

Series GK

Magnetic Drive Gear Pump

MICROPUMP®

Micropump® Series GK pumps deliver exceptional pumping performance for any high-precision application. These compact magnetically driven gear pumps feature a cavity style design with benefits such as chemical resistance, smooth, pulseless delivery, and high-system pressure capability. Available in standard and OEM configurations, Series GK pumps are ideal for a variety of fluid handling applications.

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 GK 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 GK has a long-life in aggressive environments.

Easy to Service

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

High-System Pressure Capability

Optional versions of the Series GK 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:

- ▶ Magnetic drive gear pump
- ▶ Two helical, shafted gears
- ▶ Sleeve bushings
- ▶ O-ring seals
- ▶ NEMA, IEC, and Micropump 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 3,450 rpm

- ▶ 9,500 mL/min (2.51 gpm)

Displacement

- ▶ Gear Set K23
- ▶ mL/rev 3.15

Maximum Rated Differential Pressure

- ▶ 60 psi (4.2 bar)

Maximum Rated System Pressure

- ▶ 1,500 psi (103 bar)

Temperature Range

- ▶ -46–54 °C (-50–130 °F)

Viscosity Range

- ▶ 0.2–1,500 cps

Maximum Speed

- ▶ 4,000 rpm

Pump Construction

- ▶ Magnetic drive gear pump
- ▶ Cavity style
- ▶ Two helical, shafted gears
- ▶ Sleeve bushings
- ▶ O-ring seals

Wetted materials

Base Materials

- ▶ 316 stainless steel

Gears

- ▶ PTFE

Static seals

- ▶ PTFE

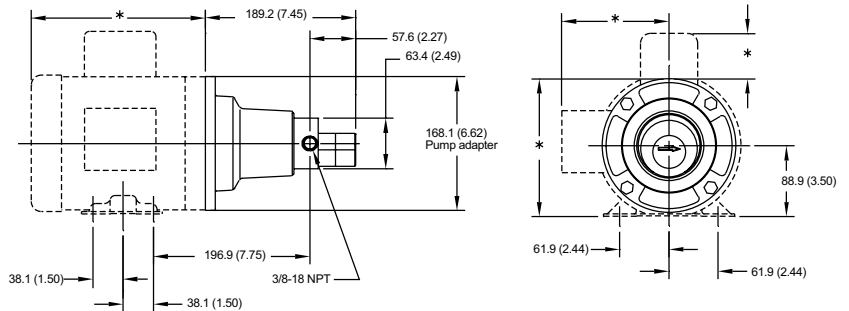
Magnets

Driven and driving

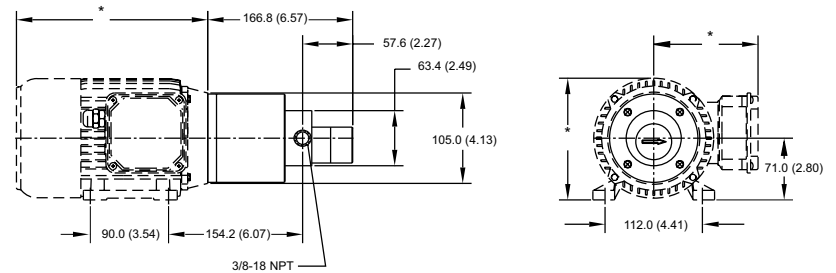
- ▶ Ferrite
- ▶ Rare earth

Dimensions

NEMA 56C Mount

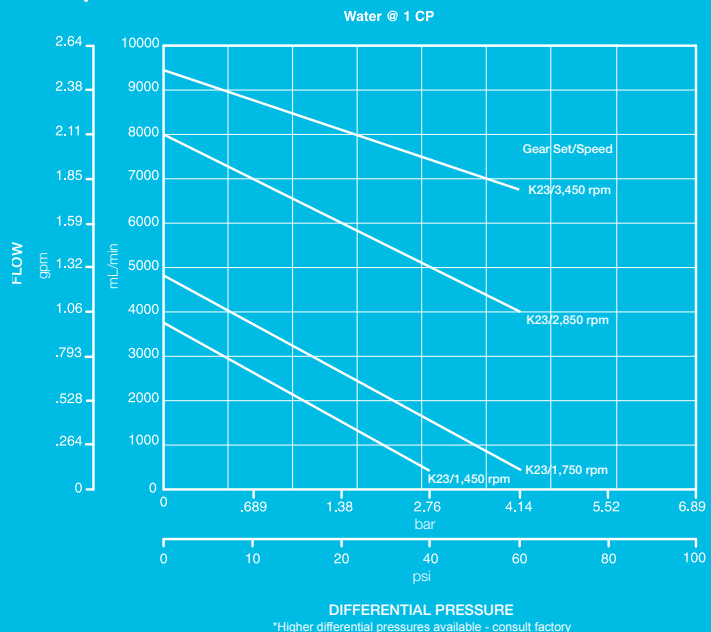


IEC 71-B14 Mount



Units: mm (in.) Nominal dimensions shown.

Pump Performance




ACTUAL PERFORMANCE MAY VARY.

Specifications are subject to change without notice.

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Revised on 06/11/2008




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

1	Code	Product Type	Specifications	Notes
	G	Gear Pump		
2	K	Product Series Series GK	<i>Max System Pressure (MAWP)</i> See Drive Mount	<i>Ports</i> 1/4-18 (F) NPT Side Ports
3	-	Modifier Standard Design		
4	K23	Gear Set (Width/N°Gears/Pitch) 0.850/2/16	<i>Displacement</i> 3.15 ml/rev (0.83 gal/1000*rev)	<i>Max Differential Pressure</i> 4.2 Bar (60 psi) <i>Driven Magnet (Standard)</i> Ferrite
5	F	Gear Material PTFE		<i>Max Differential Pressure</i> 3.5 Bar (50 psi) <i>Temp Range</i> -46/54°C (-50/130°F)
6	F V	Static Seals PTFE Viton®		<i>Temp Range</i> -46/232°C (-50/450°F) -29/204°C (-20/400°F)
7	S	Base Materials SS316		
8	E 6	Drive Mount NEMA 56C IEC 71-B14	<i>Max System Pressure (MAWP)</i> 103 Bar (1500 psi) 103 Bar (1500 psi)	<i>Weight (Pumphead)</i> 2.3 kg (5.1 lbs) 2.3 kg (5.1 lbs)

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

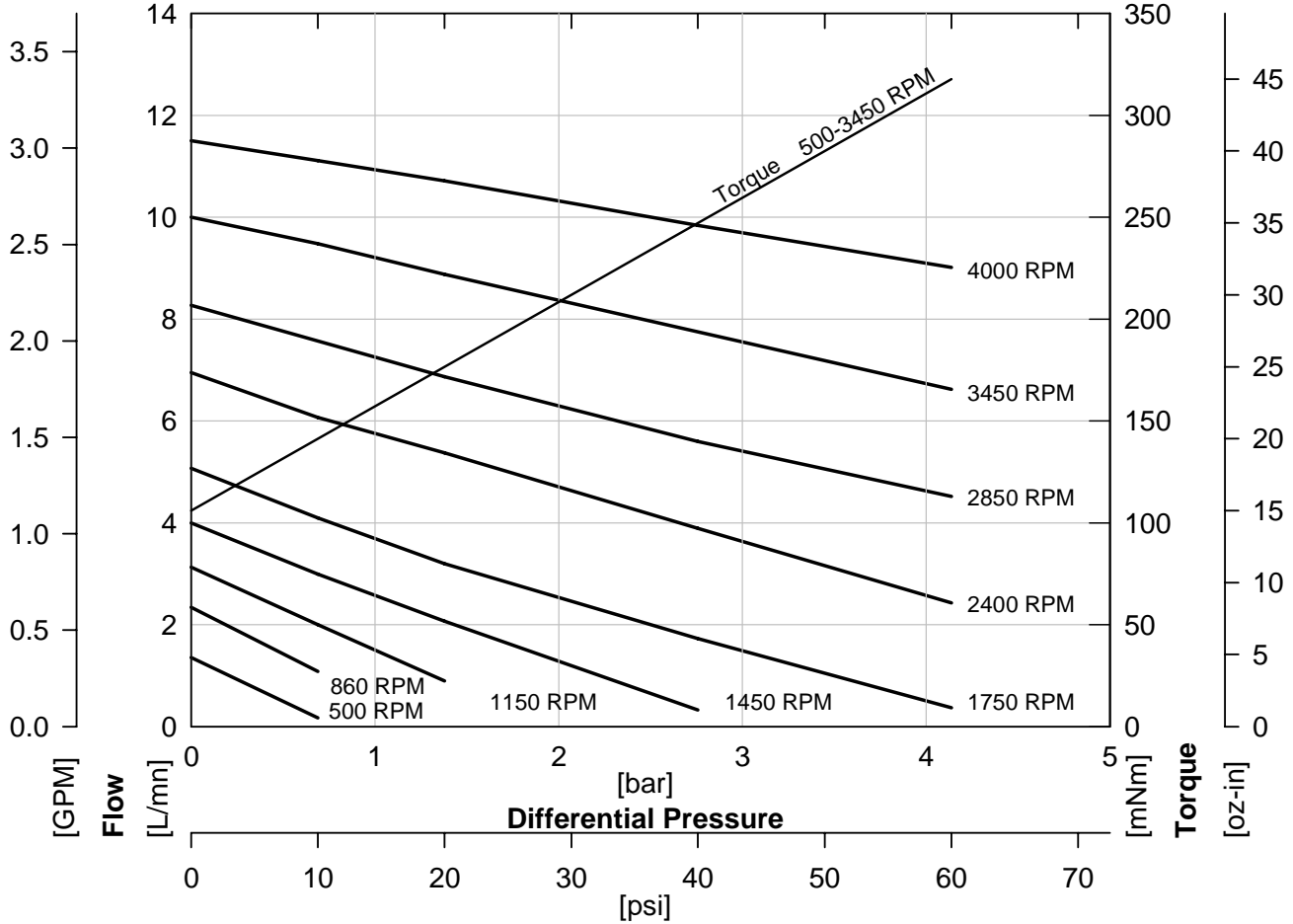
Driving Magnet (PC13)	
N3	NdFeB Driving (Ring)
Notes	

Order Code				Pump Construction			
Base Code		Gear Set		Drive Mount		Options	
G	K	-	K23				
1	2	3	4	5	6	7	8
Model			Wetted Materials				O/C: Pump S/K: Service Kit
<p>Magnetic Drive Gear Pump Cavity Style Two Helical, Shafted Gears/DP16 Sleeve Bushings O-Ring Seals (Qty 3)</p> 							

Performance

GK-K23

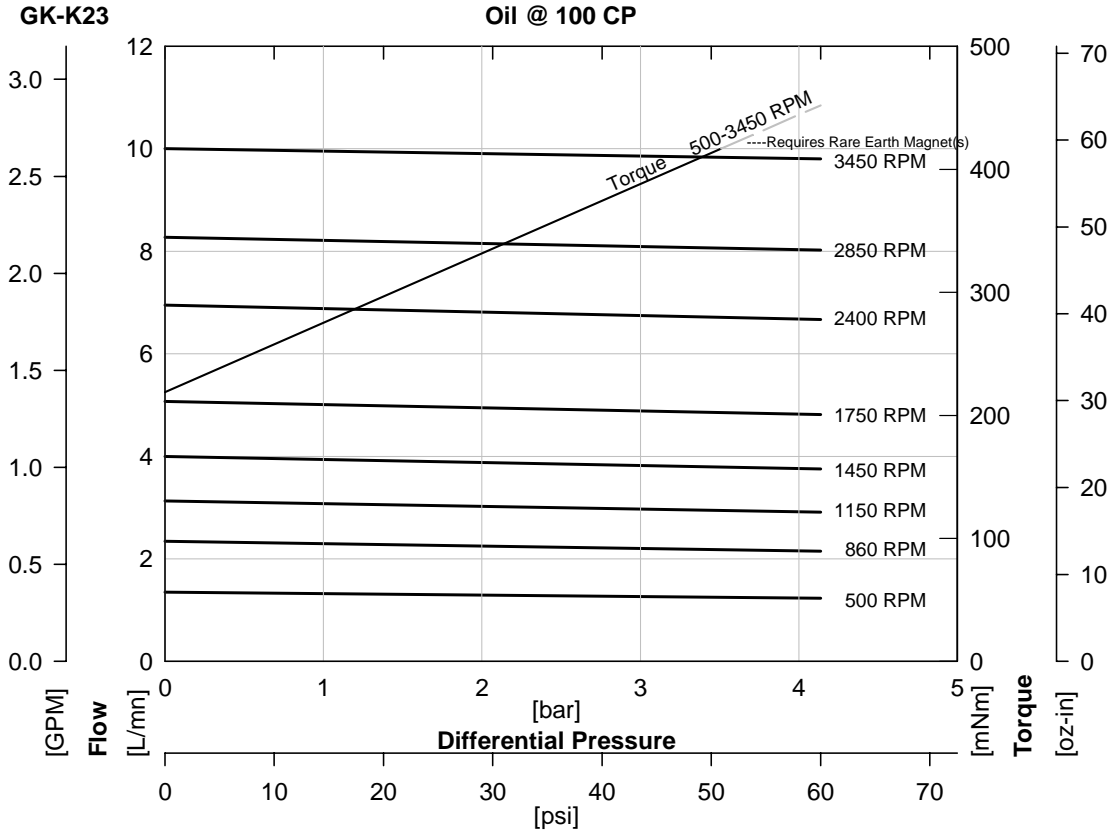
Water @ 1 CP



Order Code				Pump Construction			
Base Code		Gear Set	Drive Mount	Magnetic Drive Gear Pump			
G	K	-	K23	Cavity Style			
1	2	3	4	Two Helical, Shafted Gears/DP16			
Model			5	Sleeve Bushings			
			6	O-Ring Seals (Qty 3)			
			7				
			8				
				Options			
				O/C: Pump			
				S/K: Service Kit			



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	1500
Max Speed [RPM]		3450	3450	860
[Bar]	[psi]			
0.3	5	0.5	1	1.6
1.4	20	0.6	1	1.5
2.8	40	0.7	1	1.4
4.1	60	0.7	1	1.3

Magnet Decouple Torque			
Driven Magnet	Driving Hub	Torque [mNm]	Torque [oz.in]
Ferrite	Ferrite	417	59

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Specifications

	SI	US
Displacement	3.15 ml/rev	0.83 gal/1000*rev
Max Flow (4 Pole Speed)	4.6 L/mn 1450 RPM (50Hz)	1.5 gal/mn 1750 RPM (60Hz)
Max Flow (2 Pole Speed)	9.0 L/mn 2850 RPM (50Hz)	2.9 gal/mn 3450 RPM (60Hz)
Max Differential Pressure	1 4.2 Bar	60 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 1500 cp	0.2 to 1500 cp
Max Speed	4,000 RPM	4,000 RPM
Rotation (Facing Motor Shaft)	CW	CW
Weight (Pumphead)	1.7 kg	3.7 lbs
Dimensions (LxWxH)	See Drawing	See Drawing
Ports	1/4-18 (F) NPT Side Ports	1/4-18 (F) NPT Side Ports
Driven Magnet (Standard)	Ferrite	Ferrite
Optional Internal Bypass	No	No

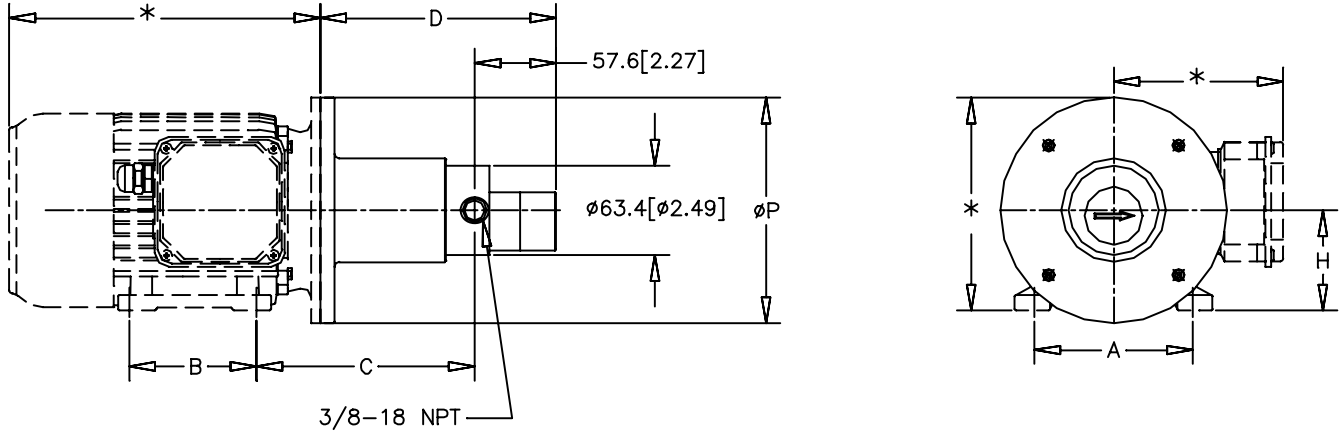
Notes

- 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.

Order Code				Pump Construction			
Base Code		Gear Set		Drive Mount		Options	
G	K	-	K23	4	6	4/6	
1 2 3 4 5 6 7 8		Wetted Materials				O/C: Pump S/K: Service Kit	

Magnetic Drive Gear Pump
Cavity Style
Two Helical, Shafted Gears/DP16
Sleeve Bushings
O-Ring Seals (Qty 3)

Dimensions



MOUNT	A mm [in]	B mm [in]	C mm [in]	D mm [in]	H mm [in]	P mm [in]
⁴ IEC63B14B3	100 [3.94]	80 [3.15]	142.3[5.60]	159.8[6.29]	63 [2.48]	140 [5.51]
⁶ IEC71B14B3	112 [4.41]	90 [3.54]	154.2[6.07]	166.8[6.57]	71 [2.80]	160 [6.30]

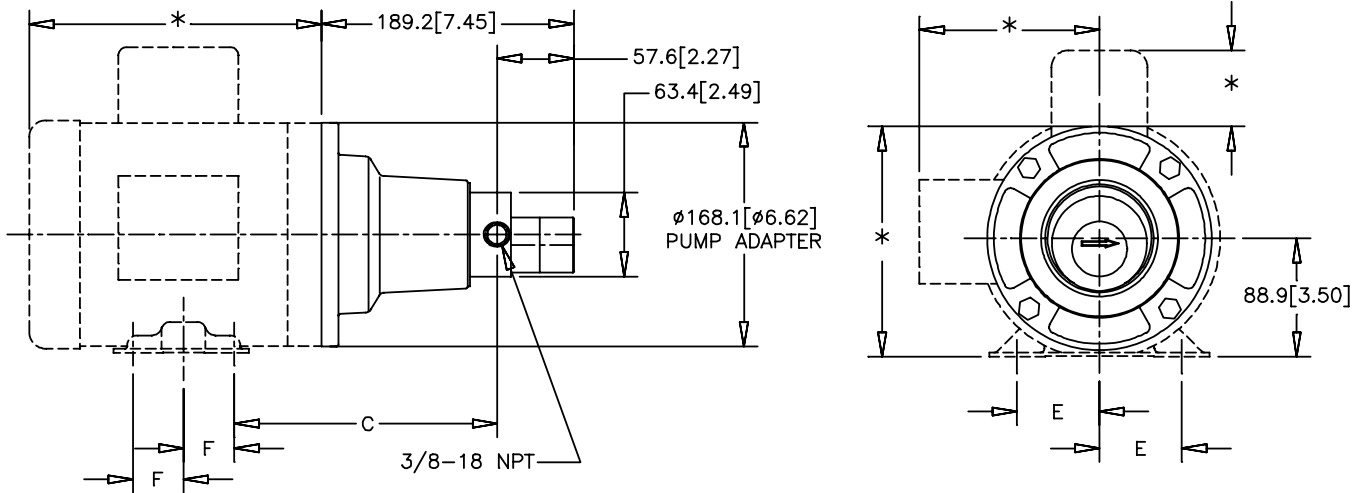
NOTES:

1. *THESE DIMENSIONS WILL VARY BASED ON MOTOR SELECTION.
2. ALL DIMENSIONS ARE NOMINAL.

Order Code				Pump Construction			
Base Code		Gear Set		Drive Mount		Options	
G	K	-	K23			E	
1	2	3	4	5	6	7	8
Model				Wetted Materials			
				O/C: Pump S/K: Service Kit			
				Magnetic Drive Gear Pump Cavity Style Two Helical, Shafted Gears/DP16 Sleeve Bushings O-Ring Seals (Qty 3)			



Dimensions



MOUNT	C mm [in]	E mm [in]	F mm [in]
^E NEMA 56C	196.9 [7.75]	61.9 [2.44]	38.1 [1.50]
^K NEMA 143TC	192.0 [7.56]	69.9 [2.75]	50.8 [2.00]
^K NEMA 145TC	192.0 [7.56]	69.9 [2.75]	63.5 [2.50]

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