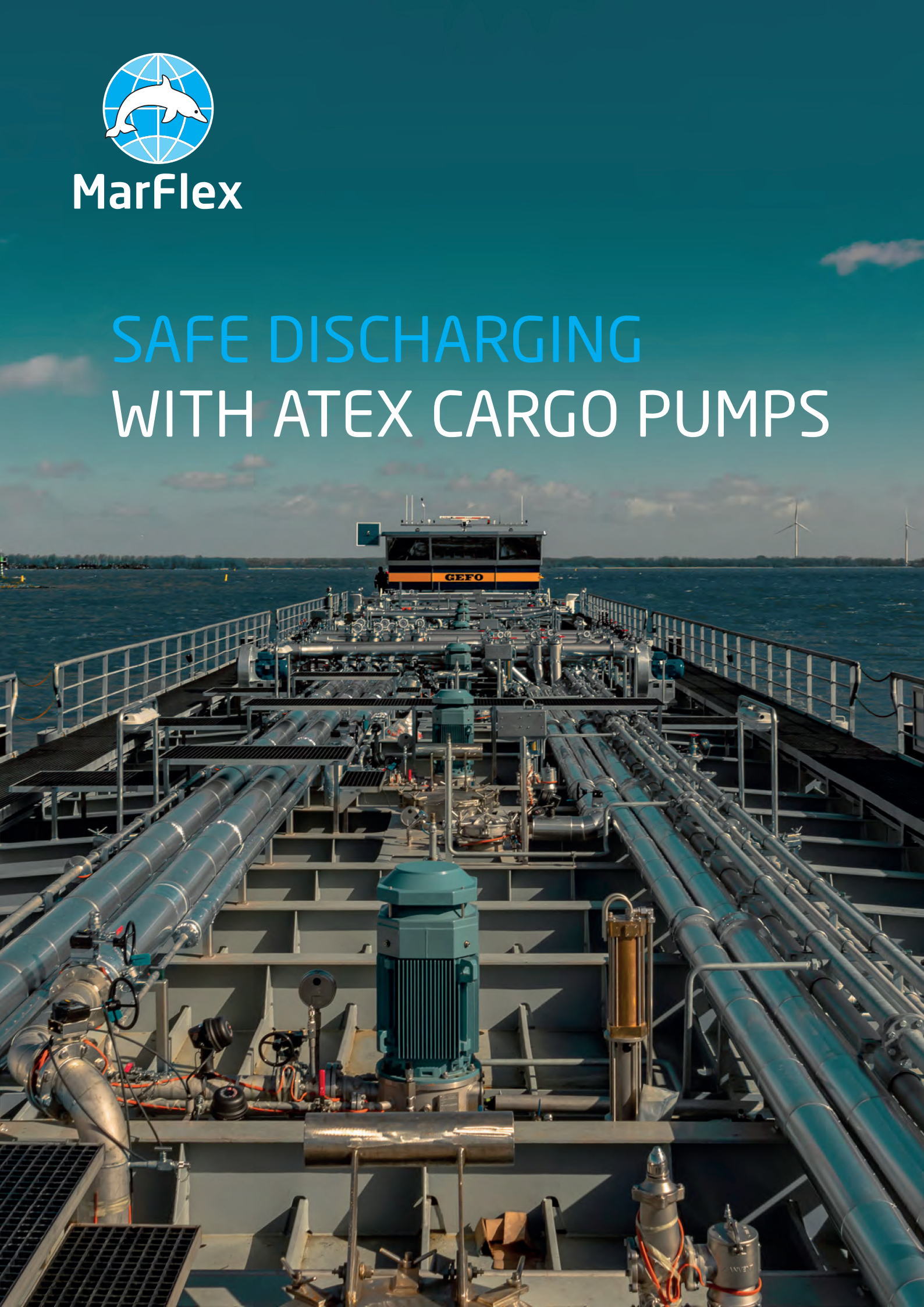
MarFlex

SAFE DISCHARGING WITH ATEX CARGO PUMPS



INTRODUCTION

MarFlex supports the safe and future-proof discharging of liquid cargoes.

We offer our customers high-quality and smart, electrically driven pump solutions. Our over 40 years of experience and the fact that we always stay in touch with the customer form the basis for sustainable product improvements in quality, efficiency and user-friendliness.

We also assist our customers with end-user training, spare parts supply and 24/7 service support.
Our deepwell pumps and our quality management are ATmospheres EXplosibles (ATEX) certified.

In this document, we elaborate on the ATEX directive and the construction and operating regulations for cargo pumps on inland tankers in Europe, as well as offering our solution to this.

MARFLEX SUPPORTS THE SAFE AND FUTURE-PROOF DISCHARGING OF LIQUID CARGOES. WE OFFER OUR CUSTOMERS HIGH-QUALITY AND SMART, ELECTRICALLY DRIVEN PUMP SOLUTIONS.

CHANGES TO ADN 2019

Shipowners in the European inland shipping sector have to comply with the regulations for the international transport of dangerous goods by inland waterways (ADN). The ADN has several goals, including increasing safety and protecting the environment.

On 1 January 2019, a large number of changes were made to the ADN. The most important change is that the ADN 2019 has been harmonized with the ATEX directive for explosive atmospheres.

ATEX GUIDELINES FOR EXPLOSIVE ATMOSPHERES

The tanks on board sea and inland tankers have been designated by the IMO as ATEX zone 0, i.e. where the highest risk of explosion exists.

In the context of explosive atmosphere safety, cargo pumps on inland tankers in Europe must have an ATEX zone 0 certificate also in accordance with the latest ADN guidelines.

CONSTRUCTION AND OPERATING REGULATIONS

ATEX CONSTRUCTION REGULATIONS

1) Construction of the cargo pump within the explosive atmosphere (zone 0) such that ignition of explosive atmospheres is avoided at all times; during normal operation, an expected malfunction, and any (abnormal) malfunction(s).
2) Application of the correct materials, tolerances, and specifically coordinated measurement and control technology.

ATEX OPERATING REGULATIONS

1) Demonstrable preventive maintenance and frequent inspections of cargo pumps and equipment in accordance with operating regulations.
2) Sufficiently trained person for operational activities who must be able to operate the equipment within the correct parameters and have a basic knowledge of the ATEX directive.
3) Operator checks before and during the use of operational equipment:
   - check of the oil level and for any leaks before starting the cargo pump;
   - use of the senses of hearing, feeling, seeing and smelling to identify any abnormalities at an early stage;
   - inspection rounds by the operator while the cargo pump is in operation;
   - allowing the cargo pump to operate within the correct parameters (monitoring).

THE ATEX SPECIALIST

In collaboration with 123ATEX's independent specialists, MarFlex has carried out a risk analysis in line with the regulations and subjected the deepwell pumps to various tests.

Risk analysis
In a risk analysis, the construction file is assessed for the correct use of materials and the correct tolerances. In addition, any potential ignition sources are identified in order to, if necessary, select and apply the appropriate control measures to eliminate them. For example, the oil contained in a bearing pipe is critical. This is because it can mean that oxygen, which is necessary for ignition, is missing. However, the oil also provides lubrication for the bearings, which in turn prevents them from becoming too hot. But if the temperature on the outside of the bearing pipe does become too high due to a lack of oil, then that can result in ignition. Checking the oil level, by means of a certified switch, is therefore a requirement.

Deepwell pump tests
To investigate the strength of a construction, it is pressure tested and a so-called impact test is also performed. During the impact test, a calibrated hardened steel weight, with a ball at the bottom, is released from a height so that the weight hits the part to be tested with great force. In addition, the pump is tested for the highest measured temperature, as well as the stabilization of the temperature under unusual conditions (empty tank or constant minimum tank level). In this test, the pump is operated until the temperature does not rise more than 2° C per hour. The maximum temperature reached is then regarded as the "hottest spot".

Conclusion
MarFlex has fitted the top cover of the deepwell pump with an oil level sensor and the piston rod of the drainage pump is connected to earth.

SPECIFIC CONDITIONS OF USE

In accordance with ATEX standards, MarFlex will inform the contract partner about any important matters on the basis of a "Specific Conditions of Use" document.

Before both parties enter into a contract, the contractual partner will sign that they have read and understood the document.

The "Specific Conditions of Use" document is a supplement to the User Manual. It describes the ATEX-certified pumps and compliance with the conditions of the various procedures.

Compliance with this and the correct method of installation and commissioning, the proper use of the system (including regular oil checks and purging of the cofferdam), together with timely maintenance, contribute to the explosive atmosphere safety of the system.

COMPLIANCE WITH THE CONDITIONS AND PROCEDURES, INCLUDING PROPER INSTALLATION AND COMMISSIONING, AS WELL AS THE PROPER USE AND TIMELY MAINTENANCE, CONTRIBUTE TO THE EXPLOSIVE ATMOSPHERE SAFETY OF THE SYSTEM.

ATEX CERTIFIED QUALITY MANAGEMENT

All of MarFlex's processes meet the requirements of Annex IV of 2014/34/EU.

DELIVERY WITHOUT PROJECT VERIFICATION

MarFlex tests and supplies all zone 0 certified products without project verification from an approved external Ex-inspection body. An accredited ATEX inspector carries out an annual audit of this standard at MarFlex and thus not only ensures employee awareness, but also that the products are made and tested according to strict procedures. After all, these are pumps for zone 0 where the highest explosion risk applies.

ATEX-AWARENESS TRAINED EMPLOYEES

For the safety of our end users, we work with ATEX awareness-trained employees in the following disciplines.

Sales
For reliable advice based on the current regulations.

Engineering
To guarantee the safety of our products and to structurally search for any possible risks and, if necessary, improve product safety.

Project management
To consider every request from the shipyard (if they are a contract partner of MarFlex) against the safety interests of the shipowner and, if necessary, to discuss it with the internal ATEX manager at MarFlex.

Service
To ensure that the system is safe again after an intervention.

Additionally, awareness is stimulated and safeguarded among all MarFlex employees by having every employee attend an ATEX lecture annually. Here all the relevant processes are once again brought to their attention.

VERIFIED ATEX COMMUNICATION

All ATEX-related communication is checked and released by an ATEX manager before any external communication. This guarantees that the end user always has information that has been verified for its correctness.


FOR YOUR SAFETY WE WORK
WITH ATEX-AWARENESS
TRAINED EMPLOYEES.

WOULD YOU LIKE TO KNOW MORE ABOUT OUR ATEX-CERTIFIED CARGO PUMPS?

Please contact Richard Beek, Area Sales Manager
rbeek@marflex.com
+31 (0)186 - 890 200

Visit www.marflex.com

MarFlex

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