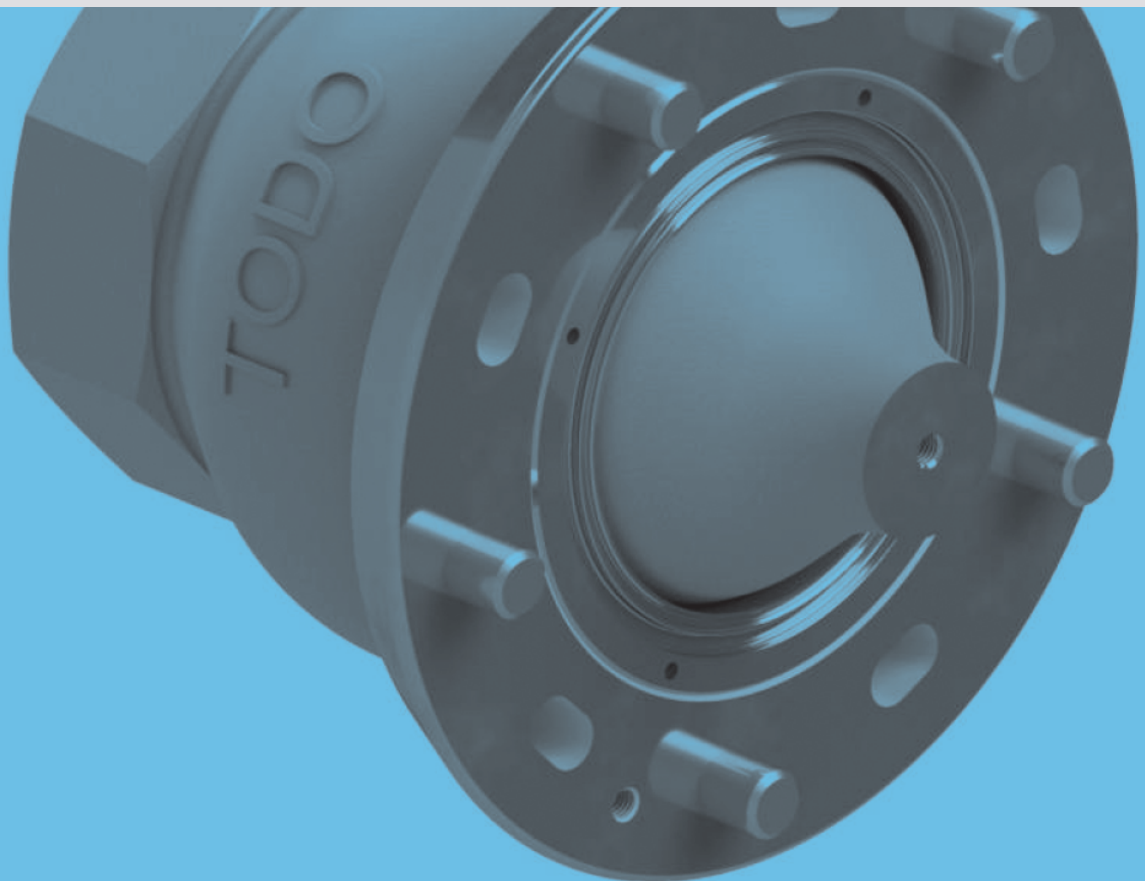


# TODDO

*A Gardner Denver Product*

## NGX BREAK-AWAY COUPLINGS



## BREAK-AWAY COUPLINGS – PRODUCT RANGE

THE TODO BREAK-AWAY COUPLING RANGE IS AN ESSENTIAL PART OF THE WORK PLACE SAFETY EQUATION. AS WELL AS ENSURING THE ENVIRONMENT IS PROTECTED FROM POTENTIALLY HAZARDOUS SPILLS, THE BREAK-AWAY COUPLINGS ARE DESIGNED TO PREVENT PULL AWAY/DRIVE AWAY INCIDENTS THEREBY ELIMINATING POTENTIAL SPILLS, AND PROTECTING THE LOADING SYSTEM / HOSE IN THE PROCESS.



### NGX SERIES – NEXT GENERATION SAFETY BREAK-AWAY

**Faster – Smaller – Lighter**

The NGX Series Break-Away is a new product from TODO and dramatically improves the performance of the first generation with a large reduction in pressure drop, overall length and weight, making it the market leader in performance Break-Away products.



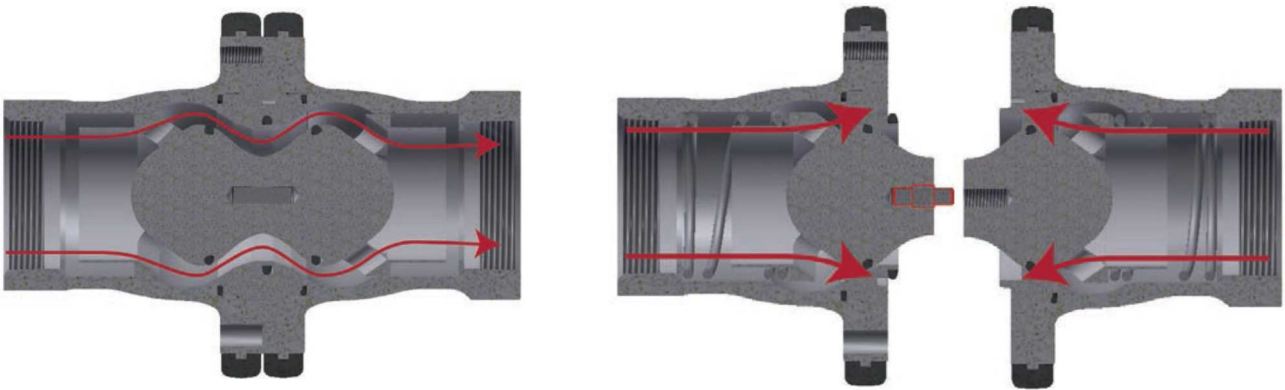
### NGXM SERIES – NEXT GENERATION MARINE BREAK-AWAY

The NGXM Series Marine takes the dramatic improvements of the NGX Series and applies break force limitation, so that it will only break when subjected to an overload in straight-pull force, rendering any tidal or wave movement redundant.

# BREAK-AWAY COUPLINGS – OVERVIEW

THE TODO BREAK-AWAY COUPLING PRODUCT RANGE HAS BEEN DESIGNED WITH SAFETY IN MIND. ITS MAIN PURPOSE IS TO PREVENT SPILLAGE OF POTENTIALLY HAZARDOUS SUBSTANCES AND DAMAGE ASSOCIATED WITH DRIVE AWAY / PULL AWAY ACCIDENTS WHEN LOADING / UNLOADING VIA LOADING ARMS, HOSES OR RIGID PIPEWORK SYSTEMS.

TODO provides a range of products to suit the needs of the application; whether the requirement is to protect a loading arm, high performance or a simple reliable break point in the line, we have the product to solve the problem.



Product shown – FGX Series

In the coupled position, the Break-Away allows the liquid or gas being transferred to flow normally with minimal flow restrictions. The two halves are sealed by the O-ring in the piston seat, ensuring zero leakage during transfer.

When subjected to an overload in force, the break pin will shear, releasing the two halves. This action activates the spring-loaded pistons and closes both ends, sealing tight. The Break-Away will contain the pressure and liquid / gas until the line is de-pressurised and / or drained. At this point the Break-Away can then be inspected for damage and a repair kit installed, allowing the Break-Away to return to a fully functional state, and then recoupled as a full product via new break pins, ready to be used once again.

## BENEFITS OF TODO BREAK-AWAY COUPLINGS

- High quality products – TODO uses only the highest quality materials in the manufacture of its products
- Excellent reliability
- Simple service and maintenance
- Minimal product loss on disconnect
- Easy to reset on site

# NGX SERIES – NEXT GENERATION BREAK-AWAY

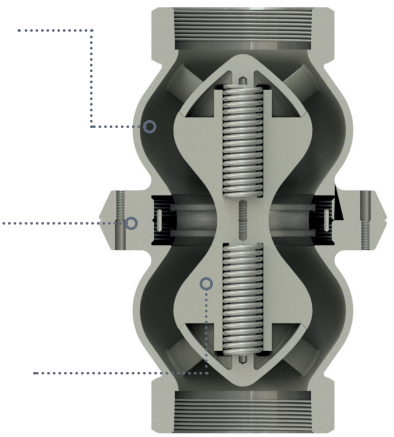
THE TODO NGX SERIES BREAK-AWAY IS A HIGH PERFORMANCE SAFETY PRODUCT, OFFERING THE BEST FLOW RATE VERSUS PRESSURE DROP RELATIONSHIP ON THE MARKET. IT'S ALSO SMALLER AND LIGHTER, MEANING MUCH SIMPLER HANDLING, SERVICE AND MAINTENANCE.



Fluid Dynamic software optimised design for improved flow

Reconfigured seal location to reduce maintenance downtime

Shielded spring design – zero flow interruption



Still designed to be a reliable break point in the loading / unloading line, the NGX series speeds up customer deliveries through its optimised flow design throughout. The spring is totally encapsulated whilst coupled, and the piston seal has been relocated to greatly ease servicing and maintenance.

## NEW FEATURES:

- **Low Pressure Drop** – The internal and external geometry has been designed with flow in mind – the flow path now has limited obstructions and heavily reduced turbulent flow areas, offering highest flow rates on the market today.
- **Lighter** – The material thickness now has uniformity in all possible areas, maintaining the same safety factor of its predecessor
- **Smaller** – The NX range had been designed with the operator in mind
- **Sealing** – The seal locations have been optimised

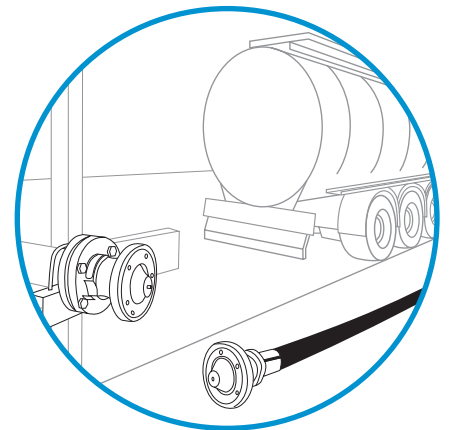
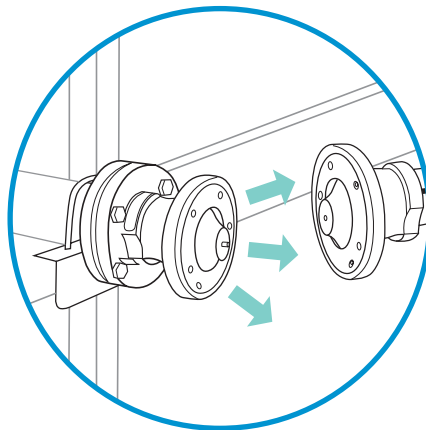
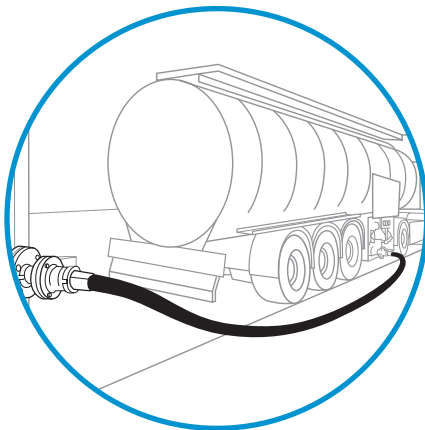
## BENEFITS:

- 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

# TECHNICAL DATA

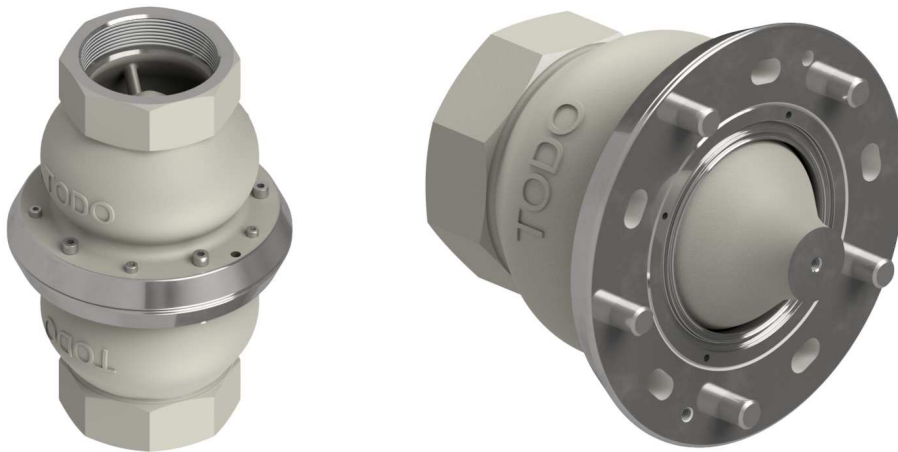
|                       |   |
|-----------------------|---|
| Sizes:                | 2" (DN50) - 6" (DN150)  |
| Materials:            | Aluminium, Stainless Steel (316L)   |
| Seals:                | Viton® (FKM) as standard.<br>Wide range of other materials to suit many applications      |
| Working Temperature:  | -20°C (-4°F) - +80°C (176°F)  |
| Working Pressure:     | Up to 40 bar (580 psi)  |
| Test Pressure:        | Up to 60 bar (870 psi)  |
| Possible Break Angle: | 0-90°   |
| End connections:      | NPT / BSP / PN10/16 / PN25/40 / ANSI 150 / ANSI 300 / TTMA<br>Others available on request |

Viton® is a registered trademark of DuPont Performance Elastomers



# NGXM SERIES - NEXT GENERATION MARINE BREAK-AWAY

THE TODO NGXM SERIES BREAK-AWAY AGAIN TAKES THE PRINCIPLES OF THE ENGINEERED NGX SERIES AND MAKES THE PRODUCT SUITABLE FOR OFFSHORE APPLICATIONS. THE ADDITION OF FIVE LOAD PINS PROTECTS THE BREAK PINS AGAINST LATERAL FORCES (I.E. TIDAL AND WAVE MOVEMENT), RESULTING IN A HIGH PERFORMANCE BREAK-AWAY THAT WILL ONLY SEPARATE DUE TO AN OVERLOAD IN STRAIGHT PULL FORCE.



|                       |   |
|-----------------------|---|
| Sizes:                | 2" (DN50) - 6" (DN150)  |
| Materials:            | Stainless Steel (316L)  |
| Seals:                | Viton® (FKM) as standard.<br>Wide range of other materials to suit many applications      |
| Working Temperature:  | -20°C (-4°F) - +80°C (176°F)  |
| Working Pressure:     | Up to 40 bar (580 psi)  |
| Test Pressure:        | Up to 60 bar (870 psi)  |
| Possible Break Angle: | Straight pull only  |
| End connections:      | NPT / BSP / PN10/16 / PN25/40 / ANSI 150 / ANSI 300 / TTMA<br>Others available on request |

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A Gardner Denver Product

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