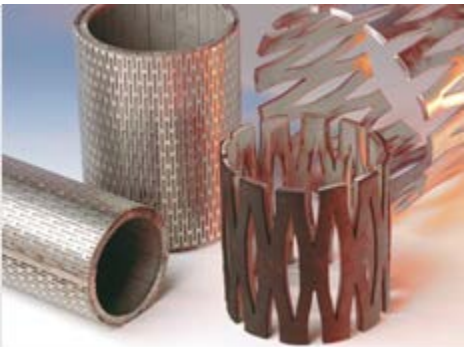




TOUGHMET APPLICATION:
OFFSHORE OIL & GAS
PROFILE: WEATHERFORD INTERNATIONAL LTD.

Weatherford International Ltd. is one of the largest global providers of advanced products and services that span the drilling, evaluation, completion, production and intervention cycles of oil and natural gas wells.

In the deep water sector of the oil and gas industry, offshore rigs tap crude oil at ocean depths greater than 1,600 feet and well depths beginning at the ocean floor many times deeper. Effective removal of the crude reserves can depend on controlling the influx of sand into the wellbore, the physical hole in the earth that makes up the well. Unmanaged, the influx of sand can rapidly wear out components, requiring downtime for expensive repairs. Lost production can cost hundreds of thousands of dollars per well per day, and in some cases, ultimately lead to loss of the well and the millions of dollars invested.



ToughMet 3TSI60U rod is used within the expansion tool for the ESS® system.

SOLUTION:

Working with Materion Performance Alloys' ToughMet®, Weatherford was able to solve this challenge in their proprietary Expandable Sand Screen (ESS®) system. Constructed of a base pipe, filtration membranes and outer shroud, the system expands when a proprietary tool is pushed from the top down. ToughMet® 3TSI60U rod is used within the expansion tool for its high strength, low friction-bearing properties, ensuring ESS components effectively slide to expand for contact with the wellbore, thus providing stability and controlling the influx of sand. With ToughMet® as part of the ESS system, Weatherford reduces completion costs and increases productivity to provide measurable client value in deep water hydrocarbon wells at depths of up to 18,000 feet.

