



### Produce from wells with up to 45% GLR

The SPECTRUM Gas Processing Unit (GPU) is a multi stage, mixed flow centrifugal pump that allows production of oil wells with high gas to liquid ratio (GLR) of up to 45% via Electrical Submersible Pumps (ESP).

A typical ESP installation, of radial or mixed flow design, is susceptible to the accumulation of gas on the low pressure side of the impeller vanes. The gas bubbles cause instability of flow with the efficiency and capacity of the pump worsening as the vane fills up with gas, eventually becoming completely blocked. The pump is no longer producing but the motors continue to operate; no cooling flow past the motors causes high temperature which is the primary mode of ESP failure. A gas separator can be used in many cases but for applications where the completion design does not allow for the venting of gas to the annulus, the multiphase fluid must be produced through the pump.

### Avoid downtime and deferred production

The SPECTRUM GPU has modified stages which act like a disperser to break up and redistribute large gas bubbles as they progress through the pump. The fluid is pressurized at each stage, pushing the free gas back into solution, bringing down the volume of fluid to within the operating range of the primary pump.

Wells that previously suffered from unstable production, high motor temperatures and gas locking can now be effectively produced, reducing downtime and the cost of deferred production.

The SPECTRUM GPU is available in four models across three series with a flow rate of up to 9,000 BPD. It is designed to be installed directly below a center tandem multi-stage pump and for very gassy applications it can also be installed above a single or tandem SPECTRUM vortex gas separator.

### APPLICATIONS

- High GLR wells that cannot be produced with gas separators
- Wells with non vented/deep-set packers
- Horizontal wells susceptible to gas accumulation
- Subsea oil wells
- Abrasive applications not suited to gas separators
- Extend operating range of HPS system
- Gas well dewatering
- Gas lift to ESP conversions

### BENEFITS

- Produce high GLR wells previously considered too gassy for ESP
- Achieve high drawdown & additional production
- Stable operation at low pump intake pressure
- Reduced cycling of ESP due to gas locking – enhanced ESP run life
- Abrasion resistant bearing design extends ESP run life due to added radial stability in shafts
- Abrasion resistant design allows for greater gas slug handling

### FEATURES

- HSS & Abrasion resistant configurations available

SERIES

400  
513  
538

**SPECIFICATIONS**

|   |                           |                              |                              |                               |
|---|---------------------------|------------------------------|------------------------------|-------------------------------|
| <b>Model</b>  | D20                       | G40                          | G70                          | E90                           |
| <b>Series</b>   | 400                       | 513                          | 513                          | 538                           |
| <b>OD, in (mm)</b>  | 4.00 (101.6)              | 5.13 (130.3)                 | 5.13 (130.3)                 | 5.38 (136.65)                 |
| <b>Length, ft (m)</b>   | 6.3 (1.92)                | 6.3 (1.92)                   | 6.3 (1.92)                   | 6.3 (1.92)                    |
| <b>Weight, lb (kg)</b>  | 135 (61)                  | 272 (123)                    | 272 (123)                    | 272 (123)                     |
| <b>Number of stages</b>   | 12                        | 25                           | 12                           | 18                            |
| <b>Power consumption @60Hz</b>  | 12                        | 38                           | 33                           | 57                            |
| <b>Housing material</b>   | Ferritic/carbon steel     | Ferritic/carbon steel        | Ferritic/carbon steel        | Ferritic/carbon steel         |
| <b>Shaft diameter, in (mm)</b>  | 0.688 (17.5)              | 1.00 (25.4)                  | 0.875 (22.23)                | 1.00 (25.4)                   |
| <b>Shaft rating, hp @ 60Hz</b>  | 200                       | 600                          | 400                          | 600                           |
| <b>Shaft bearing type</b>   | 2/3B                      | 3B                           | 3B                           | 3B                            |
| <b>Flowrate at intake conditions<br/>BPD (m<sup>3</sup>/d) @ 60Hz</b> | 500 - 2,000<br>(79 - 318) | 1,500 - 4,000<br>(199 - 530) | 3,500 - 7,000<br>(463 - 928) | 4,000 - 9,000<br>(530 - 1193) |