Hydra-Cell® Seal-less Pumps

Versatile, Reliable Pumps for a Wide Range of Applications

G20 Series

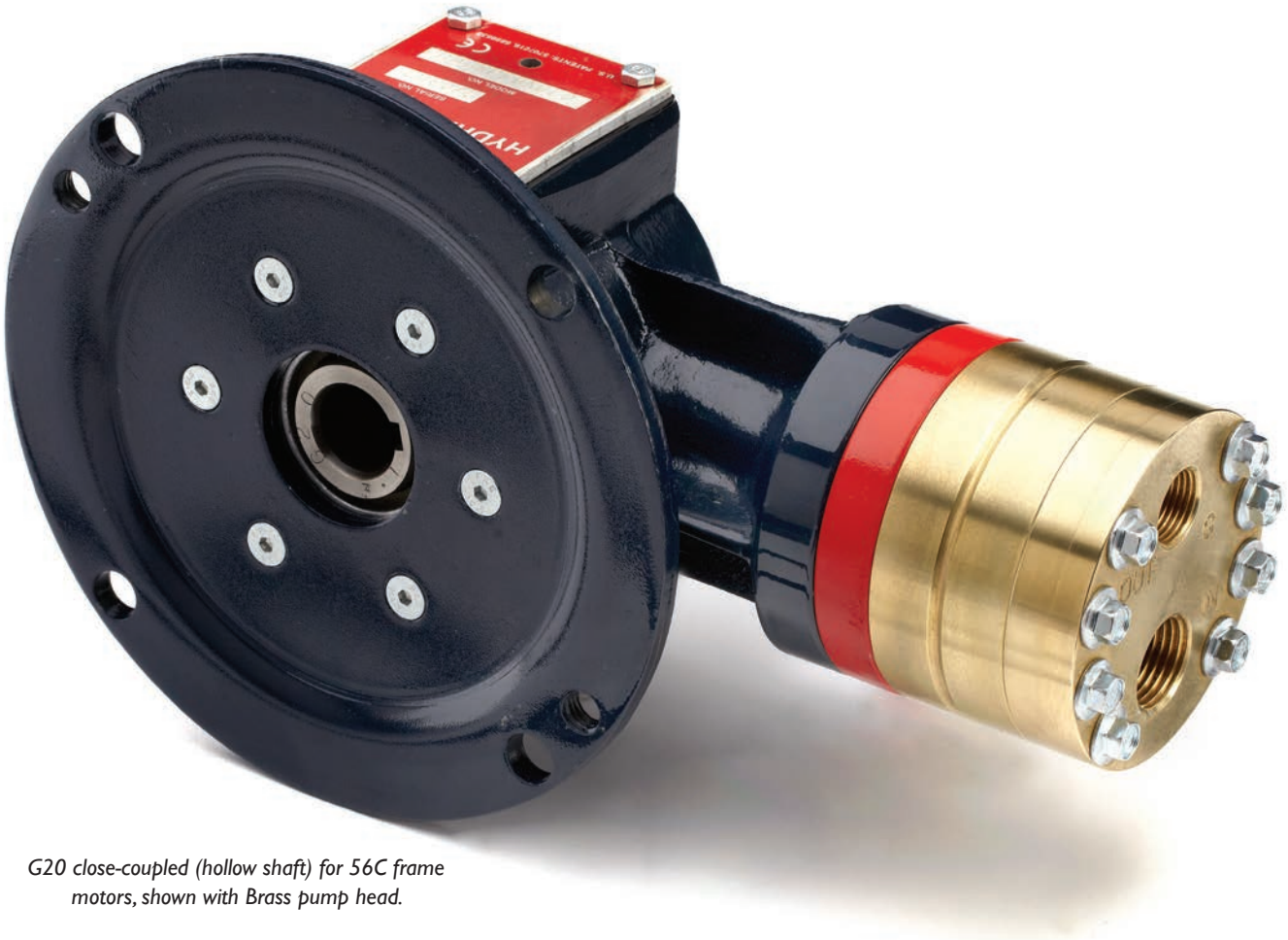
- Pumps the full spectrum of low-to-high viscosity fluids.
- Features a seal-less design and horizontal disk check valves that enable the pump to handle abrasives and particulates that might damage or destroy other types of pumps.
- Simple, compact design reduces initial investment and lowers maintenance costs.
- Operational efficiencies reduce energy costs.
- Tolerates non-ideal operating conditions.
- Minimizes maintenance and downtime because there are no mechanical or dynamic seals, packing, or cups to leak, wear, or replace.

Wanner Engineering, Inc.

G20 Series

Maximum Flow Rate: 1.0 gpm (3.8 l/min)

Maximum Pressure: 1500 psi (103 bar) for Metallic Pump Heads
350 psi (24 bar) for Non-metallic Pump Heads



G20 close-coupled (hollow shaft) for 56C frame motors, shown with Brass pump head.

G21 external shaft-driven with Polypropylene pump head.

G22 flexible-coupled to 56C, 142TC, and 145TC frame motors, shown with 316L Stainless Steel pump head.

G20 Series Performance

Capacities

Flow

Model	Max. Input rpm	Max. Flow @ 1000 psi (69 bar) gpm	l/min
G20-X	1750	1.01	3.82
G20-E	1750	0.71	2.69
G20-S	1750	0.56	2.12
G20-B	1750	0.31	1.17
G20-G	1750	0.20	0.76

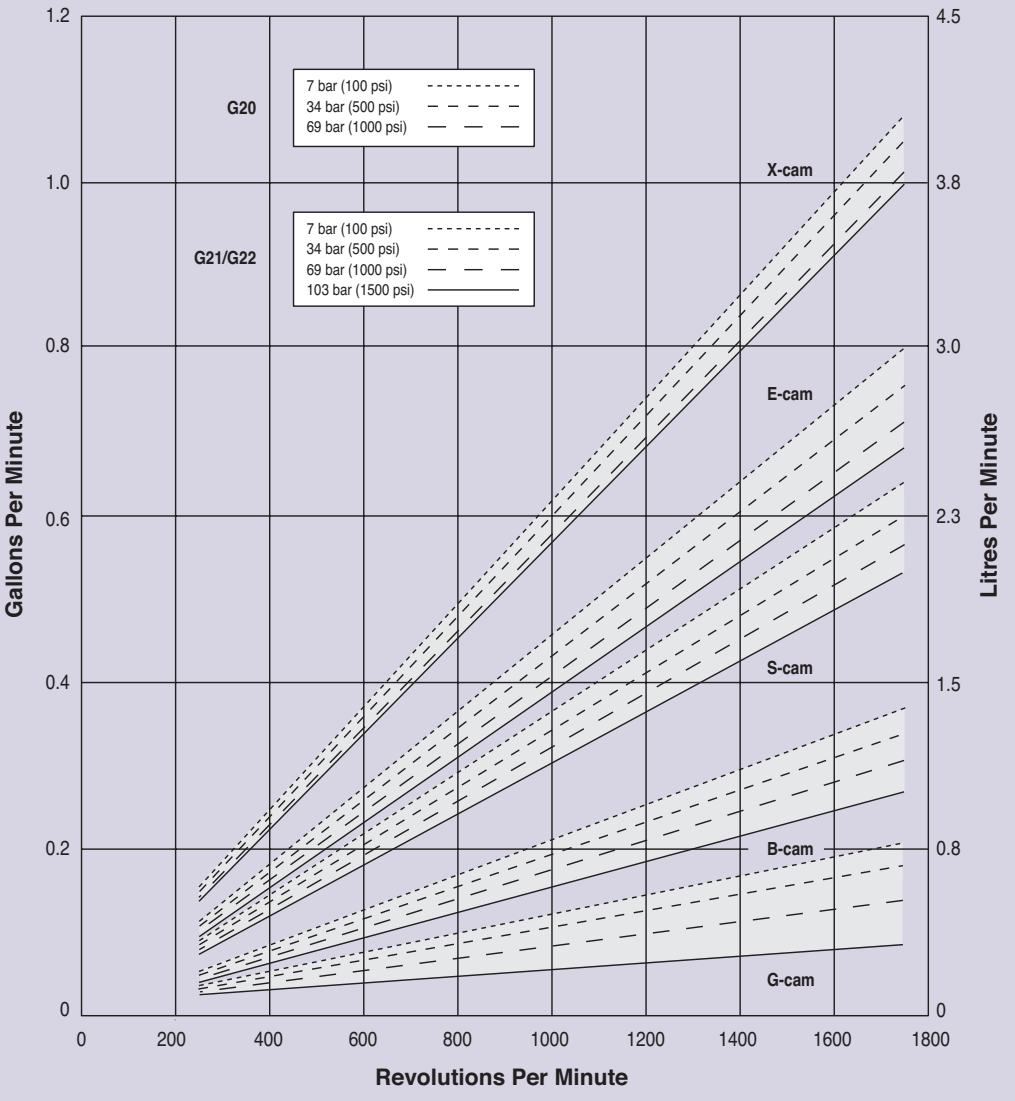
Pressure

Maximum Inlet Pressure
250 psi (17 bar)

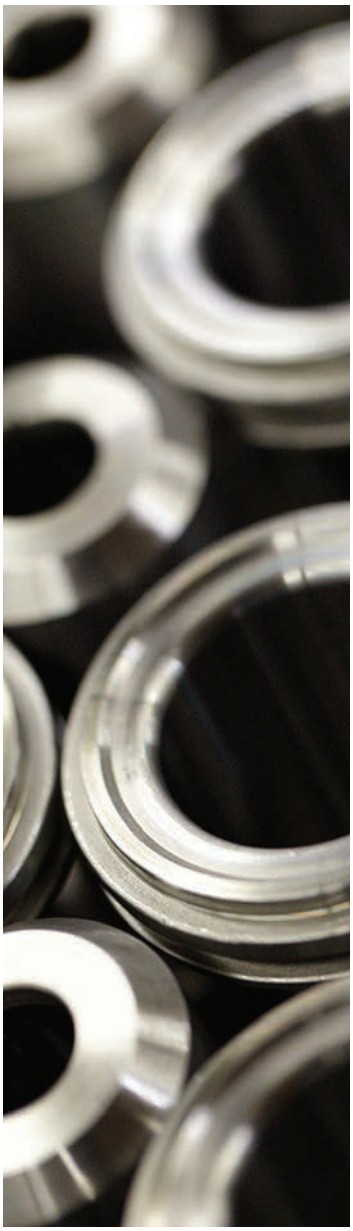
Maximum Discharge Pressure
Metallic Pump Heads:
G20 to 1000 psi (69 bar)
G21 to 1500 psi (103 bar)
G22 to 1500 psi (103 bar)
Non-metallic Pump Heads:
250 psi (17 bar) Polypropylene
350 psi (24 bar) PVDF

Performance and specification ratings apply to G20, G21 and G22 configurations unless specifically noted otherwise.

Maximum Flow at Designated Pressure



S, B & G cam options based on 10 psi (0.7 bar) inlet pressure.



G20 Series Specifications

Flow Capacities @ 69 bar (1000 psi) 4-pole Motor @ 50 Hz

Model	rpm	gpm	l/min
G20-X	1450	0.83	3.14
G20-E	1450	0.60	2.29
G20-S	1450	0.45	1.72
G20-B	1450	0.27	1.03
G20-G	1450	0.16	0.63

Flow Capacities @ 69 bar (1000 psi) 6-pole Motor @ 50 Hz

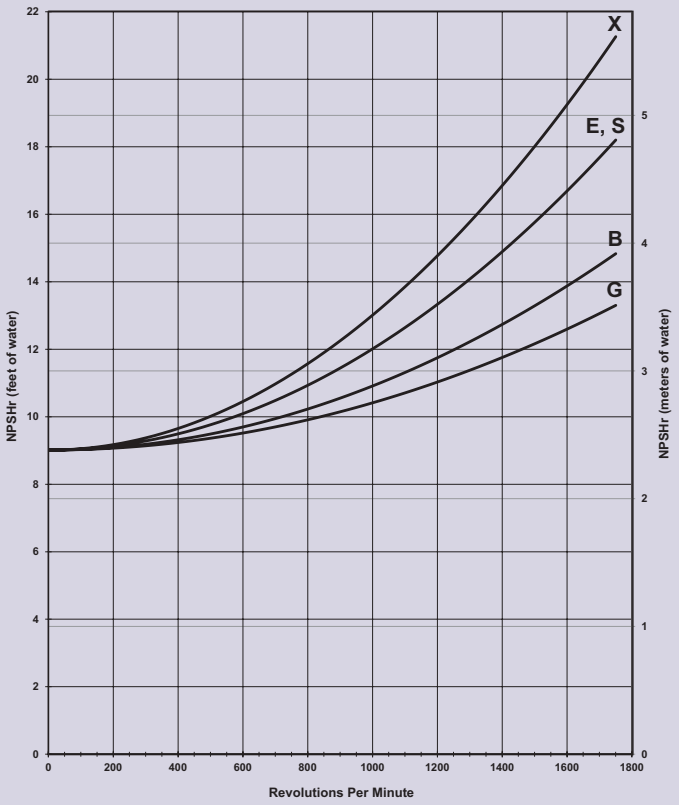
Model	rpm	gpm	l/min
G20-X	960	0.55	2.08
G20-E	960	0.40	1.51
G20-S	960	0.30	1.14
G20-B	960	0.18	0.68
G20-G	960	0.10	0.41

Delivery @ 69 bar (1000 psi)

Model	gal/rev	liters/rev
G20-X	0.0006	0.0022
G20-E	0.0004	0.0015
G20-S	0.0003	0.0012
G20-B	0.0002	0.0007
G20-G	0.0001	0.0004

Maximum Discharge Pressure	
Metallic Heads:	G20 to 69 bar (1000 psi) G21 to 103 bar (1500 psi) G22 to 103 bar (1500 psi)
Non-metallic Heads:	17 bar (250 psi) Polypropylene 24 bar (350 psi) PVDF
Maximum Inlet Pressure	17 bar (250 psi)
Maximum Operating Temperature	
Metallic Heads:	121 °C (250 °F) - Consult factory for correct component selection for temperatures from 71 °C (160 °F) to 121 °C (250 °F).
Non-metallic Heads:	60 °C (140 °F)
Maximum Solids Size	200 microns
Inlet Port	1/2 inch BSPT 1/2 inch NPT
Discharge Port	3/8 inch BSPT 3/8 inch NPT
Shaft Diameter	G20: 15.9 mm hollow shaft G21 & G22: 15.9 mm (5/8 inch)
Shaft Rotation	Reverse (bi-directional)
Bearings	Precision ball bearings
Oil Capacity	0.12 liters (0.125 US quart)
Weight	
Metallic Heads:	5.5 kg (12 lbs.)
Non-metallic Heads:	4.1 kg (9 lbs.)

Net Positive Suction Head (NPSHr)



Positive inlet pressure required for:

A) All pumps with PTFE diaphragms

B) Pumps with B-cam or G-cam (consult factory)

Suction Lift:

Each Hydra-Cell pump has different lift capability depending on model size, cam angle, speed, and fluid characteristics. To ensure that your specific lift characteristics are met, refer to the inlet calculations regarding friction, and acceleration head losses in your Hydra-Cell Installation & Service Manual. Compare those calculations to the NPSHr curves above.

Calculating Required Power

$$\frac{\text{rpm} + 1000}{7000} + \frac{\text{gpm} \times \text{psi}}{1{,}460} = \text{electric motor hp}$$

$$\frac{\text{rpm} + 1000}{9383} + \frac{\text{l/min} \times \text{bar}}{511} = \text{electric motor kW}$$

When using a variable frequency drive (VFD) controller calculate the hp or kW at minimum and maximum pump speed to ensure the correct hp or kW motor is selected. Note that motor manufacturers typically de-rate the service factor to 1.0 when operating with a VFD.

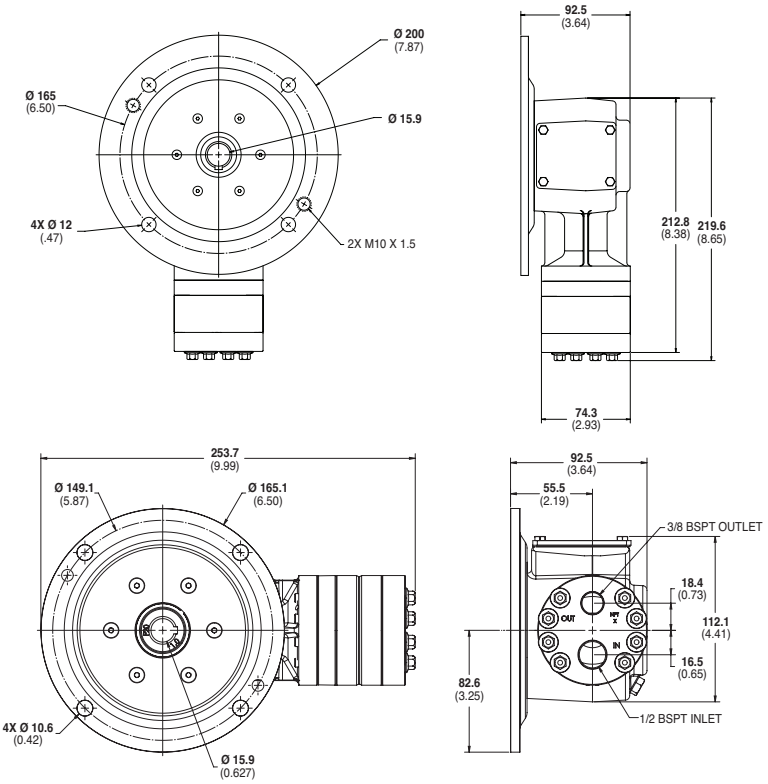
Calculating Pulley Size

$$\frac{\text{motor pulley OD}}{\text{pump rpm}} = \frac{\text{pump pulley OD}}{\text{motor rpm}}$$

G20 Series Representative Drawings

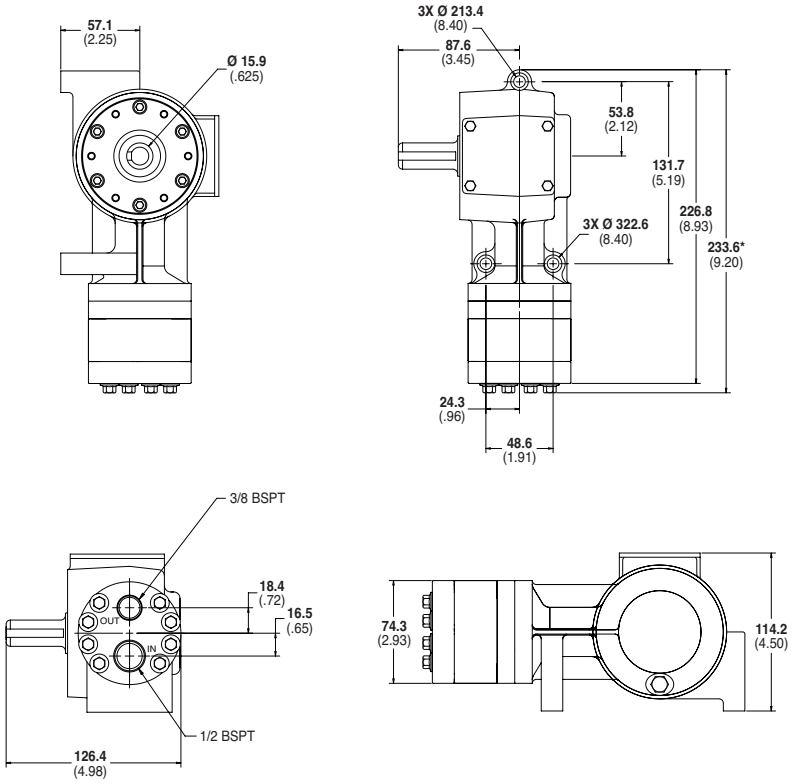
G20 Models with Metallic Pump Head mm (Inches)

**Add 6.35mm (0.25") where shown for manifold cover plate on non-metallic models.*



G21 Models with Metallic Pump Head mm (Inches)

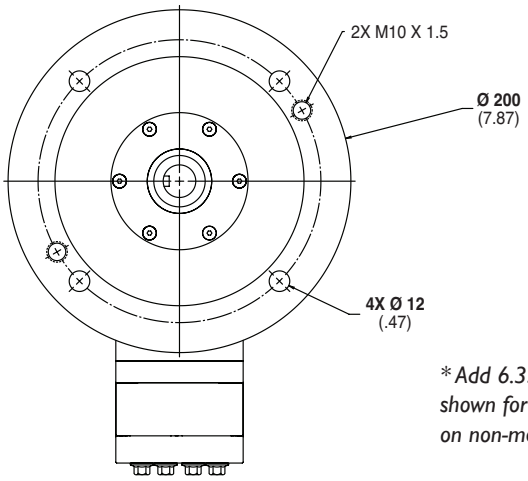
**Add 6.35mm (0.25") where shown for manifold cover plate on non-metallic models.*



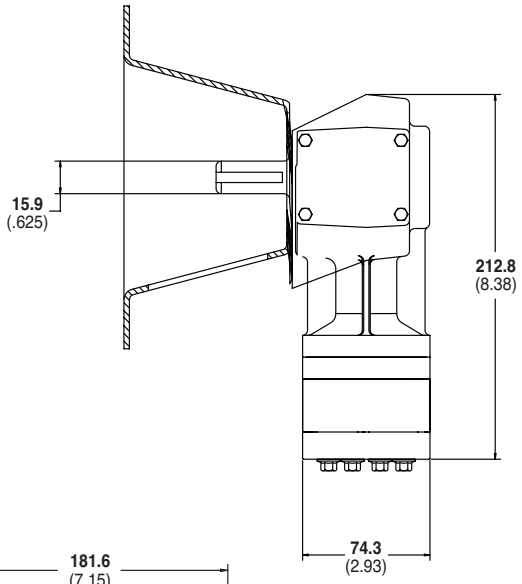
Note: *Dimensions are for reference only. Contact factory for certified drawings.*

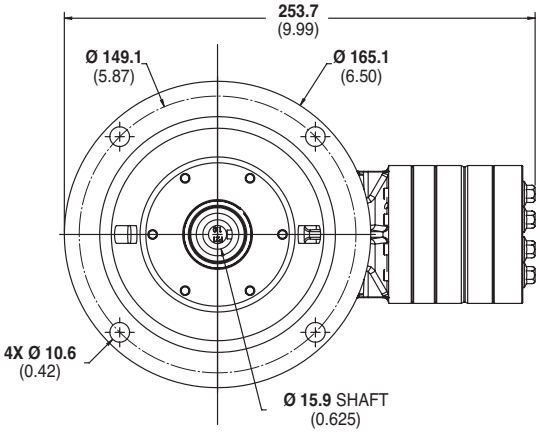
G20 Series Drawings/Adapters/Valves

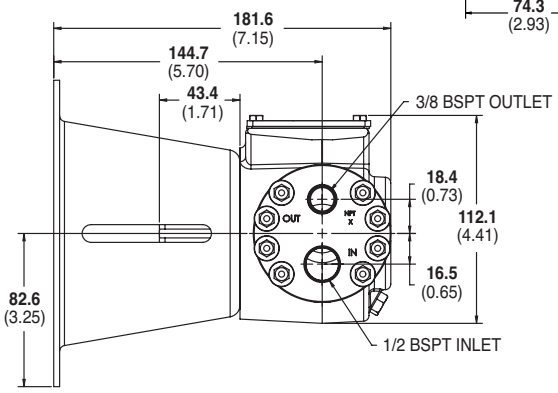
G22 Models with Metallic Pump Head mm (Inches)



** Add 6.35mm (0.25") where shown for manifold cover plate on non-metallic models.*

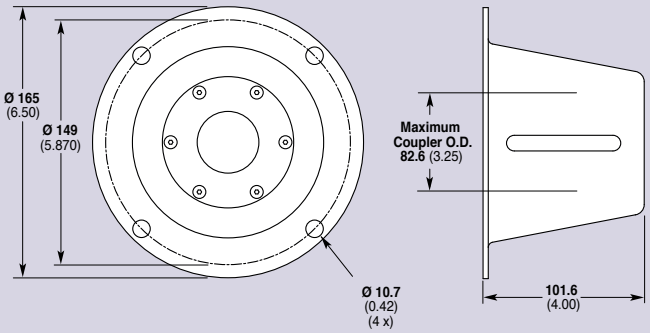






Note: *Dimensions are for reference only. Contact factory for certified drawings.*

Pump/Motor Adapter (mm) Inches



Part Number: A04-006-1200

Must be ordered separately for G22 models (optional for G21 models) for use with IEC 80 - 90 frame motors, B5 flange.

NEMA adapter available - consult factory.

Valve Selection

A Hydra-Cell G20, G21 or G22 pumping system uses a C46 Pressure Regulating Valve.

For complete specifications and ordering information, consult the Hydra-Cell Master Catalog.

G20 Series How to Order

Ordering Information

1	2	3	4	5	6	7	8	9	10	11	12
G	2			D							

A complete G20 Series Model Number contains 12 digits including 9 customer-specified design and materials options, for example: G20GDPGHFECG.

Digit	Order Code	Description
1-3		**Pump Configuration**
	G20	Close-coupled to IEC 80 footed motor (BSPT Ports)
	G21	Shaft-driven (BSPT Ports)*
	G22	For use with pump/motor adapter (BSPT Ports)*
		*Pump/motor adapters ordered separately. See previous page.
4		**Hydraulic End Cam**
	X	Max 3.1 l/min (0.8 gpm) @ 1450 rpm
	E	Max 2.3 l/min (0.6 gpm) @ 1450 rpm
	S	Max 1.7 l/min (0.4 gpm) @ 1450 rpm
	B	Max 1.0 l/min (0.3 gpm) @ 1450 rpm**
	G	Max 0.6 l/min (0.2 gpm) @ 1450 rpm**
5		**Pump Head Version**
	D	BSPT Ports (for all G20, G21 & G22 pumps)
6		**Pump Head Material**
	B	Brass
	M	PVDF
	P	Polypropylene
	S	316L Stainless Steel
	T	Hastelloy C
7		**Diaphragm & O-ring Material**
	A	Aflas diaphragm/PTFE o-ring
	E	EPDM (requires EPDM-compatible oil - Digit 12 oil code J)
	G	FKM
	J	PTFE (available with X and E cams only)**
	P	Neoprene
	T	Buna-N
8		**Valve Seat Material**
	C	Ceramic
	D	Tungsten Carbide
	H	17-4 Stainless Steel
	S	316L Stainless Steel
	T	Hastelloy C

***Positive inlet pressure required for B and G cams and for PTFE diaphragms.*

Digit	Order Code	Description
9		**Valve Material**
	C	Ceramic
	D	Tungsten Carbide
	F	17-4 Stainless Steel
	N	Nitronic 50
	T	Hastelloy C
10		**Valve Springs**
	E	Elgiloy
	T	Hastelloy C
11		**Valve Spring Retainers**
	C	Celcon
	H	17-7 Stainless Steel (used with metallic heads only)
	M	PVDF
	P	Polypropylene
	T	Hastelloy C (used with metallic heads only)
	Y	Nylon
12		**Hydra-Oil**
	G	5W30 cold-temp severe-duty synthetic oil
	J	EPDM-compatible oil
	K	Food-contact oil

Consult the Hydra-Cell Master Catalog for:

- Motors, bases, couplings and other pump accessories
- Hydra-Oil selection and specification information
- Design considerations, installation guidelines, and other technical assistance in pump selection

Hydra-Cell®
Seal-less Pumps

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