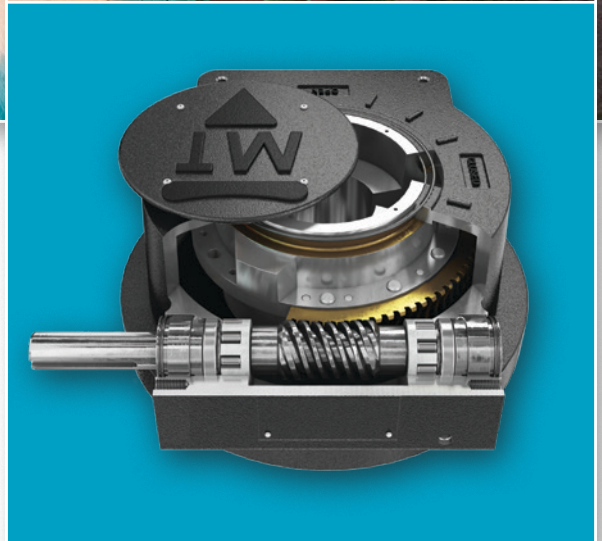




# MAXTORQUE High-Performance Valve Products— Worm Gears

Manual, motorized, and subsea applications





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## **MAXTORQUE High-Performance Valve Products — Worm Gears**

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Cameron is a leading provider of flow equipment products, systems, and services to worldwide oil, gas, and process industries. We offer products primarily used to control, direct, and measure the flow of oil and gas as it is moved from individual wellheads through flowlines, gathering lines, and transmission systems to refineries, petrochemical plants, and industrial centers for processing.

Cameron is a complete systems solution supplier, delivering new levels of efficiency and cost savings to our customers through our full in-house capability to provide controls engineering and manufacturing with choke, actuation, and automation expertise as well as project management, system engineering, operability, and training.

Cameron MAXTORQUE\* high-performance valve products feature patented AutoLock® technology that allows for high-performance worm gear

solutions with the self-locking characteristics of conventional gearboxes. This means less work is required to actuate valves, leading to an improved HSE profile and worker efficiency on manual valves and smaller actuators on motorized valves.

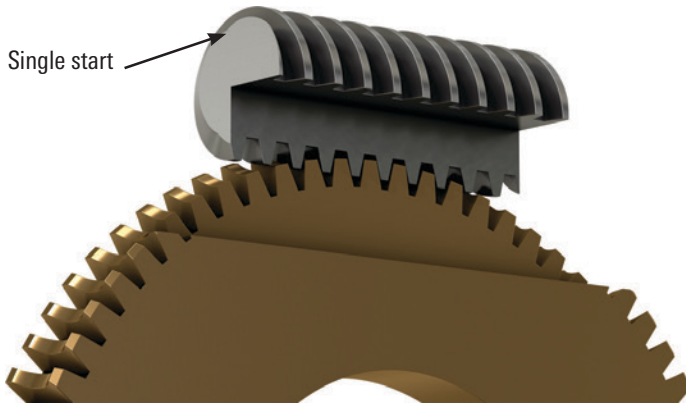
Our gear technology offers value-based solutions for a broad range of applications—from manual to motorized—and in the most challenging environments—from subsea to arctic arenas.



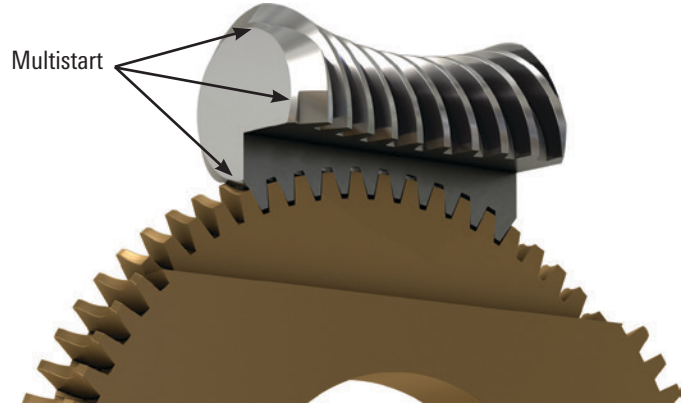
*Limerick, Maine, USA*

# MAXTORQUE Worm Gears

High-efficiency, double-enveloping worm gears



Standard worm gears: 1.23 to 2.98 teeth in contact.



MAXTORQUE worm gears: 6 to 13 teeth in contact.

## Features

- Self-locking design
- Double-enveloping gear set
- Unique tooth form to reduce microscopic stresses
- Superior sealing system
- Capable of handling torques in excess of 1,000,000 ft.lbf [1,355,818 N.m]

## Benefits

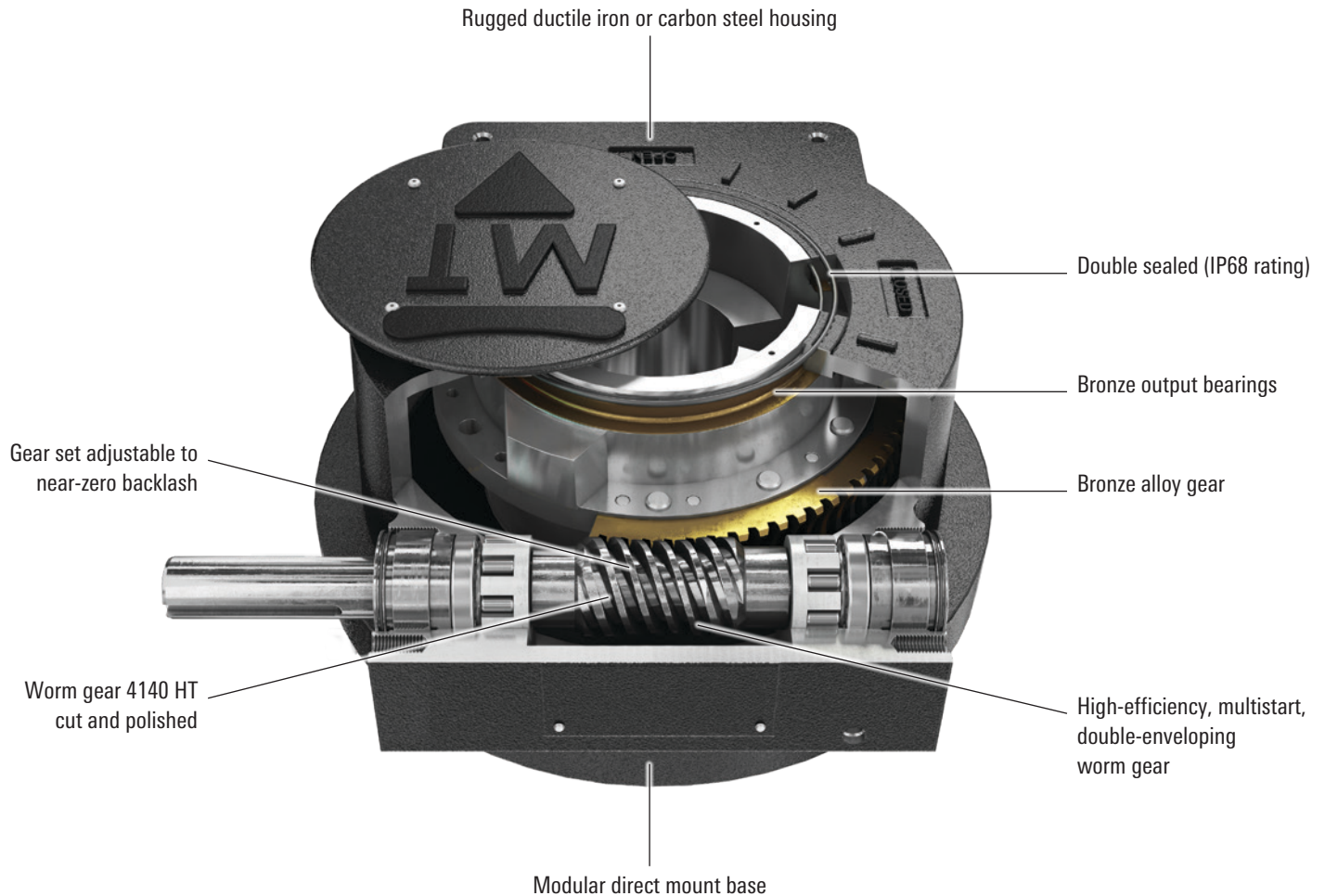
- 2–2.5× more efficient compared with commodity gears
- Up to 75% reduced work
  - Reduced turns, handwheel size, and rim pull
  - Reduced stroke time
- Improved HSE profile
- Reduced need for actuators
- Smaller MOV packages reduce cost and weight
- Quick stroke times where required
- Near-zero backlash for process control
- IP68 ingress protection rating
- Increased durability

## Typical savings

Gear requirements for manual trunnion ball valves

Valve Size, in	Part Number	Torque with 1.25 Service Factor, ft.lbf	Handwheel Diameter, in	Break Rim Pull, lbf	Turns to Close		Turn Reduction
					MAXTORQUE Products	Conventional Products	
24	BW1-156	180,650	36	79	40	190	150
30	BW2-312	327,175	36	62	98	297	199
36	BW3-470	478,800	36	75	118	297	179

# Quality—Reliability by Design



## Robust design and testing

- Rigorous PC-programmable logic controller (PLC) cycle testing and qualification
- Best-in-class materials of construction
- Bronze output bearings to prevent galling
- Use of roller bearing instead of traditional or conventional plain needle bearings
- Atmosphères Explosibles (ATEX) CE certified
- Compliance with American Water Works Association (AWWA) US military (MIL) specifications and ISO 9001:2000
- Made in the USA



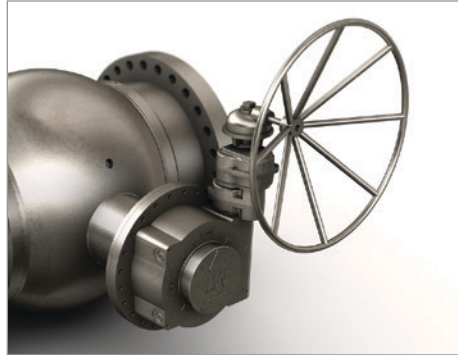
*MAXTORQUE products are made to meet stringent customer and regulatory requirements.*

# Motorized, Manual, Subsea, and Specialty Applications



## Motorized and process control

- Smaller actuators
- Faster operating times
- Dependability in demanding environments
- Near-zero backlash for exacting control



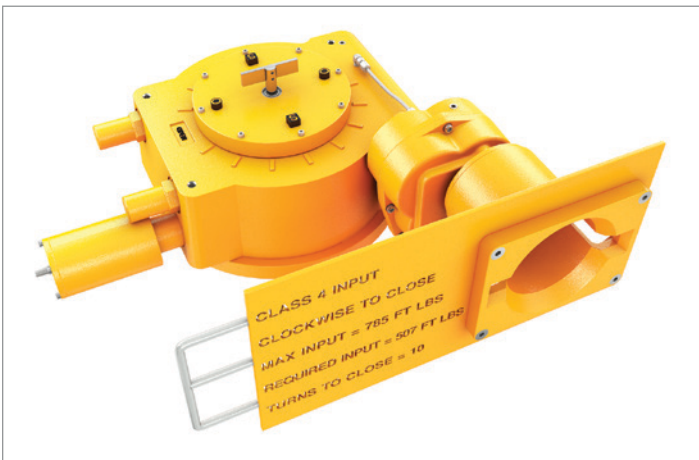
## Manual

- Improved HSE through significantly reduced turns and rim pull
- Reduced requirement for actuators, thus reducing project cost and complexity
- Smaller operators and handwheels where size and weight are a premium



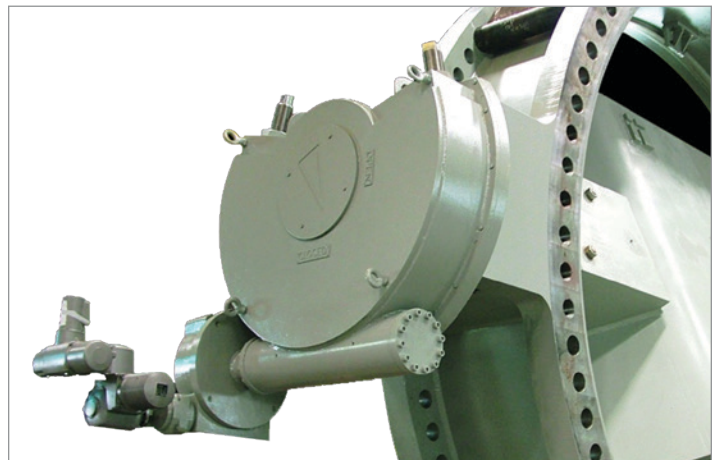
## Specialty

- Engineering-based creative solutions
- Custom, specialty requirements
- Harsh or challenging environments
- Military and naval standard and specialty operators



## Subsea

- Quality and performance where it matters most
- Independent hyperbaric testing for ultradeepwater applications
- Support or ancillary equipment, including panels, spools, and retrievable systems



## Ultralarge

- Supplied to 1,000,000 ft.lbf [1,355,818 N.m]
- Scalable to 1,500,000 ft.lbf [2,033,727 N.m]
- Mechanical option for large hydraulic and electrohydraulic actuators

# Services for Valves and Actuation

Cameron is well positioned to quickly and efficiently deliver total aftermarket support with unmatched OEM expertise. Our highly skilled engineers and technicians are available around the clock to respond to customer queries, troubleshoot problems, and offer reliable solutions.

## **Easily accessible parts and spare valves**

- OEM spare valves, actuators, and parts (including non-Cameron brands)
- Handling, storage, packaging, and delivery
- Dedicated stocking program

## **Comprehensive aftermarket services portfolio**

- Parts and spare valves
- Repair
- Field services
- Preventative maintenance
- Equipment testing and diagnostics
- Remanufacturing
- Asset preservation
- Customer property management
- Training and recertification services
- Warranty

## **Customized total valve care programs**

- Engineering consultancy
- Site management
- Flange management
- Startup and commissioning
- Spare parts and asset management
- Operational support



# MAXTORQUE High-Performance Valve Products—Worm Gears



[products.slb.com/maxtorque](https://products.slb.com/maxtorque)

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