

Mass transfer technology and equipment

We develop and supply a comprehensive of mass transfer & separation internal equipments, also offer engineering solutions for the mass transfer and separation project. Our portfolio includes state-of-the-art products for distillation, absorption, stripping, evaporation, mally phase separation, liquid-liquid extraction, crystallization and membrane separation.

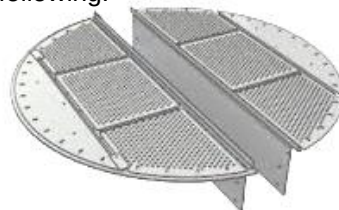
Tower Trays:

Tower Tray----A full Line of Trays and materials,

The available trays range from conventional to high performance and the latest developments trays. Within the family of conventional trays, we offer: round and caged floating trays as the following:

1- Sieve Tray

Sieve trays are simply metal plates with holes in them. Vapor passes straight upward through the liquid on the plate. The arrangement, number and size of the holes are design parameters. Because of their efficiency, wide operating range, ease of maintenance and cost factors



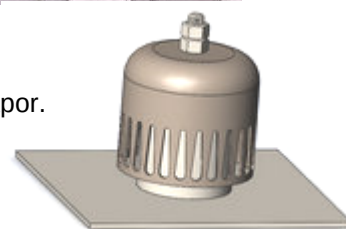
2- Valve Tray

Valve trays are the most commonly used tray types because of their suitability for a large variety of mass transfer applications. They are characterized by a high capacity and a large load range, which results in good mass transfer rates.



3- Bubble Cap Tray

A bubble cap tray has riser or chimney fitted over each hole, and a cap that covers the riser. The cap is mounted so that there is a space between riser and cap to allow the passage of vapor. Vapor rises through the chimney and is directed downward by the cap, Finally discharging through slots in the cap, and finally bubbling through the liquid on the tray.



4- Dual Flow Tray

Dual flow trays are sieve trays that do not have down comers. The term dual flow comes from the countercurrent flow of the vapor and liquid through the perforations. It best suit systems containing a moderate to high solids content or polymerizable compounds. High open area dual flow trays have a higher capacity and lower pressure drop than comparably spaced fractionation trays.



5- Cartridge Tray

Suitable for small diameter body flanges. Can provide up to 5 trays per cartridge. Different sealing options are available.



Packing and Hardware:

A full Line of Trays packing and hardware in all of materials grades, We can supply a full range of tower and trays packing and hardware like (random packing – structure packing – column internals – wire mesh demister – hardware fasteners).



Pipes and fittings

Pipes:

We supply and stock the most impressive range of grades and sizes. We like to be challenged with your hard to source items or project inquiries with critical specifications.

We have available Carbon Steels up to 42" seamless in:

ASTM SA106 GrB/C, SA333 Gr.6

API5L GrB, X52, X60, X65, X80

DIN & EN 10216 P235GH, P280GH, P265GH, P355NH / NL1Stainless Steel up to 36"

Seamless including:

ASTM SA312 TP316 / 316L, TP304 / 304L, TP321 / 321H, TP347 / 347H

DIN & EN 10216 1.4401, 1.4404, 1.4571, 1.4541, 1.4547

We have all Cr-Mo steel grades up to 38" seamless:

ASTM SA335 P1, P11, P12, P22, P5, P9, P91 and even P92

DIN & EN 10216 16M03, 13CRM04-5, 10CRM09.10, X10CRM09NB9.1 and X10CrWMoVNb9-2



Fittings:

Materials:

For Carbon Steel:-

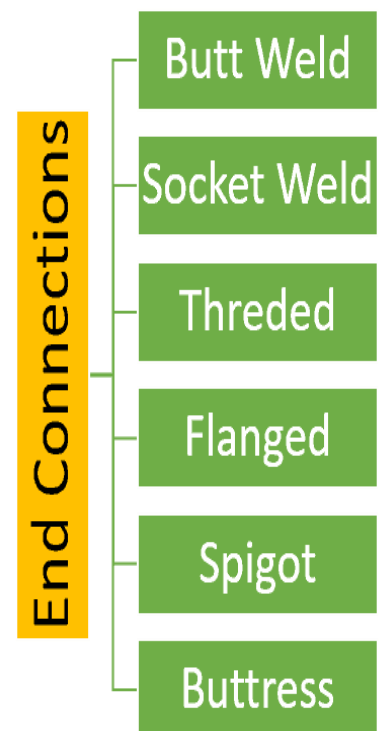
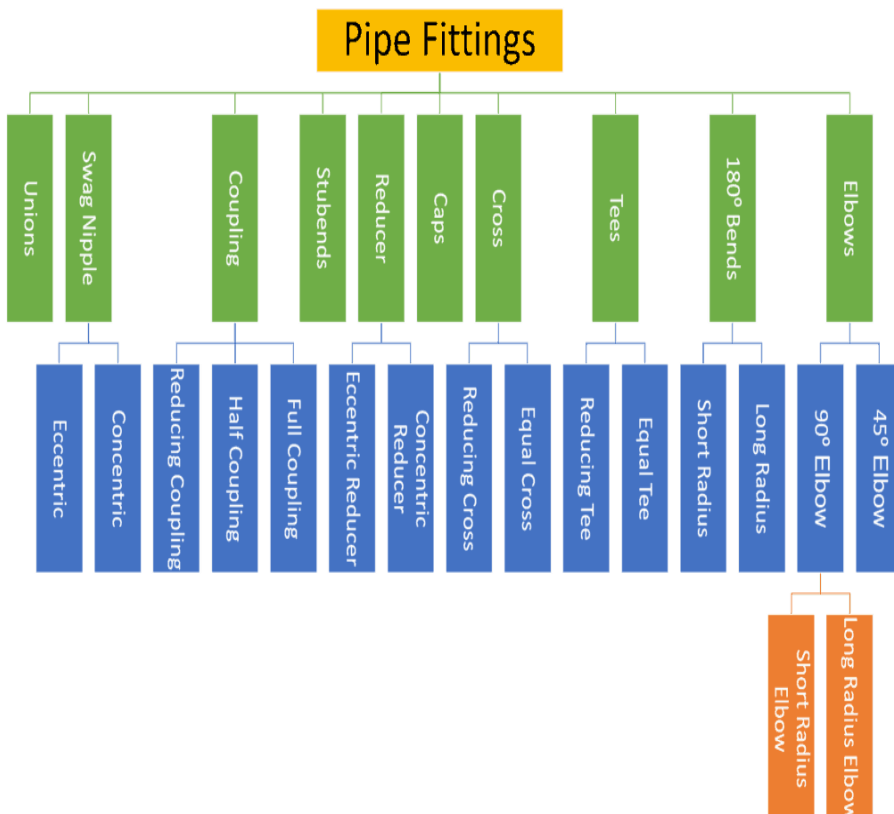
ASTM A234Gr.WPA/B, ASTM A420 Gr.WPL6

For Alloy Steel:-

ASTM A234 WP1 /WP5 /WP7 /WP9 /WP11 /WP12 /WP22

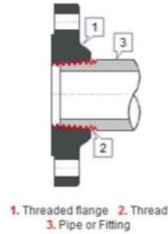
And for Stainless Steel:-

ASTM A403 WP304 /WP304L /WP304H /WP316 / WP316L/ WP321/ WP347



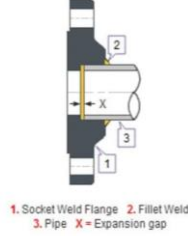
Flanges

Threaded Flanges



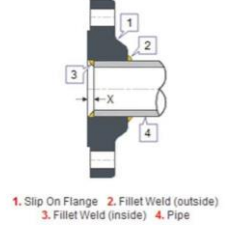
1. Threaded flange 2. Thread
3. Pipe or Fitting

Socket-Welded Flanges



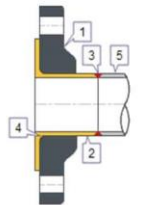
1. Socket Weld Flange 2. Fillet Weld
3. Pipe X = Expansion gap

Slip-On Flanges



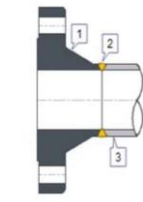
1. Slip On Flange 2. Fillet Weld (outside)
3. Fillet Weld (inside) 4. Pipe

Lap Joint Flanges



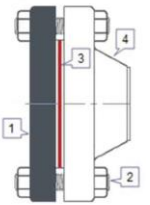
1. Lap Joint Flange 2. Stubend
3. Butt weld 4. Radius (R)
5. Pipe or Fitting

Weld Neck Flanges



1. Welding Neck flange 2. But
3. Pipe or Fitting

Blind Flanges



1. Blind flange 2. Studbolt
3. Gasket 4. Other Flange

FLANGE MATERIAL

Carbon Steel: - ASTM A105, ASTM A350 LF1/2, ASTM A181

Alloy Steel: - ASTM A182F1 /F2 /F5 /F7 /F9 /F11 /F12 /F22

Stainless Steel: - ASTM A182F6 /F304 /F304L /F316 /F316L/ F321/F347/F348

TUBES

TUBULAR PRODUCTS

Aerospace tubes

Bimetallic tubes

Boiler tubes

Capillary tubes

Chemical injection lines

Coiled tubing

Composite tubes

Condenser tubes

Ethylene furnace tubes

Evaporator tubes

Finned tubes



MATERIALS

Carbon & stainless steel

Titanium

Stainless Steel

Nickel Alloy

Copper Nickel & aluminum copper

Duplex Stainless Steel

Valves

Size: From ½" to 48"

End connection: RF-BW-SW-NPT

Operation: Hand wheel – Manual gear – Actuator

Materials:

Full rang of material acc to customer requirements

- Ductile iron / cast iron
- Stainless Steel Valves 304/304L/CF8/CF3
- Stainless Steel Valves 316/316L/CF8M/CF3M
- Duplex Steel Valves F51/F53/F55/S31803/CD3MN/CE3MN/2205/4A/5A/6A
- Exotic Alloy Valves A20/Monel
- Low Temp Carbon Steel Valves LCC/LCB/LF2
- Standard Carbon Steel Valves WCB/WCC/A105
- Chrome Moly Steel Valves F11/F22/F5/WC5/WC9/WC6



Valves for petrochemicals industries

We provide a dependable and economical way to handle corrosive Chemicals, including sulfuric and hydrofluoric acid, nitric acid, Oxidizing chemicals, caustics, solvents, halogens, and various other r hostile fluids. They perform at temperatures up to 250°F, Pressures up to 230 psi, and flows up to 18,500 gpm. All valves meet or exceed ANSI Class 6 shut-off.

Types: Gate valves – Globe valves – Ball valves – Check valves – Diaphragm valves – Pressure relief valves

Size: 1/2" - 10"

Body: PVC/CPVC (1/2" - 4")/PP/PVDF

Operation: Hand wheel – Manual gear – Actuator

End Connections: Flanged/Socket/Threaded/Butt (PP/PVDF)



Steam traps

Thermodynamic
Balanced Pressure Thermostatic
Thermostatic Bimetallic
Ball Float
Inverted Bucket
Compressed Air Traps
Air & Gas Vents
Steam Manifolds
Strainers
Flame Arrestor



END-LINE FLAME ARRESTOR



IN-LINE FLAME ARRESTOR



Safety rupture discs

Rupture discs are, next to safety valves, the most commonly used pressure protection devices in industrial plants. They protect vessels and pipelines from deformation and other damage. The main objective is to optimally protect and, at the same time, minimize the downtime of the system



Steel products

Steel sheets/plates – tube sheets – Round Bars

Materials:

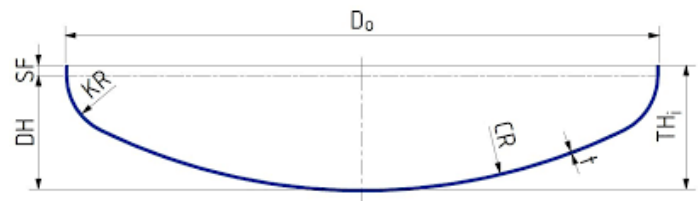
- Carbon & alloy steel
- Nickel & High temp
- Stainless steel & super duplex
- Aluminum & aluminum bronze
- Copper & Copper Nickel
- Titanium metals
- Clad materials



Dished ends / Elliptical Heads

Materials:

- Carbon & alloy steel
- Nickel & High temp
- Stainless steel
- Clad materials



Sealing products

Metallic gaskets:

Spiral wound gaskets – metal jacketed gaskets – oval rings -

Non Metallic gaskets:

Gasket sheets – Teflon sheets and tubes – valve packing – graphite/Teflon tapes

Expansion joints:

Rubber expansion joints – metal expansion joints – copper expansions joints



HOSE & EQUIPMENT

- Silicone hose
- oil & fuel hose
- chemical hose
- Hot water & steam hose
- food & drink hose range
- marine hose
- Composite hose
- Stainless steel flexible hoses



INSTRUMENTATION

- Pressure and Temperature gauges
- Flow meters
- Solenoid valves
- Thermocouples
- Pressure and air regulators
- Gearbox
- Level gauges
- Valves and manifolds
- Instrument fittings



HEAT TRACE

- heat tracing cables
- heat tracing panels
- heat tracing accessories
- heat trace connection kits
- tube bundle and instrument enclosures



CHEMICALS PRODUCT LIST

A Acetone Acids Additives- Metal Working Alcohols Aliphatic Solvents Alkyd Resins Alkyl benzene Sulfonates Amines Amino Resins Aromatic Solvents B Benzyl Alcohol Butyl Acetates Butyl Alcohols C Calcium Carbonate Caustic Soda Beads Caustic Soda Flakes Cetyl Alcohol Coatasil® Coatings Additives Cycloaliphatic Amine Curing Agents Cyclohexanone Cyclohexylamine D Diacetone Alcohol Dicyclohexylamine Diethanolamine Diethylene Glycol Diethylethanolamine(DEEA/DEEOA) Diglycolamine® Agent Diisobutyl Ketone Dimethyl Carbonate Dimethyl Formamide Dimethyl Phthalate Dimethylethanolamine Dipropylene Glycol/ (DPG) Disodium Phosphate, Food Grade Gran DMDS E Ethoxylates Alcohol Epoxy Resin Ethylhexyl Acetate Ethylene Diamine/(EDA) Ethylene Glycol F Fatty Acids Formaldehyde Formic Acid G Galvanizing Products Glycerine Glycerol Esters Glycerol Monooleate Glycols H Hab Heat Transfer Fluids Heavy Aromatic Distillate(HAD) Heptane Hexane Hexylene Glycol Hydrocarbon Resins Hydrocarbon Solvents Hydrochloric acid HCl I Isobutyl Acetate Isobutyl Alcohol Iso octane Isopropyl Acetate Isopropyl Alcohol 99% (Tech, USP) K Kerosene Ketones	L Lab Lactic Acid LD Naphtha Linear Alcohol Ethoxylates M Methylates Methyl Amyl Alcohol Methanol/ (MEOH) Methyl Amyl Ketone/(MAK) Methyl Esters Methyl Ethyl Ketone/(MEK) Methyl Isoamyl Ketone/(MIAK) Methyl Isobutyl Ketone / (MIBK) Metyl N-Amyl Ketone Methylamines Monoethanolamine/ (MEA) N N-Butyl Acetate N-Butyl Alcohol Normal Pentane O Oil Ethoxylates/(Polyoxyethylene Oils) Octyl Phenol Ethoxylates Oleic Acid (Single and Double Distilled) Olefin Sulfonates Onyxide 200 Preservative Opacifiers Optiblanc® Optical Brighteners Oxalic Acid Oxazolidines & Aldimines Oxidan® Bleaching Agents/Stabilizers P Panthenol Paratoluenesulfonic Acid PEG Esters 2,4 Pentanedione Peracetic Acid Perchloroethylene/ (Perc) Petrolatums Phenol (90 and 100%) Phosphoric Acid Phthalic Anhydride Pilot® PTSA Toluene Sulfonic Acid Pine Oil Pluriol® Polyallylene Glycols Polyacrylic Acids Polyallylene Glycols Polyamide Curing Agents Polyethylene Glycol Polyetheramines Polypropylene Glycol Polysorbates Polystep® Anionic Surfactants Polyurethanes Potassium Citrate Potassium Silicates Potassium Sorbate Potassium Triphosphosphate Granular Primary Amyl Acetate Propyl Paraben Propylamine MnPA Propylene Carbonate Propylene Glycol (USP, K and Technical Grades)	Q Quaternaries R R4584 Raw Linseed Oil Reactive Diluents RV Antifreeze, -100 degree S SAG® Antifoams Salt/ (Sodium Chloride Granular FG) SDA Denatured Alcohols Saturated Polyester Resins Secondary Alcohol Ethoxylates Secondary Butyl Alcohol Silanes Silform® Flexible Resins Silicates Silicone Emulsions Silicone Fluids Silicone Oils Silicone Resins Silgrip® PSA- Pressure Sensitive Adhesives Silquest™ Silanes Silsoft™ Personal Care Silicones Silwet™ Specialty Silicone Surfactants Skin Conditioners SM™ Silicone Emulsions S-Maz® Sorbitan Esters Soda Ash (Dense & Light) Sodium Acid Pyrophosphate Sodium Alkyl Sulfates So-San® 30M/ Concentrated Quaternary Fabric Softener Sodium Aluminum Phosphate FG/ (SAP) Sodium Benzoate, Gran. Tech. Sodium Bicarbonate USP #1 Sodium Bisulfate Sodium Citrate Sodium Dioctyl Sulfosuccinate/ (DOSS) Sodium Dodecylbenzene Sulfonate Sodium Glucoheptonate Sodium Hydroxide/ Caustic Soda Sodium Hypochlorite, 15%vol, 12.5%wt/ (Bleach) Sodium Laureth Sulfate Sodium Lauryl Ether Sulfate Sodium Lauryl Sulfate Sodium Metabisulfite Sodium Silicates Sodium Stearate OP-100 V Sodium Sulfate Solution Epoxy Resins Solvents Soy Methyl Esters SR® Silicone Resins SURE SOL® -300/ Diluent Sulfolane for Epoxy and Polyurethanes Specialty Waxes Stearyl Alcohol Steol® Surfactants Stepanol® Surfactants Stepantan® AS-12 46/ Anionic Surfactant	Steposol® MET 10-U/ Surfactant Solution to Solvent Replacement™ Stoddard Solvent Sulfonates Sukorez® Water White Hydrocarbon Resins Sulfamic Acid, Technical Sulfosuccinates Sulfuric Acid 66 Deg. Baume Surfactants Surfonic® LF Series/ Alcohol Alkoxylates Surfonic® JL-80X/ Alkoxylated Linear Alcohol Surfonic® N Series Surfactant/ Nonylphenol Ethoxylates Sweeteners Synthalen W 400 Synthalen® W2000- Acrylates/Palmeth25 (and) Acrylate Copolymer Synthalen® CR/ Polyquaternium-37 Synthalen® Rheology Modifiers Synthetic Lubricants T Tetraethylenepentamine/ (TEPA) Tertiary Butyl Acetate/ (TBAC) Tertiary Butyl Alcohol Tetrahydrofuran, Virgin Tetrapotassium Pyrophosphate 60% Tetrasodium EDTA Tetrasodium Pyrophosphate/ (TSP) Tetric® Texanol® Coalescing Aids Texanol Isobutyrate/ (TXIB) Tolonate™ Aliphatic Viscosity Aliphatic Isocyanate Polymer Toluene Tospearl* Microfine Spherical Silicone Resins Tributoxy Ethyl Phosphate/(TBEP) Tricalcium Phosphate Trichloroethylene U Urea Urethanes Uvasorb® Conditioning Polymers/ UV Absorbers V Varsol™ Solvents Velvessil® Silicones for Personal Care VM&P Naphtha VOC Exempt Epoxy & Curing Systems VOC Exempt Solvents W Waterborne Epoxy & Hardeners Water Reducible Resins White Oils X Xceltherm® Heat Transfer Fluids Xylene Z Zinc Chloride Zinc Oxide
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