

# Gear Pumps

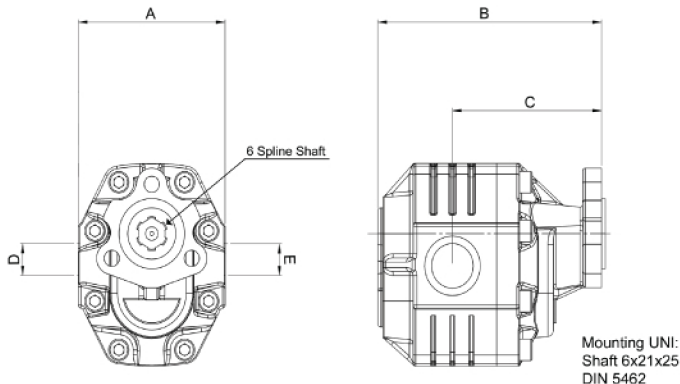




## 3 Bolt Gear Pump Dimensions

The DP30 & DP40 range of cast iron gear pumps are ideally suited to light - medium duty applications and have the option to change rotation if required.

### 3 Bolt Gear Pump Dimensions



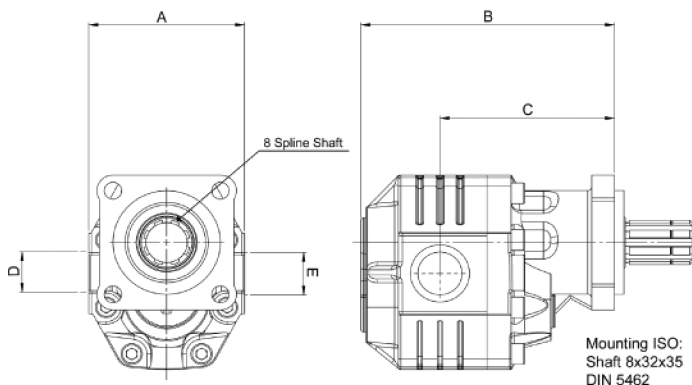
Grid based on clockwise rotation, all oil ports are BSP.

PART No.	A	B	C	D	E
DP30.17	113	150	102	1/2	1/2
DP30.27	113	155	106	3/4	3/4
DP30.34	113	162	108	3/4	3/4
DP30.43	113	167	111	1	1
DP30.51	113	172	112	1	1
DP30.61	113	177	115	1	1
DP30.82	113	190	121	1 1/4	1
DP40.63	140	190	124	1	3/4
DP40.73	140	192	125	1	3/4
DP40.87	140	200	130	1 1/4	1
DP40.109	140	206	135	1 1/4	1



# 4 Bolt Gear Pump Dimensions

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Grid based on clockwise rotation, all oil ports are BSP.

PART No.	A	B	C	D	E
DP30.17	113	162	114	1/2	1/2
DP30.27	113	168	118	3/4	3/4
DP30.34	113	174	120	3/4	3/4
DP30.43	113	179	123	1	3/4
DP30.51	113	184	124	1	1
DP30.61	113	190	127	1	1
DP30.82	113	202	133	1 1/4	1
DP40.63	140	204	137	1	3/4
DP40.73	140	206	139	1	3/4
DP40.87	140	213	144	1 1/4	1
DP40.109	140	220	148	1 1/4	1



# 30 and 40 Series Gear Pumps

## 30 Series Gear Pump General Data

Pump Type	Displacement	Max Pressure			Continuous Max Speed	At P <sub>2</sub> Pressure Intermittent Max Speed	Min. Speed
		p1	p2	p3			
	cm <sup>3</sup> / dev	bar / psi			Min <sup>-1</sup>		
30-17	17.15 1.04	290	315	325	2100	2800	300
30-27	26.50 1.61	4200	4560	4700			
30-34	34.29 2.09	280 4060	300 4350	310 4500	1800	2600	
30-43	43.65 2.66	270 3900	290 4200	300 4500		2300	
30-51	51.43 3.13	240 3480	260 3770	280 4060			
30-61	60.79 3.71	220 3190	240 3480	250 3625	1400	1800	
30-82	81.05 4.94	190 2750	210 3040	220 3190		1600	

## 40 Series Gear Pump General Data

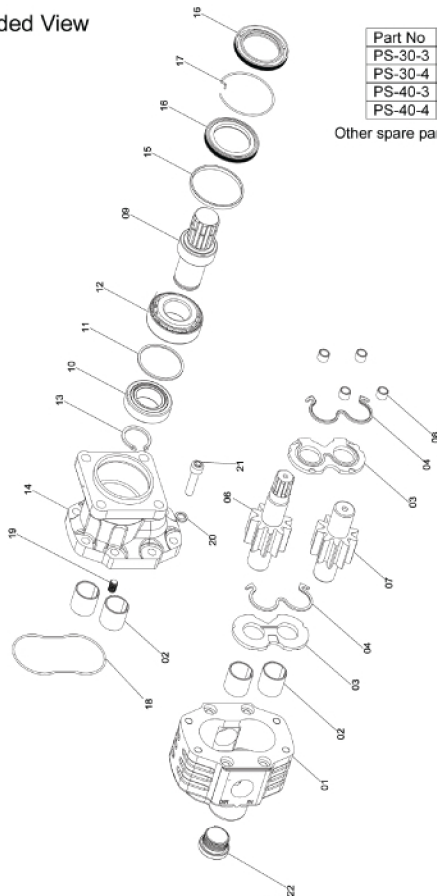
Pump Type	Displacement	Max Pressure			Continuous Max Speed	At P <sub>2</sub> Pressure Intermittent Max Speed	Min. Speed
		p1	p2	p3			
	cm <sup>3</sup> / dev	bar / psi			Min <sup>-1</sup>		
40-63	60.6	290	315	325	1700	2600	300
	3.69	4200	4560	4700			
40-73	71.7	280	300	315			
	4.37	4060	4350	4500			
40-87	85.5	260	280	230			
	5.21	3770	4060	4200			
40-109	107.6	240	260	280			
	6.56	3480	3770	4060			
40-133	132.38	220	250	260	1400	2400	
	8.07	3190	3625	3770			
40-151	148.9	120	210	220			
	9.08	2610	3050	3190			





# 30 and 40 Series Gear Pumps

## Exploded View



Part No	Seal Kits
PS-30-3	30 series-3 bolt
PS-30-4	30 series- 4 bolt
PS-40-3	40 series- 3 bolt
PS-40-4	40 series- 4 bolt

Other spare parts available upon request

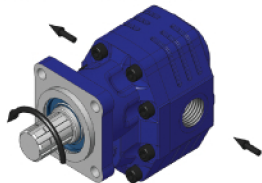


# 30 and 40 Series Gear Pumps

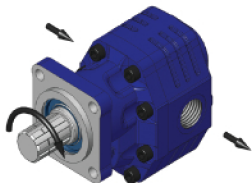
## Changing Pump Rotation

In order to change the rotation of the gear pump it is necessary to open the pump and alter the position of the internal components. It is essential that both the pump and the work area are thoroughly clean to prevent any contamination.

- 1 - Clamp the pump by the rear end casing into a suitable vice with the drive shaft and mounting flange facing upwards.
  - 2 - Slacken then unscrew the 8 cap head allen screws and remove with washers.
  - 3 - Carefully remove the front end casing, taking care to keep the flange as square as possible. If the flange is stuck fast tap around the edge of the casing with a fibre or plastic mallet to loosen.
  - 4 - Make sure that all components have remained in position.
  - 5 - Turn over the front casing and you will see 2 x tapped holes, one of these will have a grub screw fitted, remove this grub screw and place it into the opposite hole.
  - 6 - CHECK! That the grub screw is positioned on the same side as the pressure port. This is very important.
  - 7 - Now looking into the pump body remove the thrust plate making a careful note of its position.
  - 8 - Ease out the drive gear taking care not to damage any precision ground surfaces.
  - 9 - Ease out the driven gear and immediately replace it into the position previously occupied by the drive gear.
  - 10 - Place the drive gear into the position previously occupied by the driven gear.
  - 11 - Replace the thrust plate into exactly the same position from which it was taken.
  - 12 - Carefully wipe the assembled area with a clean cloth ensuring all dirt and debris has been removed.
  - 13 - Refit the front mounting flange turned 180 degree from its original position.
  - 14 - Refit the cap head allen screws and washers and tighten to a torque figure of 8kgm.
  - 15 - Manually turn the pump shaft to ensure it turns freely.
- The pump is now ready for use.



LEFT HAND (S) ROTATION PUMP



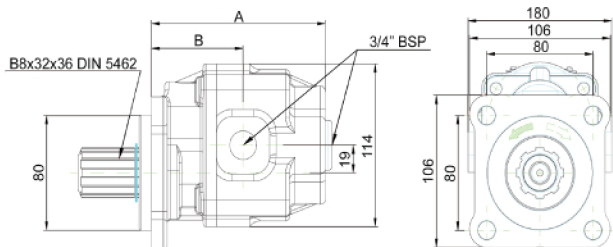
RIGHT HAND (D) ROTATION PUMP

## Gear Pump Identification

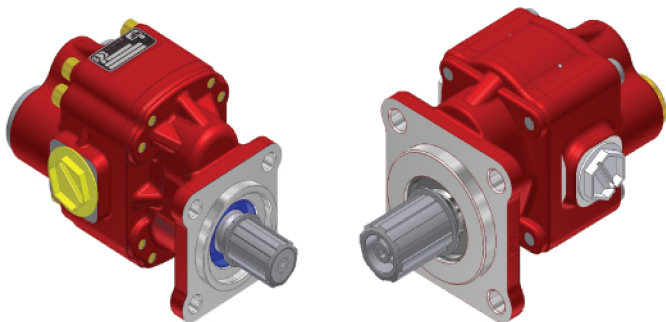
Example:	3	30	043	1	1
Pump Code		Series	Flow / LPM	Casing	Rotation
		30/40	CC / Rev	1= Mono Dir 2= Bi-Direct 3= ISQ	1= Right / Clockwise 2= Left / Anti-clockwise 3= Bi-Directional



# BE Bi-Rotational Gear Pumps



Pump	BE 15	BE 20	BE 25	BE 30	BE 35	BE 40	BE 45
Part Number	5022806	5022906	5021506	5023006	5021006	5023106	5021106
Displacement (cm <sup>3</sup> /rev)	16	19	23	29	36	41	46
Speed (rpm)	2000	2000	2000	2000	2000	2000	2000
Working Pressure (Bar)	270	260	250	240	230	210	200
Max. Pressure (Bar)	300	300	300	290	270	260	250
Weight (Kg)	6	6.3	6.7	7.1	7.5	7.8	8.1





# Troubleshooting

Fault	Localization	Cause	Action
Equipment Works Unevenly	Investigate whether the flow in supply hose from the pump is pulsing. Oil marks on the pump and suction line may indicate leakage of air. Check the oil level in the tank and see if oil is foaming	<ol style="list-style-type: none"> <li>1. Pump not bled after fitting</li> <li>2. Leakage of air into equipment</li> <li>3. Low oil level</li> <li>4. No canister around return filter</li> <li>5. Ventilated area of oil tank too small</li> <li>6. Dirt in pressure or suction valve</li> <li>7. Defective pressure or suction valve</li> </ol>	<ol style="list-style-type: none"> <li>1. Bleed the pump</li> <li>2. Repair the air leak</li> <li>3. Fill to proper level</li> <li>4. Change return filter</li> <li>5. Change to more ventilated oil tank</li> <li>6. Remove the dirt</li> <li>7. Replace the pump</li> </ol>
Equipment Works Unevenly when starting and when at high speeds	Investigate whether pump cavitates. This will be indicated by the flow pulsations and pump noise lowering when speed is reduced	<ol style="list-style-type: none"> <li>1. The suction line bore is too small</li> <li>2. Restriction in suction line</li> <li>3. Blocked Suction Strainer</li> <li>4. Oil too viscous</li> <li>5. Oil tank pressure below ideal</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the suction line</li> <li>2. Remove the restriction</li> <li>3. Replace the suction strainer</li> <li>4. Change to low viscosity oil</li> <li>5. Ensure the oil tank vent is not blocked</li> </ol>
Oil is abnormally hot	Run the pump without load at working speed and measure the back pressure in the supply line. The pressure must not exceed	<ol style="list-style-type: none"> <li>1. Restriction in supply or return line</li> <li>2. Dirty pressure or return filter</li> <li>3. Excessive oil flow</li> <li>4. Pressure relief valve opens too low a pressure</li> <li>5. Oil not viscous enough</li> <li>6. Oil tank too small</li> <li>7. Low oil level</li> <li>8. High continuous output</li> </ol>	<ol style="list-style-type: none"> <li>1. Change to larger diameter lines</li> <li>2. Replace filter inserts</li> <li>3. Reduce speed / get smaller pump</li> <li>4. Adjust or replace the valve</li> <li>5. Change to high viscosity oil</li> <li>6. Change to larger oil tank</li> <li>7. Fill to proper level</li> <li>8. Fit an oil cooler</li> </ol>
Equipment has insufficient force	Check that the pressure reaches the correct value whenever a function is operated to its limit	<ol style="list-style-type: none"> <li>1. Pressure relief valve opens too low a pressure</li> <li>2. The Pump is worn</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust / Replace the valve</li> <li>2. Replace control valve</li> </ol>

Fault	Localization	Cause	Action
Equipment Works abnormally slow under load	Connect a flow meter close to the pump. Check the flow. <ol style="list-style-type: none"> <li>1. The flow is correct under load</li> <li>2. The Flow is abnormally slow under load</li> </ol>	<ol style="list-style-type: none"> <li>1. Pressure relief valve opens too low a pressure</li> <li>2. The Pump is worn</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust / Replace the valve</li> <li>2. Replace the pump</li> </ol>
Noise from the pump	1-5 Investigate whether pump cavitates. This will be indicated by the flow pulsations and pump noise lowering when speed is reduced. <ol style="list-style-type: none"> <li>6. Check noise occurs at all speeds</li> </ol>	<ol style="list-style-type: none"> <li>1. The suction line bore is too small</li> <li>2. Restriction in suction line</li> <li>3. Blocked Suction Strainer</li> <li>4. Oil too viscous</li> <li>5. Oil tank pressure below ideal</li> <li>6. Worn pump</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the suction line</li> <li>2. Remove the restriction</li> <li>3. Replace the suction strainer</li> <li>4. Change to low viscosity oil</li> <li>5. Ensure the oil tank vent is not blocked</li> </ol>
Oil leakage from the pump	Locate the oil leak	<ol style="list-style-type: none"> <li>1. Leakage at suction connection</li> <li>2. Leakage at shaft seal</li> <li>3. Leakage at the vent bolts</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the O-Ring</li> <li>2. Tighten hose clips</li> <li>3. Replace the shaft seals</li> <li>4. Tighten the vent bolts. Replace seal washers</li> </ol>
The pump vibrates	Investigate whether the pump vibrates despite lack of flow pulses i.e. equipment runs unevenly	<ol style="list-style-type: none"> <li>1. Play in the drive shaft</li> <li>2. Wrong joint angles on the drive shaft</li> <li>3. Imbalance in drive shaft</li> <li>4. Joint forks not aligned</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace or remedy the drive shaft</li> <li>2. Ensure PTO and pump axes are parallel</li> <li>3. Turn the splined joint so the forks are in line</li> </ol>