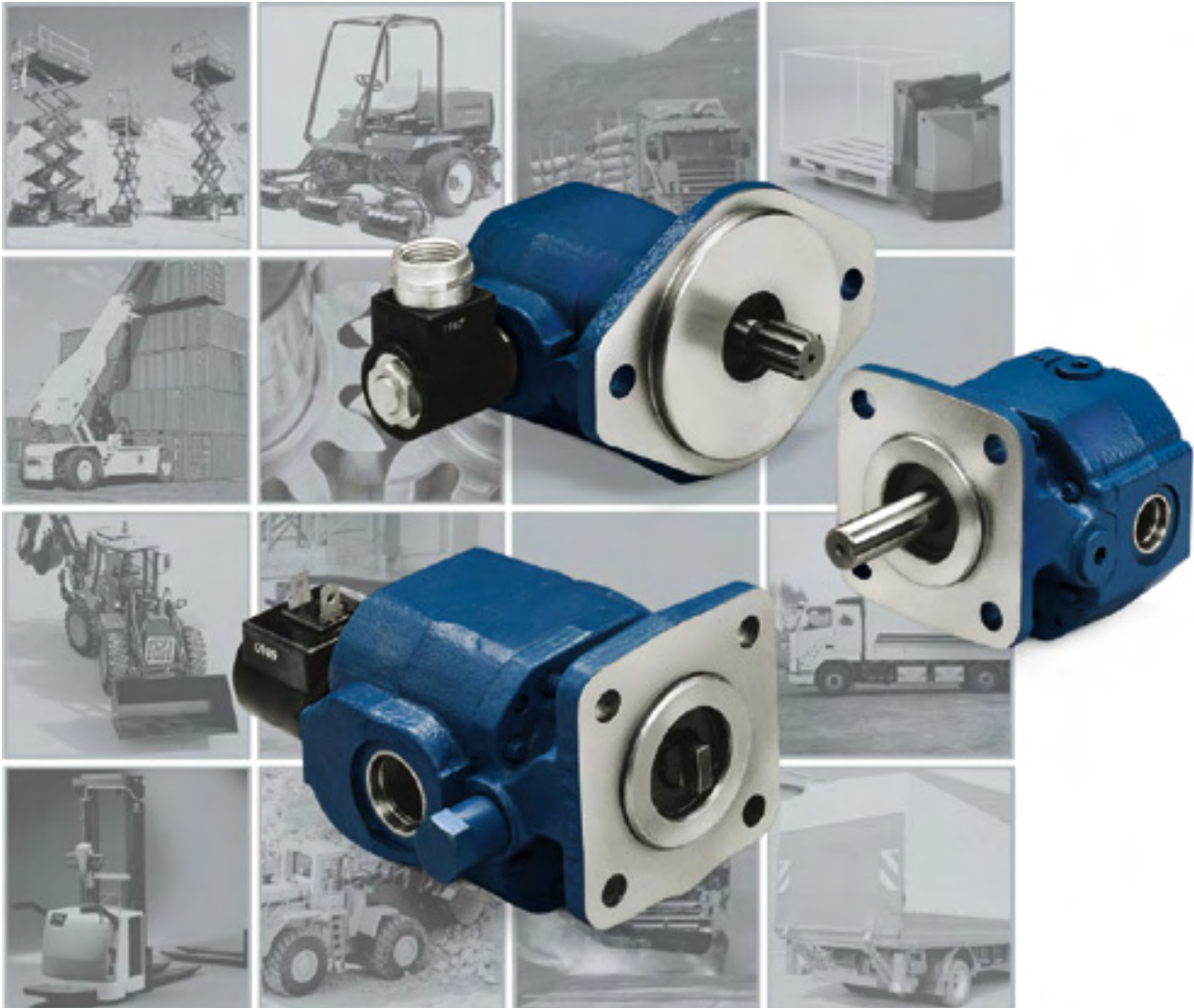




GC Series Hydraulic Pumps



G.C. Series Hydraulic Pumps

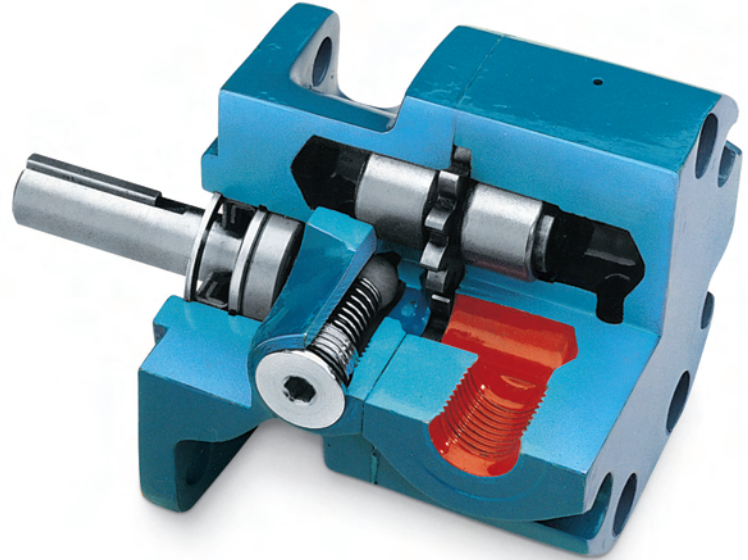
Haldex Hydraulics G.C. Series Hydraulic Pumps are compact, external gear models for use in pumping fluids with lubricating qualities. Suitable for use in a wide variety of material handling, agricultural, and construction equipment in addition to machine tools, robotics, and other types of machinery.

Designed to provide reliable, long-life service under rugged conditions, G.C. Series pumps are built with cast iron bodies and hardened steel gears. Among their other standard, extra-value features are:

- Speeds to 4000 RPM
- Pressures to 4000 PSI
- Superior volumetric efficiency
- Needle bearing construction
- High mechanical efficiency
- Temperature ratings to 250°F (120°C)*
- Wide variety of options

* Higher temperatures, consult factory.

See the chart on this page for basic sizes. Dimensional and option information is listed on pages 3-5 and performance curves are shown on pages 6 & 7. See page 8 for complete ordering information.

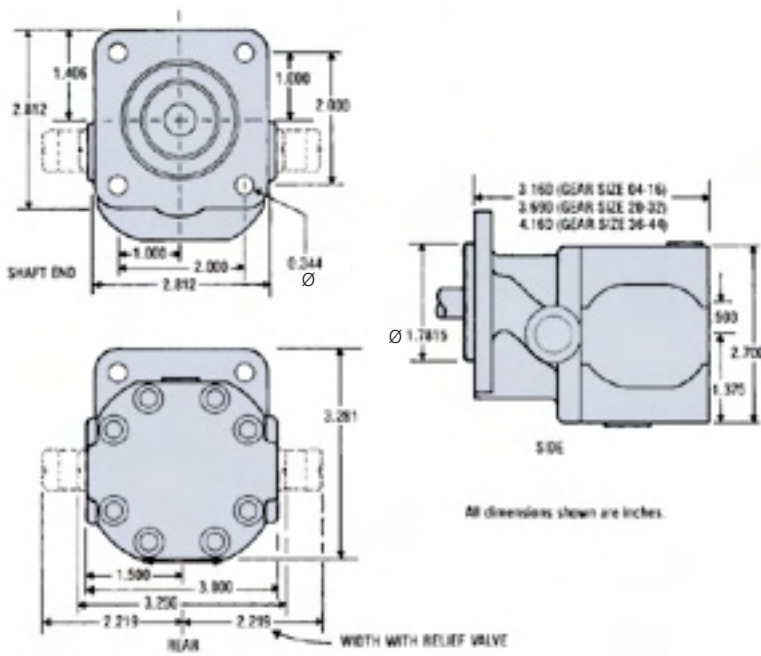


Order Code (Gear)	Displacement Revolution		Flow				Pressure Rating			
			At 1800 RPM		At 3600 RPM		Continuous		Intermittent	
	cu. in.	cc.	GPM	L/Min.	GPM	L/Min.	PSI	BAR	PSI	BAR
04	0.065	1.07	0.50	1.93	1.00	3.86	3000	207	4000	275
06	0.097	1.59	0.75	2.86	1.50	5.72	3000	207	4000	275
08	0.129	2.11	1.00	3.80	2.00	7.60	3000	207	4000	275
▲10	0.161	2.64	1.25	4.75	2.50	9.50	3000	207	4000	275
12	0.194	3.18	1.50	5.72	3.00	11.44	3000	207	4000	275
▲14	0.226	3.70	1.75	6.66	3.50	13.32	2600	179	4000	275
16	0.258	4.23	2.00	7.61	4.00	15.22	2300	159	4000	275
▲18	0.291	4.77	2.25	8.59	4.50	17.18	2100	145	3500	241
20	0.323	5.29	2.50	9.52	5.00	19.04	1900	131	3000	207
24	0.388	6.36	3.00	11.45	6.00	22.90	1600	110	2500	172
28	0.453	7.42	3.50	13.36	7.00	26.72	1300	90	2250	155
32	0.517	8.47	4.00	15.25	8.00	30.50	1200	83	2000	138
†36	0.581	9.52	4.50	17.17	9.00	34.34	2250	155	2475	171
†40	0.647	10.59	5.00	19.07	10.0	38.15	2000	138	2200	152
†44	0.711	11.65	5.50	20.98	11.0	41.97	1800	124	2000	138

Flow listed in U.S. gallons. 200 SSU oil.

▲ Available, but not standard (100-piece minimum order).

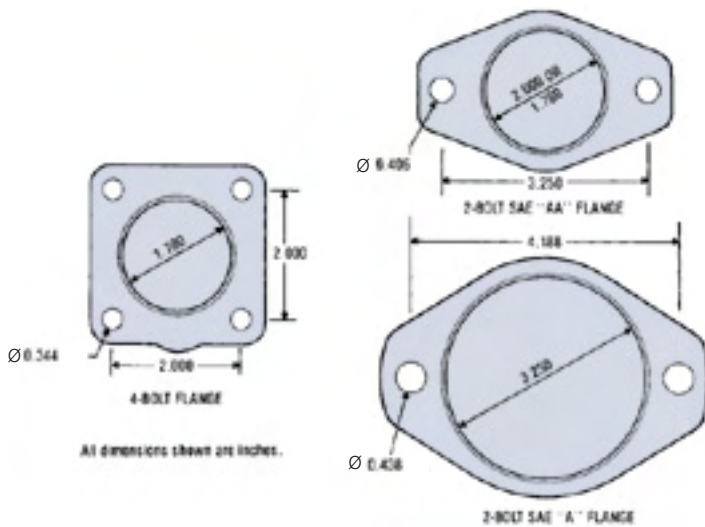
† For speed above 2400 RPM, 1-in. dia. inlet tube must be used.



DIMENSIONAL INFORMATION

Pumps use one of two basic castings: One size for gear faces 04 through 16 and a slightly larger size for gear faces 20 to 32. See the drawings for details.

All dimensions shown are inches.

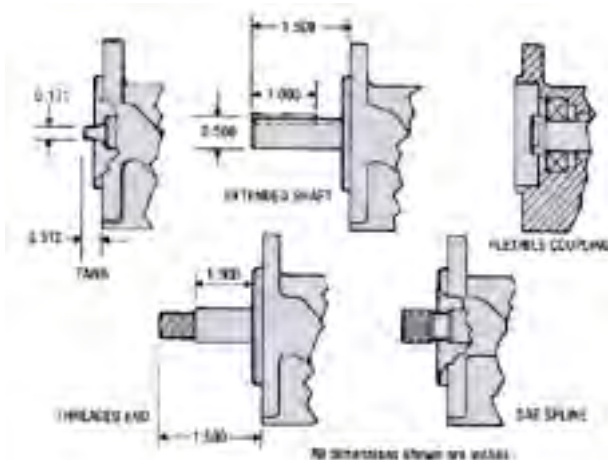


FLANGE OPTIONS

Standard options include three basic flanges: 4-Bolt with 1.78-inch Pilot, 2-Bolt SAE "AA" with 2-inch or 1.78-inch Pilot, and 2-Bolt SAE "A" with 3.25-inch Pilot. Consult factory for other flange requirements.

Order Code	Mounting Flange Options
1	4-Bolt w/1.78" Pilot
2	2-Bolt SAE "AA" w/2.0" Pilot
▲ 3	2-Bolt SAE "AA" w/1.78" Pilot
4	2-Bolt SAE "A" w/3.25" Pilot

▲ 100-piece minimum order



SHAFT OPTIONS

Five shaft options are standard: 0.171-inch Tang, 1/2-inch diameter x 1 1/2-inch Extension, Flexible Coupling, Threaded End, and SAE Spline. Consult factory for other shaft options.

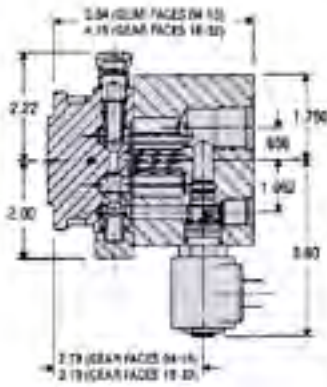
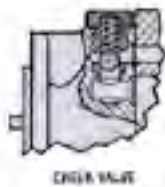
Order Code	Mounting Flange Options
1	0.171" Tang
2	0.50" Diameter x 1.50" Extension, 1/8" Square Key
▲ 3	Flexible Coupling
▲ 4	Threaded End (Specify Thread)
* 5	SAE Spline (Specify)

▲ 100-piece minimum order

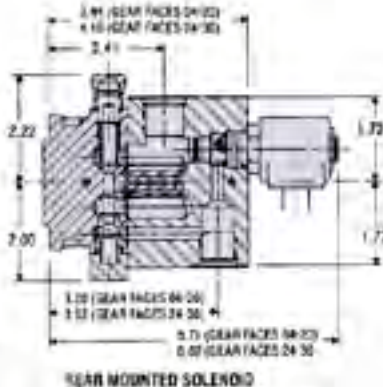
* 9T, 20/40 DP standard with flange option 1, 2 & 3; 9T, 16/32 DP standard with flange option 4.

Selected sizes available from stock. Consult factory.

OPTIONS



SIDE MOUNTED SOLENOID
Rear parts only. Not available in polymeric
greater than 20G



REAR MOUNTED SOLENOID
Rear parts only. Not available in polymeric
greater than 20G

VALVE OPTIONS

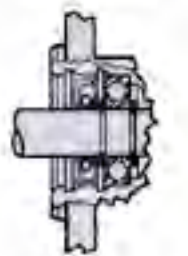
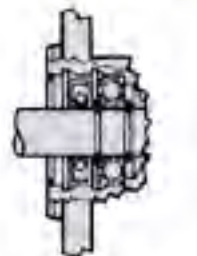
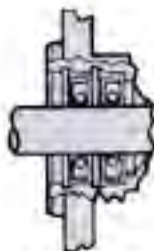
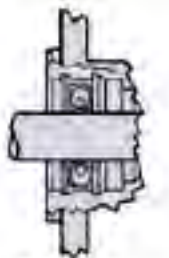
A variety of integral valves and valve combinations are available as standard. Options include: Relief, Check, and Check/Relief combination. A Check, Relief & Solenoid Release valve combination provides the lift-hold-lower function for power up and gravity down applications. Another unique option, for lift-hold-lower applications, incorporates an adjustable needle valve in the pump for controlling the lowering speed of the load.

Order Code	Valve Options
A	No Valves
B	Relief Valve
C	Direction Checks (Not Shown)
*D	Check Valve
*E	Check & Relief Valves (Not Shown)
*F	Check, Relief & Normally Closed Solenoid
*G	Check, Relief & Normally Open Solenoid
*H	Check, Relief & Solenoid Cavity Plugged

Pressure compensated flow control spools are available with options F and G.

* Available ONLY for gear sizes 04 through 36

Minimum full bypass relief valve settings: 200 psi for gear sizes 04-16 at 1725 rpm, 300 psi for gear sizes 18-44 at 1725 rpm. At speeds above 1725 rpm, the minimum relief valve settings increase. Contact factory for specific information.



SEAL & BEARING OPTIONS

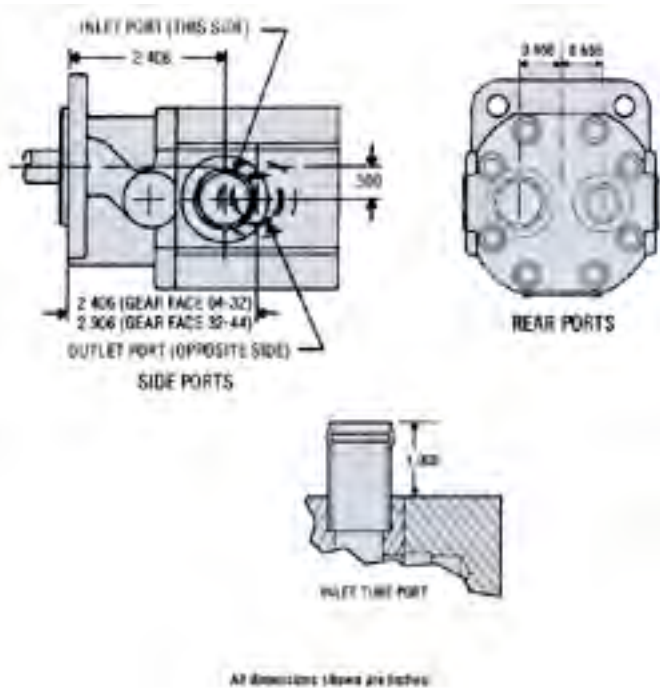
Five basic seal & bearing configurations are available as shown here. Oil seals are either Buna-N or Viton. Outboard ball bearings are available for "radial load" (bolt or gear drives and thrust loads). High-pressure seals are rated up to 25 PSI at 3000 RPM. Viton seals are rated at 350°F (176°C). Consult factory for other types of sealing materials and mechanical seals. Higher pressure seals available, consult factory.

Order Code	Seals & Bearings Options
1	Single Lip Buna-N Low Pressure Seal
2	Viton Seal
*3	Viton High-Pressure Seal w/Outboard Ball Bearing
▲*4	Double Seal w/Overboard Drain
*5	Buna-N Seal w/Outboard Ball Bearing

▲ 100-piece minimum order.

* Not available with shaft option 3.

Outboard ball bearing settings:
Maximum overhang load: 150 lbs.
Maximum inward thrust: 75 lbs.
Maximum outward thrust: 50 lbs.



* NOTE: Based on CCW rotation.

PORT LOCATION OPTIONS

Standard porting is SAE Straight Thread O'Ring Ports. Depending on gear size, porting size varies as shown in the chart below. NPTF and Inlet Tube Ports are not standard, but can be supplied. The second chart shows the Order Code for port type and location.

Gear Size	SAE Port Size	
	Low Pressure Port	High Pressure Port
04 & 06	9/16-18 (9/16-18)	9/16-18 (9/16-18)
08, 12 & 16	3/4-16 (3/4-16)	9/16-18 (3/4-16)
20, 24	7/8-14	3/4-16
28 & 32	(7/8-14)	(7/8-14)
36, 40 & 44	(7/8-14)	(7/8-14)

Order Code	Port Location Options
A	SAE Side Ports
▲ B	SAE Rear Ports
▲ C	NPTF Side Ports
▲ D	NPTF Rear Ports
▲* E	Inlet Tube, 1.0" w/SAE Side Outlet Port

NOTE: If ordering NPTF Ports, specify size (1/4, 3/8 or 1/2 in.)

▲ 100-piece minimum order.

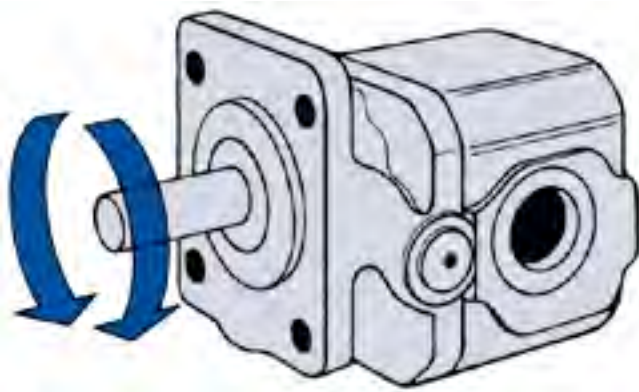
* For gear order codes 36, 40 and 44, 1 in. diameter Inlet Tube must be used for speeds above 2400 RPM.

ROTATION OPTIONS

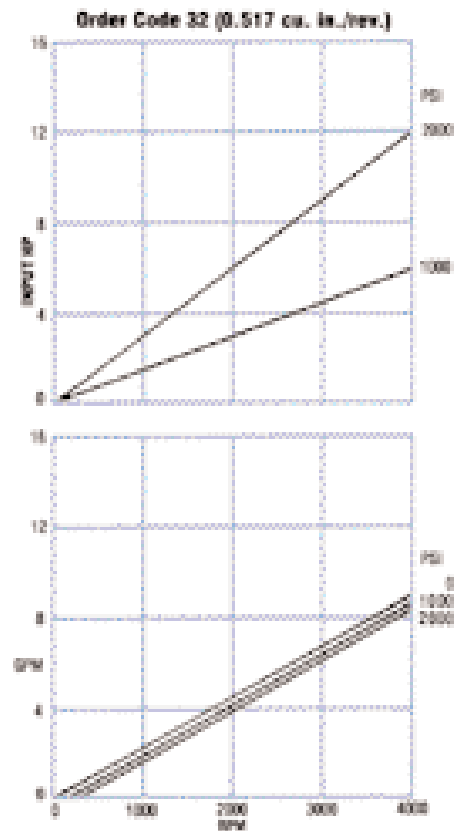
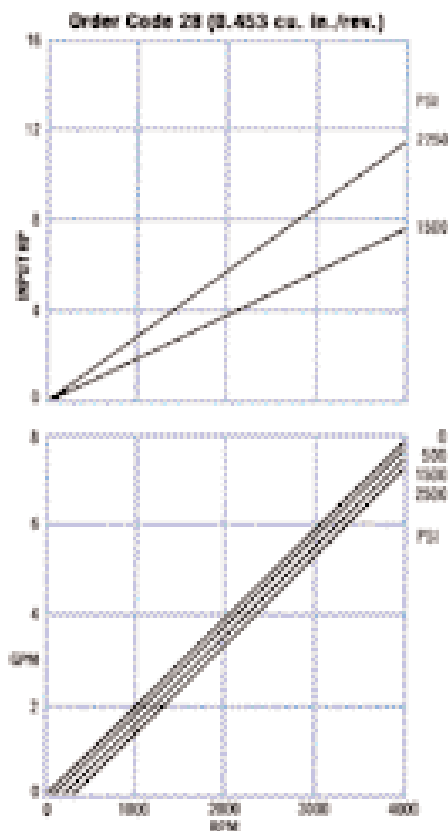
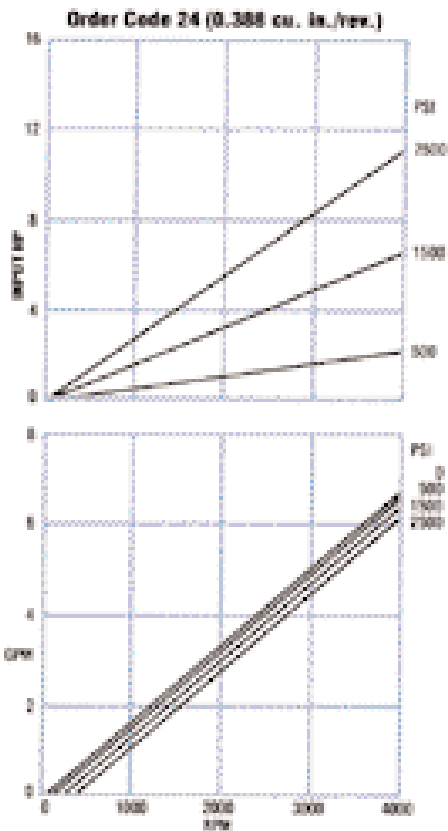
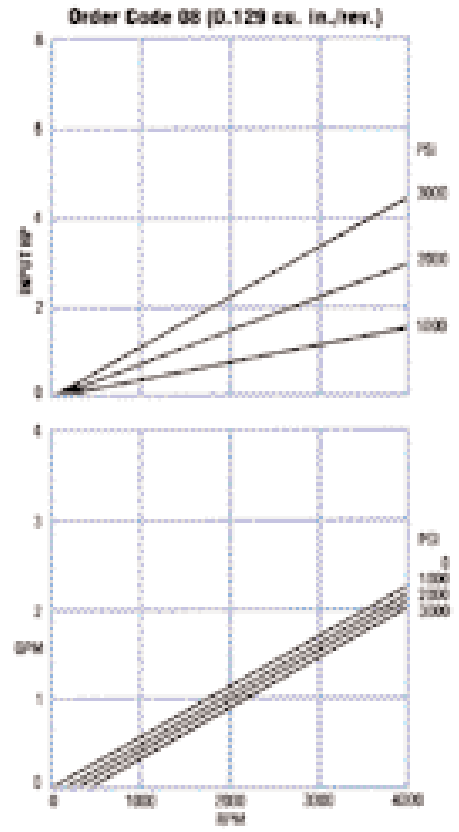
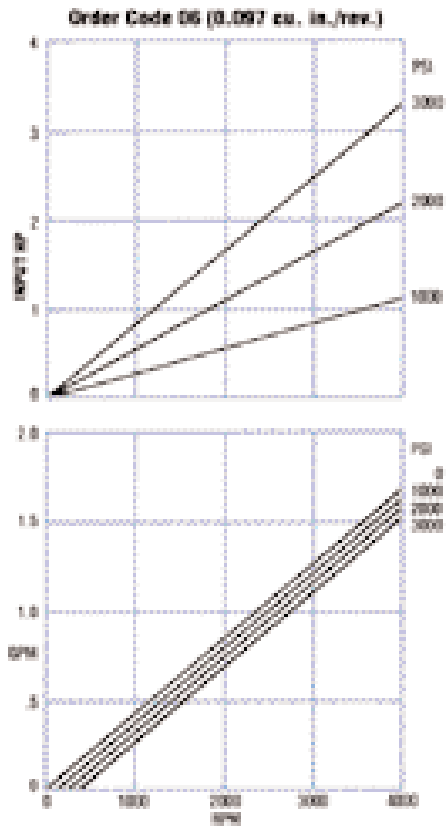
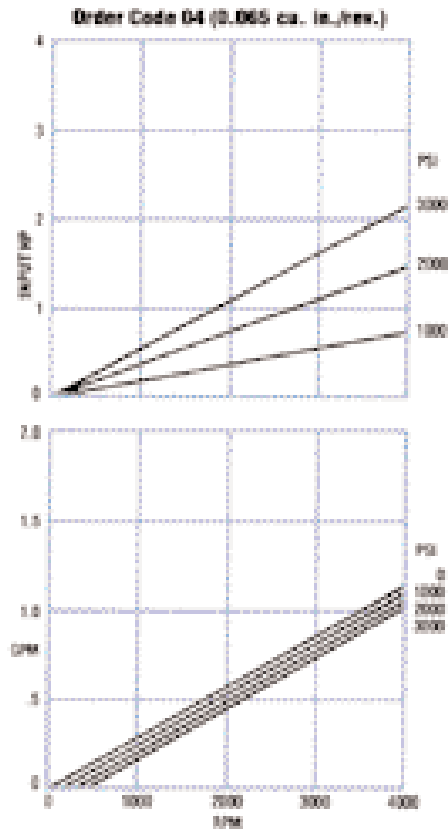
Rotation options are Clockwise or Counterclockwise as viewed from the shaft end or Birotational. All Birotational pumps include directional check valves. For high-pressure applications, Birotational pumps are supplied with a steel-plugged overboard 7/16-20 SAE drain, an outboard ball bearing, and a high-pressure Viton oil seal.

Order Code	Rotation Options
1	Clockwise
2	Counterclockwise
* 3	Birotational

* Available only with valve option "C", order section 6.



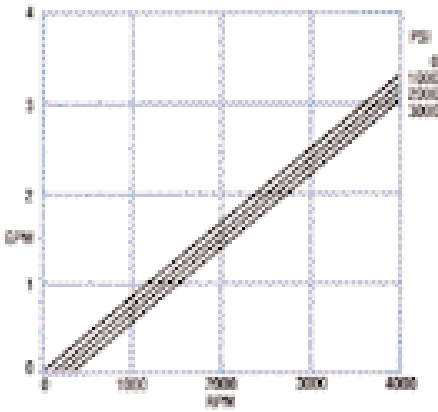
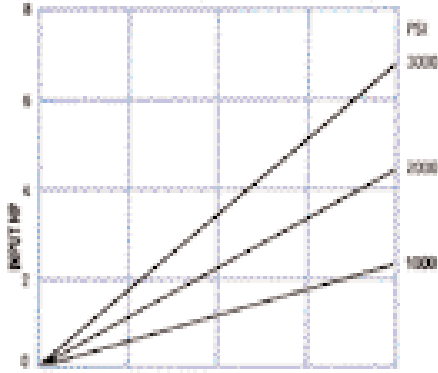
* PERFORMANCE



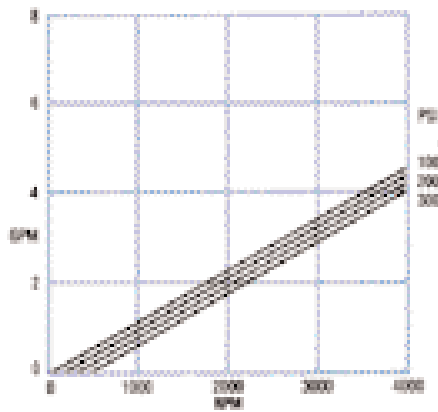
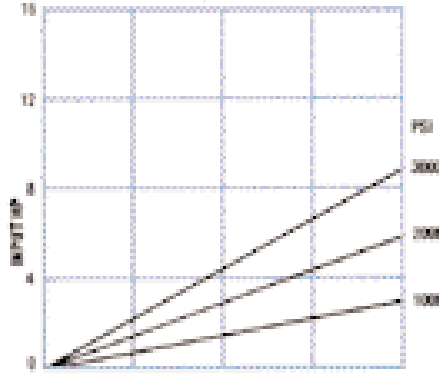
* Based on 200 SSU oil.

CURVES

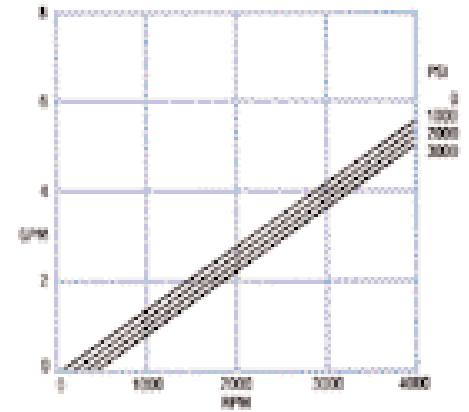
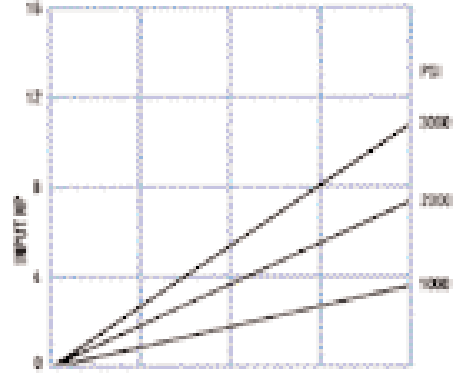
Order Code 12 (0.154 cu. in./rev.)



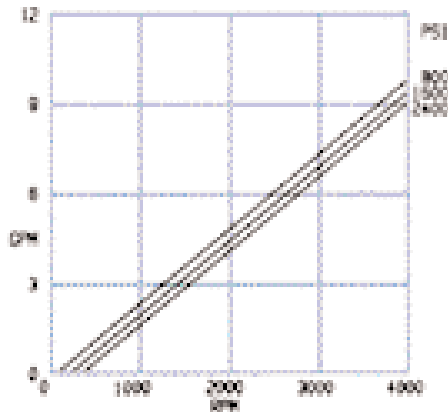
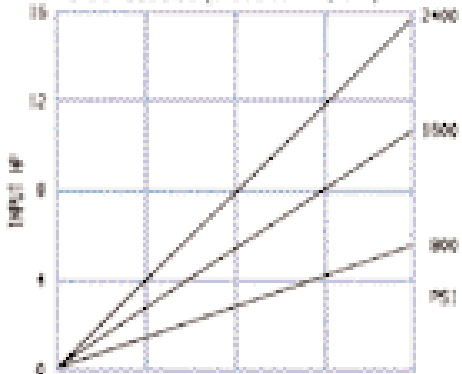
Order Code 16 (0.258 cu. in./rev.)



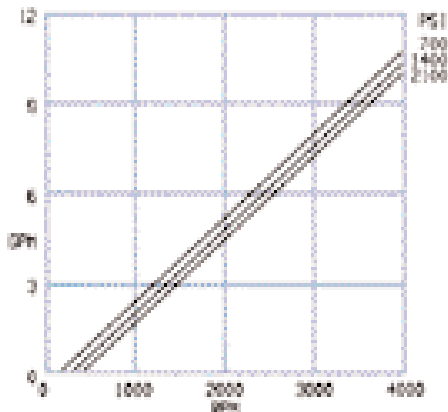
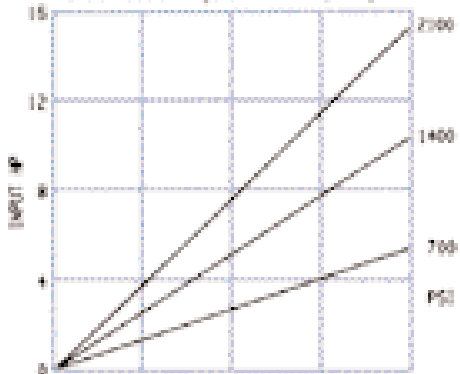
Order Code 20 (0.323 cu. in./rev.)



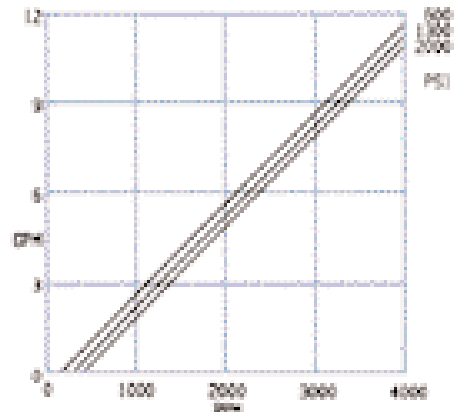
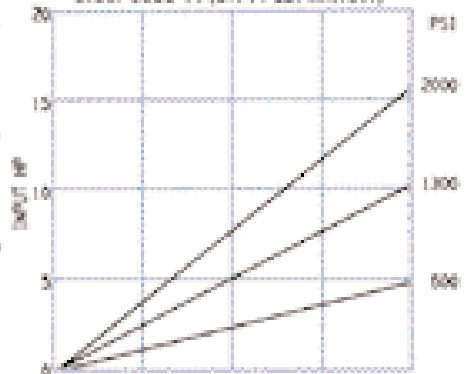
Order Code 36 (0.582 cu. in./rev.)



Order Code 40 (0.647 cu. in./rev.)



Order Code 44 (0.711 cu. in./rev.)



How To Order G.C. Series Pumps

ORDERING INFORMATION

Each option has been assigned an order code -- listed in the tables below -- for placement in the sequence shown to the right.

2

Order Code	Mounting Flange Options
1	4-Bolt w/1.78" Pilot
2	2-Bolt SAE "AA" w/2.0" Pilot
▲ 3	2-Bolt SAE "AA" w/1.78" Pilot
4	2-Bolt SAE "A" w/3.25" Pilot

▲ 100-piece minimum order

3

Order Code	Shaft Options
1	0.171" Tang w/ Short Coupling (.5" long) (For DC Motors)
2	0.50" Diameter x 1.50" Extension, 1/8" Square Key
▲ 3	Flexible Coupling
▲ 4	Threaded End (Specify Thread)
5	SAE Spline (9 tooth, 20/40DP standard with flange options 1, 2 and 3; 9 tooth, 16/32 DP standard for flange option 4.)
6	0.171" Tang w/Long Coupling (.8" long) (For AC Motors)

▲ 100-piece minimum order

4 & 5

Order Code	Gear Size Width, Inches	Displacement Cu. In./Rev. (cc)
04	0.125	0.065 (1.07)
06	0.188	0.097 (1.59)
08	0.250	0.129 (2.11)
▲ 10	0.312	0.161 (2.64)
12	0.375	0.194 (3.18)
▲ 14	0.437	0.226 (3.70)
16	0.500	0.258 (4.23)
▲ 18	0.562	0.291 (4.77)
20	0.625	0.323 (5.29)
24	0.750	0.388 (6.36)
28	0.875	0.453 (7.42)
32	1.000	0.517 (8.47)
36	1.125	0.581 (9.52)
40	1.250	0.647 (10.60)
44	1.375	0.711 (11.65)

▲ 100-piece minimum order

NOTE: Duplex and triple pumps available in minimum 100-piece order.

6

Order Code	Valve Options
A	No Valves
B	Relief Valve
† C	Direction Checks (Not Shown)
* D	Check Valve
* E	Check & Relief Valves (Not Shown)
* F	Check, Relief & Normally Closed Solenoid
* G	Check, Relief & Normally Open Solenoid
* H	Check, Relief & Solenoid Cavity Plugged

† Available only with option "3" of section 9

* Available ONLY for gear sizes 04 through 36

1	2	3	4 & 5	6	7	8	9	10 & 11	12	13 & 14	Example	Your Options
Pump Type	Mounting Flange	Shaft	Gear Size (Displacement)	Valving	Seals & Bearings	Porting	Rotation	Relief Valve Setting	Solenoid Valve Location	Solenoid Valve Voltage		
G	2	2	08	F	1	A	1	10	R	12		

7

Order Code	Seals & Bearings Options
1	Single Lip Buna-N Low Pressure Seal
2	Viton Seal
* 3	Viton High-Pressure Seal w/Outboard Ball Bearing
▲ * 4	Double Seal w/Overboard Drain
* 5	Buna-N Seal w/Outboard Ball Bearing

▲ 100-piece minimum order.

* Not available with shaft option 3.

8

Order Code	Port Location Options
A	SAE Side Ports
▲ B	SAE Rear Ports
▲ C	NPTF Side Ports
▲ D	NPTF Rear Ports
▲ * E	Inlet Tube, 1.0" w/SAE Side Outlet Port

▲ 100-piece minimum order.

NOTE: If ordering NPTF Ports, specify size: 1/4, 3/8 or 1/2 in.

* For gear order codes 36, 40 & 44, 1-in. Diameter Inlet Tube must be used for speeds above 2400 RPM.

9

Order Code	Rotation Options
1	Clockwise
2	Counterclockwise
* 3	Biorotational

* Must specify option "C" in section 6

10 & 11

Order Code	Relief Valve Setting
02-40	Full bypass pressure in hundreds of PSI. (Example: 00 = No Relief; 09 = 900 PSI (Full Bypass Pressure); 40 = 4000 PSI (Full Bypass Pressure).)

NOTE: The maximum relief valve full bypass setting for each gear size as listed on page 2, "intermittent rating" pressure chart.

Minimum full bypass relief valve settings: 200 psi for gear sizes 04-16 at 1725 rpm, 300 psi for gear sizes 18-44 at 1725 rpm. At speeds above 1725 rpm, the minimum relief valve settings increase. Contact factory for specific information.

12

Order Code	Solenoid Valve Location
R	Rear Mounted Solenoid Valve
S	Side Mounted Solenoid Valve
N	No Solenoid Valve

13 & 14

Order Code	Solenoid Valve Voltage
12	12 Volts DC
24	24 Volts DC
15	115 Volts AC
* PG	Solenoid Valve Cavity Plugged
00	No Solenoid Valve Cavity

* Must specify option "H" in section 6

Only Haldex offers this extensive range of products worldwide.

PUMPS & MOTORS

Cast Iron Pumps

Heavy Duty



GC Series Pumps

Displacements
0.065 to 0.711 cu. In. (1.06 to 11.65 cc)

GC Series High/Low Pumps

High Pressure Displacements
0.065 to 0.258 cu. In. (1.06 to 4.22 cc)

Low Pressure Displacements
0.258 to 0.776 cu. In. (4.22 to 12.71 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
4,000 rpm



F12 & F15 Ferra Series Pumps

F12 Displacements
0.976 to 2.502 cu. In. (16 – 41 cc)

F15 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
3,600 rpm



F20/F30 Pumps & F20-LS/F30-LS Load Sense Ferra Series Pumps

Displacements
1.41 to 9.82 cu. In. (23 to 161 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
3,600 rpm



D Series Pumps

Displacements
0.232 to 1.395 cu. In. (3.80 to 22.85 cc)

D Series High/Low Pumps

High Pressure Displacements
0.465 cu. In. (7.62 cc)

Low Pressure Displacements
0.930 to 1.395 cu. In. (15.24 to 22.86 cc)

Maximum Pressure
3,000–4,000 psi (207–276 bar)

Maximum Speed
3,600–4,000 rpm

Call us for more information

For application assistance or detailed literature on any Haldex product line, call us toll-free: **1-800-572-7867**.

Visit our web site: <http://www.haldex.com/hbus>

E-mail us: info.hydraulics.us@haldex.com

Aluminum Pumps

Medium/Light Duty



W-Series Pumps

W100 Displacements
0.031 to 0.122 cu. In. (0.50 to 2.00 cc)

W300 Displacements
0.049 to 0.347 cu. In. (0.80 to 5.70 cc)

W600 Displacements
0.244 to 0.732 cu. In. (4 to 12 cc)

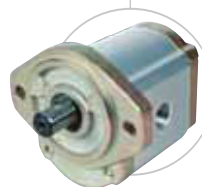
W900 Displacements
0.305 to 1.891 cu. In. (5 to 31 cc)

W1200 Displacements
1.526 to 2.014 cu. In. (25 to 33 cc)

W1500 Displacements
1.159 to 3.051 cu. In. (19 to 50 cc)

Maximum Pressure
4,000 psi (276 bar)

Maximum Speed
500 to 4,000 rpm



WQ900 Pumps

Displacements
0.305 to 1.648 cu. In. (5 to 27 cc)

Maximum Pressure
3,336 psi (230 bar)

Maximum Speed
4,000 rpm

Fluid Motors



Cast Iron

Displacements
0.065 to 9.82 cu. In. (1.06 to 161 cc)

Speed
Up to 10,000 rpm

Aluminum

Displacements
0.244 to 3.050 cu. In. (4 to 50 cc)

Speed
Up to 4,000 rpm

Flow Dividers



GC & D Series

GC Displacements
0.097 to 0.517 cu. In. (1.58 to 8.47 cc)

D Displacements
0.232 to 0.813 cu. in. (3.8 to 13.32 cc)

Maximum Pressure
4,500 psi (310 bar)

Maximum Input Flow Per Section
14 gpm (53 lpm)



Only Haldex offers this extensive range of products worldwide.

POWER PACKS



PUMP/MOTORS (DC/AC)

DC Voltage Range

12 to 72 VDC

AC Horsepower Range

1/2 to 3 HP

Pump Displacements

0.04 – 1.71 cu. In. (0.65 to 28 cc)

Maximum Pressure

4,000 psi (276 bar)



HB800 POWER PACKS

Voltage Range

12 to 24 VDC

Pump Displacements

0.037 to 0.092 cu. In. (0.60 to 1.5 cc)

Reservoirs

0.13 to 1 gal. (.5 to 3.8 ltr.) plastic

Maximum Pressure

2,610 psi (180 bar)



HE1000 SERIES POWER PACKS

Voltage Range

12 to 24 VDC

Pump Displacements

0.015 to 0.122 cu. In. (0.24 to 2 cc)

Maximum Pressure

3,336 psi (230 bar)

Reservoirs

0.13 to 1.0 gal. (0.5 to 3.8 ltr.) plastic



HE2000 SERIES POWER PACKS

Voltage Range

12 to 24 VDC, 115 to 230 VAC

Pump Displacements

0.049 to 0.388 cu. In. (0.80 to 6.36 cc)

Maximum Pressure

3,336 psi (230 bar)

Reservoirs

0.95 qt. to 3.96 gal. (0.9 to 15 ltr.) steel,
0.8 to 1.7 qt. (0.76 to 1.6 ltr.) plastic



HE "BOX" POWER PACKS

Voltage Range

12 to 24 VDC

Pump Displacements

0.049 to 0.388 cu. In. (0.80 to 6.36 cc)

Maximum Pressure

3,336 psi (230 bar)

Reservoirs

3 qt. to 5.0 gal. (2.84 to 19 ltr.) steel

HE-Q (QUIET) POWER PACKS

Voltage Range

24 VDC

WQ300 Pump Displacements

0.073 to 0.347 cu. In. (1.2 to 5.7 cc)

Noise

42dB(A)



BIROTATIONAL POWER PACKS

Voltage Range

12 to 24 VDC, 115 to 230 VAC

Pump Displacements

0.049 to 0.129 cu. In. (0.80 to 2.11 cc)

Reservoirs

2 to 2.96 qt. (1.9 to 2.8 ltr.) plastic,
1 to 2 gal. (3.8 to 7.6 ltr.) steel



AC POWER PACKS GC-9500 SERIES

Displacements

0.065 to 1.394 cu. In. (1.06 to 22.85 cc)

Maximum Pressure

3,000 psi (207 bar)

Maximum Speed

3,600 rpm

Reservoirs

5 to 20 gal. (19 to 76 ltr.) steel

Call us for more information

For application assistance or detailed literature on any Haldex product line, call us toll-free: **1-800-572-7867**.

Visit our web site: <http://www.haldex.com/hbus>

E-mail us: info.hydraulics.us@haldex.com

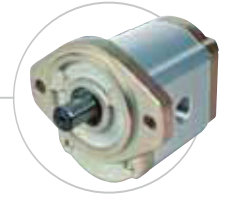
SPECIAL PRODUCTS

HYDRAULICS

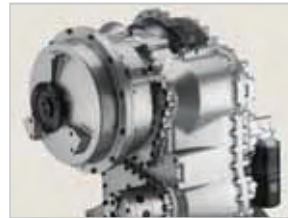
Haldex provides innovative custom solutions to the vehicle industry on a global basis

We focus on the areas where we can create customer value. Our applications expertise enables us to take on customers most unique application challenges. The foundation for this expertise is an expert knowledge of hydraulic systems. The value we bring to our customers is our unique capability to integrate a variety of system components and controls, to provide multiple functions in one custom package.

Our applications specialists seek to understand the overall goals for the vehicle, the vehicle subsystems and then the hydraulics system. This understanding enables them to respond with customized value engineered solutions. Haldex Hydraulics was the first to offer many of the solutions shown here.



High-Speed Rotary Drive Systems



Powershift Transmission Lube and Charge



Electrohydraulic Lifting Systems



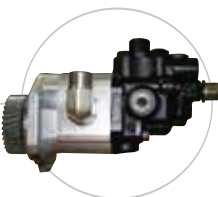
Auxiliary Hydraulic Power



Supplimental Power Steering Systems



Axle Cooling and Lube Systems



Fan Drive With Integrated Brake Charge Function





PRODUCT RANGE

HE Powerpacks

12/24/48 VDC 0.3 – 4.5 kW and
0.75 – 3 kW AC modular power packs

HE Box Powerpacks

12/24/48 VDC modular powerpacks
in weatherproof boxes

Pressure Switches

5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps

0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps

0,8 – 5,7 cc 230 bar

W600 Hydraulic pumps / motors

3 – 12 cc 276 bar

W900 Hydraulic pumps / motors

5 – 31 cc/section 276 bar

Calma The new quiet pumps

6,2 - 23,7 cc/section 250 bar

WQ900 The quiet pumps

5 - 23 cc/section 230 bar

WP900X Hydraulic pumps

16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors

19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps

16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps

19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors

23 – 161 cc/section 276 bar

GPA Internal Gear pumps

1,7 – 63 cc/section 100 bar

GC Hydraulic pumps / motors

1,06 – 11,65 cc/section 276 bar

D Hydraulic pumps

3,8 – 22,9 cc/section 207 bar

H Hydraulic pumps

9,8 – 39,4 cc/section 207 bar

II-Stage Hydraulic pumps

4,2 – 22,8 cc/section 276 bar

Rotary Flow Dividers

3,8 – 13,3 cc/section 300 bar

Transmission pumps

www.haldex.com/hbus



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 Haldex (www.haldex.com), headquartered in Stockholm, Sweden, is a provider of proprietary and innovative solutions to the global vehicle industry, with focus on products in vehicles that enhance safety, environment and vehicle dynamics. Haldex is listed on the Nasdaq OMX Stockholm Stock Exchange.

GC PMP 10/02

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