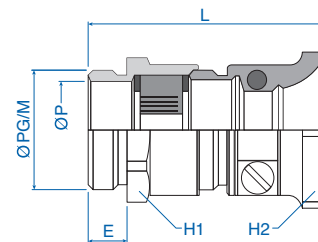
- Nickel-plated brass
- Sealing ring: Neoprene

**Characteristics:**

- PG/Metric thread
- Sealing ring, punchable

**Applications:**

- Tension proof grip
- Grounding connection possible
- Protects bent cable



**Type ZEBV Nickel-Plated Brass**

with traction relief and kink protection

Outer thread	Clamping range Seal mm	Clamping range traction relief mm	Cat. No.	Std. Pk.
<b>PG</b>				
PG 9	2 - 9	6 - 9.5	4308093	50
PG 11	4 - 11	8 - 11.5	4308115	50
PG 13.5	4.5 - 12	9 - 13	4308131	50
PG 16	5.5 - 14.5	10 - 15	4308166	25
PG 21	8 - 19	14 - 20	4308212	25
PG 29	12 - 27	19 - 30	4308298	10
<b>Metric</b>				
M 16 x 1.5	2 - 9	6 - 9.5	4308516	100
M 20 x 1.5	4 - 11	8 - 11.5	4308520	100
M 20 x 1.5	4.5 - 12	9 - 13	4308521	100
M 25 x 1.5	5.5 - 14.5	10 - 15	4308525	50
M 25 x 1.5	8 - 18	14 - 20	4308526	25
M 32 x 1.5	8 - 19	14 - 20	4308532	25
M 32 x 1.5	12 - 27	19 - 30	4308533	25

**Temperature Range**

-25 to 100°C  
(-13 to 212°F)

**Dimensions**

Thread Size	H1 mm	H2 mm	E mm	L mm	ØP mm	ØPG/M mm
PG9	17	22	6	34	12.5	15.2
PG11	20	24	6	36	15	18.6
PG13.5	22	28	6.5	37	17	20.4
PG16	24	30	6.5	40	18.5	22.5
PG21	30	38	7	43	24	28.3
PG29	40	50	8	48	32	37
M16	18	22	7	35	12.5	16
M20	22	24	7	37	15	20
M20	22	28	7	37.5	16	20
M25	27	30	8	41.5	18.5	25
M25	32	38	8	44	18.5	25
M32	34	38	8.5	44.5	24	32
M32	40	50	8.5	48.5	28	32

**Material:**

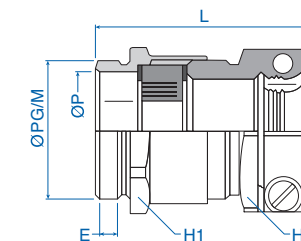
- Nickel-plated brass
- Sealing ring: Neoprene

**Characteristics:**

- PG/Metric thread

**Applications:**

- Centered traction relief
- No cable twisting while clamping
- Tension proof grip
- Grounding connection possible



**Type ZA Nickel-Plated Brass**

with centered traction relief and kink protection

Outer thread	Clamping range Seal mm	Clamping range traction relief mm	Cat. No.	Std. Pk.
<b>PG</b>				
PG 7	4 - 6	5.5 - 7.5	4305078	100
Pg 9	2 - 9	6.5 - 9.5	4305094	50
PG 11	4 - 11	7.5 - 11.5	4305116	50
PG 13.5	4.5 - 12	8.5 - 13.5	4305132	50
PG 16	5.5 - 14.5	10.5 - 16.5	4305167	25
PG 21	8 - 19	12 - 20.5	4305213	25
PG 29	12 - 27	19 - 29.5	4305299	10
PG 36	22 - 33	24 - 36.5	4305361	10
PG 42	25 - 40	33 - 42.5	4305426	5
PG 48	30 - 45	36 - 47.5	4305485	5
<b>Metric</b>				
M 12 x 1.5	4 - 6	5.5 - 7.5	4305500	50
M 16 x 1.5	2 - 9	6.6 - 9.5	4305501	50
M 16 x 1.5	4 - 11	7.5 - 11.5	4305502	50
M 16 x 1.5	4.5 - 12	8.5 - 13.5	4305503	50
M 20 x 1.5	4 - 11	7.5 - 11.5	4305504	50
M 20 x 1.5	4.5 - 12	8.5 - 13.5	4305505	50
M 20 x 1.5	5.5 - 14.5	10.5 - 16.5	4305506	50
M 25 x 1.5	5.5 - 14.5	10.5 - 16.5	4305507	20
M 32 x 1.5	8 - 19	12 - 20.5	4305508	20
M 32 x 1.5	12 - 27	19 - 29.5	4305509	20
M 40 x 1.5	12 - 27	19 - 29.5	4305510	20
M 50 x 1.5	22 - 33	24 - 36.5	4305511	10
M 50 x 1.5	25 - 40	33 - 42.5	4305512	10
M 63 x 1.5	25 - 40	33 - 42.6	4305513	5
M 63 x 1.5	30 - 45	36 - 47.5	4305514	5
M 75 x 1.5	30 - 45	36 - 47.5	4305515	1

**Temperature Range**

-25 to 100°C  
(-13 to 212°F)

**Dimensions**

Thread Size	H1 mm	H2 mm	E mm	L mm	ØP mm	ØPG/M mm
PG7	14	16	5	29	10	12.5
PG9	17	19	6	34	12.5	15.2
PG11	20	22	6	35	15	18.6
PG13.5	22	24	6.5	36	17	20.4
PG16	24	27	6.5	36	18.5	22.5
PG21	30	33	7	42	24	28.3
PG29	40	42	8	47	32	37
PG36	50	52	9	53	42	47
PG42	57	60	10	65	48	54
PG48	64	64	10	68	52.5	59.3
M12	14	16	7	29	8	12
M16	18	19	7	34	12.5	16
M16	20	22	7	34	12.5	16
M16	22	24	7	35	12.5	16
M20	22	22	7	34	15	20
M20	22	24	7	39	16	20
M20	24	27	7	34	16	20
M25	27	27	8	40	18.5	25
M32	34	33	8.5	43	24	32
M32	40	42	8.5	46	28	32
M40	42	42	8.5	45	32	40
M50	52	52	9.5	50	42	50
M50	58	60	9.5	54	42	50
M63	65	60	10.5	55	48	63
M63	65	64	10.5	56	48	63
M75	80	64	11.5	56	52.5	75

Locknuts and seal rings sold separately, see page 25 and 35.

# Cable Gland

Traction Relief - Polyamide

## Material:

- Body: Polyamide 6
- Seal: Neoprene

## Characteristics:

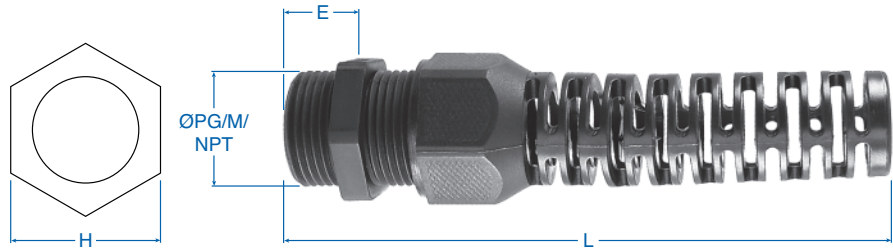
- PG/Metric/NPT threads
- Metric extended thread available

## Technical properties:

- Optimal strain relief through clamping range
- Seals against housing through sealing lip (PG and Metric only)\*
- Trapezoidal threading with high torque guarantees tight and permanent fit of the dome nut
- Also available with reduction insert
- Gas tight and watertight

## Applications:

- Machines and devices



## Temperature Range

-30 to 100°C  
(-22 to 212°F)

Outer thread	Clamping range mm	Cat. No. Dark Grey	Cat. No. Black	Std. Pk.
<b>PG</b>				
PG 7	2.5 - 6.5	5306007	5306107	50
PG 9	3 - 8	5306009	5306109	50
PG 11	4 - 10	5306011	5306111	50
PG 11	2 - 7	5306012	5306112	50
PG 13.5	5.5 - 12	5306013	5306113	50
PG 13.5	3 - 7	-	5306114	50
PG 16	8.5 - 14	5306016	5306116	25
PG 16	5 - 11	5306017	5306117	25
<b>Metric</b>				
M 12 x 1.5	2.5 - 6.5	5306030	5306130	50
M 16 x 1.5	4 - 8	5306031	5306131	50
M 20 x 1.5	3 - 7	5306032	5306132	50
M 20 x 1.5	5.5 - 12	5306033	5306133	50
<b>NPT</b>				
NPT 3/8"	3 - 8	5306050	5306150	50
NPT 1/2"	3 - 7	5306051	5306151	50
NPT 1/2"	5.5 - 12	5306052	5306152	50

Thread Size	Dimensions			ØPG/M/NPT mm
	H mm	E mm	L mm	
PG7	15	8	62	12.5
PG9	19	8	72	15.2
PG11	22	8	85	18.6
PG13.5	24	9	97	20.4
PG16	27	10	112	22.5
M 12x1.5	15	6	60	12
M 16x1.5	19	6	70	16
M 20x1.5	24	8	96	20
NPT 3/8"	19/22	15	79	17.1
NPT 1/2"	24	15	103	21.2

**This is one of our most popular series and is usually kept in stock.**

\* Seal rings for NPT sold separately, see page 35.

**Locknuts sold separately, see page 24.**

- Material:**
- Polystyrene
- Seal:**
- Neoprene

- Characteristics:**
- Hexagon base
  - PG Thread

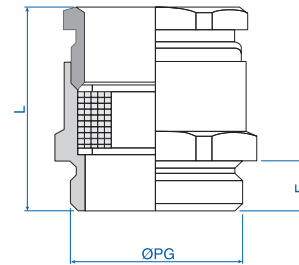


**once according to DIN 46320**

Outer thread	Clamping range mm	Cat. No. Lt. Gray	Std. Pk.
<b>PG</b>			
PG 7	3.5 - 6	5202078	50
PG 9	4.5 - 7	5202094	50
PG 11	6 - 9	5202116	50
PG 13.5	9 - 12	5202132	50
PG 16	11 - 14	5202167	50
PG 21	14 - 18	5202213	20
PG 29	18 - 25	5202299	10
PG 36	25 - 32	5202361	10
PG 42	30 - 38	5202434	10
PG 48	36 - 44	5202485	10



**Temperature Range**  
-20 to 100°C  
(-4 to 212°F)



**Dimensions**

Thread Size	E mm	L mm
PG7	8	29
PG9	8	31.5
PG11	8	33
PG13.5	9.5	36
PG16	10	40.5
PG21	11	43.5
PG29	11	46
PG36	13	57
PG42	13	61
PG48	14	60

*Locknuts and seal rings sold separately, see page 24 and 35.*



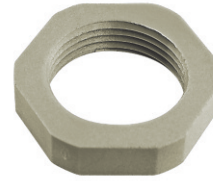
# Locknuts *Polyamide / Stainless Steel*

**Material:**

- Polyamide 6
- 25 % glass fiber reinforced

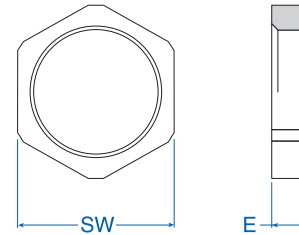
**Characteristic feature:**

- PG / metric and NPT thread



**Temperature Range**  
-40 to 100°C  
(-40 to 212°F)

Thread	Thickness (E) mm	SW mm	Cat. No. Light grey	Cat. No. Black	Std. Pk.
<b>PG (once according to DIN 46 320)</b>					
PG 7	5	19	7211 881	7211 851	50
PG 9	5	22	7211 882	7211 852	50
PG 11	5	24	7211 883	7211 853	50
PG 13.5	6	27	7211 884	7211 854	50
PG 16	6	30	7211 885	7211 855	50
PG 21	6.5	36	7211 886	7211 856	20
PG 29	7.5	46	7211 887	7211 857	20
PG 36*	8	60	7211 888	7211 858	10
PG 42*	9	65	7211 889	7211 859	5
PG 48*	9.5	70	7211 890	7211 860	5
<b>Metric</b>					
M 12 x 1.5	5	19	7211 979	7211 974	50
M 16 x 1.5	5	22	7211 980	7211 975	50
M 20 x 1.5	5	24	7211 981	7211 976	50
M 25 x 1.5	6	30	7211 982	7211 977	50
M 32 x 1.5	7.5	38	7211 983	7211 978	50
M 40 x 1.5	8	50	7211 984	7211 990	20
M 50 x 1.5*	9	60	7211 985	7211 991	10
M 63 x 1.5*	10	75	7211 986	7211 992	5
<b>NPT</b>					
NPT 3/8"	5	22	7211 485	7211 495	50
NPT 1/2"	6	27	7211 486	7211 496	50
NPT 3/4"	6.5	36	7211 487	7211 497	25
NPT 1"	7	41	7211 488	7211 498	20



\* Not glass fiber reinforced

**Material:**

- Stainless Steel
- 1.4404 / INOX 316L

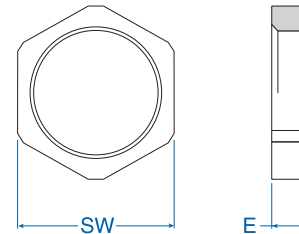
**Characteristic feature:**

- Metric thread



**Stainless Steel**

Thread	Thickness (E) mm	SW mm	Cat. No.	Std. Pk.
<b>Metric</b>				
M 12 x 1.5	3	15	6010112	50
M 16 x 1.5	3	19	6010116	50
M 20 x 1.5	3.5	24	6010120	50
M 25 x 1.5	3.5	30	6010125	25
M 32 x 1.5	4.5	35	6010132	20
M 40 x 1.5	4.5	45	6010140	10
M 50 x 1.5	5.5	55	6010150	10
M 63 x 1.5	6	70	6010163	5



**This is one of our most popular series and is usually kept in stock.**

**Material:**

- Nickel-plated brass

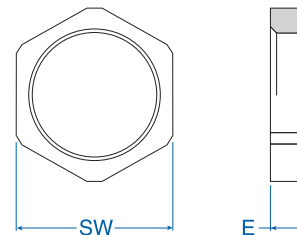
**Characteristics:**

- PG and Metric thread



## Nickel-Plated Brass

Thread	Thickness (E) mm	SW mm	Cat. No.	Std. Pk.
<b>PG (once according to DIN 46320)</b>				
PG 7	2.9	15	6000070	50
PG 9	2.9	18	6000096	50
PG 11	2.9	21	6000118	50
PG 13.5	3.1	23	6000134	50
PG 16	3.1	26	6000169	50
PG 21	3.6	32	6000215	20
PG 29	4.1	41	6000290	20
PG 36	5.1	51	6000363	10
PG 42	5.1	60	6000428	5
PG 48	5.6	64	6000487	5
<b>Metric</b>				
M 12 x 1.5	3	15	6004121	50
M 16 x 1.5	3	20	6004164	50
M 20 x 1.5	3.5	24	6004202	50
M 25 x 1.5	3.5	30	6004253	25
M 32 x 1.5	4.5	35	6004326	20
M 40 x 1.5	4.5	45	6004407	10
M 50 x 1.5	4.5	55	6004504	10
M 63 x 1.5	6	70	6004636	5


**Material:**

- Nickel-plated brass

**Characteristics:**

- PG and Metric thread

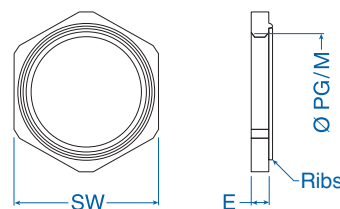
**Applications:**

- EMC applications



## Nickel-Plated Brass, Ribbed

Thread	Thickness (E) mm	SW mm	Cat. No.	Std. Pk.
<b>PG</b>				
PG 7	2.9	15	6011007	50
PG 9	2.9	18	6011009	50
PG 11	3.1	21	6011011	50
PG 13.5	3.1	23	6011013	50
PG 16	3.1	26	6011016	50
PG 21	3.6	32	6011021	20
PG 29	4.1	41	6011029	20
PG 36	5.1	51	6011036	10
PG 42	5.1	60	6011042	10
PG 48	5.6	64	6011048	10
<b>Metric</b>				
M 12 x 1.5	3	15	6011112	50
M 16 x 1.5	3	20	6011116	50
M 20 x 1.5	3.5	24	6011120	50
M 25 x 1.5	3.5	30	6011125	25
M 32 x 1.5	4.5	35	6011132	20
M 40 x 1.5	4.5	45	6011140	10
M 50 x 1.5	5.5	55	6011150	10
M 63 x 1.5	6	70	6011163	10



**This is one of our most popular series and is usually kept in stock.**

# Reducer *Polyamide*

**Material:**

- Polyamide
- Glass fiber reinforced

**Characteristics:**

- PG Thread
- Metric Thread

**Temperature Range**

-40 to 100°C  
(-40 to 212°F)

External thread	Internal thread	SW mm	Thread length mm	Cat. No. Light Grey	Std. Pk.
<b>PG 1</b>					
<b>Type A</b>					
PG 9	PG 7	19	8	7005301	100
PG 11	PG 9	22	8	7005303	100
PG 13.5	PG 11	24	9	7005306	100
PG 16	PG 13.5	27	10	7005309	100
<b>Type B</b>					
PG 11	PG 7	22	8	7005302	100
PG 13.5	PG 7	24	9	7005304	100
PG 13.5	PG 9	24	9	7005305	100
PG 16	PG 9	27	10	7005307	100
PG 16	PG 11	27	10	7005308	100
PG 21	PG 11	32	11	7005310	100
PG 21	PG 13.5	32	11	7005311	100
PG 21	PG 16	32	11	7005312	100
PG 29	PG 13.5	40	11	7005313	50
PG 29	PG 16	40	11	7005314	50
PG 29	PG 21	40	11	7005315	50
PG 36	PG 16	50	13	7005316	50
PG 36	PG 21	50	13	7005317	50
PG 36	PG 29	50	18	7005318	50
PG 42	PG 21	55	18	7005319	25
PG 42	PG 29	55	18	7005320	25
PG 42	PG 36	55	18	7005321	25
PG 48	PG 29	60	18	7005322	25
PG 48	PG 36	60	14	7005323	25
PG 48	PG 42	60	17	7005324	25



Type B



Type A

External thread	Internal thread	SW mm	Thread length mm	Cat. No. Light Grey	Std. Pk.
<b>Metric 1</b>					
<b>Metric 2</b>					
M 16 x 1.5	M 12 x 1.5	20	8	7008516	50
M 20 x 1.5	M 12 x 1.5	24	8	7008519	50
M 20 x 1.5	M 16 x 1.5	24	9	7008520	50
M 25 x 1.5	M 12 x 1.5	29	8	7008523	50
M 25 x 1.5	M 16 x 1.5	29	8	7008524	50
M 25 x 1.5	M 20 x 1.5	30	10	7008525	20
M 32 x 1.5	M 16 x 1.5	36	10	7008530	50
M 32 x 1.5	M 20 x 1.5	36	10	7008531	50
M 32 x 1.5	M 25 x 1.5	36	11	7008532	20
M 40 x 1.5	M 20 x 1.5	46	10	7008538	50
M 40 x 1.5	M 25 x 1.5	46	10	7008539	20
M 40 x 1.5	M 32 x 1.5	44	12	7008540	20
M 50 x 1.5	M 25 x 1.5	55	12	7008548	20
M 50 x 1.5	M 32 x 1.5	55	12	7008549	20
M 50 x 1.5	M 40 x 1.5	55	13	7008550	10
M 63 x 1.5	M 32 x 1.5	68	12	7008561	20
M 63 x 1.5	M 40 x 1.5	68	12	7008562	20
M 63 x 1.5	M 50 x 1.5	70	15	7008563	5



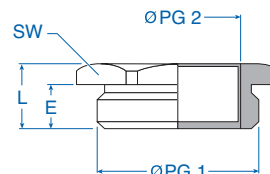
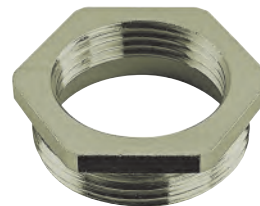
**Material:**

- Nickel-plated brass

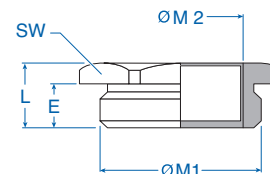
**Characteristics:**

- PG thread
- Metric thread
- Hexagon

External thread	Internal thread	SW mm	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>PG 1</b>	<b>PG 2</b>					
PG 9	PG 7	17	5	8	<b>6102018</b>	100
PG 11	PG 9	19	6	9	<b>6102034</b>	100
PG 11	PG 7	19	6	9	<b>6102030</b>	100
PG 13.5	PG 11	21	6	9	<b>6102077</b>	100
PG 13.5	PG 9	21	6	9	<b>6102042</b>	100
PG 13.5	PG 7	21	6	8.5	<b>6102026</b>	100
PG 16	PG 13.5	23	6	9	<b>6102115</b>	100
PG 16	PG 11	23	6	9	<b>6102085</b>	100
PG 16	PG 9	23	6	9	<b>6102050</b>	100
PG 21	PG 7	24	7	10	<b>6102158</b>	100
PG 21	PG 13.5	29	7	10	<b>6102123</b>	50
PG 21	PG 11	29	7	10	<b>6102093</b>	20
PG 21	PG 9	29	7	10	<b>6102069</b>	50
PG 29	PG 21	39	8	11	<b>6102190</b>	25
PG 29	PG 16	39	8	11	<b>6102166</b>	25
PG 29	PG 13.5	39	8	11	<b>6102131</b>	25
PG 29	PG 11	39	8	11	<b>6102107</b>	25
PG 36	PG 29	50	8	11	<b>6102220</b>	25
PG 36	PG 21	50	8	11	<b>6102204</b>	25
PG 36	PG 13.5	50	8	11	<b>6102140</b>	25
PG 42	PG 36	64	10	14	<b>6102241</b>	25
PG 42	PG 29	64	10	14	<b>6102239</b>	25
PG 48	PG 42	64	10	14	<b>6102258</b>	25
PG 48	PG 36	64	10	14	<b>6102255</b>	25
PG 48	PG 29	64	10	14	<b>6102247</b>	25
PG 48	PG 21	64	10	14	<b>6102212</b>	25
PG 48	PG 16	64	10	14	<b>6102182</b>	25



<b>Metric 1</b>		<b>Metric 2</b>				
M 16 x 1.5	M 12 x 1.5	20	7	10	<b>6102400</b>	50
M 20 x 1.5	M 12 x 1.5	24	7	10	<b>6102404</b>	50
M 20 x 1.5	M 16 x 1.5	24	7	10	<b>6102405</b>	50
M 25 x 1.5	M 16 x 1.5	30	8	11.5	<b>6102409</b>	20
M 25 x 1.5	M 20 x 1.5	30	8	11.5	<b>6102410</b>	20
M 32 x 1.5	M 16 x 1.5	36	8.5	12.5	<b>6102414</b>	20
M 32 x 1.5	M 20 x 1.5	36	8.5	12.5	<b>6102413</b>	20
M 32 x 1.5	M 25 x 1.5	36	8.5	12.5	<b>6102415</b>	20
M 40 x 1.5	M 25 x 1.5	42	8.5	12.5	<b>6102419</b>	10
M 40 x 1.5	M 32 x 1.5	42	8.5	12.5	<b>6102420</b>	10
M 50 x 1.5	M 32 x 1.5	55	9.5	14.5	<b>6102424</b>	10
M 50 x 1.5	M 40 x 1.5	55	9.5	14.5	<b>6102425</b>	5
M 63 x 1.5	M 40 x 1.5	70	10.5	17.5	<b>6102429</b>	1
M 63 x 1.5	M 50 x 1.5	70	10.5	17.5	<b>6102430</b>	1
M 75 x 1.5	M 63 x 1.5	80	11.5	19.5	<b>6102435</b>	1


**Material:**

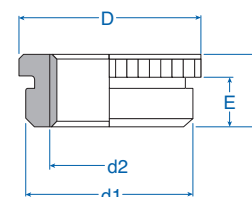
- Nickel-plated brass

**Characteristics:**

- PG/Metric external thread
- PG/Metric internal thread
- Round ribbed

**Nickel-Plated Brass, Ribbed**

External thread (d1)	Internal thread (d2)	Diameter mm (D)	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>Metric</b>	<b>PG</b>					
M 16 x 1.5	PG 7	20	6	9	<b>6104716</b>	100
M 20 x 1.5	PG 9	24	6.5	9.5	<b>6104720</b>	50
M 25 x 1.5	PG 11	30	7	10	<b>6104725</b>	50
M 25 x 1.5	PG 13.5	30	7	10	<b>6104726</b>	50
M 25 x 1.5	PG 16	30	7	10	<b>6104727</b>	50
M 32 x 1.5	PG 16	34	8	11.5	<b>6104732</b>	20
M 32 x 1.5	PG 21	34	8	11.5	<b>6104733</b>	20
M 40 x 1.5	PG 21	50	9	12	<b>6104740</b>	10
M 50 x 1.5	PG 29	57	9	12	<b>6104750</b>	5
M 63 x 1.5	PG 36	70	10.5	14.5	<b>6104763</b>	1
M 63 x 1.5	PG 42	70	10.5	14.5	<b>6104764</b>	1





# Enlarger *Polyamide*

**Material:**

- Polyamide glass fiber reinforced

**Characteristics:**

- PG/Metric external thread
- PG/Metric internal thread

External thread	Internal thread	SW mm	Thread length mm	Complete length mm	Cat. No. Light Gray	Std. Pk.
<b>PG 1</b>	<b>PG 2</b>					
PG 7	PG 9	19	7	20	<b>7004200</b>	100
PG 9	PG 11	22	8	23	<b>7004201</b>	100
PG 11	PG 13.5	24	8	23	<b>7004202</b>	100
PG 13.5	PG 16	27	9	26	<b>7004203</b>	100
PG 16	PG 21	32	9	29	<b>7004204</b>	100
PG 21	PG 29	42	10	32	<b>7004205</b>	50
PG 29	PG 36	53	11	35.5	<b>7004206</b>	25
PG 36	PG 42	60	13	40.5	<b>7004207</b>	10
PG 42	PG 48	65	13	41	<b>7004208</b>	10
<b>Metric 1</b>	<b>Metric 2</b>					
M12 x 1.5	M16 x 1.5	20	8	18.5	<b>7004300</b>	50
M16 x 1.5	M20 x 1.5	24	8	20	<b>7004301</b>	50
M20 x 1.5	M25 x 1.5	30	9	22	<b>7004302</b>	50
M25 x 1.5	M32 x 1.5	36	10	24	<b>7004303</b>	20
M32 x 1.5	M40 x 1.5	44	11	26	<b>7004304</b>	20
M40 x 1.5	M50 x 1.5	55	12	28	<b>7004305</b>	20
M50 x 1.5	M63 x 1.5	70	13	31.5	<b>7004306</b>	10



**Temperature Range**  
-30 to 100°C  
(-22 to 212°F)

**Material:**

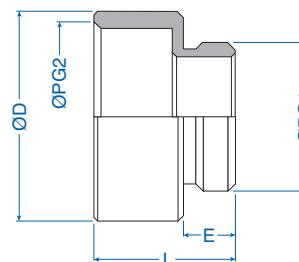
- Nickel-plated brass

**Characteristics:**

- PG external thread
- PG internal thread
- Round

According to DIN 259 and formerly by DIN 46320

External thread	Internal thread	Diameter mm (D)	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>PG 1</b>	<b>PG 2</b>					
PG 7	PG 9	17	5	15	6200010	50
PG 9	PG 11	20	6	16.5	6200028	50
PG 9	PG 13.5	22	6	17.5	6200036	50
PG 11	PG 13.5	22	6	17.5	6200044	50
PG 11	PG 16	24	6	18.5	6200052	25
PG 13.5	PG 16	24	6.5	19	6200060	25
PG 13.5	PG 21	30	6.5	21	6200079	20
PG 16	PG 21	30	6.5	21	6200087	20
PG 21	PG 29	39	7	23	6200095	15
PG 29	PG 36	50	8	28	6200109	10
PG 36	PG 42	57	9	31	6200117	10
PG 42	PG 48	64	10	33	6200125	10

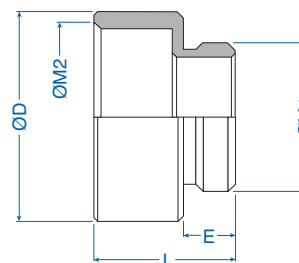

**Material:**

- Nickel-plated brass

**Characteristics:**

- Metric external thread
- Metric internal thread
- Round

External thread	Internal thread	Diameter mm (D)	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>Metric 1</b>	<b>Metric 2</b>					
M 12 x 1.5	M 16 x 1.5	18	5	15	6200212	50
M 16 x 1.5	M 20 x 1.5	22	6	17.5	6200216	50
M 20 x 1.5	M 25 x 1.5	27	6.5	19	6200220	50
M 25 x 1.5	M 32 x 1.5	34	8	20.5	6200225	20
M 32 x 1.5	M 40 x 1.5	42	7	23	6200232	20
M 40 x 1.5	M 50 x 1.5	53	9	31	6200240	10
M 50 x 1.5	M 63 x 1.5	65	9.5	24	6200250	5
M 63 x 1.5	M 75 x 1.5	80	10.5	26	6200263	1

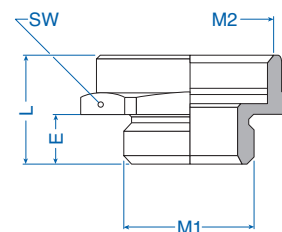

**Material:**

- Nickel-plated brass

**Characteristics:**

- Metric external thread
- Metric internal thread
- Hexagon

External thread	Internal thread	SW mm	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>Metric 1</b>	<b>Metric 2</b>					
M12 x 1.5	M16 x 1.5	19	7	19	6200312	50
M16 x 1.5	M20 x 1.5	22	7	19	6200316	50
M20 x 1.5	M25 x 1.5	28	7	20	6200320	50
M25 x 1.5	M32 x 1.5	36	8	21.5	6200325	20
M32 x 1.5	M40 x 1.5	42	8.5	22	6200332	20
M40 x 1.5	M50 x 1.5	52	8.5	23	6200340	10
M50 x 1.5	M63 x 1.5	65	9.5	25	6200350	5
M63 x 1.5	M75 x 1.5	80	10.5	27.5	6200363	1



# Adapter *Nickel-Plated Brass*

**Material:**

- Nickel-plated brass

**Characteristics:**

- PG external thread
- Metric internal thread
- Hexagon

External thread	Internal thread	SW mm	Thread length mm	Complete length mm	Cat. No.	Std. Pk.
<b>PG Form A</b>	<b>Metric</b>					
PG 7	M 12 x 1.5	17	6.5	16.5	6604807	50
PG 7	M 16 x 1.5	19	6.5	16.5	6604808	50
PG 9	M 16 x 1.5	19	6.5	16.5	6604810	50
PG 9	M 20 x 1.5	22	6.5	18.5	6604811	50
PG 11	M 20 x 1.5	22	7	17	6604813	50
PG 11	M 25 x 1.5	27	7	18	6604814	50
PG 13.5	M 20 x 1.5	24	7	17	6604816	50
PG 13.5	M 25 x 1.5	27	7	18	6604817	50
PG 16	M 20 x 1.5	27	7	16	6604818	50
PG 16	M 25 x 1.5	27	7	18	6604819	50
PG 16	M 32 x 1.5	36	7	18.5	6604820	50
PG 21	M 32 x 1.5	36	8	19.5	6604822	20
PG 21	M 40 x 1.5	42	8	19.5	6604823	20
PG 29	M 40 x 1.5	42	8.5	20	6604831	20
PG 29	M 50 x 1.5	55	8.5	21	6604832	20
PG 36	M 50 x 1.5	55	8.5	21	6604837	10
PG 42	M 63 x 1.5	65	10	23.5	6604843	5
PG 48	M 63 x 1.5	65	10	24.5	6604849	5
PG 48	M 75 x 1.5	80	10	24.5	6604850	5
<b>Form B</b>						
PG 9	M 12 x 1.5	19	6.5	10	6604809	50
PG 11	M 16 x 1.5	22	7	11	6604812	50
PG 13.5	M 16 x 1.5	24	7	11	6604815	50
PG 21	M 25 x 1.5	32	8	13	6604821	20
PG 29	M 25 x 1.5	40	8.5	14	6604829	20
PG 29	M 32 x 1.5	40	8.5	14	6604830	20
PG 36	M 40 x 1.5	55	8.5	15	6604836	10
PG 42	M 50 x 1.5	58	10	16.5	6604842	5
PG 48	M 50 x 1.5	65	10	17	6604848	5



**Form A**



**Form B**

**Material:**

- Nickel-plated brass

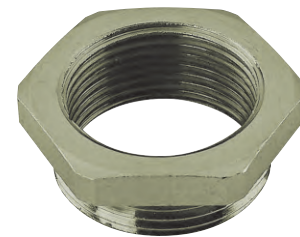
**Characteristics:**

- Metric external thread
- PG internal thread
- Hexagon

External thread	Internal thread	SW mm	Thread length mm	Complete length mm	Cat. No.	Std. Pk.
<b>Metric Form A</b>						
M 12 x 1.5	PG 7	14	7	17	6604712	100
M 16 x 1.5	PG 9	18	7	17.5	6604716	50
M 16 x 1.5	PG 11	20	7	18	6604715	50
M 16 x 1.5	PG 13.5	22	7	19.5	6604709	50
M 20 x 1.5	PG 11	22	7	18	6604720	50
M 20 x 1.5	PG 13.5	22	7	19.5	6604721	50
M 20 x 1.5	PG 16	24	7	20.5	6604722	50
M 20 x 1.5	PG 21	32	7	22.5	6604708	50
M 25 x 1.5	PG 16	27	8	21.5	6604726	50
M 25 x 1.5	PG 21	32	8	23.0	6604725	50
M 25 x 1.5	PG 29	40	8	25	6604727	20
M 32 x 1.5	PG 21	34	8.5	23.5	6604729	20
M 32 x 1.5	PG 29	40	8.5	25.0	6604732	10
M 50 x 1.5	PG 36	52	9.5	29	6604742	10
M 50 x 1.5	PG 42	58	9.5	31.5	6604750	5
M 63 x 1.5	PG 48	65	10.5	32.5	6604763	1
<b>Form B</b>						
M 20 x 1.5	PG 9	22	7	11	6604719	50
M 25 x 1.5	PG 13.5	27	8	12	6604724	50
M 32 x 1.5	PG 13.5	34	8.5	12.5	6604706	20
M 32 x 1.5	PG 16	34	8.5	12.5	6604728	20
M 32 x 1.5	PG 21	34	8.5	12.5	6604730	20
M 40 x 1.5	PG 16	42	8.5	13.5	6604705	10
M 40 x 1.5	PG 21	42	8.5	13.5	6604733	10
M 40 x 1.5	PG 29	42	8.5	13.5	6604735	20
M 50 x 1.5	PG 21	52	9.5	15.5	6604704	10



Form A



Form B



# Adapter *Nickel-Plated Brass*

**Material:**

- Nickel-Plated Brass

**Characteristics:**

- PG/Metric external thread
- NPT internal thread
- Hexagon

External thread	Internal thread	SW mm	Thread length mm	Complete length mm	Cat. No.	Std. Pk.
<b>PG</b>						
<b>Form A</b>						
PG 7	NPT 3/8"	19	5	19.5	6400400	50
PG 9	NPT 1/2"	24	6	24	6400401	50
PG 11	NPT 1/2"	24	6	24	6400402	50
PG 13.5	NPT 1/2"	24	6.5	24.5	6400403	50
PG 13.5	NPT 3/4"	30	6.5	25	6400404	50
PG 16	NPT 1/2"	24	6.5	24.5	6400405	50
PG 16	NPT 3/4"	30	6.5	25	6400406	50
PG 21	NPT 3/4"	30	7	23	6400407	20
PG 21	NPT 1"	36	7	30	6400408	20
PG 29	NPT 1 1/4"	50	8	32	6400410	20
PG 36	NPT 1 1/2"	55	9	34	6400412	10
PG 48	NPT 2"	64	10	35	6400415	5
<b>Form B</b>						
PG 29	NPT 1"	40	8	18	6400409	20
PG 36	NPT 1 1/4"	50	9	18.5	6400411	10
PG 42	NPT 1 1/2"	60	10	19.5	6400413	5
PG 48	NPT 1 1/2"	64	10	19.5	6400414	5
<b>Metric</b>						
<b>Form A</b>						
M16 x 1.5	NPT 3/8"	19	7	21.5	6402316	50
M16 x 1.5	NPT 1/2"	24	7	25	6402317	50
M20 x 1.5	NPT 1/2"	24	7	25	6402321	50
M25 x 1.5	NPT 3/4"	30	8	27	6402326	20
M32 x 1.5	NPT 1"	36	8.5	31	6402333	10
<b>Form B</b>						
M20 x 1.5	NPT 3/8"	24	7	13	6402320	50
M25 x 1.5	NPT 1/2"	30	8	15	6402325	20
M32 x 1.5	NPT 3/4"	36	8.5	15.5	6402332	10



Form A



Form B

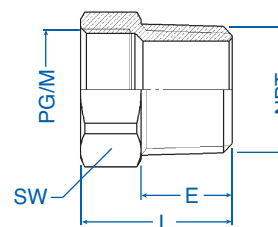
**Material:**

- Nickel-plated brass

**Characteristics:**

- NPT external thread
- PG or M internal thread
- Hexagon

External Thread	Internal Thread	SW mm	Thread Length mm (E)	Complete Length mm (L)	Cat. No.	Std. Pk.
<b>NPT</b>	<b>PG</b>					
3/8"	PG 7	19.0	15.0	20.0	<b>6402020</b>	50
1/2"	PG 9	22.0	20.0	25.0	<b>6402038</b>	50
1/2"	PG 11	22.0	20.0	28.0	<b>6402046</b>	50
1/2"	PG 13.5	24.0	20.0	30.0	<b>6402054</b>	50
1/2"	PG 16	24.0	20.0	30.0	<b>6402055</b>	50
3/4"	PG 11	29.0	20.0	30.0	<b>6402060</b>	50
3/4"	PG 13.5	29.0	20.0	30.0	<b>6402062</b>	50
3/4"	PG 16	29.0	20.0	30.0	<b>6402070</b>	50
3/4"	PG 21	32.0	20.0	32.0	<b>6402072</b>	50
1"	PG 16	36.0	25.0	35.0	<b>6402087</b>	20
1"	PG 21	36.0	25.0	35.0	<b>6402089</b>	20
1"	PG 29	42.0	25.0	38.0	<b>6402091</b>	20
1 1/4"	PG 29	46.0	25.0	35.0	<b>6402097</b>	20
1 1/4"	PG 36	50.0	25.0	42.0	<b>6402099</b>	10
1 1/2"	PG 36	52.0	26.0	42.0	<b>6402100</b>	10
1 1/2"	PG 48	65.0	26.0	49.0	<b>6402102</b>	5
2"	PG 48	65.0	27.0	50.0	<b>6402119</b>	5
<b>NPT</b>	<b>Metric</b>					
3/8"	M 20	23.0	15.0	26.0	<b>6402214</b>	50
3/8"	M 25	28.0	15.0	27.0	<b>6402215</b>	50
1/2"	M 20	23.0	20.0	30.0	<b>6402216</b>	50
1/2"	M 25	28.0	20.0	32.0	<b>6402217</b>	50
1"	M 20	36.0	25.0	31.0	<b>6402218</b>	20
1"	M 25	36.0	25.0	31.0	<b>6402219</b>	20



# Plug

## Material:

- Polyamide
- 25 % glass fiber reinforced

## Characteristics:

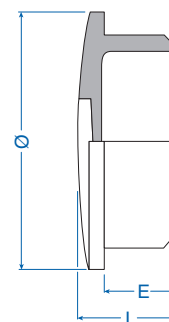
- PG/Metric
- Round, with slot

## Temperature Range

-30 to 120°C  
(-22 to 248°F)

## Polyamide

External thread	Diameter mm	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>PG</b>					
PG 7	15	6	8	7215517	100
PG 9	19	6	9	7215525	100
PG 11	22	6	9	7215533	100
PG 13.5	25	6	9.5	7215541	100
PG 16	27	6	9.5	7215550	100
PG 21	33	8	11	7215568	100
PG 29	44	8	12	7215576	100
PG 36	55	10	15	7215584	50
PG 42	62	10	16	7215592	50
PG 48	69	12	18.5	7215606	50
<b>Metric</b>					
M 12 x 1.5	16	6	8	7217312	50
M 16 x 1.5	20	6	8	7217316	50
M 20 x 1.5	26	8	10.5	7217320	50
M 25 x 1.5	32	8	11	7217325	20
M 32 x 1.5	40	10	13.5	7217332	20
M 40 x 1.5	48	10	14	7217340	20
M 50 x 1.5	55	12	17	7217350	10
M 63 x 1.5	70	12	18	7217363	5



## Material:

- Nickel-plated brass
- O-ring, Nitril

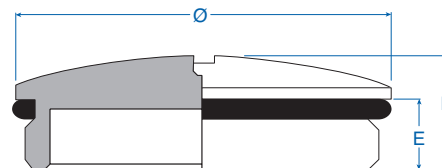
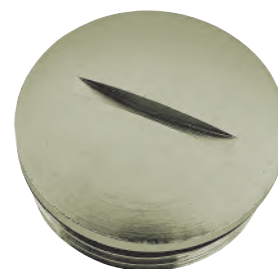
## Characteristics:

- PG/Metric thread
- Round, with slot



## Nickel-Plated Brass

External thread	Diameter mm	Thread length mm (E)	Complete length mm (L)	Cat. No.	Std. Pk.
<b>PG</b>					
PG 7	14	5	8	6700507	50
PG 9	17	6	9	6700509	50
PG 11	20	6	9	6700511	50
PG 13.5	22	6.5	9.5	6700513	50
PG 16	24	6.5	9.5	6700516	25
PG 21	30	7	11	6700521	20
PG 29	39	8	12	6700529	15
PG 36	50	9	15	6700536	10
PG 42	57	10	16	6700542	10
PG 48	64	10	16	6700548	10
<b>Metric</b>					
M 12 x 1.5	14	5	7	6700612	100
M 16 x 1.5	18	6	8	6700616	100
M 20 x 1.5	22	6.5	8.5	6700620	100
M 25 x 1.5	27	7	10	6700625	100
M 32 x 1.5	34	8	11	6700632	50
M 40 x 1.5	44	9	13	6700640	50
M 50 x 1.5	54	10	14.5	6700650	25
M 63 x 1.5	67	10	15	6700663	25

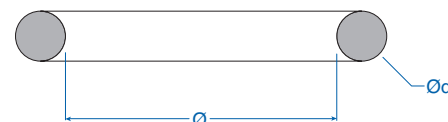
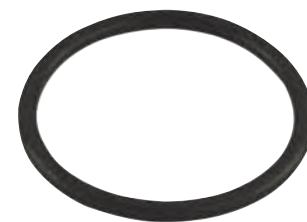


**Material:**  
• Perbunan

**Characteristics:**  
• PG and metric

Temperature Range
-25 to 120°C (-13 to 248°F)

Connecting thread		Internal Diameter mm	Thickness mm (d)	Cat. No.	Std. Pk.
PG	Metric				
PG 7	M 12	10	1.5	8112070	1000
PG 9	M 16	13	1.5	8112096	1000
PG 11		16	1.5	8112118	1000
PG 13.5	M 20	18	1.5	8112134	1000
PG 16		20	1.5	8112169	1000
PG 21		25	2	8112215	1000
	M 25	22	2	8112250	100
	M 32	28	2	8112320	100
PG 29		33	2	8112290	1000
	M 40	37	2	8112400	100
PG 36		43	2	8112363	1000
	M 50	48	2	8112500	100
PG 42		50	2	8112428	1000
PG 48	M 63	55	2	8112630	1000
	M 75	68	2.6	8112675	100



## Sealing Ring *Neoprene*

**Material:**  
• Neoprene, black

**Characteristics:**  
• PG, metric and NPT

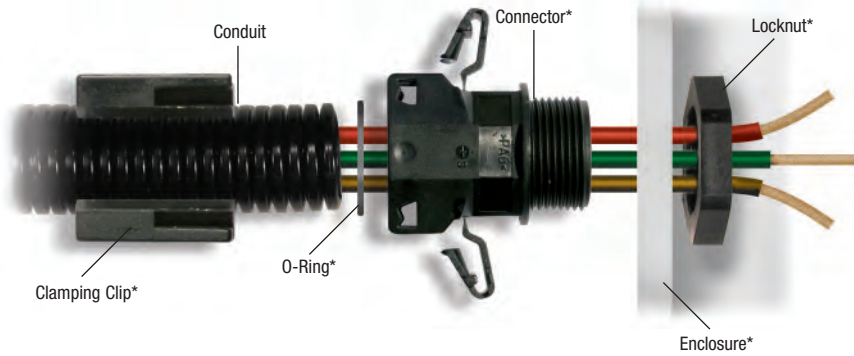
Temperature Range
-40 to 100°C (-40 to 212°F)

Connecting thread	External diameter mm	Internal diameter mm	Thickness mm	Cat. No.	Std. Pk.
<b>PG</b>					
PG 7	17	11.3	1.2	8113301	100
PG 9	20	13.9	1.2	8113302	100
PG 11/NPT 3/8	23	17.1	1.2	8113303	100
PG 13.5	25	19.0	1.2	8113304	100
PG 16/NPT 1/2	27	21.0	1.2	8113305	100
PG 21/NPT 3/4	34	26.6	1.5	8113306	50
PG 29/NPT 1	45	35.2	1.5	8113307	50
PG 36	56	45.2	1.5	8113308	50
PG 42	67	52.2	1.5	8113309	50
PG 48	72	57.7	1.5	8113310	50
<b>Metric</b>					
M 12	15	10	1.2	8113490	100
M 16	20	13.9	1.2	8113302	100
M 20	24	18	1.2	8113492	100
M 25	30	23	1.2	8113493	100
M 32	40	30	1.5	8113494	100
M 40	48	38	1.5	8113495	100
M 50	58	48	1.5	8113496	100
M 63	75	61	1.5	8113497	100
M 75	90	73	1.5	8113498	100



**This is one of our most popular series and is usually kept in stock.**





PROTECTION RATING

**IP65** without sealing

**IP68** with O-Ring

**Material:**

- Polyamide 6

**Upper temperature range:**

- Short-term: 150°C (302°F)

**Characteristics:**

- Parallel corrugated
- Gray available

**Technical properties:**

- Flame retardant according to FMVSS302 and UL94
- Halogen free
- Durable
- UV resistant according to DIN EN ISO 8580

**Applications:**

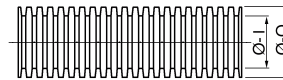
Engine compartment, car body and interior, machines, instruments, devices, ship and train building, switch cabinet and movable machine parts.

Temperature Range
-40 to 120°C (-40 to 248°F)



Other materials and styles available, please consult Altech.

NW	Ø-I mm	Ø-O mm	Bending Radius mm	Cat. No. Black	Std. Pk. Meters
7.5	6.7	10.0	13	1200070	50
8.5	8.4	11.7	15	1200089	50
10	9.9	13.0	20	1200100	50
12	12.2	15.7	30	1200127	50
13	12.7	15.8	35	1200135	50
14	14.2	18.5	40	1200143	50
16	15.0	18.9	45	1200160	50
17	16.6	21.2	45	1200178	50
19	19.3	24.3	50	1200194	50
22	21.3	25.4	50	1200224	50
23	23.2	28.3	55	1200232	50
26	25.8	31.2	60	1200267	25
29	29.0	34.5	65	1200291	25
37	36.0	42.4	90	1200372	25
50	47.7	54.0	100	1200500	25



\*Fitting conduit glands and accessories: see pages 37-39.

**This is one of our most popular series and is usually kept in stock.**

# Conduit Gland Straight

Quick-Mounting System for Polyflex PA 6 Conduit

**Material:**

- Polyamide 66

**Technical properties:**

- Easy and tight single hand mounting
- Insert tube in the "closed" gland
- Special click-in system
- Conical sealing on the corrugated tube
- Gray available
- Thread side sealed by integral sealing ridges
- Conduit can be rotated within the mounting gland
- Halogen free

**Applications:**

- All fields using conduit

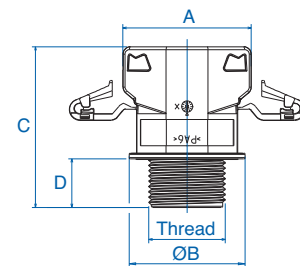
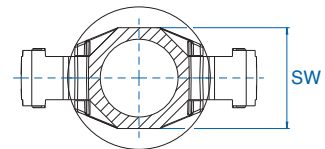
**Mounting instructions:**

Insert the conduit with a short twist all the way into the end of the SEM conduit gland.  
Pull the tube back slightly to latch it securely.

Temperature Range
-40 to 120°C (-40 to 248°F)



Thread	Fits for NW	D mm	SW mm	A mm	B mm	C mm	Cat. No. Black	Std. Pk.
<b>PG</b>								
PG 7	7.5	11.0	14.0	19.0	18.0	34.0	3805028	50
PG 7	8.5	11.0	16.0	20.6	20.0	35.0	3805012	50
PG 9	10	12.0	17.0	21.6	22.0	36.0	3805004	50
PG 11	12 + 13	12.0	20.0	25.5	25.0	38.0	3805009	50
PG 13.5	17	13.0	27.0	34.5	31.0	43.0	3805005	50
PG 16	17	13.0	27.0	34.5	31.0	43.0	3805006	50
PG 21	22	13.0	32.0	40.5	36.0	48.0	3805023	25
PG 21	23	13.0	34.0	42.5	38.0	48.0	3805014	25
PG 29	29	15.0	41.0	49.5	46.0	52.0	3805016	20
PG 36	37	17.0	50.0	59.0	55.0	62.0	3805018	10
PG 48	50	19.0	64.0	72.0	72.0	68.0	3805021	5
<b>Metric</b>								
M 12 x 1.5	7.5	11.0	14.0	19.0	18.0	34.0	3805047	50
M 12 x 1.5	8.5	11.0	16.0	20.6	20.0	35.0	3805011	50
M 16 x 1.5	10	12.0	17.0	21.6	22.0	36.0	3805001	50
M 16 x 1.5	12 + 13	12.0	20.0	25.5	25.0	38.0	3805007	50
M 20 x 1.5	12 + 13	12.0	20.0	25.5	25.0	38.0	3805008	50
M 20 x 1.5	17	13.0	27.0	34.5	31.0	43.0	3805002	50
M 25 x 1.5	22	13.0	32.0	40.5	36.0	48.0	3805022	25
M 25 x 1.5	23	13.0	34.0	42.5	38.0	48.0	3805013	25
M 32 x 1.5	29	15.0	41.0	49.5	46.0	52.0	3805015	20
M 40 x 1.5	37	17.0	50.0	59.0	55.0	62.0	3805017	10
M 63 x 1.5	50	19.0	64.0	72.0	72.0	68.0	3805020	5



**This is one of our most popular series and is usually kept in stock.**

\*With O-ring, see page 39.  
Locknuts sold separately, see page 24.

# Conduit Gland angled 90°

Quick-Mounting System for Polyflex PA 6 Conduit

## Material:

- Polyamide 66

## Technical properties:

- Easy and tight single hand mounting
- Insert tube in "closed" gland
- Special click-in system
- Conical sealing on the corrugated tube
- Thread side sealed by integral sealing ridges
- Gray available
- Conduit can be rotated within the mounting gland
- Halogen free

## Applications:

All fields using conduit

## Mounting instructions:

Insert the conduit with a short twist all the way into the end of the SEM conduit gland.  
Pull the tube back slightly to latch it securely.

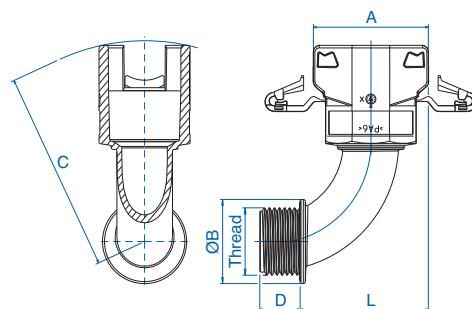
PROTECTION RATING  
**IP65** / **IP68** \*



## Temperature Range

-40 to 120°C  
(-40 to 248°F)

Thread	Fits NW	D mm	L mm	A mm	B mm	C mm	Cat. No. Black	Std. Pk.
<b>PG</b>								
PG 9	10	12.0	29.0	21.6	20.0	50.0	<b>3805201</b>	50
PG 11	12 + 13	12.0	34.0	25.5	25.0	54.6	<b>3805207</b>	50
PG 16	17	13.0	44.5	34.5	31.0	65.8	<b>3805213</b>	25
PG 21	23	13.0	51.5	42.5	38.0	74.1	<b>3805219</b>	20
PG 29	29	15.0	63.5	49.5	48.0	86.8	<b>3805225</b>	10
PG 36	37	17.0	74.5	59.0	56.0	104.8	<b>3805231</b>	10
PG 48	50	19.0	99.8	72.0	72.0	129.0	<b>3805237</b>	5
<b>Metric</b>								
M 16 x 1.5	10	12.0	29.0	21.6	20.0	50.0	<b>3805200</b>	50
M 20 x 1.5	12 + 13	12.0	34.0	25.5	25.0	54.6	<b>3805206</b>	50
M 20 x 1.5	17	12.0	38.5	34.5	25.0	59.7	<b>3805211</b>	25
M 25 x 1.5	23	13.0	48.5	42.5	31.0	71.3	<b>3805217</b>	20
M 32 x 1.5	29	13.0	54.5	49.5	38.0	77.2	<b>3805223</b>	10
M 40 x 1.5	37	15.0	68.5	59.0	48.0	95.6	<b>3805229</b>	10
M 63 x 1.5	50	19.0	99.8	72.0	72.0	129.0	<b>3805236</b>	5



\*With O-ring, see page 39.

Locknuts sold separately, see page 24.

**Material:**

- NBR 70

**Characteristics:**

- Shore: 70 ± 5

**Features:**

The O-ring must be mounted into the first groove of the conduit.

The conduit, with its pre-mounted sealing ring, must be inserted into the SEM gland and simply twisted into the end.



Temperature Range
-30 to 120°C (-22 to 248°F)

Fits for NW	Internal Diameter mm	Thickness mm	Cat. No.	Std. Pk.
7.5	5.0	1.5	8112800	50
8.5	7.0	1.2	8112801	50
10	7.0	1.5	8112802	50
12	9.0	1.5	8112804	50
13	8.0	1.6	8112803	50
17	14.0	1.8	8112807	50
22	14.0	2.0	8112808	25
23	18.0	2.0	8112809	25
29	20.0	2.5	8112810	20
37	24.0	2.5	8112811	10
50*	28.0	2.5	8112813	5

\* NW50 parts require 2 o-rings (one in first and one in second groove of corrugated tube).

## Clamping Clip for conduit tubes

**Material:**

- Polyamide

**Color:**

- Black

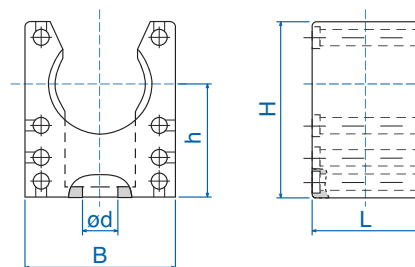
**Technical Properties:**

- Stackable
- Quick mounting of conduits
- Center rib for traction relief



Temperature Range
-40 to 105°C (-40 to 221°F)

Suitable for NW	B mm	H mm	h mm	L mm	d mm	Cat. No.	Std. Pk.
7.5	20.0	18.0	12.0	20.0	4.2	8221050	100
10	20.0	23.0	15.5	20.0	5.5	8221051	100
12 + 13	22.0	26.0	17.1	20.0	5.5	8221052	50
14 + 16	28.0	33.0	21.1	20.0	6.5	8221053	50
17	28.0	33.0	21.4	20.0	6.5	8221054	50
23	35.0	40.0	24.8	20.0	6.5	8221055	50
29	43.0	45.0	26.8	20.0	6.5	8221056	50
37	54.0	53.0	30.8	20.0	6.5	8221057	20
50	68.0	66.0	37.8	20.0	6.5	8221058	20





# Technical Annex *Chemical resistance of plastic materials*

+ stands for: resistant o stands for: conditionally resistant - stands for: not resistant	Concentration %	at temp. +°C	Polyamide	Polyamide	Polyamide	Thermoplastic Polyurethane	Polypropylene	Polyethylene	Polyethylene	Polystyrene	Thermoplastic elastomere	Nitrile-butadiene-rubber
Acetaldehyde	40	20	o	o	+		+					20°C o
Acetic acid	100	20					+	+	+			o
Acetone	100	20	+	+	+	-	+	o	o			-
Acrylic acid	100	> 30	-	-	-					-		
Allyl alcohol	96	20	o	o	+		+	+	+	20% +		
Alum, hydrous	dilute	40					+	+	+	+		20°C +
Aluminium chloride, hydrous	dilute	40					+	+	+	+		20°C +
Aluminium sulphate, hydrous	dilute	40					+	+	+	+		20°C +
Ammonia solution, hydrous	saturated	20	20% +	20% +	20% +		+	+	+	20% +		
Ammonium chloride, hydrous	saturated	60				3% o	+	+	+			20% +
Ammonium nitrate, hydrous	dilute	40					+	+	+	+		20% +
Ammonium sulphate, hydrous	dilute	40					+	+	+			-
Aniline hydrochloride, hydrous	saturated	20					+	o	o			
Aniline, pure	100	20	o	o	o		+	+	+	-	+	
Benzaldehyde, hydrous	saturated	20	pure o	pure o	pure o		+			-		-
Benzene	100	20	+	+	+		o	+	o	-	o	+
Benzoic acid, hydrous	any	40	20% o	20% o			+	+	+	+		-
Benzole	100	20	+	+	+		o	o	o	-		-
Bleaching liquor	12,5 Cl	20	-	-	o	3% -	+	+	+	+		-
Borax, hydrous	dilute	40					+	+	+	+		20% o
Boric acid, hydrous	dilute	40	o	o	o	3% o	+	+	+			20% +
Bromine, liquid	100	20	-	-	-		-	-	-	-	-	-
Butanediol, hydrous	to 10	20	pure +	pure +			+	+	+			
Butanol	to 100	20					+	+	+	+		+
Butylacetate	100	20	+	+	+		o	o	o	-		-
Calcium chloride, hydrous	saturated	40	+	+	+		+	+	+	+		20% +
Carbon bisulphide	100	20	+	+	+		+	o	o	-		-
Carbon dioxide	100	60	+	+	+							20% +
Carbon dioxide, dry	100	60					+	+	+	50°C +		20% +
Carbon tetrachloride	100	20	+	+	+		-	o	-	-		
Caustic potash solution, hydrous	50	20	+	+	+		+	+	+	+	10% +	
Caustic soda lye, hydrous	10	20	+	+	+	3% o	+	+	+	+	50% +	
Chlorine	any	20	-	-	-		-	-	-	-		-
Chrome alum, hydrous	dilute	40					+	+	+			20% +
Citric Acid	to 10	40	20% +	20% +	20% +	3% o	+	+	+	+		20% +
Cooling liquids DIN 53521		120	o	o								
Copper monochloride, hydrous	saturated	20					+	+	+			+
Copper sulphate, hydrous	saturated	60					+	+	+			20% +
Cresol, hydrous	to 90	20	pure -	pure -			+	+	o	o		-
Cyclohexanol	-	20	+	+	+		+	+	+	+		+
Diesel fuel		85	+	+	+	20% +	20% +	20% +	20% +			
Drilling oil			+	+	+							
Ethanoic acid	10	20	o	o	+	3% o	+	+	+	o	+	
Ethyl alcohol, hydrous	10	20	40 Vol.%+	40 Vol.%+	40 Vol.%+		+				+	+
Ethyl dichloride	100	20					o	-	-			-
Ethyl ether	100	20					o					o
Ethylene oxide, liquid	100	20					o					
Ferric cyanide, hydrous	saturated	60					+	+	+			
Ferrous chloride, hydrous, indiff.	10	20	+	+		+	+	+	+		+	
Fluorine	50	40	pure -	pure -	pure -		-	-	-			
Formaldehyde, hydrous	dilute	40	pure +	pure +	pure +		40% +	40% +	40% +	30% +		20°C o
Formic acid, hydrous	10	20	o	o	+		+	+		+		
Glucose, hydrous	any	50					+	+	+			
Hydraulic fluid, hardly inflammable		80	+	+	+							
Hydraulic oil H and HL (DIN 51524)		100	+	+	+							

	Concentration %	at temp. +°C	Polyamide	Polyamide	Polyamide	Thermoplastic Polyurethane	Polypropylene	Polyethylene	Polyethylene	Polystyrene	Thermoplastic elastomere	Nitrile-butadiene rubber
Reagens			PA 6	PA 66	PA 12	PU	PP	HD-PE	LD-PE	PS	TPE	NBR
Hydrobromic acid, hydrous	to 10	40	-	-	-		+	+	+			-
Hydrochloric acid, hydrous	30	20	20% -	20% -	20% -	3% -	+	+	+	15% +	10% +	0
Hydrogen	100	60	20°C +	20°C +	20°C +		+	+	+			20°C +
Hydroxilicofluoric acid, hydrous	to 30	20	-	-			+	+	+			
Hydroxylamine sulphate, hydrous	to 12	30					+					
Kerosine	100	80	+	+	+		20°C +	20°C +	20°C o	-		
Lactic acid, hydrous	to 90	20	10% +	10% +	10% +	3% o	+	+	+	80% +		+
Lubricating grease, base diester oil		110	o	o								
Lubricating grease (base polyphenyle ester)		110	+	+	+							
Lubricating grease, base silicone oil		110	+	+	+							
Magnesium carbonate, hydrous	saturated	100					+			50°C +		
Magnesium chloride, hydrous	saturated	20	10% +	10% +	10% +		+	+	+	+		+
Mercury	pure	20	+	+	+		+	+	+	+		+
Methyl alcohol	100	20	+	+	+		40°C +	+	+	+	+	+
Methylene chloride	100	20	o	o	o		o	o	-			
Mineral oil			+	+	+		20°C +	20°C +	20°C +			
Nickel chloride, hydrous	saturated	20	10% o	10% o	10% o		+			+		+
Nickel sulphate, hydrous	saturated	20	10% o	10% o	10% o		+	+	+			+
Nitric acid, hydrous	50	20	-	-	-	3% -	o	o	o	30% +		-
Nitro glycerin	dilute	20						-	-			
Oil and grease		20	+	+	+		o				o	
Oleic acid	-	20	+	+	+		+	+	+	+		o
Oxalic acid	any	20	10% o	10% o	10% o	3% o	+	+	+	+		o
Ozone	pure		-	-	-		o	o	o			
Phosgene, gaeous	100	20					o	o	o			
Phosphoric acid, hydrous	dilute	20	10% -	10% -	10% -	3% o	+	+	+	86% +		-
Phosphorus pentoxide	100	20					+					
Potassium bromide, hydrous	any	20	10% +	10% +	10% +		+	+	+	+		
Potassium chloride, hydrous	10	20	+	+	+		+	+	+	+		+
Potassium dichromate, hydrous	40	20	5% o	5% o	5% o		+	+	+			+
Potassium nitrate, hydrous	any	20	10% +	10% +	10% +		+	+	+	+		+
Potassium permanganate, hydrous	saturated	20					+			+		
Sea water		40	+	+	+	20°C +	+	+	+	+	+	20°C +
Soap solution, hydrous	any	20	dilute +	dilute +	dilute +		+	+	+			+
Sodium chlorate, hydrous	saturated	20	10% o	10% o	10% o		+	+	+			
Sodium sulphide, hydrous	dilute	40					+	+	+			
Sulphuric acid, hydrous	10	20	-	-	-	3% -	50% +	50% +	50% +	+	98% +	-
Tin dichloride, hydrous	dilute	40					+	+	+	-	10% +	20°C +
Toluene	100	20	+	+	+	-		o	o	o		-
Trichloroethylene	100	20	o	o	o		o	o	-			
Urea, hydrous	to 10	40	20% +	20% +	20% +		+	+	+	+		
Vinyl acetate	100	20					+					
Waste Gas tight, containing carbon dioxide	any	60						+	+			
Waste Gas tight, containing SO2	low	60						+	+			
Xylene	100	20	+	+	+		-	o	o	-		-
Zinc chloride, hydrous	dilute	60	10% o	10% o			+	+	+	50°C +		20°C +
Zinc sulphate, hydrous	dilute	60					+	+	+			20°C +

Source: Plastic Table, B. Carlowitz, Carl Hanser Verlag, et. al.

The above mentioned data enable a preselection. However it is not the use of the data, to promise definite properties of the products or their suitability for a concrete application purpose. The data doesn't release the purchaser to control the quality conformance.

Protection Modes to EN 60529 DIN VDE 0470 Part 1		Second Digit – Degree of Water Protection								
		IP X0 No Protection	IP X1 Protection against dripping water falling vertically	IP X2 Protection against dripping water even when tilted 15° vertically	IP X3 Protection against dripping water even when tilted 60°	IP X4 Protection against splashing water from any direction	IP X5 Protection against water jets from any direction	IP X6 Protection against heavy seas from any direction	IP X7 Protection against effects of immersion	IP X8 Protection against submersion
First Digit	Protection against penetration of foreign bodies									
Person touching										
IP 0X	No protection	No protection	IP 00							
IP 1X	Protection against touching with the hand	Protection against large solid bodies > 50mm Ø	IP 10	IP 11	IP 12					
IP 2X	Protection against touching with the finger	Protect. against med., solid bodies > 12.5 mm Ø	IP 20	IP 21	IP 22	IP 23				
IP 3X	Protection against touching with tools, wires, etc., > 2.5 mm Ø	Protection against small, solid bodies > 2.5 mm Ø	IP 30	IP 31	IP 32	IP 33	IP 34			
IP 4X	Protection against touching with tools, wires, etc., > 1 mm Ø	Protection against small, solid bodies > 1 mm Ø	IP 40	IP 41	IP 42	IP 43	IP 44			
IP 5X	Protection against touching with tools, wires, etc., > 1 mm Ø	Protection against internal dust accumulation	IP 50				IP 54	IP 55		
IP 6X	Protection against touching with tools, wires, etc., > 1 mm Ø	Protection against all dust penetration								

In some countries a third digit is added. It gives information about the mechanical properties of the equipment. This designation has not yet been standardized according to current DIN and IEC regulations. Devices in this catalogue correspond to digit IP .7.

## CHART II NEMA / IP Cross Reference

The chart below provides a cross-reference from NEMA to International Protection (IP) Ratings. This cross-reference is an approximation based on the most current information available. It is not sanctioned by NEMA, IEC, or any other regulatory body. This chart should be used only as a guideline.

IEC 529 Protection Ratings	NEMA Ratings									
	1	2	3	3R	4	4X	5	6	12	13
IP 00	↓									
IP 10		↓								
IP 11										
IP 20										
IP 21										
IP 22										
IP 23										
IP 30										
IP 31				↓						
IP 32										
IP 33										
IP 40										
IP 41										
IP 42										
IP 43										
IP 50										
IP 51							↓			
IP 52										
IP 53										
IP 54										↓
IP 55										
IP 56										
IP 60										
IP 61										
IP 62			↓							
IP 63										
IP 64										
IP 65					↓	↓				
IP 66								↓	↓	
IP 67										
IP 68										

## CHART III International Protection (IP) Ratings to IEC 262

The standard EN 50 262 was issued on 01.04.1998 and published in April 1999 in Germany as DIN-EN 50 262/VDE 0619. The well-known standards for cable glands, such as DIN VDE 0619 (VDE 0619): 1987-09, DIN 46 319: 1989-12, DIN 46 320-1: 1985-09 and DIN 46 320-2...-4: 1973-01 etc, are only applicable until 31.12.1999. Approved technical drawings using these standards are valid until 01.03.2001.

- 1.) Fields of application for standard EN 50 262: This European standard contains the requirements and tests for the construction and design of metric cable glands. This standard covers the cable gland as a complete part, but not the parts of cable glands.
- 2.) The screw-in thread of cable glands must be constructed according to chart 1 of EN 60 423. The dimensions of the thread are M6x0,75; M8x1; M10x1; M12x1.5; M16x1.5; M20x1.5; M25x1.5; M32x1.5; M40x1.5; M50x1.5; M63x1.5 and M75x1.5.
- 3.) The mounting holes must be dimensioned according to **Chart A**.
- 4.) Cable glands must be able to guarantee the retaining power for cables and conduits for the complete sealing section. Cable glands with traction relief for cables and conduits must free the conduits from the load of tension and twist. The tests are carried out, with in each case the smallest and largest mentioned value of the seal resp. tension relief section of the according loads and torque values in **Chart B**.

These tests are performed with test pins reproducing the outer diameters of the cables and conduits. The test pins consist of a metal rod with an elastomere sheath.

- 5.) Cable glands must be impact resistant. A test pin according to the smallest value of the sealing section is fastened to the test probe and then the test is carried out a lowest temperature according to the energy in accordance with category of **Chart C**. All specifications, charts and values are excerpts from standard DIN 50 262. Obviously further tests (electric properties, IP-Code etc.), which are necessary to classify and mark cable glands are described in this standard. It would although go beyond the scope of this catalogue.

**Chart A: Mounting holes for cable glands**

Thread size	12	16	20	25	32	40	50	63
Diameter of Mounting hole	M12	M16	M20	M25	M32	M40	M50	M63
+ 0.2/- 0.4 mm	12.5	16.5	20.5	25.5	32.5	40.5	50.5	63.5

**Chart B: Tensile load for retaining power and tension relief, torque for turning tests**

Cable and Conduit diameter [mm]	Retaining Power [N]	Tensile relief Type A [N]	Tensile relief Type B [N]	Torque Type A and B [Nm]
thru 4	5	-	-	-
> 4 thru 8	10	30	75	0,10
> 8 thru 11	15	42	120	0,15
> 11 thru 16	20	55	130	0,35
>16 thru 23	25	70	140	0,60
> 23 thru 31	30	80	250	0,80
> 31 thru 43	45	90	350	0,90
> 43 thru 55	55	100	400	1,00
> 55	70	115	450	1,20

**Chart C: Value for impact test**

Categories	1	2	3	4	5	6	7	8
Load [N]	2	2	2	2	10	10	10	20
Weight [Kg]	0.2	0.2	0.2	0.2	1.0	1.0	1.0	2.0
Energy [J]	0.2	0.5	1.0	2.0	4.0	7.0	10.0	20.0
Height [m]	0.1	0.25	0.5	1.0	0.4	0.7	1.0	1.0

## CHART IV Tightening torque for cable glands

In casing with female thread or hole with lock nut.

Dome nuts may be tightened with max half of the locknut tightening torque according to the chart.

Note:

The values in the chart serve as a general guideline, the exact procedure depends upon the material.

Nominal size	Metal	Plastic moulded parts
	Tightening torque [Nm]	Tightening torque [Nm]
Pg 7/M12	6.25	2.5
Pg 9/M16	6.25	3.75
Pg 11/NPT3/8	6.25	3.75
Pg 13.5/M20/NPT1/2	6.25	3.75
Pg 16	7.5	5.0
Pg 21/M25/NPT3/4	10.0	7.5
Pg 29/M32/NPT1	10.0	7.5
Pg 36/M40	10.0	7.5
Pg 42/M50	10.0	7.5
Pg 48/M63	10.0	7.5

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3805007	37	4220616	5	4221720	13	4248612	15	4248686	15
3805008	37	4220620	5	4221721	13	4248614	15	4248687	15
3805009	37	4220625	5	4221725	13	4248627	15	4248688	15
3805011	37	4220632	5	4221726	13	4248629	15	4248689	15
3805012	37	4220640	5	4221732	13	4248631	15	4248690	15
3805013	37	4220650	5	4221733	13	4248632	15	4248691	15
3805014	37	4220663	5	4221740	13	4248634	15	4248692	15
3805015	37	4220712	5	4221750	13	4248640	15	4248693	15
3805016	37	4220716	5	4221760	13	4248641	15	4248694	15
3805017	37	4220720	5	4224300	14	4248642	15	4248695	15
3805018	37	4220725	5	4224305	14	4248643	15	4248696	15
3805020	37	4220732	5	4224306	14	4248644	15	4248697	15
3805021	37	4220740	5	4224307	14	4248645	15	4248698	15
3805022	37	4220750	5	4224310	14	4248646	15	4248699	15
3805023	37	4220763	5	4224311	14	4248647	15	4248700	15
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3805229	38	4220854	6	4224706	14	4248660	15	4248713	15
3805231	38	4220855	6	4224707	14	4248661	15	4248714	15
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Delivery dates given in the acceptance of any order are approximate. ALTECH shall not be liable for delays in delivery or in performance due to causes beyond its reasonable control including acts of God, acts of Customer, acts of civil or military authority, fires, strikes or other labor disturbances, war, riot or delays in transportation. In the event of such delay, the date of delivery or performance shall be extended for a period equal to the time lost by reason of the delay.

**PRICE** - PRICES in any ALTECH publication are subject to change without prior notification. Catalog prices are based on prices published in the current price list. All written quotations are valid for thirty (30) days from the date of quotation. Customer shall pay all sales, use, excise or similar taxes whenever ALTECH must itself pay and/or collect such tax from Customer arising out of the sale.

**PAYMENT** - Customer agrees to make payment within thirty (30) days of date of the invoice from ALTECH. Customer agrees to pay a late payment charge of one and one-half percent (1.5% per month, or the maximum late payment charge permitted by applicable law, whichever is less, on any unpaid amount for each calendar month (or fraction thereof) that such payment is in default. Orders amounting to less than \$100.00 will be billed at \$100.00 plus freight. Full carton purchases are required. In the event of referral to an attorney for collection, reasonable attorney's fees for collection of the overdue amount shall be paid by Customer. In the event payment is not received within 30 days from the date of invoice, any discount shall be cancelled and the full list price will be due.

**LIMITED WARRANTY** - ALTECH warrants to Customer that the equipment purchases shall be free from defects in material and workmanship under normal use and service for a period of one year from shipment.

Written notice as an explanation of the circumstances of any claim that the equipment has proved defective in material or workmanship shall be given promptly by the Customer to ALTECH.

ALTECH will not be liable for any misuse, improper operations, improper installation, improper maintenance, alteration, modification, accident or unusual degradation of the equipment or parts due to an unsuitable installation environment.

No representation of other affirmation of facts, including but not limited to statements regarding capacity, suitability for use or performance of the equipment, shall be or be deemed to be a warranty or representation by ALTECH for any purpose, nor give rise to any liability or obligation of ALTECH whatsoever.

Customer's sole and exclusive remedy in the event of breach of warranty, as set forth herein, is expressly limited to (1) the correction of the defect by adjustment, repair, modification, or replacement, or (2) issuance of a credit or refund of the purchase price for the defective equipment at ALTECH's election and sole expense.

EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

THIS WARRANTY EXTENDS ONLY TO THE CUSTOMER FROM ALTECH OR ITS AUTHORIZED DISTRIBUTOR.

**LIMITATION OF LIABILITY** - IN NO EVENT, SHALL ALTECH BE LIABLE FOR LOSS OF PROFITS, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY BREACH OF THIS AGREEMENT OR OBLIGATIONS UNDER THE AGREEMENT.

ALTECH SHALL NOT BE LIABLE FOR ANY DAMAGES CAUSED BY DELAY IN SHIPMENT, INSTALLATION OR FURNISHING OF EQUIPMENT OR SERVICES UNDER THIS AGREEMENT.

No action arising out of any claimed breach of this Agreement may be brought by either party more than two (2) years after the cause of action has accrued.

**PATENT INDEMNITY** - ALTECH shall defend or settle any suit or proceeding brought against Customer based on a claim that any equipment made to ALTECH design and furnished hereunder constitutes an infringement of any existing United States patent, provided (ALTECH) is notified promptly in writing and is given complete authorization and information required for the defense, and ALTECH shall pay all damages and costs awarded against Customer, but shall not be responsible for any costs, expense or compromise incurred or made by Customer without ALTECH's prior written consent. If any equipment is in ALTECH's opinion likely to or does become the subject of a claim for patent infringement, ALTECH may at its option and expense procure for Customer the right to continue using the device, modify it to become non-infringing, but in the event ALTECH is not reasonably able to modify, substitute, or otherwise procure for Customer the right to continue using it, ALTECH will remove such equipment and refund to Customer the amount paid in excess of a reasonable rental for past use.

ALTECH shall not be liable for any infringement or claim based upon use of the equipment in combination with other equipment not supplied by ALTECH or with modifications made by Customer.

The foregoing states the entire liability of ALTECH to Customer arising from patent infringement.

**SELLER'S REMEDIES** - Should Customer fail to make any payment within ten (10) days of its due date, or fail to perform any other of the Customer's obligation hereunder upon thirty (30) days written notice, or should Customer be or become insolvent or be a party to any bankruptcy receivership proceeding prior to full payment of all amounts payable hereunder, ALTECH may: (a) with or without demand or notice to customer declare the entire amount unpaid immediately due and payable; (b) enter upon the premises where the equipment may be found and remove it (Customer shall assemble the equipment and make it available to ALTECH at a place reasonably convenient to both parties and shall permit and assist ALTECH in effecting the retaking and removal of the equipment); and (c) sell any or all the equipment as permitted under applicable law, applying the proceeds of the sale to payment of the expenses of retaking, repairing and selling the equipment, reasonable attorney fees and to the satisfaction of all indebtedness then due and unpaid under this Agreement. Any surplus shall be paid to Customer and any deficiency shall be paid to ALTECH by Customer.

The remedies provided herein shall be cumulative and in addition to all other remedies provided by law or equity or under the Uniform Commercial Code.

**GOVERNING LAW** - This agreement will be governed by the Laws of the State of New Jersey.

**GENERAL** - This Agreement shall only become effective and binding when either (a) it has been accepted and executed by an authorized representative of ALTECH, or (b) the equipment has been shipped to Customer, with or without acceptance in writing hereon. Notice of acceptance is hereby waived by Customer. Customer hereby acknowledges receipt of a true and complete copy hereof.

No addition to or modification of any of the Terms and Conditions of Sale as they appear herein shall be binding upon ALTECH unless signed in writing by duly authorized representative of ALTECH in Flemington, N.J.

Typographical and clerical errors in quotations, orders and acknowledgments are subject to correction.

This Agreement is not assignable without the prior written consent of ALTECH. Any attempt to assign any of the rights, duties or obligations of this Agreement without such consent is void.

If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability, of the remaining provisions shall not in any way be affected or impaired thereby.

ALTECH is not responsible for failure to fulfill its obligation under this Agreement due to causes beyond its control, or except as agreed herein.

THE CUSTOMER ACKNOWLEDGES THAT HE HAS READ THE AGREEMENT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. FURTHERMORE, THE CUSTOMER AGREES THAT IT IS THE COMPLETE AND EXCLUSIVE STATEMENT OF THE AGREEMENT BETWEEN THE PARTIES, WHICH SUPERSEDES ALL PROPOSALS OR PRIOR AGREEMENTS, ORAL OR WRITTEN, EXPRESSED OR IMPLIED, AND ALL OTHER COMMUNICATIONS BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT.

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- Maintenance Free

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printing or adhesive label.

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small to medium size enclosures

## TG Series



small to medium size enclosures

## AL Series



small to large size enclosures  
made from aluminum

## Abox Series



small to medium size enclosures

## Abox-i Series



junction boxes for  
harsh environments

## AKL Series



medium to large size enclosures

## EK Series



small to medium size enclosures  
with transparent doors

## AK Series



medium to large size enclosures  
with transparent doors

## HP Series



economy junction boxes

## PB Series



push button enclosures

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- Connectors
- Enclosures
- European Spare Parts
- Digital Panel Meters
- Foot Switches
- Interface Modules
- Panel Accessories
- Power Supplies
- Power Semi-Conductors
- Programmable Controllers
- Push Buttons & Pilot Lights
- Relays
- Sensors
- Terminal Blocks
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#### Connectors



Industrial Rectangular Connectors



Pin & Sleeve Devices



Receptacles

#### Foot Switches



Foot Switches

#### Sensors



Inductive Proximity Sensors

#### Enclosures

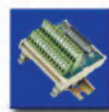


Industrial Enclosures



DIN Enclosures

#### Modules & Relays



Interface Modules



Safety Relays



Slimline Relays

#### Power Supplies



Power Supplies

#### Push Buttons



22 & 30 mm Push Buttons

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DIN Rail

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Wire Duct

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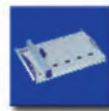
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Ferrules



Custom Assembly



Marking & Engraving Systems



Altech Smart Relay



Tower Lights

