



GALAXY MAGNESIUM

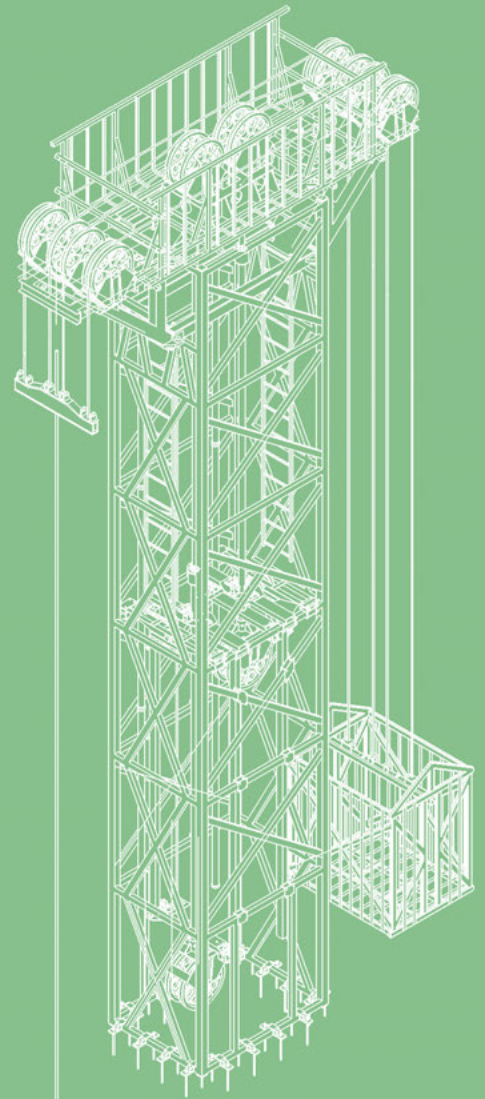


Galaxy Power

**GRAVITY BALANCE
VERTICAL TOWER
HYDRAULIC
PUMPING UNIT**

GVH-MgOPT1000

Transforming energy production systems
with efficient, cost saving, advanced
environmental technology and components.



Galaxy Power: a Division of Galaxy Trade and Technology
www.galaxymagnesium.com

The **Galaxy Power GVH-MgOPT1000** (vertical tower type gravity balance hydraulic pumping unit) is adapted for viscous oil well production needs worldwide and is a new **energy-saving** sucker rod pump design. This system incorporates high-quality hydraulic elements, multiple production accessories, an overall structure that is advanced, competitively priced, reliable, and easy to repair and maintain. The unit conforms to International GB3766-87 General Technical Standards for a Hydraulic System. The hydraulic system adopts a fully enclosed structure with an oil tank. An electronic system is specifically designed and manufactured for this unit which includes pump station and hydraulic controls.

The **GVH-MgOPT1000** station consists of a fuel tank, a pump motor system, and auxiliary parts. The electric box components are made of ABB, Schneider, Siemens, Wade Miller, and other superior international brands. The complete system is manufactured to meet the design, performance, and production requirements for worldwide oil field environments.



GENERAL DESCRIPTIONS

- ✔ One Year Warranty on Parts and Repair
- ✔ Product Design Life:15 years
- ✔ Adjustable Production Output
- ✔ Equipment Frame: Q345 steel
- ✔ Compared with the traditional lift systems, **GVH-MgOPT1000** can save more than 50% in energy
- ✔ Deployed currently in multiple international sites
- ✔ **GVH-MgOPT1000** is a tower type long bidirectional hydraulic process unit designed for use in high-yield wells, heavy oil and deep wells
- ✔ The **GVH-MgOPT1000** shipping weight is (14) fourteen tonnes requiring two shipping containers (40ft and 20ft)
- ✔ Assembly by the buyer can be completed according to the detailed Instruction Manual. The recommendation is that the manufacturer assemble the initial units onsite and provide training for the customer



CASE STUDY

In Kazakhstan crude oil was pumped using traditional ALS systems that produced just over 500 Bbl. (80 cubic meters) of product per day.

The **GVH-MgOPT1000** hydraulic pumping unit produced over 650 Bbl. (104 cubic meters) of product per day, the original actual ALS power consumption was 15KW, and the **GVH-MgOPT1000** hydraulic pumping unit actually consumed 6KW.

STRUCTURAL/ OPERATIONAL CHARACTERISTICS

- ✔ The motor seat and the oil pump are mounted in one body so that the oil pump has advantages of good self-priming, heat dissipation and convenient maintenance.
- ✔ Air coolers provide temperature control for the hydraulic oils.

TECHNICAL PARAMETERS

Hydraulic system working pressure:	Pmax=12Mpa
Pump flow:	70x2L/Min (1 with 1 standby)
Motor power:	15KW x 2 (1 with 1 standby)
Power:	380V50HZ
Oil tank volume:	650L
Normal operating temperature for the system oil:	30°C≥T≤50°C 7
Working media:	No. 46 anti-wear hydraulic oil
Cleanliness requirements for normal work:	NAS1638-1946 Standard Level7



PERFORMANCE CHARACTERISTICS

LONG STROKE

There are 8 meters +/- of stroke utilizing a proximity switch control electromagnetic reversing valve that reverses the sucker rod. The stroke length can be changed by adjusting the proximity switch position.

LOW FREQUENCY OF STROKE

Long stroke frequency decreases automatically so that product flow is kept constant. In addition to pump flow the stroke frequency can easily be changed. Low frequency of stroke can be maintained during periods of low flow.

MOTOR PERFORMS

The motor performs no-load starting and the starting current is minimal.

SHUTDOWN IS INERTIALESS

Hydraulic lock function enables the oil pumping rod to stop with stability at any arbitrary position of a stroke.



POWER

The local power factor compensation device equipped can make the power factor more than 0.95.

SHORT STAY

The bottom dead center can take a short stay so as to improve the oil pumping technology.

LONGER LIFE

A double-motor group works in turns enabling extended life.

SAFETY MEASURES

Include the supporting functions of overload, rope breaking, unit turn-over and well head breaking.

ONE DIRECTION

The drive motor always runs in one direction with constant load operation and stable working current.

INTERMITTENT PUMPING FUNCTION.

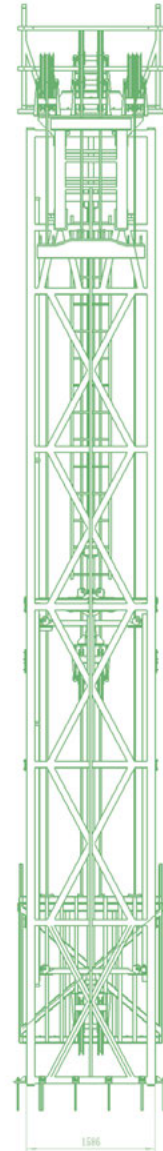
A BREAKDOWN WIRELESS ALARM FUNCTION.

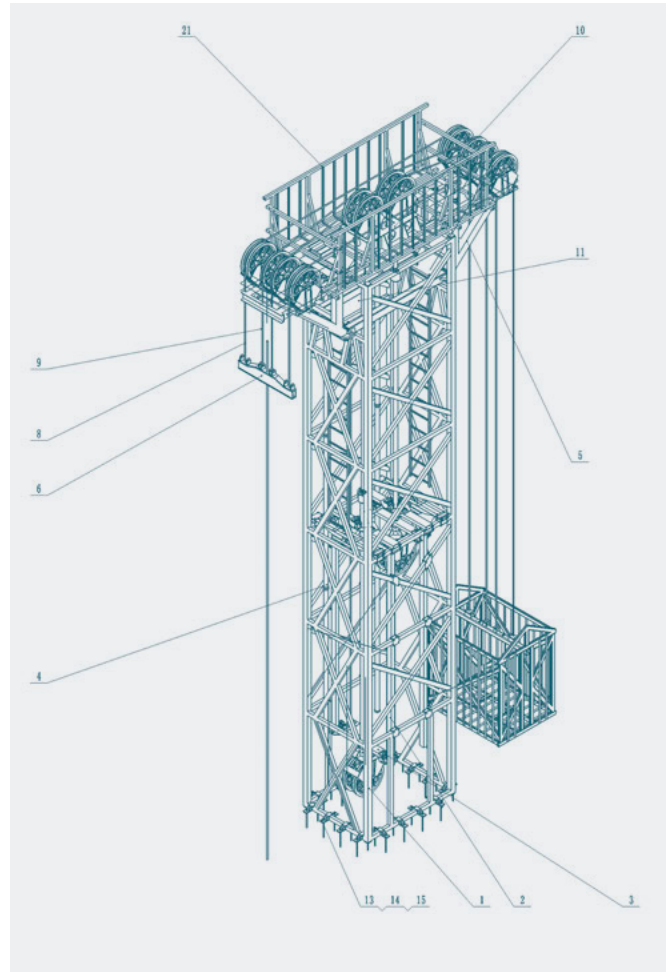
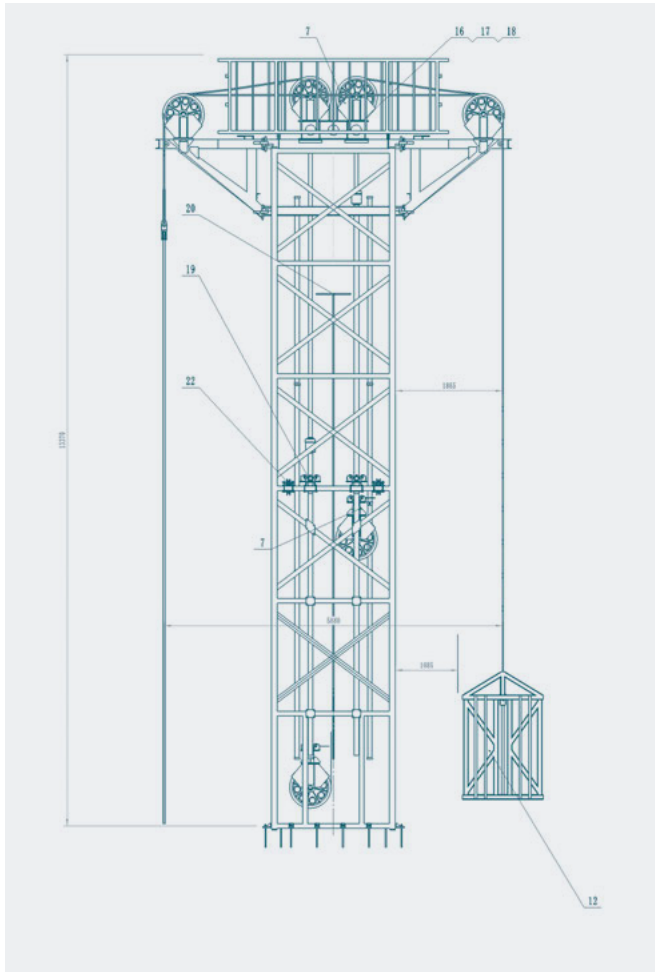
ELECTRONIC

- ✔ This hydraulic system is an integrated structure; the main circuit components and control loop touch screen are installed in the AP cabinet, with the advantages of compact structure, good heat radiation performance, simple operation, reliable control, and easy maintenance.
- ✔ The system utilizes a pump motor group and a two circuit switch at any time to improve reliability and service life.
- ✔ The system uses PLC control of ABB series and its main circuit ABB, Schnerder and other components, and features compact structure, high reliability, simple and reliable control, and convenient maintenance.
- ✔ The main electrical circuits of this system use star delta reduced-voltage startup and signal detecting components all take one with a preparation method to ensure the reliability of the system.

ELECTRICAL TECHNICAL PARAMETERS

Rated working pressure:	P=8Mpa
Main pump motor power:	Two sets 15kw-4 (one with a standby)
Fan cooled motor power:	One set 1.1kw-4
Power supply voltage:	380V/50HZ
Detecting element power supply voltage:	24VDC
Application environment:	Indoor environment
Environment temperature:	-30°C---60°C





01. Frame Weldment	
02. Rail Mechanism	
03. Cylinder-Slide Assembly	
04. Pressure Oil Pipe Assembly	
05. Tripod Assembly	
06. Cattle Handle Assembly	
07. Double Pulley Assembly	
08. Counterweight Wire Rope	20 Meters
09. Drive Wire Rope	50 Meters
10. Cover Weldment	
11. Steel Wire Rope	Diameter 16cm

12. Counterweight Blue Assembly components	
13. Ground Bolt, Hexagon Nut Grade-C	
14. Ground Bolt, Hexagon Nut Grade-C	
15. Ground Bolt, Hexagon Nut Grade-C	
16. Hexagon Headed Bolt	
17. Hexagon Headed Bolt	
18. Flat Washer(s)	
19. Guide	
20. Oil Drainpipe	
21. Guardrail	

See Full Design and Table of Components at galaxymagnesium.com/power

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VERTICAL TOWER TYPE HYDRAULIC TOWER LONG-STROKE PUMPING UNIT

Model Series: GVHTTLS

Five Product Configurations

General Description:

Tower Type Hydraulic Long-Stroke Pumping Units. Beam-Free with Steel Cable Traction, Hydraulic Drive, and Gravity Balance.



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PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GVHTTLS	GVHTTLS 12-8-200L1.6	GVHTTLS 16-8-200L2.6	GVHTTLS 20-8-225M6	GVHTTLS 24-8-250M.6	GVHTTLS 28-8-280S.6
PARAMETER					
Suspension Point Power / kN	120	160	200	240	280
Maximum Stroke Length / M	8	8	8	8	8
Maximum Stroke Frequency / Min (Max Stroke)	2	2	2	2	2
ELECTRIC MOTOR					
Rotating Speed r/ min	970	970	980	980	980
Power / kw	18.5	22	30	37	45



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VERTICAL HYDRAULIC TOWER SHORT-STROKE PUMP

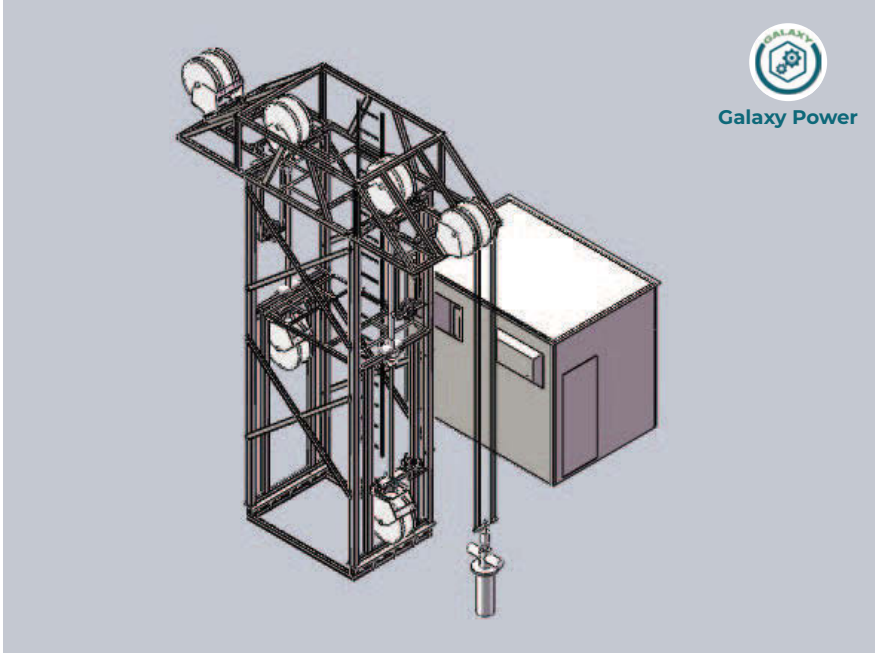
Model Series: GVHTTSS

Four Product Configurations

General Description:

Tower-Type Hydraulic Short Stroke Pumping Units.

Beam-Free with Steel Cable Traction, Hydraulic Drive and Gravity Balance.



PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GVHTTSS	GVHTTSS 6-4.5-160M.6	GVHTTSS 10-4.5-160L.6	GVHTTSS 12-4.5-180L.6	GVHTTSS 614-4.5-200L1.6
PARAMETER				
Suspension Point Power / kN	60	100	120	140
Maximum Stroke Length / M	4.5	4.5	4.5	4.5
Maximum Stroke Frequency / Min (Max Stroke)	2.5	2.5	3	3
ELECTRIC MOTOR				
Rotating Speed r/ min	970	970	970	970
Power / kw	7.5	11	15	18.5



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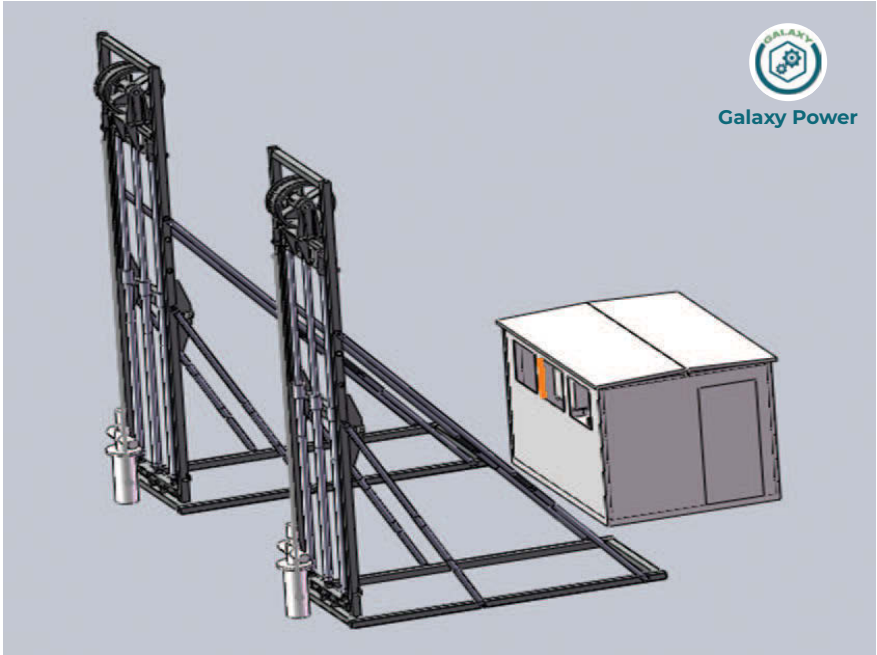
FRAME TYPE (GANTRY) HYDRAULIC PUMP

Model Series: **GVHFTDW**

Six Product Configurations

General Description:

Frame Type (Gantry)
Hydraulic Pumping Units.
L-Shape Frame Type
Beam-Free Pumping
Unit. Features Steel Cable
Traction, Hydraulic Drive
and Gravity Balance for
Dual Wells.



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PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GVHFTDW	GVHFTDW 4-3.6-60M.6	GVHFTDW 6-3.6-160L.6	GVHFTDW 8-5-200L2.6	GVHFTDW 10-5-225M.6	GVHFTDW 12-6-250M.6	GVHFTDW 14-6-250M.6
PARAMETER						
Suspension Point Power / kN	40	60	80	100	120	140
Maximum Stroke Length / M	3.6	3.6	5	5	6	6
Maximum Stroke Frequency / Min (Max Stroke)	2.6	2.6	3	3	2.5	2.1
ELECTRIC MOTOR						
Rotating Speed r/ min	970	970	970	980	980	980
Power / kw	7.5	11	15	30	37	37



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BEAM-TYPE HYDRAULIC DRIVE PUMP

Model Series: **GBTHDW**

Four Product Configurations

General Description:

Beam-Type Hydraulic Drive Pumping Units.

Existing Rod Pumping Unit Conversion or New Well Unit Installations.

Dual Well Configuration.



PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GBTHDW	GBTHDW 6-3-160M.6	GBTHDW 10-3.4-160L.6	GBTHDW 12-4.2-200L2.6	GBTHDW 14-4.5-200L2.6
PARAMETER				
Suspension Point Power / kN	60	100	120	140
Maximum Stroke Length / M	3	3.4	4.2	4.5
Maximum Stroke Frequency / Min (Max Stroke)	5	3.5	3	3
ELECTRIC MOTOR				
Rotating Speed r/ min	970	970	970	970
Power / kw	7.5	11	15	18.5



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VERTICAL HYDRAULIC PUMP-DUO CYLINDER WITH WELLHEAD FLANGE FOR TWO WELLS

Model Series: GVPDCF

Two Product Configurations

General Description:

Vertical Hydraulic Pumping Units with Wellhead Flange Installation.

Beam Free Hydraulic Drive and Hydraulic Balance Units with Flange Installation and Dual Cylinders. One Station with Two Wells.



PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GVPDCF	GVPDCF 3-1.2FST-90L.6	GVPDCF 5-1.5FST-112M.6
PARAMETER		
Suspension Point Power / kN	30	50
Maximum Stroke Length / M	1.2	1.5
Maximum Stroke Frequency / Min (Max Stroke)	4.5	4.5
ELECTRIC MOTOR		
Rotating Speed r/ min	910	940
Power / kw	1.1	2.2



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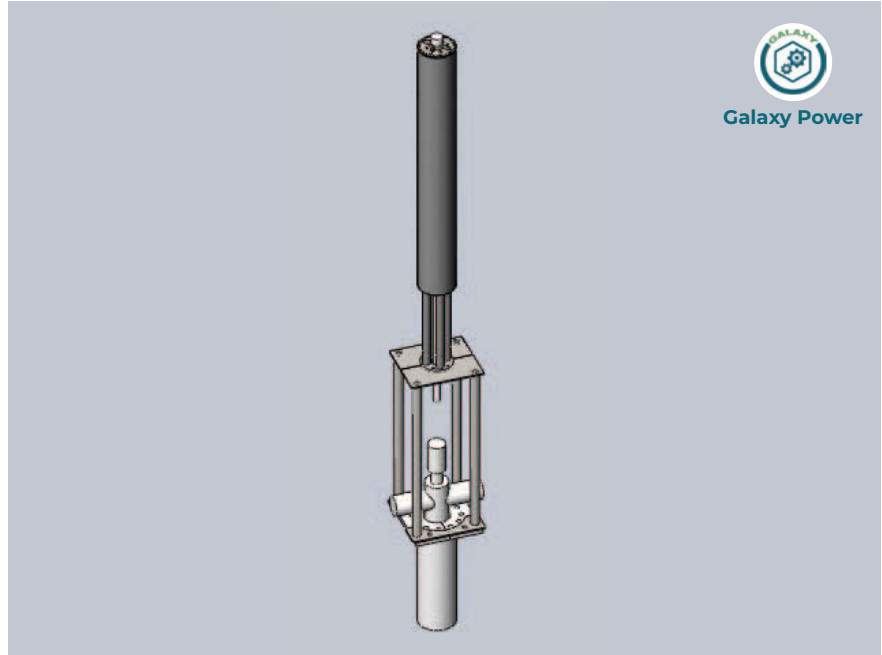
WELLHEAD VERTICAL HYDRAULIC PUMP

Model Series: **GHBVPF**

Four Product Configurations

General Description:

Beam-Free Hydraulic Drive and Hydraulic Balance Pumping Units with Flange Installations and Dual Cylinders. One Station Two Wells.



PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GHBVPF	GHBVPF6-1.5 (FSG)	GHBVPF6-1.5 (FSG)	GHBVPF 7-1.5 (FSG)	GHBVPF76-1.5 (FSG)
PARAMETER				
Suspension Point Power / kN	6	6	7	7
Maximum Stroke Length / M	1.5	1.5	1.5	1.5
Maximum Stroke Frequency / Min (Max Stroke)	2.5	4	2.5	4
ELECTRIC MOTOR				
Power / kw min	2.2	4	3	5
Liquid Production Cubic Meters/ Day Pump Diameter 38MM	4.3	6.9	4.3	6.9
Liquid Production Cubic Meters/ Day Pump Diameter 44MM	6.1	9.7	6.1	9.7



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HYDRAULIC BALANCER FOR ADJUSTABLE BEAM TYPE PUMPS

Model Series: **GHPB**

Six Product Configurations

General Description:

Hydraulic Balancer for Adjustable Beam Type Pumping Units.



PRODUCT SERIES CONFIGURATIONS AND OPERATIONAL SPECIFICATIONS

GHPB	GVHFTDW 4-3.6-60M.6	GVHFTDW 6-3.6-160L.6	GVHFTDW 8-5-200L2.6	GVHFTDW 10-5-225M.6	GVHFTDW 12-6-250M.6	GVHFTDW 14-6-250M.6
PARAMETER						
Suspension Point Power / kN	40	60	80	100	120	140
Stroke Length / M	1.5	1.5	2.3	2.3	3.6	3.6
Cylinder Stroke / M	0.75	0.75	1.15	1.15	1.8	1.8
Accumulator / L	2x10	2x16	2x40	2x40	2x63	2x63



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