



AMERICAN PETROLEUM INSTITUTE

API Technical Report 17TR12

Consideration of External Pressure in the Design and Pressure Rating of Subsea Equipment

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This technical report addresses issues related to the effects of external pressure acting on subsea equipment installed in deepwater for containing or controlling wellbore fluids. External pressure at deepwater can significantly reduce the differential pressure acting on the wall of subsea equipment, and therefore, this can improve its internal pressure containment capability. External pressure is typically ambient seawater pressure, but in some cases, external pressure may be due to the hydrostatic head of drilling mud, completion fluids, or other fluids contained within risers or other conduits that connect the subsea equipment to surface facilities.

API Technical Report 17TR12 provides guidance for subsea equipment designers/manufacturers to properly account for external pressure (or in some cases, differential pressure) when designing and validating subsea equipment. Additionally, this technical report provides guidance to equipment purchaser/end-user to appropriately select rated equipment for their subsea systems with consideration to the effects of external pressure in addition to internal pressure, including differential pressure across a closure mechanism, and other applied mechanical or structural loads under all potential operating scenarios and functionality criteria.

It is necessary that users of this technical report be aware of regulations from jurisdictional authority that may impose additional or different requirements to the consideration of external pressure or differential pressure in equipment designs.

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