



**micMAC**  
GLOBAL

*GrateClips™ Fastener Systems  
Authorized Distributor*

# GrateClips™ Grating Fastener System

## Product Development



- GC clips are a patented product for securing grating while the pins can also be used for general construction applications. GC clips are Korean designed and manufactured in China to international standards and have been tested and approved by Independent Verification Bodies such as DNV, BV and Lloyds for use on offshore, onshore and petrochemical facilities.
- They meet and exceed the standards of other similar products on the market and have demonstrated this through rigorous stress, shear and load testing conducted by the IVB's.
- They are made from 100% Stainless Steel, not Carbon Steel, and are suitable for the harshest of Marine, Onshore/Offshore, Industrial & Petrochemical environments.
- The Clip body is designed as a forged unit and not welded to avoid the seam welding failure issues which have plagued other similar products.
- The M8 pins can be installed with gas operated installation tools, so no need for explosive charges or licenses for operation of installation tools.
- GC Clips have been used on projects such as the Shell Prelude FLNG Project, the Coral FLNG Project and PFLNG2 project to name a few.

# GrateClips™ Grating Fastener System

## GrateClips™ Products



The GC Fastener System of products for securing grating is a patented system designed, engineered and tested for international standards to ensure that it can meet the rigorous demands and harshest environmental conditions of offshore, marine and petrochemical industries.

**GrateClips™ Pin**



**GrateClips™ T-Clip**



**GrateClips™ M-Clip**



## GrateClips™ Grating Fastener System - Pin

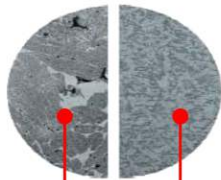
Unique design provides increased resistance to crevice corrosion

### New Tip Design

- Conical shaped tip (new design)
- Easy Installation & fastening
- Achieves higher load by increasing friction weld area evenly up to 95%.



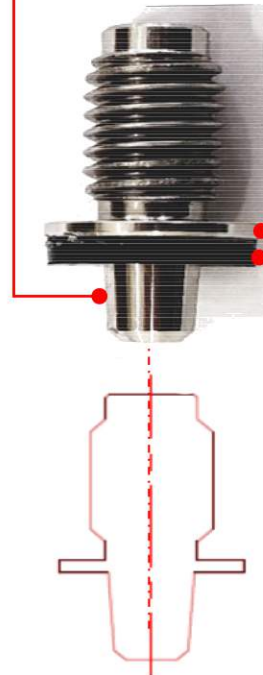
➤ Weld area - full length



Coarse particles  
In Cast Pin

Fine particles  
in GC Pin

**GC Pin Particle Section**  
(Fully Forged)

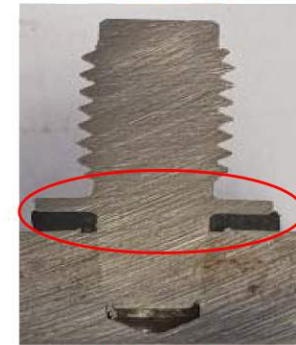


**Model : GC pin**  
(Fully Forged)

### Integral Steel Washer

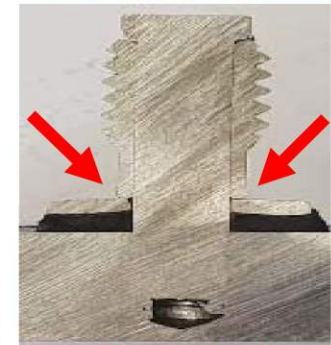
- Even application of force on washer
- Increased +15% shear capacity (by lever effect)

#### GC Pin



Integral  
Steel Washer

#### Alternative Brand



Separated  
Steel Washer

### Rubber Washer

- Even application of force improved seal.
- Increased crevice corrosion resistance.
- Improved weather seal.

## GrateClips™ Grating Fastener System - T-Clip



### Durable Cap and Plug System

GC T-Clip Plug Body



- No seam, fully forged body

Industry Brand Clip Body



- Welded Seam – weak point
- Body deformation

### Fully Forged Plug Body

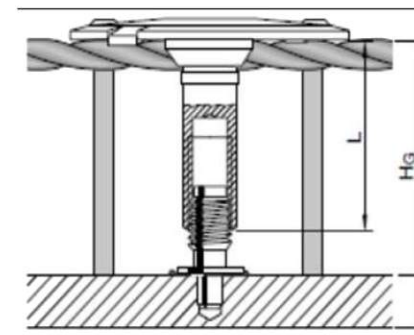
- No weld, no seam – one forged body.
- Extreme pullout/shear force strength.
- High thread strength & durability

T-Clip Cap

- Stable circular shape for securing grating.
- SS316L Construction
- Extreme Corrosion Resistance



Correctly Installed and Tensioned T-Clip



# GrateClips™ Grating Fastener System - M-Clip

## M-Clip – Extreme Shear Performance

The M-Clip has extreme shear load performance and has a proven track record of use on FLNG vessels and onshore facilities, withstanding the harshest of loads and environments.

### 3 Individual load bearing wings

- SS316L construction
- Each wing acts independently to full depth against shearing loads.

### Adaptor

- SS316L construction
- Easy Installation and Tensioning
- Fixes to High Load Stud Pin
- Removeable & Re-useable

### Gasket

- Full Teflon Gasket
- Anti-Vibration & Locking Gasket



## GrateClips™ Grating Fastener System - Applications

### Product Applications, Approvals and Material

DW Product	Material/Protection	Applications	Approvals
M-Clip & GC-Pin	Stainless Steel 3 Wing Clip & Stainless-Steel Pin.	Marine, Offshore, Oil & Gas, Onshore Refinery, Petrochemical	ABS, Lloyds Register
T-Clip & GC-Pin	Stainless Steel Grating Clip/Disc & Stainless-Steel Pin.	Marine, Offshore, Oil & Gas, Onshore Refinery, Petrochemical	ABS, Lloyds Register
GC-Pin	Stainless Steel Pin/Stud	Marine, Offshore, Oil & Gas, Onshore Refinery, Petrochemical	ABS, Lloyds Register

## GrateClips™ Grating Fastener System - Features

### Product Advantages, Applications and Key Features

Advantages	Typical Applications	Key Features
<ul style="list-style-type: none"> <li>➤ Simple, Safe and Quick Installation methods.</li> <li>➤ Installation does not need specialist training or licenses.</li> <li>➤ Gas powered installation tools, no need for explosive charges for installation of Pins.</li> <li>➤ Easy to install and to remove.</li> <li>➤ Cordless tools only required.</li> <li>➤ M-Clips &amp; T-Clips are Re-useable.</li> <li>➤ Broad spectrum of products to suit all applications and grating types.</li> </ul>	<ul style="list-style-type: none"> <li>➤ All Marine, Offshore &amp; Onshore Oil &amp; Gas facilities.</li> <li>➤ Petrochemical, Refinery, Mining Projects.</li> <li>➤ Any construction application where a robust, long lasting corrosion free fixing application is required.</li> <li>➤ All grating fixing applications.</li> </ul>	<ul style="list-style-type: none"> <li>➤ The most cost-effective fastening solution for all grating types.</li> <li>➤ Can be custom manufactured per client requirements if standard options are not suitable.</li> <li>➤ SS316L material construction provides extreme corrosion resistance.</li> <li>➤ Improved patented design prevents crevice corrosion issues that occur with other industry products.</li> <li>➤ Products all fully forged SS316L</li> </ul>



## GrateClips™ Grating Fastener System - Features

### Proven Track Record

Project Name	Quantity
Y2C Project – Yeosu, South Korea	695,000 Sets
Arctic LNG 2 Project - China	310,000 Sets
Shell Prelude FLNG – South Korea	250,000 Sets
Petronas FLNG 2 – South Korea	250,000 Sets
ENI Coral FLNG – South Korea	250,000 Sets
Danglin Biomass Power Plant – South Korea	152,000 Sets
LG Chemical Plant – Yeosu, South Korea	130,000 Sets
Polymirae Plant – Yeosu, South Korea	52,000 Sets
Jeju Hanlim Wind Farm Project – South Korea	51,500 Sets
Thermal Power Plant – Yeosu, South Korea	15,000 Sets
Hanwha Chemical Plant – Yeosu, South Korea	10,000 Sets
Various Power Plants – South Korea	10,000 sets (combined)
Kori Nuclear Power Plant Unit 1 – Busan, South Korea	7,000 Sets

# GrateClips™ Grating Fastener System - Why GC?

## Why Choose GC Clips

For the most cost-effective grating fixing solution on the planet, there is only one choice.

GC Clips - “the vice grip that won’t slip”

- The most cost effective grating fixing solution available.
- Strongest clips and pins on the market.
- Safe & Easy Installation.
- Extreme Corrosion Resistance means suitability for all environments.
- Custom design to suit client requirements if needed.
- Proven track record.
- The one stop solution for secure fixing of gratings.



# Thank You

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