



ASVO
TEC

Since 1965

- History
- Factory facilities
- Machining capabilities
- Engineering and Certifications
- Market overview - Customers
- Geographic markets
- Key Products
- Technical services and Aftersales
- International partnerships
- Recent relevant projects



History

Continuously improving since 1965



1965

Foundation in São Paulo (SP)

Manufacturing of burners and thermal systems.



1980s

New workshop in Monte Mor (MM)

Manufacturing of thermal systems, special valves, gas systems, furnaces, flares, special couplings, etc.



1990s

Partial moving from SP to MM

Manufacturing of thermal systems, special valves, gas systems, furnaces, flares, special couplings, etc.



2000s

Complete structure in Monte Mor

Manufacturing of pressurized equipment, thermal systems, special valves, gas systems, furnaces, flares, special couplings, instrumentation and control, etc.



2010s

Construction of new preparation shop

New lean manufacturing principles with added capacities, plasma couthing machines, painting booth and others.



2020

Expansion in Offshore and International Market

Major investment in new large size CNC turning machine, rolling machine and continuous expansion in core markets.

Unit Overview

- Total area: 200.000 m²
- Constructed area: 20.000 m²
- Handling capacity: 65t
- Maximum handling: 300t
- Total Employees : 250
- Engineering: 20
- Capacity Installed: 40.000 H/H

Expertise

- Pressure vessels / Separators / Electrostatic Treaters
- Heat Exchangers / Air-coolers
- Process columns / Reactors
- Combustion Systems / Furnaces / Fired Heaters
- Flare Systems
- Special Valves
- Special Couplings
- Skids

Monte Mor Industrial Unit

Located in São Paulo state



Overview

Asvotec facility, Monte Mor, Brazil | Total area: 200.000 m2 | Constructed area: 20.000 m2



Manufacturing capabilities

The industrial installations are equipped with full-range facilities, from cutting to painting

Inhouse cutting, rolling, welding, radiography bunker, heat treatment, blasting and painting



CNC PLASMA MACHINE



ROLLING UP TO 2,5"



SEVERAL WELDING MACHINES



HEAT TREATMENT FURNACE



RADIOGRAPHY BUNKER



PAINTING BOOTH

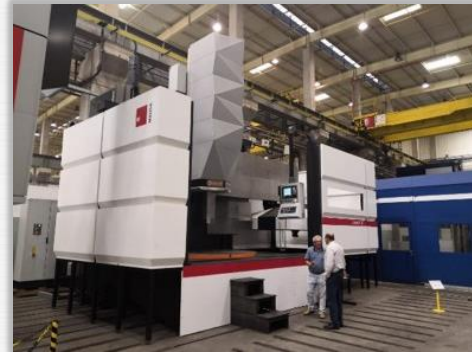
Manufacturing capabilities

The Industrial installations are fitted with modern equipment and experienced professionals

Machining centers and lathes



ROMI DISCOVERY 1250



VERTICAL LATHE



TRAVIS CNC PORTAL

Milling / Drilling machines



WOTAN B-120



WOTAN B-130



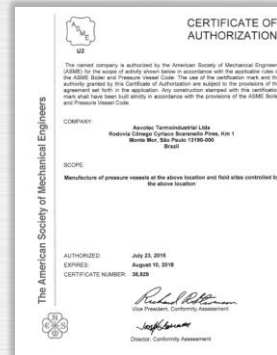
WOTAN CUTMAX-2

Certifications

Quality and Engineering certificates



ASME Certificate
"U" Stamp



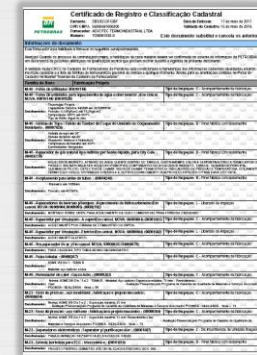
ASME Certificate
"U2" Stamp



National board
"R" Stamp



ISO: 9001
Certificate



CRC - PETROBRAS



HTRI - Member



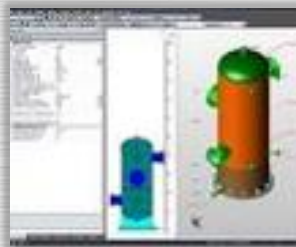
Brazilian Nuclear Certificate



IBQN Certificate

Engineering softwares

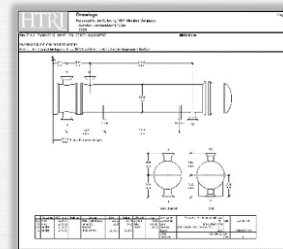
Own mechanical, thermal, process calculation and instrumentation & control design



Mechanical



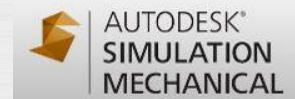
Combustion



Thermal



3D and 2D Design



FEA and CFD Calculation

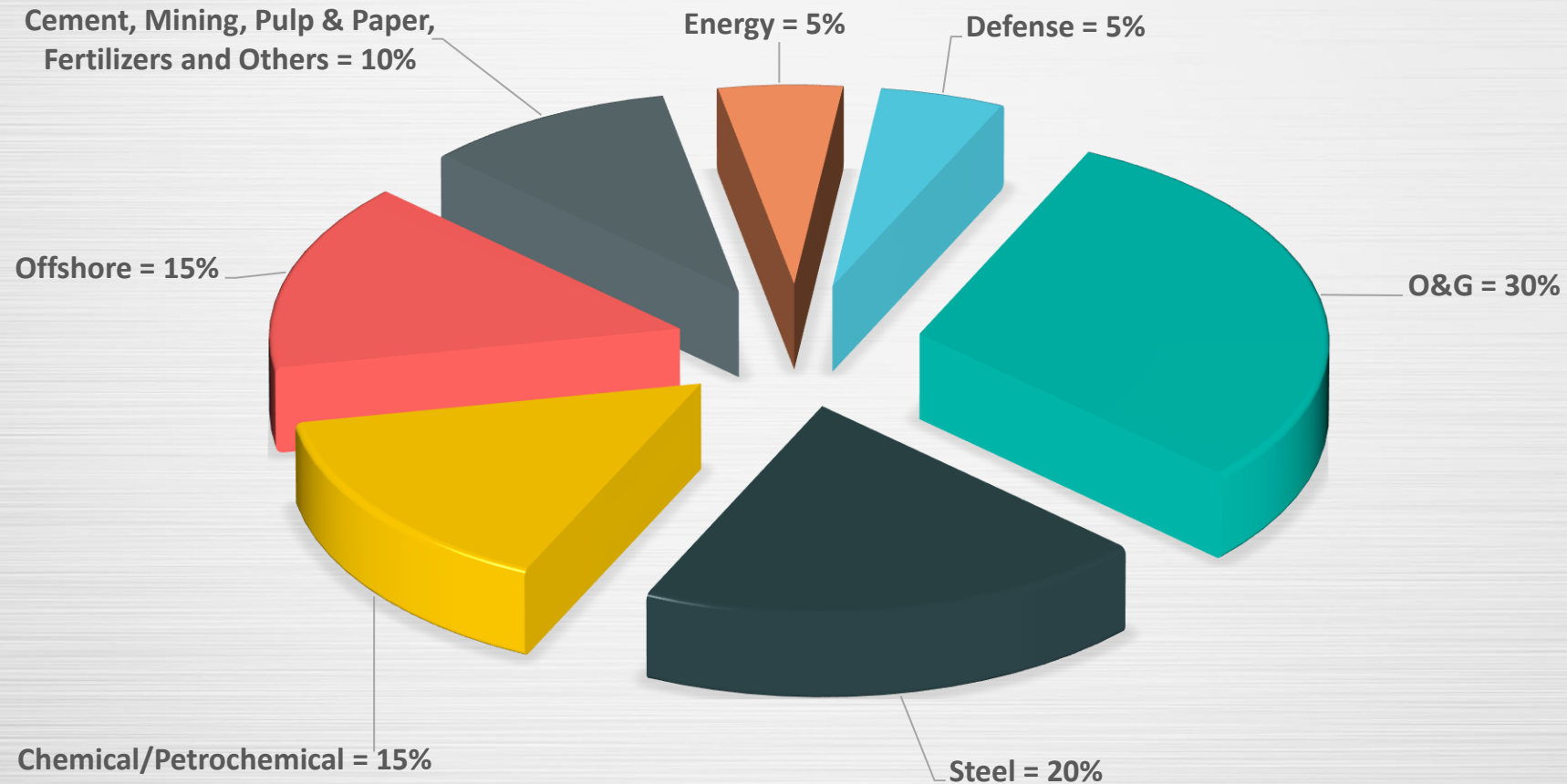
Main customers

Present in all base industries



Market participation

Present in several markets – High diversification



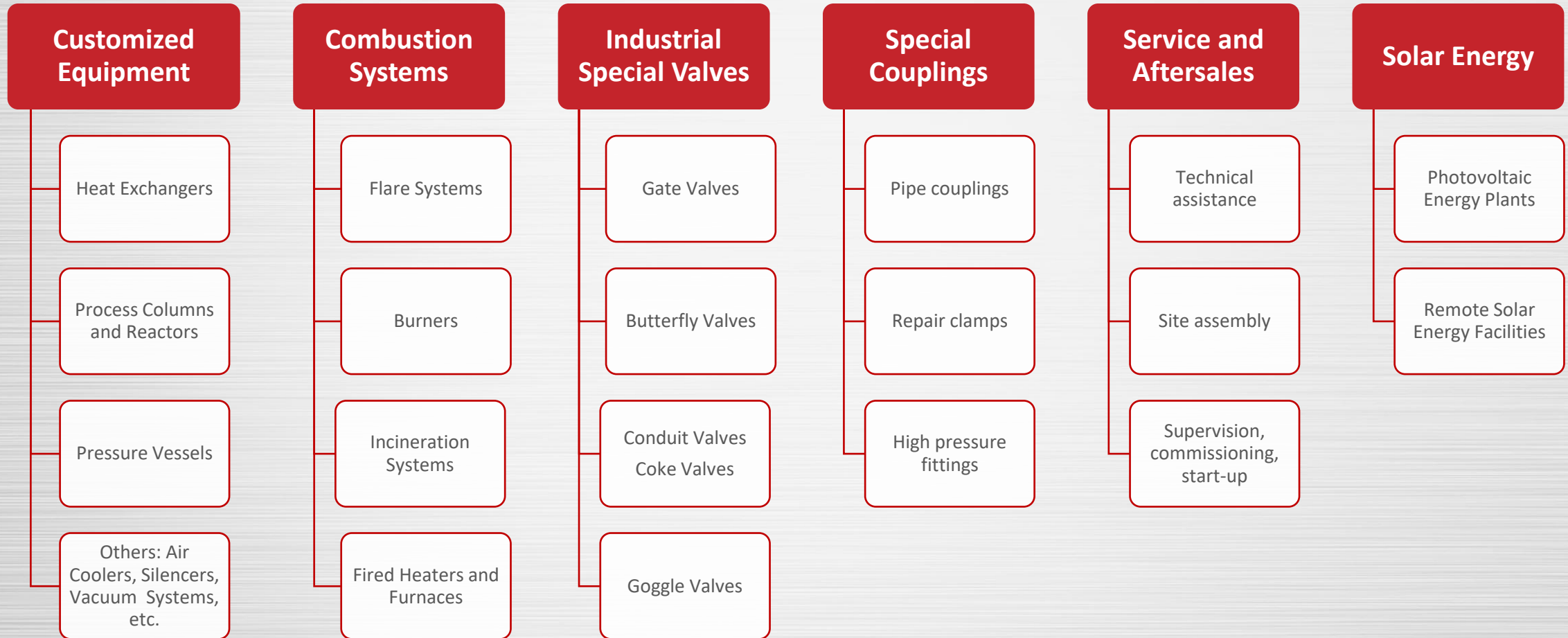
Market presence

Active mainly in Brazil and Latin America, besides projects in Asia



- *Main Market: Brazil (90%)*
- *Expanding markets in Latin America*
- *Sales agents and representatives*

Product lines and equipment types



Shell and tube heat exchangers

Vast experience with carbon, low alloy, stainless, clad, duplex, superduplex, inconel steel, etc.



Heat Recovery Boiler – NEN
PB/FAFEN/Laranjeiras/SE
Øi 1.194 X 7.620 mm - Weight: 31,6 Ton.
Material: SA-516 Gr.70 /SA-213-Gr. T11/SA-182-Gr.11-CL.2



Depropanizer Condenser – AEM - PB/REVAP/SP
Øi 1.450 X 14.530 mm - Weight: 45,0 Ton.
Material: SA-516 Gr.60 /SA-179/SA-516 Gr.70/SA-105



Preheater – DFU - PB/RPBC/SP
Øi 1.321 X 7.984 mm - Weight: 25,5 Ton.
Material: SA-516 Gr.60 /SA-268 TP405/SA-266 Gr. 4/SA-105



Heat exchanger – AES
PB/RPBC/SP – UNA 25 Unit (URC)
Øi 1.143 X 7.500 mm - Weight: 19,6 Ton.
Material: SA-516 Gr.60 /SA-179/SA-516 Gr.70/SA-105



H2S Striker Reboiler – BHU
PB/RPBC/SP - Catalytic Reform Unit (URC) Øi 1.100 X 8.083 mm
Weight: 25,5 Ton. - Material: SA-516 Gr.70 /SA-179/SA-105 N



Cargo and Bottom Exchanger – BEU
PB/RPBC/SP – Hydro / Treatment Unit UT / HTD
Øi 1.610 X 8.260 mm - Weight: 29,0 Ton.
Material: SA-516 Gr.60 /SA-268 TP405/SA-105+CLAD 410 S

Shell and tube heat exchangers

Steam condensers, high pressure exchangers and catalyst coolers



Vacuum System Pre-Condenser
PB/RPBC/SP
Øi 1.143 X 6.932 mm – Weight: 16,0 Ton.
Material: SA-516 Gr.60 /SA-179/SA-516 Gr. 70/SA-105



Catalyst Cooler – Bayonet
PB/RECAP/SP
Øi 2.179 X 14.375 mm - Weight: 61,7Ton.
Material: SA-516 Gr.60 /SA-213 T11/SA-179/SA-266



Vacuum System Intercondenser
PB/RPBC/SP
Øi 1.676 X 7.126 mm - Weight: 31,4 Ton.
Material: SA-516 Gr.60 /SA-179/SA-516 Gr. 70/SA-105



Surface Condenser
SIEMENS - PB/RFAP/ Power Generator
Øi 3.700 X H 5.350 X 14.741 mm - Weight: 152,0 Ton.
Material: SA-285 Gr.C /SB-111-C44300/SA-516 Gr. 70/SA-105



Debutanizer Petrol Cooler – AES
PB/REDUC/RJ – UFCC REVAMP Unit (U1250)
Øi 1.105 X 7.365 mm - Weight: 15,8 Ton.
Material: SA-516 Gr.60 /SA-179/SA-105



Stabilizer Reboiler – BHU
PB/RPBC/SP – Catalytic Reform Unit (URC)
Øi 1.025 X 8.008 mm - Weight: 15,4 Ton.
Material: SA-516 Gr.70 /SA-179/SA-105 N

Process columns and reactors

Distillation columns and process reactors in all types of materials and sizes



*Pre Vacuum Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 21.000/2.002
Øi 4.500 X 31.040 mm - Weight: 117,0 Ton.
Material: SA-516 Gr.60 + SA-240-317L (CLAD)*



*Regenerative Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 24.063/2.007
Øi 1.000 X 18.636 mm - Weight: 13,5 Ton.
Material: SA-240-304L/SA-240-316L*



*Absorbing Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 25.721/2.010
Øi 915 X 24.900 mm - Weight: 21,7 Ton.
Material: SA-516 Gr.70 (B Class H2S)*



*Fractional Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 25.469/2.009
Øi 1.900 X 29.241 mm - Weight: 25,5 Ton.
Material: SA-516 Gr.70*



*Regenerative Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 25.722/2.01
Øi 915 X 33.050 mm - Weight: 29,6 Ton.
Material: SA-516 Gr.70 + SA-240-316L (CLAD)*



*Desuperheating Tower + Trays + Stairs and Platforms -
ASME Sec.VIII-DIV.1 - OS: 25.720/2.010
Øi 915 X 22.650 mm Weight: 21,0 Ton.
Material: SA-516 Gr.70 (B Class H2S)*

Pressure vessels

According to ASME VIII Div. 1 and Div. 2, in all range of materials



Lung Vessel for Nitrogen - OS: 23.787/2.006
Øi 2 200 x 6.400 mm – Weight: 10,3 Ton



Diluent Deodulating Tank - OS: 23.966/2.006
2.500 X 3.002 X 6.251 mm - Weight: 7,4 Ton



VRU 1st Stage Suction Scurrber - OS: 30.340/2.019
Clad 316L Øi 2 300 x 7.500 mm – Weight: 16,0 Ton



N1 LP Flare Knock-Out Drum OS: 30.343/2.019
Øi 4.600 X 18.000 mm - Weight: 66 Ton



Reflux Vaporizer - OS: 24.009/2.007
Øi 2.000 X 5.475 mm - Weight: 14,6 Ton



Compressor Suction Vessel - OS: 24.045
Øi 1.700 X 6.245 mm - Weight: 3,6 Ton

Combustion systems

Over 50 years of experience with combustion systems and burners



Flares

- *Own R&D Test facility*
- *Experienced engineering staff*
- *Validated calculation software*

Wide variety of solutions focused on Flare systems.

New installations, upgrades, improvements, refurbishment:

- Flare, Derrick, Guywired or self supported
- Enclosed flares
- Ground flares
- Assisted flares (steam, air or gas)
- HP and LP flares
- Staged flares
- Sonic flares
- Spare parts (pilot burners, instruments, etc.)
- Seals (density, velocity or liquid)
- Knock-out Drums
- Ignition systems/ Flame detection
- Ignition panels
- Consumption optimization of steam, purge gas or pilot gas

Fired heaters, furnaces, hot gas generators for the base industry



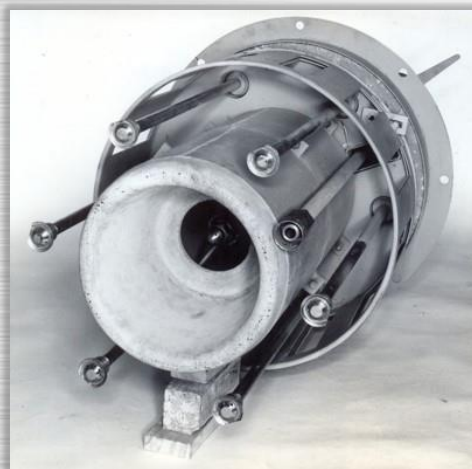
Combustion systems

- Process Furnaces
- Heaters (direct or indirect, by combustion or electric)
- Waste heat recovery units (WHRU)
- Hot Air / Gas Generators
- Incinerators
- SRU (Sulfur Recovery Units)
- Hydrogen generators

Design, manufacturing, upgrades, refurbishment, erection, commissioning and start-up assistance for equipment designed to generate and transfer heat in various processes and in several applications.

Combustion systems

Fired heaters, furnaces, hot gas generators for the base industry



Burners and Spare Parts

Ideal for burning oil, gas or combination of these fuels are intended to heat generation in several industry processes. ASVOTEC offers burners with flames in circular, flat, cylindrical and radial shapes, and a wide range of options including ignition systems, pilots, flame monitoring systems and spare parts.

Industrial special valves

Used in severe service applications



Gate Valves - DN 12" - 80"
(300mm - 2.000mm)

Suitable for several types of gases, the gate valves are built of welded plates and profiles, and can work with temperatures up to 1.600 °C, they can be with single or double discs and operate with pressures up to 12 bar.



Butterfly Valves - DN 6"- 180"
(150mm - 4.500mm)

Valves built of welded and rolled steel, applicable for control, tight closing and safety operations, with diameters up to 4.500 mm, the drive can be manual, hydraulic, pneumatic or electromechanical.

Industrial special valves

Used in severe service applications



Gate Valves - DN 12" - 80"
(300mm - 2.000mm)

Suitable for gases with high pollution, containing high contents of dust or toxic gases. There are opened or enclosed valve types. Its motion drive can be by hydraulic cylinders built in laminated embedded springs, screws or circular wedges which are used to hold or to loose the disc in the housing. The disc can be single or double. For valve opening and closing can be used electric, hydraulic, pneumatic or manual actuators (drives).

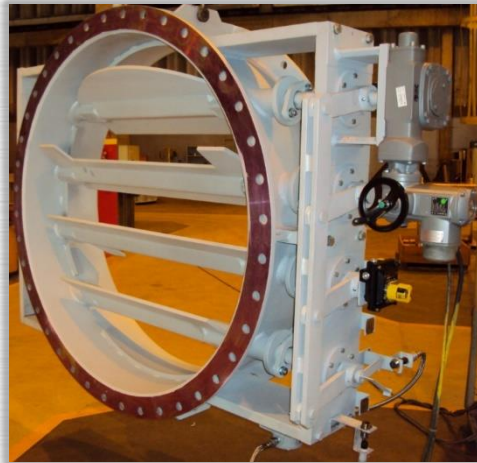


Butterfly Valves - DN 6" - 180"
(150mm - 4.500mm)

Through conduit valves can be designed with single or double disc, depending on the application and upstroke. In the open position it becomes a pipe extension and is called full bore. Usually to avoid the accumulation of waste in the bottom of the housing and avoid locking, the entire inner chamber is pressurized by steam or any inert gas, with approximately 0.5 kg/cm² pressure above the flow pressure.

Industrial special valves

Used in severe service applications



**Damper Valves - DN 10" - 178"
(250mm - 4.500mm)**

Dampers are basically butterfly valves for control and closing, provided for installations between flanges and may have gas sealing ring for better tighten. They can operate with temperatures up to 600 °C.



Valve Refurbishment

We have a team of technicians and engineers with a large experience in the refurbishment and modernization of several valve types.

Special couplings

Pipe couplings and repair clamps

ASVOTEC is the exclusive manufacturer of Straub products in Brazil for more than 35 years, using the best technology and committed to the traditional Swiss quality. Straub is world leader in the coupling technology.

The main features in the application of Special Couplings are:

- **flexibility**
- **low cost**
- **avoids welding**
- **dampens shocks / oscillations**
- **very low installation cost**
- **low weight**

Manufacturer licensed by



Repair Clamps

Efficient and fast pipe repair. Avoiding shut down and down time.



Straub - Open Flex

- Flexible repair clamp for pipes of all materials
- Diameters 48,3 to 1.600 mm, up to 25 bar
- EPDM, NBR/PVC, CSM, FKM sealing sleeves



Asvorep 300 or 200

- Flexible repair clamp for pipes of all materials
- Diameters 60,0 to 320,0 mm, up to 16 bar
- EPDM and NBR/PVC sealing sleeves

Pipe couplings and repair clamps

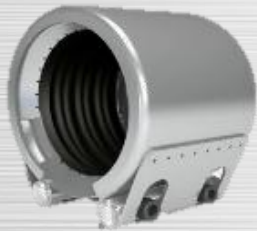
Pipe Couplings

Substitutes flanges and weldings

Manufacturer licensed by

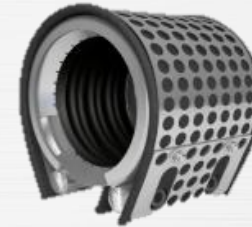
straub 

the original



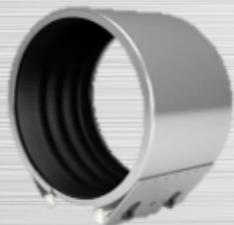
Straub - Metal Grip

- Pull out resistant pipe coupling for all metal pipes
- Diameters 26,9 to 609,6 mm, up to 67 bar
- EPDM, NBR/PVC, CSM, FKM sealing sleeves



Straub - Fire Fence

- Fire resistant coupling or repair clamp
- Diameters 26,9 to 609,6 mm, up to 67 bar
- EPDM, NBR/PVC, CSM, FKM sealing sleeves



Straub - Flex

- Axially flexible pipe coupling for pipes of all materials
- Diameters 48,3 to 1.600 mm, up to 25 bar
- EPDM, NBR/PVC, CSM, FKM sealing sleeves
- Fixpoints necessary



Straub - Plast Pro

- Pull out resistant pipe coupling for HDPE
- Diameters 63,0 to 355 mm, up to 16 bar
- SS clamps

High pressure pipe couplings

Metallic pipe couplings for high pressure, high temperature or severe fluid applications

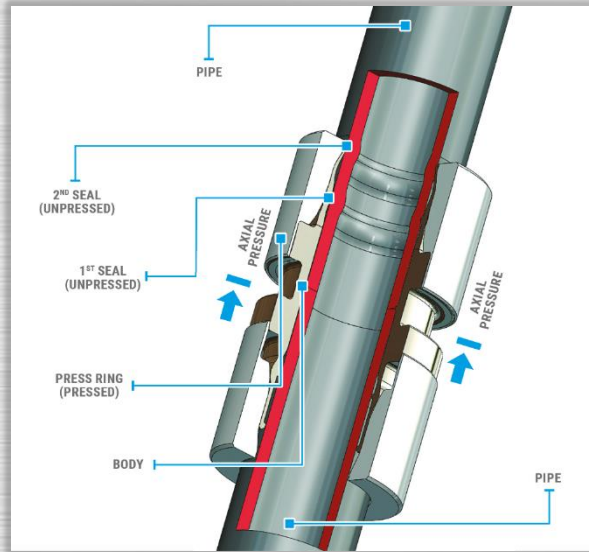
Haelok pipe fittings are available in Brazil through ASVOTEC and its authorized distributors. A 100% tight, mechanical and final pipe fitting, ideal for critical applications limited up to 400°C and 1.140 bar.

- **Permanent solution:** with perfectly tight wedge sealing system.
- **Absolutely tight:** 100% tight mechanical connection, as safe as a welding seam.
- **Easy to use:** light and compact, does not require qualified labour, no pipe preparation required.
- **No risks with heat or flame:** can be installed in confined spaces or subject to fire hazards. Manufactured with high precision machining, as one piece and 100% metallic tight solution.
- **Fast installation:** 10 times faster than welding process. Reduces substantially labor cost.
- **Ideal for critical application:** certified for pressures up to 1.140 bar, tested in accordance to IACS (International Association for Classification of Ships).
- **Pre-assembled system:** avoids errors during installation by operator.
- **Compatible:** fabrication in the same material than pipes.
- **Resistent:** higher resistance than tube.
- **Certified:** certified by the main naval classification societies according to IACS.



High pressure pipe couplings

Technical summary



- Totally tight metal-to-metal sealing system, without additional sealing elements.
- No heat or sparks
- Proven application up to 450 bar
- Design pressure: 1.140 bar
- Working temperature: -55°C to +400°C
- For seamless and welded pipes
- Fittings in carbon and stainless steel
- No special preparation of pipes needed
- Available from 1/2" to 6"



Tool for installation

The **axial pressure force up to 45 tons** leads to a cold conformation of the pipe and of the body of fitting, comparable to a welding joint.

Tools are available in manual and electrical versions.

Service and Technical Assistance

Site surveys, assembly, overhaul, commissioning, start-up and training



Besides the manufacturing and supplying of its product line, Asvotec is able to perform the construction, installation and assembly of its equipment with the best engineering standards, supplying all the labor, tooling, equipment and devices needed for the field work, as well as the management, planning and supervision of the jobs. It also provides all the service related to Aftersales, such as:

- **Commissioning;**
- **Start-up;**
- **Training;**
- **Monitored operation;**
- **Technical assessment;**
- **Evaluation;**
- **Modernization;**
- **Automation and other services on our equipment.**

**Maintenance Expertise: Heat Exchangers, Shell and tubes,
Double Pipes, Printed Circuits and Pressure Vessel:**



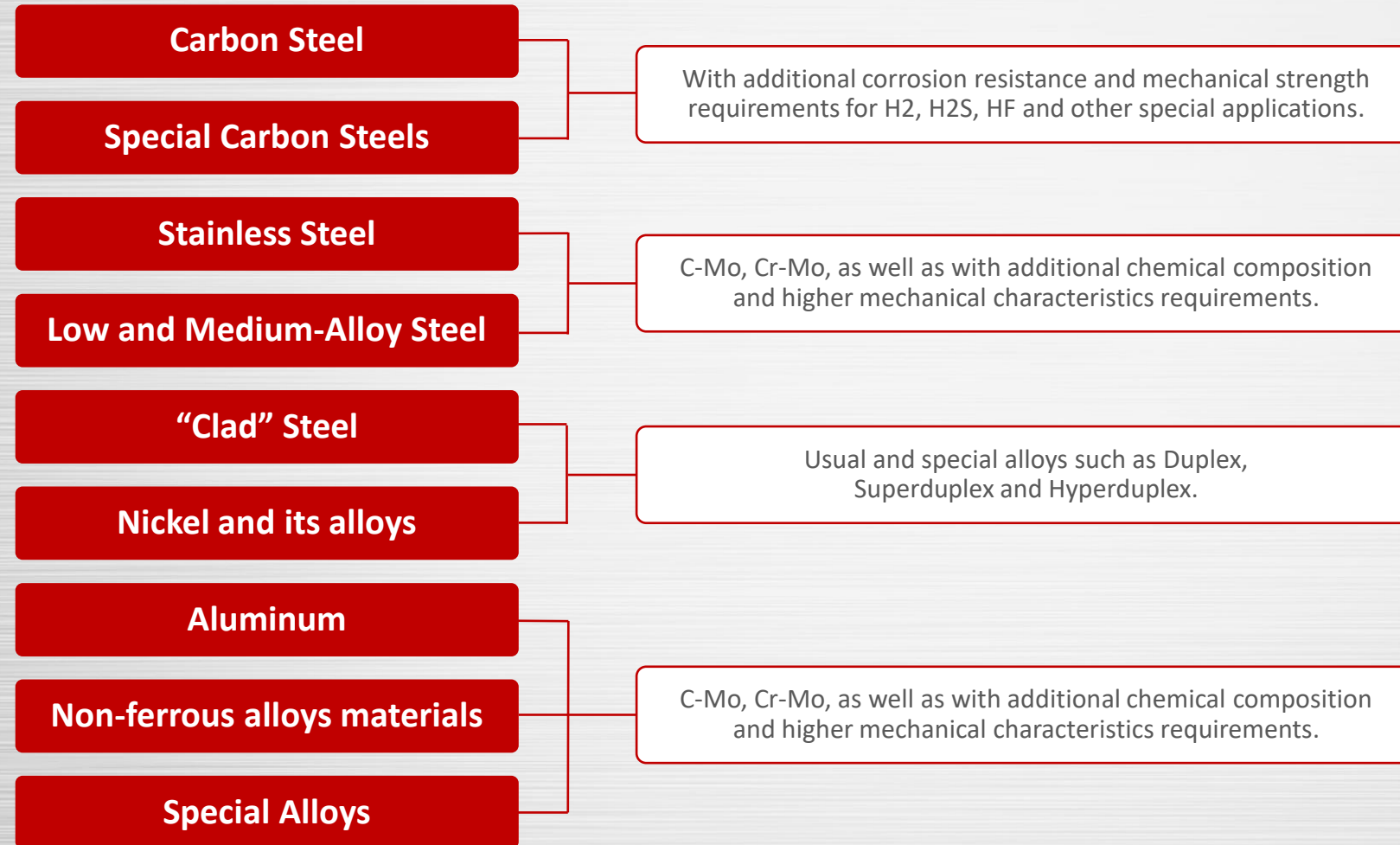
- *Maintenance and manufacture of heat exchangers*
- *Bolt tensioning and torqueing*
- *Blind-to-blind service*
- *Hydro jetting*
- *Hydrostatic and helium leak testing*
- *Repairing leaks*
- *Replacement of tubes*
- *Manufacture and repair of heat exchangers*
- *Orbital tube to tubesheet welding*
- *Special Welding*

Maintenance Expertise : Air Cooler Exchanger



- *Maintenance and repair of Air Cooler Exchangers*
- *Hydro jetting*
- *Hydrostatic and helium leak testing*
- *Repairing leaks*
- *Replacement of finned tubes*
- *Replacement of mechanical components.*

Special Materials Expertise





Technologies and Partnerships

Critical application heat exchangers

Heat transfer solutions in a wide range of challenging applications in petrochemical, chemical and metallurgical processes.

- Transfer Line Exchangers
- Syngas Coolers for gasification processes and partial oxidation
- Heat Recovery Systems for steam reforming processes (H₂, ammonia, methanol), ammonia combustion and ammonia combustion/nitric acid production
- High Temperature Products e.g.
 - Carbon Black Air Preheater
 - Sewage Sludge Incineration

Corporate pride lies in our competence to furnish custom made solutions for process gases at very high **temperatures of up to 1.500 °C** and **high pressures of up to 300 bar**.

<https://www.schmidtsche-schack.com/products/product-finder/>



Filtration technology for diverse industrial sectors

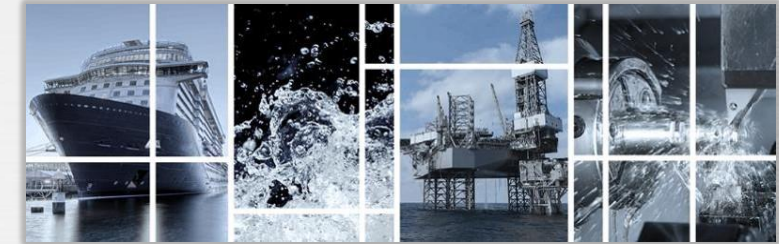
BOLL & KIRCH is a globally operating filter manufacturer and specialist in filtration of liquids and gases. BOLL & KIRCH is certified under ISO 9001/14001 + ISO 45001 and approved by the main classification societies. The application-optimised automatic, duplex and simplex filters are the result of their own research and development and comply with international technical standards.

They are convinced that BOLLFILTER makes a sustainable contribution to improve the conditions of life.

As an experienced filter manufacturer we offer you the right filter for your application:

- **Automatic filter / Backwash filter**
- **Duplex filter / Double filter**
- **Simplex filter**
- **Coalescence filter / Separator**
- **Cartidge filters**
- **Demister / Cyclone**
- **Coolant Filters**
- **Filters: Marine Filter, Industrial Filter, Gas Filters & Oil Filters**
- **Application: Water Filtration, Engines, Industrial Filtration & Machining, Maritime Filtration – Ballast Water**

<https://www.bollfilter.com/>



Photovoltaic Solar energy plants from 500 kW to 10 MW for energy efficiency at industries and commerce

Photovoltaic Solar Energy Commercial and Industrial installations

With a strategic basis in the diversification of the Brazilian electric matrix and with the growing demand for sustainable projects in the energy sector, from renewable sources, ASVOTEC brings complete photovoltaic solar systems to the market, since solar energy has a fundamental role in this change.

Solar irradiation in Brazil is one of the highest in the world, so solar photovoltaic projects provide a great reduction in expenses with electricity in businesses and industries.

Using all the experience in complex industrial projects and in partnership with the company EXB Soluções em Energia Solar, working on solar photovoltaic market since 2016, ASVOTEC brings its customers quality projects, applying the best equipment available in the market.

Photovoltaic solar energy is the cheapest energy available nowadays and can reduce your energy bill by up to 95% in addition to reducing the impacts on the environment.



Benefits



Clean and Renewable Energy



Easy installation



Smart economy

<https://www.exbsolar.com/>

Printed circuit heat exchangers - PCHE

Heatric, part of the Meggitt Group, is the world leader in diffusion bonded heat exchangers. Heatric compact exchangers are used in the most demanding duties across a range of industries including:

- **Power generation**
- **LNG production and shipping**
- **Marine propulsion**
- **Oil & gas production**
- **High performance cooling**
- **Process industries**

The Heatric Printed Circuit Heat Exchanger (PCHE) brings together the company's unique engineering and manufacturing know-how to achieve high integrity, inherent safety, game changing size reduction and world leading performance.



MEGGITT

Heatric

Benefits of Heatric Heat Exchangers

Heatric's unique diffusion-bonding manufacturing process creates incredibly high-integrity exchangers with no seams, gaskets, joints, or points of weakness and failure. This high integrity brings with a host of benefits in both capital and operational cost savings including (but not limited to):

- Compact footprint and reduced weight for structural and space costs savings
- The widest operating parameters and performance of any exchanger, including high efficiency and effectiveness due to the unique flow-plate construction
- Further operational savings through reduced fluid flows
- Multi-process integration into a single unit for capital and operational cost savings
- Increased safety in operation due to their high integrity

<https://www.heatric.com/>


Energy efficiency – ORC systems




We reduce your energy costs with a cost-efficient, fast and flexible solution!

- Compact micro power plants with a small footprint, which generate electricity from waste heat
- Payback periods from 1 to 4 years
- Modular design enables utilization of small and larger waste heat sources from kW to Mw



 + Increase electricity production

 + Reduce CO₂-emissions

 + Improve energy efficiency

Full range of Engineering Services

The Pörner Group is the leading independent engineering contractor for process plants in Central Europe, with principal offices in Vienna, Austria.

With over 45 years of experience in the process industry, Pörner employs more than 500 engineers and specialists at eight subsidiaries, in five countries. The company offers a full range of engineering services for both new and refurbished process plants for:

- **Refineries**
- **The petrochemical industry**
- **The chemical industry**
- **The gas industry**
- **The power generation and environmental industry**
- **Industrial production**
- **The pharmaceutical industry**

Pörner is the world wide number one in bitumen oxidation. The Biturox® Oxidation Process produces high-quality bitumen from a wide range of crudes and refines intermediate products through chemical conversion. Up until now, 50 Biturox® plants have been licensed and constructed by Pörner worldwide.

<https://www.poerner.at/>



Rocsole Inc is a leading provider of tomography technology for industrial processes. Rocsole provides solutions for level/interface measurement under multiphase flow and fouling conditions.

Established in 2012, and venture-backed by Shell and Repsol, the company serves some of the largest oil and gas companies in the world, along with other heavy industries (e.g. mining, pulp&paper).

Typical applications:

- **Pipe deposition – sand, wax, hydrates**
- **Separator/tank level interfaces**
- **Inline inspection – pipelines**

Our main focus is in the oil & gas industry - especially in providing monitoring systems for improved flow assurance in the upstream sector. Our systems are ATEX/IECEX approved and withstand harsh process conditions.

Unique features:

- **Works under contaminated conditions**
- **No need for special maintenance or cleaning**
- **Works with bitumen and stable emulsions**
- **No field calibration required**
- **Data points every 0.1 sec**
- **Real time monitoring**

<https://www.rocsole.com/>



Benefits

Oil field life cycle
Optimization

Real time process
Optimisation

Increased Production
Throughput

Improves asset environmental
Compliance

Reduced need for
shutdowns & optimized
Chemicals costs

Low
Maintenance

Reduced need for shutdowns
& optimized
Optimizing the emulsion

24/7 Data monitoring
All data to data base

Gas Cleaning Plants

THEISEN is a family owned business based in Munich Germany for the last 135 years

The purpose and task of the THEISEN Gas-Cleaning Plant is to extract the dust laden, hot CO gas from the smelter, to cool the off-gas in a safe manner in an oxygen free environment, to clean the gas according to contractual specifications to be suitable for atmospheric discharge and/or to condition the gas to be suitable as fuel source for calorific utilization.

Services

- Theisen™ designs and supplies furnace off-gas cleaning systems for:
 - Fully enclosed submerged arc furnaces
 - AC & DC reduction furnaces
 - Cupolas
 - Blast and other shaft furnaces
 - Pyrolysis gas
 - Synthetic gas and other kinds of product gases
- Feasibility studies
- Project management
- Consulting services for capital projects involving gas utilisation, i.e. Co-gen.
- CAD Design & Drawing Department
- After sales support & spares
- Inspection and refurbishment of special equipment
- Upgrading of existing gas cleaning plants to comply with environmental legislation

Products

Tailor made furnace gas cleaning equipment designed by THEISEN™.

Special emphasis on:

- Safety: design, equipment selection & processes

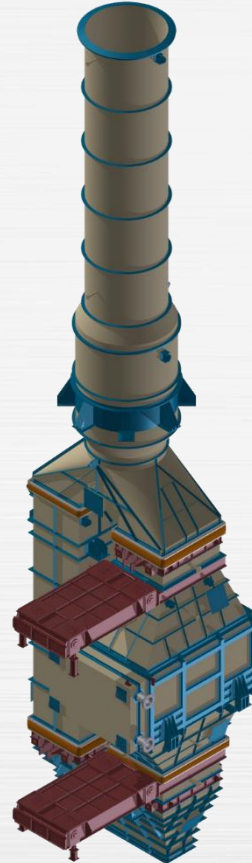
- Plant robustness: low maintenance, lifespan of plants
 - Cleaning efficiency: residual SPM < 10mg/Nm³
- Upgrading of existing furnace gas cleaning plants.





Relevant Projects

Asvotec Relevant O&G Packages



Project: GE Oil & Gas

End Customer: PETROBRAS FPSO P74/P75/P76/P77
Scope: 16 WHRU's (Waste Heat Recovery Units)
+ 8 Exhaust Ducts

Main Materials: A-387-Gr.11-C12 and USI-SAC-350

ASME Sec.VIII-Div.1 – ASME U Stamp / ABS Classified

Total Manufacturing Hours: 220.000 hours

Total Package Weight: 1.776.000 kg (97 ton each)

Asvotec Relevant O&G Packages



Project: PETROBRAS

End Customer: RNEST – PETROBRAS Refinery
“Abreu e Lima”

Scope: 16 Process Columns

Main Materials: CLAD (A516 70 + 304L),
CLAD (A516 70 + UNS N10276) and A516 70N

Total Manufacturing Hours: 134.000 Hours

Total Package Weight: 878.000 kg

Asvotec Relevant O&G Packages



Project: CONEST

End Customer: RNEST – PETROBRAS Refinery
“Abreu e Lima”

Scope: 42 Heat Exchangers

Main Materials: CLAD (A516 70+317L),
A304L and A516 70

Total Manufacturing Hours: 83.000 hours

Total Package Weight: 624.000 kg’s

Asvotec Relevant O&G Packages



Project: Technip

End Customer: RPBC – PETROBRAS Refinery
“Presidente Bernardes”

Scope: 35 Heat Exchangers

Main Materials: CLAD (A516 70 + 316L),
304L e A516 70

Total Manufacturing Hours: 64.000 hours

Total Package Weight: 350.000 kg’s

Asvotec Relevant O&G Packages



Project: Heatric

End Customer: PETROBRAS FPSO P72/P73

Scope: 34 PCHE's (Printed Circuit Heat Exchangers)

Main Materials: Superduplex (S32750)
and Duplex (S31803)

Total Manufacturing Hours: 24.000 Hours

Total Package Weight: 146.000 kgs

Asvotec Relevant O&G Packages



Project: INNOVA SM (Styrene Monomer)
Plant Expansion

End Customer: INNOVA

Scope: 10 Heat Exchangers, 4 Reboilers,
1 Pressure Vessel and 1 Condenser

Main Materials: A-516-70 and A-516-70N

Total Manufacturing Hours: 25.000 hours

Total Package Weight: 340.000 kg's



Since 1965

ASVOTEC TERMOINDUSTRIAL LTDA.

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