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Group 2 XV-2M Vivoil Vivolo Aluminium Gear Motor – Reversible – External Drainage
XM207 Series Standard European Motor Ø36.5 Flange – Taper Shaft

ViVolo BOLOGNA - ITALY

INTRODUCTION XV-2M



XM207

STANDARD EUROPEAN MOTOR

ø36.5 FLANGE - TAPER SHAFT

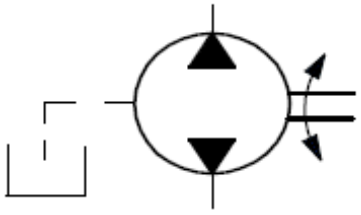
Summary: Displacements - Torque - Power - Pressures - Speeds

XV-2M/4	4.2 cm^3/rev	5,68 Nm	0,60 KW	300 bar	6 bar	30 bar	700 rev/min	3500 rev/min
XV-2M/6	6.0 cm^3/rev	8,12 Nm	0,85 KW	300 bar	6 bar	25 bar	700 rev/min	3500 rev/min
XV-2M/9	8.4 cm^3/rev	11,36 Nm	1,19 KW	300 bar	6 bar	20 bar	700 rev/min	3500 rev/min
XV-2M/11	10.8 cm^3/rev	14,61 Nm	1,53 KW	300 bar	6 bar	20 bar	700 rev/min	3500 rev/min
XV-2M/14	14.4 cm^3/rev	19,48 Nm	2,04 KW	290 bar	6 bar	15 bar	700 rev/min	3500 rev/min
XV-2M/17	16.8 cm^3/rev	22,73 Nm	2,38 KW	270 bar	6 bar	15 bar	700 rev/min	3500 rev/min
XV-2M/19	19.2 cm^3/rev	25,97 Nm	2,72 KW	250 bar	6 bar	15 bar	700 rev/min	3000 rev/min
XV-2M/22	22.8 cm^3/rev	30,84 Nm	3,23 KW	240 bar	6 bar	15 bar	700 rev/min	3000 rev/min
XV-2M/26	26.2 cm^3/rev	35,44 Nm	3,71 KW	210 bar	6 bar	15 bar	700 rev/min	3000 rev/min
XV-2M/30	30.0 cm^3/rev	40,58 Nm	4,25 KW	200 bar	6 bar	15 bar	700 rev/min	2500 rev/min
XV-2M/34	34.2 cm^3/rev	46,27 Nm	4,85 KW	190 bar	6 bar	15 bar	700 rev/min	2500 rev/min

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 ℃ - 60℃
Fluid operating temperature	-15℃ - 80℃
Recommended fluid operating temperature	30℃ – 50° C
For temperatures above 120℃	Request FKM seals (V iton)
Max. outlet fluid pressure (OUT)	0.3 - 0.5 bars (with internal drainage)
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

External drainage



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

TORQUES ALLOWED ON SHAFT:

FORMULA FOR EVALUATING SHAFT	SHAFT [IDENTIFIER] - CODE - DESCRIPTION	T.2 [Nm]
$T.2 \leq \frac{vi \times \Delta p \times \eta m}{20 \times \pi}$		
T.2 = max. torque allowed by shaft [Nm]	**XV-2M** [E] - CO001 - Tapered 1:8 - ø17,4 - M12x1,5 - key thk.4	233.2

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

Constructive features

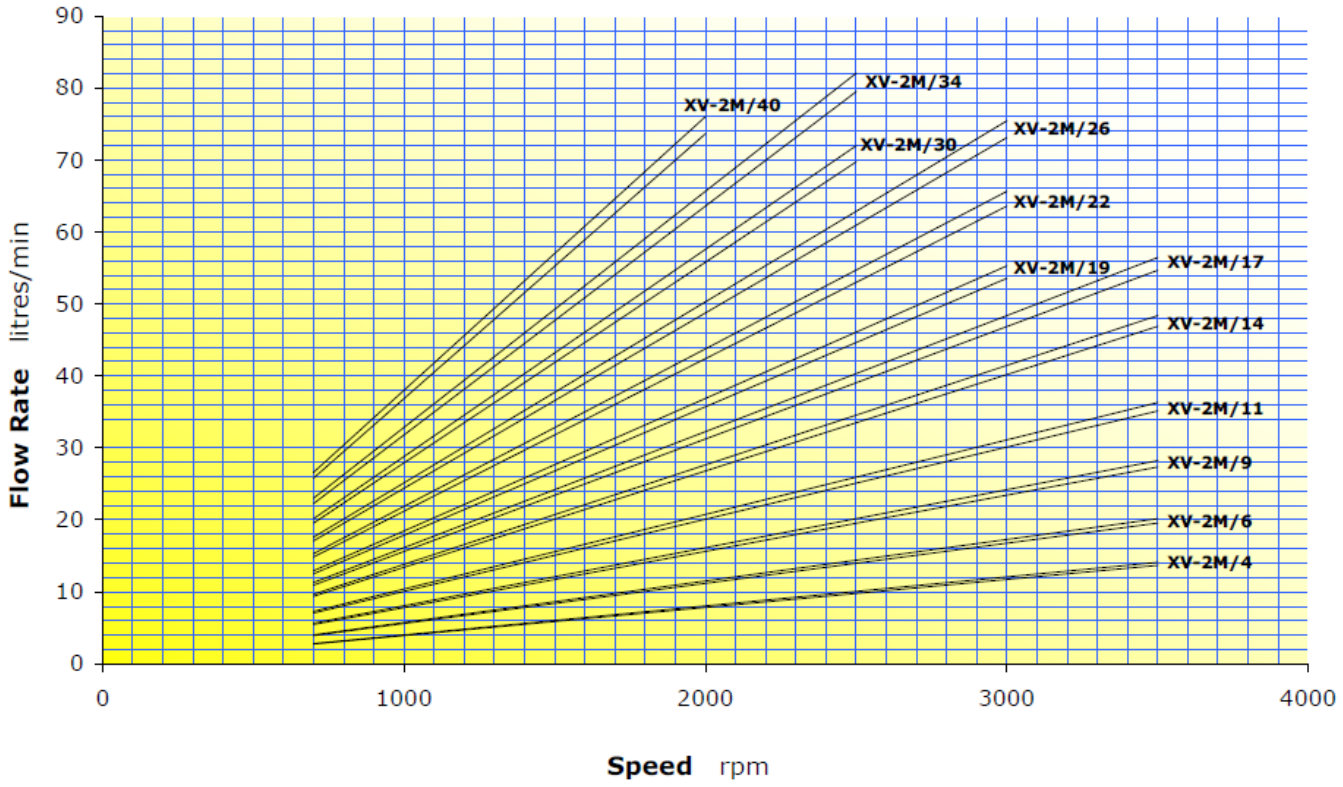
PART	MATERIAL	MECHANICAL FEATURES
MOTOR BODY	Extruded alloy Series 7000, heat treated and anodised	Rp = 345 N/mm^2 (Yield strength) Rm = 382 N/mm^2 (Breaking strength)
FLANGE AND COVER	Die-cast aluminium alloy with excellent mechanical features, heat treated and anodised	Rp = 310÷350 N/mm^2 (Yield strength) 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	

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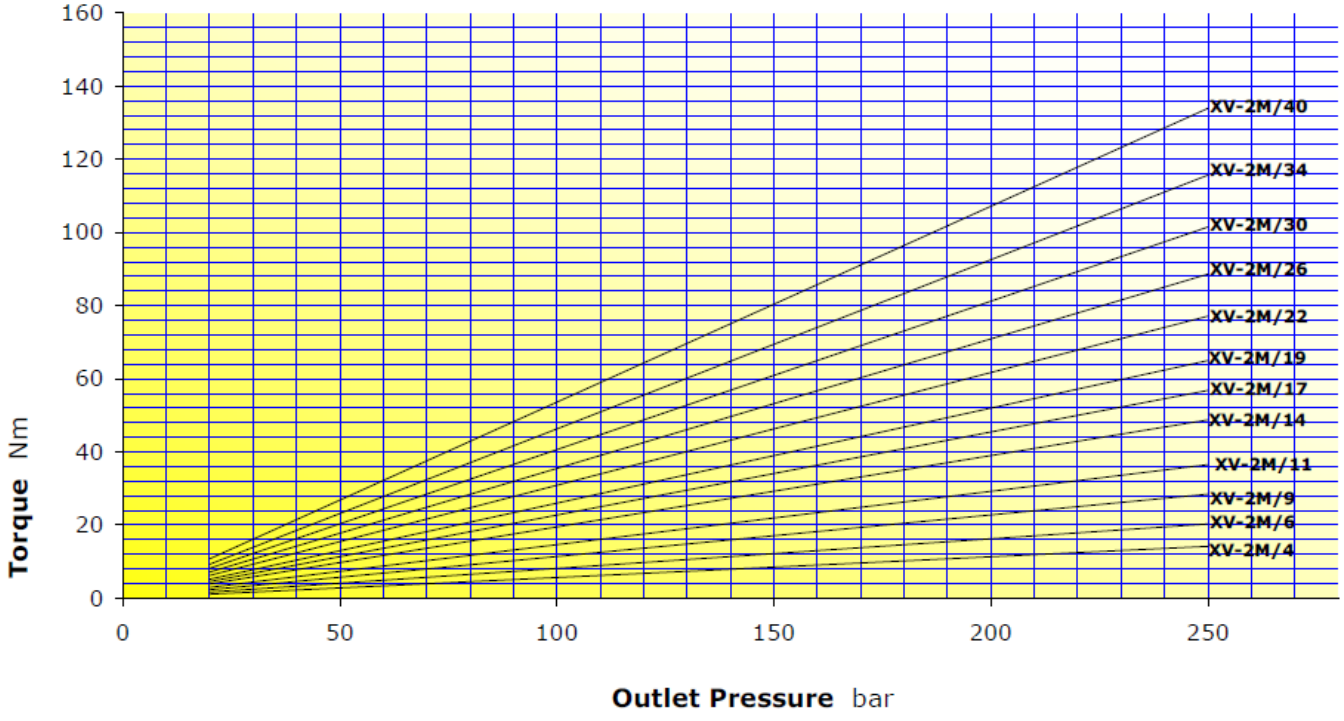
CHARACTERISTIC CURVES

XV-1M

XV-2M CHARACTERISTIC FLOW RATE CURVES



XV-2M MOTOR TORQUE



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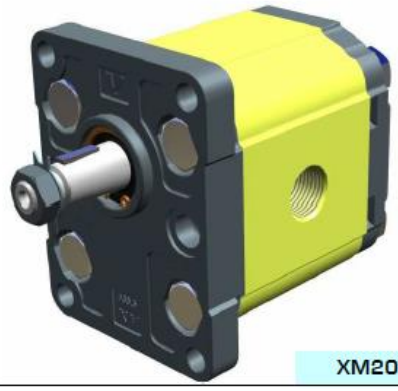
reversible motor - series XV

STANDARD EUROPEAN MOTOR
ø36.5 FLANGE - TAPER SHAFT

XV-2M

X	2	M	51	01	E	C	C	E

Series	X	series XV
Group	2	group 2
Category	M	reversible motor
Displacement	51	17
Flange	01	Ø36.5 STANDARD EUROPEAN reversible rotation
Shaft	E	CO001 - Tapered 1:8 - ø17.4 - M12x1.5 - key thk.4
Body IN	C	inlet - 3/4" GAS
Body OUT	C	outlet - 3/4" GAS
Cover	E	with external drainage



XM207

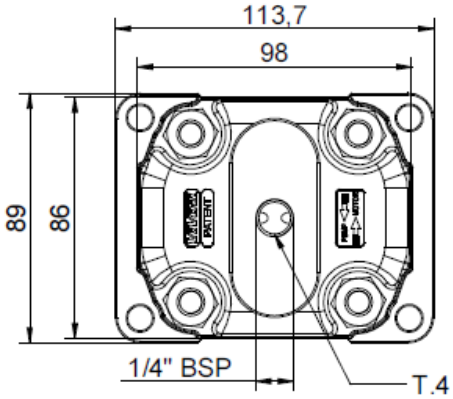
Technical data table

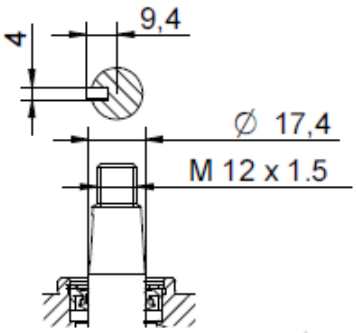
TYPE	Displacement	Max. Pressure		CODE	
	cm3/rev	P1 bar	P3 bar	External drainage	Internal drainage
XV-2M/04	4,20	260	300	X 2 M 41 01 E B B E	X 2 M 41 01 E B B F
XV-2M/06	6,00	260	300	X 2 M 43 01 E B B E	X 2 M 43 01 E B B F
XV-2M/09	8,40	260	300	X 2 M 45 01 E B B E	X 2 M 45 01 E B B F
XV-2M/11	10,80	260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

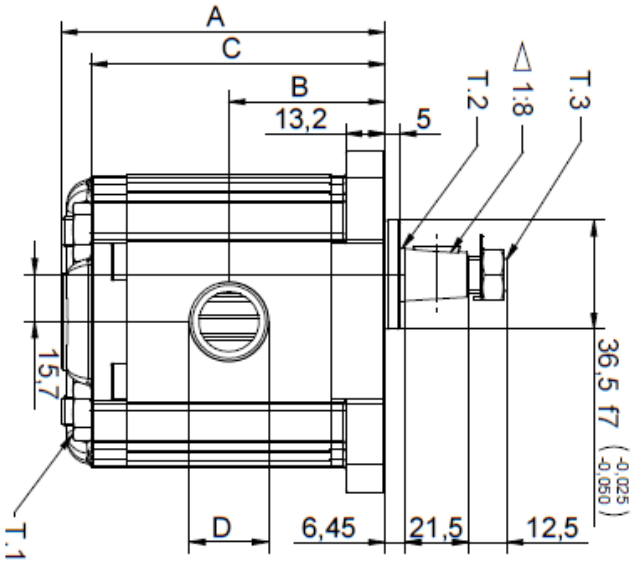
P1) Max. working pressure - P3) Max. peak pressure
For heavy-duty applications, it is recommended to check the admissible torque of the shaft

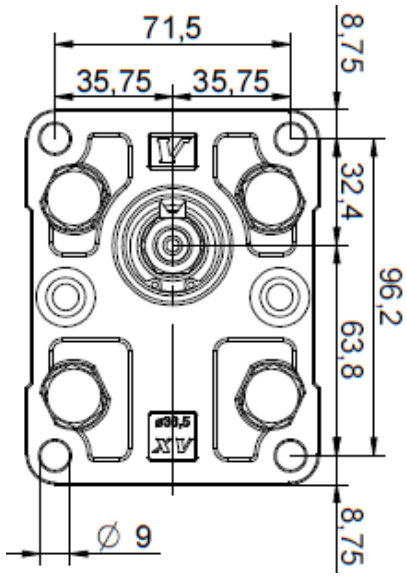
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Dimension Drawing









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

T.1 = 54÷58.9 [Nm] - screw tightening torque M10
T.3 = 40 [Nm] - torque wrench setting 19
T.2 = 233.2 [Nm] - admissible shaft torque (N.B. When choosing a shaft, always check the admissible torque).
T.4 = 0.3÷0,5 bar - max. drainage pressure

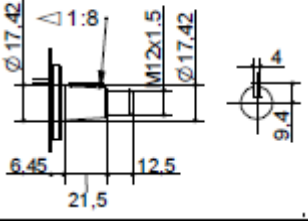
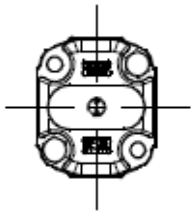
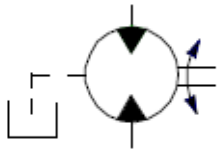
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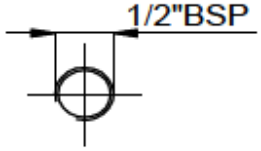
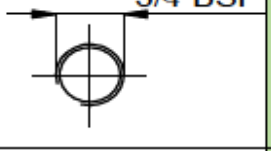
Table of variations

XV-2M

ø36.5 FLANGE

ø36.5 FLANGE		Shaft		Cover	
	01	CO001 - Tapered T.2 = 233.2 [Nm] 	E	  External drainage	E

Displacement	
TYPE	CODE
XV-2M/04	41
XV-2M/06	43
XV-2M/09	45
XV-2M/11	47
XV-2M/14	49
XV-2M/17	51
XV-2M/19	53
XV-2M/22	55
XV-2M/26	57
XV-2M/30	59
XV-2M/34	61
XV-2M/40	63

Body (threads/flanges)			
	B		C