



O'Brien TAW05589 MJ Protection for Small Bore Tubing

- Protects Tubing from:
 - External Corrosion
 - Salt Air
 - Saline Sand
 - Moisture
 - Abrasion
 - Dissimilar Metals
 - Vibration
- Continuous Coils Eliminate Fittings and Leak Points
- Reduced Installation Labor and Scrap
- All Alloys and Standard Pressure Rating
- Print and Color-Coded Identification



O'Brien TAW05589 MJ Jacketed Tubing

O'Brien MJ jacketed tubing is proven to prevent external corrosion from salt air, windblown saline sand, contact with dissimilar metals and construction or maintenance debris such as weld slag and grit blast overspray.* It is produced in long continuous coils that eliminate the need for unions and the potential leak points every six meters. Continuous lengths of corrosion protected tubing are installed faster and with higher reliability than conventional stick and fittings. Necessary fittings can be located at easily accessible points instead of hidden in elevated tray or under walkways. Purpose built payout stands and straighteners make the handling, straightening and installation of MJ jacketed tubing similar to that of electric cable.

Individually protected O'Brien MJ jacketed tubing can be grouped into bundles so that up to four tubes are installed in about the same time as a single run, and much faster than traditional stick and fitting construction. Tubes are arranged in a parallel or flat configuration keeping the bending radius to a minimum and taking less space in the tray. Seals extend protection over the fittings and end connections so the entire installation is shielded from all sources of external corrosion.

Tested and Proven

The tough proprietary O'Brien TAW05589 MJ jacketed tubing has withstood:

- 1000 hours exposure to acidified salt air, humidity and spray.
- hot weld slag without penetrating the corrosion resistant coating.
- abrasion from grit blasting and high pressure water without penetrating the corrosion resistant coating.
- constant vibration for over 7000 hours without damage to the corrosion resistant coating from cable trays or support clips.

Typical Applications

- Chemical Feed/Injection
- Instrument Air
- Instrument Impulse Connections
- Analyzer Calibration Gas
- Analyzer Sample Lines
- Hydraulic Lines
- Pneumatic Lines

*Must be installed according to manufacturer's procedures and sealing instructions.

Corrosion Testing

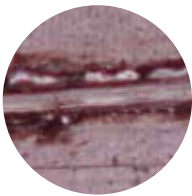
After 1000 hours of exposure to an ASTM G85 six hour cycle of acidified salt spray, high humidity and dry conditions that crystalize the corrosive salt on every surface all tubing and fittings protected by O'Brien TAW05589 MJ were free of any signs of corrosion. Conversely all exposed tubing and fittings including 316L / UNS S31603, 2.5% Moly, 317L / UNS S31703, 254SMO / UNS S31254, 825 / UNS N08825, 904 / UNS N08904 and 2507 / UNS S32750 SuperDuplex exhibited some degree of corrosion.



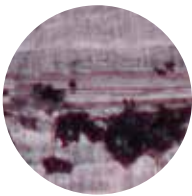
Protected 316 vs. Exposed Tube



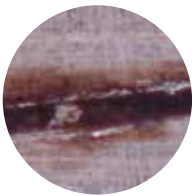
TAW05589
Protected
316L



Unprotected
316L



Unprotected
254SMO6



Unprotected
254SMO6



Unprotected
825



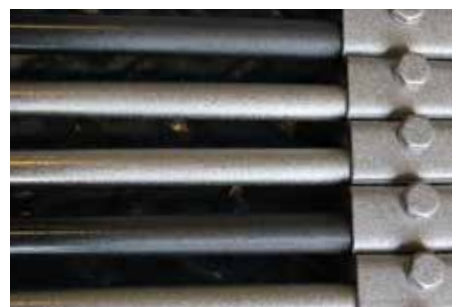
Unprotected
904



Unprotected
2507

Abrasion Testing

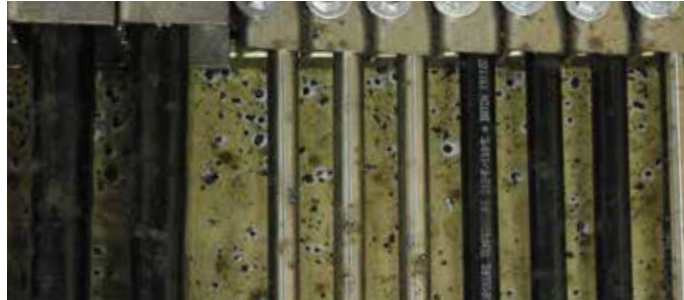
Single and multiple jacketed O'Brien TAW05589 MJ tubing was subjected to direct abrasion with SAE G18 grit at 150 psig (10 bar) from a distance of 10 – 16" (250 - 400mm) for a period of up to 10 minutes with no penetration or noticeable erosion of the protective jacket. Bare 316L / UNS S31603 and 2507 / UNS S32750 SuperDuplex tubes exhibited sever pitting, erosion and deformation.



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Hot Weld Slag Testing

O'Brien TAW05589 MJ single and multiple jacketed tubes were subjected to falling weld slag from a distance of 36" (0.9M). Slag was produced by cutting a 10ga (3.4mm) steel plate with an oxy acetylene torch. There was no penetration or indication of melting anywhere on the extruded jacket. Bare 316L (UNS S31603) and 2507 (UNS S32750) SuperDuplex tubes collected weld slag splatter that adhered to the surface and could not easily be scraped off and subsequently became sites of localized corrosion.



Weld slag adheres to all metal alloys including high CRA 2507 Super Duplex (UNS S32750) and creates localized corrosion.

Localized corrosion due to weld slag adhesion on 2507 Super Duplex tubes.

Sealing and High Pressure Water Blast Testing

Sections of O'Brien TAW05589 MJ single jacket tubing and fittings protected with our self-fusing silicone tape were subjected to high pressure water at 2700 psi (186 bar) from a distance of 4 – 6 inches (100 - 150mm) delivered in a constantly oscillating motion over the sealed fitting and tubing for three minutes. Visual inspection revealed no penetration or leakage to the tubing or fitting.



Heat Shrink Sleeve for Multiple Tube Bundles



Heat Shrink Sleeve for Union & Bulkhead Fittings



Silicone Tape for Unions, Tees & Bulkhead Fittings



Swagelok® Jacketed Tube Connector with TAW05589 Tubing

O'Brien TAW05589 MJ

Protection for Small Bore Tubing

Model Number Construction

TPMJXU	O'Brien MJ Jacketed Tubing
X	Number of tubes (max is 4 for 1/4 - 1/2" tubes, max is 2 for one or two 3/4" tubes)
U	TAW05589 TPU individual tubes and outer jacket
-	Separator
X#	Tube designation, for multiple tubes or mixed tubes. Select tubes from the tubing list.

TPU Jacket

The application of O'Brien MJ TAW05589 jacket includes proprietary processes of substrate preparation and extrusion of a proprietary polyether based thermoplastic polyurethane formulated for UV, ozone, abrasion and tear resistance as well as hydrolytic stability.

O'Brien MJ TAW05589 Jacket		
	Test Method	Typical Value
Physical		
Hardness	ASTM D-2240	75A
Mechanical		
Tensile Strength PSI	ASTM D-412	6000 PSI (41 MPa)
Elongation at Break	ASTM D-412	685%
Tear Strength	ASTM D-624	325 lb/in (57 N/mm)
Tabor Abrasion Resistance	ASTM D-1044	20 mg
Flame	UL-94	V0/V2
Minimum Installation Temperature		-40°F (-40°C)
Minimum Service Temperature		-67°F (-58°C)
Maximum Service Temperature		250°F (121°C)
Chemical Resistance		
Halogenated Chlorides		NO
Weathering		E
UV Resistance		E

E Excellent G = Good F = Fair P = Poor

Heat Shrink Seals and Self Fusing Silicone Tape

TPKJP-SR-B10	3M roll of black self fusing silicone tape. Seals 3-6 fittings
TPKHS-D2	Heat shrink sleeve for two tube bundles
TPKHS-N3	Heat shrink sleeve for three tube bundles
TPKHS-N4	Heat shrink sleeve for four tube bundles

Heat Shrink Boots for Single Jacketed Tubes

TPKHS-S075	Heat shrink sleeve 0.20" - 0.75" (5 - 20mm)
TPKHS-S100	Heat shrink sleeve 0.30" - 1.00" (8 - 25mm)
TPKHS-S200	Heat shrink sleeve 0.75" - 2.00" (20 - 50mm)

Process Tubes

Seamless 316L SS

F2	1/4" x 0.035" SMLS 316/316L SS tubing.
B2	1/4" x 0.049" SMLS 316/316L SS tubing.
K2	1/4" x 0.065" SMLS 316/316L SS tubing.
F3	3/8" x 0.035" SMLS 316/316L SS tubing.
B3	3/8" x 0.049" SMLS 316/316L SS tubing.
K3	3/8" x 0.065" SMLS 316/316L SS tubing.
F4	1/2" x 0.035" SMLS 316/316L SS tubing.
B4	1/2" x 0.049" SMLS 316/316L SS tubing.
K4	1/2" x 0.065" SMLS 316/316L SS tubing.
B6	3/4" x 0.049" SMLS 316/316L SS tubing.
K6	3/4" x 0.065" SMLS 316/316L SS tubing.
MF6	6mm x 1mm SMLS 316/316L SS tubing.
MF8	8mm x 1mm SMLS 316/316L SS tubing.
MF10	10mm x 1mm SMLS 316/316L SS tubing.
MB10	10mm x 1.5mm SMLS 316/316L SS tubing.
MF12	12mm x 1mm SMLS 316/316L SS tubing.
MB12	12mm x 1.5mm SMLS 316/316L SS tubing.

Seamless 316L 2.5% Moly

CF2	1/4" x 0.035" SMLS 316/316L 2.5% Moly tubing.
CB2	1/4" x 0.049" SMLS 316/316L 2.5% Moly tubing.
CK2	1/4" x 0.065" SMLS 316/316L 2.5% Moly tubing.
CF3	3/8" x 0.035" SMLS 316/316L 2.5% Moly tubing.
CB3	3/8" x 0.049" SMLS 316/316L 2.5% Moly tubing.
CK3	3/8" x 0.065" SMLS 316/316L 2.5% Moly tubing.
CF4	1/2" x 0.035" SMLS 316/316L 2.5% Moly tubing.
CB4	1/2" x 0.049" SMLS 316/316L 2.5% Moly tubing.
CK4	1/2" x 0.065" SMLS 316/316L 2.5% Moly tubing.
CMF6	6mm x 1mm SMLS 316/316L 2.5% Moly tubing.
CMF8	8mm x 1mm SMLS 316/316L 2.5% Moly tubing.
CMF10	10mm x 1mm SMLS 316/316L 2.5% Moly tubing.
CMB10	10mm x 1.5mm SMLS 316/316L 2.5% Moly tubing.
CMF12	12mm x 1mm SMLS 316/316L 2.5% Moly tubing.
CMB12	12mm x 1.5mm SMLS 316/316L 2.5% Moly tubing.

Seamless Alloy 825

AB2	1/4" x 0.035" SMLS 825 SS tubing.
AB3	3/8" x 0.035" SMLS 825 SS tubing.
AB4	1/2" x 0.035" SMLS 825 SS tubing.
AC4	1/2" x 0.065" SMLS 825 SS tubing.

