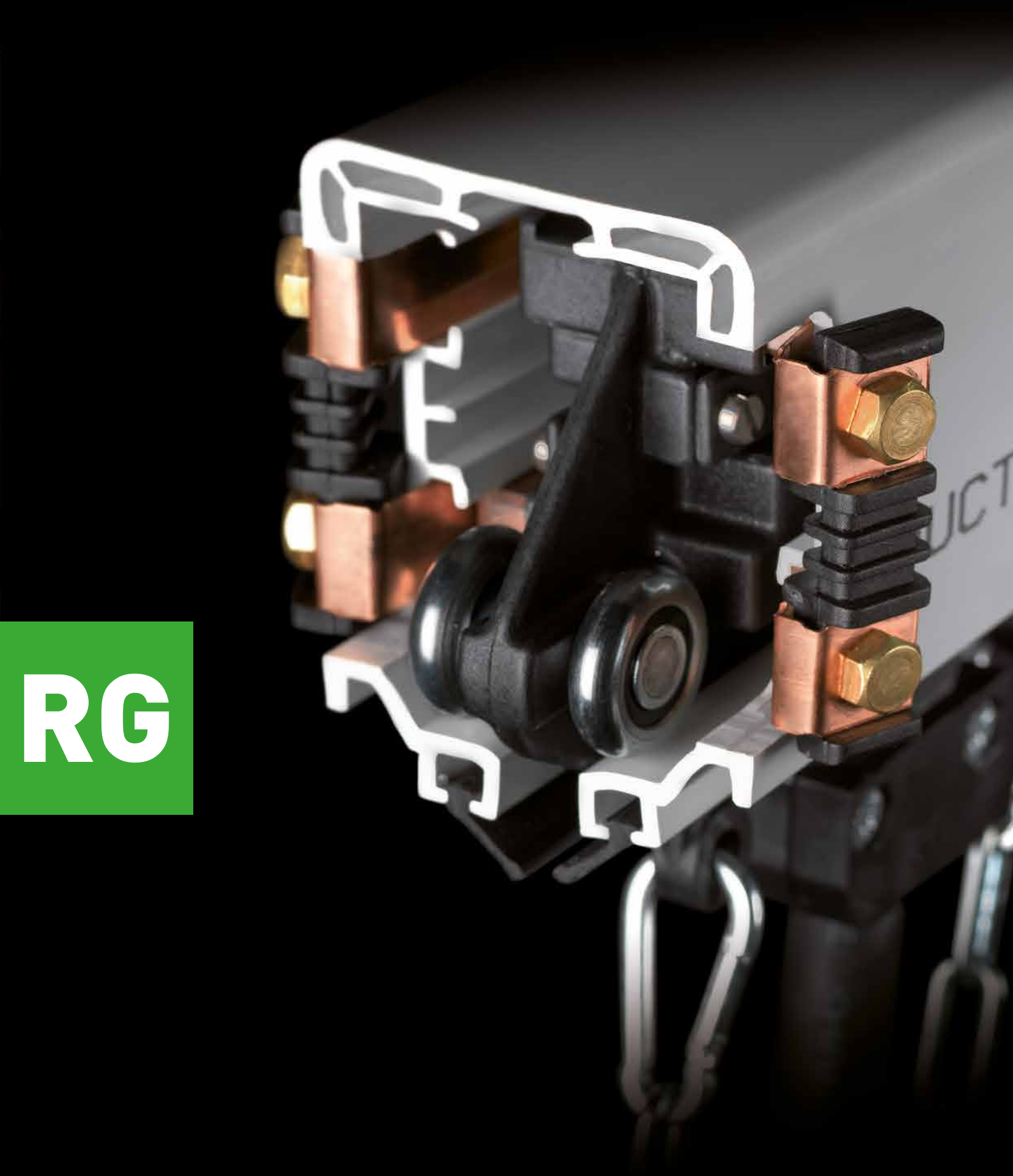
RG



MODUCTOR®

MULTICONDUCTOR MODULAR SYSTEM

RG INDEX

Applications 3

Characteristics 4

Line Calculations 5

Special installations 7

Isolated housing 8

Electrical conductors 9

MODUCTOR Components 10

Assembly instructions 20

Assembly drawings 22

Questionnaire for collecting information 23

Lloyd's Register LRQA

CERTIFICADO DE APROBACIÓN

Certificamos que el Sistema de Gestión de Calidad de:

GASORI, S.L.
Pol. Ind. Anguciana, C/ La Loma, nº 2
26210 Anguciana, La Rioja
España

ha sido aprobado por Lloyd's Register Quality Assurance
de acuerdo con la siguiente Norma de Sistema de Gestión de Calidad:

ISO 9001:2008

El Sistema de Gestión de Calidad es aplicable a:

Corte por láser de chapa y tubo, mecanizado, plegado, soldadura y ensamblado de componentes metálicos. Diseño, producción y comercialización de líneas de alimentación eléctrica a equipos móviles con desplazamiento. Producción y comercialización de equipos de mando y control eléctricos y conductores para maniobra.

Aprobación
Certificado No: SGI 1203400/11

Aprobación Original: 25 de Febrero 2016
Certificado en Vigor: 25 de Febrero 2016
Caducidad del Certificado: 14 de Septiembre 2018

Emitido por: LRQA España, S.L.
Por y en nombre de: Lloyd's Register Quality Assurance Limited

UKAS MANAGEMENT 001

C/ Princesa, 29 – 1ª - 28008 Madrid, España
Por y en nombre de 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

Lloyd's Register

CERTIFICADO DE APROBACIÓN

Este certificado se emite a: GASORI, S.L.
Para las siguientes sedes: C/ La Loma, 2 (Pol. Ind. Anguciana)
26210 Anguciana (La Rioja)

De acuerdo a los requisitos de la norma:

UNE EN ISO 3834-2: 2006 Requisitos de calidad para el soldeo por fusión de materiales metálicos. Parte 2: Requisitos de calidad completos

Para el alcance:

Fabricación de piezas soldadas en acero al carbono.

Procesos de soldeo y grupos de materiales base:

Procesos de Soldeo (ISO 4063)	Grupo de Material Base (CEN-ISO/TR 15608)
135 Semiautomática monopasada FW	Grupo 1 y 2 (hasta 30 mm)

Coordinadores de soldeo autorizados:

Nombre	Cualificación	Cargo/Nivel (s/EN ISO 14731)
Iñaki Iriondo	Por experiencia	Coordinador de soldeo autorizado subcontratado.

Este Certificado está sujeto a la vigilancia del cumplimiento por parte de Lloyd's Register España S.A. según los requisitos de la norma UNE EN ISO 3834-2: 2006

Certificado No: LRE/3834/0017/1/14
Emisión inicial: 26 de Noviembre de 2013
Fecha de emisión: 29 de Agosto de 2014
Válido hasta: 25 de Noviembre de 2016

Lloyd's Register Verification Limited
A member of the Lloyd's Register Group
José Rivero
29 de agosto de 2014
Madrid Office
José Rivero
Director Técnico de Lloyd's Register España, S.A.

The MODUCTOR protected line consists of a modern, anti-accident system with adjustable power outlets, for supplying mobile equipment: cranes, pulleys, conveyor belts, textile lines, chain conveyors automated warehouses, etc.

Adapted to national and international standards, the MODUCTOR line offers maximum guarantee against unwanted accidental contact, allowing rapid assembly and safe, reliable performance.

The bars are supplied with copper strip conductors housed in the isolated housing, for assembly in consecutive sections. The electrical conductors are joined between bars, by means of connecting copper plates locked with nuts and bolts. This assembly is protected with the corresponding isolated plastic joint.

Curved tracks are available against order; just send us a simple sketch with radius and angles. Minimum manufacturing radius: 1 meter.

The bars are manufactured in standard lengths of 4m, with 4 or 5 copper conductors in 6 different sections (from 25 A to 140 A). Other lengths, on demand. Installations with more than 5 conductors and currents in excess of 140 A can be obtained by consecutively assembling several housings.

RG CHARACTERISTICS

SAFETY:

Line protected by its external isolation. First on the market with coextruded sealing strip.

SPACE:

The MODUCTOR line occupies minimum space compared with other conventional electrical power supply systems.

EXPANSION / CONTRACTION:

The system absorbs length differences caused by expansion / contraction at each joint of the bar, without the need for "special" expansion / contraction joints.

ENLARGEMENTS:

Being a modular system, the installation can be enlarged or reduced by adding or removing sections.

ASSEMBLY:

Rapid and simple: a single assembly track leaves the line ready for service.

ELECTRICAL SUPPLY:

At the beginning of the line or at any of the joints between bars (connections).

REPAIRS:

Sections of the already assembled line can be replaced without the need of moving the rest of the line.

VOLTAGE:

Up to 600 V

OPERATIONAL TEMPERATURE:

From -30ºC to +55ºC.

OUTDOOR INSTALLATIONS:

We recommend installing sliding supports made stainless steel (RG01-I). Also, we recommend protecting the line from solar radiation, using adequate protection.

PROTECTION LEVEL:

IP 23.

To choose the most suitable line required for a certain current and to define the location of the supply point/s, add up all the currents of any motors that could be in simultaneous operation, as well as any foreseeable voltage drop.

The simultaneity of Starting currents (IA) and Service currents (IN) will be added.

The following table is a guideline for supplying one or several units.

NUMBER OF UNITS	MOST POWERFUL MOTOR	2ND MOST POWERFUL MOTOR	3RD MOST POWERFUL MOTOR	4TH MOST POWERFUL MOTOR
1	I_A	I_N	-	-
2	I_A	I_N	I_N	-
3	I_A	I_A	-	-
4	I_A	I_A	I_N	-

Starting Current (I_A) is that used by the motor when its rotor is stopped. This detail is characteristic of the mo tor and is measured during the tests of the motors, and according to the REBT in its first Instruction ITC-BT-47 this should not exceed, in alternative current the following values

MOTOR POWER	I_A/I_N
From 0,75 Kw to 1,5 Kw	4,5
From 1,5 Kw to 5 Kw	3
From 5 Kw to 15 Kw	2
More than 15 Kw	1,5

Nominal current (I_N) is that used by the motor when it develops its nominal power, connected to nominal voltage. This value is obtained with the following formula:

$$I_N = \frac{P}{\sqrt{3} \cdot V \cdot \cos \varphi}$$

I_N = Nominal current in amps.
P = Power in watts
V = Voltage between phases
Cos φ = Power factor

The power factor or Cos. φ is an "electrical quality factor" of the motor. The greater this is, less current will be absorbed to develop the same power. Its value tells us the "quality" of the motor regarding its consumption; we consider its value as 1.

The voltage drop for alternative three-phase current is calculated by means of this formula:

$$\Delta U = \sqrt{3} \cdot I \cdot L \cdot Z$$

$$\Delta U(\%) = \frac{\Delta U \cdot 100}{U}$$

ΔU = Voltage drop (Volts)
I = Current (Amps)
L = Considered length (meters).
Z = Impedance of conductors (Ω/m)

Value L (length considered in meters) varies according to the location of the power supply:

- With a supply at one end: L = length of the line
- With a central supply: L = length of the line / 2
- With supply at both ends: L = length of the line / 4
- Supply at 1/6 from each end: L = length of the line / 6

This value is also reduced when considering the width of mobile machines , and increases when taking into account the length of the cable from the supply to the line to the electricity control panel.

POWER		THREE-PHASE				CURRENT
		230 V		400 V		
CV - HP	Kw	IN	IA	IN	IA	
0,75	0,55	1,73	7,80	1	4,49	
1	0,74	2,31	10,40	1,33	5,98	
1,5	1,10	3,47	15,61	1,99	8,97	25 A
2	1,47	4,62	13,87	2,66	7,98	
3	2,21	6,94	20,81	3,99	11,97	
4	2,94	9,25	27,75	5,32	15,95	
5	3,68	11,56	34,68	6,65	19,94	40 A
7,5	5,52	17,34	34,68	9,97	19,94	
10	7,36	23,12	46,24	13,29	26,59	60 A
13	9,57	30,06	60,12	17,28	34,57	
15	11,04	34,68	69,36	19,94	39,88	80 A
20	14,72	46,24	69,36	26,59	39,88	
25	18,40	57,80	86,71	33,24	49,86	100 A
30	22,08	69,36	104,5	39,88	59,83	
40	29,44	92,49	138,73	53,18	79,77	
50	36,80	115,61	173,41	66,47	99,71	140 A
60	44,16	138,73	208,09	79,77	119,65	
70	51,52	161,85	242,77	93,06	139,60	

LINES WITH CURVED SECTIONS

A simple sketch of the installation is needed for manufacturing the line, indicating radiuses and angles as well as lengths of the straight sections. The minimum manufacturing radius is 1 m.

CURVES

Installations with horizontal and/or vertical curves are available.

PARALLEL ASSEMBLY

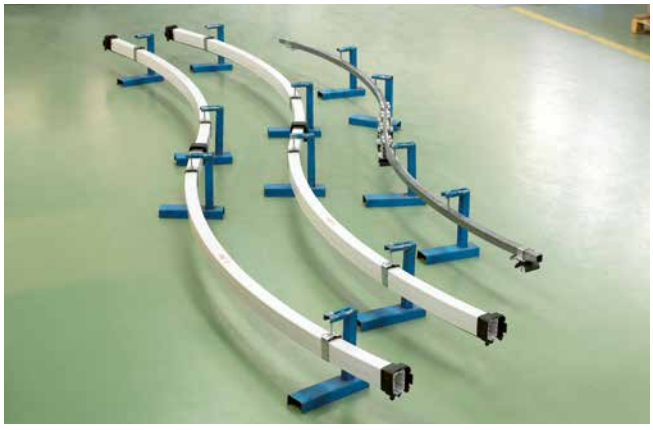
Installations requiring currents above 140 A or more than 5 conductors, need a parallel installation of several lines.

INSTALLATIONS IN AGGRESSIVE ENVIRONMENTS

We recommend using stainless steel nuts and bolts and metallic components with epoxy treatment for installations in aggressive environments.

ELECTRIC LINES WITH ISOLATING SECTIONS

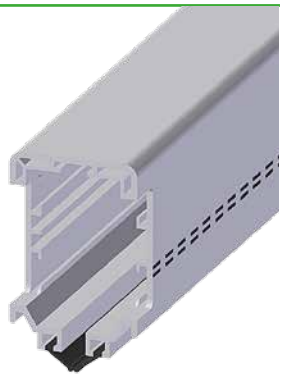
Installations requiring interruption of current, as required, on a certain section of the line, require the assembly of a circuit breaker RG 12 and double current collector.(e.g. Creation of a revision-repair area for cranes, isolated from the rest of the layout.)



RG ISOLATED HOUSING

MATERIAL

PVC rigid self-extinguishable (UNE 20.672.83, ap. 2-1) and sealing strip made from pultrusioned plasticized rubber.



ELECTRICAL CHARACTERISTICS

Dielectric resistance	25 KV/mm
Transversal resistivity	$1x10^{16}$ Ω/m

MECHANICAL CHARACTERISTICS

Resistance to flexion	780 Kg/cm^2
Resistance to torsion (ISO R 527)	430 Kg/cm^2
Resistance to traction (ISO R 527)	> 430 Kg/cm^2
Resistance to impact (DIN 53453)	No breakage

OPERATIONAL TEMPERATURE

From -30ºC to +55ºC (from -22ºF to +131ºF)

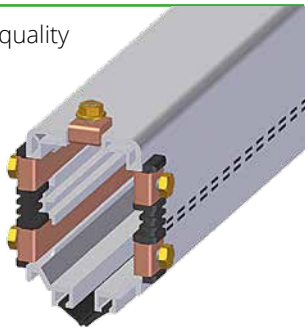
Degree of Vicat , 5 Kg. (ISO R 306)	80ºC (176ºF)

RESISTANCE TO CHEMICAL AGENTS

Mineral oils and greases	Yes
Dissolvent	Yes, except aromatic, ketonic and chlorine dissolvent
Hydrochloric acid	No
Concentrated sulphuric acid	No
Diluted sulphuric acid at 50%	Yes
Caustic sosa at 50%	Yes, at less than 40ºC (104ºF)
DENSITY (ISO 1183)	1,44 g/cm^3
EXPANSION / CONTRACTION COEFFICIENT	0,05 mm/m/ºC
FLAMMABILITY (UL 94)	VO.
WATER ABSORPTION	Undetectable, <0,07%

MATERIAL

Electrolyte copper strip, according to DIN 1787 / 17670 / 40500 standards and certified CU-ETP quality



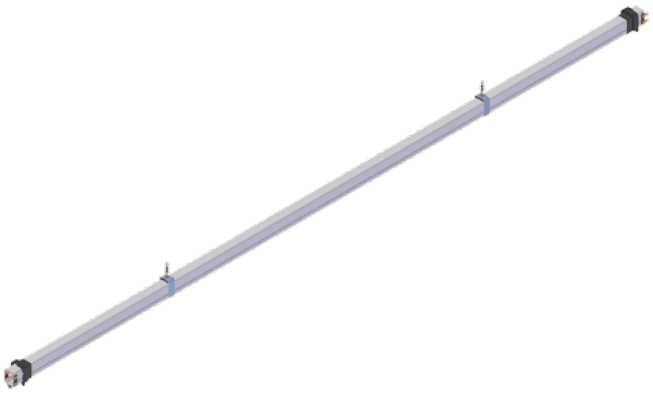
EXPANSION / CONTRACTION COEFFICIENT	0,0165 mm/m/°C
RESISTIVITY	0,0172 Ω/m/mm²
DENSITY	8,9 g/cm³
IACS CONDUCTIVITY	100

CURRENT A	VOLTAGE V	IMPEDANCE $10^{-3}\Omega$ / m.	SECTION mm²	VOLTAGE DROP V / m / A	WEIGHT g/m
25	500	2,2x10³	7,75	0,00388	68,98
40	500	2·10³	9,3	0,00346	82,77
60	500	1,75·10³	12,4	0,00303	110,36
80	500	1,18·10³	17,05	0,00204	151,74
100	500	1·10³	21,7	0,00173	193,13
140	500	0,75·10³	31	0,00123	275,90

"Volt age drop" values considered at 20°C (68°F), Cos φ=1 and E.D. (movement factor) 80% in alternative three phase current.

- **With temperatures of 30°C (86°F) apply correction factor of 1.04**
- **With temperatures of 40°C (104°F) apply correction factor of 1.08**
- **With temperatures of 50°C (122°F) apply correction factor of 1.12**
- **With movement factor E.D. 60%, apply correction factor of 0.77**

25, 40 or 60 AMP BAR.

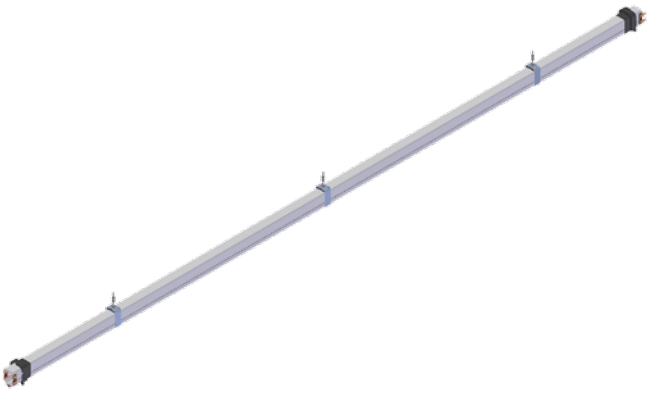


Standard length: 4 m.
Including 2 sliding supports ref. RG 01 and 1 joint ref. RG 02

REFERENCES

Description	Reference	Weight / m.
Bar with 4 conductors 25 A	RG 4x25A	1,78 Kg
Bar with 5 conductors 25 A	RG 5x25A	1,85 Kg
Bar with 4 conductors 40 A	RG 4x40A	1,84 Kg.
Bar with 5 conductors 40 A	RG 5x40A	1,92 Kg.
Bar with 4 conductors 60 A	RG 4x60A	1,95 Kg.
Bar with 5 conductors 60 A	RG 5x60A	2,06 Kg.

80, 100 or 140 AMP BAR.

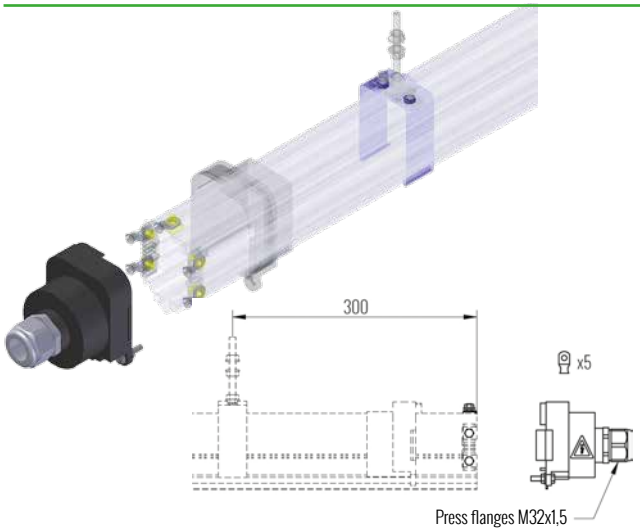


Standard length: 4 m.
Including 3 sliding supports ref. RG 01 and 1 joint ref. RG 02

REFERENCES

Description	Reference	Weight / m.
Bar with 4 conductors 80 A	RG 4x80A	2,15 Kg.
Bar with 5 conductors 80 A	RG 5x80A	2,31 Kg.
Bar with 4 conductors 100 A	RG 4x100A	2,32 Kg.
Bar with 5 conductors 100 A	RG 5x100A	2,51 Kg.
Bar with 4 conductors 140 A	RG 4x140A	2,65 Kg.
Bar with 5 conductors 140 A	RG 5x140A	2,93 Kg.

ELECTRICAL SUPPLY:

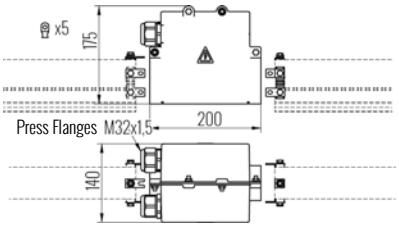


Designed for line supply at its end Made from isolating material. Equipped with connection terminals and glands for round cable. Fixing to bar joint with pressure tab and nut and screw (2 pieces) M6 at the lower part. **Weight:** 140 g.

REFERENCES

Conductors	Amps	Reference
4	25 - 40 – 60	RG 03-460
5	25 - 40 – 60	RG 03-560
4	80 – 100	RG 03-4100
5	80 – 100	RG 03-5100
4	140	RG 03-4140
5	140	RG 03-5140

INTERMEDIATE SUPPLY:

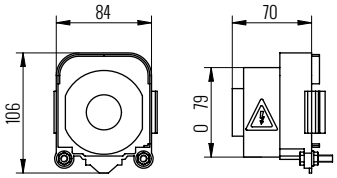


To supply the line at any bar joint, as well as acting as a joint. Made from isolation material Equipped with connection terminals and glands for round cable.
Weight: 265 g.

REFERENCES

Conductors	Amps	Reference
4	25 - 40 – 60	RG 07-460
5	25 - 40 – 60	RG 07-560
4	80 – 100	RG 07-4100
5	80 – 100	RG 07-5100
4	140	RG 07-4140
5	140	RG 07-5140

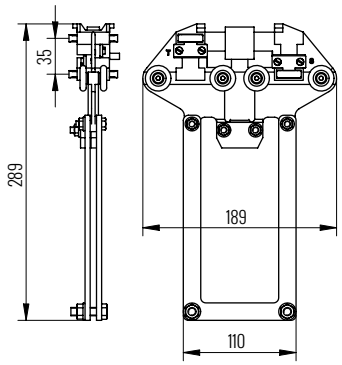
END COVER Ref. RG 04



Assures and protects the sealing of the line at its end. Made from isolation material Fixing to bar joint with pressure tab and nut and screw (2 pieces.) M6 at its lower part.

Weight: 95 g

CURRENT COLLECTOR 4 x 35A Ref. RG 14



Body made from isolation material and 4 metal-graphite brushes N-51 with stainless steel 302 springs. It moves by means of metallic ball bearings. To avoid any mistake when connecting the phases, the trolley only fits in one position for moving through the inside of the housing: one side of the collector has an anti-reverse round stop.

It is supplied connected to the brushes with round cable 4G4 mm2.
Equipped with 2 towing chains for its fixing to the towing arm.

Maximum speed:
160m/min. 90m/min in curves.

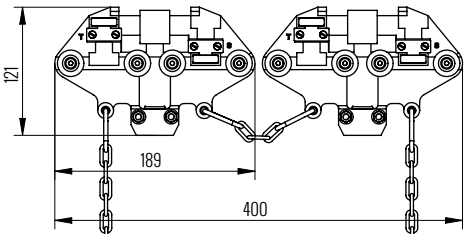
The corresponding towing arm is ref. RG 06

Weight: 738 g.

CURRENT COLLECTOR 5 x 35A Ref. RG 15

Same characteristics as current collector ref. RG 14, but with 5 brushes. Round hose 5G4 mm^2. **Weight**: 820 g

DOUBLE CURRENT COLLECTOR 2 (4 x 35A) WITH JOINT. Ref. RG 24



Necessary for currents between 35 A. and 70 A. Also, a double collector should be assembled in installations that require circuit breaker ref. RG 12. Consisting of the joint, to chain, of two current collectors
Ref. RG 14

Maximum speed: 130m/min. In curves 70m/min.
The corresponding towing arm is ref. RG 08

Weight: 1.526 g.

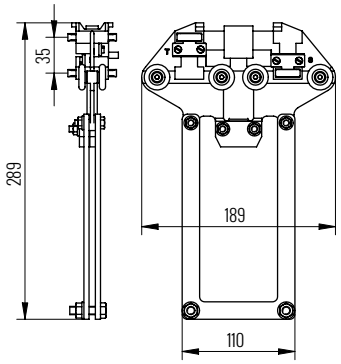
DOUBLE CURRENT COLLECTOR 2 (5 x 35A) WITH JOINT. Ref. RG 25

Consisting of the joint, to chain, of two double current collectors ref. RG 15

Maximum speed: 130m/min. 70m/min in curves. The corresponding towing arm is ref. RG 08

Weight: 1.690 g.

CURRENT COLLECTOR FOR PULLEY 4 X 35A. Ref. RG 14 POL



Body made from isolation material and 4 metal-graphite brushes N-51 with stainless steel 302 springs. It moves by means of metallic ball bearings.

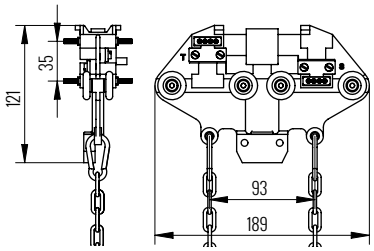
To avoid interchanging phases, the collector only has one position to move inside the housing: one side of the collector has an anti-inverter round stop.

It is supplied connected to the brushes with 1.6 m of round cable 4G 2.5 mm^2 .

Maximum speed:
160m/min. In curves 90m/min. The corresponding towing arm is ref. RG 06-POL.

Weight: 850 g.

4-POLE CLEANING COLLECTOR Ref. RG 16



Made from isolation material and 4 nylon cleaning brushes of 0.5 mm with stainless steel 302 springs. It moves by means of metallic ball bearings. To avoid interchanging the phases, the collector has only one position for moving inside the housing: one side of the collector has a round anti-inverter stop.

Equipped with 2 towing chains for its fixing to the towing arm.

Maximum speed: 160m/min. In curves 90m/min.

The corresponding towing arm is ref. RG 06

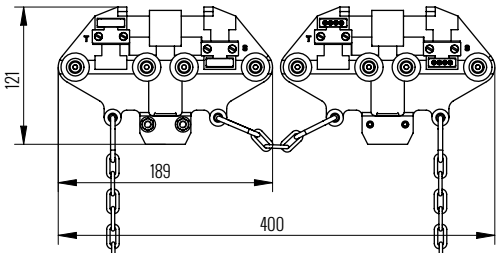
Weight: 690 g.

5-POLE CLEANING COLLECTOR Ref. RG 17

Same characteristics as cleaning collector ref. RG 16, but with 5 brushes.

Weight: 702 g.

DOUBLE CLEANING COLLECTOR 4x35 WITH JOINT Ref. RG 26



Consisting of the joint, to chain, of a current collector ref. RG 14 and a cleaning collector ref. RG16

Maximum speed: 130m/min. In curves 70m/min.

The corresponding towing arm is Ref. RG 08

Weight: 1.430 g.

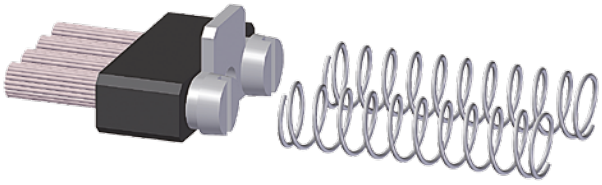
DOUBLE CLEANING COLLECTOR 4x35 WITH JOINT Ref. RG 27

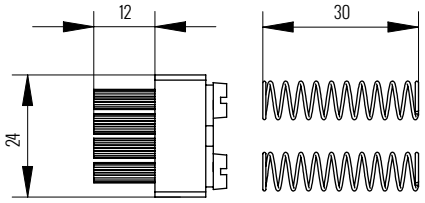
Consisting of the joint, to chain, of a current collector ref. RG 15 and a cleaning collector ref. RG17

Maximum speed: 130m/min. In curves 70m/min. The corresponding towing arm is ref. RG 08

Weight: 1.454 g.

CLEANING BRUSH Ref. RG 13

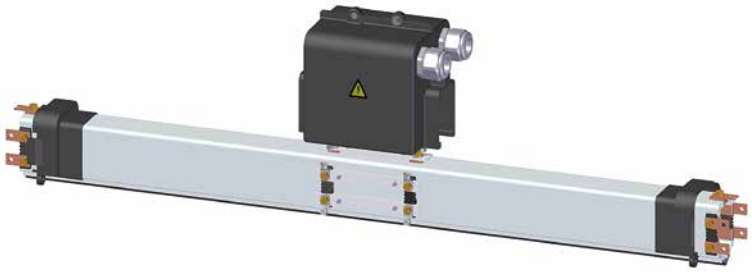


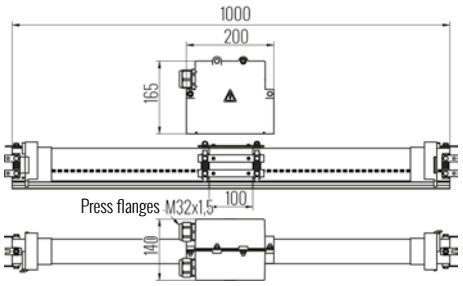


Made from 0.5 mm nylon, pressing on the conductors by means of stainless steel 302 springs. This element has to be replaced after wear. It is supplied with the springs.

Weight: 12 g.

CIRCUIT BREAKER Ref. RG 12



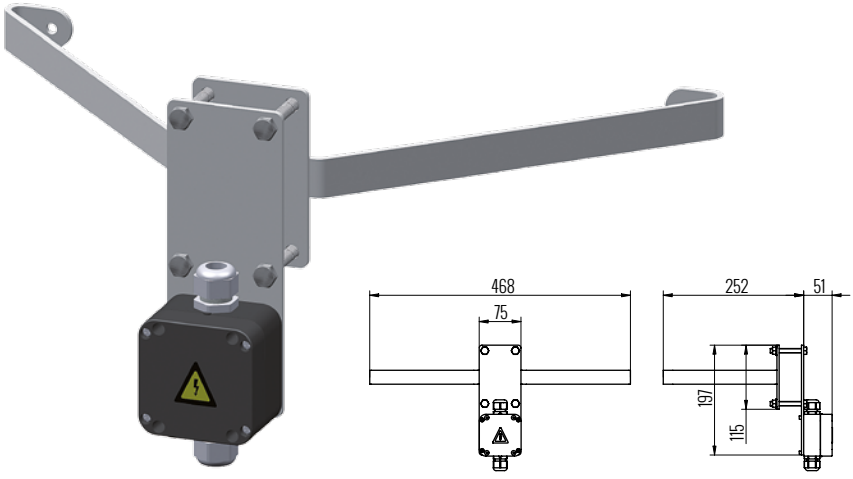


Necessary for interrupting, at will, the electricity current flow in a certain section of the line. Double collectors should be used for this type of installations. It can be assembled and connected between two modular bars. It is supplied ready for connecting to modular bars.

Total length: 1 m.

Weight: variable due to number of conductors and current (to be indicated in your order).

TOWING BAR FOR COLLECTOR 35 A + CONNECTION BOX. Ref. RG 06



In galvanized steel. Necessary for towing the collector trolley (ref. RG 14, RG15, RG16 or RG 17) for displacement along the line.

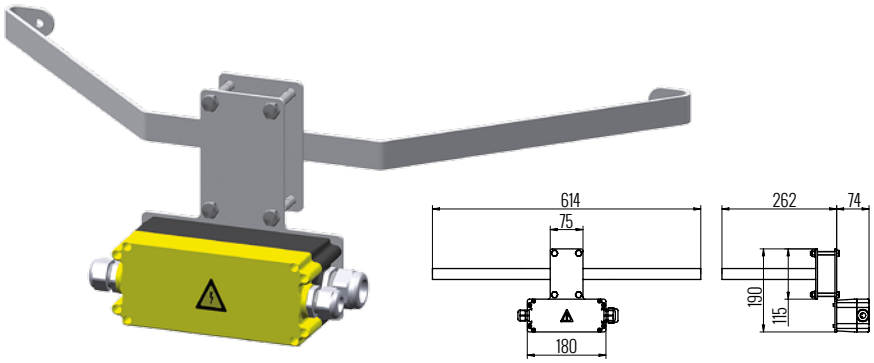
To be fitted by means of a steel plate with nuts and bolts, making sure it is centred and correctly aligned under the line.

Fitted to the current collector by means of chains, to allow horizontal and vertical deviations along the installation.

Includes a connection box with terminals and 2 glands (one inlet gland and another outlet one).

Weight: 1.600 g.

TOWING BAR FOR COLLECTOR 70 A + CONNECTION BOX. Ref. RG 08

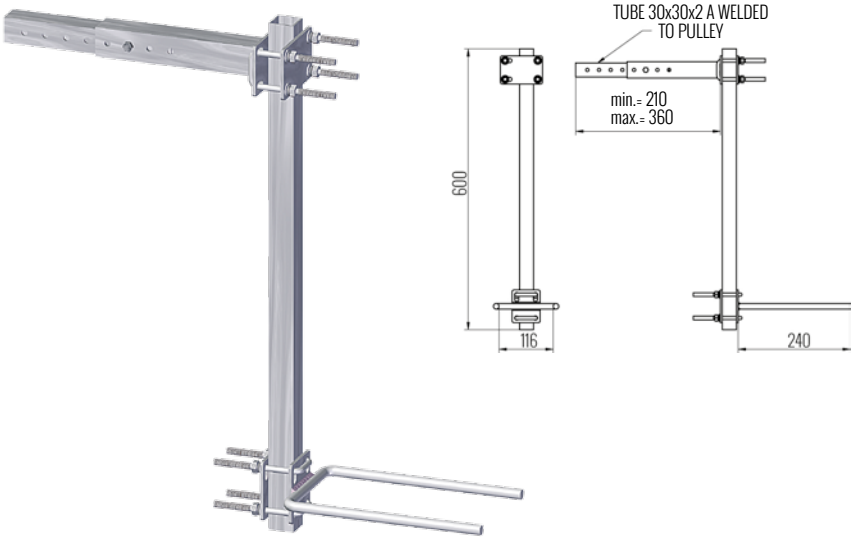


Necessary for towing the current collector (ref. RG 24, RG 25, RG26 or RG27) for its displacement along the line.

Same characteristics as the arm ref. RG 06, but longer and includes connection box with terminals for greater section and 3 glands (2 for inlet and 1 for outlet).

Weight: 2.050 g.

TOWING BAR FOR PULLEYS 35 A. Ref. RG06-POL

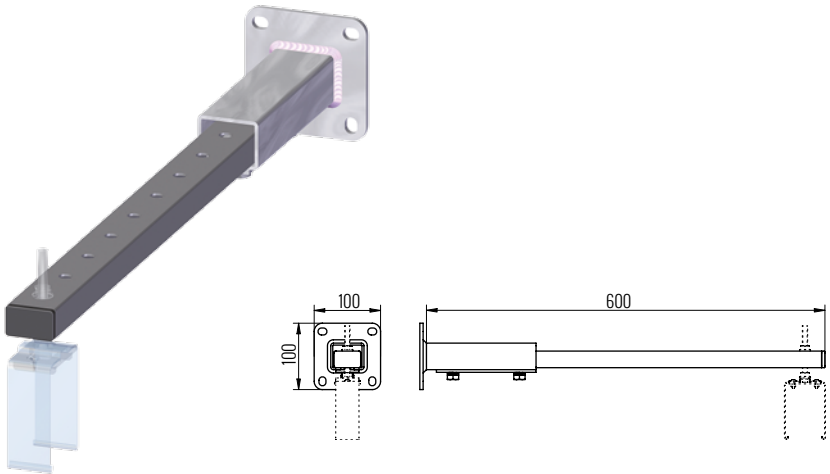


Designed to obtain both horizontal and vertical optimal regulation in a small space.

Its installation requires welding the regulation tube to one of the pulley sides (see drawing).

Weight: 3.200 g.

WALL SUPPORT. Ref. RG 20



Assembly system for wall fixing and supports for the line RG 01 and the fixed point RG 05.

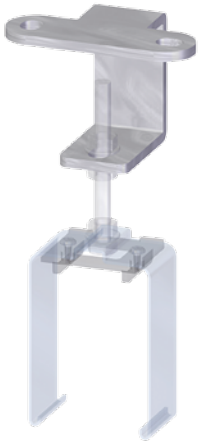
Eliminates welding and allows corrections for good supply of the system.

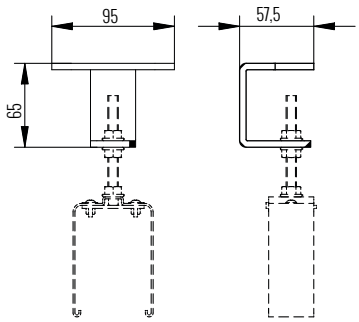
Recoverable in case of change of location or re design of the line. Galvanized steel

Standard profile length: 600 mm. (can be supplied in other lengths on demand)

Weight: 2.200 g.

CEILING SUPPORT Ref. RG 21





Assembly system for ceiling installation of the supports for the line RG 01 and the fixed point RG 05.

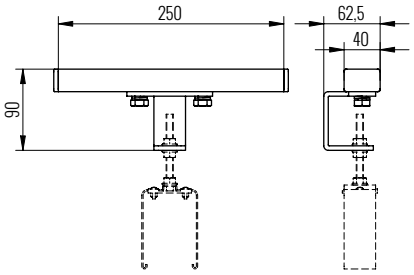
Eliminates welding.

Can be re-used in the case of displacement or re-design of the line.

Galvanized steel

Weight: 250 g.

SLIDING CEILING SUPPORT Ref. RG 23



Represents an option for assembly to install a ceil ing support for line RG 01 and fixed point RG 05.

Eliminates welding and this model allows perpendicular corrections of the line for good alignment of the system.

Recoverable in case of change of location or re-design of the line.

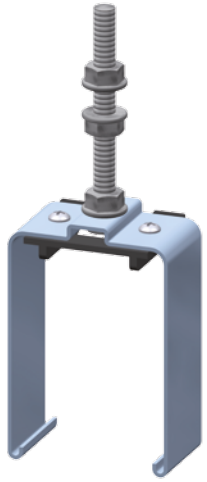
Galvanized steel

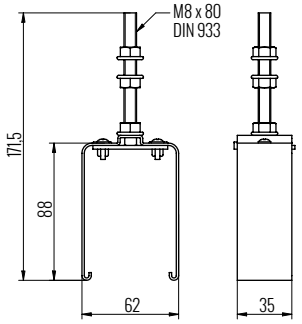
Standard profile length: 250 mm.

Weight: 850 g.

(can be supplied in other lengths on demand).

SLIDING SUPPORT Ref. RG 01





Designed to support the Conductor bars allowing their movement with expansions or contractions due to temperature.

Casing made from galvanized steel fitted with plastic cover screwed to the metal sheet to impede the bar coming out of the support.

It is supplied pre-assembled on the conductor bar.

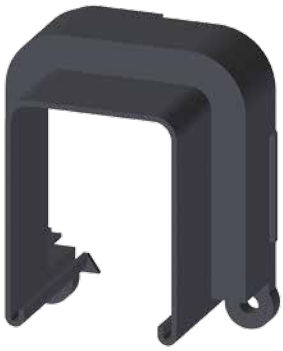
Lines of 40 A. and 60 A. assembly every 2 m. Lines of 80 A, 100 A and 140 A assembly every 1.33 m.

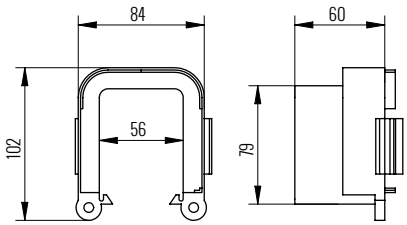
Assembly on the structure, adjustable in height, by M8 screws and nuts.

Weight: 157 g.

Available in Stainless Steel RG 01-I

HALF JOINT. Ref. RG 02-1





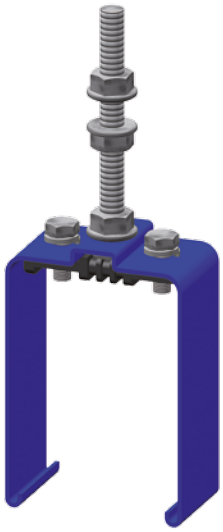
Made from isolation material to protect and isolate the copper conductor connections. Supplied pre-assembled on the bars (half-joint at each end).

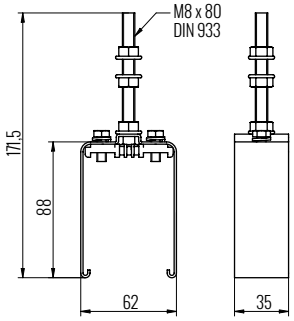
Manual joint for both halves, by pressure clips.

For special installations, and for greater safety, They can also be joined with M6 nuts and bolts (2 pieces.) at their lower part.

Weight: 117 g.

FIXED POINT Ref. RG 05





Necessary to avoid Line movement, assuring the fixing and controlling unit expansions and contractions.

Casing made from galvanized steel sheet with epoxy treatment.

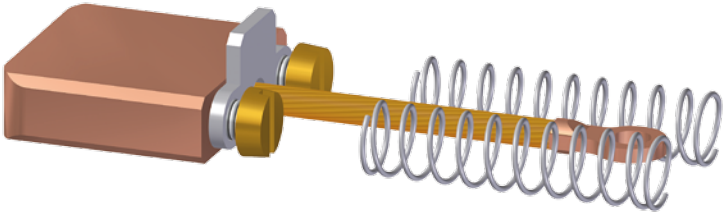
Assembly on the structure, adjustable in height, by M8 screws and nuts.

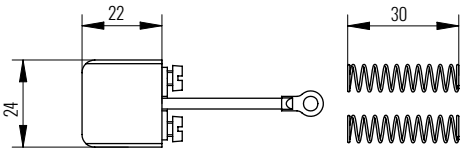
When assembling, assure its fixing to the PVC profile by tightening the M6 bolts.

Weight: 168 g.

Available in Stainless Steel RG 05-I

BRUSH Ref. RG 11





Made from graphite and copper, N 51 quality, pressed on the conductors by means of stainless steel springs.302.

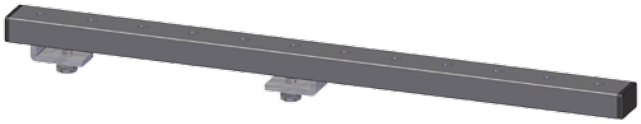
This element has to be replaced after wear.

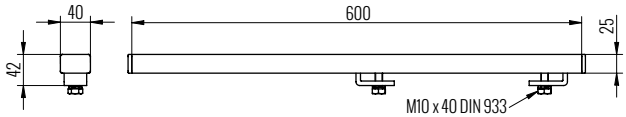
It is supplied with the springs.

Weight: 24 g.

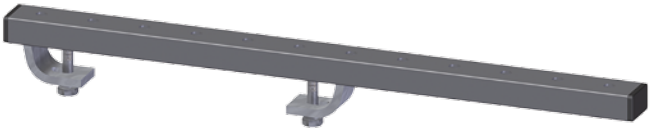
UNIVERSAL SUPPORTS

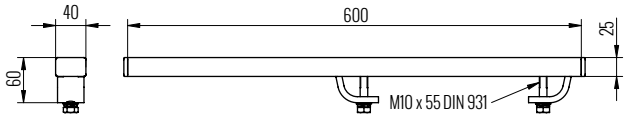
Ref. SU-600 for flange <10 mm



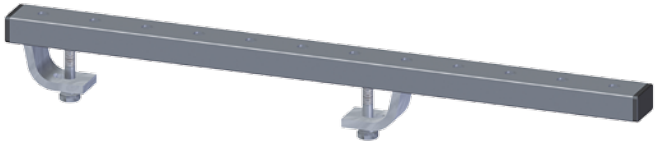


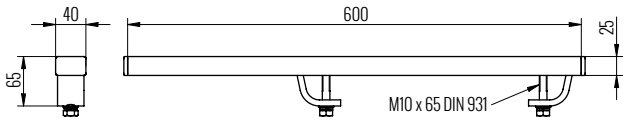
Ref. SUG-600 for flange > 10 mm





Ref. SUV-600 for flange < 40 mm





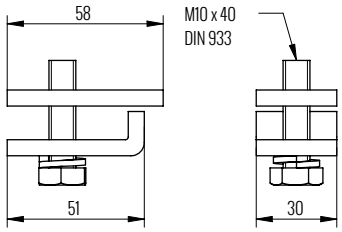
Represents an option for assembly to install the line supports RG 01 and the fixed point RG 05.
Eliminates welding and allows corrections for good system supply.
Recoverable in case of change of location or re- designing the line.
Consisting of perforated profile made from galvanized steel and 2 galvanized steel clamps for fixing with bolts, to standardized beams in these shapes: IPN, IPE, IPS, IPR, HEB, HEA or HEM.

Standard profile length: 600 mm.
(can be supplied in other lengths on demand)

Weight SU-600: 1.292 g
Weight SUG-600: 1.432 g
Weight SUV-600: 1.500 g

Available in Stainless Steel
Ref. SU-600-INOX
Ref. SUG-600-INOX
Ref. SUV-600-INOX

BEAM CLAMP FOR FLANGE > 10 mm. Ref. RG8025

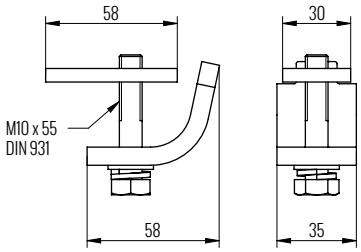


System component RG SU-600 Made from threaded sheet, curved sheet, M10 bolt and Grover washer Galvanized steel

Weight: 205 g.

Available in Stainless Steel
Ref. RG8025-INOX

BEAM CLAMP FOR FLANGE > 10 mm. Ref. RG8030

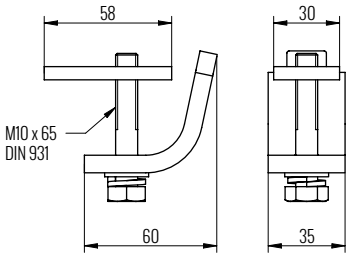


System component RG SU-600 Made from threaded sheet, curved sheet, M10 bolt and Grover washer Galvanized steel

Weight: 275 g.

Available in Stainless Steel
Ref. RG8030-INOX

BEAM CLAMP FOR FLANGE > 40 mm. Ref. RG8040

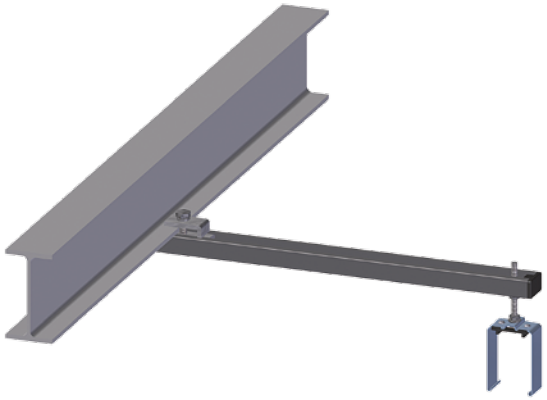


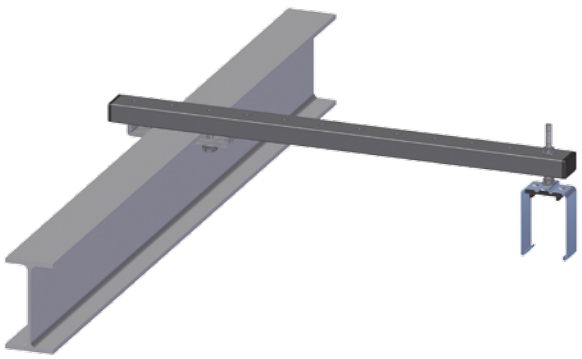
ystem component RG SUV-600 Made from threaded sheet, curved sheet, M10 bolt and Grover washer Galvanized steel

Weight: 304 g

Available in Stainless Steel
Ref. RG8040-INOX

UNIVERSAL SUPPORT ASSEMBLY





1 Prepare the universal supports (or any other type), pre-assembling its components before the definite installation (Photo 1)

2 Installation of these universal supports on the line beam, assuring the distance between them according to the assembly drawing corresponding to each amperage (Photos 2 and 3).

- for 25 A, 40 A. and 60 A. every 2 m.
- for 80 A, 100 A. and 140 A. every 1.33 m.

and for the fixed point, or non-sliding support, RG 05 next to the line supply (Photos 3 and 4)

3 Position the conductor bars screwing the sliding supports RG01 to the universal supports. Make sure you place all the bars in the same position, that is to say, the Earthing contact marked on the PVC profile, and the "RG" sticker should be located **ALWAYS ON THE SAME SIDE** (Photos 4 and 5). The internal design of the PVC profile is asymmetric, that way the collector trolley only has one position for location, avoiding any possible mistakes when connecting the phases.

4 Joining 2 consecutive bars is done by connecting phase to phase the conductors, using the supplied connection plates and brass screws. (Photo 6)

5 Cover the connection, sliding the **joints RG02 (both halves)** until completely closed **(click)** using the pressure tabs (Photos 7, 8 and 9). In outdoor lines we recommend using screws at the lower of the joint.

6 The electrical supply can be made either at one end of the line, end supply, by means of connecting each of the phases (Photo 10) and then installing the closing cover (Photos 11 and 12). Or it can be made by connecting at any of the section joints along the installation, intermediate supply, and the electrical connection is done as the previous case (Photo 15).

7 Install a fixed point RG05 next to the end supply (Photos 13 and 14), or two fixed points, one at each side, in the case of intermediate supply (Photo 15). The distance for installing in both cases will be approx. 300mm. Fixed points control expansions and contractions of the line.

8 Introduce in the end of the line, or using any housing joint, the collector trolley, by manually pressing the brushes, y taking into account it only has one position: The brush marked as "Earth " has to be located on the side of the PVC profile indicated with black and white stripes, and with an "RG" sticker (Photos 16 and 17).

Then close the line either using the final cover RG04 (Photo18), or the joint between housing, according to the indicated in steps 4 and 5.

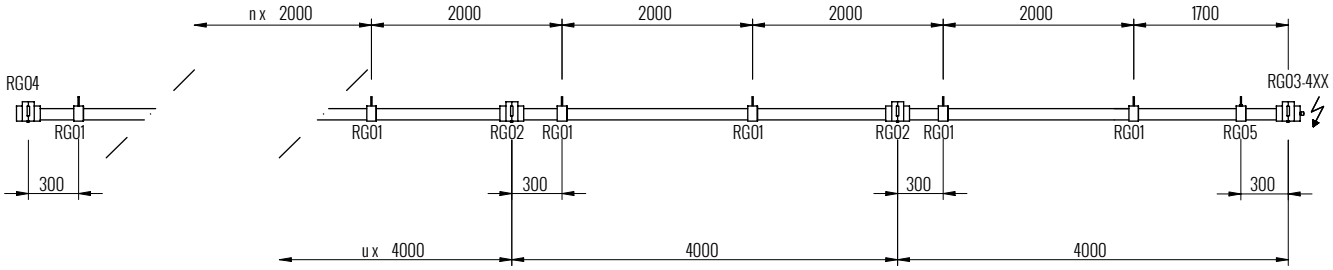
9 Install the corresponding towing arm RG06 or RG08 (Photo 19), or RG06POL (Photo 20), aligning it with the central axis of the conductor bars, and slightly lower than the collector trolley. It is very important that the pulling is parallel to the axis of the line. The collector trolley cable should be installed forming sufficient loop, to not cause any torsion of the trolley (Photos 19 and 20)

10 Before making the connection to the mains of the line manually check that the collector trolley moves freely along the installation, without any abrupt movements, paying special attention to the joints between bars.

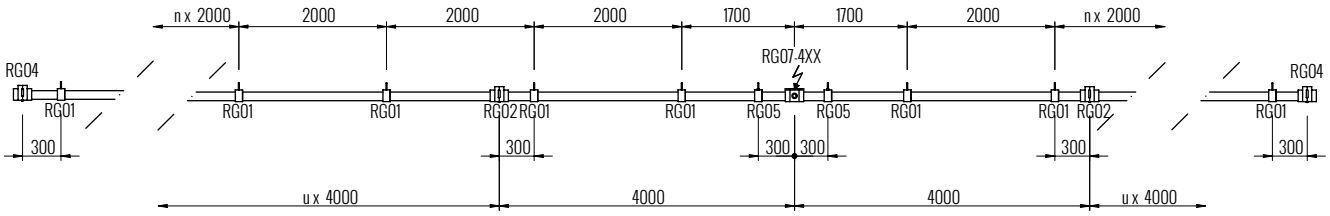
11 Make the connection to the mains, and check that the installation works correctly.

FOR LINES 25 A, 40 A and 60 A (supports every 2 m.)

With end supply

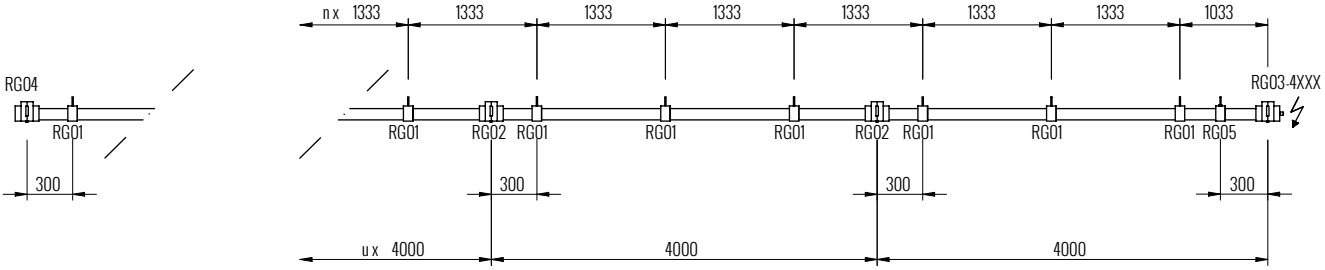


With intermediate supply

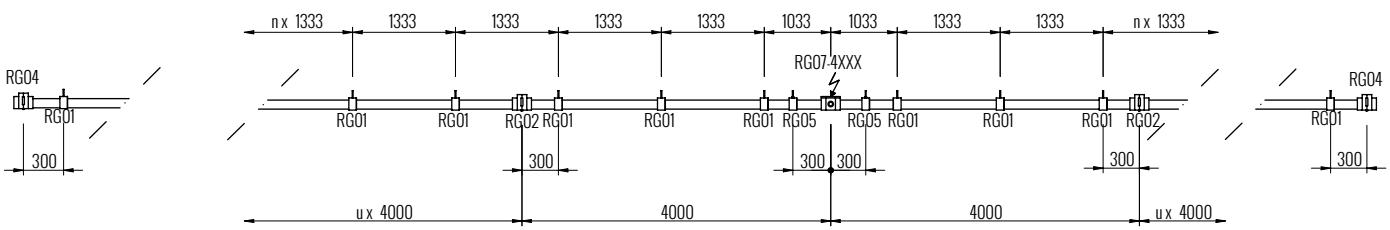


FOR LINES 80 A, 100 A and 140 A (supports every 1.33 m.)

With end supply



With intermediate supply



QUESTIONNAIRE FOR COLLECTING DATA FOR PREPARING THE OFFER

Company: ..... **Contact person:** .....

Tel: .....

E-mail: ..... **Date:** .....

1º Number of machines to be supplied:

2º Length (m):

3º Voltage (V) and Frequency (Hz):

4º Necessary Conductors:

☐ Single phase ☐ 3+T ☐ 3+T+N ☐ Others

5º Environmental Temperature (ºC)

Minimum: Maximum:

6º Type of installation:

☐ Indoors ☐ Outdoors ☐ Mixed

7º Special operational conditions:

☐ Humidity ☐ Chemical agents (indicate which):

☐ High dust levels ☐ Others (Indicate):

8º Line power supply:

☐ End ☐ Intermediate ☐ Multiple

9º Operational speed (m/min):

10º Line assembly layout:

Double T (Indicate type and size):

Others (send diagram):

11º Do you need our universal supports to avoid welding?

☐ Yes ☐ No

12º Maximum voltage drop admitted over nominal voltage (%):

13º Consumption of the motors to be supplied (Complete the table):

MOTORS	CRANE Nº1				CRANE Nº2				CRANE Nº3			
	Kw	Nominal consumption	Starting consumption	Motor type*	Kw	Nominal consumption	Starting consumption	Motor type*	Kw	Nominal consumption	Starting consumption	Motor type*
Elevation												
Bridge movement												
Trolley movement												
Others												

Motor type:

J = Motor in squirrel cage.
A = Motor in rubbing rings.
V = Motor in frequency converter.
X = Others.

SEND THE FINISHED QUESTIONNAIRE TO: ventas@gasori.com

RG

gasori

Pol. Ind. de Anguciana
C/ La Loma nº 2
TEL. +34 941 320 343 - FAX +34 941 302 702
26210 Anguciana - LA RIOJA (ESPAÑA)
http://www.gasori.com
E-mail: rg@gasori.com