

A Family of Quality

MASTERCOTE®
Fluorocarbon Coated
Bolts & Nuts

M-RAK®
Cable Support Systems

DIMET®
Cathodic Protection Systems

TRISTAR
Bolting Solutions
Torqueing Tools & Services

Pile-Gard®
Splashzone
Wrapping System


Valley Forge & Bolt

MCM
MC MILLER Co.
Cathodic Protection
Monitoring Equipment

FSI
Flange
Insulation Kits

TRI-STAR INDUSTRIES PTE LTD

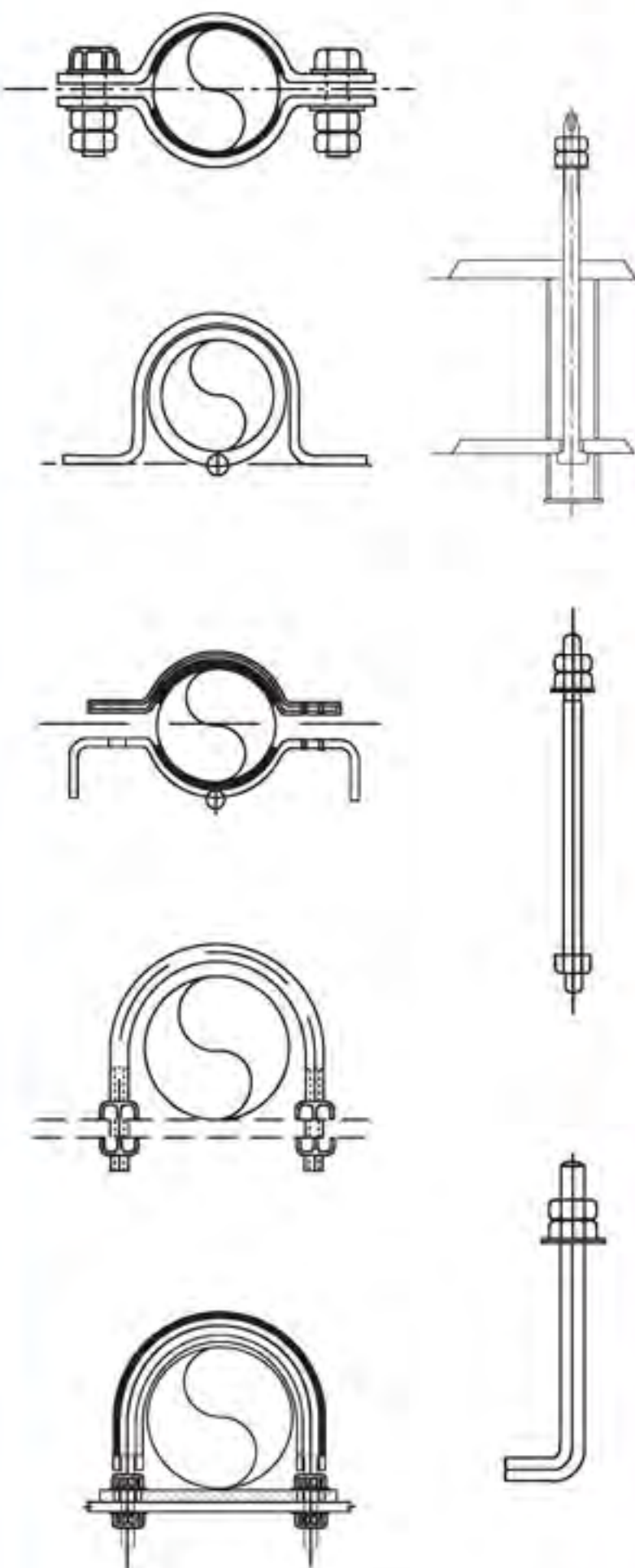
www.tristar.com.sg



Quality Bolting System

Made to Order Industrial Fasteners, Studs, Anchor bolts, U-bolts, Pipe Clamps, J-Bolts, etc

Comprehensive portfolio of precision engineering studs, U-bolts and J-bolts in sizes from 0.25 to 6 inch diameter, available in both rolled or cut thread. Materials include carbon steel, alloys, stainless steel, galvanized, plated or coated.



High Quality Specialty Bolts and Nuts



One end of the studbolt is marked with the relevant material grade symbol



Nut is marked with the relevant material grade symbol
2H 2HM G4 G7 7M
8 8M 8MA 8C



Stocks

ASTM A193 B7 - Imperial sizes 3/8 to 4" dia
- Metric sizes M12 to M52

ASTM A320 L7 - 1/2" to 4" dia

ASTM A193 B16 - 1/2" to 4" dia

ASTM A193/A320 B8 Class 2 & Class 1
(SS304) 1/2" through to 2-3/4" dia

ASTM A193/A320 B8M Class 2 & Class 1
(SS316) 1/2" to 2-3/4" dia

Stocks come complete with matching nuts

Manufacturing Process

Studbolts are made from long length of bars. We sell studbolts and nuts plain, Mastercote coated, Cadmium, Zinc, Zinc-Nickel plated, Galvanised or with other types of coating.



In-House Furnace

B7M/2HM and L7M/Gr 7M are produced in-house (tested and certified). These are then oiled, grit blasted, plated or Mastercote finished.

Special Materials available on order

B8T, Titanium, Duplexes, Monel 400, K500, Hastelloy, Incoloy, Inconel, Nimonic, etc.

Bronzes: Phosphor bronze, brass, aluminium, manganese bronze, silicon bronze available on request.

High Quality Coatings

MASTERCOTE®

Fluorocarbon Coated Bolts & Nuts

Mastercote® coating, with high PTFE content and a base metal coat, is best suited for installations in petrochemical plants, offshore platforms and in corrosive environment.

The resin-like bonded coating provides low coefficient friction and excellent resistance to many chemicals and acids. PTFE dry film provides lubricity thus preventing galling in breaking out. Mastercote coated products are the best in the market - salt-fog spray tested to over 9,000 hours without a spot of rust.



Our branded Coated Fasteners include:

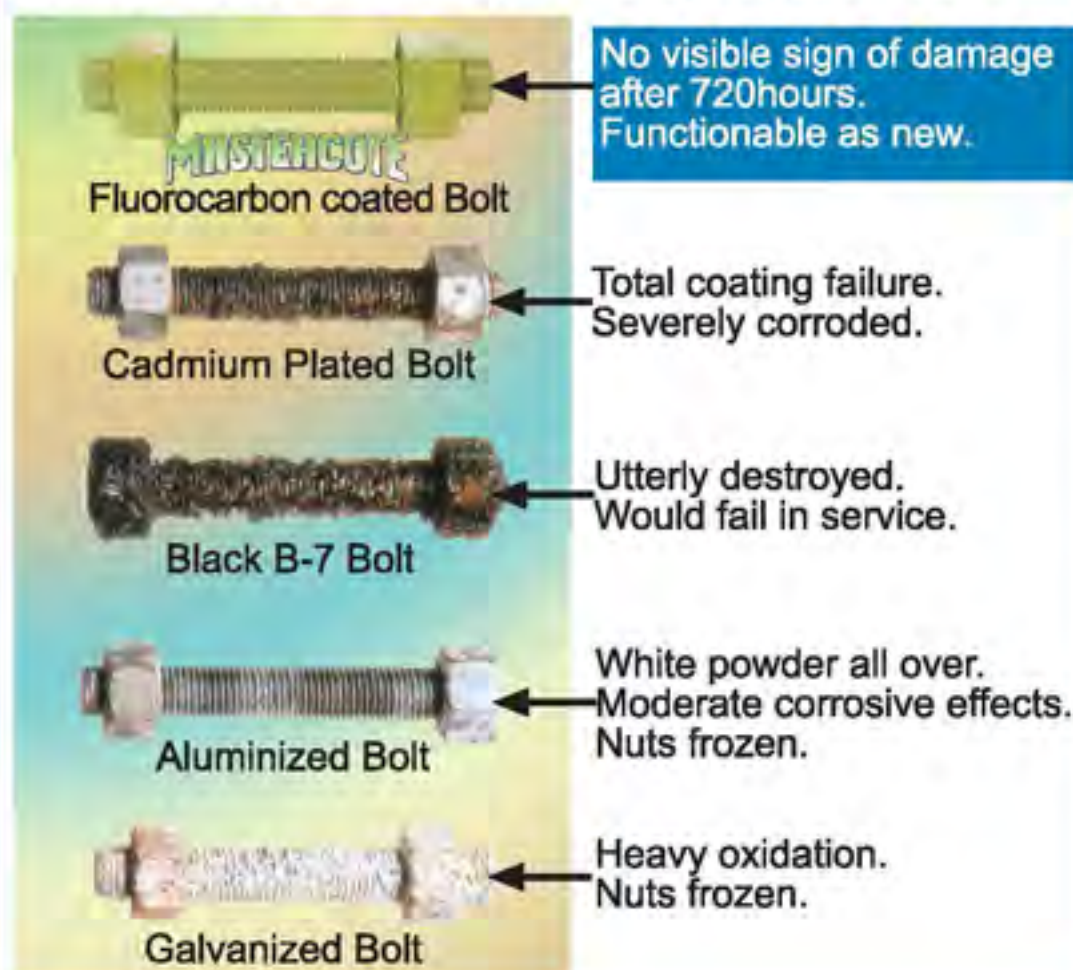
MasterCote • Cadmium based PTFE Top Coat

MasterGard • Ceramic/Metallic based PTFE Top Coat

MasterZGard • Zinc Silicate based PTFE Top Coat

MasterNiZCote • Zinc/Nickel based PTFE Top Coat

SALT FOG SPRAY TEST - stud bolts subject to 720 hours in a 5% brine spray at 110°F



Xylan®

Fastener-Class Coatings



Xylan coatings are made of composite materials. Lubricants with the lowest-known coefficient of friction are combined with the newest high-temperature-resistant organic polymers. Together, they form "plastic alloys" with unique properties:

- Low coefficient of friction: as low as 0.02
- Outstanding corrosion and chemical resistance
- Wide operating temperature ranging from -195°C to +285°C
- Pliability: bend freely and repeatedly without breaking
- Machineability: apply multiple coats and mill
- Excellent adhesion to most metals, plastic, ceramics, wood and even to itself.

TRISTAR Coating Services

We are the approved coater for Whitford, providing electroplating as well as spray coating services, meeting very high quality standards for the oil & gas industries. We are the most reliable coating system provider in the region, showing good anti-corrosion results.



Bolt Tensioning



An Integrated Solution

The bolting services division supplies a full range of bolt working tools and services around the world. We sell, rent and provide service (with technicians) for subsea and topside projects, oil and gas facilities, natural gas processing plant, refineries, petrochemical plants and power stations.



TRI-STAR Topside and Subsea Tensioners

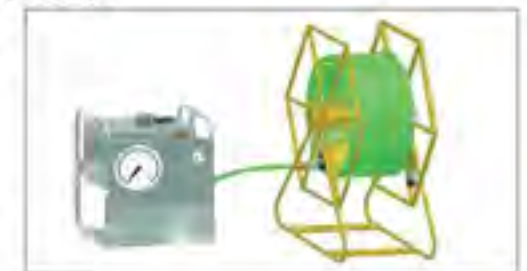


Tri-Star designs and manufactures its own range of Topside and Subsea Tensioners, ISO 9001 approved.

- Tristar SM submarine bolt tensioners are made from stainless steel material which is corrosion free and therefore, improves durability and reliability.
- Tristar SM tool range of 6 load cells are designed to cover more sizes (3/4" right up to 3-1/2")
- Tristar Flange Puller's improved design with high tensile cable eliminates 'bird nesting'. This problem is commonly found in most flange puller designs. Remote operation with single or multiple operation, individual or simultaneous capabilities.
- Topside MPR Tensioners are flexible with sizes ranging from 5/8" to 4" with 6 primary and 2 secondary tool selections. Metric sizes are available in both SM and MPR tensioners.

Our Critical Joint Integrity Management provides effective controls and systems of operation to ensure leak free startup and operation of joint connections. From manufacture and supply of quality coated studbolts and nuts, to rental of the latest designs of bolt working equipment and provision of on-site services, we offer an integrated service tailored to meet the requirements of your work-scope extending from single connections to full scale construction projects and on-going refinery and plant maintenance contracts.

Specialised engineering and design solutions can be tailored to cater for bespoke applications. Applications are provided with latest in-house bolting program designed for comprehensive bolt load data calculation; detailed technical analysis and pump pressure requirements.



ATM Alignment Tool



Torque Wrench Pump



Flange Spreader



Multiplier



Hydraulic Torque Wrenches

As agents for Torq/Lite®, we offer for sale and rental a full range of Square Drive or Low Profile Hydraulic torque wrenches and power consoles.



IU-XL Series



SU-XL Series



Cable Support Systems



Metallic Cable Support Systems



M*RAK incorporates several ranges of Cable Support System including ladders, trays, trunkings, wire-mesh trays, channels, concrete inserts, cantilever arms, trapeze, cleats, fasteners and accessories.

There are different ranges to suit the particular engineering needs of customers. The ranges differ in its loading capacity, design, material and finishing. Materials range from stainless steel, carbon steel, electrogalvanized, pre-hot-dipped galvanised, high silicon steel to aluminium and fibre reinforced plastic. Finishings range from hot-dipped galvanised (BS EN ISO 1461:1999), epoxy powder coating to fluoropolymer coating.

The M*RAK Cable Support System is specifically designed to satisfy the demanding needs of the oil, gas and power industries. It is also used in industrial and building projects. Our cable ladders are successfully load tested and certified to NEMA VE-1-2002 Class 20C standards.



Profiles are roll-formed for greater strength and the lengths can be longer as a result. e.g 6M



Welding robot for production efficiency and quality consistency.

Fibreglass Cable Support Systems

Best for use in Chemically - Corrosive & Harsh Environment

- No Earth-Bonding • Easy Installation • Maintenance Free • Corrosion Resistant

THE PULTRUSION PROCESS

- Available in Polyester, Vinylester, Modar Acrylic Vinylester Resins
 - Anti-Static additive is available on request

TESTS & STANDARDS

- Load tested to NEMA FG-1 up to Class 20C (149kg/M)
 - Flame propagation to BS 476 Part 6
- Flame spread to BS 476 Part 7 Class 1 or 2
 - UV protection to ASTM G154-06
 - Halogen free to IEC 607S4-1
 - Impact resistance to D256
- Flame retardancy tested to UI94, V-0



Cathodic Protection



Cathodic Protection Products & Services



GALVANIC ANODES

- DIMET aluminium anodes and zinc anodes including:
 - offshore structural anodes (platforms, jetties, wharves, etc)
 - pipeline bracelet anodes (for both onshore and offshore pipelines)
 - marine anodes (for hull, tank, etc)
- DIMET magnesium anodes for onshore underground structures

IMPRESSED CURRENT ANODES

- Silicon/Chromium/Iron anodes
- Platinised Titanium/Mixed Metal Oxide
- Lead/Silver/Antimony anodes
- Graphite anodes

TRANSFORMER RECTIFIER

- Custom built cathodic protection transformer rectifiers

INSTRUMENT

- Copper sulphate, silver chloride, zinc and copper sulphate/zinc reference cell. Distributor for MC Miller's instruments and accessories

The DIMET brand, originating from Australia, has been established in the Cathodic Protection field in Asia since 1970 and is renowned worldwide. The DIMET experience of over 30 years has given us unsurpassed knowledge in the design, manufacture, installation, commissioning and maintenance of the full range of sacrificial anodes, impressed current cathodic protection systems and other corrosion prevention methods.

DIMET brand cathodic protection and corrosion prevention products and services are provided by our cathodic protection teams in Asia-Pacific, together with an extensive group of affiliates in the other parts of the world.

FIELD SURVEYS

- Soil and water resistivity, PH, Redox potential and pipe to soil potential surveys/measurements
- Offshore platform potential surveys
- Pearson (pipe location) survey, coating inspection
- Corrosion investigations including stray current analysis
- Interference study and mitigation

DESIGN

- Conceptual or detailed design of Cathodic Protection Systems including material lists, installation drawings and operating instructions

SUPERVISION

- Field supervision of Cathodic Protection installation by experienced Corrosion Engineers and Technicians

COMMISSIONING

- Complete commissioning of Cathodic Protection Systems including full report, maintenance instructions and training of site personnel

MAINTENANCE

- Periodic surveys of existing Cathodic Protection Systems to ensure optimum performance



Metal Fabrication

Engineering and Fabrication Works

Metal Fabrication, Machining, Heat Treatment, Plating & Coating.

Fabrication of Skids, Handrails, Pipes, Clamps, Foundation Bolts, Steel Structures, Machined Components serving the Marine, Offshore, Oil & Gas, Petrochemical & Power industries.

We have teams of qualified and experienced welders, metal forming and machining personnel, together with specialized equipment to meet tight manufacturing tolerances.

Welding thickness from 1.2mm to 50mm, with welding specifications AWS D1.6 for stainless steel, including NDT Testing (UT, Lamination Checks, Liquid Penetrant).



Agency Products



Splashzone Wrapping System

PILE-GARD barriers create a tight envelope around the pile isolating the pile from its environment. Oxygen is rapidly depleted from the water in this trapped space and the rate of corrosion is sharply reduced or stopped altogether, depending on the quality of seal obtained. Careful installation techniques will result in a hermetic seal where corrosion cannot continue.



Flange Insulation Kits and Monolithic Joints

Flange insulation kits are available for all flange sizes, types, pressure ratings and materials. Each kit is individually and securely packed and clearly labelled for convenience in warehousing and field use.

ELECTROSTOP™ WELD-IN SOLATING FITTINGS

Bolt sleeves and washers - the major source of short circuits in most solation assemblies are eliminated with the Electrostop™.





Our Quality Testing Facilities



Profile Projector



Tensile Strength Tester



Eddy Current Tester



Hardness Tester



EC Test



Spectrometer



Charpy Tester



Microscopic Analyser



Salt Spray Tester

International Presence

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