

ELECTRICAL SHEATH

multiconductors

CA series



VILMA S.A.S.

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GENERAL

The various versions of the VILMA ELECTRICAL SHEATH of rigid PVC are designed to supply power to overhead cranes, electric hoists and other electric receivers requiring a mobile power connection by brushes.

SAFETY

The design of this electric sheath with a trolley-collector meets the safety standards concerning accidental contact with live conductors under the conditions of protection degree:

IP 23 of European Standard IEC 529

USE

- Assembly under shelter and in bad weather from -30° to $+60^{\circ}\text{C}$. For higher temperatures, contact us.
- Curves: minimum curve radius 1000.
- Possibility of suspension under trolley collector for light loads of less than 10 kg.
- Nominal insulation voltage: 500 V.

MODELS

The possibility of incorporating various copper conducting rail sections into the insulating sheath depending on the power of the motors or other receivers to be powered for 4 or 5 conductors:

40 A - 60 A - 100 A - 140 A and 180 A,

as well as a STAINLESS STEEL conductor version for very low current and voltage use (testing, transmission of information, etc.) in damp ambient environments or in bad weather, nominal current 5 A (table page 4).



Fig. 1



Fig. 2



Fig. 3

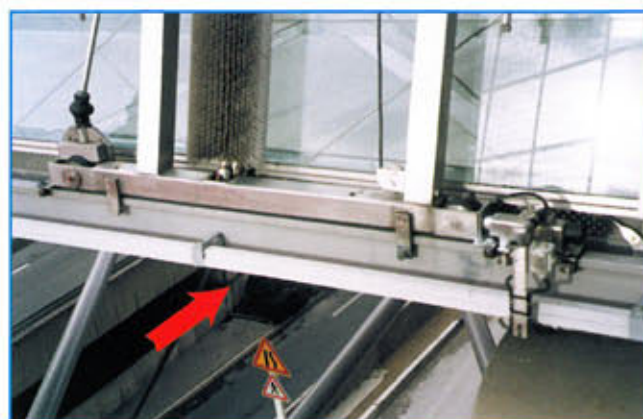
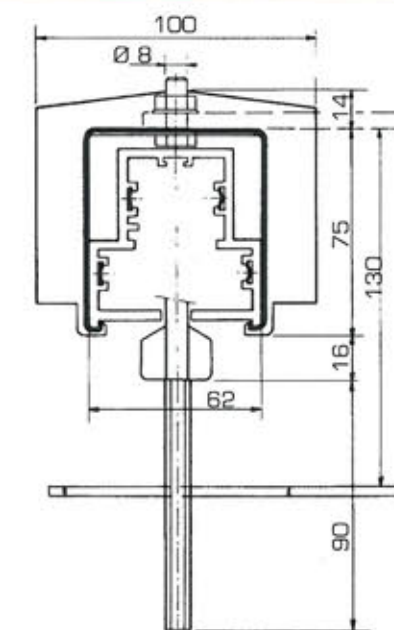


Fig. 4

Fig. 5

SHAPE AND SIZE

Fig. 1 - Geometrical shape and overall size of sheath with trolley-collector, drive pin and driving plate ED 32.



Note: Shape and size of connecting box capacity 100 A to 180 A as given on pages 6 and 7.

Fig. 2 - Side view of trolley-collector, driving plate ED 32 and holder CA 206.

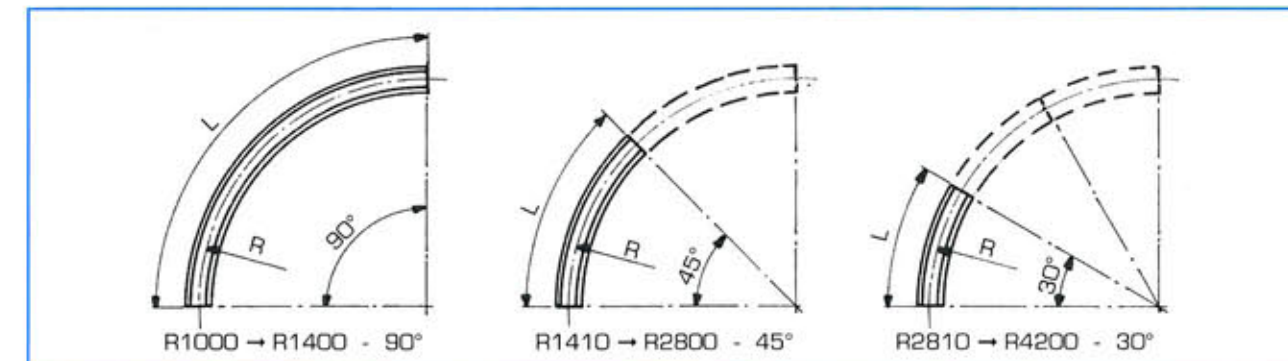
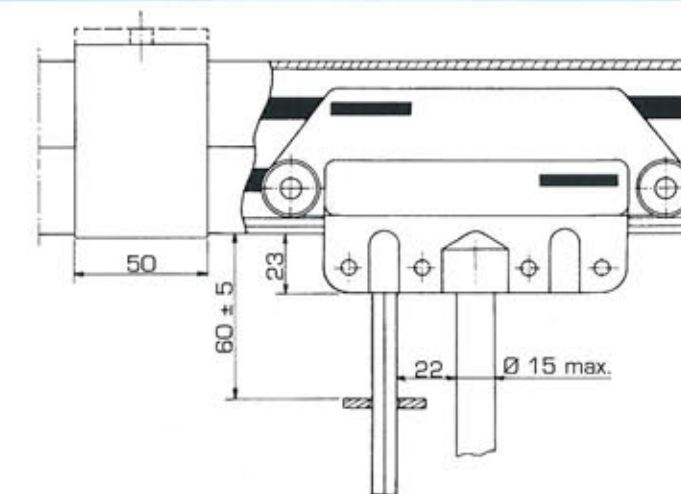


Fig. 3 - **CURVES**

Minimum radius $R = 1000$.

Maximum development per segment $L = 2200$.

For radii greater than 4200, angle defined according to L max. 2200.

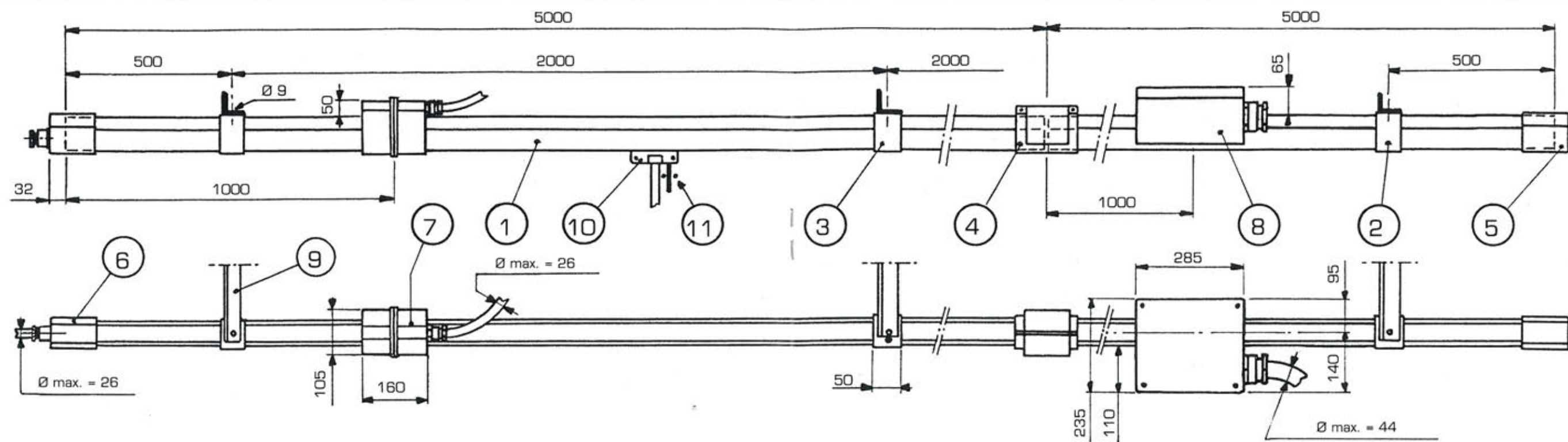
OUR VARIOUS MODELS

Type	Equipment	Number Section Nature of conductors	Permissible current in Amps Duty cycle 60%		Impedance Ω/m	Weight in kg per meter
			under shelter	in bad weather		
CA 44		4 x 8 mm ² Copper	40	32	0.00210	1.60
CA 45		5 x 8 mm ² Copper				1.70
CA 64		4 x 12 mm ² Copper	60	50	0.00150	1.75
CA 65		5 x 12 mm ² Copper				1.85
CA 104		4 x 25 mm ² Copper	100	80	0.00072	2.20
CA 105		5 x 25 mm ² Copper				2.40
CA 144		3 x 35 mm ² + 1 x 25 mm ² Copper	140	125	0.00055	2.45
CA 145		3 x 35 mm ² + 2 x 25 mm ² * Copper				2.65
CA 184		3 x 50 mm ² + 1 x 25 mm ² Copper	180	150	0.00035	2.85
CA 185		3 x 50 mm ² + 2 x 25 mm ² * Copper				3.10
CAX 4		2 - 3 - 4 or 5 conductors of stainless steel *	5	4	Test circuits	1.60

* Note: Possibility of different mix (power + test).

BRACKETS

<p>Fig. 1A</p>	<p>Fig. 1B</p>	<p>Fig. 1A: Attachment by support MONOBRIDE VA 814 for parallel flanges only</p> <p>Fig. 1B: Attachment by clamps support CP 514-600 for L = 600 mm CP 514-500 for L = 500 mm</p>
<p>Fig. 2A</p>	<p>Fig. 2B</p>	<p>Fig. 2A: Attachement under I beam by support MONOBRIDE VA 814 for parallel flanges only</p> <p>Fig. 2B: Attachement under I beam by clamps support CP 514-600 for L = 600 mm CP 514-500 for L = 500 mm</p>
<p>Fig. 3</p>		<p>Suspension by supports welded or bolted onto crane rail.</p>
<p>Fig. 4</p>		<p>Mounted on floor bracket. On request: - Bolts Ø 8 x 60 or threaded rods with 3 nuts for vertical adjustment.</p>
<p>Fig. 5</p> <p>Expansion joint with supports every meter. Recommended for lines longer than 150 meters under shelter at normal ambient temperature and 100 meters for bad weather.</p>		



Details of components in basic installation. – For expansion joints, breaks, curves and transfers: consult us.

	Item	References: according to table page 4	Element length 5000 (or shorter length on request) delivered with copper clamps
	1		
	2	CA 206	Holder Placed every 2000 (or 1500 for lines longer than 150 m)
	3	CA 250	Anchor-holder Only one per line shorter than 25 m in theory placed at middle. Optional for greater lengths
	4	CA 204	Joint cap Locking and mechanical connection between sheath elements.
	5	CA 202	End cap Closing off the ends

	Item	EBD 4 (EBD 5 = 3 phases + N + PE)	End feed cap For series CA 44 - CA 45 CA 64 - CA 65 Cable 4 x 10 mm ² max. Max. line length: 80 m under shelter or 50 m in bad weather
	6		
	7	ECB 4 (EBD 5 = 3 phases + N + PE)	Connecting box For series CA 44 - CA 45 CA 64 - CA 65 Cable 4 x 10 mm ² max. Under way or at 1000 from end
	8	BB 4	Connecting box Under way or at 1000 from end for CA 104 - CA 144 - CA 184
	9	CP 514 or VA 814	Clamps support or MONOBRIDE support See page 5
	10	See page 8	Trolley-collector
	11	ED 32	Driving plate

TROLLEYS-COLLECTOR

For models in series
CA 40 and CA 60
Beige collectors
Barrel brushes

For models in series
CA 100 - CA 140 - CA 180
Blue collectors
Flat brushes

Number
of
poles

Amps.
20 °C
Duty cycle
60 %



Fig. 1

CC 430 with cable
4 x 2.5 mm²
L = 1000

CC 530 with cable
5 x 2.5 mm²
L = 1000

On request: - Greater cable length or section 4 mm²
- Unwired trolleys: NCC 430 - NCB 430
- Cabled slide trolleys without wheels: CC 430.SR
Drive: - See Fig. 1, 2 and 3 page 9.

CB 430 with cable
4 x 2.5 mm²
L = 1000

CB 530 with cable
5 x 2.5 mm²
L = 1000

4

30

5

30

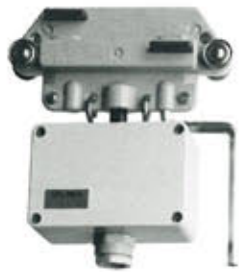


Fig. 2

CCB 430

CBB 430

4

30

CCB 530

CBB 530

5

30

Trolley with oscillating junction box.
Input for flexible cable 4 x 2.5 mm² or 5 x 2.5 mm²
or 4 x 4 mm² with vertical output (or side output on request).
Drive: see Fig. 4 and 5 page 9.



Fig. 3

PPC 416

PPB 416

4

16

PPC 516

PPB 516

5

16

Cabled trolley L = 500 on locking extender.
Don't use in bad weather.
Input for cable 5 x 2.5 mm² max.



Fig. 4

CC 460

CB 460

4

60

Two twin trolley-collector connected by two cables
4 x 2.5 mm² L = 500 on junction box.
Input for cable 4 x 10 mm².
On request: triple collector connected by 3 cables on 80 A box.
Note: drive mode: see page 9.
Use: confined locations.



Fig. 5

CCB 460

CBB 460

4

60

Double trolley with oscillating junction box.
Input for cable 4 x 10 mm² with vertical output
(or side output on request).
Drive by chains (Fig. 6 - 7 and 8 page 9).

TROLLEY-COLLECTOR DRIVE

Fig. 2

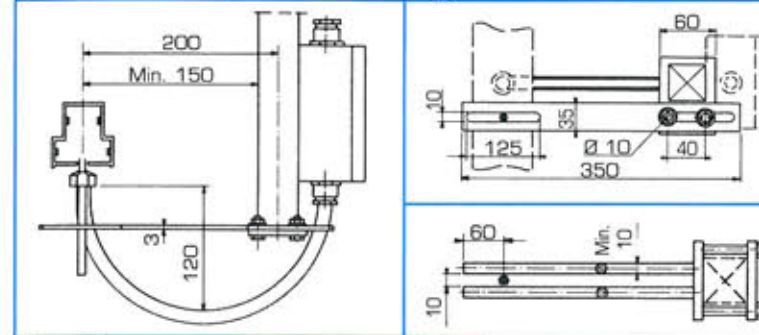


Fig. 1

Fig. 3

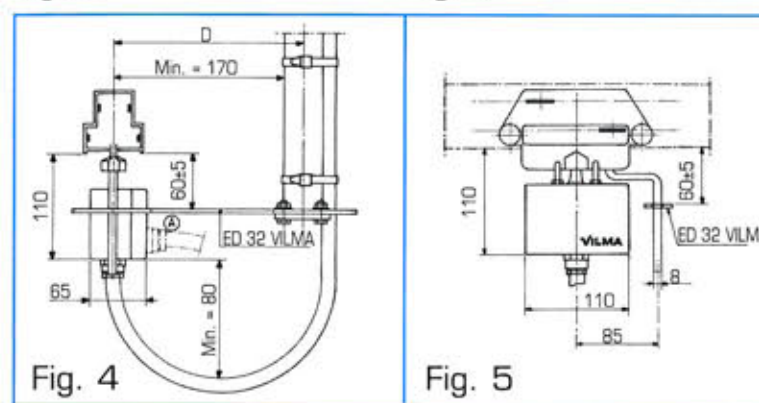


Fig. 4

Fig. 5

Fig. 1 - Single or double trolley-collector (Fig. 1-3 and 4 page 8).

Connection to connecting box integral with driving pole attached to crane.

Mechanical link by driving plate ED 32 (VILMA).

Fig. 2 - Top view of driving plate ED 32.

Fig. 3 - Top view of a drive yoke built by the installer or the maker of the crane.

Clamp height-adjustable on drive yoke or attached directly.

Fig. 4 and 5 - Trolley with box (Fig. 2 page 8).

Mechanical link between trolley and driving pole by driving plate ED 32 or as per Fig. 3.

Possibility of side cable output (A).

Chain drive possible in some cases (curves, major changes of level).

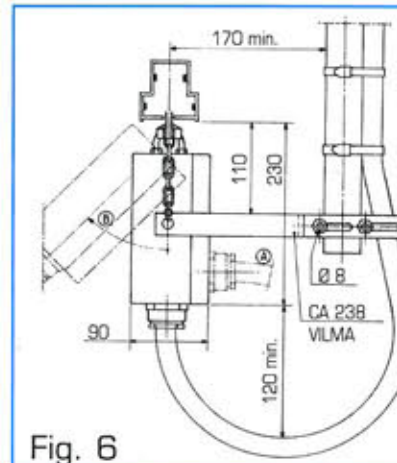


Fig. 6

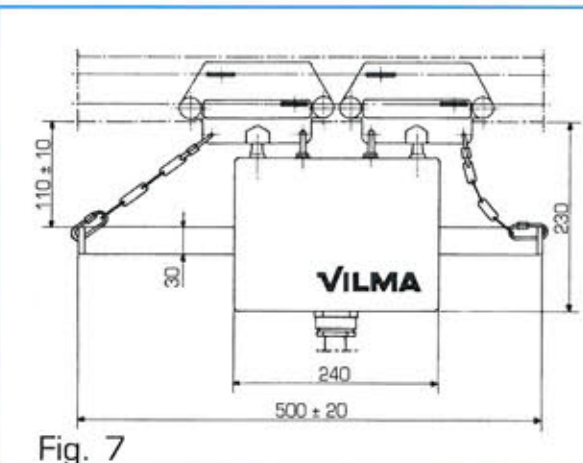


Fig. 7

Fig. 6 - 7 and 8 - Double trolley with box (Fig. 5 page 8).

Mechanical link between trolley and driving pole by drive yoke ref. CA 238 (VILMA) or drive built by customer. (Sizes 500 ± 20, 110 ± 10 to be complied with, and two holes Ø 13 in centreline of sheath for attaching chains).

For trolley removal in case of brushes replacement:

- Switch off.
- Disconnect the electric cable from the connecting box and remove it from the box.
- Unhook the chains on the driving plate end.
- Swivel box (B) and extract the trolley from the drive yoke to bring it to the line end. If this is impossible (several cranes on the same track), bring the trolley out at the junction of 2 sheath section after removing joint cap CA 204 and the unscrewed copper clamps slid into the notches in the sheath.

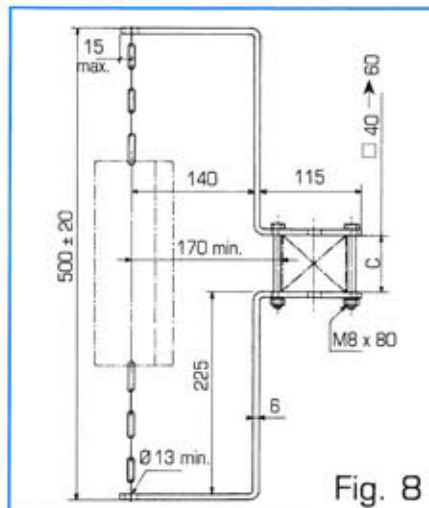


Fig. 8

ASSEMBLY - MAINTENANCE

- Before starting to install, identify the location of the power supply cable.
- Place the supports at intervals of 2000 fitted with the holders CA 206 and possibly with the anchor-holder CA 250 in the middle. The first support should be at 500 from the end. Ensure that alignment and levelling are correct.
- On the first element, locate the safety-rib F (Fig. 2) as well as coloured marker K and place it towards the inside of the hall (Fig. 3).
- Click in the first section of the sheath from bottom to top in holder CA 206 first locked square under the supports, since a skewed position can prevent expansion (Fig. 1).
- Place the second element while carefully checking the matching of the safety-rib F (Fig. 2) materializing the dissymmetry and preventing the reverse insertion of the trolley-collector. Before clamping, check the coloured markers on a side of the sheath element (K).
- Slide the copper clamps (Fig. 4 and 5) onto the ends of the conductors (joined or with a clearance of up to 3 mm). Thoroughly lock the screws with a 5 mm Allen wrench or with a wrench and handle H8 (H5 screw) depending on the model.
- Adjust the gap between the two sheath elements to between 0 and 3 mm while ensuring that the clamps are centrally positioned.
- Install the joint caps taking care to locate the bottom holders in the side ribs of the sheath and the 2 locking studs in the corresponding holes.
- Engage the trolley-collector (paying attention to the 2 "polarizing" studs) and run it by hand over the clamp to check that it moves freely.
- Install the following devices then plug the end with end cap CA 202. Lock the anchor-holder if necessary, screwing in fully the self-tapping screw.
- Connect the power supply cable to the end feed cap or the connecting box.
- Make the electrical and mechanical connections of the trolley-collector (page 9).

MAINTENANCE:

Changing the brushes:

Disconnect the cable from the connection box or disconnect the locking connector. Pull the trolley out at the end. It is possible to remove the trolley at a joint cap after releasing the conductor clamps. On the collector, disassemble the 2 cheeks. Clear the brush terminals. Perform in the opposite order for the installation of new brushes. Test by "keying" the sliding of the brushes whose cables must not rub against the faces of the insulating cheek.

Replacing a sheath element:

Disassemble the joint caps and the copper clamps. Unhook the element from the holder without disassembling the latter. Lower the damaged element and install the spare part.

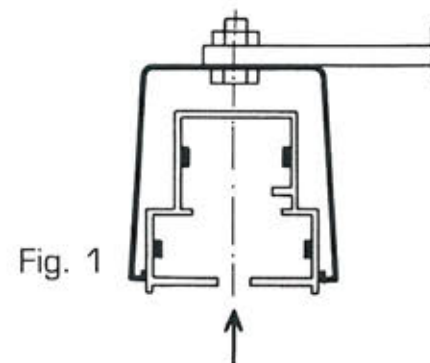


Fig. 1

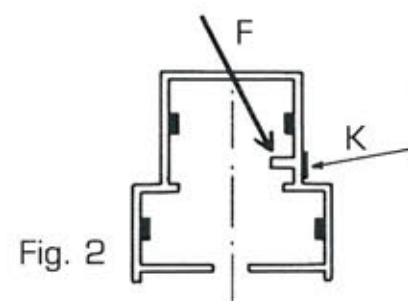


Fig. 2

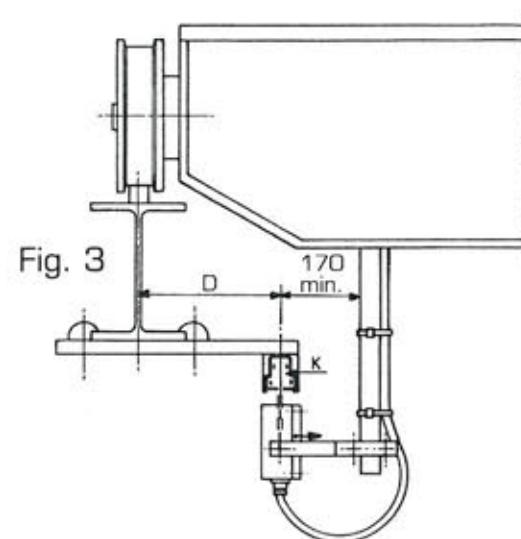


Fig. 3

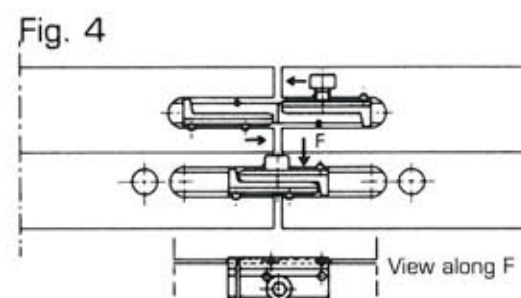


Fig. 4

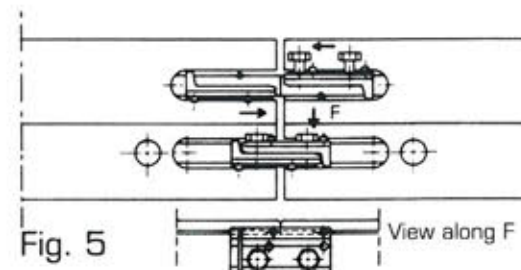


Fig. 5

Other product by

VILMA...

Multiconductors



"FE" electrical sleeve
- Very compact size: 21 x 48 mm
- Up to 25 A.

Multiconductors



"VA" mobile connector electrical sheath
- Compact size
- Up to 40 A.

Multiconductors



"CP" multiconductor power supply sheath
- 1 to 5 conductors from 40 A to 140 A
with trolley-collector or fixed connectors.

Multiconductors



"VE" protected electrical channel
4 conductors from 40 A to 80 A
with pantograph collectors
or trolley-collectors.

Monoconductor



"MONOFIL" protected electrical rails
- Compact size: 19 x 11 mm
- Modular composition
- Small curve radii.

Monoconductor



"MONOCONDUCTEURS" protected electrical rails
- Size: 25 x 22 mm
- Modular composition
- Intensity 80 A to 400 A.



Cable carrier monorail
- Electrical current input by flat cable
on overhead crane, hoist, etc.



Electrical channeling with takeoffs
by fixed locking connectors
- Intensity 32 A
- Protection degree IP 23 or IP 43.