

# Series GN

## Magnetic Drive Gear Pump

**MICROPUMP®**

Micropump® Series GN pumps deliver exceptional pumping performance for any high-precision application. These magnetically driven gear pumps feature a cavity style design with benefits such as chemical resistance, smooth pulseless fluid delivery, and high-system pressure capability. Available in standard and custom configurations, Series GN pumps keep your operations running smoothly.



### Cavity Style Pumps

Cavity style pumps are excellent for wide-ranging inlet and outlet operating conditions, and allow for intermittently pumping in reverse.

### Small Size

The miniature package size of the Series GN is easily incorporated into the design of many systems.

### Leak-Free

The magnetic drive and static o-ring seal(s) keep the fluid securely inside the pump and potential contaminants out.

### Smooth Pulseless Delivery

Positive displacement, precision gears provide consistent fluid delivery in continuous processes.

### Chemically Resistant

Series GN has a long-life in aggressive environments.

### Easy to Service

Series GN pumps are easy to service using a Micropump service kit and simple hand tools.

### High System Pressure Capability

Optional version of the Series GN are designed to withstand system pressures up to 1,500 psi (103 bar).

### Wide Range of Options and Configurations

Micropump's designs offer the flexibility to customize products to meet your more challenging requirements including:

- ▶ Multiple gear, body, and o-ring materials
- ▶ High-torque magnets
- ▶ NEMA and IEC drive mounts

### Innovative Designs

Micropump uses the latest engineering tools and manufacturing equipment to produce the most innovative pumping solutions available. Products are developed using state-of-the-art CAD, Finite Element Analysis (FEA), and rapid prototyping tools to ensure the highest level of product quality and reliability.

### Enhanced Efficiency

As part of the IDEX Health & Science Group, Micropump now offers fully-integrated liquid subassemblies, gas management systems, and precision components. Products include pumps, valves, manifolds, tubing, fittings, degassing/debubbling systems, air compressors, vacuum generators, and HPLC columns. Additional services are custom fluidic engineering and development, contract manufacturing, extrusion, molding, machining, and diffusion bonding.



Precision Engineered Fluidics™

## Performance Summary

Flow Rate at 1,750 rpm

- ▶ 42,875 mL/min (11.38 gpm)

Displacement

- ▶ Gear Set G35
- ▶ mL/rev 24.5

Maximum Rated Differential Pressure

- ▶ 100 psi (6.9 bar)

Maximum Rated System Pressure

- ▶ 1,500 psi (103 bar)

Temperature Range

- ▶ -46–121 °C (-50–250 °F)

Viscosity Range

- ▶ 0.2–2,500 cps

## Pump Construction

- ▶ Magnetic drive gear pump
- ▶ Cavity style
- ▶ Three helical, shafted gears
- ▶ Stationary shafts
- ▶ O-ring seals

## Wetted materials

Base material

- ▶ 316 stainless steel

Gears

- ▶ PEEK™

Static seals

- ▶ Viton®

## Magnets

Driven and driving

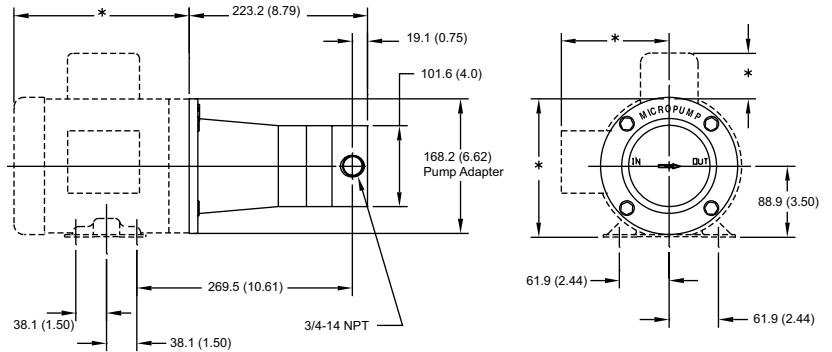
- ▶ Rare earth

## Product Enhancements

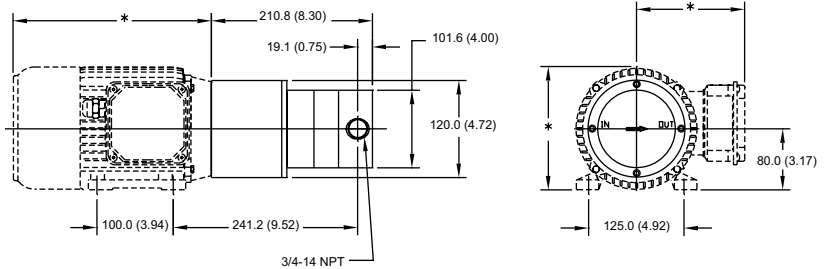
- ▶ High-system pressure

## Dimensions

NEMA 56C Mount

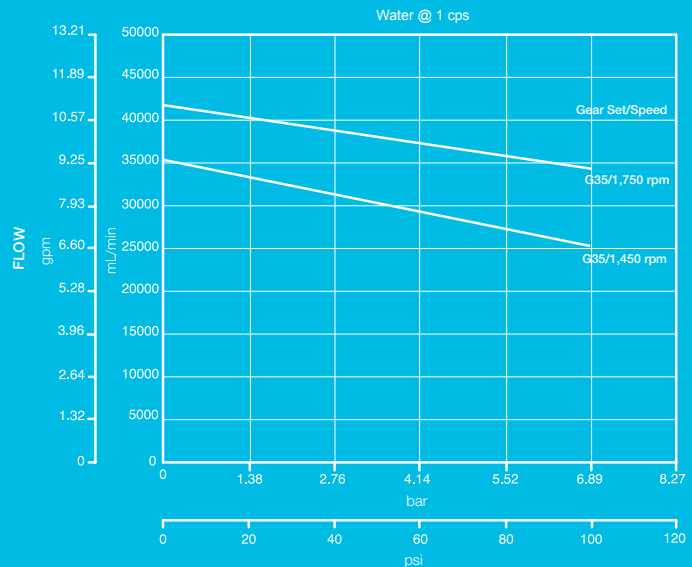


IEC 71-B14 Mount



Units: mm (in.) Nominal dimensions shown.

## Pump Performance



\*Higher differential pressures available - consult factory

ACTUAL PERFORMANCE MAY VARY.

Specifications are subject to change without notice.

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Revised on 06/11/2008



<p><b>Order Code</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Base Code</b></td> <td style="width: 15%; text-align: center;">Gear Set</td> <td style="width: 15%; text-align: center;">Drive Mount</td> <td style="width: 15%; text-align: center;">Options</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">G</td> <td style="border: 1px solid black; text-align: center;">N</td> <td style="border: 1px solid black; text-align: center;">3</td> <td style="border: 1px solid black; text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> <tr> <td colspan="2" style="text-align: center;">Model</td> <td colspan="2" style="text-align: center;">Wetted Materials</td> </tr> </table> <p style="font-size: small;">O/C: Pump S/K: Service Kit</p>	<b>Base Code</b>	Gear Set	Drive Mount	Options	G	N	3	8	1	2	3	4	Model		Wetted Materials		<p><b>Pump Construction</b></p> <ul style="list-style-type: none"> <li>Magnetic Drive Gear Pump</li> <li>Cavity Style</li> <li>Three Helical, Shafted Gears/DP10</li> <li>Sleeve Bushings</li> <li>O-Ring Seals (Qty 3)</li> <li>Rare Earth Magnets</li> </ul>
<b>Base Code</b>	Gear Set	Drive Mount	Options														
G	N	3	8														
1	2	3	4														
Model		Wetted Materials															

**Base Code** Select a code character for each numbered position to configure the product.

1	Code	Product Type	Specifications	Notes
	G	Gear Pump		
2	N	<b>Product Series</b>	<i>Max System Pressure (MAWP)</i>	<i>Ports</i>
		Series GN	35 Bar (500 psi)	3/4-14 (F) NPT Side Ports
3	-	<b>Modifier</b>		
		Standard Design		
4	G35	<b>Gear Set (Width/N°Gears/Pitch)</b>	<i>Displacement</i>	<i>Max Differential Pressure</i>
		1.250/3/10	24.5 ml/rev (6.5 gal/1000*rev)	6.9 Bar (100 psi)
				<i>Driven Magnet (Standard)</i>
				Samarium Cobalt (SmCo)
5	F	<b>Gear Material</b>		<i>Temp Range</i>
	J	PTFE		3.5 Bar (50 psi)
		PEEK (carbon fiber/ptfe)		8.7 Bar (125 psi)
				-46/54°C (-50/130°F)
				-46/121°C (-50/250°F)
6	F	<b>Static Seals</b>		<i>Temp Range</i>
	V	PTFE		-46/232°C (-50/450°F)
	D	Viton®		-29/204°C (-20/400°F)
	K	EP		-46/149°C (-50/300°F)
		Kalrez®		-29/260°C (-20/500°F)
7	S	<b>Base Materials</b>		
	D	SS316		
	T	Alloy 20		
	C	Titanium		
		Hast C-276®		
8	E	<b>Drive Mount</b>	<i>Max System Pressure (MAWP)</i>	<i>Weight (Pumphead)</i>
	7	NEMA 56C	21 Bar (300 psi)	8.4 kg (18.5 lbs)
		IEC 80-B5	21 Bar (300 psi)	8.4 kg (18.5 lbs)
		IEC 80-B14	21 Bar (300 psi)	8.4 kg (18.5 lbs)

**Options** Add Option codes after the Base Code to modify features or enhance the product.

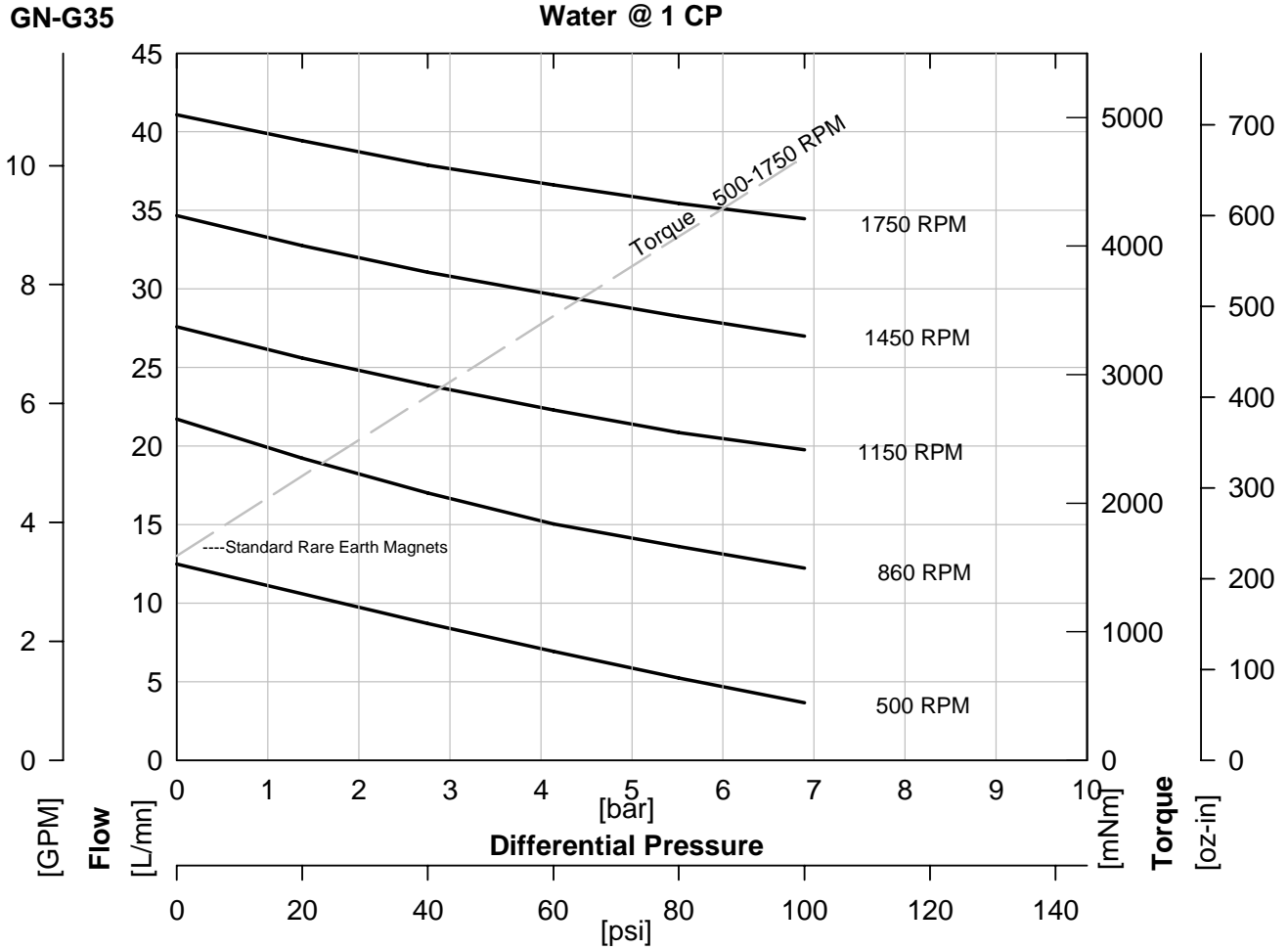
	<b>High System Pressure (PC14)</b>	<i>Max System Pressure (MAWP)</i>	<i>Weight (Pumphead)</i>
CH15	1500 psi (Machined Cup)	103 Bar(1500 psi) Titan.Cup	
	<b>Ports/Fittings (PC17)</b>	<i>Ports</i>	<i>Ports</i>
F10	ANSI Flanges (1", 300#)	99 Bar(1440 psi) Welded 316	
	<b>Other (PC20)</b>		
W2	A10 Wear Plate(s)		

Notes

<b>Order Code</b>				<b>Pump Construction</b>			
<b>Base Code</b>		Gear Set		Drive Mount		<b>Options</b>	
<b>G</b>	<b>N</b>	-	<b>G35</b>				
1	2	3	4	5	6	7	8
Model			Wetted Materials			O/C: Pump S/K: Service Kit	
Magnetic Drive Gear Pump Cavity Style Three Helical, Shafted Gears/DP10 Sleeve Bushings O-Ring Seals (Qty 3) Rare Earth Magnets							



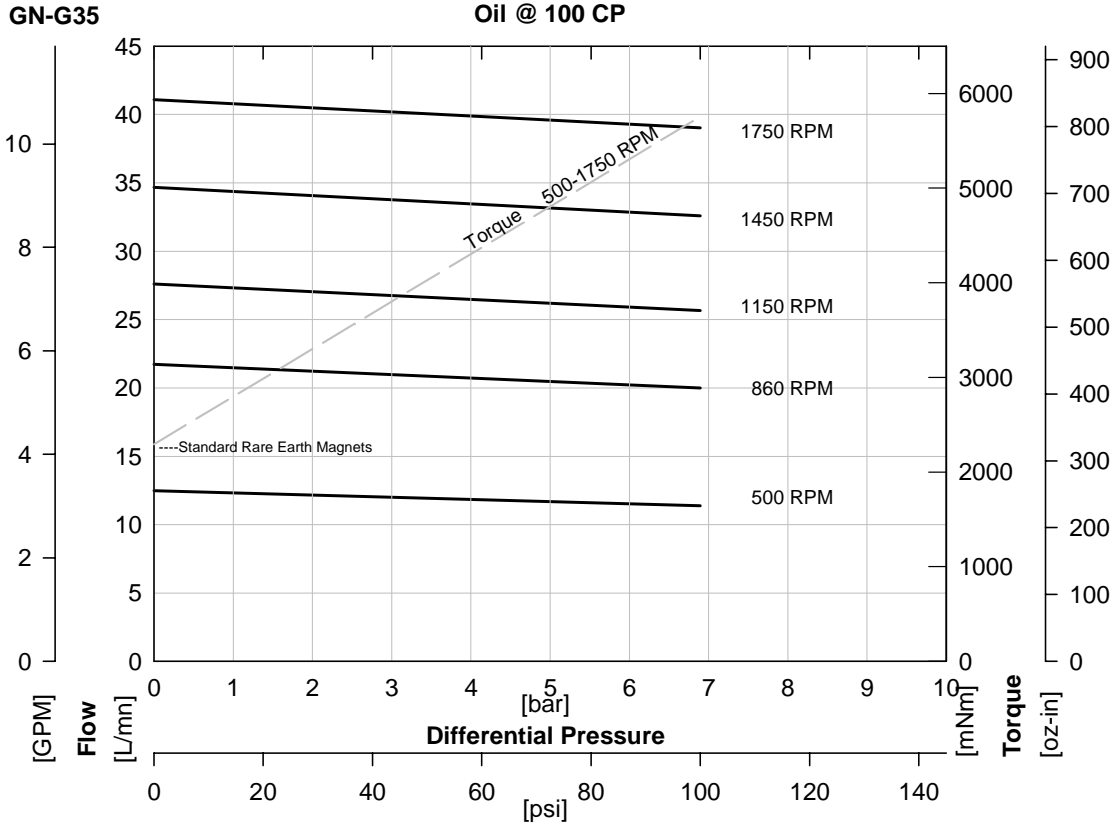
## Performance



<b>Order Code</b>				<b>Pump Construction</b>			
<b>Base Code</b>		Gear Set		Drive Mount		<b>Options</b>	
G	N	-	G35	●	●	●	
1 2 Model		3 4 5 6 7 8 Wetted Materials		9 10		O/C: Pump S/K: Service Kit	
Magnetic Drive Gear Pump Cavity Style Three Helical, Shafted Gears/DP10 Sleeve Bushings O-Ring Seals (Qty 3) Rare Earth Magnets							



## Performance-High Viscosity



$$\text{Watts} = \frac{\text{Torque [mNm]} \times \text{Speed [RPM]}}{9555}$$

$$\text{HP} = \frac{\text{Torque [oz-in]} \times \text{Speed [RPM]}}{1.008 \times 10^6}$$

To calculate torque, multiply correction factor by torque from viscosity curve above.

Torque Correction Factors: For Higher Viscosity Liquids				
Viscosity [cp]		1	100	2500
Max Speed [RPM]		1750	1750	200
[Bar]	[psi]			
0.3	5	0.7	1	1.6
1.4	20	0.7	1	1.6
2.8	40	0.8	1	1.6
4.1	60	0.8	1	
5.5	80	0.8	1	
6.9	100	0.8	1	

Magnet Decouple Torque			
Driven Magnet	Driving Hub	Torque [mNm]	Torque [oz.in]
SmCo	SmCo	5650	800

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G	N	-	G35																																							
1	2	3	4	5	6	7	8																																			
Model			Wetted Materials				Options																																			

## Specifications

	SI	US
Displacement	24.5 ml/rev	6.5 gal/1000*rev
Max Flow (4 Pole Speed)	35.6 L/mn 1450 RPM (50Hz)	11.4 gal/mn 1750 RPM (60Hz)
Max Flow (2 Pole Speed)	69.9 L/mn 2850 RPM (50Hz)	22.4 gal/mn 3450 RPM (60Hz)
Max Differential Pressure	1 6.9 Bar	100 psi
Max System Pressure (MAWP)	See Drive Mount	See Drive Mount
NIPR (Absolute)	180 mBar	2.5 psia
Wet Lift (Typical)	2 51 cm.H2O (1450 RPM)	24 in.H2O (1750 RPM)
Temp Range	3 See Gear Material	See Gear Material
Viscosity Range	4 0.2 to 2500 cp	0.2 to 2500 cp
Max Speed	1,750 RPM	1,750 RPM
Rotation (Facing Motor Shaft)	CW	CW
Weight (Pumphead)	8.4 kg	18.5 lbs
Dimensions (LxWxH)	See Drawing	See Drawing
Ports	3/4-14 (F) NPT Side Ports	3/4-14 (F) NPT Side Ports
Driven Magnet (Standard)		
Optional Internal Bypass	No	No

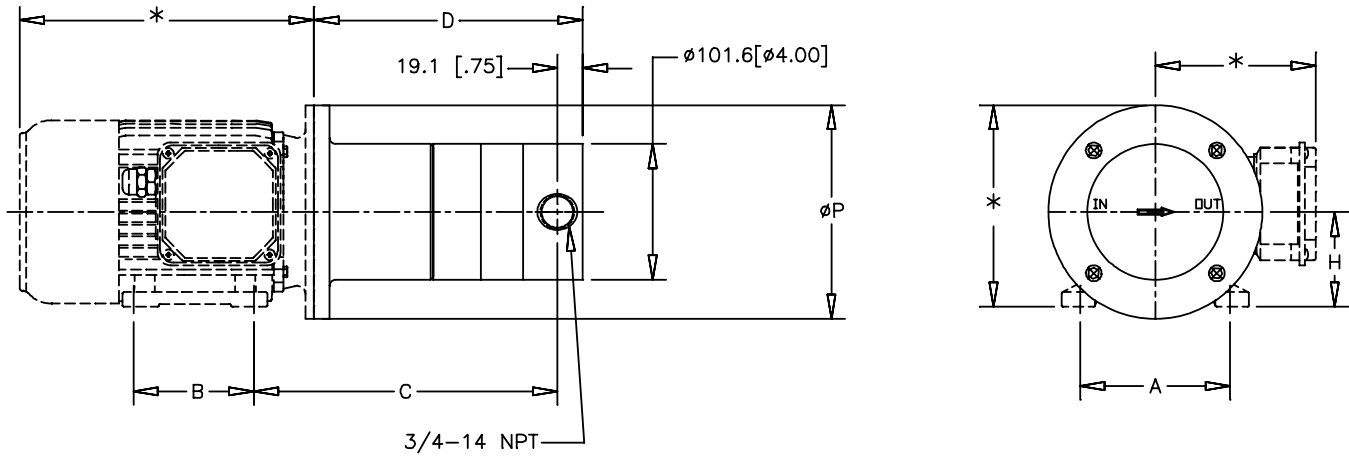
**Notes**

- 1 See Product Options. Max pressure depends on gear material.
- 2 Priming ability varies with operating conditions.
- 3 See Product Options for specific temp limits.
- 4 See Performance-High Viscosity for viscosity limits.

<b>Order Code</b>				<b>Pump Construction</b>			
<b>Base Code</b>		Gear Set		Drive Mount		<b>Options</b>	
G	N	-	G35		7		
1	2	3	4	5	6	7	8
Model			Wetted Materials			O/C: Pump S/K: Service Kit	
<p><b>Magnetic Drive Gear Pump</b>                  Cavity Style                  Three Helical, Shafted Gears/DP10                  Sleeve Bushings                  O-Ring Seals (Qty 3)                  Rare Earth Magnets</p>							



## Dimensions



MOUNT	A mm [in]	B mm [in]	C mm [in]	D mm [in]	H mm [in]	P mm [in]
7 IEC80B5B3	125 [4.92]	100 [3.94]	241.8 [9.52]	210.8 [8.30]	80 [3.15]	200 [7.87]

### NOTES:

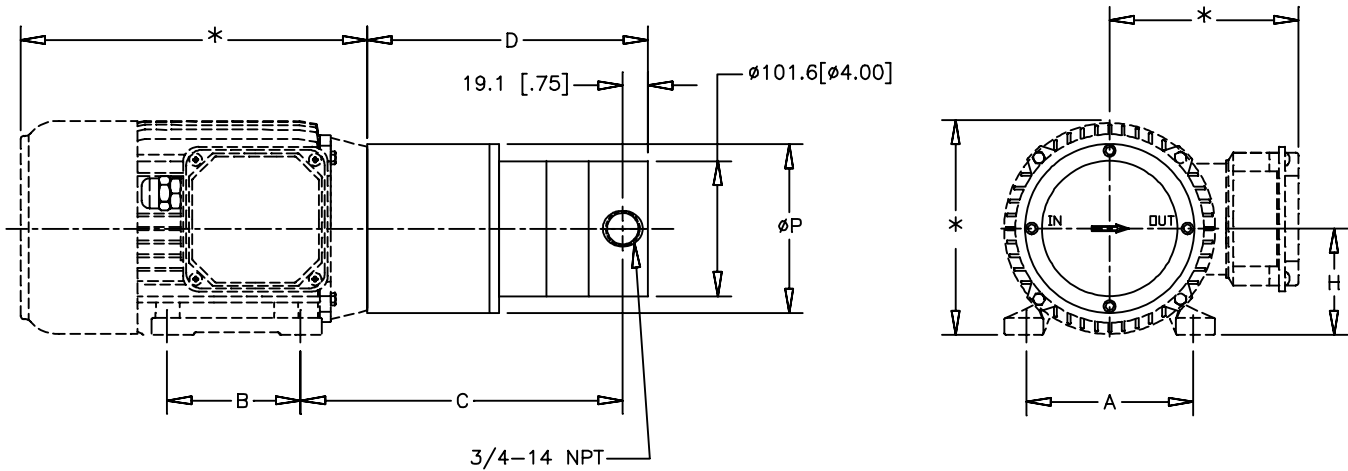
- \*THESE DIMENSIONS WILL VARY BASED ON MOTOR SELECTION.
- ALL DIMENSIONS ARE NOMINAL.

<b>Order Code</b>				<b>Pump Construction</b>			
<b>Base Code</b>		Gear Set		Drive Mount		<b>Options</b>	
G	N	-	G35	8	<input type="checkbox"/> O/C: Pump <input type="checkbox"/> S/K: Service Kit		
1 2 3 4 5 6 7 8		Wetted Materials					

**Pump Construction**

- Magnetic Drive Gear Pump
- Cavity Style
- Three Helical, Shafted Gears/DP10
- Sleeve Bushings
- O-Ring Seals (Qty 3)
- Rare Earth Magnets

## Dimensions



MOUNT	A mm [in]	B mm [in]	C mm [in]	D mm [in]	H mm [in]	P mm [in]
8 IEC80B14B3	125 [4.92]	100 [3.94]	241.2 [9.52]	210.8 [8.30]	80 [3.15]	120 [4.72]
10 IEC90SB14B3	140 [5.51]	100 [3.94]	260.2 [10.24]	223.2 [8.79]	90 [3.54]	140 [5.51]

### NOTES:

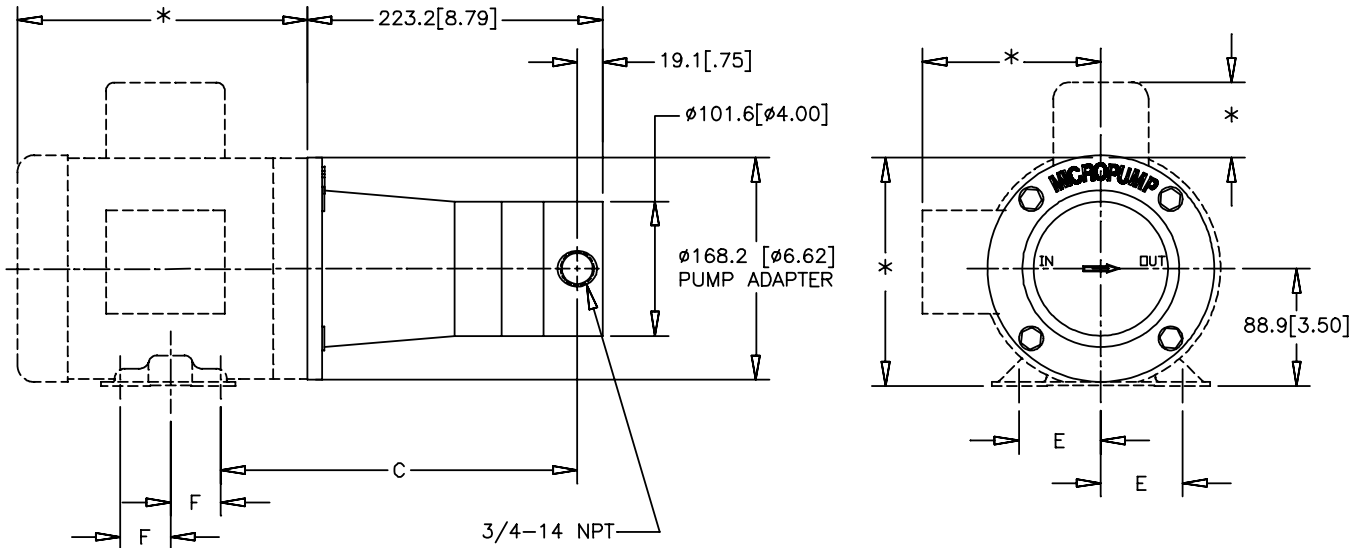
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<b>Order Code</b>				<b>Pump Construction</b>			
<b>Base Code</b>		Gear Set		Drive Mount		<b>Options</b>	
G	N	-	G35	5	6	7	E
1    2		3    4		5    6		7    8	
Model				Wetted Materials			
				O/C: Pump S/K: Service Kit			
				<b>Magnetic Drive Gear Pump</b> Cavity Style Three Helical, Shafted Gears/DP10 Sleeve Bushings O-Ring Seals (Qty 3) Rare Earth Magnets			



## Dimensions



MOUNT	C mm [in]	E mm [in]	F mm [in]
E NEMA 56C	269.5 [10.61]	61.9 [2.44]	38.1 [1.50]
K NEMA 143TC	264.6 [10.42]	69.9 [2.75]	50.8 [2.00]
K NEMA 145TC	264.6 [10.42]	69.9 [2.75]	63.5 [2.50]

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