LIMIT AFRICA
....A Projects Company

GRACO

Husky e-Series Pumps

1050e Overview

PROCESS DIVISION

Husky 1050e - Electric Diaphragm Pump

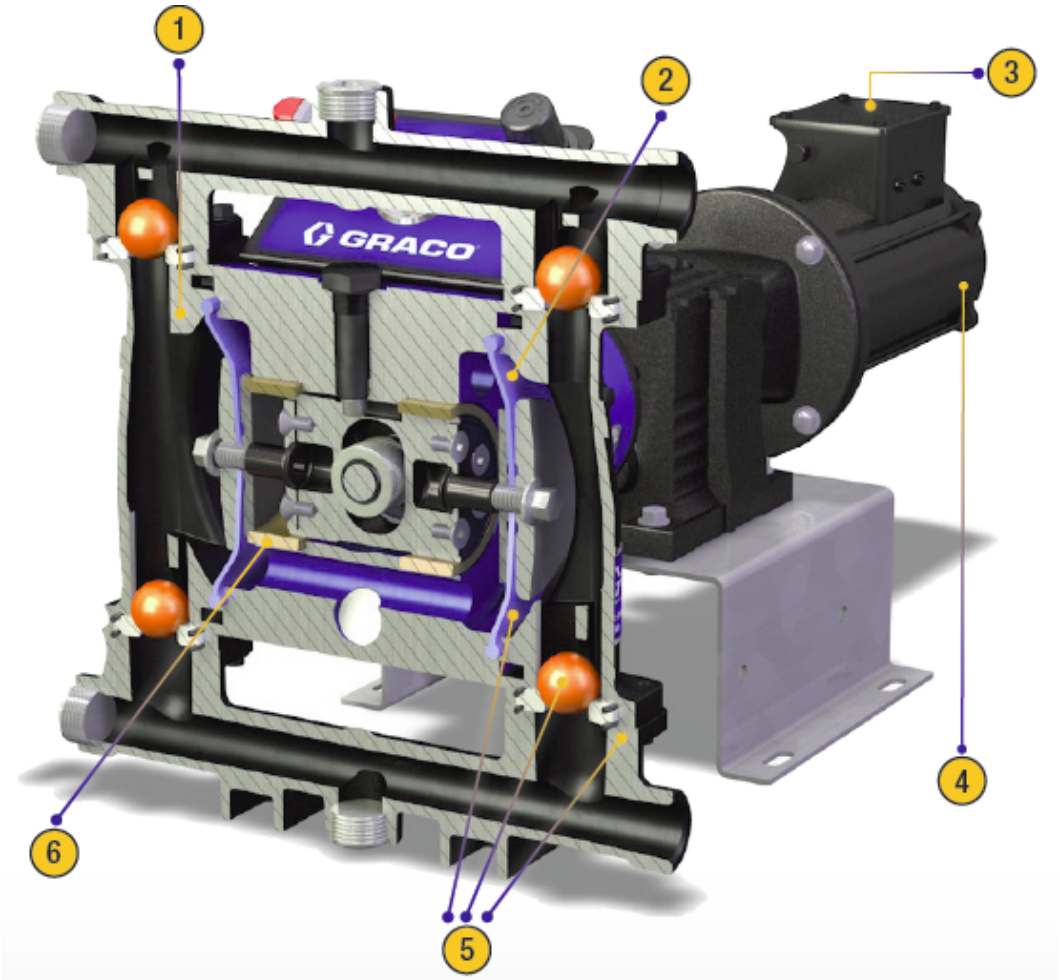
- Only electric diaphragm pump on the market that will stall under pressure
- No hydraulic backing – reduces threat of contamination
- Up to 5x more efficient than AODD
- Reduces pulsation without the addition of pulsation dampeners
- Diaphragm pump design - runs dry, self-primes, seal-less design
- No exhaust, low noise

Polypropylene

Aluminum

Stainless Steel

Husky 1050e Feature Overview



1 Durable Pump Technology
- Handles slurries and abrasives all without damage to the pump
- Gentle on shear sensitive material

2 Diaphragm Pump
- Runs dry
- No rotating or moving fluid seals
- Self priming

3 Electric Drive
- Reduce energy consumption and operating costs
- Increase pump control
- Accurately meter fluid

4 Motor Options
- Operate on 120v, 240v or 480v power
- Available in AC or Brushless DC
- Hazardous location motor options available

5 Fluid Section
- Create the pump you need with multiple material offerings for manifolds, seats, balls, and diaphragms

6 Patent Pending Air Charged Drive
- Increase diaphragm life without compromising your fluid
- Ability to **reduce pulsation** on fluid outlet
- **Stalls under pressure** without additional switches and controls

1050e Product Overview

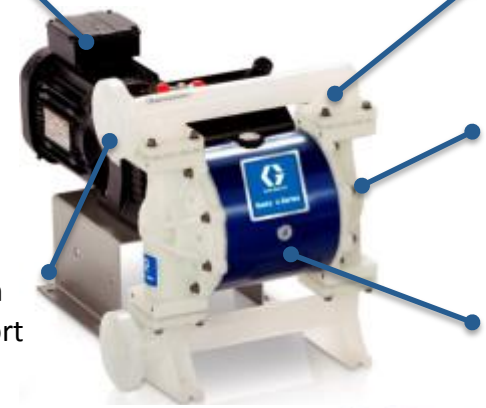
Electric motor drive improves efficiency and saves money

NEW aluminum seat

NEW two-piece PTFE/SP diaphragm

ANSI Class 150 DIN PN10 flange connection or 1 inch NPT/BSPT thread port

Aluminum or SST center section



Graco DC motor smart controller

Air charged diaphragm improves lifetime w/o hydraulic fluid contamination

Chrome plated steel trolley cart

Two Types of Motor
- AC motor
- Operate on 220 or 480V
- ATEX AC motor available
- Brushless DC motor

Two Gearbox Standards
- NEMA motor gearbox
- IEC motor gearbox

VFD & Air-charge Compressor Options

Four Product Offerings
- AC motor package
- Bare pump w/ IEC or NEMA gearbox
- DC motor package with smart control
- Cart-mounted DC motor package w/ smart control and compressor

1050e Pump Operation

Product Structure

1050A-E-A04A-A1-SS-CW-CO-PT

A B C D E F G

A – Pump Size and Material

1050 - Graco, USA

B – Center Section and Motor

A04A– Aluminum Center, AC Motor
A04B– Aluminum Center, Brushless DC Motor
A04C – Aluminum Center, ATEX AC Motor
A04D – Aluminum Center, NA Haz Loc Motor
A04E – Aluminum Center, NEMA Gearbox
A04F – Aluminum Center, IEC Gearbox
A05A – Aluminum Center, AC Motor, 115V Compressor
A05B – Aluminum Center, Brushless DC Motor, 115V Compressor
A06A – Aluminum Center, AC Motor, 220V Compressor
A06B – Aluminum Center, Brushless DC Motor, 220V Compressor
S04A– SST Center, AC Motor
S04B– SST Center, Brushless DC Motor
S04C – SST Center, ATEX AC Motor
S04D – SST Center, NA Haz Loc Motor
S04E – SST Center, NEMA Gearbox
S04F – SST Center, IEC Gearbox
S05A – SST Center, AC Motor, 115V Compressor
S05B – SST Center, Brushless DC Motor, 115V Compressor
S06A – SST Center, AC Motor, 220V Compressor
S06B – SST Center, Brushless DC Motor, 220V Compressor

C – Porting and Material

A1 – Aluminum, NPT
A2 – Aluminum, BSPT
S1 – Stainless, NPT
S2 – Stainless, BSPT
P1 – Polypropylene, End Port
P2 – Polypropylene, Center Port

D – Seats

SS – Stainless Steel
PP – Polypropylene
GE – Geolast
TP – Hytrel
SP – Santoprene
FK – Viton
AL – Aluminum

E – Ball

SS – Stainless Steel
PP – Polypropylene
GE – Geolast
TP – Hytrel
SP – Santoprene
FK – Viton
CR – Neoprene
CW – Weighted Neoprene
AC – Acetal

F – Diaphragm

PTS – PTFE/Santoprene
PTO – PTFE Overmold
SP – Santoprene
TP – Hytrel
FK – Viton
GE– Geolast
BN – Buna
CO – Neoprene

G – O-ring

PT – PTFE

Performance

Technical Specifications

Maximum fluid working pressure	70 psi (4.8 bar, 0.48 Mpa)
Air pressure operating range	20 to 80 psi (1.4 to 5.5 bar, 0.14 to 0.55 MPa)
Air inlet size	3/8 in npt(f)
Maximum suction lift*	Wet: 29 ft (8.8 m); Dry: 16 ft (4.9 m)
Maximum size pumpable solids	1/8 in (3.2 mm)
Ambient air temperature range for operation and storage**	32°F to 104°F (0°C to 40°C)
Fluid displacement per cycle	0.17 gallons (0.64 L)
Maximum free-flow delivery	42 gpm (158 lpm)
Maximum pump speed	280 cpm
Fluid Inlet and outlet Size	
Aluminum and stainless steel	1 in npt(f) or 1 in bspt
Polypropylene	1 in ANSI/DIN Raised Face Flange
AC motor power	2 HP
BLDC motor power	2.2 HP
Operation manual	344188

**Reduced if balls don't seat well due to damaged balls or seats, lightweight balls, or extreme speed of cycling*
***Exposure to extreme low temperatures may result in damage to plastic parts*

Technical Specifications

Categories	Husky 1050e	Husky 1050
Max Flow gpm (lpm)	42 (158)	49 (189)
Max Pump Speed	280 cpm	320 cpm
Max Discharge Pressure psi (bar)	70 (4.8)	125 (8.6)
Operating Air Pressure psi (bar)	20 to 80 (1.4 to 5.5)	20 to 125 (1.4 to 8.6)
Max Suction Lift ft (m)	16 (4.9)	16 (4.9)
Max Pumpable Solids in (mm)	1/8 (3.2)	1/8 (3.2)
Operating Ambient Temperature F (C)	32 to 104 (0 to 40)	-
Max Sound Pressure (dBa)	84	96

Increase Pump Control

BLDC Operation Modes

- Pump speed control for flow rate adjustment
- Cycle Count for scheduled maintenance intervals
- Batch output

Fluid level sensor connection for fluid level monitoring

Maintenance tracking, usage/error reporting

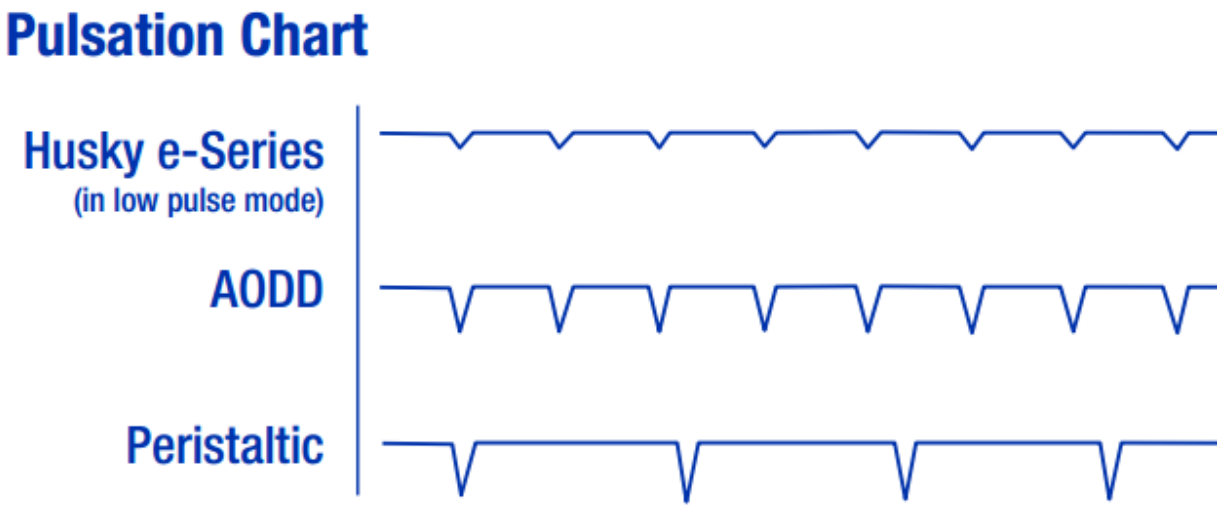
Remote input option

- Ability to be driven remotely via 4-20 mA signal or 0-10 V signal required for base unit

Low Pulsation Operation

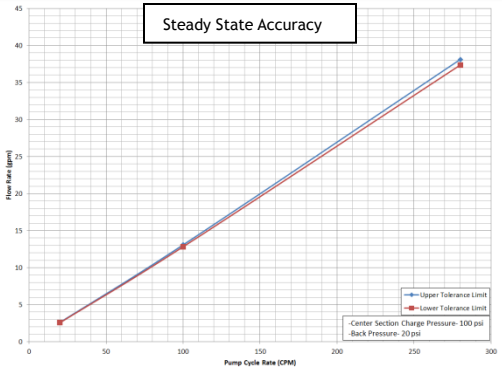
- Husky e-series pumps are ideal for applications that require low pulsation and a smooth flow. The air charged cam drive allows the elimination or reduction of pulsation WITHOUT pulsation dampeners or surge tanks.

- To reduce outlet pulsation, start by setting the air pressure ***equal to*** the desired outlet fluid pressure.

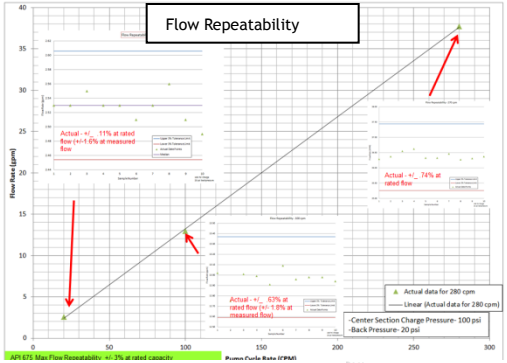


Metering

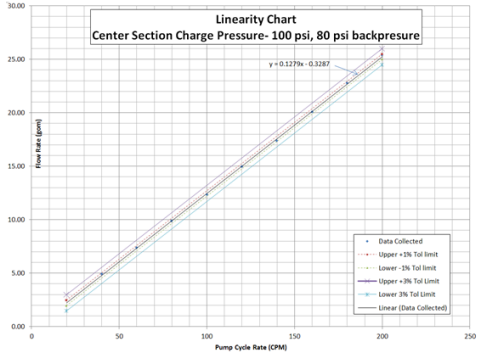
1) Steady State Accuracy (+/- 1%) - Steady state accuracy is the flow variation expressed as a percentage of mean delivered flow under fixed system conditions and applies over the turndown ratio.
Results – 1050e worst case steady state accuracy was +/-.77% (Target was +/-1%)



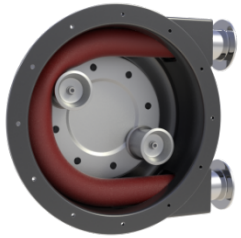
2) Flow Repeatability (+/- 3%) - Flow repeatability is expressed as a percent of rated capacity, describes the reproducibility of pump flow rate under a given set of conditions when capacity setting is varied and then returned to the set point being tested.
Results – 1050e worst case Repeatability +/-1.8% (Target was +/-3%)

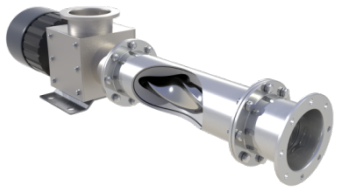


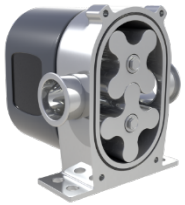
3) Linearity (+/- 3%) - Linearity is the relationship between the actual volume of liquid discharged at a given capacity setting and a best fit straight lined drawn through the plotted points of volume and capacity setting determined during the calibration tests of a pump. The deviation from this line is expressed as a percent of the rated capacity of the pump.
Results – 1050e worst case Linearity was +/-.74% (Target was +/-3%) Pump has a 10:1 turndown ratio



Competition

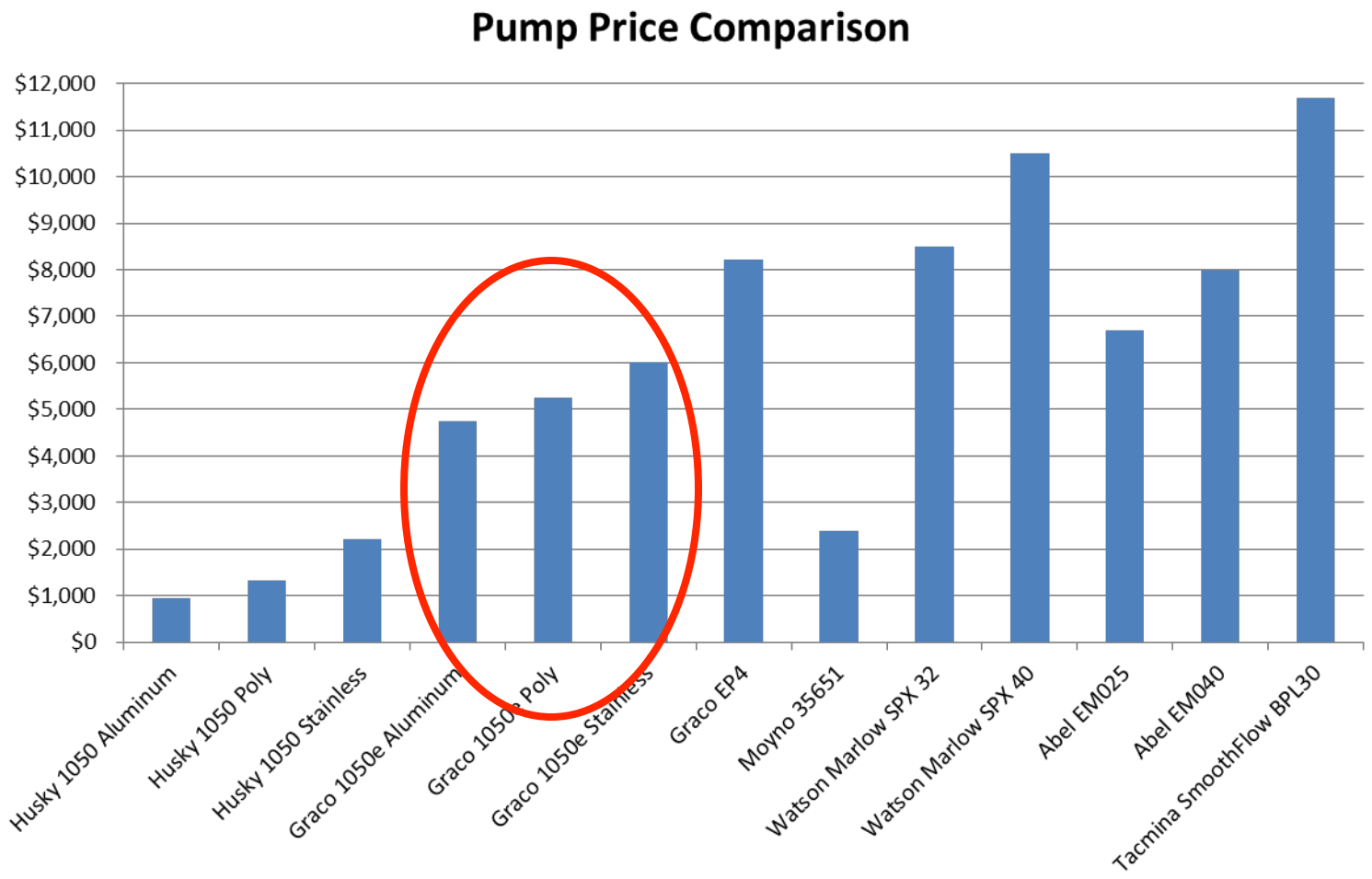




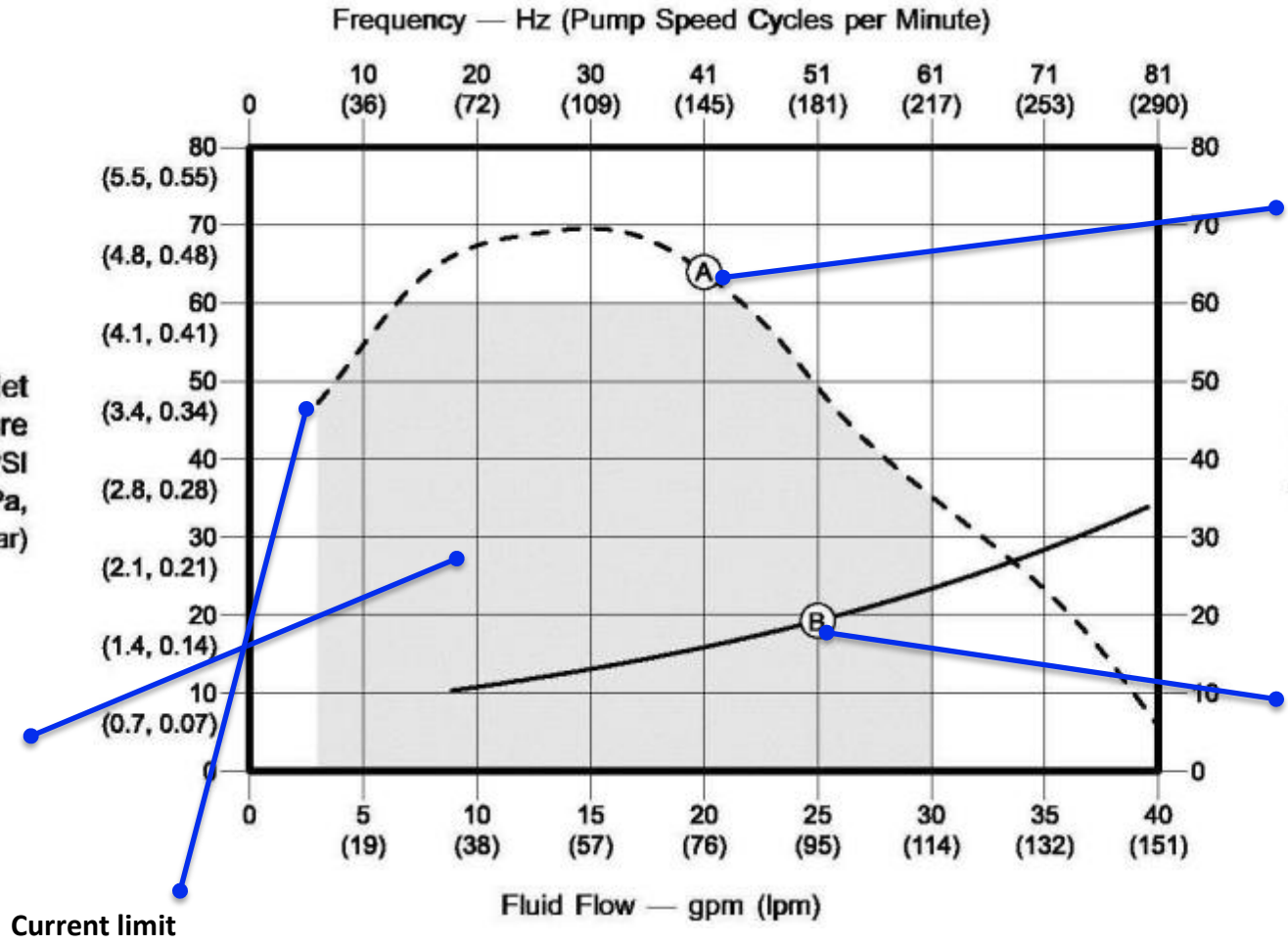


Feature	Graco Electric Diaphragm Pumps	Other Electric Diaphragm Pumps	Air-Operated Diaphragm Pumps	Peristaltic Pumps	Progressive Cavity Pumps	Rotary Lobe Pumps
Stalls under pressure	X		X			
Runs dry	X	X	X	X		
Self priming	X	X	X	X	X	
Metering capabilities	X	X		X	X	
Energy efficient electric drive	X	X		X	X	X
No rotational shaft seal	X	X	X	X		
Low pulsation operation mode	X				X	X

Pricing Comparison



Performance Curve - AC Motor



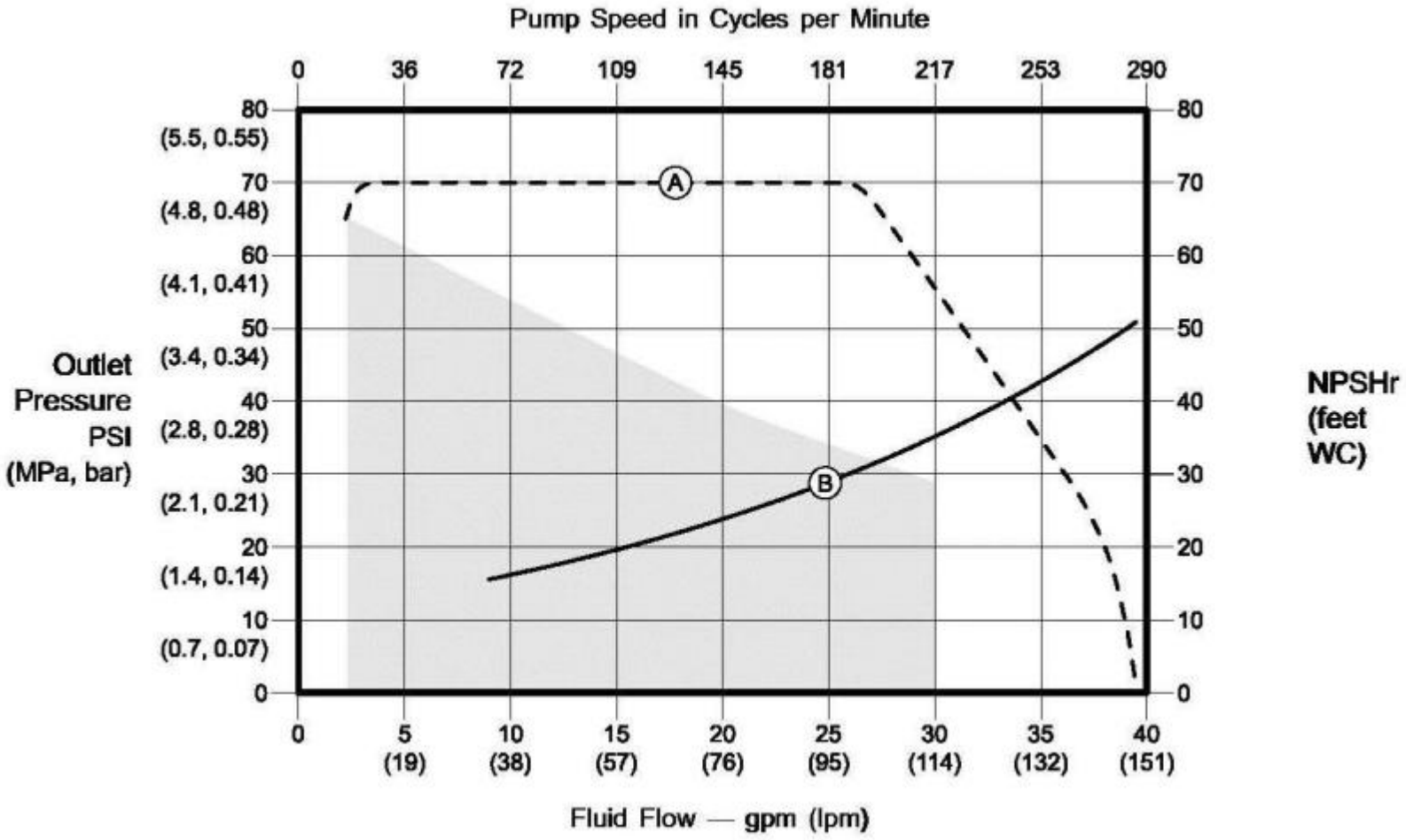
A: Power Limit Curve

B: Net positive suction head required

The shaded area is recommended for continuous duty.

Current limit

Performance Curve – DC Motor



Performance in Low Pulsation

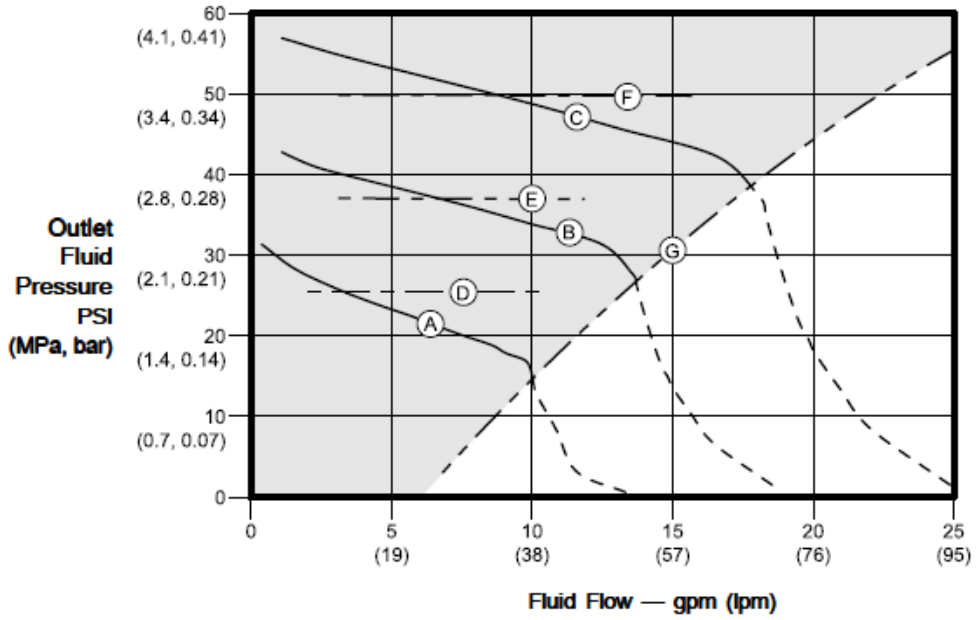
Low-Pulsation Mode

Two typical running conditions are shown in the curves. The curves show the relationship between outlet pressure and outlet flow during Low Pulsation Mode (above the transition line) and Transfer Mode (below the transition line). Adjust the pump speed and air pressure to achieve the desired result.

KEY

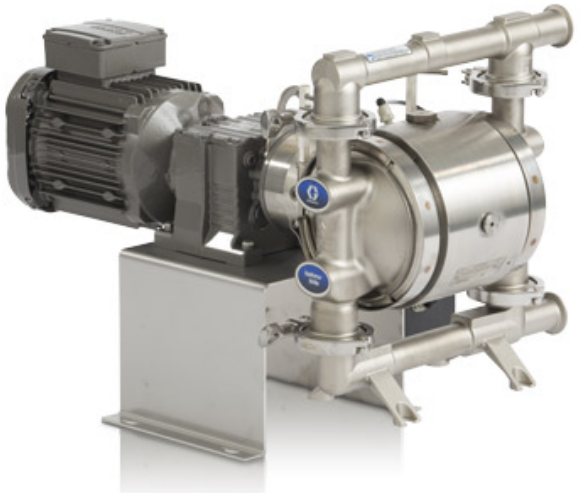
- **A** 22 Hz, 80 cycles per minute
- **B** 31 Hz, 115 cycles per minute
- **C** 40 Hz, 150 cycles per minute
- **D** 25 psi (1.7 bar) air pressure
- **E** 37 psi (2.5 bar) air pressure
- **F** 50 psi (3.5 bar) air pressure
- **G** Transition line (Low Pulsation Mode is shaded.)

Frequency



SaniForce 1040e

Technical Specifications

Maximum fluid working pressure	70 psi (4.8 bar, 0.48 Mpa)
Air pressure operating range	20 to 80 psi (1.4 to 5.5 bar, 0.14 to 0.55 MPa)
Air inlet size	3/8 in npt(f)
Maximum suction lift*	Wet: 29 ft (8.8 m); Dry: 16 ft (4.9 m)
Maximum size pumpable solids	1/8 in (3.2 mm)
Ambient air temperature range for operation and storage**	32°F to 104°F (0°C to 40°C)
Fluid displacement per cycle	0.17 gallons (0.64 L)
Maximum free-flow delivery	35 gpm (132 lpm)
Maximum pump speed	280 cpm
Fluid Inlet and outlet size	
Stainless steel	1.5 in sanitary flange or DIN
AC motor power	2 HP
BLDC motor power	2.2 HP

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