



Valve Solutions for Drilling

Reduce downtime and improve performance with durable, field-proven valve solutions for some of the most abrasive, high-pressure onshore and offshore drilling applications



Mud tanks

Mud pumps

Standpipe manifold

Marine

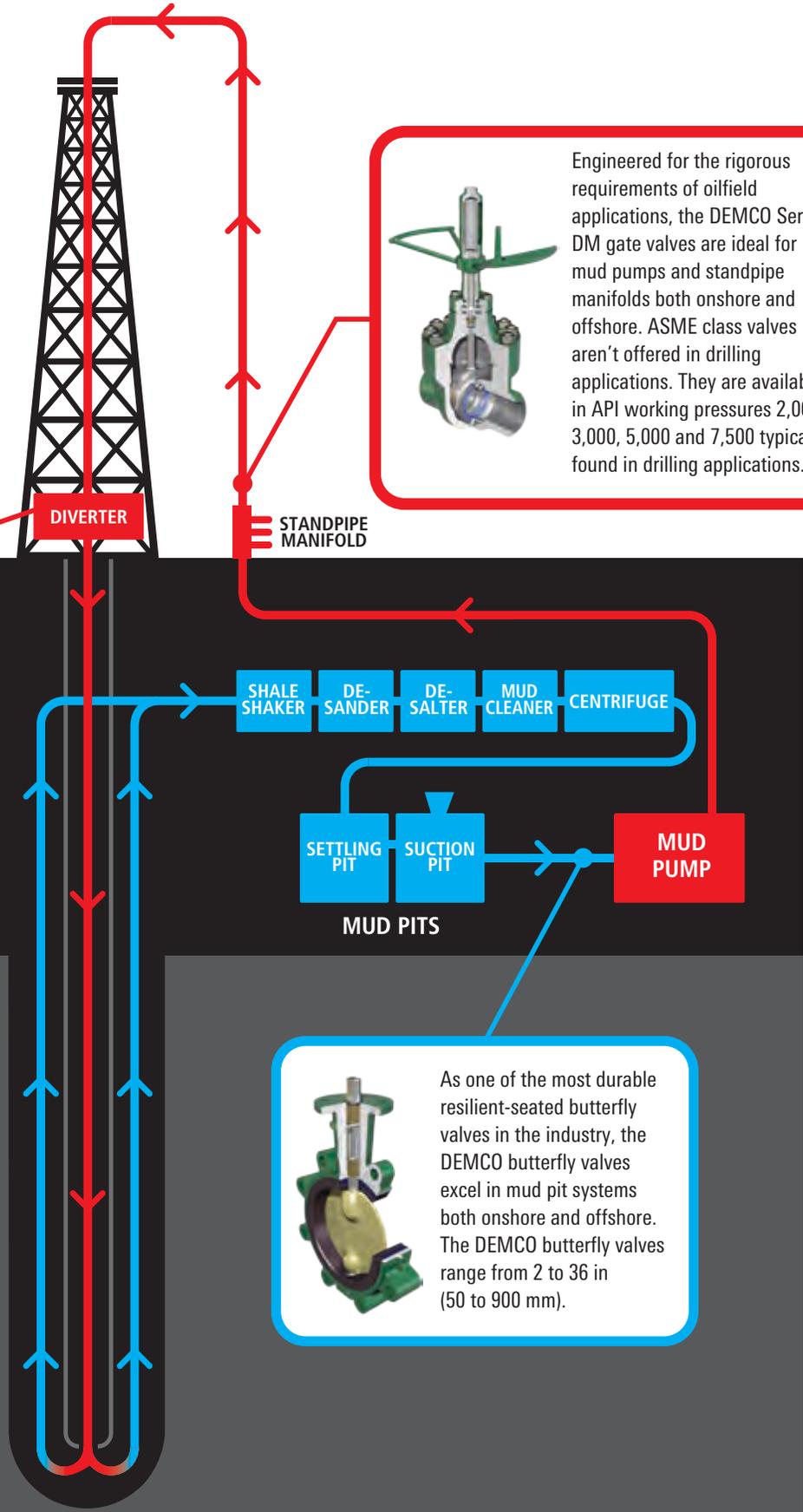
Fire/ballast systems

Durable. Dependable. Distributed Worldwide.

As the industry leader in flow technology for drilling applications, both onshore and offshore, we provide dependable, heavy-duty performance valves in abrasive and corrosive service conditions. Cameron valve solutions are uniquely engineered to perform reliably in some of the most hazardous environments, helping to protect facilities, equipment, and personnel. With a worldwide distribution network and a strong AML presence, we offer both domestic and international on-time delivery and support. We are committed to reducing operators' total cost-of-ownership and minimizing risk without sacrificing quality products and services.

The Drilling Process

The valve solutions within mud systems, both onshore and offshore, must withstand differential pressure levels and fluctuating mud composition as it transports the fluid throughout the well bore. Durable, high-performance valves are needed within these systems to control the flow of mud accurately and reliably despite the harsh environment.



Engineered for the rigorous requirements of oilfield applications, the DEMCO Series DM gate valves are ideal for mud pumps and standpipe manifolds both onshore and offshore. ASME class valves aren't offered in drilling applications. They are available in API working pressures 2,000, 3,000, 5,000 and 7,500 typically found in drilling applications.



The WKM Model 370D6 trunnion-mounted ball valves are engineered for heavy-duty performance. Used in many general purpose petroleum and chemical process applications, these valves can also be specified for more demanding applications.

- Full Port
- ANSI Class 900/1500
- RTJ Flanged End
- Up to 12"



As one of the most durable resilient-seated butterfly valves in the industry, the DEMCO butterfly valves excel in mud pit systems both onshore and offshore. The DEMCO butterfly valves range from 2 to 36 in (50 to 900 mm).

Mud Tanks

The mud that circulates through a well bore is an integral part of drilling operations. Having a steady supply of drilling mud is paramount in lubricating the drill bit, carrying out the cuttings, and controlling down hole pressure. Thus the mud systems used to filter and control the fluid must perform accurately and reliably. Part of that system includes mud tanks, also commonly referred to as mud pits. These are large storage reservoirs within the solid control systems.

Incorporating reliable equipment to manage mud circulation is imperative to maintaining routine drilling operations. These interconnecting tanks require mud valves on both the inside and the outside of these receptacles. The valves must be able to withstand the abrasive nature of the environment as mud is constantly being circulated through the well bore. As one of the most durable, resilient-seated butterfly valves in the industry, DEMCO butterfly valves are ideal for this application because they are engineered for long-term, reduced-maintenance performance. The unique dry-stem journal design of DEMCO* valves helps eliminate the potential for leakage and isolates the media from the upper and lower stem journal. In addition to this, the hard-backed seat provides ease of installation, reliable operation, and in-field reparability without special tools. Available in both wafer and tapped lug patterns in a variety of material choices, DEMCO butterfly valves also feature a one-piece body for reduced weight and increased strength.



Mud tanks require a large amount of butterfly valves to control mud traffic as this is a critical part of maintaining drilling operations.

CASE STUDY

Butterfly valve solutions

The customer challenge

After routine testing of the low pressure piping system, operators on a drill ship came to the conclusion that all 515 butterfly valves in their system aboard the vessel were leaking. An issue of this magnitude can cause expensive delays in production as the average day rate for rigs is \$520,000[†] and requires skilled technicians to safely and quickly replace the compromised equipment.

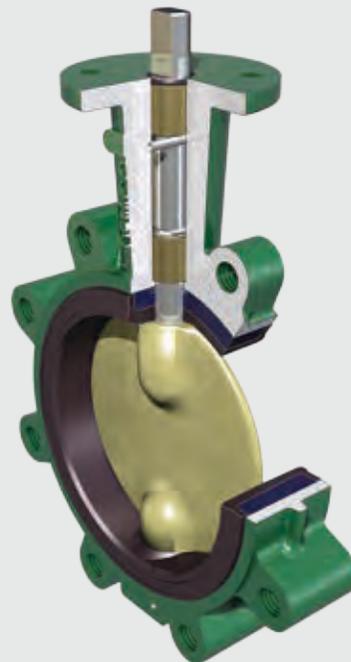
The Cameron solution

Operators aboard the boat replaced all of the failing valves with DEMCO butterfly valves. The DEMCO butterfly valves are ideal for this application because of their reduced need for maintenance and the dry stem journal that reduces the potential for leakage.

The result

The drill ship was able to resume normal operations while sustaining only minor delays in production. All 515 butterfly valves were replaced with DEMCO butterfly valves in just three days.

[†] According to Rigzone



Mud Pumps

Mud pumps are used to circulate mud down the drill string and back up the annulus both onshore and offshore. Because this large reciprocating piston device is responsible for maintaining the right pressure and volume to safely carry debris from the wellbore, it is an important part of the oil well.

The ability for a drilling rig to operate at peak performance hinges on the reliability of the mud pump. Due to the abrasive nature of drilling operations and the corrosive composition of mud, these pump systems must be durable and easily maintained.

DEMCO gate valves, the premier gate valve in the oil and gas drilling market, are specifically engineered to meet the rigorous requirements of oilfield applications. Designed for dependable, heavy-duty performance, all DEMCO gate valves are hydrostatically tested and inspected for zero-leakage[†] before shipment. In the 5,000 psi DM Series gate valves, there is an exclusive seat design for drop-tight sealing. The seat consists

of two identical metal seat rings encapsulated in an elastomer that provides a drop-tight pressure-responsive seal around the port. The spread ring ensures the seat elastomer presses uniformly against the body bore. This design ensures the seat seals tight against the body and around each valve port. This design has been proven effective even if the gate and seat ring become scored or abraded during service. When maintenance is required, the seat's single-piece design makes it easy to pull out of the body for replacement.

In the 5,000 psi and 7,500 psi DEMCO gate valves, the American Society of Mechanical Engineers (ASME) series double-acting thread design also allows these valves to perform in a high-cycling environment. The threaded stem in the gate works with the threads in the bonnet and handle assembly. Stems are polished and include a dependable O-ring and anti-extrusion seal. This unique design makes it an economical and effective option for high-cycle environments.



DEMCO DM 2,000 to 5,000 psi gate valves utilize a unique seat design to provide drop-tight shutoff in abrasive and erosive service.

[†] Per API 6D 11.4.3 acceptance criteria

Standpipe Manifold

On drilling rigs, most operating occurs within the standpipe manifold. This structure, comprised of various piping and valves, is essential in directing drilling mud throughout the rig. Standpipe manifolds withstand the largest amount of pressure and abrasion in a drilling fluid system due to mud constantly circulating at a rapid rate and with varying volumes of sediment and drill cuttings. Even when the drill bit is inactive, these structures must divert the flow.

The valves within these manifolds must be capable of operating under high pressures and in extremely corrosive service in order to deliver mud to the well bore. As the industry leader, the DEMCO Series DM 7,500 psi gate valves have a unique, abrasion resistant, one-piece seat design. The seat assembly consists of two stainless steel insert support rings to which a resilient elastomer is permanently bonded. The elastomer helps the valve continue to provide tight shutoff after extended use in abrasive service and the stainless steel rings are corrosion and erosion resistant. Surface hardened alloy body wear rings back up both sides of the seat. These rings extend the service life of the valve by

absorbing erosive wear that can cause damage to the body around the seat bore area.

In-line field reparability is imperative to minimizing downtime. In the DEMCO DM Series gate valves, in both the 5,000 and 7,500 psi design, the bonnet is easily removed for internal parts inspection and/or replacement without needing to remove the valve from the line. This design simplicity permits fast and easy service without the need for special tools. Additionally the stem packing can be replaced without removing the bonnet from the valve, saving time when this type of maintenance is required.

In standpipe manifold applications, valves must also be able to seal drop-tight to prevent leakage. The DEMCO 7500 gate valve has a slab gate "T" slot stem connection that allows the gate to float to the seat, providing a tighter, pressure-responsive seal. Not only are the DEMCO Series DM 7500 valves hydrostatically tested to confirm zero-leakage[†] under pressure, they also undergo additional test cycles, including low-pressure seats tests.



Engineered specifically for the high pressure requirements of deep well drilling, the DEMCO Series DM 7500 gate valve is the industry leader with proven technology including the unique, abrasion resistant, one-piece seat design.

[†] Per API 6D 11.4.3 acceptance criteria

Marine

Marine support vessels service offshore platforms in numerous ways. One function includes delivering large quantities of drilling mud to the platforms when operators are in need. These large capacity ships are equipped to transfer bulk drilling fluid.

Similar to the fire and ballast systems, support vessels utilize a large number of butterfly valves. These valves are present in other ship systems such as fuel delivery, waste, and fresh water supply. Ease of operation and reliability are required in these operating systems, and butterfly valves are ideal because of their field-replaceability, reduced-maintenance performance, and smaller footprint.

Engineered for heavy-duty reliable service, WKM* high-performance valves and DEMCO resilient-seated butterfly valves are ideal for supply vessels. The WKM and DEMCO butterfly valves offer the high performance of ball and gate valves with the cost effective, lightweight, and compact benefits of a butterfly valve. The WKM high-performance butterfly valve incorporates a heavy-duty disc designed to withstand the higher stresses associated with high pressure applications with a wide disc edge that provides a greater sealing area. The unique dry-stem journal design of DEMCO butterfly valves helps eliminate the potential for leakage and isolates the media from the upper and lower stem journal.

DEMCO and WKM butterfly valves meet the requirements of U.S. Coast Guard Marine Engineering Regulations as outlined in Title 46 of the Code of Federal Regulations, Part 56. DEMCO Marine Series butterfly valves are ABS Type Approved.



Marine support vessels and fire/ballast systems both require large quantities of compact, lightweight butterfly valves to regulate fuel delivery, waste, and fresh water supply.

Fire/Ballast Systems

Fire and ballast systems are integral component of offshore drilling operations and marine service vessels. A large number of resilient-seated and high-performance butterfly valves are commonly used in these systems due to their reliability, compact design, quarter-turn operation, and light weight.

The WKM high-performance valves and DEMCO resilient-seated butterfly valves are ideally designed for these applications because of their lightweight build and reduced footprint. These valves provide robust performance in a smaller package making them ideal for offshore operations. WKM high-performance butterfly valve are available to meet API 607 fire testing standards.



Both the DEMCO butterfly valve and the WKM high-performance butterfly valve are approved by the US coast and adhere to the Code of Federal Regulations.

Services and Distribution

As the largest service network for valves operating in the global oil and gas industry, the Cameron Services team is there, whenever and wherever you need them. Cameron is one of the most respected names in the valve business, and our team is ready to respond at a moment's notice or as part of your long-term valve asset management program. We deliver the products, resources, and peace of mind you deserve.

Distribution network

Our distribution network is strategically located near some of the busiest drilling hubs around the world allowing our customers convenient access to a supply of valves and parts.

- Strong AML presence
- Domestic and International distributors
- Reliable supply of valves and parts in inventory

Parts and spare valves

Our service facilities maintain a full inventory of new and reconditioned spare valves, actuators, and parts for immediate delivery.

- 24/7, 365 days a year support
- OEM spare valves, actuators, and parts (including non-Cameron brands)
- Handling, storage, packaging, and delivery
- Dedicated stocking program

Field services

Unlike other valve manufacturers, we have an established network of strategically located field service centers that offer a full range of installation, repair, inspection, testing, spare parts, and maintenance services.

- 24/7 field service support and emergency mobilization
- Portable onshore trailers and offshore containers



With a worldwide distribution network and strong AML presence, we offer both domestic and international on-time delivery and support.

Valve Solutions for Drilling



cameron.slb.com/drillingvalves

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