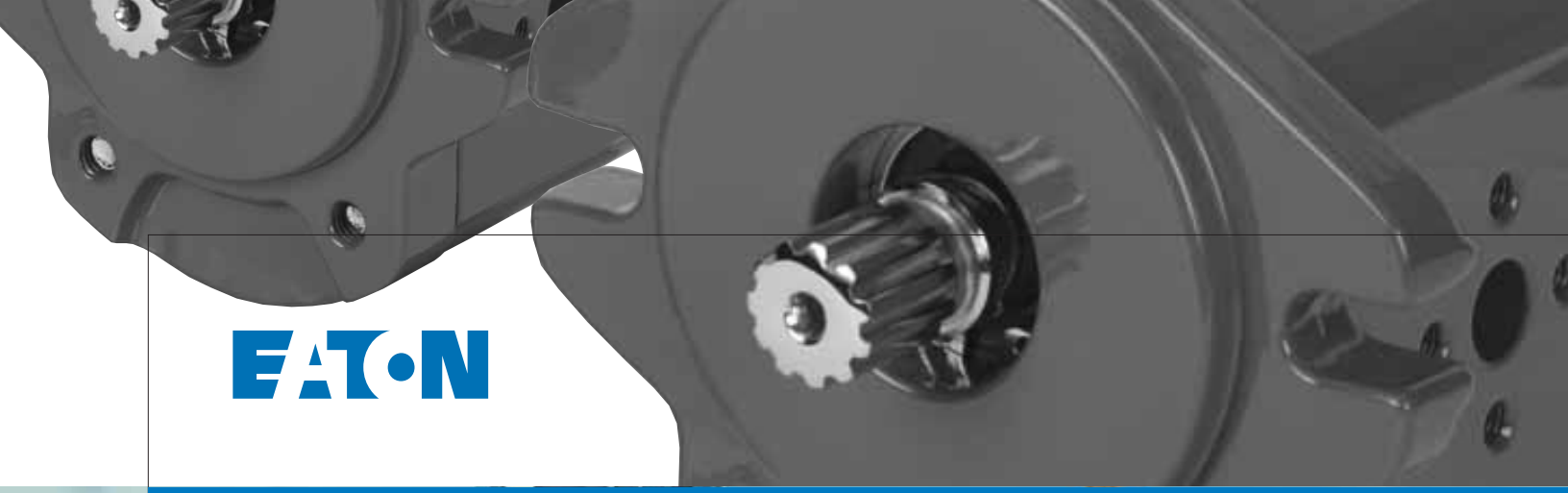
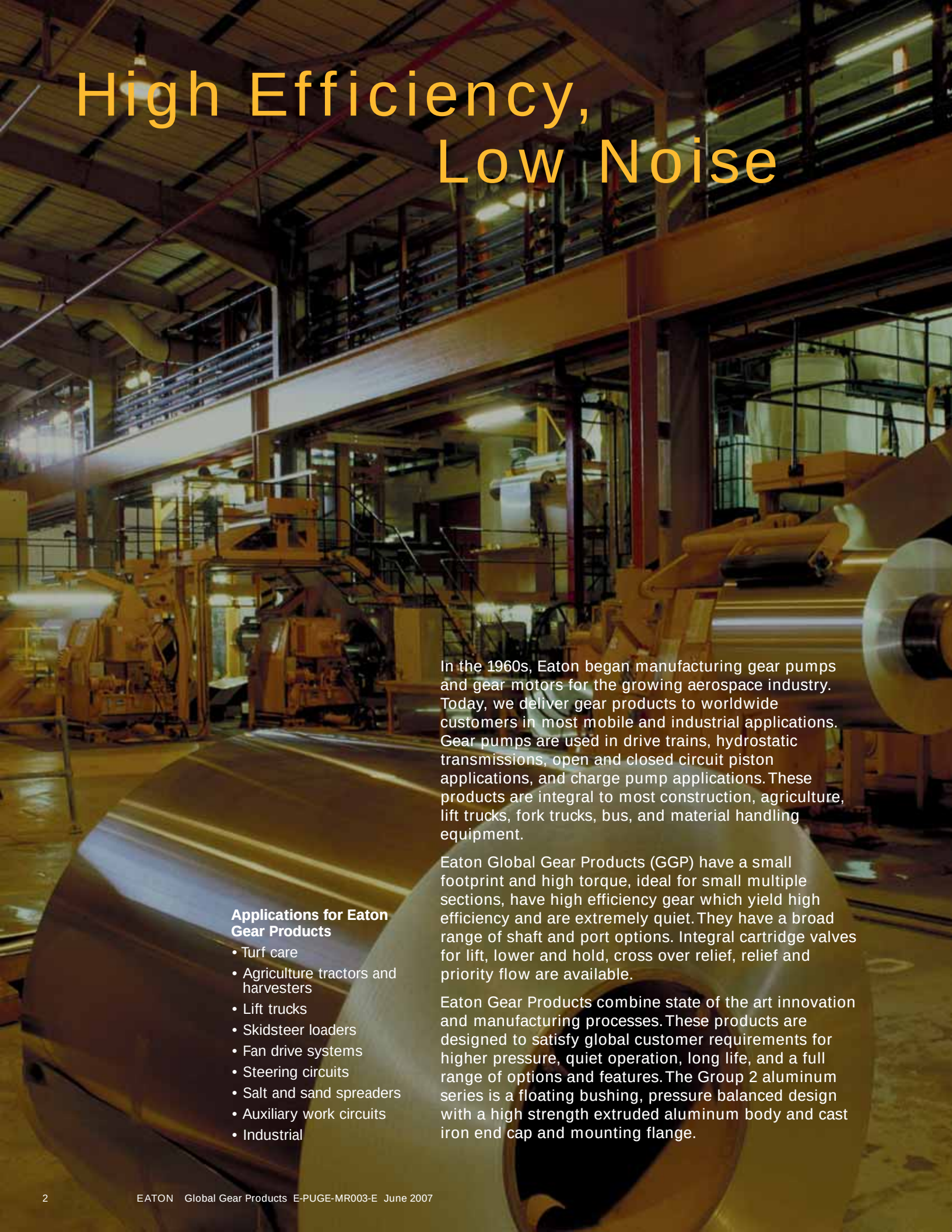


Global Gear Products

Brochure

SAE A-Aluminum (Group 2)

High Efficiency, Low Noise



In the 1960s, Eaton began manufacturing gear pumps and gear motors for the growing aerospace industry. Today, we deliver gear products to worldwide customers in most mobile and industrial applications. Gear pumps are used in drive trains, hydrostatic transmissions, open and closed circuit piston applications, and charge pump applications. These products are integral to most construction, agriculture, lift trucks, fork trucks, bus, and material handling equipment.

Eaton Global Gear Products (GGP) have a small footprint and high torque, ideal for small multiple sections, have high efficiency gear which yield high efficiency and are extremely quiet. They have a broad range of shaft and port options. Integral cartridge valves for lift, lower and hold, cross over relief, relief and priority flow are available.

Eaton Gear Products combine state of the art innovation and manufacturing processes. These products are designed to satisfy global customer requirements for higher pressure, quiet operation, long life, and a full range of options and features. The Group 2 aluminum series is a floating bushing, pressure balanced design with a high strength extruded aluminum body and cast iron end cap and mounting flange.

Applications for Eaton Gear Products

- Turf care
- Agriculture tractors and harvesters
- Lift trucks
- Skidsteer loaders
- Fan drive systems
- Steering circuits
- Salt and sand spreaders
- Auxiliary work circuits
- Industrial

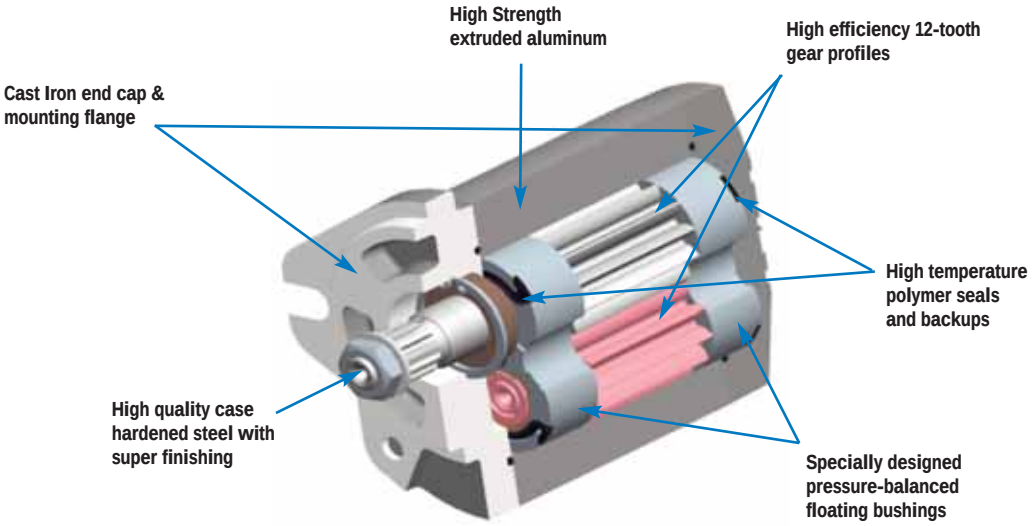
GGP A-Aluminum (Group 2) Pumps

Features

- High efficiency gear profiles
- 12 tooth low noise and pressure ripple gear design
- Continuous operating pressures to 276 bar [4000 psi]
- Rated operating speeds to 4000 rpm
- 10 displacements available from 5.3cc [.32cid] to 33.4cc [2.04cid]
- Input shaft torques up to 160Nm (1418 lb-in)
- SAE, DIN, & ISO flange, shaft, and porting styles
- Field reversibility
- Built to ISO 9001 standards

Customizing Options

- Single and multiple section pumps
- Isolated sections for applications requiring separate fluids or reservoirs
- Common and separate inlets
- Relief valve and priority control valve options
- Auxiliary mounting features



SAE A Frame (Group 2) Competitor Cross Reference

Eaton GGP A- AL
Parker® PGP511
Sauer® SNP2
Haldex™ W900
Cassapa™ Polaris™ PLP20
Rexroth™ Series F
Marzocchi™ Series 2

Noise Reduction in Hydraulic Systems

It's a fact of life. Mechanical equipment makes noise. Some noise is unavoidable, such as when hardened materials make sudden contact. Other kinds of unwanted sound, such as airborne noise from hydraulic vibration, can be reduced through design improvements. Eaton gear pumps provide high performance at lower decibel levels, which reduces operator fatigue and provides better working conditions for employees and visitors.

How Noise Is Created

Fluid power systems apply pressure to liquids in closed hydraulic circuits. That pressure is created by gear pumps, which convert rotary power into fluid power. When hydraulic fluid passes through the gears of a pump, it carries a waveform produced by the interaction of the gears. This pulsing results in vibration that can shake the hydraulic circuit and create noise. Often, the pulsing itself is audible. Even without affecting other components, a gear pump can generate sounds that distract.

How Eaton Reduces Noise

The size and shape of the wave created in the gear pump depends on the way the gears fit together. As more fluid is trapped between the gear teeth and then released, a larger wave is created, one with higher peaks and deeper valleys.

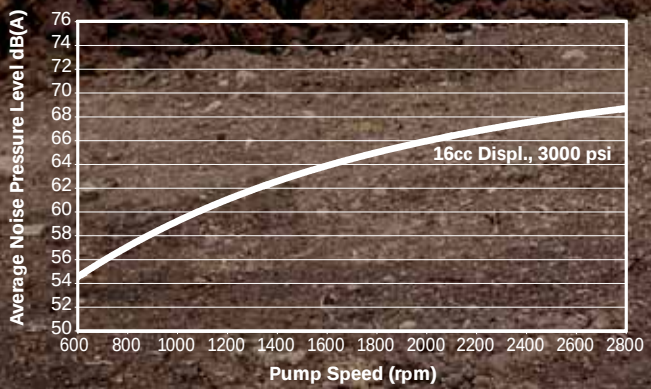
By refining the fit of the teeth between gears—Eaton has reduced the size of the wave, resulting in lower vibration and less airborne noise.

Eaton Gear Pumps

The design of any fluid power system will have many requirements. You select components based on their capabilities and compatibility. When you specify a gear pump, look for more than output. For reliable performance with reduced vibration and noise, choose gear pumps from Eaton.

Noise Pressure Level

Measured in a low noise room to ISO 4412, part 1. Distance of noise sensor to pump = 1 m (3.2 ft)., ISO32 fluid @ 48C (120F)



Performance Data

GGP A MOUNT ALUMINUM

Displacement	cm^3/r	5.3	6.5	8.3	10.3	12.9	16.1	20.0	24.0	28.4	33.4
	in^3/r	0.32	0.40	0.51	0.63	0.79	0.98	1.22	1.46	1.73	2.04
Max Continuous Pressure	bar	276	276	276	276	276	276	250	235	200	170
	psi	4000	4000	4000	4000	4000	4000	3625	3400	2900	2465
Max Intermittent Pressure	bar	305	305	305	305	305	305	276	270	220	190
	psi	4425	4425	4425	4425	4425	4425	4002	3920	3190	2750
Rated Speed		4000	4000	4000	3600	3300	3000	2800	2600	2300	2100
Min Rated Speed		700	700	700	700	700	700	700	700	700	700
Min Output Flow at Continuous Rated Speed & Pressure	LPM	18.7	22.9	29.2	32.6	37.5	44.4	51.5	57.4	60.1	64.5
	GPM	4.9	6.0	7.7	8.6	9.9	11.7	13.6	15.2	15.9	17.0
Input Power at Continuous Rated Speed & Pressure	kW	11.6	14.3	18.2	20.4	23.4	26.5	27.5	28.8	25.6	23.4
	HP	15.6	19.1	24.4	27.3	31.3	35.6	36.8	38.6	34.4	31.4

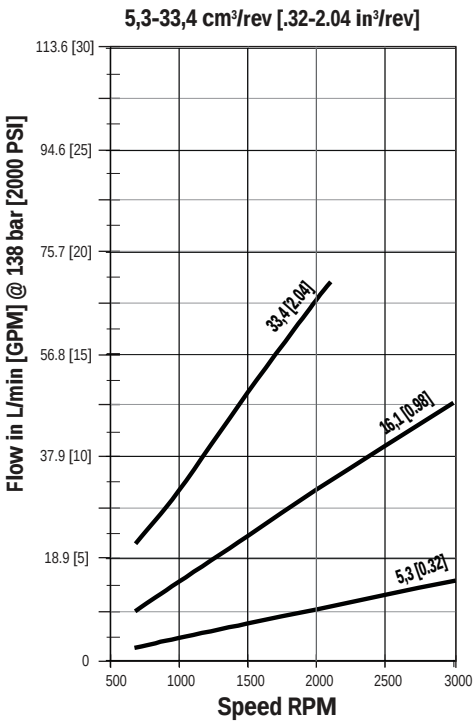
Note: Performance data was collected using a mineral based oil with a viscosity of 133 SUS at 49ºC (120ºF)

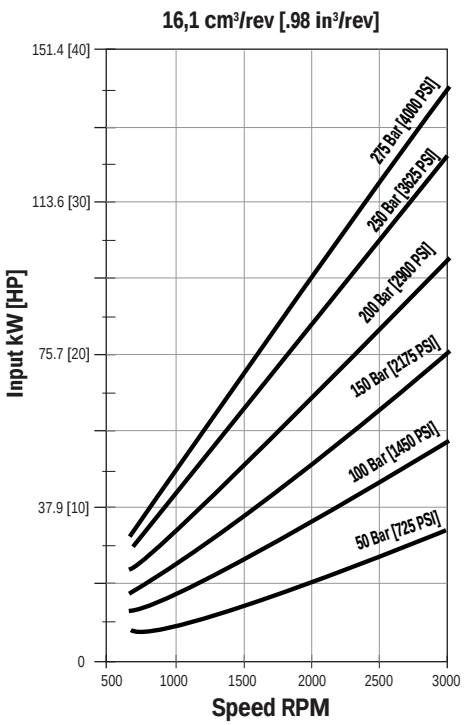
General Specifications

DATA

Mounting flange	SAE 2 Bolt A	Max. Rotating Torque at 0 Pressure (single section)	5.5 N-m (4.0 ft-lb)
	SAE 2 Bolt B	Max Continuous Inlet Temperature	80˚C (180˚F)
	European Rectangular	Min. Operating Temperature	-29˚C (- 20˚F)
Max. Continuous Pressure	276 bar (4000 psi)*	Max. Inlet Vacuum at Operating Condition	6.0 In. Hg.
Max. Intermittent Pressure	305 bar (4400 psi)*		
Min. Speed at Constant Pressure	700 RPM		
Operating Viscosity	8 cSt Min. 2000 cSt Max. at start up under load (16-40 cSt optimum)		

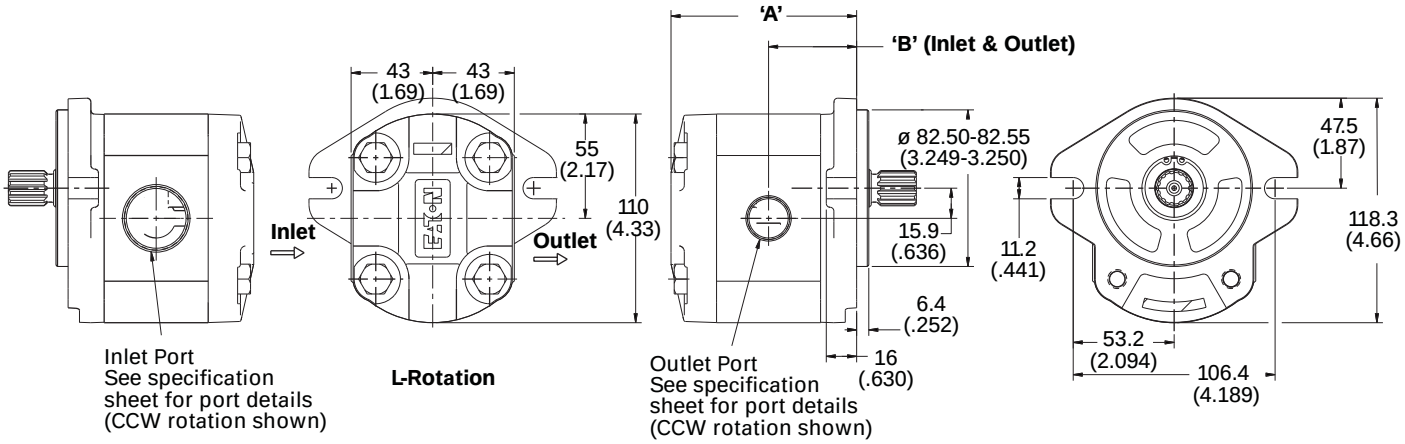
* Displacements can vary with respect to pressure and speed capability. See table for individual ratings.





Stocked Prototype Products

The following products has been developed to offer preferred configuration features for the GGP A AL pump. These products are locally stocked and have shorten leadtimes. Please contact your local customer service representative for leadtime questions.



SAE A Mount (A), 9Tooth 16/32p Shaft (01)

Model Code:

AEG (L,R) A (DISP) 00000101 (AB, AC) 0000000000A000AA

DISPLACEMENT	ORDERING-NUMBER		DIMENSIONS A	B	WEIGHT	INLET PORT	OUTLET PORT
cm³/r (in³/r)	**Left**	**Right**	**mm (in)**	**mm (in)**	**Kg (lb.)**		
5.3 (.32) (GA)	**221AD00126A**	**221AD00002A**	93.6 (3.68)	44.1 (1.74)	3.6 (7.90)	1 1/16“-12 UN	7/8“-14 UN (AB)
6.5 (.40) (GB)	**221AD00127A**	**221AD00010A**	93.6 (3.68)	44.1 (1.74)	3.6 (7.90)	1 1/16“-12 UN	7/8“-14 UN (AB)
8.3 (.51) (GC)	**221AD00129A**	**221AD00018A**	98.2 (3.86)	46.4 (1.88)	3.7 (8.20)	1 1/16“-12 UN	7/8“-14 UN (AB)
10.3 (.63) (GD)	**221AD00165A**	**221AD00026A**	99.2 (3.90)	47.9 (1.89)	3.8 (8.40)	1 1/16“-12 UN	7/8“-14 UN (AB)
12.9 (.79) (GE)	**221AD00132A**	**221AD00033A**	105.1 (4.14)	49.9 (1.96)	3.9 (8.60)	1 5/16“-12 UN	7/8“-14 UN (AC)
16.1 (.98) (GF)	**221AD00134A**	**221AD00041A**	108.0 (4.25)	52.3 (2.06)	4.0 (8.80)	1 5/16“-12 UN	7/8“-14 UN (AC)
20.0 (1.22) (GG)	**221AD00136A**	**221AD00049A**	113.9 (4.49)	55.3 (2.18)	4.3 (9.50)	1 5/16“-12 UN	7/8“-14 UN (AC)
24.0 (1.46) (GH)	**221AD00138A**	**221AD00057A**	120.0 (4.72)	58.3 (2.30)	4.4 (9.70)	1 5/16“-12 UN	7/8“-14 UN (AC)
28.4 (1.73) (GJ)	**221AD00139A**	**221AD00065A**	128.7 (5.07)	61.7 (2.43)	4.6 (10.10)	1 5/16“-12 UN	7/8“-14 UN (AC)
33.4 (2.04) (GK)	**221AD00141A**	**221AD00073A**	134.3 (5.29)	65.5 (2.58)	4.9 (10.80)	1 5/16“-12 UN	7/8“-14 UN (AC)

SAE A Mount (A), 5/8" Straight Shaft (02)

Model Code:

AEG (L,R) A (DISP) 00000201 (AB, AC) 0000000000A000AA

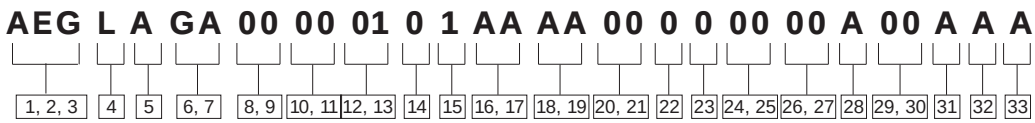
DISPLACEMENT	ORDERING-NUMBER		DIMENSIONS A	B	WEIGHT	INLET PORT	OUTLET PORT
cm³/r (in³/r)	**Left**	**Right**	**mm (in)**	**mm (in)**	**Kg (lb.)**		
5.3 (.32) (GA)	**221AD00164A**	**221AD00008A**	93.6 (3.68)	44.1 (1.74)	3.6 (7.90)	1 1/16“-12 UN	7/8”-14 UN (AB)
6.5 (.40) (GB)	**221AD00128A**	**221AD00016A**	93.6 (3.68)	45.0 (1.77)	3.6 (7.90)	1 1/16“-12 UN	7/8”-14 UN (AB)
8.3 (.51) (GC)	**221AD00130A**	**221AD00024A**	98.2 (3.86)	46.4 (1.88)	3.7 (8.20)	1 1/16“-12 UN	7/8”-14 UN (AB)
10.3 (.63) (GD)	**221AD00131A**	**221AD00032A**	99.2 (3.90)	47.9 (1.89)	3.8 (8.40)	1 1/16“-12 UN	7/8”-14 UN (AB)
12.9 (.79) (GE)	**221AD00133A**	**221AD00039A**	105.1 (4.14)	49.9 (1.96)	3.9 (8.60)	1 5/16“-12 UN	7/8“-14 UN (AC)
16.1 (.98) (GF)	**221AD00135A**	**221AD00047A**	108.0 (4.25)	52.3 (2.06)	4.0 (8.80)	1 5/16“-12 UN	7/8“-14 UN (AC)
20.0 (1.22) (GG)	**221AD00137A**	**221AD00055A**	113.9 (4.49)	55.3 (2.18)	4.3 (9.50)	1 5/16“-12 UN	7/8“-14 UN (AC)
24.0 (1.46) (GH)	**221AD00166A**	**221AD00063A**	120.0 (4.72)	58.3 (2.30)	4.4 (9.70)	1 5/16“-12 UN	7/8“-14 UN (AC)
28.4 (1.73) (GJ)	**221AD00140A**	**221AD00071A**	128.7 (5.07)	61.7 (2.43)	4.6 (10.10)	1 5/16“-12 UN	7/8“-14 UN (AC)
33.4 (2.04) (GK)	**221AD00142A**	**221AD00079A**	134.3 (5.29)	65.5 (2.58)	4.9 (10.80)	1 5/16“-12 UN	7/8“-14 UN (AC)

Preferred Products Model Code

The following 33 digit coding system has been developed to identify preferred feature options for the GGP A AL pump. Use this code to specify a pump with the desired features. All 33-digits of the code must be present to release a new product number for ordering.

Please contact your local customer service representative for leadtime questions.

This model code shows Preferred Products only. For a complete model code listing all available options, please refer to Doc. No. E-PUGE-MR002-E1.



1, 2, 3 Global Gear Pump

AEG – A Mount Aluminum

4 Input Rotation

L – Left-Hand Rotation CCW
R – Right-Hand Rotation CW

5 Mounting Features (Front)

A – SAE J744 82-2 (SAE A) 2 Bolt

6, 7 Displacement (Front)

GA – 5.3 cm³/r [.32 in³/r]
GB – 6.5 cm³/r [.40 in³/r]
GC – 8.3 cm³/r [.51 in³/r]
GD – 10.3 cm³/r [.63 in³/r]
GE – 12.9 cm³/r [.79 in³/r]
GF – 16.1 cm³/r [.98 in³/r]
GG – 20.0 cm³/r [1.22 in³/r]
GH – 24.0 cm³/r [1.46 in³/r]
GJ – 28.4 cm³/r [1.73 in³/r]
GK – 33.4 cm³/r [2.04 in³/r]

8, 9 Displacement (Center for triple only)

00 – None
GA – 5.3 cm³/r [.32 in³/r]
GB – 6.5 cm³/r [.40 in³/r]
GC – 8.3 cm³/r [.51 in³/r]
GD – 10.3 cm³/r [.63 in³/r]
GE – 12.9 cm³/r [.79 in³/r]
GF – 16.1 cm³/r [.98 in³/r]
GG – 20.0 cm³/r [1.22 in³/r]
GH – 24.0 cm³/r [1.46 in³/r]
GJ – 28.4 cm³/r [1.73 in³/r]
GK – 33.4 cm³/r [2.04 in³/r]

10, 11 Displacement (Rear for double and triple)

00 – None
GA – 5.3 cm³/r [.32 in³/r]
GB – 6.5 cm³/r [.40 in³/r]
GC – 8.3 cm³/r [.51 in³/r]
GD – 10.3 cm³/r [.63 in³/r]
GE – 12.9 cm³/r [.79 in³/r]
GF – 16.1 cm³/r [.98 in³/r]
GG – 20.0 cm³/r [1.22 in³/r]
GH – 24.0 cm³/r [1.46 in³/r]
GJ – 28.4 cm³/r [1.73 in³/r]
GK – 33.4 cm³/r [2.04 in³/r]

12, 13 Input Shaft

01 – SAE A - 9 Tooth 16/32 Spline
02 – SAE A 5/8" Straight Keyed Shaft
03 – SAE A - Tapered Shaft
04 – 11 Tooth 16/32 Spline
08 – 3/4" Straight Keyed Shaft

14 Auxialliary Mounting Features

0 – No Rear mounting

15 Port Location

1 – Suction Side, Pressure Side

16, 17 Suction and Pressure (Front)

AA – .875-14 UNF-2B SAE O-Ring Port (SAE #10); .750-16 UNF-2B SAE O-Ring Port (SAE #8)
AB – 1.0625-12 UN-2B SAE O-Ring Port (SAE #12); .875-14 UNF-2B SAE O-Ring Port (SAE #10)
AC – 1.3125-12 UN-2B SAE O-Ring Port (SAE #16); .875-14 UNF-2B SAE O-Ring Port (SAE #10) (for valve options also)

18, 19 Suction and Pressure (Center for triple only)

00 – None
AA – .875-14 UNF-2B SAE O-Ring Port (SAE #10); .750-16 UNF-2B SAE O-Ring Port (SAE #8)
AB – 1.0625-12 UN-2B SAE O-Ring Port (SAE #12); .875-14 UNF-2B SAE O-Ring Port (SAE #10)
AC – 1.3125-12 UN-2B SAE O-Ring Port (SAE #16); .875-14 UNF-2B SAE O-Ring Port (SAE #10) (for valve options also)

20, 21 Suction and Pressure (Rear for double and triple)

00 – None
AA – .875-14 UNF-2B SAE O-Ring Port (SAE #10); .750-16 UNF-2B SAE O-Ring Port (SAE #8)
AB – 1.0625-12 UN-2B SAE O-Ring Port (SAE #12); .875-14 UNF-2B SAE O-Ring Port (SAE #10)
AC – 1.3125-12 UN-2B SAE O-Ring Port (SAE #16); .875-14 UNF-2B SAE O-Ring Port (SAE #10) (for valve options also)

22 Valve Style

0 – No Relief Valve

23 Secondary Pressure Port (Flow Divider)

0 – No Secondary Pressure Port

24, 25 Priority Flow Divider Setting

00 – No Flow Setting

26, 27 Relief Valve Setting

00 – No Flow Setting

28 Seal Type

A – Buna-N Seal

29, 30 Special Features

00 – No Special Features

31 Paint

0 – No Paint
A – Primer per Spec 209-13A
B – Black per spec 209-13B

32 Identification

A – Eaton Number and Nameplate

33 Design Code

A – A

Eaton
Hydraulics Operations USA
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952-937-9800
Fax: 952-294-7722
www.hydraulics.eaton.com

Eaton
Hydraulics Operations Europe
Route de la Longeraie 7
1110 Morges
Switzerland
Tel: +41 (0) 21 811 4600
Fax: +41 (0) 21 811 4601

Eaton
Hydraulic Operations Asia Pacific
11th Floor Hong Kong New World Tower
300 Huaihai Zhong Road
Shanghai 200021
China
Tel: 86-21-6387-9988
Fax: 86-21-6335-3912

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