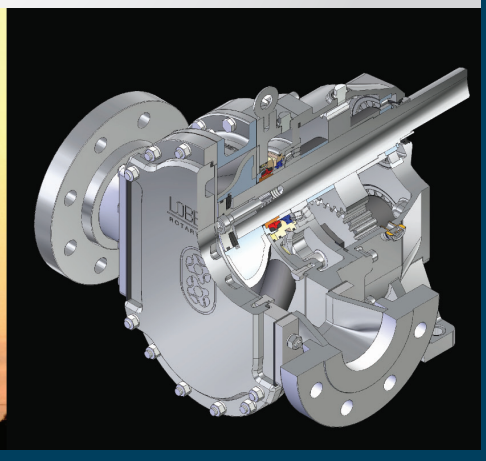


LOBEPRO
ROTARY PUMPS

API 676 Compliant Rotary Lobe Pumps

April 2018

API Pumps

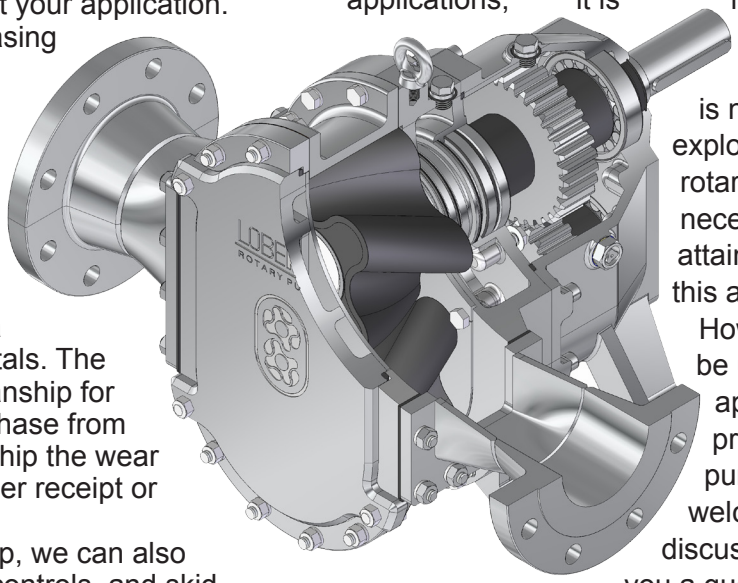
We manufacture rotary lobe positive displacement pumps having an output range from 8 gpm to 2500 gpm with up to 175 PSI pressure capacity. They are compliant with API 676 standards. We have developed our own oil cooled Cartridge “Engineered Seal” design as provided for in API 682 revision 4. We have found these to be long lasting and trouble free. A broad range of coatings and seal materials are available to suit your application.

Our standard pump pressure casing is WCB Steel or Duplex Stainless Steel, which may be coated with whatever material is needed for your application.

We have our own certified welders and experienced mechanical engineers. Our engineers can perform all API tests in our test tank. We will do a quality job of compiling all submittals. The pumps are warrantied for workmanship for 2 years. Should a pump you purchase from us require repair, we promise to ship the wear parts within 2 working days of order receipt or the parts are free.

In addition to providing the pump, we can also provide the motor, gear reducer, controls, and skid to your specification. We can also provide custom fabrications to suit individual applications. Since our start in 1978, we have packaged 1,000s of pump systems.

Our API pumps can also be utilized in applications where low Net Positive Suction Head Required (NPSHR) of 3’ (1m) or less is needed. In many oil and gas applications, it is necessary for the pump to be able to move materials in a tank that is not ventilated due to the explosive nature of gases. Our rotary lobe pumps have the necessary vacuum required to attain satisfactory pumping in this application.



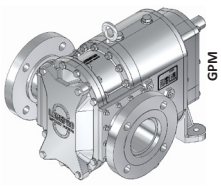
However, our pumps can be utilized in many other applications because of the properties of rotary lobe pumps. Our engineers would welcome the opportunity to discuss your application and give you a quote.

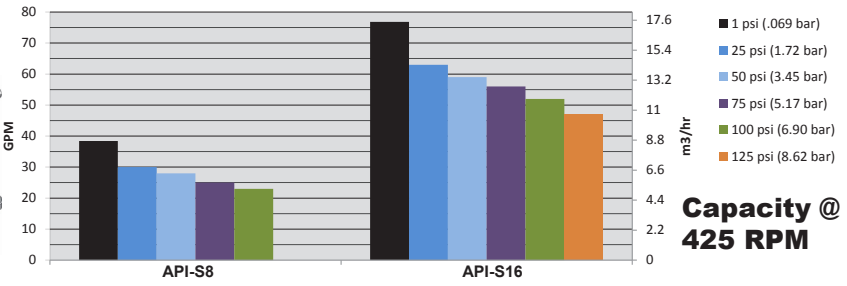
LOBEPRO ROTARY PUMPS

Pump Capacities: Typical Speeds for Moderate Abrasive Sludges/Fluids with 40 cP Viscosity*

**Note: Slip decreases as viscosity of process fluid increases*

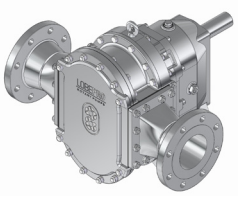
S-FRAME (Small Frame)

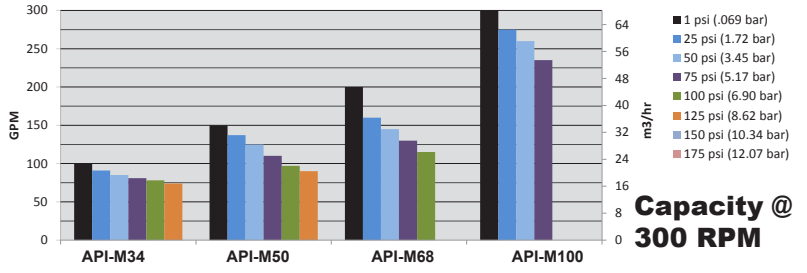




Capacity @ 425 RPM

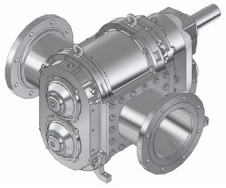
M-FRAME (Medium Frame)

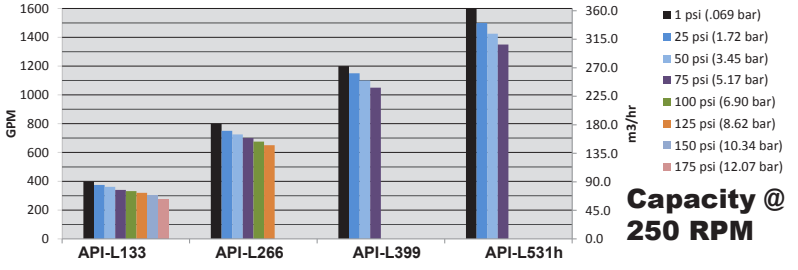




Capacity @ 300 RPM

L-FRAME (Large frame)





Capacity @ 250 RPM

Important Properties of LobePro Rotary Lobe Pumps

- Low shear
- Measured Flow
- Self priming to 25’ wet
- Discharge pressure to 175 psi (12 bar)
- Capacities 0-2,656 GPM (0-604 m³/hr)
- Low pulsation
- Forward and reverse pumping operation
- Long lifespan
- Pump NPSHR is 3’ (1 m) or less
- Easy access to wet end for “in place” wear part replacement
- Space-saving, compact design
- Excellent for abrasives, solids & viscous fluids
- Low maintenance
- Run dry ability

Advantage vs Commonly Used Alternatives

LobePro Pumps vs. Progressive Cavity (Screw) Pumps

LobePro pumps do the same jobs as well or better than progressive cavity (screw) pumps up to 150 psi of pressure and have the following advantages:

- Require approximately 1/3 their physical space
- Because they are 1/3 the size:
  - Parts are typically 1/3 the cost
  - Maintenance labor time is 1/3 or less
  - Lifetime ownership cost is 1/3
- Ability to run dry for a period of time
- Maintenance in place. LobePro lobes, seals and wear plates can be replaced without removing attached piping or pump.
- No ragging. The PC Pump's screwing motion causes the pump to clog or rag. LobePro pumps very seldom clog.

LobePro Pumps vs. Centrifugal Pumps

LobePro pumps have the following advantages over centrifugal pumps:

- Able to pump high viscosity fluids
- Constant flow at different pressures or constant pressure at different flows
- Low fluid shear/low emulsion
- Easily pumps air/liquid mixtures
- Handles abrasives better because of low RPM's which greatly reduces wear.
- Self-priming to 25'
- Centrifugal pumps tend to pump the lighter fluid away and leave the heavy material. Hence they are not suitable for fluids containing 3% or more solids. LobePro's pump away all the fluids including solids and abrasives.

LobePro Pumps vs. External Gear Pumps

- Gear Pumps have one shaft and two gears. The driven gear pushes the other gear. Abrasive materials rapidly wear the gears where they contact and as a result gear pumps are only suitable for pumping clean lubricating liquids. Rotary lobes pumps have two shafts driven by timing gears. The lobes do not touch each other or, after a short break in period, the housing segment. This enables rotary lobe pumps to handle hard solids up to 1/8" (3mm) and soft solids up to 2.5" (63 mm).
- Gear pumps do not run well in reverse. Rotary lobes pumps can run in either direction equally well making them suitable for loading and unloading fluids or backwashing with the same pump.
- Gear pumps cannot run dry. Rotary lobe pumps can for a period of time.

LobePro Pumps vs. Sliding Vane Pumps

- Sliding vane pumps rely on vanes that slide in and out as the shaft turns within an elliptical casing. Lobepro uses a simple arrangement of timing gears to rotate lobes that do not touch each other.
- Vane pumps require very clean fluid otherwise contaminates may cause the vanes to stop sliding resulting in possible pump failure. LobePro can handle hard solids to 1/8" (3mm) and soft solids up to 2.5" (63 mm).
- Large strainers must be placed at the inlet to prevent contaminates from clogging the sliding vanes. Failure to maintain these strainers results in pump failure.
- LobePro pumps can operate in forward or reverse. This permits the pump to be used for loading and unloading applications. Sliding Vane pumps have very limited capacity to operate in reverse.
- Vane pumps rely on vanes that slide and requires the pumped fluid to lubricate and remove heat, therefore, they cannot run dry. LobePro uses a non-contact design that greatly increases its run-dry capability.

Special Metals and Elastomers Applications

Chlorides, Hydroxides, H2S

Our C-series pumps for chemical and corrosive applications have either 316 stainless steel or duplex stainless steel wetted parts. This series of pumps can handle many high chemical or corrosive applications.

For especially corrosive or high chloride applications we also carry our D-series line of pumps. The wetted parts on this series of pumps is constructed of CD3mN duplex, its equivalent, or better. This series is a good choice when pumping fluids containing chlorides, hydroxides, or H2S.

The D-series pumps are commonly used in the oil and gas industry. More information can be found under "Corrosive Engineering" on our website at www.LobePro.com.

Additionally, our D-series line of duplex pumps can best handle applications that are both abrasive and corrosive. LobePro's duplex wet end parts have a higher Brinell hardness and twice the yield strength of 316 stainless steel resulting in better performance in harsh conditions. LobePro stocks CD3mN and 2205 duplex stainless in all pump sizes and offers super-duplex and Nitronic stainless steels for certain pump models.

Even more material combinations including Hastelloy, austenitic, and martensitic stainless steels are available with an approximate four-month lead time.

For more information on corrosives engineering and further details on duplex steel vs 316 stainless steel properties please visit www.lobepro.com/eng-data-corrosive-engineering.php.

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Gears do not require timing by user.

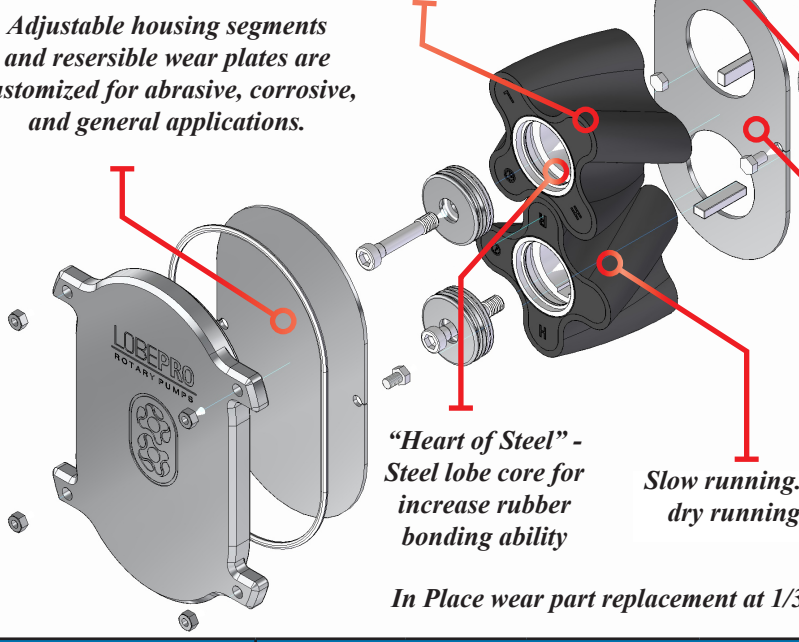
Gear housing is separated from wet end and mechanical seals

Affordable, rebuildable seals for easy replacement. No pressure bottle needed.

LARS rebuildable design offers the best of cartridge seal and a component seal in ONE while reducing repair costs 50 to 80%.

Helical four or six wing lobes provide smooth low shear flow. Lobes available in many materials.

Adjustable housing segments and resersible wear plates are customized for abrasive, corrosive, and general applications.



Self Priming to 25'. Reversible operation.

Mechanical seals cooled by oil. No flush water required.

Shutdown protection available for contaminants and over pressure conditions

Wear plates are reversible for double the wear.

"Heart of Steel" - Steel lobe core for increase rubber bonding ability

Slow running. Non-contacting lobes permit dry running and pumping of abrasives.

In Place wear part replacement at 1/3 the cost and time for equivalent screw (PC) pump.

Principle Reasons to Use LobePro	Pumping Applications								
			Feed Pump for						
	Oil Sumps Containing Abrasives	Fuel Transfer	Vapor-Liquid Separator	Produced Water Filtration	Decantering Centrifuge	Belt Press	Induced Gas Floation Froth	Desand Slop	Non-Vented Tanks
Reversible (can Load, Unload, Backwash)		X		X					
Strong Vacuum/Self Priming to 25 ft. (3 ft. NPSHR)	X		X				X		X
Handles Air and Fluid Without Damaging Cavitation			X				X		
Low Shear	X				X	X			
Ability to Pump Thick, Viscous Fluids					X	X		X	
Steady, Measured, Flow at Constant Pressure			X	X	X	X			
Can Run Dry	X				X	X	X		
Handles Abrasives Well	X				X	X		X	
ATEX Zone 2 Category 3 Rating	X	X	X				X	X	X

MODEL >	API-SSp, API-SM, API-SL	API-CSp, API-CM, API-CL	API-DSp, API-DM, API-DL
Service	**Non-Corrosive Sludge & Slurries**	**Chemical/Corrosive**	**Oil, Gas, Chemical and Corrosive**
Rotary Lobes			
Elastomer	NBR. FKM, HNBR & EPDM Available*	FKM. NBR, HNBR & EPDM Available*	FKM. NBR, HNBR & EPDM Available*
Lobe Profile	Helix	Helix	Helix
Number of lobe wings	API-SS: 6; API-SM & API-SL: 4	API-CS: 6; API-CM & API-CL: 4	API-DS: 6; API-DM & API-DL: 4
Core	NBR over Steel	FKM over Steel	FKM over Steel
Housing Segments*			
Medium touched	CD3MN Duplex Stainless Steel	CD3MN Duplex Stainless Steel	CD3MN Duplex Stainless Steel
Wear Plates			
Medium touched	AR500 Steel (Brinell 500)	2205 Duplex Stainless Steel	2205 Duplex Stainless Steel
Shaft Seal:			
Seal	Cartridge "Engineer Seal" per API 682 revision 4.	Cartridge "Engineer Seal" per API 682 revision 4.	Cartridge "Engineer Seal" per API 682 revision 4.
Piping Plan	Internal Oil Cooled. Flushing with pumped fluid (sludge/slurry) not desirable. Plan 99 oil flush system available.	Internal Oil Cooled. Flushing with pumped fluid (sludge/slurry) not desirable. Plan 99 oil flush system available.	Internal Oil Cooled. Flushing with pumped fluid (sludge/slurry) not desirable. Plan 99 oil flush system available.
Seal Faces	Duronit Opt. Silicon Carbide, Tungsten Carbide or Engineer Rec.	Silicon Carbide, Opt. Tungsten Carbide or Engineer Rec.	Silicon Carbide, Opt. Tungsten Carbide or Engineer Rec.
Seal Holders	Electroless Nickel Coated Steel	Stainless Steel 316	2205 Duplex Stainless Steel
Seal Inspection and Removal	Maybe accomplished without removing driver.	Maybe accomplished without removing driver.	Maybe accomplished without removing driver.
Sealing:			
O-rings	FKM or Engineer Recommendation	FKM or Engineer Recommendation	FKM or Engineer Recommendation
Lip seals	FKM or Engineer Recommendation	FKM or Engineer Recommendation	FKM or Engineer Recommendation
Seal Cooling Chamber	ASTM 48 Grey Iron	ASTM 48 Grey Iron coated with PTFE / Ceramic Teflon etched on face	ASTM 48 Grey Iron coated with PTFE / Ceramic Teflon etched on face
Shaft:			
Medium Untouched	AISI 4140 Steel	AISI 4140 Steel	AISI 4140 Steel
Gear Housing			
Casting	ASTM A48 Grey Iron rust primed	ASTM A48 Grey Iron rust primed	ASTM A48 Grey Iron rust primed
Flange:	Carbon Steel	Stainless Steel Type 316	Duplex Stainless Steel
Welding	Operators qualified under ASME BPVC Section IX	Operators qualified under ASME BPVC Section IX	Operators qualified under ASME BPVC Section IX
Bolts- Strain Bolt			
Medium untouched	Alloy Steel Socket Head DIN 912/ISO 4762	316SS Socket Head DIN 912/ISO 4762, A2-A4	Duplex SS Socket Head DIN 912/ISO 4762, A2-A4
Bolts			
Exposed to Media	Hex Head Steel ASTM F 568/ISO 898/I	Hex Head SS Din 931 A2-A4	Hex Head CD3MN Duplex SS Din 931 A2-A4
External (untouched by media)	Hex Head Steel ASTM F 568/ISO 898/I	Hex Head SS Din 931 A2-A4	Hex Head CD3MN Duplex SS Din 931 A2-A4
Timing Gears			
Medium untouched	AGMA Class 9 Coarse-Pitch type designed in accordance with AGMA 6010 with 1.5 min. service factor.	AGMA Class 9 Coarse-Pitch type designed in accordance with AGMA 6010 with 1.5 min. service factor.	AGMA Class 9 Coarse-Pitch type designed in accordance with AGMA 6010 with 1.5 min. service factor.
Bearings	K5 fit; C3 Internal clearance per ABMA7	K5 fit; C3 Internal clearance per ABMA7	K5 fit; C3 Internal clearance per ABMA7
Shaft Keyways	Fillet radii conforming to ASME B17.2 (fillet = 1/4 of key depth)	Fillet radii conforming to ASME B17.2 (fillet = 1/4 of key depth)	Fillet radii conforming to ASME B17.2 (fillet = 1/4 of key depth)
Draining and Venting	Completely drain capable. Gear Housing & Quench chamber vented.	Completely drain capable. Gear Housing & Quench chamber vented.	Completely drain capable. Gear Housing & Quench chamber vented.
Flammable/ Hazardous Service	ATEX II 3G/D T3	ATEX II 3G/D T3	ATEX II 3G/D T3

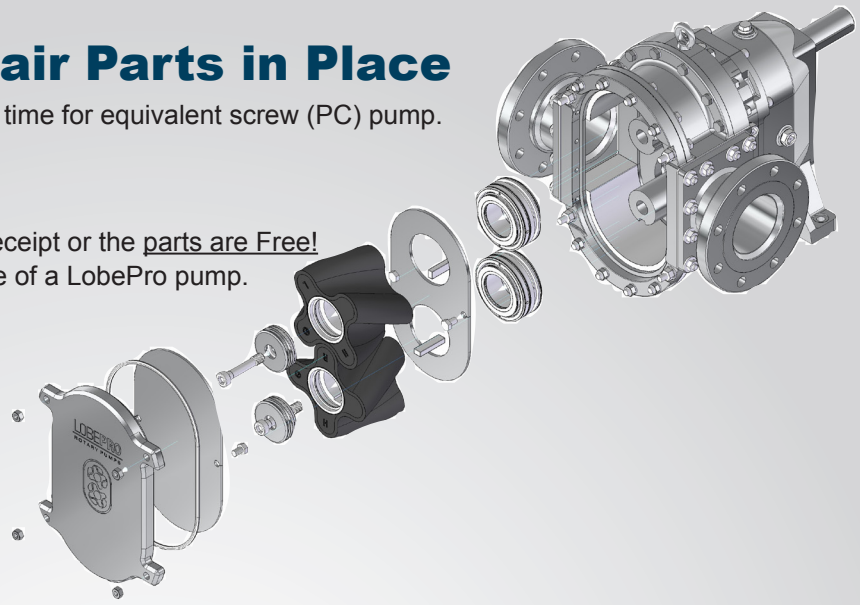
NOTE: Above is a summary of the principal features of the LobePro API 676 compliant pump. There are many other provisions of API 676 which apply to the pump. Our API series pumps comply with all of these provisions.

* Sp frame pumps feature a one piece ProForm pump casing which incorporates Housing Segment, Flange Ring, Barrier Plate and Integral Suction and Discharge Flange Fittings in one piece.

MODEL >	API-SSp, API-SM, API-SL, API-CSp, API-CM, API-CL, API-DSp, API-DM, API-DL
Standard Tests	**Test Description**
Hydrostatic Test	Operates without leaking at 150% of MACP when hydro tested
Run Test	Tested to determine if the pump operates without excessive vibration or seal leaks throughout operating range.
Performance Test	Tested a duty point to confirm pump curve.
Sound Test	Shall be under 85 db's at a distance of 3 ft. (1 meter).
Material Certification	Materials Certifications provided standard
Seal Pressure Test	Air Pressure at 25 psi per API 682

Simple and Easy to Repair Parts in Place

In Place wear part replacement at 1/3 the cost and time for equivalent screw (PC) pump.



Wear parts ship quickly

Wear parts shipped within 2 working days of order receipt or the parts are Free!
This guarantee applies for 5 years after the purchase of a LobePro pump.

"I love this LobePro Pump. It takes three guys three days to build a Moyno. It took three hours to rebuild the LobePro - and I did it myself. I can't wait until we replace the other Moynos with LobePro."
---Paul, Lead Mechanic

Pump Models

The flows shown below is the theoretical capacity prior to slip caused by pressure.

Model Speed	Maximum Capacity	Maximum Flow Per 100 Rev.	Maximum Continuous Pressure	Rated RPM
S8	72 gpm (16 m^3/hr)	8 gal. (30 m^3x10^3)	175 psi (12.1 bar)	0-900
S16	144 gpm (32 m^3/hr)	16 gal. (60 m^3x10^3)	100 psi (6.9 bar)	0-900
M34	204 gpm (46 m^3/hr)	34 gal. (130 m^3x10^3)	145 psi (10 bar)	0-600
M50	300 gpm (68 m^3/hr)	50 gal. (190 m^3x10^3)	125 psi (8.6 bar)	0-600
M68	408 gpm (92 m^3/hr)	68 gal. (260 m^3x10^3)	100 psi (6.9 bar)	0-600
M100	600 gpm (136 m^3/hr)	100 gal. (380 m^3x10^3)	50 psi (3.5 bar)	0-600
L133	665 gpm (151 m^3/hr)	133 gal. (503 m^3x10^3)	125 psi (8.6 bar)	0-500
L133h	665 gpm (151 m^3/hr)	133 gal. (503 m^3x10^3)	175 psi (12.1 bar)	0-500
L266	1,330 gpm (302 m^3/hr)	266 gal. (1007 m^3x10^3)	75 psi (5.2 bar)	0-500
L266h	1,330 gpm (302 m^3/hr)	266 gal. (1007 m^3x10^3)	150 psi (10.3 bar)	0-500
L399	1.995 gpm (453 m^3/hr)	399 gal. (1510 m^3x10^3)	40 psi (2.8 bar)	0-500
L399h	1.995 gpm (453 m^3/hr)	399 gal. (1510 m^3x10^3)	85 psi (5.9 bar)	0-500
L531h	2,655 gpm (603 m^3/hr)	531 gal. (2010 m^3x10^3)	70 psi (4.8 bar)	0-500

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LobePro Product Partner

CE and Atex approved

LobePro, Inc. UL REGISTERED FIRM ISO 9001-2015 - 10005463 QM15

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