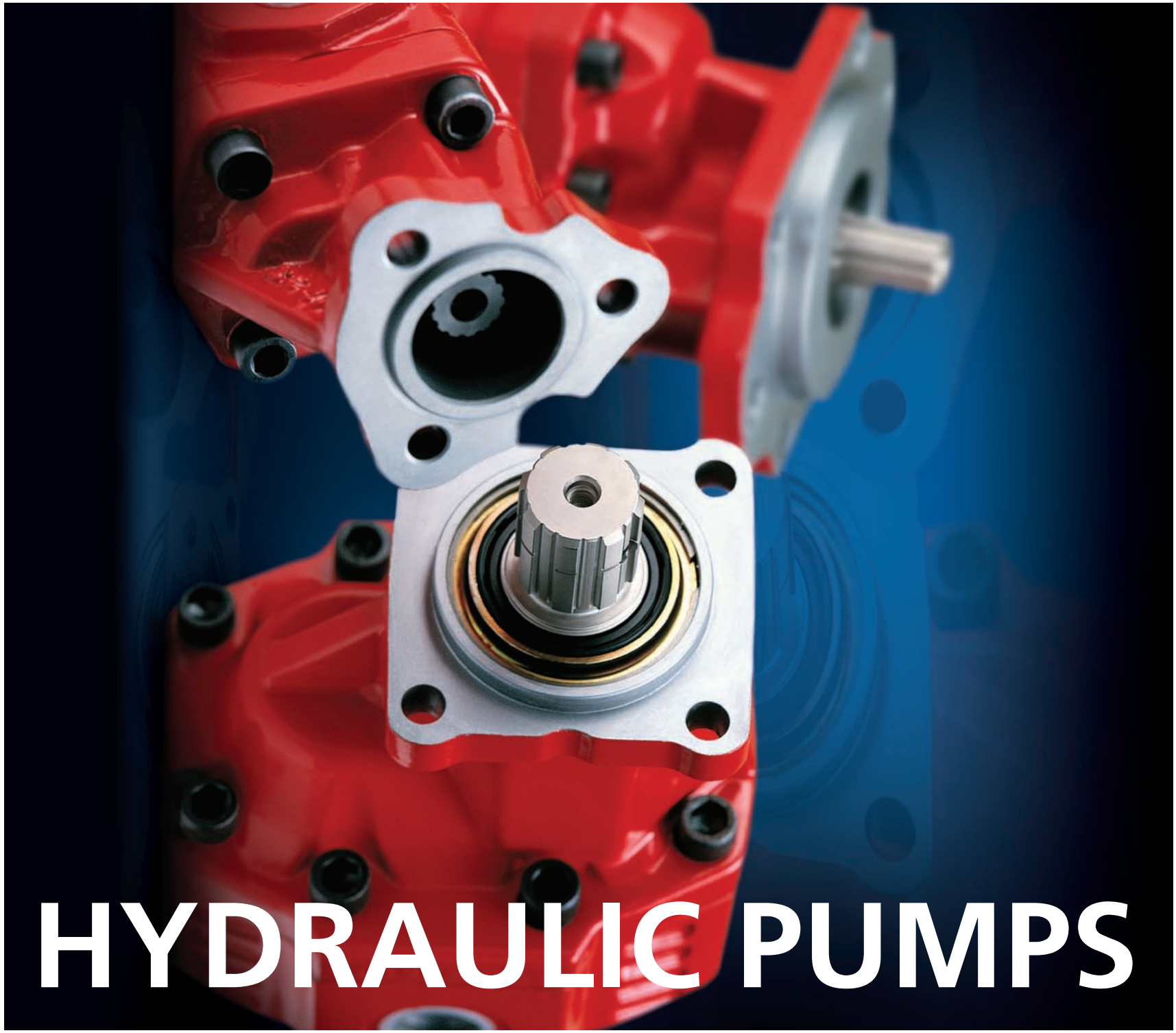
HYDRAULIC PUMPS

Hydraulic Pumps

Products:	Descriptions:	**Page:**
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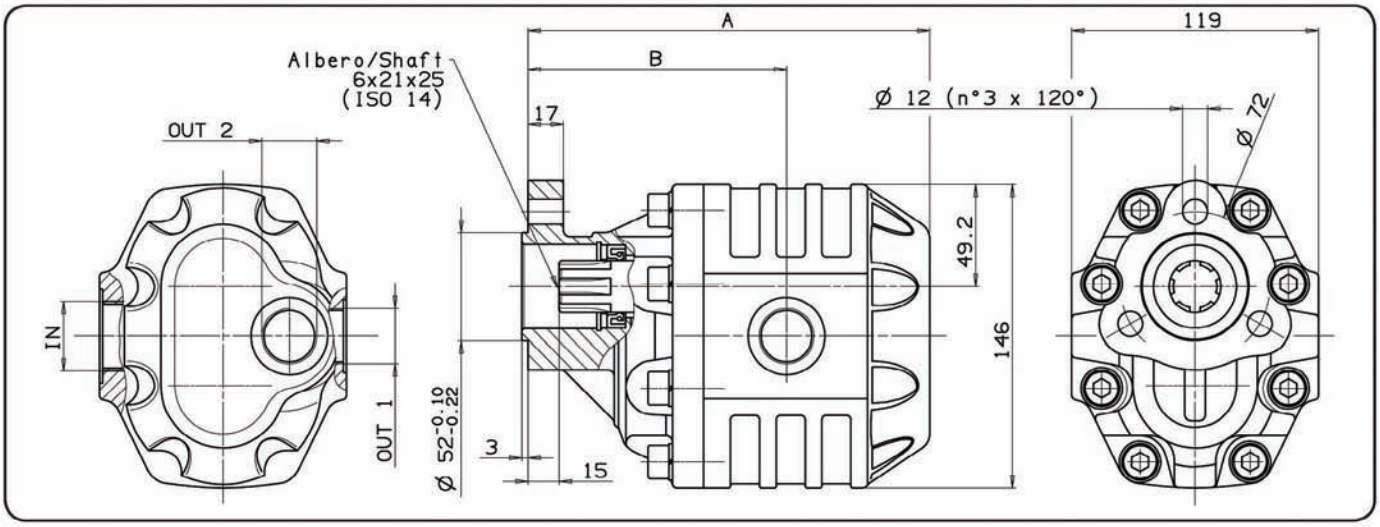
NPH UNI
3 HOLES-UNI HYDRAULIC GEAR PUMPS

Fluid	*Mineral or synthetic compatible with the following seals:* NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm^2/s)	22	32	46	68
Optimale kinematic viscosity	VG= 10 cSt ÷ 100 cSt				
Max kinematic viscosity suggested at the start-up	VG= 750 cSt				
Viscosity index suggested	VI > 100				
Oil filtering	> 200 bar: 10 µm < 200 bar: 25 µm				
Inlet pressure	-0,3 ÷ 2 bar				
Pump rotation	*Unidirectional (Right or Left)*				



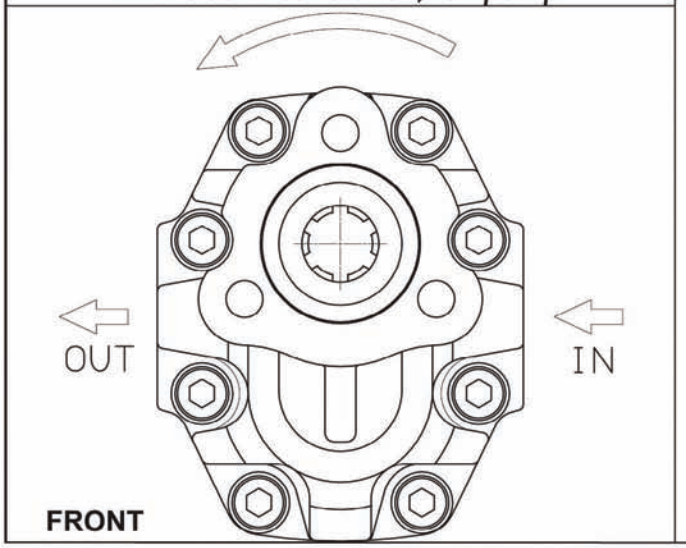
Pump type	*Rotation* Right	*Rotation* Left	IN ISO 228	OUT 1 ISO 228	OUT 2 ISO 228	A mm	B mm	*Weight* Kg
NPH-17	105-011-00175	105-011-00184	G 1/2	G 1/2		152.5	103.5	8.5
NPH-22	105-011-00228	105-011-00237				156	105.5	9
NPH-27	105-011-00273	105-011-00282	G 3/4			158.5	108	9.5
NPH-34	105-011-00344	105-011-00353		G 3/4		163.5	109	10.5
NPH-43	105-011-00433	105-011-00442				169.5	114	11
NPH-51	105-011-00513	105-011-00522	G1			174.5	114.5	11.5
NPH-61	105-011-00611	105-011-00620				180.5	120.5	12
NPH-73	105-011-00737	105-011-00746				188.5	119.5	12.5
NPH-82	105-011-00826	105-011-00835	G1 1/4			193.5	124.5	13
NPH-90	105-011-00906	105-011-00915		G 1	G 3/4	204.5	132.5	13.5
NPH-100	105-011-01003	105-011-01012				210.5	138.5	14
NPH-125	105-011-01254	105-011-01263				226.5	142.5	16

Pump type	Displacement	Pressure			Max. continuous speed	Max. intermittent speed	Min. speed
		P1	P2	P3			
	cm^3/rev	bar	bar	bar	rpm	rpm	rpm
NPH-17	17.04	290	315	325	2500	3000	300
NPH-22	22.15						
NPH-27	26.18						
NPH-34	33.88	280	300	310	2200	2800	
NPH-43	43.12	270	290	300	2000	2500	
NPH-51	50.82	240	260	280			
NPH-61	60.06	220	240	250	1800	2000	
NPH-73	72.88	200	220	230	1600	1800	
NPH-82	81.08	190	210	220	1500		
NPH-90	90.43	180	200	220			
NPH-100	98.18	180	200	220			
NPH-125	122.72	160	180	200			

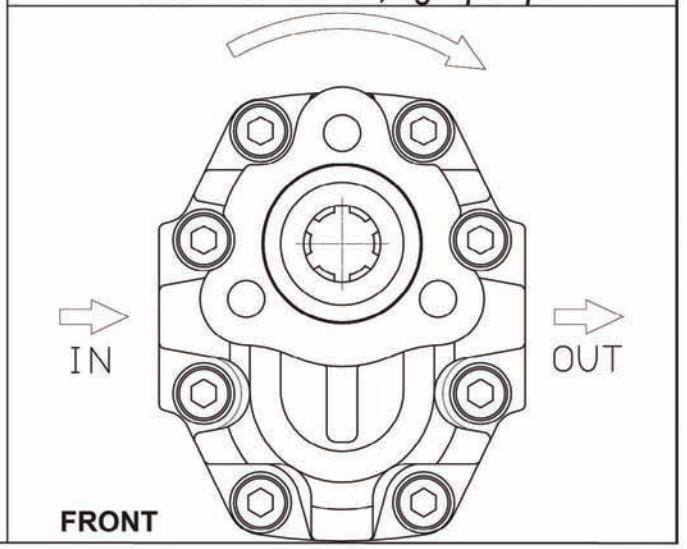
Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)

DIRECTION OF ROTATION:

Anti-clockwise rotation, left pump



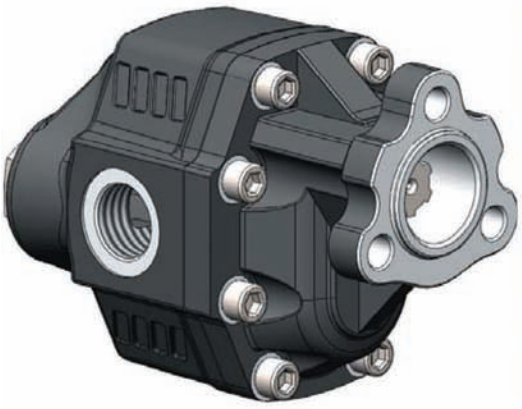
Clockwise rotation, right pump



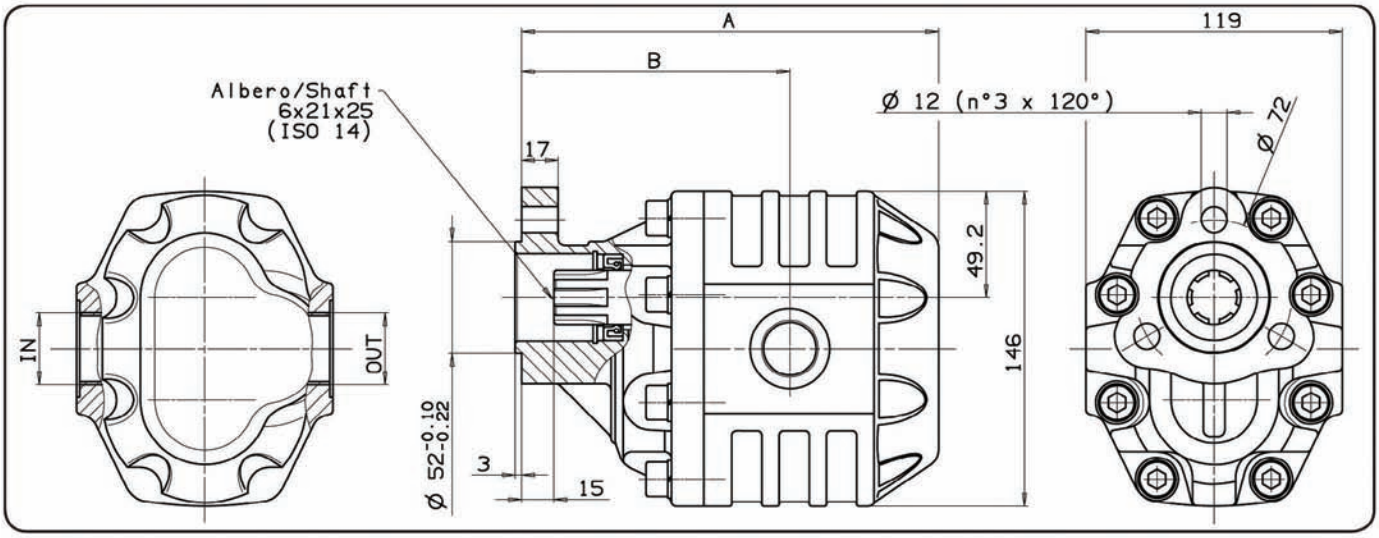
TO CHANGE THE DIRECTION OF ROTATION SEE SECTION .....

SEAL KIT

NPH 17cc-82cc - 105-900-00188
NPH100cc-125cc - 105-900-00320



Fluid	Mineral or synthetic compatible with the following seals: NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	Average ambient temp. (°C)	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	22	32	46	68
Optimale kinematic viscosity			VG= 10 cSt ÷ 100 cSt		
Max kinematic viscosity suggested at the start-up			VG= 750 cSt		
Viscosity index suggested			VI > 100		
Oil filtering			> 200 bar: 10 µm < 200 bar: 25 µm		
Inlet pressure			-0,3 ÷ 2 bar		
Pump rotation			Bidirectional		



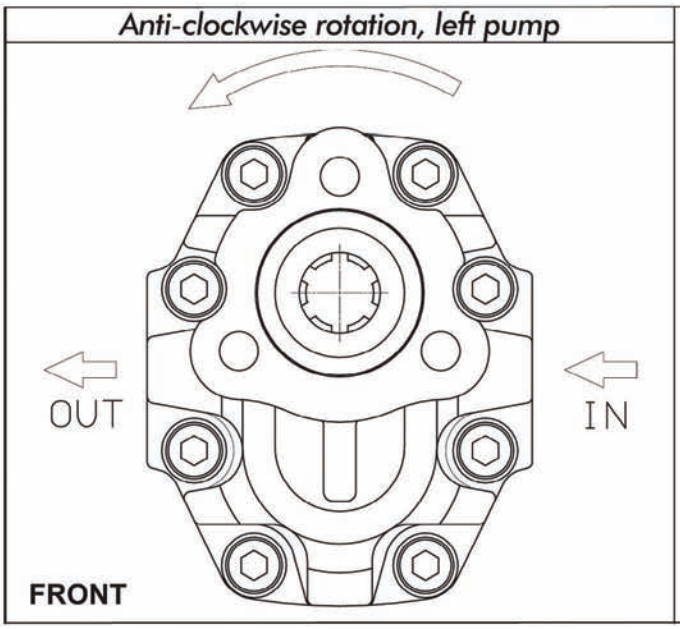
Pump type	Order code	IN ISO 228	OUT ISO 228	A mm	B mm	Weight Kg
LTH-61	105-028-00612	G 1	G 1	180,5	120,5	12
LTH-82	105-028-00827			193,5	124,5	13
LTH-100	105-028-01004	G 1 1/4	G 1 1/4	210,5	138,5	14

Pump type	Displacement cm³/rev	P1 bar	P2 bar	P3 bar	Max. continuous speed rpm	Max. intermittent speed rpm	Min. speed rpm
LTH-61	60,06	190	200	210	1500	1800	300
LTH-82	81,08	160	180	190	1400	1700	
LTH-100	98,18						

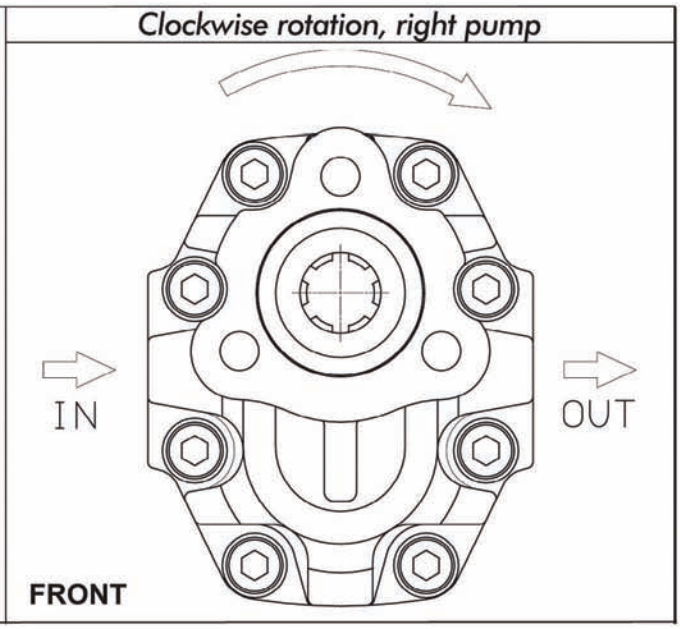
Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)

TECHNICAL FEATURES:

Anti-clockwise rotation, left pump



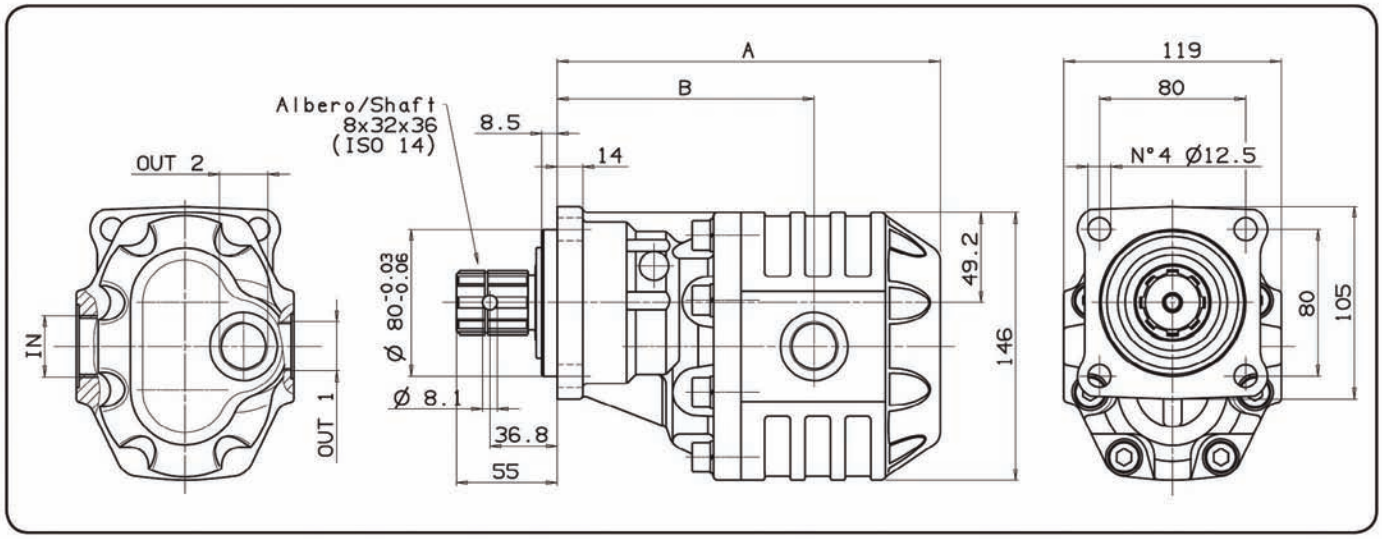
Clockwise rotation, right pump



SEAL KIT - 105-900-00348

NPH ISO
4 HOLES ISO HYDRAULIC GEAR PUMPS

Fluid	*Mineral or synthetic compatible with the following seals:* NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	22	32	46	68
Optimale kinematic viscosity	VG= 10 cSt ÷ 100 cSt				
Max kinematic viscosity suggested at the start-up	VG= 750 cSt				
Viscosity index suggested	VI > 100				
Oil filtering	> 200 bar: 10 µm < 200 bar: 25 µm				
Inlet pressure	-0,3 ÷ 2 bar				
Pump rotation	*Unidirectional (Right or Left)*				



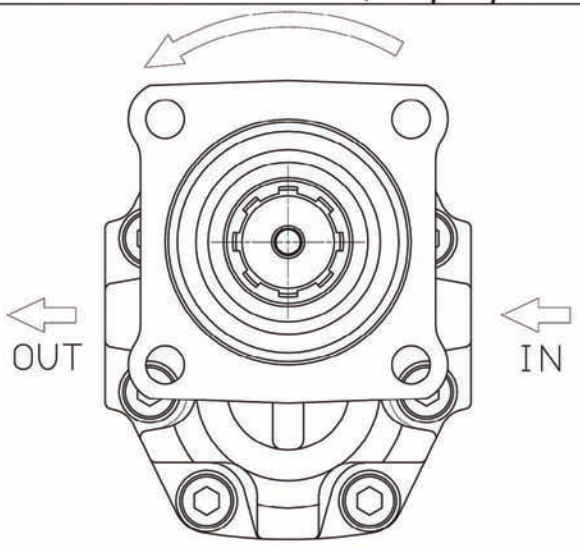
Pump type	Rotation		IN	OUT 1	OUT 2	A	B	Weight
	Right	*Left*	ISO 228	ISO 228	ISO 228	mm	mm	Kg
NPH-17	105-011-10173	105-011-10182	G 1/2	G 1/2		168.5	119.5	11
NPH-22	105-011-10226	105-011-10235				172	121.5	11.5
NPH-27	105-011-10271	105-011-10280	G 3/4			174.5	124	12
NPH-34	105-011-10342	105-011-10351		G 3/4		179.5	125	13
NPH-43	105-011-10431	105-011-10441				185.5	130	13.5
NPH-51	105-011-10511	105-011-10520	G1			190.5	130.5	14
NPH-61	105-011-10619	105-011-10628				196.5	136.5	14.5
NPH-73	105-011-10735	105-011-10744				204.5	135.5	15
NPH-82	105-011-10824	105-011-10833	G1 1/4			209.5	140.5	15.5
NPH-100	105-011-11001	105-011-11010		G 1	G 3/4	226.5	154.5	15
NPH-125	105-011-11252	105-011-11261				242.5	158.5	17

Pump type	Displacement cm³/rev	P1 bar	P2 bar	P3 bar	Max. continuous speed rpm	Max. intermittent speed rpm	Min. speed rpm
NPH-17	17.04	290	315	325	2500	3000	300
NPH-22	22.15						
NPH-27	26.18						
NPH-34	33.88	280	300	310	2200	2800	
NPH-43	43.12	270	290	300	2000	2500	
NPH-51	50.82	240	260	280			
NPH-61	60.06	220	240	250	1800	2000	
NPH-73	72.88	200	220	230	1600	1800	
NPH-82	81.08	190	210	220	1500		
NPH-100	98.18	180	200				
NPH-125	122.72	160	180	200			

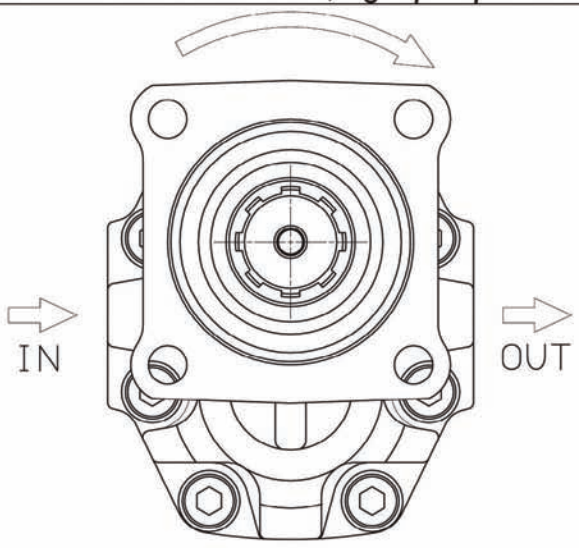
Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)

DIRECTION OF ROTATION:

Anti-clockwise rotation, left pump



Clockwise rotation, right pump

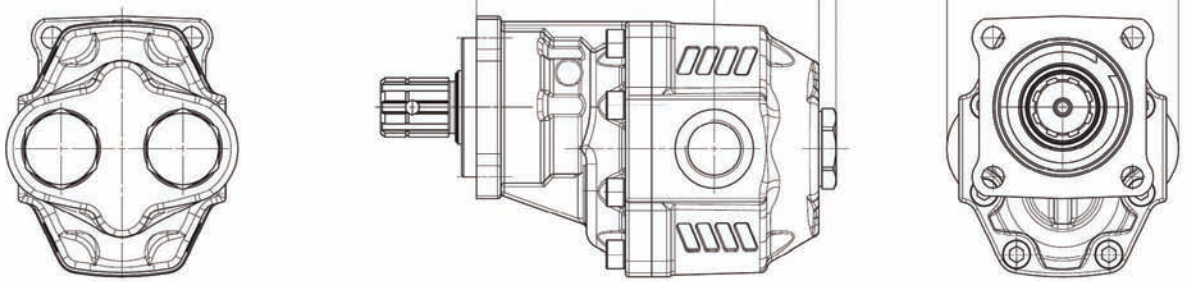


SEAL KIT

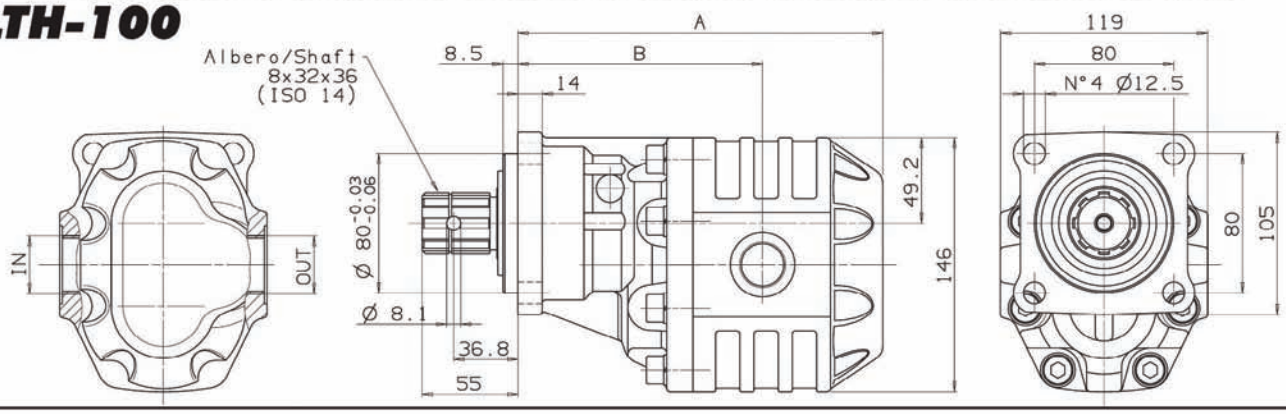
NPH 17cc-82cc - 105-900-00197
NPH100cc-125cc - 105-900-00339

Fluid	Mineral or synthetic compatible with the following seals: NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	Average ambient temp. (°C)	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	22	32	46	68
Optimale kinematic viscosity	VG= 10 cSt ÷ 100 cSt				
Max kinematic viscosity suggested at the start-up	VG= 750 cSt				
Viscosity index suggested	VI > 100				
Oil filtering	> 200 bar: 10 µm < 200 bar: 25 µm				
Inlet pressure	-0,3 ÷ 2 bar				
Pump rotation	Bidirectional				

LTH-61 - LTH-82



LTH-100

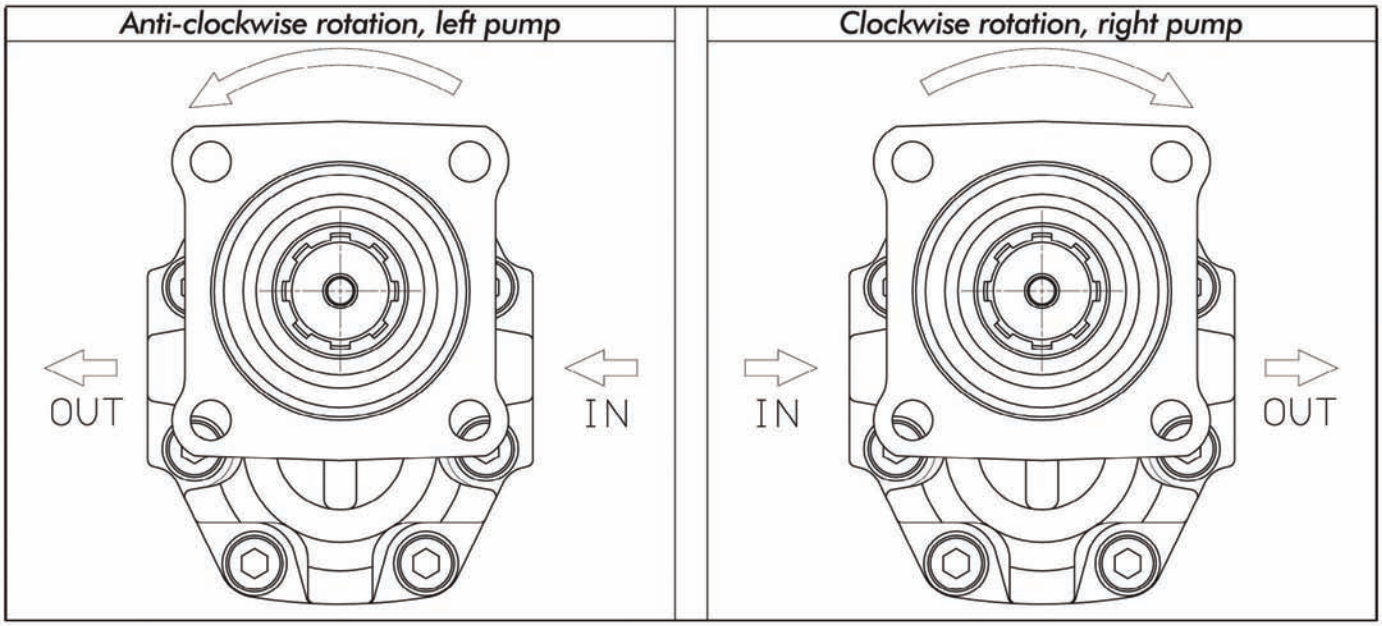


Pump type	Order code	IN ISO 228	OUT ISO 228	A mm	B mm	A'	B'	Weight Kg
LTH-61	105-028-10610	G 1	G 1			196,5	136,5	14,5
LTH-82	105-028-10825					209,5	140,5	15,5
LTH-100	105-028-11002	G 1 1/4	G 1 1/4	226,5	154,5			15

Pump type	Displacement	P1	P2	P3	Max. continuous speed	Max. intermittent speed	Min. speed
	cm^3/rev	bar	bar	bar	rpm	rpm	rpm
LTH-61	60,06	190	200	210	1500	1800	300
LTH-82	81,08	160	180	190	1400	1700	
LTH-100	98,18						

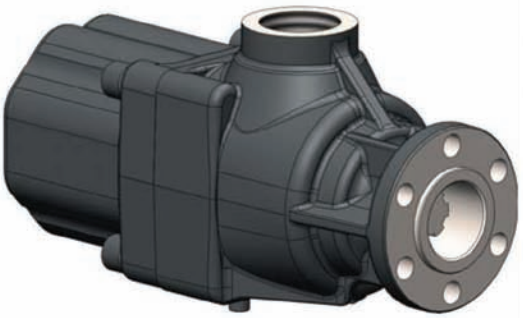
Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)

TECHNICAL FEATURES:



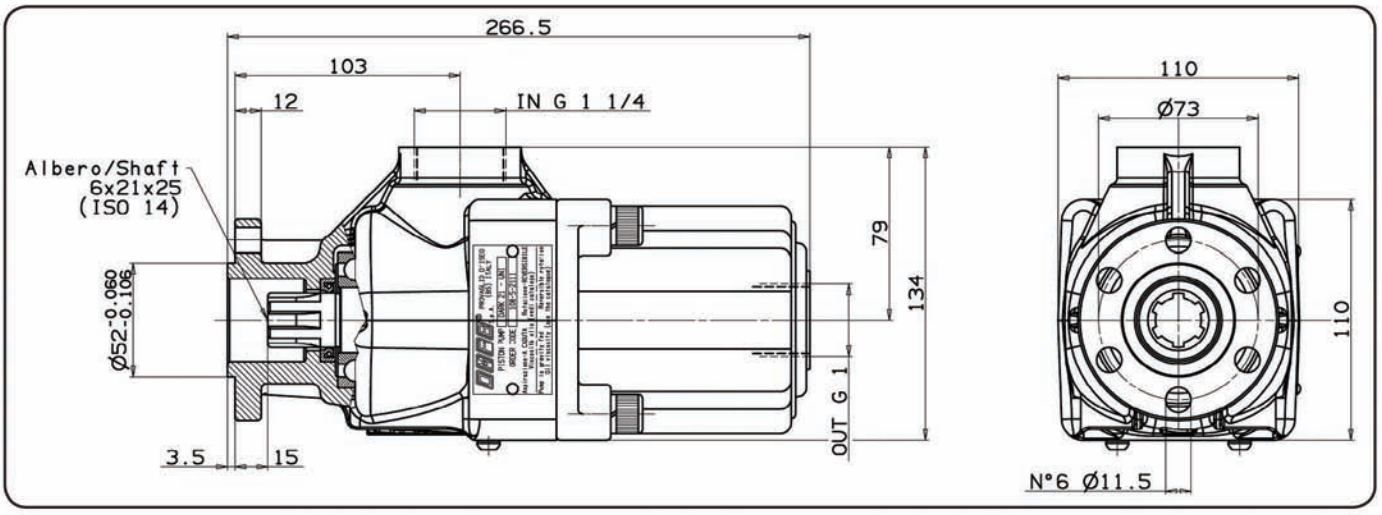
SEAL KIT - 105-900-00357

DARK UNI
3 HOLES UNI HYDRAULIC PISTON PUMPS

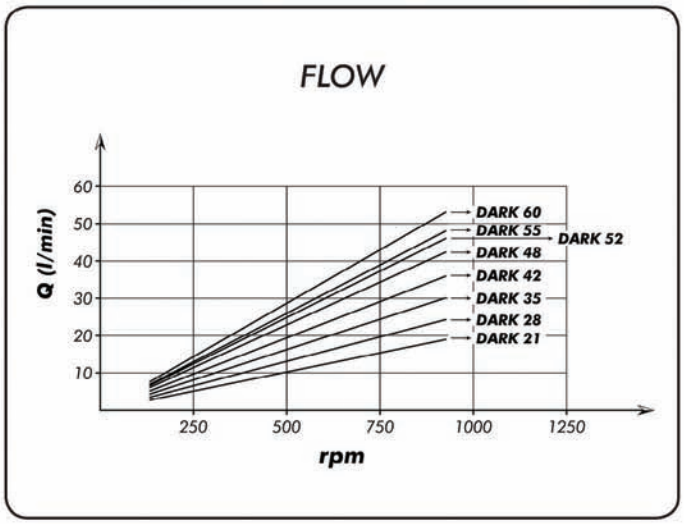


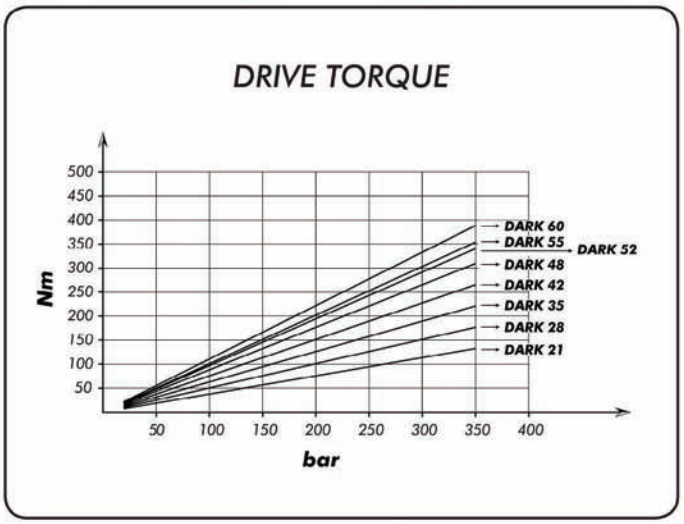
Fluid	*Mineral or synthetic compatible with the following seals:* NBR, FKM, Fpm, Nylon				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Optimale kinematic viscosity			VG= 10 cSt ÷ 100 cSt		
Max kinematic viscosity suggested at the start-up			VG= 750 cSt		
Viscosity index suggested			VI > 100		
Oil filtering			> 200 bar: 10 µm < 200 bar: 25 µm		
Inlet pressure			0,85 ÷ 2 bar assoluti/absolut		
Pump rotation			*Bidirectional*		

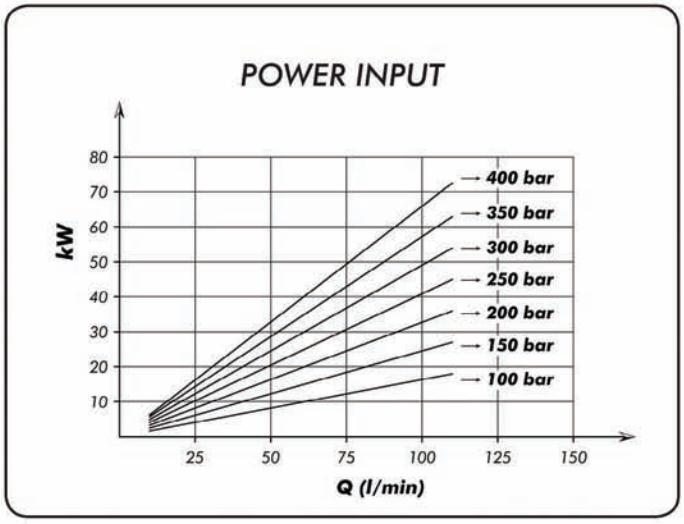
Verify that pump is, at least, 100 mm under the minimum level of the tank. Before starting the pump bleed the air.



Pump type	Code	Displacement	Pressure		Max speed	Weight
			Massima *Max*	Picco *Peak*		
		cm³/rev	bar	bar	rpm	kg
DARK-21	108-005-02111	20,25	350	350	1800	13,5
DARK-28	108-005-02817	27				
DARK-35	108-005-03512	33,75				
DARK-42	108-005-04217	40,5				
DARK-48	108-005-04815	47,25				
DARK-52	108-005-05216	51,97				
DARK-55	108-005-05510	54	300	350	1500	13,3
DARK-60	108-005-05912	59,3				





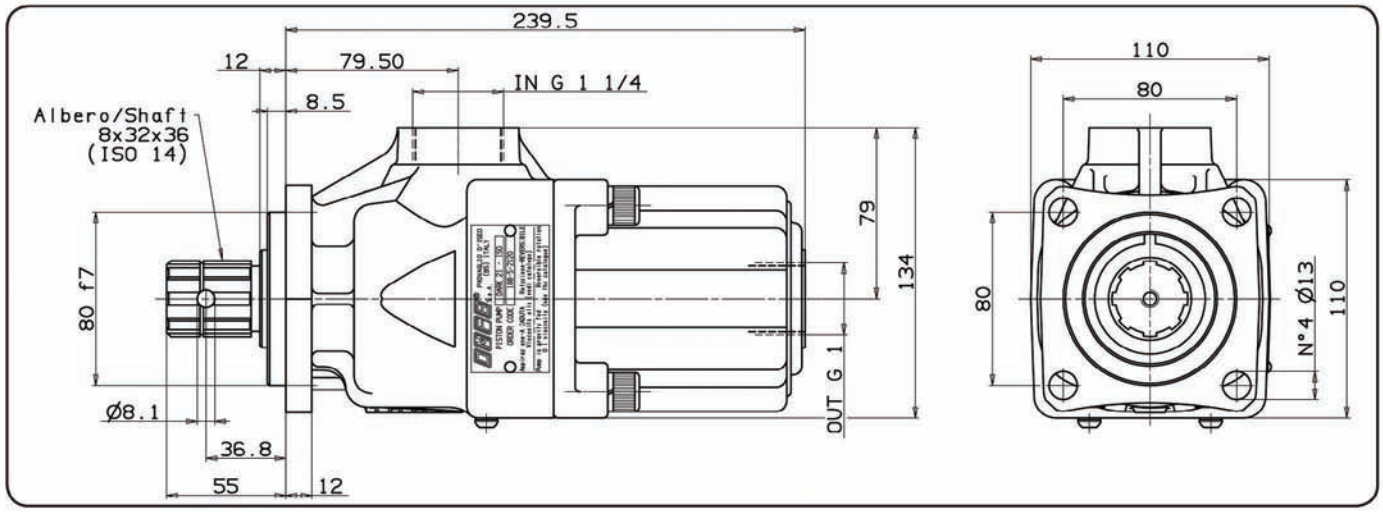


SEAL KIT - 108-903-00018

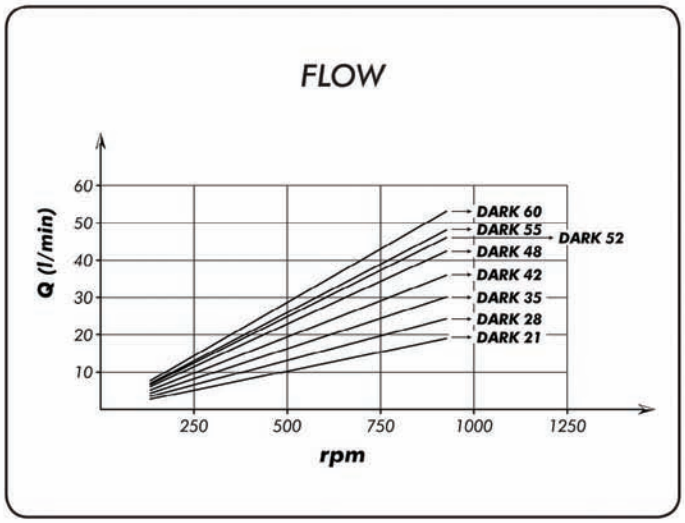
DARK ISO
4 HOLES ISO HYDRAULIC PISTON PUMPS

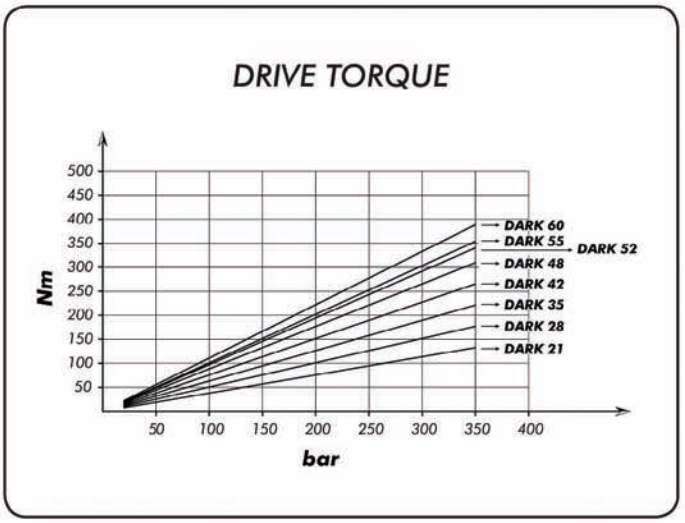
Fluid	*Mineral or synthetic compatible with the following seals:* NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Optimale kinematic viscosity			VG= 10 cSt ÷ 100 cSt		
Max kinematic viscosity suggested at the start-up			VG= 750 cSt		
Viscosity index suggested			VI > 100		
Oil filtering			> 200 bar: 10 µm < 200 bar: 25 µm		
Inlet pressure			0,85 ÷ 2 bar assoluti/absolut		
Pump rotation			*Bidirectional*		

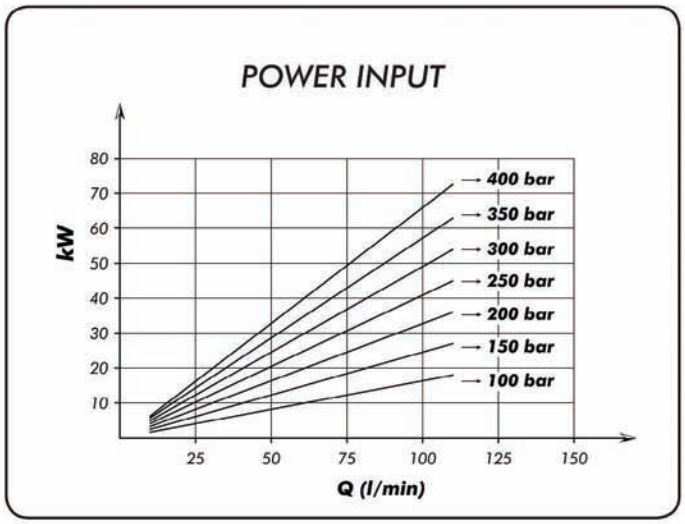
Verify that pump is, at least, 100 mm under the minimum level of the tank. Before starting the pump bleed the air.



Pump type	*Code*	*Displacement* cm³/rev	*Pressure* Massima *Max* bar	*Pressure* Picco *Peak* bar	*Max speed* rpm	*Weight* kg
DARK-21	108-005-02120	20,25	350	350	1800	14,1
DARK-28	108-005-02826	27				
DARK-35	108-005-03521	33,75				
DARK-42	108-005-04226	40,5				
DARK-48	108-005-04824	47,25				
DARK-52	108-005-05225	51,97				
DARK-55	108-005-05529	54	300	350	1500	13,9
DARK-60	108-005-05921	59,3				



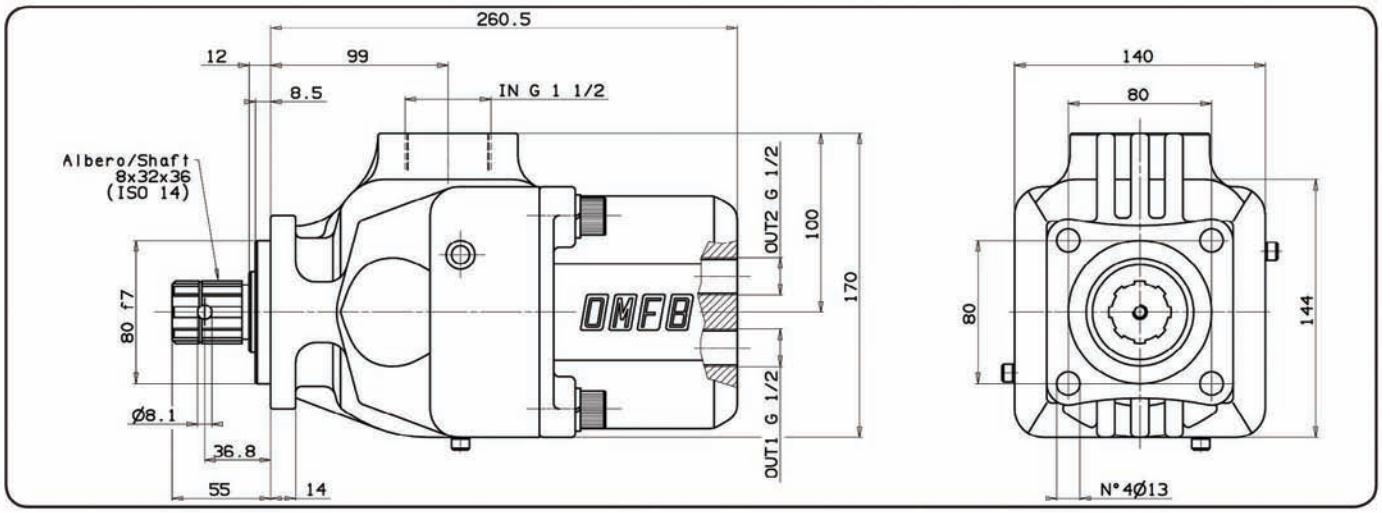




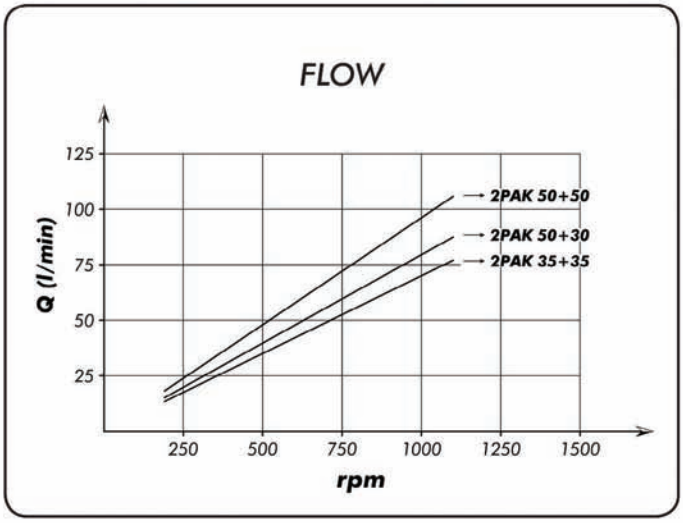
SEAL KIT - 108-903-00027

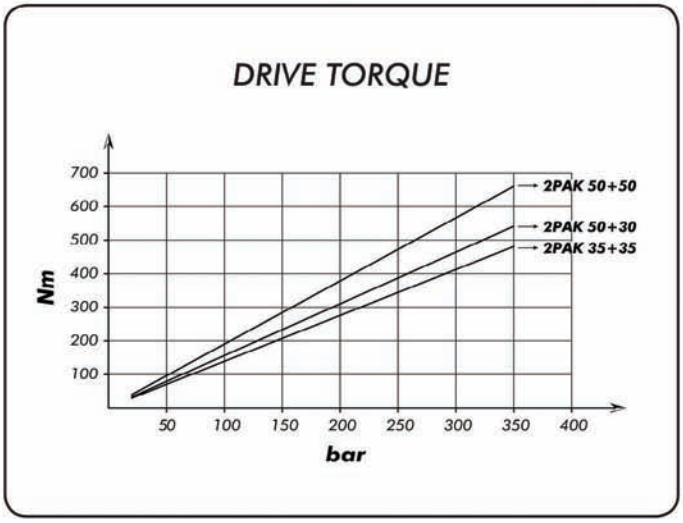
Fluid	*Mineral or synthetic compatible with the following seals:* NBR, FKM, FPM, Nylon				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -10	-10÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Optimale kinematic viscosity	VG= 10 cSt ÷ 100 cSt				
Max kinematic viscosity suggested at the start-up	VG= 750 cSt				
Viscosity index suggested	VI > 100				
Oil filtering	> 200 bar: 10 µm < 200 bar: 25 µm				
Inlet pressure	0,85 ÷ 2 bar assoluti/absolut				
Pump rotation	*Bidirectional*				

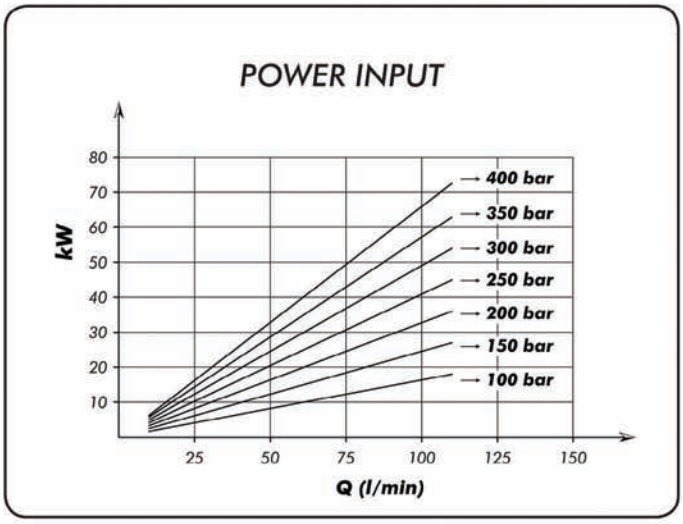
Verify that pump is, at least, 100 mm under the minimum level of the tank. Before starting the pump bleed the air.



Pump type	Code	Displacement	Pressure		Max speed	Weight
			Massima *Max*	Picco *Peak*		
		cm³/rev	bar	bar	rpm	kg
2PAK-35+35	108-008-35351	35+35	300	350	1500	21,4
2PAK-50+30	108-008-50307	50+30				21,2
2PAK-50+50	108-008-50503	50+50				



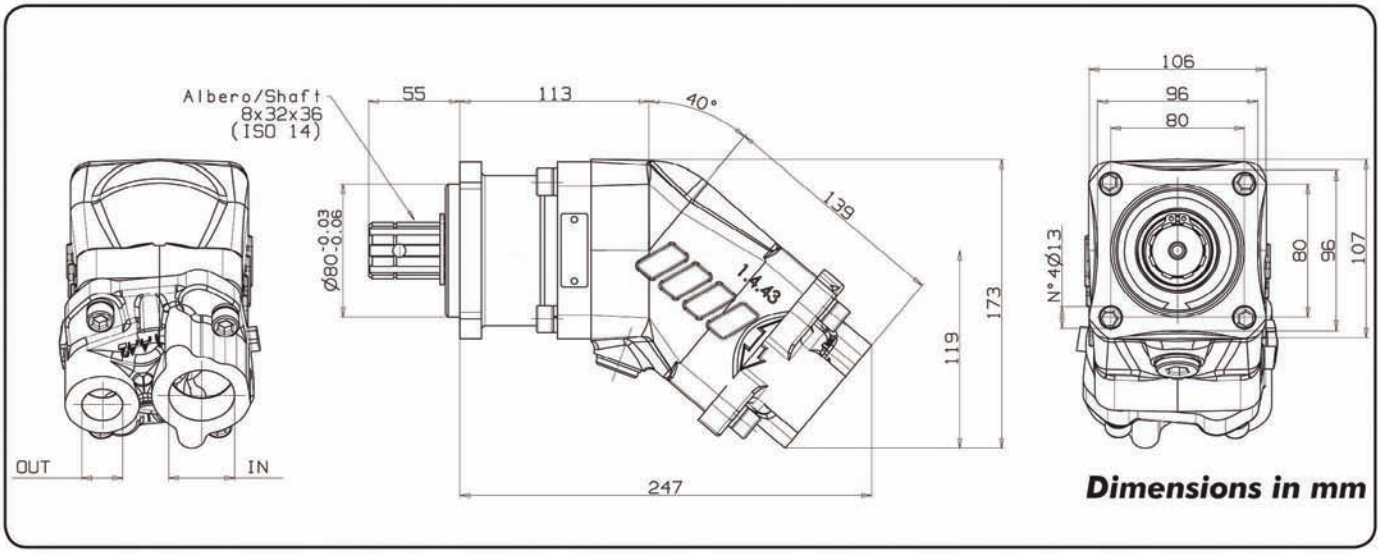




SEAL KIT - 108-903-00036

Fluid	*Mineral or synthetic compatible with the following seals:* HNBR				
Allowed temperature	-40 +140 °C				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -40	-40÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Optimale kinematic viscosity			VG= 10 cSt ÷ 100 cSt		
Max kinematic viscosity suggested at the start-up			VG= 750 cSt		
Viscosity index suggested			VI > 100		
Oil filtering			> 200 bar: 10 µm < 200 bar: 25 µm		
Inlet pressure			0,85 ÷ 2 bar assoluti/absolut		
Pump rotation			*Unidirectional (Right or Left)*		

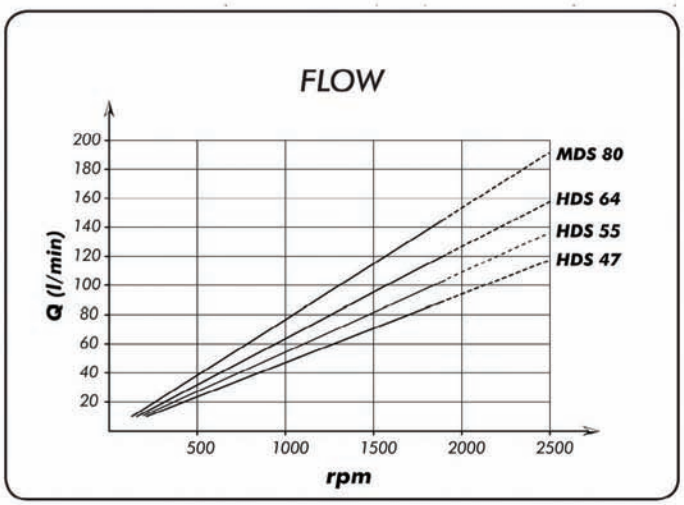
Verify that pump is, at least, 100 mm under the minimum level of the tank. Before starting the pump bleed the air.

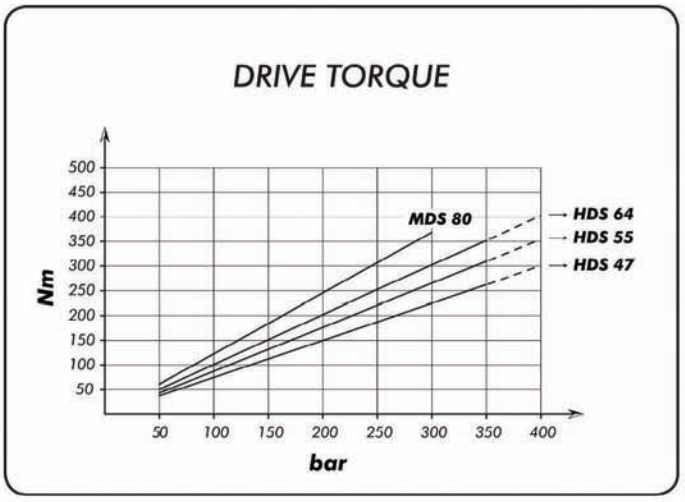


Pump type	Rotation		IN	OUT
	Right	*Left*	ISO 228	ISO 228
HDS-47	**108-015-04733**	**108-015-04742**	G 1 1/4	G 3/4
HDS-55	**108-015-05536**	**108-015-05545**	G 1 1/4	G 3/4
HDS-64	**108-015-06035**	**108-015-06044**	G 1 1/4	G 3/4

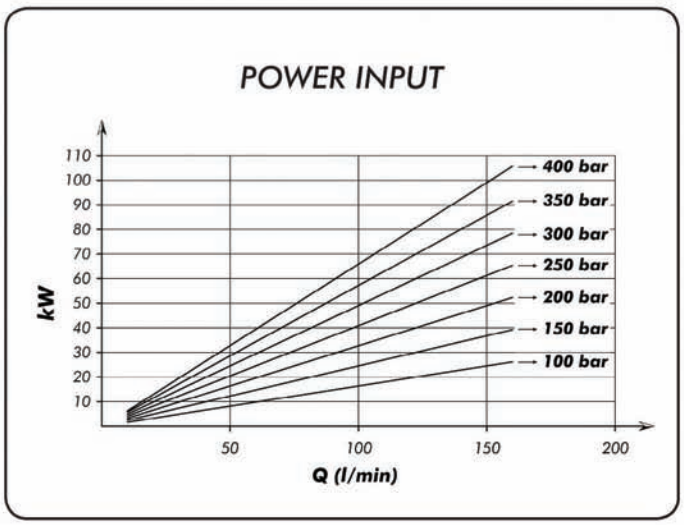
PUMP TYPE	DISPLACEMENT	PRESSURE			Max. continuous speed	Max. intermittent speed	Min. speed	WEIGHT
	cm³/rev	P1 bar	P2 bar	P3 bar	rpm	rpm	rpm	kg
HDS-47	47,13	350	370	400	1900	2500	300	12,6
HDS-55	56,7							
HDS-64	63,56							
MDS-80	77,25	300	300	300	1900	2500	300	

Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)



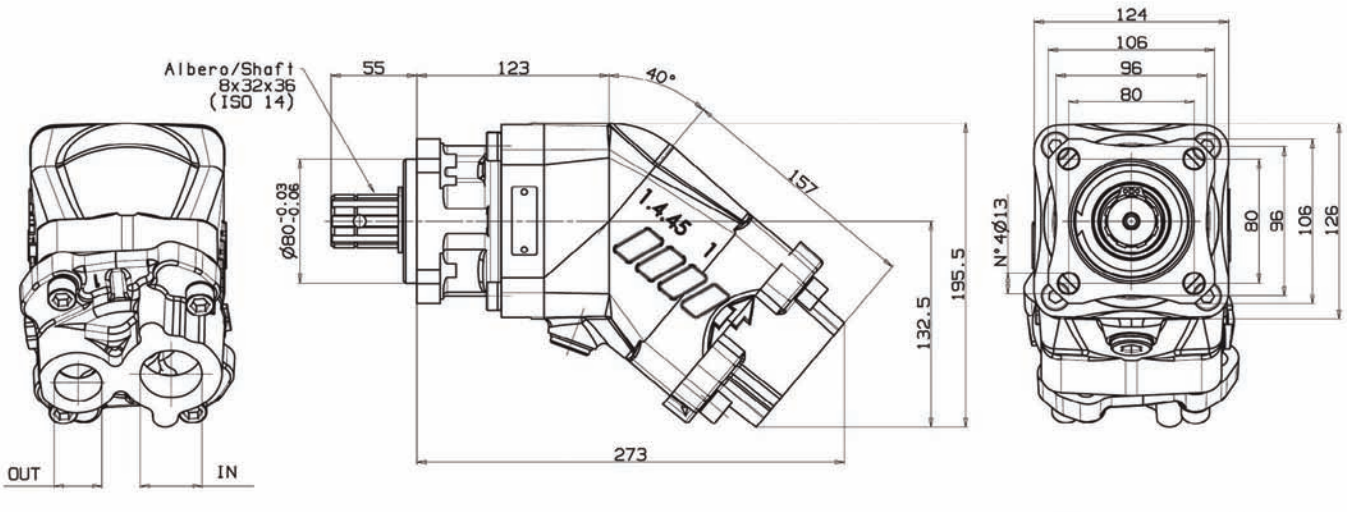


SEAL KIT - 108-903-47648



Fluid	*Mineral or synthetic compatible with the following seals:* HNBR				
Allowed temperature	-40 +140 °C				
Kinematic viscosity suggested	*Average ambient temp. (°C)*	< -40	-40÷10	10÷35	> 35
	VG (cSt = mm²/s)	16	22	32	46
Optimale kinematic viscosity			VG= 10 cSt ÷ 100 cSt		
Max kinematic viscosity suggested at the start-up			VG= 750 cSt		
Viscosity index suggested			VI > 100		
Oil filtering			> 200 bar: 10 µm < 200 bar: 25 µm		
Inlet pressure			0,85 ÷ 2 bar assoluti/absolut		
Pump rotation			*Unidirectional (Right or Left)*		

Verify that pump is, at least, 100 mm under the minimum level of the tank. Before starting the pump bleed the air.



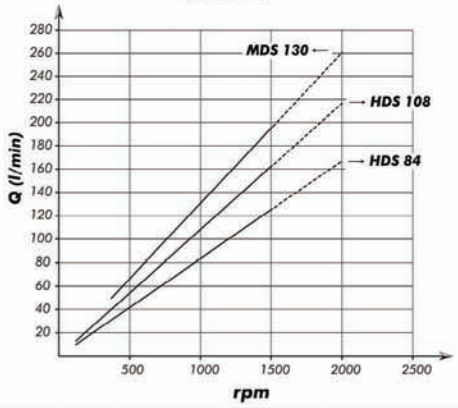
Dimensions in mm

Pump type	*Rotation*		**IN**	**OUT**
	Right	*Left*	ISO 228	ISO 228
HDS-84	**108-015-08033**	**108-015-08042**	G 1 1/4	G 1
HDS-108	**108-015-10833**	**108-015-10842**	G 1 1/2	G 1

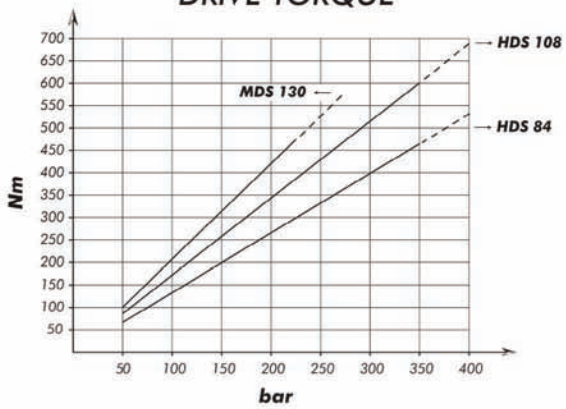
Pump type	Displacement cm³/rev	P1 bar	P2 bar	P3 bar	Max. continuous speed rpm	Max. intermittent speed rpm	Min. speed rpm	Weight kg
HDS-84	84,33	350	370	400	1500	2000	300	17,8
HDS-108	107							

Max. continuous pressure (100%)
Max. Intermittent pressure (20 sec.max.)
Max. peak pressure (6 sec.max)

FLOW

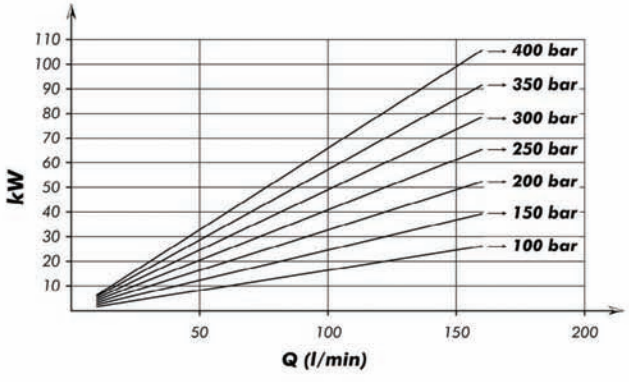


DRIVE TORQUE



SEAL KIT - 108-903-84009

POWER INPUT

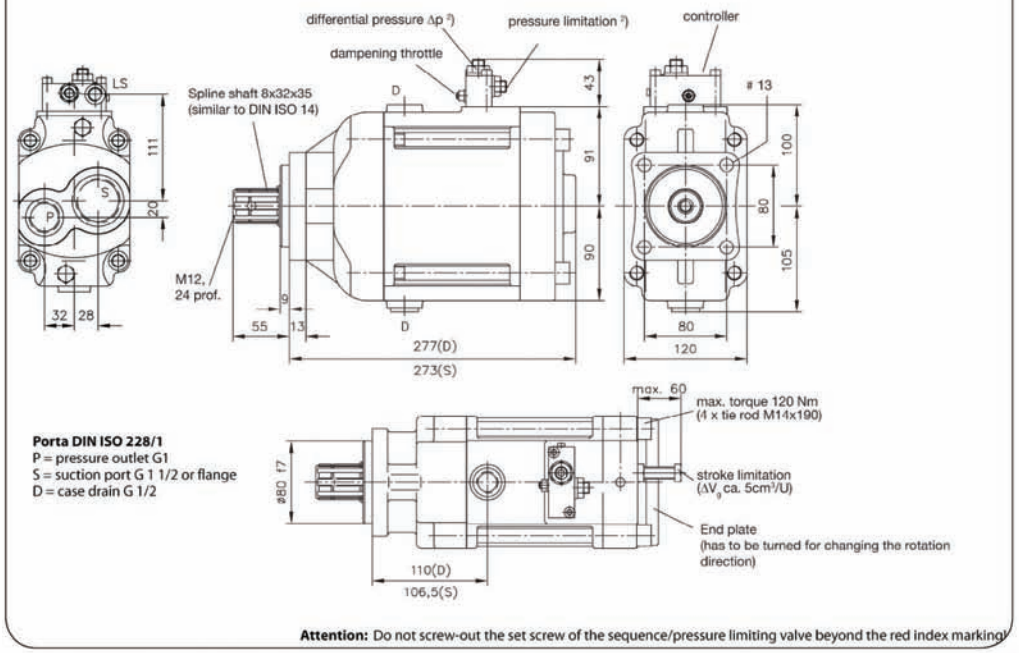


Installed position	preferably horizontal (other positions on request!)
Hydraulic fluid	hydraulic oil to DIN 51524 table 2 and 3; ISO VG 10 to 68 acc. to DIN 51519. Viscosity range: min. approx. 10; max. approx. 1000 mm²/sec. Optimal operation range: approx. 10...35 mm²/sec. Also suitable are biologically degradable pressure fluids type HEES (synth. Ester) at operation temperatures up to approx. +70°C.
Temperature	Ambient: approx. -40...+60°C. Fluid: -25...+80°C, pay attention to the viscosity range! Start temperature down to -40°C is allowable (Pay attention to the viscosity range during start!), as long as the operation temperature during subsequent running is at least 20K (Kelvin) higher.
Filtration	Recommended contamination level ≤ 18/13 conforming DIN ISO 4406.
Initial operation	All pipes should be flushed with the same fluid intended for the later service prior to initial operation. The housing of the pump should be primed via the upper case drain port. The case drain line must be routed in such a way the running empty is prevented. The pressure limiting valve should be set to 50 bar or lower for initial operation and the firt few minutes of regular service. **Attention:** do not screw-out the set screw of the sequence/pressure limiting valve beyond the red index marking!

Angle of the swash plate	*21,5°*
Required inlet pressure abs. for opern circuit	*0,85 bar*
Max. permissible drive torque	*600 Nm*
Max. rev. rating when self priming and max. angle of the swash plate at 1 bar abs. inlet pressure.	*2300 rpm*
Min. rev. rating for permanent running	*500 rpm*
Required torque at 100 bar	*151 Nm*
Drive power for 250 bar and 2000 rpm	*79,5 kW*
Weight torque	*35,3 Nm*
Inertia moment	*0,008 kg m²*
Sound level at 250 bar, 1500 rpm and max. swash plate angle (Measured in a sound measuring room DIN ISO 4412, distance 1m)	*75 dB(A)*
Pressure range differential pressure	*p 15...30bar (setting 25 bar)*
Pressure limitation	*50 ... 400 bar*
Nomenclature axial piston pump according to the swash plate principle	
Direction of rotation clock wise or counter clock wise	
Changing the rotation direction turn the endplate and change the port plate.	

Pump type	Rotation		Nominal pressure	Maximum pressure	Displacement	Weight
	Right	Left	*bar*	*bar*	*cm³/giro*	*kg*
VDPP 90 ISO	108-050-00903	108-050-00912	350	400	90	25,8

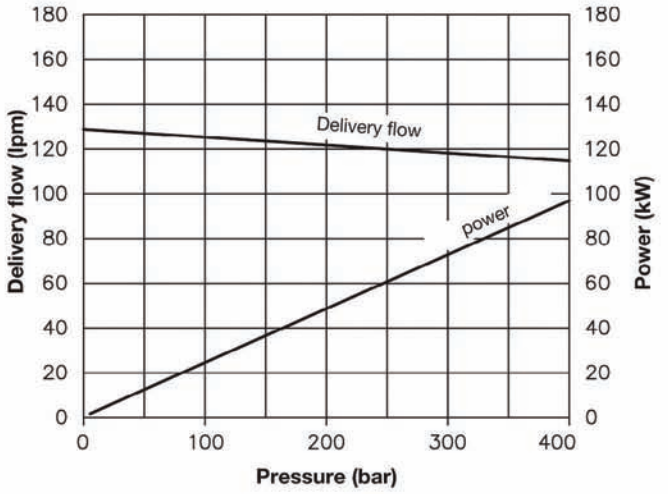
VDPP 90 ISO



Attention: Do not screw-out the set screw of the sequence/pressure limiting valve beyond the red index marking!

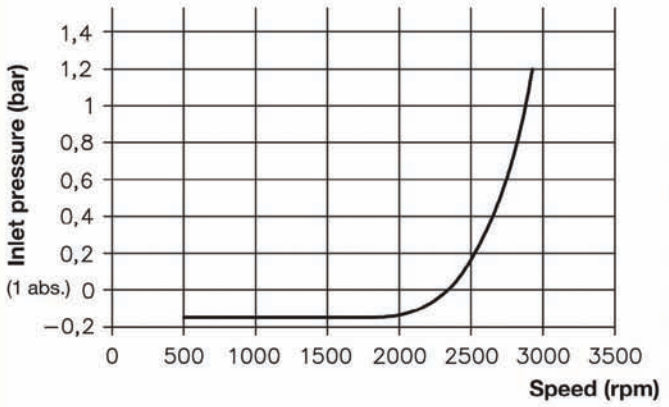
DELIVERY FLOW AND PERFORMANCE

The curves illustrate delivery flow/pressure (without) controller). Drive power at max. swash plate angle and drive power at zero stroke at 1500 rpm.



INLET PRESSURE

The curve was taken at viscosity 75 mm² /sec and max. swash plate angle.



SEAL KIT - 108-950-50897
DISTRIBUTOR PLATE - 108-950-10902 (right) 108-950-20900 (left)