

# Liberator™ Vortex Gas Separators

## EXTENDING OPERATING CAPABILITIES IN CHALLENGING GASSY WELL APPLICATIONS

### STANDARD AND OPTIONAL MATERIALS

Component	Standard Materials	Optional Materials
Head/Base	Carbon Steel AISI 1045/1035	Stainless Steel 410/416
Housing	Carbon Steel C45 DOM Tube	Stainless Steel 9Cr1Mo/13Cr
Shaft	MONEL® K500/UNS N05500	Inconel® 718/UNS N07718
AR Stage Sleeves/Bearings	Tungsten Carbide K20/ASTM B276	Tungsten Carbide K20/ASTM B276
AR Base and Head Bearing	Tungsten Carbide K20/ASTM B276	Tungsten Carbide K20/ASTM B276
Base Bearing	Tungsten Carbide K20/ASTM B276	Tungsten Carbide K20/ASTM B276
Shaft Key/Retaining Ring	Inconel® 718/UNS N007718	Inconel® 718/UNS N007718
Inducer	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351
Base Liner	Stainless Steel 304 UNS S30400	Stainless Steel 304 UNS S30400
Compression Liner	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351
Impellers/Diffusers	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351
Directional Flow Control	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351
Propeller	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351



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Standard and optional materials continued on next page ...

## STANDARD AND OPTIONAL MATERIALS (CONTINUED)

Component	Standard Materials	Optional Materials
Propeller	Ni-Resist Type 1 ASTM A436	Ni-Resist Type 4 ASTM A351
O-Ring	EPDM	Aflas®
Fasteners	Carbon Steel ASTM A307-03	MONEL® K500/UNS N0550
Coupling	Stainless Steel 304	MONEL® R405/UNS N04405
Shipping Cap	Cast Iron F11701	Cast Iron F11701

Features	Benefits
Chromium diffused liners and tungsten carbide (WC) shaft bearings	Resistant to abrasive wear in wells with heavy sand load
Large hydraulic flow passages	Allows for maximum total fluid volume throughput
Optimized vortex generation and crossover modules	Provides industry-leading separation efficiency for high gas volume fraction (GVF) applications
Proprietary directional flow control module	Enhances directional flow management, improving vortex generation
New integrated multi-stage charger	Improves gas slug handling performance with industry-proven charger
Utilizes CFD-optimized separating chambers	System designed using CFD to help ensure ultimate performance
Multiple configurations for extreme environments	Standard AR trim available in multiple flow ranges and multiple tandem configurations

## SYSTEM BENEFITS

- » Eliminates gas locking for improved uptime
- » Maximizes drawdown with improved gas management
- » Enhanced design with reduced failure points for improved reliability and performance

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