

TENNECO

LARGE BORE ENGINE TECHNOLOGY

Piston Rings for Large Engines

GOETZE

DAROS

Piston ring design for Large Bore Engines focuses on reducing environmental impact, cutting costs, and improving fuel efficiency and durability. As engine efficiency and power increase, LBE rings must withstand higher temperatures, pressures, and corrosion from heavy fuel oil.

Tenneco Powertrain meets these challenges with advanced piston rings for 2- and 4-stroke LBE markets. Under its **GOETZE** (4-stroke, up to 640mm) and **DAROS** (2-stroke, 260–980mm) brands, it offers wear-resistant materials, optimized ring geometries, and coatings like GDC (Goetze Diamond Coating) and CKS (Chrome Ceramic Coating) to extend lifespan and reduce wear. A range of thermal spray and electric arc processes further enhance durability.





TENNECO Monosteel®-Piston



- Friction Welded Piston Design
- Diameters from 75mm up to 330mm
- Large Galleries for best cooling performance
- Hydrogen & Methanol compliant materials
- Laser-hardened piston grooves
- Low Friction / High Durability Coatings
- Analysis & Simulation for System Optimization
- Global Production Footprint

CONTACT PERSON Peter Kienast peter.kienast@tenneco.com

LBE Product Portfolio

The LBE Business segment is dedicated to Engine Components for Off-road applications as Marine (Propulsion & Gensets), Power Plant, Railway and C&I (Construction & Industrial) Applications. LBE is focused on 4-stroke engines with bore diameter >Ø 150mm.

Global Valvetrain



Intake & Exhaust Engine Valves

- Monometallic, bimetallic & Hollow Valve design
- Valve design selected based on specified boundary conditions of engine and valvetrain



Valve Cotters

- Standardized design (predefined sizes and shapes)
- Suitable designs for all engine applications and sizes
- Single-groove (clamping) / multi-groove (non-clamping) design



Valve Rotators

- Available as Rotocap®, Rotocoil and Rotomat (top or bottom mounted)
- Used when natural rotation of valves is no longer adequate
- Design for almost all spring loads ensuring reliable rotation speed



Spring Retainer Caps

- Designed for selected valve cotter and valve spring

Valve Seats & Guides



Intake & Exhaust Valve Seat Inserts

- Wide, expanding portfolio of ferrous alloys
- Complex composite structures
- Copper infiltration
- Dual-layer technology



Intake & Exhaust Valve Guides

- Wide, expanding portfolio of ferrous alloys
- Enhanced lubrication package, eliminates / delays scuffing

GVS dimensional capabilities	
Rotocap	Outer dia: max. Ø180mm; Fmax ~25kN
Valve	Length: about 180mm - 1000mmHead dia: about Ø45mm - Ø180mm Stem dia: Ø5mm - Ø40mm
Cotter	Stem dia: Ø5mm - Ø108mm
Valve Seat Insert Ring	Outer dia: ≤Ø80mm
Valve Guide	Outer dia: ≤Ø25 mm; length max. 100mm

CONTACT PERSON			
	RINGS	Peter Schmidt	peter.schmidt@tenneco.com
	VALVES	Tobias Schroedter	tobias.schroedter@tenneco.com
	PISTONS	Jens Lehmann	jens.lehmann@tenneco.com