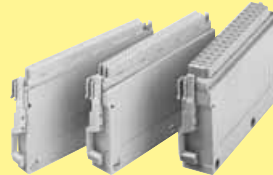


Shell housings

Page

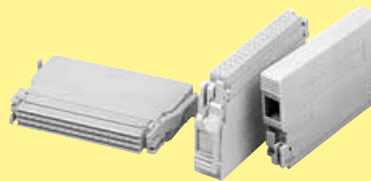
Summary of shell housings and accessories **20.02**

Shell housing C **20.04**



Shell housing A **20.08**

Shell housing B **20.10**



Shell housing D 15 **20.14**

Open hood G **20.17**



Junction element O **20.17**

Shell housings D 20/2 and D 20/4 **20.18**

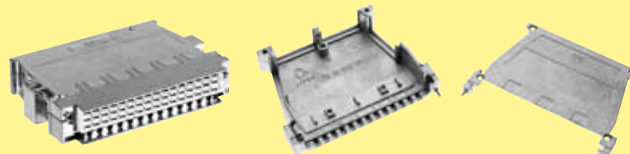


EMC housing **20.24**

Shell housings D 20/2 and D 20/4 metallised **20.25**



Shell housings D 20 metal **20.28**



Electronic connectors in Heavy Duty Housings **20.32**

Shell housings

20.01

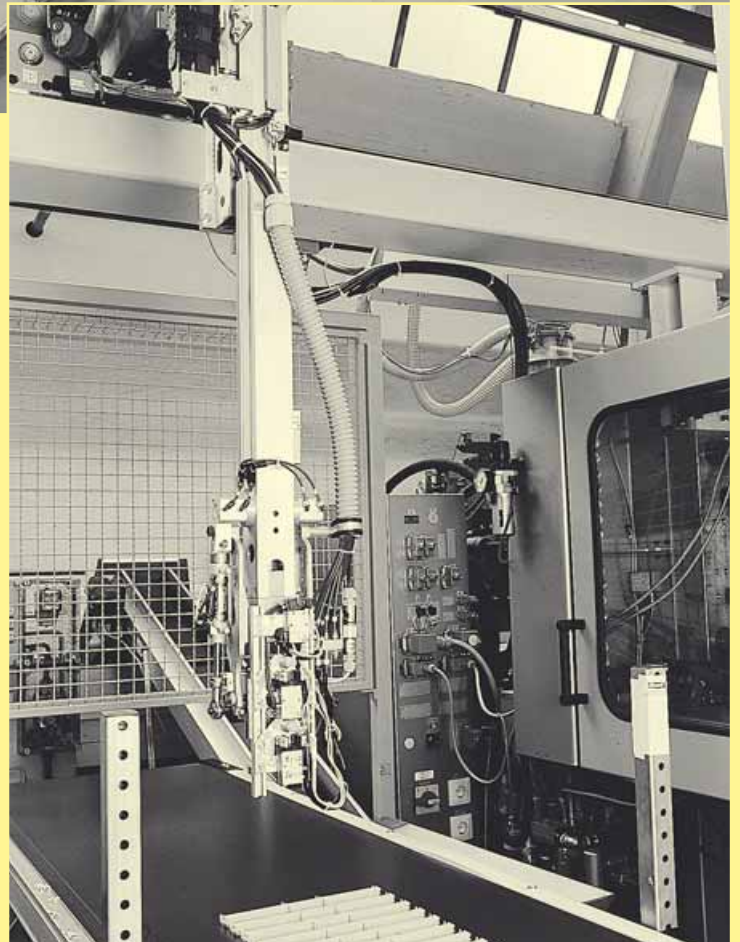
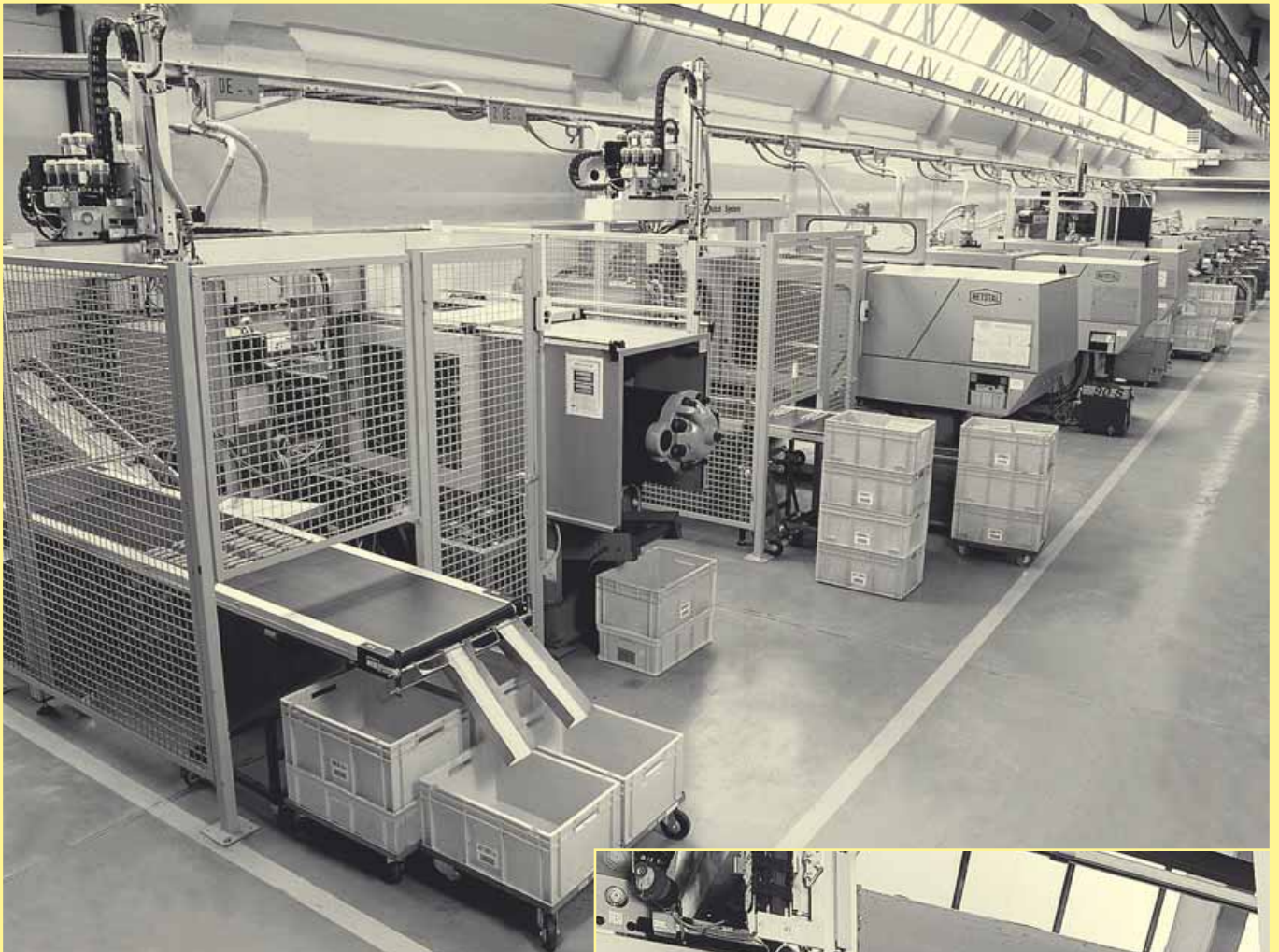
Summary shell housings and accessories



Appropriate connectors in shell housings	Types B, C, D, E	Type F	Types F, H, MH	Types F, H, MH	Types F, H, MH	Types E, F, H, MH	Types F, H, MH
<p>Check list: How to order shell housings and accessories.</p> <p>The Part No. is stated.</p>							 ... 9968 ... 9930
Shell housings	C 09 02 064 0501 09 02 064 0502 09 03 096 0501 09 05 048 0501	A 09 06 048 0501 09 06 048 0401 09 06 048 0402	B 09 06 048 0503 09 06 048 0504 09 06 048 0505	D 15 09 06 048 0515	D 20* 09 06 048 0521	G 09 06 000 9957	O 09 06 000 9968 09 06 000 9930° ° order 2 pieces
Cable insert	09 02 000 9910 09 02 000 9911		09 06 000 9914 09 06 000 9915		09 06 000 9988 09 06 000 9989		
Insert for LED			09 06 000 9917		09 06 000 9986 09 06 000 9987		
<p>Locking lever</p> <p>Order 2 pieces, in some cases each with different Part Nos. for left and right hand</p>	09 02 000 9902 09 02 000 9903	Supplied with the shell housing	09 06 000 9913 09 06 000 9919	Supplied with the shell housing			
<p>Locking screws</p> <p>Order 2 sets</p>	09 02 000 9909 ⚙ M 2.5 x 16 ⚙ M 2.5	⚙ M 2.5 x 12 ⚙ M 2.5	09 06 000 9926 ⚙ M 2.5 x 20 ⚙ M 2.5	09 06 000 9926 ⚙ M 2.5 x 20 ⚙ M 2.5	Supplied with the shell housing	Supplied with the shell housing	09 06 000 9926 ⚙ M 2.5 x 20 ⚙ M 2.5
for fixing elements with male connectors	09 02 000 9909 ⚙ M 2.5 x 16 ⚙ M 2.5	09 02 000 9909 ⚙ M 2.5 x 16 ⚙ M 2.5	09 06 000 9926 ⚙ M 2.5 x 20 ⚙ M 2.5	—	—	Supplied with the shell housing	—
for interface connectors U	09 02 000 9909 ⚙ M 2.5 x 16 ⚙ M 2.5	—	09 06 000 9955 ⚙ M 2.5 x 26	—	—	Supplied with the shell housing	—
for interface connectors I	09 02 000 9909 ⚙ M 2.5 x 16 ⚙ M 2.5	—	—	—	—	Supplied with the shell housing	—
<p>Fixing brackets for 19" racks for male connectors</p>	C 	A 	B 	B 	B 	B 	B
Multiple fixing left	09 02 000 9919	09 06 000 9901	09 06 000 9907	09 06 000 9907	09 06 000 9907 09 06 000 9995 09 06 000 9997	09 06 000 9907	09 06 000 9907
Multiple fixing right	09 02 000 9920	09 06 000 9902	09 06 000 9908	09 06 000 9908	09 06 000 9908 09 06 000 9996	09 06 000 9908	09 06 000 9908
Single fixing left	09 02 000 9921	09 06 000 9905	09 06 000 9909	09 06 000 9909	09 06 000 9909	09 06 000 9909	09 06 000 9909
Single fixing right	09 02 000 9922	09 06 000 9906	09 06 000 9910	09 06 000 9910	09 06 000 9910	09 06 000 9910	09 06 000 9910
<p>for female connectors</p>			B 	B 			B
Multiple fixing left			09 06 000 9933 09 06 000 9933	09 06 000 9933 09 06 000 9933			only ... 9930 09 06 000 9933 09 06 000 9933
<p>Fixing brackets for inverse male connectors on pcb</p>	R 						
R 1	09 02 000 9953						
R 32	09 02 000 9954						
<p>Distance fixing brackets for piggyback connectors</p>							
Type D top	09 04 000 9907					09 04 000 9907	
Type E bottom	09 04 000 9906					09 04 000 9906	
Type F top	09 06 000 9936					09 06 000 9936	
Type F bottom	09 06 000 9937					09 06 000 9937	
Protection strip for 20 mm shell housing			09 06 000 9929				
Protection and fixing strip for 20 mm shell housing			09 06 001 9909		09 06 001 9909		

Female connectors Male connectors * metallised and full metal versions available

Detailed system description see chapter 00



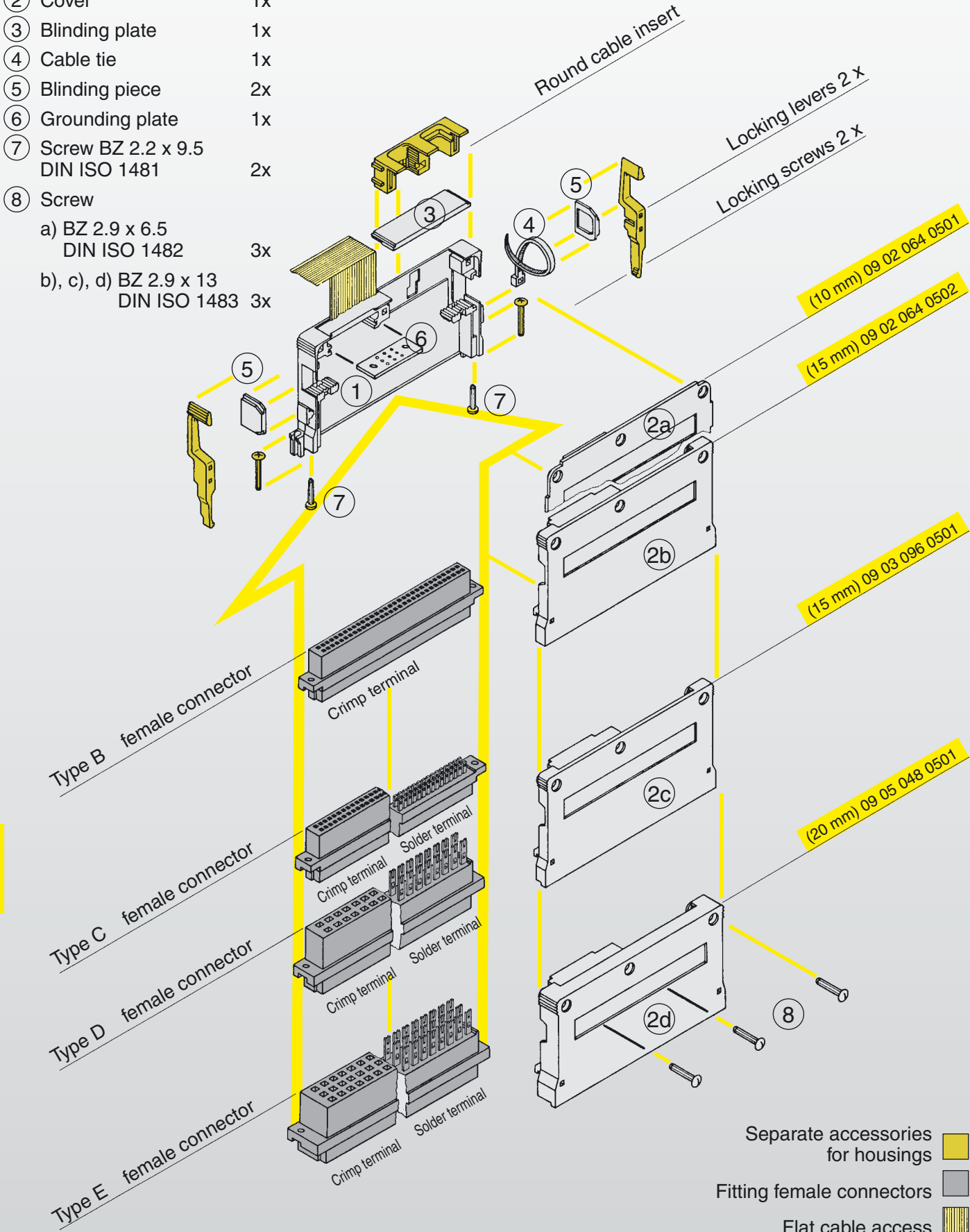
Complicated shapes are injected with upmost precision.

Integrated handling robots guarantee that new injected parts are not damaged.

Shell housing C for types B, C, D and E



- ① Shell 1x
- ② Cover 1x
- ③ Blinding plate 1x
- ④ Cable tie 1x
- ⑤ Blinding piece 2x
- ⑥ Grounding plate 1x
- ⑦ Screw BZ 2.2 x 9.5
DIN ISO 1481 2x
- ⑧ Screw
- a) BZ 2.9 x 6.5
DIN ISO 1482 3x
- b), c), d) BZ 2.9 x 13
DIN ISO 1483 3x



(10 mm) 09 02 064 0501
(15 mm) 09 02 064 0502

(15 mm) 09 03 096 0501

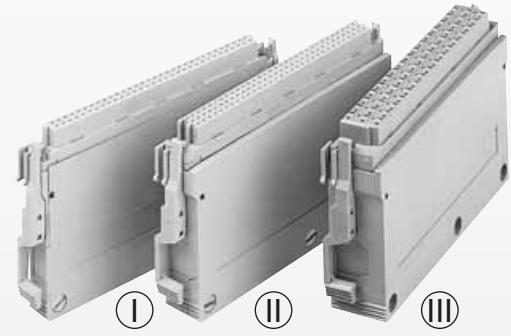
(20 mm) 09 05 048 0501

Separate accessories for housings
Fitting female connectors
Flat cable access
Housing parts supplied

Shell housings

20
04 Moulding material: thermoplastic resin, glass-fibre filled, UL 94-V0

Shell housing C for types B, C, D and E

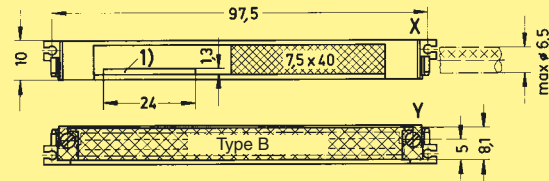


Identification Part No. Drawing Dimensions in mm

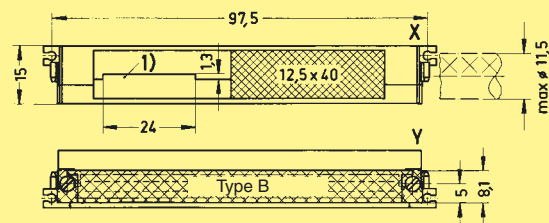
Shell housing C
for female connectors
type B

Ⓘ

10 mm
09 02 064 0501



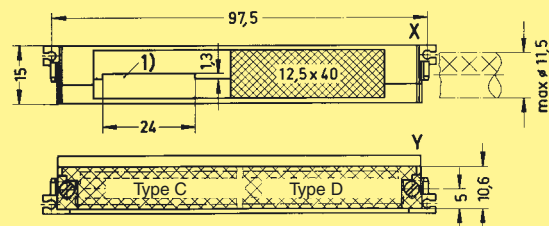
15 mm
09 02 064 0502



Shell housing C
for female connectors
types C, D

Ⓢ

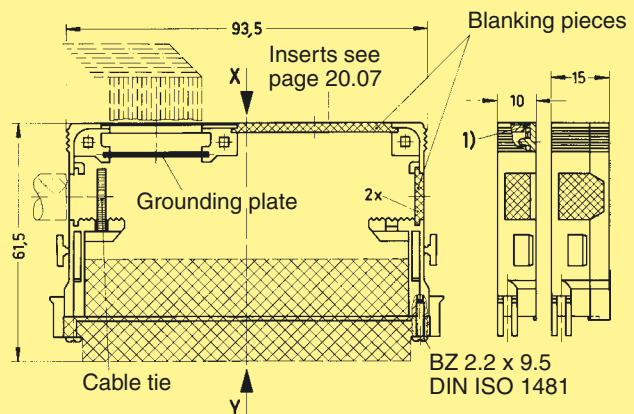
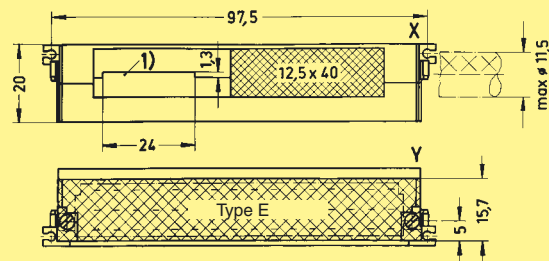
15 mm
09 03 096 0501



Shell housing C
for female connectors
type E

ⓈⓈ

20 mm
09 05 048 0501

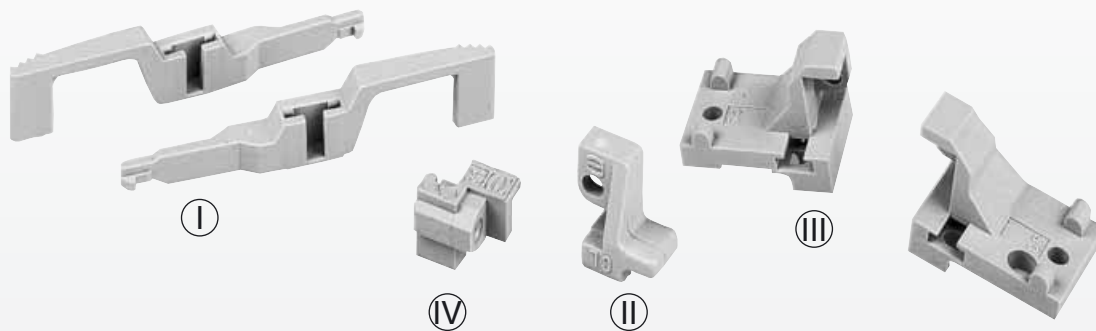


1) Possible access for flat cable (18 x Ø 1.27). Remove the blanking piece.

Shell
 housings

20
05

Shell housing C



Accessories

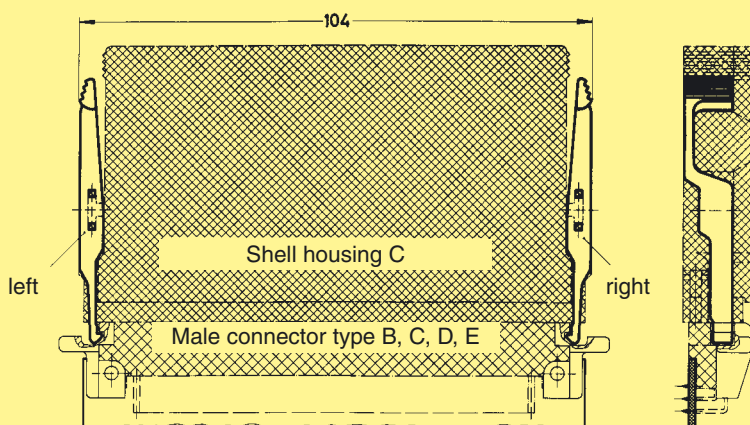
Identification Part No. Drawing Dimensions in mm

Locking lever for shell housing C

Ⓘ

left
09 02 000 9902

right
09 02 000 9903



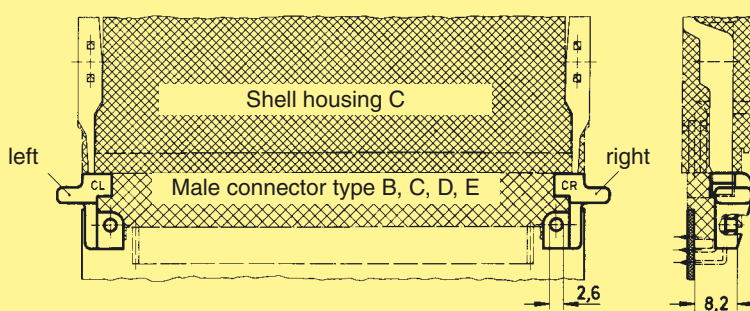
Fixing brackets C for male connectors for 19" racks according to DIN EN 60 297, part 3-101

Multiple fixing

Ⓙ

left
09 02 000 9919

right
09 02 000 9920

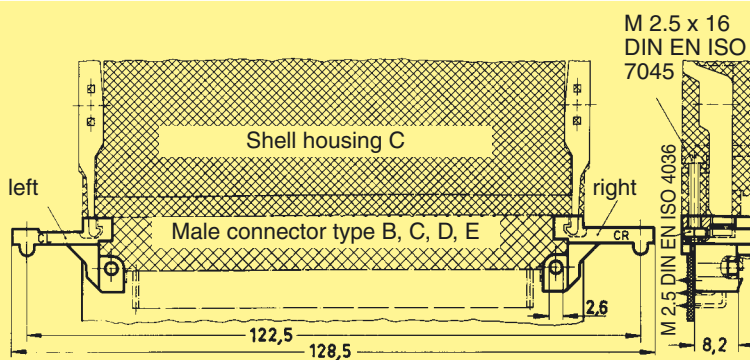


Single fixing

Ⓚ

left
09 02 000 9921

right
09 02 000 9922

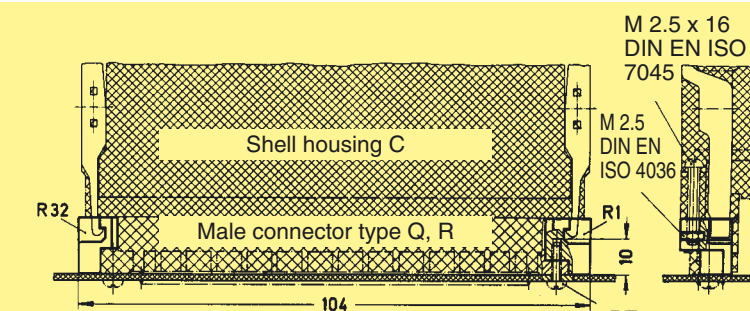


Fixing brackets R for inverse male connectors on pcb's

Ⓛ

R 1
09 02 000 9953

R 32
09 02 000 9954

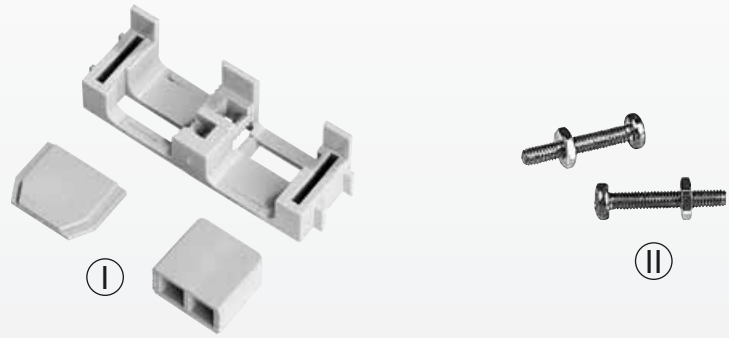


See application example 4, chapter 01

BZ 2.2 x 9.5
DIN ISO 7049

Shell housings

Shell housing C



Accessories

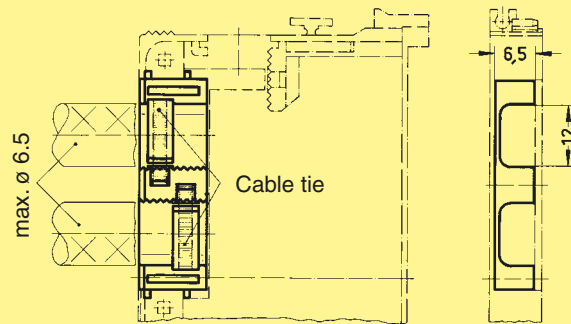
Identification Part No. Drawing Dimensions in mm

Round cable insert
2 x \varnothing 6.5

for shell housing C
09 02 064 0501

Supplied with:
Round cable insert 1x
Blinding piece A 1x
Blinding piece B 1x
Cable tie 1x

09 02 000 9910



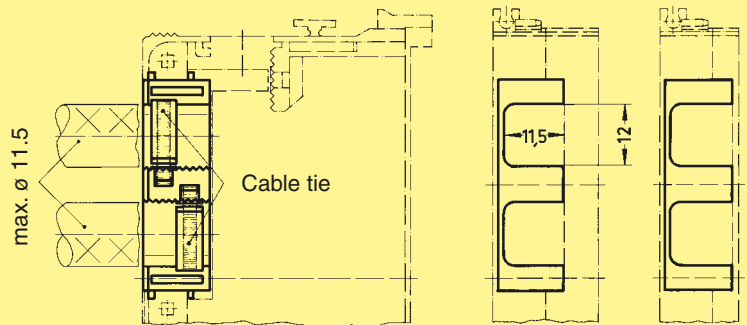
Round cable insert
2 x \varnothing 11.5

I

for shell housings C
09 02 064 0502
09 03 096 0501
09 05 048 0501

Supplied with:
Round cable insert 1x
Blinding piece A 1x
Blinding piece B 1x
Cable tie 1x

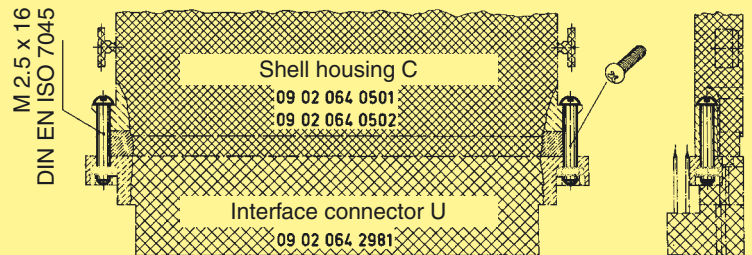
09 02 000 9911



Locking
screws

II

09 02 000 9909¹⁾



¹⁾ Order 2 pieces for one shell housing

Shell housing A for type F



Locking screws 2 x

female connector

Type F

Crimp termination

(15 mm) 09 06 048 0501

1a	Casing shell	2x
3	Blinding piece	1x
4	Cable clamp	1x
5	Screw BZ 2.9 x 9.5 DIN ISO 1481	1x
6	Hexagonal nut M3 DIN EN ISO 4032	2x
7	Screw M3 x 12 DIN EN ISO 1207	2x

Locking screws 2 x

female connector

Type F

Crimp termination

(15 mm) 09 06 048 0401

1b	Casing shell	2x
6	Hexagonal nut M3 DIN EN ISO 4032	4x
7	Screw M3 x 12 DIN EN ISO 1207	4x

Locking screws 2 x

female connector

Type F

Crimp termination

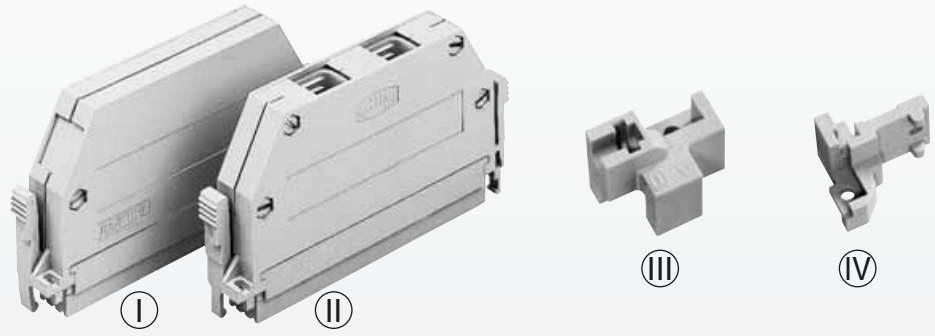
(15 mm) 09 06 048 0402

1c	Shell	1x
2c	Cover	1x
4	Cable clamp	2x
5	Screw BZ 2.9 x 9.5 DIN ISO 1481	4x
6	Hexagonal nut M3 DIN EN ISO 4032	4x
7	Screw M3 x 12 DIN EN ISO 1207	4x

- Separate accessories for housings
- Fitting female connectors
- Cable access
- Housing parts supplied

20
08 Moulding material: thermoplastic resin, glass-fibre filled, UL 94-V0

Shell housing A for type F

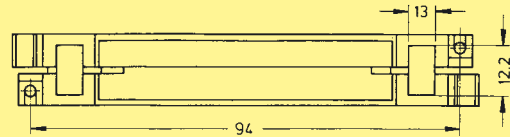


Identification Part No. Drawing Dimensions in mm

Shell housing A

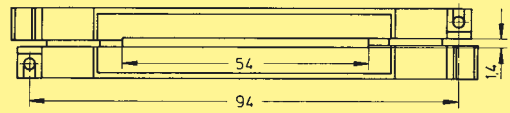
Side entry
I

15 mm
09 06 048 0501



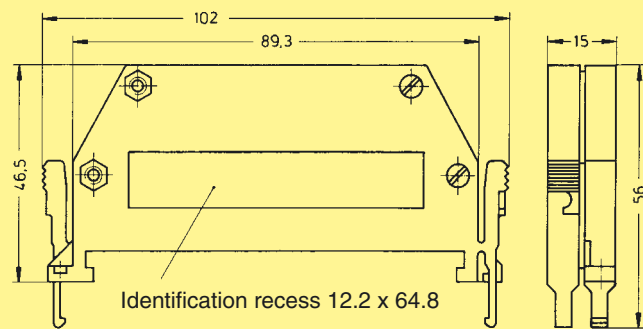
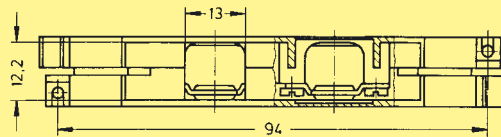
Flat cable entry

15 mm
09 06 048 0401



Top entry
II

15 mm
09 06 048 0402



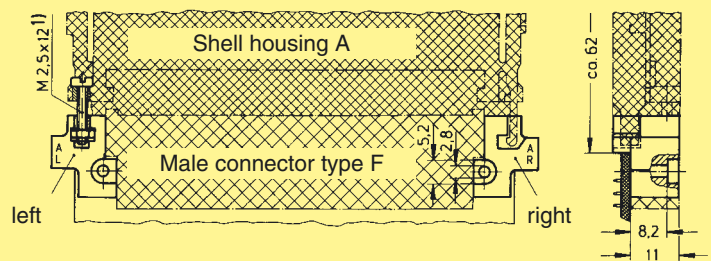
Cable clamp
incl. screw

09 00 000 5329

Fixing brackets A
for male connectors
for 19" racks according
to DIN EN 60297,
part 3-101

Multiple fixing
III

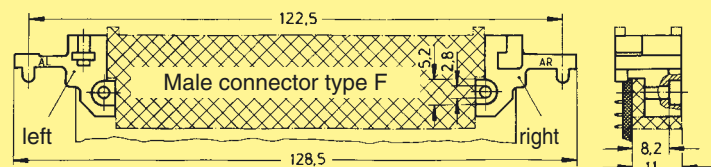
left
09 06 000 9901
right
09 06 000 9902



1) not supplied with bracket

Single fixing
IV

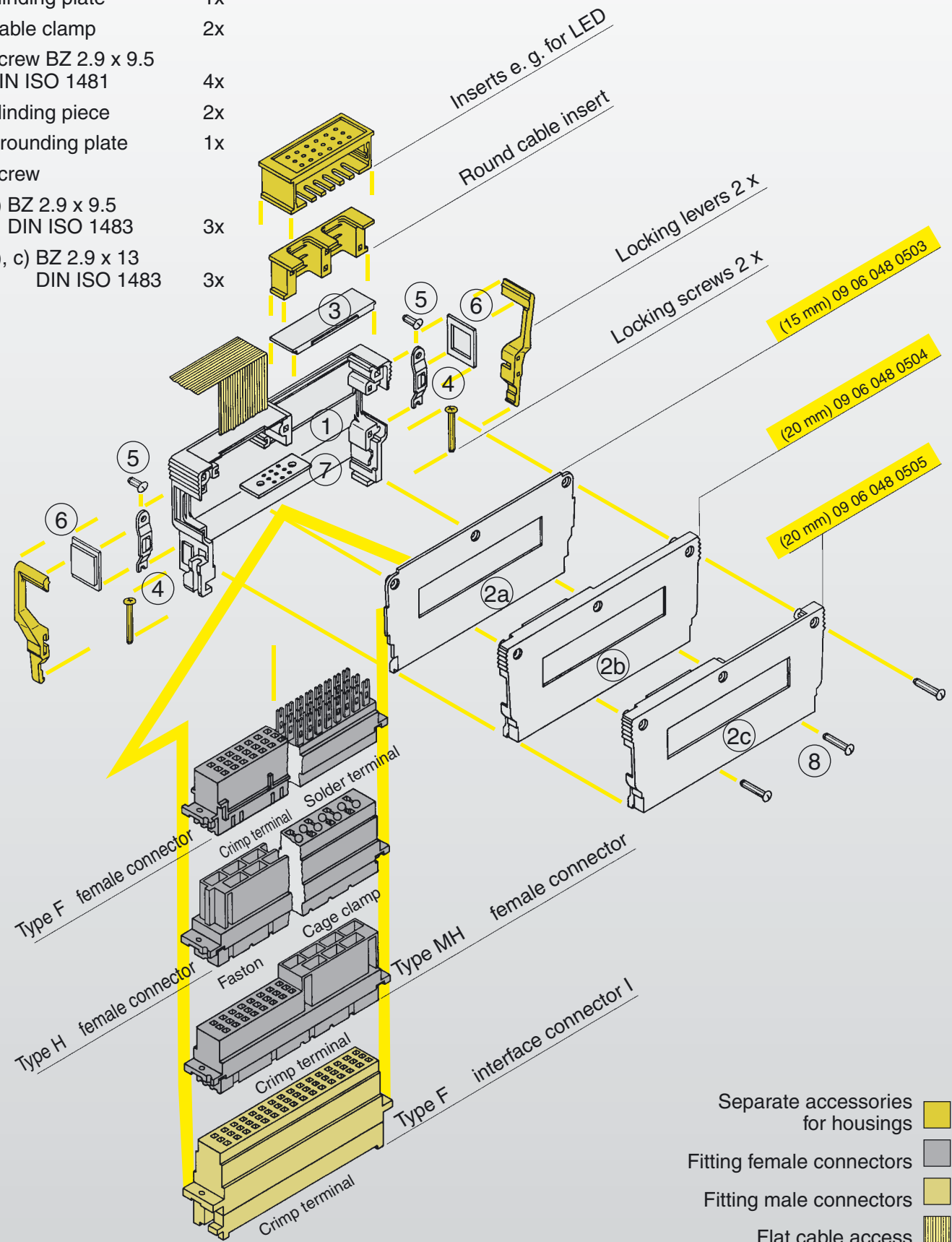
left
09 06 000 9905
right
09 06 000 9906



Shell housing B for types F, H and MH



- ① Shell 1x
- ② Cover 1x
- ③ Blinding plate 1x
- ④ Cable clamp 2x
- ⑤ Screw BZ 2.9 x 9.5
DIN ISO 1481 4x
- ⑥ Blinding piece 2x
- ⑦ Grounding plate 1x
- ⑧ Screw
 - a) BZ 2.9 x 9.5
DIN ISO 1483 3x
 - b), c) BZ 2.9 x 13
DIN ISO 1483 3x

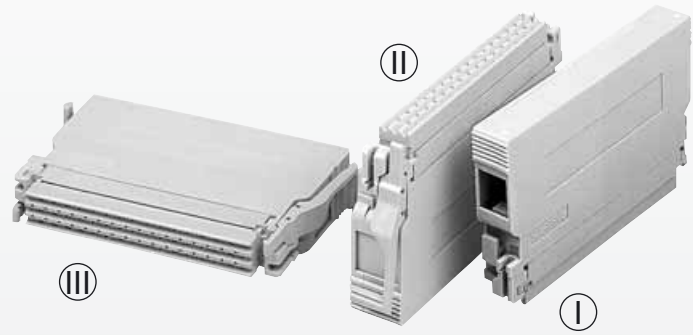


Shell housings

- Separate accessories for housings
- Fitting female connectors
- Fitting male connectors
- Flat cable access
- Housing parts supplied

20
10 Moulding material: thermoplastic resin, glass-fibre filled, UL 94-V0

Shell housing B for types F, H and MH



Identification

Part No.

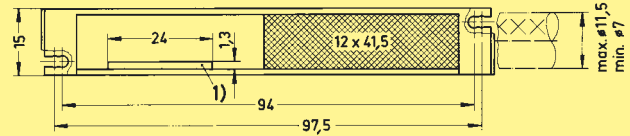
Drawing

Dimensions in mm

Shell housing B

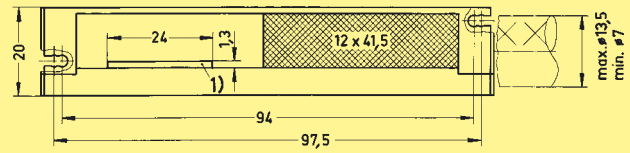
I

15 mm
09 06 048 0503



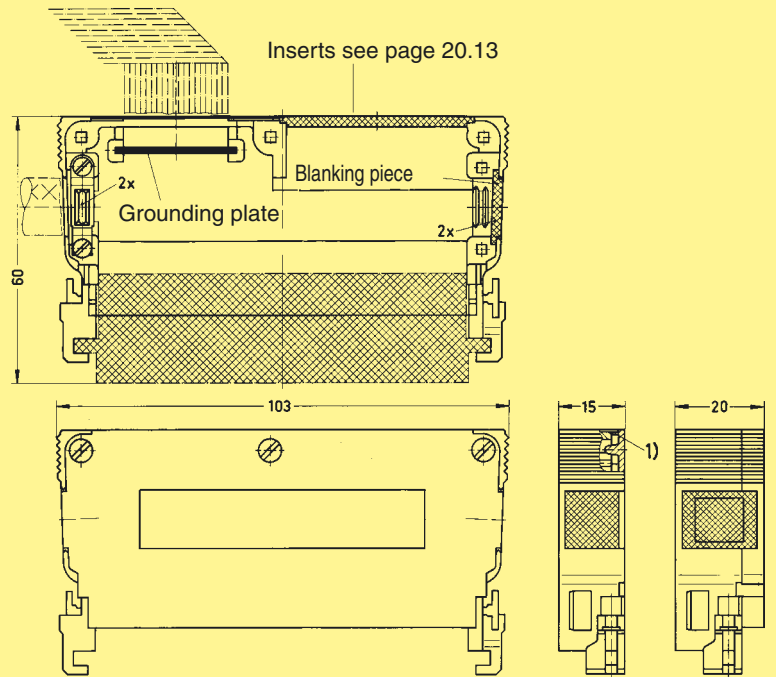
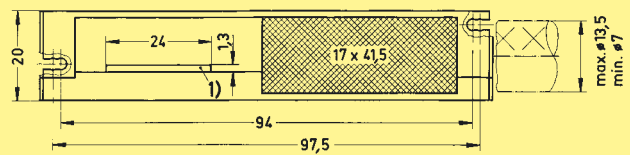
II

20 mm
09 06 048 0504



III

20 mm
09 06 048 0505



1) Possible access for flat cable (18 x ø 1.27). Remove the blanking piece

Shell housing B



Accessories

Identification Part No. Drawing Dimensions in mm

Locking lever for shell housing B

09 06 048 0503

09 06 000 9913¹⁾

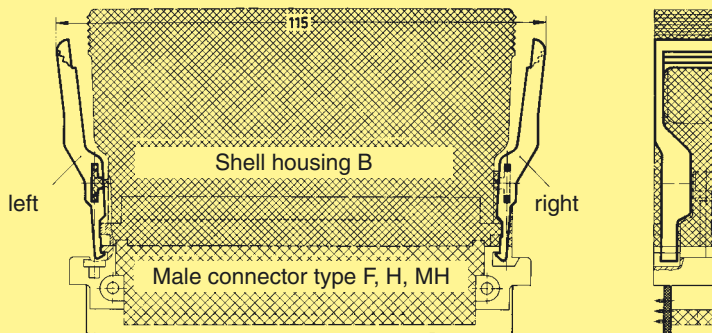


09 06 048 0504
09 06 048 0505

left
09 06 000 9913

right
09 06 000 9919

¹⁾ Order 2 pieces for one shell housing

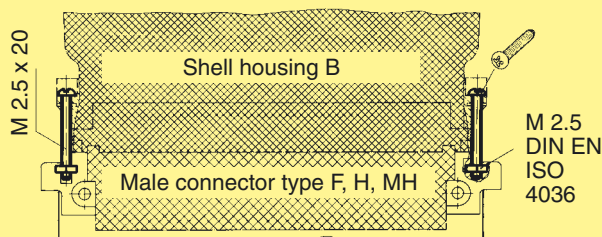


Locking screws



09 06 000 9926¹⁾

¹⁾ Order 2 pieces for one shell housing



Fixing brackets B for male connectors

for 19" racks according to DIN EN 60297, part 3-101

Multiple fixing without nut

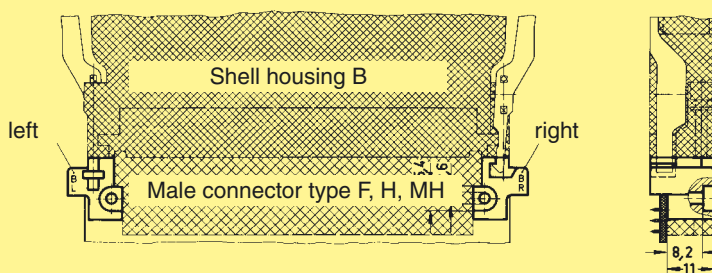
left
09 06 000 9907

right
09 06 000 9908

with nut
M 2.5 DIN 562

left
09 06 000 9966

right
09 06 000 9967

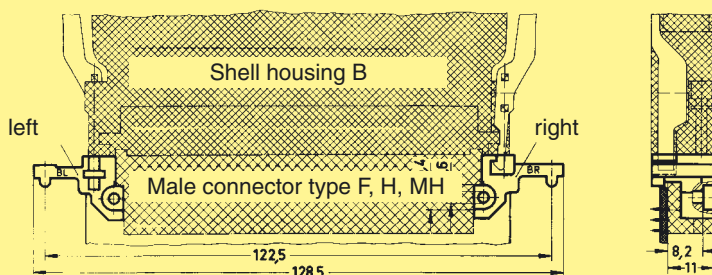


Single fixing without nut

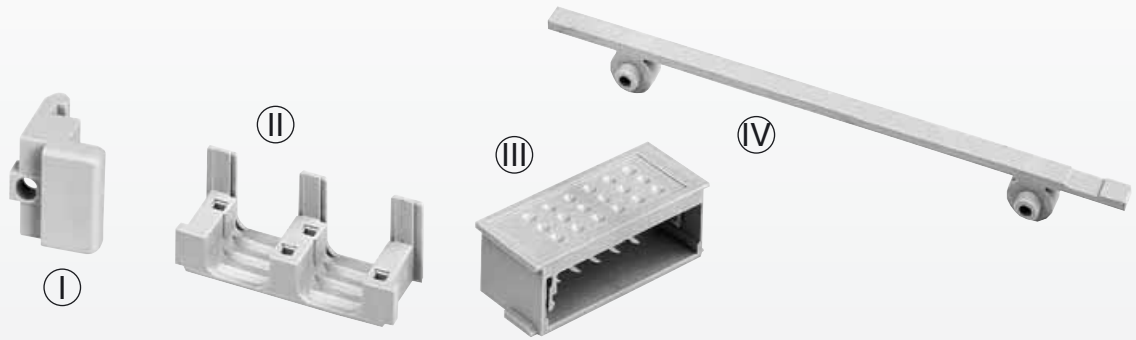


left
09 06 000 9909

right
09 06 000 9910



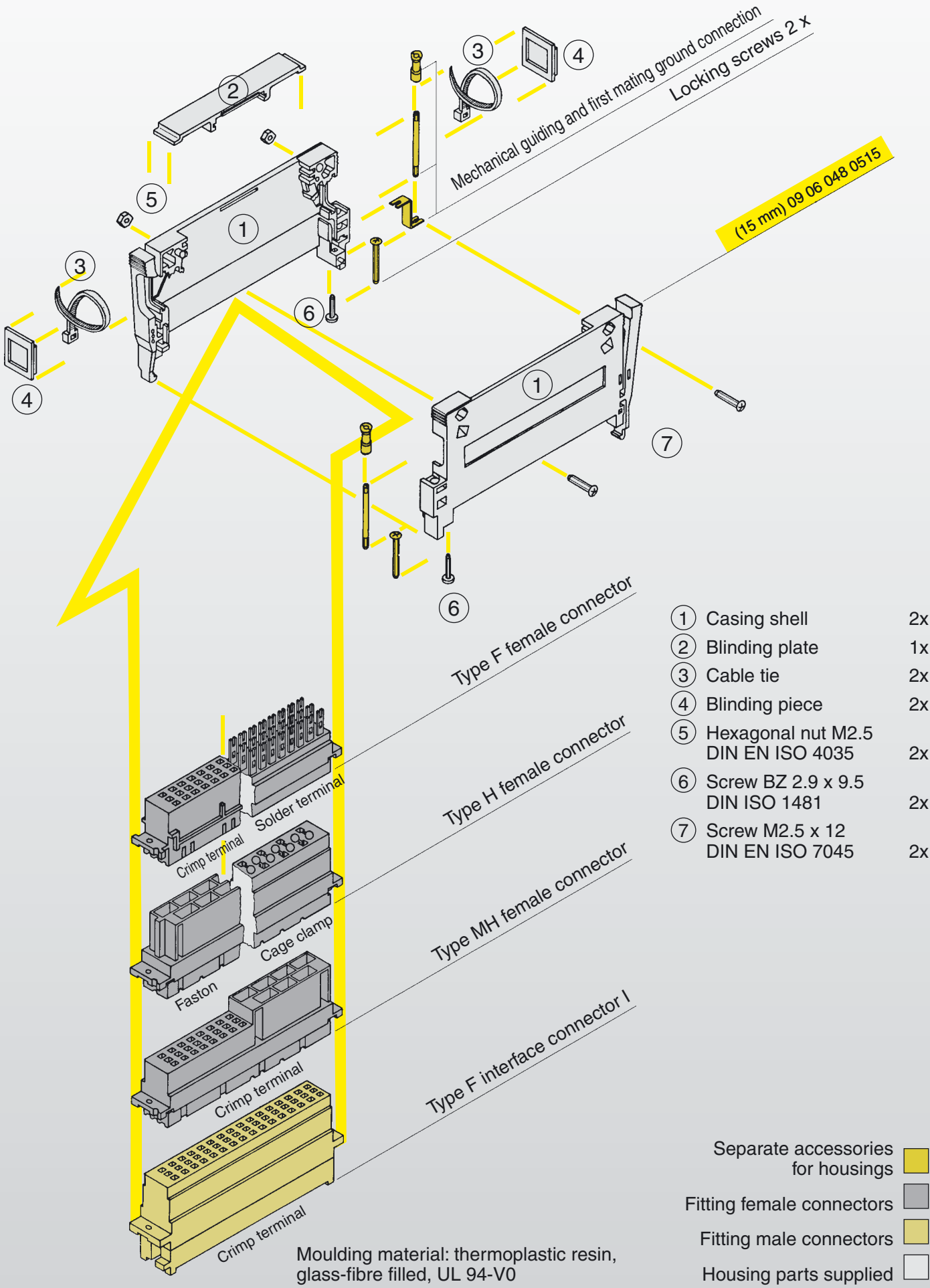
Shell housing B



Accessories

Identification	Part No.	Drawing	Dimensions in mm
<p>Fixing brackets B for female connectors for 19" racks according to DIN EN 60 297, part 3-101</p> <p>Multiple fixing</p> <p>Ⓚ</p> <p>¹⁾ Order 2 pieces for one female connector</p>	09 06 000 9933 ¹⁾		
<p>Round cable insert 2 x ø 10</p> <p>for shell housings B 09 06 048 0503 09 06 048 0504</p> <p>Supplied with: Round cable insert 1x Blinding piece 1x</p>	09 06 000 9914		
<p>Round cable insert 2 x ø 12.5</p> <p>Ⓛ</p> <p>for shell housing B 09 06 048 0505</p> <p>Supplied with: Round cable insert 1x Blinding piece 1x</p>	09 06 000 9915		
<p>Insert for LED</p> <p>Ⓛ</p> <p>for shell housing B 09 06 048 0505</p>	09 06 000 9917		
<p>Protection strip</p> <p>Ⓧ</p> <p>Used with shell housings type B for front side access 09 06 048 0504 09 06 048 0505</p>	09 06 000 9929		

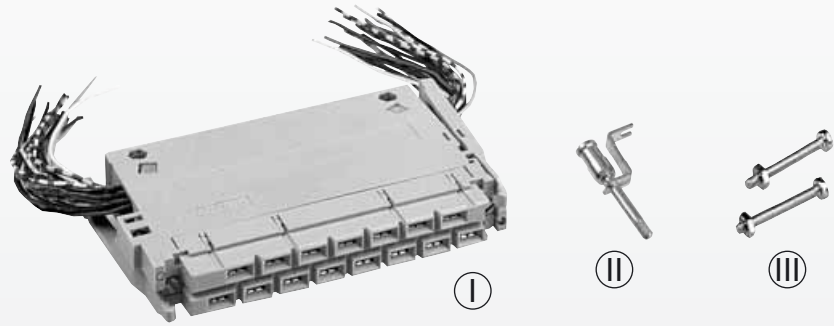
Shell housing D 15 for types F, H and MH



Shell housings

20
14

Shell housing D 15 for types F, H and MH



Identification

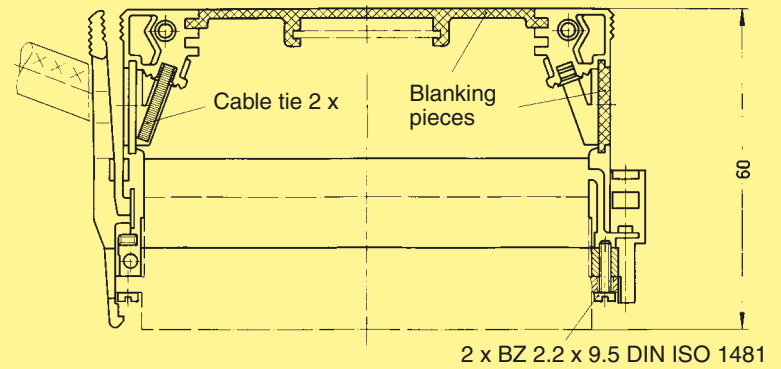
Part No.

Drawing

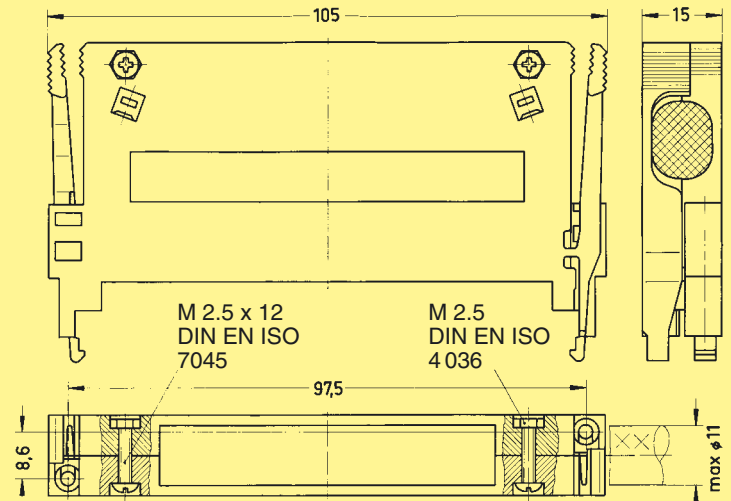
Dimensions in mm

Shell housing D 15

I



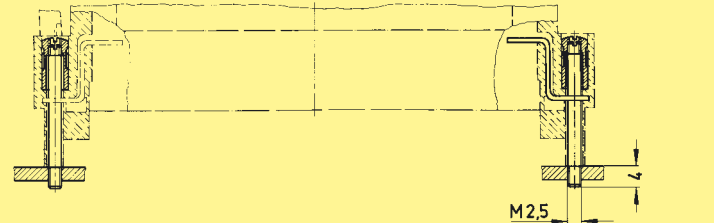
15 mm
09 06 048 0515



Mechanical guiding and first mating ground connection

II

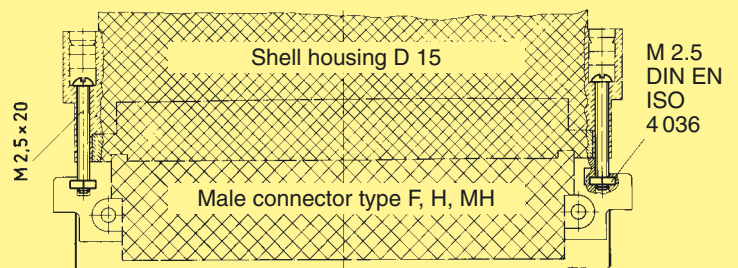
09 06 000 9961



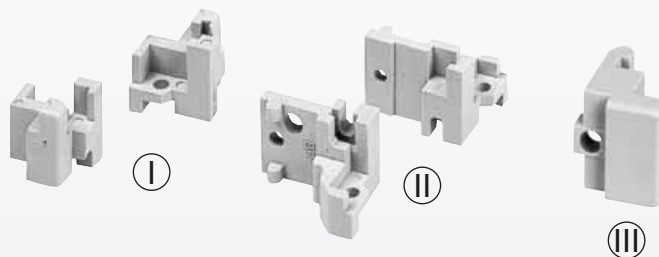
Locking screws

III

09 06 000 9926¹⁾



¹⁾ Order 2 pieces for one shell housing



Accessories

Identification Part No. Drawing Dimensions in mm

Fixing brackets B for male connectors
for 19" racks according to DIN EN 60 297, part 3-101

Multiple fixing

without nut



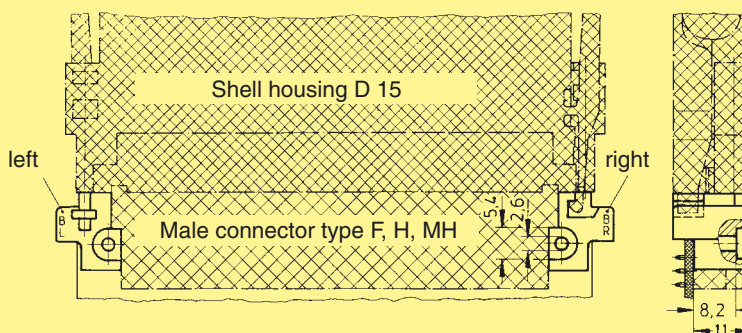
left
09 06 000 9907

right
09 06 000 9908

with nut
M 2.5 DIN 562

left
09 06 000 9966

right
09 06 000 9967



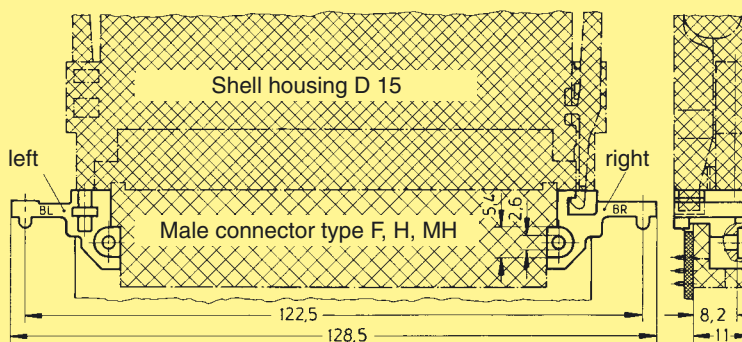
Single fixing

without nut



left
09 06 000 9909

right
09 06 000 9910

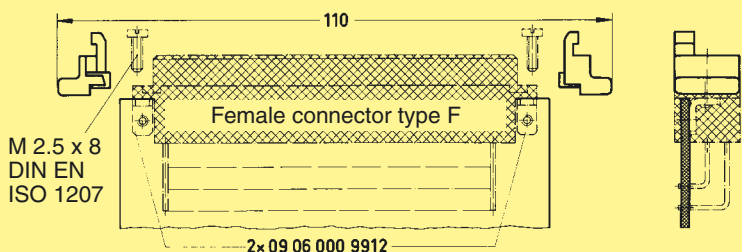


Fixing brackets B for female connectors
for 19" racks according to DIN EN 60 297, part 3-101

Multiple fixing

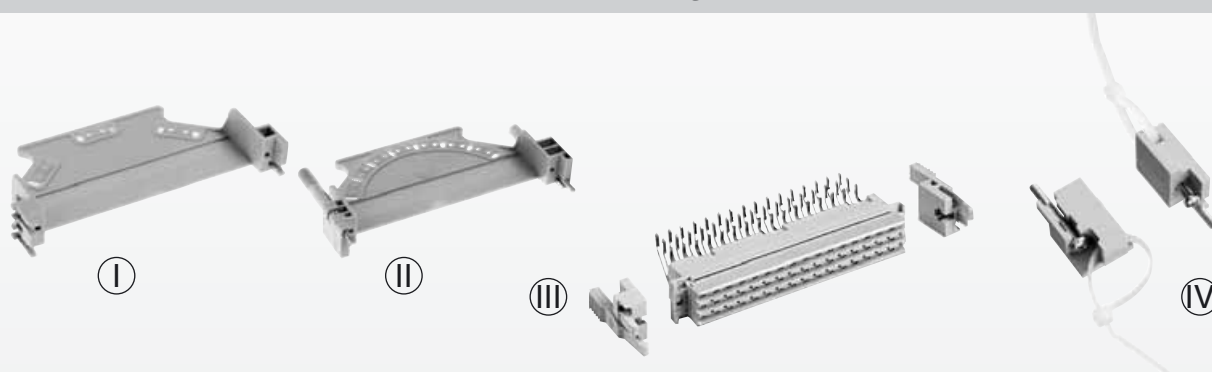


09 06 000 9933¹⁾



¹⁾ Order 2 pieces for one female connector

Open hood G, junction element O, locking lever



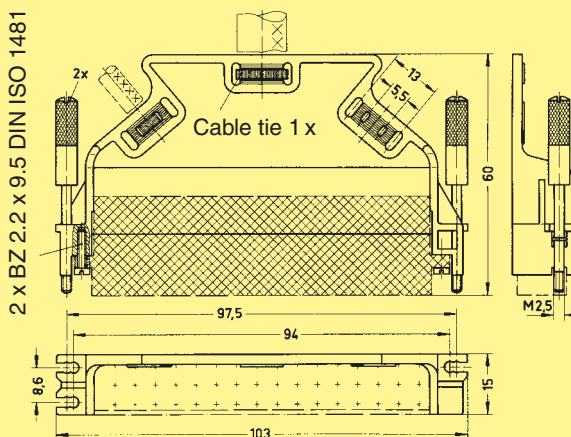
Identification Part No. Drawing Dimensions in mm

Open hood G I
for types E, F, H
and MH, for applications

A B C

Supplied with:
Open hood 1x
Locking screw 2x
(09 06 000 9958)
Cable tie 1x
Screw 2x

09 06 000 9957

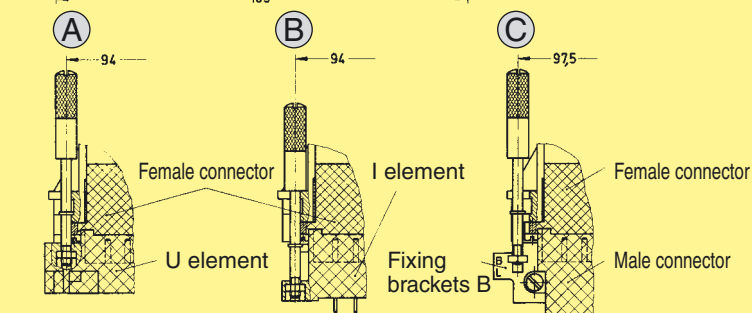


Open hood G II
for types E, F, H
and MH, for application

C

Supplied with:
Open hood 1x
Pre-assembled,
undetachable locking
screw 2x
Cable tie 1x
Screw 2x

09 06 001 9939

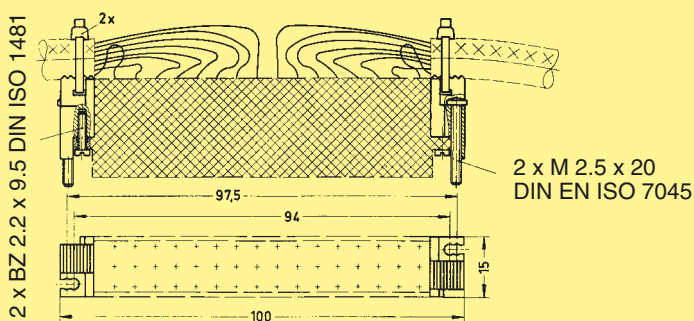


Junction element O
for type F

IV

Supplied with:
Junction element 2x
Cable tie 2x
Screw 2x
Screw M2.5 x 20 2x

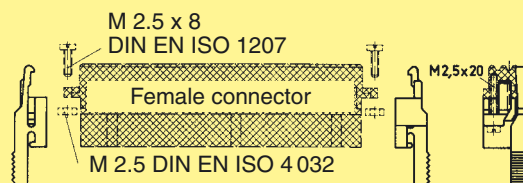
09 06 000 9968



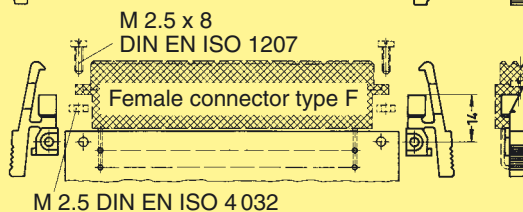
Locking lever
for type F, H and MH

III

09 06 000 9930¹⁾



09 06 000 9911¹⁾



¹⁾ Order 2 pieces
for one female connector

Shell housing D 20/2 for types F, H and MH



required:
Inserts e.g. for LED

pcb
(79.5 x 12.5 mm)
e.g. for LED

pcb (79.5 x 12.5 mm) e.g. for LED

Inserts e.g. for LED

Round cable insert
Flat cable insert

- | | | |
|---|------------------------------------|-----|
| ① | Shell | 1x |
| ② | Cover | 1x |
| ③ | Screw
(09 06 000 9993) | 2x |
| ④ | Locking washer 2.3
DIN 6799 | 2x |
| ⑤ | Cable clamp | 2x |
| ⑥ | Blinding piece | 2x |
| ⑦ | Screw BZ 2.2 x 9.5
DIN ISO 7049 | 10x |

Coding

(20 mm) 09 06 048 0521
(20 mm) 09 06 948 0521

Shell housings

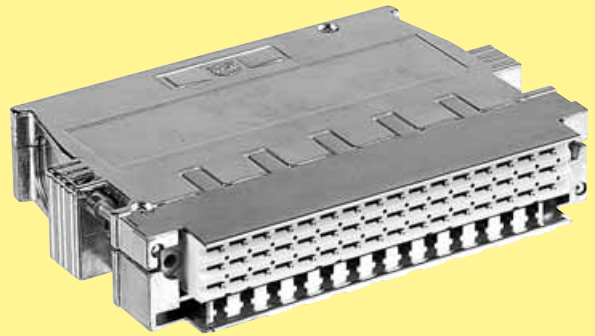
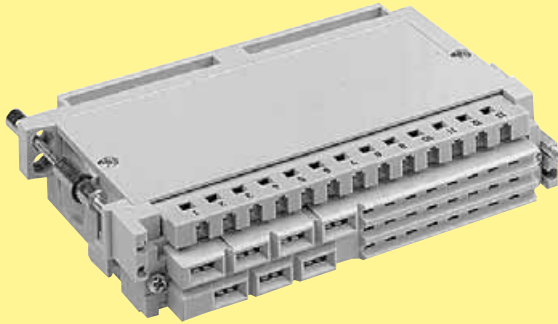
Type F female connector
Type H female connector
Type MH female connector
Male connector
Fixing brackets 2 x

Crimp terminal
Solder terminal
Cage clamp
Faston

Coding

- | | |
|-----------------------------------|--|
| Separate accessories for housings | |
| Fitting female connectors | |
| Fitting male connectors | |
| Fixing brackets | |
| Housing parts supplied | |

Moulding material: thermoplastic resin, glass-fibre filled, UL 94-V0



Fitting female connectors

Part-No.	Type	D 20/2	D 20/4	D 20 metal	D 20 metal HF
09 06 2__ 823	F with open solder lugs	X		X	X
09 06 2__ 853	F with closed solder lugs	X		X	X
09 06 248 3201	F moulding for crimp contacts	X	X	X	X
09 06 215 2871	H for faston	X		X	X
09 06 015 2813	H with cage clamps	X		X	X
09 06 231 2881	MH moulding for crimp contacts	X		X	X

Order example:

09 06 2__ 853

32 = 32 contacts
48 = 48 contacts



7 = performance level 3
6 = performance level 2
2 = performance level 1

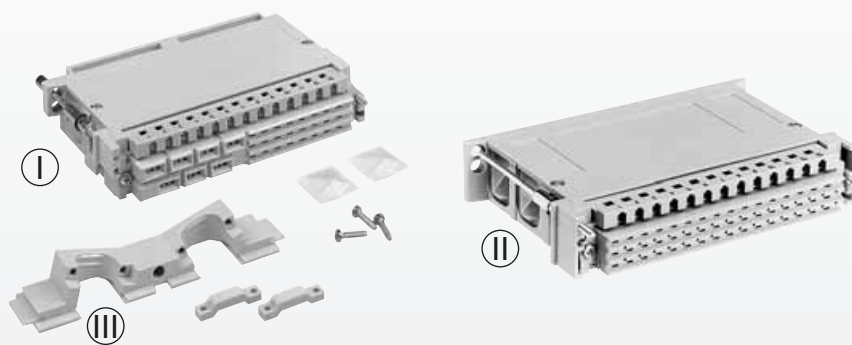
Technical characteristics

	D 20/2	D 20/2 metallised ¹⁾	D 20/4	D 20/4 metallised ¹⁾	D 20 metal	D 20 metal HF
Part No.	09 06 048 0521	09 06 948 0521	09 06 048 0522	09 06 948 0522	09 06 848 0521	09 06 848 1521
Material	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Zinc alloy	Zinc alloy
Surface	none	nickel/copper	none	nickel/copper	none	nickel-plated ²⁾
Weight [g]	36	44	43	52	190	214
Cable entries	side (2 x), top round cable insert see page 20.19	side (2 x), top round cable insert see page 20.19	side (4 x)	side (4 x)	side (2 x), top	side (2 x) top
Protection	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20

¹⁾ upper temperature limit is +105 °C

²⁾ zinc-plated on request

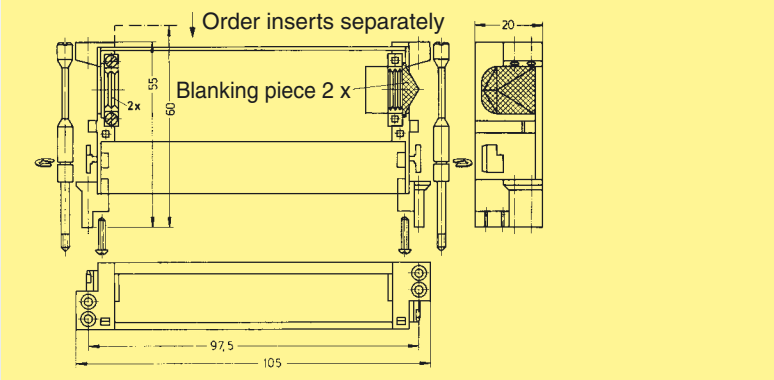
Shell housing D 20 for types F, H and MH



Identification Part No. Drawing Dimensions in mm

Shell housing
D 20/2
Two side
cable entries
I

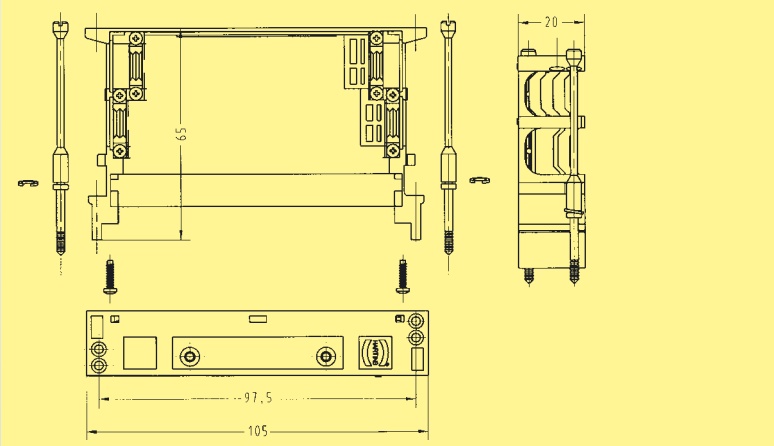
20 mm
09 06 048 0521



Shell housing
D 20/4
Four side
cable entries
II

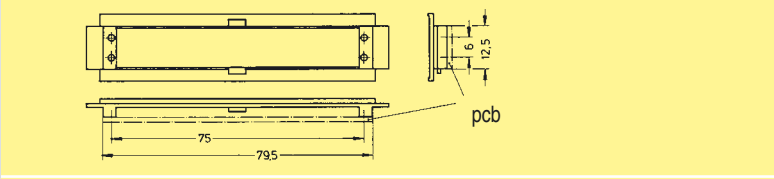
Supplied with:
Shell 1x
Cover 1x
Locking screw 2x
Locking washer 2.3 2x
Screw BZ 2.2x9.5 12x
Blinding piece 3x
Cable clamp 2x

20 mm
09 06 048 0522



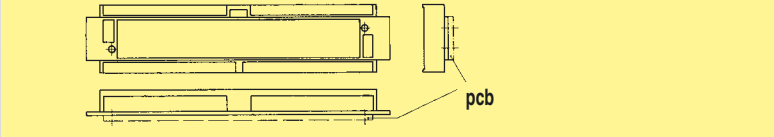
Inserts e. g. for LED*
for 55 mm height

09 06 000 9986



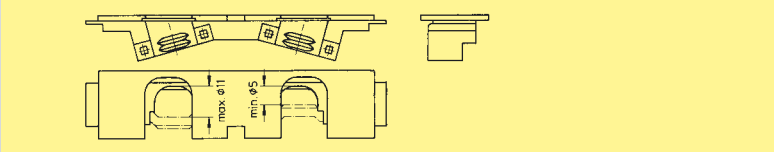
for 60 mm height

09 06 000 9987



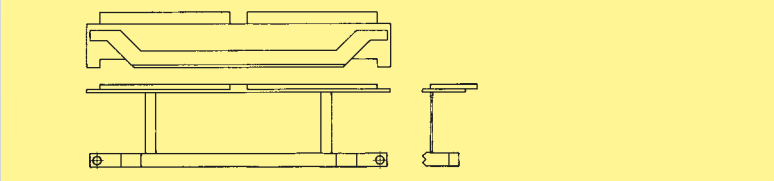
Round cable insert*
2 x \varnothing 11
III

09 06 000 9988



Flat cable insert*

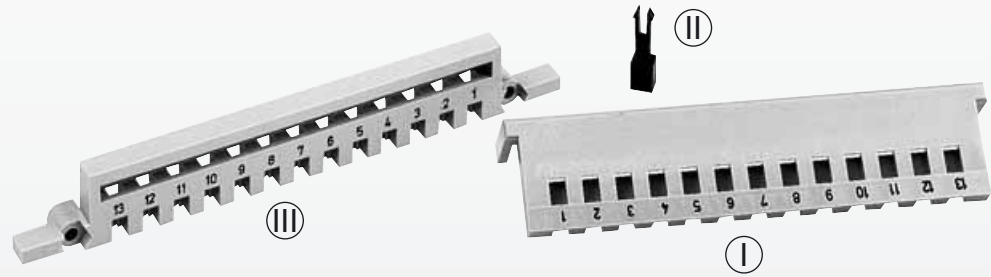
09 06 000 9989



Shell housings

20
-
20

* Fits D 20/2



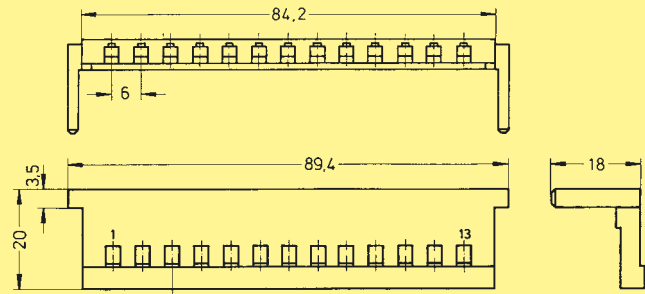
Coding

Identification Part No. Drawing Dimensions in mm

Code comb for shell housing³⁾
(can also be used as a blanking cover)



09 06 000 9984

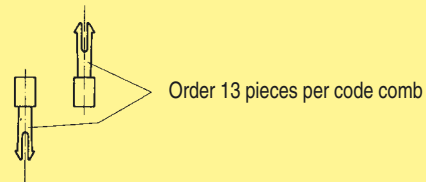


Coding pin³⁾



09 06 001 9905¹⁾

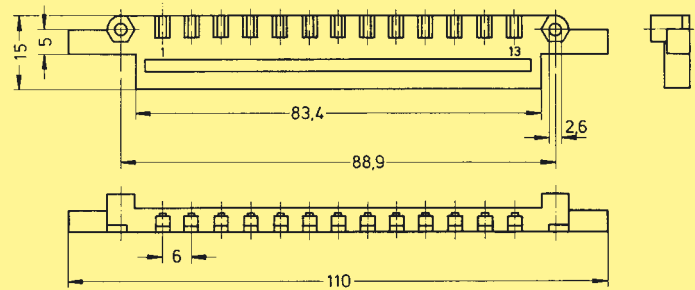
¹⁾ Order 13 pieces per code comb



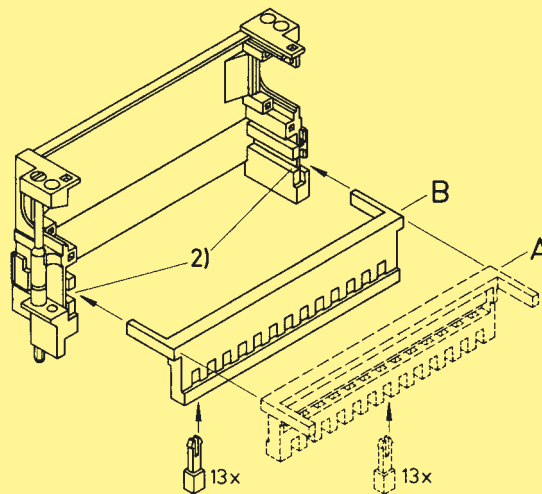
Code comb for male connectors³⁾



09 06 000 9985



Mounting possibilities for the code comb in the shell housing D 20/2



²⁾ Use the lower slot when coding the male connector with fixing brackets

Mounting example **A** max. cable entry \varnothing 14 mm to the top, see page 20.23
Mounting example **B** max. cable entry \varnothing 14 mm to the bottom, see page 20.23

³⁾ Fits D 20/2 and D 20/4

Identification	Part No.	Drawing	Dimensions in mm
<p>Mounting possibilities for code comb at the male connector with fixing brackets</p>			
<p>Fixing brackets B for male connectors* for 19" racks according to DIN EN 60297, part 3-101</p> <p>Single fixing* without nut</p> <p>with nut M 2.5 DIN 562</p>	<p>left 09 06 000 9909</p> <p>right 09 06 000 9910</p> <p>left 09 06 001 9934</p> <p>right 09 06 001 9935</p>		
<p>Multiple fixing* without coding at the fixing bracket without nut</p> <p>without coding at the fixing bracket with nut M 2.5 DIN 562</p> <p>with coding at fixing bracket¹⁾ with nut M 2.5 DIN 562</p> <p>15 mm</p> <p>20 mm</p> <p>15 mm</p> <p>20 mm</p>	<p>left 09 06 000 9907</p> <p>right 09 06 000 9908</p> <p>left 09 06 000 9966</p> <p>right 09 06 000 9967</p> <p>left 09 06 000 9995 09 06 000 9997</p> <p>right 09 06 000 9996 09 06 000 9998</p>		<p>mounting examples</p> <p>09 06 000 9995</p> <p>09 06 000 9997</p>
<p>Protection and fixing strip* for 20 mm shell housing</p> <p>Single fixing fits female connectors and I element crimp</p>	<p>09 06 001 9909</p>		

* Fits D 20/2 and D 20/4

¹⁾ Specific coding between the fixing bracket and the pcb guiding rail.

Shell housings

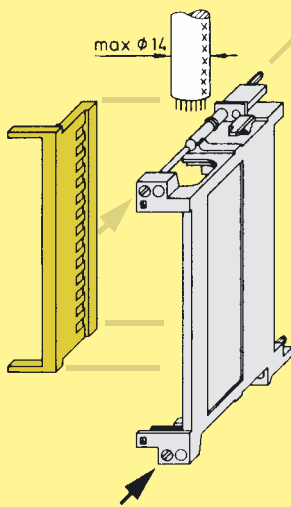
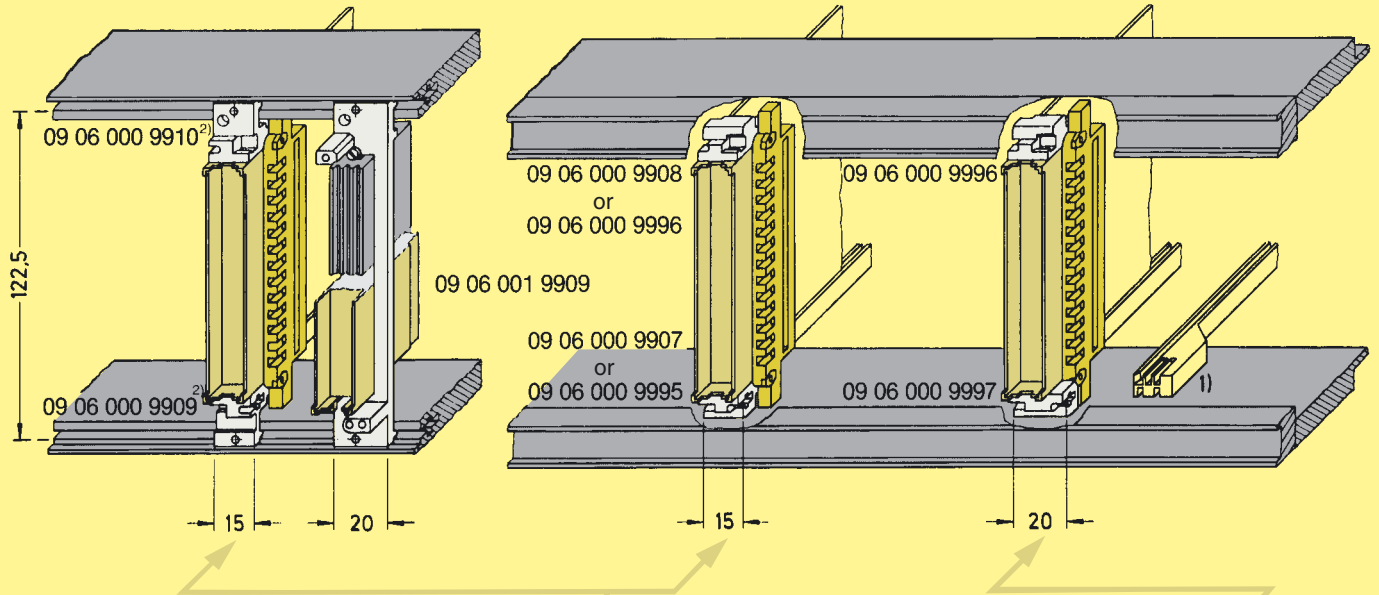
20
-
22

Mounting examples

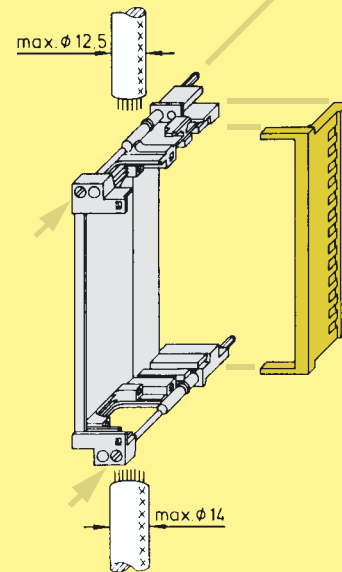
Dimensions in mm

Single fixing

Multiple fixing



Mounting example A²⁾
max. cable entry to the top

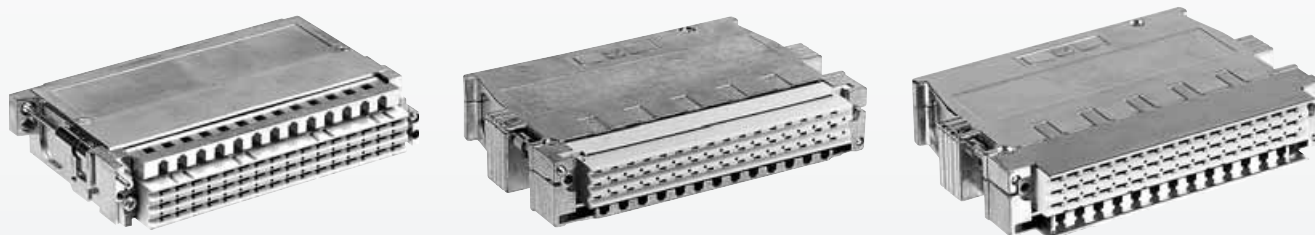


Mounting example B
max. cable entry to the bottom

¹⁾ Specific coding between the fixing bracket and the pcb guiding rail

²⁾ Max. cable entry (ϕ 14 mm) from the bottom with fixing brackets 09 06 901 9924/...9925 possible. See page 20.31.

- Separate accessories for housings
- Fitting female connectors
- Fitting male connectors
- Fixing brackets
- Housing parts supplied



EMC with HARTING connectors

HARTING offers metallised D20 housings and full metal housings for EMC connectors according to IEC 60 603-2. Its strong EMI characteristics and metallised fixing elements offers optimal shielding and grounding.

The connection of the cable braid to different types of connector housings, as well as the influence of the connector itself on EMC characteristics of an instrument application, were analysed in regard to **the shielding effectiveness against electromagnetic radiation**. The shielded signal data lines of a railway application were carried via two eurocard pcb's installed into a 19"-rack. The fixing of the cable braid was realised with different HARTING D20 housings.

The application including the connectors was then exposed to RF signals, transient bursts and electrostatic discharges.

The standard plastic housings showed minimal EMC performance. The EMC performance of metallised and full metal housings showed significant improvements.

One advantage of metallised housings is their reduced weight (40 grams compared to 200 grams of a full metal housing). Therefore, minimal interference is applied to the pcb in applications where strong vibration is occurring. The HARTING housings are comparatively light through the use of metallised plastic.

The main advantages of a full metal housing are improved cable braid fixing, easy mounting and robustness.

In general, one should keep in mind that an unshielded cable entry leads to loss of the shielding against electromagnetic interference.

“A high-resistance interruption of the cable shield (e.g. by using “pigtailed” via twisted stranded wires of the cable shield) may affect the EMC performance and therefore cause unacceptable effects to the electromagnetic environment.”

These housings are applied in electronic installations of the railway vehicles of the GERMAN RAILWAY. They are also recommended for stationary installations of the GERMAN RAILWAY (see norm BN 74016, part 1 of December 1989).

Shell housings

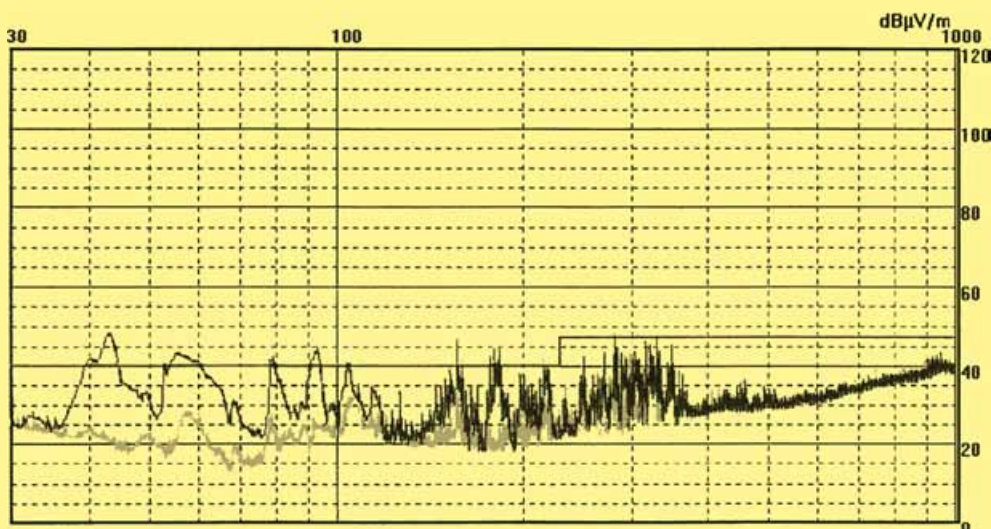
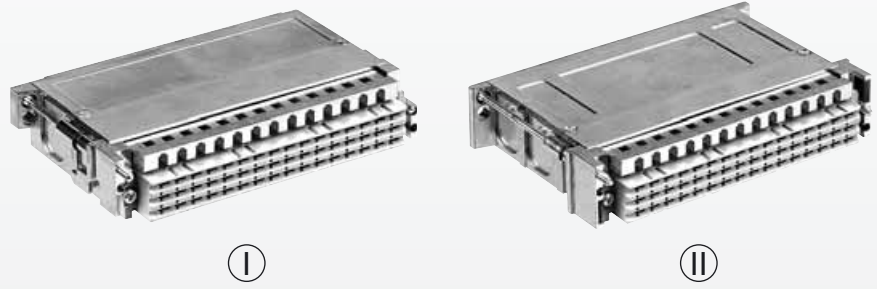


Diagram:
Radiated emission in the shielded chamber – vertical antenna polarisation

Comparison:
D 20 housing metallised (green)
and D 20 housing standard (blue)

Shell housing D 20 metallised for types F, H and MH

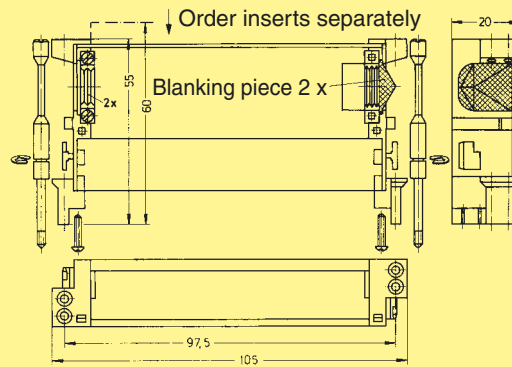


Identification Part No. Drawing Dimensions in mm

Shell housing
D 20/2 metallised
with two side
cable entries



20 mm
09 06 948 0521

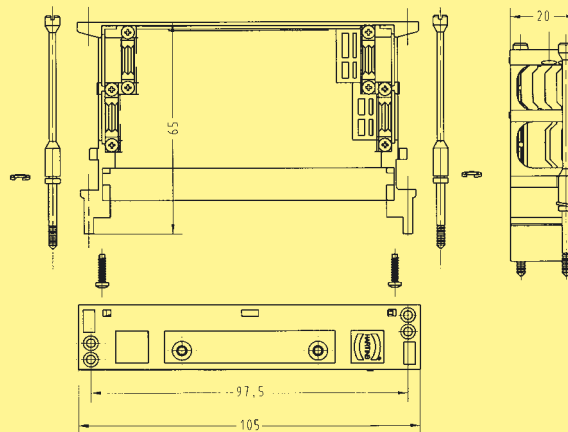


Supplied with:
see page 20.18

Shell housing
D 20/4 metallised
with four side
cable entries



20 mm
09 06 948 0522

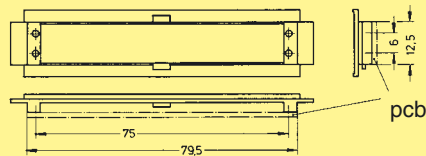


Supplied with:
Shell 1x
Cover 1x
Locking screw 2x
Locking washer 2.3 2x
Screw KA 22x7.5 12x
Blinding piece 3x
Cable clamp 4x

Metallised insert
e. g. for LED*

for 55 mm height

09 06 900 9986



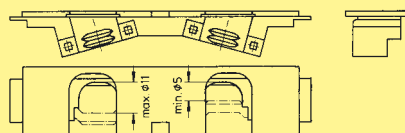
for 60 mm height

09 06 900 9987



Metallised
round cable insert*
2 x \varnothing 11

09 06 900 9988

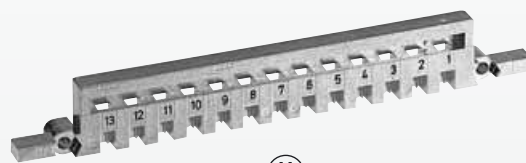


* Fits D 20/2 metallised

Shell housing D 20 metallised



Ⓘ



Ⓜ

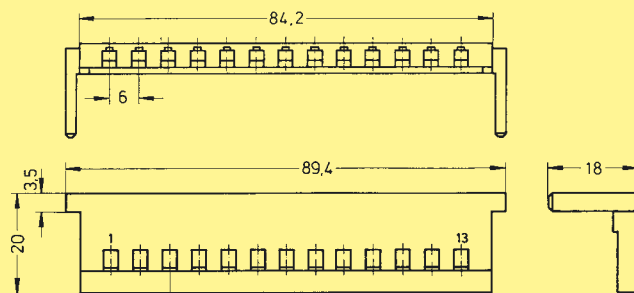
Coding

Identification Part No. Drawing Dimensions in mm

Metallised code comb for shell housing³⁾
(can also be used as blanking cover)

Ⓘ

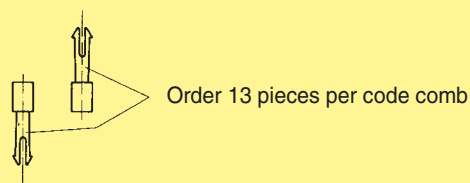
09 06 900 9984



Code pin³⁾

09 06 001 9905¹⁾

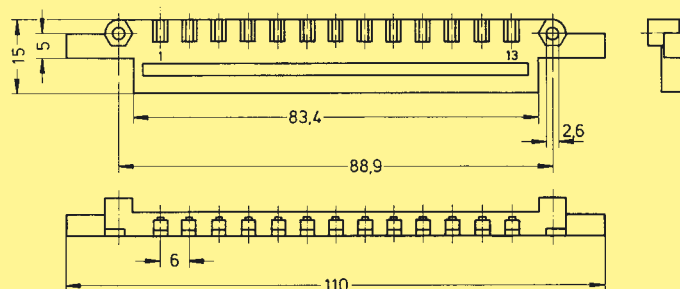
¹⁾ Order 13 pieces per code comb



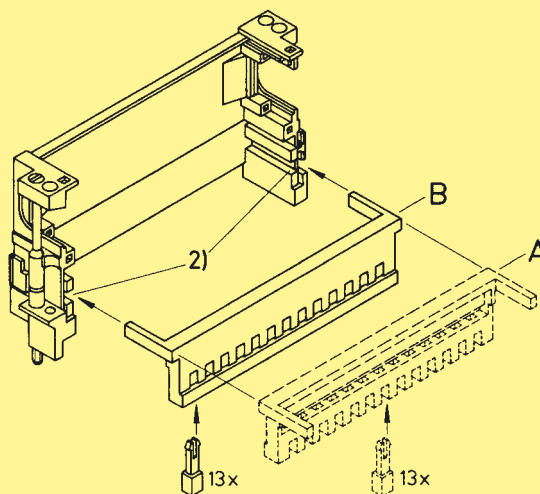
Metallised code comb for male connector³⁾

Ⓜ

09 06 900 9985



Mounting possibilities for the code comb in shell housing D 20/2 metallised



²⁾ Use the lower slot when coding the male connector with fixing brackets

Mounting example **A** max. cable entry ø 14 mm to the top, see page 20.23

Mounting example **B** max. cable entry ø 14 mm to the bottom, see page 20.23

³⁾ Fits D 20/2 and D 20/4 metallised

Shell housing D 20 metallised



Identification	Part No.	Drawing	Dimensions in mm
<p>Mounting possibilities for coding at the male connector with fixing brackets</p>			
<p>Fixing brackets B metallised for male connectors* for 19" racks according to DIN EN 60 297, part 3-101</p> <p>Single fixing* without nut</p> <p>with nut M 2.5 DIN EN ISO 4 036</p>	<p>left 09 06 900 9909 right 09 06 900 9910</p> <p>left 09 06 901 9934 right 09 06 901 9935</p>		
<p>Multiple fixing* without coding at fixing bracket without nut</p> <p>without coding at fixing bracket with nut M 2.5 DIN 562</p> <p>with coding at fixing bracket¹⁾ with nut M 2.5 DIN 562</p>	<p>left 09 06 900 9907 right 09 06 900 9908</p> <p>left 09 06 900 9966 right 09 06 900 9967</p> <p>left 15 mm 09 06 900 9995 20 mm 09 06 900 9997</p> <p>right 15 mm 09 06 900 9996</p>		
<p>Protection and fixing* strip for 20 mm shell housing</p> <p>Single fixing fits female connectors and I element crimp</p>	<p>09 06 001 9909</p>		

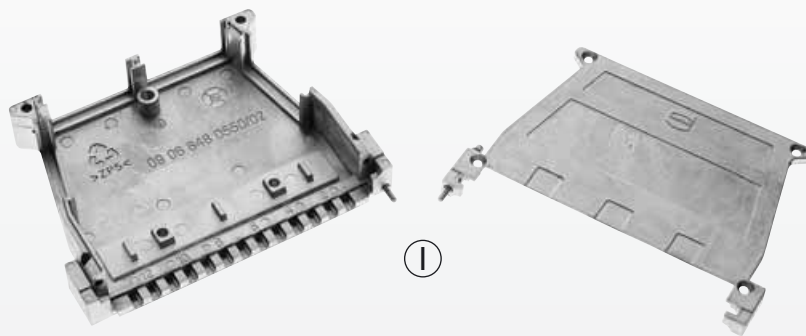
Shell housings

20
27

* Fits D 20/2 and D 20/4 metallised

¹⁾ Specific coding between the fixing bracket and pcb guiding rail

Shell housing D 20 metal for types F, H and MH



Identification

Part No.

Drawing

Dimensions in mm

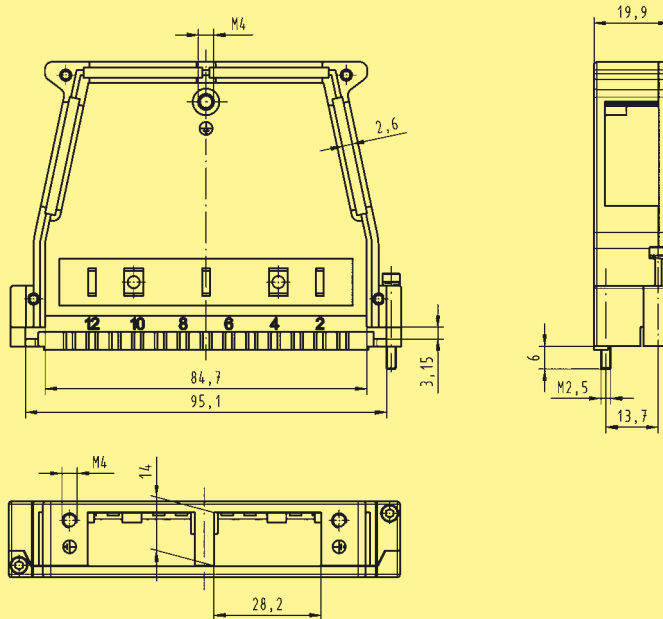
Shell housing
D 20 metal



Supplied with:

- Shell with coding 1x
- Cover 1x
- Locking screw 2x
- Screw (hexagonal) M2.5 x 22 2x
- Screw (torx) M2.5 x 12 4x

09 06 848 0550

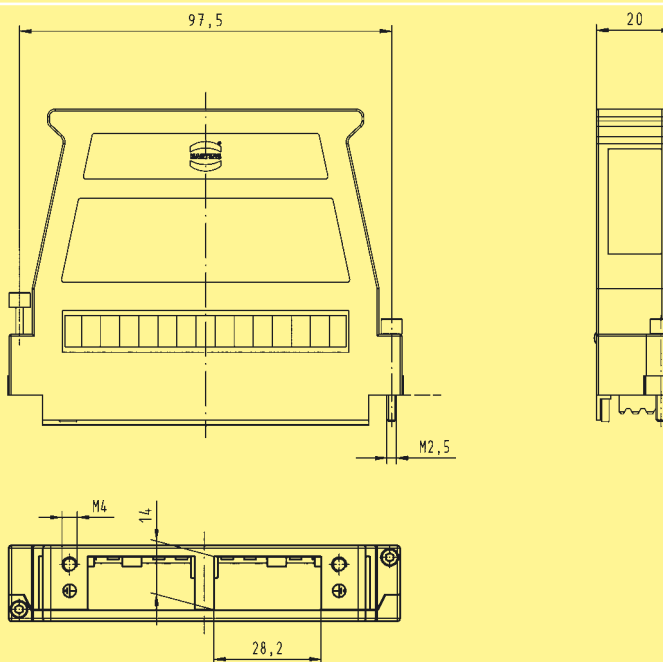


Shell housing
D 20 metal HF
with nickel-plated
surface

Supplied with:

- Shell with coding and HF-sealing spring 1x
- Cover with shielding plate 1x
- Locking screw 2x
- Screw (hexagonal) M2.5 x 22 2x
- Screw (torx) M2.5 x 12 4x

09 06 848 0551



Shell housings

Shell housing D 20 metal HF for types F, H and MH



Identification Part No. Drawing Dimensions in mm

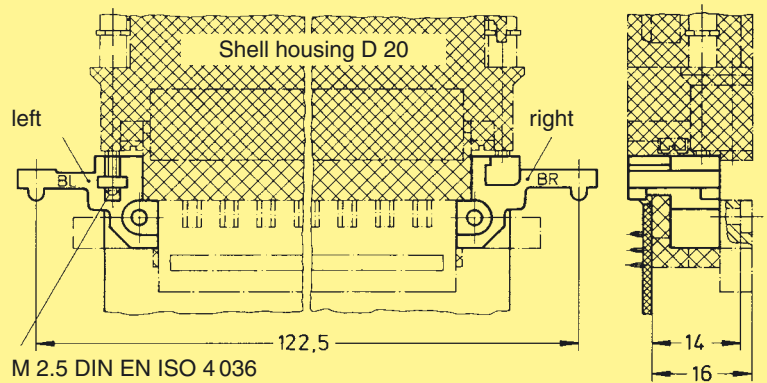
Fixing brackets B metallised for male connectors for 19" racks according to DIN EN 60 297, part 3-101

Single fixing with nut M 2.5 DIN EN ISO 4 036



left
20 mm
09 06 901 9924

right
20 mm
09 06 901 9925

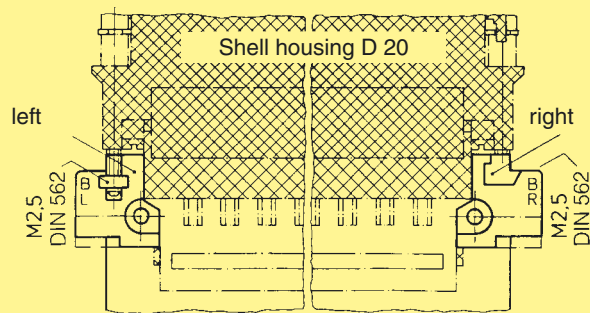


Multiple fixing with coding at fixing bracket with nut M 2.5 DIN 562



left
20 mm
09 06 900 9997

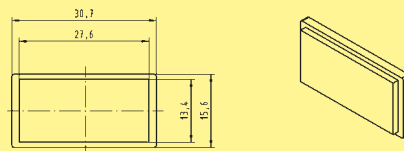
right
15 mm
09 06 900 9996



Blinding piece



09 06 800 9951

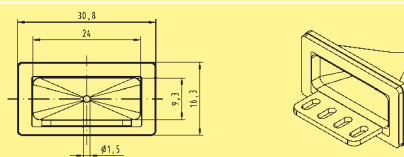


Cable grommet

with strain relief



09 06 800 9950



Code pin

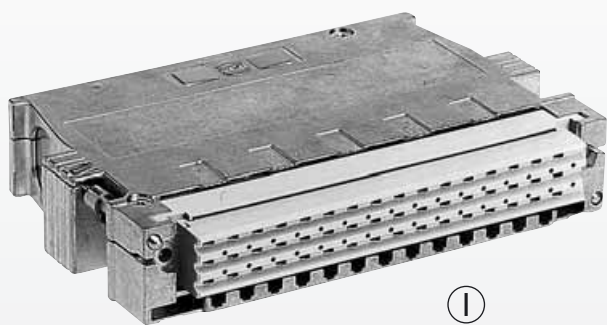


09 06 001 9906

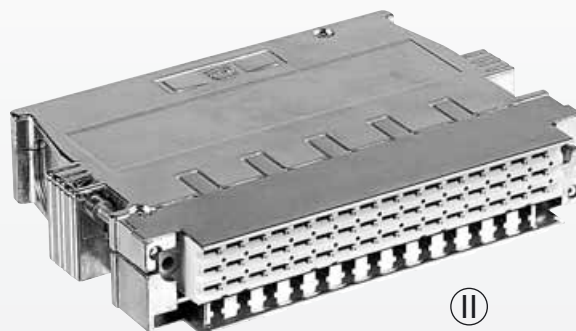
Order 13 pieces per code comb



Shell housing D 20 metal for types F, H and MH



①



②

Identification

Part No.

Drawing

Dimensions in mm

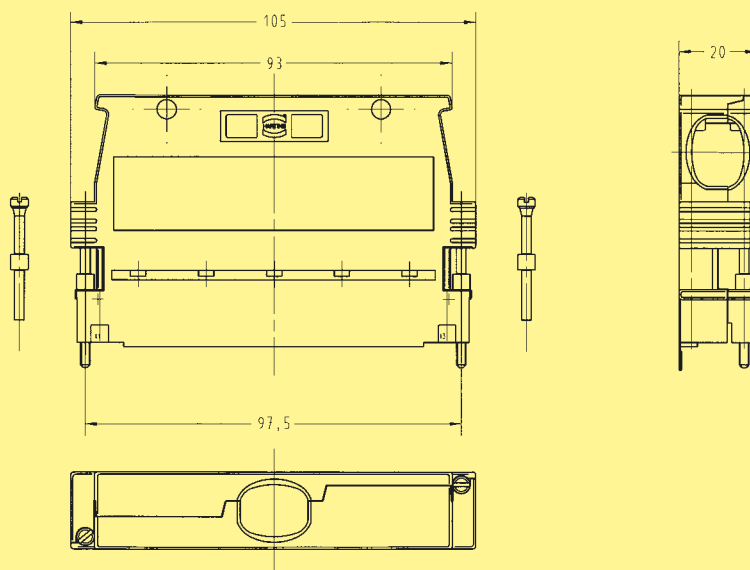
Shell housing
D 20 metal

①

Supplied with:

Shell with coding	1x
Cover	1x
Locking screw	2x
Blinding piece	2x
Screw M2.5 x 16	6x
Lower cable clamp (wide)	1x
Upper cable clamp (wide)	1x
Screw M3 x 5	1x

09 06 848 0521



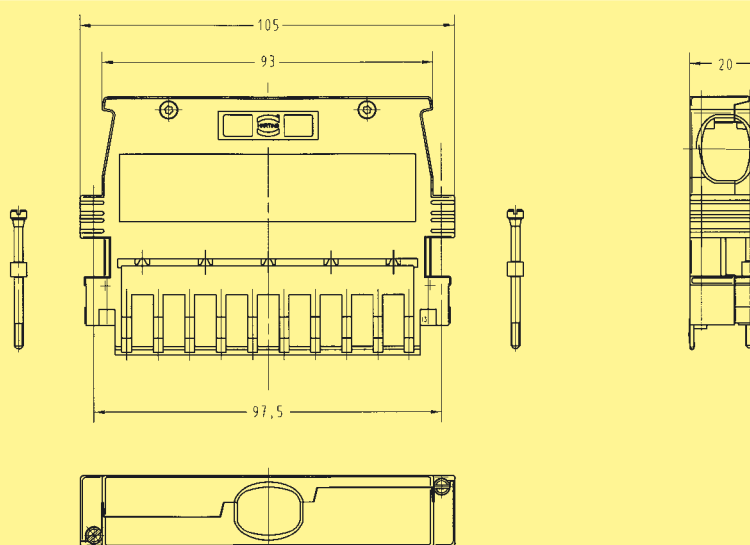
Shell housing
D 20 metal HF
with nickel-plated
surface

②

Supplied with:

Shell with coding and HF-sealing spring	1x
Cover with shielding plate	1x
Locking screw	2x
Blinding piece	2x
Screw M2.5 x 16	6x
Lower cable clamp (wide)	1x
Upper cable clamp (wide)	1x
Screw M3 x 5	1x

09 06 848 1521



Shell
housings

20
-
30

Shell housing D 20 metal HF for types F, H and MH



Identification

Part No.

Drawing

Dimensions in mm

Fixing brackets B metallised for male connectors for 19" racks according to DIN EN 60 297, part 3-101

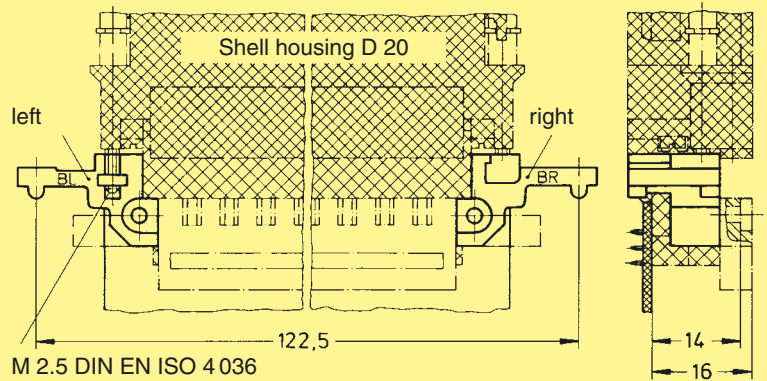
Single fixing

with nut
M 2.5 DIN EN ISO 4 036



left
20 mm
09 06 901 9924

right
20 mm
09 06 901 9925



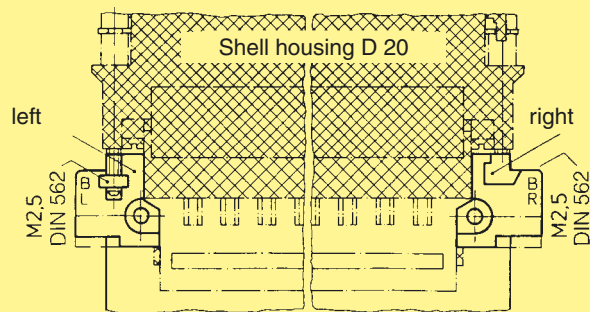
Multiple fixing

with coding at fixing bracket with nut
M 2.5 DIN 562



left
20 mm
09 06 900 9997

right
15 mm
09 06 900 9996



Cable clamp

small



09 06 800 9992

wide



09 06 800 9993

Code pin

for D 20 metal



09 06 001 9905

for D 20 metal HF



09 06 001 9906

Order 13 pieces per code comb



For applications where robust, high density, splash-proof connectors are required, e.g. in the automated control and industrial processing systems, HARTING have combined the proven reliability of DIN 41 612 connectors with standard Han® 24 B heavy duty hoods and housings, to bring forward a connector system with up to 96 ways and various contact plating thicknesses to suit the individual requirements.

Advantages

- The combination enhances design flexibility, as it permits an identical wiring interface between the standard 19" racking systems and the peripheral equipment.
- Simplified stock-holding, identical operating tools.

Inserts

Female	2 x 48 way type F female connectors with crimp contact elements see chapter 02
Male	2 x 48 way type F interface connectors I with crimp contact elements see chapter 02

Hoods and housings

see catalogue "Heavy Duty Han® Connectors"

chapter 30
size 24 B

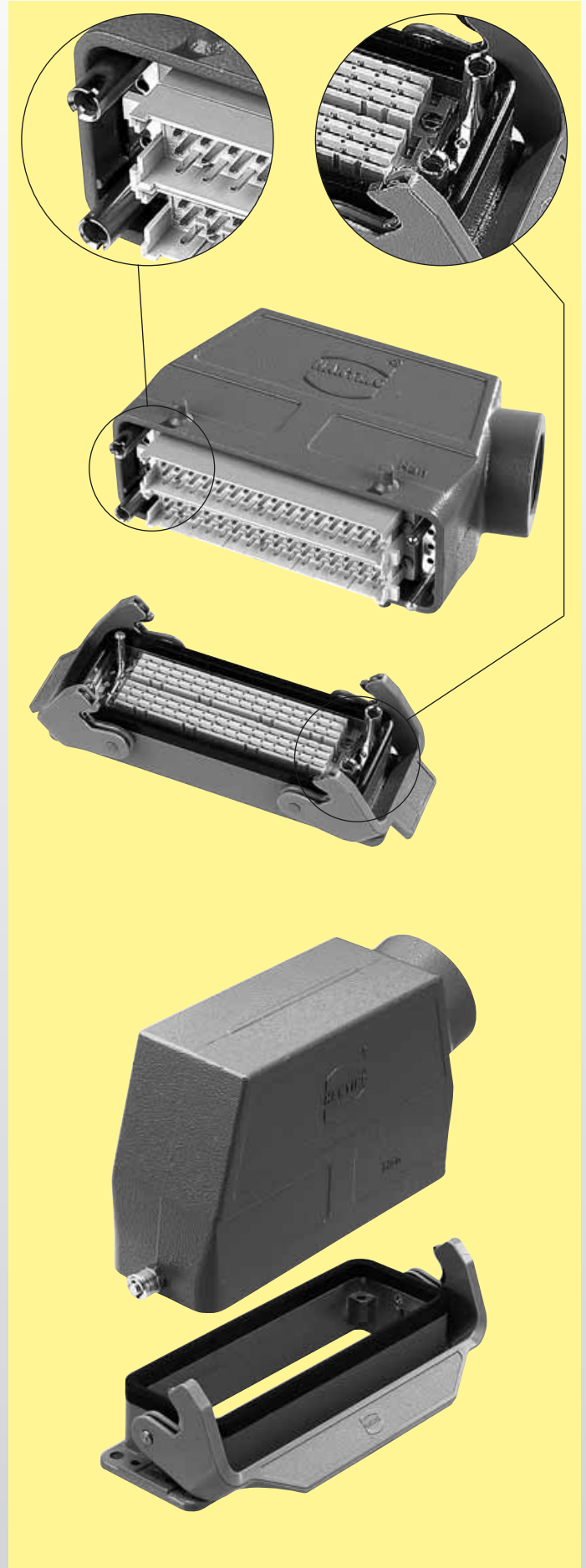
Degree of protection for hoods and housings: IP 65

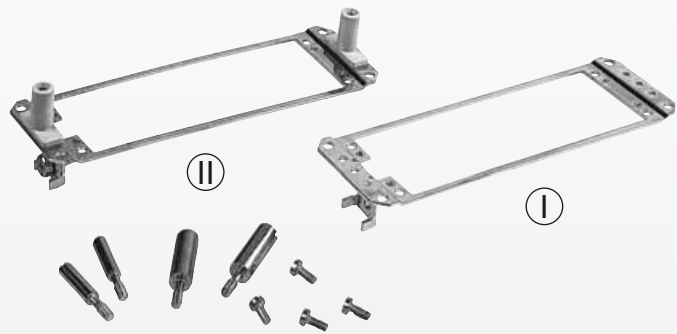
Retaining frames

For fixing the inserts into the housing.

Alternative versions with pre-mating contacts and ground termination.

If the working voltages are in excess of 42 V (50 V) it is essential to use retaining frames which have pre-mating ground contacts.





Identification

Part No.

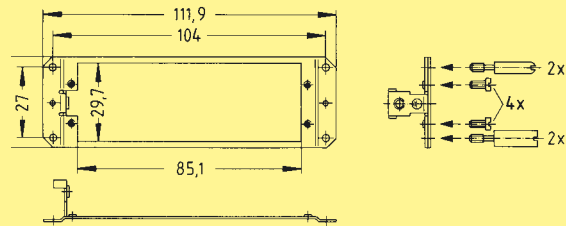
Drawing

Dimensions in mm

Retaining frame without contact elements

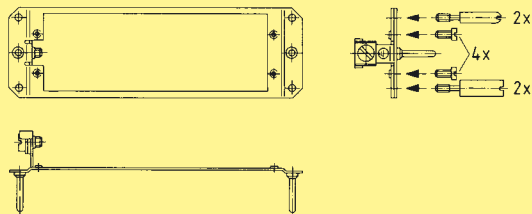
I

09 06 001 9904



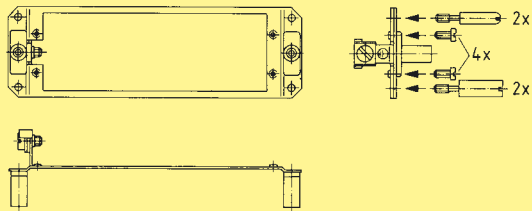
Retaining frame with 2 contact pins and ground termination

09 06 001 9902



Retaining frame with 2 contact sockets and ground termination

09 06 001 9903

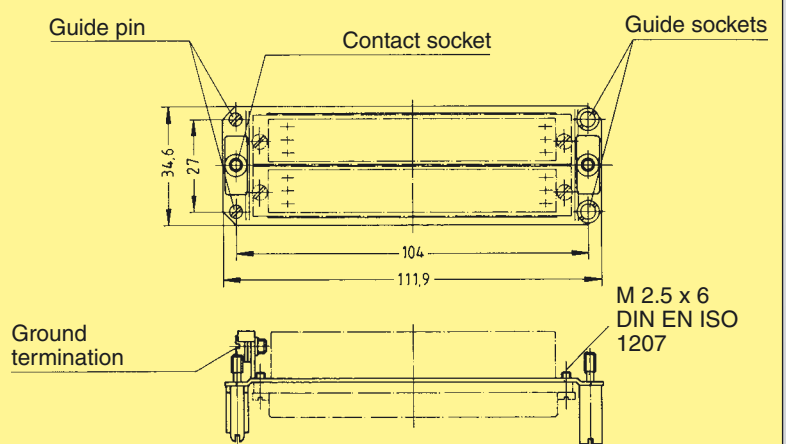


II

Each retaining frame is supplied with 4 fixing screws for mounting the inserts and with 2 guide pins and sockets that provide mechanical protection for the contacts during mating and disconnection. These can also be used as a coding system to prevent cross plugging of adjacent connectors.

Mounting example

Connectors in the retaining frame with contact sockets



Retaining frame for types C and R is available with part no. 09 03 000 9911