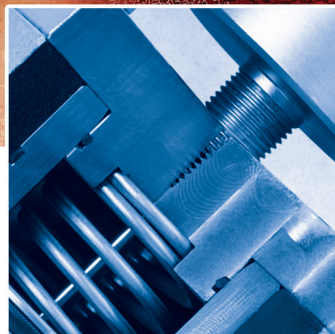
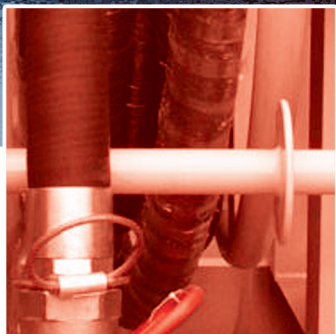


Africa's

# LIQUID CONTROL & TANKER LOADING Specialists



FROM EQUIPMENT AND COMPONENT SUPPLY TO THE  
ENGINEERING AND DELIVERY OF FULLY-PACKAGED  
SOLUTIONS.



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Mobile: 0721 359 461  
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[www.soliflo.co.za](http://www.soliflo.co.za)





# THE SOLIFLO GROUP IN PERSPECTIVE



**Soliflo delivers on Sales, Service, Safety and People, Products, Performance within the diverse range of industry sectors we currently - and aspire to - serve.**

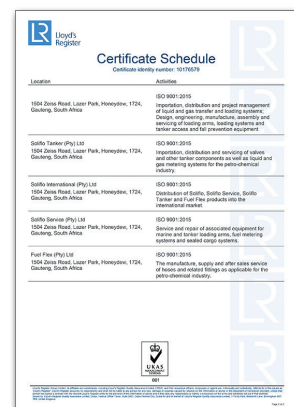
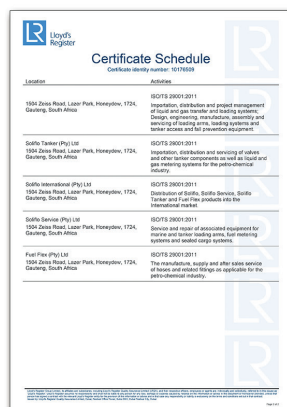
The needs of our clients, together with those of our stakeholders and staff, are centric to everything we do.

Through a process of listening to, and interactive engagement with, our customers, we gain a clear understanding of the products and parameters required, enabling us to develop and supply quality, tailored and specialised solutions.

From liquid control and fluid transfer to tanker loading and related equipment supply; to the value engineering of innovative, fully packaged, sustainable and enviro-friendly solutions, Soliflo delivers.

**Petrochemical • Oil & Gas • Pharmaceuticals • Cementation • Food & Beverage**

**Aviation • Energy • Chemical • Mining • Agrichemicals & Fertilisers**



ISO/TS 29001:2011

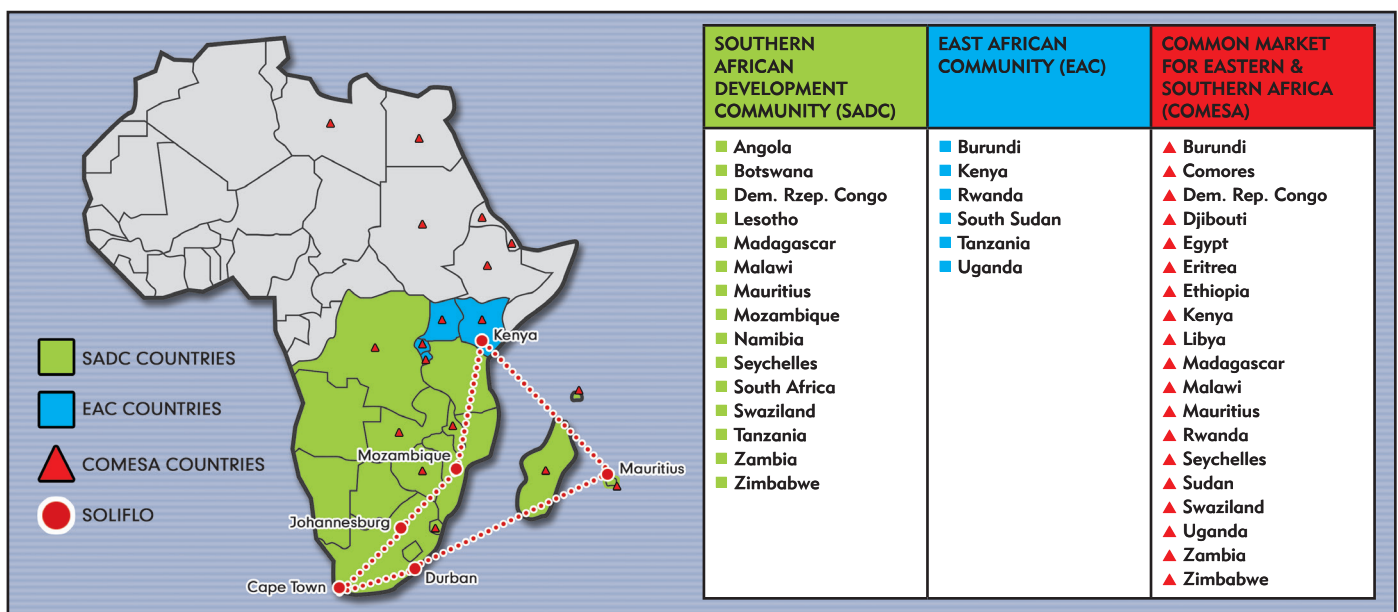
ISO 9001:2015



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## SERVICING SADC, EAC AND COMESA COUNTRIES






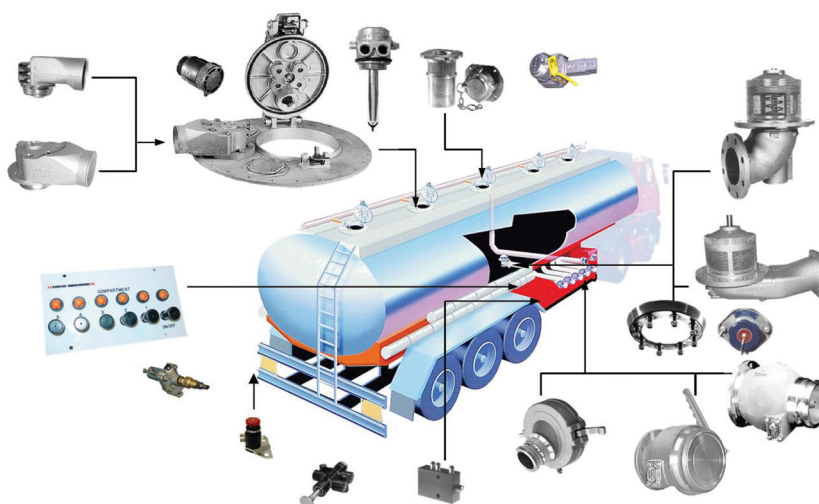
# TANK TRUCK EQUIPMENT

Equipment compliant with relevant international safety standards including API, ADR and CEN

- Manhole covers: oval and 16" - 20" diameters
- Dip tube mandrels and interlocks
- Vapour transfer vents
- Pressure vacuum vents
- Optic sensors
- Optic sockets
- Ground bolts
- Tanker metering systems
- Pneumatic and mechanical emergency / bottom-operated valves
- API RP1004 bottom loading adaptors, vapour adaptors and dust caps
- Sealed Delivery Systems (SDS) and Wireless Sealed Cargo Systems (SCS)
- Pneumatic circuit controls and interlocks



				
Coaming vent	Vapour transfer vent	Pneumatic control	Optic sensor	Optic socket
				
Tank metering system	Manhole cover	Vapour adaptor	API adaptor	Dust cap
				
Ground bolt	Tanker bottom / emergency valves (mechanical and pneumatic)			

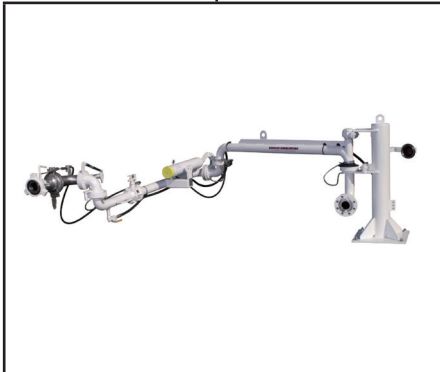




# LOADING ARMS

## Bottom Loading Arms

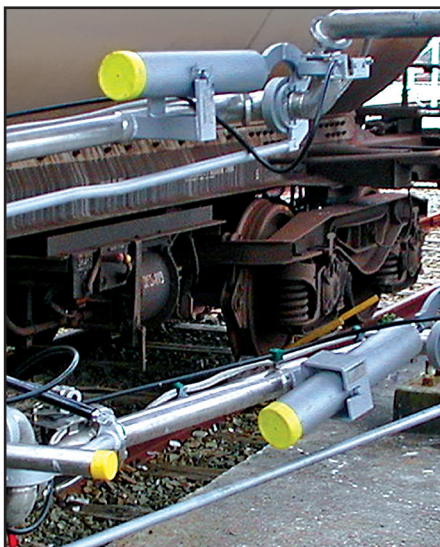
- API RP 1004 bottom loading arms
- Chemical bottom loading arms
- Gas bottom loading arms
- LNG and cryogenic bottom loading arms



Chemical bottom loading station

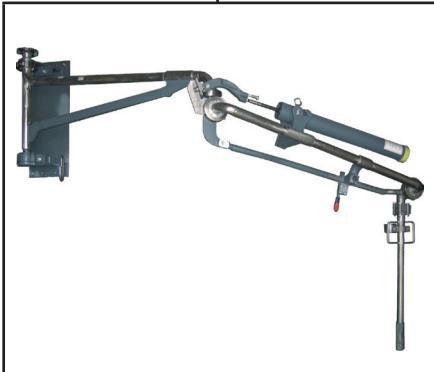


API loading arm & riser

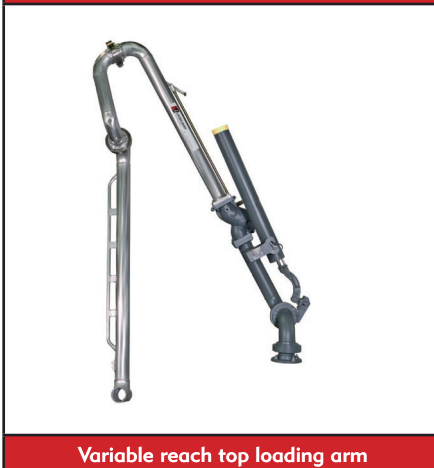


## Top Loading Arms

- Fixed variable and long reach top loading arms
- Open loading
- Semi-closed loading
- Closed loading



Long reach top loading arm



Variable reach top loading arm



## Marine Loading Arms

- Marine loading arms to handle any liquid or gas



LNG & condensate marine loading arms





# STORAGE TANK EQUIPMENT

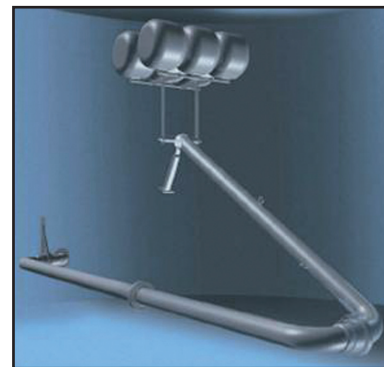
## Storage Tank Floating Suctions, Floating Roof Drains and Skimmers

- Wide range of floating suction, skimmers and floating roof drains

## RGA™ Floating Roof Storage Tank Lightning Protection

- Effective: permanent, reliable, low-impedance bond prevents fires triggered by lightning currents
- Economical: low initial cost and exceptional return on investment
- Easy-to-install: installation takes only two hours on both new and existing tanks
- Durable: engineered for years of durability and reliable performance in corrosive environments
- Low-maintenance: requires virtually no upkeep compared to shunts
- Award winning: winner of the E & P Innovation Award standards conformant

The RGA conforms to both API 545 and NFPA 780 recommendations and is supported by API 545 as a bypass conductor.



# SWIVEL JOINTS

- Types: multi-purpose, high pressure, cryogenic, abrasive, PTFE-lined
- Diameters: 1" up to 24" in diameter
- Wide range of materials of construction dependent upon the media being transferred



D0002 swivel joint



D1010 swivel joint



D1133 swivel joint



D2000 PTFE swivel joint



D2000 swivel joint



TODO hose swivels



# FALL PREVENTION & TANKER ACCESS SYSTEMS

Recognising the inherent danger of personnel falling from tankers at bulk loading and off-loading facilities, Soliflo has developed a wide range of tanker access, fall prevention and safety systems to prevent potential operator injuries and fatalities.

As safe tanker access systems come under ever-increasing scrutiny from safety bodies, companies transferring bulk liquids need to evaluate their operations with long-term vision rather than with short-term fixes.

- Loading gantries and access platforms
- Fall arrest systems
- Folding stairways and gangways
- Safety cage enclosures
- Hydraulic elevating platforms
- Mobile tanker access units
- Marine tanker and barge access systems and towers



YellowGate swing gates

Folding stairs & safety cages



Mobile tanker access

Extra-wide folding stairway

Modular tanker access installation



# INDUSTRIAL HOSES & DRY BREAK COUPLINGS

## Dry Break® Couplings & Adaptors

For clean and dry connection and disconnection of piping systems utilising the bayonet design

- TODO-MATIC® and TODO-GAS®
- Dry-Break II™
- API RP1004 manual, automatic latching and snap-on couplings
- API RP1004 vapour couplers
- ISO-45 aviation couplings



CAMSEC coupler



J0451 API coupler



J0452 API coupler



J172 coupling



TODO-Matic 2.5"



J173 coupling

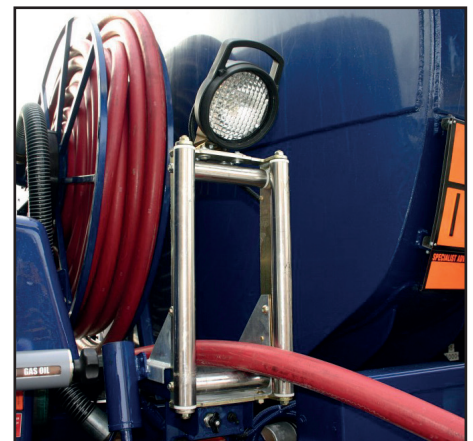
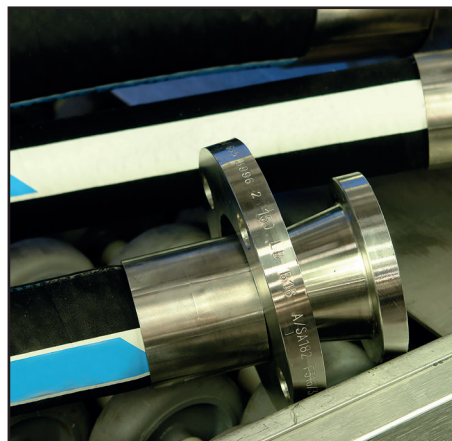
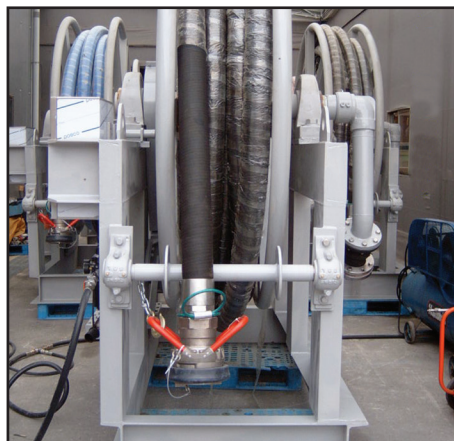
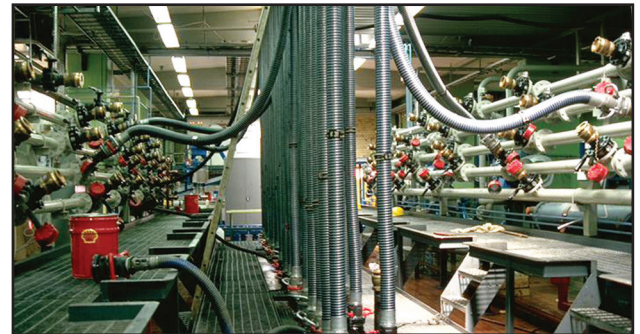


TODO-Matic 2.5"

## Industrial Hoses & Assemblies

Trelleborg industrial hoses (rubber or composite) for:

- Corrosive products
- Hydrocarbon derivatives
- Bay-side loading and unloading tankers
- Distribution of hydrocarbons by truck and petrol pump
- Fuelling and supply for the military, etc.

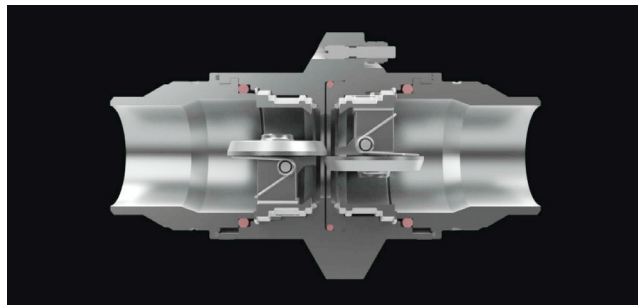




# BREAKAWAY & EMERGENCY RELEASE COUPLINGS

## Breakaway Couplings

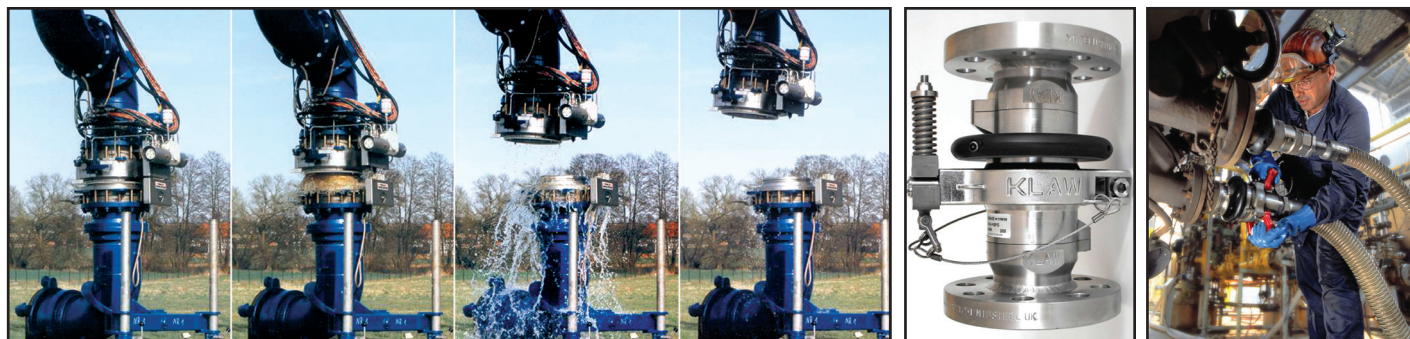
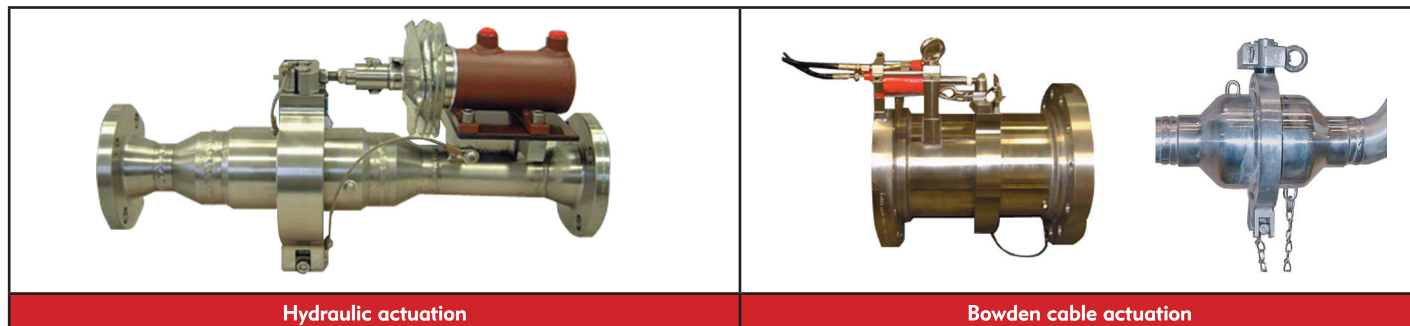
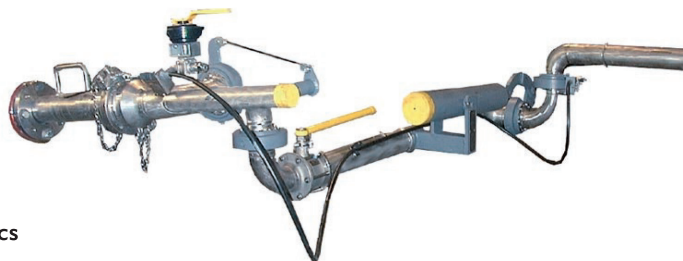
- Industrial and marine
- Diameters from 1 1/2" up to 24"
- High pressure
- Low and high temperatures
- Flip-Flap™ breakaway
- Tensile load activation



## Emergency Release Couplings

For a spill-free, safe and identified parting of any piping system

- Flip-Flap™ Emergency Release Couplings (ERC)
- Double ball valve Emergency Release Couplings (ERC)
- Double ball valve Emergency Release (ERC) and Quick Connect / Disconnect Coupling (QC/DC)
- Controlled activation via Bowden cable, pneumatics or hydraulics



# GROUNDING & EARTHING DEVICES

## Tanker Grounding Devices

- Road tanker grounding
- Rail tanker grounding
- Barrel grounding



Perolo DCMT-3 and DCMT-4 grounding devices



TIMM EKX-4 grounding device



## EUS-2 Overfill Prevention Controllers

- Compliant with EN13922 and API RP 1004
- 2-wire and 5-wire optic HLCO
- Ex-proof (94/9/EC (ATEX 95)
- Hazardous area zone 1, gas group IIB
- Multi-functional graphic display
- Various accessories available



## SEK-3 Marine Vessel Grounding Systems

Comprising:

- Water-jet protected compact switchgear cabinet of stainless steel (protection class IP 65); wired ready for operation
- 1 grounding control device type EKT-3, type of explosion protection: EEx e q [ib] IIB T4
- 1 measuring transducer type EKOM-3, type of explosion protection: EEx ib IIB T4

For controlling of:	
Clamp circuit	= grounding clamp contact resistance
Grounding circuit	= grounding loop resistance (grounding clamp - ship - ground)
Potential equalization circuit	= contact resistance (clamp circuit - power contactor - outer potential equalisation terminal)



- 1 grounding control unit type ESE-3 with power contactor to switch through the potential equalisation line, type of explosion protection: EEx e d m IIB T4; thereto connected
- 20 m neoprene grounding cable of  $4 \times 10 \text{ mm}^2$ , 3 wires in parallel =  $30 \text{ mm}^2$  as potential equalisation line, as well as 1 wire as measuring line
- 1 special grounding clamp of stainless steel with integrated auxiliary contact for connecting through the measuring line with delay
- 2 built-in indicator lamps with long-life light-bulbs **RED** and **GREEN** for indicating the present operating status
- Type of explosion protection: EEx d e IIC T6



# DOUBLE BLOCK & BLEED VALVES

With corrosion and chemical additives being the main causes of failure within traditional DBB valve design, PosiWell DBB-DIB valves come standard fitted with stainless steel trim and in-line replaceable Teflon seat. In the event of a seat failure, inspection and replacement is a simple task.



## Applications include:

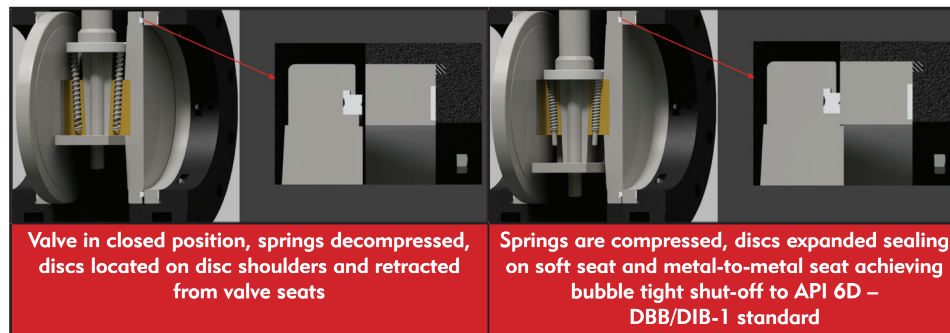
- Aviation terminals
- Oil and gas terminals
- Hydrant isolation
- Tank storage isolation
- Any application that requires zero leakage performance

## Size range:

- 2" to 40" ANSI Class 150 - Class 300
- ANSI 600 and other sizes, consult Soliflo

## Rising Stem Valves & Non-Rising Stem Valves

- For information on operating principles, consult Soliflo



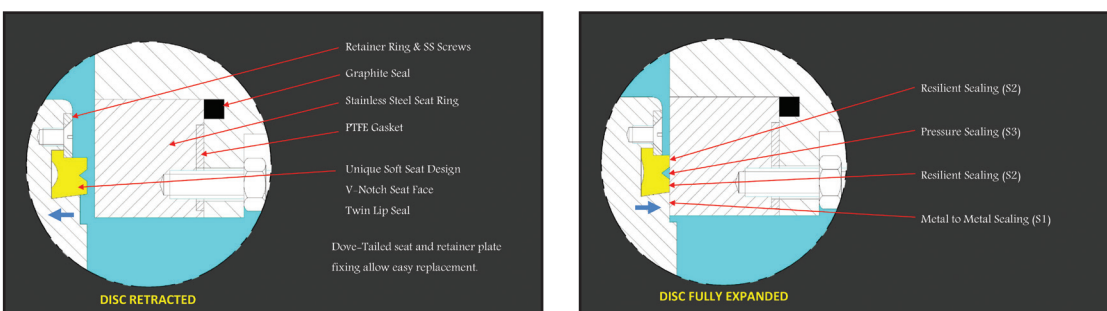
## Spring-Loaded Disc Design

- The PosiWell-patented spring-loaded discs design ensures that seat tightness is maintained during thermal expansion and contraction and both the discs are adequately retracted before they start their uplifting motion.

## Seat-on-Disc Design

PosiWell DBB-IB valves are designed using a unique patented sealing concept (S1, S2 and S3).

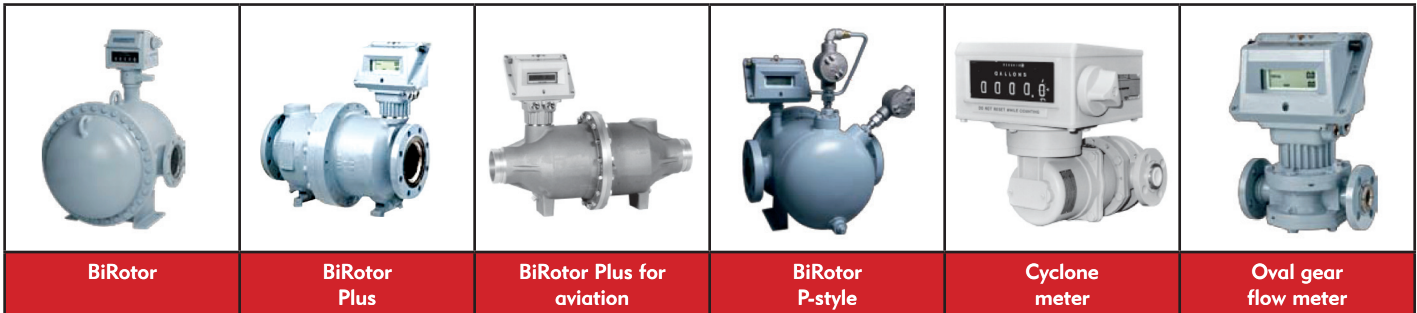
- Expanding discs' primary seal will be metal-to-metal contact (S1)
- For secondary seal, Soft V notch seat ring with twin lip sealing points (S2) and pressure sealing (S3), the concave back of the resilient seat allows for the expansion and compression of the seat face
- Foreign debris will be flushed through by flow pressure before the expanding discs compress the resilient and metal seat
- Seat is designed for fast and easy in-situ replacement



# INSTRUMENTATION & FLOW CONTROL

## Positive Displacement (PD) Flow Meters

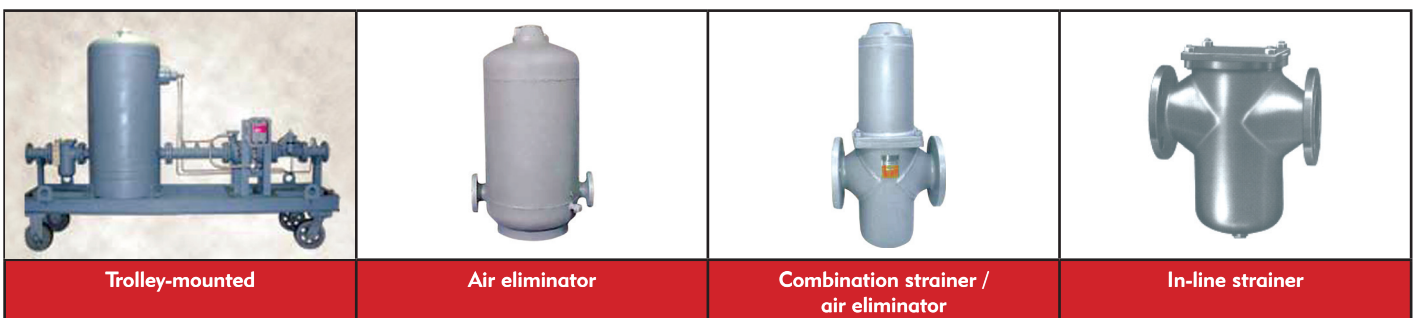
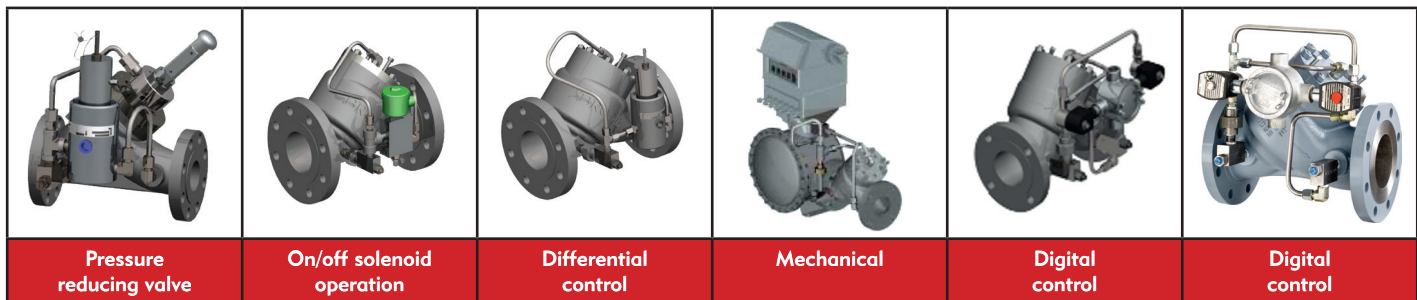
From 2" to 16" in diameter



Dual 16" Line Metering Skid

## Piston Control Valves

- Pressure reducing
- Rate of flow
- Back pressure / relief

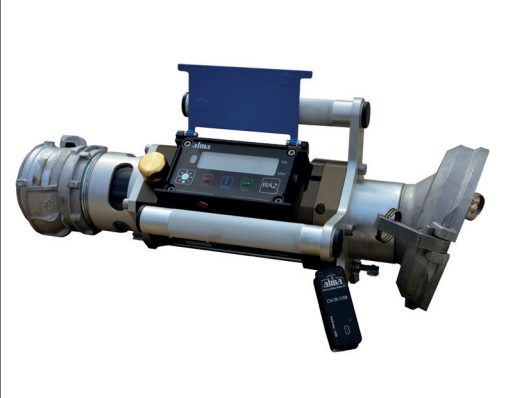
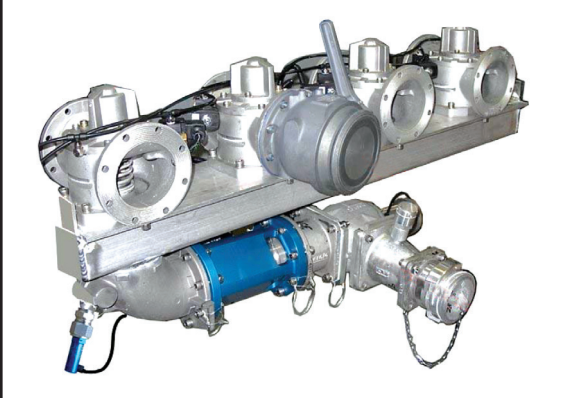





# INSTRUMENTATION & FLOW CONTROL

## Turbine Meters

From 1" to 6" in diameter

		
<b>Autonomous Flexicompt + mobile gravity meter</b>	<b>Gravicompt truck-mounted gravity metering set</b>	<b>Turbocompt turbine flow meter</b>
Gravity measurement of petroleum products dedicated to the control of tank-truck petroleum products' deliveries.	On-board gravity metering unit for semi-trailers and rigid trucks, the industrial solution for gravity measurement at gas stations.	Designed for loading petroleum products into tank-trucks or tank railcars at a rate of 80 or 150 m³/h.


<b>Adriane turbine meter</b>
Specialised turbine meters dedicated to liquid petroleum measurement for tank-truck, terminal, pipeline and mobile applications.

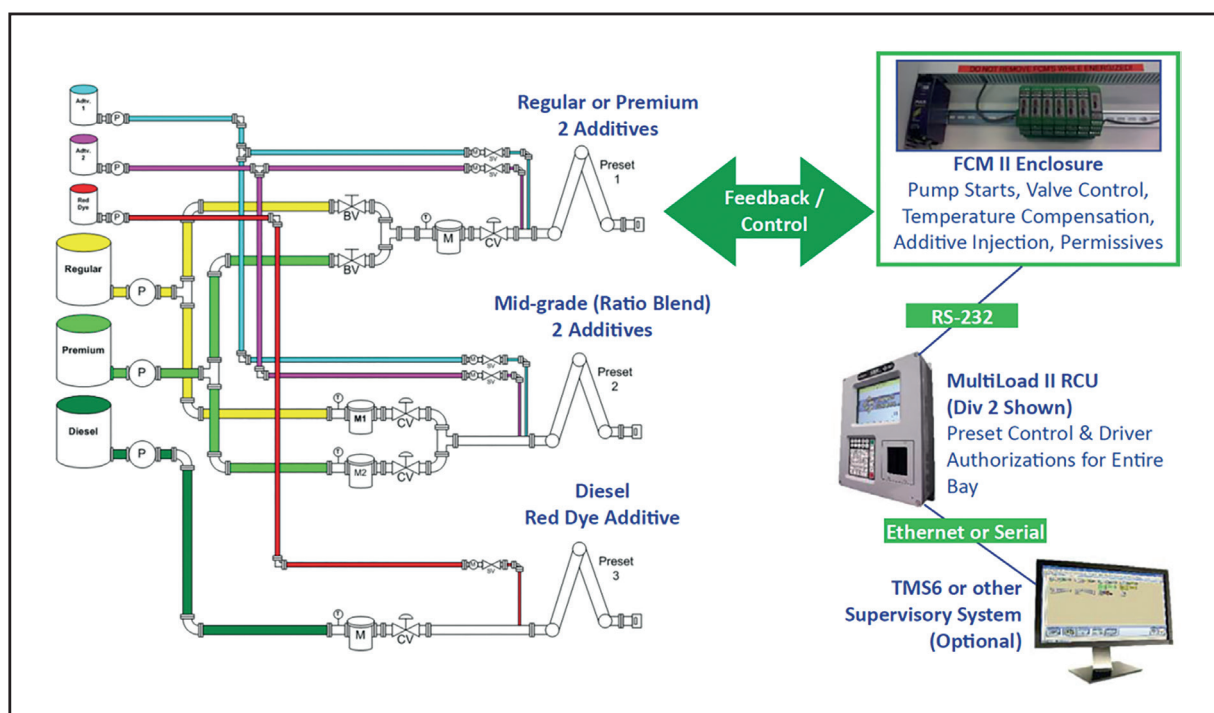


Skid Turbocompt

# BATCH CONTROLLERS & PRE-SETS

## Load Rack Control

- Full colour LCD display
- Division 1 and division 2 enclosures
- Alphanumeric keypad
- Integrated card reader options
- Automatic temperature and pressure correction
- Control up to 12 arms per bay
- Multi-lingual support: Mandarin, English, French, Portuguese and Spanish
- Up to 300 driver IDs/PINs in stand-alone mode
- Stores 10 000 transactions in stand-alone mode
- Open protocol and modbus-RTU support







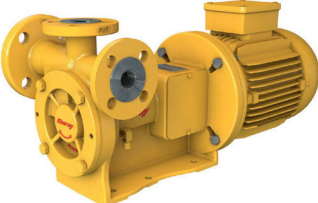
## ALMA Microcompt+



- Transaction metering in volume or weight of hydrocarbons, biofuels, additives, LPG and alcohols
- Truck, rail car and ship loading/unloading operations
- Loading arm or on-line blending



# PUMPS

		
<b>Sliding vane pump</b>	<b>Screw pump</b>	<b>Eccentric disc pump</b>
<ul style="list-style-type: none"> <li>■ Ideal for thin &amp; viscous liquids</li> <li>■ Highly efficient at low flow &amp; on thick liquids</li> <li>■ Excellent suction-lift &amp; line-stripping capabilities</li> <li>■ Self-adjusting vanes</li> <li>■ Dry-run capabilities</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ Hydrocarbons (fuel, gasoil, heavy oils etc.)</li> <li>■ Greases &amp; lube oils, waste oils</li> <li>■ Crude oils (depending on particle content)</li> <li>■ Asphalt</li> <li>■ Bitumen</li> <li>■ Solvents</li> <li>■ LPG</li> </ul>	<ul style="list-style-type: none"> <li>■ Highest flow rate achievable by a rotary PD pump</li> <li>■ High tolerance for entrained air &amp; other gases</li> <li>■ Low internal velocities, minimal shear</li> <li>■ Relatively low NPSH requirement</li> <li>■ Relatively low-pulsation flow</li> <li>■ Non-contacting screws (if using timing gear)</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ Hydrocarbons (fuel, gasoil, heavy oils etc.)</li> <li>■ Greases &amp; lube oils, waste oils</li> <li>■ Crude oils (depending on particle content)</li> </ul>	<ul style="list-style-type: none"> <li>■ Self-priming &amp; dry-run capabilities</li> <li>■ Volumetrically consistent performance over time without any adjustment</li> <li>■ Regular &amp; constant output, independent of change in pressure or fluid viscosity</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ Hydrocarbons (fuel, gasoil, heavy oils etc.)</li> <li>■ Asphalt</li> <li>■ Bitumen</li> <li>■ Emulsions</li> <li>■ Thermal fluids</li> </ul>
		
<b>Internal gear pump</b>	<b>Centrifugal pump</b>	<b>Regenerative turbine pump</b>
<ul style="list-style-type: none"> <li>■ Suitable for thin to very high viscosities</li> <li>■ Precise, consistent flow rates</li> <li>■ Metal-to-metal gears</li> <li>■ Multi-purpose design</li> <li>■ Seal-less (eliminates leaks) or sealed design options</li> <li>■ Enviro-friendly</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ Hydrocarbons (fuel, gasoil, heavy oils etc.)</li> <li>■ Fluids with heavy residues</li> <li>■ Chemicals</li> <li>■ Pharmaceuticals</li> <li>■ Paints, coatings &amp; adhesives</li> <li>■ Pulp &amp; paper</li> </ul>	<ul style="list-style-type: none"> <li>■ Heavy-duty shaft, bearings, seals &amp; housing</li> <li>■ Constant pressure &amp; flow rate</li> <li>■ Wide Best Efficiency Point (BEP) window</li> <li>■ Low vibration with high radial loads</li> <li>■ Solid shaft resists deflection</li> <li>■ Meets ASME/ANSI specifications and dimensions</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ General chemicals</li> <li>■ Acids</li> <li>■ Solvents</li> </ul>	<ul style="list-style-type: none"> <li>■ Quiet, vibration-free operation</li> <li>■ Low maintenance, single-stage impeller</li> <li>■ Simple installation with C-face close-coupled mounting</li> <li>■ Versatile 3-port arrangement, self-venting design</li> <li>■ Balanced mechanical seal, unique cartridge design for simplicity of assembly/maintenance</li> </ul> <p><b>Typical products handled:</b></p> <ul style="list-style-type: none"> <li>■ LPG Autogas dispensers, single or two hoses</li> <li>■ Propane</li> <li>■ Butane</li> <li>■ Dimethyl Ether (DME)</li> <li>■ CO<sub>2</sub></li> <li>■ Refrigerants</li> <li>■ Anhydrous ammonia</li> <li>■ Boiler feed</li> </ul>

## Unloading / Pump Back Systems

- **Product return system with**
  - Low pressure drop
  - Reduced mixed volume
  - "Clean" draining valve
- **Degassing outlet**  
Connected to the product line to avoid any return line to the storage tank
- **Sliding vane technology**  
Ensures a constant flow rate of 60 m<sup>3</sup>/h during the whole unloading process regardless of the tank storage design

## Centrex Multi 2



Mouvex Centrex metering unit for loading / off-loading of fuels with air eliminator

### Performance:

- Up to 60 m<sup>3</sup>/h - 4 bar
- Complete unit ready to be operated (includes pump & meter system)
- Unloading metered of fuel tank semi-trailers
- Able to unload different types of products due to the low residual volume (limited mixing)
- Products allowed: heating oil, diesel, kerosene
- Accurate system integrating a robust meter & air eliminator
- No degassing vent

### Options and Accessories:

- Turbine meter
- Ticket printer
- Pulse transmitter

## Finder Pumps

### Oil & Gas

- API 676 RRLO
- API 674
- API 610 & API 685

### Petrochemical

- Oil & refining by-products
- High pressure
- Refineries

RRLO twin screw volumetric pump in accordance with API 676 norms



RRLO twin screw volumetric pump



# ADDITIVE / PRESSURISATION / INJECTION

## Additive Systems

In partnership with Flotech Performance Systems, we manufacture complete turnkey additive and dye injection systems for petroleum and chemical applications.

These systems can range in size from injection hardware only to full systems incorporating storage, secondary containment, pump and pump control. We can provide a range of products including MeQ-Pak Turbine Driven Injectors, High Flow Piped Injectors, Mono-Block III and Fusion 4 SSC-A.



Flotech Performance Systems have drawn on three decades of experience in additive injection systems to develop the most advanced additive injection manifold to date – the FLOBLOCK.

The FLOBLOCK combines check valve, needle valve, flowmeter, solenoid valve and filter in a single manifold which measures 23cm in length.

The FLOBLOCK integrates with:

All mainstream load computers, additive controllers, PLCs and terminal automation systems.



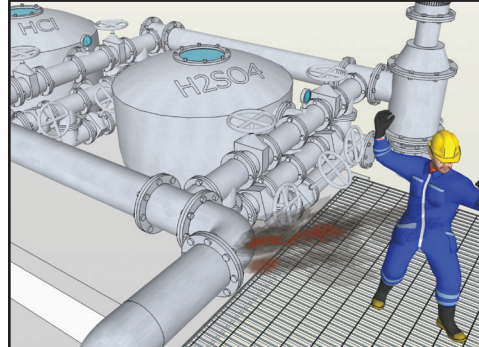
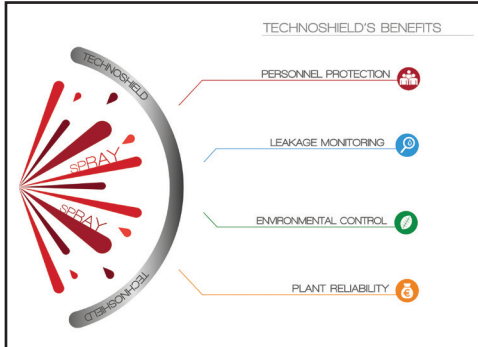
Calibration device



# SPRAY SHIELDS

## Technoshield® Spray-Out Protection Guards

Technoshield® is the most advanced preventative control system able to minimise spray-out energy and chemical fluids as well as maximize personnel and environmental safety.



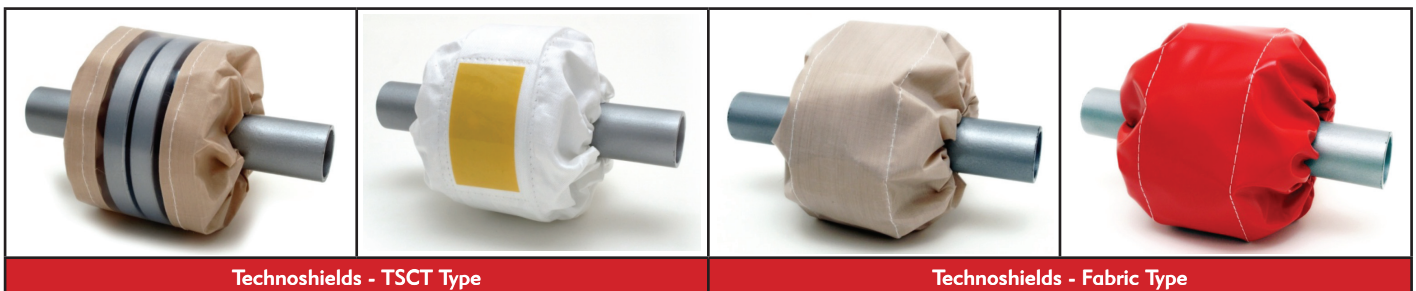
TECHNOSHIELDS TEXTILES	TECHNOSHIELDS METAL
Sulfuric Hydrochloric Hydrofluoric Nitric Phosphoric Caustic Services Solvents Ammonia Peroxydes Additives Glycols	Steam Thermal Oil Hydraulic Oil Gas High Temperatures

### Typical spray-out causes:

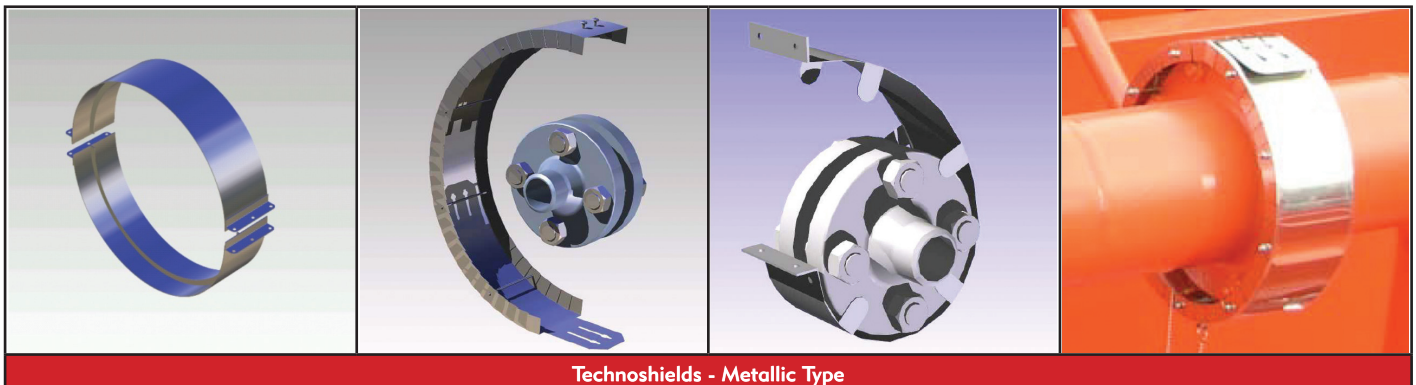
- Peak pressures in piping systems
- Vibrations and shocks within piping system during operation
- Inappropriate or inaccurate torque on bolts
- Flange misalignment
- Thermal cycles and thermal relaxation of fixings
- Corrosion

### Some of the risks associated with accidental spray-outs:

- Injuries to personnel
- Damage to surrounding environment
- Environmental pollution
- Fires and explosions



- Composed of high endurance fabrics that provide a unique strength against mechanical stresses
- Fabric is scientifically researched and technically tested to be thin, resistant and outstandingly safe
- Resists up to 250°C and has widest range of resistance to chemicals
- Systems designed to be suitable both for internal and external environments
- Available materials are: FG-PTFE, Pure PTFE, PVC, Polyethylene & Polypropylene
- Optional: leakage visual indicator, drainage & transparent window
- Other bespoke options also available to meet customer-specific requirements and specifications



- Solid and metal type Technoshield® best choice for demanding environments (higher pressure & temperature)
- Laser-machined & fine welded parts made from stainless steel 305 or 316
- Optional: drain, locking system and gasket
- Other bespoke options available to meet customer-specific requirements and specifications

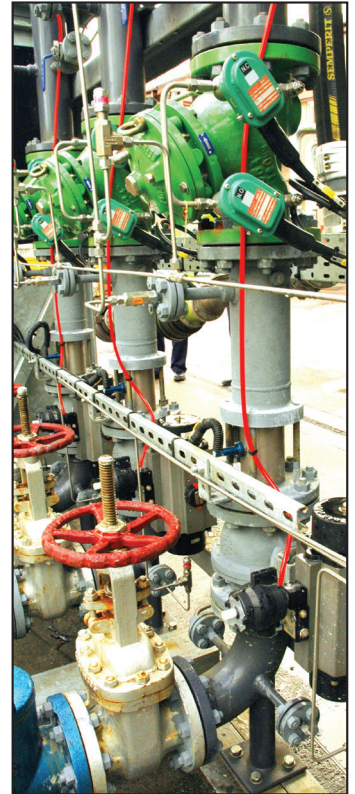
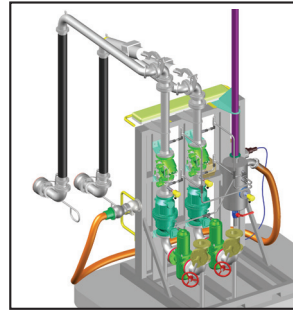


# INTEGRATED SYSTEMS

## Complete custom-built loading and metering skids



Mobile trans-loading or off-loading systems

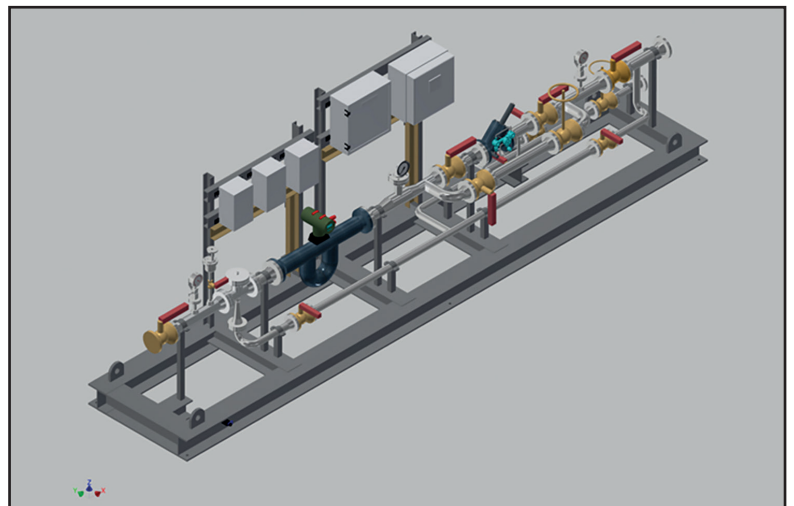


## Metering Skid Solutions

**Design and manufacture of metering, pumping and blending skid systems and their integration with the entire bulk fluid handling operation for maximum operational efficiency and return on investment**

- Bulk terminal loading and blending for refined fuels
- Truck and rail loading / unloading for chemical, industrial fluids and compressed gases
- Custody transfer and LACT skid systems
- Trans-loading and metering

Fully custom-engineered solutions to suit customer specific requirements, skid-mounted packages using state-of-the-art design technology and industry recognized standard principal components.



# INTEGRATED SYSTEMS



Trolley-mounted Marine Gas Oil (MGO) metering skid for bunkering operations



Trolley-mounted potable water metering skid for bunkering operations

- Utilisation of world-class component manufacturers
- Standard usage of world-class control system components
- Meter proving facilities or systems
- Standard compliance with international standards and practices: ASME, ASTM, ISO, API RP1004, API RP 1101, API RP2003, API MPMS, W&M, OIMLR117, OSHA 1926, IEC, NEC Article 500
- Enclosures and housings for electronics compliant to suit each application
  - NEMA
  - Zones 1 & 2, Divisions 1 & 2
- Experienced in-house design team utilising state-of-the-art design and verification tools
- Structural design validation using proprietary software and FEA
- Sampling systems
- BS&W Probes
- Fully-wired control and security systems mounted in appropriate EX housings/panels
- SCADA system operator interface. Local or remote mounting
- In-house skid fabrication, testing and system integration
- FAT and SAT capabilities

## Custom controllers and interface systems:

- On-site training with end-user as standard
- Upgradable licensed SCADA software
  - Wonderware
  - iFix
  - Simplicity
- Customer control panel with customisable display
  - PLC or PAC internal architecture
  - SCADA interface
  - Touchscreen and / or keyboard
  - Loading program management
  - User interfaced graphic screens for tag number, valve position, alarms etc.
  - Archive data summary store for alarm history, audit trail, trends etc.
  - Self-diagnostic capabilities
  - Entry code, password control and lock out
- Industrial work station grade PC with 19" / 26" flat monitor LED screen
- Touchscreen monitors or keyboard
- Printer
- Windows-based operating system



# INTEGRATED SYSTEMS

## Soliflo API Ranger Pentaflo, 5-Arm Bottom Loading Skid

### General process conditions and performance:

- Product/s: refined hydrocarbons
- Ambient temperature range: 0°C to + 45°C
- Operation temperature range: 0°C to + 45°C
- Design temperature range: - 18°C to + 50°C
- Operational pressure (max): 1000 kPa
- Design pressure: 1600 kPa
- Test pressure: 2200 kPa
- Flow rate (max): 2300 L/min
- Pressure drop (max): 168 kPa
- Accuracy / linearity: 0.075%
- Repeatability: 0.01%



### Surface Preparation / Coatings:

#### Structural steel, grating, pipe supports and brackets:

- Hot dip galvanized

#### Exposed carbon steel surface treatment – piping and equipment:

- Sandblasted: acc. to ISO 8501-1, SA 2 ½,
- Primer coat: metallic zinc rich primer, DFT of 70 µm
- Intermediate coat: two component epoxy coating, DFT of 160 µm
- Top coated: two pack high gloss acrylic, DFT of 50 µm
- Standard colour: RAL 7032 Pebble Grey (any other colour shade according to RAL standard is available on request)

#### Non-destructive testing:

- 10% of product carrying butt welds are subject to radiographic inspection
- Product carrying components are supplied with material certification acc. to EN 10204, 3.1.B
- Hydrostatic pressure test (1.5 times design pressure for 30 minutes)
- Functional test at ambient temperature prior to delivery.
- Quality Assurance System of SOLIFLO is certified to ISO 9001:2015

#### Material certification and specification:

All product carrying materials will have certification and mechanical properties as defined in their respective ASTM, BS or equivalent German DIN material specifications.



**SOLIFLO**  
**API RANGER**  
Monoflo

**SOLIFLO**  
**API RANGER**  
Quadflo

**SOLIFLO**  
**API RANGER**  
Duoflo

**SOLIFLO**  
**API RANGER**  
Pentaflo

**SOLIFLO**  
**API RANGER**  
Triflo

**SOLIFLO**  
**API RANGER**  
Hexaflo

# RETAIL SITE VAPOUR RECOVERY

## VR Refiner System

**Recovering fuel retailers lost vapour. Engineered to increase fuel margins. Fast installation, low cost, profits from day one.**

On site vapour processing ensures fuel station retailers have full control of their most valued asset, thus maximising profit and fuel margins.

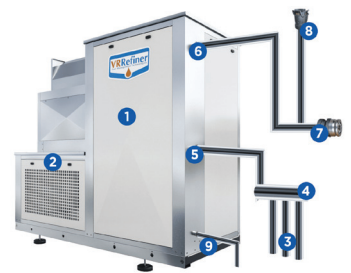
Sophisticated inventory reporting regarding recovered petrol volumes ensures that the wet stock management process is taken care of and, importantly, the commercial aspect regarding the positive financial benefits which can be measured and clearly accounted for.



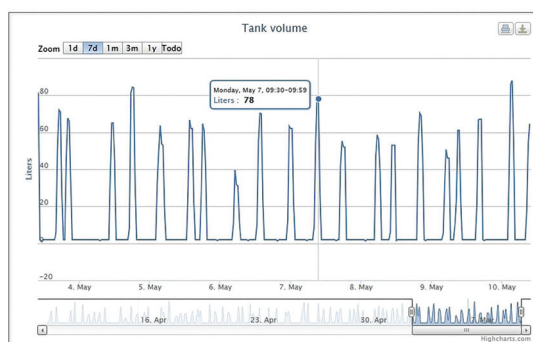
### Features & Benefits

- Retains the retailers' vapours to process to re-saleable fuel
- Third party tested for performance and reliability
- Improves environment, lowers carbon footprint
- Low power consumption using latest technology
- Minimal maintenance with no site disruption
- Positive commercial business case
- Virtually eliminates harmful on-site gasoline emissions.
- Works with all site configurations
- Road tankers return to depot with Lower Explosive Limit
- Accurate wet stock monitoring and reporting
- Does not interfere in any way with normal site operations

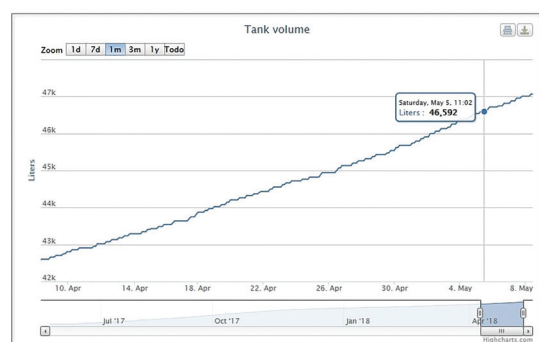
- The new VR Refiner System has incorporated all the latest technical design improvements gained from years of successful operational experience in various geographical and environmental conditions worldwide
- Smaller and lighter, quality materials ensure a minimum operating life of 20 years
- Installed into the fuel station vent system to enable all displaced petrol vapours, normally lost to site, to be processed, converted to fuel and returned to the storage tank for immediate re-sale
- The VR Refiner can be installed on a site without environmental controls in place or with stage 1 and stage 2 systems already installed.
- During normal site operation it enhances site security and environmental control
- During normal site operation and tanker deliveries displaced petrol vapour moves from the underground storage tank 3 through the manifolded vents 4, 5 into the VR processing chamber 1.
- The multi-phase processing chamber is kept at very lower temperature by the VR control module 2 which incorporates advanced refrigeration and sophisticated electronics. The vapour is condensed in the chamber back to fuel where it is stored at the base of the chamber.
- The vapour with fuel removed continues through the outlet pipe 6 towards the breather vent 8 and stage one tanker connection 7 if fitted.
- Process fuel is stored, measured and then returned to the UST for immediate resale via the fuel return line 9.



Graphic Truck Loading Results



Graphic Total Petrol Recovered



### VR Refiner telemetry system

All direct processed fuel can be measured and accounted for via the on-line FMT system accessed via Fuel Management Technologies portal.



# VAPOUR RECOVERY & VAPOUR COMBUSTION

## Vapour Recovery



**World leading brand Vapour Recovery Units (VRUs) incorporating technology tailored to:**

- Refine the science of environmental protection and drive significant cost savings through the recovery of a variety of volatile organic compounds (VOCs) in road tanker, rail and marine applications - as well as crude, ethanol and natural gases
- Recover more than 99% of VOCs generated during product loading providing an attractive payback on capital investment

VRUs that are of unique design and with features in excess of industry needs:

- Most efficient, cost-effective unit on the market
- Typical return on investment less than one year, providing a quick payback and immediate profit increase
- Patented energy saving and recovered measurement devices can be applied to other manufacturers' units
- Patented auto-tuned vent and regeneration valves to protect vacuum pumps and carbon; increases the life of the carbon
- Patented return pump variable frequency drive level control to prevent petrol spills
- Complete HMI control of all components and set points to allow for ease of operation
- Skid-mounted system; shipped and installed in four major parts
- Self-cleaning absorber tower with dished head bottom to eliminate confined space entry
- Remote web access for troubleshooting to reduce downtime
- Historical trending of all VRU parameters and alarms
- All components mounted and completely wired from the factory to skid-mounted junction boxes
- Skid and components designed for easy accessibility for maintenance and system checks
- Reporting package specifically designed to meet Subpart BBBBBB regulations
- Smallest industry footprint allows for reduced civil installation cost
- Lowest industry energy consumption; reduces energy consumption on average 50% over competitive models
- Robust design proven to pass HAZOP reviews by major oil companies globally

## Vapour Combustion



**As an alternative to vapour recovery, hydrocarbon vapours may be destroyed in a flare, combustor or thermal oxidizer.**

For many applications, a device known as a Vapour Combustor Unit (VCU) can be successfully used as a safe and economical method of controlling vapours from the handling, storage or loading of volatile liquid hydrocarbons or other compounds when recovery of the vapours is not a viable option.

*An enclosed combustion system, our VCU incorporates advanced pilot technology that reduces pilot fuel consumption by up to 75% over competitor models and incorporates the following features:*

- The standard pre-packaged VCU requires minimum field assembly
- Ceramic fibre refractory lined combustion chamber
- Smokeless burner(s) specially designed to reduce the possibility of a flashback
- PLC based control system with an automatic ignition system and safety monitoring
- Automatic actuated vapour staging valve(s)
- Combustion air blower for the anti-flashback burners
- Detonation arrestor with high temperature monitor in the main vapour piping
- Control panel with all necessary instrumentation and controls for automatic and low maintenance operation
- Advanced temperature control technology to reduce assist gas usage
- Easy-to-use touch panel operator interface

# VAPOUR RECOVERY & GAS COMPRESSION

## Certified Ultra-Low Emissions Burner



Aereon's Certified Ultra-Low Emissions Burner (CEB®) is a vapour destruction device that utilizes premix surface combustion to achieve the world's highest destruction efficiency.

With Volatile Organic Compounds (VOC) destruction efficiencies of up to 99.99%, NO<sub>x</sub> emissions guarantee of < 15 ppmv and CO emissions guarantee of < 10 ppmv at 3% oxygen, the CEB® is the ultimate solution for high-level VOC destruction requirements. The CEB® single unit product range varies from nominal thermal capacities as low as .34 MMBTU/hr. (0.1MW) to 40 MMBTU/hr. (12MW). The CEB® can be staged where multiple units can be installed in series for higher flows.

### Advantages:

- Non-luminous flame reducing visual pollution
- Smokeless operation to keep you compliant
- Combustion air fan that provides 100% of the combustion air requirements to maintain high destruction efficiencies
- Combustion air fan utilizes a VFD which is used for improved temperature control
- Integrated PLC-based control system that makes it easy to update and operate the unit
- Full range of waste gas flow control trains to fit your specific flow requirements
- Compact footprint with short stack to reduce space requirements
- Spark ignited pilot is standard equipment that keeps unit reliability high
- Pilot ignition system can be continuous or intermittent to match operating requirements

## Gas Compression



Soliflo markets gas compression systems for wellhead applications that are proven to be reliable and flexible. Our standard products - or our custom solutions - can match the technology which best suits your exact needs while boosting production, lowering operating costs, reducing greenhouse gas emissions and maximising reserve recovery.

Our compression systems are designed for a broad range of suction and discharge pressures as well as a full range of production volumes. Rotary screw systems have efficient HP/volume ratio and compressor size/flow ratio and have very low maintenance requirements.

We offer a full range of compressors for use at the wellhead and free testing services to allow you to assess which of our products best suits your needs. Testing helps to identify flow improvement opportunities upfront, creating a virtually risk-free investment for our customers.

The system that we recommend will depend on factors which might include: line pressure, volume, pressure differential, gas cleanliness, gas composition, energy efficiency and capital cost. The gas compression systems marketed by Soliflo have been used successfully on coal bed methane wells, natural gas wells and oil wells and customers have seen production increases of between 50% and 200% using our wellhead compression units.



# INDUSTRIAL PROCESS PLANTS

## Environmental Protection Plants

Design and construction of 'turnkey' plants for the recovery of chemicals and treatment of liquids, sludge and gaseous effluents for numerous industries including oil, gas, petrochemical and chemical

- Product recovered by distillation, adsorption and absorption can be used directly in production making installation highly profitable
- Where selective recovery systems are not economically viable or feasible, thermal oxidation (regenerative, recuperative, catalytic) plants can be installed at the same time facilitating a heat recovery system (steam, thermal oil or hot water)

Thermal Valorisation	Gaseous Waste Oxidation	Solvent Recovery	Gas Treatment	Liquid Treatment
Organic liquid or aqueous wastes polluted by organic compounds; solids & sludge	Thermal Oxidation Plants (recuperative); Catalytic Oxidation Plants; Regenerative Thermal Oxidisers (RTO)	Distillation plants (continuous, batch, multiple effects etc.); adsorption plants (activated carbon); absorption plants (physical & chemical)	Adsorption plants (activated carbon, iron scavenger, molecular sieve); adsorption plants (physical & chemical); flue gas treatment & (dry & wet) abatement	Stripping plants; water contaminated by organic compounds; evaporation & concentration plants



# INDUSTRIAL PROCESS PLANTS

## Production Plants

**Design and construction of plants for the production of compound chemicals and in the mixing process for numerous industries including chemical, auxiliary chemical and lubricants blending (refer Technologies Plants)**

Capacity capability of production reactors and mixers: 2 000 litres - 60 000 litres

- 'Turnkey' plants for batch or continuous production of chemical products incorporating latest automation systems
- Reactors - vacuum and pressure mixers
- Complete plants for chemical product production

In addition to the basic and detailed engineering required in the construction process, we offer formulations, training and start-up assistance to ensure customers the quality and characteristics of finished product.

### Technologies:

Formaldehyde derivatives (glue & urea formaldehyde)	Adhesive (rubber, solvent-based & acrylic)	Auxiliary chemicals for textiles & tanneries	Blending plants for lubricants' production	Resins	Wood derivatives (tannin & furfural) and fruits extract (pectin)
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## Other Plants

- Thermal oxidation
- Absorption
- Distillation
- Solvent recovery
- Adhesive



NOTES

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The Soliflo name has been synonymous with highly specialised bulk liquid control, tanker loading and off-loading systems and services throughout the Southern African Development Community (SADC) region since 1984.

In 2017 Soliflo International, Kenya, was established to expand our footprint within the East African Community and Common Market for Eastern & Southern Africa regions. Industrial Flow Systems Mocambique, was formed prior to this in 2013.

These sales, service and support operations form part of the Soliflo Group of Companies adding impetus and ease of access to key markets within their respective regions.

- Head office is in Johannesburg, South Africa.
- Under current ownership and management since 2003, Soliflo has forged strong ties with leading name local and international equipment manufacturers, suppliers and engineering companies and we are well-equipped to provide diverse industry sectors with top quality products and services.
- All group companies are ISO 9001:2015 and ISO/TS 29001:2011 Quality Management certified.

As Africa's liquid control and tanker loading specialists, Soliflo is a principal supplier of safe, efficient and environmentally-friendly liquid control, fluid and gas transfer solutions to tanker operators; as well as leading brand access and loading equipment for road, rail and marine tankers.

- Our product portfolio includes: Tank truck equipment, tanker grounding and earthing devices, pumps, instrumentation and flow control equipment, vapour recovery, gas combustion systems as well as integrated systems.
- Related equipment includes: Industrial hoses and assemblies, dry break couplings and adaptors, breakaway and emergency release couplings. We have also developed a range of tanker access, fall prevention and safety systems.
- Our aftermarket service, repair and maintenance team ex-Johannesburg is able to assist customers throughout Africa. An equipment inspection and evaluation service, recommendations for repair, refurbishment or upgrading is available on request.

From equipment and component supply to the engineering and delivery of fully-packaged solutions, Soliflo delivers.

#### Soliflo International Kenya

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P.O. Box 52270-00100, Nairobi



### PROUD REPRESENTATIVE OF WORLD LEADING BRANDS

