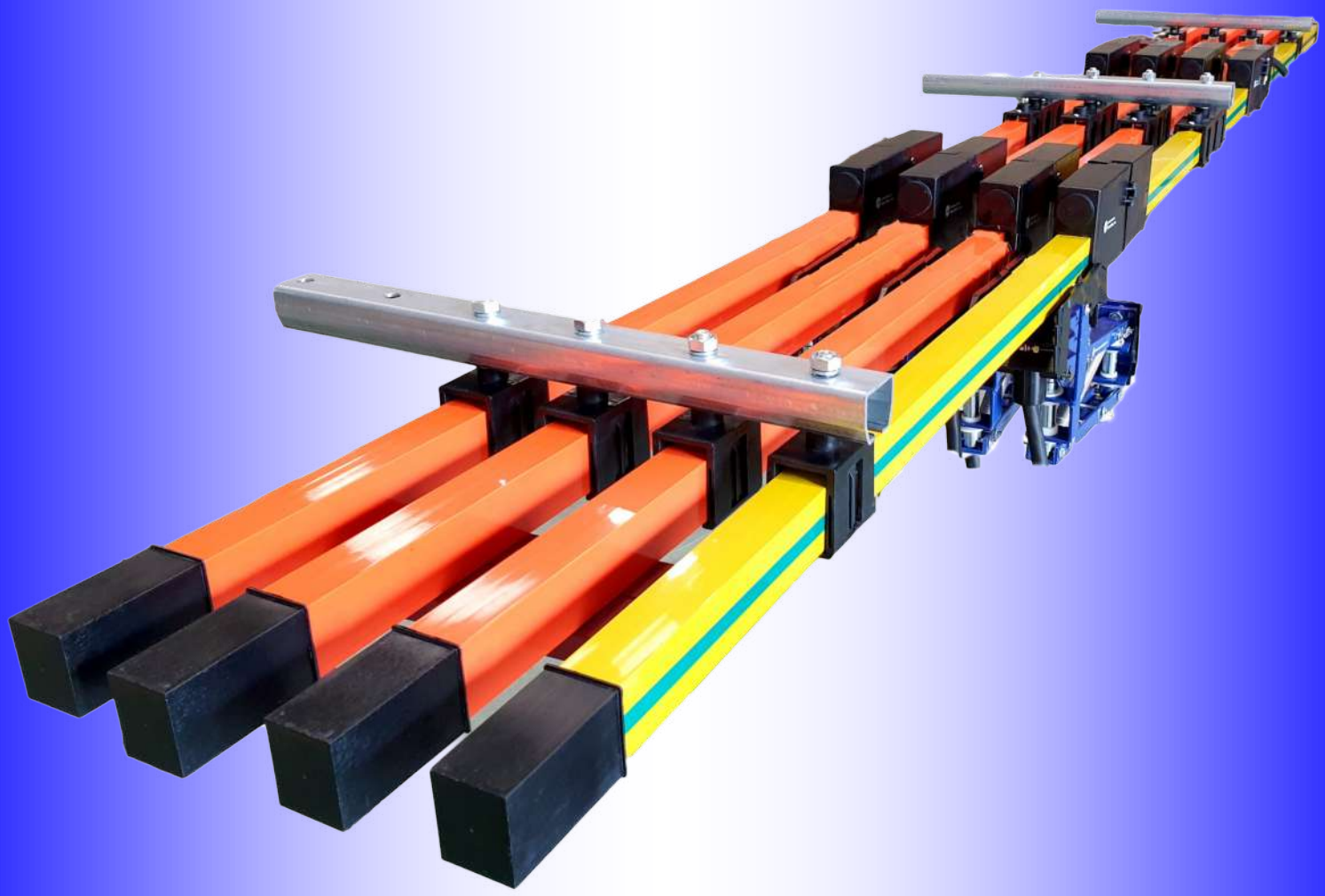
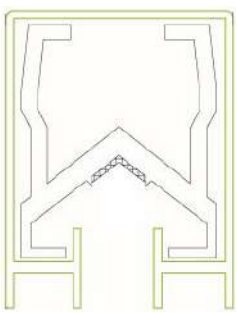
Industrias
GALARZA, S.A.®
Leaders in electrical conductivity since 1958

CATALOGUE 2020



PVC HOUSING	DESCRIPTION	SERIES
	PVC INSULATED UNIPOLE CONDUCTOR SYSTEM FOR MOBILE POWER FEEDING	UP

GENERAL SALES CONDITIONS, SUPPLY AND WARRANTY

Generalities

The supply of the products contained in this catalogue is subject to the conformity of the tariff in force at the moment and the terms contained in these General Conditions of Sale and Guarantees.

Orders and prices

All orders received by IGA will be confirmed via fax or email. If in the following 24 hours IGA does not receive any claim, they will be considered definitive. IGA reserves the right to accept or reject any order.

Codes

The codes indicated in this catalogue are the standard products of IGA.

Delivery time

If for reasons beyond our control we can not fulfill this service commitment, IGA will inform the customer of the new term within a maximum of 48 hours after the reception of the order.
The rest of references will be served in the shortest period of time possible and may make partial deliveries.
Orders received that have a delivery time less than 72 hours, will follow the procedure described above.
The breach of the previous commitment or a fractioned issue will not be grounds for compensation.

Transport

Our products are considered expired in our warehouse and the date of issue is shown on the delivery note.
The goods travels at the addressee expense and risk, even if they are sent prepaid.
In the case of lack of packages or visible damages due to transportation, the addressee must write it down on the delivery note, claim the carrier and inform the commercial department of IGA within 48 hours. Otherwise, it will be considered the conformity of the goods in quantity and condition . Claims for delays in transportation will not be accepted.

After 8 days from receipt of the goods, no claims will be accepted about the contents of the boxes.

Refunds

The products invoiced by IGA are considered a firm sale and has no right to refund.
In case of an error in the execution of the order, the following shall be taken into account:
-The change must be authorized by the commercial direction of IGA. The warehouse of IGA will not accept any product without authorization.
-The accepted material will have a 20% reduction of its value for verification expenses.
-The goods returned to IGA travel at the client's risk.

Installations

IGA is exempted from any responsibility in the installations that do not comply with the advice or with the specifications and features of each range of product.

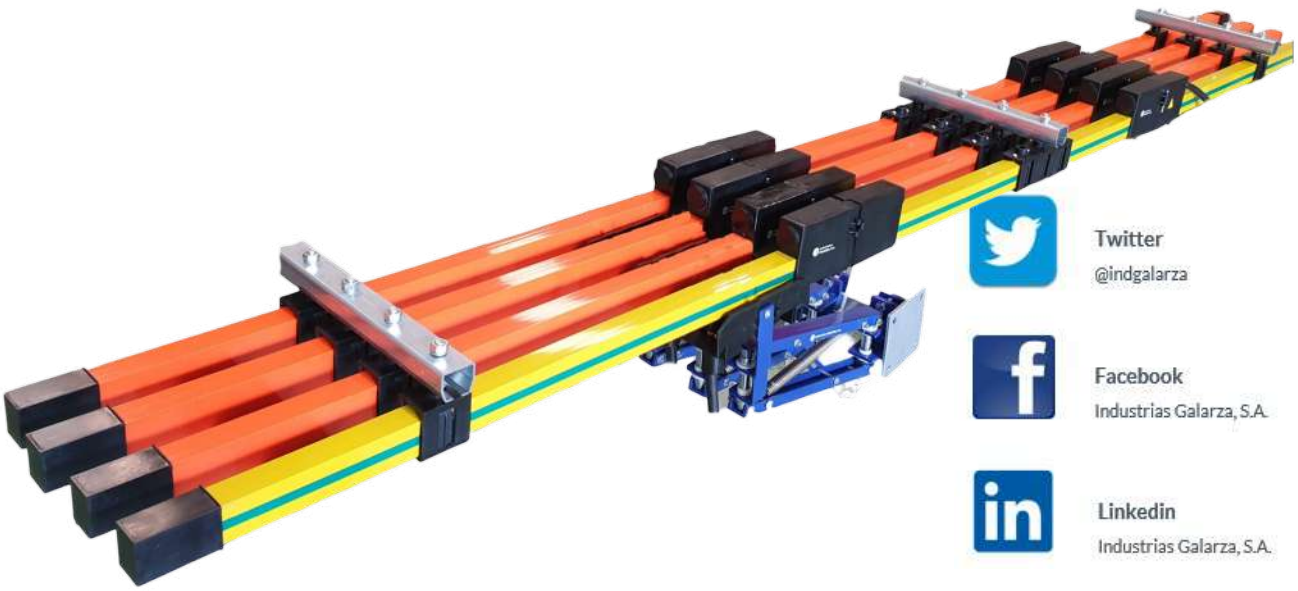
Warranty

IGA range of products has a 2 year warranty. The acknowledgment of the responsibility in warranty corresponds only to IGA and / or to its insurance company. Any other defect caused by aging, corrosion, improper installation or improper application, will not be subject to possible claims.

Jurisdiction

IGA will try to resolve any divergence with his clients through friendly channels. Having said that, in case of litigation, the parties agree and are obliged to submit to the arbitration appointed by the Court of the Arbitration Association of Bilbao, which will be responsible for the administration of the aforementioned arbitration in accordance with its Statute and Regulations. Likewise, they are obliged from now on to comply with the arbitral report that is issued.

IGA reserves the modification of the articles without previous notice.



MODULAR CONDUCTOR SYSTEM UP

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CERTIFICATIONS

Certificate of Protection **IP 23.**

Manufactured under the requirements stablished in the standards:
2006/95/EC (LVD Directive) and 2004/108/EC (EMC Directive).

tecnalia Inspiring Business

Test Report

No B24-19-BJ-01E

Tests marked with * are not covered by ENAC accreditation

Dielectric verification, Protection Degree IP23, Glow Wire test and Ball Pressure test

TEST OBJECT	Insulated Unipole Conductor System
DESIGNATION	Insulated Unipole Conductor System UP from 300 to 1250 A
MANUFACTURER	Industrias Galarza
APPLICANT	Industrias Galarza
	P.I. Bildosola, Pab. D-4, 48142 Artea, Bizkaia
STANDARD	IEC 61439-6; IEC 60695-10-2; IEC 60695-2-11; IEC 60529
RECEPTION DATE	May 17th, 2019
TEST DATE	June 19th to November 19th 2019
ISSUE DATE	January 17th, 2020

Test Chief	Head of Electrical Equipment Laboratory
Josu Escolástico	Luis Martínez

APPLICATIONS AND FEATURES

Generalities

The UP conductor rail system is a modern power supply system using single-pole insulated conductor rails.

It provides the electric energy for mobile machinery with application for bridge cranes, steel mill cranes, process cranes and similar.

The conductor rail material is aluminum in 6063 alloy (from 300Amp to 1250Amp) with an stainless steel contact strip which allows a lower wear off for the conductor.

The conductors can be installed both vertically and horizontally, always keeping the groove in the lower part. The travelling can be rectilinear or curved.

Bar length: 4 meters, although other measures can be manufactured under customer demand.

Service temperatures from –20ºC to +70ºC.

Max voltage: (690V (380V)).

Max. travelling speed: 600m/min.

The entire conductor rail system is insulated and according to current Safety Regulations, it is entirely protected against direct finger contact. Protection degree: IP23.

Ground insulation: cover is yellow with one green strip on the side over the entire length of the rail. It should not be used as conductor rail for phase.

The expansion joint is necessary for installations longer than 200 meters. Changes in length due to thermal expansion (ambient temperature and conductor heating when using) can be absorbed taking into account the difference in length for the conductor rail and for the PVC housing, which is shorter. The joint cover avoids any undesirable contact against the conductor rail.

Type -R: curves for R≥1200mm.

During the assembly process, the connection pieces between conductor rails should have a cleaning treatment (degreasing, debarring), in order to improve the effect of the use of the conductor bar.

The top of the cross section of the conductor rail, where the rail joint is clamped, is slightly larger. The contact surface is more effective which improves the conductive area, reduces the impedance and reduces the joint temperature to prevent excessive heating.

V-shaped connecting plate gives a large contact surface and the lateral gap tolerance is small between different conductor rails, which improves the carbon brushes wear off when going through the joining areas, reducing the appearance of sparks and increasing the normal life of the conductor rails.

APPLICATIONS AND FEATURES

Components

Feed sets

Line feeds (any joints) or end feeds.

End caps

The open ends of the conductor are closed by end caps.

Sliding hangers

Standard distance between suspension points are 1.500 mm or 1.800 mm, according to rail model.

Expansion joints

The expansion sections are required to compensate the different expansions between copper conductors and steel or concrete structures, in varying temperature as without interrupting electrical power.

Expansion joints are used when the power rail has curves or when the length is exceeding 200m.

Isolating sections

Isolating sections are required to switch off some parts of the travelling length, in order to make maintenance or reparation works without electric shock hazard.
Double current collectors should be used to avoid contact loosening when going across the sectioned area. As the doubled current collector could serve as electric bridge between sectioned tracks, another suplementary isolating point should be mounted in the next joint.

Current collectors

Spring operated current collectors maintain uniform contact against the conductor rail and they are manufactured of:

- Structure in aluminium with blue epoxi coat.
- Brush holder in reinforced nylon.
- Carbon brushes in metallographite.

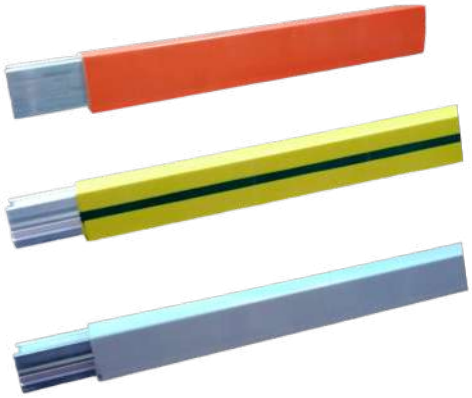
Earth current collectors are identified with yellow paint.

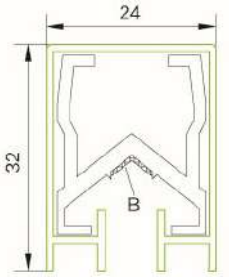
MODULAR CONDUCTOR SYSTEM UP

COMPONENTS

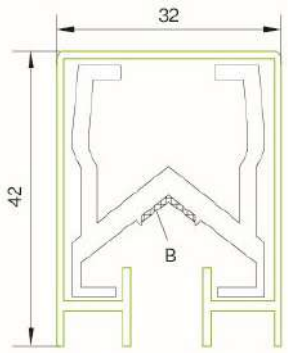
PVC HOUSING

- Two sizes: UP-1 (32x24mm) and UP-2 (42x32mm).
- Phase pole:
  - Standard (from –20 to + 70ºC): orange color RAL 2004.
  - Extreme conditions (from –40 to + 85ºC): grey color RAL 7035.
- Earth pole: yellow color RAL1021 with a green strip at the side.
- Dielectric strength: 30-40 Kv/mm.
- Flame retardant: class B1—no flaming particles, self-extinguishing.





UP-1



UP-2

CONDUCTORS

The aluminum conductor rail is manufactured in 6063 alloy and provided with and stainless steel AISI304 contact strip (B) which combines the high conductivity with the good wear off resistance.

REF.	CODE	TYPE	CROSS SECTION (mm^2)	NOMINAL CURRENT AT 100% AND 35ºC (Amp)	RESISTANCE (Ω/km)	STEEL STRIP WIDTH B (mm)	DISTANCE BETWEEN SUPPORTING POINTS (mm)	DISTANCE BETWEEN CONDUCTORS (mm)	WEIGHT (Kg/m)
UPP-1-300	214001	Phase	180	**300**	0,187	8,5	1500	80	0,71
UPE-1-300	214002	Earth							
UPG-1-300	214003	Grey							
UPP-2-500	214004	Phase	285	**500**	0,116	9,8	1800	80	1,13
UPE-2-500	214005	Earth							
UPG-2-500	214006	Grey							
UPP-2-800	214007	Phase	420	**800**	0,067	9,8	1800	80	1,50
UPE-2-800	214008	Earth							
UPG-2-800	214009	Grey							
UPP-2-1250	214010	Phase	600	**1250**	0,046	9,8	1800	80	2,01
UPE-2-1250	214011	Earth							
UPG-2-1250	214012	Grey							

If duty cycle or/and working temperature are lower than the indicated, higher current is allowed on the rail.

MODULAR CONDUCTOR SYSTEM UP

COMPONENTS

RAIL JOINT

Snap–in joint splices provide mechanical end electrical continuity.

REFERENCE	CODE	MATERIAL		SCREWS	WEIGHT
		Body	Screws	SIZE	
RJ-1-300	214013	Aluminium	Zinc plated steel	M8	0,150 Kg
RJ-2-500	214014	Aluminium	Zinc plated steel	M10	0,320 Kg
RJ-2-800	214015	Aluminium	Zinc plated steel	M10	0,400 Kg
RJ-2-1250	214016	Aluminuum	Zinc plated steel	M10	0,820 Kg

JOINT CAP

Cap avoids any accidental contact with the electric conductor rail.

REFERENCE	CODE	MATERIAL	WEIGHT
JC-1	214017	Polyamide 6	0,120 Kg
JC-2	214018	Polyamide 6	0,210 Kg

SLIDING HANGER FOR STEEL PLATE OR STEEL ANGLE

The sliding hanger is assembled on an steel plate or angle which is welded to thei beam.

REFERENCE	CODE	MATERIAL		SCREW	WEIGHT
		Body	Screws	SIZE	
SH-1-S	214019	Polyamide 6	Zinc plated steel	M8x35	0,050 Kg
SH-2-S	214020	Polyamide 6	Zinc plated steel	M10x40	0,075 Kg

SLIDING HANGER WITH SQUARE NUT FOR C-PROFILE

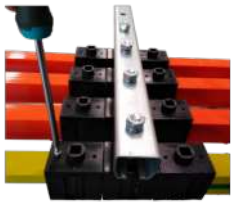
The sliding hanger is assembled on an steel C-profile 40x35mm which would be clamped to thei beam.

REFERENCE	CODE	MATERIAL		SCREWS	WEIGHT
		Body	Screws	SIZE	
SH-1-L	214021	Polyamide 6	Zinc plated steel	M8	0,075 Kg
SH-2-L	214022	Polyamide 6	Zinc plated steel	M10	0,100 Kg

MODULAR CONDUCTOR SYSTEM UP

COMPONENTS

ANCHOR CLAMP



REFERENCE	CODE	MATERIAL		WEIGHT
		Body	Screws	
AC-1	214023	Polyamide 6	Zinc plated steel	0,060 Kg
AC-2	214024	Polyamide 6	Zinc plated steel	0,080 Kg

FEED BOX

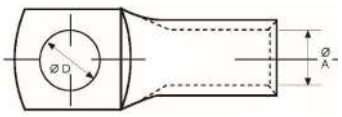
REFERENCE	CODE	MATERIAL	WEIGHT
FB-1	214025	Polyamide 6	0,150 Kg
FB-2	214026	Polyamide 6	0,240 Kg

Feed box can be installed on any rail joint.
Connection cables must go into the box by both sides.

CABLE LUG

Use two cable lugs for each feeding point.

Tin plated copper.



REFERENCE	CODE	Approx. Max. Amperage (Amp)	Fixing bolt size (D)	Diam. (A mm)	Cable size (mm^2)	Weight (Kg/pc)
CL-70-80	214027	120	M8	7,0	1x25	0,014
CL-80-80	214028	150	M8	8,0	1x35	0,022
CL-90-80	214029	200	M8	9,0	1x50	0,032
CL-115-100	214030	250	M10	11,5	1x70	0,047
CL-120-100	214031	300	M10	12,0	1x95	0,059
CL-155-100	214032	350	M10	15,5	1x120	0,067
CL-170-100	214033	400	M10	17,0	1x150	0,080
CL-185-120	214034	450	M12	18,5	1x185	0,115
CL-210-120	214035	500	M12	21,0	1x240	0,150

END CAP

End cap avoids any accidental contact with the electric conductor rail at both sides of the line.

REFERENCE	CODE	MATERIAL	WEIGHT
EC-1	214036	Polyamide 6	0,020 Kg
EC-2	214037	Polyamide 6	0,040 Kg

COMPONENTS

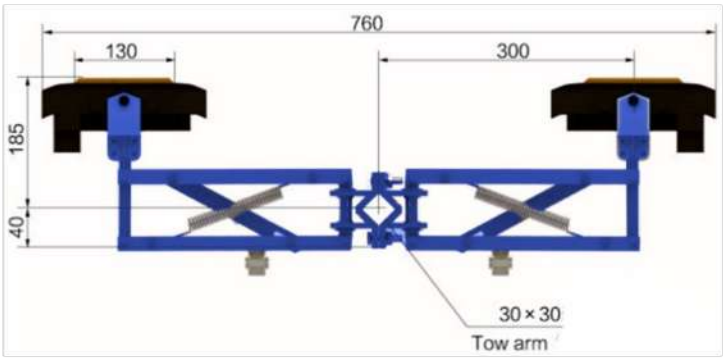
CURRENT COLLECTORS

Each current collector includes:
- Insulated brush support.
- Carbon brushes in metallographite quality (See SPARE PARTS section).
- Springs in stainless Steel AISI302.

POWER CURRENT COLLECTOR FOR LINE UP-1 (200 and 400 amperes)

CCP-1-200

CCP-1-400



CCE-1-200

CCE-1-400

Current collectors for earth pole are separately supplied and identified with yellow color painted plates.

REFERENCE	TYPE	CODE	MATERIAL		NOMINAL	CARBON	PRESSSING	LATERAL	WEIGHT
			Structure	Screws	CURRENT	BRUSH	FORCE	DEVIATION	
CCP-1-200	Phase	214038	Aluminium	Zinc plated steel	200Amp	Single	28N	±100mm	1,180 Kg
CCE-1-200	Earth	214039							
CCP-1-400	Phase	214040	Aluminium	Zinc plated steel	400Amp	Double	2 x 28N	±100mm	2,250 Kg
CCE-1-400	Earth	214041							

TOWING ARM FOR CC-1

□30x400mm

REFERENCE	CODE	MATERIAL	WEIGHT
TA-1-30	214042	Zinc plated steel	2,25 Kg

MODULAR CONDUCTOR SYSTEM UP

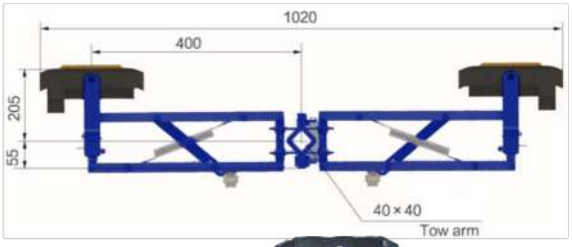
COMPONENTS

CURRENT COLLECTOR FOR LINE UP-2 (400 and 800 amperes)

CCP-2-400

CCE-2-400

CCP-2-800



CCE-2-800

Current collectors for earth pole are separately supplied and identified with yellow color painted plates.

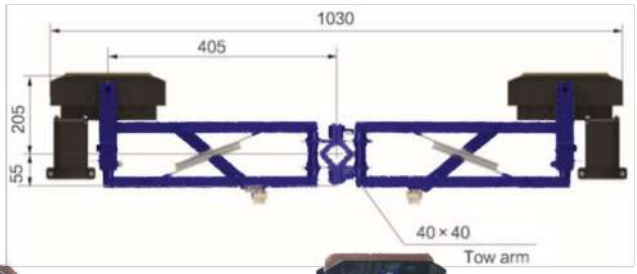
REFERENCE	TYPE	CODE	MATERIAL		NOMINAL	CARBON	PRESSSING	LATERAL	WEIGHT
			Structure	Screws	CURRENT	BRUSH	FORCE	DEVIATION	
CCP-2-400	Phase	214043	Aluminium	Zinc plated steel	400Amp	Single	32N	±100mm	2,350 Kg
CCE-2-400	Earth	214044							
CCP-2-800	Phase	214045	Aluminium	Zinc plated steel	800Amp	Double	2 x 32N	±100mm	4,610 Kg
CCE-2-800	Earth	214046							

CURRENT COLLECTOR FOR LINE UP-2 (500 and 1.000 amperes)

CCP-2-500

CCE-2-500

CCP-2-1000



CCE-2-1000

Current collectors for earth pole are separately supplied and identified with yellow color painted plates.

REFERENCE	TYPE	CODE	MATERIAL		NOMINAL	CARBON	PRESSSING	LATERAL	WEIGHT
			Structure	Screws	CURRENT	BRUSH	FORCE	DEVIATION	
CCP-2-500	Phase	214047	Aluminium	Zinc plated steel	500Amp	Single	36N	±100mm	3,050 Kg
CCE-2-500	Earth	214048							
CCP-2-1000	Phase	214049	Aluminium	Zinc plated steel	1000Amp	Double	2 x 36N	±100mm	6,010 Kg
CCE-2-1000	Earth	214050							

TOWING ARM FOR CC-2

□40x400mm

REFERENCE	CODE	MATERIAL	WEIGHT
TA-2-40	214051	Zinc plated steel	1,000 Kg

AUXILIARY COMPONENTS

EXPANSION JOINT

Installations with length ≥ 200m requires expansion joints to avoid the expansion of the tracks due to temperature increases.
Each expansion joints absorb 50mm of expansion and it should be mounted between two UP modular lines. It requires two pieces of joint covers, which are included.
Double current collectors are also required when using expansion joints on the track.

REFERENCE	CODE	MATERIAL		SCREW SIZE	WEIGHT
		Body	Screws		
EJ-1	214052	Aluminium Brass	Zinc plated steel	M8x35	1,000 Kg
EJ-2	214053	Aluminium Brass	Zinc plated steel	M10x35	3,230 Kg

For longer installations than shown in this chart, number of expansión joints are:

n= (L - 200)/a

Number of expansión joints (n)	1	2	3	4	5	Intermediate length (a)
Total length of conductor rail (m)						
ΔtºC						
10	400	600	800	1000	1200	200
20	387	575	762	950	1138	187
30	325	450	575	700	825	125
40	293	387	481	575	669	93
50	275	350	425	500	575	75
60	262	325	387	450	512	62
70	253	307	360	414	468	53
80	247	294	340	387	434	47
90	242	283	325	366	408	42
100	237	275	312	350	387	37

ΔtºC = Δta + Δth

Δta: ambient temperature range (ºC)
Δth: temperatura raise due to current heating (ºC)

Duty cycle	Δth (ºC)
40%	10
60%	20
100%	30

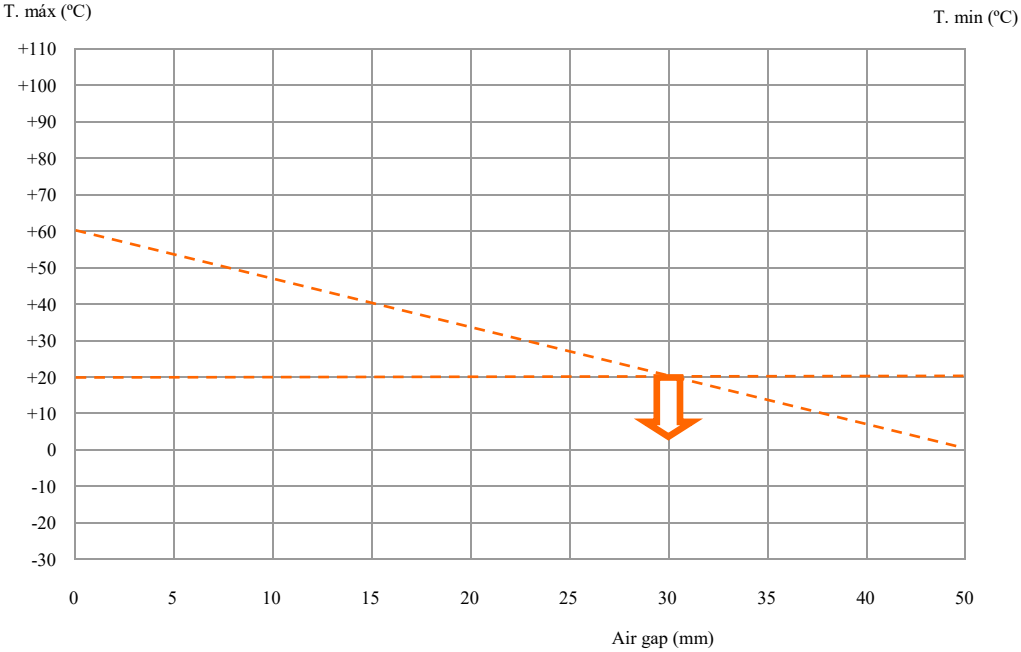
Max.T: Highest operational temperature in the application área.

Min.T= Lowest operational temperature in the application área.

T: Ambient temperature when assembly.

The air gaps must be re-checked after fitting the fixed point clamps.
Both air gaps in an expansión joint must be identical.

Example:
Max. T= +60ºC.
Min. T= 0ºC.
Assembly temperature= 20ºC.
Air gap when assembly: 30mm.



MODULAR CONDUCTOR SYSTEM UP

AUXILIARY COMPONENTS

ISOLATION SECTION

- Designed to interrupt the flow of electric current in a determined section of the system.
- The use of double current collector is required to allow electrical current to flow along the sectioned area.
- Each isolation section requires one piece of joint cover JC (not included - order separately).

REFERENCE	CODE	MATERIAL		SCREW SIZE	WEIGHT
		Body	Screws		
IP-1	214054	Polyamide 6	Zinc plated steel	M8x35	0,070 Kg
IP-2	214055	Polyamide 6	Zinc plated steel	M10x35	0,130 Kg

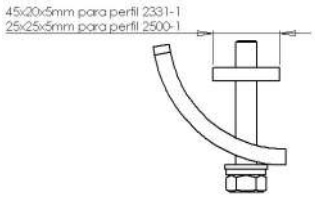
SUPPORT ARM

2500-1(600mm)

D-2500-1(600mm)
(Holes every 80mm)

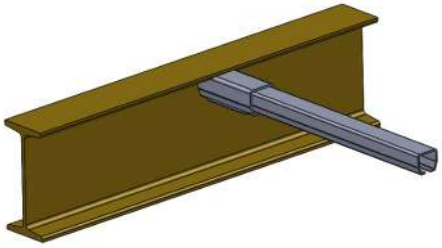
REFERENCE	CODE	MATERIAL	HOLE SIZE	WEIGHT
2500-1(600mm)	805220	Zinc plated steel	- - -	1,302 Kg
D-2500-1(600mm)	805221	Zinc plated steel	Ø10,5mm	1,250 Kg

BEAM CLIP



REFERENCE	CODE	MATERIAL	WEIGHT
2340-12-500	309006	Zinc plated steel	0,156 Kg

WELD-ON BRACKET FOR SUPPORT ARM



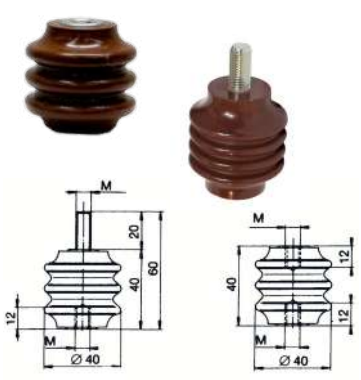
REFERENCE	CODE	MATERIAL	WEIGHT
2600-120	310011	Steel	0,156 Kg

(Support arm not included—Order separately).

MODULAR CONDUCTOR SYSTEM UP

AUXILIARY COMPONENTS

INSULATORS

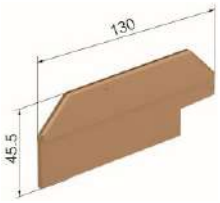


- Manufactured in resin of polyester, reinforced with fiber of glass (color RAL8012).
- Screws and nuts: zinc plated steel.

REFERENCE	CODE	INSERTIONS		SCREW SIZE	WEIGHT
		Top	Bottom		
240-HH	102038	Female	Female	M8	0,100 Kg
240-MH	102039	Male	Female	M8	0,110 Kg
240-HH(M10)	102063	Female	Female	M10	0,100 Kg
240-MH(M10	102064	Male	Female	M10	0,110 Kg

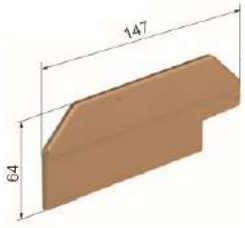
SPARE PARTS

SPARE CARBON BRUSH FOR CC-1



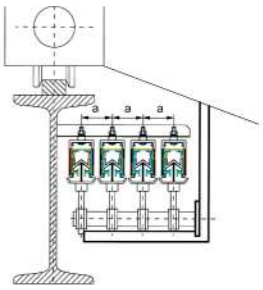
REFERENCE	CODE	MATERIAL	WEIGHT
CB-1-200	214056	Copper-Graphite	0,120 Kg

SPARE CARBON BRUSH FOR CC-2

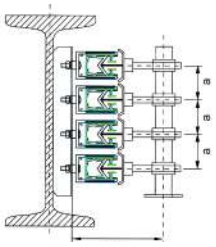


REFERENCE	CODE	MATERIAL	WEIGHT
CB-2-400	214057	Copper-Graphite	0,270 Kg
CB-2-500	214058	Copper-Graphite	0,730 Kg

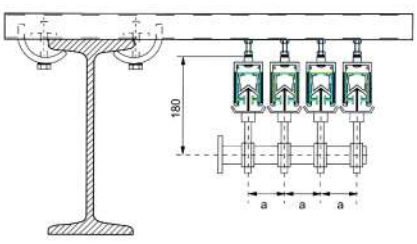
ASSEMBLY INSTRUCTIONS



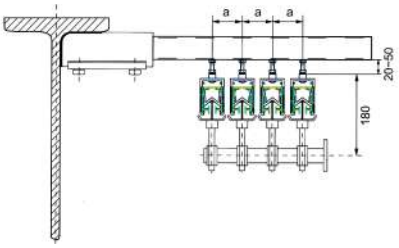
Conductor rails assembled in horizontal position.
Current collectors assembled in vertical position.



Conductor rails assembled in vertical position.
Current collectors assembled in horizontal position.



Assembled on clamped C-track support arm



Assembled with welding on C-track bracket

ASSEMBLY INSTRUCTIONS

1) SECURITY

- Disconnect the electrical current from the system before beginning any assembly operation.
- Do not use the UP conductor rail system for higher loads than the specified voltage and current.

2) INSTALLATION

The support structure for the power line must be capable of supporting the total weight of the system. Place the support points along the beam through which the hoist will move. These points should be located every 1500mm or every 1800mm depending on the type of line in question and according to previous sketch.

Maximum paralelism tolerance, in vertical and in horizontal planes, between the beam of the crane and the conductor rail should be +/- 20 mm.

2.1 SUPPORT INSTALLATION

Assemble the supporting points for the conductor rail according to the specified distance (See page 5):
Every 1.500 mm. for profiles UP-1 and every 1.800 mm. for profiles UP-2.

2.2 JOINTS INSTALLATION

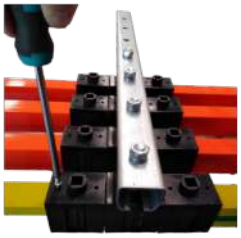
The connection part of the conductor and the connector should be polished with abrasive cloth to remove the oxide layer,apply the electrical conductive pastes and screw the bolts,

Check correct alingment of the contact piece and the minimum gap between conductor rails.
Assemble the joint covers.

2.3 FIXED POINT CLAMP INSTALLATION

Conductor rails have to be fixed, at least, in one point of the travelling length in order to direct the expansión on the right way.
For installations with travelling length ≥100m, we advise to assemble the fixed point clamps at the middle of the travelling.
Two fixed clamps should be assembled, one at each side of the fixed point.

In case the line requires expansión joints, please, contact with our Technical Department.



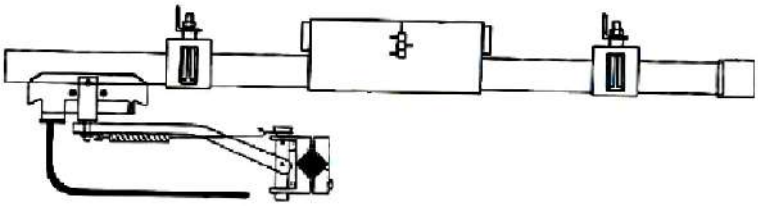
2.4 FEEDING POINT INSTALLATION

Connect electric cables at both sides using the cable lugs

Assemble the cover

2.5 CURRENT COLLECTORS INSTALLATION

Ensure the correct alignment between the carbon brush and the conductor rail.
Connection cable should be long enough to avoid any lateral force or torsion to the carbon brush.



Check the vertical distance between the conductor rail and the current collector towing arm according to pages 8 and 9.

2.6 END CAP

Install the end caps on both sides and tighten them with rubberized fabric.

3) INSPECTION

Check that the difference in parallelism between the Up conductor rail and the hoist unit does not exceed 20 mm. Make a running test to check the passsage of the brushes in the joint areas and tighten all connecting / fastening pieces again.

4) OPERATION

4.1 PREVIOUS TESTS

Carry out several travels by hand with the current collector to check that it moves throughout its length without problems. The extra-flexible cable of the current collector must be connected to the towing arm in a loop, without causing torsion of the trolley. Make the electrical connection to the line and test its insulation.

4.2. FINAL TESTS

Once the electric current is connected, check that the current collector moves forward and backward without problems. Check that the device that the UP system is powered on works correctly.

4.3 NORMAL FUNCTIONING

Do not exceed the máximum voltage and / or amperage specified for UP.
Use the UP line within its corresponding electrical and / or mechanical specifications.

5) MAINTENANCE

Perfom periodic maintenance tasks to ensure the status of the UP line. The maintenance operations will depend on the use given to the system.
During each inspection the following points should be checked:
-Wear of carbon brushes.
-Ensure screws are correctly tightened.
-Separation or alignment in the joints.
-Electric cables: cuts, cracks, etc…
-The profile must be clean in the running edges.

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AGRICULTURE

INDUSTRIAS GALARZA S.A.
P.I. Bildosola, Pab. D-4
48142 ARTEA (BIZKAIA)
SPAIN
Tel. +34 944 47 18 12
Fax. +34 944 76 42 76
E.mail: info@industriasgalarza.com
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