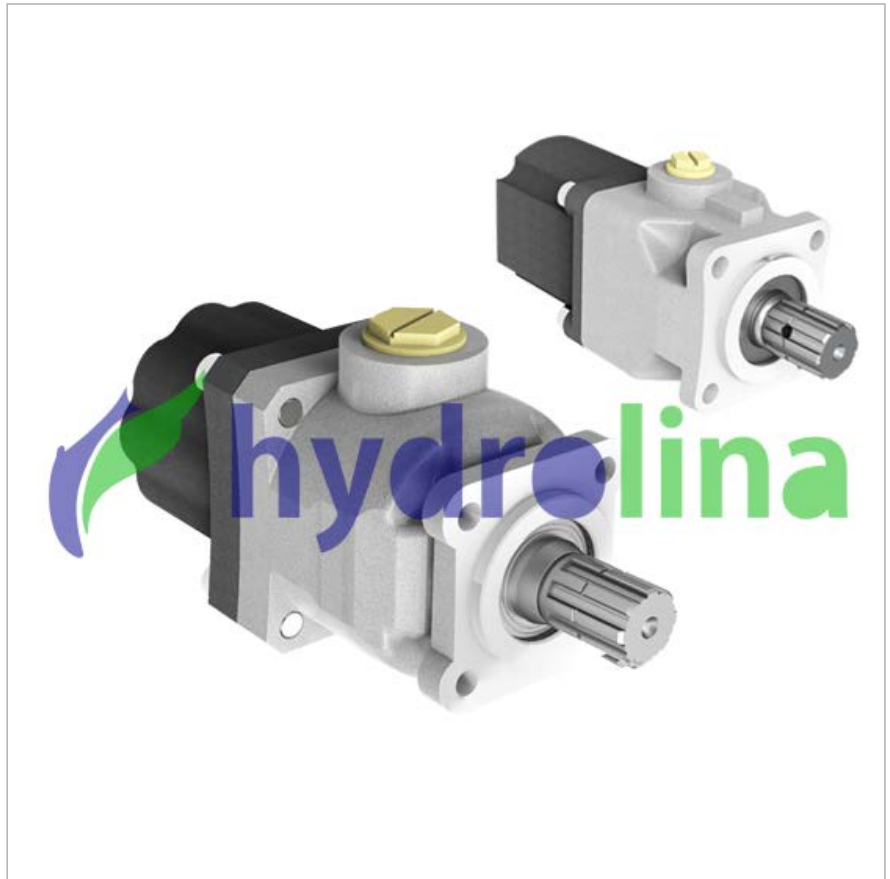


GPA

Axial Piston Pump



GPA Pumps have the following advantages ;

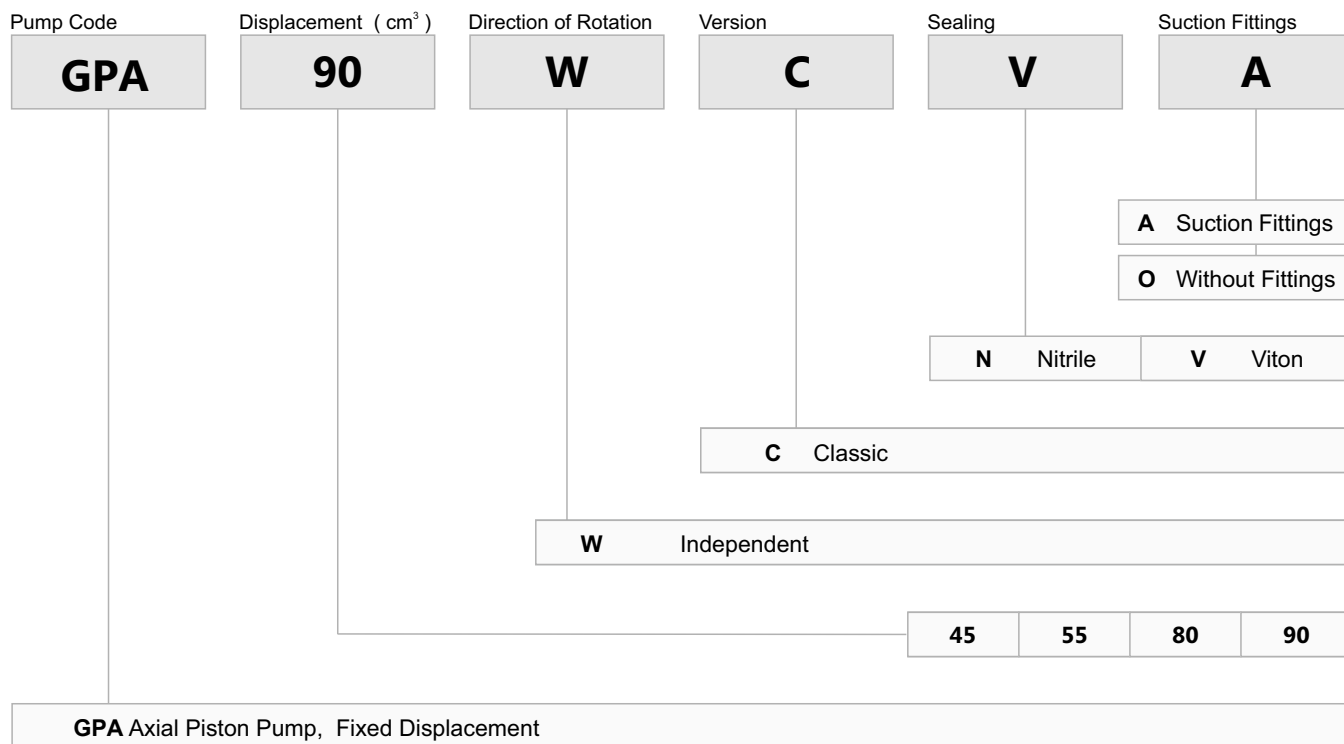
- Simple to use,
- Economical Conception,
- High Rotating Speeds,
- High Output Pressure,
- 350 bar Cont. Work. Pressure,
- 400 bar Peak Pressure,
- From 40cc to 90cc,
- Low Noise Level,
- High Efficiency
- Special Cast Iron with Raw Materials.

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Ordering Code of GPA Pumps

3



Formulas			
Pump Output Flow	GPM	$GPM = (Speed \text{ (rpm)} \times disp. \text{ (cu. in.)}) / 231$	$GPM = (n \times d) / 231$
Pump Input Horsepower	HP	$HP = GPM \times Pressure \text{ (psi)} / 1714 \times Efficiency$	$HP = (Q \times P) / 1714 \times E$
Pump Efficiency	E	Overall Efficiency = Output HP / Input HP	$E_{overall} = HP_{out} / HP_{in} \times 100$
		Overall Efficiency = Volumetric Eff. $\times$ Mechanical Eff.	$E_{overall} = EffVol. \times EffMech.$
Pump Volumetric Efficiency	E	Volumetric Efficiency = Actual Flow Rate Output (GPM) / Theoretical Flow Rate Output (GPM) $\times$ 100	$EffVol. = Q_{act.} / Q_{theo.} \times 100$
Pump Mechanical Efficiency	E	Mechanical Efficiency = Theoretical Torque to Drive / Actual Torque to Drive $\times$ 100	$EffMech = T_{theo.} / T_{act.} \times 100$
Pump Displacement	CIPR	$Displmnt \text{ (In.}^3 \text{ / rev.)} = Flow \text{ Rate (GPM)} \times 231 / Pump \text{ RPM}$	$CIPR = GPM \times 231 / RPM$
Pump Torque	T	Torque = Horsepower $\times$ 63025 / RPM	$T = 63025 \times HP / RPM$
		Torque = Pressure (PSIG) $\times$ Pump Displacement (CIPR) / 2π	$T = P \times CIPR / 6.28$

- Horsepower for driving a pump** : For every 1 hp of drive, the equivalent of 1 gpm @ 1500 psi can be produced.
- Horsepower for idling a pump** : To idle a pump when it is unloaded will require about 5% of it's full rated power
- Wattage for heating hydraulic oil** : Each watt will raise the temperature of 1 gallon of oil by 1° F. per hour.
- Flow velocity in hydraulic lines** : Pump suction lines 2 to 4 feet per second, pressure lines up to 500 psi - 10 to 15 ft./sec., pressure lines 500 to 3000 psi - 15 to 20 ft./sec.; all oil lines in air-over-oil systems; 4 ft./sec.

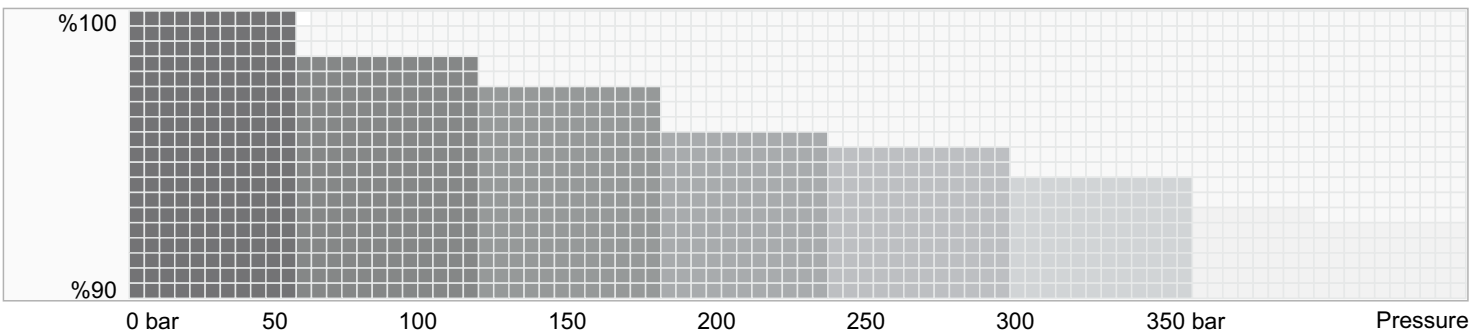
		45	55	80	90
Displacement	cc	46,70	54,60	84,50	92,20
Theoretical oil flow l/min at pump speed	1000 rpm	46,70	54,60	84,50	92,20
	1500 rpm	70,05	81,90	126,7	138,3

Maximum Pump Speed					
- Continuous	rpm	1800	1800	1500	1500
- Limited	rpm	2400	2400	2000	2000
Max. Continuous Pressure	bar	330	330	300	300
Max. Intermittent Pressure	bar	360	360	350	350
Max. Peak Pressure	bar	500	500	450	450

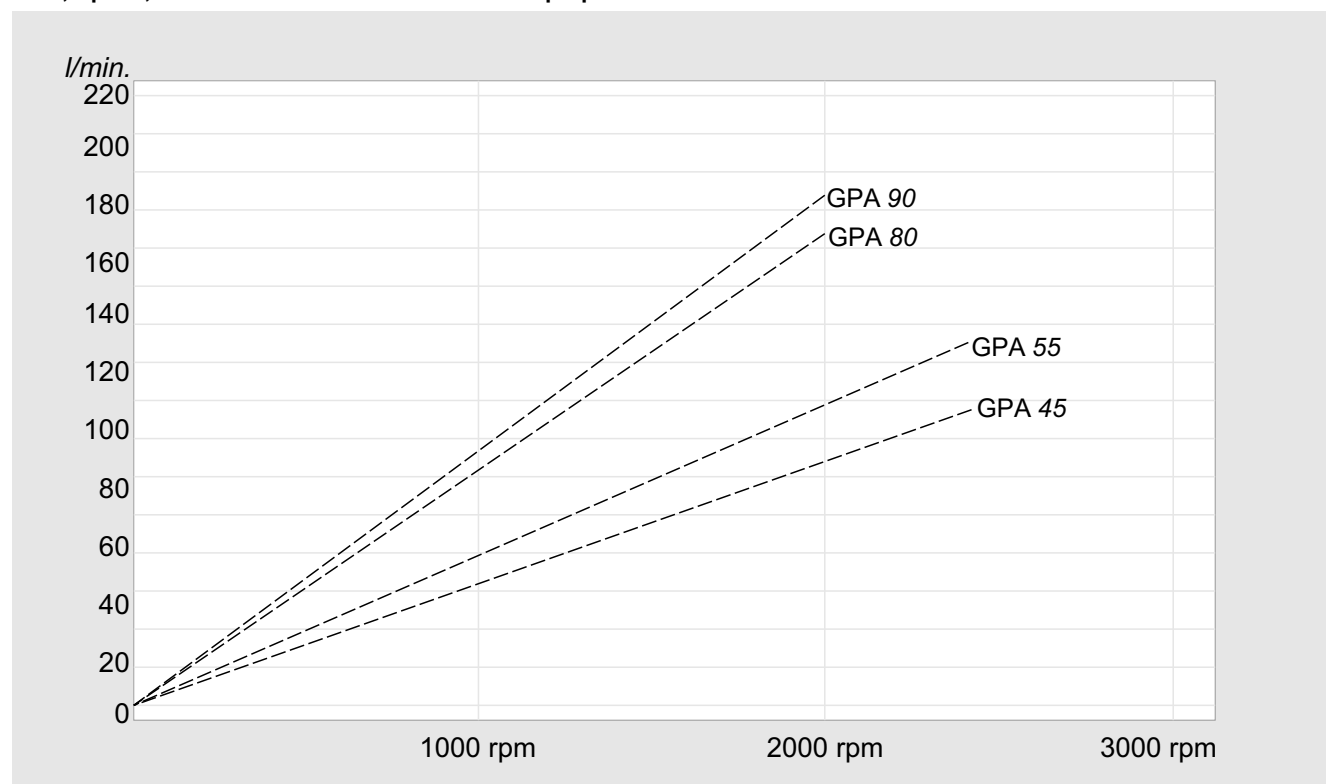
Weight					
- Without inlet fitting	kg	14,70	15,00	19,50	19,70
- With inlet fitting	kg	15,10	15,40	19,90	21,10

Rotation		Bi-Directional			
Fluid		Mineral Based Hydraulic Oils			
Inlet		R1 ¼"	R1 ¼"	R1 ¼"	R1 ¼"
Outlet		1 1/16 UNF	1 1/16 UNF	R 1"	R 1"

Efficiency Curves (1000 rpm)



Flow, Speed, Pressure List for Max. Limited Pump Speed



Quick Calculation

Flow rate

$$Q = \frac{V_g \cdot n \cdot \eta_v}{1000} \text{ (lpm)}$$

Torque

$$M = \frac{1,59 \cdot V_g \cdot \Delta p}{100 \cdot \eta_{mh}} \text{ (Nm)}$$

Power

$$P = \frac{2\pi \cdot M \cdot n}{60000} = \frac{M \cdot n}{9549} = \frac{Q \cdot \Delta p}{600 \cdot \eta_t} \text{ (kW)}$$

V_g = Geom. displacement (ccm/rev.)

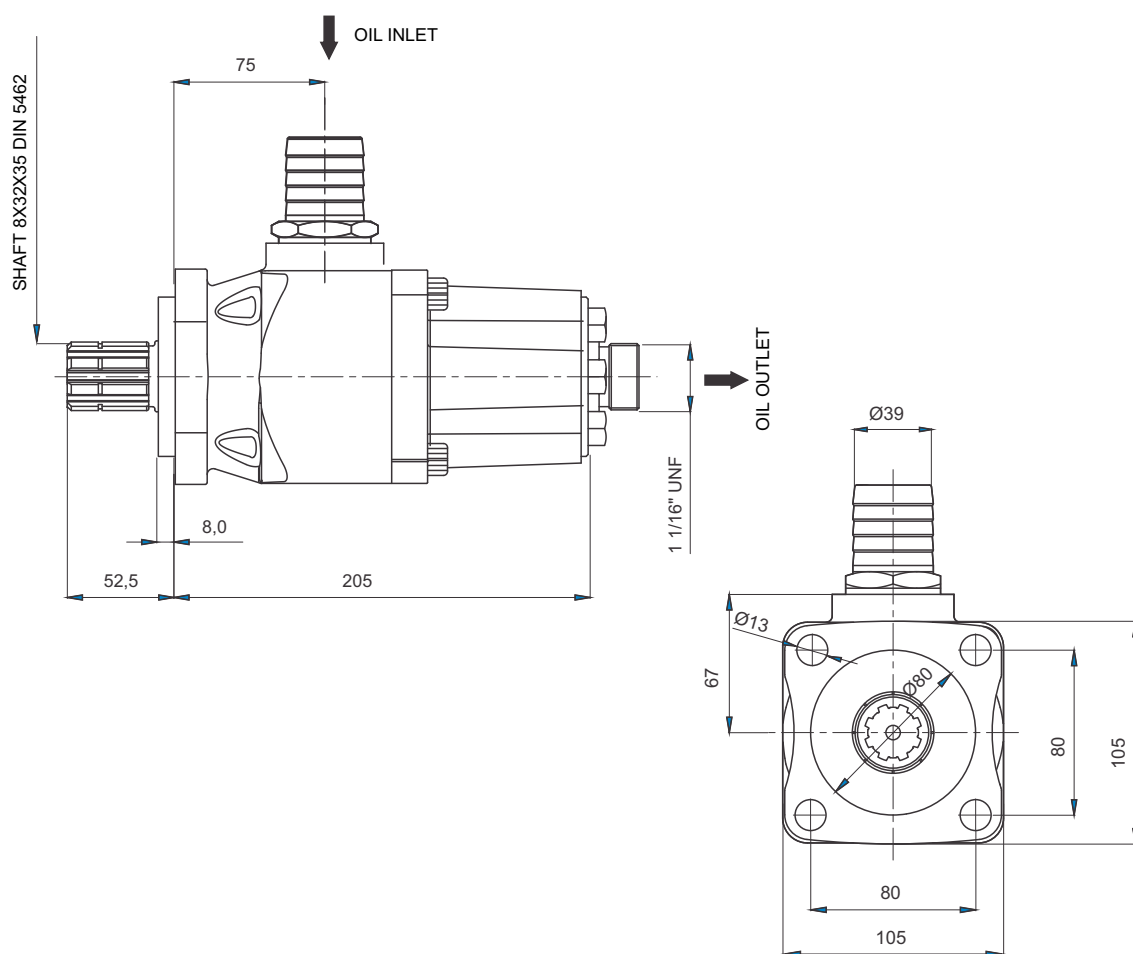
Δp = Diff. pressure (bar)

n = Speed (rpm)

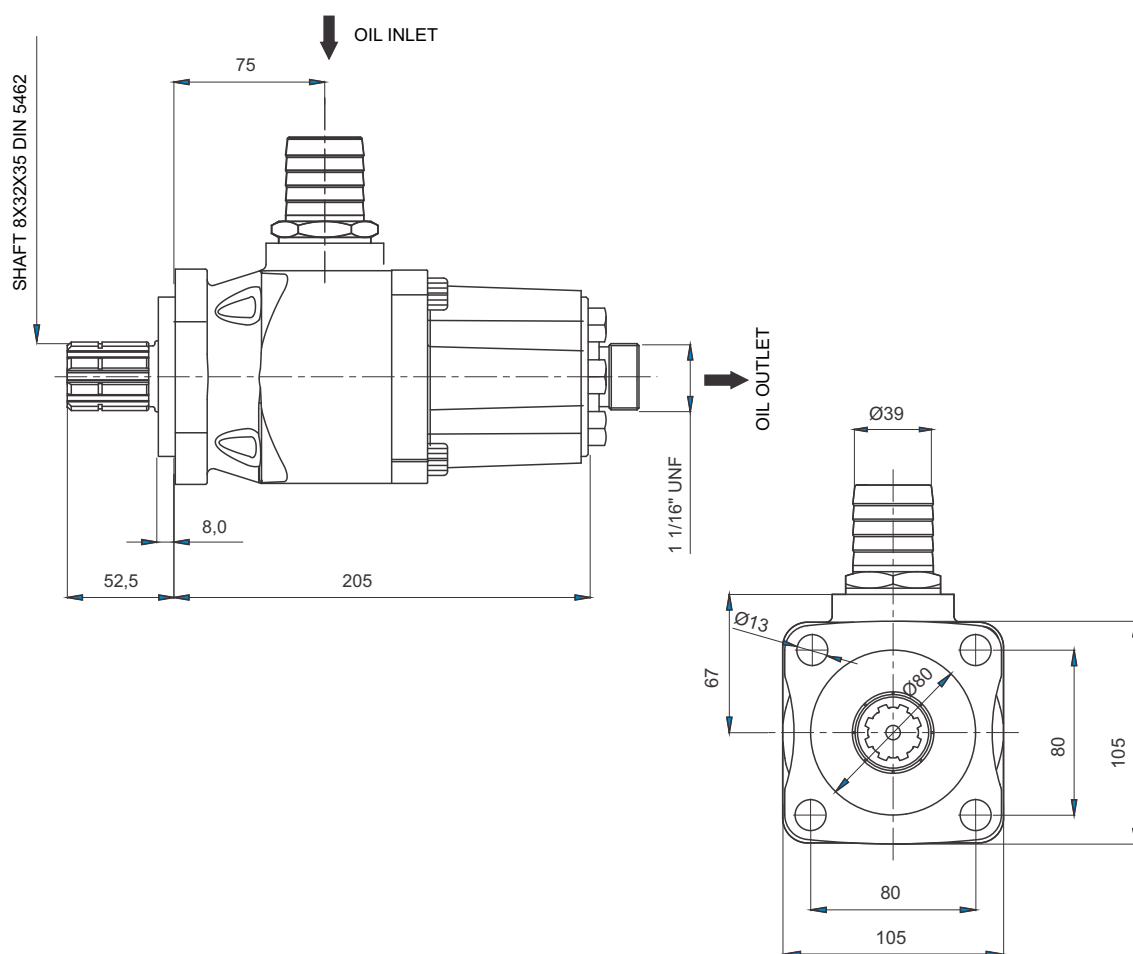
η_v = Volumetric efficiency

η_{mh} = Mechanical-hydraulic efficiency

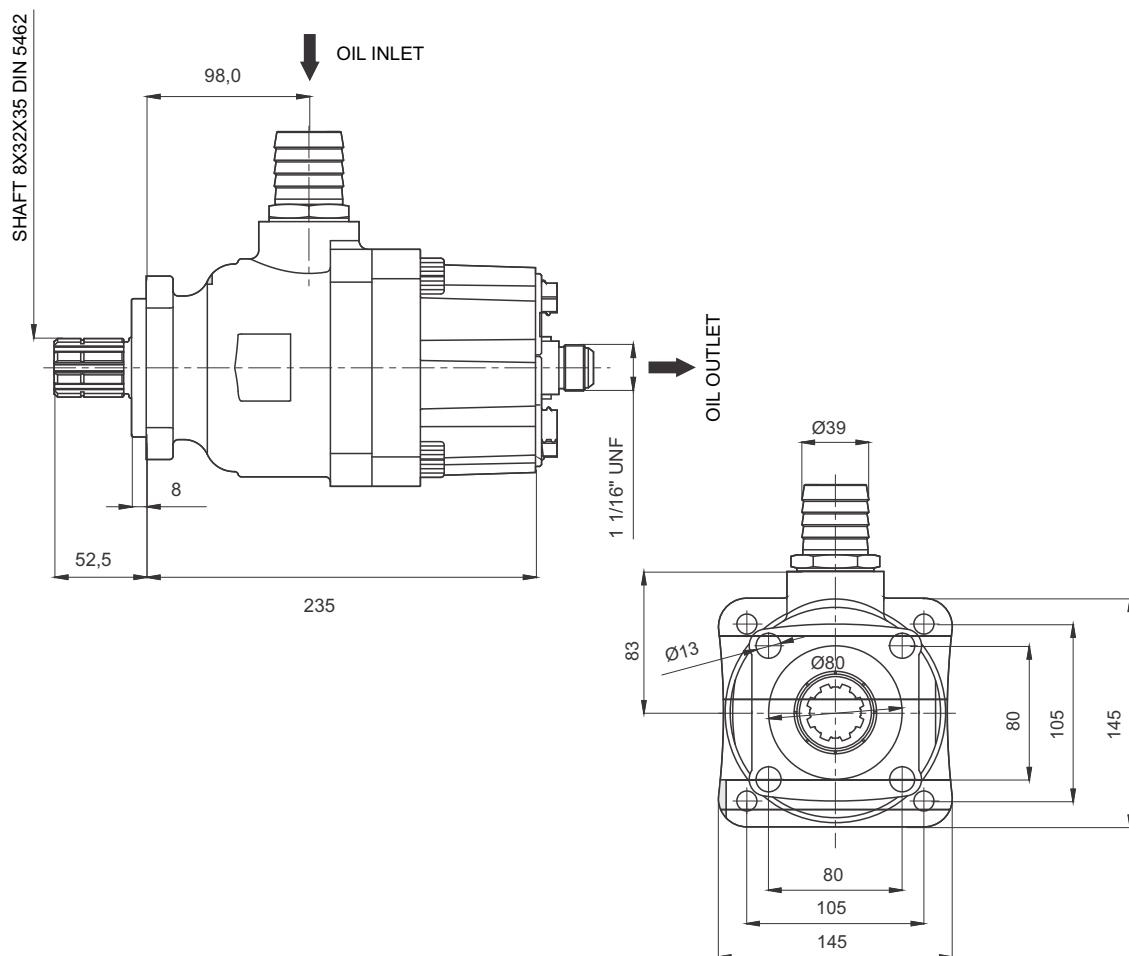
η_t = Total efficiency ($\eta_t = \eta_v \cdot \eta_{mh}$)



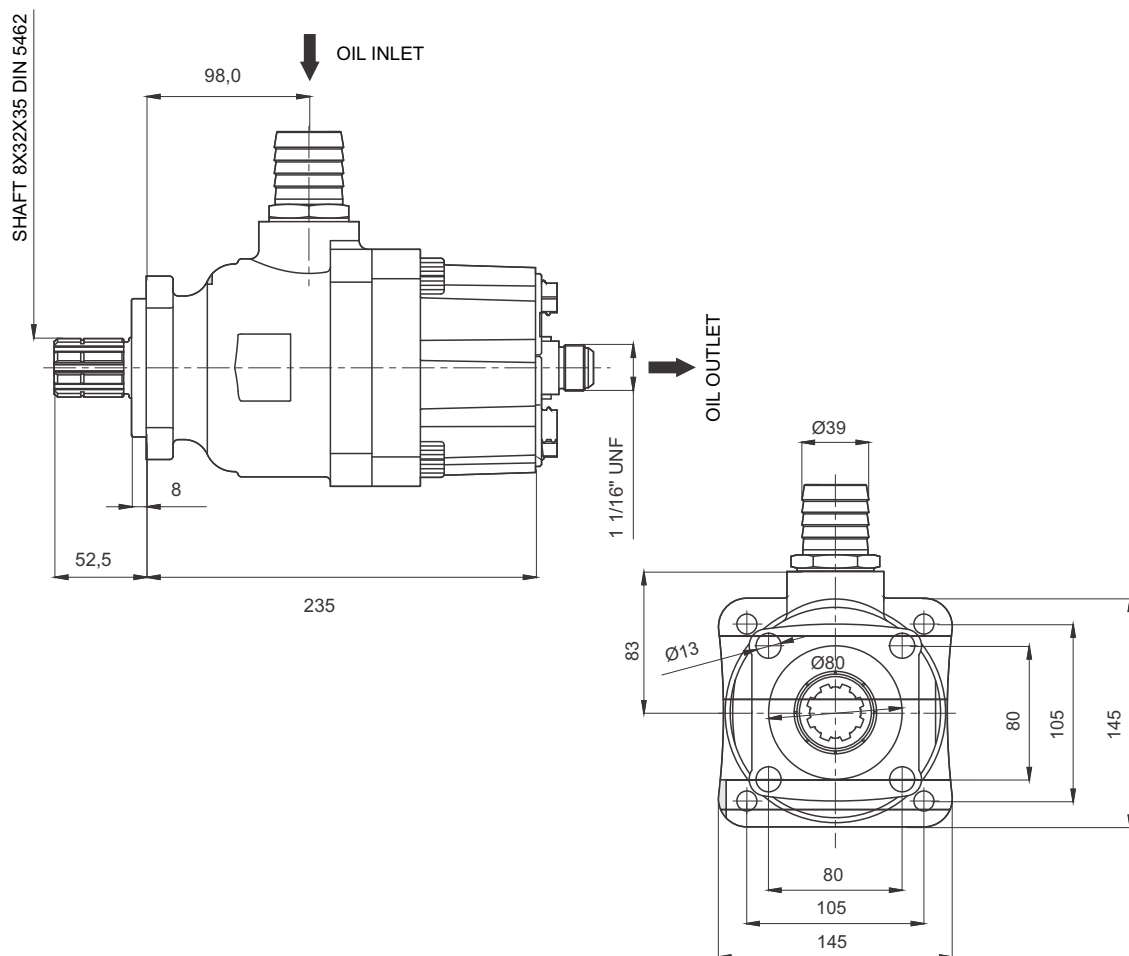
x 1000 rpm	46,70 cc
x 1500 rpm	70,05 cc
Max. Continuous Pump Speed	1800 rpm
Max. Limited Pump Speed	2400 rpm
Max. Continuous Pressure	330 bar
Max. Intermittent Pressure	360 bar
Max. Peak Pressure	500 bar
Weight without inlet fitting	14,70 kg
Weight with inlet fitting	15,10 kg
Rotation	Bi-Directional
Fluid	Min.B.Hyd.Oil
Inlet	R1 ¼"
Outlet	1 1/16 UNF



x 1000 rpm	54,60 cc
x 1500 rpm	81,90 cc
Max. Continuous Pump Speed	1800 rpm
Max. Limited Pump Speed	2400 rpm
Max. Continuous Pressure	330 bar
Max. Intermittent Pressure	360 bar
Max. Peak Pressure	500 bar
Weight without inlet fitting	15,00 kg
Weight with inlet fitting	15,40 kg
Rotation	Bi-Directional
Fluid	Min.B.Hyd.Oil
Inlet	R1 ¼"
Outlet	1 1/16 UNF

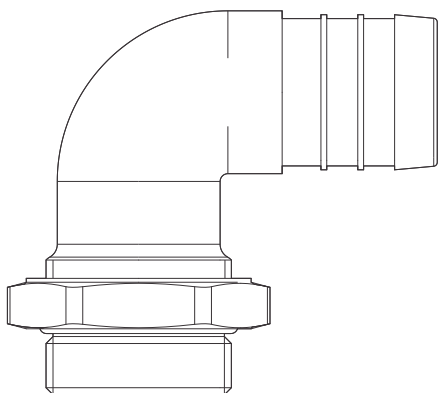


x 1000 rpm	84,50 cc
x 1500 rpm	126,7 cc
Max. Continuous Pump Speed	1500 rpm
Max. Limited Pump Speed	2000 rpm
Max. Continuous Pressure	300 bar
Max. Intermittent Pressure	350 bar
Max. Peak Pressure	450 bar
Weight without inlet fitting	19,50 kg
Weight with inlet fitting	19,90 kg
Rotation	Bi-Directional
Fluid	Min.B.Hyd.Oil
Inlet	R1 1/4"
Outlet	R 1"

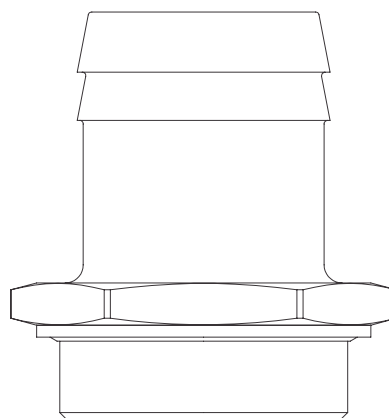


x 1000 rpm	92,20 cc
x 1500 rpm	138,3 cc
Max. Continuous Pump Speed	1500 rpm
Max. Limited Pump Speed	2000 rpm
Max. Continuous Pressure	300 bar
Max. Intermittent Pressure	350 bar
Max. Peak Pressure	450 bar
Weight without inlet fitting	19,70 kg
Weight with inlet fitting	21,10 kg
Rotation	Bi-Directional
Fluid	Min.B.Hyd.Oil
Inlet	R1 1/4"
Outlet	R 1"

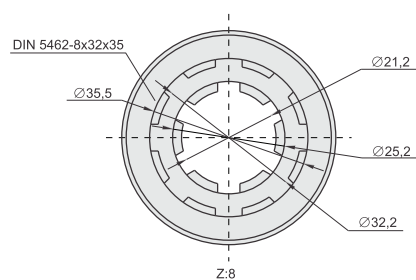
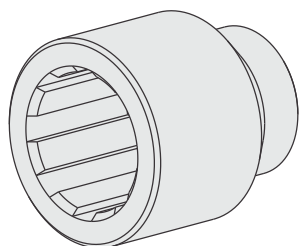
90° Elbow Fittings



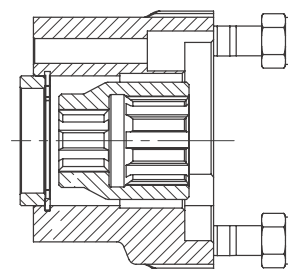
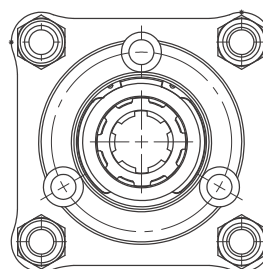
Straight Fittings

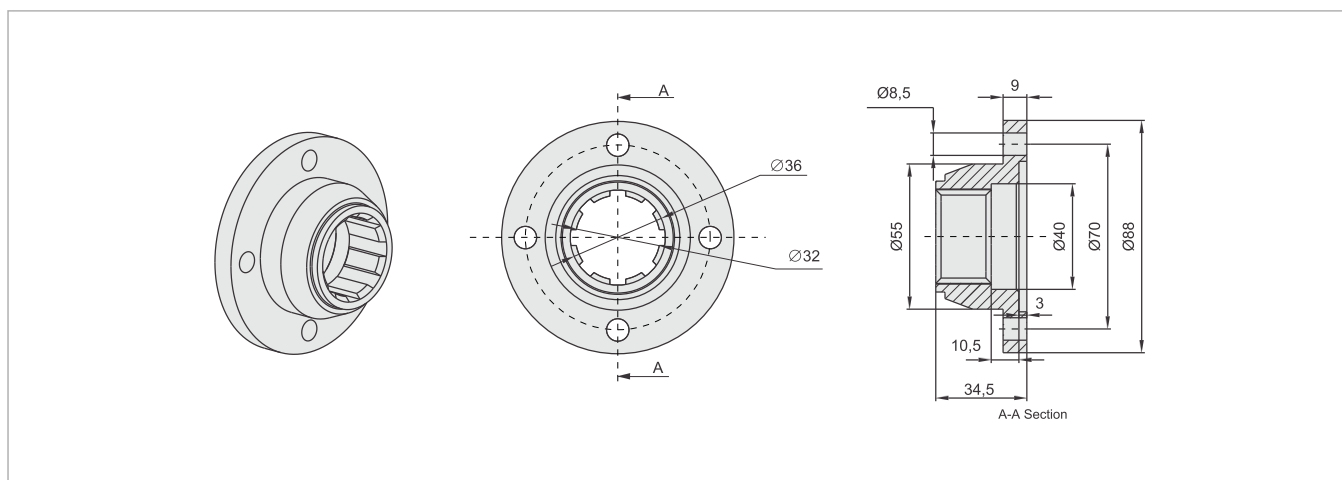
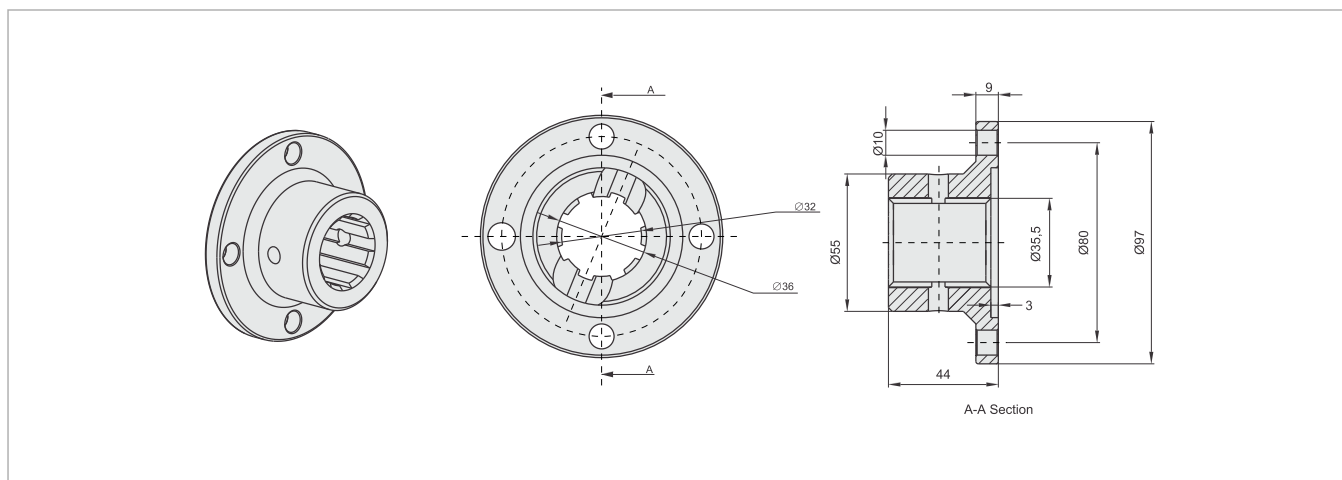


Couplers



Hydraulic Adapters





	Hydraulic Adapters - PTO Piston Pump Adapter - PTO Gear Pump Adapter - Long / Short Adapter
	Flanges - 1120 (6 Spline) - 1120 (8 Spline) - 1300 (6 Spline) - 1300 (8 Spline)
	Couplers - 6 x 8 Couplar - 6 x 8 Couplar (Long) - 8 x 8 Couplar - 8 x 8 Couplar (Long)

The GPA pumps fitted with a rubber front seal.

INSTALLATION

PA pumps are direct mounting on the PTO.

Grease the splined shaft before installation. Do not tap the gear wheel/driver into position.

Remove any mounted screws on the pump.

The GPA was delivered with protective covers and plastic/threaded plugs.

It should be removed before of install. Please check seals and surfaces. If sealing or other surfaces damaged please contact your responsible Service Partner.

Start up and run the pump at medium speed (800 to 1000 rpm at the PTO) until the oil flowing out of the pump. (There are no more air bubbles.)

OIL SUPPLY

Oil and supply line should be clean, and the supply line is airtight.

SUCTION LINE

Connect the suction line, tighten the suction connection bolts in diametric pairs.

Connect the pressure line.

REPAIR

We offers a comprehensive range of services for the repair of our Axial Piston Pumps.

Repairs to the GPA Axial Piston Pump may only be performed by authorized, skilled and instructed personnel.

Only use original and pre-installed our GPA spare parts from supplied to Manufacturer..

Tested and pre-installed GPA pumps successful repair requiring only little time.

SPARE PARTS

The spare parts list and the GPA pump order specific.

When ordering spare parts, quote the material and complete Ordering code number of the GPA Axial Piston Pump as well as the right numbers of the spare parts.

RISK OF DAMAGE!

Do not touch the drive shaft of the GPA Axial Piston Pump.

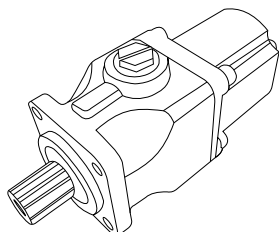
Do not touch sensor, valves and fittings

Do not touch sealing surfaces.

DIMENSIONS & WEIGHTS

		45	55	80	90
- Without inlet fitting	kg	14,70	15,00	19,50	19,70
- With inlet fitting	kg	15,10	15,40	19,90	21,10

Address all questions regarding spare parts to your responsible Our Service Partner or the technical service department of the manufacture's plant / factory for the PA Axial Piston Pumps.



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Fax : **+90 (551) 148 26 88**

mail@hydrolina.com
order@hydrolina.com

DIN

DIN 5462 / ISO 14
8x32x35
8x32x36
DIN 6885



G2PA



G1PA



G2PM

Piston Pumps

Piston Motors

ISO

ISO 3019-2 (4 BOLTS)
DIN 5480 -W25,30,35,40,45
DIN 6885 -Ø20,25,30,35,40,45



G2P



G2M

SAE

SAE B2 C4 - SAE D
SAE J498b
SAE J 744



G2SE



G2EM

M2

Fixed Plug-in

DIN 5480 / ISO 3019-2
W30 - W35 - W40
M21 - M22 - M23



G2MS

DIN ISO 14
8x32x36



GPA

P2 Connection M8x125
Woodruff key 3x6,5 NF E
27-653 NF R 124-04
(2 BOLTS)



GPH

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GPA

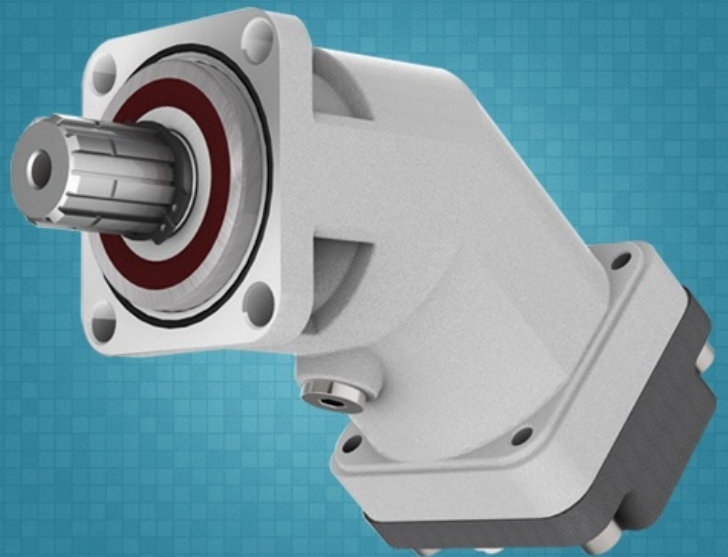


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G2PA

Bent Axis Piston Pumps

- Compact Design,
- Economical Conception,
- High Rotating Speeds,
- High Output Pressure.



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