



CVB-EX

Mil-C-5015 reverse bayonet ATEX Connectors



Standards

Certification

94/9/EC (ATEX) Directive

According to European Standards

EN 60079-0

EN 60079-1

EN 61241-0

EN 61241-1

Protection degree

IP66/67 EN60529

Certificate **ICEPI 08 ATEX 03C002X**



I M2 Ex d I



II 2G Ex d IIC



II 2GD Ex d IIC tD A21 IP66/IP67

Application area

Suitable for **surface applications**

Group II Zones 1, 21, 2 and 22 (Gas and Dust)

Gas Group **IIC**

Ambient temperature **-40°C/+120°C**

Suitable for **underground applications**

Group I category M2

Can be installed on devices and enclosures designed with following type of protection

Explosion proof

Ex d – EN60079-1

Increased safety

Ex e – EN60079-7

Intrinsic safety

Ex i – EN60079-11

Pressurization

Ex p – EN60079-2

Messrs.
DYNAMIN S.r.l.
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VITTUONE (MI)

To the att.n of Mr. Carlo Grassi

Piacenza, 10.06.2008

SUBJECT: Verification of the conformity to the directive **94/9/EC** of Your **Connectors** series **CVB-Ex** and **CVBM-Ex**, protected by "flameproof enclosure" and by "enclosure tD".

With reference to Your request, we confirm You the conformity of the above mentioned **connectors** to the directive 94/9/EC (ATEX), with the following characteristics:

Group I cat. M2 - Group II cat. 2GD
Ex d I - Ex d IIC, Ex tD A21 IP66/67

Reference standards:

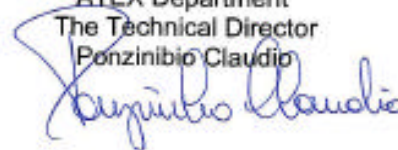
EN 60079-0 EN 60079-1 EN 61241-0 EN EN 61241-1

The relevant EC-Type Examination Certificate will bear the following number:

ICEPI 08 ATEX 03C002X

Regards

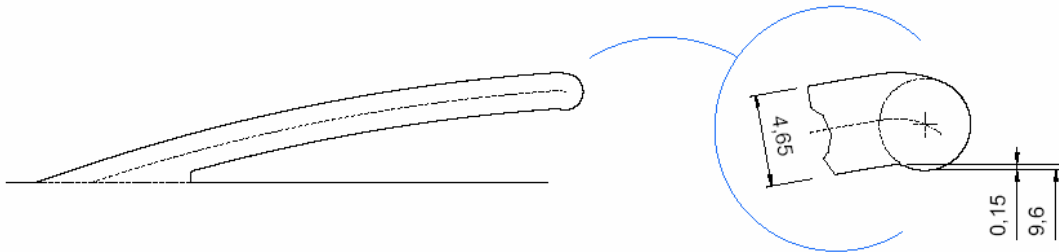
ICEPI S.p.A.
ATEX Department
The Technical Director
Ponzinibio Claudio



Reverse bayonet coupling system

The reverse bayonet connectors are derived from the threaded Mil-C-5015 series to provide faster coupling and anti-vibration resistance.

In this series the coupling system is composed by 3 bayonet ramps (see drawing below) machined on the external side of the receptacle connector and 3 stainless steel studs mounted inside the plug connector's coupling nut.



Characteristic

To mate connectors rotate coupling-nut 120° only
Audible, visible and tactile mating.

The bayonet ramps are resistant to damage

Advantages against the thread coupling

Fast coupling and uncoupling

Security of coupling is guaranteed and consequently improved reliability

Higher number of mating cycles

General Characteristics

– Working Temperature:	-40°C / +135°C
– Protection degree:	IP66/IP67 according to EN 60529
– Shell material:	Hard anodized aluminium alloy or nickel plated brass
– Safety lock:	Stainless steel hexagon socket screw
– Available arrangements:	Wide range according to Mil-C-5015
– Shell sizes:	from 16S to 40
– Contacts quantity:	from 2 to 150
– Contacts termination:	Crimp

Contacts rating

		Service									
		A		D		E		I		L	W
		500 Vdc	700 Vac	1250 Vdc	900 Vac	1750 Vdc	1250 Vac	200 Vdc	200 Vac	48 V max	5V
Contact Size	Pin dia. mm.	Max. operating current (A)									
20	1	3								5	1
18	1.42	6									
16S	1.58	10									
16	1.58	10									
12	2.38	20									
8	3.6	40									
4	5.7	63									
0	9.05	125									

Determination of max admissible current (Amps) for each contact size depends on connector's ambient temperature and temperature class for **mounting on Ex d equipments**.

Amb.Temp.		= 60° C	70°C		90°C		110°C	120°C
Temp.Class		T6	T6	T5	T5	T4	T4	T4
Contact size	20	3	1,5	3	1,5	3	1,5	0,75
	18	6	3	6	3	6	3	1,5
	16S	10	5	10	5	10	5	2,5
	16	10	5	10	5	10	5	2,5
	12	20	10	20	10	20	10	5
	8	40	20	40	20	40	20	10
	4	63	31,5	63	31,5	63	31,5	15,5
	0	125	62,5	125	62,5	125	62,5	31

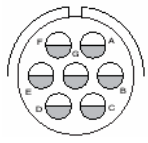
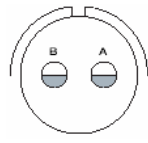
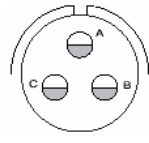
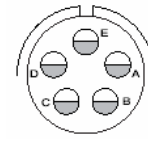
Determination of max admissible current (Amps) for each contact size depends on connector's ambient temperature and temperature class for **mounting on Ex e / Ex p equipments**.

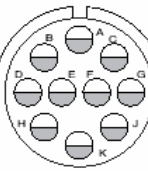
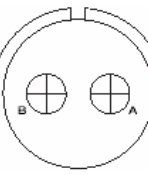
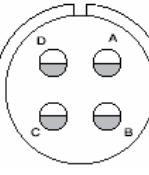
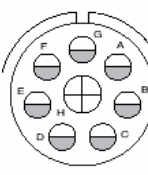
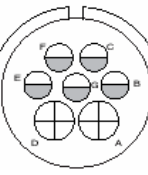
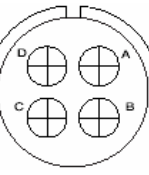
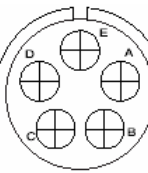
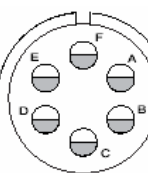
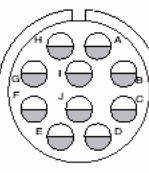
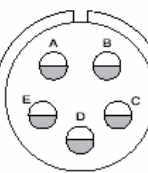
Amb.Temp.		40°C		60°C		80°C		90°C		110° C	120° C
Temp.Class		T6	T5	T6	T4	T5	T4	T5	T4	T4	T4
Contact size	20	1,5	3	1,5	3	1,5	3	0,75	1,5	1,5	0,75
	18	3	6	3	6	3	6	1,5	3	3	1,5
	16S	5	10	5	10	5	10	2,5	5	5	2,5
	16	5	10	5	10	5	10	2,5	5	5	2,5
	12	10	20	10	20	10	20	5	10	10	5
	8	20	40	20	40	20	40	10	20	20	10
	4	31,5	63	31,5	63	31,5	63	15,5	31,5	31,5	15,5
	0	62,5	125	62,5	125	62,5	125	31	62,5	62,5	31

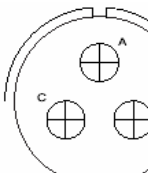
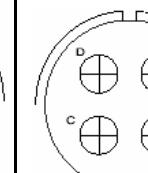
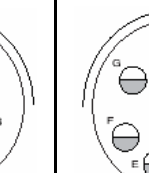
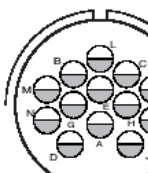
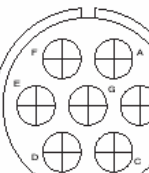
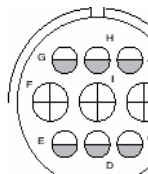
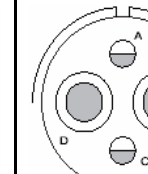
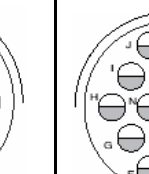
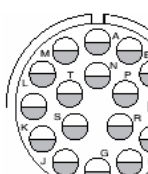
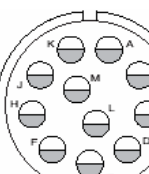
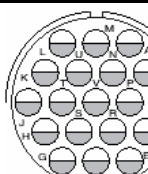
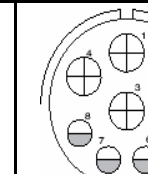
Normally available arrangements

Arrangement	Service	Tot ct.	AWG contact size					
			0	4	8	12	16	18
16S-1	A	7					7	
16S-4	D	2					2	
16S-5	A	3					3	
16S-8	A	5					5	
18-1	X (B,C,F,G=A; bal.=I)	10					10	
18-3	D	2				2		
18-4	D	4					4	
18-8	A	8				1	7	
18-9	I	7				2	5	
18-10	A	4				4		
18-11	A	5				5		
18-12	A	6					6	
18-19	A	10					10	
18-20	A	5					5	
18A-5	X	5					5	
20-3	D	3				3		
20-4	D	4				4		
20-7	X(A,B,H,G=D; bal.=A)	8					8	
20-11	I	13					13	
20-15	A	7				7		
20-18	A	9				3	6	
20-24	A	4			2		2	
20-27	A	14					14	
20-29	A	17					17	
20-33	A	11					11	
20A-48	I	19					19	
20B-8	X	8				4	4	

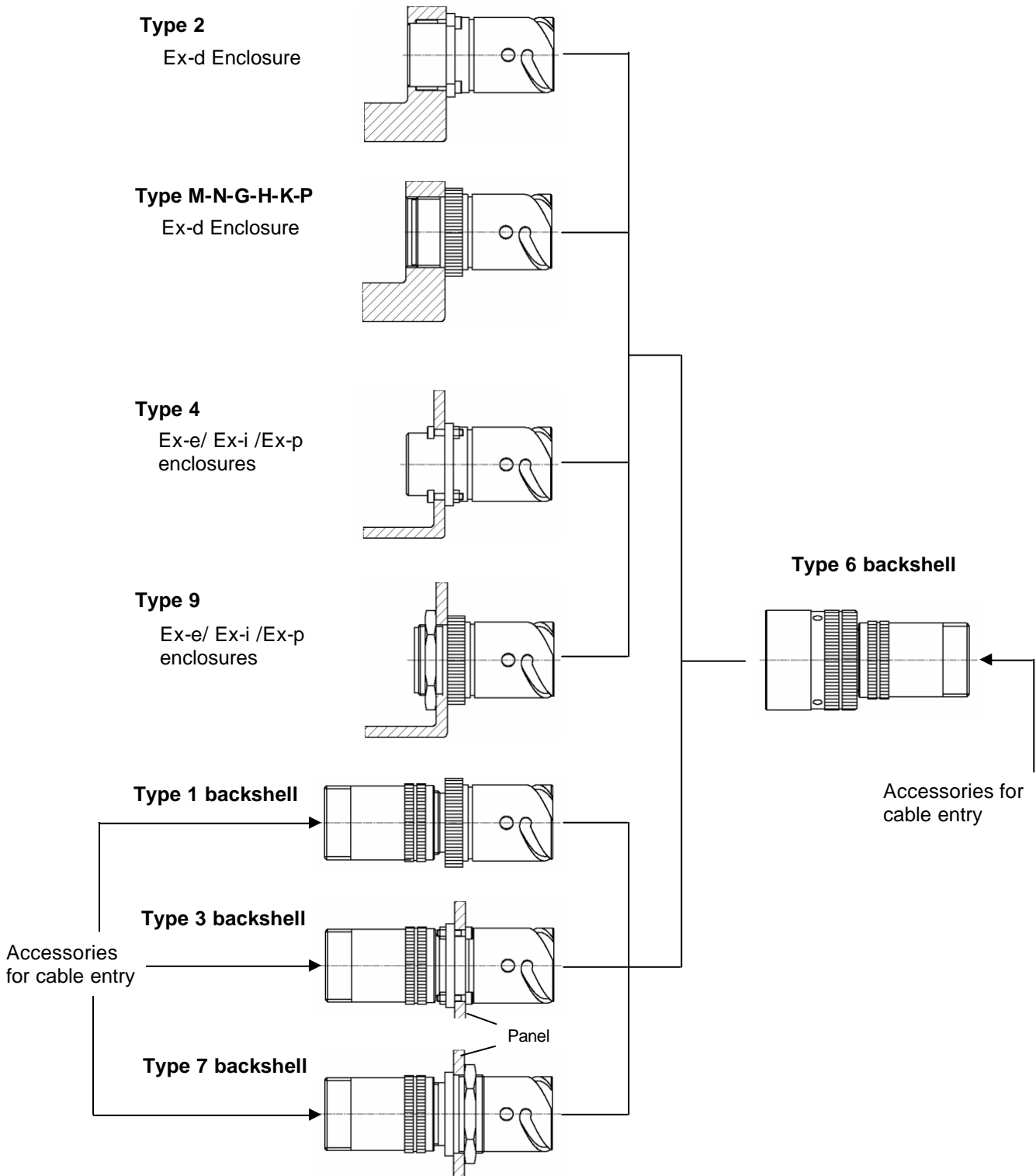
Arrangements front view (male insert) by shell size

Shell size: 16S				
Arrangement	16S-1	16S-4	16S-5	16S-8
No. of contacts	7	2	3	5
Contact size	16	16	16	16

Shell size: 18						
Arrangement	18-1	18-3	18-4	18-8	18-9	18-10
No. of contacts	10	2	4	8	7	4
Contact size	16	12	16	7/16 + 1/12	5/16 + 2/12	12
						
Arrangement	18-11	18-12	18-19	18-20		
No. of contacts	5	6	10	5		
Contact size	12	16	16	16		

Shell size: 20					
Arrangement	20-3	20-4	20-7	20-11	20-15
No. of contacts	3	4	8	13	7
Contact size	12	12	16	16	12
					
Arrangement	20-18	20-24	20-27	20-29	20-33
No. of contacts	9	4	14	13	11
Contact size	6/16 + 3/12	2/16 + 2/8	16	16	16
					
Arrangement	20A48	20B8			
No. of contacts	19	8			
Contact size	16	4/16 + 4/12			

Shells compatibility table



Shells usage table

Standard execution								
Type	Enclosure application				Panel mount	Inline	Supplying terms	
	Ex-d	Ex-e	Ex-i	Ex-p			Standard	Optional
M-N	O	O	O	O			A	
4-9		O	O	O			B	A
3-7					O		B	A
1						O	B	A

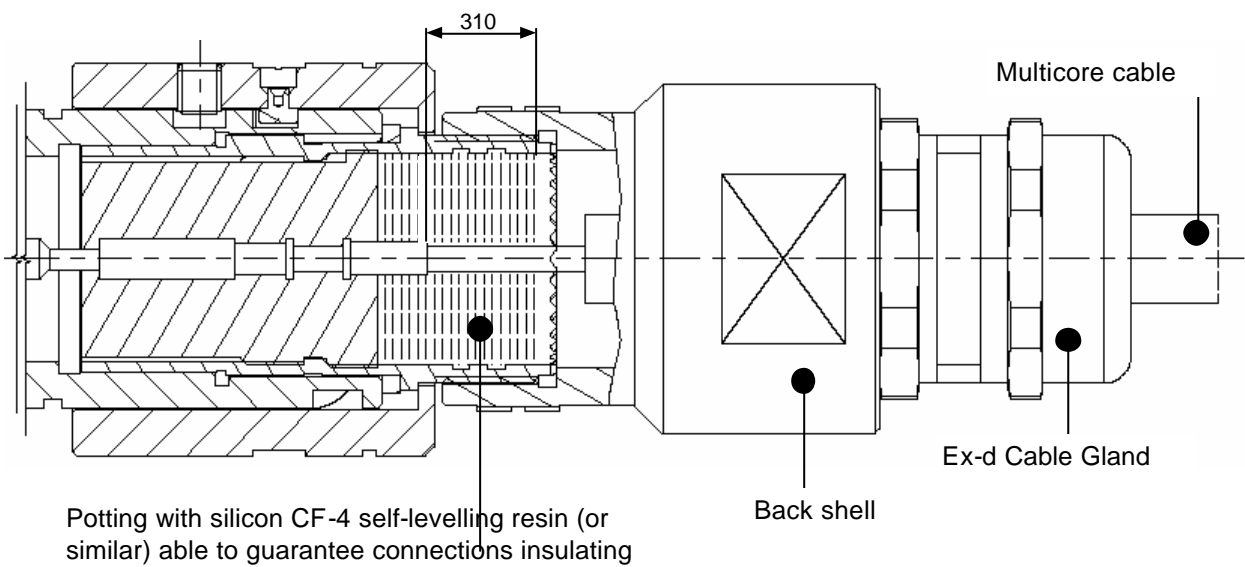
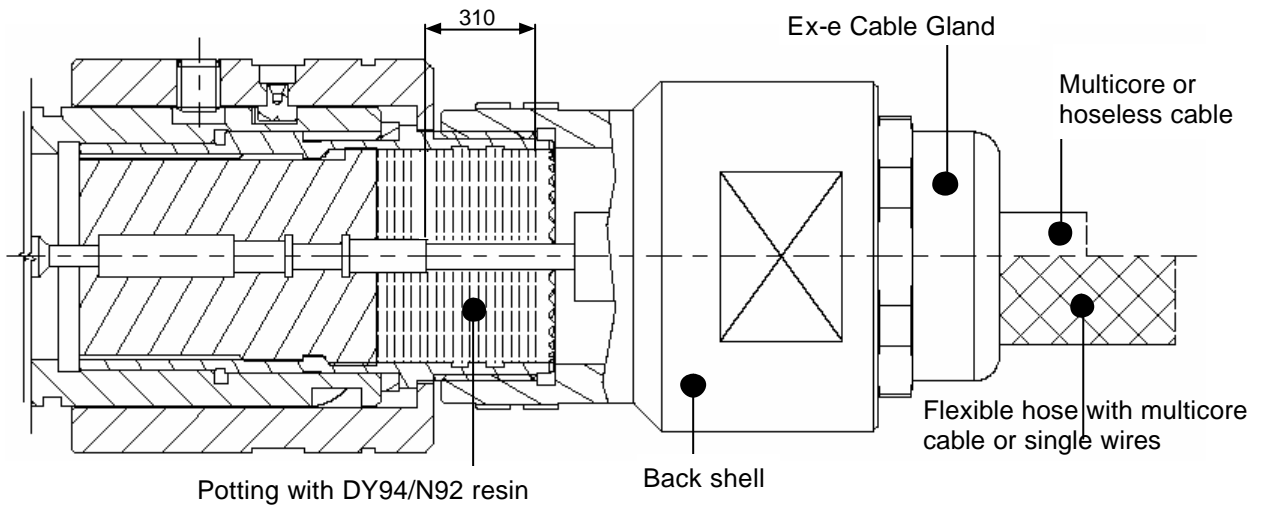
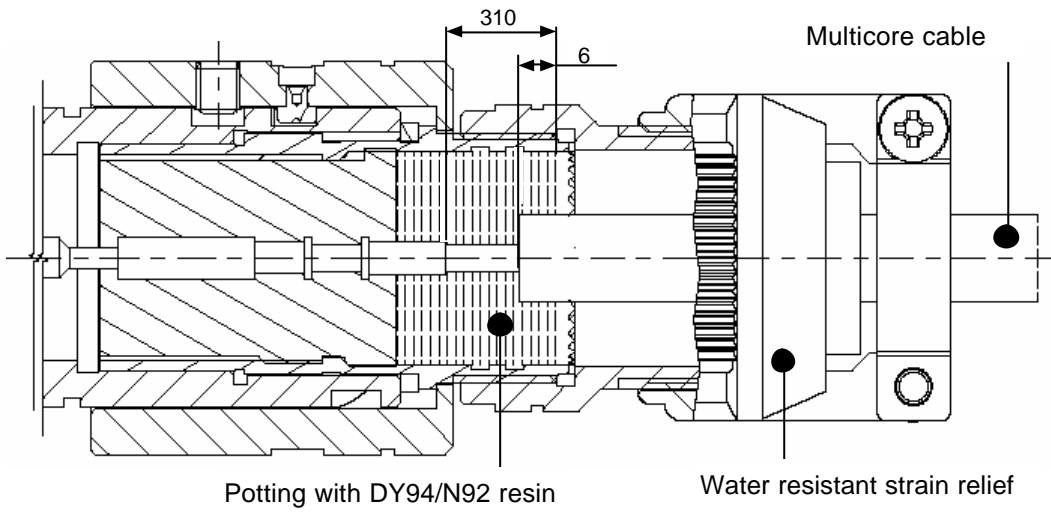
Standard execution								
Type	Enclosure application				Panel mount	Inline	Supplying terms	
	Ex-d	Ex-e	Ex-i	Ex-p			Standard	Optional
2 (a)	O	O	O	O			A	
G-H-K-P (b)	O	O	O	O			A	

(a)	Subjected to special usage configuration
(b)	On request execution

Legend	
O	Suitable
	Not suitable

Supply terms legend	
A	Already with cable assembly and potted
B	Cable assembly and potting have to be performed by the customer

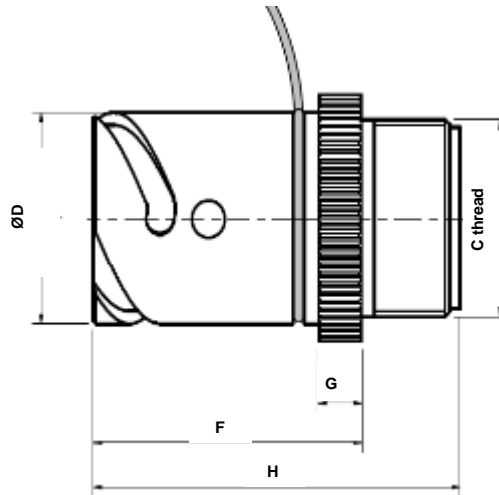
Assembling instruction by cable retention version



Connector shell - Receptacles

CVB-EX G-H-K-M-N

CVB-EX G-H-K-M-N-P shells can be screwed indirectly to the equipment enclosure)
(Equipment enclosure have to be **Ex d** type).



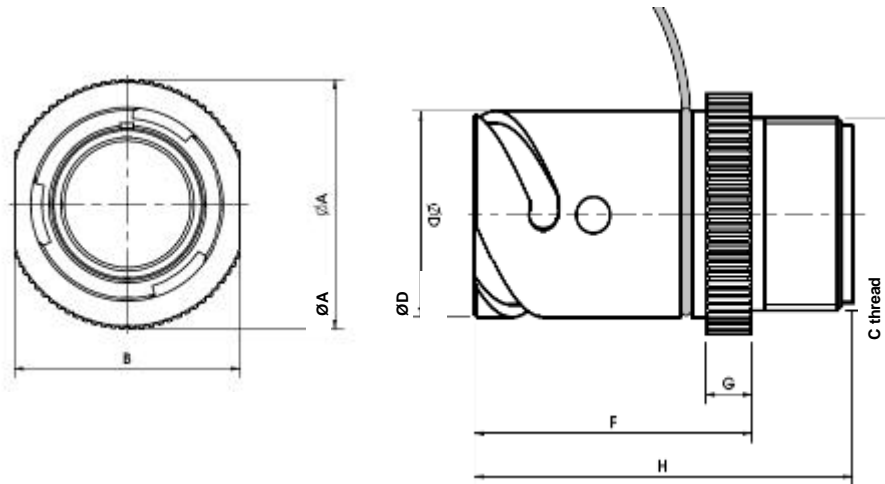
Size	A	B	L	D	F	G	H
16S	37	32	3.1	27.4	40.6	6.5	53.8
18	40	34	3.1	30.8	49.1	8	66.8
20	44	40	3.1	34.2	49.1	8	66.8

C Available threads

Size	G ISO 228	H R ISO 7/1	K Gk UNI 6125	M ISO 261	N NPT ASA B2.1
16S	G 3/4"	Rc 3/4"	Gk 3/4"	M 25	3/4"
18	G 3/4"	Rc 3/4"	Gk 3/4"	M 28	3/4"
20	G 1"	Rc 1"	Gk 1"	M 32	1"

CVB-EX 1

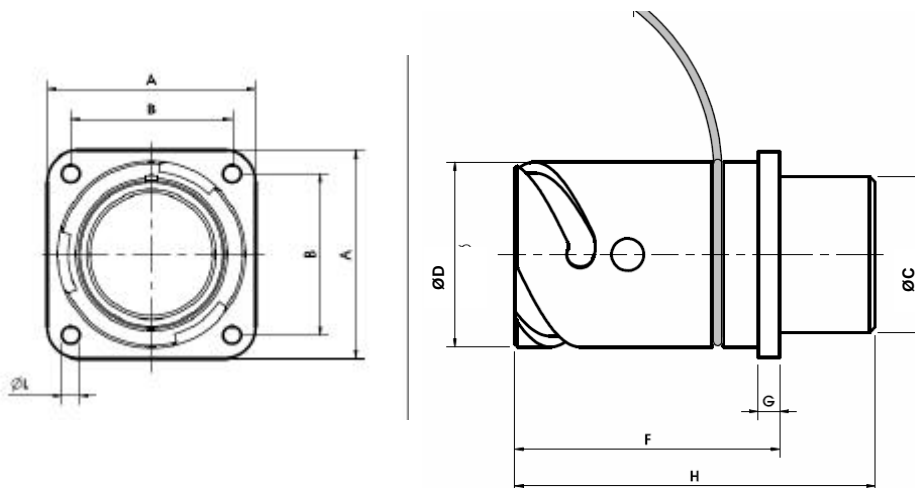
CVB-EX 1 - inline receptacle requires a back shell.
 Provided UNEF thread



Size	A	B	C	L	D	F	G	H
16S	37	32	7/8"-20 UNEF-2A	3.1	27.4	40.6	6.5	53.8
18	40	34	1"-20 UNEF-2A	3.1	30.8	49.1	8	66.8
20	44	40	1/8-18 UNEF-2A	3.1	34.2	49.1	8	66.8

CVB-EX 4

Flanged front mount receptacle, supplied with neoprene gasket.
 Cylindrical terminal

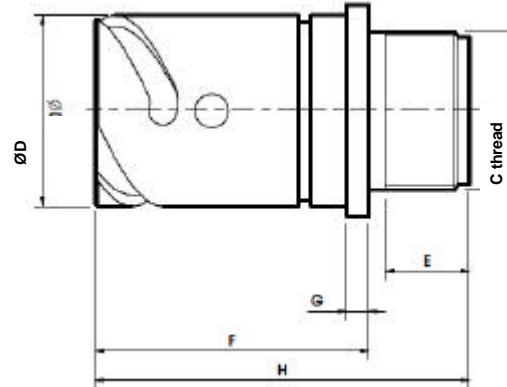
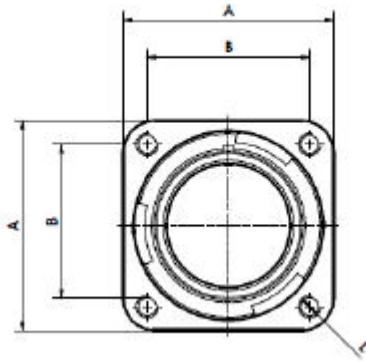


Size	A	B	C	L	D	F	G	H
16S	32.5	24.6	22.4	3.1	27.4	40.6	3	58,6
18	34.9	27	25.6	3.1	30.8	49.1	4	63.1
20	38.1	29.4	28.8	3.1	34.2	49.1	4	63.1

CVB-EX 3

Flanged inline rear mount receptacle, supplied with neoprene gasket.
 Always requires a backshell.
 Threaded mounting holes.

Threaded post.

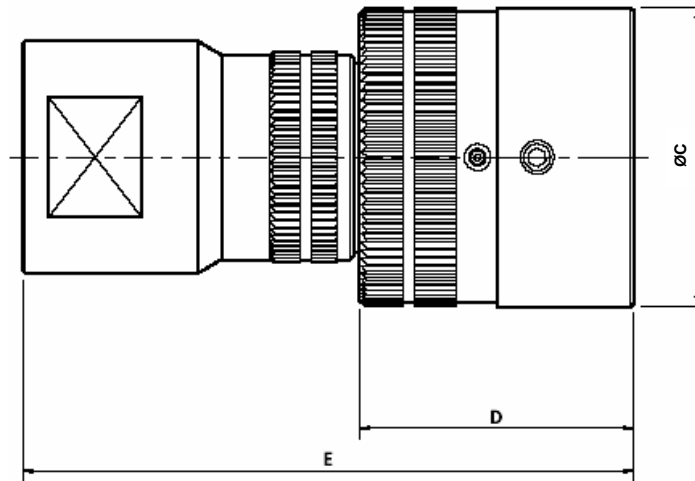


Size	A	B	C	L	D	F	G	H
16S	32.5	24.6	7/8"-20 UNEF-2A	M4	27.4	40.6	3	58,6
18	34.9	27	1"-20 UNEF-2A	M4	30.8	49.1	4	63.1
20	38.1	29.4	1/8-18 UNEF-2A	M4	34.2	49.1	4	63.1

CVB-EX 6

Inline Plug

It always requires a back shell.



SIZE	C	D
16S	38	33.5
18	41.6	41.5
20	45	41.5

E dimension depends on back shell version

The table below reports thread conventions.

Add letter "E" after thread code for indicating external threads

G ISO 228	H R ISO 7/1	K Gk UNI 6125	L Rp ISO 7/1	M ISO 261	N NPT ASA B2.1	P Pg DIN 40430	U UNEF ASA 2A
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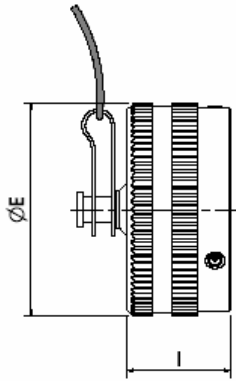
		Backshell accessory Thread conventional dimension (*)											
		12	16	20	25	28	32	36	40	44	50	56	63
Thread code	G	1/4"	3/8"	1/2"	3/4"	-	1"	-	1 1/4"	-	1 1/2"	2"	2 1/2"
	H	1/4"	3/8"	1/2"	3/4"	-	1"	-	1 1/4"	-	1 1/2"	2"	2 1/2"
	K	-	-	1/2"	3/4"	-	1"	-	1 1/4"	-	1 1/2"	2"	2 1/2"
	L	1/4"	3/8"	1/2"	3/4"	-	1"	-	1 1/4"	-	1 1/2"	2"	2 1/2"
	M	M12x1,5	M16x1,5	M20x1,5	M25x1,5	M28x1,5	M32x1,5	M36x1,5	M40x1,5	M44x1,5	M50x1,5	M56x1,5	M63x1,5
	N	1/4"	3/8"	1/2"	3/4"	-	1"	-	1 1/4"	-	1 1/2"	2"	2 1/2"
	P	Pg 9	Pg 11	Pg 13,5	Pg 16	Pg 21	Pg29	-	-	Pg 36	Pg 42	-	Pg 48
U	-	5/8"-24	3/4"-20	1"-20	1 1/2"-18	1 3/16"-18	1 7/16"-18	-	1 3/4"-18	2"-18	2 1/16"-16	2 5/16"-16	

(*) Examples of thread code indication
 N25: 3/4"NPT internal thread
 M25E: M25x1,5 external metric thread

Caps

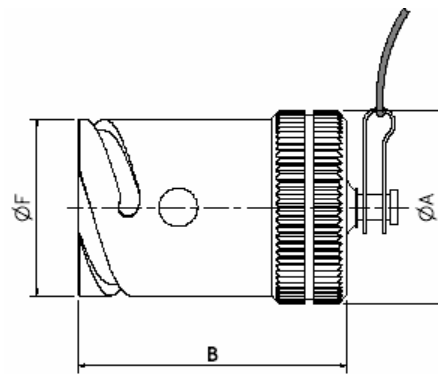
- TVB(M)-1 & TVB(M)-6: sealed caps
- TVB(M)-Ex 1 & TVB(M)-Ex-6 guarantee the presence of explosion proof junctions and allow restoring the power line when the cap is mounted over the connector.
- FVB(M)-EX -1 & FVB(M)-EX 6: end of line caps enclosure with specific pilot circuit.

TVB-1



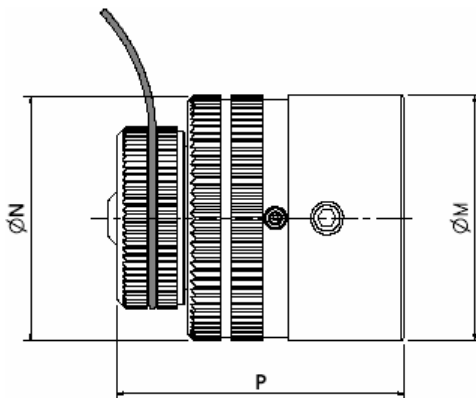
Size	E	I
16s	33	16
18	38	21.7
20	40.5	21.7

TVB-6



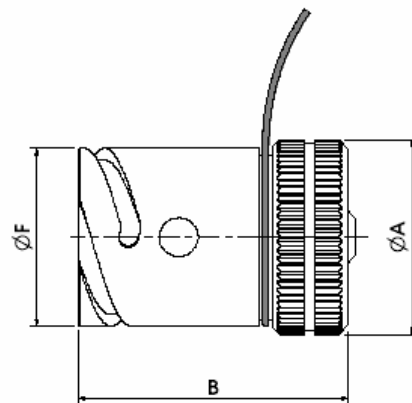
Size	A	B	F
16s	29.8	43.2	27.4
18	33	50.2	30.8
20	36.5	50.2	34.2

TVB-Ex 1



Size	M	N	P
16s	38	38	48
18	41.6	41.6	58
20	45	45	58

TVB-Ex-6



Size	A	B	F
16s	29.8	43.2	27.4
18	33	50.2	30.8
20	36.5	50.2	34.2

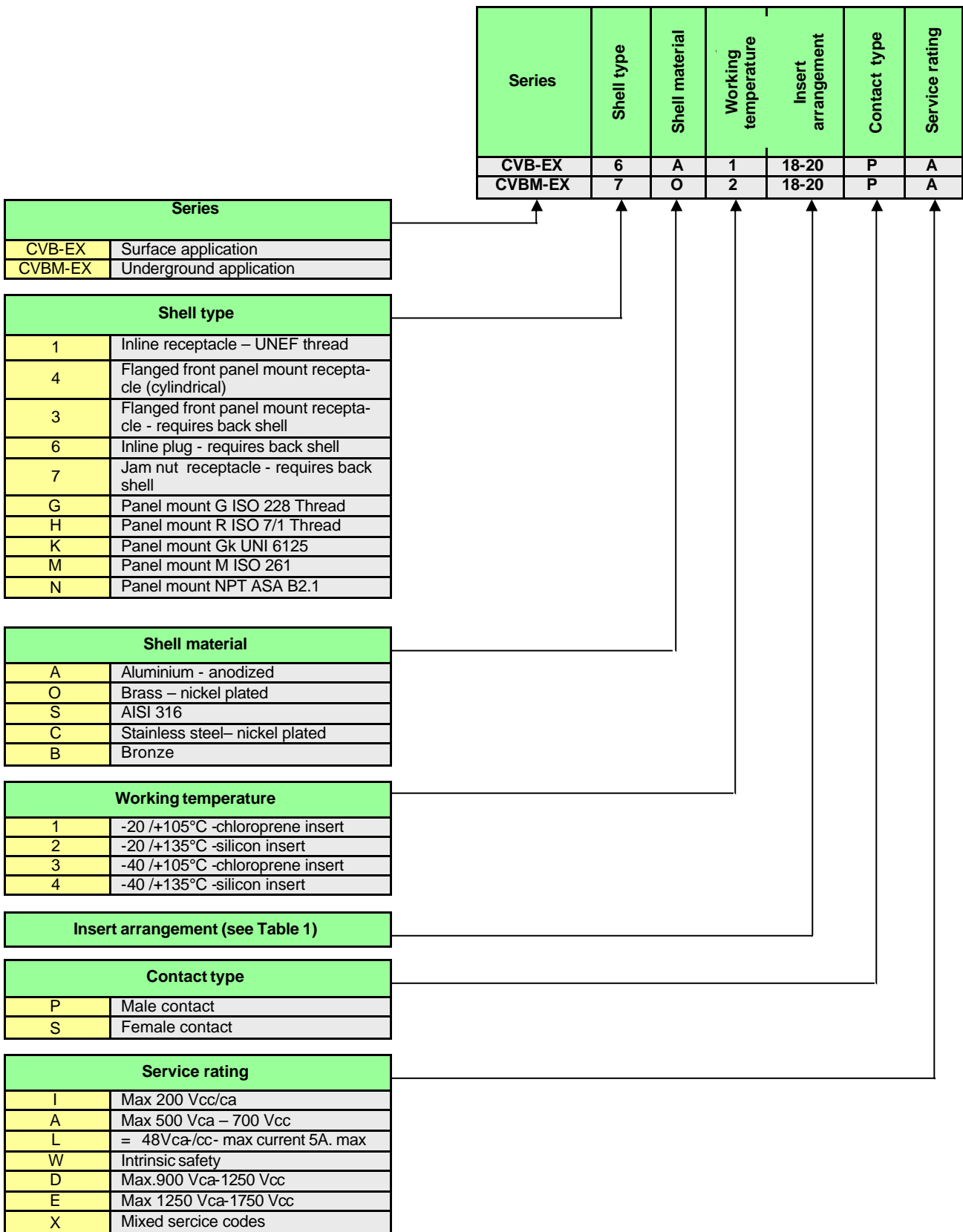
Potting

Suggested material and accessories for CVB-EX connectors potting

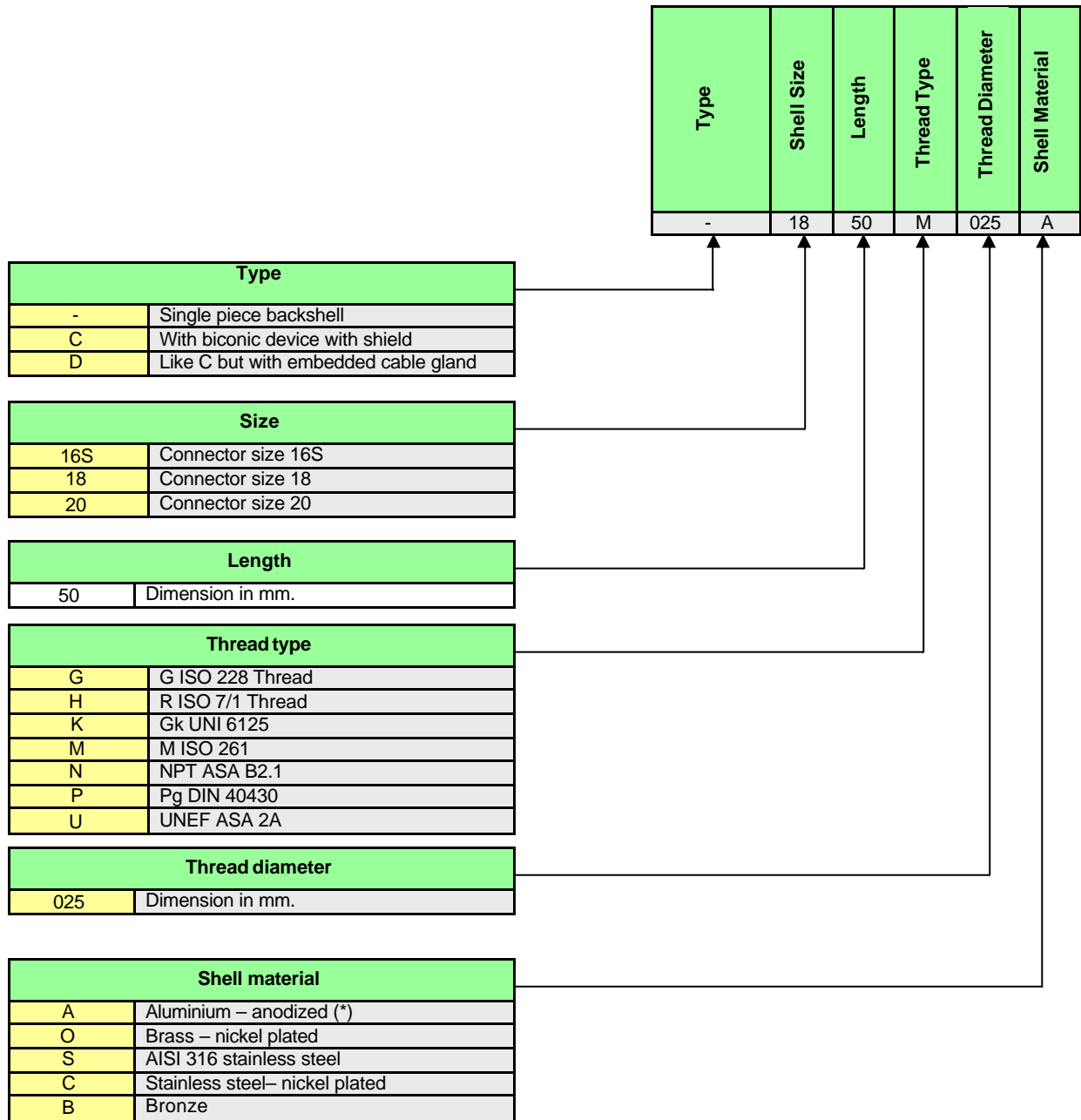
- Potting Compound: DY9492
- Potting injector: DMA50



Connectors P/N explanation



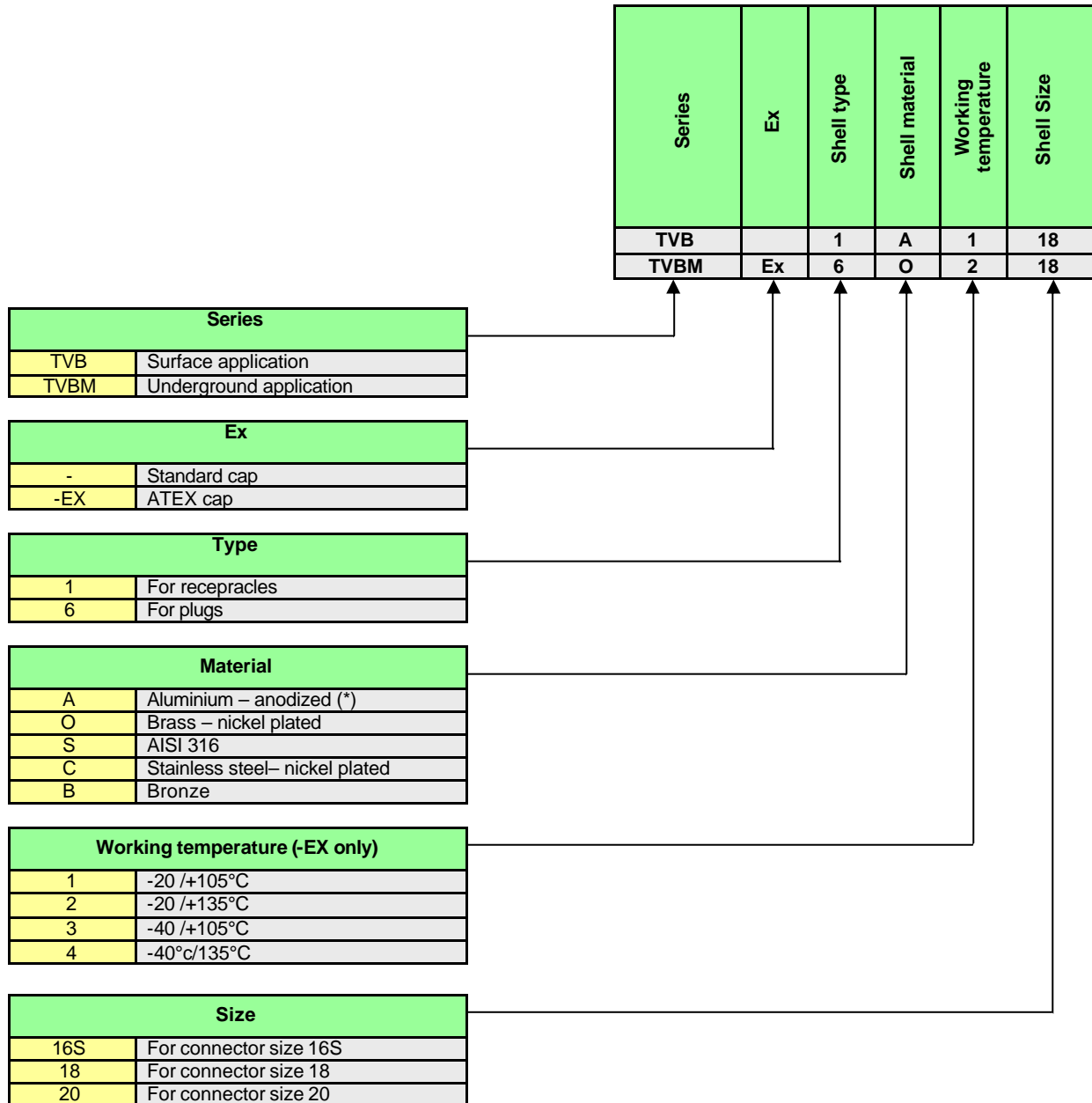
Back shell P/N explanation



(*) Not for CVBM

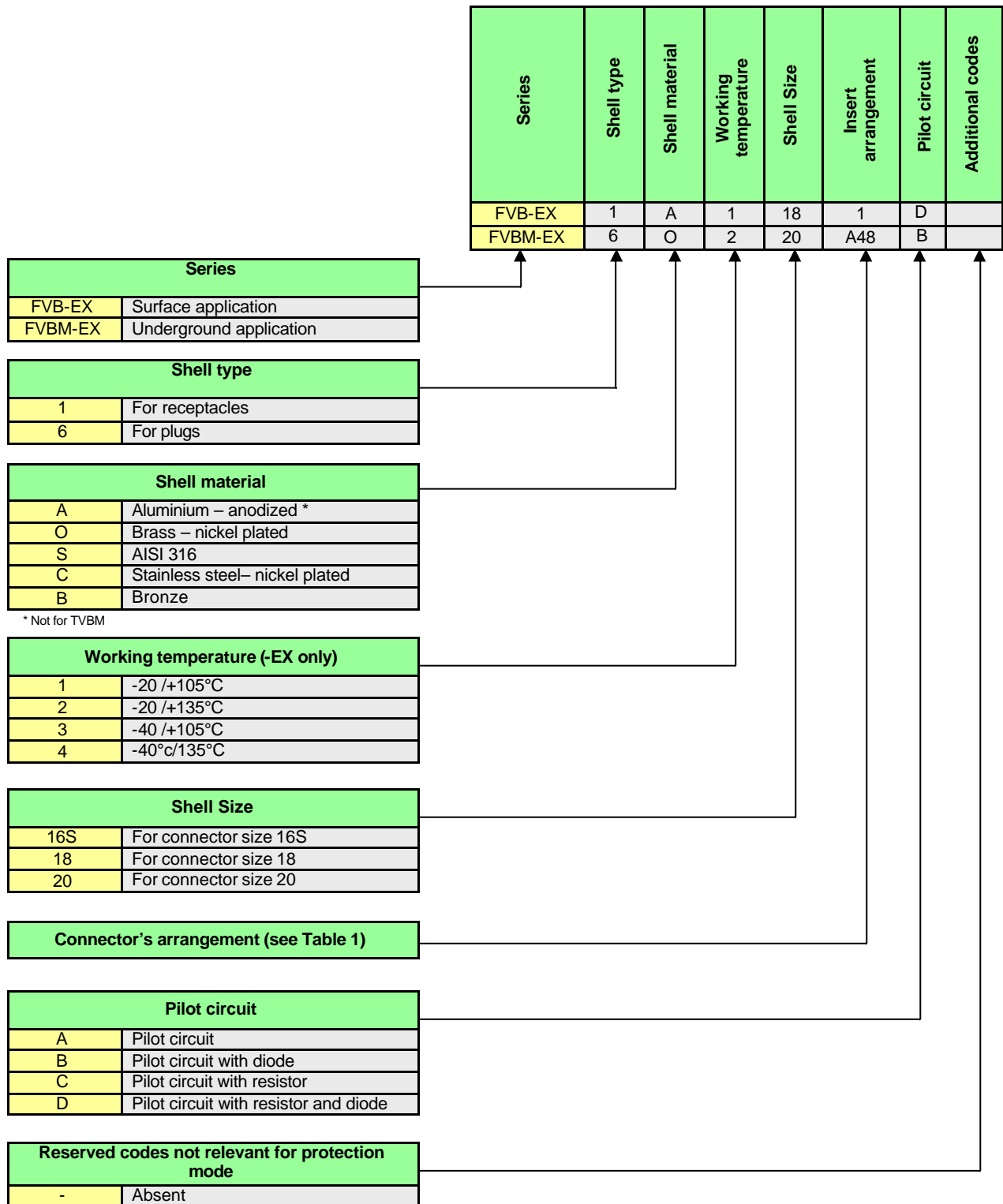
Caps P/N explanation

CVB-EX normally requires caps.



End of line caps P/N explanation

Special caps with integrated pilot circuit.





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