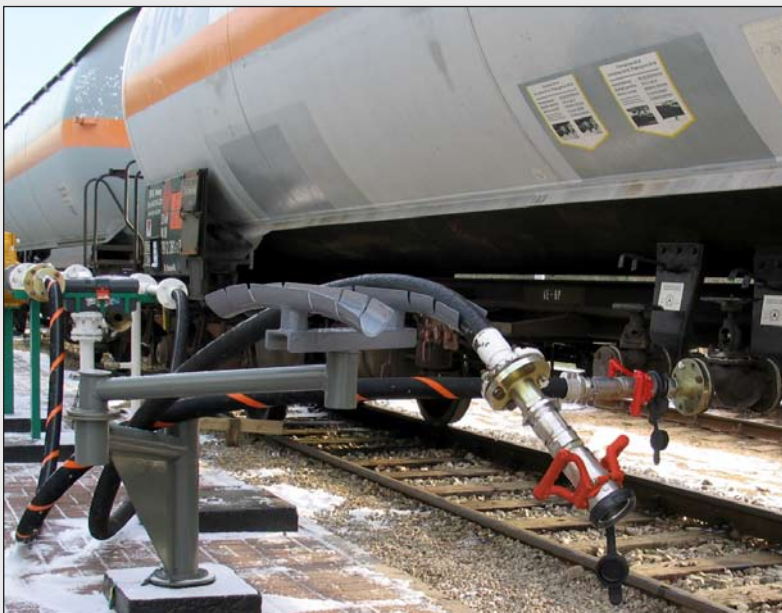


TODO®

For safe fluid handling

TODO-GAS® COUPLINGS



TODO-GAS® couplings are specifically designed for the safe transfer of LPG (typically Propane / Butane) in both liquid and vapour phases. The materials of construction and component design are specified to recognise the unique properties of LPG and terminal handling characteristics.

Ultra low release on disconnection not only improves safety but also satisfies even the most stringent of environmental standards. Typical emission reduction is greater than 99% compared to existing thread based couplings.

Just like their TODO-MATIC® stable mates, TODO-GAS® couplings remove the human error element from LPG transfer operations by ensuring that the valves are closed before disconnection is possible.

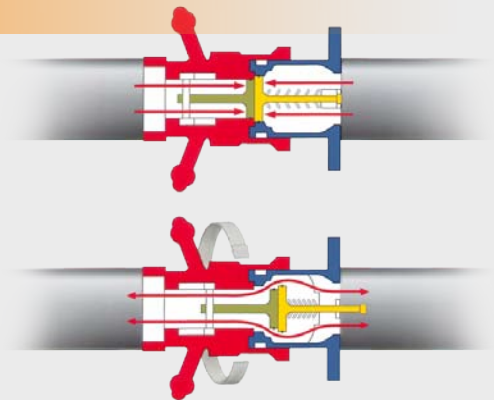


FEATURES

- Lowest emission volumes on disconnection.
Ensures current and future environmental standards compliance.
- No liquid release on disconnection.
Removes the possibility of operator cold burns and reduces product loss to virtually zero.
- Valves are closed and sealed before disconnection is permitted.
Increased safety by removing the possibility of human error.
- Valves open and close automatically.
No levers or handles to operate.
- Rapid connection and disconnection.
Saves time and simplifies operating procedures.
- Highest quality design and construction.
Conforms to all relevant standards including P.E.D. class II where applicable.
- Integral swivel.
Allows free coupling movement without imparting torque strain to the hose.

HOW IT WORKS

Turning the hose unit 15° clockwise locks the units together. The valves are still closed and are not opened until a further rotation of 90° has been performed and then the product flow is guaranteed. To close the valve and to unlock the units, reverse the procedure.



PATENT INFORMATION

TODO-GAS® couplings carry world wide patent protection on certain internal design techniques and constructions. This patent protection in no way affects other manufacturers ability to produce equipment that is fully interchangeable with TODO-GAS® couplings although we strongly advise costumers to check that alternative equipment carries all relevant certification and approvals necessary for their specific application.

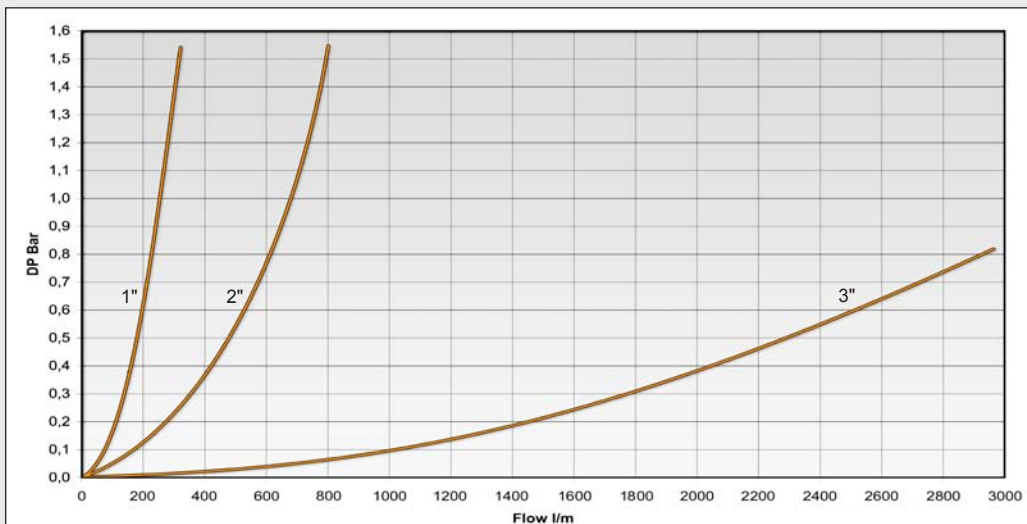


TECHNICAL DETAILS

Sizes:	1" (DN19 - DN32) to 3" (DN80).
Materials 1":	Gunmetal / brass and stainless steel 316L.
Materials 2":	Stainless steel AISI 316 L / special stainless steel.
Materials 3":	Stainless steel AISI 316 L.
Seals:	FKM (Viton®), NBR (Nitrile), other materials on request.
Working pressure:	PN 25.
Test pressure:	Working pressure +50%.
Safety factor:	5:1.
End connections:	BSP- and NPT-threads. DIN-, ASA-, TW- and TTMA-flanges (available for both tank and hose units). Other threads and flanges on request.

Viton® is a registered trademarks of DuPont.

FLOW CAPACITY



Media: water.
Temperature: 20°C.

CERTIFICATES / APPROVALS

- VdTÜV type-test approval mark no.: TÜ.AGG 162.93.
- CE-marked, PED 97/23/EC category II in accordance with conformity assessment module A1 (1" DN 25 exempt).
- German TA-Luft.
- E4 67R 00002. European standard covering equipment suitable for use in propane fuelled vehicles (only for 1").
- ATEX compliant.



TODO-GAS® SIZE RANGE



1" TODO-GAS® (DN19 - DN32, Ø56 mm)

TODO-GAS® couplings are used in a variety of LPG applications from heavy duty Autogas vehicle refuelling to advanced vapour recovery systems. Easy to connect and disconnect, the TODO-GAS® 1" coupling offers single handed operation and ultra low release on disconnection.

These features make TODO-GAS® couplings ideal for unsupervised fuelling of vehicles, in fact, with a release of 0.15 cc per disconnection, fuelling indoors is possible. The 1" TODO-GAS® coupling can easily handle flows up to 200 litres / minute (52 USG / min.) with minimal pressure drop.



2" TODO-GAS® (DN40 - DN50, Ø71 mm)

TODO-GAS® 2" couplings are designed primarily for loading and discharge of bobtails or intermediate bulk delivery trucks.

Rugged construction plus the same safety features as the rest of the TODO® coupling family equip TODO-GAS® couplings for frequent use. With one or two handle options and an integral swivel, TODO-GAS® 2" couplings can cope with almost any loading equipment configuration. A release on disconnection volume of only 0.35 cc means goodbye to operator cold burns.



3" TODO-GAS® (DN80, Ø119 mm)

For larger or high flow rate applications, TODO-GAS® 3" couplings have no equal. Typically used for rail tank loading and discharge (2" in USA), TODO-GAS® 3" couplings can easily handle flows up to 2,500 litres / minute (658 USG / min.). Two handle operation plus a robust integral swivel make sure the couplings are able to take the strains of terminal life.



FLANGED HOSE UNIT

All sizes of the hose unit are also available with flange.



PRESSURE TIGHT CAP

Designed to enhance operator safety & containment security in chemical & gas transport. Pressure indicator, depressurization, customs / tamper seal feature, automatic locking, certified closure. Manually lockable (with padlock). WP: PN 25. Sizes: 2" - 3".



DUST PLUGS AND DUST CAPS

Dust plugs / caps should be used to prevent ingress of dirt or water.

Materials:

1" and 2": plugs and caps in rubber.
3": plugs and caps in stainless steel, brass / gunmetal and aluminium.





SPECIALS / ACCESSORIES



Pressure relief valve, for tank unit

Dissipates trapped fluid pressure into hose unit without spillage, to allow easy connection.



Parking device

For safe and convenient storing of hose units.



Long double handle 2"



APPLICATIONS

- Road / Rail tanker loading / discharge
- Bobtail loading
- Auto-gas filling station
- etc..





TODO® PRODUCTS OVERVIEW



TODO-MATIC® The first choice for the safe handling of hazardous, valuable or environmentally sensitive media. TODO-MATIC® are available in aluminium, gunmetal and stainless steel 316L with special materials such as hastelloy C276 available to order.
Sizes: 1" (DN 25) to 6" (DN 150).



TODO-GAS® The TODO-GAS® couplings are designed especially for the transfer of LPG in both liquid and vapour phases. The couplings are available in stainless steel and brass / gunmetal with thread or flange connection. Handling and operation are as simple as for the TODO-MATIC® DRY-BREAK® coupling.
Sizes: 1" (DN 25), 2" (DN 50) and 3" (DN 80).



TODO® SAFETY BREAK AWAY couplings Designed specifically to minimise spillage and damage associated with drive / pull away incidents. Also allows rapid removal of the mobile tankage in emergency situations. The coupling automatically senses an excessive load, closes its valves and then permits disconnection. Very high flow rate / low pressure drop. *Sizes: 2" (DN 50) and 3" (DN 80).*



TODO-45 aviation couplings An ISO 45 standard ground unit from TODO® and a special version of the TODO-MATIC® 2½" coupling available for connection to ground units conforming to standard ISO 45. This gives, for the first time, an economical alternative to ISO 45 standard hose couplers for aviation fuel transfers.



PTC - Safety Pressure Tight Cap The TODO® PTC is specifically designed to enhance operator safety and containment security in chemical and gas transport. Designed in close collaboration with leading chemical and gas companies, the PTC offers safety and operational benefits beyond those offered by existing closure technologies. *Sizes: 2" (DN 50) to 4" (DN 100).*



BALL VALVES These lightweight ball valves were the first products to be developed by TODO®. This valve offers obvious weight saving benefits for the road tanker industry but can also be used in a variety of plant applications. A wide selection of end connectors are available and valve changeover is rapid due to the simple sandwich design. All sizes are available with pneumatic actuation in either single or double acting form. *Sizes: 2" (DN 50) to 4" (DN 100).*



FUEL NOZZLES The TODO® fuel delivery nozzles are specifically designed to deliver high volumes with total security. Rugged cast aluminium alloy body, high strength swivel and robust handle all help this nozzle to offer reliable long term performance.
Size: 1½" (DN 40).



API couplings TODO® API hose couplers and tank adaptors are interchangeable with other products manufactured to standard API RP 1004. The TODO® hose coupler is a high pressure design with five claw closure connection for strength and two interlocks for security and safety. The moulded lipseal configuration is used for long leak-free performance. TODO® API tank adaptors are available with or without operating handles or sightglasses.
Size 4" (DN 100).



SWIVELS Developed originally as part of the TODO-MATIC® coupling construction then subsequently as a stand alone product, the TODO® swivel has proved itself in the toughest applications for over 20 years. Used mainly to allow free hose movement without imparting torque stresses to the assembly (one of the biggest causes of premature hose failure). *Sizes: ¾" (DN 19) to 4" (DN 100).*

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