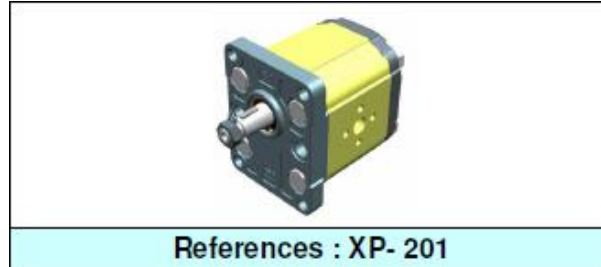
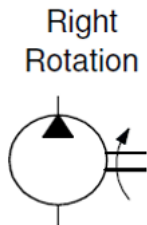
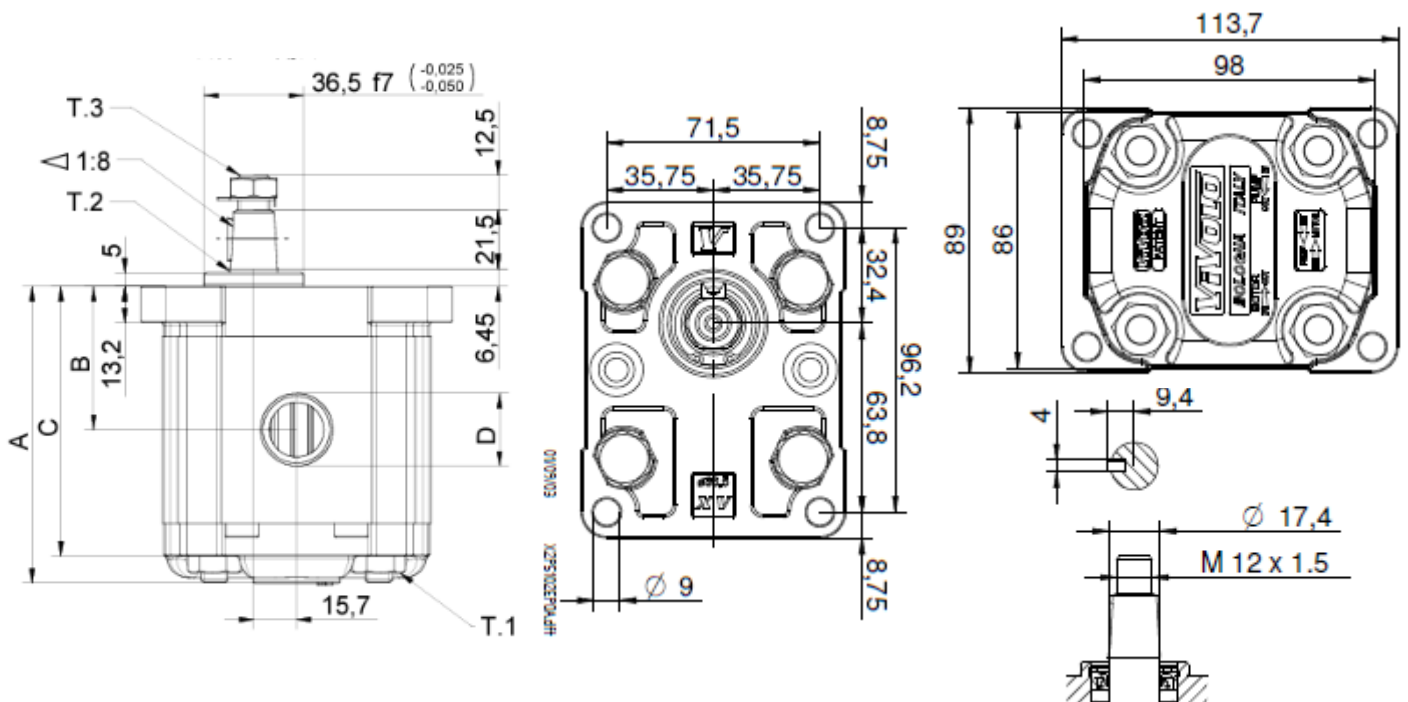


Additional Date/Spec Sheet

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



| Dimensions table | | | | | | |
|------------------|--------|-------|------|-------|-----------|-----------|
| TYPE | Weight | A | B | C | D | D |
| | kg | mm | mm | mm | IN | OUT |
| XV-2P/04 | 2,200 | 87,2 | 41,7 | 77,2 | 1/2" BSPP | 1/2" BSPP |
| XV-2P/06 | 2,300 | 90,2 | 43,2 | 80,2 | 1/2" BSPP | 1/2" BSPP |
| XV-2P/09 | 2,400 | 94,2 | 45,2 | 84,2 | 1/2" BSPP | 1/2" BSPP |
| XV-2P/11 | 2,500 | 98,2 | 47,2 | 88,2 | 1/2" BSPP | 1/2" BSPP |
| XV-2P/14 | 2,700 | 104,2 | 50,2 | 94,2 | 3/4" BSPP | 1/2" BSPP |
| XV-2P/17 | 2,800 | 108,2 | 52,2 | 98,2 | 3/4" BSPP | 1/2" BSPP |
| XV-2P/19 | 2,900 | 112,2 | 54,2 | 102,2 | 3/4" BSPP | 1/2" BSPP |
| XV-2P/22 | 3,050 | 118,2 | 57,2 | 108,2 | 3/4" BSPP | 1/2" BSPP |
| XV-2P/26 | 3,150 | 122,2 | 59,2 | 112,2 | 1" BSPP | 3/4" BSPP |
| XV-2P/30 | 3,400 | 130,2 | 63,2 | 120,2 | 1" BSPP | 3/4" BSPP |
| XV-2P/34 | 3,600 | 137,2 | 66,7 | 127,2 | 1" BSPP | 3/4" BSPP |
| XV-2P/40 | 3,800 | 146,2 | 71,2 | 136,2 | 1" BSPP | 3/4" BSPP |



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 |

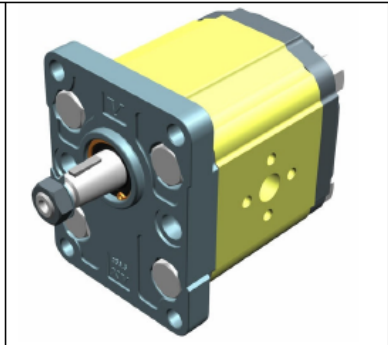
unidirectional pump - series XV

XV-2P

STANDARD EUROPEAN PUMP
ø36.5 FLANGE - TAPER SHAFT



| | | | | | | | | |
|--------------|----------|---------------------------------------------------|-----------------------|-----------|----------|----------|----------|----------|
| 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 |

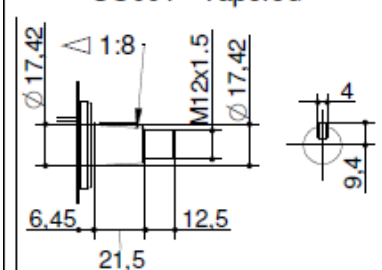
| Displacement | | |
|--------------|------|-------|
| TYPE | CODE | A |
| | | mm |
| XV-2P/04 | 41 | 87,2 |
| XV-2P/06 | 43 | 90,2 |
| XV-2P/09 | 45 | 94,2 |
| XV-2P/11 | 47 | 98,2 |
| XV-2P/14 | 49 | 104,2 |
| XV-2P/17 | 51 | 108,2 |
| XV-2P/19 | 53 | 112,2 |
| XV-2P/22 | 55 | 118,2 |
| XV-2P/26 | 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

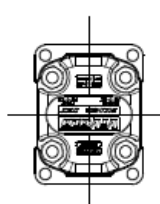
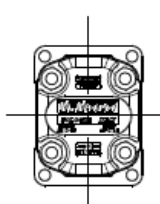
CO001 - Tapered



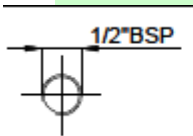
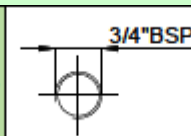
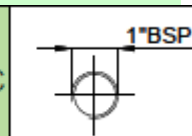
E

T.2 = 233.2 [Nm]

Cover

| | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Left rotation | Right rotation | Code |
|  |  | A |

Body (threads/flanges)

| | | |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1/2" BSP | 3/4" BSP | 1" BSP |
|  |  |  |
| B | C | D |



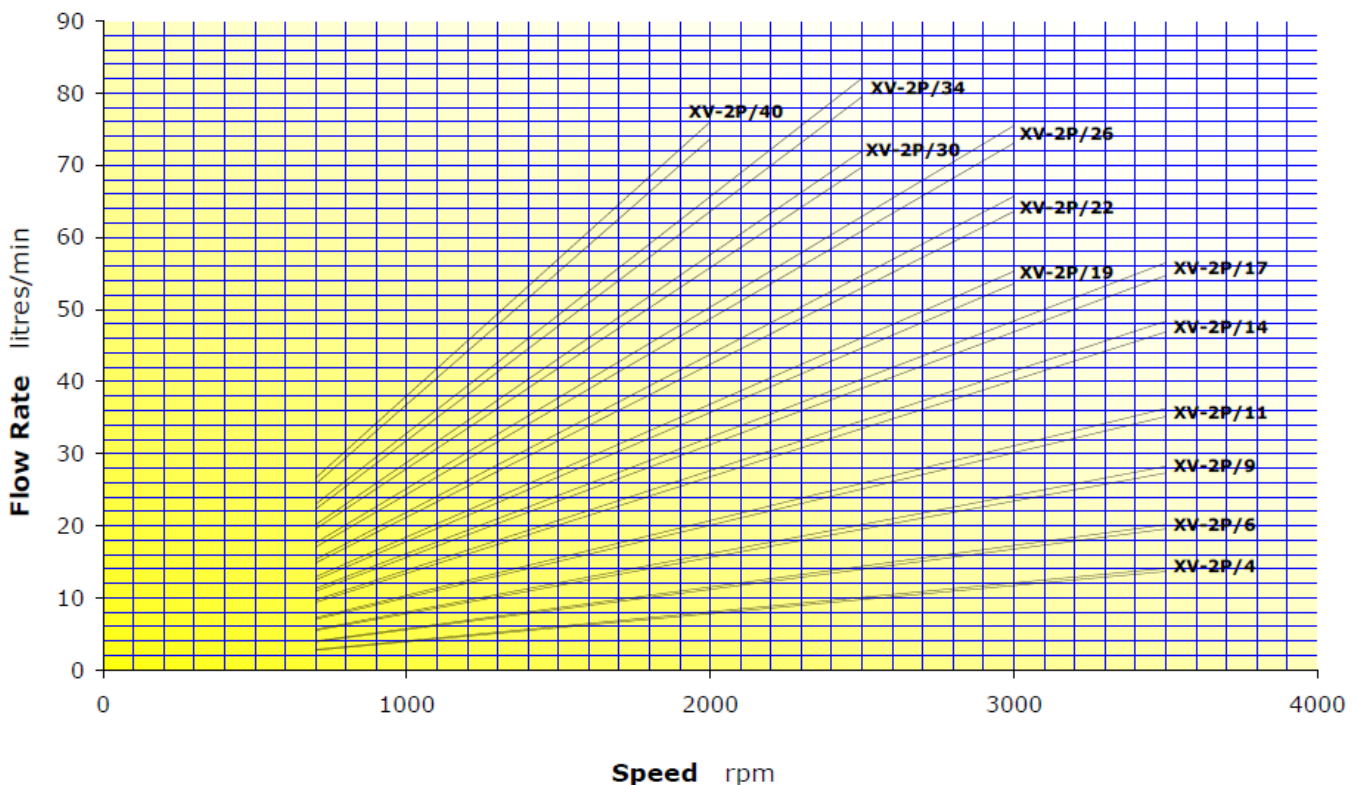
CHARACTERISTIC CURVES

XV-2P

Flow rate tables

| TYPE | cm ³ /rev | rpm | | | | | | | |
|----------|----------------------|--------|--------|--------|--------|--------|--------|--------|--|
| | | 700 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | |
| XV 2P/4 | 4,2 | 2,800 | 4,000 | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | |
| 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 | 49,000 | |
| 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



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] |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|----------|
| $T.2 \leq \frac{v_i \times \Delta p}{20 \times \pi \times \eta m}$ <p>T.2 = max. torque allowed by shaft [Nm]</p> | [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 |

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 excellent mechanical features and high anti-friction 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 | |

XV2-P with Flange $\varnothing 36,5$ (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 $\varnothing 36,5$ (ref. XP- 201) | | | | | |
|-----------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | | |
| <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.</p> <p>Warning!! The bush must never be turned.</p> | <p>Invert the positions of the driven and driving shafts.</p> <p>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 54 Nm to 58.9 Nm. Check that the shaft turns on completing the operation.</p> |
| <p>Note: with this rotation change system, the inlets and outlets remain unchanged.</p> | | | | | |



ø36.5 FLANGE

XV-2P

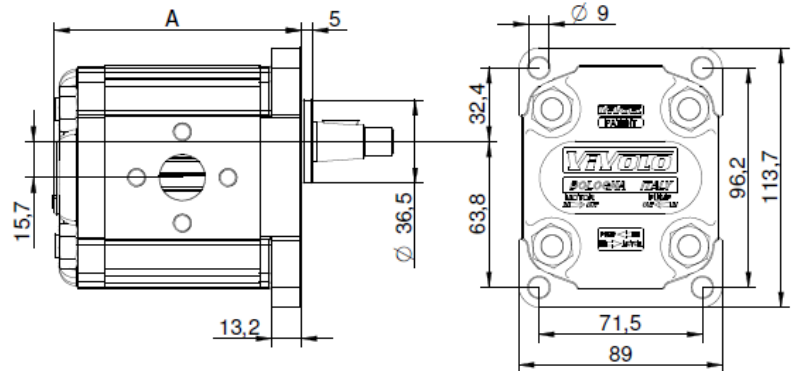
Table of variations

These two pages provide an overview of all the possible variations for customising a pump with a ø36.5 flange.

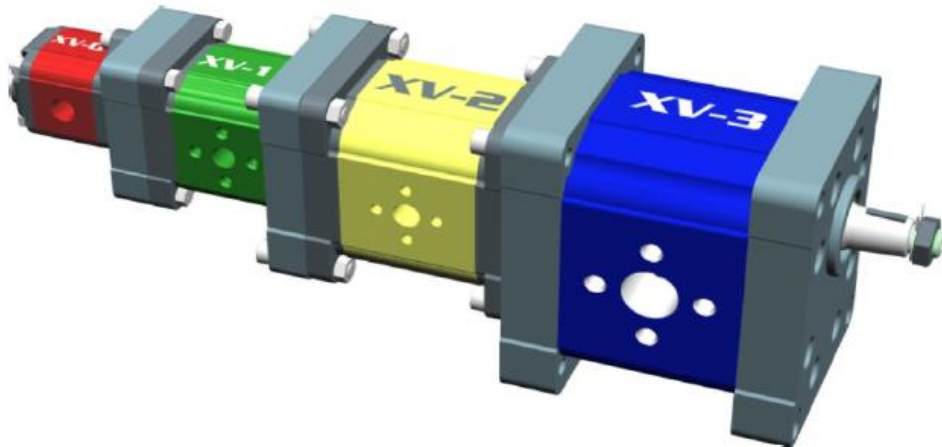
By filling in the missing data you can obtain the complete code of the product to be customised.



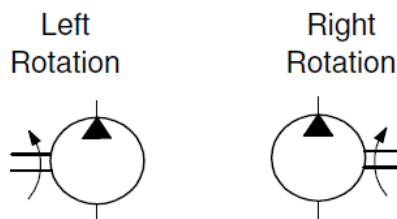
| | | |
|--------------|-----------|---------------------|
| Series | X | series XV |
| Group | 2 | group 2 |
| Category | P | unidirectional pump |
| Displacement | | |
| Flange | | |
| Shaft | | |
| Body | IN OUT | |
| Cover | | |



Symbols of Vivoil Oleodinamica Vivolo products



Unidirectional Pump



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

Displacements from 4.2 cm³ / revolution a 39.6 cm³/ 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.