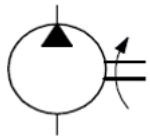
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Group 2XV-1P Vivoil Vivolo Aluminium Gear Pumps – Clockwise but Rotation can be changed on request
Diamond Flange Body - CO001 Tapered 1:8 – Ø10 – M7x1 (10-8mm over 15mm) – 2.4mm Key

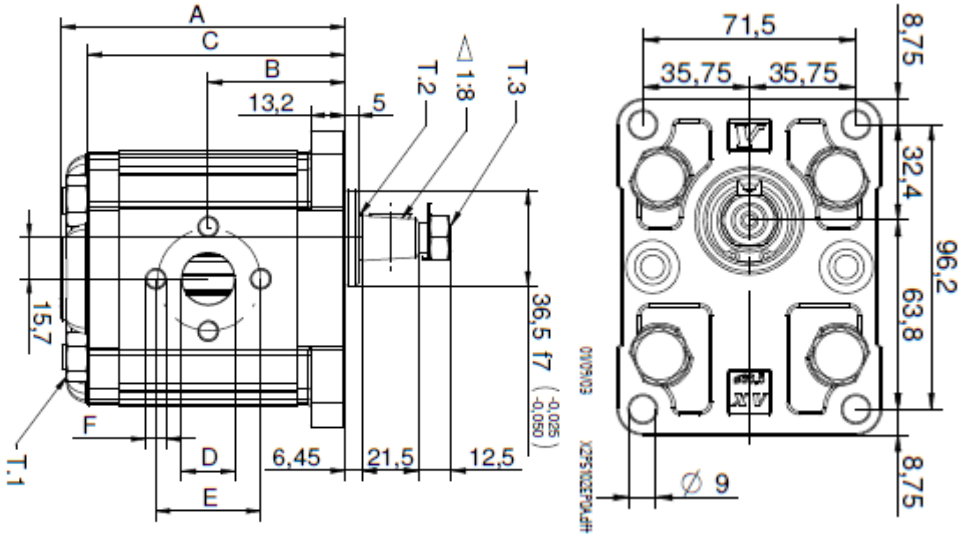
Right
Rotation

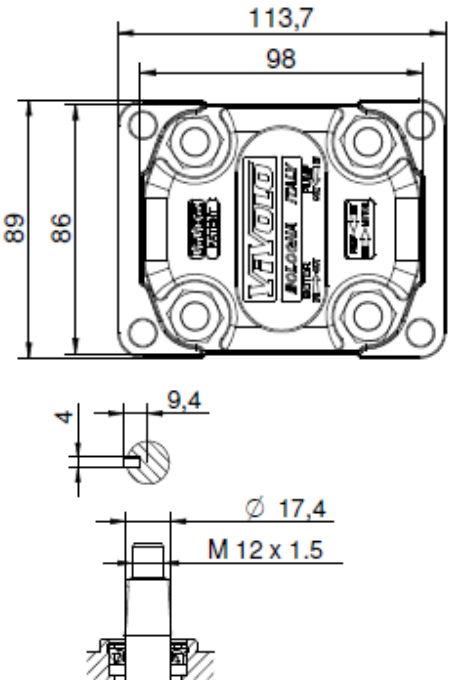




References : XP- 201

Dimensions table										
TYPE	Weight	A	B	C	D	E	F	D	E	F
	kg	mm	mm	mm	IN			OUT		
XV-2P/04	2,200	87,2	41,7	77,2	ø13,5	30	M6x1	ø13,5	30	M6x1
XV-2P/06	2,300	90,2	43,2	80,2	ø13,5	30	M6x1	ø13,5	30	M6x1
XV-2P/09	2,400	94,2	45,2	84,2	ø13,5	30	M6x1	ø13,5	30	M6x1
XV-2P/11	2,500	98,2	47,2	88,2	ø13,5	30	M6x1	ø13,5	30	M6x1
XV-2P/14	2,700	104,2	50,2	94,2	ø20	40	M8X1,25	ø13,5	30	M6x1
XV-2P/17	2,800	108,2	52,2	98,2	ø20	40	M8X1,25	ø13,5	30	M6x1
XV-2P/19	2,900	112,2	54,2	102,2	ø20	40	M8X1,25	ø13,5	30	M6x1
XV-2P/22	3,050	118,2	57,2	108,2	ø20	40	M8X1,25	ø13,5	30	M6x1
XV-2P/26	3,150	122,2	59,2	112,2	ø23,5	40	M8X1,25	ø20	40	M8X1,25
XV-2P/34	3,600	137,2	66,7	127,2	ø23,5	40	M8X1,25	ø20	40	M8X1,25
XV-2P/40	3,800	146,2	71,2	136,2	ø23,5	40	M8X1,25	ø20	40	M8X1,25





40 Industry Road, Paarden Eiland, Cape Town, Western Cape Tell: 021 511 0590

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ViVOLO BOLOGNA - ITALY

INTRODUCTION | WV-0P | XV-1P | XV-2P | XV-3P

Summary: Displacements - Pressures - Speeds

XV-2P	XV-2P/4	4.2 cm^3/rev	300 bar	700 rpm	3500 rpm
	XV-2P/6	6.0 cm^3/rev	300 bar	700 rpm	3500 rpm
	XV-2P/9	8.4 cm^3/rev	300 bar	700 rpm	3500 rpm
	XV-2P/11	10.8 cm^3/rev	300 bar	700 rpm	3500 rpm
	XV-2P/14	14.4 cm^3/rev	290 bar	700 rpm	3500 rpm
	XV-2P/17	16.8 cm^3/rev	270 bar	700 rpm	3500 rpm
	XV-2P/19	19.2 cm^3/rev	250 bar	700 rpm	3000 rpm
	XV-2P/22	22.8 cm^3/rev	240 bar	700 rpm	3000 rpm
	XV-2P/26	26.2 cm^3/rev	210 bar	700 rpm	3000 rpm
	XV-2P/30	30.0 cm^3/rev	200 bar	700 rpm	2500 rpm
	XV-2P/34	34.2 cm^3/rev	190 bar	700 rpm	2500 rpm
	XV-2P/40	39.6 cm^3/rev	180 bar	700 rpm	2000 rpm

unidirectional pump - series XV

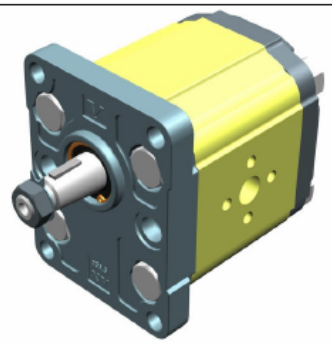
XV-2P

STANDARD EUROPEAN PUMP
ø36.5 FLANGE - TAPER SHAFT

ViVOLO BOLOGNA - ITALY

X	2	P	51	02	E	P	O	A

Series		X	series XV
Group		2	group 2
Category		P	unidirectional pump
Displacement		51	17
Flange		02	Ø36.5 STANDARD EUROPEAN right rotation
Shaft		E	CO001 - Tapered 1:8 - ø17.4 - M12x1.5 - key thk.4
Body	IN	P	inlet - Ø40 Ø20 M8
	OUT	O	outlet - Ø30 Ø13.5 M6
Cover		A	standard



Reference	XP201

Technical data table

TYPE	Displacement	Max. Pressure		CODE	
	cm3/rev	P1 bar	P3 bar	Left rotation	Right rotation
XV-2P/04	4,20	260	300	X 2 P 41 01 E O O A	X 2 P 41 02 E O O A
XV-2P/06	6,00	260	300	X 2 P 43 01 E O O A	X 2 P 43 02 E O O A
XV-2P/09	8,40	260	300	X 2 P 45 01 E O O A	X 2 P 45 02 E O O A
XV-2P/11	10,80	260	300	X 2 P 47 01 E O O A	X 2 P 47 02 E O O A
XV-2P/14	14,40	250	290	X 2 P 49 01 E P O A	X 2 P 49 02 E P O A
XV-2P/17	16,80	230	270	X 2 P 51 01 E P O A	X 2 P 51 02 E P O A
XV-2P/19	19,20	210	250	X 2 P 53 01 E P O A	X 2 P 53 02 E P O A
XV-2P/22	22,80	200	240	X 2 P 55 01 E P O A	X 2 P 55 02 E P O A
XV-2P/26	26,20	170	210	X 2 P 57 01 E Q P A	X 2 P 57 02 E Q P A
XV-2P/30	30,00	160	200	X 2 P 59 01 E Q P A	X 2 P 59 02 E Q P A
XV-2P/34	34,20	150	190	X 2 P 61 01 E Q P A	X 2 P 61 02 E Q P A
XV-2P/40	39,60	140	180	X 2 P 63 01 E Q P A	X 2 P 63 02 E Q P A

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Displacement

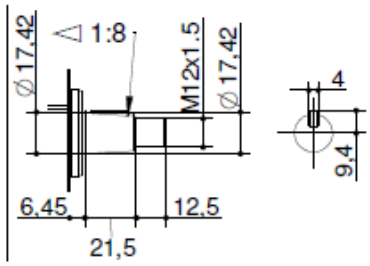
TYPE	CODE	A
		mm
XV-2P/04	41	87,2
XV-2P/06	43	90,2
XV-2P/09	45	94,2
XV-2P/11	47	98,2
XV-2P/14	49	104,2
XV-2P/17	51	108,2
XV-2P/19	53	112,2
XV-2P/22	55	118,2
XV-2P/26	57	122,2
XV-2P/30	59	130,2
XV-2P/34	61	137,2
XV-2P/40	63	146,2

ø36.5 FLANGE

Right rotation	Code
	02

Shaft

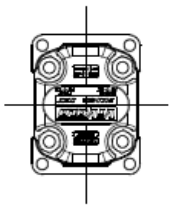
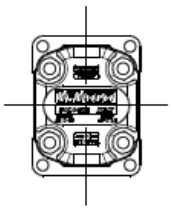
CO001 - Tapered



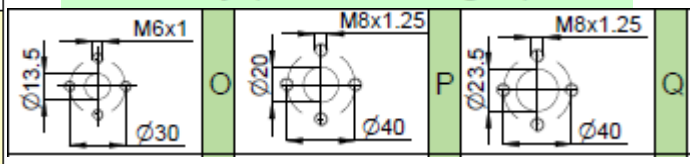
T.2 = 233.2 [Nm]

E

Cover

Left rotation	Right rotation	Code
		A

Body (threads/flanges)



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ViVOLO BOLOGNA - ITALY

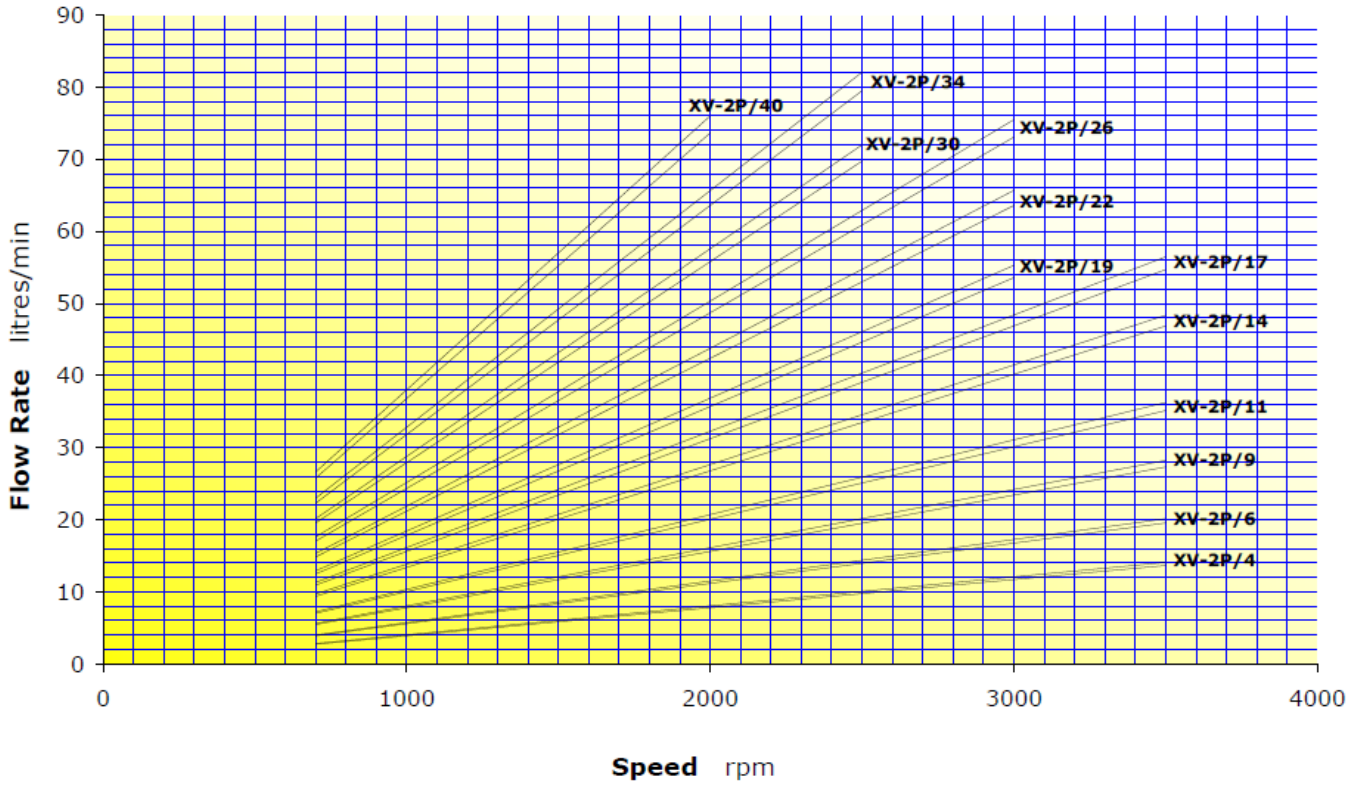
CHARACTERISTIC CURVES

XV-2P

Flow rate tables

TYPE	cm3/rev		rpm							
			700	1000	1500	2000	2500	3000	3500	
XV 2P/4	4,2	Flow rate l/min	2,800	4,000	6,000	8,000	10,000	12,000	14,000	Flow rate l/min
XV 2P/6	6		4,200	6,000	9,000	12,000	15,000	18,000	21,000	
XV 2P/9	8,4		6,300	9,000	13,500	18,000	22,500	27,000	31,500	
XV 2P/11	10,8		7,700	11,000	16,500	22,000	27,500	33,000	38,500	
XV 2P/14	14,4		9,800	14,000	21,000	28,000	35,000	42,000	29,000	
XV 2P/17	16,8		11,900	17,000	25,500	34,000	42,500	51,000	59,500	
XV 2P/19	19,2		13,300	19,000	28,500	38,000	47,500	57,000		
XV 2P/22	22,8		15,400	22,000	33,000	44,000	55,000	66,000		
XV 2P/26	26,2		18,200	26,000	39,000	52,000	65,000	78,000		
XV 2P/30	30		21,000	30,000	45,000	60,000	75,000			
XV 2P/34	34,2		23,800	34,000	51,000	68,000	85,000			
XV 2P/40	39,6		28,000	40,000	60,000	80,000				

XV-2P CHARACTERISTIC FLOW RATE CURVES



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General technical data

Type of fluid to be used	Mineral-based hydraulic oil HLP HV (D IN 51524)
Minimum operating viscosity	10 mm^2/s
Maximum operating viscosity	100 mm^2/s
Maximum admissible viscosity at start-up	1500 mm^2/s
Recommended viscosity	20 mm^2/s - 100 mm^2/s
Ambient temperature	-20 °C - 60°C
Fluid operating temperature	-15°C - 80°C
Recommended fluid operating temperature	30°C - 50°C
For temperatures above 120°C	Request FKM seals (Viton)
Max. inlet fluid suction pressure (IN)	0.02-0.08 bars
Max. inlet fluid pressure (IN)	0.3 - 0.5 bars (for higher pressures consult the manufacturer)
Inlet fluid filtering (IN)	30 - 60 Microns
Outlet fluid filtering (OUT)	10 - 25 Microns
Max. inlet fluid speed (IN)	0.5 - 1.5 m/s
Max. outlet fluid speed (OUT)	3.0 - 5.5m/s
Use of water-glycol (HF-C)	max n. of revolutions 1100 rpm; max pressure 170 bars

TORQUES ALLOWED ON SHAFT:

FORMULA FOR EVALUATING SHAFT		SHAFT [IDENTIFIER] - CODE - DESCRIPTION	T.2 [Nm]
$T.2 \leq \frac{vi \times \Delta p}{20 \times \pi \times \eta m}$ **T.2** = max. torque allowed by shaft [Nm]	XV-2P	[A] - CI001 - Parallel ø15 - M6x1 - key thk.4	44.1
		[B] - CI002 - Parallel ø15.875 – 1/4"28-UNF key thk.4 (SAE A)	67.5
		[C] - CF001 - Miled shank ø15 - thk.8 ("BH" Standard German)	60.5
		[E] - CO001 - Tapered 1:8 - ø17,4 - M12x1,5 - key thk.4	233.2
		[F] - CO002 - Tapered 1:5 - ø17,4 - M12x1,5 - key thk.3	233.2
		[G] - SCF02 - Splined ø16,5 - z=9, H=13, m=1.6 DIN 5482 17x14	86.1
		[H] - SCF03 - Splined ø16.5 - z=9, H=18,8, m=1,6 DIN 5482 17x14	86.1
		[I] - SCF04 - Splined ø15.456 z=9, H=22.5, SAE J498 9T 16/32DP	67.1
		[K] - SCF05 - Splined ø16.5 z=9 H=8,1 m=1.6 DIN 5482 17x14	86.2
		[L] - SCF01- Splined ø16.5 z=9 H=9,2 m=1.6 DIN 5482 17x14	86.2
		[M] - CO001 - Tapered 1:8 - ø17,4 - M12x1,5 - key thk.3,2	233.2

NOTES:
For assemblies with a coupling, you should choose one as balanced as possible in order to reduce the vibrations and dynamic stresses to which the pump shaft may be subject.
Always make sure that the torque applied is less than or equal to the admissible torque of the shaft.
Do not apply a direct axial or radial load on the pump shaft; if necessary, use suitable supports.
Always use well-filtered oils containing no water or other emulsifying substance.
Never run the pump with oil and air solutions.
For pumps with outlets on the flange, it is recommended not to exceed a flow rate of

4 l/min	WV-0P
20 l/min.	XV-1P
35 l/min	XV-2P

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Useful calculation formulas

SYMBOL,	UNIT OF MEASUREMENT,	DESCRIPTION
qv	l/min	Flow rate
vi	cm^3/rev.	Displacement (volume of oil displaced per complete revolution of the shaft)
n	rpm	Shaft rotation speed
p1	bar	inlet pressure
p2	bar	outlet pressure
Δp	bar	Δp=p2 - p1 difference between outlet (OUT) and inlet (IN) pressure
Ph	kW	Hydraulic power delivered
Pm	kW	Mechanical power absorbed
T	Nm	Torque absorbed by shaft
ηv	-	0.91 – 0.96 volumetric efficiency (volumetric ratio between operation under load and loadless operation)
ηm	-	0.85 – 0.90 mechanical efficiency
ηt	-	ηt = ηv x ηm total efficiency

Basic Formulas	Derived Formulas	
$qv = \frac{vi \times n}{1000} \times \eta v$	$vi = \frac{qv \times 1000}{n \times \eta v}$	$n = \frac{qv \times 1000}{vi \times \eta v}$
$T = \frac{vi \times \Delta p}{20 \times \pi \times \eta m}$	$vi = \frac{T \times 20 \times \pi \times \eta m}{\Delta p}$	$\Delta p = \frac{T \times 20 \times \pi \times \eta m}{vi}$
$Ph = \frac{qv \times \Delta p}{600}$	$qv = \frac{Ph \times 600}{\Delta p}$	$\Delta p = \frac{Ph \times 600}{qv}$
$Pm = \frac{vi \times \Delta p \times n}{600000 \times \eta m}$	$vi = \frac{Pm \times 600000 \times \eta m}{\Delta p \times n}$	$\Delta p = \frac{600000 \times \eta m}{vi \times n}$

Constructive features

PART	MATERIAL	MECHANICAL FEATURES
PUMP BODY	Extruded alloy Series 7000, heat treated and anodised	Rp = 345 N/mm^2 (Yield strength) Rm = 382 N/mm^2 (Breaking strength)
FLANGE AND COVER	Die-cast aluminium alloy with excellent mechanical features, heat treated and anodised	Rp = 310÷350 N/mm^2 (Yield strength) Rm = 350÷400 N/mm^2 (Breaking strength)
GEAR BUSH BEARINGS	Special heat-treated tin alloy with excellen mechanical features and high anti-frictio capacity. Self-lubricating bushes DU	Rp = 350 N/mm^2 (Yield strength) Rm = 390 N/mm^2 (Breaking strength)
GEARS	Steel UNI 7846	Rs = 980 N/mm^2 (Yield strength) Rm =1270÷1570 N/mm^2 (Breaking strength)
SEALS	A 727 Standard Acrylonitrile F 975 Viton FKM	70 Shore, thermal resistance 120°C 80 Shore, thermal resistance 200°C
BACK-UP RINGS	Virgin PTFE Tecnil Q3	

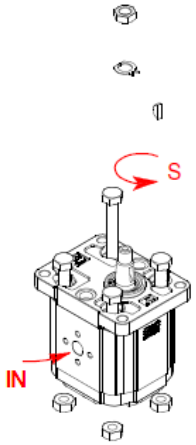
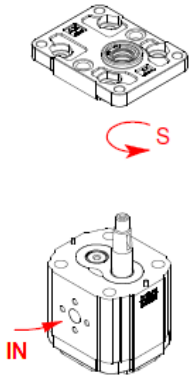
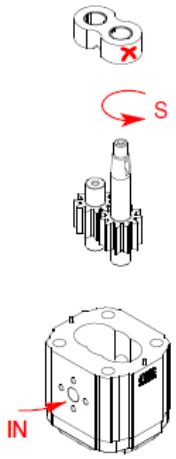
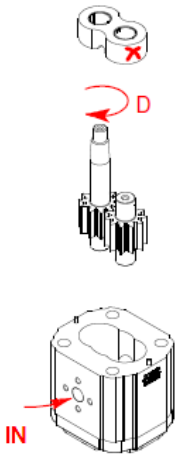
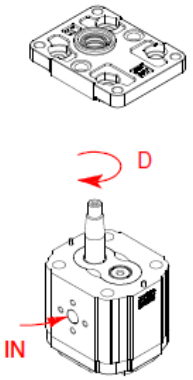
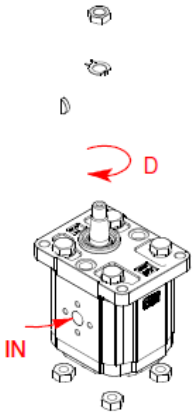
ViVOLO BOLOGNA - ITALY

Changing the direction of pump rotation — XV-2P

XV2-P with Flange ø36,5 (ref. XP- 201)

When changing the direction of rotation of the XV-2P pump, it is not necessary to change the flange, as the same one is used.
When disassembling and reassembling the pump, take special care to ensure that seals and back-up rings do not come out of place and that no foreign bodies, such as shavings or dirt in general, get inside the pump.

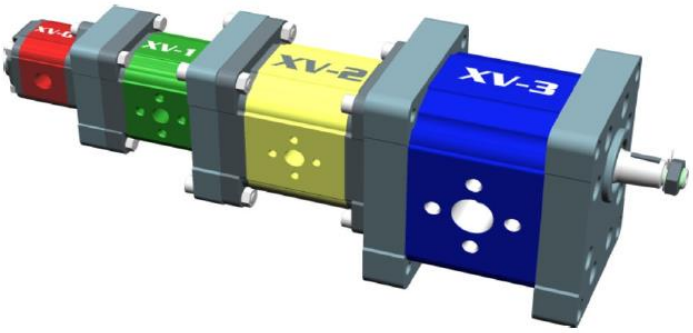
FLANGE ø36,5 (ref. XP- 201)

					
Remove the key, nut and washer from the shaft. Loosen and remove the fastening screws.	Take off the flange.	Take out the gears and upper bush. Warning!! The bush **must never** be turned.	Invert the positions of the driven and driving shafts. Warning! The body and cover must not be turned. Use the marking on the body as your reference.	Fit the previously removed flange back in place taking care to clean the body-base contact surfaces.	Replace the screws and tighten the nuts with a torque of 54 Nm to 58.9 Nm. Check that the shaft turns on completing the operation.
Note: with this rotation change system, the **inlets** and **outlets** remain unchanged.					

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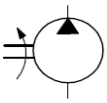
Symbols of Vivoil Oleodinamica Vivolo products



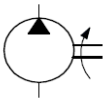
XV-0P
XV-1P
XV-2P
XV-3P

Unidirectional Pump

Left Rotation



Right Rotation



The main features of the XV-2P are the following:

Displacements from 4.2 cm^3 / revolution a 39.6 cm^3/ revolution.
Maximum pressures up to **300 bar**.
Versions w/ flanges: Ø36,5 – Standard Europea;
Ø50 BH – Body-Shaped;
Ø50 HY – Body-Shaped;
Ø52 BH - Standard German – Body-Shaped;
Ø80 – Standard German;
Ø82,5 – SAE A.
Rotation speeds up to **3500 rpm**
Configurations with inlet and outlet in the body, flange and cover.
Available shafts: Tapered 1:8 Woodruff key;
Parallel with key;
Milled shank;
Splined.