

Crane Rail Solution

**From rail to fixation
From standard to special**

Anyang General International Co., Ltd

An ISO Certified Crane Rail Solution Expert

Overview

Specialized in manufacturing and supplying railway materials, AGICO can provide professional rail fixing system solutions for crane rails, as well as designing, production, installation and maintenance services.

Our products can be widely used in railway lines, steel mills, ports, wharfs, shipbuilding, mining, coking, power, metallurgy, etc. industries.



What's more, we cooperate with Gantrex and Gantrail to provide the brand crane rail fixing systems which help to solve the problem of crane track damage caused by the traditional hard track fixing system and prolong the service life of the track system. We also work clients oriented for customized products.

In AGICO, you can always find a solution for your projects.

Certificate No: CEN1909200-11
Page 1 of 1

Load Test Certificate

Project: N/A

Client: Anyang General International Co., Ltd	Office: Shanghai
Client's Order Number: Q19-BW-064 Rev.0	Date: 22 November 2019
Inspection Dates: Start: 26 November 2019	Order Status: Item Complete
	Final: 27 November 2019

This certificate is issued to Anyang General International Co., Ltd at their request the undersigned surveyor did attend at Building No.26, Shengdeyishi Road, Xiqing District, Tianjin City, P.R. China for the purpose of witnessing the load test.

Global Smart Rail (Tianjin) Limited
Type: W16-115 Rail Clip
Clip Material: EN-GJ-500-7, EN 1563 Bolt Material: Grade 10.9, ISO 898-1
Design Load: 125kN
The clips was welded to a plate with a 5mm(throat) fillet weld along all edges.

The clips was bolted down onto a test rig simulating normal fixing conditions with a measured torque of 220 Nm.

- Pre Load Test. (Design Load)**
The Clips was subjected to a preload of 125kN for one minute duration as a preliminary bedding down load.
- Acceptance Test. (1.3 x Design Load)**
A test load of 162.5kN was applied in gradual stages.
- Strength Test. (1.6 x Design Load)**
The acceptance load test was increased in gradual stages to 200kN.
The Pre Load Test, Acceptance Test and Strength Test were all considered acceptable. There was no sign of mechanical damage or distortion on either the Rail Clip or the screwed fixing.
- Failure Load. (2 x Design Load)**
The strength load test was gradually increased to 250kN no failure occurred. The Rail Clip and fixing had no sign of mechanical damage or distortion.

Released by:
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 Lloyd's Register Industrial Technical Services (Shanghai) Co., Ltd.
 Member of the Lloyd's Register group.

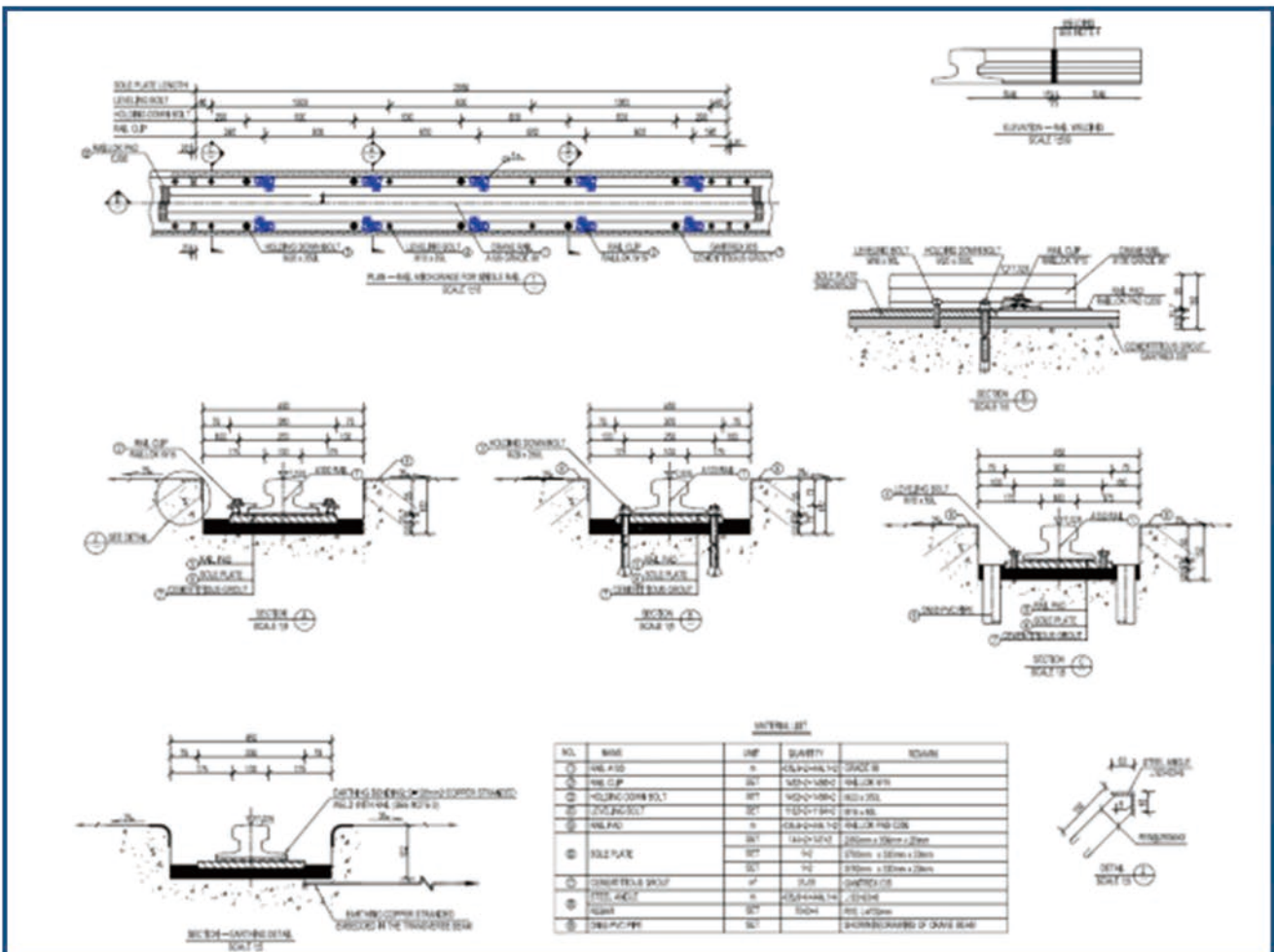
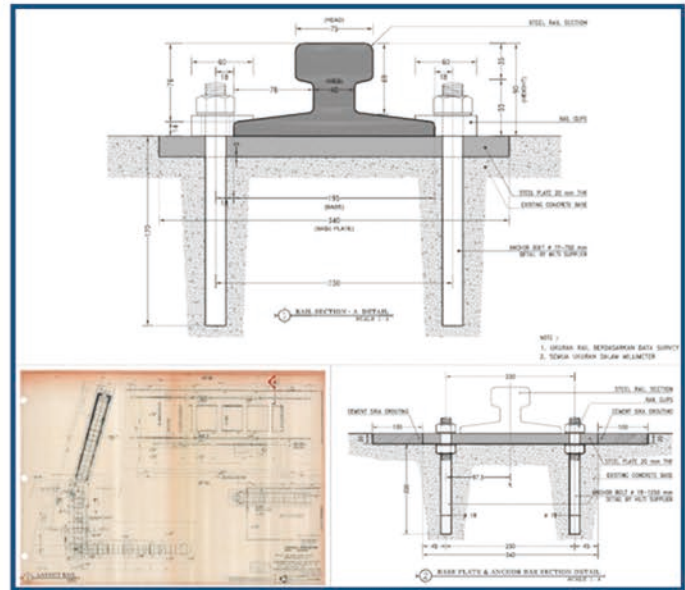
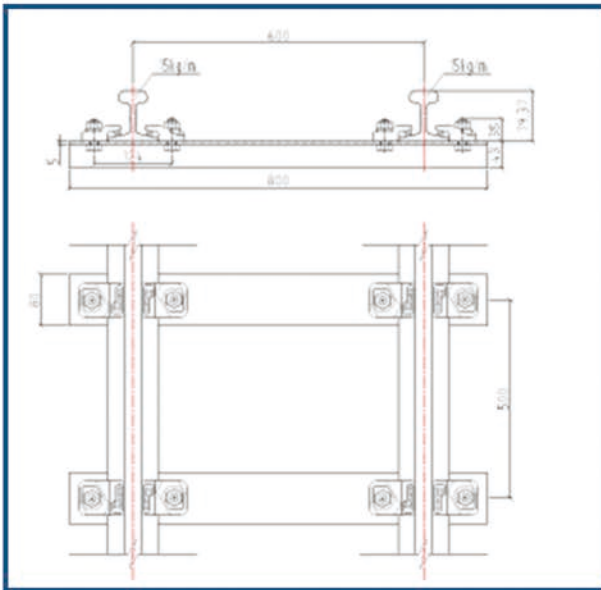
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Form 1123 (2017.05)

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You can come to AGICO with a design or tell us about your project to get a design. Some designs for our clients.



AGICO supplies cranes rails fitting different projects, including heavy haul rails, light rails. A wide range of crane rails are available with AGICO.



Hot sale models:

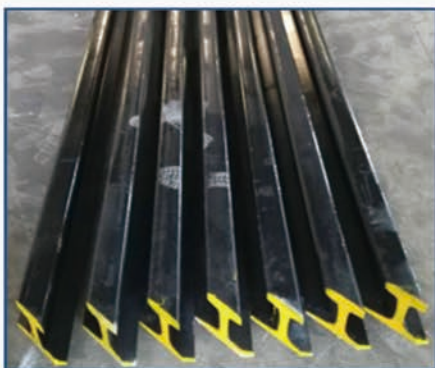
GB standard	6kg,9kg,12kg,15kg,18kg,22kg,24kg,30kg,38kg,43kg,50kg,60kg, QU70,QU80,QU100,QU120
DIN 536	A45,A55,A65,A75,A100,A120
UIC860 / EN 13674	UIC50E1 ,UIC54E1,UIC60E1
AREMA	ASCE40, ASCE60,ASCE80,ASCE85,ASCE90,100lbs,115RE,136RE

Products

90 degree cutting and drilling



45 degree cutting and drilling



Steel bar rails

Square bars

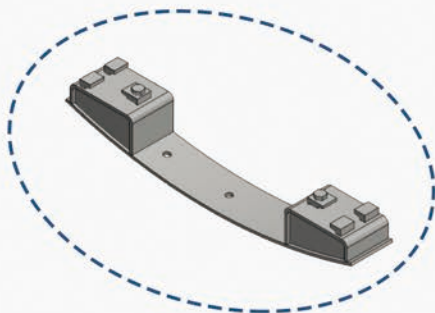


Beams

I beams and H beams under standards JIS G3192:1994 JIS G3136:2008, ASTM A6:2014, EN 10034:1997, EN10163-3:2004, BS4:2005, AS/NZS-U8, AS/NZS 3679.1:2010, GB/T706:2 etc.

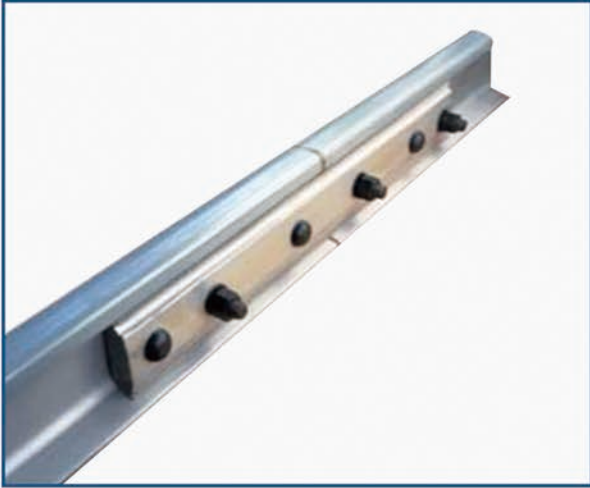
Please contact the sales for your specific requirement.

Customized sleepers with fasteners



Rail joints

Joint bars / Fish plates



GLUED INSULATED FISHPLATE

COMPROMISED JOINT BAR

INSULATED SPLICE BAR



COMMON FISHPLATE

BULGE FISH PLATE

ANGLED FISHPLATE

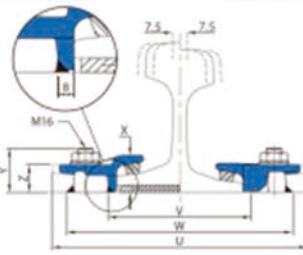
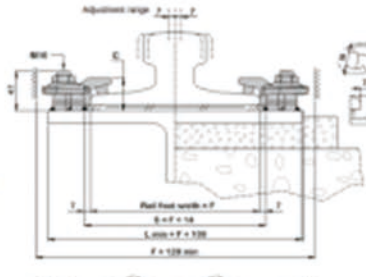
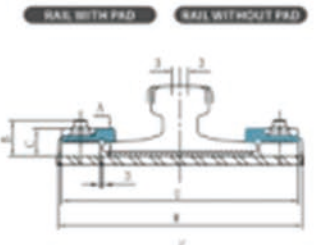
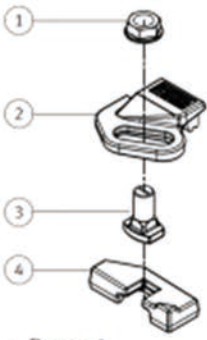


Thermit welding



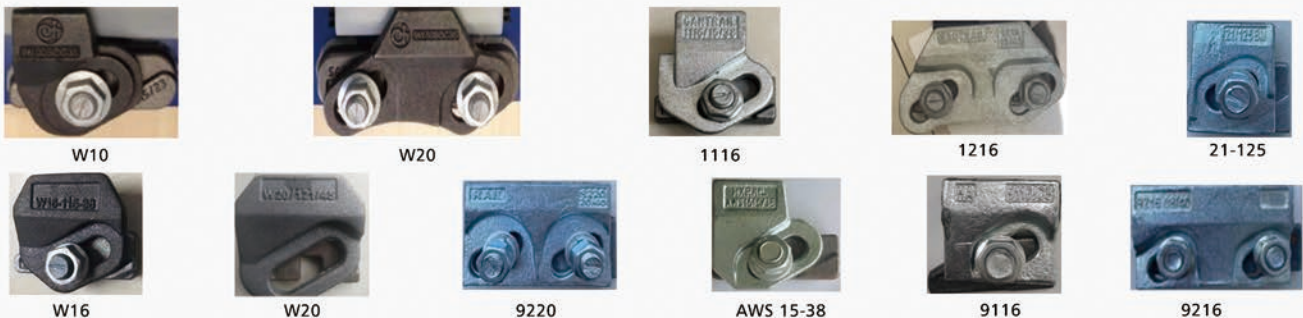
Clips

Our rail clip products are made according to customers' requirements and designs in such a way to allow fine adjustment for alignment, while at the same time, providing a self locking effect against the force of the crane. The rail clips can be fixed by being bolted or welded to the structure.

Welded clips

Single bolt clips with rubber block	Double bolt clips with rubber block	Clips without rubber block																				
 <p>1 RAIL WITH PAD 2 RAIL WITHOUT PAD</p>	 <p>Adjustable range $2 \dots 2$</p> <p>Rail head width a</p> <p>$b = a + 18$</p> <p>$L_{min} + F + 130$</p> <p>$F = 130 \text{ mm}$</p>	 <p>RAIL WITH PAD RAIL WITHOUT PAD</p>																				
 <ol style="list-style-type: none"> 1. Flange nut 2. Clip cap with integral rubber block 3. M16 Captive bolt 4. Weldable base 	 <table border="1"> <thead> <tr> <th colspan="2">Full designation</th> </tr> </thead> <tbody> <tr> <td>W00AN</td> <td>or W00BN</td> </tr> <tr> <td>or W00CA</td> <td></td> </tr> <tr> <th colspan="2">Components</th> </tr> <tr> <td>①</td> <td>2x Sp M16 Clt GAL</td> </tr> <tr> <td>②</td> <td>1x W0028N</td> </tr> <tr> <td></td> <td>or 1x W0031N</td> </tr> <tr> <td></td> <td>or 1x W0036N</td> </tr> <tr> <td>③</td> <td>2x SSB M16x55 8.8 GAL</td> </tr> <tr> <td>④</td> <td>1x W2025</td> </tr> </tbody> </table>	Full designation		W00AN	or W00BN	or W00CA		Components		①	2x Sp M16 Clt GAL	②	1x W0028N		or 1x W0031N		or 1x W0036N	③	2x SSB M16x55 8.8 GAL	④	1x W2025	 <ul style="list-style-type: none"> Flange nut Clip cap W2025 bolt Clip base
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Hot sale models:



Others: 9112, 9120, 1120, 1220, W15, W25, W30, W120, W220, YS1C

Clips

Bolted clips

Single bolt clips

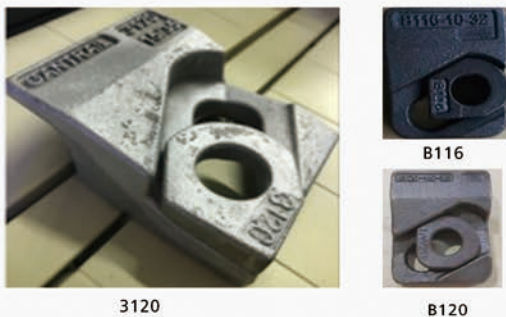
COMONENTS

1. Special washer
2. Clip with integral rubber block

Double bolt clips

Full designation	
B30/BN or B30/CN	
Components	
①	2 x B30/R
②	1 x B30/4N or 1x B30/48N

Hot sale models:



3120

B120

Other clips:

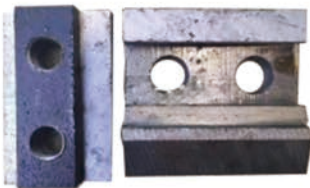


Others: 3112, 3116, 3124, B10, B15, B17, B20, B30, B112, B124, B224

10

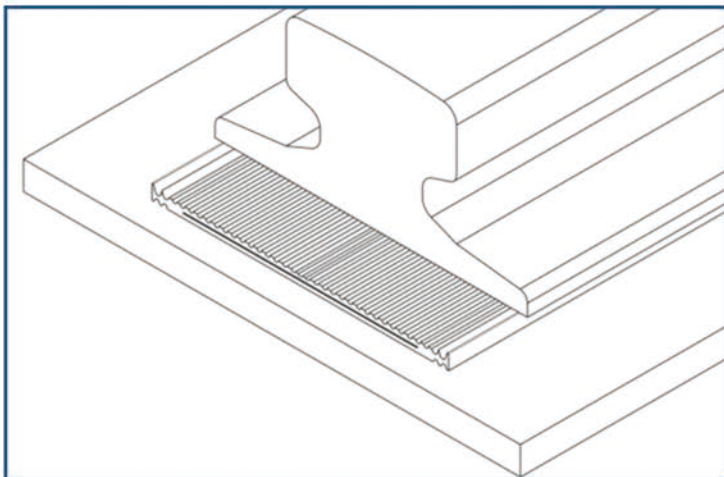
clips

More customized clips



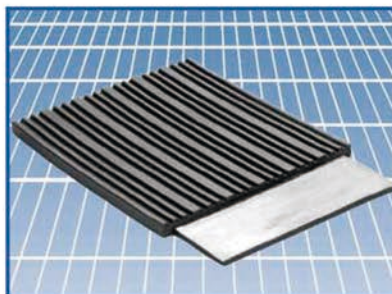
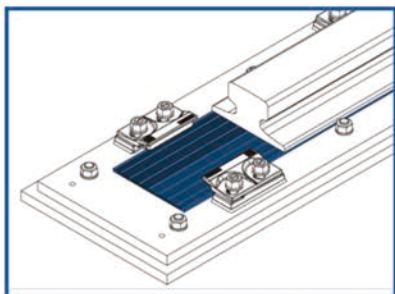
Rail pads

The rail pad is one of the three key ingredients in achieving a reliable track.



Features:

- Can be supplied for any crane or railway rail
- Reduced noise and vibration
- Improved load distribution
- Reduced rail wear
- Reduced fatigue failure



Both elastomers pad and steel reinforced resilient pad are available in continuous length and individual length to suit the sole plate. The steel reinforced resilient pad can ensure high lateral stiffness and prevent movement from below the rail.

Continuous pad



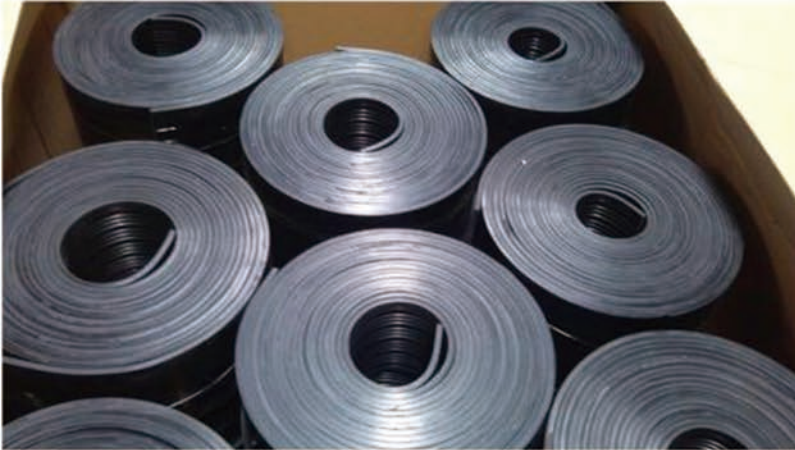
Discontinuous pad



Characteristics of the steel reinforced rail pad:

		After Ageing
Material	Nitrile rubber	
Shore hardness (ISO 48:1994)	75 ± 5 IRHD	75 ± 5 IRHD
Tensile strength (ISO 37:1994)	17.5 N/mm ²	15 N/mm ²
Elongation (ISO 37:1994)	305%	240%
Compression set (ISO 815:1991)	5% Max @ 23°C	
Rebound resilience (ISO 4662:1986)	27%	
Temperature range	-25°C to 100°C	

Rail pads



Rail Pad: Mk60, Mk7
 Applicable Rail Type: A65/
 A100/ A120/ JIS37/ JIS50/ JIS60/
 QU80/ QU70/ QU120/ UIC54/
 UIC60 etc

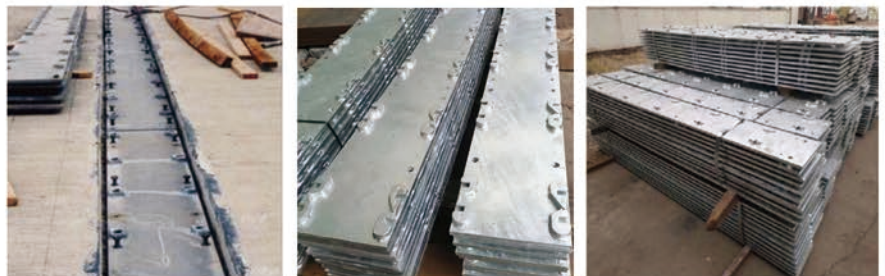
Contact us to find out the right type for your rails.

Steel plates

As the main component of the track system, the type and shape of the steel tie plate will be differ according to different projects. Due to the steel structure bearing surface, there're continuous steel tie plate or the discontinuous steel tie plate optional for use.

Continuous steel plates

The continuous steel tie plate provides continuous support to the underside of the track.



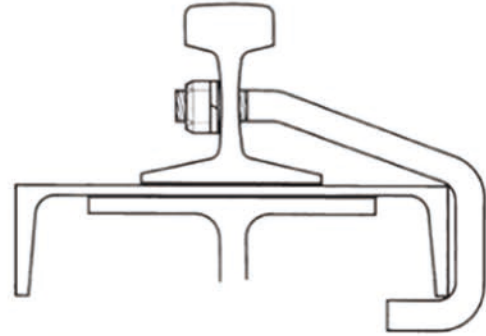
Discontinuous steel plates

The discontinuous steel tie plate uses a separate small steel plate base to provide support for the underside of the track.

The size of the steel tie plate, as well as the spacing between clips will be depend on the actual working conditions of the project and the distribution of the wheel pressure of the crane. AGICO can supply steel tie plate solutions according to the specific technical requirements of the user and the actual situation on site.

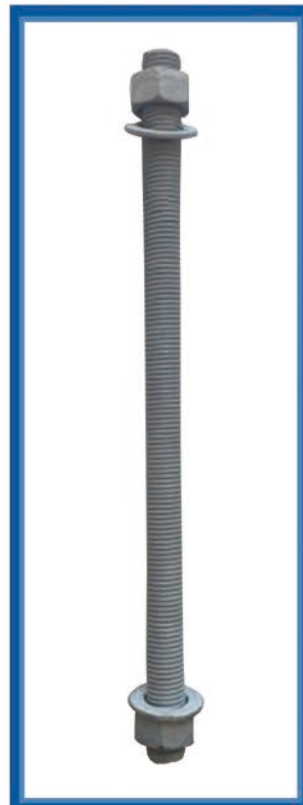
Anchor bolts

AGICO provides a wide range of bolts for tracks.



Hook Bolts

Hook bolts are very commonly used to attach lighter rails [usually up to 85 lbs] to channels or directly onto a crane rail beam. They are usually threaded to allow up to ½" lateral adjustment in either direction, and come complete with hex nuts and lockwashers. When ordering, specify rail section, bolt diameter, and the size and weight of supporting beam or channel.



PRODUCT DESCRIPTION

Five Star® Fluid Grout 100 is the industry's leading cement-based, nonmetallic, non-shrink fluid grout for supporting machinery and equipment. It is formulated with Air Release technology that combines high performance with the greatest reliability. When tested in accordance with ASTM C 827, Five Star® Fluid Grout 100 exhibits positive expansion. Five Star® Fluid Grout 100 meets the performance requirements of ASTM C 1107-02 Grades A, B and C, ASTM C 1107-07 and CRD-C 621-93 specifications for non-shrink grout over a wide temperature range, 40°F - 90°F (4°C - 32°C).

ADVANTAGES

- Air release technology per ACI 351.1 R
- Placement within tight clearances down to 1/2 inch
- High 1, 7, 28 day strength
- Permanent support for machinery requiring precision alignment
- Does not contain gas generating additives, such as aluminum powder
- Non-shrink from the time of placement
- 95% Effective Bearing Area (EBA) is typically achieved following proper grouting procedures

USES

- Grouting clearances to 1/2 inch
- Grouting of anchors and dowels
- Grouting of machinery and equipment to maintain precision alignment
- Non-shrink grouting of structural steel and precast concrete
- Preplaced aggregate grouting
- Support of tanks and vessels
- Available for Nuclear Safety Zone Applications¹

PACKAGING AND YIELD

Five Star® Fluid Grout 100 is packaged in heavy-duty, polyethylene lined bags and is available in 55 lb. (25 kg) units yielding approximately 0.50 cubic foot (14.1 liters) of hardened material at maximum water content.

SHELF LIFE

One year in original unopened packaging when stored in dry conditions; high relative humidity will reduce shelf life.

TYPICAL PROPERTIES AT 70°F (21°C)

Early Height Change, ASTM C 827	0.0 to 4.0%	
Hardened Height Change, ASTM C 1090	0.0 to 0.3%	
Effective Bearing Area	95%	
Bond Strength, ASTM C 882	2,000 psi (13.8 MPa)/28 days	
Pull-out Strength, Tension, 125 ksi 1" threaded bar	2,000 psi (13.8 MPa)/7 days	
Compressive Strength, ASTM C 942 (C109 Restrained)	Minimum Water ²	Maximum Water ³
1 Day	5,800 psi (40 MPa)	3,500 psi (24.2 MPa)
3 Days	7,500 psi (51.8 MPa)	6,000 psi (41.4 MPa)
7 Days	8,000 psi (55.2 MPa)	6,500 psi (44.9 MPa)
28 Days	10,000 psi (69.0 MPa)	8,000 psi (55.2 MPa)
Working Time at 70°F (21°C)	30 minutes	

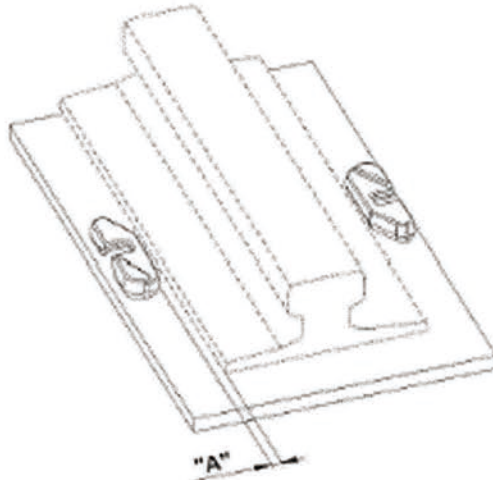
² 100% - 125% flow on flow table (plastic consistency), CRD-C 621 (ASTM C 230, 5 drops in 3 seconds).

³ 20 to 30 second flow (fluid consistency) by Corps of Engineers Flow Cone Method, CRD-C 611.

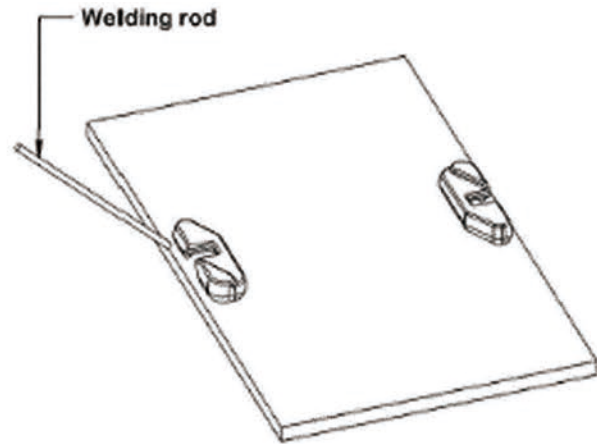
The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown may result. Test methods are modified where applicable.

Detailed Installation Guidance

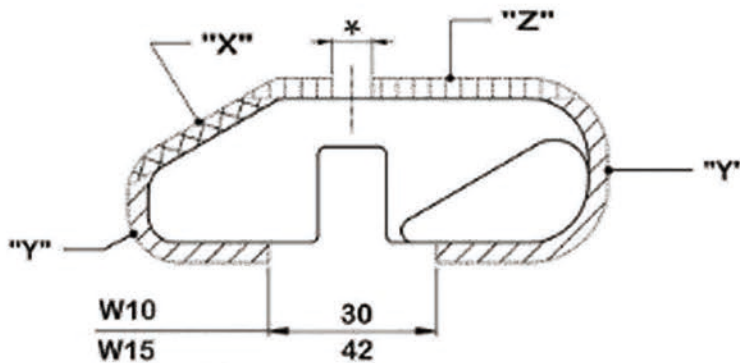
Instructions for correct positioning and welding



1. Position clip lower with gap "A" as shown and tack weld in place.



2. Weld ensuring that the clip lower does not lift.



"*" indicates the position of evacuation holes for zinc when galvanizing sole plates

Suggested welds (weld throats)

	W10	W15
X	Max. 4 mm	Max. 5 mm
Y	Min. 4 mm	Min. 5 mm
Z	Max. 4 mm	Max. 5 mm

Corresponding weld legs: respectively 6 and 7 mm.

Suggested electrodes

Use any low hydrogen rod suitable for use with structural steel :
ISO2560 type E 42 5 B 32 H5, E7018 or equivalent.

Clip installation instructions



1. Install the bolt heads in the clip lowers and push as far as possible.



2. Install the clip upper part, and push it against the rail.



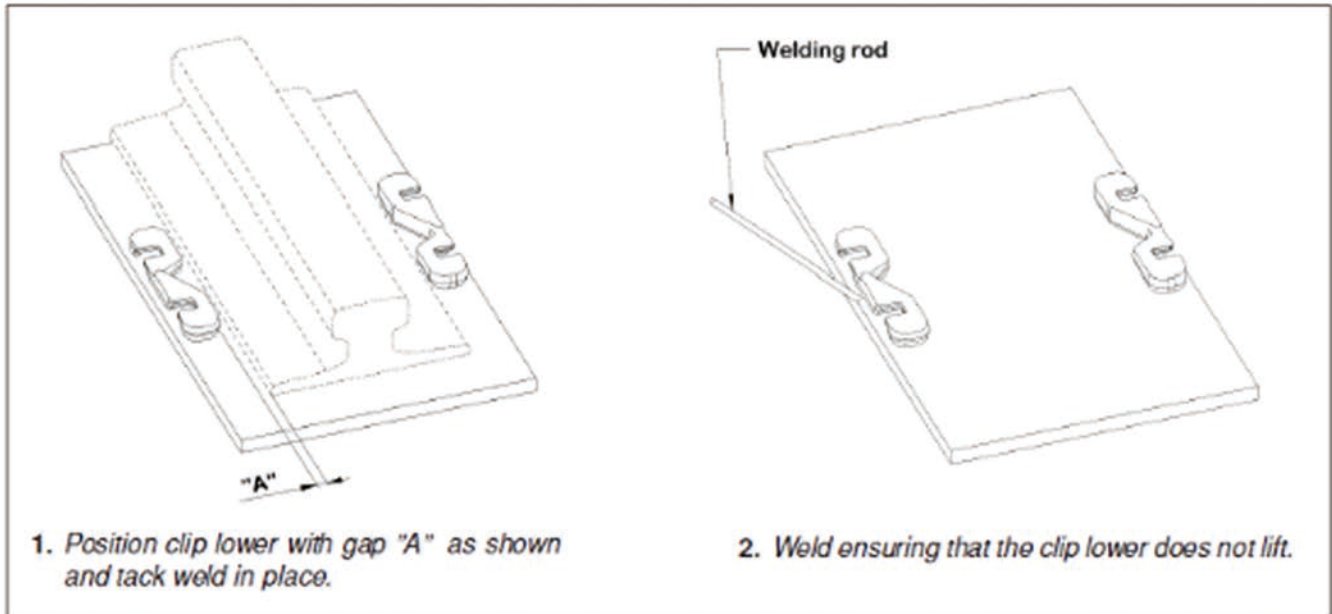
3. Install the nuts and finger tight (the washer is integrated in the nut).



4. Once the clip upper part is in position, use an impact wrench to torque the nut, while holding the upper in place.

Detailed Installation Guidance

Instructions for correct positioning and welding



Suggested welds (weld throats)

	W20
X	Max. 5 mm
Y	Min. 5 mm
Z	Max. 5 mm

Corresponding weld leg: 7 mm.

Suggested electrodes
Use any low hydrogen rod suitable for use with structural steel :
ISO2560 type E 42 5 B 32 H5, E7018 or equivalent.

*- indicates the position of evacuation holes for zinc when galvanizing solo plates

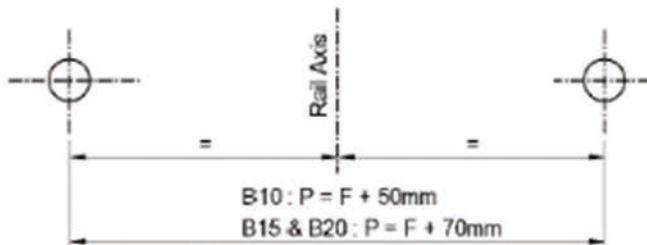
Clip installation instructions



1. Install the bolt heads in the clip lowers and push as far as possible.
2. Install the clip upper part, and push it against the rail.
3. Install the nuts and finger tight (the washer is integrated in the nut).
4. Once the clip upper part is in position, use an impact wrench to torque the nut, while holding the upper in place.

Detailed Installation Guidance

Instructions for correct positioning and welding

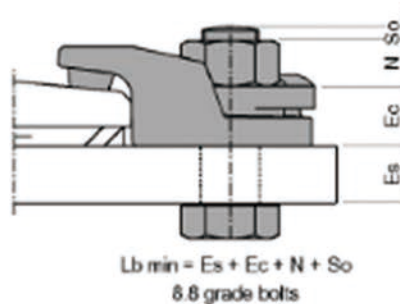
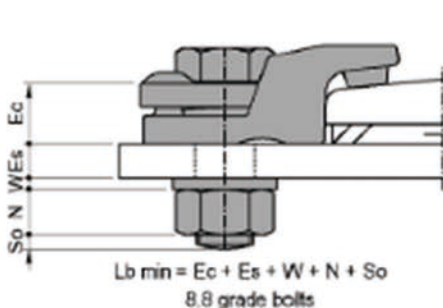


1. Position holes for clips at the distance "P" as shown.
2. Bore holes at the suggested diameters.

Suggested diameters for the holes

	Model		
	B10	B15	B20
Bolt size	M16	M20	M24
Advised	17 mm	21 mm	25 mm
Maximum	18 mm	22 mm	26 mm

Attention: larger holes may reduce the capacity of the clip.

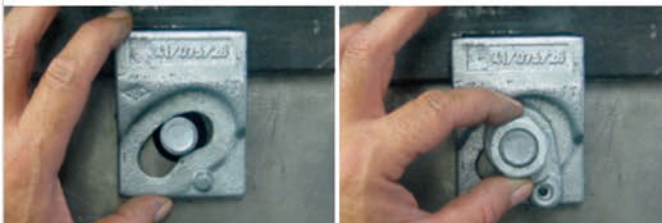


Length of bolts Ec values

	Model		
	B10	B15	B20
Ec	22 mm	21 mm	24 mm

Clip installation instructions

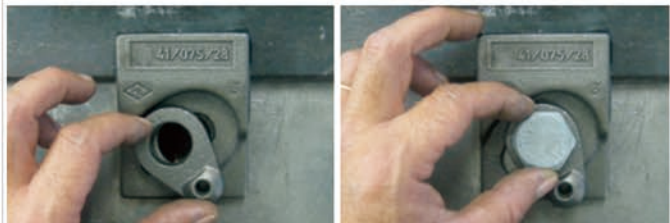
Option 1 Nut installed on clip



1. Position bolt
Install clip on bolt.

2. Position special washer.
install and lightly tighten nut.

Option 2 Nut installed below support



1. Position clip.
position special washer.

2. Position bolt.
install and lightly tighten
nut(not illustrated).

Final steps(Option 1 illustrated)

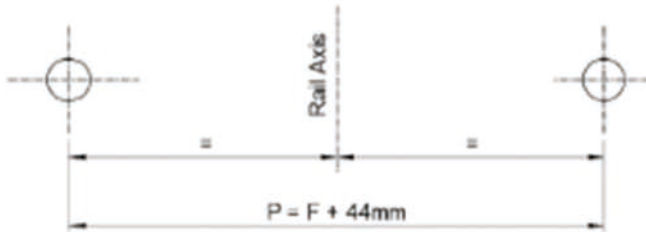


3. Adjust clip forward to
ensure tight contact with rail
foot.

4. Tighten nut to required
torque.

Detailed Installation Guidance

Instructions for correct positioning and welding

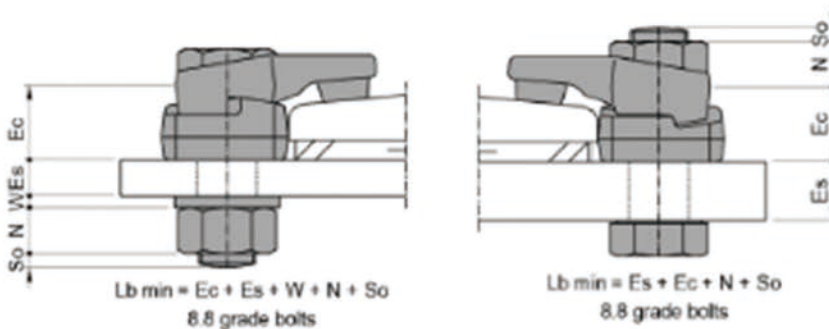


1. Position holes for clips at the distance "P" as shown.
2. Bore holes at the suggested diameters.

Suggested diameters for the holes

Bolt size	B17
Advised	M20
Maximum	21 mm
	22 mm

Attention: larger holes may reduce the capacity of the clip.



Length of bolts Ec values

Model	Ec
B17/AN	23 mm
B17/BN	28 mm
B17/CN	32 mm
B17/DN	35 mm
B 17/EN	41 mm

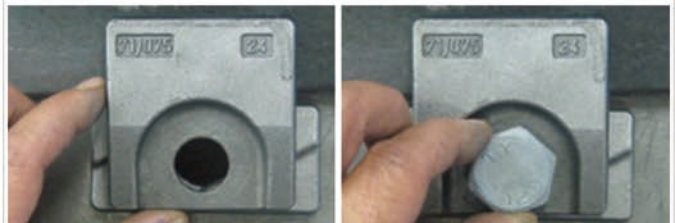
Clip installation instructions

Option 1 Nut installed on clip



1. Position bolt
Install lower component on bolt.
2. Position main component
install and lightly tighten nut.

Option 2 Nut installed below support



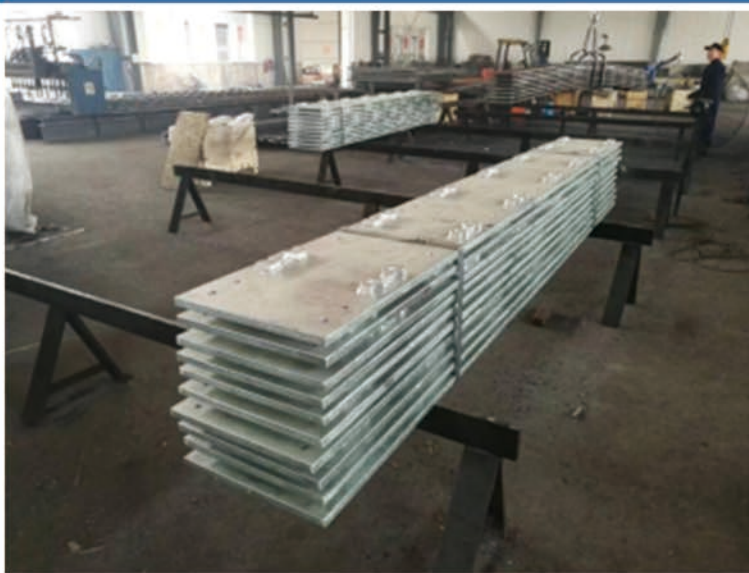
1. Position lower component.
position upper component.
2. Position bolt.
install and lightly tighten nut(not illustrated).

Final steps(Option 1 illustrated)



3. Adjust clip forward to ensure tight contact with rail foot.
4. Tighten nut to required torque.

Our Workshop



Overseas Projects

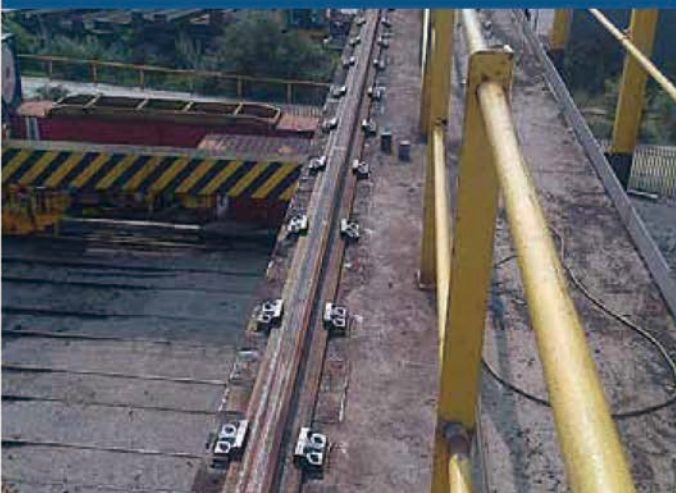


1. Uganda industrial plant overhead crane project

Rail: 24kg
Clip: 1116/15

2. Seychelles shipyard railway project

Rail: 60E1
Clip: 9120/15/38



3. US Gulf crane project

Rail: QU80
Clip: 9216/08/40



4. Philippines industrial plant crane rail project

Rail:60E1
Clip:9120/15/38

5. Malaysia Ann Joo Resources Berhad crane rail project

Rail: 43kg
Rail pad: 6A-4



6. Thailand crane rail project.

Rail: A100
Rail Clip:1216

If you would like to consult the specific requirement of your project, please contact us for technical advice.