

AMMONIA HANDLING EQUIPMENT – SHIP, TERMINAL & AGRICULTURE

Carriage by rail, truck or ship



ELAFLEX
Group

ELAFLEX / DANTEC / DITEC / MANNTEK / SGB

The ELAFLEX Group operates globally, providing high-quality user friendly handling equipment, technical support and after-sales service for the petrochemical and chemical industries - from production through transportation to the point of use.

Ammonia is one of the designated energy carriers for a carbon-neutral future. It is also widely used to meet the increasing global demand for fertilisers and as a refrigerant. In the energy sector, ammonia serves either as a hydrogen carrier or as a fuel for combustion engines. In all cases, it must be transported from the production site to the point of use.

Ammonia is distributed worldwide by ship and, on a regional or local level, by rail or truck. In some large-scale production areas, pipelines may also be used. As ammonia is classified as a dangerous good, the carriage by tank trucks is not permitted in certain countries. For this reason, 20 m³ isotainers are often used, which also simplifies intermodal transport.

The method of liquefying ammonia depends on the transport mode. Ships typically carry cryogenic ammonia at a temperature of -33 °C, stored in insulated tanks at near-ambient pressure. Rail and road tankers use pressure containment vessels; ammonia is kept liquid under approximately 8 bar at ambient temperature.

The ELAFLEX Group members offer a range of speciality products for handling liquefied ammonia. Depending on the application and required transfer rate, technical rubber or composite hoses are available: The ELAFLEX AMX rubber hose DN 50 (2") is widely used on road and rail tankers.

The Dantec Danchem PA SS Cryogenic Ammonia composite hose (up to 10") is preferred choice for ship-to-ship and ship-to-shore transfer. For safe, spill-free operation, the use of MannTek Dry Gas Couplings (DGC Ammonia) and Safety Breakaway Couplings (SBC) is strongly recommended.

ELAFLEX rubber expansion joints reduce vibration and compensate for installation tolerances in piping systems on ships, truck trailers, rail tankers, and production plants.

SGB leak prevention systems provide reliable monitoring of double-walled storage tanks and pipelines, ensuring that any leakage is detected and contained.



RUBBER AMMONIA HOSE AMX

ELAFLEX AMX hoses have been used for decades in ammonia handling, offering safe, reliable, and durable service. They are particularly suited to terminal operations where hoses are frequently dragged across concrete or other abrasive surfaces. The design provides flexibility and ease of handling for the operator while maintaining long service life. Suitable for liquid or gaseous ammonia from DN 13 (½") to DN 50 (2") PN 25 bar and burst pressure > 125 bar. The AMX hose is designed for the transfer of ammonia, whether used as a chemical feedstock or as a refrigerant. It is supplied fully assembled and pressure-tested with a range of flange or threaded connections to suit your application.



Online configurator:
hoseconfigurator.elaflex.de



DRY GAS COUPLINGS – DGC STATE OF THE ART HANDLING

MannTek Dry Gas Couplings (DGC) provide quick and safe connection of hose assemblies and loading arms to mobile or stationary tanks under pressure, and spill free. Available sizes 1" to 8" in stainless steel with working pressure: 25 bar. According to PED Cat. II or higher. Suitable for use in potentially explosive atmosphere (ATEX) zone 1 and for transport of dangerous goods on road ADR (road), RID (rail), IMDG (maritime) and specified as a standard by the European Chemical Industry (CEFIC).

Online configurator:
manntekconfigurator.elaflex.de



SAFETY BREAKAWAY COUPLINGS – SBC

MannTek Safety Breakaway Couplings (SBC) are available in sizes from 1" to 12". They feature integrated shut-off valves to protect hose assemblies and depot loading arms from excessive mechanical loads and to prevent product spillage in the event of a pull-away or drive-off incident. Depending on the specific site application, there are two proven activation methods: SBC – release by breaking pin under lateral force and SBC-C – release by cable, independent of lateral force.

Online configurator:
manntekconfigurator.elaflex.de



COMPOSITE HOSES FOR AMMONIA BUNKERING AND CARGO APPLICATIONS

Dantec Danchem PA SS Cryogenic Ammonia hoses are multi-layer thermoplastic composite hoses designed for bunkering and cargo transfer of ammonia, available in sizes up to 10" with internal and external helix construction. They are a versatile solution, especially, though not exclusively, for ship-to-ship, ship-to-shore, and high-volume terminal operations. Manufactured in accordance with EN 13766:2018 for suction and pressure service. Nominal sizes from DN 25 (1") to DN 250 (10"), with a working pressure of PN 25 bar and a burst pressure > 125 bar. Supplied assembled and pressure-tested with a range of flange or threaded fittings according to your requirements.

Online configurator:
configurator.dantec.com



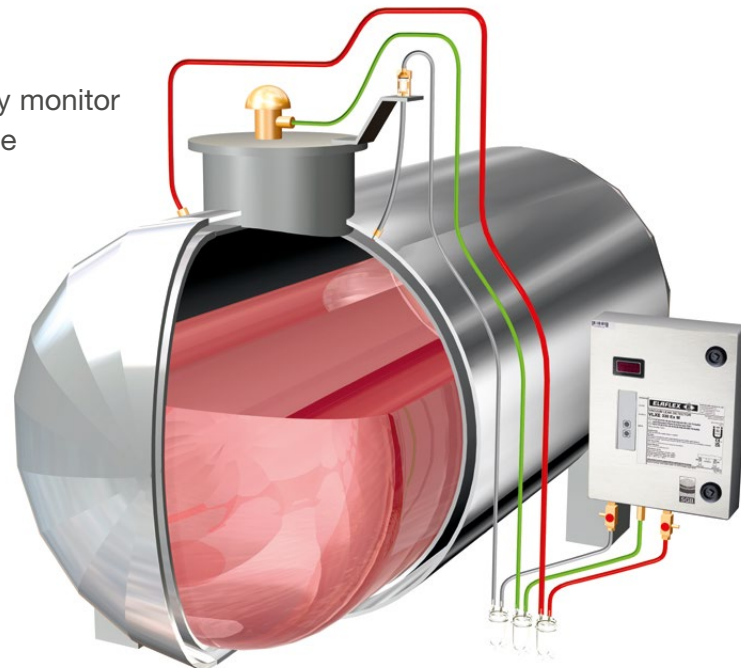
POWERED EMERGENCY RELEASE COUPLING – PERC

The PERC by MannTek is an active emergency release coupling for ship-to-ship or ship-to-shore operations. It separates the transfer line before any significant pull force has happened. Used together with the Vessel Separation Device (VSD) which monitors the distance between the dispensing and receiving vessels and the PERC Control Unit, this SIL-2-ready system ensures a high level of safety and protects both equipment and investment. Delivered fully assembled and tested, with a choice of flange or threaded connections according to your requirements.



LEAK PREVENTION TECHNOLOGY

Leak detectors by SGB permanently and reliably monitor double-walled tanks and pipes by vacuum. The applied pressures prevent stored or conveyed products from entering the environment. Since 1962, several hundred thousand SGB leak prevention systems are in operation and attest expert knowledge and innovative strength. The unique wide product range offers leak monitoring solutions for any double-walled tank and pipe design, e.g. ammonia is monitored with the ex-proof vacuum leak detector VLXE .. Ex MMV IIC: product-contact parts made entirely of V4A stainless steel, with digital manometer (M) and solenoid valve (MV) for pressures up to 25 bar. Even pressures up to 90 bar are monitorable with the additional pressure switch.



RUBBER EXPANSION JOINTS

ELAFLEX ERV rubber expansion joints are components designed for installation in piping systems on ships, road tankers, depots, and plants. They reduce vibration and noise, compensate for movement and assembly tolerances, and can also serve as insert pieces to facilitate inspection. ERV expansion joints are type-approved by several Notified Bodies, including DNV, Lloyd's Register, the American Bureau of Shipping, and others. Depending on the application, ERV units can be supplied off the shelf or be custom-made.

Online configurator:
ervconfigurator.elaflex.de



Every industry and application has its own specific requirements for expansion joints and sealing technology. For ditec, it is standard practice to take these customer-specific requirements into account from the earliest design stage, ensuring fit-for-purpose expansion joints. The result is high-quality expansion joints that are precisely matched to your application, including solutions specially developed for demanding conditions such as ammonia transfer.



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