



WE PROTECT YOUR
TURBOMACHINERY
EQUIPMENT



TM FILTERS
MEMBER OF HWI GROUP

HWI Group Timeline

Established

1991

Expansion

HWI Group expanded the production area

1997

**Move to
New Facility**

Magazijnweg 4
Alphen aan den Rijn

2010

Today

Over 60 professionals,
Partners in AP & EMEA

2020



HWI Group Location



1500 m2 office area

2500 m2 workshop

Business Unit: TM Filters

TM Products

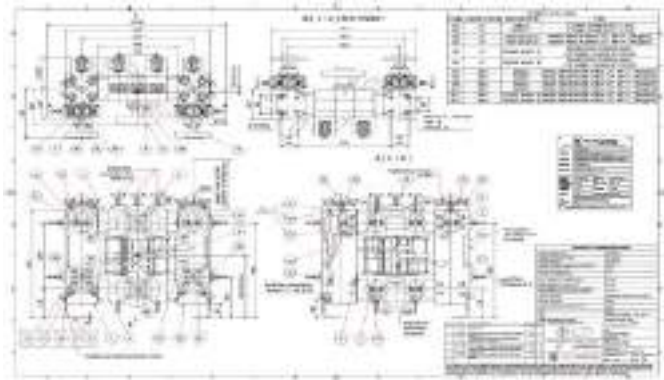
- Seal Gas Filters
- Knock Out Filters
- Lube Oil Filters
- Liquid Fuel Filters
- Fuel Gas Filters
- Adsorption Filters
- Magnetic Pre Filters
- Custom Made Filters
- Filter Elements
- Transfer Valves



Business Unit: TM Filters

Design

- ASME VIII Div.1 Edition 2019
- ASME VIII Div.2 Edition 2019
- PED 2014/68/EU
- EN 13445
- API 614 5th Edition
- API 692 1st Edition
- API 598 10th Edition
- IECEX certified



Quality

- ISO 9001:2015
- ASME U-Stamp
- National Board
- API 607 Fire Safe
- SupplHi Technical Passport (by Lloyd's Register)



Industries

Oil & Gas



Petro-/ Chemicals



Maritime



Energy & Power

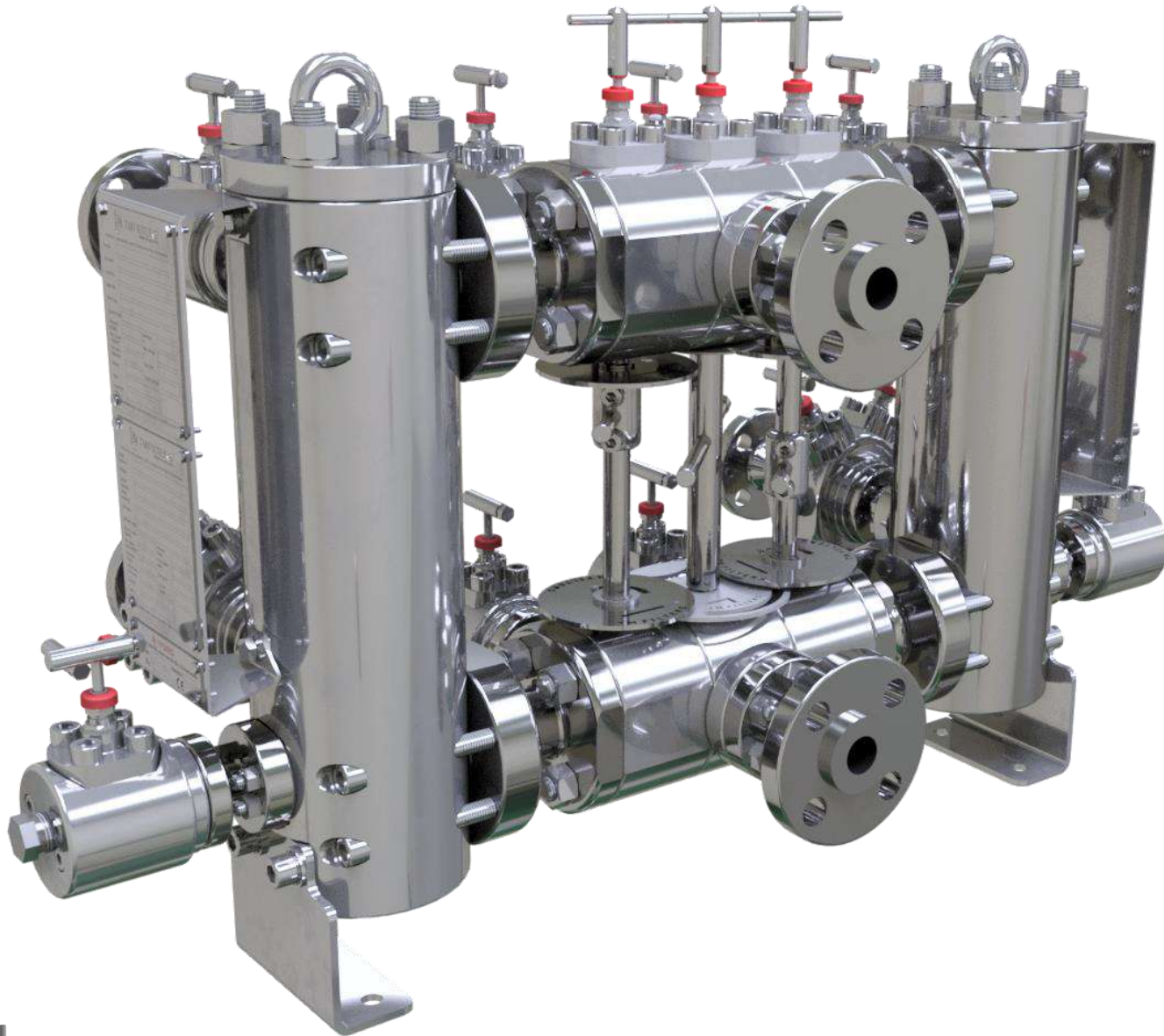


Industrial Gases



Mining





Seal Gas Filters Special Gas Filters

- Non Welded Design
- API 614 5th edition
- API 692 1st edition
- ASME VIII div.1
- Single, Duplex & Double Block & Bleed configuration
- All exotic material available
- Zero Leak Transfer Valve
- All connections are available
- Integrated Equalizing Line
- Available from 1/2" full bore

TM Duplex Seal Gas Filters Filters

Project WEPP III

End User: Petrochina

Year Supplied: 2017

Category: Pipeline

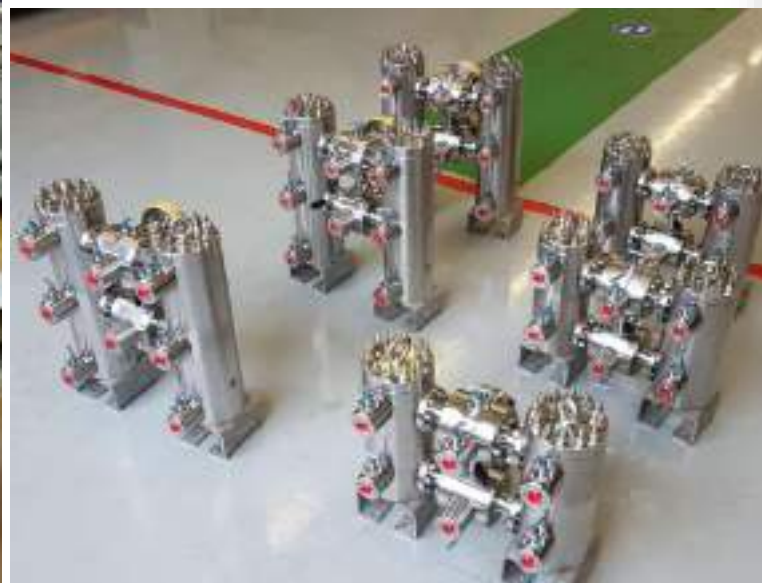
Type: 6x HP Duplex Seal Gas Filters

Compressor OEM: Siemens – Rolls Royce

DGS OEM: EagleBurgmann China

Pressure Vessel Code: ASME VIII Div.1 Stamped

Code: API 614 5th edition



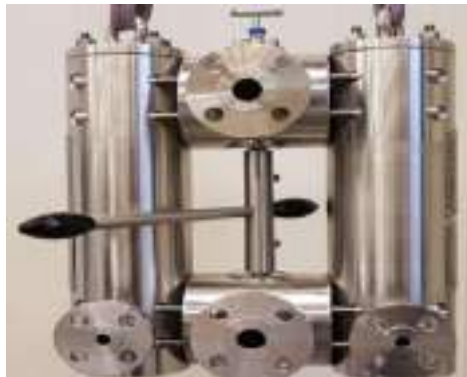
TM Lube Oil Filters



Lube Oil Filters Special Liquid Filters

- Non Welded Design
- API 614 5th edition
- API Plan 54
- Liquid to Liquid Coalescer
- ASME VIII div. 1
- Single, Duplex configuration
- All exotic material available
- Zero Leak Transfer Valve
- All connections are available
- Integrated Equalizing Line
- Available from 1/2" full bore

TM Duplex Lube Oil Filters



Project FPSO LIZA

End User: ExxonMobil

Year Supplied: 2017

Category: FPSO

Type: 5x Duplex Lube Oil Filters

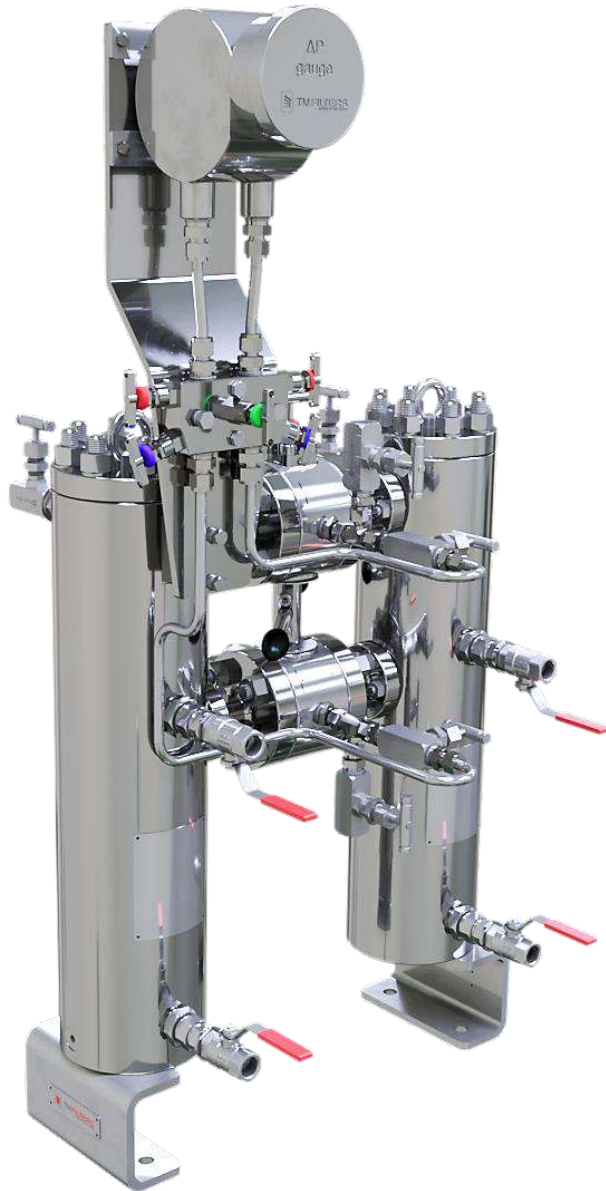
Pump OEM: Sulzer

Pressure Vessel Code: ASME VIII Div.1 Stamped

Code: API 614 5th edition

Skid Builder: WM Coulthard





Fuel gas Filters

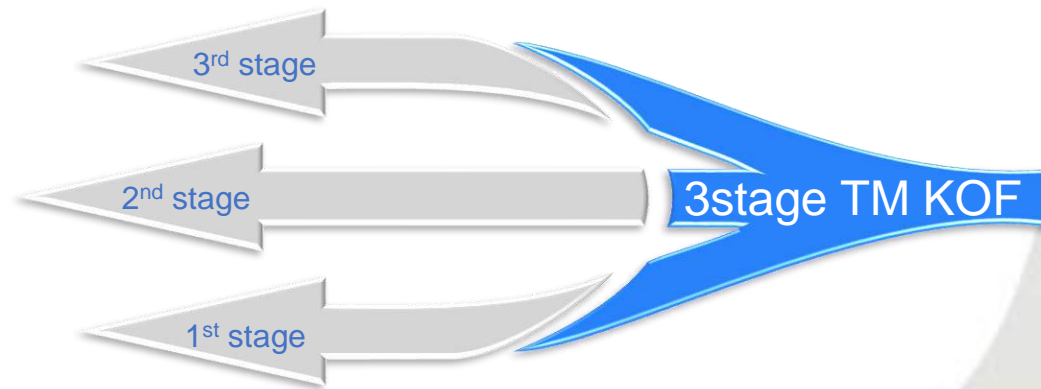
- Non Welded Design
- Custom Options
- ASME VIII div.1
- Single, Duplex configuration
- All exotic material available
- Multiple stages
 - TM Cyclone
 - TM Demister pad
 - TM High efficiency element
- All connections are available
- Available from 1/2" full bore

TM 3 Stage Filter System



Custom made options

- ✓ Connections types
- ✓ xx Liter Reservoir
- ✓ Stages
- ✓ Material of construction
- ✓ Instruments



3rd Stage: High Efficiency TM Filter Element

- ✓ Very fine particle and droplet removal
- ✓ Liquid loading up to 50 ppmw
- ✓ Laboratory grade separation efficiency >99.9% for particles >1 micron and liquid droplets
- ✓ High dirt holding capacity and low pressure drop due to pleated micro- and nanofiber technology

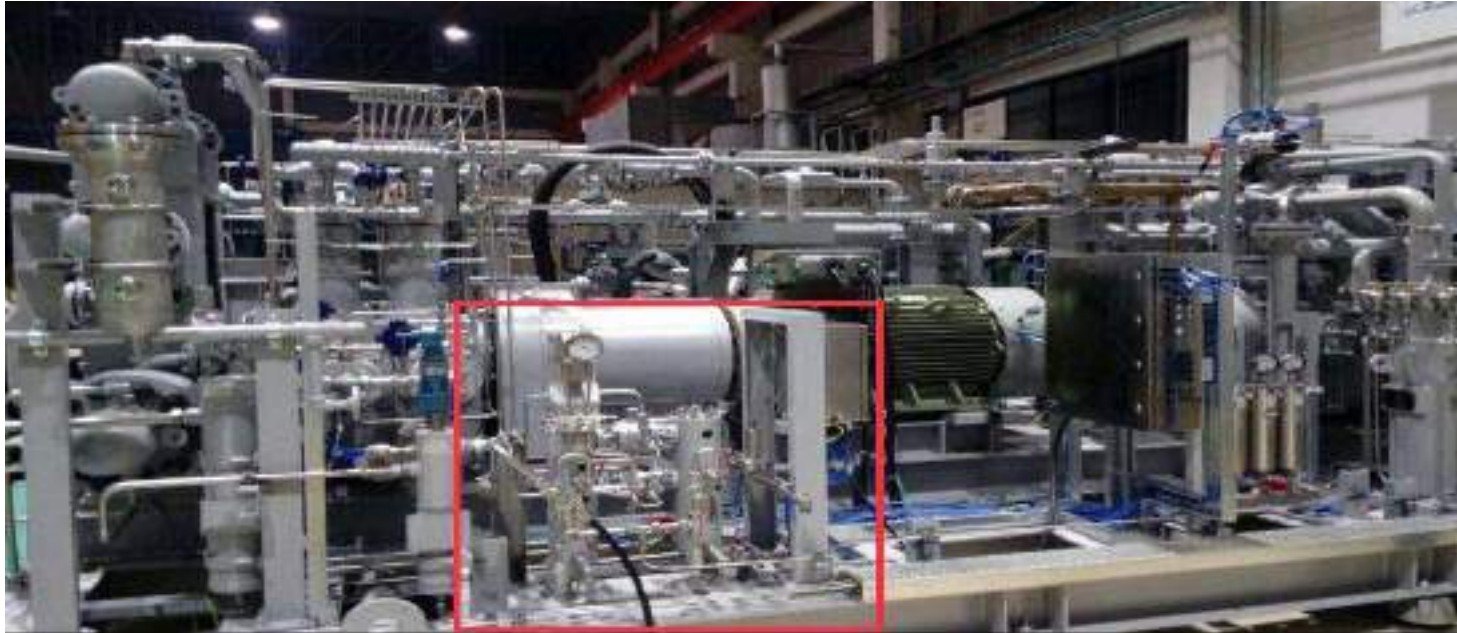
2nd Stage: Stainless Steel Demisting Pad

- ✓ Fine droplet removal
- ✓ Liquid loading capacity up to 3000 ppmw
- ✓ Self-cleaning by counter flow drainage of separated liquids
- ✓ High separation efficiency (>95%) for liquid droplets up to 5 micron
- ✓ Low pressure drop due to high porosity (up to 98% open volume)

1st Stage: Cyclone Pre-Separator

- ✓ Bulk particle and liquid removal
- ✓ High dirt and liquid loading capacity >5000 ppmw
- ✓ Low pressure drop and high efficiency for bulk particles and liquids (typical efficiency > 90%)

TM HP Fuel Gas Duplex Filters



Project LGEL Edinburgh 01

End User: Hyundai Mipo Dockyard Co. Ltd.

Year Supplied: 2017

Category: LNG Carrier

Type: 2x HP Duplex LNG Filters (245 Bar)

Compressor OEM: Burckhardt Compression

Pressure Vessel Code: ASME VIII Div.2 & Lloyds

Marine Pressure Vessel Rules

Certified: Lloyds Marine

Material Certification: 3.2





Hydraulic Filters Chemical Injection Filters

- Non Welded Design
- High Pressure > 1000 bar
- High Temperature > 350°C
- All exotic material available
- Filtration Efficiencies ranging from: 500µm to 0,2µm
- Special seals for hazardous application

TM HP Chemical Injection Filters



Project Leviathan Production Platform

End User: Noble Energy Mediterranean Ltd.

EPC: Wood Group

Year Supplied: 2017

Category: Production Platform

Type: 8x HP Single Gas Filters (800Bar)

OEM: Frames Group

Pressure Vessel Code: ASME VIII Div.2



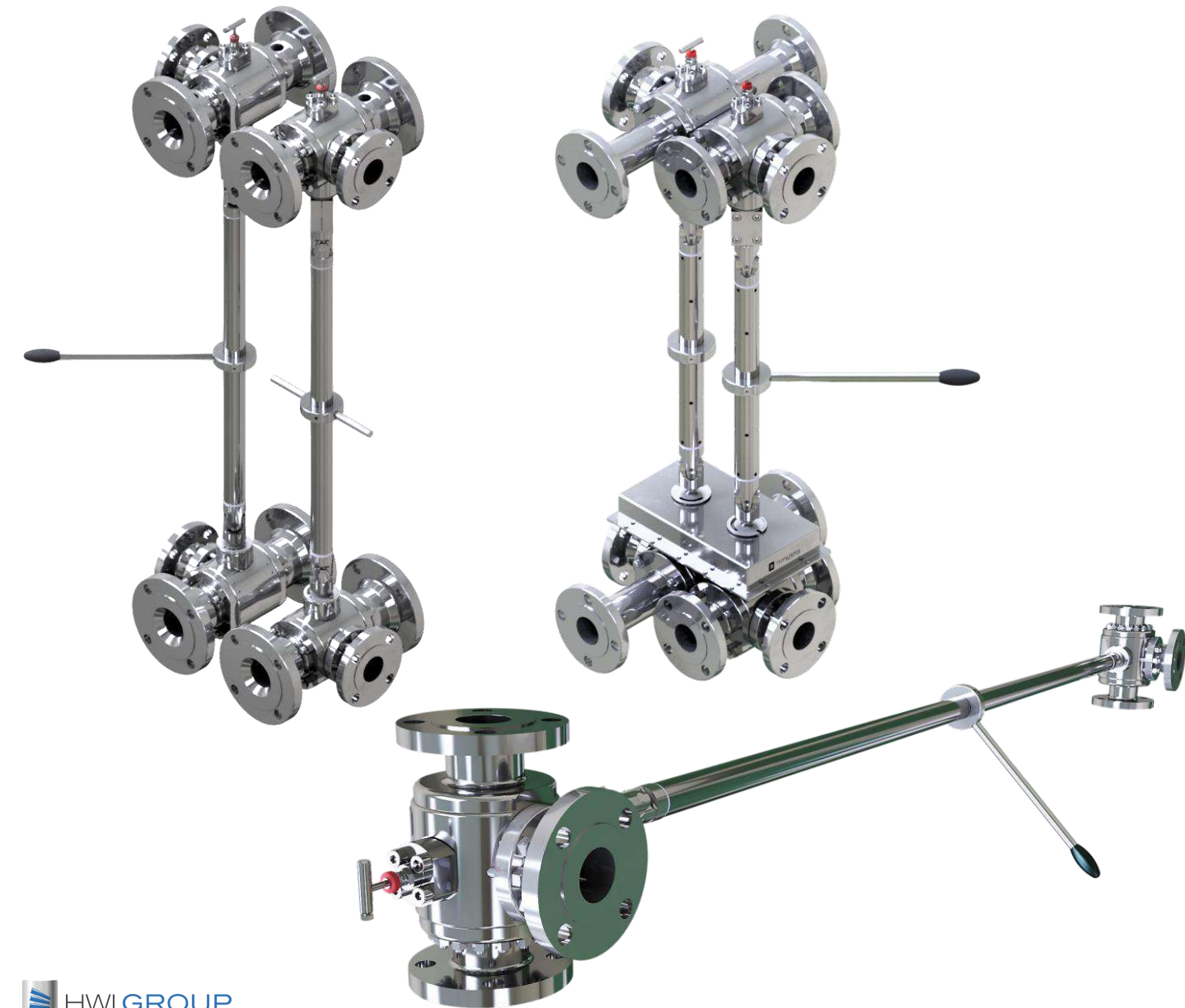
TM Double 3 & 6 Way Change Over Valve

TM Double 6-Way Valve

- Non Welded Design
- Zero Leak
- Custom Made
- Integrated equalizing line
- Exotic material available
- 1 Leaver switchover system
- Any connection available

TM Double 3-Way Valve

- Non Welded Design
- Zero Leak
- 1 Leaver switch over
- Custom Made
- Integrated equalizing line
- Exotic material available
- Any connection available



TM Double 3 way Change Over Valves



Project HENGAM Fertilizer

End User: Hengam Petrochemical

EPC: PIDEK

Year Supplied: 2017

Category: Petrochemical

Type: 8x Double Change Over Cooler Valves

Pump OEM: MHI

Code: API 614 5th edition

Skid Builder: KOWA Japan



TM Adsorption Filters



TM Adsorption Filters

- Custom Made Adsorption Elements
- High End Materials
- In House Manufacturing
- Exotic material available
- Low pressure drop
- High Vapour Removal Efficiency
- Activated Carbon
- Molecular Sieve
- High Pressure Gas Application
- Glycol and Water Applicatons

TM Filter Elements



TM Filter Elements

- Custom Made Elements
- High End Materials used
- In House Manufacturing
- According API 614 / 692
- Tested as per ISO
- Exotic material available
- Coalescing
- Particulate
- Low pressure drop
- High collapse pressure
- Welded or Glued
- High Efficiency up to 0,01µm



TM Filter Elements Tests

Element tests (Oil):

- Multi Pass Test according to ISO 16889
- Bubble Point Test according to ISO 2942

TM Filter Elements Tests

Element test (Gas):

- Solid Particle Removal Efficiency according to ISO 12500-3
- Coalescing Water Removal Efficiency according to ISO 12500-4

Special Painting



Special Painting

- According customer specifications
- NACE Level III / FROSIO Level III
- Paint Reports
- Custom Paint Tests & Inspections



TM Filters References



Summary

Designing, Machining and
Manufacturing under one roof

Maximum Customer Service

Non Welded Design

Comply to all International Standards, OEM, EPC &
End User Specifications

Safety First

Filtration & Pressure Vessel Knowledge

API 614 & 692 Specialist

Focus on Documentation

Custom Made Solutions Fit & Function

Exotic Materials

