



# W-WA PUMPS



Mobile and industrial pumps

High efficiency

Compact design

Robust construction

**POWER SOLUTION**



# W-WA SERIES PUMP

## MOBILE AND INDUSTRIAL PUMPS



The W-WA range of hydraulic pumps, compact and robust, is designed to excel in demanding industrial and mobile environments. Ideal for machine tools, hydraulic presses, handling equipment, etc., they ensure reliable high-pressure performance, guaranteeing maximum efficiency even in the most complex conditions.



# W PUMPS (ISO VERSION) | CHARACTERISTICS

## FEATURES AND BENEFITS



### THE PRODUCT

- 7-piston design
- Bronze valve plate
- High discharge pressure
- Shaft seal adapted to pressure differences up to 5 bar
- Tapered roller bearings and cylindrical roller bearings
- Long service life
- Keyed or splined shafts
- High overall efficiency

### THE APPLICATIONS

The W pumps meet the needs of **stationary hydraulics**:

- Hydraulic power units.

And **mobile hydraulics**:

- Construction machinery,
- Drilling machines,
- Port cranes,
- Agricultural machinery...

Pump	Displacement	Max. continuous rotation speed (1)	Max. pressure continuous/ peak (2)	Theoretical torque at 5100 psi (350 bar)	Max. flow	Temperature min. / max. (3)	Weight
	cu.in/rev (cc/rev)	(rpm)	psi (bar)	lbf ft (N.m)	US gpm (lpm)	(°C)	lbs (kg)
W5	5	3150	400 / 450	28	15,75	-25 / 110	4,4
W12	12	3150	400 / 450	67	37,80	-25 / 110	5,5
W18	18	3150	400 / 450	98	56,70	-25 / 110	5,5
W25	24,9	2500	400 / 450	140	62,50	-25 / 110	11,5
W32	32,1	2500	400 / 450	175	80,00	-25 / 110	11,5
W41	41,1	2250	400 / 450	227	92,25	-25 / 110	11,5
W45	45,4	2300	400 / 450	252	103,50	-25 / 110	18
W50	50,3	2300	400 / 450	280	115,00	-25 / 110	18
W63	63	2250	400 / 450	350	145,00	-25 / 110	18
W80	80,4	2300	400 / 450	445	184,00	-25 / 110	23
W90	90	2100	400 / 450	497	189,00	-25 / 110	23
W108	108,3	1900	400 / 450	595	205,00	-25 / 110	23
W125	125,4	1950	400 / 450	695	244,00	-25 / 110	30

(1) At absolute pressure 14.5 psi (1 bar), ISO VG46 fluid at 77°F (25°C).

(2) Intermittent, 5% of the time.

(3) Also available with special low-temperature seals. For -40°F (-40°C), please contact us.

# W PUMPS (ISO VERSION) | CONFIGURATOR

W	...	A	...	..	..	..	F
01	02	03	04	05	06	07	08

To obtain the code for your pump, complete the different parameters 01 to 08 in the table on the left according to the options you require (see table below).

PUMP															
01	Pump														W

DISPLACEMENT														
02		5	12	18	25	32	41	45	50	63	80	90	108	125

MOUNTING FLANGE															
03		Cetop 2 holes												4 holes ISO 3019-2	A

SHAFT															
04	DIN 5480 splined	-	W25	W25	W25	W30	W30	W30	W30	W30	W40	W40	W40	W45	W1
		-	-	-	W30	-	-	-	W35	W35	-	-	-	-	W2
	DIN 6885 keyed	Ø18	Ø25	Ø25	Ø25	Ø30	Ø30	Ø30	Ø30	Ø30	Ø40	Ø40	Ø40	Ø45	D1
		-	-	-	-	-	-	-	Ø35	Ø35	-	-	-	-	D2

INLET AND OUTLET PORTS															
05	Threaded	•	•	•	-	-	-	-	-	-	-	-	-	-	T
	Flange	-	-	-	•	•	•	•	•	•	•	•	•	•	F

DRAIN T1 AND T2															
06	Gaz	•	-	-	-	-	-	-	-	-	-	-	-	-	G2
	Metric	-	•	•	•	•	•	•	•	•	•	•	•	•	M2

DIRECTION OF ROTATION															
07	CW <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	R
	CCW <sup>2</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	L

<sup>1</sup>Clockwise <sup>2</sup>Counter clockwise

SEAL															
08	FKM	•	•	•	•	•	•	•	•	•	•	•	•	•	F

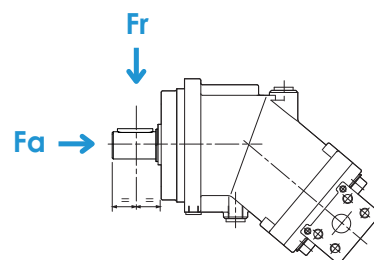
Available with special low temperature seals. For -40°F (-40°C), please, contact us.

## ACCEPTABLE FORCES APPLIED TO W PUMP SHAFT

It is preferable to avoid having any radial or axial force on the W pump shaft. If it is not possible, check the table below for maximum acceptable force.

Fr: radial force at mid length of shaft,

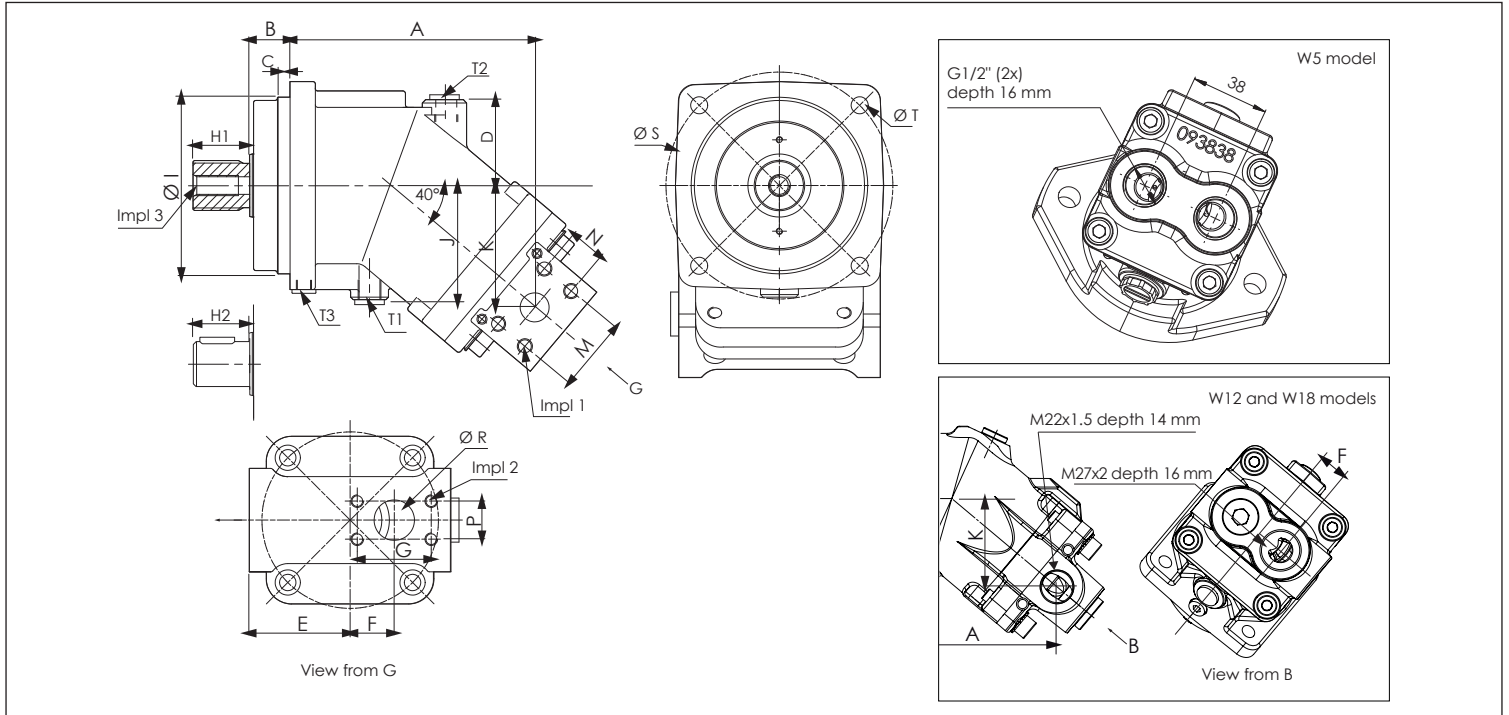
Fa: axial force which tends to push the pump shaft inwards.



Displacement	cc	5	12	18	25	32	41	45	50	63	80	90	108	125
Fr	N	710	2800	4000	6000	6500	7000	6500	7500	9000	10500	6700	7000	14500
Fa	N/bar	10	15	20	27	30	40	40	40	50	60	67	80	86

# W PUMPS (ISO VERSION) | DIMENSIONS

## W PUMP DIMENSIONS [mm]



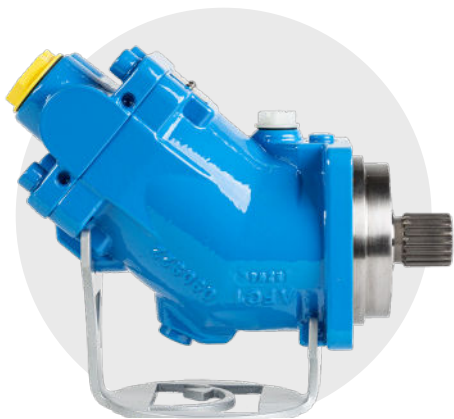
Pump	A	B	C	D	E	F	G	I	J	K	M	N	P	R	S	T	T1 / T2	T3
W5	139	9	-		38,5	19	-		45,5	36	-	-	-	-		11	G1/4"	-
W12	123	20	6	39	44	17	-	80	51,5	58	-	-	-	-	100	9,0	M12x1,5	M8x1
W18																		
W25	144	25	8	56	60	22	47,6	100	69,0	66	40,5	18,2	22,2	19	125	11,0	M16x1,5	M10x1
W32																		
W41	150	32	10	59	68	30	52,4	125	84,0	71	50,8	23,8	26,2	25	160	13,5	M18x1,5	M12x1,5
W45																		
W50	168	32	10	68	80	35	58,7	140	90,5	97	57,2	27,8	30,2	32	180	17,5	M14x1,5	
W63																		
W80	194	40	60	89	69,9	160	107,5	100,8	66,7	31,8	35,7	38	200	17,5	M14x1,5			
W90																		
W108	207,6	40	60	89	69,9	160	107,5	100,8	66,7	31,8	35,7	38	200	17,5	M14x1,5			
W125																		

Pump	Splined shaft	H1	Cylindrical keyed shaft	H2	Outlet SAE = 6000 PSI	Inlet SAE = 3000 PSI	Impl 1	Impl 2	Impl 3
W5	-	-	Ø18 (6 x 6 x 32)	40	G 1/2"	G 1/2"	-	-	M6
W12	W25x1,25x30x18x9g	28	Ø25 (8 x 7 x 32)	40	M22x1,5	M27x2	-	-	M8
W18									
W25	W30x2x30x14x9g	43	Ø25 (8 x 7 x 40)	50	SAE 1/2"	SAE 3/4"	M8x1,25 depth 15	M10x1,5 depth 17	M10
W32									
W41	W35x2x30x16x9g	35	Ø30 (8 x 7 x 40)	60	SAE 3/4"	SAE 1"	M10x1,5 depth 17	M10x1,5 depth 17	M12
W45									
W50	W40x2x30x18x9g	40	Ø35 (10 x 8 x 50)	70	SAE 1"	SAE 1-1/4"	M12x1,75 depth 20	M12x1,75 depth 20	M16
W63									
W80	W45x2x30x21x9g	50	Ø40 (12 x 8 x 56)	80	SAE 1-1/4"	SAE 1-1/2"	M14x2 depth 19	M12x1,75 depth 20	M16
W90									
W108	W45x2x30x21x9g	50	Ø45 (14 x 9 x 63)	80	SAE 1-1/4"	SAE 1-1/2"	M14x2 depth 19	M12x1,75 depth 20	M16
W125									

Dimensions in mm. Provided for reference purposes.

# WA PUMPS (SAE VERSION) | CHARACTERISTICS

## FEATURES AND BENEFITS



### THE PRODUCT

7-piston design  
 Bronze valve plate  
 High discharge pressure  
 Shaft seal adapted to pressure differences up to 5 bar  
 Tapered roller bearings and cylindrical roller bearings  
 Long service life  
 Splined shafts (keyed upon request)  
 High overall efficiency  
 Mechanical and hydraulic interfaces in SAE version

### THE APPLICATIONS

The WA pumps meet the needs of **stationary hydraulics**:

- Hydraulic power units.

And **mobile hydraulics**:

- Construction machinery,
- Drilling machines,
- Port cranes,
- Agricultural machinery...

Pump	Displacement	Max. continuous rotation speed (1)	Max. pressure continuous/peak (2)	Theoretical torque at 5100 psi (350 bar)	Max. flow	Temperature min. / max. (3)	Weight
	cu.in/rev (cc/rev)	(rpm)	psi (bar)	lbf.ft (N.m)	US gpm (lpm)	(°C)	lbs (kg)
WA12	0.73 (12)	3150	5800 / 6525 (400 / 450)	49 (67)	10 (37.80)	-25 / 110	14.3 (6.5)
WA18	1.10 (18)	3150	5800 / 6525 (400 / 450)	74 (100)	15 (56.70)	-25 / 110	14.3 (6.5)
WA25	1.52 (24.9)	2500	5800 / 6525 (400 / 450)	102 (139)	16.44 (62.25)	-25 / 110	25 (11.5)
WA32	1.96 (32.1)	2500	5800 / 6525 (400 / 450)	132 (179)	21.20 (80.25)	-25 / 110	25 (11.5)
WA41	2.51 (41.1)	2250	5800 / 6525 (400 / 450)	169 (229)	24.41 (92.40)	-25 / 110	25 (11.5)
WA45	2.77 (45.4)	2300	5800 / 6525 (400 / 450)	187 (253)	27.60 (104.4)	-25 / 110	40 (18)
WA50	3.07 (50.3)	2300	5800 / 6525 (400 / 450)	207 (280)	30.60 (115.7)	-25 / 110	40 (18)
WA63	3.74 (63)	2250	5800 / 6525 (400 / 450)	259 (351)	30.56 (145)	-25 / 110	40 (18)
WA80	4.91 (80.4)	2300	5800 / 6525 (400 / 450)	330 (448)	48.87 (185)	-25 / 110	51 (23)
WA90	5.49 (90)	2100	5800 / 6525 (400 / 450)	370 (501)	49.93 (189)	-25 / 110	51 (23)
WA108 R	6.61 (108.3)	2150	5800 / 6525 (400 / 450)	445 (603)	61.55 (233)	-25 / 110	77 (35)
WA125	7.65 (125.4)	2100	5800 / 6525 (400 / 450)	515 (699)	69.78 (263)	-25 / 110	77 (35)
WA160	9.76 (160)	1850	5800 / 6525 (400 / 450)	657 (891)	78.20 (296)	-25 / 110	103.6 (47)
WA180	11.02 (180.6)	1750	5800 / 6525 (400 / 450)	742 (1006)	83.78 (316)	-25 / 110	103.6 (47)

(1) At absolute pressure 14.5 psi (1 bar), ISO VG46 fluid at 77°F (25°C).

(2) Intermittent, 5% of the time.

(3) Also available with special low-temperature seals. For -40°F (-40°C), please contact us.

# WA PUMPS (SAE VERSION) | CONFIGURATOR

WA	...	A	S1	..	U2	..	F	
01	02	03	04	05	06	07	08	To obtain the code for your pump, complete the different parameters 01 to 08 in the table on the left according to the options you require (see table below).

PUMP															
01	Pump														WA

DISPLACEMENT															
02		12	25	32	41	45	50	63	80	90	108 R	125	160	180	

MOUNTING FLANGE															
03		SAE B 2 holes						SAE C 4 holes					SAE D 4 holes		C

SHAFT															
04	SAE J498b splined	•	•	•	•	•	•	•	•	•	•	•	•	•	S1

INLET AND OUTLET PORTS															
05	Threaded	•	-	-	-	-	-	-	-	-	-	-	-	-	T
	Flange SAE J518	-	•	•	•	•	•	•	•	•	•	•	•	•	F

DRAIN T1 AND T2															
06		•	•	•	•	•	•	•	•	•	•	•	•	•	U2

DIRECTION OF ROTATION															
07	CW <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	R
	CCW <sup>2</sup>	•	•	-	-	•	•	-	-	-	•	-	-	-	L

<sup>1</sup>Clockwise <sup>2</sup>Counter clockwise

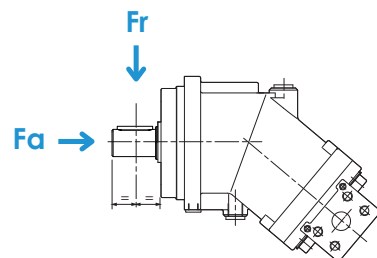
SEAL															
08	FKM	•	•	•	•	•	•	•	•	•	•	•	•	•	F

Available with special low temperature seals. For -40°F (-40°C), please, contact us.

## ACCEPTABLE FORCES APPLIED TO WA PUMP SHAFT

It is preferable to avoid having any radial or axial force on the W pump shaft. If it is not possible, check the table below for maximum acceptable force.

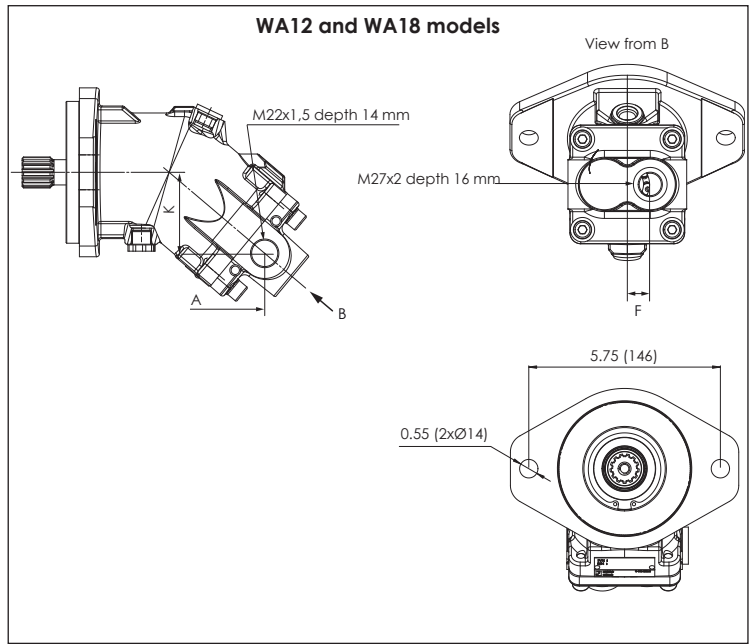
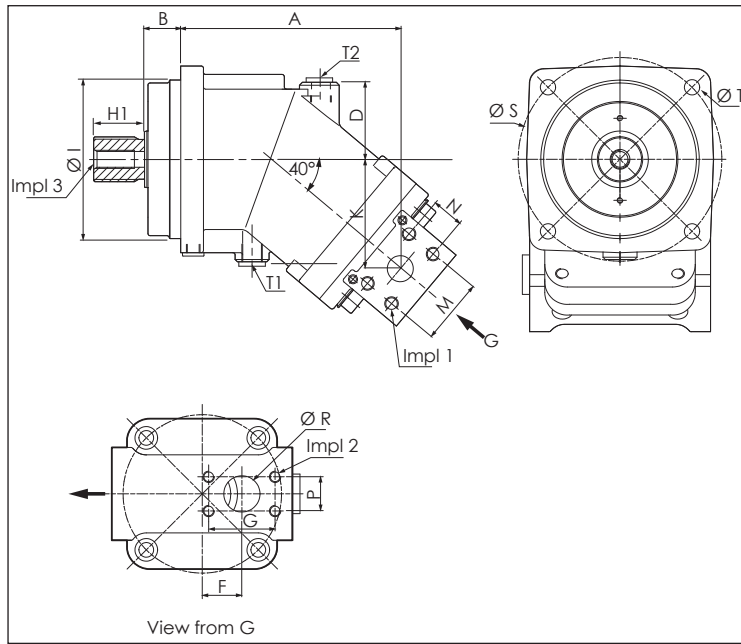
Fr: radial force at mid length of shaft,  
Fa: axial force which tends to push the pump shaft inwards.



Displacement	cc	12	18	25	32	41	45	50	63	80	90	108 R	125	160	180
Fr	lbf	629	899	1349	1461	1574	1461	1686	2023	2360	2473	2810	3260	4047	4496
	N	2800	4000	6000	6500	7000	6500	7500	9000	10500	11000	12500	14500	18000	20000
Fa	lbf/psi	0.23	0.31	0.42	0.47	0.62	0.62	0.62	0.78	0.93	1.04	1.24	1.33	1.32	1.47
	N/bar	1.03 (15)	1.38 (20)	1.86 (27)	2.07 (30)	2.76 (40)	2.76 (40)	2.76 (40)	3.45 (50)	4.14 (60)	4.62 (67)	5.52 (80)	5.93 (86)	5.86 (85)	6.55 (95)

# WA PUMPS (SAE VERSION) | DIMENSIONS

## WA PUMP DIMENSIONS [mm]



Pump	A	B	D	F	G	I	K	M	N	P	R	S	T
WA12 WA18	5.28 (134.1)		1.65 (41.9)	0.67 (17)	-	4 (101.6)	2.28 (58)	-	-	-	-	SAE - B 2 holes 5.75 (146)	0.55 (14)
WA25	6.21 (157.8)		2.20 (56)	0.87 (22)	1.87 (47.6)		2.67 (66)	1.59 (40.5)	0.72 (18.2)	0.87 (22.2)	0.75 (19)		
WA32 WA41	6.46 (164)						2.80 (71)						
WA45 to WA63	7.45 (189.2)	0.31 (7.9)	2.32 (59)	1.18 (30)	2.07 (52.5)	5 (127)	3.35 (85)	2 (50.8)	0.94 (23.8)	1.03 (26.2)	0.98 (25)	SAE - C 4 holes 6.38 (162)	0.57 (14.3)
WA80 WA90	8.47 (215.2)		2.68 (68)	1.38 (35)	2.31 (58.7)		3.82 (97)	2.25 (57.2)	1.09 (27.8)	1.19 (30.2)	1.26 (32)		
WA108 R WA125	9.25 (235)		3.35 (85)	1.65 (42)	3.06 (77.8)	6 (152.4)	3.97 (100.8)	2.63 (66.7)	1.25 (31.8)	1.69 (42.9)	2.01 (51)	SAE - D 4 holes 9 (228.6)	0.83 (21)
WA160 WA180	10.54 (267.7)		2.68 (68)	1.95 (49.5)	3.06 (77.8)		4.16 (105.7)			1.69 (42.9)	2.01 (51)		

Pump	Splined shaft	H1	Outlet SAE = 6000 PSI	Inlet SAE = 3000 PSI	Impl 1	Impl 2	Impl 3	T1 / T2	T3
WA12 WA18	13T-16/32 dp SAE B	1.32 (33.3)	M22x1.5	M27x2	- -	- -	5/16"-18 UNC	9/16"-18 UNF	
WA25 WA32 WA41			SAE 1/2"	SAE 3/4"	M8x1.25 prof 15				
WA45 WA50 WA63	14T-12/24 dp SAE C	1.89 (48)	SAE 3/4"	SAE 1"	M10x1.5 prof 17	M10x1.5 prof 17	7/16"-14 UNC	3/4"-16 UNF	-
WA80 WA90			SAE 1"	SAE 1-1/4"	M12x1.75 prof 20				
WA108 R WA125 WA160 WA180	13T-8/16 dp SAE D	2.64 (67)	SAE 1-1/4"	SAE 2"	1/2"-13 UNC	1/2"-13 UNC	5/8"-11 UNC	7/8"-14UNF	M14x1,5

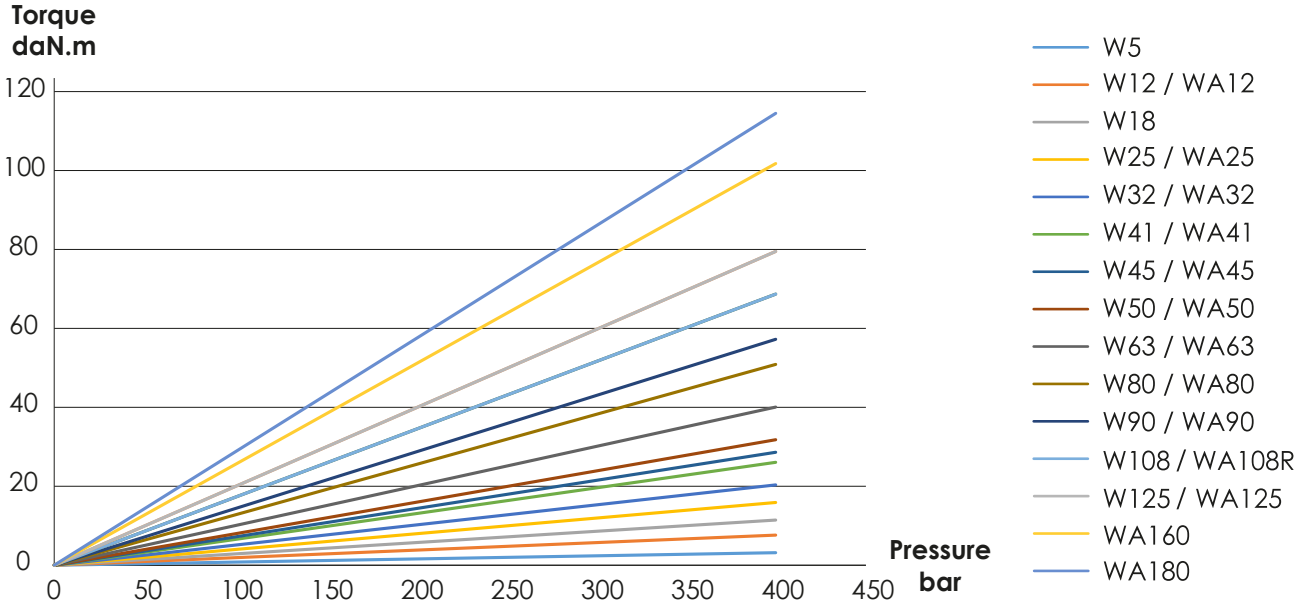
Dimensions in mm. Provided for reference purposes.



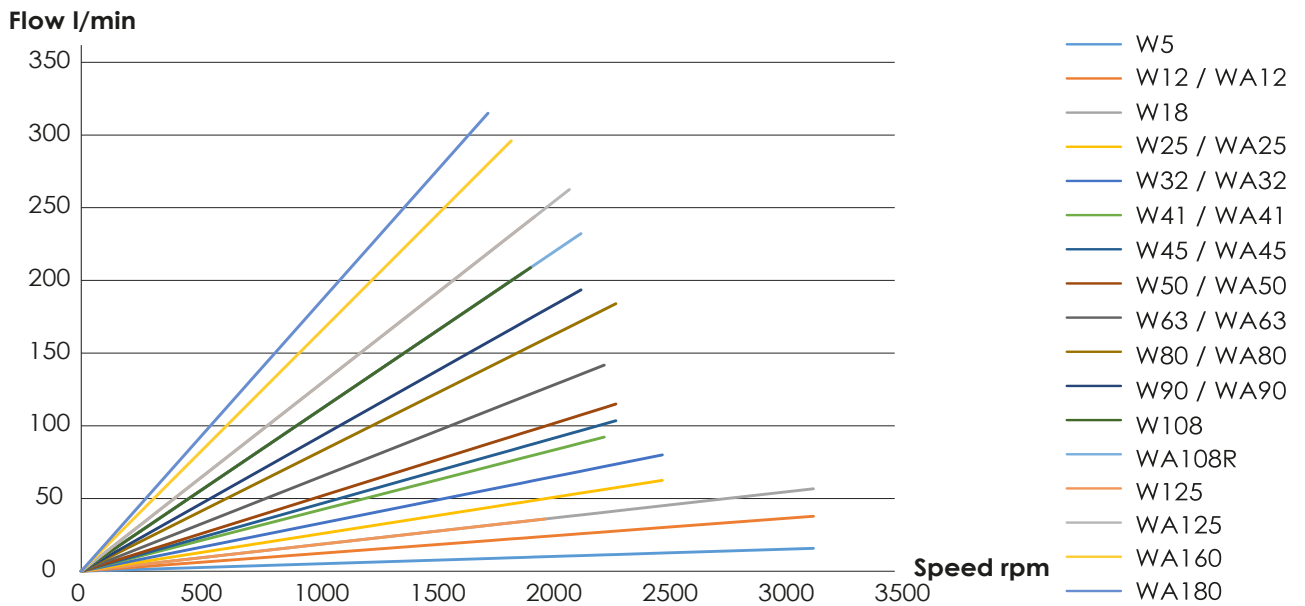
# W - WA PUMPS | PERFORMANCES

These curves are the result of tests conducted by the HYDRO LEDUC Research Laboratory on a specific test bench, using ISO VG 46 fluid at 25°C (100 cSt). The pump was supplied through a 4-meter, 2" hose, with a tank positioned slightly above the pump.

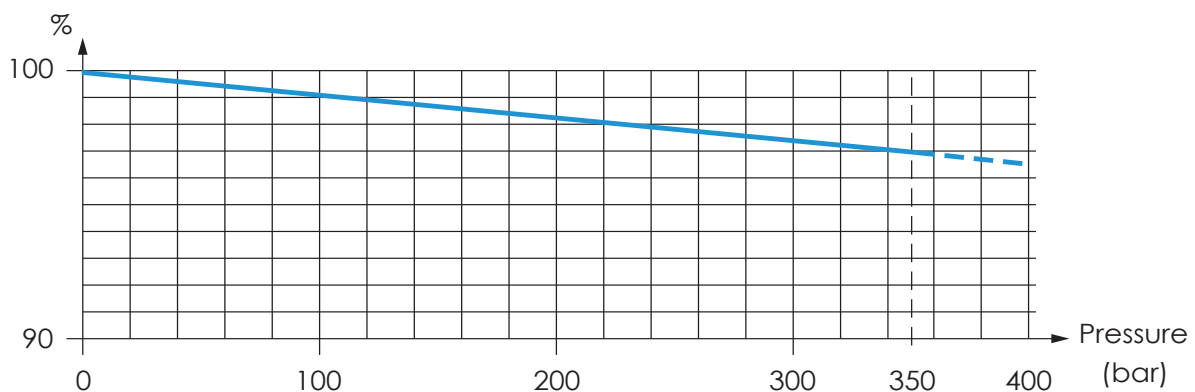
## TORQUE ABSORBED AS A FUNCTION OF PUMP OUTLET PRESSURE



## OUTLET FLOW RATE AS A FUNCTION OF ROTATION SPEED



## VOLUMETRIC EFFICIENCY AT 1000 RPM



# W - WA PUMP | INSTALLATION AND START-UP RECOMMENDATIONS

## HYDRAULIC FLUID

We recommend using mineral hydraulic oils of type HLVP according to DIN 51524-2 or HV according to ISO 11158. Biodegradable fluids of type HEES according to ISO 15380 can also be used.

Recommended viscosity :

- Optimum: 20 to 40 cSt
- Minimum: 5 cSt
- Maximum: 400 cSt (up to 1000 cSt at low speed and without load)

## FILTRATION

The service life of the pump depends on the quality and cleanliness of the fluid used.

Recommended filtration: 10  $\mu$  absolute.

We recommend minimum cleanliness as follows:

- Class 9 according to NAS 1638,
- Class 6 according to SAE,
- 20/18/15 according to ISO 4406.

## OPERATING TEMPERATURE

- By default, LEDUC pumps are equipped with FKM (Viton®) seals. Permissible temperature range: -13 to 230°F.
- HYDRO LEDUC also offers NBR seals as an option, suitable for temperatures ranging from -40 to -176°F.

## PUMP PREPARATION



Before start-up, hydraulic pumps must be pre-filled with oil.

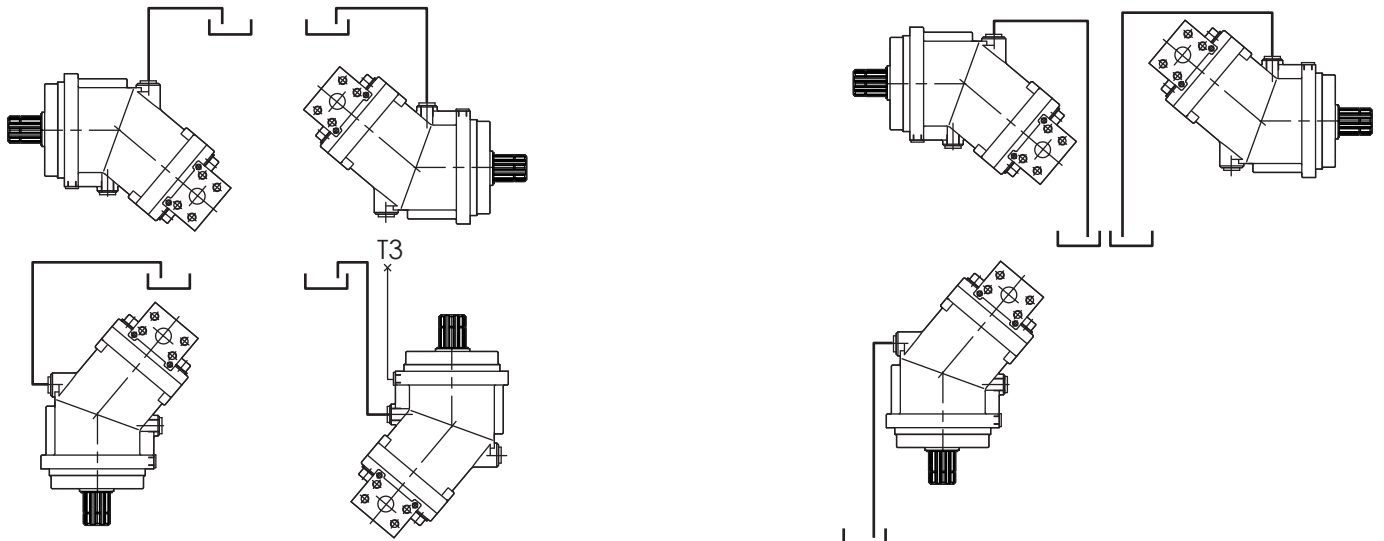


## MOUNTING POSITION OF W PUMPS

The W and WA pumps can be used in any mounting position.

They must be properly drained, and the drain pressure must not exceed 4 bar.

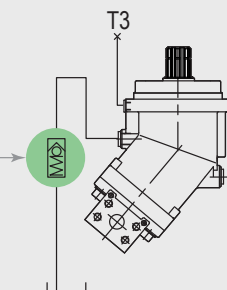
Ensure that the piping complies with our recommendations. Start the pump at low speed and without load to allow proper purging.



Warning: The T3 port is present on all W pumps and on some WA pumps; please contact the technical support.

For a shaft-up installation, add a check valve on the drain line as shown in the adjacent diagram.

Ensure a  $\Delta P$  of 0,3 to 0,5 bar.  
Assembly with check valve.







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