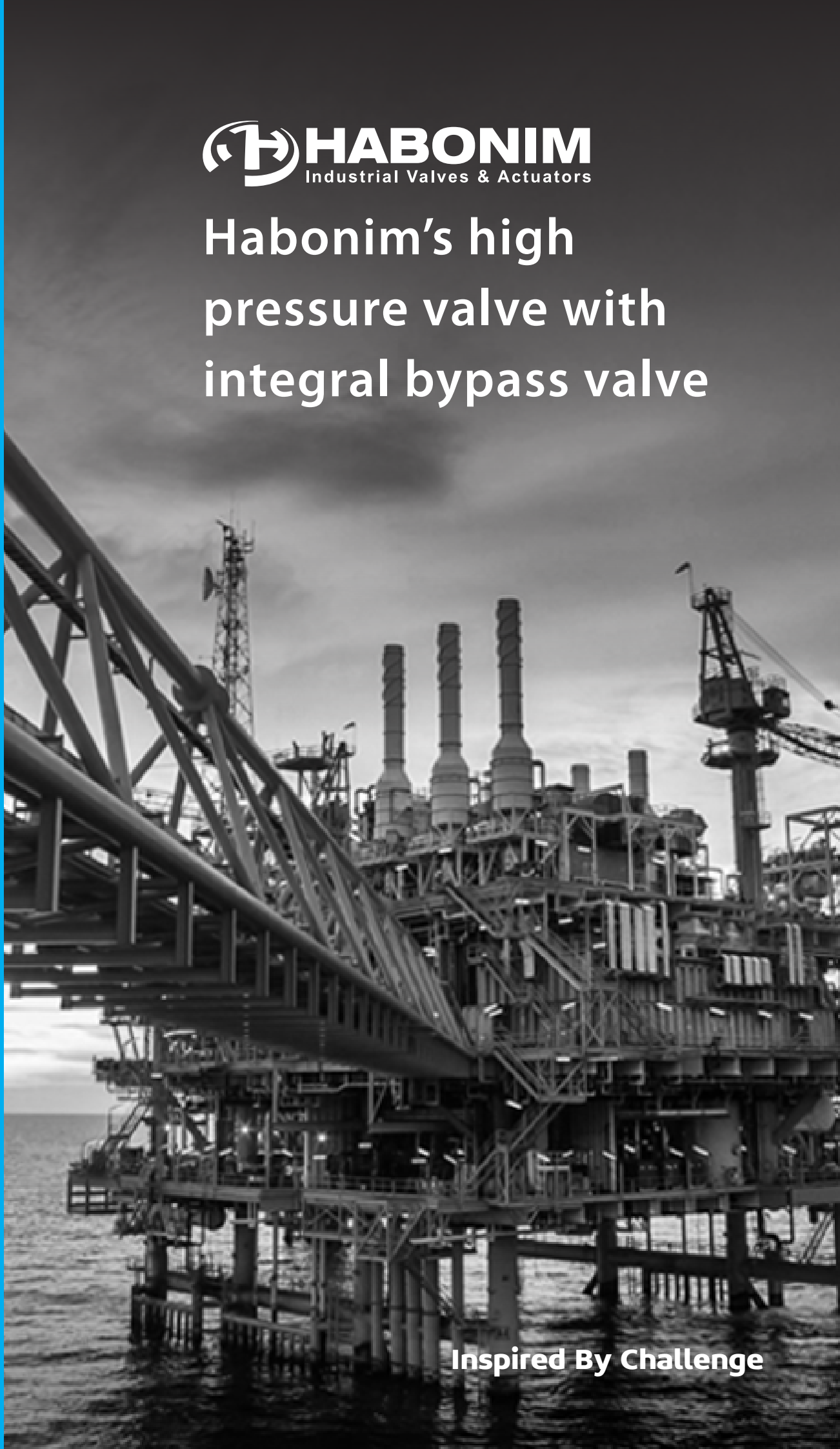
CASE STUDY

HABONIM
Industrial Valves & Actuators

Habonim's high pressure valve with integral bypass valve



GAS
DISTRIBUTION

Inspired By Challenge

Habonim's high pressure valve with integral bypass valve

Background

Deepwater natural gas drilling rigs are among the most difficult and dangerous places to live, to work, and to provide maintenance for flow control systems. Reliable, dependable valves are the top priority for operations and service teams alike.

Every item in the flow control chain must perform perfectly in order to control flow in a safe and uninterrupted manner.

Downtime and maintenance costs must be kept to a minimum. Strict standards must be met for safety, corrosion resistance, and minimum volatile organic compounds (VOC). And stringent emission standards require zero leakage, both inline and into the environment.

The Problem/Challenge

The customer was using a non-Habonim 3" flanged, class 900RTJ valve with a light condensate flow medium. However, the high differential pressure across the valve caused very high valve torque when opening the valve to release pressure, resulting in a valve that was difficult to open, and, eventually, in a deformed, or, even worse, broken valve stem.

The Solution

The Habonim team analyzed the flow case with the client's engineers and came up with the optimal solution: equalizing the differential pressure before operating the valve by using a smaller ball valve as a built-in "bypass" of the main valve.

More specifically, a complete solution could be provided by a 3" High Pressure, 27 series valve, fitted with a Zero VOC **HermetiX™** stem seal and an integral 1/2" bore ball valve to equalize the pressure.

In this configuration, valve torque is reduced at maximum differential pressure from 300 NM to 60 NM.

The stem material was INCONEL 780, which can withstand at least 1000 NM of torque, far exceeding the relevant safety standards.

In the event of pressure buildup or side load, the flexible "X" shape of Habonim's innovative and field-proven HermetiX™ stem seal creates a dynamic sealing arrangement, actively adjusting itself to prevent fugitive emissions.

The new design provided the following solutions:

- Preventing the main valve from being opened under differential pressure. Habonim developed a special safety interlock to ensure that the bypass valve is opened first, balancing the pressure on both sides of the valve.
- The safety interlock ensured that the main valve could be closed only after the small bypass valve is closed.
- For added safety, a main pipe locking device ensured that only qualified personnel with access permission can operate the valve.

Habonim's new integral bypass valve was produced with the same face-to-face dimensions as the client's old valve, simplifying conversion to the new solution and reducing downtime.

Being a 3 piece valve, the Habonim series 27 valve is also easy to maintain. The center piece can be removed with minimum effort, without requiring removal of the entire valve from the line.

Extensive experience in offshore platform service allowed Habonim's team to respond with a **tailor-made solution** based on proven design and performance, that is cost effective, safe and simple. Habonim's solutions meet our customers' most stringent accreditation and regulatory requirements.

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