

# LOW-COST BRONZE GEAR PUMPS



FPUGR100 Series Starts at

**\$533**



- ✓ Suitable for Pumping Water, Oils and Select Solvents
- ✓ Outputs a Relatively Constant Flow Rate Regardless of Outlet Pressure
- ✓ FPUGR100 Series Handles Fluids up to 500 SSU Viscosity and FPUGR200 Series up to 100,000 SSU (with Proper Motor)

The FPUGR100 and FPUGR200 Series positive displacement pumps output a relatively constant flow rate regardless of outlet pressure, providing an almost pulsation-free flow. Pumps are self-priming up to 6 m (20') dry with new gears; however, running the pump dry will substantially decrease gear life.

The FPUGR100 and FPUGR200 Series feature Buna (FKM optional) zero-leakage lip seals. To protect against excessive back pressure,

order a model with a built-in relief valve (models with “-R” suffix); otherwise, a blocked discharge line can raise back pressure and damage in-line components or the pump.

The valves can be adjustable to open at a preselected pressure.

*Note: The relief valve is only a safety device; it cannot be used as a pressure or flow control device.*

**CAUTION: LIQUIDS CONTAINING SOLIDS ARE NOT RECOMMENDED FOR USE WITH GEAR PUMPS**

The FPUGR100 Series feature self-lubricating bronze gears and carbon-graphite bearings, making the FPUGR100 pumps ideal for non-lubricating liquids such as water and certain solvents.

All FPUGR100 motors are continuous duty for 60 Hz Vac, feature open drip-proof enclosures, operate at 1725 rpm. For 115/230 Vac units, the customer must rewire the power cord and a suitable plug for 230 Vac. The 230/460 Vac units must be hard-wired by the customer.

The FPUGR100 Series are limited to operating with fluids having 500 SSU (100 SSU for the FPGR109 series) maximum viscosity.

FPUGR200 Series pedestal pumps require user-supplied motors (up to 1725 rpm max) and can be used with fluids having up to 100,000 SSU

viscosity with the proper motor. Gear pump motor rpm must be reduced when pumping viscous liquids (refer to Speed Reduction Table), and horsepower must be increased over that which would be required for pumping water (33 SSU). Use the Multipliers for HP Table and multiply by the water horsepower (from the Performance Table) to arrive at the viscous horsepower (see “determining required horse power for viscous liquid” example following the Tables).

The FPUGR200 is used for non-lubricating liquids such as water or solvents; carbon-graphite bearings (models with suffix “-CB”) are standard.

## SPECIFICATIONS

**Wetted Parts:** Bronze gears, 303SS shaft, Buna lip seal (FKM optional), carbon-graphite bearings (standard on FPUGR100/200 Series)

**Max Pressure:** 100 psig; FPUGR109 and FPUGR206 limited to 50 psig for water and low viscosity liquids

### Temperature Range:

**Buna (Nitrile):** -54 to 121°C (-65 to 250°F)

**FKM (Optional):** -40 to 149°C (-40 to 300°F)

### Maximum Viscosity (SSU):

FPUGR101 thru FPUGR108: 500; FPUGR109: 100; FPUGR200 Series 100,000 with 200 rpm motor speed

FPUGR105, \$576.

FPUGR202-CB, \$215.

FPUGR202-RCB, \$246.

FPUGR105-R, \$609.

Shown much smaller than actual size.





Cutaway view of the FPUGR100/200 Series gear pump heads.



FPUGR105-R, \$609, shown much smaller than actual size.



FPUGR105, \$576, shown much smaller than actual size.

**FPUGR100 Close-Coupled Gear Pumps (Supplied with Motors)**

**MOST POPULAR MODELS HIGHLIGHTED!**

**To Order (Specify Model Number)**

Model No.	Price	Flow Rate (GPM Water)		Relief Valve	Motor HP	Volts	Phase	Port Size NPT(F)	Shipping Weight kg (lb)	Overall Dim. H x W x L (in)
		0 psi	100 psi							
FPUGR101	\$577	0.9	0.61	No	¼	115/230	1	¼"	7.7 (17)	6 x 6 x 14
FPUGR101-R	623	0.9	0.61	Yes	¼	115/230	1	¼"	7.7 (17)	6 x 6 x 14
FPUGR102	533	2.1	1.5	No	⅓	115	1	¼"	7.7 (17)	6 x 6 x 14
FPUGR102-R	575	2.1	1.5	Yes	⅓	115	1	¼"	8.2 (18)	6 x 6 x 14
FPUGR103	622	2.1	1.5	No	½	115/230	1	¼"	7.7 (17)	6 x 6 x 14
FPUGR103-R	680	2.1	1.5	Yes	½	115/230	1	¼"	8.2 (18)	6 x 6 x 14
FPUGR104	667	2.1	1.5	No	⅓	230/460	3	¼"	7.7 (17)	6 x 6 x 14
FPUGR104-R	695	2.1	1.5	Yes	⅓	230/460	3	¼"	8.2 (18)	6 x 6 x 14
FPUGR105	576	4.0	3.0	No	⅓	115	1	⅜"	8.6 (19)	6 x 6 x 14
FPUGR105-R	609	4.0	3.0	Yes	⅓	115	1	⅜"	8.7 (19.5)	6 x 6 x 14
FPUGR106	697	4.0	3.0	No	⅓	230/460	3	⅜"	10 (22)	6 x 6 x 14
FPUGR106-R	727	4.0	3.0	Yes	⅓	230/460	3	⅜"	10.2 (22.5)	6 x 6 x 14
FPUGR107	673	4.0	3.0	No	½	115/230	1	⅜"	10.5 (23)	6 x 6 x 14
FPUGR107-R	716	4.0	3.0	Yes	½	115/230	1	⅜"	10.7 (23.5)	6 x 6 x 14
FPUGR108	1164	10.5	9.4	No	2	230/460	3	½"	24.5 (54)	7 x 9 x 18
FPUGR108-R	1239	10.5	9.4	Yes	2	230/460	3	½"	25 (55)	7 x 9 x 20
FPUGR109	1629	23.0	—	No	3	230/460	3	1"	28.6 (63)	9 x 10 x 22
FPUGR109-R	1702	23.0	—	Yes	3	230/460	3	1"	29 (64)	9 x 10 x 24

Comes complete with gear pump head, motor, and operator's manual. For units with FKM lip seals, add suffix "-VT" to model number and consult OMEGA's Flow Engineering Department for price.

Ordering Example: FPUGR107-R, close-coupled gear pump with ½ HP, 115/230 dual-voltage single-phase motor, ⅜" FNPT port, and relief valve, \$716.

# Gear Pump Heads

Shown smaller than actual size.

FPUGR202-RCB, \$246.

FPUGR202-CB, \$215.

## Performance Table (For FPUGR200 Series)\*

Model No.	0 psi		50 psi		100 psi		150 psi	
	GPM	HP	GPM	HP	GPM	HP	GPM	HP
FPUGR201/201-R	2.10	0.05	1.80	0.17	1.50	0.28	1.20	0.39
FPUGR202/202-R	4.07	0.10	3.55	0.25	3.03	0.43	2.50	0.68
FPUGR203/203-R	7.25	0.38	6.63	0.73	6.00	1.10	5.50	1.40
FPUGR204/204-R	10.6	0.50	9.97	1.05	9.42	1.75	9.00	2.32
FPUGR205/205-R	19.8	0.80	18.9	1.63	18.0	2.65	17.4	3.60
FPUGR206/206-R	23.3	0.90	22.3	1.73	21.3**	2.70**	20.1**	3.70**

\*Recommended HP listed in this chart is for pumping water (viscosity 33 SSU) with a 1725 rpm motor. Liquids of higher viscosities require lower shaft speed, higher horsepower, and inlet/outlet piping must be at least one, and preferably two, sizes larger than the pump ports. Refer to Speed Reduction Table and Multipliers for HP Table.

\*\*Not recommended for pumping water at these pressures.

## Multipliers for HP Table (FPUGR200 Series)

Pressure psi	Viscosity (SSU)					
	500	1000	5000	10,000	50,000	100,000
2	1.30	1.60	2.20	3.00	4.00	5.00
20	1.25	1.50	2.00	2.60	3.60	4.50
40	1.20	1.40	1.80	2.20	3.20	4.00
60	1.15	1.30	1.60	2.05	2.80	3.50
80	1.12	1.25	1.50	1.90	2.50	3.00
100	1.10	1.20	1.40	1.80	2.20	2.50

## Speed Reduction Table (FPUGR200 Series)

Viscosity SSU	Recommended Speed (RPM)
50	1725
500	1500
1000	1300
5000	1000
10,000	600
50,000	400
100,000	200

FPUGR200 Pedestal Pump Heads (Require User-Supplied Motors to 1725 RPM Max)\*\* MOST POPULAR MODELS HIGHLIGHTED!

## To Order (Specify Model Number)

Model No.	Price	Relief Valve	Port Size NPT(F)	Shp Wt (kg) lb	Overall Dim H x W x L (in)	Shaft Dia x Center Line
FPUGR201-CB	\$187	No	1/8"	(3) 1.4	3 x 3 x 8	1/2 x 1.88
FPUGR201-RCB	222	Yes	1/8"	(3) 1.4	3 x 3 x 7	1/2 x 1.88
FPUGR202-CB	215	No	1/4"	(4) 1.8	4 x 3 x 6	1/2 x 2.36
FPUGR202-RCB	246	Yes	1/4"	(5) 2.3	4 x 3 x 7	1/2 x 2.36
FPUGR203-CB	303	No	3/8"	(6) 2.7	4 x 4 x 7	5/8 x 2.63
FPUGR203-RCB	335	Yes	3/8"	(7) 3.2	4 x 4 x 8	5/8 x 2.63
FPUGR204-CB	319	No	1/2"	(7) 3.2	4 x 4 x 7	5/8 x 2.63
FPUGR204-RCB	366	Yes	1/2"	(8) 3.6	4 x 4 x 9	5/8 x 2.63
FPUGR205-CB	405	No	3/4"	(10) 4.5	5 x 4 x 7	5/8 x 3.56
FPUGR205-RCB	487	Yes	3/4"	(11) 5	5 x 4 x 9	5/8 x 3.56
FPUGR206-CB	447	No	1"	(11) 5	5 x 4 x 7	5/8 x 3.56
FPUGR206-RCB	522	Yes	1"	(12) 5.5	5 x 4 x 9	5/8 x 3.56

Comes complete with operator's manual.

\*\* Refer to Performance Table above for recommended horsepower (HP) and flow rate (GPM) information. Standard units come with carbon bearings which require no lubrication. For units with FKM lip seals, add suffix "-VT" to model number and consult sales department for price.

Recommended Reference Book: Water Pumps and Pumping Systems, ES-2256, \$125. See Section Y for Additional Books.



## EXAMPLE: Determining the required horsepower for a viscous liquid:

Gear pump motor rpm must be reduced when pumping viscous liquids, and horsepower must be increased over the amount of horsepower required for pumping water (33 SSU), and inlet/outlet piping must be at least one, preferably two, sizes larger than the pump ports. Use the Multipliers for HP Table and multiply by the water horsepower (from Performance Table) to arrive at the viscous horsepower.

**FPUGR204**, 40 PSI, 1000 SSU; water HP from Performance Chart is 1.05 HP.

Therefore; viscous HP is 1.05 x 1.4 (from Multiplier Table) = 1.5 HP.

**FPUGR204-RCB** is a gear pump head with relief valve, **\$366**.



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