

Additional Date/Spec Sheet

Group 3 XV-3P Vivoil Vivolo Aluminium Gear Pumps – Clockwise but Rotation can be changed on request
BSP Threaded Body - CO001 – Tapered 1:8 – Ø22 – M14x1.5 – Key thk. 4mm – Unidirectional

unidirectional pump - series XV

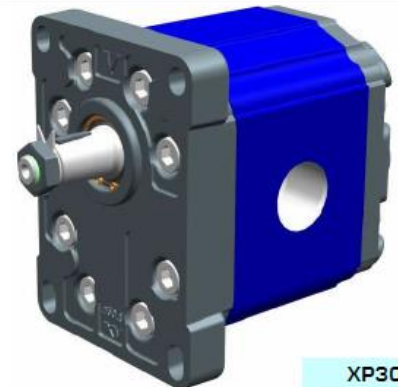
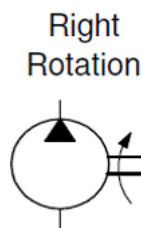
STANDARD EUROPEAN PUMP
ø50.8 FLANGE - TAPER SHAFT



XV-3P

X 3 P 78 02 A E E A

Series	X	series XV
Group	3	group 3
Category	P	unidirectional pump
Displacement	78	38
Flange	02	Ø50.8 right rotation
Shaft	A	CO001 - Tapered 1:8 - ø22 - key thk.4
Body	IN	inlet - 1" BSP
	OUT	outlet - 1" BSP
Cover	A	standard



XP302

Technical data table																					
TYPE	Displacement	Max. Pressure		CODE																	
		cm3/rev	P1 bar	P3 bar	Left rotation			Right rotation													
XV-3P/15	14,89	300	320	X	3	P	66	01	A	D	D	A	X	3	P	66	02	A	D	D	A
XV-3P/18	17,37	300	320	X	3	P	68	01	A	D	D	A	X	3	P	68	02	A	D	D	A
XV-3P/21	21,10	280	300	X	3	P	70	01	A	D	D	A	X	3	P	70	02	A	D	D	A
XV-3P/27	26,97	250	270	X	3	P	72	01	A	E	E	A	X	3	P	72	02	A	E	E	A
XV-3P/32	32,27	250	270	X	3	P	74	01	A	E	E	A	X	3	P	74	02	A	E	E	A
XV-3P/38	38,47	250	270	X	3	P	78	01	A	E	E	A	X	3	P	78	02	A	E	E	A
XV-3P/43	43,44	250	270	X	3	P	79	01	A	E	E	A	X	3	P	79	02	A	E	E	A
XV-3P/47	47,16	230	250	X	3	P	80	01	A	E	E	A	X	3	P	80	02	A	E	E	A
XV-3P/51	50,88	230	250	X	3	P	81	01	A	E	E	A	X	3	P	81	02	A	E	E	A
XV-3P/54	54,60	230	250	X	3	P	82	01	A	E	E	A	X	3	P	82	02	A	E	E	A
XV-3P/61	60,81	230	250	X	3	P	83	01	A	F	F	A	X	3	P	83	02	A	F	F	A
XV-3P/64	64,53	210	230	X	3	P	85	01	A	F	F	A	X	3	P	85	02	A	F	F	A
XV-3P/70	70,74	200	220	X	3	P	86	01	A	F	F	A	X	3	P	86	02	A	F	F	A
XV-3P/74	74,46	180	200	X	3	P	87	01	A	F	F	A	X	3	P	87	02	A	F	F	A
XV-3P/90	86,87	150	170	X	3	P	89	01	A	F	F	A	X	3	P	89	02	A	F	F	A

P1) Max. working pressure - P3) Max. peak pressure

For heavy-duty applications, it is recommended to check the admissible torque of the shaft

Dimensions table					
TYPE	Weight	A	B	D	D
	kg	mm	mm	IN	OUT
XV-3P/15	7,010	124,0	61,0	3/4" BSPP	3/4" BSPP
XV-3P/18	7,070	126,0	62,0	3/4" BSPP	3/4" BSPP
XV-3P/21	7,150	129,0	63,5	3/4" BSPP	3/4" BSPP
XV-3P/27	7,250	133,0	65,5	1" BSPP	1" BSPP
XV-3P/32	7,390	138,0	68,0	1" BSPP	1" BSPP
XV-3P/38	7,520	143,0	70,5	1" BSPP	1" BSPP
XV-3P/43	7,630	147,0	72,5	1" BSPP	1" BSPP
XV-3P/47	7,710	150,0	74,0	1" BSPP	1" BSPP
XV-3P/51	7,790	153,0	75,5	1" BSPP	1" BSPP
XV-3P/54	7,870	156,0	77,0	1" BSPP	1" BSPP
XV-3P/61	8,010	161,0	79,5	1" 1/4 BSPP	1" 1/4 BSPP
XV-3P/64	8,090	164,0	81,0	1" 1/4 BSPP	1" 1/4 BSPP
XV-3P/70	8,220	169,0	83,5	1" 1/4 BSPP	1" 1/4 BSPP
XV-3P/74	8,300	172,0	85,0	1" 1/4 BSPP	1" 1/4 BSPP

T.1 = 60÷65 [Nm] - screw tightening torque M10

T.3 = 75 [Nm] - torque wrench setting 22

T.2 = 482 [Nm] - admissible shaft torque (N.B. When choosing a shaft, always check the admissible torque).

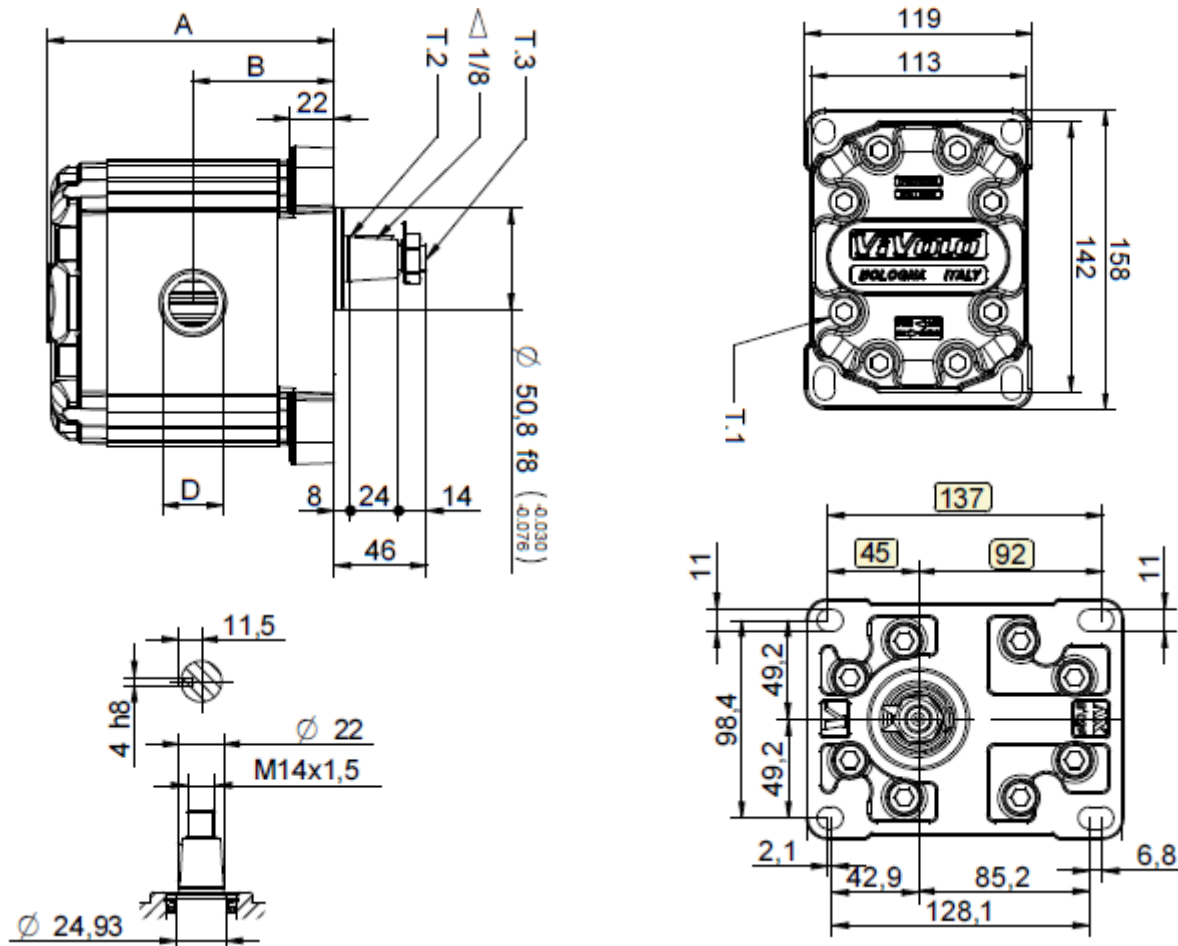
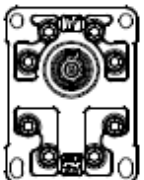
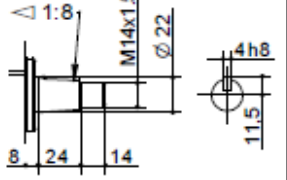


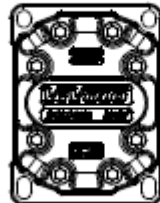
Table of variations

ø50.8 FLANGE

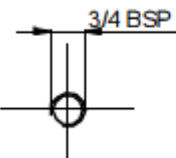
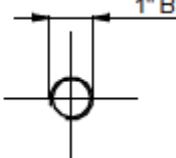
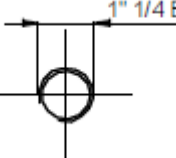
XV-3P

ø50.8 FLANGE	
Right rotation	
	02

Shaft	
<p style="text-align: center;">CO001 - Tapered T.2 = 482 [Nm]</p> 	A

Cover	
Right rotation	
	A

Displacement	
TYPE	CODE
XV-3P/18	68
XV-3P/21	70
XV-3P/27	72
XV-3P/32	74
XV-3P/38	78
XV-3P/43	79
XV-3P/47	80
XV-3P/54	82
XV-3P/64	85
XV-3P/74	87

Body (threads/flanges)					
	D		E		F



INTRODUCTION

XV-3P

Summary: Displacements - Pressures - Speeds

XV-3P	XV-3P/18	17.37 cm ³ /rev	320 bar	700 rpm	3000 rpm
	XV-3P/21	21.10 cm ³ /rev	300 bar	700 rpm	3000 rpm
	XV-3P/27	26.97 cm ³ /rev	270 bar	700 rpm	3000 rpm
	XV-3P/32	32.27 cm ³ /rev	270 bar	700 rpm	3000 rpm
	XV-3P/38	38.47 cm ³ /rev	270 bar	700 rpm	2800 rpm
	XV-3P/43	43.44 cm ³ /rev	250 bar	700 rpm	2800 rpm
	XV-3P/47	47.16 cm ³ /rev	250 bar	700 rpm	2800 rpm
	XV-3P/51	50.88 cm ³ /rev	250 bar	700 rpm	2800 rpm
	XV-3P/54	54.60 cm ³ /rev	250 bar	700 rpm	2300 rpm
	XV-3P/61	60.81 cm ³ /rev	220 bar	700 rpm	2300 rpm
	XV-3P/64	64.53 cm ³ /rev	220 bar	700 rpm	2300 rpm
	XV-3P/70	70.74 cm ³ /rev	210 bar	700 rpm	2300 rpm
	XV-3P/74	74.46 cm ³ /rev	190 bar	700 rpm	2300 rpm
XV-3P/90	86.87 cm ³ /rev	160 bar	700 rpm	2300 rpm	

TYPE	cm ³ /rev	rpm							Flow rate l/min
		700	1000	1500	2000	2300	2500	3000	
XV 3P/15	14,89	9,90	14,15	21,22	28,29	32,54	35,37	42,44	Flow rate l/min
XV 3P/18	17,37	11,55	16,51	24,76	33,01	37,96	41,26	49,52	
XV 3P/21	21,10	14,03	20,04	30,06	40,08	46,10	50,11	60,13	
XV 3P/27	26,97	17,94	25,62	38,43	51,24	58,93	64,05	76,86	
XV 3P/32	32,27	21,46	30,65	45,98	61,31	70,50	76,63	91,96	
XV 3P/38	38,47	25,58	36,55	54,82	73,09	84,06	91,37		
XV 3P/43	43,44	28,88	41,26	61,89	82,53	94,91	103,16		
XV 3P/47	47,16	31,36	44,80	67,20	89,60	103,04	112,00		
XV 3P/51	50,88	33,84	48,34	72,51	96,67	111,17			
XV 3P/54	54,60	36,31	51,87	77,81	103,75	119,31			
XV 3P/61	60,81	40,44	57,77	86,65	115,54	132,87			
XV 3P/64	64,53	42,91	61,31	91,96	122,61	141,00			
XV 3P/70	70,74	47,04	67,20	100,80	134,40	154,56			
XV 3P/74	74,46	49,52	70,74	106,11	141,47	162,70			
XV 3P/90	86,87	57,77	82,53	123,79	165,05	189,81			

TORQUES ALLOWED ON SHAFT:

FORMULA FOR EVALUATING SHAFT	SHAFT [IDENTIFIER] - CODE - DESCRIPTION	T.2 [Nm]
$T.2 \leq \frac{v_i \times \Delta p}{20 \times \pi \times \eta m}$ <p>T.2 = max. torque allowed by shaft [Nm]</p>	XV-3P	[A] - CO001 - Tapered 1:8 - ø22 – M14x1.5 - key thk.4
		482

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.

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 (V iton)
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

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

Constructive features

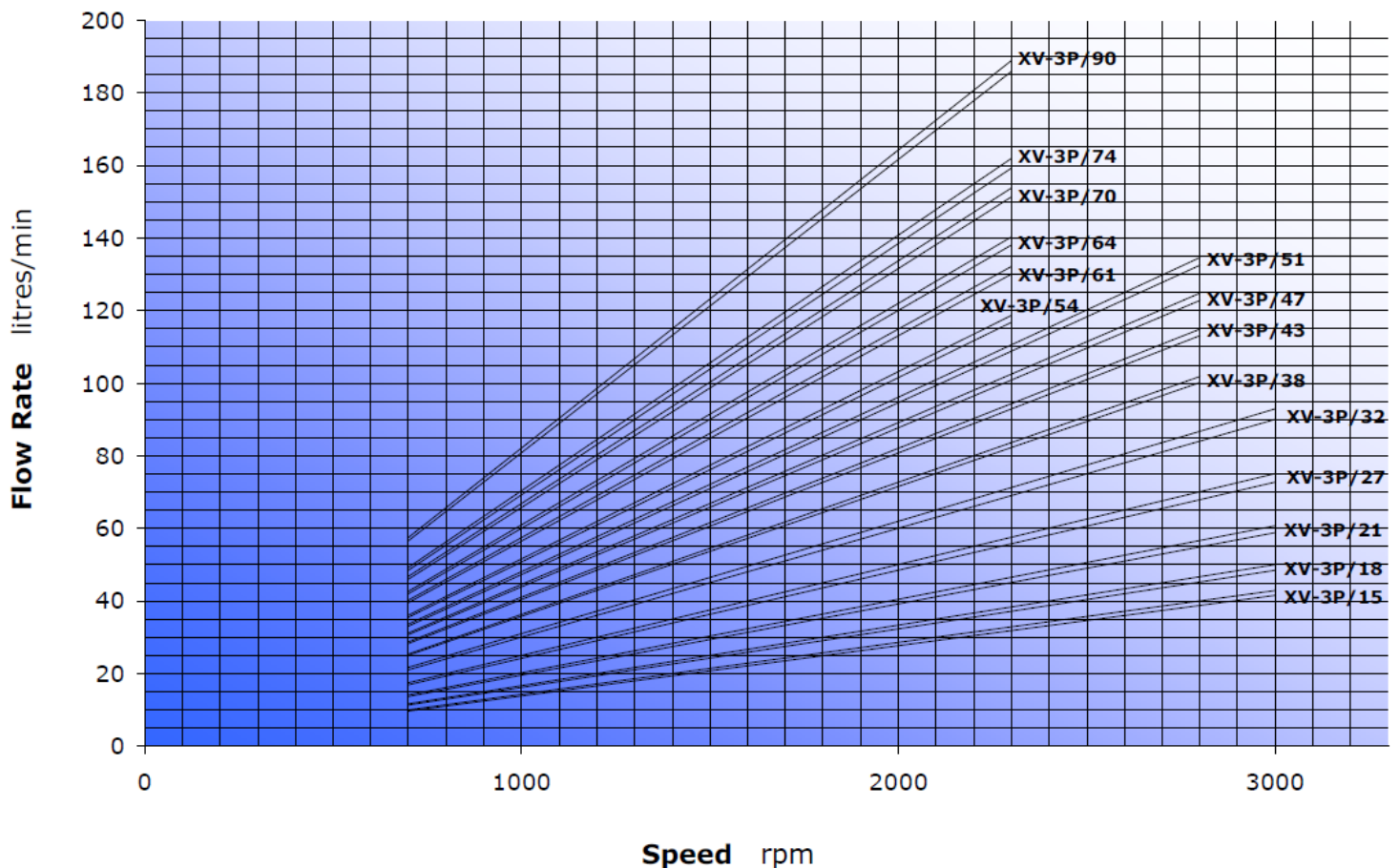
PART	MATERIAL	MECHANICAL FEATURES
PUMP BODY	Extruded alloy Series 7000, heat treated and anodised	$R_p = 345 \text{ N/mm}^2$ (Yield strength) $R_m = 382 \text{ N/mm}^2$ (Breaking strength)
FLANGE AND COVER	Die-cast aluminium alloy with excellent mechanical features, heat treated and anodised	$R_p = 310+350 \text{ N/mm}^2$ (Yield strength) $R_m = 350+400 \text{ N/mm}^2$ (Breaking strength)
GEAR BUSH BEARINGS	Special heat-treated tin alloy with excellent mechanical features and high anti-friction capacity. Self-lubricating bushes DU	$R_p = 350 \text{ N/mm}^2$ (Yield strength) $R_m = 390 \text{ N/mm}^2$ (Breaking strength)
GEARS	Steel UNI 7846	$R_s = 980 \text{ N/mm}^2$ (Yield strength) $R_m = 1270+1570 \text{ N/mm}^2$ (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	



CHARACTERISTIC CURVES

XV-3P

XV-3P CHARACTERISTIC FLOW RATE CURVES



XV3-P with Flange $\phi 50,8$ (ref. da XP- 301 a: XP- 302)

When changing the direction of rotation of the XV-3P 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 $\phi 50,8$ (ref. da XP- 301 a: XP- 302)

<p>Remove the key, nut and washer from the shaft. Loosen and remove the fastening screws.</p>	<p>Take off the flange.</p>	<p>Take out the gears and upper bush. Warning!! The bush must never be turned.</p>	<p>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.</p>	<p>Fit the previously removed flange back in place taking care to clean the body-base contact surfaces.</p>	<p>Replace the screws and tighten the nuts with a torque of 60 Nm to 65 Nm. Check that the shaft turns on completing the operation.</p>

Note: with this rotation change system, the inlets and outlets remain unchanged.