



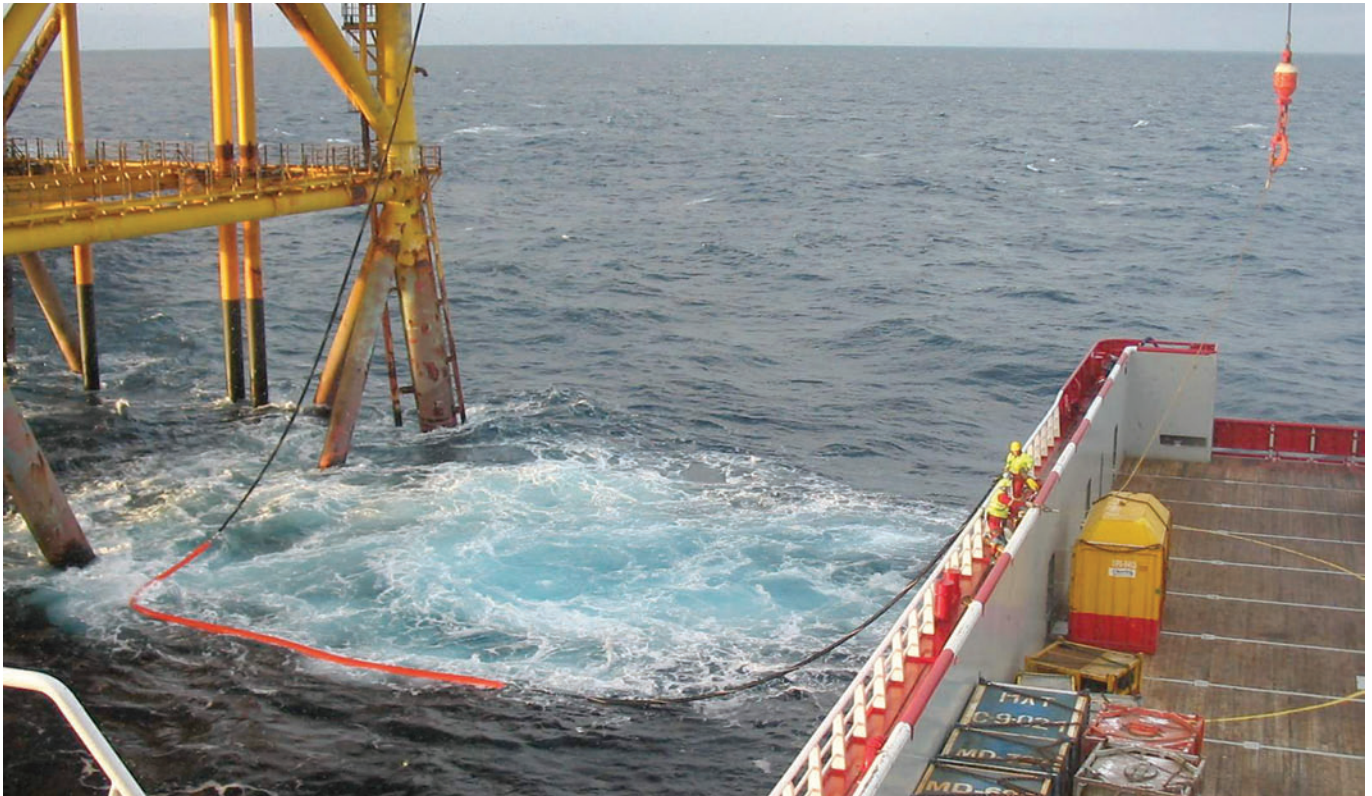
Group 17

Bulk-loading Hoses



FLUID CONTROL[®]

BULK-LOADING HOSES - Solutions for the future



Fluid Control delivers the best solution for bulk-loading hoses.

High quality and reuse of parts provide high safety and economy through a long life span.

We also provide easier and more affordable solutions where requirements for quality and durability are less critical.

Self-developed products such as Weak-link, VLF swivel and floating hoses meet today's requirements for safety and quality.

Greater demands when it comes to environmental issues, reliability and downtime, requires continuous development of new and improved solutions.

Long experience and close cooperation with operators, as well as investment in product development has made us a market leader in the field of bulk-loading hoses.

By taking into account future environmental and safety requirements when entering into contracts, we ensure a smooth and economical solution for the customer.

BULK-LOADING HOSES - Solutions for the future



We have standardized our bulk-loading hoses to consist of three sections; platform, floating and supply boat.

The biggest wear and tear is usually on the platform and supply boat sections. By using noble metals such as AISI 316 and JM7 on hose inserts, break-away couplings and unions, we can use these parts over again a number of times. A repair then consists only of replacing the worn-out rubber hose.

The life span of the metal parts can be up to 5-10 years.

Our largest customers are now consistently using floating hose, break-away coupling and swivel on all its bulk-loading hoses. This has resulted in big savings both when it comes to safety and economy, documented by statistics and reporting.



ADVANTAGES:

- HSE Environmental Considerations
- Fewer emissions caused by the boat getting the hose in the propeller.
- Flow tubing provides exceptional visibility in the water, and stable buoyancy, in contrast to conventional floating elements and beads.
- Max 2 liters of emissions when there is a break in the break-away coupling valve.
- Slimline design. No flanges or floating element hang-up.
- Economy
- Significantly less downtime.
- Reuse of metal components.
- Maintenance-free swivel joints and break-away couplings with 10-year warranty.
- Certified and traceable components.

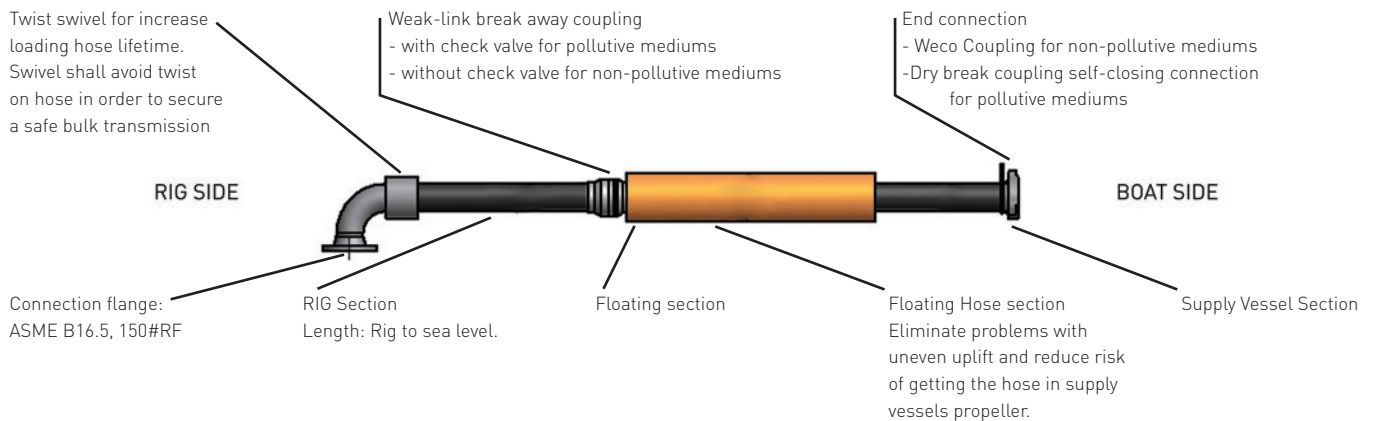
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Special Solutions

- Break joints - Weak Link
- Swivels - VLF Original
- Floating Hoses
- Reuse Components with Guaranteed lifetime
- Hose Management Service - "The Environmental Doctor"
- HP Special Fittings
- Special Design by Customer Needs
- Engineering
- Technical Support

THE FLUID CONTROL BULK-LOADING HOSE CONCEPT



- Soft Wall Hose / Hard Wall Hose
- Working Pressure 10 bar / 20 bar / 27 bar / 39 bar

Fluid Control, together with our larger customers, have developed through the years, a unique bulk-loading hose concept to find the best solution in terms of health, safety, environment and economy. In close cooperation with users, we have reached today's solutions.

Our self-developed products provide the best solution in terms of health, safety, environment and economy.

- **Maintenance-free low-friction swivel**
- **"Slimline" break-away coupling with and without valve**
- **Integrated floating hose**
- **"Green profile" with our reuse program**
- **Maintenance program with inspections**

HSE

Fluid Control has designed and developed products and assemblies with respect to health, safety and environment.

- Low friction swivel prevents twisting of the hose that can damage the hose and cause emissions.
- Break-away joint ensures a controlled break and prevents emissions if the hose is subjected to tension.
- All components our bulk-loading hose concept have "slim line" design that prevents a hang up.
- The floating hose's good visibility and smooth buoyancy minimizes the risk of getting the hose in the propeller.

Green profile and economy

Reuse of all metal parts and components of the floating the hose enables us to use high quality materials to provide the best possible quality of the components. Over a period of some years, it is also a very economical solution since one only replace the worn rubber hose and pressure sleeves.

Our statistics show that the platforms have reduced the consumption of hoses significantly due to the transition to our bulk-loading hose concept. The feedback from ship captains and other users of our bulk hoses is very positive.

Maintenance Program

We that can customize a maintenance program for the bulk-loading hoses with periodic inspections so that undesirable incidents and downtime are kept to a minimum. Preventative maintenance and inspections provide good economy and safety.



SWIVEL "VLF" Very Low Friction Butt-weld Ends

Construction: The swivel is designed to obtain a minimum friction when rotating and to prevent twisted hoses. The swivel is specially designed for bulk-loading hoses will result in a safe and reduced loading time. The swivel is maintenance free. Its unique design makes it also tight from the outside, and therefore does not need any lubrication. Can be delivered with thread, flange or hub. Client to decide.






Material quality: Standard, body and other main parts in stainless steel: AISI 316 / AISI 303. Other material qualities on request.

Temperature range: -40°C to +150°C

Documentation: Material certificates with traceability acc. DIN 50049-3.1

Applications: The swivel is designed for installation on equipment where rotation takes place, or where rotation can occur. A twisted hose will prevent the medium to flow through. The swivel is designed for axial loads. Maximum radial load is 200 N/m calculated from the swivel center. Ask for installation instructions for other applications in connection with bulk-loading hoses.

The swivel is included in our reuse program.

# Part No.	ID 		OD 	L mm	WP 		BP 		WT kg 
	mm	inch	mm		bar	psi	bar	psi	
SVIVEL-075 SS		3"			60	870	240	3480	
SVIVEL-100 SS	102	4"	178	137	60	870	240	3480	17.2
SVIVEL-125 SS	127	5"	216	149	60	870	240	3480	24.8
SVIVEL-150 SS		6"			60	870	240	3480	
SVIVEL-075 303		3"			60	870	240	3480	
SVIVEL-100 303	102	4"	178	137	60	870	240	3480	17.2
SVIVEL-125 303	127	5"	216	149	60	870	240	3480	24.8
SVIVEL-150 303		6"			60	870	240	3480	

FLOATING HOSE

CONSTRUCTION:

Our own developed fully integrated floating hose is constructed with a buoyancy that satisfies all the standard media used in bulk loading between offshore platforms and supply vessels.

Hose with higher buoyancy may be made to order.

A fully integrated floating hose gives smoother buoyancy, better visibility, optimal flexibility in relation to all conventional floating elements.

The integrated floating hose also eliminates the problem conventional floating elements have that they can displace and cause uneven buoyancy.

This reduces the risk of the hose coming into the vessel propeller.

Combined with our own developed swivels, coupling and break-away coupling, this is a solution with high quality and safety.

All components of the floating hose is part of our reuse program.

Consider to make a clear separation between the two alternatives.



HOSE FLOTATION ELEMENTS "FLOW SAFE"

CONSTRUCTION:

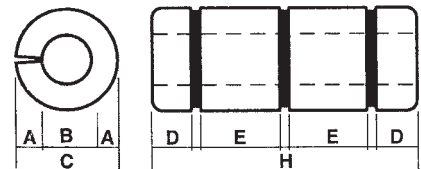
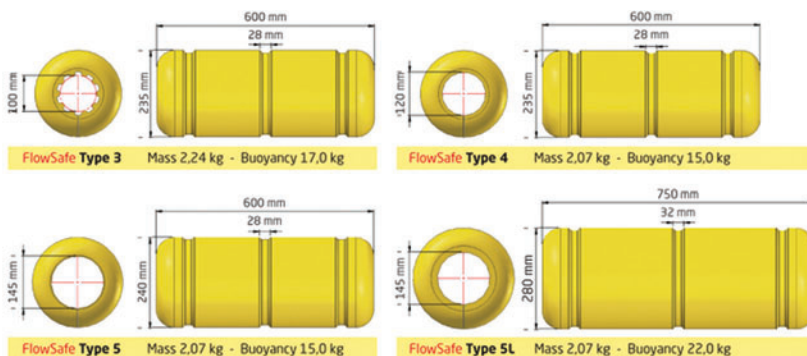
Flow Safe hose flotation device is made of BACELL plastic, an incredibly shock absorbent, strong and elastic material with 100% watertight cells.

In spite of its great strengths is its own weight very low, and the flotation elements have therefore great buoyancy.

APPLICATIONS:

The flotation elements are a cheaper and simpler alternative to a floating hose for transferring fluids between supply boat and offshore installation.

The Flow Safe hose flotation elements help prevent the hose from contact with the vessel an to avoid contact with the propeller.



Hose Size	Part No.	Net Weight kg/dm ³	Net Buoyancy kg	A mm	B mm	C mm	D mm	E mm	H mm
3"	FSA-075	0.13	17		100	235			600
4"	FSA-100	0.11	15	56	120	235	80	190	600
5"	FSA-125	0.11	15	58	145	240	100	200	600
5"	FSA-125L	0.11	22		145	280			750



BREAK-AWAY COUPLING WITH VALVE

- Construction:** Excellent in use for bulkloading systems on offshore installations on ship to ship or ship to shore fluid and bulktransport, which require high demands of safety and environment. The coupling has female NPT thread as standard. Other connections on request. The coupling comes with or without an automatic closing-valve.
- Material quality:** AISI 316 and AISI 303. Other material qualities on request.
- Temperature range:** -40°C to +150°C
- Break Point:** 2.5, 4.0 or 6.0 tons breaking torque as standard. Other breaking torques on request.
- Documentation:** Material certificates with traceability (NS-EN 10204 3.1).
- Applications:** The break-away coupling is designed for installation on equipment where a controlled break is necessary when an overload occurs. For equipment that lead polluting media a break-away coupling with automatic closing-valve is recommended to prevent spills. Our own tests show that spill at a break does not exceed 2 liters at 10 bar.

The break-away couplings are part of our reuse program

Part No.	Dimension		Automatic Closing-valve	Ø max	Length max	Weight
	Inch	mm				
BA097640-100 SS	4"	100	No	150 mm	148 mm	8.5 kg
BA095640-100 SS	4"	100	Yes	160 mm	274 mm	15.4 kg
BA097640-125 SS	5"	125	No	160 mm	178 mm	8.6 kg
BA095640-125 SS	5"	125	Yes	160 mm	274 mm	
BA097640-100 303	4"	100	No	150 mm	148 mm	8.5 kg
BA095640-100 303	4"	100	Yes	160 mm	274 mm	15.4 kg
BA097640-125 303	5"	125	No	160 mm	178 mm	8.6 kg
BA095640-125 303	5"	125	Yes	160 mm	274 mm	

OTHER DIMENSIONS ON REQUEST



BREAK-AWAY COUPLING WITHOUT VALVE

HOSE LIFTERS "HOOK"



Size Hose	SWL	Part No.
2"	4 tons	HLK-050
3"	4 tons	HLK-075
4"	4 tons	HLK-100
5"	4 tons	HLK-125
6"	4 tons	HLK-150

Size Hose	SWL	Part No. Bronze	Part No. Steel
3"	4 tons	BEL-075	SEL-075
4"	4 tons	BEL-100	SEL-100
5"	4 tons	BEL-125	SEL-125
6"	4 tons	BEL-150	SEL-150

For use as a lifting arrangement on bunkering and loading hoses. Covers the requirements for lifting equipment for use in offshore and shipping.

Material quality:

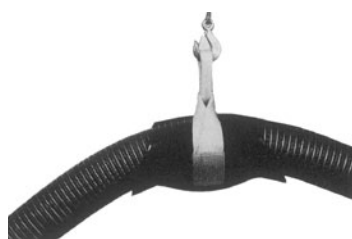
Aluminium bronze (Spark-free material) and steel. Comes with documentation.

Approvals:

CE approved.

THE HOSE LIFTERS ARE A PART OF OUR REUSE PROGRAM.

HOSE BUN



Construction: Red polyurethane with yellow polyester wrapping straps.

Applications: For use on hoses, cables etc. when bunkering and loading.

Hose Size	Part No.	Length mm	Strap Length mm	Max Load kg	Weight kg
3"	SAD-075	249	775	675	1.13
4"	SAD-100	292	876	1000	1.70
6"	SAD-150	546	990	3600	6.20
8"	SAD-200	762	1270	5400	13.40
10"	SAD-250	1040	1575	7650	23.90



HAMMER LUG UNION Nickel Aluminium Bronze

Construction: The unions are made according to the same specifications as the standard range. Made of corrosion and spark free material, with approximately the same tensile strength as steel unions.

Alloy: Copper (Cu) 82%, aluminium (AL) 10%, nickel (Ni) 4%, iron (Fe) 4%.

Documentation: Material certificates with traceability (DIN 50049-3.1b).

The Bronze unions are a part of our reuse program.

Type	NPTF Female	Complete Union Part No.	Male Sub. Part No.	Female Sub Part No.	Nut Part No.	Working Pressure PSI/Bar
Fig. 100/200	4"	JM7-400-0	JM7-400-1	JM7-400-2	JM7-400-3	2000/138
Fig. 50	5"	JM7-500-0	JM7-500-1	JM7-500-2	JM7-500-3	500/35



TANK AND BUNKERING HOSE "SOFTWALL" 20 BAR

CONSTRUCTION:

Inside:

Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement:

4 layer synthetic textile cord with high tensile strength. Max 4% elongation at 17 bar.

Cover:

Black CR - Oil, weather, abrasion and ozone resistant. Built-in grounding slit.

Temperature range:

-40°C up to +93°C

Description:

Heavy bunkering hose for oil installations and ships, where there are requirements for high tear and tensile strength. Suitable for both liquid media and solids. Coil length 61/122m.

# Part No	ID		OD mm	WT mm	WP		BP		BR mm	WT kg/m
	mm	inch			bar	psi	bar	psi		
21612-100	102	4"	116	7	20	290	60	870	820	4.00
21612-125	127	5"	143	8	20	290	60	870	1020	4.99



TANK AND BUNKERING HOSE "HEAVY DUTY SOFTWALL" 27 BAR

CONSTRUCTION:

Inside:

Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement:

4 layer synthetic textile cord with high tensile strength. Max 4% elongation at 24 bar.

Cover:

Black Chemivic - Oil, weather, abrasion and ozone resistant. Built-in grounding slit.

Temperature range:

-30°C up to +93°C

Description:

Heavy bunkering hose with 9 tons of tension for oil installations and ships, where there is a requirement for extremely high tear and tensile strength. Suitable for both liquid media and solids. Cover is 3.5 x more durable than conventional rubber. Coil length 61/122m.

# Part No	ID		OD mm	WT mm	WP		BP		BR mm	WT kg/m
	mm	inch			bar	psi	bar	psi		
21611-100	102	4"	117	7.5	27	400	81	1200	820	3.99
21611-125	127	5"	145	9	27	400	81	1200	1020	4.99



TANK AND BUNKERING HOSE "HARDWALL" 20 BAR

CONSTRUCTION:

Inside:

Black NBR rubber. Resistant to oils with aromatic content up to 55%.

Reinforcement:

4 layer synthetic textile cord with high tensile strength.

Cover:

Black CR - Oil, weather, abrasion and ozone resistant.

Temperature range:

-30°C up to +93°C

Description:

Heavy bunkering hose for oil installations and ships, where there are requirements for high tear and tensile strength. Suitable for both liquid media and solids. Coil length 61m.

# Part No	ID		OD mm	WT mm	WP		BP		BR mm	WT kg/m
	mm	inch			bar	psi	bar	psi		
22613-100	102	4"	119	8.5	20	290	60	870	620	4.75
22613-125	127	5"	148	10.5	20	290	60	870	760	7.09



RIG SUPPLY POTABLE WATER SW 81451 - 20 BAR

CONSTRUCTION:

Tube: White FDA compliant NR. Thickness approx 2.4 mm.
Spirals: None
Cover: Orange EPDM. Thickness approx 1.8 mm.
EL Properties: 1 a/s sire.
Lengths: 61 meters.
Description: High load potable water hose soft wall. 4 ply high tensile textile cord with additional anti static wire. Load at break 8 tons.
Properties: Suitable for potable water, dry food material.

# Part No	ID* mm	OD* mm	WT mm	WP** MPa	BP** MPa	BR mm	WT kg/m
81451-75	76	92	approx 2.4	2	8	Suitable for reels with core diam. >1200	2.85
81451-100	102	118	approx 2.4	2	8	Suitable for reels with core diam. >1200	3.45

* Tolerances ISO 1307

** Values at 23°C



RIG SUPPLY POTABLE WATER SW 81461 - 10 BAR

CONSTRUCTION:

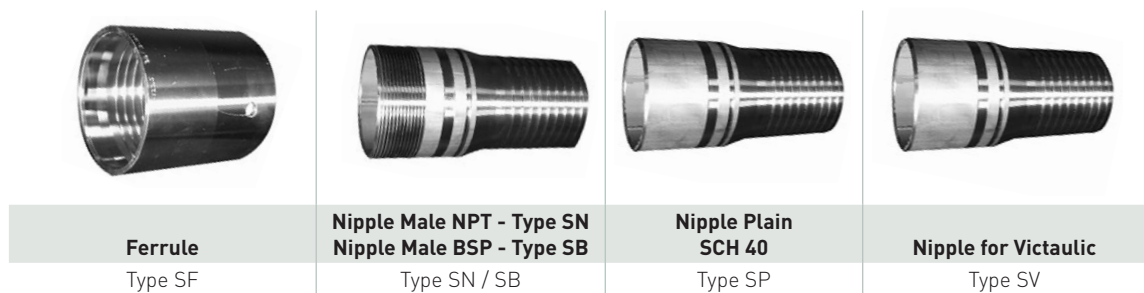
Tube: White NR. FDA CRF 177:2600
Cover: Orange SBR/EPDM.
Service temperature: -30°C - +70°C.
Lengths tolerances: +/- 5%.
Lengths: 40 meters.
Description: Wrapped mandrel built tube, produced on stainless steel mandrel. 2 polyester cord plies. Fabric patterned cover.
Application: Supply of non-oily edible foods, fresh water and potable water from supply vessel to offshore installation in pre-treated condition. Hose shall be flushed and cleaned prior to use following good manufacturing procedures.


# Part No	ID* mm	OD* mm	WT mm	WP** bar	BP** bar	BR mm	WT kg/m
81461-038	38	52		20	60	10 x ID at 3 bar for all sizes	2.2
81461-075	76	92		10	30	10 x ID at 3 bar for all sizes	3.4
81461-100	102	118		10	30	10 x ID at 3 bar for all sizes	3.8

* Manufacturing tolerances ISO R 1307

** Values at 23°C

PERMANENTLY ATTACHED SWAGE FITTINGS FOR HOSES INDUSTRIAL RANGE SIZE DIAMETER: 2" - 12"



Hose I.D. / Nipple/ Thread	Hose O.D. mm	Hose Tail Length mm	O.D. Victaulic Plain End mm					
				Ferrule Part No.	Nipple NPT Male Part No.	Nipple BSP Male Part No.	Nipple Plain End Part No.	Nipple for Victaulic Part No.
2"	64-69	86	60,3	SF-050	SN-050	SB-050	SP-050	SV-050
2.1/2"	78-82	105	76,1	SF-063	SN-063	SB-063	SP-063	SV-063
3"	89-97	120	88,9	SF-075	SN-075	SB-075	SP-075	SV-075
4"	117-126	135	114,3	SF-100	SN-100	SB-100	SP-100	SV-100
5"	137-154	160	141,3	SF-125	SN-125	SB-125	SP-125	SV-125
6"	160-182	178	168,3	SF-150	SN-150	SB-150	SP-150	SV-150
8"	215-236	213	219,1	SF-200	SN-200	SB-200	SP-200	SV-200
10"				On request				
12"				On request				

For stainless steel steel, add SS after Part No.

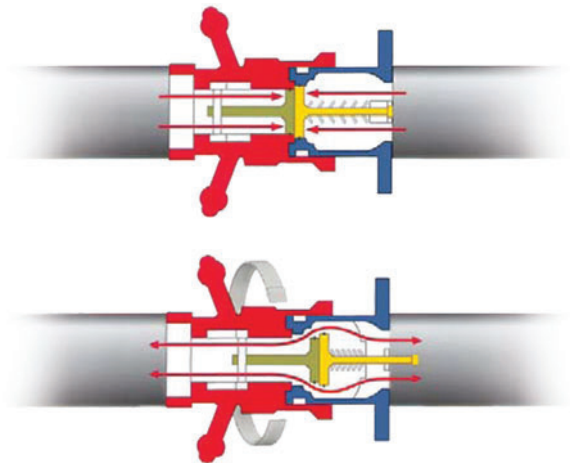
DRY BREAK COUPLINGS For safe fluid handling

FOR SAFE FLUID HANDLING

In sizes from 1" to 6" and a wide range of material options, Dry-Break® couplings offer advanced fluid handling solutions for a diverse range of industries.

Major offshore exploration, chemical, pharmaceutical and petrochemical companies rely on Dry break couplings to safely transfer their most aggressive or valuable products.

Designed for safe and easy use with minimum operator intervention. Dry break couplings offer an unbeatable combination of technical, safety and performance features.



FEATURES

- Valves open and close automatically on connection and disconnection.
- Simple single action operation, no levers or switches to operate.
- Valves are guaranteed closed prior to disconnection.
- Minimal residual loss on disconnection (e.g. maximum 0.35cc for 2" DN50).
- Will connect and disconnect under pressure and flow where necessary.
- Extremely reliable, very few moving parts.
- Robust construction, no external operational components.
- Available with selectivity system to prevent cross contamination.
- Reduces spillages to virtually zero.
- Dramatically improves both operational and fugitive emission performance.
- Reduces the possibility of human error in transfer operations.
- Improves efficiency.

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.



CERTIFICATES / APPROVALS

- • Vd-TÜV type approval, mark TÜ.AGG.162-93 towards ADR, RID, IMDG and VDI-rules 2440, part 3.3.1.3.
- • CE-marked, European directives 97/23/EC (PED) and 94/9/EC (ATEX) compliant.
- • TDT approval, mark TDT-UW-30/09 towards ADR/RID in Poland.
- • Manufactured under EN ISO 9001:2000.
- • Certified towards ISO 14001:2004 and OHSAS 18001:2007.
- • Manufactured towards EN 13480 and EN 13445.



DRY BREAK COUPLINGS ARE AVAILABLE WITH COLOR AND MECHANICAL CODING





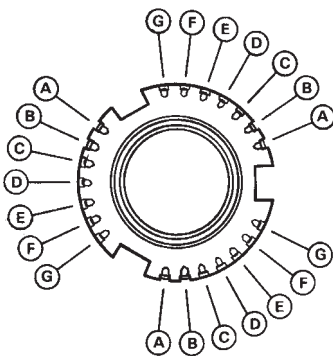
DRY BREAK COUPLING 4" (164 mm)

- Materials:** Aluminium, gunmetal and stainless steel 316L, other on request.
- Seals:** FKM (Viton®), NBR (Nitrile), EPDM, Chemraz®, Kalrez®. Other materials on request.
- Working pressure:** PN 10 - 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.
- Compatibility:** NATO STANAG 3756.
- Description:** Without exception, the most compact, light weight, high flow 4" self sealing coupling system available. Used extensively for offshore ship to rig transfers of fuels and drinking water, aviation fuel bunkering, rail tank loading / discharge, chemicals etc. Rapid, positive connection and disconnection make dry break couplings the standard for barge to ferry re-fuelling and multiple rail tank discharge.

Connection	Hose Unit w/ VITON Gasket		Hose Unit w/ Nitrile Gasket		Tank Unit Thread		Tank Unit Flange		Dust Plug	Dust Cap
	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	Thread BSP Part No.	Thread NPSF Part No.	150 lbs. ANSI B 16,5 Part No.	DIN 2632 PN 10/16 Part No.	Part No.	Part No.
4" (DN 100)	5632D1307	5832D1307	5632D1306	5832D1306	5631-1107	5831-1107	5600-1107	5995-1107	5636-100	5635-1307

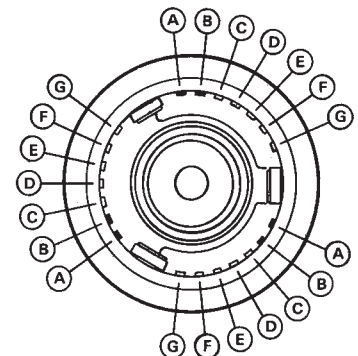
SELECTIVITY:
To avoid incorrect installation or product mix-up, selectivity is available on request.

Selective position					1	2	3	4	5	6	7	8
Peg and slot position					A & B	A & C	A & D	A & E	A & F	A & G	B & C	B & D
9	10	11	12	13	14	15	16	17	18	19	20	21
B & E	B & F	B & G	C & D	C & E	C & F	C & G	D & E	D & F	D & G	E & F	E & G	F & G



Tank Unit

Selective pin and slot position



Hose Unit

