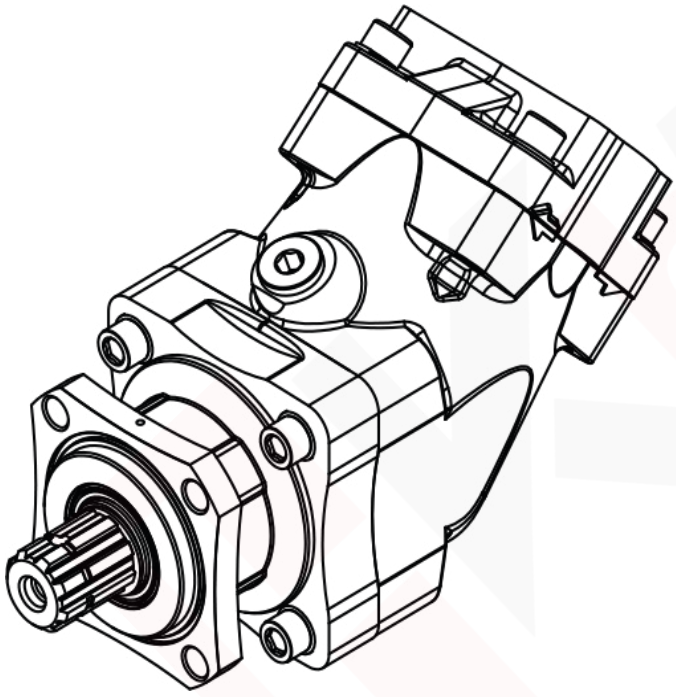
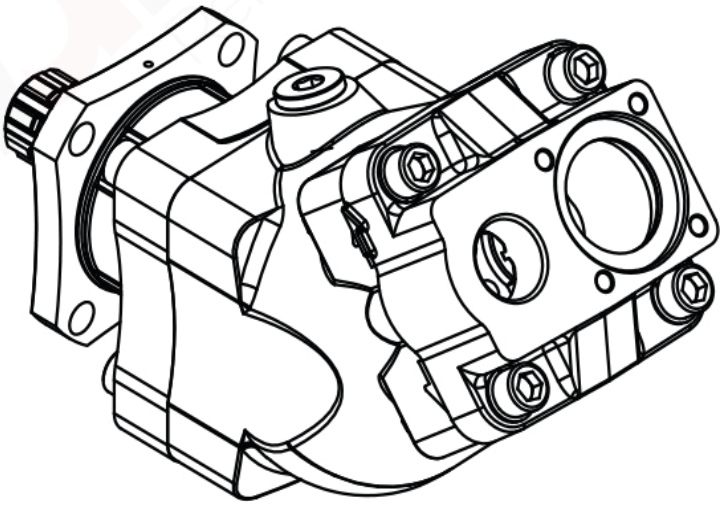
Bent Axis
Piston Pump





Unlock the full potential of **HIDRAKA's BENT AXIS PISTON PUMPS**, offering incredible versatility and ensure superior power distribution for various applications.

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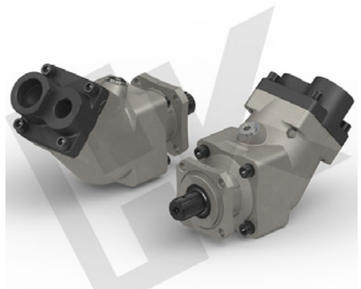
Table of **Contents**

What is this?

This document is organized to guide the reader through the technical specifications, product features, benefits, and applications of the HIDRAKA Bent Axis Piston Pump.

Each section of the document, from introduction to detailed diagrams and performance charts, is clearly listed, enabling easy navigation and quick access to vital information.

Product **Description**



This product is single rotation bent axis piston pump.

Only hydraulic oil must be using in system that bent axis piston pump assemblied.

Bent axis hydraulic piston pumps are converting the mechanical energy to hydraulic energy via motor or PTO etc. and create a hydraulic power for pressure of weightiness.

Bent axis piston pumps are using on tipper truck, garbage truck, tractor, agricultural, machinery, crane and hydraulic press machinery.
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WARNING!

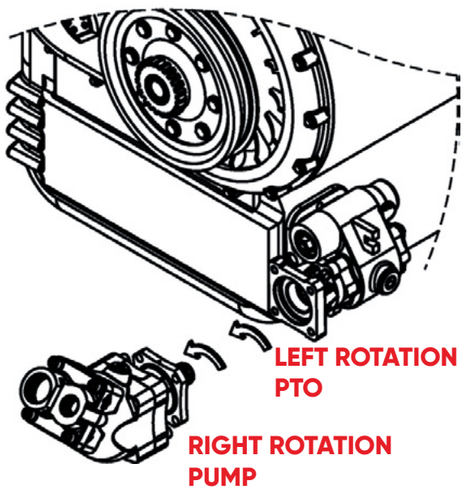
THE MOST IMPORTANT POINT

The most important point to consider when mounting pump and PTO is that the directions of rotation should be opposite.

"Left" rotation pump should be mounted to "Right" rotation PTO. "Right" rotation pump should be mounted to "Left" rotation PTO.

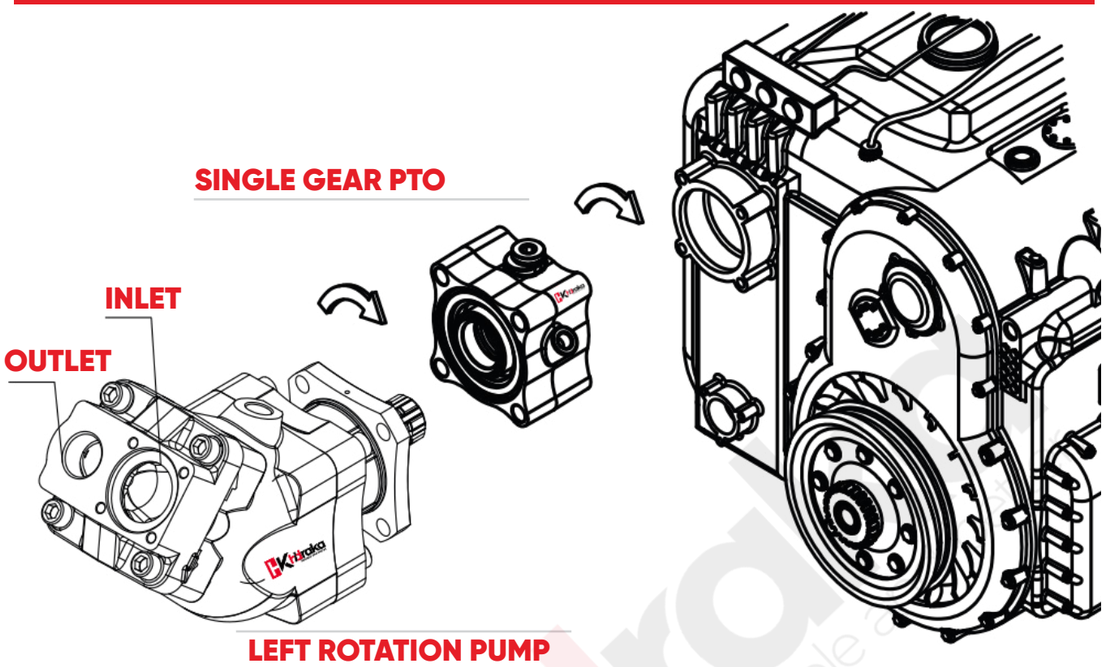
DESCRIPTION OF THE
ROTATION OF PUMPS AND PTOs

Output shaft should be seen from the opposite when determining the direction of the pump and PTO. If shaft is running counterclokwise, it is left rotation. If it is running clockwise, it is right rotation.



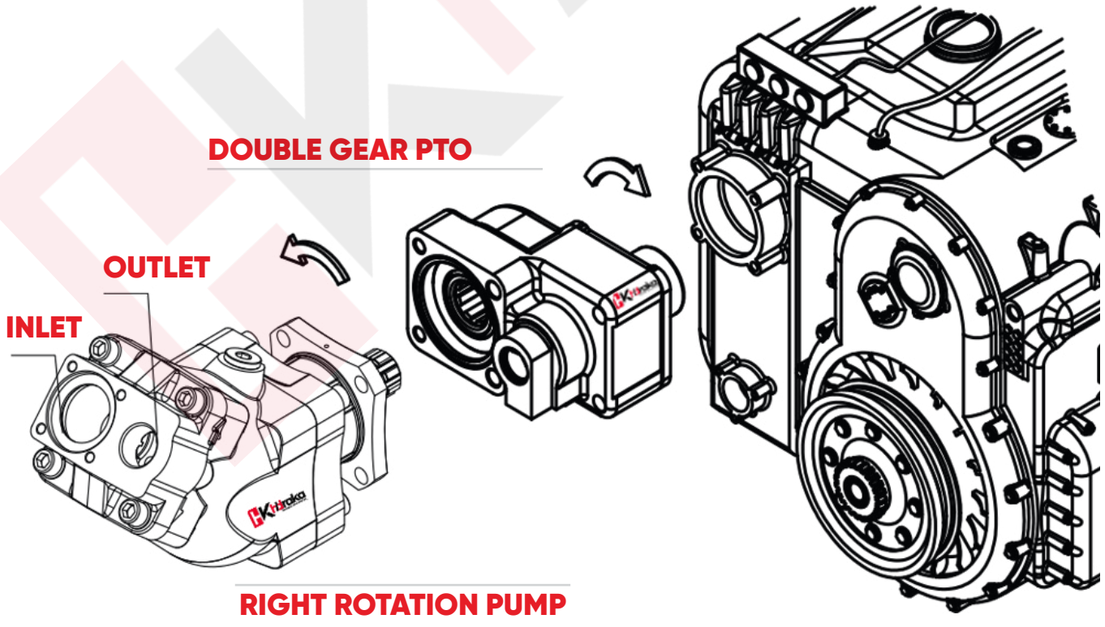
SINGLE GEAR PTO

PTO – PUMP ASSEMBLY



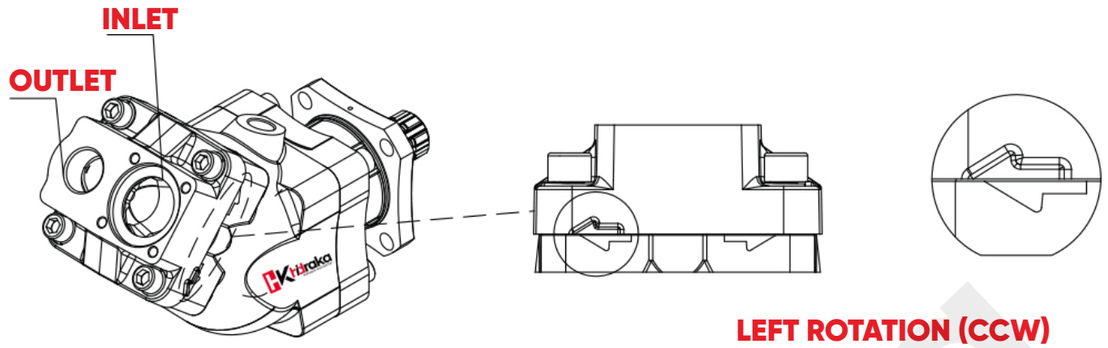
DOUBLE GEAR PTO

PTO – PUMP ASSEMBLY



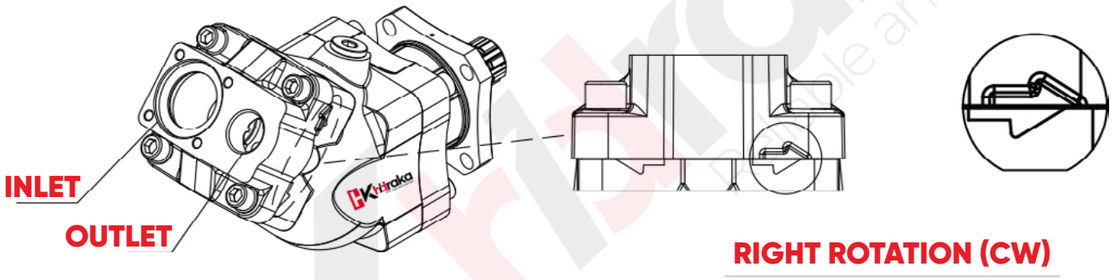
FINDING

LEFT ROTATION



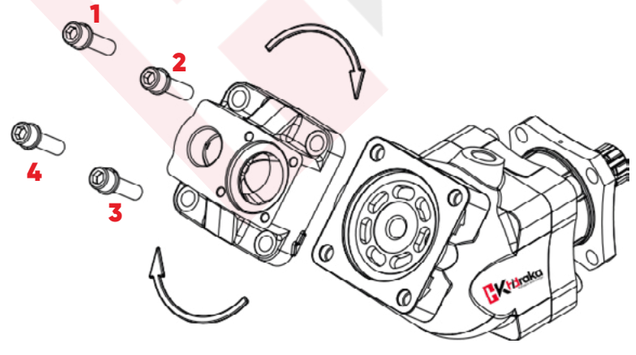
FINDING

RIGHT ROTATION



HOW TO

CHANGE DIRECTION



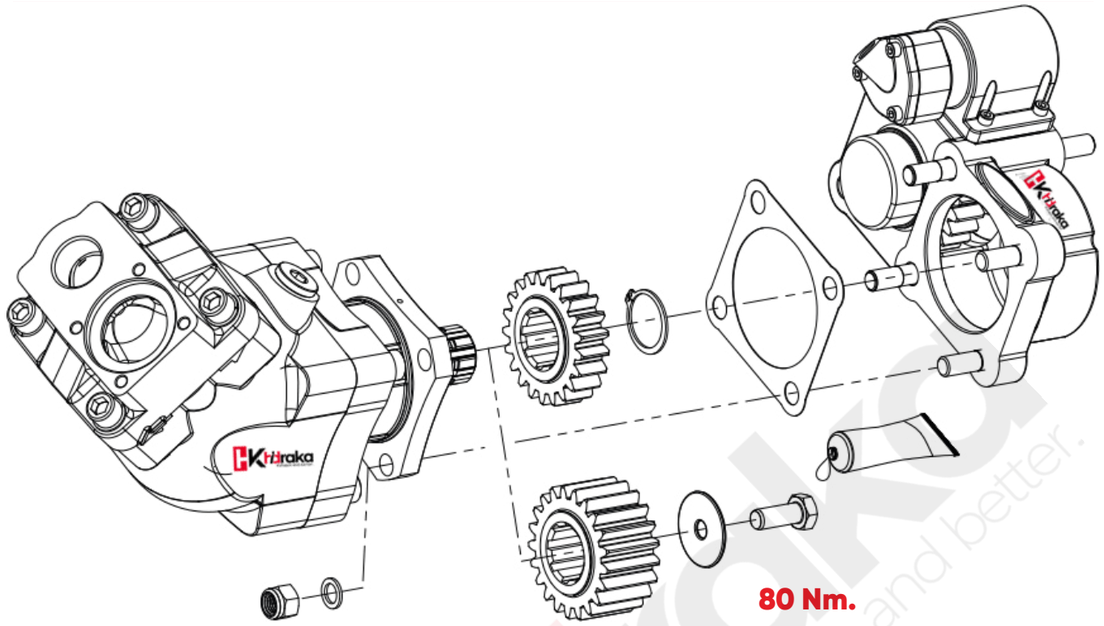
1. The rear cover bolts must be removed.

2. The cover is removed, turned 180° and reassembled.

3. The bolts are lightened with a torque of 90 Nm (1-3-2-4), respectively.

BENT AXIS PISTON PUMP

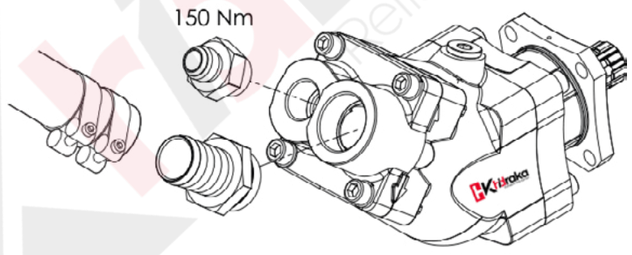
PUMP-PTO CONNECTION



80 Nm.

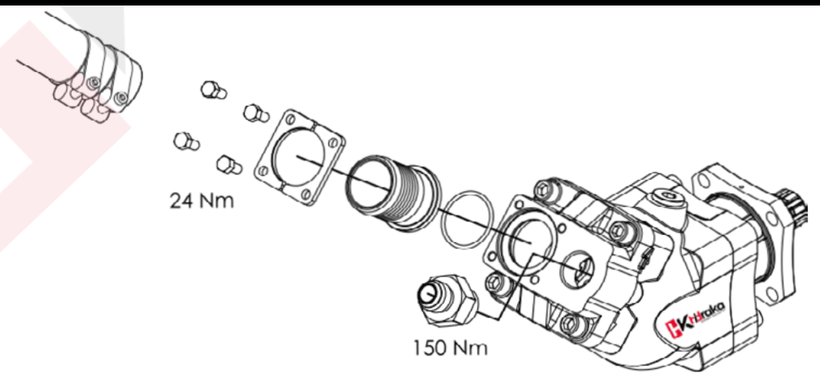
SCREW CONNECTION TYPE

38 mm (1½")
Q_{max} = 65 l / min
50 mm (2")
Q_{max} = 120 l / min
64 mm (2½")
Q_{max} = 185 l / min
75 mm (3")
Q_{max} = 265 l / min



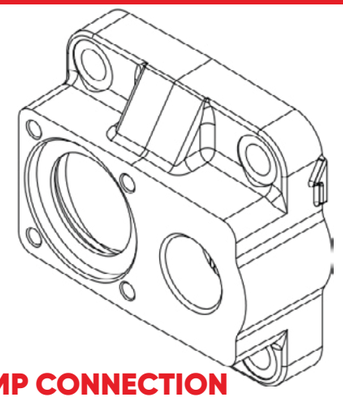
CLAMP CONNECTION TYPE

38 mm (1½")
Q_{max} = 65 l / min
50 mm (2")
Q_{max} = 120 l / min
64 mm (2½")
Q_{max} = 185 l / min
75 mm (3")
Q_{max} = 265 l / min

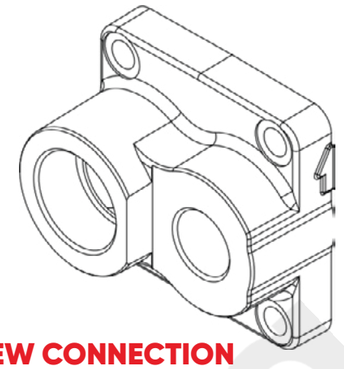


HYDRAULIC

SIDE CONNECTION



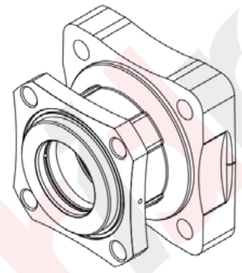
CLAMP CONNECTION



SCREW CONNECTION

MECHANICAL

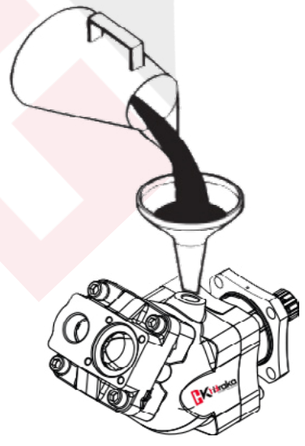
SIDE CONNECTION



ISO

PUMP

INSTALLATION



1. The blind plug on the pump is removed.

2. Hydraulic oil is filled into the pump.

3. The blind plug is tightened with a torque of 55 Nm.

TORQUE VALUES FOR BOLTS

Nominal Diameter (Diameter x Pitch)	8.8		10.9		12.9	
	Kgm.	*Nm.*	*Kgm.*	*Nm.*	*Kgm.*	*Nm.*
M4 x 0.7	0.30	3	0.4258	4.2	0.5	5
M5 x 0.8	0.61	6	0.866	8.5	1.03	10.1
M6 x 1	1.42	13	1.63	16	1.73	17
M7	2.34	23	2.85	28	3.16	31
M8 x 1.25	3.36	33	4.07	40	4.48	44
M8 x 1	3.87	38	4.68	46	5.30	52
M10 x 1.5	6.72	66	8.25	81	9.17	90
M10 x 1.25	7.54	74	9.17	90	10.19	100
M10 x 1	8.56	84	10.49	103	11.62	114
M12 x 1.75	8.66	85	12.13	119	14.57	143
M12 x 1.25	9.23	90.6	12.94	127	15.59	153
M14 x 2	3.76	135	19.36	194	23.24	228
M14 x 1.5	14.57	143	20.59	202	24.66	242
M16 x 2	20.89	205	29.35	288	35.27	346
M18 x 2.5	28.84	283	40.57	398	48.72	478
M18 x 1.5	31.39	308	44.24	434	53.00	520
M20 x 2.5	40.77	400	57.28	562	68.70	674
M20 x 1.5	43.93	431	61.87	607	74.20	728
M22 x 2.5	54.23	532	76.24	748	91.43	897
M22 x 1.5	58.20	571	81.85	803	98.26	964
M24 x 3	70.43	691	98.98	971	119.26	1.170
M24 x 2	74.51	731	104.99	1.030	125.38	1.230
M27 x 3	105.95	1.010	144.75	1.420	173.29	1.700
M27 x 2	109.00	1.070	152.90	1.500	183.48	1.800
M30 x 3.5	139.35	1.370	196.73	1.930	235.47	2.310
M30 x 2	150.86	1.480	212.00	2.080	253.82	2.490

FITTING SIZES

INLET FITTING SIZES

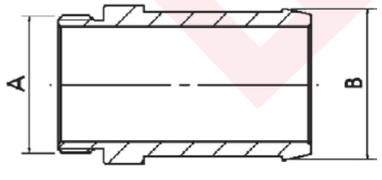
PUMP SERIES AND DISPLACEMENT	SCREW COVER		CLAMP COVER	
	A	*B*	*B*	*D*
12 CC BENT AXIS PISTON PUMPS	Gl 1/4"	038	045	038
17 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
25 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
35 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
40 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
45 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
56 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
65 CC BENT AXIS PISTON PUMPS	G1 1/4"	038	045	038
85 CC BENT AXIS PISTON PUMPS	G1 1/2"	051	058	051
105 CC BENT AXIS PISTON PUMPS	G1 1/2"	051	058	051
130 CC BENT AXIS PISTON PUMPS	G1 1/2"	051	058	051

OUTLET FITTING SIZES

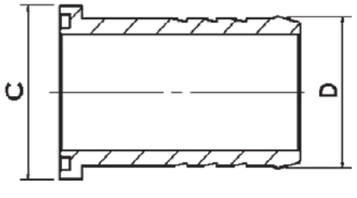
PUMP SERIES AND DISPLACEMENT	SCREW COVER	CLAMP COVER
	E	*E*
12 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
17 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
25 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
35 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
40 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
45 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
56 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
65 CC BENT AXIS PISTON PUMPS	G3/4"	G3/4"
85 CC BENT AXIS PISTON PUMPS	G 1"	G 1"
105 CC BENT AXIS PISTON PUMPS	G 1"	G 1"
130 CC BENT AXIS PISTON PUMPS	G 1"	G 1"

INLET FITTINGS

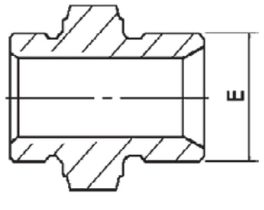
SCREW COVER



CLAMP COVER

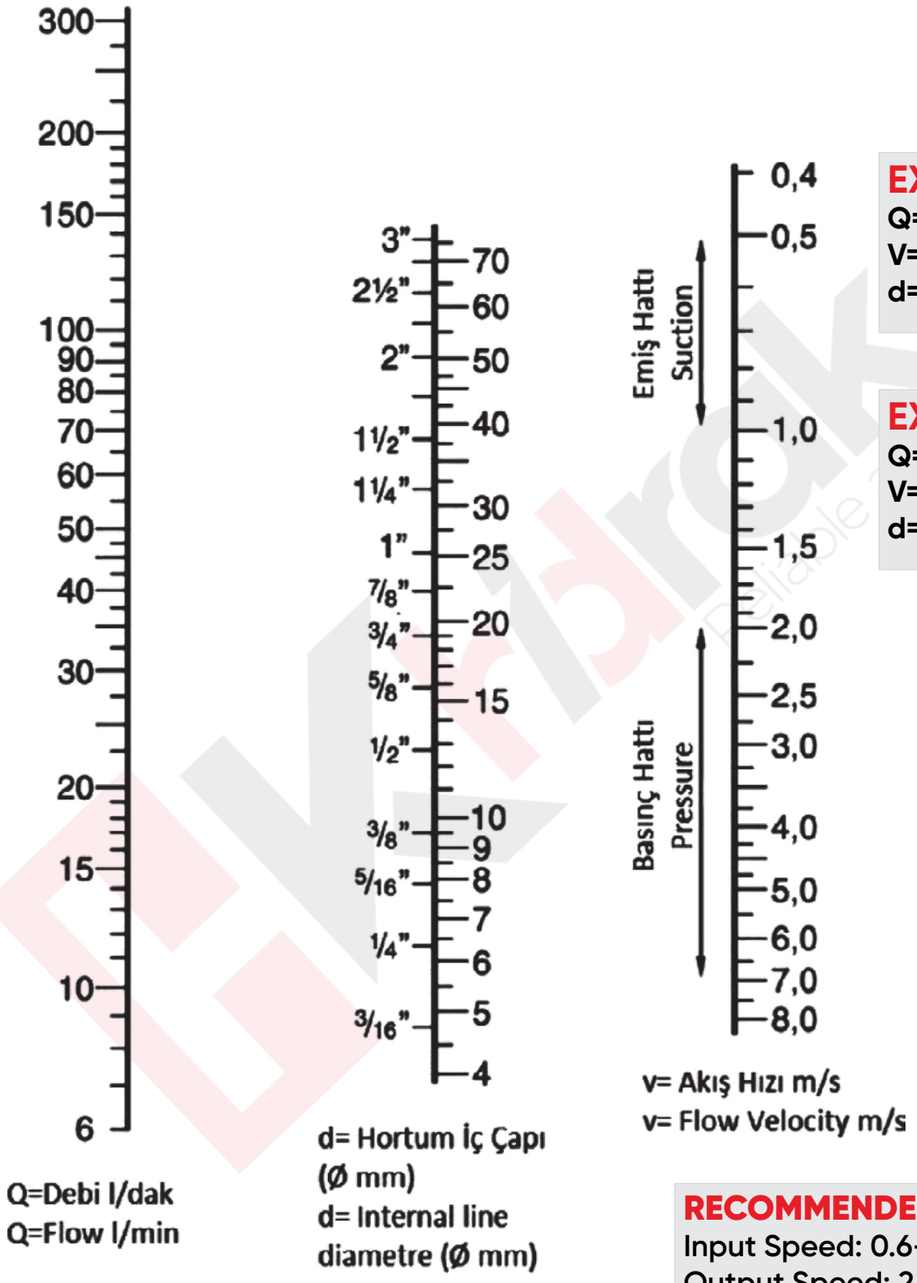


OUTLET FITTING



Nomogram

FLOW - LINE DIMENSION - FLOW VELOCITY



EXAMPLE 1:
Q=60 l/min.
V=0.9 m/s
d=1 1/2 "

EXAMPLE 2:
Q=30 l/min.
V=1.3 m/s
d=1 7/8 "

RECOMMENDED SPEEDS
Input Speed: 0.6-1.2 m/s
Output Speed: 2.1-4.6 m/s

Maintenance
Instructions

BEFORE ASSEMBLY

- Please read the instruction manuel carefully before using bent axis hydraulic piston pump!
- This guide is for use bent axis hydraulic piston pump correctly and safely. Therefore, please follow the guidelines and recommendations described in this manual.
- Observe the operating procedures described in these operating instructions. There is a risk of loss of life, injury, damage to the pump and damage to other products.
- With the bent axis hydraulic piston pump you have received, there may be a difference between the bent axis hydraulic piston pump described in this manual as a result of design change and improvement.
- For information on the bent axis hydraulic piston pump you have purchased, please contact us via our communication channels at our website www.hidraka.com
- Please compare the product code of the bent axis piston pump you ordered with the product code of the bent axis piston pump you have received.The product code is printed on the nameplate of the pump.
- Check the suitability of the pump flow rate and pressure and oil requirements of the system.
- Pump selection is made considering PTO direction.
- The inlet and outlet connections of the pump must be determined according to the direction of rotation of the PTO.
- The oil tank must be filled with hydraulic oil by calculating the oil supplement required after all system components are connected.
- Clean the mating surfaces when the pump is connected. Use bolts with appropriate quality and strength values and tighten the bolts to the specified torque values.
- When the vehicle starts, make sure that the pump does not touch the shaft of the vehicle.
- The pump must not be operated without the required amount of oil.
- Do not touch the pump shaft during pump operation.

Maintenance Instructions

WHILE THE PUMP IS WORKING

- **NOTE:** After the pump is connected and started for the first time, the parts in the hydraulic system will be filled with oil. Therefore, oil level in the tank should be checked and the required amount of oil should be added to the hydraulic tank.

- **NOTICE:** The pressure control part of the direction control valve used in the hydraulic system should not be changed, the seal should not be broken.

- The air in the system must be removed before the pump is started.

- When starting the pump, make sure that there is no pressure in the system.

- Run at low speed (idling on trucks) for a few minutes while no load, pump operation, sound and oil leaks should be checked. When a non-normal situation is observed (noise, vibration etc.), the causes of these problems should be determined and eliminated.

- The pump must not be used above the specified speed and pressure.

Instruction Manual

FILTRATION

- **The system must have an oil return filter and air filter on the oil tank cap. 10 microns is suitable for efficient filtration. When decide on the filter selection, blasting the filter and considering the high viscosity that may occur during the winter months.**

- **NOTICE:** Do not use suction strainer in suction line. It may cause air bubbles and cavitation in the system.be broken.

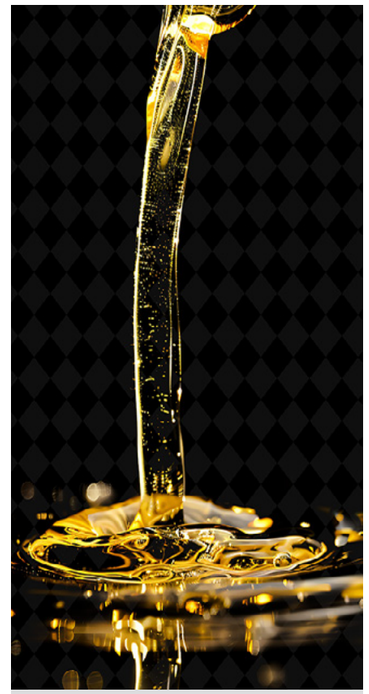
HYDRAULIC OIL SELECTION

Hydraulic oil type; ISO 46 in summer months, ISO 32 type oil in winter months should be preferred.

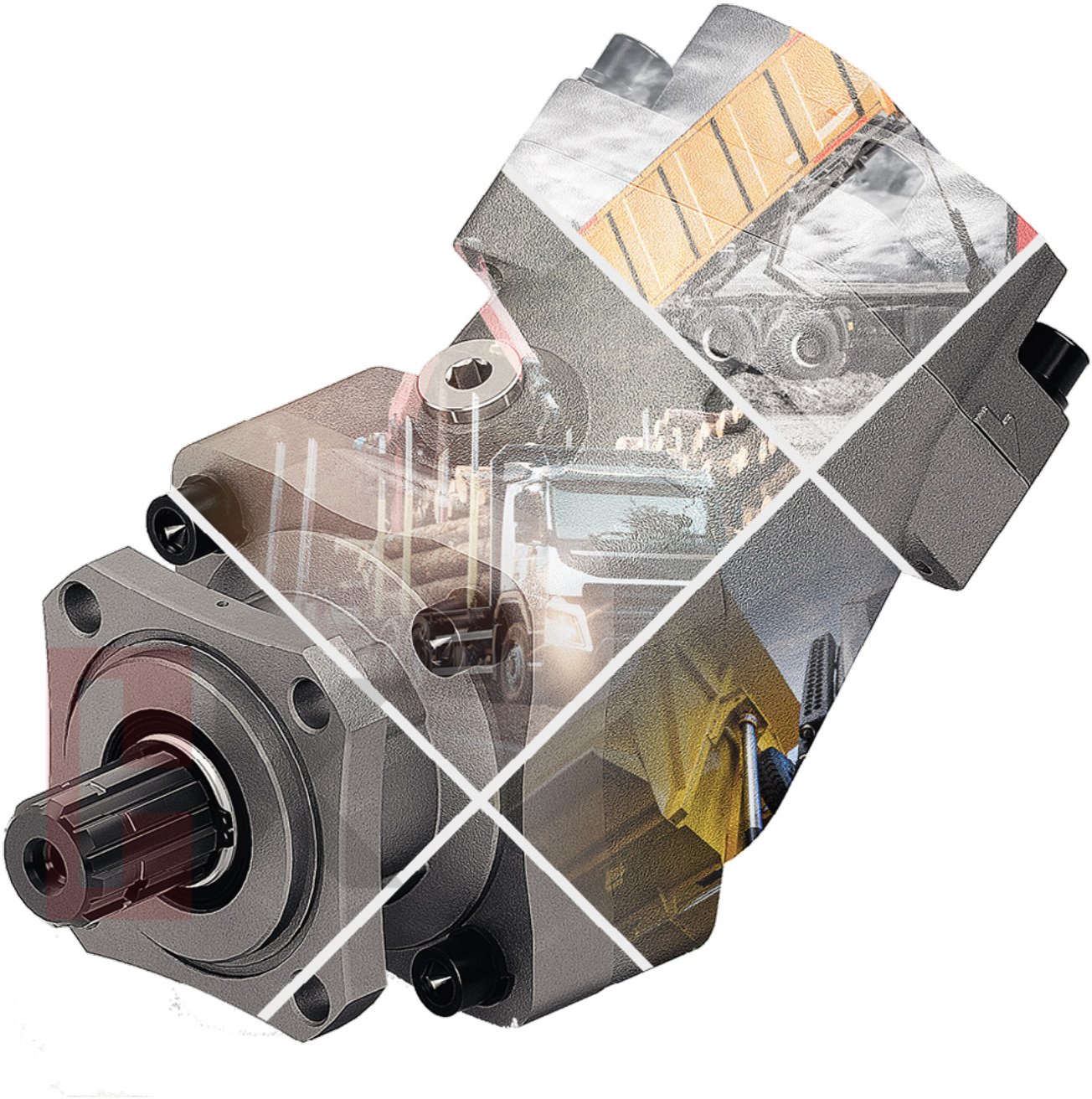
Hydraulic oil operating temperature; The required operating temperature in continuous operation is 30 °C - 55 °C. Maximum running temperature 80 °C. Minimum running temperature 20 °C.

The viscosity of the hydraulic oil in the system should be between 20-100 cSt (mm2 / s). Ideal working viscosity is in the 20-40 cSt (mm2 / s) range.

Hydraulic oil pollution; Hydraulic oil of type NAS 1638 class 9 must be used.



No fluid other than hydraulic oil should be used in the system!



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