GASAL™ SEPARATION TECHNOLOGY

LIFTING SOLUTIONS

An optimized gas separator designed for oil/water applications including light oil, heavy foamy oil and gas well dewatering.

PRODUCT OVERVIEW

The LS GasAL separator is designed to enhance pump efficiency in applications where high free gas is present at the pump intake. It is a modified Poor-Boy style separator with a self-orientating dip tube that sags to the bottom in horizontal applications. The outer housing is comprised of a strong, slotted separator tube that is designed to minimize flow restrictions and maximize separation cross the sectional area while maintaining integrity of the system to allow strategic positioning of the torque anchor below the separator to prevent gas flow restrictions and promote higher separation efficiency.

CHALLENGE

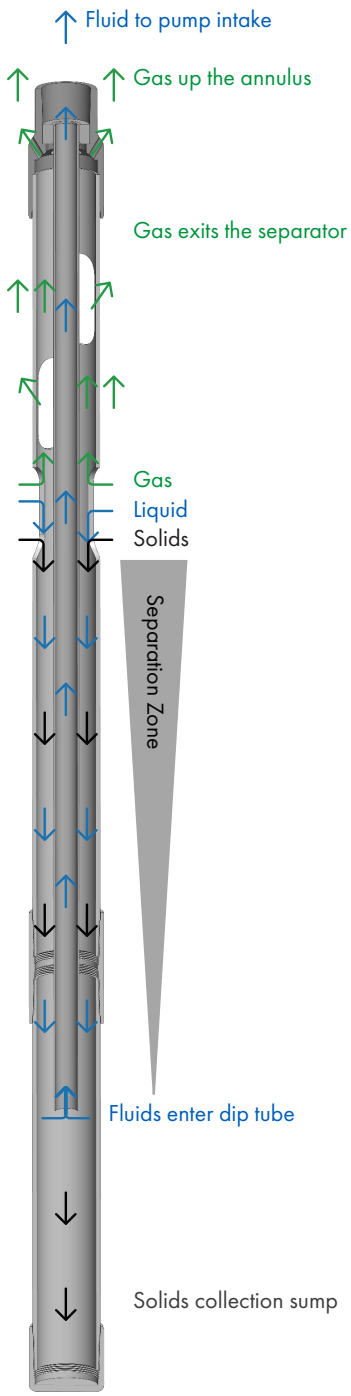
Oil under pressure in the reservoir often contains dissolved gasses. This solution gas evolves as free gas when pressure drops in the wellbore as it approaches the pump intake. Although Progressing Cavity Pumps (PCP's) are capable of producing this multiphase emulsion, free gas at the pump intake impacts the PCP by reducing its liquid volumetric efficiency. The GasAL is designed to enable better separation of free gas at the intake providing a more efficient pumping system in terms of ability to produce liquids at reduced speed, torque and power.

PROGRESSING CAVITY PUMPS THAT OUTPERFORM

When used in conjunction with our Progressing Cavity Pump (PCP) lineup including the Lifting Solutions TaperAL PCP, improved performance and efficiency can be expected. GasAL is a low-cost modular assembly with a robust structural design. The innovative solids dump valve (SDV) option and self-orienting dip tube provide unique benefits for gas separation and solids handling.

PRODUCT FEATURES AND BENEFITS

- Simple cost effective design with no moving components, easy assembly and disassembly.
- Modular design that can be broken down for transportation and installation.
- Robust structural design allows the torque anchor to be installed below the separator preventing restriction to gas exit path.
- Self-orientating dip tube ensures intake is always oriented to the bottom of the assembly.
- Uses gravitational separation to exclude gas from the PCP intake improving overall operating efficiency.
- Enables the use of a smaller nominal pump displacement operating at a lower overall speed and torque.
- Lower PCP speed and torque contribute to lower stress on the drivehead and rod string system components.
- Smoother PCP operation including a reduction in torque and associated torque fluctuations.
- Innovative solids dump valve option designed to self-activate on flush, shutdown, or solids buildup.
- Available in coated for corrosion resistance and an uncoated economical configuration.



Experience Performance. Artificial lift products and services that consistently outperform the market and reduce OPEX.

MKT-BR-GBL-PCP-004v7

GAS SEPARATOR PRODUCT LINE OVERVIEW

Series	Min Casing Size in (mm)	Top Connection* in (mm)	Separator Dimensions		Gas Separation Zone				Solids Collection Zone		Bottom* Connection in (mm)
			OD in (mm)	Length ft (m)	Separator Tube ID in (mm)	Dip Tube OD in (mm)	Length ft (m)	Flow Area in² (mm²)	ID in (mm)	Length ft (m)	
GS412	4 1/2 (114.3)	2-7/8 (73.0) EUE	3.75 (95.3)	27.8 (8.46)	3.13 (79.4)	1.32 (33.4)	13.6 (4.14)	6.3 (4072)	2.50 (63.5)	6.3 (1.93)	2-7/8 (73.0) EUE
GS512	5 1/2 (139.7)	3-1/2 (88.9) EUE	4.50 (114.3)	27.5 (8.38)	3.50 (88.9)	1.66 (42.2)	13.5 (4.11)	7.5 (4811)	3.13 (79.4)	5.9 (1.80)	3-1/2 (88.9) EUE
GS700	7 (177.8)	3-1/2 (88.9) EUE	5.56 (141.3)	26.2 (8.00)	4.38 (111.1)	1.90 (48.3)	13.5 (4.11)	12.2 (7869)	4.38 (111.1)	4.5 (1.37)	3-1/2 (88.9) EUE
GS758	7 5/8 (193.7)	5-1/2 (139.7) LTC	6.05 (153.7)	28.6 (8.71)	4.89 (124.2)	2.38 (60.3)	13.3 (4.03)	14.4 (9268)	4.38 (111.1)	6.8 (2.06)	5-1/2 (139.7) LTC
GS858	8 5/8 (219.1)	4-1/2 (114.3) EUE	6.50 (165.1)	28.6 (8.71)	6.00 (152.4)	2.88 (73.0)	13.1 (3.99)	21.8 (14053)	4.38 (111.1)	6.8 (2.06)	3-1/2 (88.9) EUE
GS758-EXT	7 5/8 (193.7)	5-1/2 (139.7) LTC	6.05 (153.7)	38.4 (11.7)	4.89 (124.2)	2.38 (60.3)	13.3 (4.03)	14.4 (9268)	4.89 (124.2)	16.7 (5.09)	5-1/2 (139.7) LTC
GS858-EXT	8 5/8 (219.1)	5-1/2 (139.7) LTC	6.50 (165.1)	38.4 (11.7)	6.05 (153.6)	2.88 (73.0)	13.1 (3.99)	22.2 (14352)	6.05 (153.7)	16.6 (5.07)	5-1/2 (139.7) LTC

*Default connection shown. Contact your sales representative for alternate connection options.

GAS SEPARATOR MININIMUM SIZING GUIDELINES

Downhole Viscosity Profile			Target Flow Rate (m^3/day)						
Category	Typical Application	Range (cP)	5	10	20	40	80	160	320
Low	Light oil, dewatering gas wells, emulsion with low oil content	Up to 250	✓	✓	✓	✓	✓	✓	GS412
Med-Low	Light to medium oil, higher water cut, with slight viscosity increase	Up to 500	✓	✓	✓	✓	✓	GS412	GS512
		Up to 1,000	✓	✓	✓	✓	GS412	GS512	GS700
	Light to medium oil, increasing viscosity and foaming tendency	Up to 1,750	✓	✓	✓	GS412	GS512	GS700	GS758
		Up to 2,500	✓	✓	✓				GS858
Medium	Medium crude oil, increasing viscosity and foaming tendancy	Up to 3,500	✓	✓	GS412	GS512	GS700	GS758	
		Up to 5,000	✓	✓				GS858	×
	Medium to heavy crude oil, increasing viscosity and foaming tendancy	Up to 7,500	✓	GS412	GS512	GS700	GS758		×
		Up to 10,000	✓				GS858	×	×
High	Heavy crude oil, moderate viscosity with high foaming tendency	Up to 15,000	GS412	GS512	GS700	GS758		×	×
		Up to 20,000				GS858	×	×	×
	Heavy crude oil, high viscosity, increasing separation difficulty	Up to 30,000	GS512	GS700	GS758		×	×	×
		Up to 40,000			GS858	×	×	×	×
	Heavy to extra-heavy crude oil, challenging to separate oil/gas	Up to 60,000	GS700	GS758		×	×	×	×
		Up to 80,000		GS858	×	×	×	×	×
Ultra-High	Extra heavy crude oil, extreme viscosity, very hard to separate	Up to 120,000	GS758		×	×	×	×	×
		Up to 160,000	GS858	×	×	×	×	×	×

✓: Any separator model is suitable, provided it fits GSXXX: Minimum recommended separator model ×: Not recommended - exceeds separator capability

OPERATION AND PRODUCTION OPTIMIZATION

The GasAL is an optimized gas separator designed for oil/water applications including light oil, heavy foamy oil and gas well dewatering. The functionality of this type of gravity separator is highly dependent on the oil viscosity and ability of the gas to break out, coalesce into larger bubbles and rise up out of the separator to the casing annulus resulting in higher liquid percentage at the dip tube entry feeding the pump intake. There are numerous other variables that will affect separator functionality including flow rate, percentage of free gas, fluid level (intake pressure), inclination and casing size. Flow modeling is required to evaluate the potential effectiveness of the GasAL under accurate application conditions.