

Descriere generala

Pompele cu roti dintate sunt proiectate pentru transformare energiei mecanice in energia fluidului de lucru (presiune si debit). Constructia simpla si preturile relativ mici, face ca pompele cu roti dintate sa aiba o gama foarte larga de utilizare in sistemele hidraulice.

Design de baza

Pompa este compusa in general, dintr-o pereche de roti dintate sustinute de rulment, inserata intr-un corp. Este inchisa de doua capace (fata si spate). Arborele de antrenare este izolat radial. O eficienta volumetrica mare este asigurata prin jocul unui lagar monobloc cu bucsa.

Moduri de antrenare

Pompa poate fi actionata direct sau indirect de catre (roti dintate, lanturi sau transmisii cu curea). Ambele tipuri de transmisii nu trebuie sa actioneze forte axiale sau radiale asupra axului pompei.

Calcul de proiectare

Debit:

$$Q = \frac{q \cdot n \cdot \eta_q}{1000}$$

Momentul teoretic de antrenare :

$$M = \frac{q \cdot p}{20 \cdot \pi}$$

Puterea teoretica de antrenare:

$$P_t = \frac{Q \cdot p}{600}$$

Putere antrenare:

$$P = \frac{P_t}{\eta}$$

Q [l/min]

M [Nm]

P [kW]

q [cm³]

p [bar]

n [min⁻¹]

η [%]

General Description

The gear pumps are designed for transforming the mechanical energy as energy of the working liquid (pressure and flow rate). The simplified construction at relatively low cost allow their use in a wide range of hydraulic systems.

Basic design

The pump consists essentially of a pair of gears supported in bush bearing, inserted in one body. It is closed between two covers (front and rear). The drive shaft is radially sealed. A high volumetric efficiency is ensured by especially designed bush bearing clearance.

Drive arrangements

The pump can be driven directly or indirectly (by gears, chains or belt transmissions). Both drives must not impose axial or radial forces on the pump shaft.

Design Calculations

Flow:

$$Q = \frac{q \cdot n \cdot \eta_q}{1000}$$

Theoretical drive torque:

$$M = \frac{q \cdot p}{20 \cdot \pi}$$

Theoretical drive power:

$$P_t = \frac{Q \cdot p}{600}$$

Drive power:

$$P = \frac{P_t}{\eta}$$

Q [l/min]

M [Nm]

P [kW]

q [cm³]

p [bar]

n [min⁻¹]

η [%]

Descriere si utilizare

Pompele noastre sunt clasificate in patru grupuri dimensionale. Acestea sunt simple, duble sau pompe ireversibile multiple, cu volum geometric constant. Putem oferi si pompe bidirectionale de asemenea..

Viteza maxima a fluidului la admisie trebuie sa fie de maxim 2,5 m/s si in cazul in care toate pompele pot lucra continuu, cu o presiune la admisie intre -0,2 si 0,5 bari si avand o presiune de refulare in concordanta cu specificatiile mentionate in catalog.

La cerere, pompele poti fi echipate cu reglatoare de presiune sau de debit..

Pompele noastre sunt folosite in instalatii hidraulice sau centraline, pentru circuite hidrostatice ale utilajelor agricole, ale masinilor grele, masinilor unelte si altele.

Montarea pompei

Exista o gama larga de variante de constructie, in functie de tipul cuplajelor, flanselor de prindere, flanselor de admisie si refulare, tinand cont de clasificarea din catalog.

Sistemul de cuplare, nu trebuie sa dezvolte forte axiale sau radiale pe marginea axului si trebuie sa transmita momentul de antrenare. Sensul de rotatie al pompei trebuie sa fie in concordanta cu sensul de rotatie al motorului. Dupa ce pompa a fost instalata trebuie sa se verifice daca este cu rotire libera.

Fluidul de lucru

A se folosi numai ulei mineral, care poate mentine caracteristicile de viscozitate. In timpul functionarii, viscozitatea este mai mare de 15 mm²/s. viscozitatea optima este intre 25 si 100 mm²/s. trebuie sa fie sub 250 mm²/s. Pentru o perioada limitata, la start rece, poate fi admisa o viscozitate de 2000 mm²/s.

Filtrare

Filtrarea uleiului hidraulic este de 20 µm cu o concentratie de sub 0,05%. Nu sunt admise particule abrazive.

Temperatura de operare

Pompele sunt proiectate sa functioneze continuu la temperaturi intre -10 si 80 °C.

Rotatie (Vedere pe ax)



A Stanga

C Dreapta

B Bidirectionala

Description and use

Our VP gear pumps are classified in four dimensional groups. These are simple, double or multiple irreversible pumps, with constant geometrical volume. We can offer you bidirectional pumps, too.

The maximum velocity of the fluid to inlet ports has to be 2.5 m/s and in this case all the pumps can work continuously with an inlet pressure between -0.2 and 0.5 bar and the outlet pressure conforming to the catalogue.

Our demand, the pumps can be equipped with pressure or priority flow regulators.

Are used in hydraulic installation or power packs and for the hydrostatic circuits of agricultural machines, heavy-duty machines, machines-tool, others.

Pump mounting

There are a lot of constructive variants depending on the type of couplings, fixing flanges, inlet and outlet flanges, according to the codification at the catalogue.

The coupling system must not impose axial or radial forces on the edge of the shaft and must transmit the driving moment. The pump revolution sense must be in concordance with the motor rotation. After the pump has been installed to the application before starting the motor it has to be verified that it is free Turning.

Working fluid

Only mineral-based oil may be used, that could keep the viscosity characteristics. During working time, the viscosity has to more than 15 mm²/s. The optimum working viscosity is between 25 and 100 mm²/s. It should be less than 250 mm²/s. For a limited time at cold start could be admitted a 2000 mm²/s viscosity.

Filtration

The filtration fineness of the hydraulic oil is 20 µm with an impurity concentration under 0,05%. There are not admitted abrasive particles.

Operating temperature

The pumps are destined for a continuously working conditions between -10 and 80 °C.

Rotation (View on the shaft)



A Left

C Right

B Bidirectional

Pope cu roti dintate

Prezentare generala

VP1, VP11

Capacitate= 0.85 - 7.8 ccm/rot
Presiune Nom. = 100-250 bar
Presiune Max. = 110-270 bar
Viteza min/max = 800/5000 rot/min



Gear Pumps

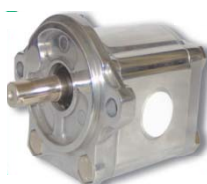
General Presentation

VP

Displacement = 0.85 - 7.8 ccm/rev
Nom. Pressure = 100-250 bar
Max. Pressure = 110-270 bar
Speed min/max = 800/5000 rev/min

VP2 (VPDP, VPTP, VPQP)

Capacitate= 4 - 27.9 ccm/rot
Presiune Nom.= 150-250 bar
Presiune Max. = 160-270 bar
Viteza min/max = 800/3500 rot/min



Displacement = 4 - 27.9 ccm/rev
Nom. Pressure = 150-250 bar
Max. Pressure = 160-270 bar
Speed min/max = 800/3500 rev/min

VP3 (VPDP, VPTP, VPQP)

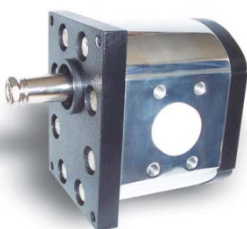
Capacitate= 19.5 - 63 ccm/rot
Presiune Nom.= 140-180 bar
Presiune Max.= 160-200 bar
Viteza min/max = 500/3000 rev/min



Displacement = 19.5 - 63 ccm/rev
Nom. Pressure = 140-180 bar
Max. Pressure = 160-200 bar
Speed min/max = 500/3000 rev/min

VP3 (VPDP, VPTP, VPQP)

Capacitate= 63 - 250 ccm/rev
Presiune Nominala= 100-180 bar
Presiune Maxima= 110-200 bar
Viteza min/max = 500/2500 rev/min



Displacement = 63 - 250 ccm/rev
Nom. Pressure = 100-180 bar
Max. Pressure = 110-200 bar
Speed min/max = 500/2500 rev/min

Va rugam sa luat in considerare:
Valorile presiunilor maxime si
nominale depinde de capacitate

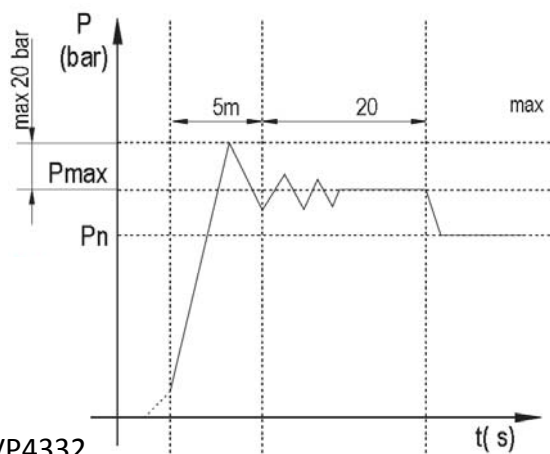
Please notice:

The values of nom. pressure and
max. pressure are depends on the
displacement

VPDP = Pompa dubla (double Pump), e.g. VP22; VP32

VPTP = pompa tripla (triple Pump), e.g. VP322; VP321

VPQP = Pompa cvatripla (quadro Pump), e.g. VP4321; VP4332



Pompa cu Roti Dintate VP1

Pompa dubla cu roti dintate VP11

Gear pump HM1,

Double gear pump HM11

Cod pentru comanda VP1/Order Code VP1



VP

www.visteon.ro

HM1	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fastening Flange	Port Admisie Inlet Port	Port Refulare Outlet Port	Sens rotatie Rotation
-----	---------------------------------	-----------------------------------	-------------------------------------	----------------------------	------------------------------	--------------------------

Cm ³ /rot Ccm/rev
0.85
1
1.2
1.7
2.2
2.6
3.2
3.8
4.3
4.7
6
7.8

Arbore antrenare Driving shaft	
1	Conic 1:8 Plessey
	Conical 1:8 Plessey
2	Conic 1:8 Sauer
	Conical 1:8 Sauer
3	Cilindric ϕ 12 Sauer
	Cylindrical ϕ 12 Sauer
4	Dintat 12x10 (Dinti=15)
	Splined 12x10 (15 teeth)
5	Dintat CEF 12x1
	Splined CEF 12x1
6	Dintat SAE 14T 32/64 Dp
	Splined SAE 14T 32/64 Dp

Port Admisie Inlet Port	
1	4 x M6 / ϕ 30
	4 x M6 / ϕ 30
2	Filetat M20 x 1,5
	Threaded M20 x 1,5
3	Filetat M18 x 1,5
	Threaded M18 x 1,5
4	Filetat M16 x 1,5
	Threaded M16 x 1,5
5	Filetat M14 x 1,5
	Threaded M14 x 1,5
6	Filetat G 3/4 "
	Threaded G 3/4 "
7	Filetat G 1/2 "
	Threaded G 1/2 "
8	Filetat G 3/8 "
	Threaded G 3/8 "
0	Fara **
	Without **

Flansa de prindere Fastening flange	
1	Plessey
	Plessey
2	Sauer
	Sauer
3	Oval SAE AA
	Oval SAE AA

Sens de rotatie Rotation	
A	Stanga
	Left
B	Dreapta
	Right
C	Reversibil
	Bidirectional

Arbore antrenare Driving shaft	
1	4 x M6 / ϕ 30
	4 x M6 / ϕ 30
2	Filetat M20 x 1,5
	Threaded M20 x 1,5
3	Filetat M18 x 1,5
	Threaded M18 x 1,5
4	Filetat M16 x 1,5
	Threaded M16 x 1,5
5	Filetat M14 x 1,5
	Threaded M14 x 1,5
6	Filetat G 3/4 "
	Threaded G 3/4 "
7	Filetat G 1/2 "
	Threaded G 1/2 "
8	Filetat G 3/8 "
	Threaded G 3/8 "
0	Fara **
	Without **

Exemplu:

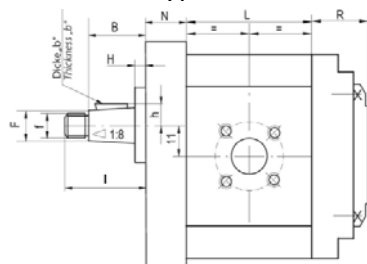
Example:

HM1	1,7	1	1	1	1	A
-----	-----	---	---	---	---	---

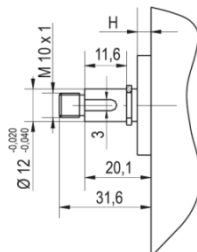
* If the inlet or outlet ports are not on the body of the pump.

Arbore antrenare/ Driving Shaft

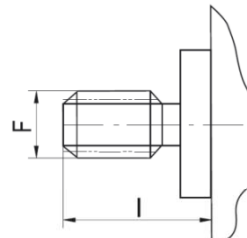
Conic Tip 1,2
Conical Type 1,2



Cilindric Tip 3
Cylindrical Type 3



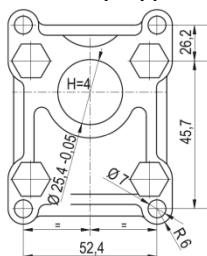
Dintat Tip 4,5,6
Splined Type 4,5,6



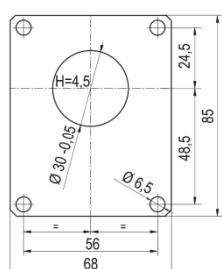
Cod	Arbore antrenare Driving shaft	l [mm]	B [mm]	F [mm]	f [mm]	k [mm]	h [mm]	b [mm]
1	Conic 1:8 Plessey	29	20	Ø 8+0.1	M6	1:8	5,6	2,4
	Conical 1:8 Plessey							
2	Conic 1:8 Sauer	29	19.5	Ø 9-0.1	M8	1:8	6	3
	Conical 1:8 Sauer							
3	Cilindric Ø12 Sauer	-	-	-	-	-	-	-
	Cylindrical Ø12 Sauer							
4	Dintat 12x10 (Z=15)	22	30	11.9	-	-	-	-
	Splined 12x10 (15 teeth)							
5	Dintat CEF 12x1	22	-	11.9	-	-	-	-
	Splined CEF 12x1							
6	Dintat SAE 14T 32/64 Dp	27	-	11.9	-	-	-	-
	Splined CSAE 14T 32/64 Dp							

Flansa de prindere/ Fastening Flange

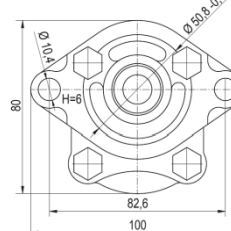
Plessey Tip 1
Plessey Type 1



Sauer Tip 2
Suer Type 2

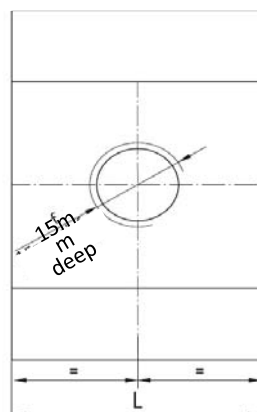
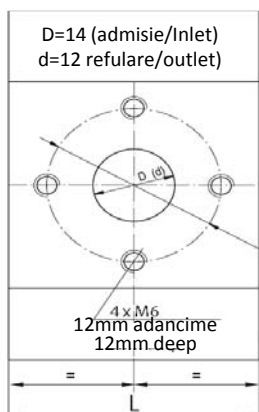
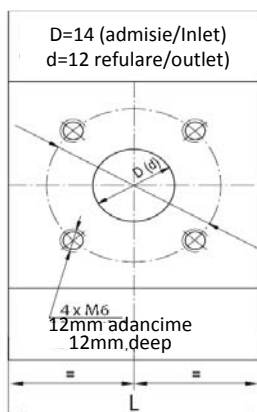


SAE AA – Tip 3
SAE AA – Type 3₃₆



Cod Code	N [mm]	R [mm]	S [mm]
1	18	30	18
2	11	23	15
3	18	30	18

Porturi de admisie si refulare/ Inlet and outlet Ports



Cod Code	f Filet Thread
3	M20x1,5
4	M18x1,5
5	M16x1,5
6	M14x1,5
7	G3/4"
8	G1/2"
9	G3/8"

Date Tehnice/Technical Data

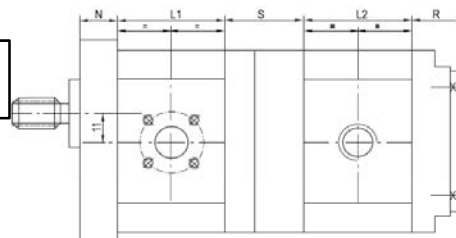
q [cm ³ /ro t)	L L ₁ , L ₂ [mm]	Presiune/Pres sure		Presi ne Admisi e Inlet Pressu re [bar]	η _v N [%]	Viteza [rot/min] Speed [rev/min]			Zgomot max Max noise [dB]	Temp. [°C]	Vascozitat e Viscosity [mm ² /s]	Filtrare Filtration [μm]			
		P _n [bar]	P _{max} [ba r]			n _n	n _{min}	n _{max}							
0,8 5	41,2	250	280	min - 0,3 max 1	80	150 0	1200	450 0	60	-15...+80	12...2000	20			
1	41,7				84										
1,2	42,5				86										
1,7	44,3				88										
2,2	46,2				90		1000	350 0	61						
2,6	47,7				91										
3,2	49,9				92								800	320 0	62
3,8	52,1				93										
4,3	54				94		600	240 0	64						
4,7	55,5				240					260	95				
6	60,3	190	210		97										
7,8	67	140	160		98										

Cod comanda HM11/Order code HM11

HM11	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1
------	---------------------------------	-----------------------------------	-------------------------------------	--------------------------------	----------------------------------

Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2
--------------------------------	----------------------------------

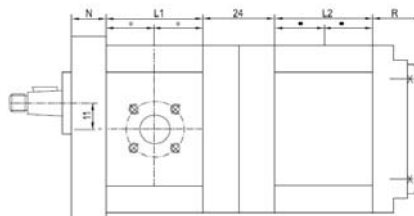
Sens rot
Rotation



Exemplu /Example

HM11	(3,2+1,7)	6	3	1	1	9	9	A
------	-----------	---	---	---	---	---	---	---

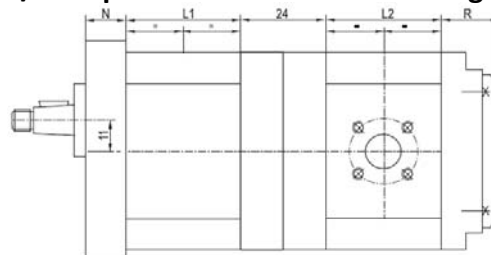
Pompa cu admisie comuna la treapta I/ Pump with common inlet on stage 1



Exemplu /Example

HM11	(3,2+1,7)	6	3	1	1	0	9	A
------	-----------	---	---	---	---	---	---	---

Pompa cu admisie comuna la treapta a II-a/ Pump with common inlet on stage 1



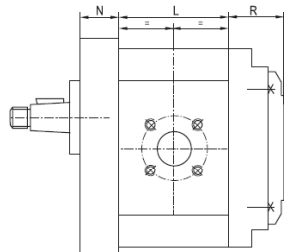
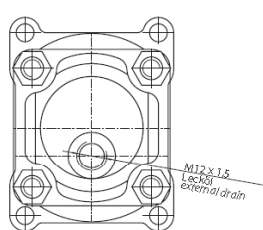
HM11	(2,2+3,2)	1	1	0	1	1	1	A
------	-----------	---	---	---	---	---	---	---

- Port de admisie tip 2 nu este disponibil pentru pompele cu port e admisie comun.
- Portul de admisie comun trebuie sa fie suficient de mare pentru ambele trepte.
- Este recomandat ca portul de admisie comun sa fie pe treapta cu capacitate mai mare.

- Inlet port type 2 is not available for pumps with common inlet port.
- The common inlet port should be large enough for both stages.
- It is recommended that the common inlet port is on the stage with the larger displacement

Cod comanda pompe bidirectionale/Order code bidirectional pumps

HM1	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie Inlet Port	Port Refulare Outlet Port	Sens rot Rotation
-----	---------------------------------	-----------------------------------	-------------------------------------	----------------------------	------------------------------	----------------------



•Pompele bidirectionale pot lucra fie in sensul acelor de ceasornic sau invers. Constructia pompelor este sunilara cu a pompelor normale, dar au doua admisii alternative si o scurgere externa. Din cauza garniturilor similare din interior, presiunea este limitata la 210 bari.

•The bidirectional pumps can work either clockwise or anticlockwise. The construction of the pumps is similar with normal pumps, but they have 2 alternative inlets and an external drain. Because symmetrical internal sealings, nominal pressure is limited at 210 bar.

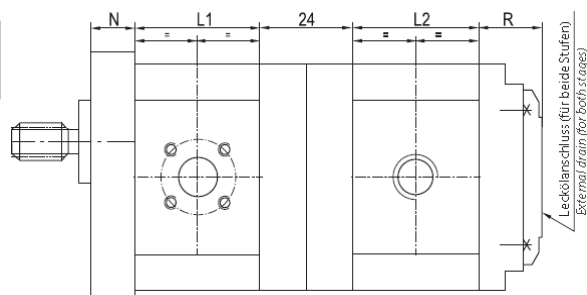
Exemplu /Example

HM1	1,7	1	1	1	1	B
-----	-----	---	---	---	---	---

Cod comanda pompe bidirectionale reversible /Order code bidirectional reversible pumps

HM11	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1
------	---------------------------------	-----------------------------------	-------------------------------------	--------------------------------	----------------------------------

Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2	Sens rot Rotation
--------------------------------	----------------------------------	----------------------



Exemplu /Example

HM11	(3,2+1,7)	6	3	1	1	0	9	B
------	-----------	---	---	---	---	---	---	---

Date Tehnice/Technical Data

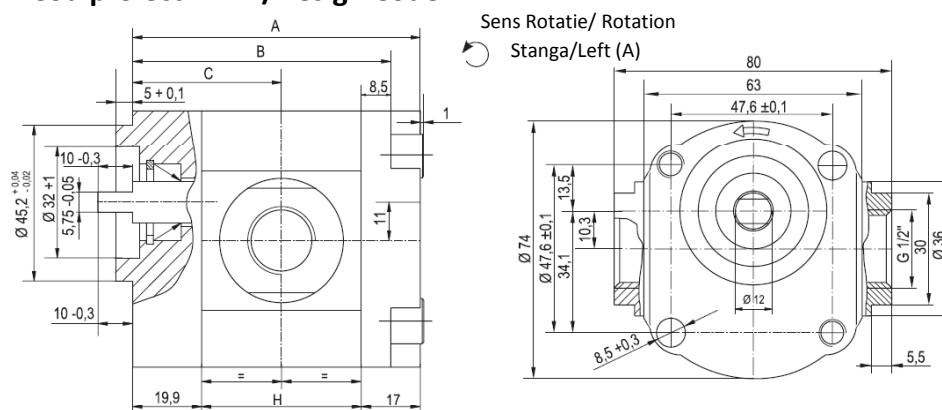
q [cm ³ /rot)	L L ₁ , L ₂ [mm]	Presiune		Presiune Admise [bar]	η _v [%]	Viteza [rot/min]			Zgomot max [dB]	Temp. [°C]	Vascozitate [mm ² /s]	Filtrare [μm]		
		P _n [bar]	P _{max} [bar]			n _n	n _{min}	n _{max}						
0,85	41,2	250	280	min - 0,3 max 1	80	150 0	1200	450 0	60	-15...+80	12...200 0	20		
1	41,7				84									
1,2	42,5				86									
1,7	44,3				88									
2,2	46,2				90		1000	350 0	61					
2,6	47,7				91									
3,2	49,9				92									
3,8	52,1				93									
4,3	54				94		700	280 0	63	Recomandat Recommended 0...+60	Recomandat Recommended 25...200			
4,7	55,5	240	260		95									
6	60,3	190	210		97	600	200 0	64						
7,8	67	140	160		98		400 0							

Pompe cu rotă dintată | Gear Pumps 8

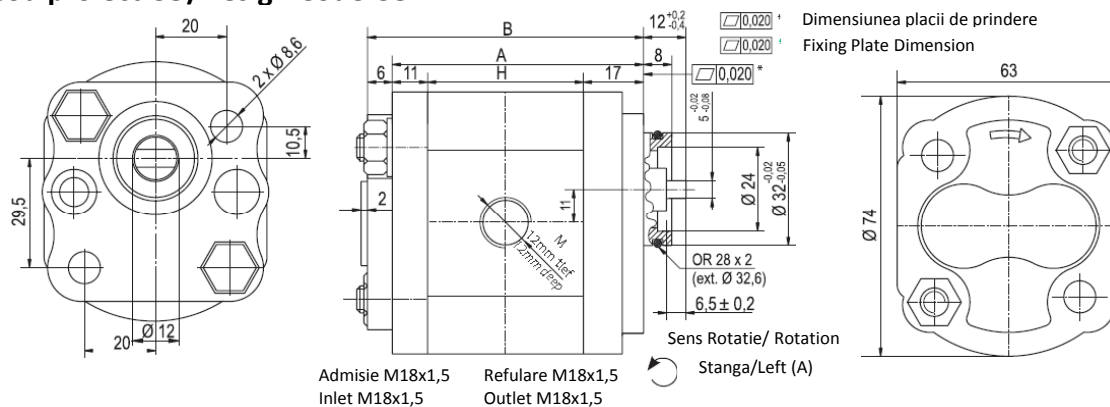
Cod comanda pompe aditionale/Order code add-on pumps

HM1	Cod Proiectare Design Code	Cm^3/rot Ccm/rev	Sens rot Rotation
-----	-------------------------------	---	----------------------

Cod proiect HFW /Design Code HFW



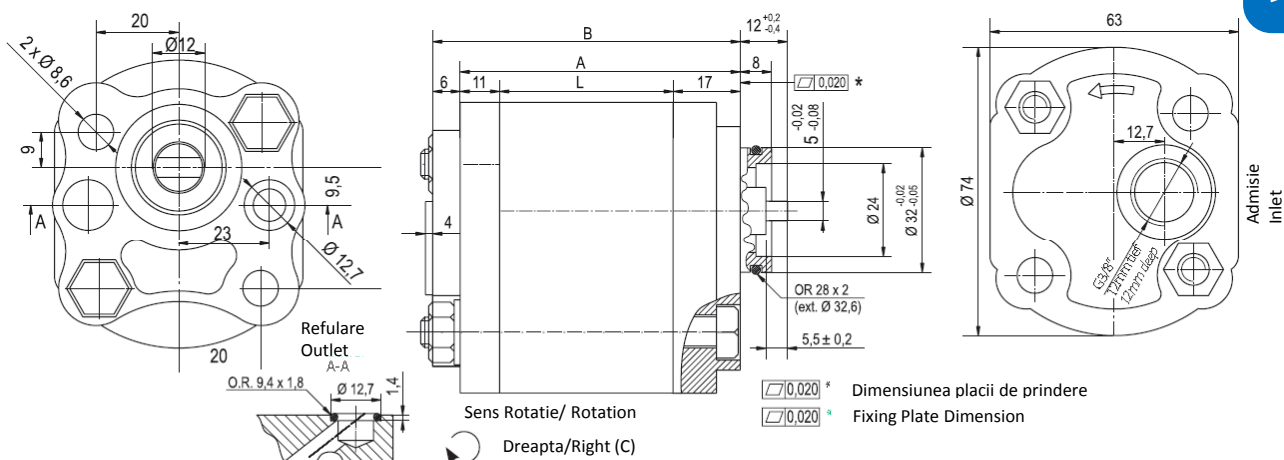
Cod proiect CO/Design Code CO



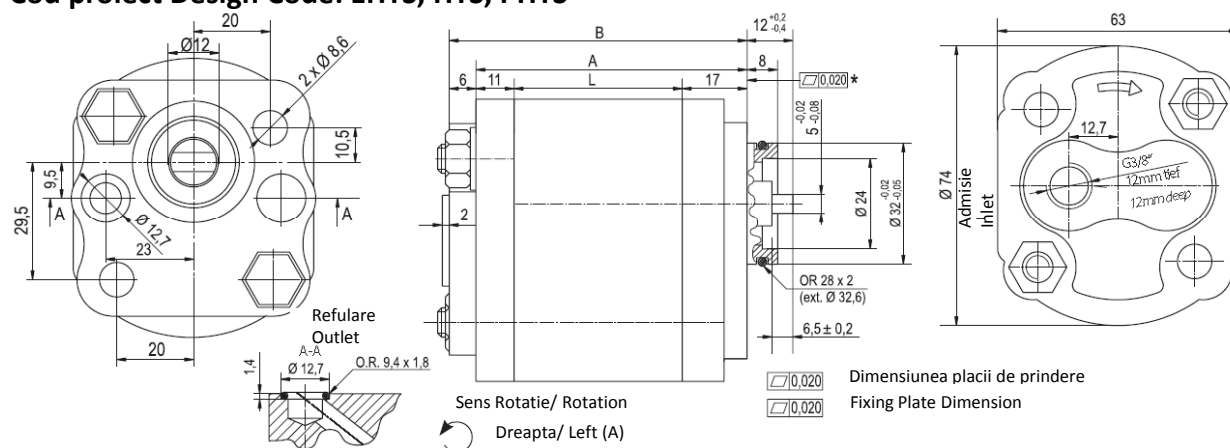
Date Tehnice/Technical Data

q [cm³/rot)	A [mm]	B [mm]	C [mm]	H [mm]	Presiune		η _{VN} [%]
					P _n [bar]	P _{max} [bar]	
0,85	78,1	69,6	40,5	41,2	210	240	80
1	78,6	70,1	40,8	41,7			82
1,2	79,4	70,9	41,1	42,5			84
1,7	81,2	72,7	42,0	44,3			86
2,2	83,1	74,6	43,0	46,2			87
2,6	84,6	76,1	43,8	47,7			88
3,2	86,8	78,3	44,9	49,9			89
3,8	89,0	80,5	46,0	52,1			91
4,3	90,9	82,4	46,9	54,0			92
5	93,5	85,0	48,2	56,6			93

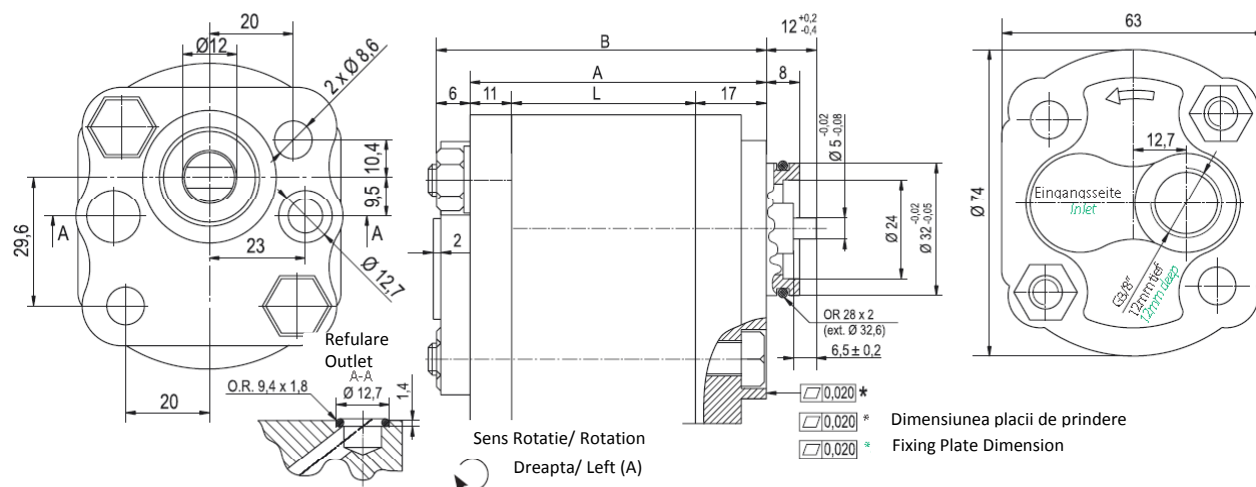
Cod proiect Design Code: EHTY, HTY, PHTY



Cod proiect Design Code: EHTS, HTS, PHTS



Cod proiect Design Code: EHTCK, HTCK, PHTCK



Pompa cu Roti Dintate VP2

Pompa dubla cu roti dintate VP22

Gear pump VP2, Double gear pump VP2

Cod pentru comanda VP2/Order Code VP2



VP

VP2	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie Inlet Port	Port Refulare Outlet Port
-----	---------------------------------	-----------------------------------	-------------------------------------	----------------------------	------------------------------

Cm ³ /rot Ccm/rev
4
4,5
5,5
6,3
8,2
11,3
14
15
16
19
22,5
25
27,9

Arbore antrenare
1
C
D
2
3
5
6
L
E
T
O
B
F
G

Port Admisie Inlet Port
3, 4, 8, D, E, M
V, W
25, A, B
1, 9, F, G, H, J, T
7, K, N, P, Q, R
6, C, S, U, Y
0

Port Admisie Inlet Port
1
2
3
4
4e
5
5e
6
6e
7
8
8e
9

Sens rotatie Rotation
A
B
C

Port Admisie Inlet Port
3, 4, 8, D, E, M
V, W
25, A, B
1, 9, F, G, H, J, T
7, K, N, P, Q, R
6, C, S, U, Y
0

Sens de rotatie Rotation
A
B
C

Exemplu: HM2 11,3 3 3 1 1 A

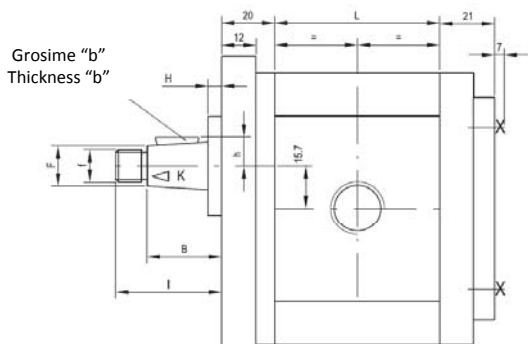
Example: HM2 11,3 3 3 1 1 A

** Daca porturile de admisie sau refulare nu sunt pe corpul pompei.

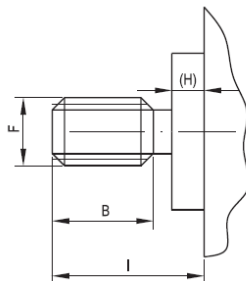
** If the inlet or outlet ports are not on the body of the pump.

Arbore antrenare/ Driving Shaft

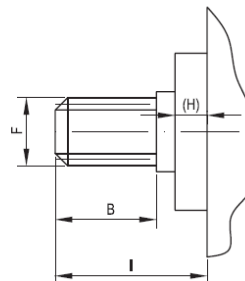
Conic Tip 1, 2, 3, C



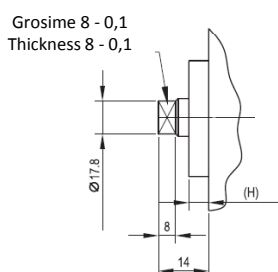
Dintat Tip 5, 6
Splined Type 5, 6



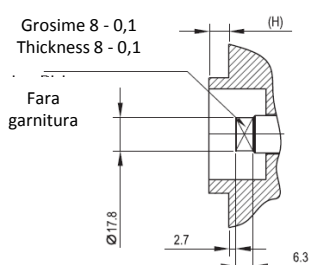
Dintat Tip L
Splined Type L



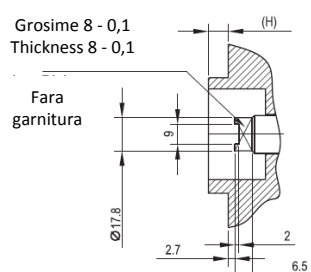
Conic Tip F
Conical Type F



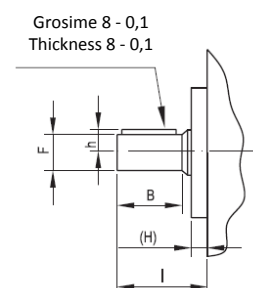
Conic Tip B
Conical Type B



Conic Tip G
Conical Type G



Cilindric – Tip 0, E, T
Cylindrical – Type 0, E, T



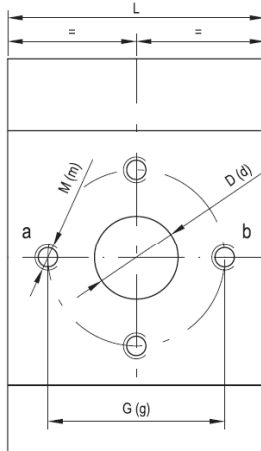
Cod	Arbore antrenare Driving shaft	l [mm]	B [mm]	F [mm]	f [mm]	k [mm]	h [mm]	b [mm]	M _{max} [Nm]
1	Conic 1:5 BOSCH	38,0	24,8	13,6	M12x1,25	1:5	9,2	3,0	150
C	Conic 1:5 mare	40,0	26,6	14,0	M12x1,25	1:5	9,6	3,0	160
D	Conic 1:5 BOSCH (2)	40,5	27,3	13,6	M12x1,25	1:5	9,5	3,0	150
2	Conic 1:8 mic	39,0	30,0	14,0	M12x1,25	1:8	9,4	3,2	170
3	Conic 1:8 european	39,0	27,4	14,8	M12x1,25	1:8	9,4	3,2	180
5	Dintat B17 x 14 DIN 5482	26,0	14,0	16,5	-	-	-	-	75
6	Dintat SAE 16T 24/48 Dp	26,0	14,0	17,9	-	-	-	-	80
L	Dintat SAE 9T 16/32 Dp	32,0	24,0	15,5	-	-	-	-	70
E	Cilindric Ø15,875	43,0	37,0	17,45 0/-0,02	-	-	11,1	4,76	70
T	Cilindric Ø15,875 (scurt)	44,5	36,5	15,87 0/-0,02	-	-	9,7	3,96	65
0	Cilindric Ø17,45	32,0	25,4	15,87 0/-0,02	-	-	9,7	3,96	50
D	Deutz (scurt)	-	-	-	-	-	-	-	65
F	Deutz (lung)	-	-	-	-	-	-	-	65
G	Deutz cu prelucrare	-	-	-	-	-	-	-	65

La alegerea tipului de arbore, este necesar sa se stie momentul maxim al pompei. In special pentru pompele in mai multe trepte, este important sa se stie ca momentul intre treapta I si a II-a poate fi maxim 65 Nm.

For choosing a shaft type, it is necessary to know the maximum torque of the pump. Especially for multistage pumps, it is important to know that the torque between the first and the second stage can be maximal 65 Nm.

Porturi de admisie si refulare/ Inlet and outlet ports

Tip 3, 8 M, 4

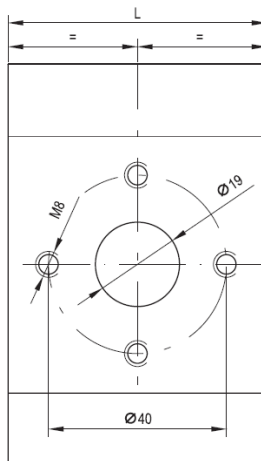


q cm³/U ccm/rev	L [mm]	Eingang Inlet [mm]			Ausgang Outlet [mm]			Eingang Inlet [mm]			Ausgang Outlet [mm]			Eingang Inlet [mm]			Ausgang Outlet [mm]			Eingang Inlet [mm]			Ausgang Outlet [mm]		
		D	G	M	d	g	m	D	G	M	d	g	m	D	G	M	d	g	m	D	G	M	d	g	m
4	44,7																								
4,5	45,6																								
5,5	47,2	13,1	30,2	M6	13,1	30,2	M6	13,0	30,2	M6				13,0	30,0	M6				15,0	30,2	M6			
6,3	48,6																								
8,2	51,7																								
11,3	56,8																								
14	61,3	19,0	39,7	M8	14,2	30,2	M6	19,0	39,7	M8				13,0	30,2	M6							15,0	30,2	M6
15	63,0																								
16	64,7																								
19	69,7																								
22,5	75,1	22,0	39,7	M8	16,0	39,7	M8	22,0	39,7	M8				19,0	40,0	M8				20,0	39,7	M8			
25	79,2																								
27,9	84,0																								
		Typ 3 Type 3						Typ 8 Type 8						Typ M Type M						Typ 4 Type 4					

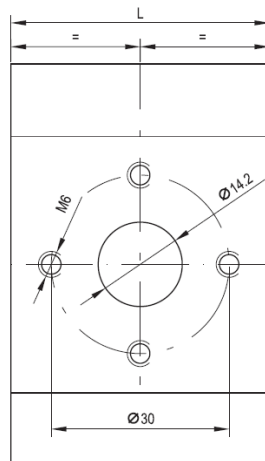
- Tipurile 3, 8, M si 4 sunt folosite pentru pompe standard.
- Tipurile D si E sunt folosite pentru pompele biudirectionale

- Type 3, 8, M and 4 are used for standard pumps.
- Type D and E are used for bidirectional pumps.

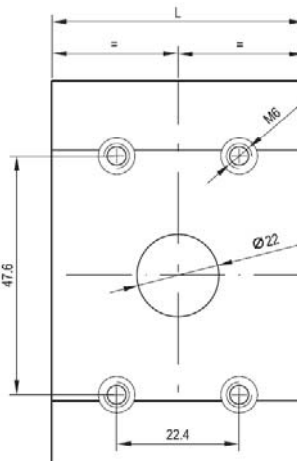
Tip D



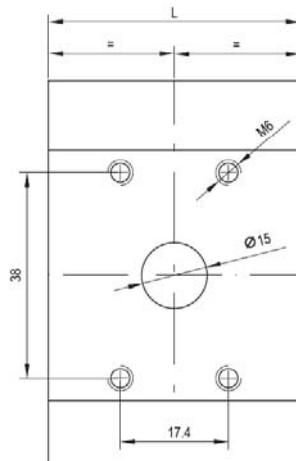
Tip E



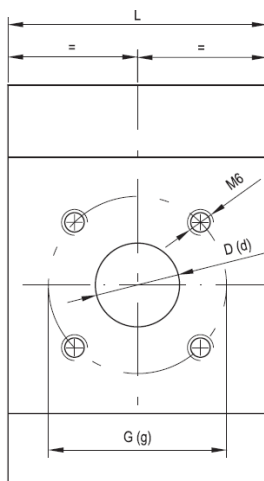
Tip V



Tip W



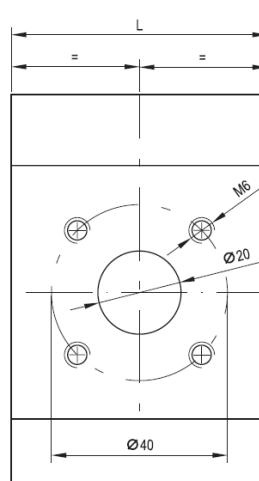
Tip 2



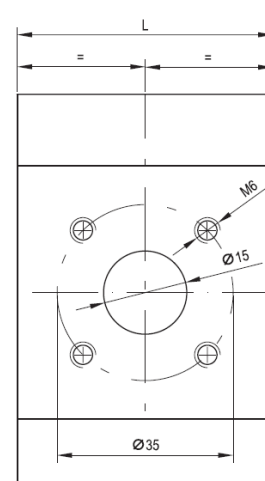
q cm ³ /U ccm/rev	L [mm]	Eingang Inlet [mm]		Ausgang Outlet [mm]	
		D	G	d	g
4	44,7				
4,5	45,6				
5,5	47,2	15,0		12,0	
6,3	48,6				
8,2	51,7				
11,3	56,8				
14	61,3				
15	63,0				
16	64,7				
19	69,7				
22,5	75,1				
25	79,2				
27,9	84,0				
		40,0		35,0	
		20,0		15,0	

- Tipul 2 este folosit pentru pompe standard
- Tipul A si B sunt folosite pentru pompe bidirectionale

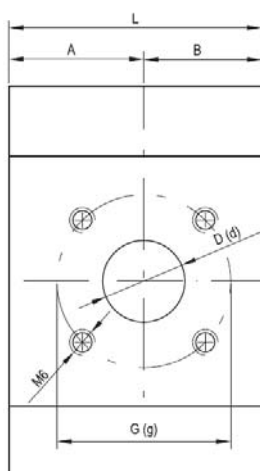
Tip A



Tip B



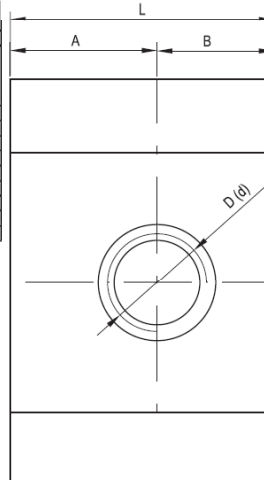
Tip 5



q cm³/U ccm/rev	L	[mm]		[mm]		A	B		
	[mm]	D	G	d	g	[mm]	[mm]		
4	44,7	15,0	40,0	12,0	35,0	24,7	20,0		
4,5	45,6					25,6			
5,5	47,2					27,2			
6,3	48,6					28,6			
8,2	51,7					30,1			
11,3	56,8	20,0		15,0				21,6	34,5
14	61,3							22,3	
15	63,0							26,8	
16	64,7							30,2	
19	69,7							35,2	
22,5	75,1	25	40,0		12,0	35,0		33,1	42,0
25	79,2							37,2	
27,9	84,0							42,0	
		Bearing Inlet			Ausgang Outlet				

- Dimensiunea „A” este pe partea flanse de prindere
- Dimension „A” is to the fastening flange side.

Tip C

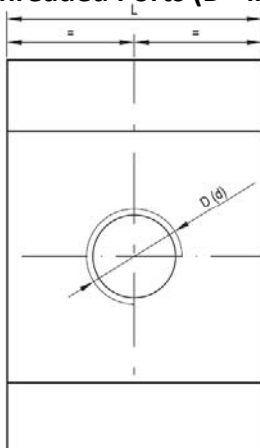


q cm³/U ccm/rev	L [mm]	D [mm]	d [mm]	A [mm]	B [mm]
4	44,7	1 1/16" - 12 UNF	7/8" - 14 UNF	36,1	39,0
4,5	45,6				
5,5	47,2				
6,3	48,6				
8,2	51,7				
11,3	56,8	1 1/16" - 12 UNF	7/8" - 14 UNF	36,1	39,0
14	61,3				
15	63,0				
16	64,7				
19	69,7				
22,5	75,1	1 1/16" - 12 UNF	7/8" - 14 UNF	36,1	39,0
25	79,2				
27,9	84,0				

- Dimensiunea „A” este pe partea flanse de prindere
- Dimension „A” is to the fastening flange side.

Porturi Filetate (D = port admisie / d= port refulare

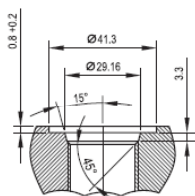
Threaded Ports (D= inlet port / d = outlet port



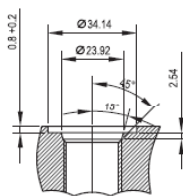
q cm³/U ccm/rev	L [mm]	Typ 1 Type 1	Typ 9 Type 9	Typ H Type H	Typ F Type F	Typ G Type G	Typ J Type J	Typ T Type T
4	44,7	D	d	D	d	D	d	D
4,5	45,6	G1/2"	G3/4"	G1/2"	G3/4"	G1/2"	G3/8"	R1/2"
5,5	47,2							
6,3	48,6							
8,2	51,7							
11,3	56,8							
14	61,3	G3/4"	G1"	G3/4"	G1/2"	G3/4"	G3/8"	R3/4"
15	63,0							
16	64,7							
19	69,7	G1"	G3/4"	G1/2"	G3/4"	G1/2"	G3/8"	R1/2"
22,5	75,1							
25	79,2							
27,9	84,0							

q cm³/U ccm/rev	L [mm]	Typ 7 Type 7	Typ P Type P	Typ K Type K	Typ N Type N	Typ Q Type Q	Typ R Type R	Typ 6 Type 6	Typ S Type S	Typ U Type U	Typ Y Type Y
4	44,7	D	d	D	d	D	d	D	d	D	d
4,5	45,6	M20x1,5	M16x1,5	M20x1,5	M20x1,5	M18x1,5	M16x1,5	1 1/16" - 12 UNF	1 1/16" - 12 UNF	7/8" - 14 UNF	9/16" - 18 UNF
5,5	47,2										
6,3	48,6										
8,2	51,7										
11,3	56,8										
14	61,3	M22x1,5	M20x1,5	M27x1,5	M22x1,5	M18x1,5	M16x1,5	1 1/16" - 12 UNF	1 1/16" - 12 UNF	7/8" - 14 UNF	9/16" - 18 UNF
15	63,0										
16	64,7										
19	69,7	M22x1,5	M20x1,5	M27x1,5	M22x1,5	M18x1,5	M16x1,5	1 1/16" - 12 UNF	1 1/16" - 12 UNF	7/8" - 14 UNF	9/16" - 18 UNF
22,5	75,1										
25	79,2										
27,9	84,0										

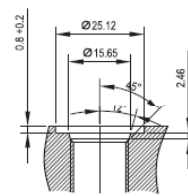
1 1/16" - 12 UNF



7/8" - 14 UNF



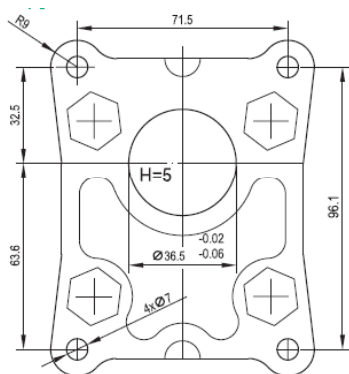
9/16" - 18 UNF



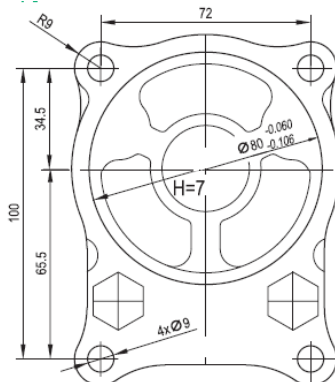
Flanse de prindere

VP

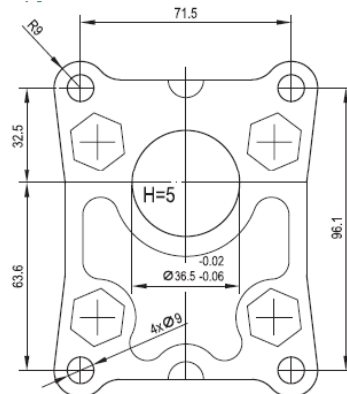
Tip 1



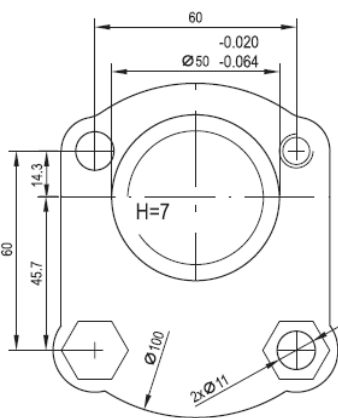
Tip 2



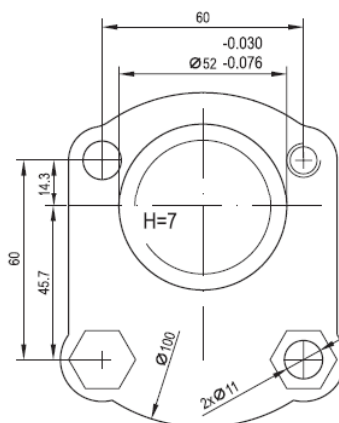
Tip 3



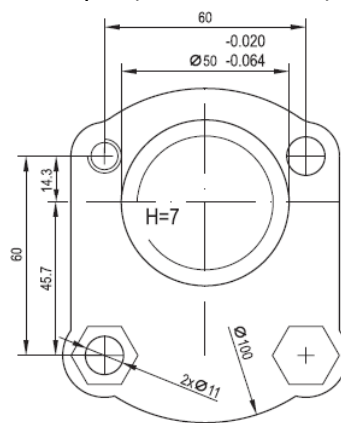
Tip 4 (4e cu inel "O")



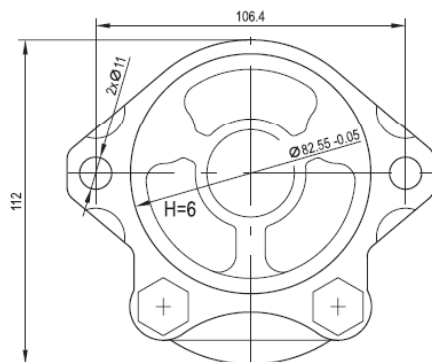
Tip 5 (5e Cu Inel "O")



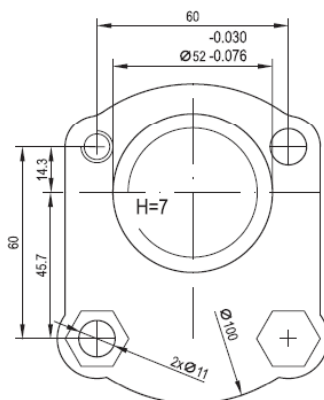
Tip 6 (6e Cu Inel "O")



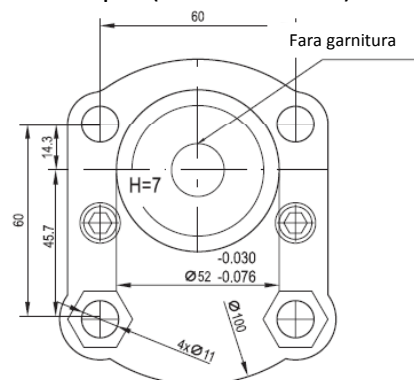
Tip 7



Tip 8 (8e Cu Inel "O")

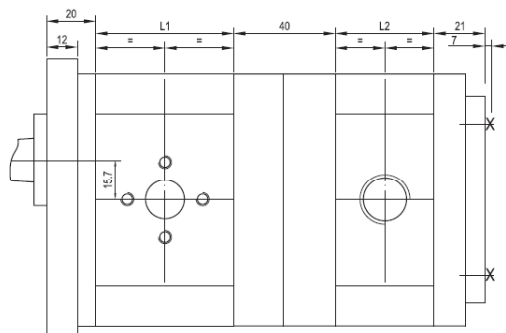


Tip 9 (9e Cu Inel "O")



Cod comanda HM11/Order code HM11

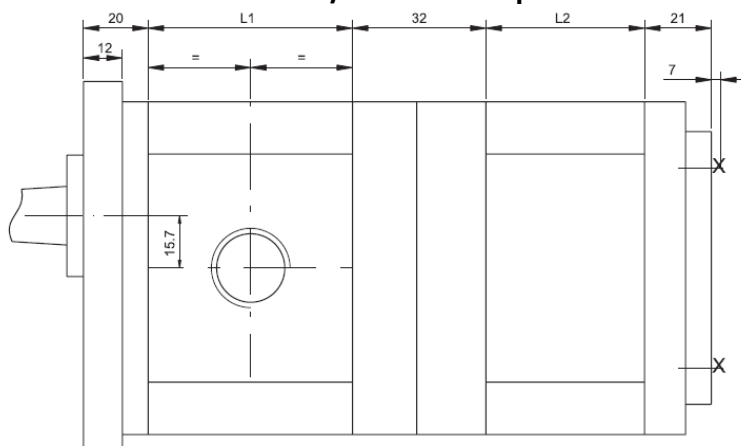
HM22	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1
Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2	Sens rot Rotation			



Exemplu /Example

HM22	(16+6,3)	3	3	3	3	1	1	C
------	----------	---	---	---	---	---	---	---

Pompa Dubla cu admisie comuna/ Double Pump with common inlet



Exemplu (cu admisie comuna in treapta I) /Example (with common inlet on 1st stage)

HM22	(16+6,3)	3	3	1	1	0	1	C
------	----------	---	---	---	---	---	---	---

Exemplu (cu admisie comuna in treapta I) /Example (with common inlet on 1st stage)

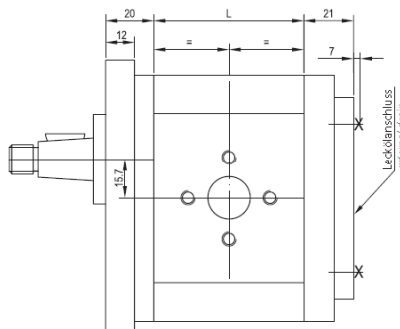
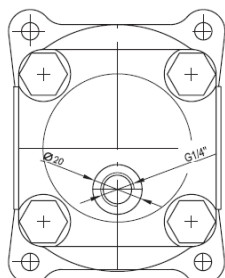
HM22	(11,3+16)	3	3	0	1	1	1	C
------	-----------	---	---	---	---	---	---	---

- Port de admisie tip 2 nu este disponibil pentru pompele cu port e admisie comun.
- Portul de admisie comun trebuie sa fie suficient de mare pentru ambele trepte.
- Este recomandat ca portul de admisie comun sa fie pe treapta cu capacitate mai mare.

- Inlet port type 2 is not available for pumps with common inlet port.
- The common inlet port should be large enough for both stages.
- It is recommended that the common inlet port is on the stage with the larger displacement

Cod comanda pompe bidirectionale/Order code bidirectional pumps

HM1	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie Inlet Port	Port Refulare Outlet Port	Sens rot Rotation
-----	---------------------------------	-----------------------------------	-------------------------------------	----------------------------	------------------------------	----------------------



•Pompele bidirectionale pot lucra fie in sensul acelor de ceasornic sau invers. Constructia pompelor este sunilara cu a pompelor normale, dar au doua admisii alternative si o scurgere externa. Din cauza garniturilor similare din interior, presiunea este limitata la 210 bari.

•The bidirectional pumps can work either clockwise or anticlockwise. The construction of the pumps is similar with normal pumps, but they have 2 alternative inlets and an external drain. Because symmetrical internal sealings, nominal pressure is limited at 210 bar.

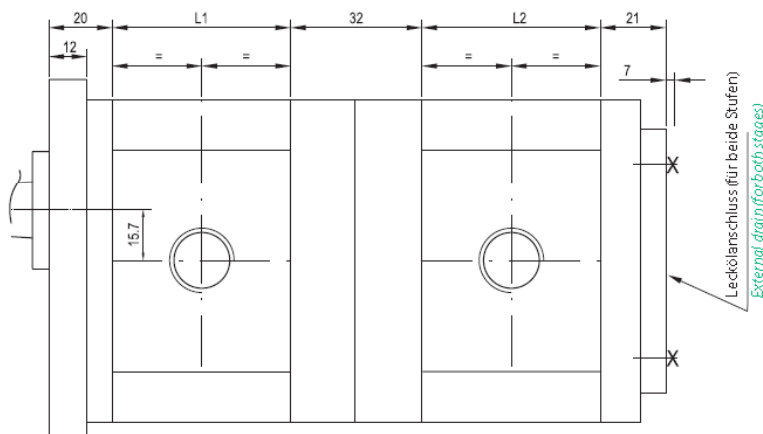
Exemplu /Example

HM2	11,3	3	3	3	3	B
-----	------	---	---	---	---	---

Cod comanda pompe bidirectionale reversible /Order code bidirectional reversible pumps

HM11	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1
------	---------------------------------	-----------------------------------	-------------------------------------	--------------------------------	----------------------------------

Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2	Sens rot Rotation
--------------------------------	----------------------------------	----------------------



Exemplu /Example

HM22	(16+6,3)	3	3	1	1	2	2	B
------	----------	---	---	---	---	---	---	---

Din cauza drenajului exterior comun pompele nu au garnituri intre trepte. Este posibil sa se produca la comanda pompe cu drenaj pe fiecare pompa si cu garnitura intermediara.

Because of the common external drain, the pumps have no sealing between stages.

It is possible to produce pumps with drain on every stage and intermediate sealing on request.

Cod comanda pentru accesorii /Order code accessories (attached to the pump code)

Supapa de debit si presiune Flow and pressure control valve

710/ P/Q

Supapa presiune de deschidere/ reglare debit

Valve opening pressure / Regulated flow

Exemplu /Example

HM2-11,3-3344-C-710/125/7

Valva reglabila (cu retur intern) Adjustable Valve (internal return)

760/ P

Supapa presiune de deschidere
Valve opening pressure

Exemplu /Example

HM2-11,3-3344-C-760/150

Date Tehnice/Technical Data

q [cm ³ /rot]	L L ₁ , L ₂ [mm]	Presiune		Presiun e Admisie [bar]	η _{VN} [%]	Viteza [rot/min]			Zgo mot max [dB]	Temp. [°C]	Vascozitate [mm ² /s]	Filtrare [μm]
		p _n [bar]	p _{max} [bar]			n _n	n _{min}	n _{max}				
4,0	44,7	250	280	min -0,3 max 1,5	88	1500	1000	4500	60	-15...+80	12...2000	20
4,5	45,6				89		900	4000	61			
5,5	47,2				90							
6,3	48,6				91		800	3500	62			
8,2	51,7				92							
11,3	56,8				93		600	3000	63			
14,0	61,3				93,6							
15,0	63,0				94		500	2500	64			
16,0	64,7	235	250		94,5							
19,0	69,7	200	220		95							
22,5	75,1	160	180		95,5							
25,0	79,2	150	170		96							
27,9	84,0	140	160		97							

Va rugam sa luati in considerare:

- P_n: presiunea nominala
- P_{max}: presiunea maxima la care pompele pot functiona intermitent (20 secunde); presiunea medie trebuie sa fie mai mica decat P_n.
- Varfurile de presiune in comutatie pot fi cu 20 de bari mai mari decat P_{max}.
- Eficienta volumetrica η_{VN} este garantata la conditii nominale si o vascozitate de 30 ... 40 mm²/s.
- Datele mentionate mai sus sunt valabile si pentru pompe duble (pentru fiecare treapta separat)
- Functionarea la viteza crescuta, fara cavitatie este posibila numai cu o dimensionare corecta a portului de admisie.
- Presiunea absoluta de admisie nu ar trebui sa fie mai scazuta de 0,7 bari.
- Pentru viteze mai mari de 1500 rot/min. Presiunea maxima trebuie sa fie mai scazuta decat rezultatul urmatoarei formule :

()

La cerere puteti comanda:

- PRD dubla HM21 cu HM1 (q = 0.85 ... 7.8 ccm/rot)
- Pompe cu accesorii :
 1. Supapa cu drenaj exterior.
 2. Supapa cu drenaj intern
 3. Supapa de debit cu retur extern

Please notice:

- P_n: nominal pressure
- P_{max}: maximum pressure at which the pumps can work intermittently (max. 20 s); average pressure should be lower than P_n.
- Pressure peaks in commutation can be 20 bar higher than P_{max}.
- Volumetric efficiency η_{VN} is guaranteed in nominal conditions and viscosity of 30 ... 40 mm²/s.
- The data's mentioned above are valid for double pumps as well (for every stage separately).
- Functioning at high speed, without cavitation is only possible with a sufficient inlet port size.
- The inlet pressure should not decrease under 0.7 bar absolute.
- For relevation speeds more than 1500 rev/min. max. pressure has to be lower than the result of the following formula:

On request you can order:

- Double gear pumps HM21 with HM1 (q = 0.85 ... 7.8 ccm/rev.
- Pumps with accessories:
 1. valve with external drain
 2. valve with internal drain
 3. flow control valve with external return

Pompa cu Roti Dintate VP3

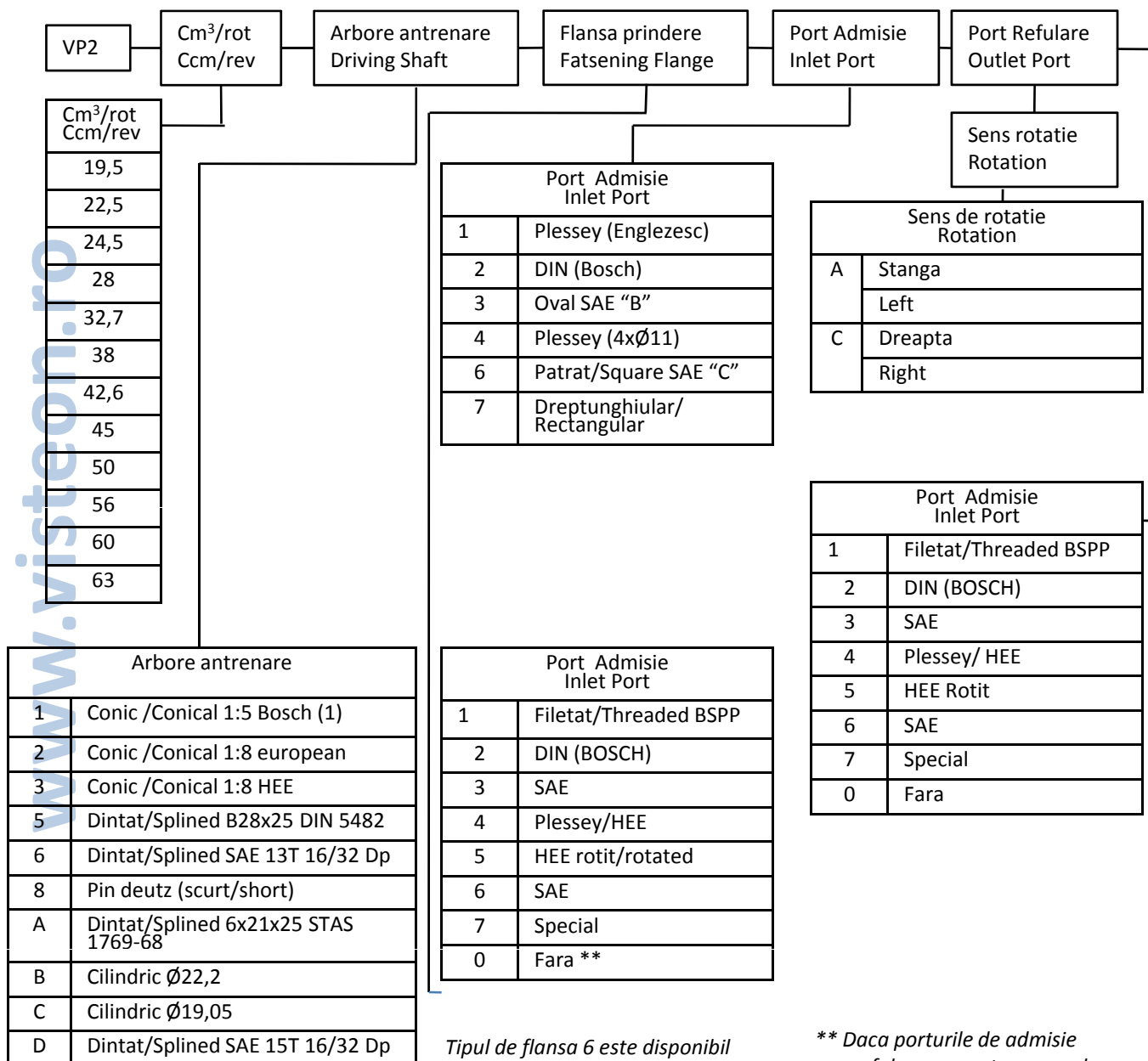
Pompa dubla cu roti dintate VP33

Gear pump VP3, Double gear pump VP3

Cod pentru comanda VP3/Order Code VP33



VP



Tipul de flansa 6 este disponibil numai pentru pompele tip HMR3

Flange type 6 is only available for pump type HMR3

** Daca porturile de admisie sau refulare nu sunt pe corpul pompei.

** If the inlet or outlet ports are not on the body of the pump.

Exemplu: HM3 32,7 2 1 14 4 A

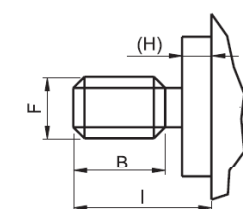
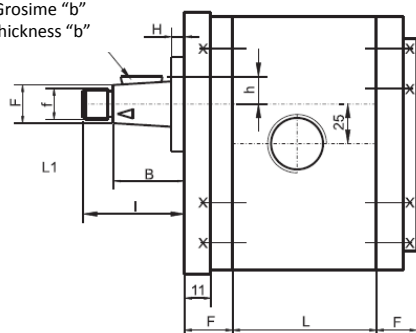
Arbore antrenare/ Driving Shaft

Conic Tip 1, 2, 3,
Conical Type 1, 2, 3,

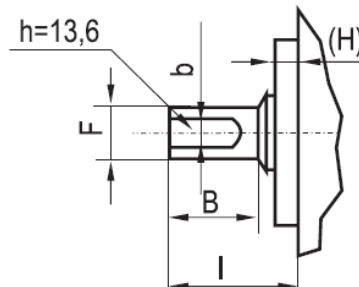
Dintat Tip 5, 6, A, D
Splined Type 5, 6, A, D

Cilindric Tip B,C
Cylindrical Type B,C

Grosime "b"
Thickness "b"

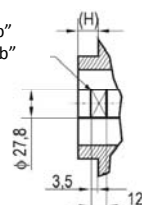


F=26mm pentru tipul de flansa 1,2,3;
F= 19 mm pentru tipul de flansa 2'



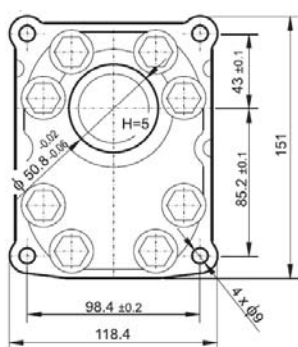
Pin tip 8
Pin Typ 8

Grosime "b"
Thickness "b"

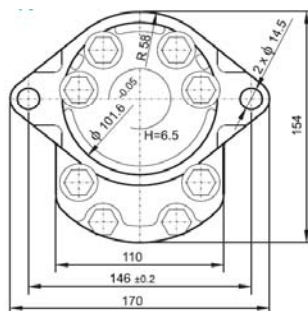


Cod	Arbore antrenare Driving shaft	l [mm]	B [mm]	F [mm]	f [mm]	k [mm]	h [mm]	b [mm]	M _{max} [Nm]
1	Conic 1:5 BOSCH	48,0	36,0	20,0	M16x1,5	1:5	13,6	5,0	540
2	Conic 1:8 european	47,0	32,5	19,0	M14x1,5	1:8	12,2	4,0	420
3	Conic 1:8 (HEE)	47,0	21,3	20,3	M14x1,5	1:8	12,2	4,0	420
5	Dintat B28 x 25 DIN 5482	40,0	-	27,6	-	-	-	-	370
6	Dintat SAE 13T 16/32 Dp	41,2	30,0	21,8	-	-	-	-	250
A	Dintat 6x21x25 STAS 1769-68	49,0	36,0	25,0	-	-	-	-	300
B	Cilindric Ø22,2	41,0	34,0	22,2 +/-0,01	-	-	13,6	6,35	250
C	Cilindric Ø19,05	39,7	30,2	19,05 -0,01	-	-	11,6	4,75	200
D	Dintat SAE 15T 16/32 Dp	42,2	30,0	24,4	-	-	-	-	300

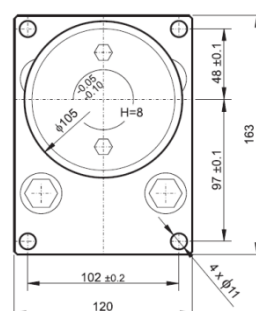
Tip/Type 1



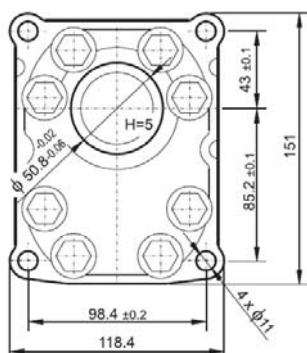
Tip/Type 3



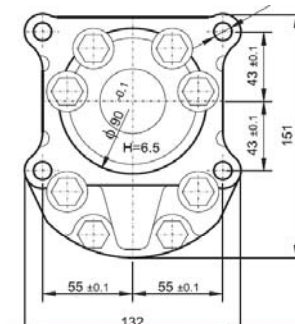
Tip/Type 2

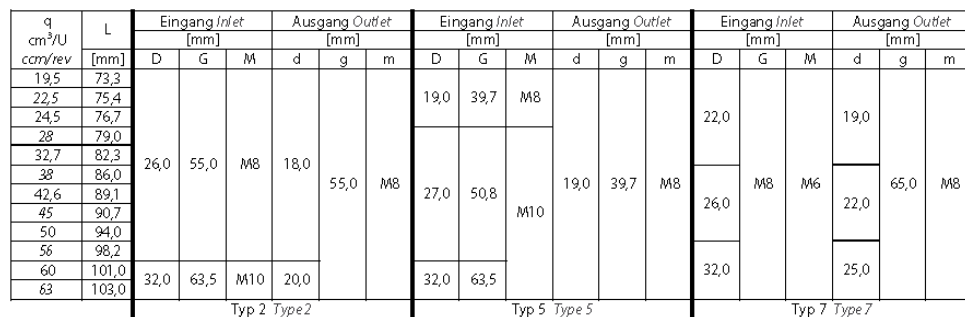


Tip/Type 4

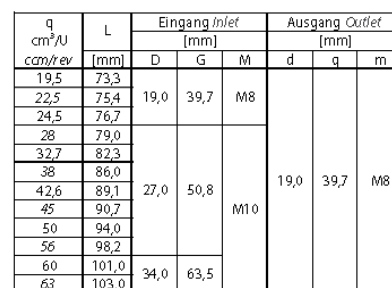
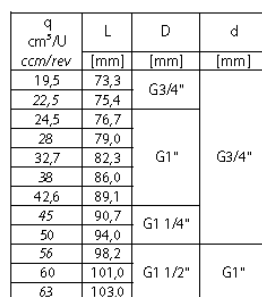


Tip/Type 7

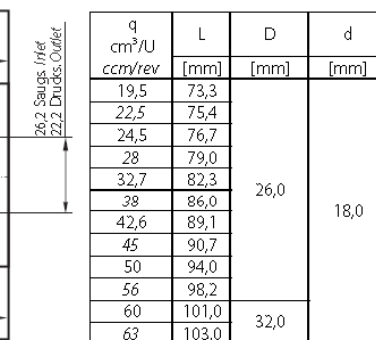
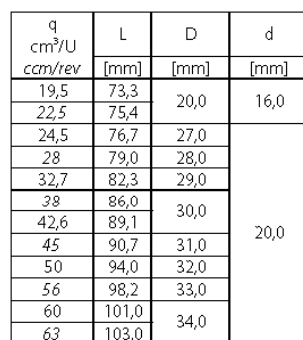




Tip 4



Tip 6 (D =Admisie/d=refulare)



- Flansa de prindere SAE "C"
- Ax tip 6, dintat SAE 13T 16/32 Dp

Cod comanda pompe bidirectionale/Order code bidirectional pumps

VP

HM22	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1	Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2	Sens rot Rotation
------	---------------------------------	-----------------------------------	-------------------------------------	--------------------------------	----------------------------------	--------------------------------	----------------------------------	----------------------

La cerere se poate fabrica :
 --PRD dubla HM32 cu HM2 (q = 4... 22.5 ccm/rot.) or HM31 cu HM1 (q = 0.85 ... 7.8 ccm/rot.)
 --Pompe cu accesorii:
 1. Supapa cu drenaj exterior.
 2. Supapa cu drenaj interior.
 3. Supapa de debit cu retur extern
 4. Supapa de debit cu retur intern
 At request can be manufactured:
 --Double gear pumps HM32 with HM2 (q = 4... 22.5 ccm/rev.) or HM31 with HM1 (q = 0.85 ... 7.8 ccm/rev.)
 Pumps with accessories:
 . valve with external drain
 . valve with internal drain
 . flow control valve with external return
 . flow control valve with internal return

q	19,5	22,5	24,5	28	32,7	38	42,6	45	50	56	60	63
L [mm]	73,3	75,4	76,7	79	82,3	86	89,1	90,7	94	98,2	101	103
F = 26 mm	Bei Typ 1, 3, 4 und 7											
C = 26 mm	For type 1, 3, 4 und 7											
F = 19 mm	Bei Typ 2											
C = 17 mm	For type 2											

Date Tehnice/Technical Data

q [cm³/U] [ccm/rev.]	L L1, L2 [mm]	Druck - Pressure		Eingangsdruck Inlet pressure [bar]	η _{VN} [%]	Drehzahl [U/min] Speed [rev/min]			Temperatur Temperature [°C]	Viskosität Viscosity [mm²/s]	Filtration Filtration [µm]
		P _n [bar]	P _{max} [bar]			n _n	n _{min}	n _{max}			
19,5	73,3	210	230	min. -0,3 max. 1,5	90	1500	750	2800	-15 ... +80	12 ... 2000	20
22,5	75,4				91						
24,5	76,7				92						
28,0	79,0				93						
32,7	82,3				94						
38,0	86,0				95						
42,6	89,1				95						
45,0	90,7	200	220		96	500	2400	empfohlen recommended 0 ... +60	empfohlen recommended 25 ... 200		
50,0	94,0	180	200		96						
56,0	98,2	160	180		97						
60,0	101,0	150	170		97						
63,0	103,0	140	160		98						

Va rugam sa luati in considerare:

- P_n: presiunea nominala
- P_{max}: presiunea maxima la care pompele pot functiona intermitent (20 secunde); presiunea medie trebuie sa fie mai mica decat P_n.
- Varfurile de presiune in comutatie pot fi cu 20 de bari mai mari decat P_{max}.
- Eficienta volumetrica η_{VN} este garantata la conditii nominale si o vasciozitate de 30 ... 40 mm²/s.
- Datele mentionate mai sus sunt valabile si pentru pompe duble (pentru fiecare treapta separat)
- Functionarea la viteza crescuta, fara cavitate este posibila numai cu o dimensionare corecta a portului de admisie.
- Presiunea absoluta de admisie nu ar trebui sa fie mai scazuta de 0,7 bari.
- Pentru viteze mai mari de 1500 rot/min. Presiunea maxima trebuie sa fie mai scazuta decat rezultatul urmatoarei formule :

$$p \leq \frac{13400000}{\text{cm}^3/\text{U} \cdot \eta_{ef}}$$

Please notice:

- P_n: nominal pressure
- P_{max}: maximum pressure at which the pumps can work intermittently (max. 20 s); average pressure should be lower than P_n.
- Pressure peaks in commutation can be 20 bar higher than P_{max}.
- Volumetric efficiency η_{VN} is guaranteed in nominal conditions and viscosity of 30 ... 40 mm²/s.
- The data's mentioned above are valid for double pumps ass well (for every stage separately).
- Functioning at high speed, without cavitation is only possible with a sufficient inlet potsize.
- The inlet pressure should not decrease under 0.7 bar absolute.
- For relevation speeds more than 1500 rev/min. max. pressure has to be lower than the result of the following formula:

$$p \leq \frac{13400000}{\text{cm}^3/\text{U} \cdot \eta_{ef}}$$

Cod pentru comanda VP4/Order Code VP44

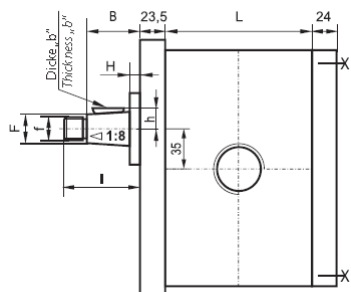


**** If the inlet or outlet ports are not on the body of the pump.**

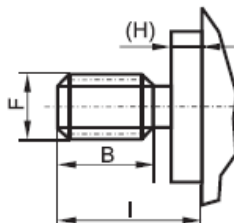
Exemplu:
Example:

Arbore antrenare/ Driving Shaft

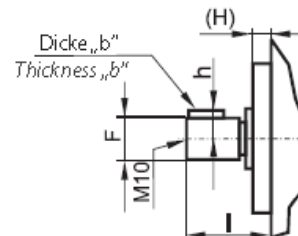
Conic Tip 1,2



Cilindric Tip 3



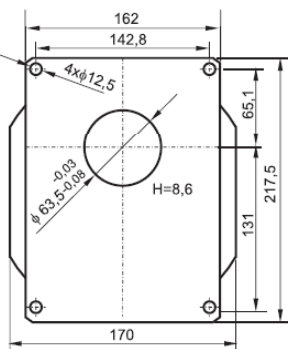
Dintat Tip 4,5,6



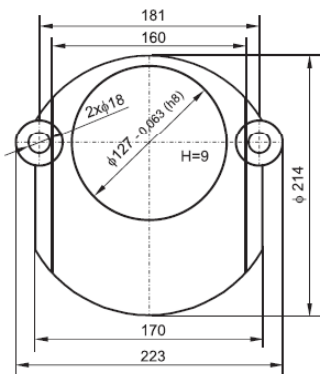
Cod	Arbore antrenare Driving shaft	l [mm]	B [mm]	F [mm]	f [mm]	k [mm]	h [mm]	b [mm]
1	Conic 1:8	73,0	56,5	28,1	M20x 1,5	1:8	18,5	6,35
2	Conic 1:8 European	72,1	52,3	28,1	M20x 1,5	1:8	18,5	6,00
3	Dintat SAE 14T 12/24 Dp	55,6	35,0	31,0	-	-	-	-
4	Cilindric Ø31,8	55,6	-	31,8 (M6)	-	-	19,4	-
5	Cilindric Ø28	61,5	-	28,0 (M6)	-	-	17,5	-
6	Dintat CEF 38x1,5 lung	76,0	55,0	37,5	-	-	-	-
7	Dintat CEF 38x1,5 scurt	55,6	35,0	37,5	-	-	-	-

Flansa de prindere/ Fastening Flange

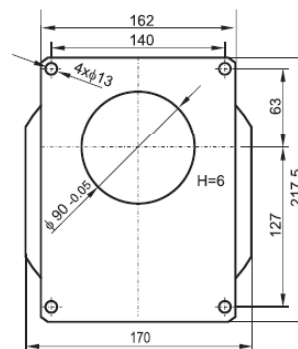
Tip 1



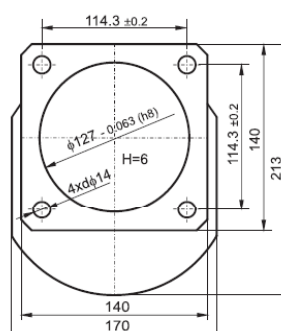
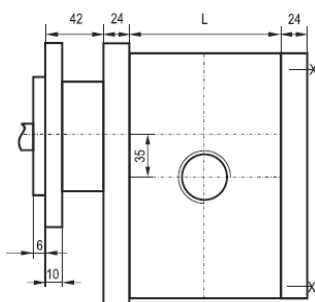
Tip 2



Tip 3

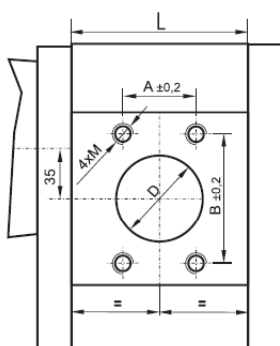


Pompa speciala Tip HMR4

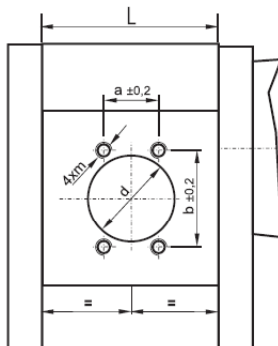


Porturi de admisie si refulare/ Inlet and outlet Ports

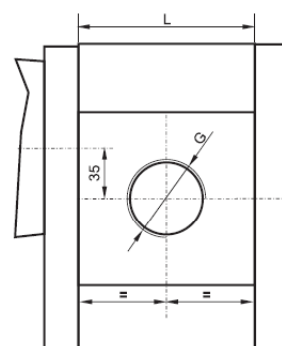
Tip 1



Tip 2



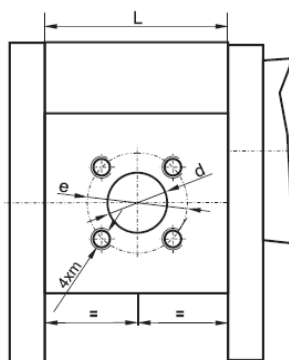
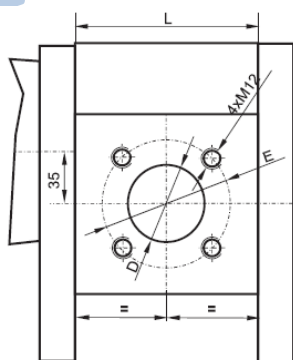
Tip 3



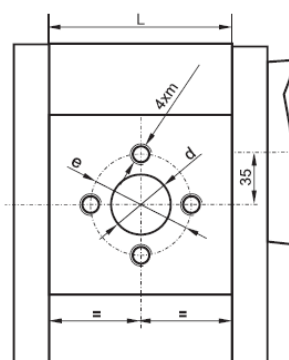
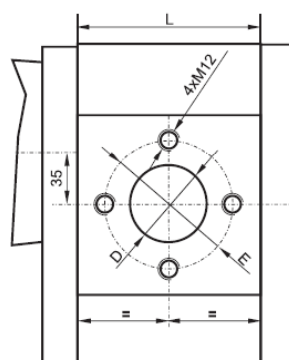
q cm ³ /U ccm/rev	L [mm]	Eingang Inlet [mm]				Ausgang Outlet [mm]			
		D	A	B	M	d	a	b	m
63	103,0	36	35,7	69,8	M14	22	26,2	52,4	M10
80	109,5	40	42,6	77,8		24	30,2	58,7	M12
100	116,0	42				28			M14
125	124,5	46				30			
150	133,0	50	50,8	88,9		32	35,7	69,8	
175	141,5	55				36			
200	150,0	60	106,4	61,9	M16	40	42,6	77,8	M14
250	167,0	70				50			

q cm ³ /U ccm/rev	L	Eingang	Ausgang	Eingang	Ausgang
		Inlet	Outlet	Inlet	Outlet
	[mm]	M	M	G	G
63	103,0	M42x2	M33x2	G 1 1/4"	G 1"
80	109,5			M48x2	
100	116,0	M42x2	G 1 1/4"		
125	124,5				M56x2
150	133,0	M64x2		G 2"	
175	141,2		M72x2		M56x2
200	150,0	G 2 1/2"		G 2"	
250	167,0		Typ Type 2		Typ Type 3

Tip 4



Tip 5



q cm³/U ccm/rev	L	Eingang <i>Inlet</i>			Ausgang <i>Outlet</i>		
		[mm]			[mm]		
	[mm]	D	E	M	d	e	m
63	103,0	33,5	62,0	M12	27,0	50,8	M10
80	109,5	38,0	72,5		32,0	62,0	M12
100	116,0						
125	124,5						
150	133,0	50,0	80,0		40,0	72,5	
175	141,5	60,0	90,0				
200	150,0						
250	167,0	70,0	100,0		50,0	80,0	

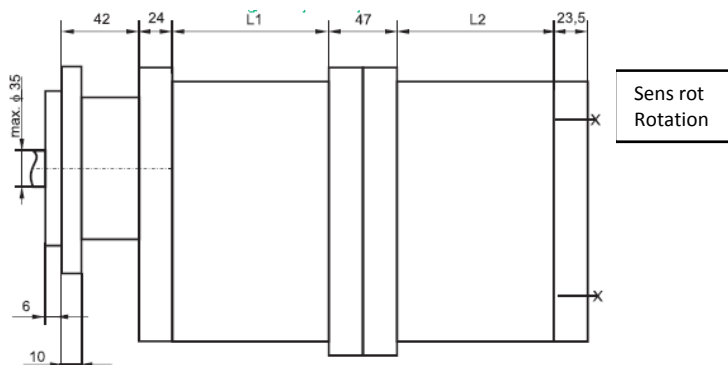
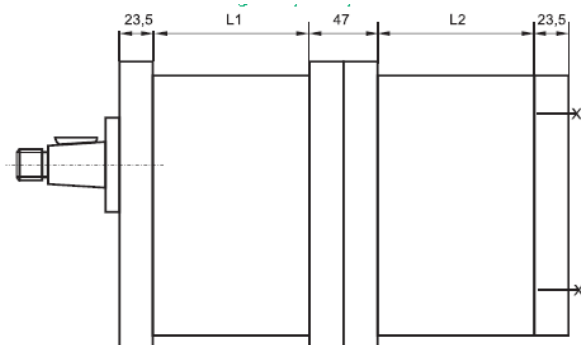
q cm ³ /U ccm/rev	L [mm]	Eingang <i>Inlet</i> [mm]			Ausgang <i>Outlet</i> [mm]			
		D	E	M	d	e	m	
63	103,0	33,5	62,0	M12	27,0	50,8	M10	
80	109,5				32,0	62,0	M12	
100	116,0	38,0	72,5					
125	124,5							
150	133,0	50,0	80,0		40,0	72,5		
175	141,5							
200	150,0	60,0	90,0					
250	167,0	70,0	100,0		50,0	80,0		



Cod comanda pompe bidirectionale/Order code bidirectional pumps

VP

HM22	Cm ³ /rot Ccm/rev	Arbore antrenare Driving Shaft	Flansa prindere Fatsening Flange	Port Admisie 1 Inlet Port 1	Port Refulare 1 Outlet Port 1	Port Admisie 2 Inlet Port 2	Port Refulare 2 Outlet Port 2
------	---------------------------------	-----------------------------------	-------------------------------------	--------------------------------	----------------------------------	--------------------------------	----------------------------------



La cerere se poate fabrica:

-Prd dubla HM43, HM41, sau HMR43, HMR42, HMR41 (cu capacitate mica in a II-a treapta)

-Pompe cu alte capacitati

On request can be manufactured:

--Double gear pumps HM43, HM42, HM41 or HMR43, HMR42, HMR41 (with lower displacement in second stage)

--Pumps with other displacements

Date Tehnice/Technical Data

HM44	150+100	2	1	4	4	4	4	A
------	---------	---	---	---	---	---	---	---

Date Tehnice/Technical Data

q [cm³/U] [ccm/rev.]	L L1, L2 [mm]	Druck - Pressure		Eingangsdruck Inlet pressure [bar]	η _{VN} [%]	Drehzahl [U/min] Speed [rev/min]			Temperatur Temperature [°C]	Viskosität Viscosity [mm²/s]	Filtration Filtration [µm]	
		P _n [bar]	P _{max} [bar]			n _n	n _{min}	n _{max}				
63	103,0	210	230	min. -0,3 max. 1,5	91	1500	720	2800	-15 ... +80 empfohlen recommended 0 ... 60	12 ... 2000 empfohlen recommended 25 ... 200	20	
80	109,5				92							
100	116,0				93							
125	124,5				94							
150	133,0	180	200		95		500	2200				
175	141,5	150	170		96							
200	150,0	130	150		97							
250	167,0	100	120		98							

Va rugam sa luati in considerare:

--Pn: presiunea nominala

--Pmax: presiunea maxima la care pompele pot functiona intermitent (20 secunde); presiunea medie trebuie sa fie mai mica decat Pn..

--Varfurile de presiune in comutatie pot fi cu 20 de bari mai mari decat Pmax.

--Eficienta volumetrica η_{VN} este garantata la conditii nominale si o viscozitate de 30 ... 40 mm²/s.

--Datele mentionate mai sus sunt valabile si pentru pompe duble (pentru fiecare treapta separat)

--Functionarea la viteza crescuta, fara cavitate este posibila numai cu o dimensionare corecta a portului de admisie.

--Presiunea absoluta de admisie nu ar trebui sa fie mai scazuta de 0,7 bari.

--Pentru viteze mai mari de 1500 rot/min. Presiunea maxima trebuie sa fie mai scazuta decat rezultatul urmatoarei formule:

$$p \leq \frac{40500000}{\text{cm}^3/\text{U} \cdot \eta_{ef}}$$

Please notice:

--Pn: nominal pressure

--Pmax: maximum pressure at which the pumps can work intermittently (max. 20 s); average pressure should be lower than Pn.

--Pressure peaks in commutation can be 20 bar higher than Pmax.

--Volumetric efficiency η_{VN} is guaranteed in nominal conditions and viscosity of 30 ... 40 mm²/s.

--The data's mentioned above are valid for double pumps as well (for every stage separately).

--Functioning at high speed, without cavitation is only possible with a sufficient inlet ports size.

--The inlet pressure should not decrease under 0.7 bar absolute.

--For relevation speeds more than 1500 rev/min. max. pressure has to be lower than the result of the following formula:

$$p \leq \frac{40500000}{\text{cm}^3/\text{U} \cdot \eta_{ef}}$$

