

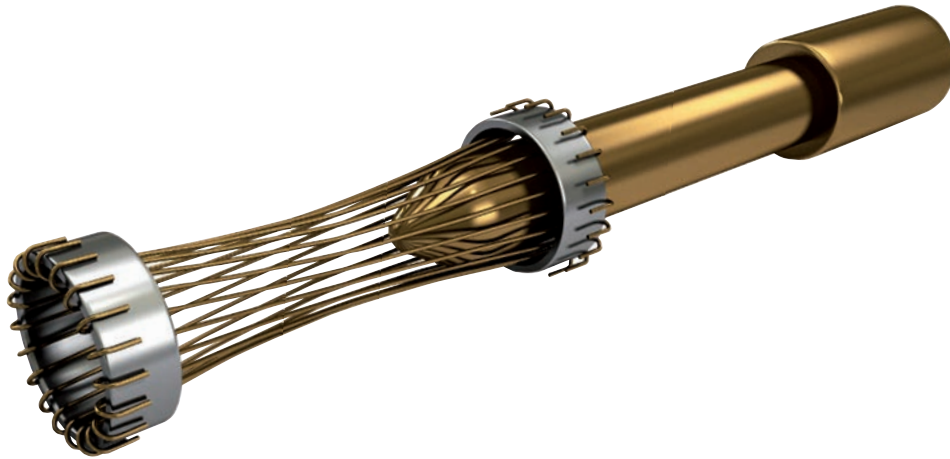
LR SERIES

Standard & EN45545 modular connectors



HYPERBOLOID TECHNOLOGY

Smiths Connectors offers an extensive range of superior contact technologies suitable for standard and custom solutions. Hypertac® (HYPERboloid conTACT) is the original superior performing hyperboloid contact technology designed for use in all applications and in harsh and demanding environments where high reliability and safety are critical. The inherent electrical and mechanical characteristics of the Hypertac hyperboloid contact ensures unrivalled performance in terms of reliability, number of mating cycles, low contact force and minimal contact resistance. The shape of the contact sleeve is formed by hyperbolically arranged contact wires, which align themselves elastically as contact lines around the pin, providing a number of linear contact paths.



FEATURE

LOW INSERTION/EXTRACTION FORCES

The angle of the socket wires allows tight control of the pin insertion and extraction forces. The spring wires are smoothly deflected to make line contact with the pin.

LONG CONTACT LIFE

The smooth and light wiping action minimizes wear on the contact surfaces. Contacts perform up to 100,000 insertion/extraction cycles with minimal degradation in performance.

LOWER CONTACT RESISTANCE

The design provides a far greater contact area and the wiping action of the wires insures a clean and polished contact surface. Our contact technology has about half the resistance of conventional contact designs.

HIGHER CURRENT RATINGS

The design parameters of the contact (e.g., the number, diameter and angle of the wires) may be modified for any requirement. The number of wires can be increased so the contact area is distributed over a larger surface. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times.

IMMUNITY TO SHOCK & VIBRATION

The low mass and resultant low inertia of the wires enable them to follow the most abrupt or extreme excursions of the pin without loss of contact. The contact area extends 360° around the pin and is uniform over its entire length. The 3 dimensional symmetry of the Hypertac contact design guarantees electrical continuity in all circumstances.

BENEFIT

HIGH DENSITY INTERCONNECT SYSTEMS

Significant reductions in size and weight of sub-system designs. No additional hardware is required to overcome mating and un-mating forces.

LOW COST OF OWNERSHIP

The Hypertac contact technology will surpass most product requirements, thus eliminating the burden and cost of having to replace the connector or the entire subsystem.

LOW POWER CONSUMPTION

The lower contact resistance of our technology results in a lower voltage drop across the connector reducing the power consumption and heat generation within the system.

MAXIMUM CONTACT PERFORMANCE

The lower contact resistance of the Hypertac contact reduces heat build-up; therefore Hypertac contacts are able to handle far greater current in smaller contact assemblies without the detrimental effects of high temperature.

RELIABILITY UNDER HARSH ENVIRONMENTS

Harsh environmental conditions require connectors that will sustain their electrical integrity even under the most demanding conditions such as shock and vibration. The Hypertac contact provides unmatched stability in demanding environments when failure is not an option.

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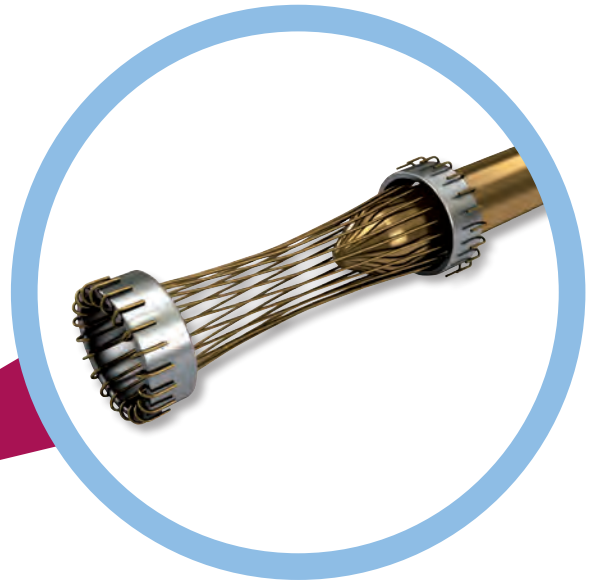
► Type “2” jackscrew (plug side connector)44

► Type “2” jackscrew (receptacle side connector)44

PANNEL CUT-OUT45

LR SERIES CONNECTORS

- Variety of combination in a single connector frame
- Low insertion and extraction forces
- Full range of accessories
- Modules' temperature range from -55°C to +125°C
- Materials RoHS & REACH compliant
- Configurations compliant to EN45545



References of technical characteristics vs EN 45545

Series	Part	Element	R22 & R23	R26	Weight gr	Material
V	Plastic Shell	-	HL3	HL3	-	PA 66: LATAMID_66_H2_G-25-V0CT4
-	Module	A	HL1	HL3	1,7	DAP_RX3-1-525-FRP
-	Module	B	HL1	HL3	2,5	DAP_RX3-1-525-FRP
-	Module	C	HL1	HL3	3,8	DAP_RX3-1-525-FRP
-	Module	D	HL1	HL3	3,3	DAP_RX3-1-525-FRP
-	Module	O	HL3	HL3	6	PA: LATAMID_66_H2_G-50-V0HF1
-	Module	T	HL1	HL3	2,4	DAP_RX3-1-525-FRP
-	Module	X	HL1	HL3	1,2	Technyl A20
-	Module	W	HL1	HL3	1,7	Technyl A20
-	Module	Z	HL1	HL3	3,5	Technyl A20
-	Module	RA	HL3	HL3	1,7	VYNCOLIT X611
-	Module	RB	HL3	HL3	2,5	VYNCOLIT X611
-	Module	RC	HL3	HL3	3,8	VYNCOLIT X611
-	Module	RD	HL3	HL3	3,3	VYNCOLIT X611
-	Module	RG	HL3	HL3	2,9	VYNCOLIT X611
-	Module	RI	HL3	HL3	9/14	PA: LATAMID_66_H2_G-50-V0HF1
-	Module	RK	HL3	HL3	6	VYNCOLIT X611
-	Module	RO	HL3	HL3	6	PA: LATAMID_66_H2_G-50-V0HF1
-	Module	RQ	HL3	HL3	2,1	VYNCOLIT X611
-	Module	RT	HL3	HL3	2,4	VYNCOLIT X611
-	Module	RX	HL3*	HL3	1,2	PC; LEXAN 943
-	Module	RW	HL3*	HL3	1,7	PC; LEXAN 943
-	Module	RZ	HL3*	HL3	3,5	PC; LEXAN 943

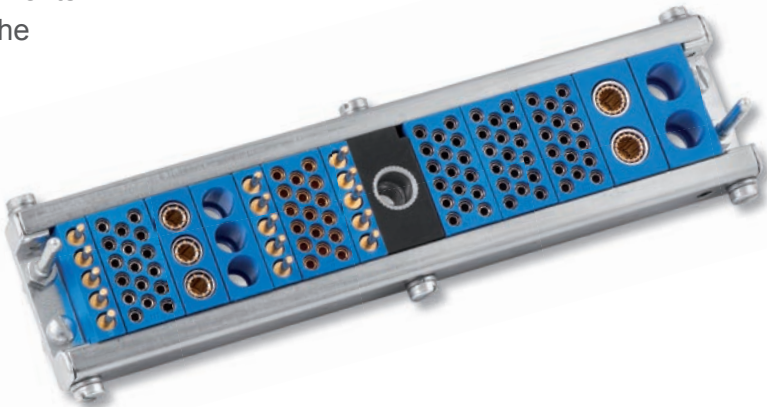
*HL3 vs R23 & HL2 vs R22

LR MODULAR SERIES

LR connectors are modular rugged connectors that include coax and high current contacts up to 200 amps. The LR series is used in high demanding of applications where the environment requires durability, ruggedization and extended operating life and employs a do-it-yourself system based on the building block principle.

They offer a wide variety of combinations available in standard and compliant to EN45545 requirements versions. Thus, the user is capable of selecting the connector that fulfills the exact requirements with off-theshelf components.

One of the many advantages of the Hypertac hyperboloid contact used is its low extraction and insertion forces. In this application it enables the user to assemble large numbers of contacts into a connector which is still able to mate and unmate smoothly and easily.



The system is composed of two basic elements: the modules and the frames.

► The modules are the connector elements of the system. Modules named with initial “R” are compliant to EN45545 requirements. Various types of contacts are available, such as signal, power, coaxial, high voltage, etc. These contacts are mounted in small plastic blocks. Crimp contacts are also available in plastic blocks that can be mounted individually or together into the frame. The width of each module block is designated in units.

The modules have fixed contacts with

2	contacts	@ 50 amps	(type M)
2	contacts	@ 25 amps	(type C and RC)
2	contacts	shielded	(type E)
2	contacts	high voltage	(type H)
2	contacts	@ 200 amps	(type I and RI)
2	contacts	fiber optic	(type Y and RY)
3	contacts	@ 15 amps	(type B and RB)
4	contacts	@ 15 amps	(type N)
5	contacts	@ 8 amps	(type A and RA)
9	contacts	@ 5 amps	(type Q and RQ)
9	contacts	@ 8 amps	(type G and RG)
17	contacts	@ 5 amps	(type D and RD)

Coaxial contacts

2	contacts	(type J)
2	contacts	(type K and RK)
3	contacts	(type L)

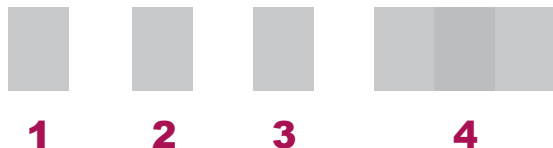
Removable contacts

2	contacts	@ 25 or 50 amps	(type Z and RZ)
3	contacts	@ 15 amps	(type W and RW)
5	contacts	@ 8 amps	(type T and RT)
5	contacts	@ 8 amps	(type X and RX)
17	contacts	@ 8 amps	(type O and RO)
30	contacts	@ 3 amps	(type LW)

► They range from a basic frame consisting of 2 side rails and 2 end caps to more complex versions with jack screws, hoods, cable clamps, etc. All frames are available in numerous lengths to conform to almost any combination of modules and compliant to EN45545 requirements. With the modular Series, specially designed connectors can be purchased quickly and inexpensively, eliminating the extra cost and delay of custom tooling.

HOW TO ORDER

► “A”, “B” AND “H” SERIES



1 ► CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ► SERIES

A

B

H

3 ► CONTACTS SURFACE TREATMENT (see page 20)

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

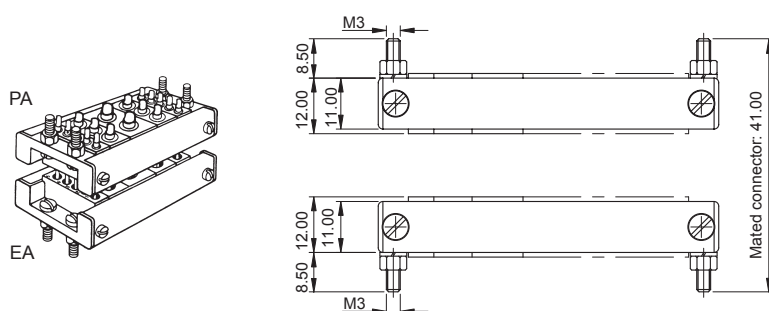
4 ► ELEMENT PROGRESSION (see pages 21÷42)

ex.: PAT/3Am-2Dm

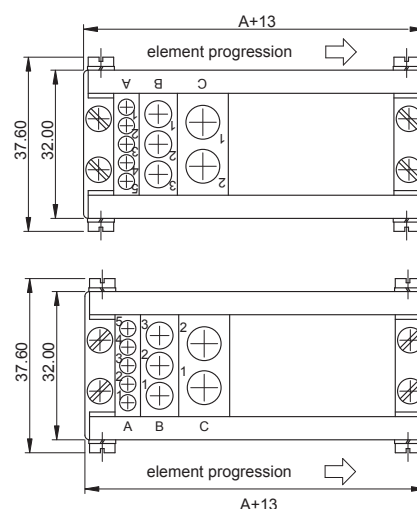
(A Series plug with 3 elements type Am, two element stype Dm, surface treatment T)

“A” SERIES

A series plug connector



A series receptacle connector

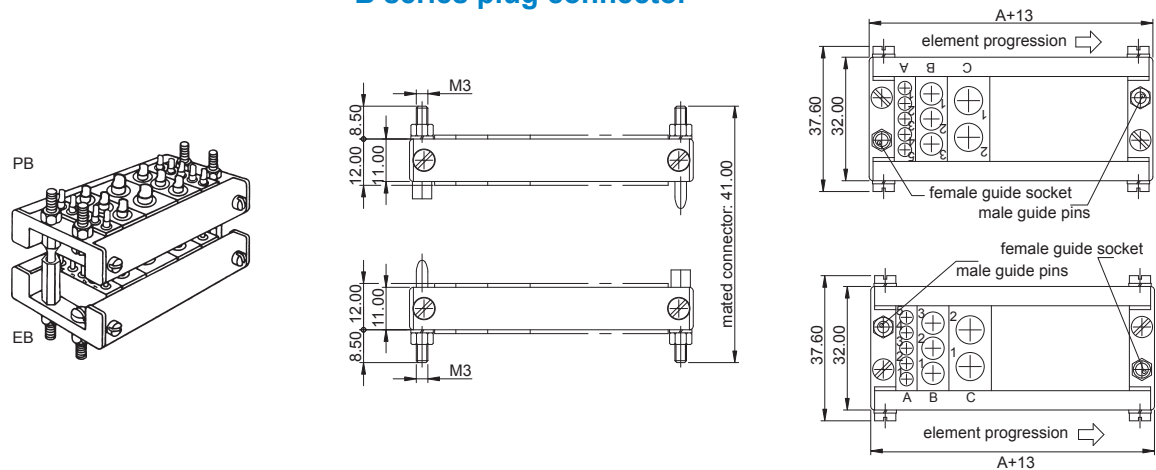


Dimensions are in mm

► “B” SERIES

Application: Rack and Panel with guiding hardware

B series plug connector

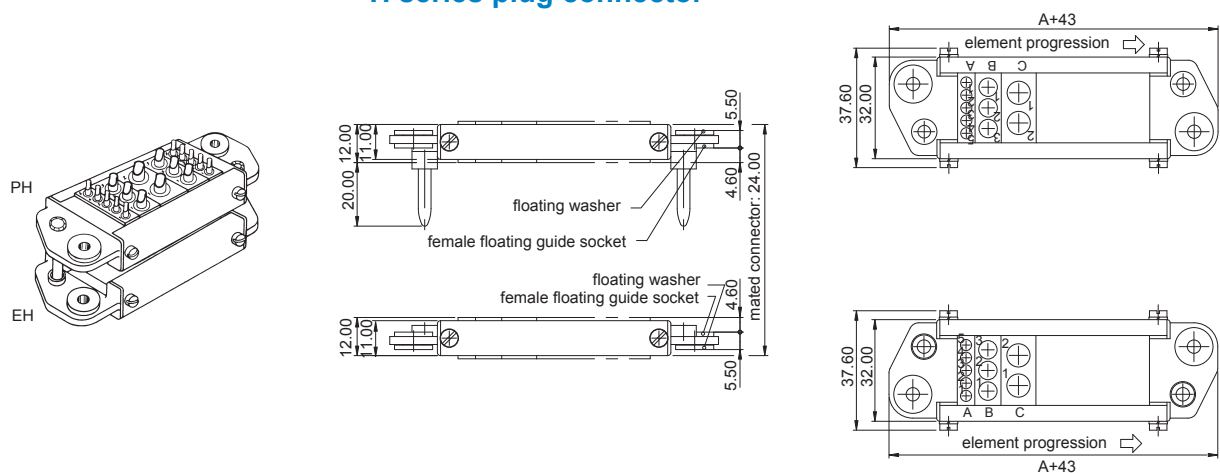


B series receptacle connector

“H” SERIES

Application: Rack and Panel with guiding floating hardware

H series plug connector



H series receptacle connector

Dimensions are in mm

HOW TO ORDER

“J” SERIES



- 1

CONNECTOR TYPE

P

PLUG

E

RECEPTACLE
- 2

SERIES
- 3

CONTACTS SURFACE TREATMENT (see page 20)

T

GOLD STANDARD

H

GOLD AS PER MIL-DTL-55302
- 4

ELEMENT PROGRESSION (see pages 21+42)
- 5

CABLE CLAMP (only for plug connector)

10

CIRCULAR CABLE CLAMP Ø 10

15

CIRCULAR CABLE CLAMP Ø 15

20

CIRCULAR CABLE CLAMP Ø 20

24

CIRCULAR CABLE CLAMP Ø 24

ex.: PJT/3Am-2Dm/10
(J Series plug with 3 elements type Am, two element stype Dm, circular cable clamp ø 10, surface treatment T)

“J” SERIES

Application: Cable interface top entry, quick disconnect device

J series plug connector

Cable clamp	Lenght (size A+16)	
Ø 10	≥ 29.75	≤ 35.25
Ø 15	≥ 35.25	≤ 40.75
Ø 20	≥ 40.75	≤ 46.25
Ø 24	49.00	

J series receptacle connector

Dimensions are in mm

6

HOW TO ORDER

“K” SERIES



1 ▸ CONNECTOR TYPE

P PLUG **E** RECEPTACLE

2 ▸ SERIES

3 ▸ CONTACTS SURFACE TREATMENT (see page 20)

T GOLD STANDARD **H** GOLD AS PER MIL-DTL-55302

4 ▸ ELEMENT PROGRESSION (see pages 21÷42)

5 ▸ CABLE CLAMP (only for plug connector)

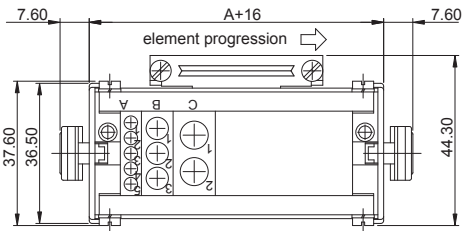
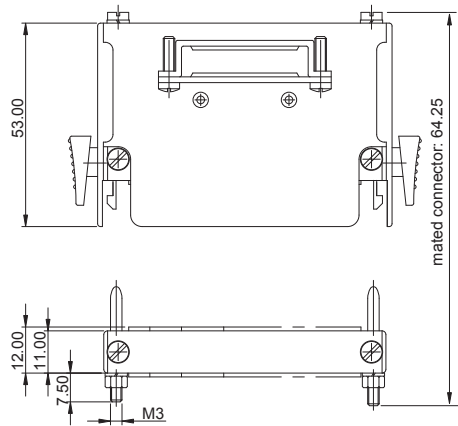
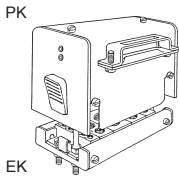
- 1 3 3** RECTANGULAR CABLE CLAMP 9X33
- 1 5 0** RECTANGULAR CABLE CLAMP 9X50
- 1 0 0** RECTANGULAR CABLE CLAMP 13.5X33
- 1 0 1** RECTANGULAR CABLE CLAMP 13.5X50

ex.: PKT/3Am-2Dm/10
(J Series plug with 3 elements type Am, two element stype Dm, regular cable clamp 9x33, surface treatment T)

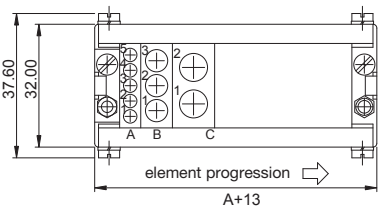
“K” SERIES

Application: Cable interface side entry, quick disconnect device

K series plug connector



K series receptacle connector



Cable clamp	Minimum lenght (size A+16)
133	49.00
100	
150	65.50
100	

Dimensions are in mm

HOW TO ORDER

► “JS” SERIES



1 ► CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ► SERIES

3 ► CONTACTS SURFACE TREATMENT *(see page 20)*

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

4 ► ELEMENT PROGRESSION *(see pages 21÷42)*

5 ► CABLE CLAMP *(only for plug connector)*

1 0 CABLE CLAMP SIZE Ø 10

1 5 CABLE CLAMP SIZE Ø 15

2 0 CABLE CLAMP SIZE Ø 20

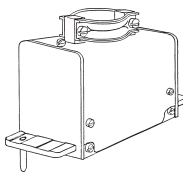
2 4 CABLE CLAMP SIZE Ø 24

ex.: PJST/3Am-2Dm/10

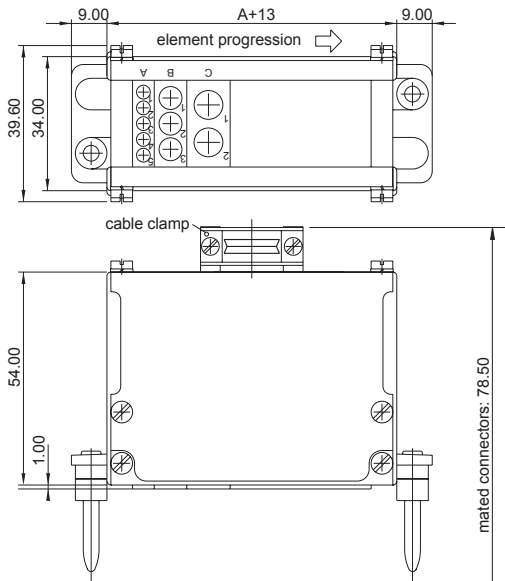
(J Series plug with 3 elements type Am, two elements type Dm, circular cable clamp ø 10, surface treatment T)

► “JS” SERIES

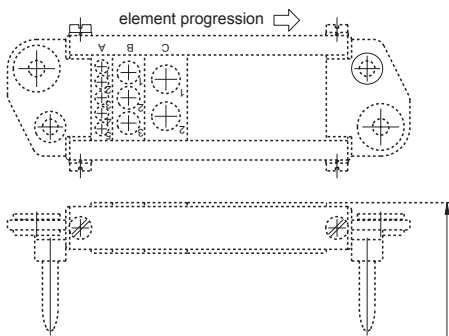
Application: Cable interface on H series



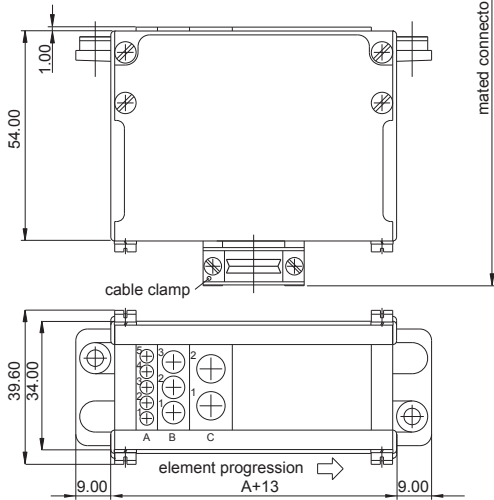
JS series plug connector



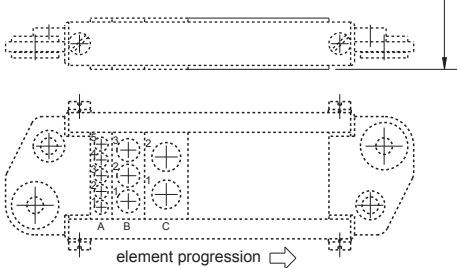
H series plug connector



JS series receptacle connector



H series receptacle connector



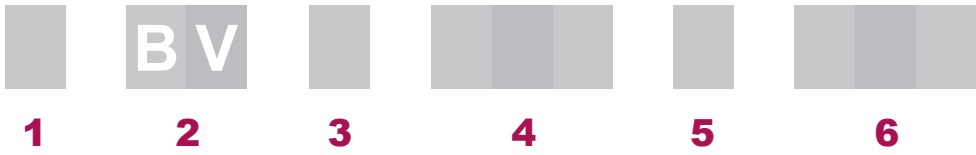
Cable clamp	Minimum lenght (size A+13)
Ø 10	35.00
Ø 15	40.50
Ø 20	46.00
Ø 24	48.75

Cable clamp	Minimum lenght (size A+13)
Ø 10	35.00
Ø 15	40.50
Ø 20	46.00
Ø 24	48.75

Dimensions are in mm

HOW TO ORDER

▶ “BV” SERIES



1 ▶ CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ▶ SERIES

3 ▶ CONTACTS SURFACE TREATMENT *(see page 20)*

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

4 ▶ ELEMENT PROGRESSION BEFORE SCREW EXTRACTOR *(see pages 21÷42)*

5 ▶ EXTRACTOR *(see pages 43 and 44)*

2 TYPE 2: STANDARD (2 STEPS)

0 TYPE 0: SPECIAL (2 STEPS)

6 ▶ ELEMENT PROGRESSION AFTER SCREW EXTRACTOR *(see pages 21÷42)*

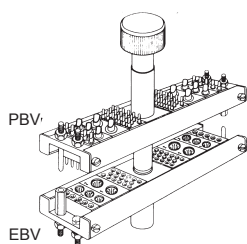
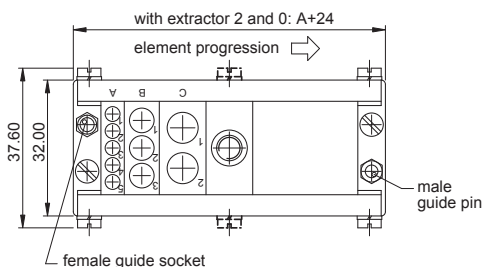
ex.: PBVT/3Am-2-3Am

(BV Series plug with 3 elements type Am, Type 2 extractor, 3 element stype Am, contact surface treatment T)

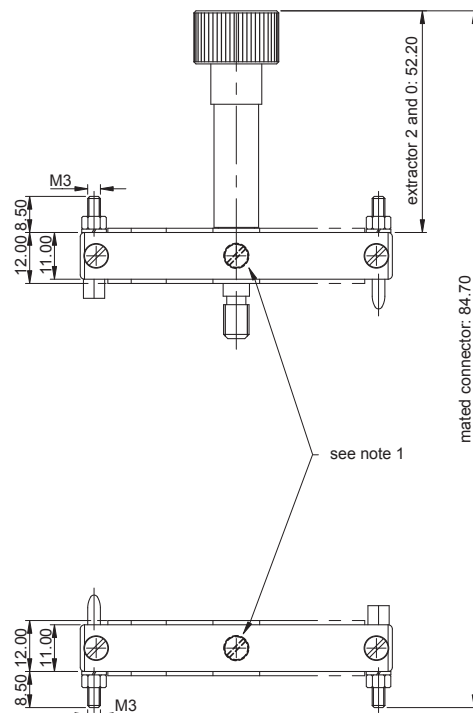
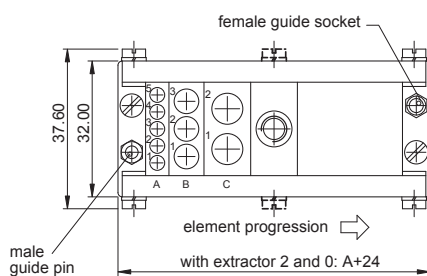
► “BV” SERIES

Application: Cable interface, without shell, screw locking device

BV series plug connector



BV series receptacle connector



Notes:

- 1) Type 2 and 0 extractor: Length (size A+24) < 101 mm without extractor holding screws; > 103.75 mm with screws.
- 2) To simplify the drawing only type 2 extractor has been shown

Dimensions are in mm

HOW TO ORDER

▶ “JV” SERIES

1	2	3	4	5	6	7	8

1 ▶ CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ▶ SERIES

3 ▶ CONTACTS SURFACE TREATMENT *(see page 20)*

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

4 ▶ ELEMENT PROGRESSION BEFORE SCREW EXTRACTOR *(see pages 21÷42)*

5 ▶ EXTRACTOR *(see pages 43 and 44)*

2 TYPE 2: STANDARD (2 STEPS)

0 TYPE 0: SPECIAL (2 STEPS)

6 ▶ ELEMENT PROGRESSION AFTER SCREW EXTRACTOR *(see pages 21÷42)*

7 ▶ POSITION OF CABLE CLAMP *(only for plug)*

A CABLE CLAMP ON SIDE

B CABLE CLAMP/S ON COVER

8 ▶ QUANTITY AND DIAMETER OF CABLE CLAMP *(only for plug)*

1 1 0

NO. 1 CABLE CLAMP Ø 10

1 1 5

NO. 1 CABLE CLAMP Ø 15

1 2 0

NO. 1 CABLE CLAMP Ø 20

1 2 4

NO. 1 CABLE CLAMP Ø 24

2 1 0

NO. 2 CABLE CLAMP Ø 10

2 1 5

NO. 2 CABLE CLAMP Ø 15

2 2 0

NO. 2 CABLE CLAMP Ø 20

2 2 4

NO. 2 CABLE CLAMP Ø 24

(only on cover)

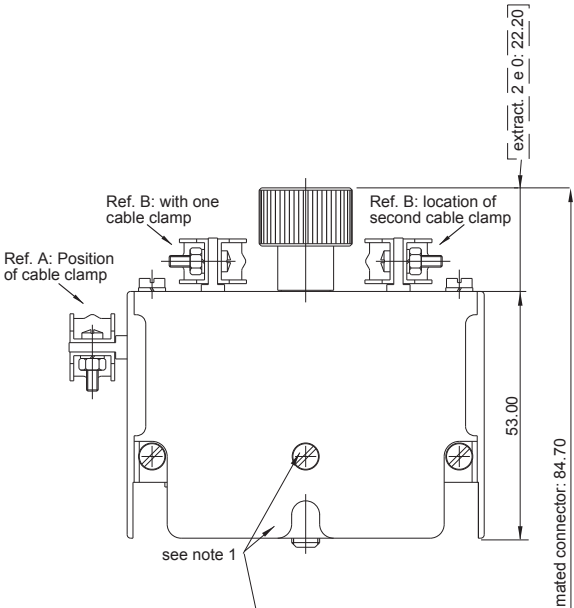
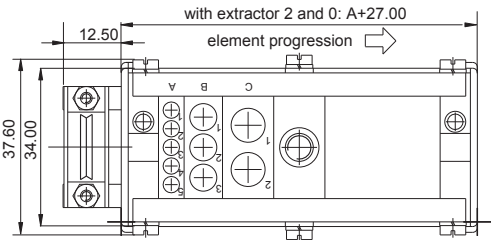
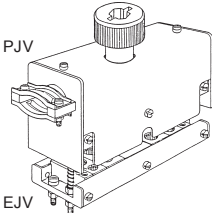
ex.: PJVT/3Am-2-3Am/B215
(JV Series plug with 3 elements type Am, type 2 extractor, 3 elements type Am, two cable clamps ø 15 on cover, contactsurface treatment T)

12

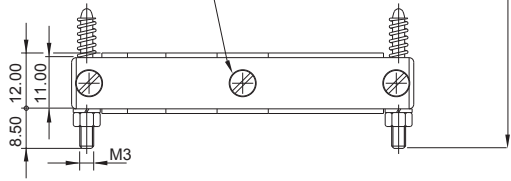
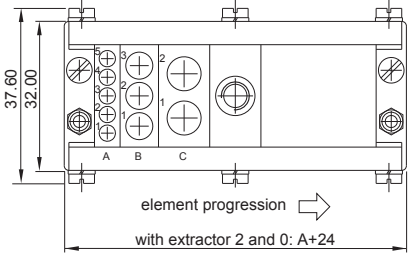
► “JV” SERIES

Application: Cable interface with side and top clamps

JV series plug connector



JV series receptacle connector



Notes:

- 1) Type 2 and 0 extractors: Length (size A+27) < 104 mm without extractor holding screws and eyelets on cover;
>106.75 mm with screws and eyelets on cover
- 2) To simplify the drawing only type 2 extractor has been shown

Cable clamp	Choise B Minimum size of connector	
	(A+27.00)	(A+32.50)
Ø 10	76.50	82.00
Ø 15	87.50	93.00
Ø 20	98.50	104.00
Ø 24	104.00	109.50

Dimensions are in mm

HOW TO ORDER

► “KV” SERIES



1 ► CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ► SERIES

3 ► CONTACTS SURFACE TREATMENT *(see page 20)*

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

4 ► ELEMENT PROGRESSION BEFORE SCREW EXTRACTOR *(see pages 21÷42)*

5 ► EXTRACTOR *(see pages 43 and 44)*

2 TYPE 2: STANDARD (2 STEPS)

0 TYPE 0: SPECIAL (2 STEPS)

6 ► ELEMENT PROGRESSION AFTER SCREW EXTRACTOR *(see pages 21÷42)*

7 ► QUANTITY AND DIMENSIONS OF RECTANGULAR CABLE CLAMP *(only for plug)*

1 3 3 NO. 1 CABLE CLAMP 9x33

1 0 0 NO. 1 CABLE CLAMP 13.50x33

1 5 0 NO. 1 CABLE CLAMP 9x50

1 0 1 NO. 1 CABLE CLAMP 13.50x50

2 3 3 NO. 2 CABLE CLAMP 9x33

2 0 0 NO. 2 CABLE CLAMP 13.50x33

2 5 0 NO. 2 CABLE CLAMP 9x50

2 0 1 NO. 2 CABLE CLAMP 13.50x50

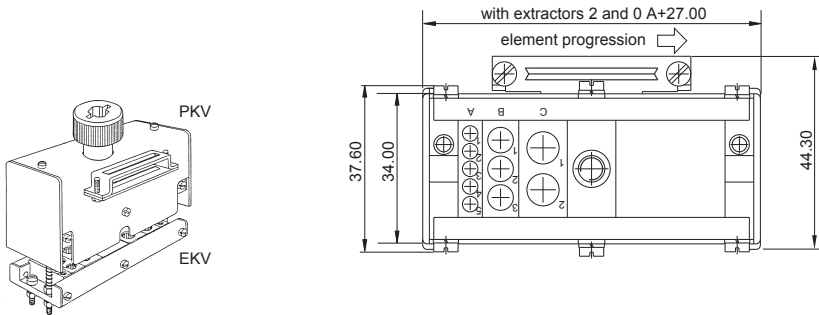
ex.: PKVT/3Am-2-3Am/250

(JV Series plug with 3 elements type Am, type 2 extractor, 3 elements type Am, two rectangular cable clamps 9x50, contact surface treatment T)

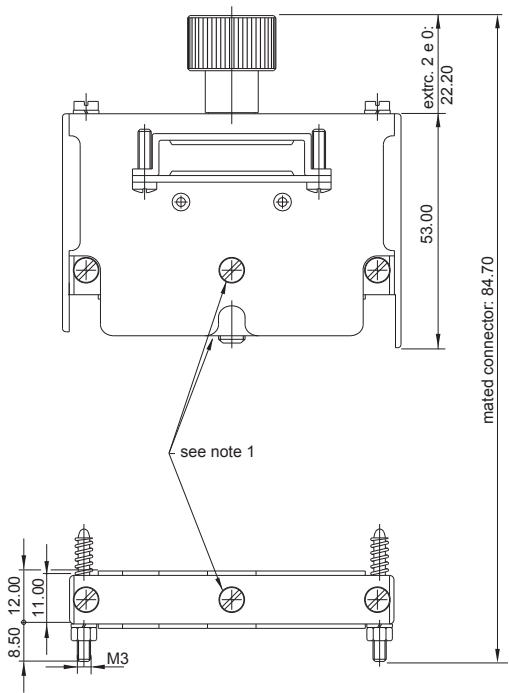
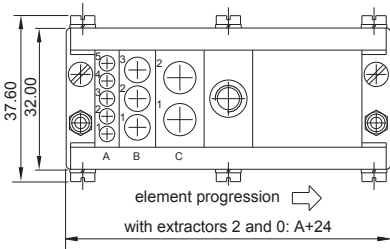
► “KV” SERIES

Application: Cable interface with side clamp

KV series plug connector



KV series receptacle connector



Notes:

- 1) Type 2 and 0 extractors: Length (size A+27) < 104 mm without extractor holding screws and eyelets on cover;
> 103.75 mm with screws and eyelets on cover
- 2) To simplify the drawing only type 2 extractor has been shown

Cable clamp	Minimum length (A+27.00/A+32.50)
133 100	49.00
150 101	65.50
233 200	95.75
250 201	131.50

Dimensions are in mm

HOW TO ORDER

► “V” SERIES: CABLE INTERFACE WITH PLASTIC SHELL *



1 ► CONNECTOR TYPE

P PLUG

E RECEPTACLE

2 ► SERIES

V0 WITHOUT CODING

V1 WITH CODING

3 ► CONTACTS SURFACE TREATMENT (see page 20)

T GOLD STANDARD

H GOLD AS PER MIL-DTL-55302

4 ► ELEMENT PROGRESSION BEFORE SCREW EXTRACTOR (see pages 21÷42)

5 ► EXTRACTOR (see pages 43 and 44)

2 TYPE 2: STANDARD (2 STEPS)

0 TYPE 0: SPECIAL (2 STEPS)

6 ► ELEMENT PROGRESSION AFTER SCREW EXTRACTOR (see pages 21÷42)

7 ► STANDARD LENGTHS (sizes shown are those of covers)

a 84.20 mm – 5-2-5*

b 100.70 mm – 6.5-2-6.5*

c 100.70 mm – 7-2-6*

d 111.70 mm – 8-2-7*

e 128.20 mm – 9-2-9*

f 139.20 mm – 10-2-10*

* PROGRESSION (in steps: 1 step = 5.50 mm) Extr. 2 or 0

8 ► QUANTITY AND SIZE OF CABLE CLAMP (only for plug)

10 NO. 1 STANDARD ADJUSTABLE CABLE CLAMP

20 NO. 2 STANDARD ADJUSTABLE CABLE CLAMPS

11 NO. 1 3/4" GAS CABLE CLAMP

21 NO. 2 3/4" GAS CABLE CLAMPS

12 NO. 1 1" GAS CABLE CLAMP

22 NO. 2 1" GAS CABLE CLAMPS

9 ► V1 SERIES: CODING

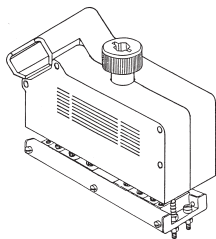
LEAVE BLANK IF STANDARD F6 CODING IS REQUIRED

ex.: PV1T/5Am-2-5Am/a10B4

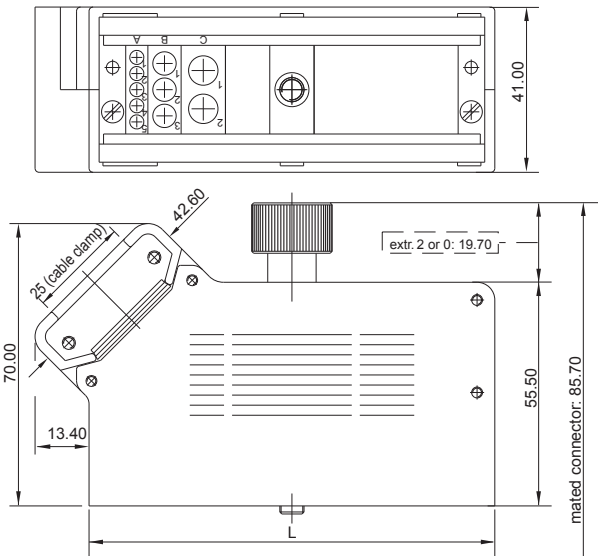
Series V1 plug receptacle (with coding), 5 elements type Am, type 2 extractor, 5 elements type Am, length a (84.20 mm.), one adjustable cable clamp, contact surface treatment T, B4 coding.

* Plastic shell compliant to EN45545

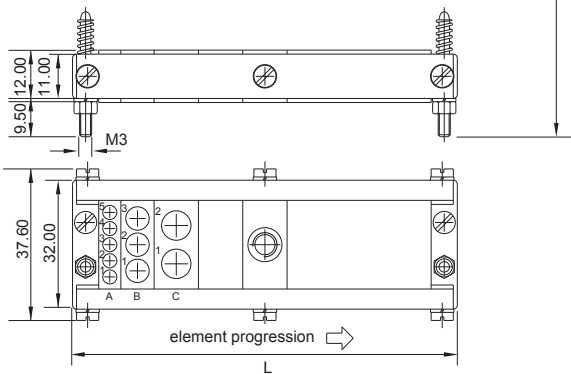
► “V” SERIES



V0 series plug connector



V0 series receptacle connector

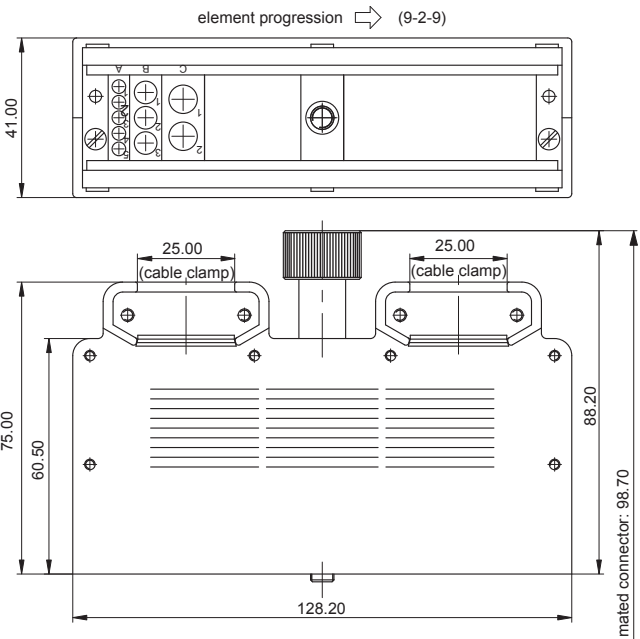


Notes:

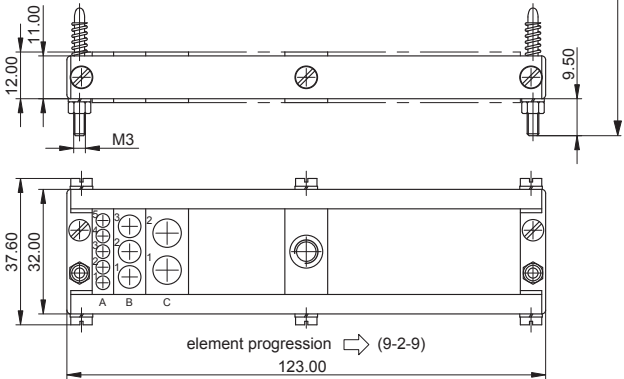
- 1) The progression is meant as number of steps (1 step= 5.50 mm)
- 2) Connectors with lengths “a-b-c” are supplied without screws or gloves for holding extractor
- 3) As an example, only connector length “b” with extractor type 2 is shown

V0 Series plug connector

Length indication	Size L	Progression
		extr. 2 or 0
a	84.20	5-2-5
b	100.70	6.5-2-6.5
c	100.70	7-2-6
d	111.70	8-2-7
e	128.20	9-2-9
f	139.20	10-2-10



V0 series receptacle connector



Notes:

- 1) The progression is meant as number of steps (1 step= 5.50 mm)
- 2) Only type 2 extractor can be mounted.

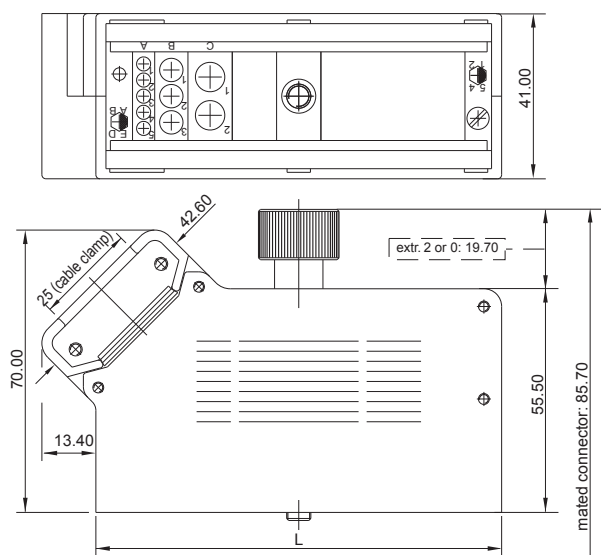
V0 Series receptacle connector

Length indication	Size L	Progression
		extr. 2 or 0
a	79.00	5-2-5
b	95.50	6.5-2-6.5
c	95.50	7-2-6
d	106.50	8-2-7
e	123.00	9-2-9
f	134.00	10-2-10

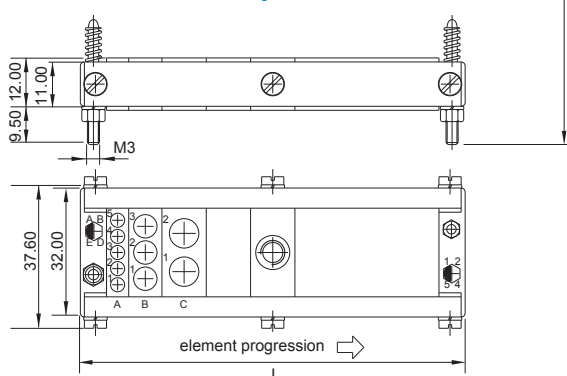
Dimensions are in mm

► “V” SERIES

V1 series plug connector



V1 series receptacle connector

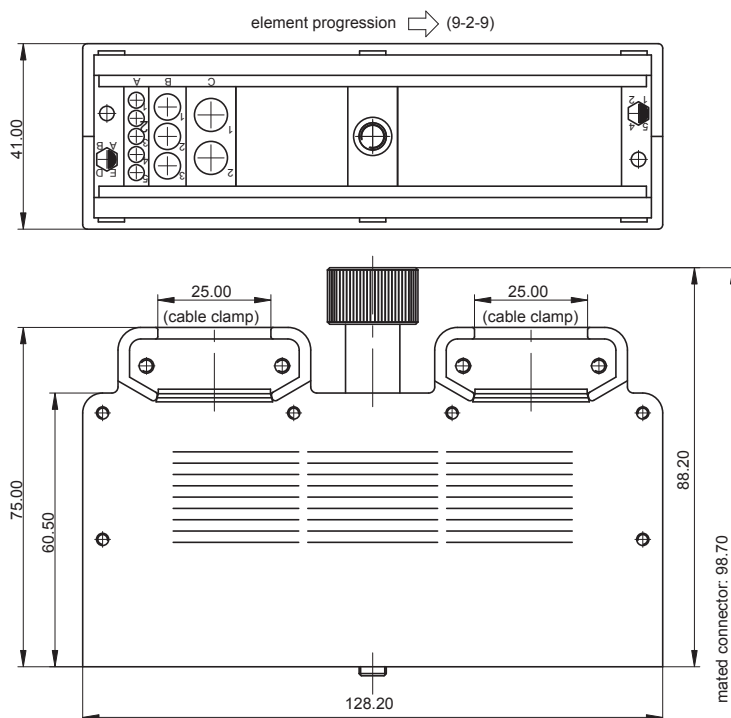


Notes:

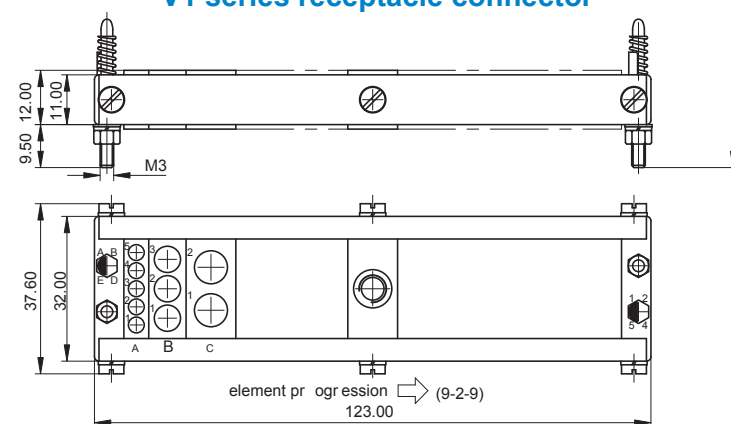
- 1) The progression is meant as number of steps (1 step= 5.50 mm)
- 2) Connectors with lengths “a-b-c” are supplied without screws or gloves for holding extractor
- 3) The connectors, except when otherwise requested, are supplied with F6 coding
- 4) As an example, only connector length “b” with extractor type 2 is shown

V1 Series plug connector

Length indication	Size L	Progression
		extr. 2 or 0
a	84.20	5-2-5
b	100.70	6.5-2-6.5
c	100.70	7-2-6
d	111.70	8-2-7
e	128.20	9-2-9
f	139.20	10-2-10



V1 series receptacle connector



Notes:

- 1) The progression is meant as number of steps (1 step=5.50 mm)
- 2) Only extractor type 2 can be mounted.
- 3) The connectors, unless otherwise requested, are supplied with F6 coding

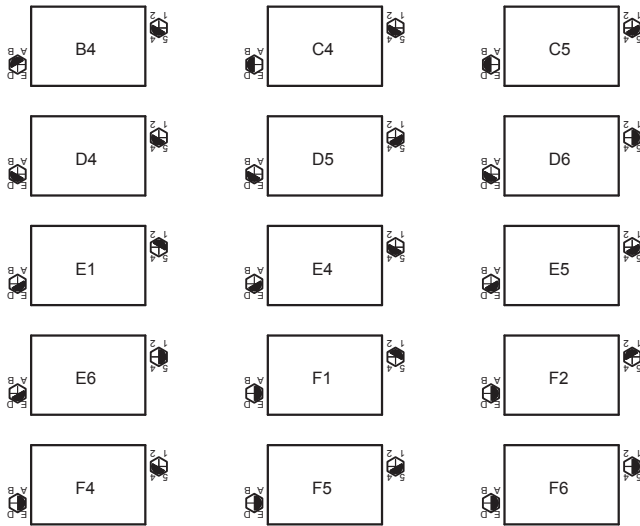
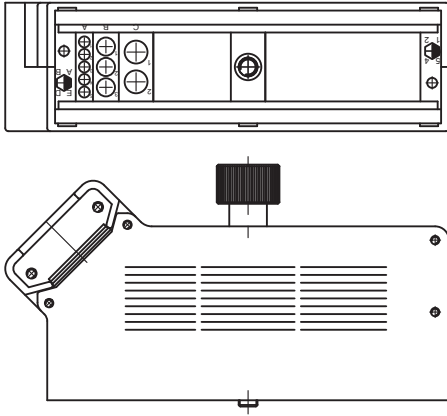
V1 Series receptacle connector

Length indication	Size L	Progression
		extr. 2 or 0
a	79.00	5-2-5
b	95.50	6.5-2-6.5
c	95.50	7-2-6
d	106.50	8-2-7
e	123.00	9-2-9
f	134.00	10-2-10

Dimensions are in mm

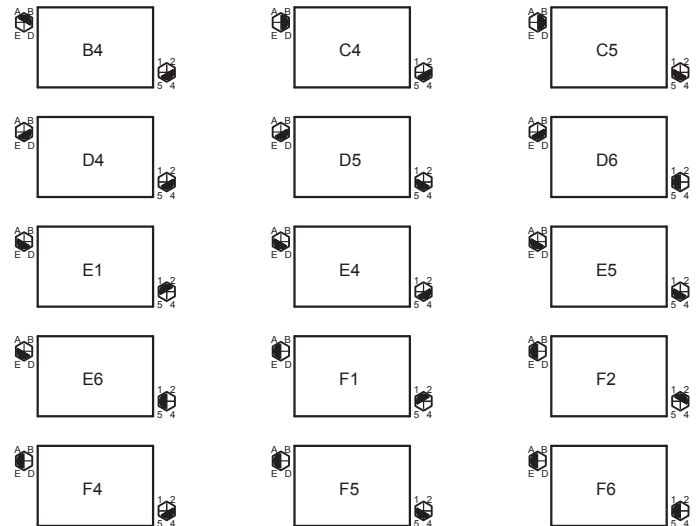
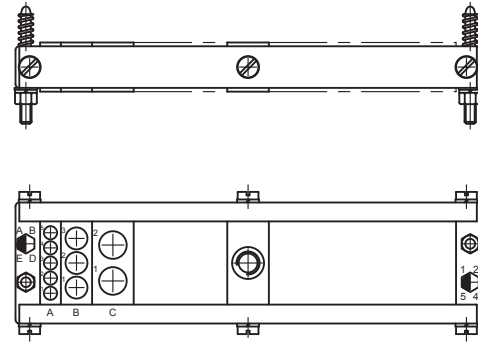
► "V" SERIES

V1 series connector: plug coding scheme



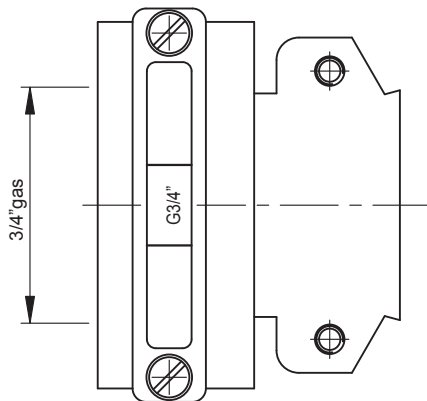
- No. 36 possible options of which 15 only are recommended (see above). The remaining 21 options (A1-A2-A3-A4-A5-A6-B1-B2-B3-B5-B6-C1-C2-C3-C6-D1-D2-D3-E2-E3-F3) do not codify the connector.
- As an example, only the plug connector with one cable clamp is shown.

V1 series connector: receptacle coding scheme

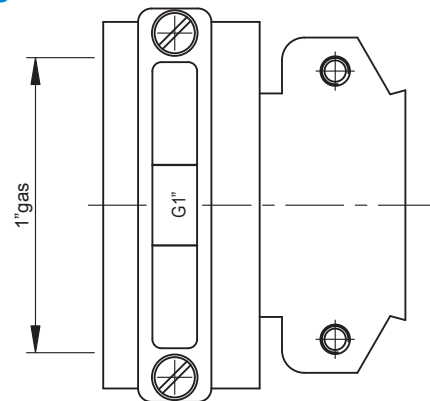


- No. 36 possible options of which 15 only are recommended (see above). The remaining 21 options (A1-A2-A3-A4-A5-A6-B1-B2-B3-B5-B6-C1-C2-C3-C6-D1-D2-D3-E2-E3-F3) do not codify the connector.

GAS CABLE CLAMPS



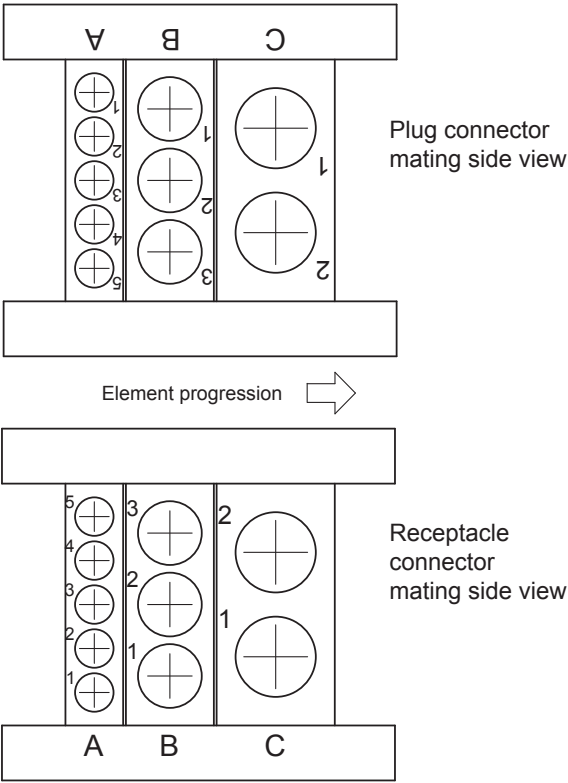
Type 1 cable clamp



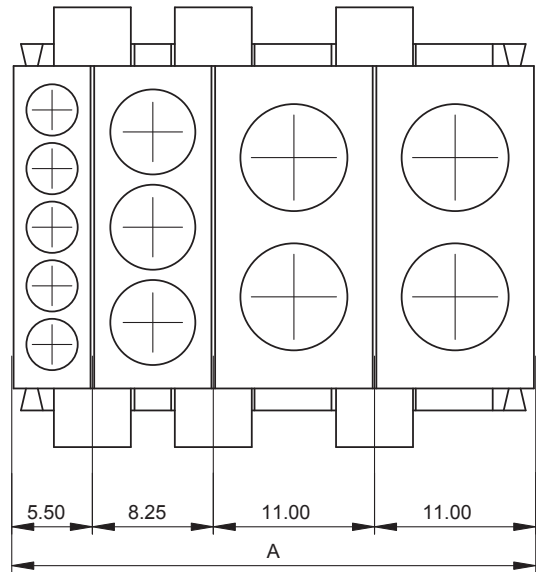
Type 2 cable clamp

GENERAL NOTES

PROGRESSION AND SUM OF CONTACT ELEMENTS
(for elements see details page 21÷42)



The progression of the contact element is always from left to right with the element orientation (position numbering) as in drawing



Therefore a “step” is defined as the length used by each assembled element.

- an elementary step is defined as 5.50 mm
- the letter “A” is the sum of the dimensions of the contact elements.

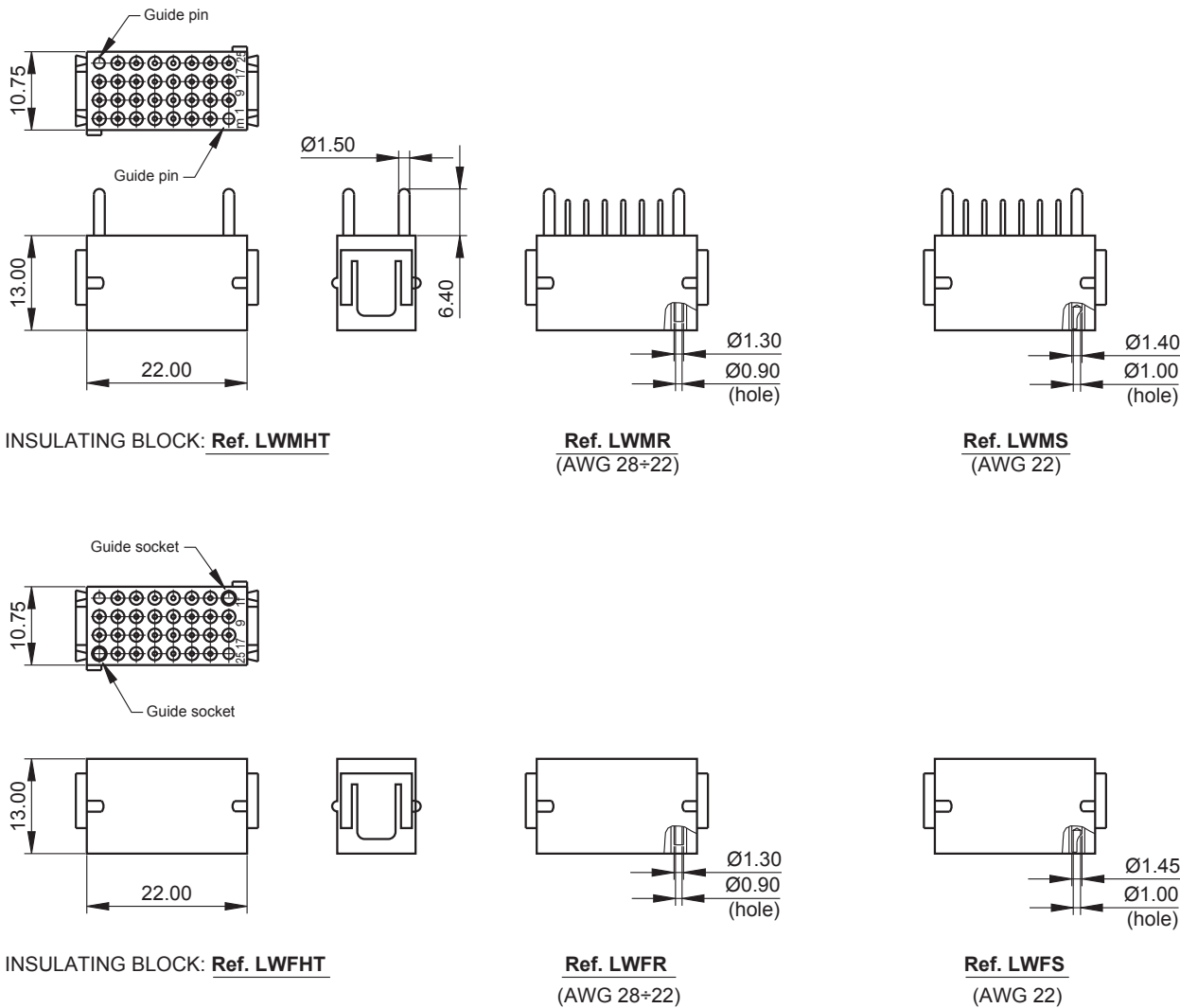
CONTACT PLATING

T reference	
Functional part (Mating Area)	0.25 µm Gold per ASTM B-488 type II Grade C on 2 µm Ni per QQ N-290
Termination area	0.15 µm Gold per ASTM B-488 type II Grade C on 2 µm Ni per QQ N-290

H reference	
Functional part (Mating Area)	1.27 µm Gold per ASTM B-488 type II Grade C on 2 µm Ni per QQ N-290
Termination area	0.15 µm Gold per ASTM B-488 type II Grade C on 2 µm Ni per QQ N-290

▶ TYPE “LW” ELEMENT (Ø 0.60 removable contacts-clip)

2 STEPS: 11.00 mm
(assembly with spacer clips)



CONTACTS ARE SUPPLIED NOT ASSEMBLED

General specification	
Contact Retention ⁽¹⁾	>25 N
Mating & Unmating Force (Module) ⁽²⁾	<25 N
Weight (M/F)	9.2/13.2 g
Contact Resistance (1mA) ⁽³⁾	<5 mΩ
Current Rating (25°C) ⁽⁶⁾	4 A
Current rating at 95°C	3 A
UL Rating	—
Dielectric Withstanding Voltage ⁽⁴⁾	1650 V r.m.s. 1650 V r.m.s
- Cont/ Cont	
- Cont/Hardware	
Insulation Resistance (500 Vdc) ⁽⁵⁾	>10 ³ MΩ >10 ³ MΩ
- Cont/ Cont	
- Cont/Hardware	
Insulator's Material	PPS

Accessories/spare contact ref.	
Insertion Tool	S/MONT/1/0060
Extraction Tool	S/DEM/6/0060
Crimping Tool	AFM8
Positioner	S/S/1/0060
Spare contact Pin Ref.	12548 ref. LWMR 12550 ref. LWMS
Spare contact Socket Ref.	12512 ref. LWFR 12514 ref. LWFS

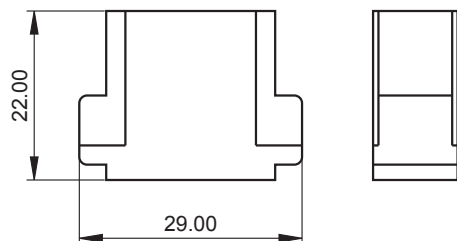
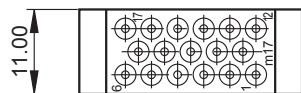
1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004
4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_t= 125°C/10xSQR (125-T))

For spare parts ordering codes: consult factory

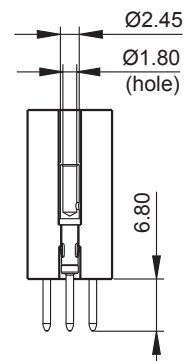
Dimensions are in mm

TYPE "O" AND "RO" ELEMENT (Ø 1.00 removable contacts-clip)

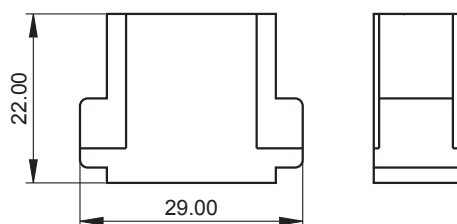
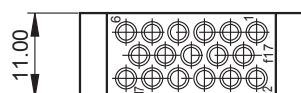
2 STEPS: 11.00 mm
(assembly without spacer clips)



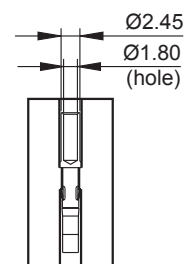
INSULATING BLOCK: **Ref. OHm and ROHm**



Ref. ORm and RORm
(AWG 20÷16)



INSULATING BLOCK: **Ref. OHf and ROHf**



Ref. ORf and RORf
(AWG 20÷16)

CONTACTS ARE SUPPLIED NOT ASSEMBLED

General specification	
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<19 N
Weight (M/F)	9.0/13 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	9 A
Current rating at 95°C	5 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	1800 V r.m.s.
- Cont/Hardware	1800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
Type "O"	Nylon
Type "RO"	Nylon EN45545

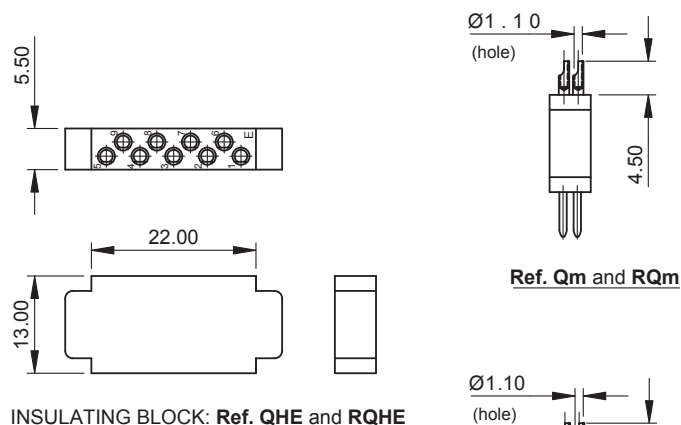
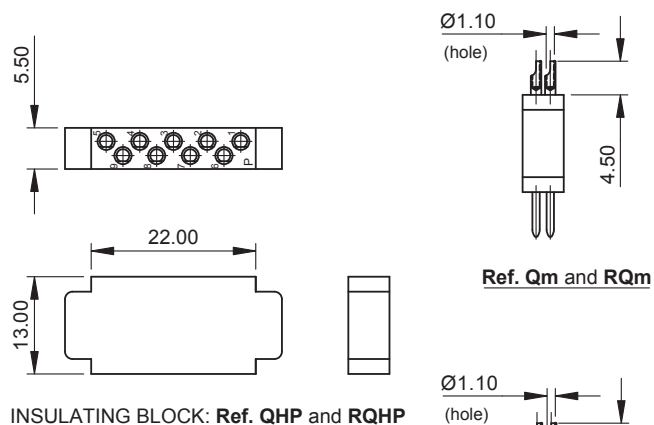
1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

Accessories/spare contact ref.	
Insertion Tool	Non Necessary
Extraction Tool	20652
Crimping Tool	AF8
Positioner	21765
Spare contact Pin Ref.	21868 ref. ORm
Spare contact Socket Ref.	21547 ref. ORf

► TYPE "Q" AND "RQ" ELEMENT (Ø 1.00 contacts)

1 STEPS: 5.50 mm
(assembly without spacer clips)



Notes:

- The codes are for elements mounted on plug connectors.
- For spare elements the code must be followed by the letter P ex. QHP, QmP, QfP.

Notes:

- The codes are for elements mounted on receptacle connectors.
- For spare elements the code must be followed by the letter E ex. QHE, QmE, QfE.

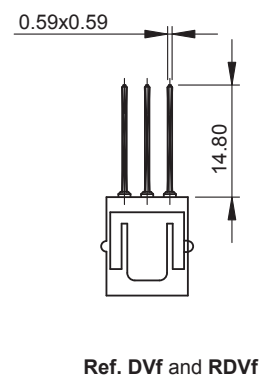
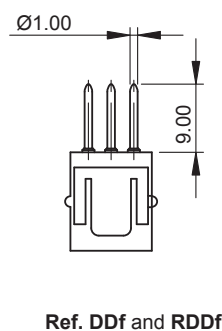
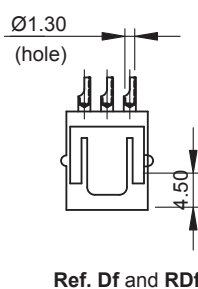
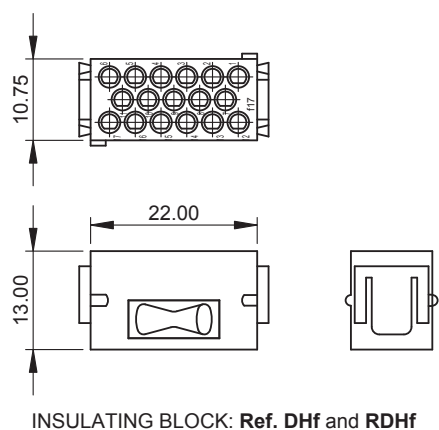
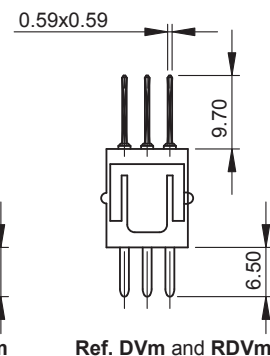
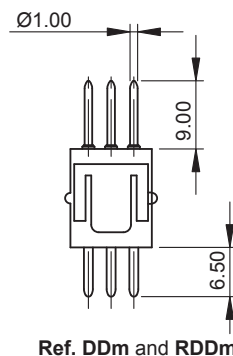
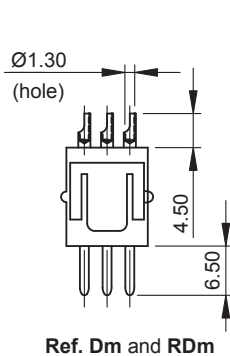
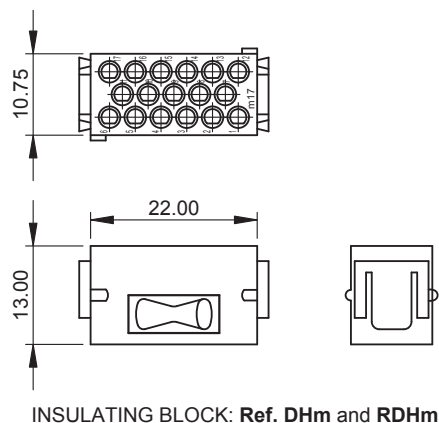
General specification	
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<15 N
Weight (M/F)	5.2/6.2 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	9 A
Current rating at 95°C	5 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2000 V r.m.s.
- Cont/Hardware	1500 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "Q"	DAP
- Type "RQ"	PE EN45545

1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004

4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

TYPE "D" AND "RD" ELEMENT (Ø 1.20 contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



General specification

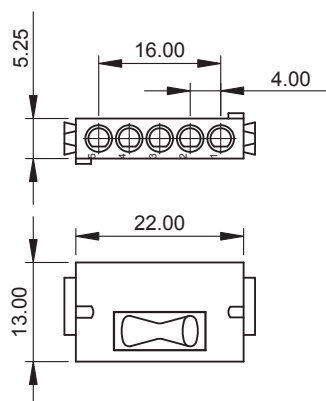
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<19 N
Weight (M/F)	9.0/13 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	9 A
Current rating at 95°C	5 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	1800 V r.m.s.
- Cont/Hardware	1800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "D"	DAP
- Type "RD"	PE EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_r=125°C/10xSQR (125-T)

► TYPE "A" AND "RA" ELEMENT (Ø 1.50 contacts)

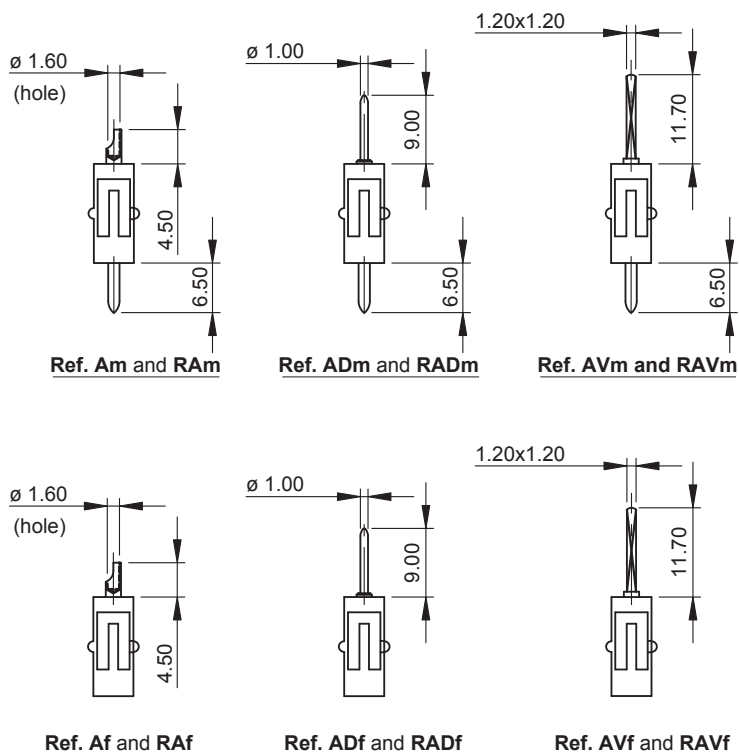
1 STEPS: 5.50 mm
(assembly with spacer clips)



INSULATING BLOCK: **Ref. AH and RAH**

Notes:

- The connector can be polarized or dering an element equipped with 5 plastic fitting: **Ref. AHQ.**



General specification

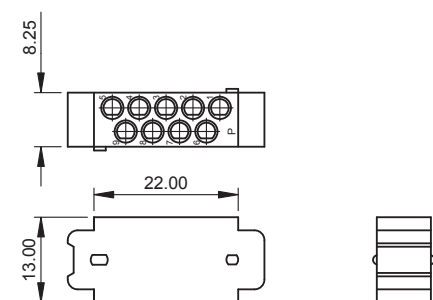
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<7.5 N
Weight (M/F)	6.2/4.3 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	20 A
Current rating at 95°C	11 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2000 V r.m.s.
- Cont/Hardware	2000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "A"	DAP
- Type "RA"	PE EN45545

1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004

4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_t= 125°C/10xSQR (125-T)

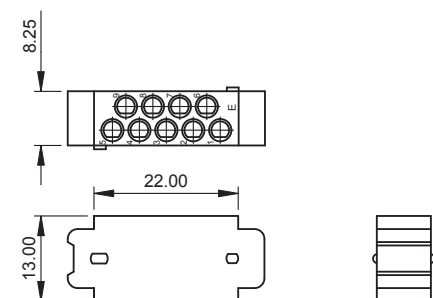
TYPE "G" AND "RG" ELEMENT (Ø 1.50 contacts)

1.5 STEPS: 8.25 mm
(assembly without spacer clips)



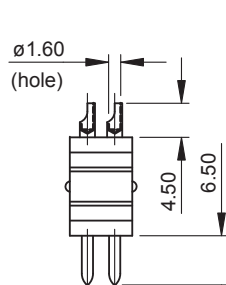
INSULATING BLOCK: **Ref. GHP and RGHP**

For elements mounted on plug connectors

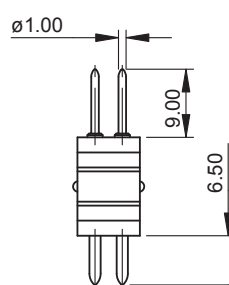


INSULATING BLOCK: **Ref. GHE and RGHE**

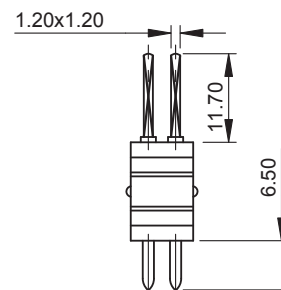
For elements mounted on receptacle connectors



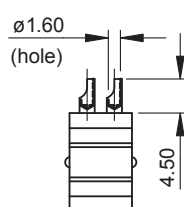
Ref. Gm and RGm



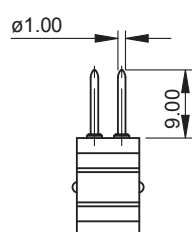
Ref. GDm and RGDm



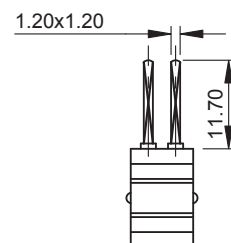
Ref. GVm and RGVm



Ref. Gf and RGf



Ref. GDf and RGDf



Ref. GVf and RGVf

Notes:

- The codes are for elements mounted on connectors.-For spare elements the code must be followed by the letter P (for plug connectors) ex. GHP, GHQP, GmP, GfP, etc.E (for receptacle connectors) ex. GHE, GHQE, GmE, GfE, etc.
- The connector can be polarized ordering an element equipped with 9 plastic fittings: **Ref. GHQ**.

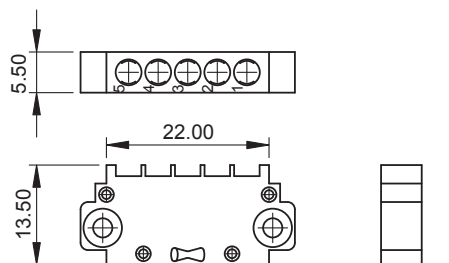
General specification	
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<15 N
Weight (M/F)	12.2/8.9 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	15 A
Current rating at 95°C	8 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2000 V r.m.s.
- Cont/Hardware	1500 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "G"	DAP
- Type "RG"	PE EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

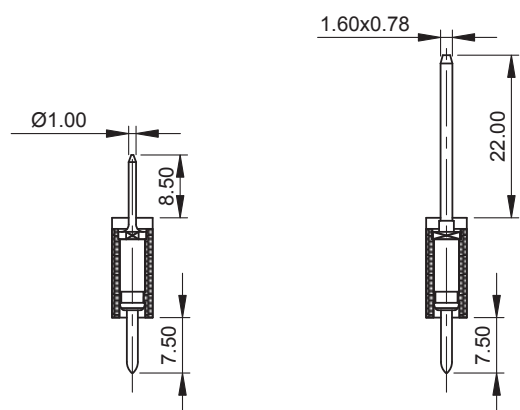
4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

► TYPE "X", "RX" AND "X1" ELEMENT (Ø 1.50 removable contacts-cloc)

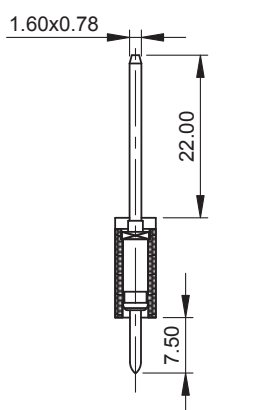
1 STEPS: 5.50 mm
(assembly without spacer clips)



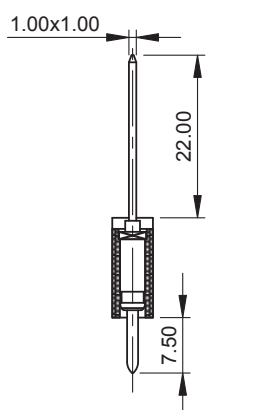
INSULATING BLOCK: **Ref. XH and RXH**



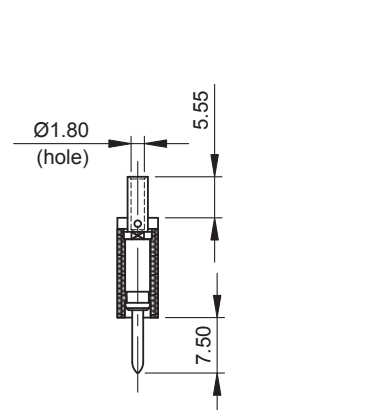
Ref. XDm and RXDm



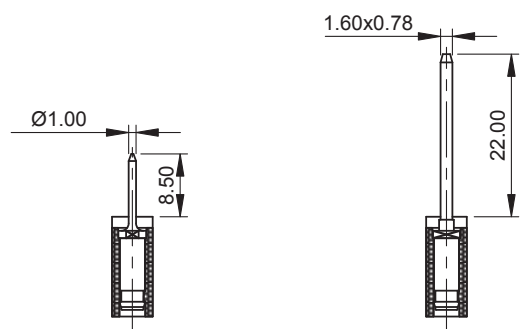
Ref. XTm and RXTm



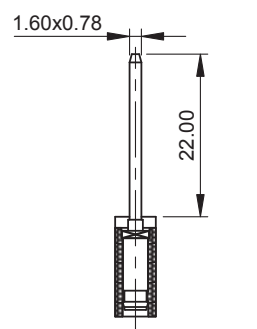
Ref. XVm and RXVm



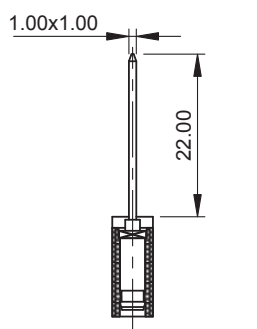
Ref. XRm and RXRm (AWG 16÷20)
(contacts are supplied not assembled)



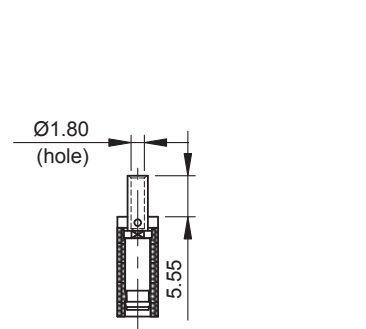
Ref. XDf and RXDf



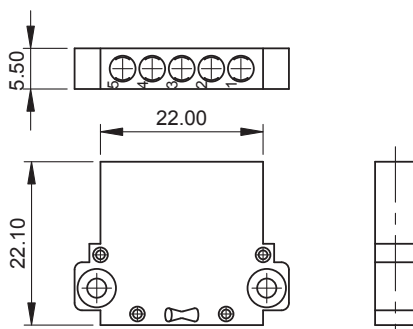
Ref. XTf and RXTf



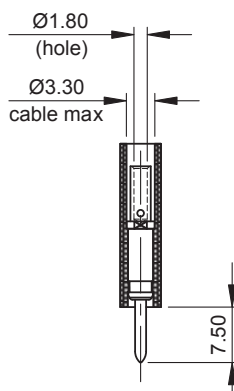
Ref. XVf and RXVf



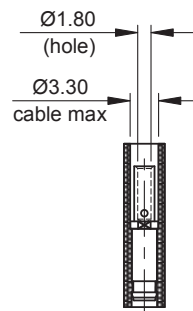
Ref. XRf and RXRf (AWG 16÷20)
(contacts are supplied not assembled)



INSULATING BLOCK: **Ref. XH1**



Ref. XLm (AWG 16÷20)
(contacts are supplied not assembled)



Ref. XLf (AWG 16÷20)
(contacts are supplied not assembled)

▶ TYPE “X”, “RX” AND “X1” ELEMENT (Ø 1.50 removable contacts-clip)

General specification	
Contact Retention ⁽¹⁾	>40 N
Mating & Unmating Force (Module) ⁽²⁾	<7.5 N
Weight (M/F)	6.4/4.6 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	15 A
Current rating at 95°C	8 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	1600 V r.m.s.
- Cont/Hardware	1600 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
Type “X”	Polycarbonate
Type “RX”	Polycarbonate
Type “X1”	EN45545 Polycarbonate

1) ref. MIL –STD-1344 Method 2007

2) ref. MIL –STD-1344 Method 2013.1

3) ref. MIL –STD-1344 Method 2004

4) ref. MIL –STD-1344 Method 3001.1

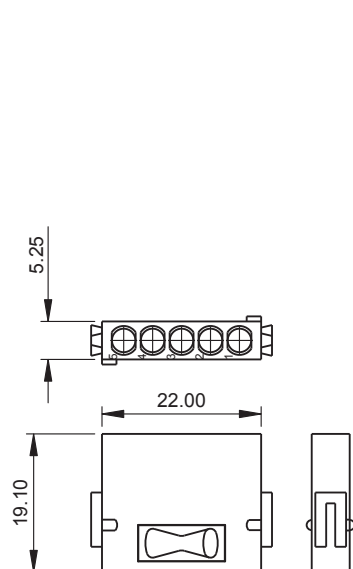
5) ref. MIL –STD-1344 Method 3003.1

6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T))

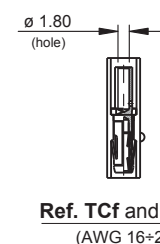
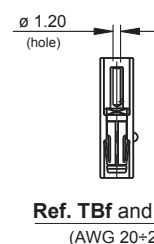
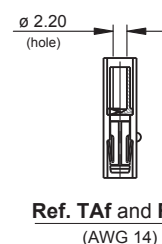
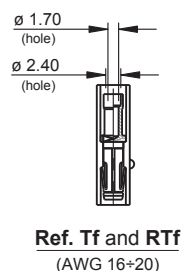
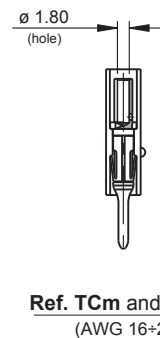
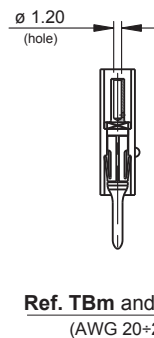
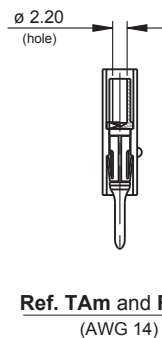
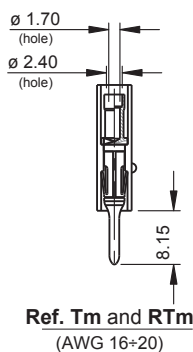
Accessories/spare contact ref.	
Insertion Tool	S-0150-01
Extraction Tool	S-0150-01
Crimping Tool	AF8
Positioner	H463
Spare contact Pin Ref.	16480 ref. XDm 16712 ref. XTm 133-0150 ref. XVm 15947 ref. XRm/XLm
Spare contact Socket Ref.	0150-132 ref. XDf 0150-130 ref. XTf 0150-133 ref. XVf 16813 ref. XRf/XLf

► TYPE "T" AND "RT" ELEMENT (Ø 1.50 removable contacts-clip)

1 STEPS: 5.50 mm
(assembly with spacer clips)



INSULATING BLOCK: **Ref. TH and RTH**



CONTACTS ARE SUPPLIED NOT ASSEMBLED

General specification	
Contact Retention ⁽¹⁾	>50 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	7.4/5.7 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Current Rating (25°C) ⁽⁶⁾	20 A
Current rating at 95°C	11 A
UL Rating	8 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	5000 V r.m.s.
- Cont/Hardware	1800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "T"	DAP
- Type "RT"	PE EN45545

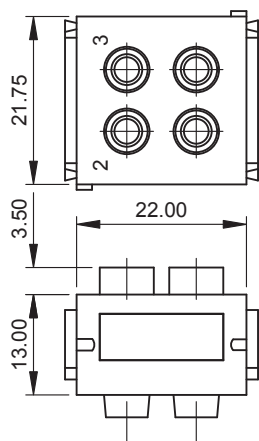
1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

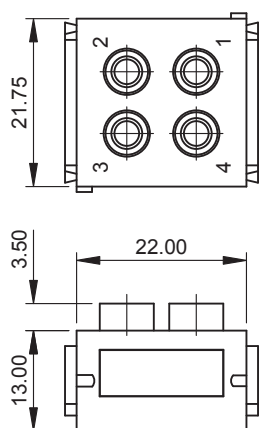
Accessories/spare contact ref.	
Insertion Tool	Non Necessary
Extraction Tool	15808
Crimping Tool	AF8
Positioner	15807
Spare contact Pin Ref.	15835 ref. Tm 18410 ref. TAm 18747 ref. TBm 19168 ref. TCm
Spare contact Socket Ref.	15837 ref. Tf 18412 ref. TAf 18748 ref. TBf 19171 ref. TCf

TYPE "N" ELEMENT (Ø 2.00 contacts)

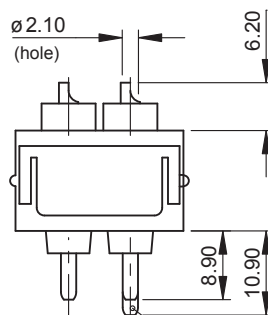
4 STEPS: 22.00 mm
(assembly with spacer clips)



INSULATING BLOCK: **Ref. NHm**

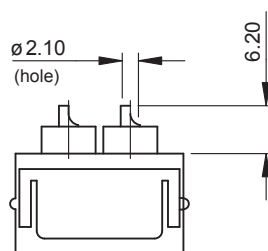


INSULATING BLOCK: **Ref. NHf**



Ref. Nm

The longer contact (mate first) drawing 13327 are mounted in position 4.



Ref. Nf

General specification

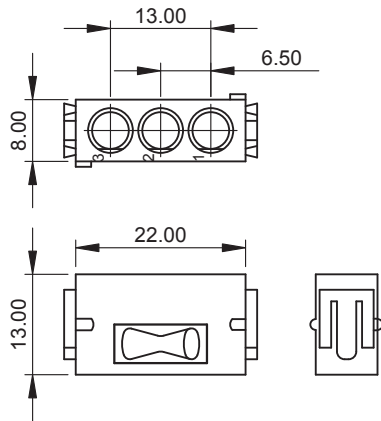
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<10 N
Weight (M/F)	11.5/9.5 g
Contact Resistance (1mA) ⁽³⁾	<1.5 mΩ
Current Rating (25°C) ⁽⁶⁾	31 A
Current rating at 95°C	17 A
UL Rating	-
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	4000 V r.m.s.
- Cont/Hardware	4500 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	PPS

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

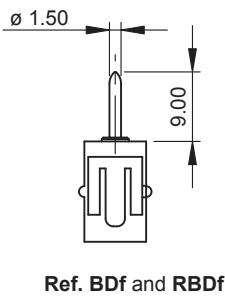
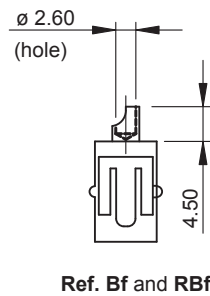
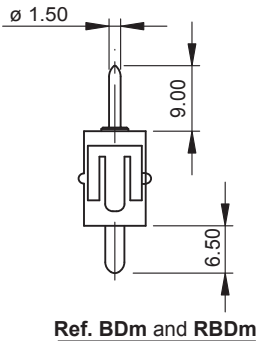
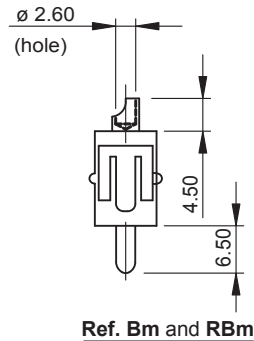
4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_t= 125°C/10xSQR (125-T)

TYPE “B” AND “RB”ELEMENT (Ø 2.50 contacts)

1.5 STEPS: 8.25 mm
(assembly with spacer clips)



INSULATING BLOCK: **Ref. BH and RBH**

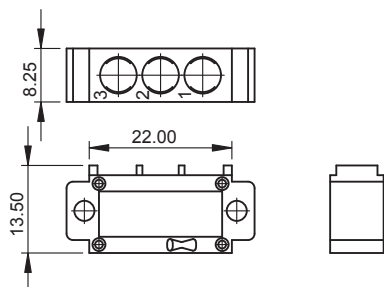


General specification	
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	10.4/7.4 g
Contact Resistance (1mA) ⁽³⁾	<1.0 mΩ
Current Rating (25°C) ⁽⁶⁾	40 A
Current rating at 95°C	22 A
UL Rating	15 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	1600 V r.m.s.
- Cont/Hardware	1600 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type “B”	DAP
- Type “RB”	PE EN45545

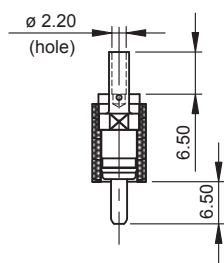
1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004
4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQRT (125-T))

TYPE "W" AND "RW" ELEMENT (Ø 2.50 removable contacts-cloc)

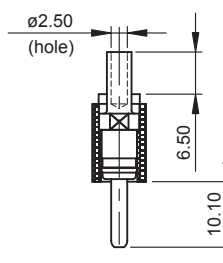
1.5 STEPS: 8.25 mm
(assembly without spacer clips)



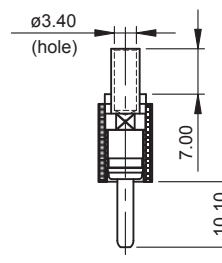
INSULATING BLOCK: **Ref. WH and RWH**



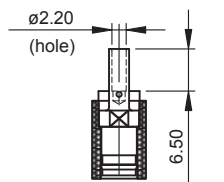
Ref. Wm and RWm
(AWG 14÷16)



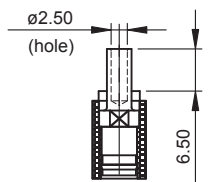
Ref. WAm and RWAm
(AWG 12)



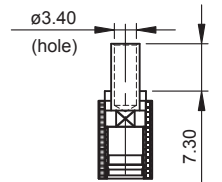
Ref. WBm and RWBm
(AWG 10÷12)



Ref. Wf and RWf
(AWG 14÷16)



Ref. WAf and RWAf
(AWG 12)



Ref. WBf and RWBf
(AWG 10÷12)

CONTACTS ARE SUPPLIED NOT ASSEMBLED

General specification	
Contact Retention ⁽¹⁾	>60 N
Mating & Unmating Force (Module) ⁽²⁾	<7.5 N
Weight (M/F)	6.5/10 g
Contact Resistance (1mA) ⁽³⁾	<1.0 mΩ
Current Rating (25°C) ⁽⁶⁾	35 A
Current rating at 95°C	19 A
UL Rating	15 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2800 V r.m.s.
- Cont/Hardware	2800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
Type "W"	Nylon
Type "RW"	Polycarbonate EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

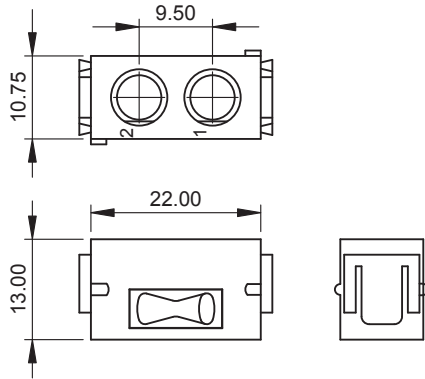
Accessories/spare contact ref.	
Insertion Tool	S-0250-01
Extraction Tool	S-0250-01
Crimping Tool	FT8
Positioner	SH463
Spare contact Pin Ref.	12318 ref. Wm 17667 ref. WAm 19684 ref. WBm
Spare contact Socket Ref.	16825 ref. Wf 17669 ref. WAf 19683 ref. WBf

Dimensions are in mm

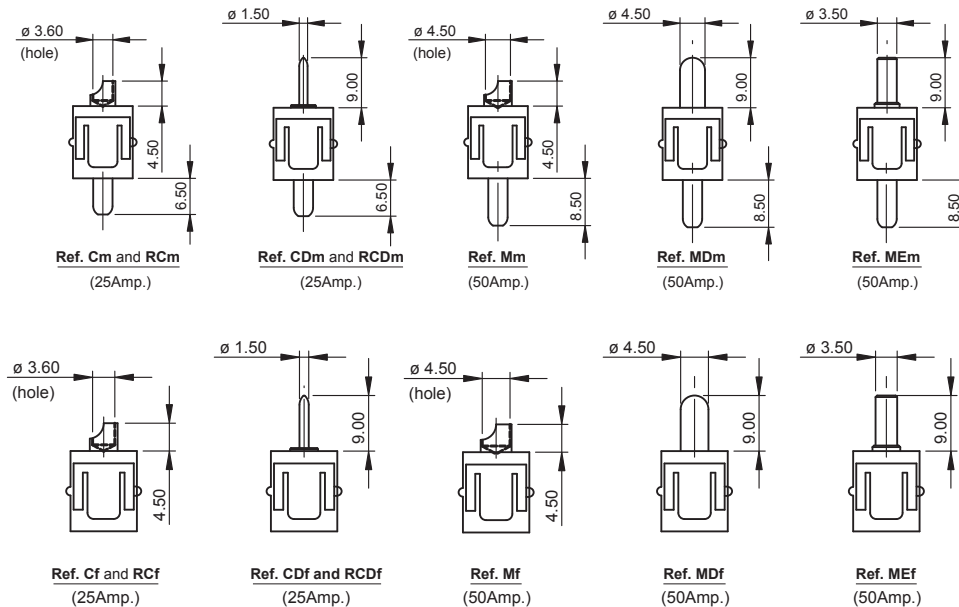
For spare parts ordering codes: consult factory

► TYPE "C", "RC" AND "M" ELEMENT (Ø 3.50 contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



INSULATING BLOCK: **Ref. CH and RCH**



Type "C" and "RC" - General specification

Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	12.2/8.9 g
Contact Resistance (1mA) ⁽³⁾	<0.8 mΩ
Current Rating (25°C) ⁽⁶⁾	57 A
Current rating at 95°C	31 A
UL Rating	25A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2000 V r.m.s.
- Cont/Hardware	2000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type "C"	DAP
- Type "RC"	PE EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

Type "M" - General specification

Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	12/8.9 g
Contact Resistance (1mA) ⁽³⁾	<0.6 mΩ
Current Rating (25°C) ⁽⁶⁾	86 A
Current rating at 95°C	47 A
UL Rating	50 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2000 V r.m.s.
- Cont/Hardware	2000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	DAP

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

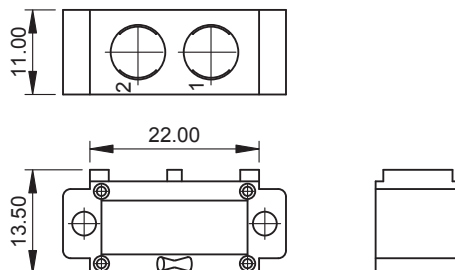
4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

For spare parts ordering codes: consult factory

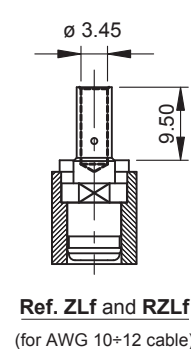
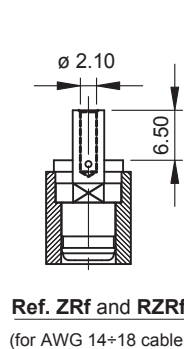
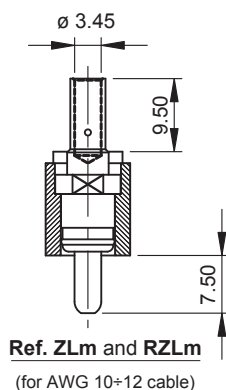
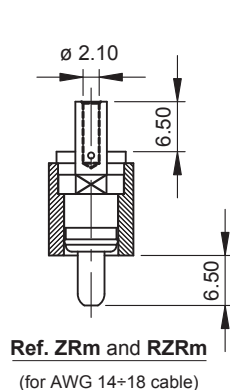
Dimensions are in mm

► TYPE “Z” AND “RZ” ELEMENT (Ø 3.50 removable contacts-cloc)

2 STEPS: 11.00 mm
(assembly without spacer clips)



INSULATING BLOCK: **Ref. ZH and RZH**



CONTACTS ARE SUPPLIED NOT ASSEMBLED

General specification	
Contact Retention ⁽¹⁾	>60 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	12/7.9 g
Contact Resistance (1mA) ⁽³⁾	<0.8 mΩ
Current Rating (25°C) ⁽⁶⁾	37 A
Current rating at 95°C	20 A
UL Rating	25 or 50 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2800 V r.m.s.
- Cont/Hardware	2800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
- Type “Z”	Nylon
- Type “RZ”	Polycarbonate EN45545

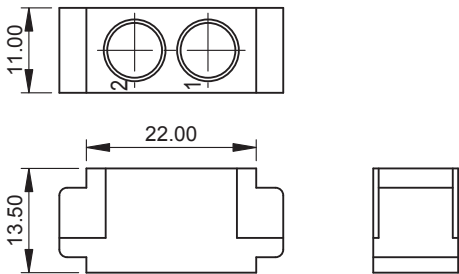
1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004

4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_t= 125°C/10xSQR (125-T)

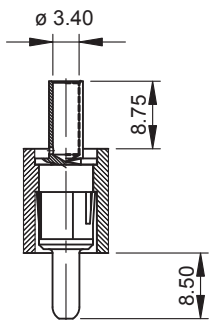
Accessories/spare contact ref.	
Insertion Tool	S-0350-01
Extraction Tool	S-0350-01
Crimping Tool	M310
Positioner	TP999
Spare contact Pin Ref.	12320 ref. ZRm 16600 ref. ZLm
Spare contact Socket Ref.	16722 ref. ZRf 16601 ref. ZLf

TYPE “Z” AND “RZ” ELEMENT (Ø 3.50 removable contacts-clip)

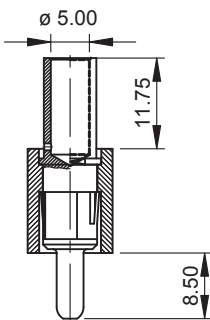
2 STEPS: 11.00 mm
(assembly without spacer clips)



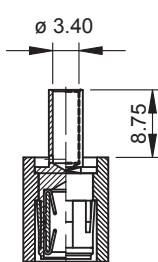
INSULATING BLOCK: Ref. ZH1 and RZH1



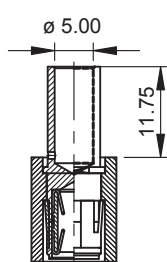
Ref. ZAm and RZAm
(for AWG 10÷12 cable)



Ref. ZBm and RZBm
(for 10mm cable)



Ref. ZAf and RZAf
(for AWG 10÷12 cable)



Ref. ZBf and RZBf
(for 10mm² cable)

General specification	
Contact Retention ⁽¹⁾	>60 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	12/7.9 g
Contact Resistance (1mA) ⁽³⁾	<0.8 mΩ
Current Rating (25°C) ⁽⁶⁾	37 A
Current rating at 95°C	20 A
UL Rating	25 or 50 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2800 V r.m.s.
- Cont/Hardware	2800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
Type “Z”	Nylon
Type “RZ”	Nylon EN45545

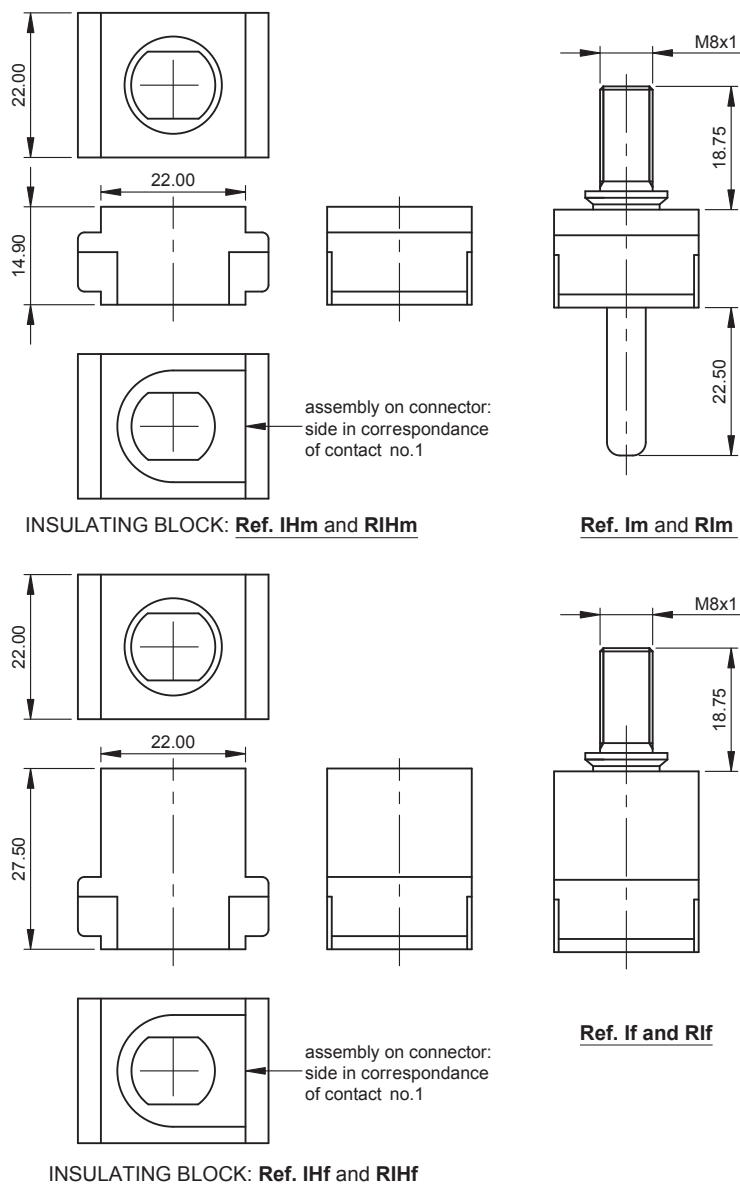
Accessories/spare contact ref.	
Insertion Tool	Not Necessary
Extraction Tool	20267
Crimping Tool	M310/WA23
Positioner	TP1290/M0601
Spare contact Pin Ref.	18972 ref. ZAm 19398 ref. ZBm
Spare contact Socket Ref.	16829 ref. ZAf 19395 ref. ZBf

1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004

4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

TYPE "I" AND "RI" ELEMENT (Ø 6.00 contacts)

4 STEPS: 22.00 mm
(assembly without spacer clips)



General specification	
Contact Retention ⁽¹⁾	>60 N
Mating & Unmating Force (Module) ⁽²⁾	<17 N
Weight (M/F)	12/7.9 g
Contact Resistance (1mA) ⁽³⁾	<0.8 mΩ
Current Rating (25°C) ⁽⁶⁾	37 A
Current rating at 95°C	20 A
UL Rating	25 or 50 A
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	2800 V r.m.s.
- Cont/Hardware	2800 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	
Type "I"	Nylon
Type "RI"	Nylon EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

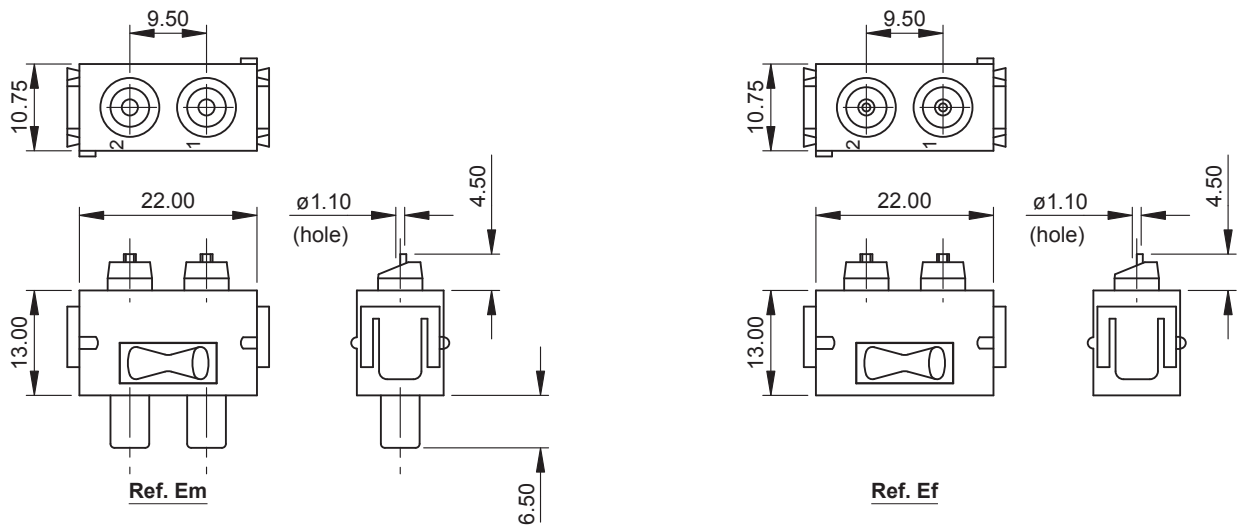
4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

Dimensions are in mm

For spare parts ordering codes: consult factory

► TYPE “E” ELEMENT (shielded contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



General specification	
Contact Retention ⁽¹⁾	n/a
Mating & Unmating Force (Module) ⁽²⁾	<40 N
Weight (M/F)	15/10.2 g
Contact Resistance (1mA) ⁽³⁾	<4 mΩ (inner) <0.6 mΩ (outer)
Current Rating (25°C) ⁽⁶⁾	9 A
Current rating at 95°C	5 A
UL Rating	-
Dielectric Withstanding Voltage ⁽⁴⁾	- Cont/ Cont 1300 V r.m.s. - Cont/Hardware 2500 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	- Cont/ Cont >10 ³ MΩ - Cont/Hardware >10 ³ MΩ
Insulator's Material	DAP

1) ref. MIL –STD-1344 Method 2007

2) ref. MIL –STD-1344 Method 2013.1

3) ref. MIL –STD-1344 Method 2004

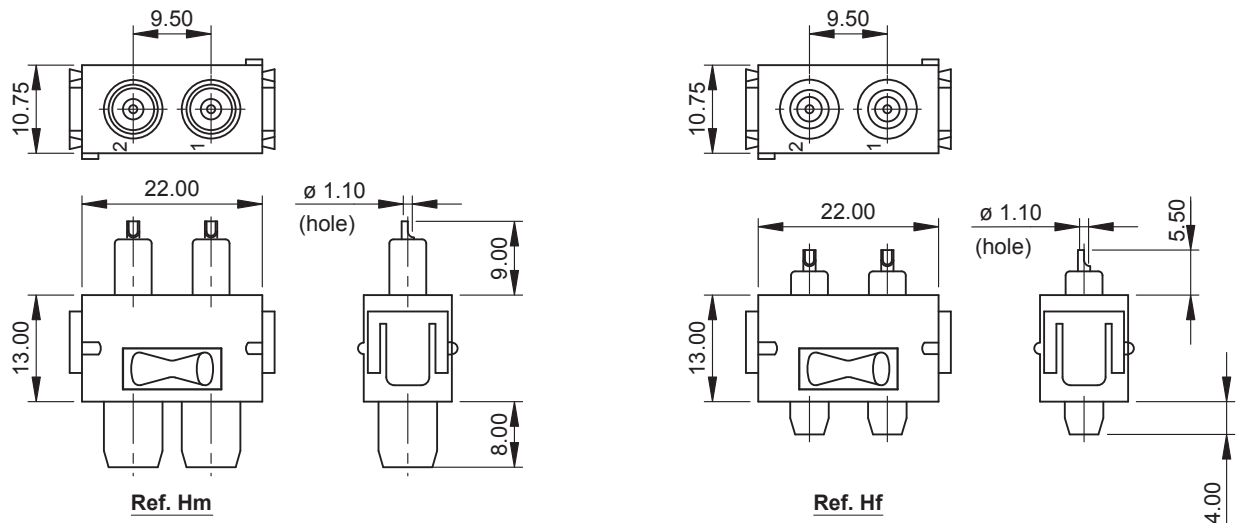
4) ref. MIL –STD-1344 Method 3001.1

5) ref. MIL –STD-1344 Method 3003.1

6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQR (125-T)

TYPE “H” ELEMENT (high voltage contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



General specification	
Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<20 N
Weight (M/F)	7.4/5.8 g
Contact Resistance (1mA) ⁽³⁾	<3.5 mΩ
Current Rating (25°C) ⁽⁶⁾	9 A
Current rating at 95°C	5 A
UL Rating	-
Dielectric Withstanding Voltage ⁽⁴⁾	
- Cont/ Cont	8000 V r.m.s.
- Cont/Hardware	8000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Cont/ Cont	>10 ³ MΩ
- Cont/Hardware	>10 ³ MΩ
Insulator's Material	DAP

1) ref. MIL –STD-1344 Method 2007

2) ref. MIL –STD-1344 Method 2013.1

3) ref. MIL –STD-1344 Method 2004

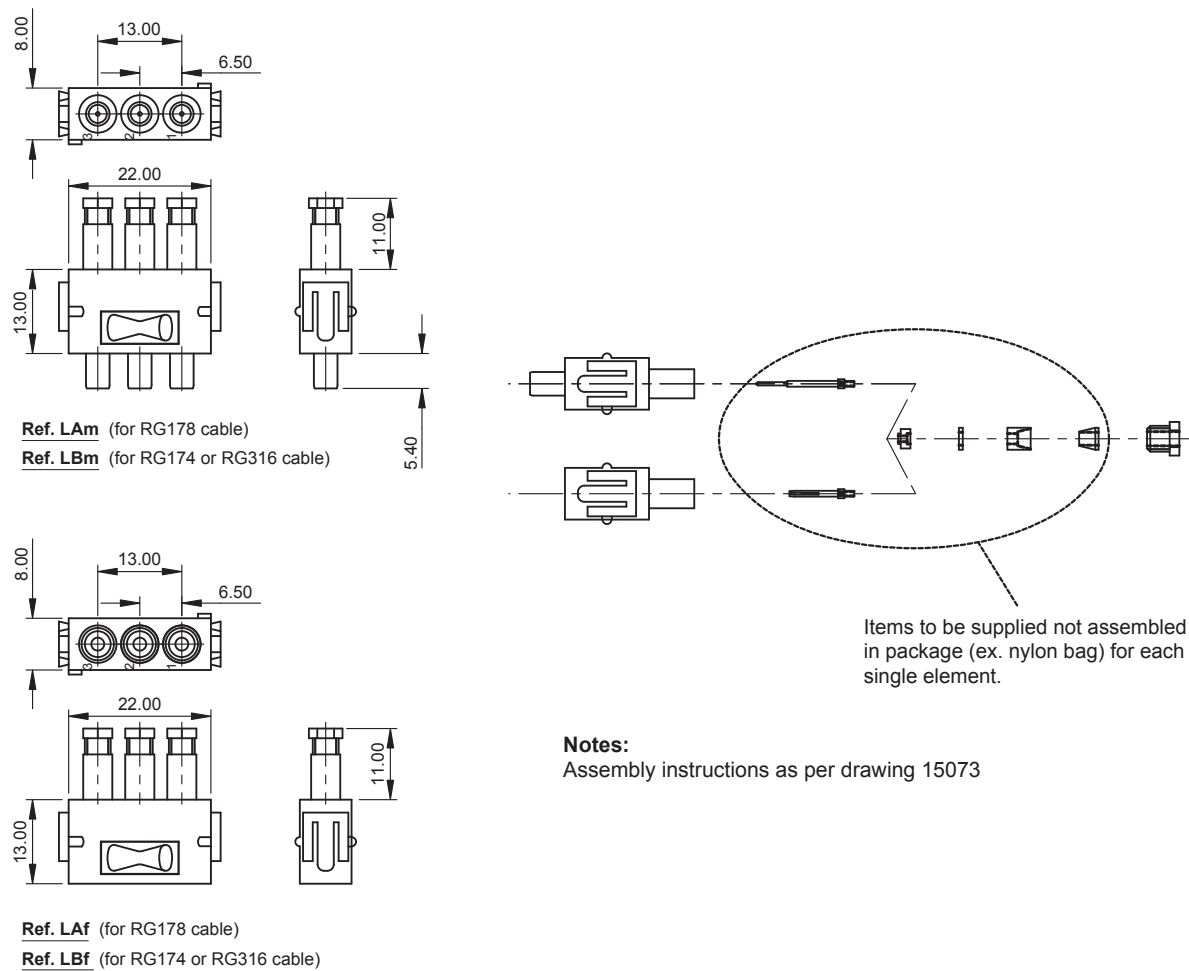
4) ref. MIL –STD-1344 Method 3001.1

5) ref. MIL –STD-1344 Method 3003.1

6) ref. I.E.C. 512-3 Test 5b (I_t= 125°C/10xSQR (125-T)

► TYPE “L” ELEMENT (coaxial contacts – consult factory)

1.5 STEPS: 8.25 mm
(assembly with spacer clips)

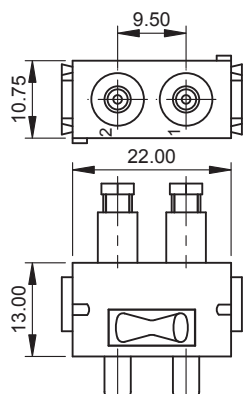


General specification	
Contact Retention ⁽¹⁾	>40 N
Mating & Unmating Force (Module) ⁽²⁾	<20 N
Weight (M/F)	8.9/11 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Dielectric Withstanding Voltage ⁽⁴⁾	
- Inner Cont/Outer Cont	1000 V r.m.s.
- Outer Cont/Hardware	1500 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Inner Cont/Outer Cont	>10 ³ MΩ
- Outer Cont/Hardware	>10 ³ MΩ
Standing Wave ratio (3.9 GHz) ⁽⁶⁾	<1.1
Impedance	50 Ω
Insulator's Material	DAP

1) ref. MIL –STD-1344 Method 2007
2) ref. MIL –STD-1344 Method 2013.1
3) ref. MIL –STD-1344 Method 2004
4) ref. MIL –STD-1344 Method 3001.1
5) ref. MIL –STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQRT (125-T))

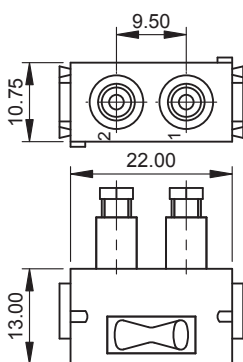
► TYPE “J” ELEMENT (coaxial contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



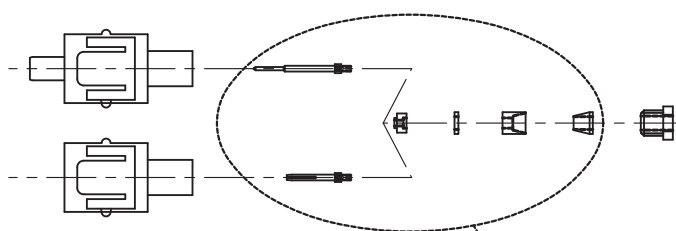
Ref. JAm (for RG178 cable)

Ref. JBm (for RG174 or RG316 cable)



Ref. JAf (for RG178 cable)

Ref. JBf (for RG174 or RG316 cable)



Items to be supplied not assembled in package (ex. nylon bag) for each single element.

Notes:

Assembly instructions as per drawing 15073

General specification

Contact Retention ⁽¹⁾	>70 N
Mating & Unmating Force (Module) ⁽²⁾	<13 N
Weight (M/F)	11.5/12.8 g
Contact Resistance (1mA) ⁽³⁾	<2.5 mΩ
Dielectric Withstanding Voltage ⁽⁴⁾	
- Inner Cont/Outer Cont	1000 V r.m.s.
- Outer Cont/Hardware	1000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Inner Cont/Outer Cont	>10 ³ MΩ
- Outer Cont/Hardware	>10 ³ MΩ
Standing Wave ratio (3.9 GHz) ⁽⁶⁾	<1.1
Impedance	50 Ω
Insulator's Material	DAP

1) ref. MIL -STD-1344 Method 2007

2) ref. MIL -STD-1344 Method 2013.1

3) ref. MIL -STD-1344 Method 2004

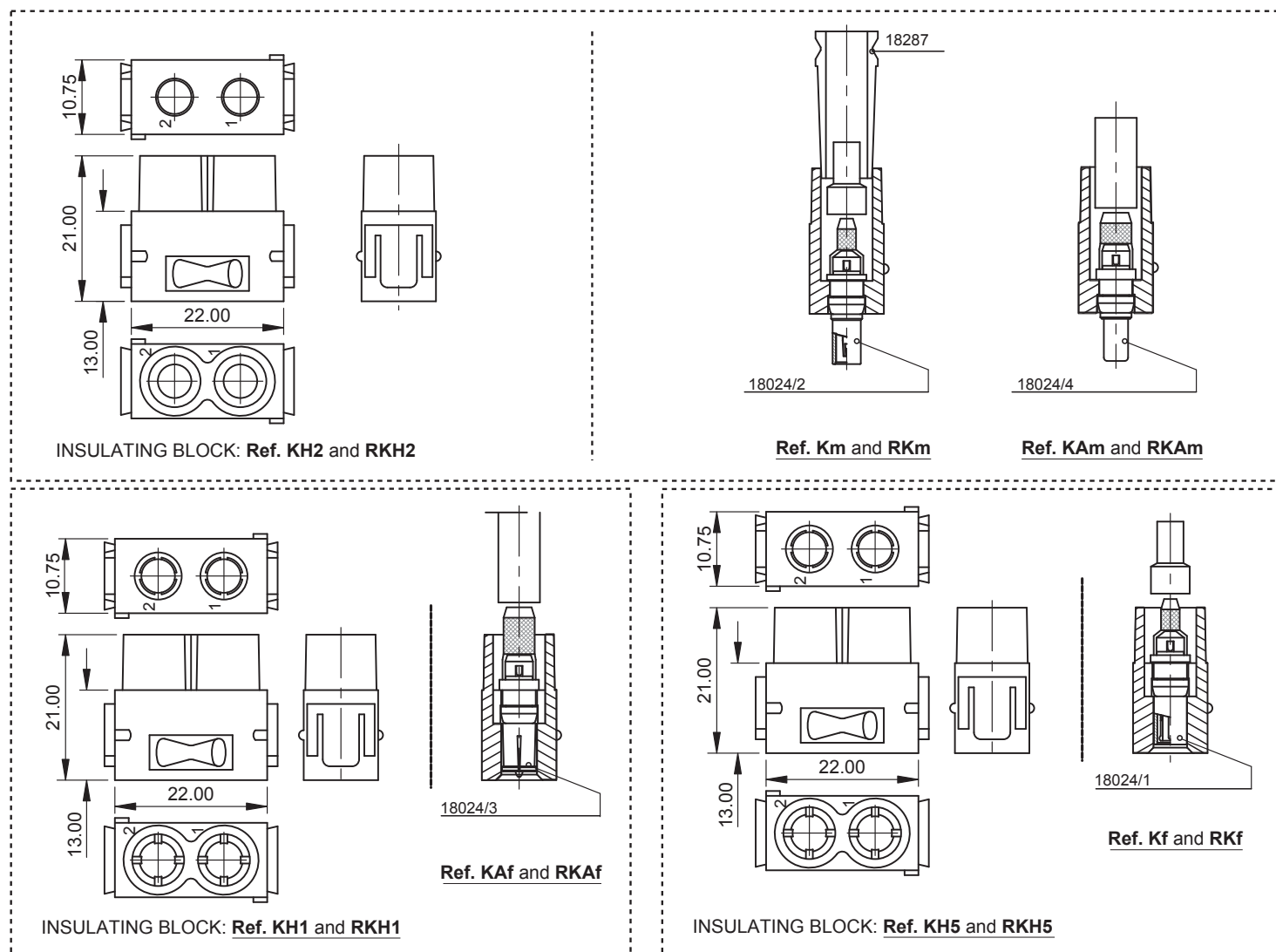
4) ref. MIL -STD-1344 Method 3001.1

5) ref. MIL -STD-1344 Method 3003.1

6) ref. I.E.C. 512-3 Test 5b (I_T= 125°C/10xSQRT (125-T))

TYPE "K" AND "RK" ELEMENT (coaxial contacts)

2 STEPS: 11.00 mm
(assembly with spacer clips)



General specification	
Contact Retention ⁽¹⁾	>40 N
Mating & Unmating Force (Module) ⁽²⁾	<15 N
Weight (M/F)	7.0/7.2 g
Contact Resistance (1mA) ⁽³⁾	<5.0 mΩ
Dielectric Withstanding Voltage ⁽⁴⁾	
- Inner Cont/Outer Cont	1000 V r.m.s.
- Outer Cont/Hardware	2000 V r.m.s.
Insulation Resistance (500 V dc) ⁽⁵⁾	
- Inner Cont/Outer Cont	>10 ³ MΩ
- Outer Cont/Hardware	>10 ³ MΩ
Standing Wave ratio (3.9 GHz) ⁽⁶⁾	<1.2
Impedance	50 Ω
Insulator's Material	
Type "K"	DAP
Type "RK"	PE EN45545

1) ref. MIL -STD-1344 Method 2007
2) ref. MIL -STD-1344 Method 2013.1
3) ref. MIL -STD-1344 Method 2004

4) ref. MIL -STD-1344 Method 3001.1
5) ref. MIL -STD-1344 Method 3003.1
6) ref. I.E.C. 512-3 Test 5b (I_T = 125°C/10xSQR (125-T))

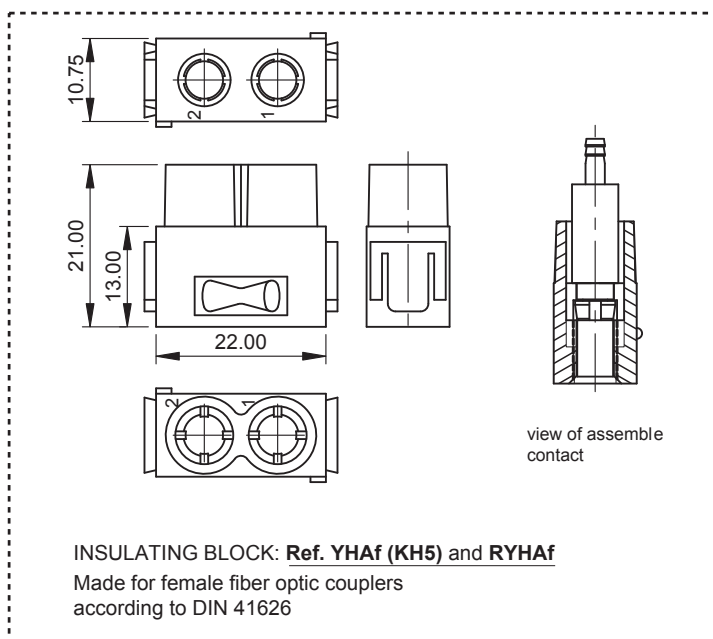
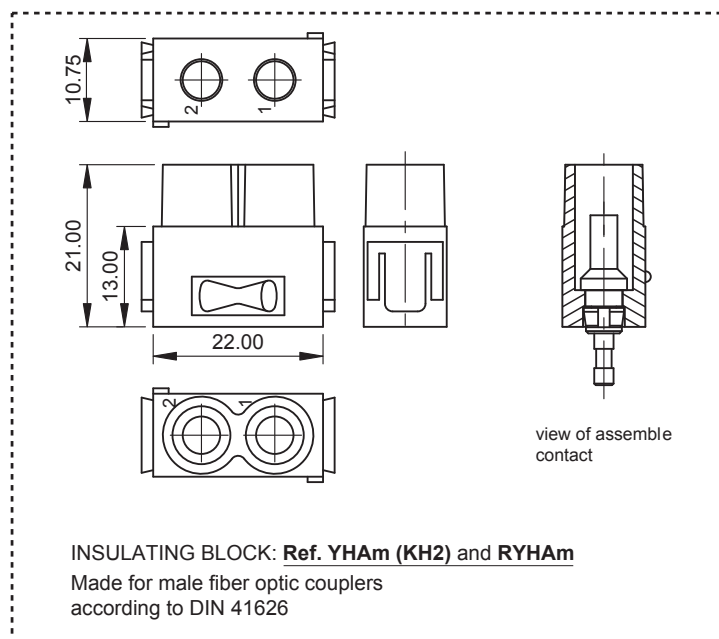
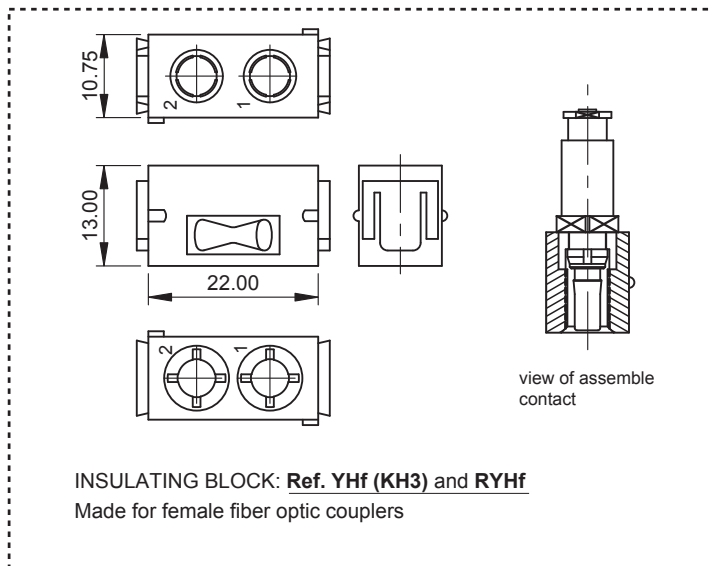
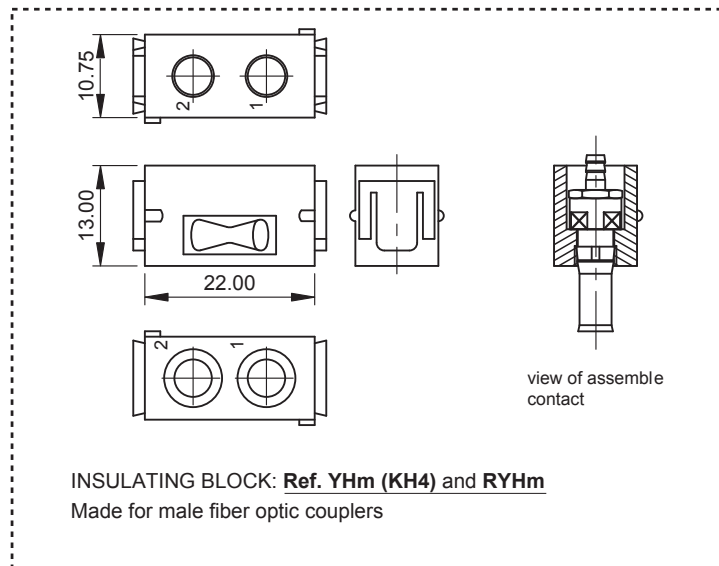
Accessories				
Ref.	18024/1	18024/2	18024/3	18024/4
Cable	RG316/ RG174	RG316/ RG174	RG58	RG58
Crimping tool	M0576	M0576	M0576	M0576
Positioner	M0577	M0577	11W.150.106	11W.150.106
Extraction tool	M0578	M0578	11W.101.000	11W.101.000

For spare parts ordering codes: consult factory

Dimensions are in mm

► TYPE “Y” AND “RY” ELEMENT (for fiber optic couplers)

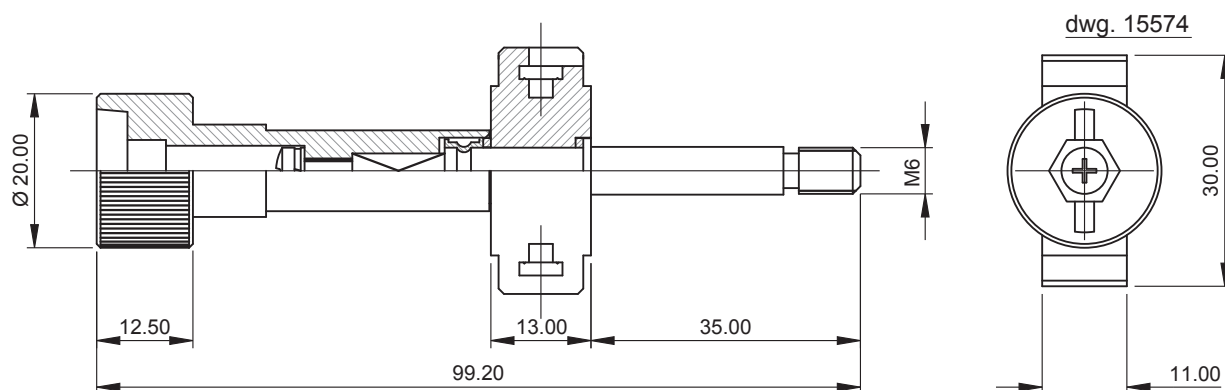
2 STEPS: 11.00 mm
(assembly with spacer clips)



► TYPE "O" JACKSCREW

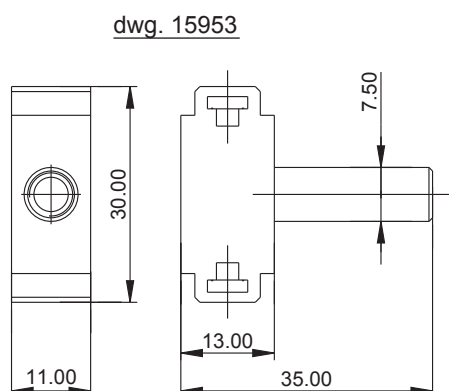
PLUG SIDE CONNECTOR

2 STEPS: 11.00 mm



RECEPTACLE SIDE CONNECTOR

2 STEPS: 11.00 mm

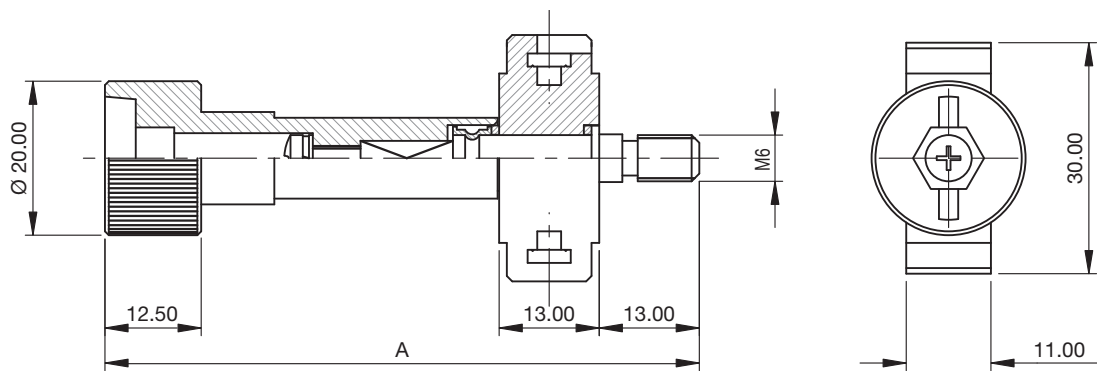
**Note**

Preferred for "BV" series

TYPE “2” JACKSCREW

PLUG SIDE CONNECTOR

2 STEPS: 11.00 mm

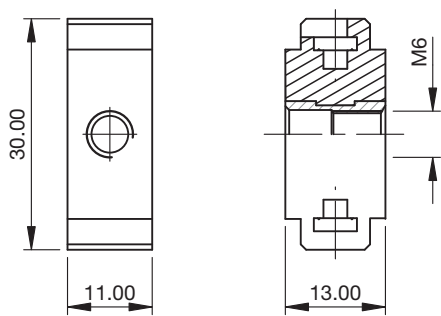


Application	A	Ref. Dwg
All series	77.20	15373
Series V - 2 cable clamps	90.20	15374

RECEPTACLE SIDE CONNECTOR

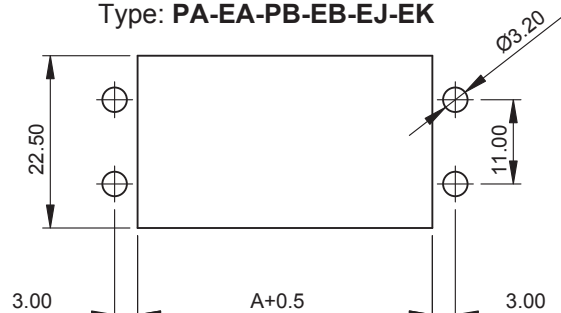
2 STEPS: 11.00 mm

dwg. 15301

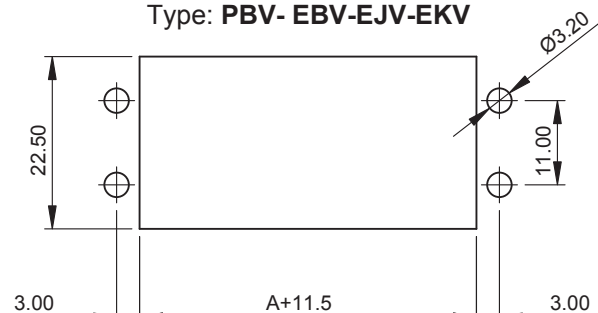


► PANNEL CUT-OUT

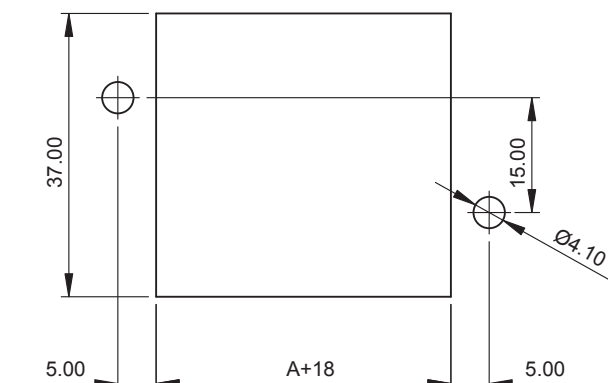
Type: PA-EA-PB-EB-EJ-EK



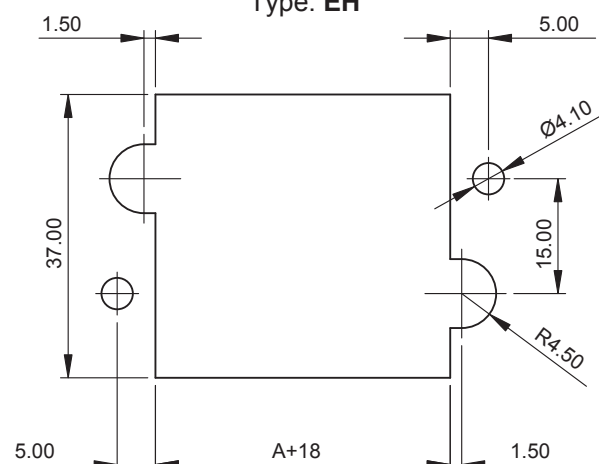
Type: PBV-EBV-EJV-EKV



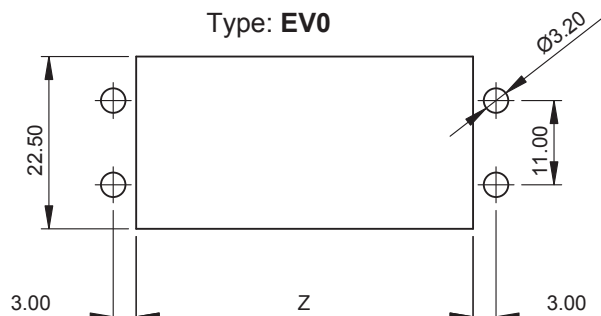
Type: PH



Type: EH

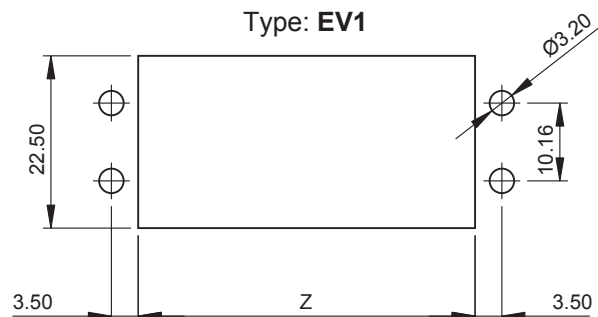


Type: EV0



EV0 length-indication "a": Z= 66.5
 EV0 length-indication "b": Z= 83.0
 EV0 length-indication "c": Z= 83.0
 EV0 length-indication "d": Z= 94.0
 EV0 length-indication "e": Z= 110.5
 EV0 length-indication "f": Z= 121.5

Type: EV1



EV1 length-indication "a": Z= 66.5
 EV1 length-indication "b": Z= 83.0
 EV1 length-indication "c": Z= 83.0
 EV1 length-indication "d": Z= 94.0
 EV1 length-indication "e": Z= 110.5
 EV1 length-indication "f": Z= 121.5

[illegible]

NOTE

Disclaimer 2016

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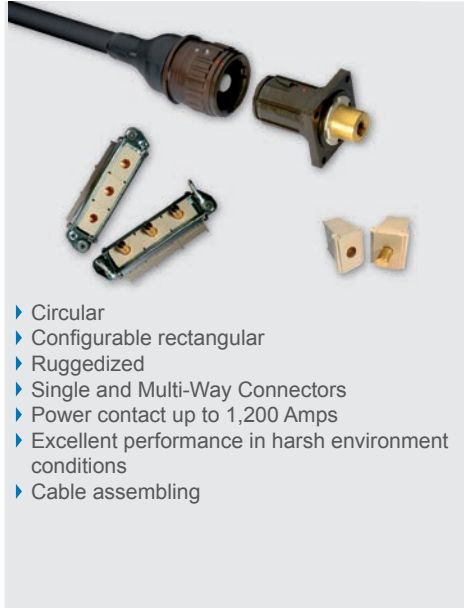
SMITHS CONNECTORS PRODUCT LINES

PCB



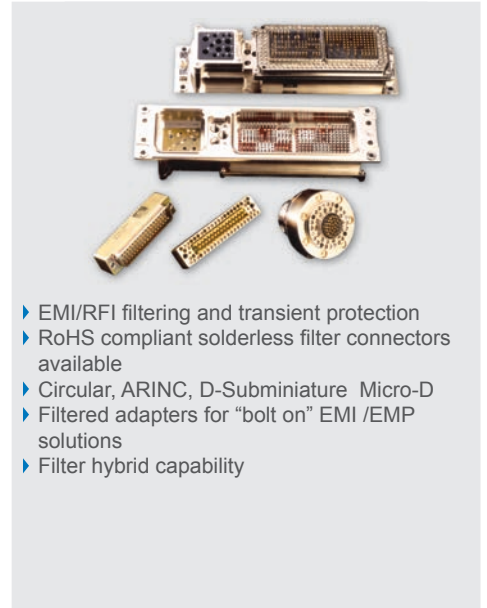
- ▶ Low, medium and high density board-to-board, cable to board and stacking
- ▶ Rugged standard
- ▶ Low profile
- ▶ Signal, power, coaxial & high speed configurations
- ▶ Self configurable board-to-board
- ▶ Spring probe connectors
- ▶ Mixed signal, power and coaxial contact connectors
- ▶ Different termination styles: solder cup, crimp, SMT and SMT flex, press fit, solder dip.

POWER



- ▶ Circular
- ▶ Configurable rectangular
- ▶ Ruggedized
- ▶ Single and Multi-Way Connectors
- ▶ Power contact up to 1,200 Amps
- ▶ Excellent performance in harsh environment conditions
- ▶ Cable assembling

EMI/EMP FILTER



- ▶ EMI/RFI filtering and transient protection
- ▶ RoHS compliant solderless filter connectors available
- ▶ Circular, ARINC, D-Subminiature Micro-D
- ▶ Filtered adapters for "bolt on" EMI /EMP solutions
- ▶ Filter hybrid capability

MODULAR/RECTANGULAR



- ▶ Configurable with modules for signal, power, coax, fiber optics and/or pneumatics
- ▶ Easy configuration in a single frame
- ▶ For rack & panel, and cable applications
- ▶ Guided hardware for blind
- ▶ D-sub connectors
- ▶ Micro-D style
- ▶ Signal connectors for hand held and docking stations

CIRCULAR



- ▶ Metal and Plastic
- ▶ Industrial M12, M23, M40, M58
- ▶ Crimp and solder terminations
- ▶ Various types of cable clamps
- ▶ Push Pull/ latch mechanism
- ▶ Color coding

HEAVY DUTY



- ▶ Ultra reliable hyperboloid contact
- ▶ Modular solution: signal, power, data contacts, and fiber optics
- ▶ High resistance in harsh environment
- ▶ EMC shielding
- ▶ Easy cable mounting
- ▶ High pressure up to 35K PSI, 250° C
- ▶ High temperature up to 440° C

SPRING PROBES



- ▶ Z-axis compliant
- ▶ Blind mate engagement
- ▶ Long cycle life
- ▶ High density
- ▶ Extreme miniaturization
- ▶ Printed circuit board test
- ▶ Bare board test
- ▶ Coaxial contacts

MIL/AERO STANDARD



- ▶ Standard military interface
- ▶ ARINC interface
- ▶ ARINC 801
- ▶ Custom inserts

HIGH SPEED COPPER/FIBER



- ▶ Quadrx and Twinax Connectors
- ▶ Rugged D-Sub Connectors
- ▶ ARINC and MIL-STD Contacts
- ▶ Micro Twinax/Quadrx
- ▶ Butt-Joint and Expanded Beam Contacts
- ▶ ARINC 801 Termini
- ▶ Floating Fiber Termini



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