Zenith® Pumps 9000 Series Gear Pumps

A New Generation of Metering Pump.

Now with Magnetic Coupling Drive

Precise, Pulseless, Repeatable Performance In Industrial Metering Applications

anything Parker Possible.™

9000 Series

The Zenith 9000 Series was developed as a true precision metering gear pump for application into a variety of industrial processes. The design utilizes high AGMA standard external spur gears of optimum geometry, enclosed within a close tolerance housing assembly, resulting in a precise volume of fluid dispensed per shaft revolution.

The housing is constructed from a precision ground and lapped 3-plate assembly. The plate assembly is aligned with dowels to allow close control of operating clearances. This construction method in combination with several proprietary internal features is what ensures Precise, Pulseless and Reliable flow under varying process conditions.

Coupled with a pre-packaged integrated closed loop speed control and compact motor driver assembly (AC or DC), Zenith is able to provide the most precise and flexible metering gear pump on the market.

Zenith Pumps has been designing and manufacturing precision metering gear pumps since it's inception in 1926. Over the years' Zenith has been distinguished as an innovator in the application of gear pump technology by a variety of industries and end-users. The 9000 series is Zenith's latest generation of industrial metering pumps that are based upon years of practical application knowledge, and pioneering research and development.

For years, engineers have relied on Zenith to provide Precision Fluid Handling Solutions for the most difficult pumping applications. This is why Zenith gear pumps can be found wherever Precise, Pulseless and Reliable fluid metering performance is required. Please review the following with this in mind, and be sure to contact us to discuss your specific needs — we are here to help make your metering applications simpler for you and your customers.

Application Samples from A to Z

Adhesives
Additives
Acids & Bases
Abrasives
Asphalt
Beverages
Biotech
Bottoms
Bonding Agents
Calcium Stearate
Candy
Catalysts
Chemicals
Coatings
Colorants
Cosmetics
Cereal
De-ionized Water
Dyes
Defoamer
Detergents
Emulsions
Epoxies
Fibers
Flavorings
Fragrances
Fuels
Foodstuff
Foams
Gasketing
Glycols
Hot Melts
Inks
Inhibitors
Injection
Juices
Kerosene
Lubricants
Mineral Oil
Monomers
Nutrients
Oils
Oligomers
Oxide Slurries
Paints
Perfumes
Pharmaceuticals
Pill Coatings
Polymers
Plastics
Polyurethanes
Plasticizers
Polyols
Pigments
Potting
Pitch
Quartz Slurries
Resins
Sealants
Silicones
Solvents
Surfactants
Slurries
Spraying
Tackifiers
Tar
Urethanes
Varnish
Viscose
Vitamins
Water Solutions
Water Treatment
Waxes
Xylene
Yeast
Zinc Oxide
and many, many more…

Benefits

High Accuracy: Stable repeatable flows are assured under varying conditions of temperature, viscosity and pressure.

Uniform Metered Flow: Unique design offers virtually pulseless flow, without valves or flexible elements that add complexities, increase cost and hinder performance.

Engineered Solutions: Proven Applications: A variety of pump heads and driver combinations have been pre-configured to provide a range of standard installation options, meeting OSHA, UL, EC and Din Standards.

Active Flowmeter Concept: Unparalleled mechanical precision, combined with closed loop accuracy, ensures exact volume per revolution without expensive flow meters.

Low Cost of Ownership: Only three moving parts, and hardened abrasion resistant materials provide excellent wear, corrosion and self-lubricating performance.

Proven Applications: Years of practical application experience, backed by a technical staff with a variety of technical credentials eliminates the guesswork.

Pump Head Options:

B-9000 Series: *General-purpose industrial duty*
Constructed of through hardened 400 series stainless steel

Capacities (cc/rev): 0.05, 0.3, 0.6, 1.2, 2.4, 4.5, 9.0, 15, 30, 45, 90

Recommended Speed: .05 to 30 cc/rev, up to 500 RPM
45 & 90 cc/rev, up to 300 RPM

Flow Range: up to 27,000 cc/Minute
up to 7 gpm

Inlet Pressure: 300 psi (20 Bar) Maximum

Outlet Pressure: 1000 psi (70 Bar) Maximum

Differential Pressure: 20 to 1000 psi. (viscosity dependent)

Temperature: 0° F (-18° C) Minimum
400° F (205° C) Maximum (with magnetic coupling seal)
645° F (340° C) Maximum (dependant on shaft seal materials)

Seals: Single Mechanical, Double Lip, Packed or Magnetic

Rotation: Clockwise (CW) facing drive shaft

Port Connections:
Metric thread or SAE 61 Standard

Optional Port Adapters:
M12 X 1/4" NPT. . . . . 0.05 – 2.4 cc/rev
1/2" SAE X 1/2" NPT. . . . . 4.5 – 9.0 cc/rev
3/4" SAE X 3/4" NPT. . . . . 15 – 30 cc/rev
1-1/4" SAE X 1-1/4" NPT . . 45 – 90 cc/rev

Optional Band heaters:
150 Watt, 115 VAC . . . . . 0.05 – 2.4 cc/rev
325 Watt, 115 VAC. . . . . 4.5 – 9.0 cc/rev
650 Watt, 230 VAC. . . . . 15 – 30 cc/rev
1500 Watt, 230 VAC. . . . . 45 – 90 cc/rev

C-9000 Series: *Corrosive & Poor Lubricating Fluids*
Constructed of hardened 316SS and compatible materials

Capacities (cc/rev): 0.3, 0.6, 1.2, 2.4, 4.5, 9.0

Recommended Speed: up to 1000 rpm

Flow Range: up to 9,000 cc/Minute
up to 2.4 gpm

Inlet Pressure: 300 psi (20 Bar) Maximum

Outlet Pressure: 1000 psi (70 Bar) Maximum

Differential Pressure: 20 to 1000 psi. (viscosity dependent)

Temperature: -40° F (- 40° C) Minimum
350° F (175° C) Maximum

Seals: Single Mechanical, Double Lip, or Magnetic

Rotation: Clockwise (CW) facing drive shaft

Port Connections:
Metric thread or SAE 61 Standard

Optional Port Adapters:
M12 X 1/4" NPT. . . . . 0.3 – 2.4 cc/rev
1/2" SAE X 1/2" NPT. . . . . 4.5 – 9.0 cc/rev

Optional Band heaters:
150 Watt, 115 VAC. . . . . 0.3 – 2.4 cc/rev
325 Watt, 115 VAC. . . . . 4.5 – 9.0 cc/rev

H-9000 Series: *High Temperature and Abrasive Fluids*
Constructed of through-hardened high speed tool steels

Capacities (cc/rev): 0.3, 0.6, 1.2, 2.4, 4.5, 9.0, 15, 30, 45, 90

Recommended Speed: 0.3 to 30 cc/rev, up to 500 RPM
45 & 90 cc/rev, up to 300 RPM

Flow Range: up to 27,000 cc/Minute
up to 7 gpm

Inlet Pressure: 1000 psi (70 Bar) Maximum

Outlet Pressure: 2500 psi (175 Bar) Maximum

Differential Pressure: 20 to 2500 psi. (viscosity dependent)

Temperature: 32° F (0.0° C) Minimum
950° F (510° C) Max. (With packing seal and high temperature fasteners)

Seals: Single Mechanical, Double Lip seal or Packed configurations

Rotation: Clockwise (CW) facing drive shaft

Port Connections:
Metric thread or SAE 61 Standard

Optional Port Adapters:
M12 X 1/4" NPT. . . . . 0.3 – 2.4 cc/rev
1/2" SAE X 1/2" NPT. . . . . 4.5 – 9.0 cc/rev
3/4" SAE X 3/4" NPT. . . . . 15 – 30 cc/rev
1-1/4" SAE X 1-1/4" NPT . . 45 – 90 cc/rev

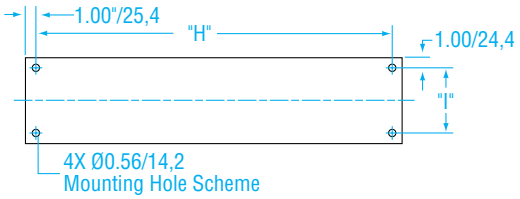
Optional Band heaters:
150 Watt, 115 VAC. . . . . 0.3 – 2.4 cc/rev
325 Watt, 115 VAC. . . . . 4.5 – 9.0 cc/rev
650 Watt, 230 VAC. . . . . 15 - 30 cc/rev
1500 Watt, 230 VAC . . . . . 45 - 90 cc/rev

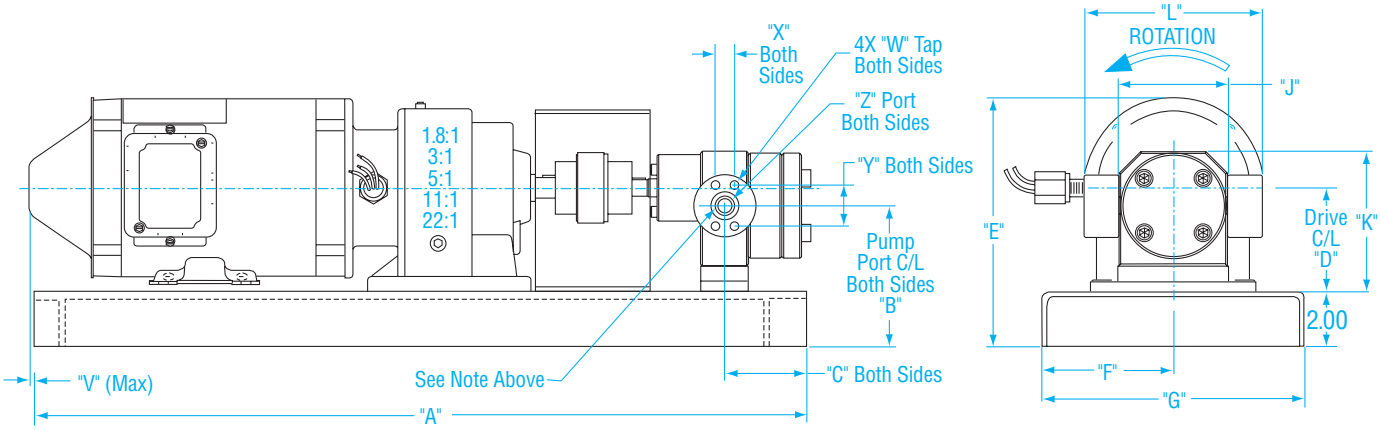
Standard Metering Systems (shown with ZVD AC Controller)

- **1/2 - 2 HP AC Vector Drive**
- **230 VAC, 1 or 3 phase (1/2 – 2 HP)**
- **460 VAC 3 phase**
- **Closed loop PID control**
- **Engineering unit or frequency setpoint**
- **Jog**
- **5 standard inputs**
- **6 multifunction inputs**
- **1 form C relay multifunction output**
- **3 open collector multifunction outputs**
- **Password protection**
- **Adjustable current limit**
- **RS-485 Modbus serial communications**
- **Analog I/O**

Note: All standard systems include NPT port adapters. See dimensions "L" and "Z" in the chart below for details. If the NPT adapters are removed, refer to individual pump drawings for information on port connections.

Note: ZeDrive™ DC controllers and motors are also available. For more information, please visit www.zenithpumps.com



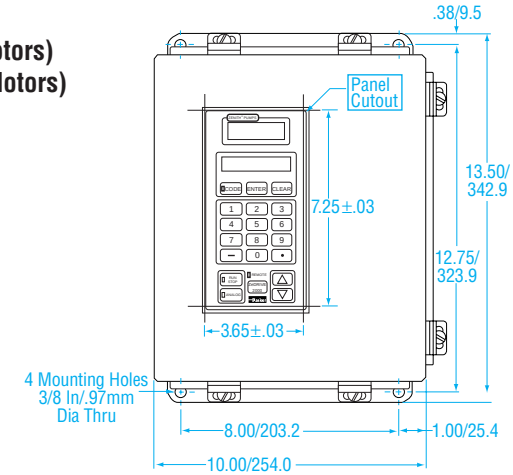


System/Dim.	A	B	C	D	E	F	G	H	I	J	K	L	V	W	X	Y	Z	NEMA IEC
1/2 hp .05-2.4cc/rev*	28.00	5.28	3.39	3.74	9.00	4.75	9.50	26.00	7.50	2.76	4.65	4.40	0.17	N/A	N/A	N/A	1/4 NPT	56C
	711.2	134.1	86.1	95.0	228.6	120.7	241.3	660.4	190.5	70.1	118.1	111.8	4.3	N/A	N/A	N/A	1/4 NPT	71
1/2 hp 4.5-9cc/rev*	28.00	5.11	2.98	4.11	9.00	4.75	9.50	26.00	7.50	3.94	5.07	6.44	0.17	M8 x 12DP	0.69	1.50	1/2 NPT	56C
	711.2	129.8	75.7	104.4	228.6	120.7	241.3	660.4	190.5	100.1	128.8	163.6	4.3	M8 x 12DP	17.5	38.1	1/2 NPT	71
1 hp 4.5-9cc/rev*	36.00	5.86	8.22	4.51	10.01	5.00	10.00	34.00	8.00	3.94	5.82	6.44	N/A	M8 x 12DP	0.69	1.50	1/2 NPT	56C
	914.4	148.8	208.8	114.6	254.3	127.0	254.0	863.6	203.2	100.1	147.8	163.6	N/A	M8 x 12DP	17.5	38.1	1/2 NPT	80
2 hp 4.5-9cc/rev*	36.00	5.86	8.22	4.51	10.01	5.00	10.00	34.00	8.00	3.94	5.82	6.44	3.37	M8 x 12DP	0.69	1.50	1/2 NPT	145TC
	914.4	148.8	208.8	114.6	254.3	127.0	254.0	863.6	203.2	100.1	147.8	163.6	85.6	M8 x 12DP	17.5	38.1	1/2 NPT	90
1/2 hp 15-30cc/rev‡	36.00	5.19	7.63	4.11	9.61	5.00	10.00	34.00	8.00	5.00	5.69	7.50	N/A	M10 x 22DP	0.88	1.88	3/4 NPT	56C
	914.4	131.8	193.8	104.4	244.1	127.0	254.0	863.6	203.2	127.0	144.5	190.5	N/A	M10 x 22DP	22.4	47.8	3/4 NPT	71
1 hp 15-30cc/rev‡	36.00	5.60	7.55	4.51	10.01	5.00	10.00	34.00	8.00	5.00	6.10	7.50	N/A	M10 x 22DP	0.88	1.88	3/4 NPT	56C
	914.4	142.2	191.8	114.6	254.3	127.0	254.0	863.6	203.2	127.0	154.9	190.5	N/A	M10 x 22DP	22.4	47.8	3/4 NPT	80
2 hp 15-30cc/rev‡	36.00	5.60	7.55	4.51	10.01	5.00	10.00	34.00	8.00	5.00	6.10	7.50	N/A	M10 x 22DP	0.88	1.88	3/4 NPT	145TC
	914.4	142.2	191.8	114.6	254.3	127.0	254.0	863.6	203.2	127.0	154.9	190.5	N/A	M10 x 22DP	22.4	47.8	3/4 NPT	90
1 hp 45-90cc/rev‡	36.00	6.14	6.12	5.38	10.89	5.00	10.00	34.00	8.00	6.89	7.59	9.37	N/A	M12 x 24DP	1.19	2.31	1-1/4 NPT	56C
	914.4	156.0	155.4	136.7	276.6	127.0	254.0	863.6	203.2	175.0	192.8	238.0	N/A	M12 x 24DP	30.2	58.7	1-1/4 NPT	80
2 hp 45-90cc/rev‡	36.00	6.14	6.12	5.38	10.89	5.00	10.00	34.00	8.00	6.89	7.59	9.37	N/A	M12 x 24DP	1.19	2.31	1-1/4 NPT	145TC
	914.4	156.0	155.4	136.7	276.6	127.0	254.0	863.6	203.2	175.0	192.8	238.0	N/A	M12 x 24DP	30.2	58.7	1-1/4 NPT	9

*Available for B-9000, C-9000 and H-9000, ‡Available for B-9000 and H-9000

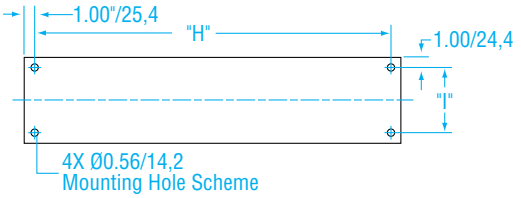
9000 MD Systems (shown with ZeDrive™ DC Controller)

- **1 / 4 – 2 HP SCR DC Drive**
- **115 VAC, 1 phase (90 VDC Motors)**
- **230 VAC, 1 phase (180 VDC Motors)**
- **Master or Follower Modes**
- **Closed loop PID control**
- **4 engineering unit setpoints**
- **Jog**
- **13 standard inputs**
- **5 open collector outputs**
- **Keypad lockout**
- **Adjustable current limit**
- **RS-422 serial communications**
- **Optional Analog I/O (12 bit)**

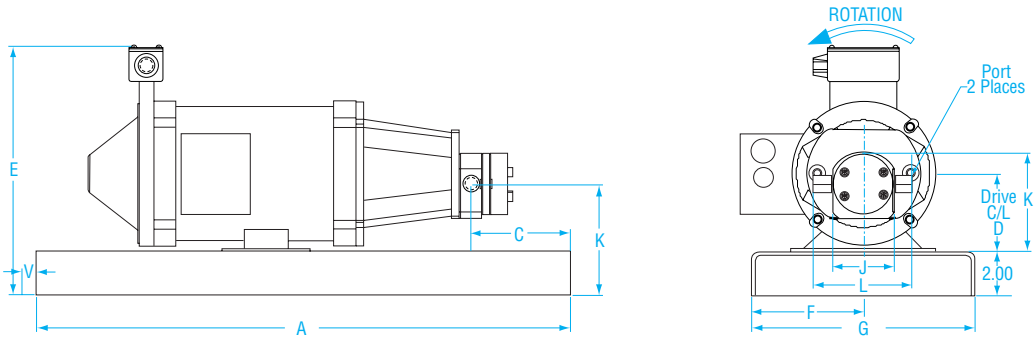


Note: All standard systems include NPT port adapters. See dimensions "L" and "Z" in the chart below for details. If the NPT adapters are removed, refer to individual pump drawings for information on port connections.

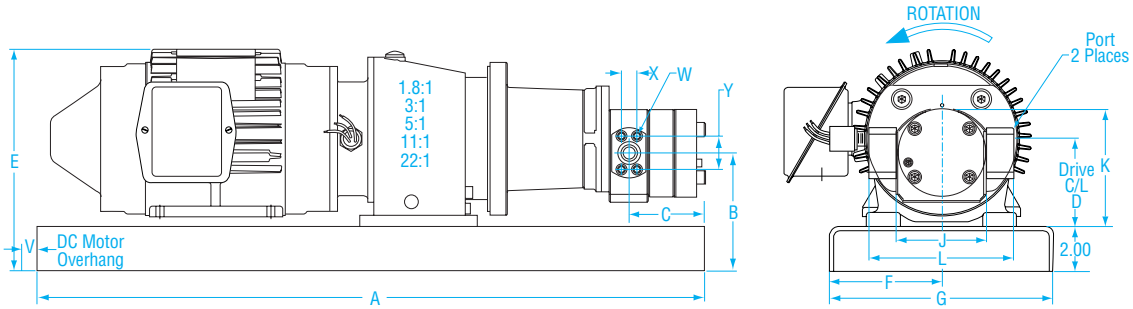
Note: ZVD AC controllers and motors are also available. For more information, please visit www.zenithpumps.com



9000MD Direct Drive Magnetic Coupling



9000MD Magnetic Coupling with reducer



System Configuration	Coupling Torque	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"	"L"	"V"	"W"	"X"	"Y"	"Z"	NEMA IEC
0.05 - 2.4 cc/rev 1/2 HP Direct Drive	23 in-lb	24.00	5.01	4.50	5.47	11.20	5.00	10.00	22.00	8.00	2.76	4.38	4.45	N/A	N/A	N/A	N/A	1/4 NPT	56-C
		609.60	127.25	114.30	138.94	284.48	127.00	254.00	558.80	203.20	70.10	111.25	113.03	N/A	N/A	N/A	N/A	1/4 NPT	71
0.05 - 2.4 cc/rev 1/2 HP with Reducer	23 in-lb	30.00	5.47	4.50	5.94	11.70	5.00	10.00	28.00	8.00	2.76	4.85	4.45	N/A	N/A	N/A	N/A	1/4 NPT	56-C
		762.00	138.94	114.30	150.88	297.18	127.00	254.00	711.20	203.20	70.10	123.19	113.03	N/A	N/A	N/A	N/A	1/4 NPT	71
0.05 - 2.4 cc/rev 1 HP Direct Drive	55 in-lb	24.00	5.01	4.50	5.47	11.20	5.00	10.00	22.00	8.00	2.76	4.38	4.45	N/A	N/A	N/A	N/A	1/4 NPT	56-C
		609.60	127.25	114.30	138.94	284.48	127.00	254.00	558.80	203.20	70.10	111.25	113.03	N/A	N/A	N/A	N/A	1/4 NPT	80
0.05 - 2.4 cc/rev 1 HP with Reducer	55 in-lb	30.00	5.47	4.50	5.94	11.70	5.00	10.00	28.00	8.00	2.76	4.85	4.45	0.09	N/A	N/A	N/A	1/4 NPT	56-C
		762.00	138.94	114.30	150.88	297.18	127.00	254.00	711.20	203.20	70.10	123.19	113.03	2.29	N/A	N/A	N/A	1/4 NPT	80
4.5 - 9.0 cc/rev 1/2 HP Direct Drive	110 in-lb	24.00	4.84	4.00	5.47	11.20	5.00	10.00	22.00	8.00	3.94	4.81	6.50	N/A	M8 x 12DP	0.69	1.50	1/2 NPT	56-C
		609.60	122.94	101.60	138.94	284.48	127.00	254.00	558.80	203.20	100.08	122.17	165.10	N/A	M8 x 12DP	17.53	38.10	1/2 NPT	71
4.5 - 9.0 cc/rev 1/2 HP with Reducer	110 in-lb	30.00	5.28	3.44	5.94	11.70	5.00	10.00	28.00	8.00	3.94	5.25	6.50	N/A	M8 x 12DP	0.69	1.50	1/2 NPT	56-C
		762.00	134.11	87.38	150.88	297.18	127.00	254.00	711.20	203.20	100.08	133.35	165.10	N/A	M8 x 12DP	17.53	38.10	1/2 NPT	71
4.5 - 9.0 cc/rev 1 HP Direct Drive	110 in-lb	24.00	4.84	4.00	5.47	11.20	5.00	10.00	22.00	8.00	3.94	4.81	6.50	0.06	M8 x 12DP	0.69	1.50	1/2 NPT	56-C
		609.60	122.94	101.60	138.94	284.48	127.00	254.00	558.80	203.20	100.08	122.17	165.10	1.52	M8 x 12DP	17.53	38.10	1/2 NPT	80
4.5 - 9.0 cc/rev 1 HP with Reducer	110 in-lb	30.00	5.28	3.44	5.94	11.70	5.00	10.00	28.00	8.00	3.94	5.25	6.50	0.17	M8 x 12DP	0.69	1.50	1/2 NPT	56-C
		762.00	134.11	87.38	150.88	297.18	127.00	254.00	711.20	203.20	100.08	133.35	165.10	4.32	M8 x 12DP	17.53	38.10	1/2 NPT	80
4.5 - 9.0 cc/rev 2 HP Direct Drive	110 in-lb	24.00	4.84	4.00	5.47	11.20	5.00	10.00	22.00	8.00	3.94	4.81	6.50	3.36	M8 x 12DP	0.69	1.50	1/2 NPT	140TC
		609.60	122.94	101.60	138.94	284.48	127.00	254.00	558.80	203.20	100.08	122.17	165.10	85.34	M8 x 12DP	17.53	38.10	1/2 NPT	9
4.5 - 9.0 cc/rev 2 HP with Reducer	110 in-lb	30.00	5.28	3.44	5.94	11.70	5.00	10.00	28.00	8.00	3.94	5.25	6.50	2.77	M8 x 12DP	0.69	1.50	1/2 NPT	140TC
		762.00	134.11	87.38	150.88	297.18	127.00	254.00	711.20	203.20	100.08	133.35	165.10	70.36	M8 x 12DP	17.53	38.10	1/2 NPT	9

1) Select Pump Model

		B-9000	C-9000	H-9000
Typical Service	General Chemical	✔	—	—
	Corrosive/Poor Lubricity	—	✔	—
	Abrasive/High Temperature	—	—	✔
Materials	400 Series Stainless Steel	✔	—	—
	316 Stainless Steel	—	✔	—
	Tool Steel	—	—	✔
Outlet Pressure	≤ 1000 psi	✔	✔	✔
	1000 ≤ 2500 psi	—	—	✔
Inlet Pressure	≤ 300 psi	✔	✔	✔
	300 ≤ 1000 psi	—	—	✔
Temperature	≤ 350 F	✔	✔	✔
	≤ 645 F	✔	—	✔
	≤ 950 F	—	—	✔
Viscosity	≤ 1 cps	—	✔	—
	≥ 1 cps	✔	✔	✔
Flow Rate	≤ 9000 cc/min	✔	✔	✔
	≤ 27000 cc/min	✔	—	✔
Lubricity	Abrasive (Tio2 etc.)	—	—	✔
	Poor (Solvents etc.)	—	✔	—
	Good (Polyols etc.)	✔	✔	✔
	Excellent (Oils etc.)	✔	✔	✔
pH	Low (< 7)	—	✔	—
	Neutral (7)	✔	✔	✔
	High (> 7)	✔	✔	—

2) Select Maximum Operating Speed

Operating Conditions		Suggested Maximum Speed (RPM)		
Lubricity	**Viscosity**	**B-9000**	**C-9000**	**H-9000**
Excellent	< 1,000 cps	< 500	< 1000	< 500
Good to Excellent	1000 < 10,000 cps	< 300	< 500	< 300
Poor to Excellent	> 10,000 cps	< 150	< 150	< 150
Abrasive (Consult Zenith)	> 1 cps	—	—	< 75

3) Select Pump Size

1) Maximum Flow (cc/min) ÷ Maximum Operating Speed = Pump Capacity (cc/rev).
2) Round up to the next largest pump size. See page 3 for available sizes.
3) Calculate Minimum Operating Speed (rpm) = Minimum Flow (cc/min) ÷ Pump Capacity (cc/rev).

4) Select Reducer Ratio (All Systems) or Direct Drive (Magnetic Drive Systems Only)

Select a reducer ratio and speed range that best fits the maximum and minimum operating speeds calculated in steps 2 and 3.

Pump Speed Range with 1800 rpm Motor, 20:1 Turndown						
Speed Range (n – N)	90 - 1800*	50 - 1000	30 - 600	18 - 360	8 – 164	4 - 82
Reducer Ratio	1:1 (Direct)	1.8:1	3:1	5:1	11:1	22:1

* **Note:** maximum recommended pump speed is 1000 rpm or less.

5) Calculate Maximum Pump Torque Requirements

1) Pump Torque: $T\ (\text{in-lbs}) = (K_1 \bullet \Delta P\ (\text{psi})) + (K_2 \bullet N \bullet \mu / 100{,}000)$ or
$T\ (\text{Nm}) = (k_3 \bullet \Delta P\ (\text{kg/cm}^2)) + (K_4 \bullet N \bullet \mu / 100{,}000)$

K_1, K_2, K_3 & K_4 = Constants from adjacent chart
ΔP = Differential Pressure (Outlet Pressure – Inlet Pressure)
N = Maximum Pump Speed, based on Reducer Ratio. See step 4.
μ = Viscosity (cps). **Note:** for shear thinning fluids, consult Zenith.

2) Compare the calculated torque to the maximum torque shown in the adjacent chart. The calculated torque must not exceed the maximum torque.

3) For magnetic drive systems, the calculated torque cannot exceed the maximum torque rating of the magnetic coupling. See page 5 for torque limits and available system configurations.

Capacity (cc/rev)	K_1/K_2	K_3/K_4	Max. Torque (in-lbs/NM)
0.05	0.0005/0.85	0.0008/0.096	7.5/.85
0.3	0.003/2.11	0.004/0.24	90/10
0.6	0.006/2.34	0.010/0.26	350/40
1.2	0.012/2.82	0.018/0.32	350/40
2.4	0.023/3.78	0.037/0.43	350/40
4.5	0.044/6.85	0.070/0.77	880/100
9.0	0.087/8.56	0.141/0.97	880/100
15.0	0.146/14.66	0.233/1.66	1100/125
30.0	0.291/18.57	0.468/2.10	1100/125
45.0	0.437/32.78	0.701/3.70	2400/275
90.0	0.873/30.61	1.404/3.46	2400/275

6) Calculate System HP

1) HP = T / (35 • .85 • R) or KW = T / (5.3 • .85 • R)
   T = Maximum Torque (in-lbs) from Step 5 | T = Maximum Torque (Nm) from Step 5
   R = Reducer Ratio from Step 4 (For example, if 3:1 use 3) | R = Reducer Ratio from Step 4 (for example, if 3:1 use 3)

2) Round up to the next highest motor horsepower available i.e. calculated HP = .33, select 1/2 HP motor. See page 4 for standard system configurations available based on pump size and horsepower.

7) Check Pump Efficiency

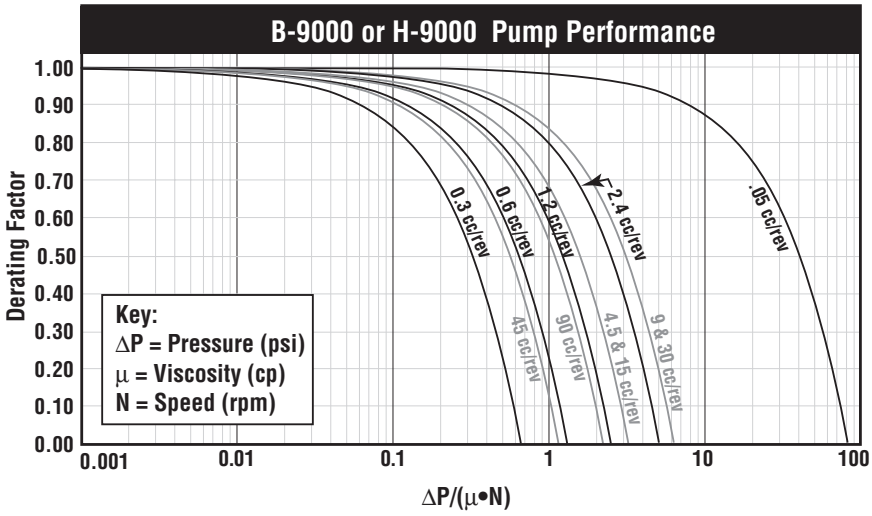
Based on application conditions, verify that the efficiency of the pump is acceptable. For high pressure and low viscosity applications, it may be necessary to increase pump speed or pump capacity. Contact Zenith for assistance.

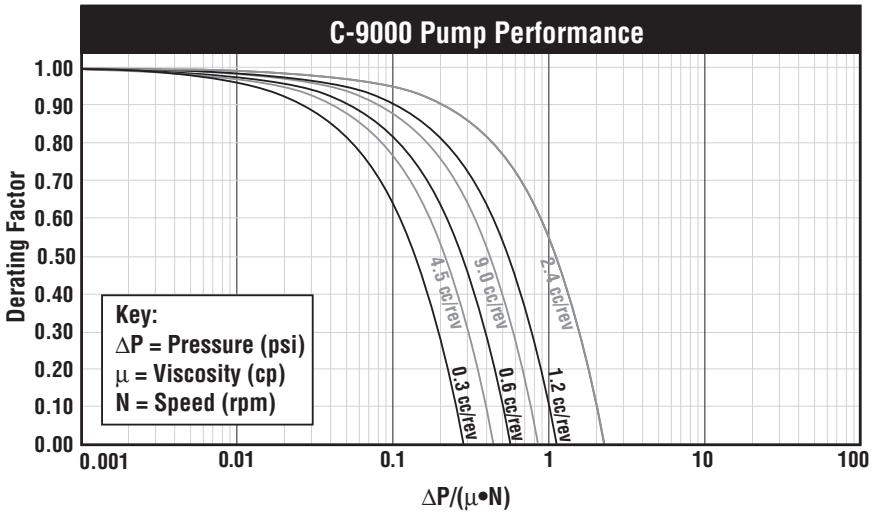
1) Use the formula shown below the X-axis to calculate a value.

2) Using the value calculated, trace a line vertically until the appropriate pump curve is intersected.

3) Trace a line horizontally to the left to obtain a value for the derating factor.

4) Multiply the derating factor by the theoretical flow, N (rpm) • Pump Size (cc/rev), to obtain estimated actual flow (cc/min).





8) Check Inlet Pressure Requirements

In order to prevent cavitation and ensure successful operation, sufficient inlet pressure must be available at the inlet of the pump. Based on maximum application conditions, verify that the inlet pressure available exceeds the inlet pressure loss.

Inlet Pressure Loss (psi) = Viscosity(cps) • Displacement(cc/rev) • Shaft Speed(rpm) • [(Specific Gravity • W1)+W2]

cc/rev	W1	W2
0.3	4.29E-06	2.32E-06
0.6	1.93E-06	2.47E-06
1.2	1.21E-06	2.77E-06
2.4	9.34E-07	3.38E-06
4.5	3.00E-07	3.46E-07
9.0	2.24E-07	4.19E-07
15.0	1.11E-07	7.47E-08
30.0	8.61E-08	9.28E-08
45.0	3.38E-08	1.65E-08
90.0	2.49E-08	2.02E-08

Note: This sizing procedure should be used as a guideline for estimating pump type, pump size and system requirements. Please consult Zenith to confirm pump and system selection prior to placing a purchase order.

Sanford, NC

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Monterrey, Mexico

Warwick England

WARNING

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