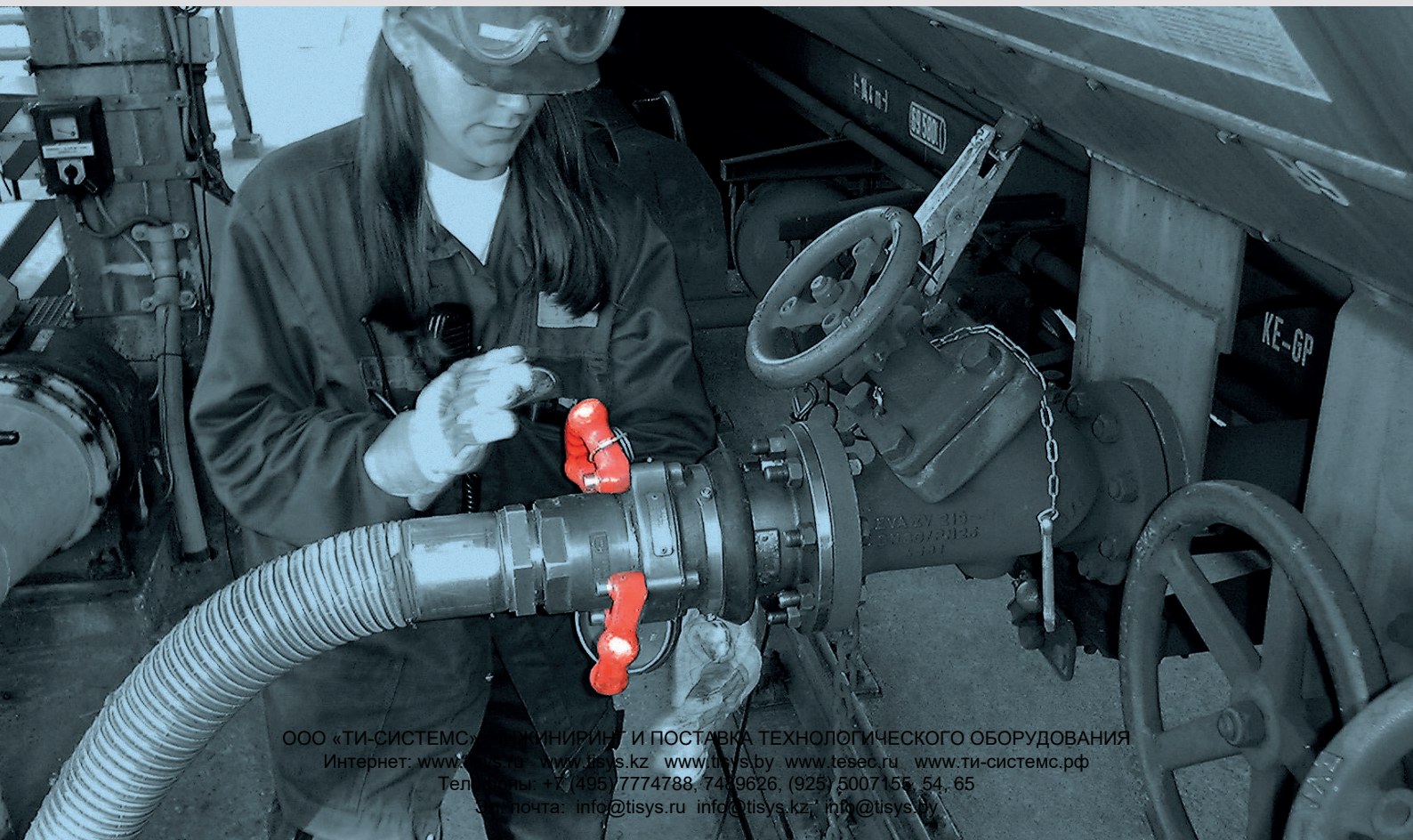


TODO

A Gardner Denver Product



CATALOGUE



ООО «ТИ-СИСТЕМС» — ПРОЕКТИРОВАНИЕ И ПОСТАВКА ТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ
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“WHEN I LOOK TO BUY A DRY-BREAK VALVE FOR MY PROJECT – I ASK FOR A TODO®”

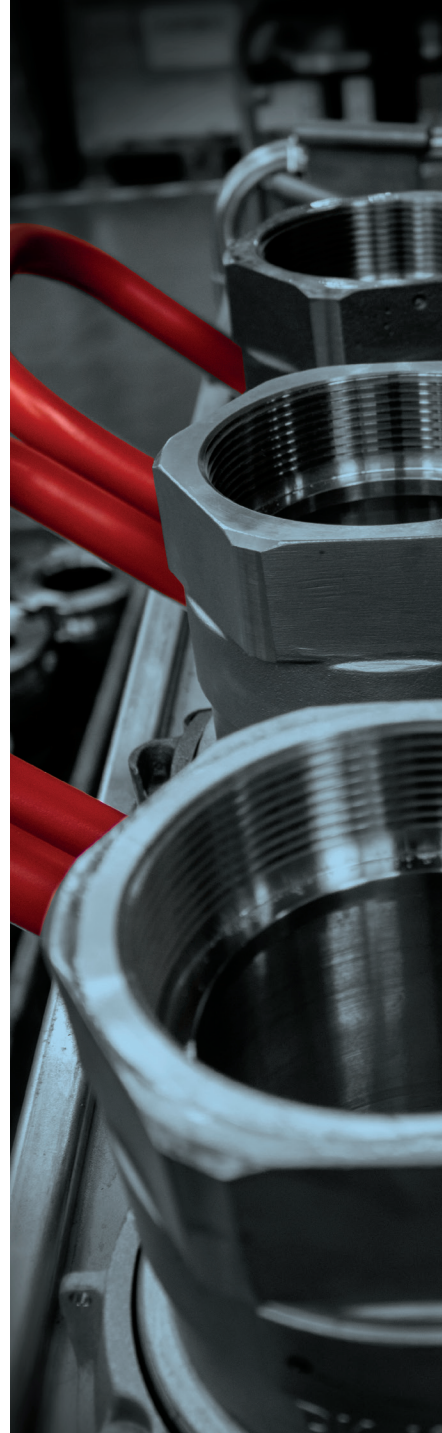
TODO® has a reputation for being the market leader in the DRY-BREAK industry. Used globally in the most demanding conditions and designed to handle a huge range of oils, gases and hazardous chemicals, the TODO® range of equipment has been setting the standard for more than 40 years.

The TODO® name has become synonymous with quality alongside Emco Wheaton's wide reaching product range of Marine Loading Arms, Distribution Loading Arms, petroleum and chemical road tanker equipment and range of refuelling systems used to refuel fleets of buses and other industrial vehicles.

Our manufacturing plants in Houston Texas, USA; Oakville Ontario, Canada; Kirchhain, Germany and Margate, UK are supported by sales offices in Paris, France; Kuala Lumpur, Malaysia; Manama, Bahrain; Vienna, Austria; Shanghai, China; Moscow, Russia and Campinas, Brazil, as well as a network of trusted distributors covering more than 100 countries globally.

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CERTIFICATES & STANDARDS

TODO-MATIC couplings carry the highest level of certification and approvals available worldwide:

VdTÜV under test approval mark TÜ.AGG.162-93 towards ADR, RID and IMDG.

European directives 2014/68/EU (PED).

2014/34/EU (ATEX) compliant.

ISO 9001:2015.

E4 Automotive liquefied petroleum gas components - Other than containers.

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VIRTUALLY ZERO SPILLAGE.

WITH MORE THAN 30 YEARS OF EXPERIENCE IN THE TRANSPORTATION OF OIL, GAS AND HAZARDOUS CHEMICALS, TODO® IS EXCEPTIONALLY PROUD OF THE TODO-MATIC® RANGE OF DRY-BREAK COUPLERS.

Trusted around the world to transfer highly valuable and aggressive products in the most testing conditions for loading and off-loading from road or rail, offshore rig supply, ship-to-shore transfer and more, TODO-MATIC® sets the standard for the industry.

Higher profit margins and safety credentials are assured with the

TODO-MATIC® range's minimal residual loss of product on disconnection and spillage of virtually zero. Less product leakage means more product delivered to your customers and more money for your organisation.

TODO-MATIC® couplers are extremely reliable, with very few moving parts and require little operator intervention

which reduces the risk of human error. Customers enjoy dramatically improved operational and fugitive emission performance as well as peace of mind that all products meet the highest safety standards including European directives 2014/68/EU (PED) and 2014/34/EU (ATEX).



1" TODO-MATIC® DRY-BREAK

(DN20 - DN32, Ø56 mm)

- Specifically designed for small bore applications
- One-handed operation
- High flow rate
- Minimal release on disconnection
- Additional option of selectivity to prevent product cross-contamination



2" TODO-MATIC® DRY-BREAK

(DN40 - DN50, Ø70 mm)

- Suitable for a diverse range of applications
- Available in a range of materials and configurations
- Provides rapid, safe transfer



2.5" TODO-MATIC® DRY-BREAK

(DN65 - DN80, 105mm)

- Ideal for road tanker and aviation applications
- Suitable to transfer a variety of liquids and vapours
- Strong integral swivel
- Ergonomic design
- Rugged construction



3" TODO-MATIC® DRY-BREAK

(DN80 - DN100, 119mm)

- Typically used for rail and road loading/discharge
- Tough construction
- Ergonomic design
- High flow rate
- Zero spillage
- The natural choice for N.A.T.O. refuelling standardisation



4" TODO-MATIC® DRY-BREAK

(DN100, Ø164 mm)

- The most compact, lightweight high flow 4" self-sealing coupling system on the market
- Applications include:
 - off-shore ship-to-rig transfer of fuels and drinking water
 - aviation fuel bunkering
 - rail tank loading/discharge
 - chemical transfer
- Rapid connection and disconnection



6" TODO-MATIC® DRY-BREAK

(DN150, 238mm)

- Ideal for ship or barge-to-shore connection
- Significantly faster transfer than any flange coupling
- Environmental standards compliance
- Provides real turnaround time savings
- Rotating lifting loop as standard



DUST PLUGS AND DUST CAPS

- Prevent ingress of dirt and water
- Sizes: 1" – 6"
- Available in:
 - Stainless steel, brass/gunmetal, aluminium and rubber

DESIGNED FOR THE SAFE TRANSFER OF LPG IN BOTH LIQUID AND VAPOUR PHASES

Improve profit margins, environmental credentials and operator safety when transporting liquid petroleum gas with TODO-GAS couplings. Specifically designed for the safe transfer of LPG, TODO-GAS couplings comprise materials ideal for the unique properties of LPG and terminal handling properties.

The unrivalled technology in TODO-GAS couplings provide real savings as connection and

disconnection are exceptionally quick, increasing turnaround, and product loss is reduced to virtually zero. This means more product at the final destination. The possibility of operator freeze burns is also removed.

Environmental regulations are increasingly important and strict but the TODO-GAS couplings can help you plan for the future. An unrivalled 99% typical reduction in emissions compared to existing thread-based

coupling means even the most stringent environmental standards in the world are easily matched and future changes are unlikely to affect your organisation.

TODO-GAS 1" and 2" products have dimensionally different connection geometry, meaning that equivalent TODO-MATIC® products are not compatible. This restricts product cross contamination.



1" TODO-GAS

(DN19 - DN32, Ø56 mm)

- Suitable for a range of LPG applications
- Heavy duty autogas vehicle refuelling
- Advanced vapour recovery systems
- Easy to connect and disconnect
- Single handed operation
- Ultra-low release on disconnect: 0.15cc per disconnection
- Suitable for indoor fuelling
- Handles up to 200 litres/minute (52 USG/MIN)
- Minimal pressure drop



2" TODO-GAS

(DN40 - DN50, Ø71 mm)

- Ideal for bobtails or immediate bulk delivery trucks
- Rugged construction
- Suitable for frequent use
- Can cope with almost any loading equipment configuration
- Ultra low release on disconnect: 0.35cc per disconnection



3" TODO-GAS

(DN80, Ø119 mm)

- Unrivalled suitability for larger or high flow rate applications
- Typically used for rail tank loading and discharge
- Handles flows of up to 2,500 litres/minute (658 USG/MIN)
- Two handle operation
- Robust integral swivel
- Designed to withstand regular use at terminal



DUST PLUGS AND DUST CAPS

- Prevent ingress of dirt or water
- Materials:
 - 1" and 2" sizes: rubber
 - 3" size: stainless steel, brass/ gunmetal and aluminium



ACCESSORIES AND SPECIALS



PRESSURE RELIEF VALVE FOR TANK UNIT

- Highly recommended in applications where back-pressure build-up is common. Enables a small amount of pressure to be released in the hose unit in order to ease the coupling motion



PARKING DEVICE

- Provides a position for safe storage of hose units when not in use



LONG DOUBLE HANDLE 2"

- Enables easier coupling motion, especially in applications where space is restricted at the connection point

NGX SERIES

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TODO® takes its long history and reputation of being the global safety coupling leader and combines it with Next Generation design thinking. The NGX series offers flow optimisation with the latest innovations in handling and performance to bring you an industry leading range of Safety Break-Aways.

The TODO® Next Generation Break-Away has been designed to eliminate spillage and damage associated with drive away/pull away incidents when loading/unloading hazardous liquids.

In the event of a drive/pull away incident, the break pins are subjected to breaking force and eventually shear,

causing the two halves of the Break-Away to separate. At this point, the two halves rapidly close off, preventing liquid/gas from escaping from the now broken line.

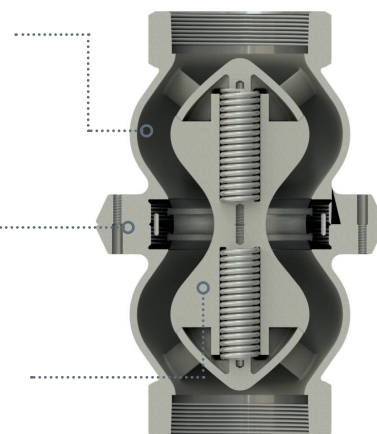
This safety mechanism prevents damage to the loading system, while ensuring minimal product loss.



Fluid Dynamic software optimised design for improved flow

Reconfigured seal location to reduce maintenance downtime

Shielded spring design – zero flow interruption



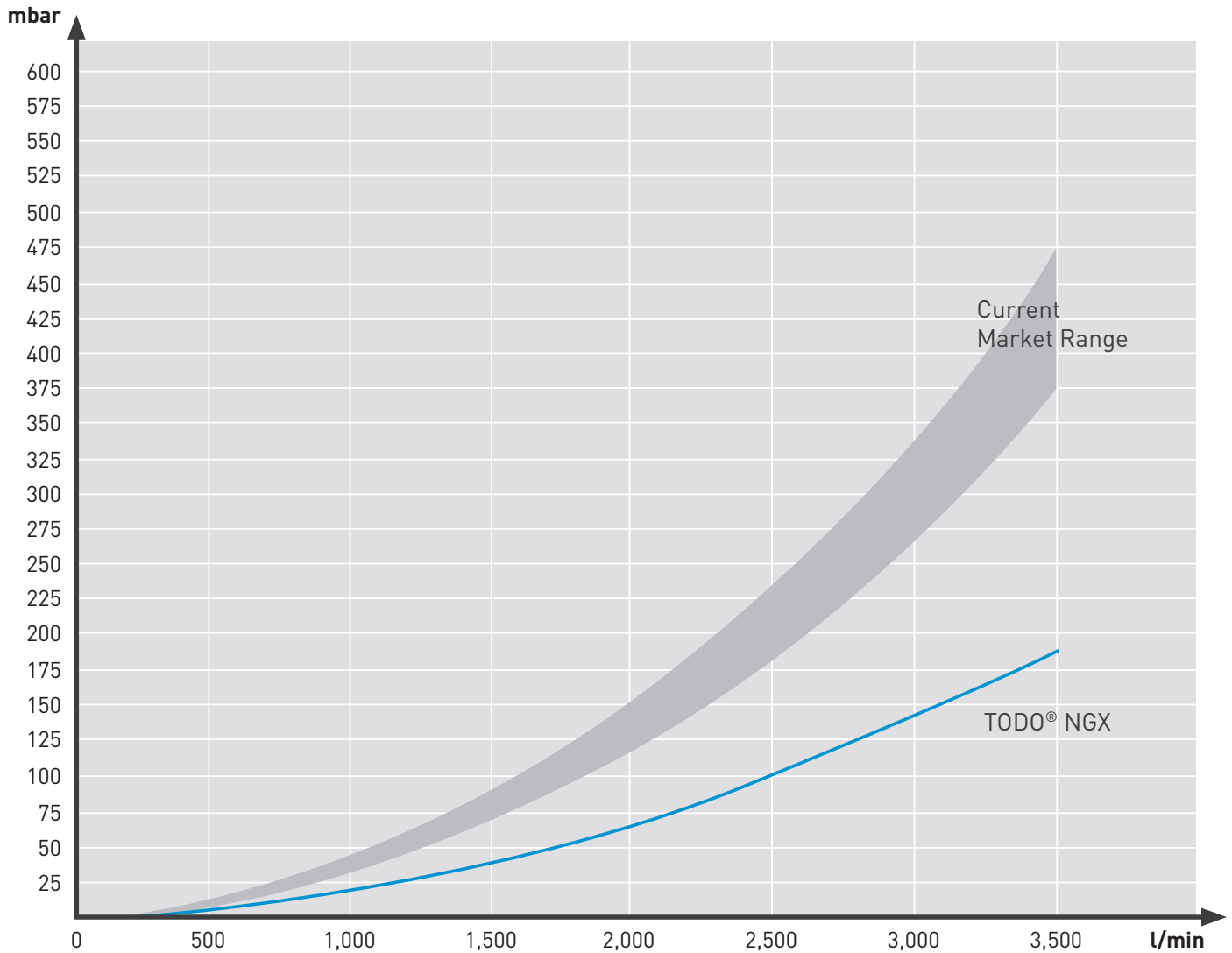
2", 3", 4" AND 6" TODO® BREAK-AWAY

(DN50), (DN80), (DN100) & (DN150)

- Extremely quick closing time
- Minimum loss of product
- Suitable for a wide range of applications

BENEFITS

- Faster loading/unloading due to the optimised flow rates offered
- Simple to retrofit onto Loading Arms
- Easier to handle when loading/unloading
- Reduced maintenance due to internal redesign and new seal placement
- Easy to reset on-site, saving time, saving money



	TODO® NGX	COMPETITOR A	TODO® STANDARD
Flow Rate	2000 l/min		
Pressure Drop	68 mbar	132% Higher	84% Higher
Mass	23.9 kg	5% Heavier	33% Heavier
Size	340mm	5% Longer	18% Longer

O-Ring Materials:	Standards and Approvals:	Applications:
Viton (FKM)	2014/68/EU – Pressure Equipment Directive	Chemical
Nitrile (NBR)		Oil
Chemraz	2014/34/EU – ATEX	Pharmaceuticals
Kalrez		Tank Trucks/Depots
Kalrez, Viton are Registered™ of DuPont Chemraz is a Registered™ of Greene Tweed	BS EN ISO9001:2015	Railcars
		Containers

COLLAR RELEASE BREAK-AWAY

ELIMINATE SPILLAGE

The TODO® Collar release Break-Away Coupling offers an alternative to the standard range serving a very different purpose. Like the standard product it has been designed to eliminate spillage and damage associated with drive and/or pull away incidents when loading and unloading hazardous liquids, but with the added benefits of safeguarding loading arms.

When used with loading arms the break-away is engineered to disconnect if the arm travels past the customer designated breakage position. The collar is linked via break cable to the loading arm so that once the break position is reached, the collar splits, shutting the valves off. In addition to reducing any potential environmental impact from a break, the loading arm is safeguarded and potential costly downtime is avoided.



2" & 3" COLLAR RELEASE BREAK-AWAY

(DN50) & (DN80)

- High flow rate/low pressure drop
- Operates independently of shut off safety systems and does not require an external power source
- Will release at any angle of pull
- Easy to re-set on site

MARINE BREAK-AWAY

ELIMINATE SPILLAGE AND
DAMAGE ASSOCIATED WITH SHIP
AND/OR BARGE MOVEMENT

The TODO® Marine Break-Away Coupling has been designed to eliminate spillage and damage associated with ship and/or barge movement when loading and unloading hazardous liquids.

The Marine version of TODO®'s tried and tested Standard Break-Away Coupling has a more robust design and has been engineered to withstand harsh marine conditions.

The coupler identifies an excessive load, closes the valves and then allows disconnection.



4" & 6" MARINE BREAK-AWAY

(DN100) & (DN150)

- High flow/low pressure drop
- Designed to resist axial force so that disconnect only occurs when subjected to straight pull forces
- Operates independently of shut off safety systems and does not require an external power source
- Easy to re-set on site

TODO® SAFETY PRESSURE TIGHT CAP (PTC)

| PROTECT YOUR OPERATORS AND YOUR PROFITS

Designed in close collaboration with leading gas and oil companies, the TODO® Safety Pressure Tight Cap is designed with the needs of businesses in mind. Containment security and operational safety are two of the biggest concerns in the industry and both of these are assured with the TODO® Safety Pressure Tight Cap.

Companies are assured better safety credentials and operational benefits when using the TODO® Safety Pressure Tight Cap. No other existing closure technology comes close.

The cap will sense when the event of an upstream closure leakage is possible and will hold any pressure necessary

until the problem is resolved. If the cap should be removed for any reason, it will quickly decrease the pressure to avoid forceful transfer of the media. This will improve profits and prevent operators from coming to harm.

2" (DN 50) PTC



3" (DN 80) PTC



4" (DN 100) PTC



2", 3" & 4" PTC

(DN 50), (DN 80) & (DN100)

- Alerts operator to pressure above 1.0 bar
- Prevents disconnection of cap while under pressure to avoid injury
- Certified as a full second or third closure depending on the application

FEATURES

- Pressure indicator alerts the operator to pressure above 1.0 bar behind the cap & possible failure of upstream closure
- Automatic depressurisation
- Reduces static pressure upstream of the cap
- Removes the possibility of disconnecting the cap whilst under pressure avoiding injury
- Customs / tamper seal feature
- Suitable for use with all commonly used wire and plastic custom seals
- Automatic locking with manual locking available
- Certified closure
- Certified as a full second or third closure depending on the application
- The cap can be used to replace other closure methods such as valves

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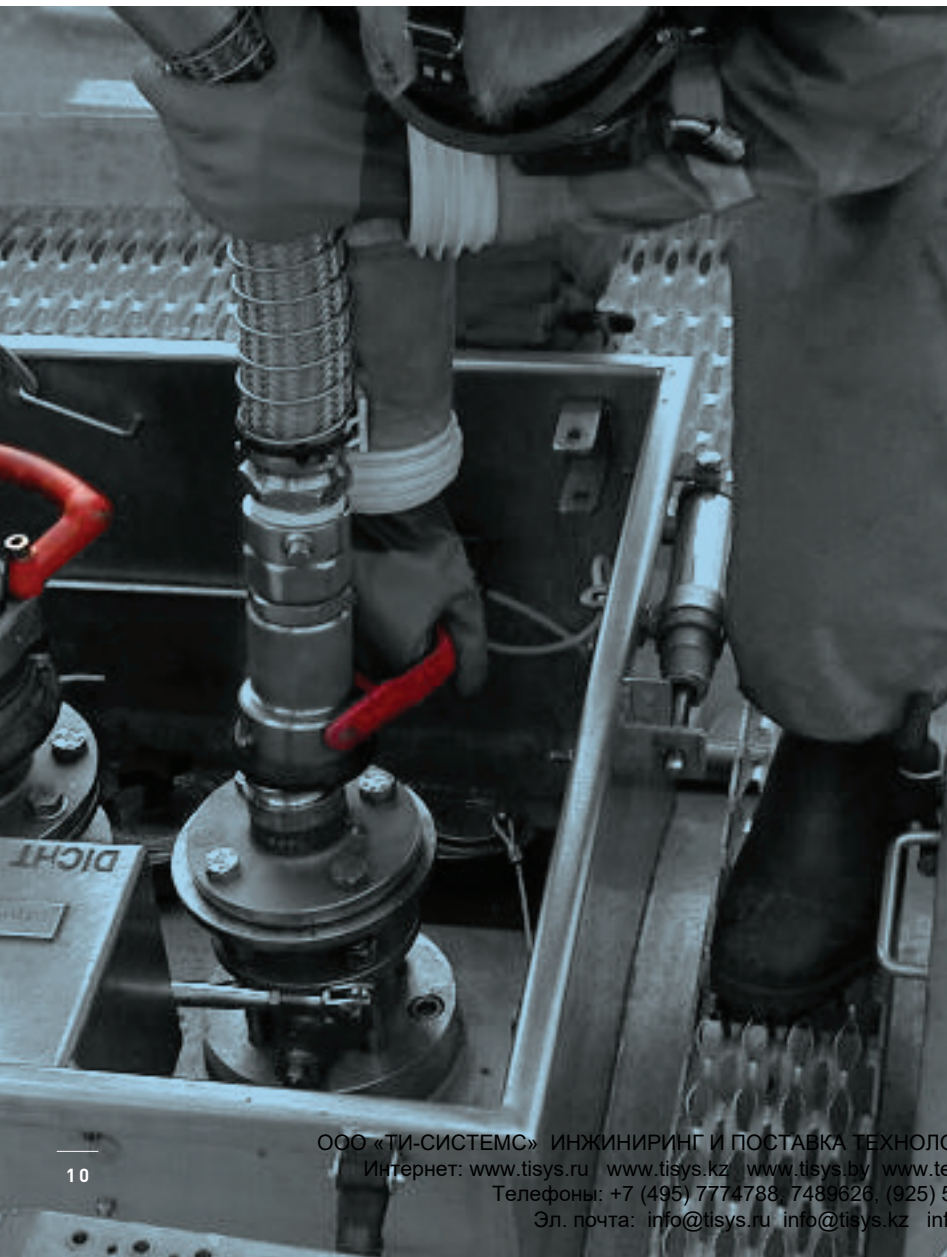
AVIATION COUPLINGS

I THE ECONOMICAL ALTERNATIVE FOR AVIATION FUELLING

TODO® Aviation couplings represent real money savings as well as improved safety features and exceptional ease of use to organisations involved in the aviation industry. With all valves guaranteeing closure before disconnection, reducing spillage, the product is not wasted resulting in higher profit margins.

The TODO® Aviation couplings' unrivalled reliability and robust design mean that maintenance and replacement costs are lowered. Meanwhile, simple operation reduces human error and improves turnover time.

The range includes the TODO®-45 coupling – the first economic alternative to the ISO 45 under wing hose couplers - and the TODO-MATIC® aviation hydrant connection.



TODO®-45

- Automatic valve opening on connection and disconnection
- Simple single action operation, no levers or switches
- Guaranteed valve closure prior to disconnection
- Minimal residual loss on disconnection
- Will connect and disconnect under pressure and flow where necessary
- Extremely reliable with very few moving parts
- Robust construction: no external operational components

BALL VALVES

I LIGHTWEIGHT VALVES, HEAVYWEIGHT PERFORMANCE

TODO®'s lightweight ball valves offer real cash savings through significant weight savings to the road and tanker industry. Designed to work specifically well in any application which involves regular compartment switching, the ball valves are also used in fixed plant and mobile refuelling applications.

The unrivalled sandwich design ensures that quick, easy valve changeover is permitted with a PTFE seal preventing leakage – all of which help to save businesses time and money. The robust construction, with very few moving parts, results in a highly reliable system.

One way and two way valves are available, each with a range of connection types. All TODO® ball valves meet the highest international standards for safety and have TDT approval, mark TDT-UW-30/09, are manufactured under EN ISO 9001:2000 and are certified towards ISO 14001:2004 and OHSAS 18001:2007.



ONE WAY BALL VALVES

Ideal for use in road tankers and a variety of plant applications to permit flow in one direction only, TODO® one way ball valves are available with pneumatic actuation and with a wide selection of end connectors.

The Range:

- 4" ball valve with actuator
- 3" ball valve
- 2" ball valve

TWO WAY BALL VALVES

The two way ball valves range offers the same benefits as the one way valves with a different function. Ideal for use as a compartment or tank switching valve, the two way ball valves control the direction of flow between either of two outlets.

The Range:

- 4" ball valve
- 3" ball valve with actuator
- 2" ball valve

FEATURES

- Aluminium valve body and ball
- Easy to service
- PTFE ball sealing
- Operate under pressure and flow
- Extremely reliable
- Robust construction
- Available with handle or actuator
- Sizes: 2" (DN 50) - 4" (DN 100)
- Working Pressure: PN 10
- Safety factor: 5:1

TODO® FUEL NOZZLES

I TOTAL DELIVERY: TOTAL SECURITY

TODO® fuel nozzles are specifically designed to withstand the pressure of high volume delivery from tanker to the loading station of product in complete safety. The world-leading technology ensures the handle locks when in the closed position and coupled with the ergonomic design of all the nozzles, ensures that loss of product through human error is significantly reduced. This plus the high flow rate which shortens turnaround time will ensure

more product delivered in quicker time meaning higher profits for your organisation.

Maintenance and replacement costs are reduced thanks to the robust manufacture and reliability of the TODO® fuel nozzles. Long-term performance is assured in the aluminium alloy body and PTFE Teflon seal.

Operator safety is always key and, with less product lost on disconnection and through human error, TODO® fuel nozzles are designed to reassure all of our customers they are in safe hands. As with all TODO® products, the highest safety standards worldwide are met including TDT approval, mark TDT-UQ-30/09, ADR/RID in Poland, manufactured under EN ISO 9001:2015 and carrying the certificate ISO 14001:2015.



ACCESSORIES RANGE:

- TODO-SNAP lug nut with 45° bend
- Sight glass
- Dust plug
- Hook spanner
- TODO-SNAP lug nut
- Outlet with extra-long swivelling lug nut
- Spout
- Lug nut tool

FEATURES

- Available with or without anti drain valves
- Automatic handle locking when in closed position
- Optional threaded sight glass
- High flow
- Ease of use
- Ballsealings in PTFE (Teflon®) as standard
- TODO-SNAP log nut equipped on request
- Size: 1½" (DN 40)
- Aluminium alloy components
- Working pressure: PN 10
- Safety factor: 1:5

TODO® SWIVEL

| IMPROVED RELIABILITY, IMPROVED MANOEUVRABILITY

One of the biggest causes of premature hose failure – and therefore maintenance costs and wasted time – is torque stress imparted onto the assembly hose by permitting free hose movement. The leading technology in the TODO® Swivel avoids this stress, allowing the hose to relax to its natural rest position, whilst permitting free movement of the hose.

Having been used in the toughest applications worldwide for 20 years, organisations can rest assured that the TODO® Swivel will give them ease of use with the highest safety credentials. Available in a range of materials, sizes and compact in design, it is ideal in a range of applications.

The TODO® swivel meets the highest safety requirements worldwide including TDT approval, mark TDT TDT-UW-30/09, ADR/RID in Poland, manufactured under EN ISO 9001:2015 and ISO 14001:2015.



TODO® SWIVEL RANGE

- 4" BSP Female – male
- 3" Flange – BSP – male
- 2½" BSP female – male
- 2" BSP male – NPT female
- 1½" BSP male – female
- 1½" BSP male – male
- 1" BSP male – female

FEATURES

- Simple design
- Low maintenance
- Highly reliable
- Very compact
- High flow rate / low pressure drop
- Features stainless steel bearings and single o-ring seal
- Available in sizes from ¾" (DN19) to 4" (DN100)
- Full range of materials: Aluminium, gunmetal/brass and 316L stainless steel
- FPM (Viton®) seal fitted as standard – full range of elastomeric seals available
- Working pressure: 1", 2", 2½", 3" stainless steel PN 25 bar. Others PN 10 bar.