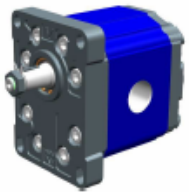
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Group 3 XV-3M Vivoil Vivolo Aluminium Gear Motor – Reversible – External Drainage
XM302 Series Standard European Motor Ø50.8 Flange – Taper Shaft

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INTRODUCTION XV-3M



XM302

STANDARD EUROPEAN MOTOR
ø50.8 FLANGE - TAPER SHAFT

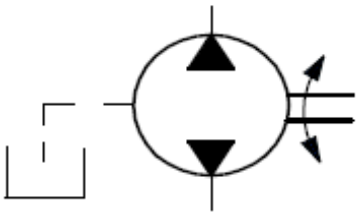
Summary: Displacements - Torque - Power - Pressures - Speeds

XV-3M	XV-3M/21	21.10 cm^3/rev	28,54 Nm	2,99 KW	300 bar	6 bar	15 bar	700 rev/min	3000 rev/min
	XV-3M/27	26.97 cm^3/rev	36,49 Nm	3,82 KW	270 bar	6 bar	10 bar	700 rev/min	3000 rev/min
	XV-3M/32	32.27 cm^3/rev	43,66 Nm	4,57 KW	270 bar	6 bar	10 bar	700 rev/min	3000 rev/min
	XV-3M/38	38.47 cm^3/rev	52,04 Nm	5,45 KW	270 bar	6 bar	10 bar	700 rev/min	2800 rev/min
	XV-3M/43	43.44 cm^3/rev	58,77 Nm	6,15 KW	250 bar	6 bar	10 bar	700 rev/min	2800 rev/min
	XV-3M/47	47.16 cm^3/rev	63,80 Nm	6,68 KW	250 bar	6 bar	10 bar	700 rev/min	2800 rev/min
	XV-3M/51	50.88 cm^3/rev	68,83 Nm	7,21 KW	250 bar	6 bar	10 bar	700 rev/min	2800 rev/min
	XV-3M/54	54.60 cm^3/rev	73,86 Nm	7,74 KW	250 bar	6 bar	10 bar	700 rev/min	2300 rev/min
	XV-3M/61	60.81 cm^3/rev	82,26 Nm	8,61 KW	220 bar	6 bar	10 bar	700 rev/min	2300 rev/min
	XV-3M/64	64.53 cm^3/rev	87,30 Nm	9,14 KW	220 bar	6 bar	10 bar	700 rev/min	2300 rev/min
	XV-3M/70	70.74 cm^3/rev	95,70 Nm	10,02 KW	210 bar	6 bar	10 bar	700 rev/min	2300 rev/min
	XV-3M/74	74.46 cm^3/rev	100,73 Nm	10,55 KW	190 bar	6 bar	10 bar	700 rev/min	2300 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	2300	2500	3000	
XV 3M/15	14,89	Flow rate l/min	9,90	14,15	21,22	28,29	32,54	35,37	42,44	Flow rate l/min
XV 3M/18	17,37		11,55	16,51	24,76	33,01	37,96	41,26	49,52	
XV 3M/21	21,10		14,03	20,04	30,06	40,08	46,10	50,11	60,13	
XV 3M/27	26,97		17,94	25,62	38,43	51,24	58,93	64,05	76,86	
XV 3M/32	32,27		21,46	30,65	45,98	61,31	70,50	76,63	91,96	
XV 3M/38	38,47		25,58	36,55	54,82	73,09	84,06	91,37		
XV 3M/43	43,44		28,88	41,26	61,89	82,53	94,91	103,16		
XV 3M/47	47,16		31,36	44,80	67,20	89,60	103,04	112,00		
XV 3M/51	50,88		33,84	48,34	72,51	96,67	111,17			
XV 3M/54	54,60		36,31	51,87	77,81	103,75	119,31			
XV 3M/61	60,81		40,44	57,77	86,65	115,54	132,87			
XV 3M/64	64,53		42,91	61,31	91,96	122,61	141,00			
XV 3M/70	70,74		47,04	67,20	100,80	134,40	154,56			
XV 3M/74	74,46		49,52	70,74	106,11	141,47	162,70			
XV 3M/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]
$T.2 \leq \frac{vi \times \Delta p \times \eta m}{20 \times \pi}$	**XV-3M** [A] - CO001 - Tapered 1:8 - ø22 – M14x1.5 - key thk.4	482

T.2 = max. torque allowed by shaft [Nm]

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

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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	

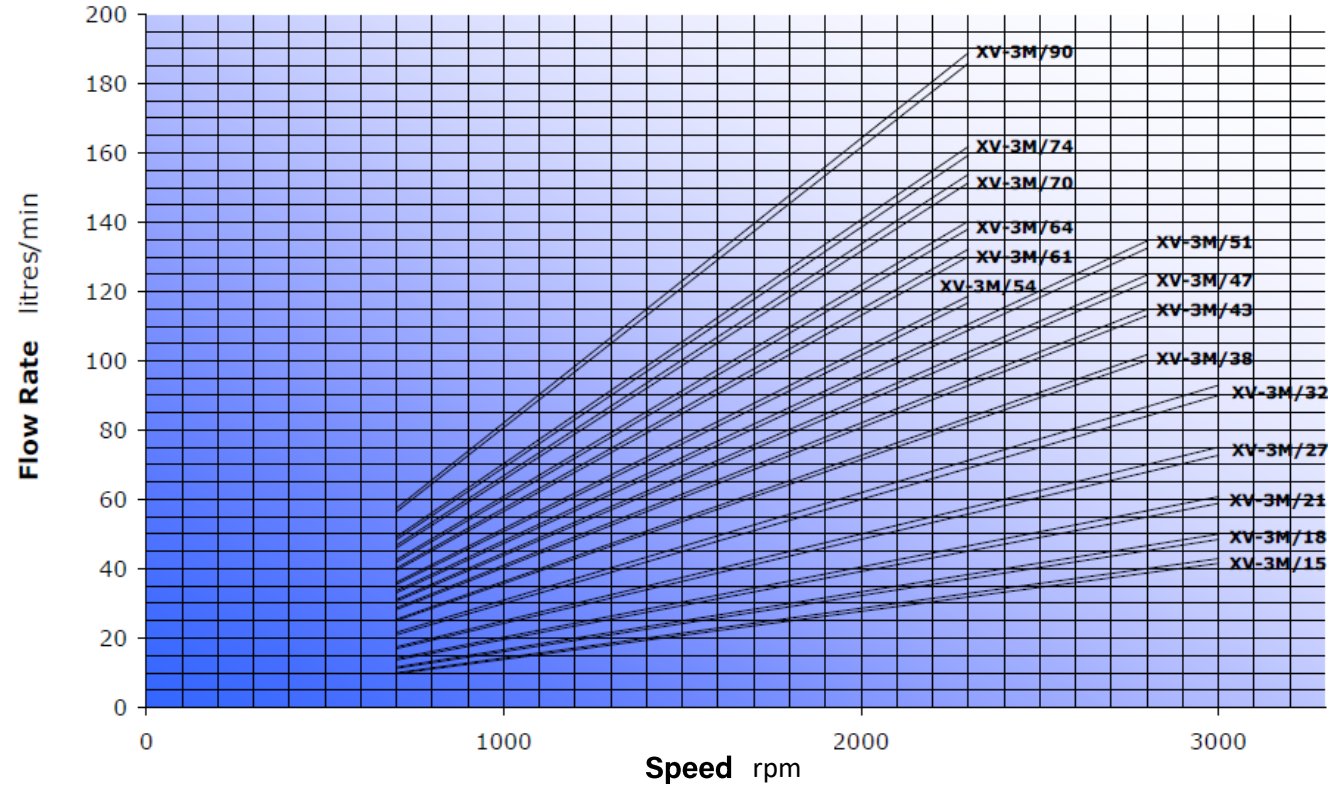
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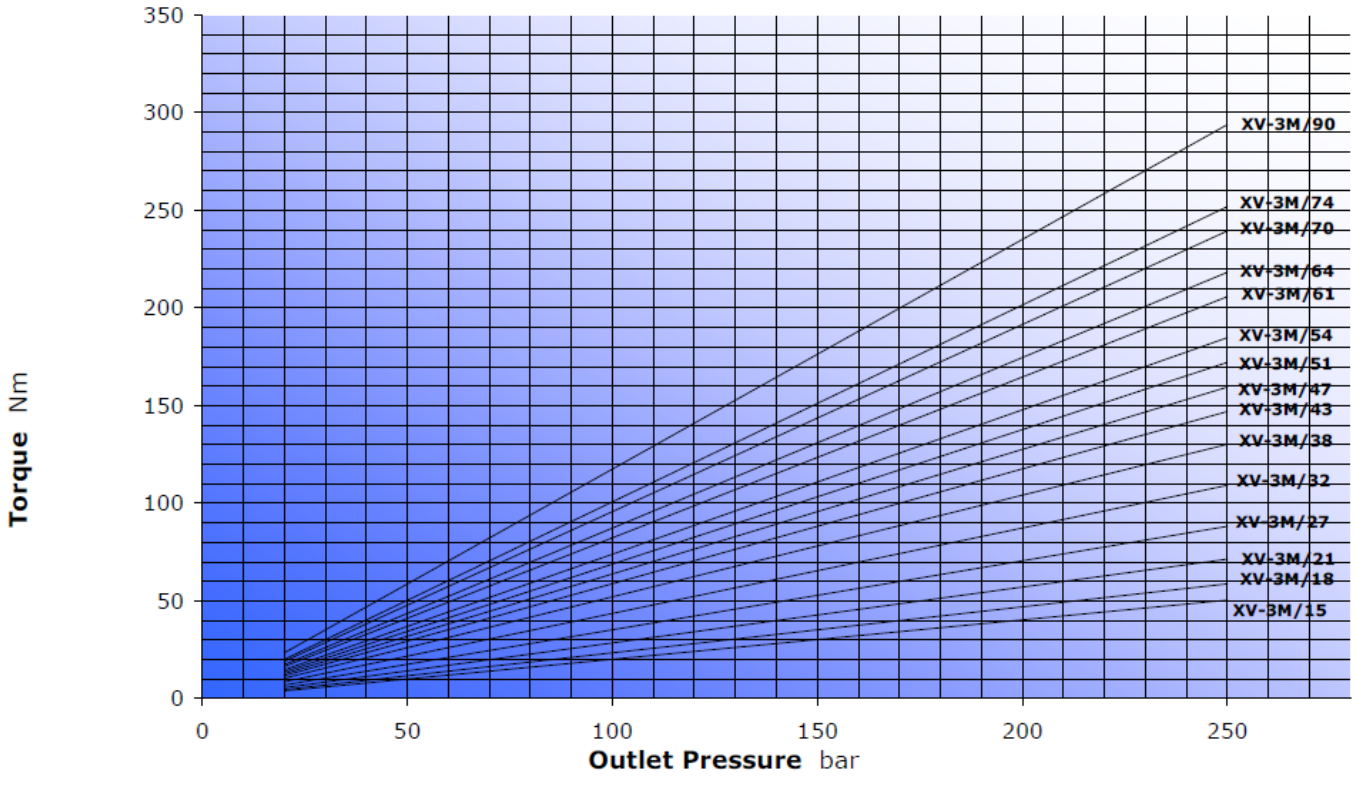
CHARACTERISTIC CURVES

XV-3M

XV-3M CHARACTERISTIC FLOW RATE CURVES



XV-3M MOTOR TORQUE



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reversible motor - series XV

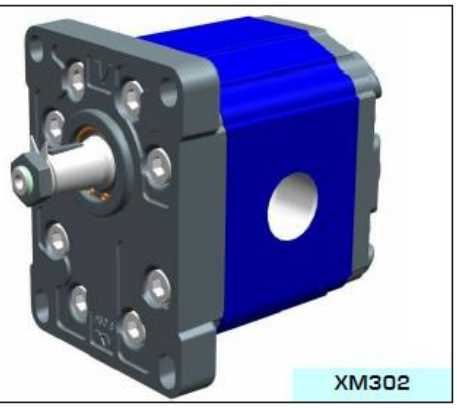
STANDARD EUROPEAN MOTOR
ø50.8 FLANGE - TAPER SHAFT

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XV-3M

X	3	M	78	01	A	E	E	E

Series	X	series XV
Group	3	group 3
Category	M	reversible motor
Displacement	78	38
Flange	01	Ø50.8 reversible rotation
Shaft	A	CO001 - Tapered 1:8 - ø22 - key thk.4
Body IN	E	inlet - 1" BSP
Body OUT	E	outlet - 1" BSP
Cover	E	with external drainage



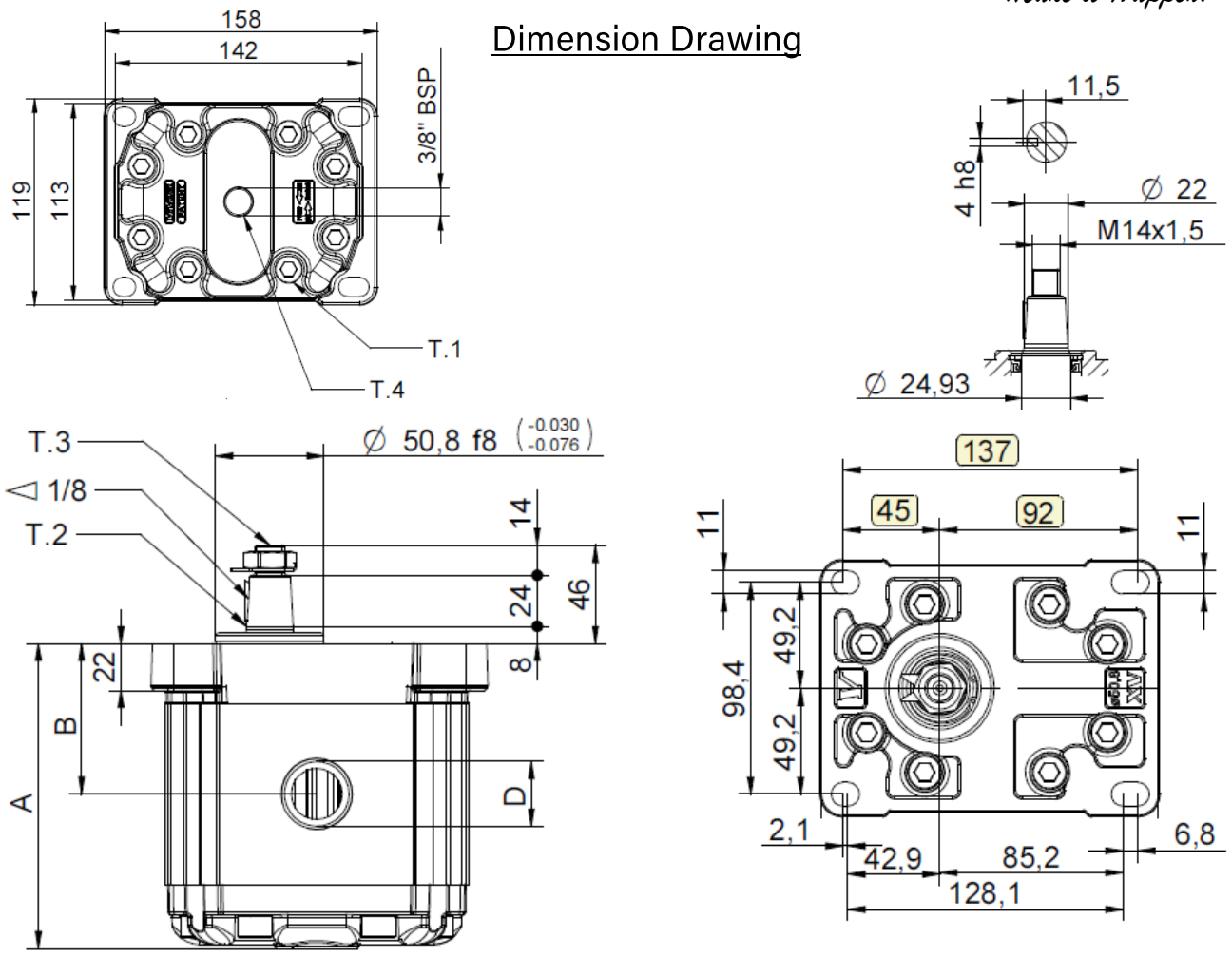
XM302

Technical data table

TYPE	Displacement	Max. Pressure		CODE	
	cm3/rev	P1 bar	P3 bar	External drainage	Internal drainage
XV-3M/21	21,10	250	270	X 3 P 70 01 A D D E	X 3 P 70 02 A D D F
XV-3M/27	26,97	250	270	X 3 P 72 01 A E E E	X 3 P 72 02 A E E F
XV-3M/32	32,27	250	270	X 3 P 74 01 A E E E	X 3 P 74 02 A E E F
XV-3M/38	38,47	250	270	X 3 P 78 01 A E E E	X 3 P 78 02 A E E F
XV-3M/43	43,44	250	270	X 3 P 79 01 A E E E	X 3 P 79 02 A E E F
XV-3M/47	47,16	230	250	X 3 P 80 01 A E E E	X 3 P 80 02 A E E F
XV-3M/51	50,88	230	250	X 3 P 81 01 A E E E	X 3 P 81 02 A E E F
XV-3M/54	54,60	230	250	X 3 P 82 01 A E E E	X 3 P 82 02 A E E F
XV-3M/61	60,81	230	250	X 3 P 83 01 A F F E	X 3 P 83 02 A F F F
XV-3M/64	64,53	210	230	X 3 P 85 01 A F F E	X 3 P 85 02 A F F F
XV-3M/70	70,74	200	220	X 3 P 86 01 A F F E	X 3 P 86 02 A F F F
XV-3M/74	74,46	180	200	X 3 P 87 01 A F F E	X 3 P 87 02 A F F F

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Dimension Drawing



Dimensions table					
TYPE	**Weight**	**A**	**B**	**D**	**D**
	kg	**mm**	**mm**	**IN**	**OUT**
XV-3M/21	7,150	127,0	63,5	3/4" BSPP	3/4" BSPP
XV-3M/27	7,250	131,0	65,5	1" BSPP	1" BSPP
XV-3M/32	7,390	136,0	68,0	1" BSPP	1" BSPP
XV-3M/38	7,520	141,0	70,5	1" BSPP	1" BSPP
XV-3M/43	7,630	145,0	72,5	1" BSPP	1" BSPP
XV-3M/47	7,710	148,0	74,0	1" BSPP	1" BSPP
XV-3M/51	7,790	151,0	75,5	1" BSPP	1" BSPP
XV-3M/54	7,870	154,0	77,0	1" BSPP	1" BSPP
XV-3M/61	8,010	159,0	79,5	1" 1/4 BSPP	1" 1/4 BSPP
XV-3M/64	8,090	162,0	81,0	1" 1/4 BSPP	1" 1/4 BSPP
XV-3M/70	8,220	167,0	83,5	1" 1/4 BSPP	1" 1/4 BSPP
XV-3M/74	8,300	170,0	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).
T.4 = 0.3÷0,5 bar - max. drainage pressure

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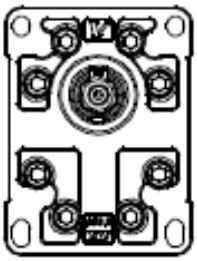
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Table of variations

ø50.8 FLANGE

XV-3M

ø50.8 FLANGE

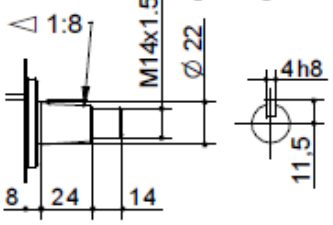


01

Shaft

CO001 - Tapered

T.2 = 482 [Nm]

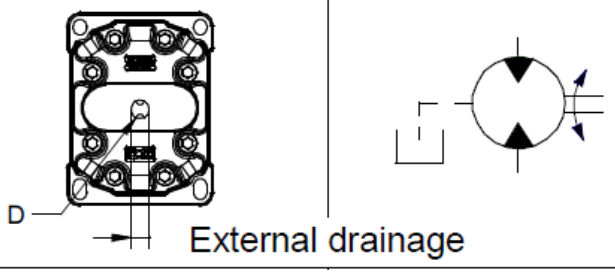


A

Displacement

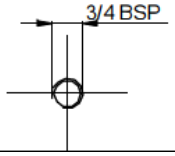
TYPE	CODE
XV-3M/15	**66**
XV-3M/18	**68**
XV-3M/21	**70**
XV-3M/27	**72**
XV-3M/32	**74**
XV-3M/38	**78**
XV-3M/43	**79**
XV-3M/47	**80**
XV-3M/51	**81**
XV-3M/54	**82**
XV-3M/61	**83**
XV-3M/64	**85**
XV-3M/70	**86**
XV-3M/74	**87**
XV-3M/90	**89**

Cover

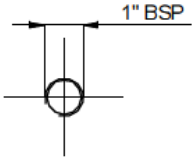


E

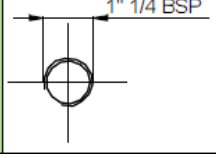
Body (threads/flanges)



D



E



F