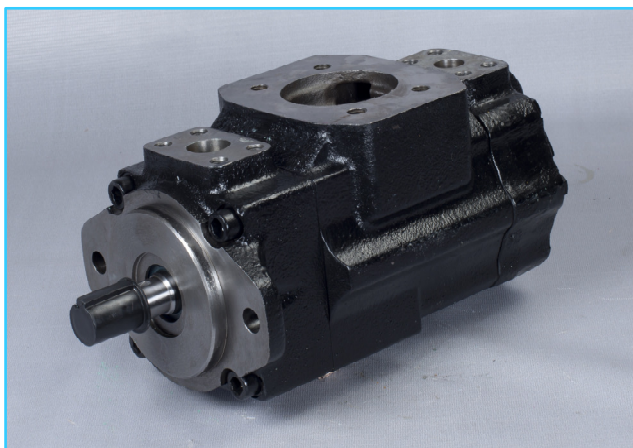
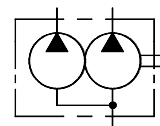


HPV22M SERIES – HIGH PRESSURE HIGH SPEED DOUBLE PUMPS

These double pumps consist of two HPV2 series single pumps combined in tandem within a single housing and driven by a common shaft. Fluid delivered from the two-separate ports can be either supplied to separate or common circuits. These HPV pumps are designed for high-pressure functions. Suitable for mobile applications like Drill rigs, Railways & Construction Equipments.



Graphic Symbol



Specifications

Model Number	Series	Geometric Displacement cm ³ /rev. (in ³ /rev.)		Max. Oper. Pressure Kgf/cm ²	Output Flow and Input Power	Shaft Speed Range r/min.		Mass (Approx.) Kg.	
		1 st Section	2 nd Section			Max.	Min.	Flange Mounting	Foot Mounting
HPV22M	03	10.8 (0.66)	10.8 (0.66)	140	Ref. Page Nos. 6, 7, 8 & 9	2800	400	26.0	29.3
	05	17.2 (1.05)	17.2 (1.05)						
	06	21.3 (1.30)	21.3 (1.30)						
	08	26.4 (1.61)	26.4 (1.61)						
	10	34.1 (2.08)	34.1 (2.08)						
	12	37.1 (2.26)	37.1 (2.26)						
	14	46.0 (2.81)	46.0 (2.81)						
	15	50.5 (3.08)	50.5 (3.08)						
	17	58.3 (3.56)	58.3 (3.56)						
	20	63.8 (3.89)	63.8 (3.89)						
	22	70.3 (4.29)	70.3 (4.29)						
	25	79.3 (4.84)	79.3 (4.84)						
	28	88.8 (5.42)	88.8 (5.42)	210					
	31	100.0 (6.10)	100.0 (6.10)						

Model Number Designation

HPV22M	-14	-12	-F	-R	A	A	A	-U0	-K1	-10
Model Number	Series		Type of Mounting	Direction of Rotation	1 st Section Discharge Port Position	2 nd Section Discharge Port Position	Suction Port Position	Mounting W/ Connection Variables	Type of Shaft	Design Number
	1 st Section	2 nd Section		As Viewed From Shaft End						
HPV22M	03	03	F: Flange Mtg.	R: Clockwise (Normal)				U0, U1, U2, U3- UNC port conn. (Refer table below)	K1- Keyed (no SAE)	10
	05	05								
	06	06								
	08	08								
	10	10								
	12	12								
	14	14								
	15	15	L: Foot Mtg.	L: Anti-Clockwise				M0, M1, M2, M3- Metric port conn. (Refer table below)	S1- Splined (SAE-B)	
	17	17								
	20	20								
	22	22								
	25	25								
	28	28								
	31	31								
								S2- Splined (SAE-BB)		

* Design numbers subject to change from 10 to 19, but installation dimensions remain as shown.

* For instructions regarding changing the port positions, consult YUKEN INDIA LTD.

Mounting W / connection variables				
Model Number	Mounting Type	1 st Discharge Port connection (D1)	2 nd Discharge Port connection (D2)	Suction Port connection (S)
HPV22M	U0	1"	1"	3"
	U1	1"	3/4" *1	3"
	U2	1"	1"	2 1/2" *2
	U3	1"	3/4" *1	2 1/2" *2
	M0	1"	1"	3"
	M1	1"	3/4" *1	3"
	M2	1"	1"	2 1/2" *2
	M3	1"	3/4" *1	2 1/2" *2

*1 For 46 cm³/rev. max.

*2 For 126 cm³/rev. max.

The larger cartridge should always be in 1st Section (when compared with Second Section).

Cartridge Kit Model Number

1st Section Discharge Port

CHPV22M	-14	-D1	-R	-10
Model Number	Nominal Displacement	Discharge Port	Shaft Rotation	Design No.
	1 st Section			
CHPV22M	03	D1: 1 st Section Discharge Port	R: Clockwise (Normal) L: Anti-Clockwise	10
	05			
	06			
	08			
	10			
	12			
	14			
	15			
	17			
	20			
	22			
	25			
	28			
	31			

2nd Section Discharge Port

CHPV22M	-14	-D2	-R	-10
Model Number	Nominal Displacement	Discharge Port	Shaft Rotation	Design No.
	2 nd Section			
CHPV22M	03	D2: 2 nd Section Discharge Port	R: Clockwise (Normal) L: Anti-Clockwise	10
	05			
	06			
	08			
	10			
	12			
	14			
	15			
	17			
	20			
	22			
	25			
	28			
	31			

* For instructions regarding replacing cartridge kit, consult YUKEN INDIA LTD.

Hydraulic Fluids

- Suction Pressure**

Suction line pressure limit -0.20Kgf/cm^2 to $+0.30\text{Kgf/cm}^2$

- Cleanliness**

Contamination level should be within NAS class 9. Use of $100\mu\text{m}$ (150 mesh) tank filter on suction side, 50mm above the tank bottom surface.

- Alignment of Shaft**

Employ a flexible coupling whenever possible & avoid stress from bending or thrust. Maximum permissible misalignment is less than 0.1mm (0.004Inches) TIR & maximum permissible misangular is less than 0.2° .

Instructions

- Precautions at starting**

At an initial operation or at an operation after a long rest, the pump may have difficulty in sucking up fluids. In such cases, an air bleed valve should be installed before hand in the discharge side (Model No.ST1001-※-10※), or discharge air by slightly slackening the connection on the discharge side. At starting, operate the pump intermittently as far as possible with no load.

- Other Precautions**

If a pump is used at speed below 1200 r/min, install the pump with the suction port upside so that the pump can suck up fluid easily at starting.

Spare Parts List

- List of Seals**

Sl. No.	Name of Part	Part Number	Qty.
1	O-Ring	PKH4-0205	2
2	O-Ring	PKH4-0206	2
3	O-Ring	PKH4-0207	1
4	O-Ring	PKH4-0211	1
5	Backup-Ring	PKH4-0184	2
6	Oil Seal (NOK)	25.4x38.1x6.35	1

Note :

When ordering the seals,
please specify the seal kit number KS-HPV22-10.

Foot Mounting Parts

Sl. No.	Name of Part	Part Number	Qty.
1	Mounting Bracket	PK2-10513-8	1
2	Socket Head Cap Screw	M12 x 35Lg.	2
3	Spring Washer	WS-A-12	2

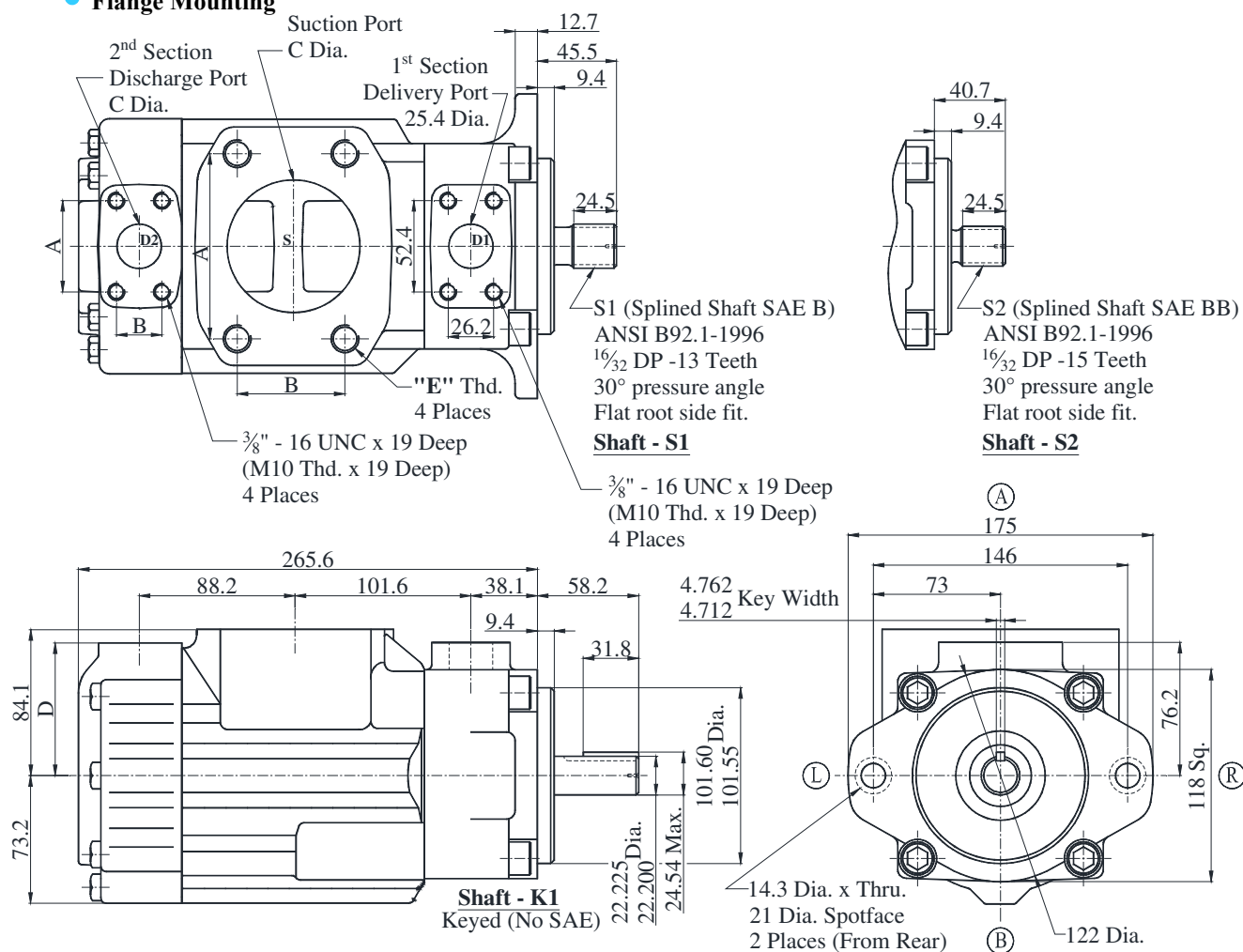
Note :

When ordering the Foot Mounting Parts,
please specify the Kit number HPV22-L-10.

HPV22M-**-**-**-**-**-**-10

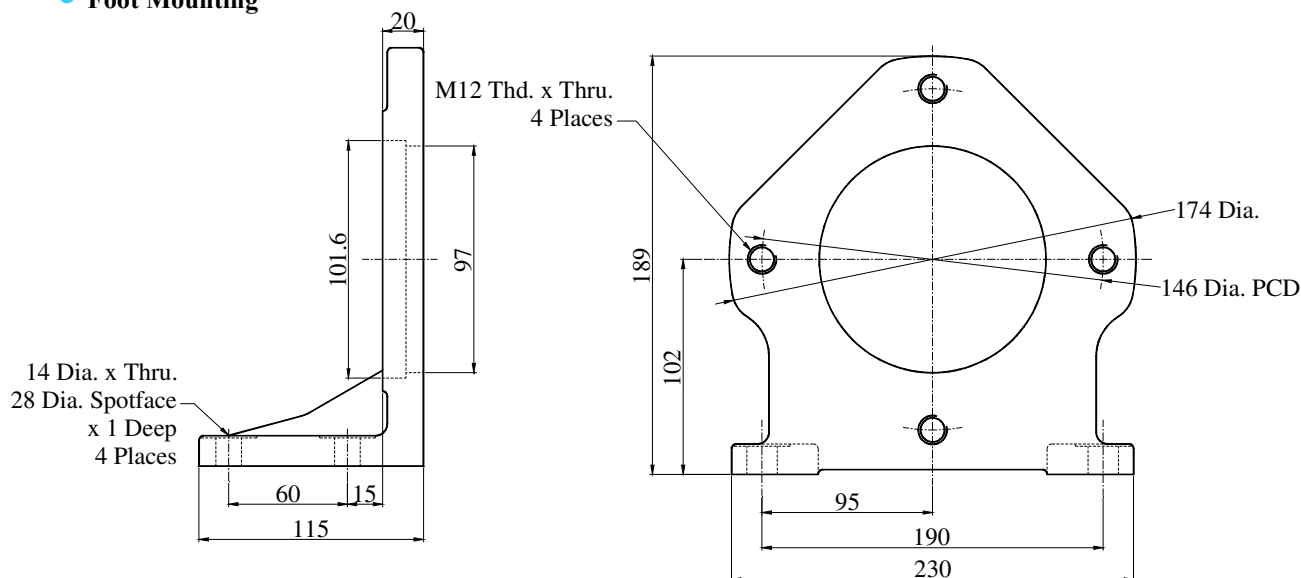
DIMENSIONS IN
MILLIMETRES

● Flange Mounting



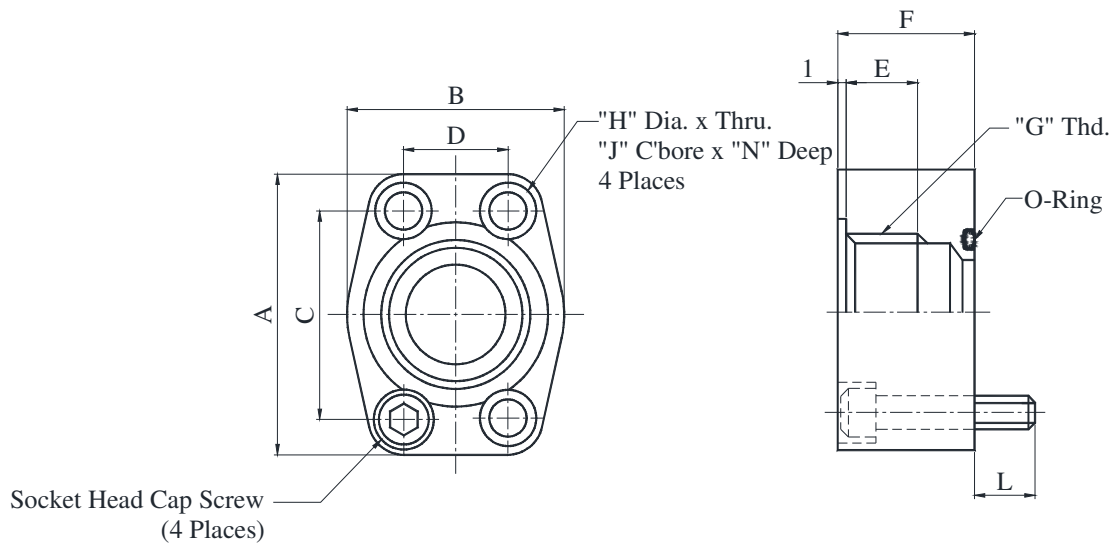
Port	Port Connection	Port Size	A	B	C	D	E Thd.
S	U0,U1,M0,M1	3"	106.4	61.9	76.2	-	5/8 - 11 UNCx28.4 Deep (M16x28.4 Deep)
	U2,U3,M2,M3	2-1/2"	88.9	50.8	63.5	-	1/2 - 13 UNCx24.0 Deep (M12x24.0 Deep)
D1	U0,U1,U2,U3,M0,M1,M2,M3	1"	52.4	26.2	25.4	74.7	3/8 - 16 UNCx19.0 Deep (M10x19.0 Deep)
D2	U0,U2,M0,M2	1"	52.4	26.2	25.4	74.7	
	U1,U3,M1,M3	3/4"	47.6	22.2	19.0	76.2	

● Foot Mounting



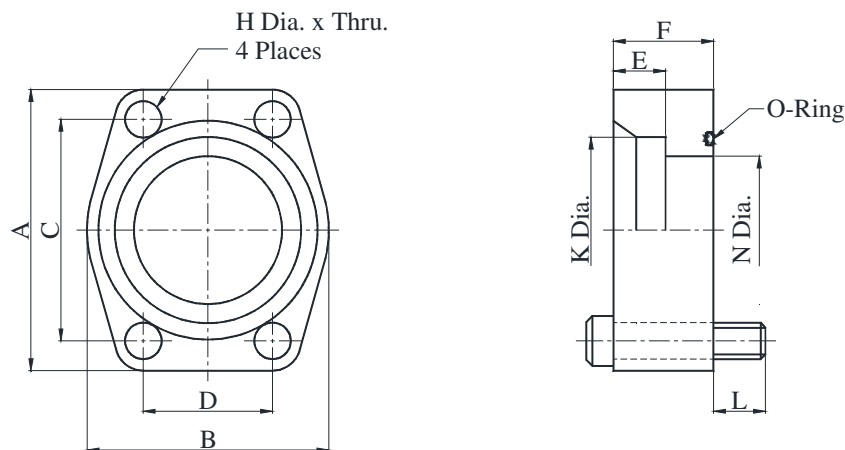
Flanges

Threaded Type



Kit Numbers	Piping Size G Thd.	Dimensions mm										Socket Head Cap Screw (4 Places)	O-Ring
		A	B	C	D	E	F	H	J	N	L		
HPV-F-0.75-U-T-10	3/4" BSP.F	72	53	47.6	22.2	20	28	11	17.5	11	18	3/8-16TPI UNC x 1-1/2	SO-NB-G30
HPV-F-0.75-M-T-10												M10 x 35Lg.	
HPV-F-1-U-T-10	1" BSP.F	73	50	52.4	26.2	21	30	11	15.5	11.5	16.5	3/8-16TPI UNC x 1-1/4	SO-NB-G35
HPV-F-1-M-T-10												M10 x 35Lg.	
HPV-F-2.5-U-T-10	2-1/2" BSP.F	118	102	88.9	50.8	30	46	13.5	21	13.5	12.5	1/2-13TPI UNC x 1-3/4	SO-NB-G75
HPV-F-2.5-M-T-10												M12 x 45Lg.	
HPV-F-3-U-T-10	3" BSP.F	138	138	106.4	62	30	41	17.5	26	17.5	26.5	5/8-11TPI UNC x 2	SO-NB-G90
HPV-F-3-M-T-10												M16 x 50Lg.	

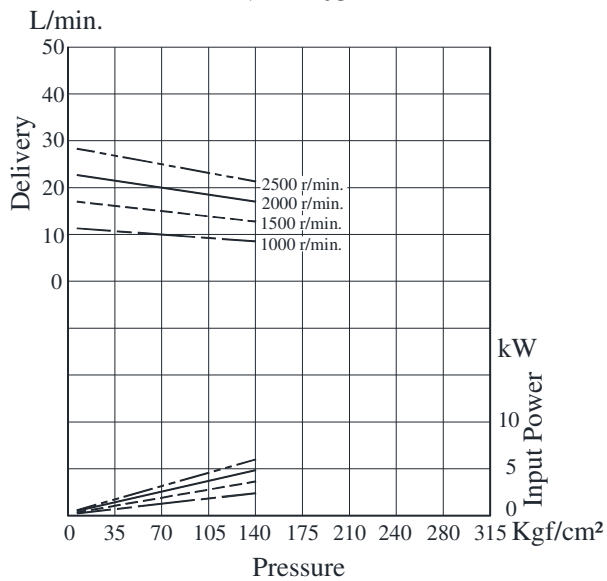
Welding Type



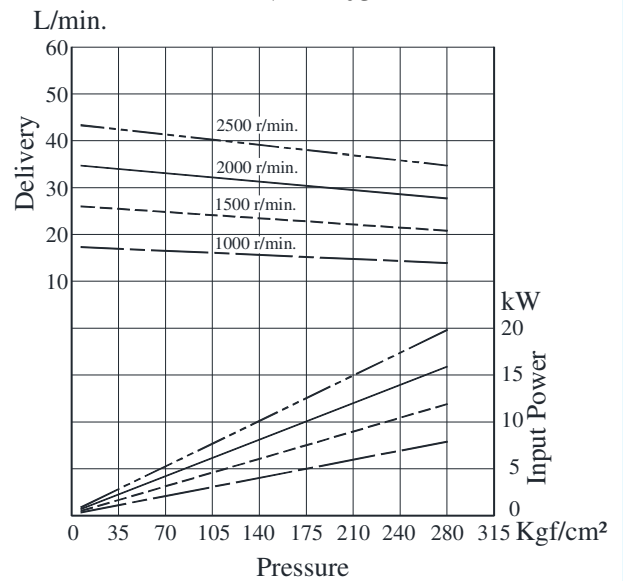
Kit Numbers	Piping Size BSP.F	Dimensions mm										Socket Head Cap Screw (4 Places)	O-Ring
		A	B	C	D	E	F	H	L	K	N		
HPV-F-0.75-U-W-10	3/4"	65	48	47.6	22.2	12	30	11	15	27.2	20	3/8-16TPI UNC x 1-3/4	SO-NB-G30
HPV-F-0.75-M-W-10												M10 x 45Lg.	
HPV-F-1-U-W-10	1"	70	55	52.4	26.2	14	30	11	15	33.9	25	3/8-16TPI UNC x 1-3/4	SO-NB-G35
HPV-F-1-M-W-10												M10 x 45Lg.	
HPV-F-2.5-U-W-10	2-1/2"	114	102	88.9	50.8	22	48	13.5	17	73.5	60	1/2-13TPI UNC x 2-3/4	SO-NB-G75
HPV-F-2.5-M-W-10												M12 x 65Lg.	
HPV-F-3-U-W-10	3"	135	116	106.4	62	25	48	17.5	27	89.4	71	5/8-11TPI UNC x 3	SO-NB-G90
HPV-F-3-M-W-10												M16 x 75Lg.	

Typical Pump Characteristics Oil Viscosity 20 cSt [ISO VG 32, Temp 50°C]

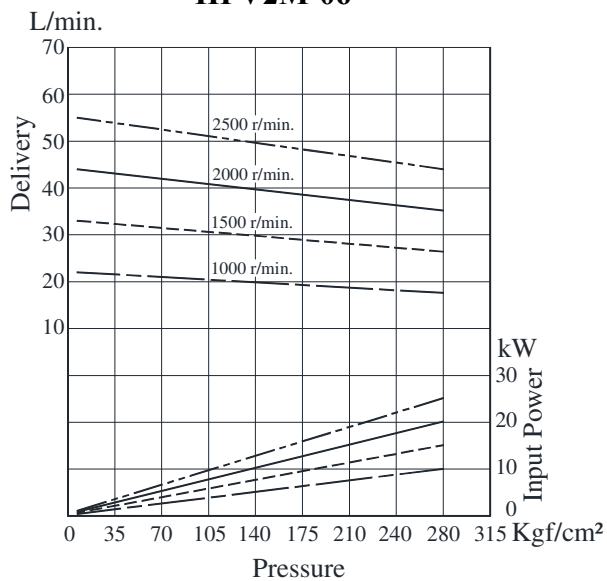
● HPV2M-03



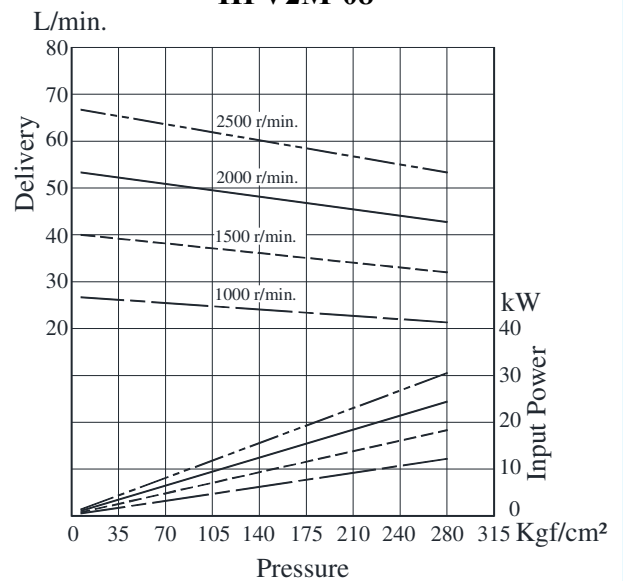
● HPV2M-05



● HPV2M-06

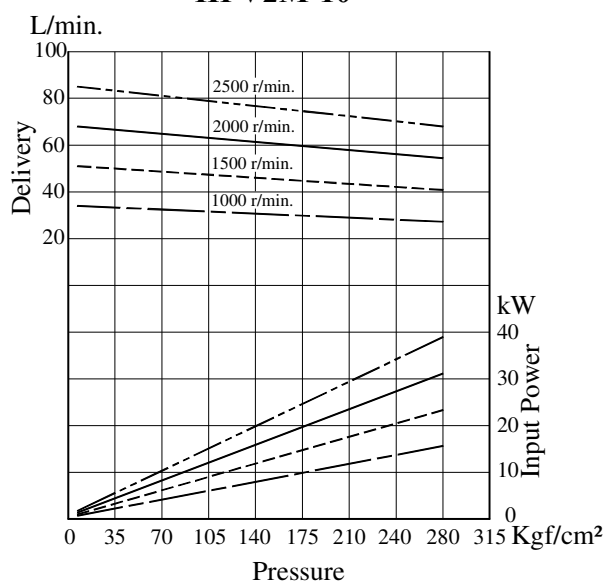


● HPV2M-08

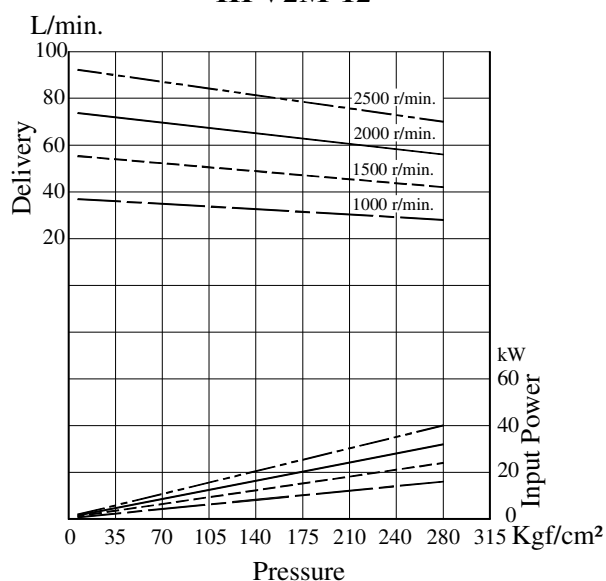


Typical Pump Characteristics Oil Viscosity 20 cSt [ISO VG 32, Temp 50°C]

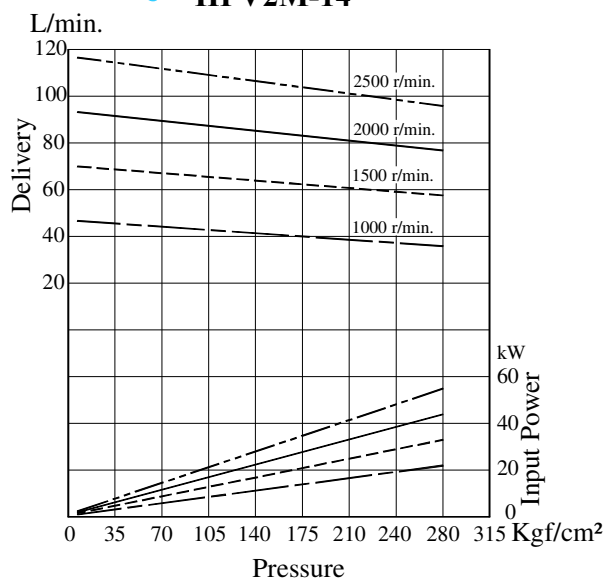
● HPV2M-10



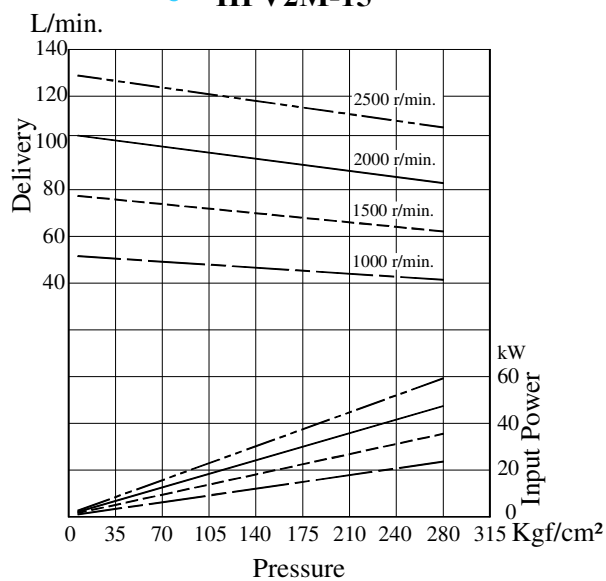
● HPV2M-12



● HPV2M-14

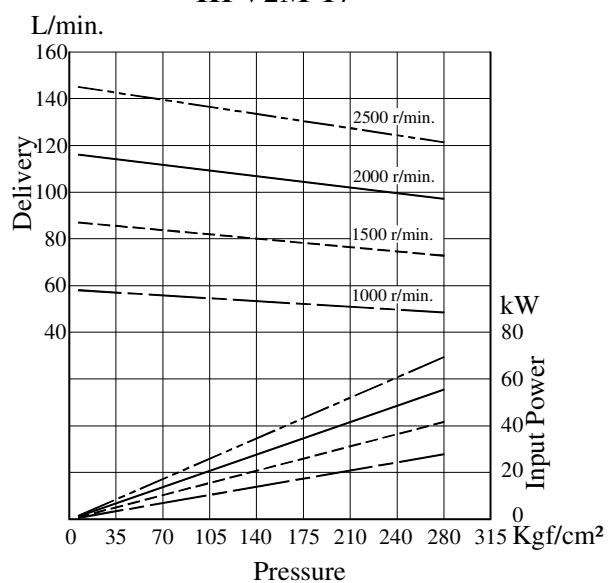


● HPV2M-15

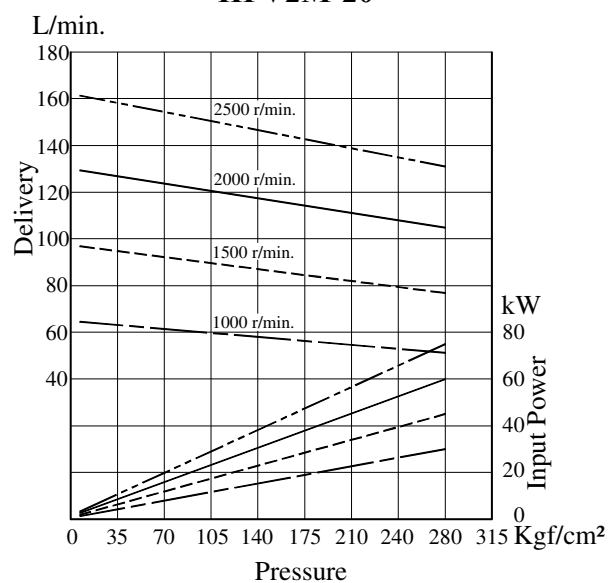


Typical Pump Characteristics Oil Viscosity 20 cSt [ISO VG 32, Temp 50°C]

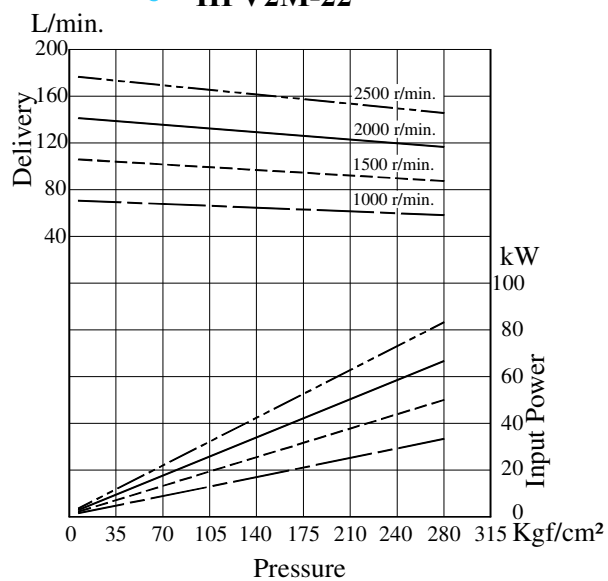
● HPV2M-17



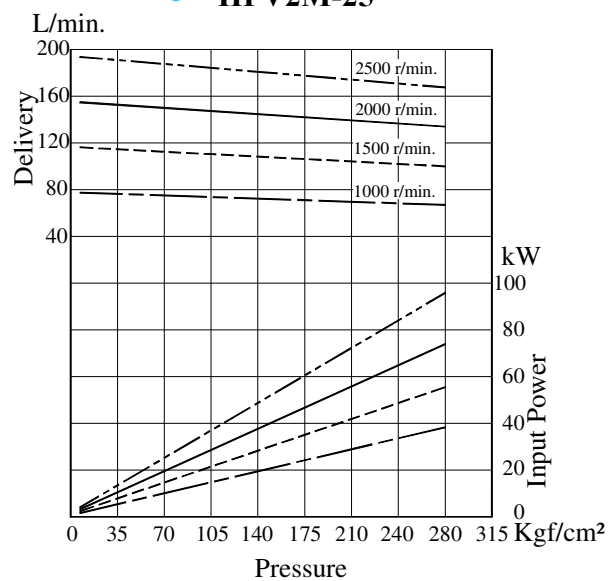
● HPV2M-20



● HPV2M-22

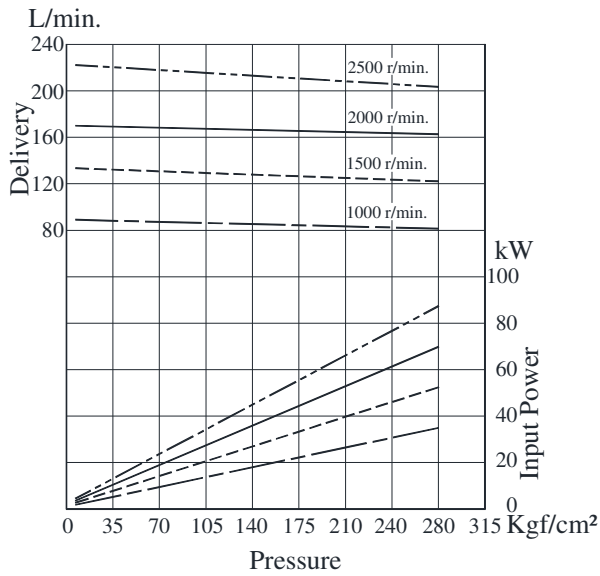


● HPV2M-25

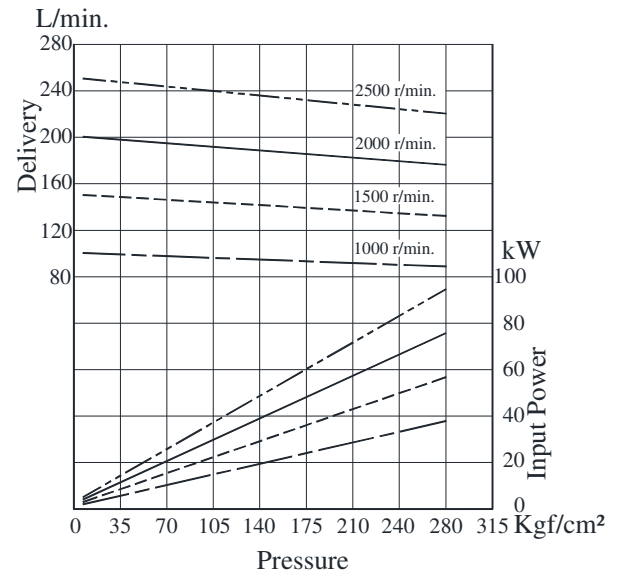


Typical Pump Characteristics Oil Viscosity 20 cSt [ISO VG 32, Temp 50°C]

● HPV2M-28



● HPV2M-31

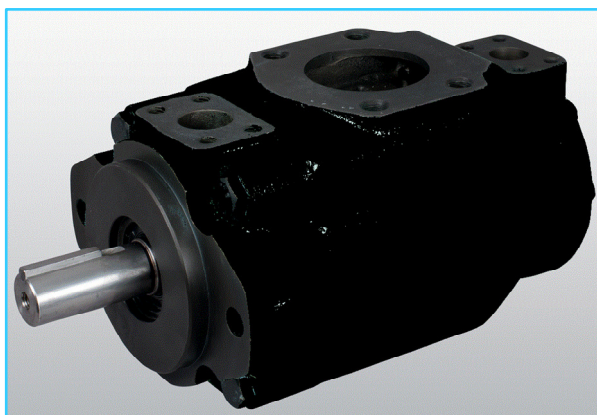


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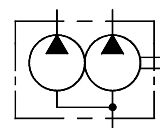
HPV22M Series
Double Vane Pumps

HPV32M SERIES – HIGH PRESSURE HIGH SPEED DOUBLE PUMPS

These double pumps consist of one HPV3 and one HPV2 series single pump combined in tandem within a single housing and driven by a common shaft. Fluid delivered from the two-separate ports can be either supplied to separate or common circuits. These HPV pumps are designed for High-pressure function. Suitable for mobile applications like Drill rigs, Railways & Construction Equipments.



Graphic Symbol



Specifications

Model Number	Geometric Displacement cm ³ /rev. (in./rev.)				Max. Oper. Pressure Kgf/cm ²	Output Flow and Input Power	Shaft Speed Range r/min.		Mass (Approx.) Kg.	
	Series	1 st Section	Series	2 nd Section			Max.	Min.	Flange Mounting	Foot Mounting
HPV32M	14	47.6 (2.90)	03	10.8 (0.66)	275 ^{*1}	Ref. Page Nos. 6, 7, 8, 9, 15, 16, & 17	2500 ^{*2}	800	41.1	51.1
			05	17.2 (1.05)						
	17	58.2 (3.55)	06	21.3 (1.30)						
	20	66.0 (4.03)	08	26.4 (1.61)						
	24	79.5 (4.85)	10	34.1 (2.08)						
	28	89.7 (5.47)	12	37.1 (2.26)						
	31	98.3 (6.00)	14	46.0 (2.81)						
	35	110.0 (6.77)	15	50.5 (3.08)						
	38	120.3 (7.34)	17	58.3 (3.56)						
	42	136.0 (8.30)	20	63.8 (3.89)						
	45	145.7 (8.89)	22	70.3 (4.29)						
	50	158.0 (9.64)	25	79.3 (4.84)						
	61	190.5 (11.62)	28	88.8 (5.42)						
			31	100.0 (6.10)						

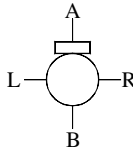
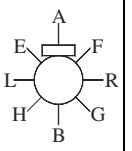
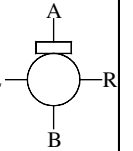
*1 Different max. operating pressure for Small and Large Volume Pumps

As follows

- Small Volume Pumps Series 28, 31 is 210 Kgf/cm².
- Large Volume Pumps Series 50 is 210 Kgf/cm².
- Large Volume Pumps Series 61 is 120 Kgf/cm² max. intermittent, 80 Kgf/cm² continuous.
- All other Larger Volume Pumps are limited to max. pressure of 240 Kgf/cm².

*2 Tandem pumps with Large Volume Pumps of series 42, 45, 50, 61 is 2200 r/min. max.

Model Number Designation

HPV32M	-38	-17	-F	-R	A	A	A	-U0	-K1	-10
Model Number	Large Volume Pump Nominal Displacement	Small Volume Pump Nominal Displacement	Type of Mounting	Direction of Rotation	Large Volume Pump Discharge Port Position	Small Volume Pump Discharge Port Position	Suction Port Position	Mtg. W/ Conn. Variables	Type of Shaft	Design Number
As Viewed From Shaft End										
HPV32M	14 17 20 24 28 31 35 38 42 45 50 61	03 05 06 08 10 12 14 15 17 20 22 25 28 31	F: Flange Mtg. L: Foot Mtg.	R: Clockwise (Normal) L: Anti- Clockwise				U0, U1- UNC port conn. (Refer table below) M0, M1- Metric port conn. (Refer table below)	K1- Keyed (SAE-C) K2- Keyed (No SAE) S1- Splined (SAE-C) S2- Splined (No SAE)	10

* Design numbers subject to change 10 to 19, but installation dimensions remain as shown.

Mounting W / connection variables

Model Number	Mounting Type	Small Volume Discharge Port connection
HPV32M	U0	1"
	U1	3/4"
	M0	1"
	M1	3/4"

Cartridge Kit Model Number

1st Section Large Volume Discharge Port

CHPV32M	-38	-D1	-R	-10
Pump Series	Large Volume Nominal Displacement	Discharge Port	Shaft Rotation	Design Number
CHPV32M	14 17 20 24 28 31 35 38 42 45 50 61	D1: 1 st Section Discharge Port (Big)	R: Clockwise (Normal) L: Anti- Clockwise	10

2nd Section Small Volume Discharge Port

CHPV32M	-17	-D2	-R	-10
Pump Series	Small Volume Nominal Displacement	Discharge Port	Shaft Rotation	Design Number
CHPV32M	03 05 06 08 10 12 14 15 17 20 22 25 28 31	D2: 2 nd Section Discharge Port	R: Clockwise (Normal) L: Anti- Clockwise	10

Hydraulic Fluids

- **Suction Pressure**
Suction line pressure limit -0.20Kgf/cm^2 to $+0.30\text{Kgf/cm}^2$
- **Cleanliness**
Contamination level should be within NAS class 9. Use of $100\mu\text{m}$ (150 mesh) tank filter on suction side, 50mm above the tank bottom surface.
- **Alignment of Shaft**
Employ a flexible coupling whenever possible & avoid stress from bending or thrust. Maximum permissible misalignment is less than 0.1mm (0.004Inches) TIR & maximum permissible misangular is less than 0.2° .

Instructions

- **Precautions at starting**
At an initial operation or at an operation after a long rest, the pump may have difficulty in sucking up fluids. In such cases, an air bleed valve should be installed before hand in the discharge side (Model No.ST1001-※-10※), or discharge air by slightly slackening the connection on the discharge side. At starting, operate the pump intermittently as far as possible with no load.
- **Other Precautions**
If a pump is used at speed below 1200 r/min, install the pump with the suction port upside so that the pump can suck up fluid easily at starting.

Spare Parts List

List of Seals

Sl. No.	Name of Part	Part Number	Qty.
1	O-Ring	PKH4-0205	1
2	O-Ring	PKH4-0206	1
3	O-Ring	PKH4-0208	1
4	O-Ring	PKH4-0209	1
5	O-Ring	PKH4-0210	1
6	O-Ring	PKH4-0211	1
7	Backup-Ring	PKH4-0184	1
8	Backup-Ring	PKH4-0185	1
9	Oil Seal (NOK)	34.9x57.15x8.3	1

Note :

When ordering the seals, please specify the seal kit number KS-HPV32-10.

Foot Mounting Parts

Sl. No.	Name of Part	Part Number	Qty.
1	Mounting Bracket	PK2-10182-3	1
2	Socket Head Cap Screw	M16 x 45 Lg.	2
3	Spring Washer	WS-A-16	2

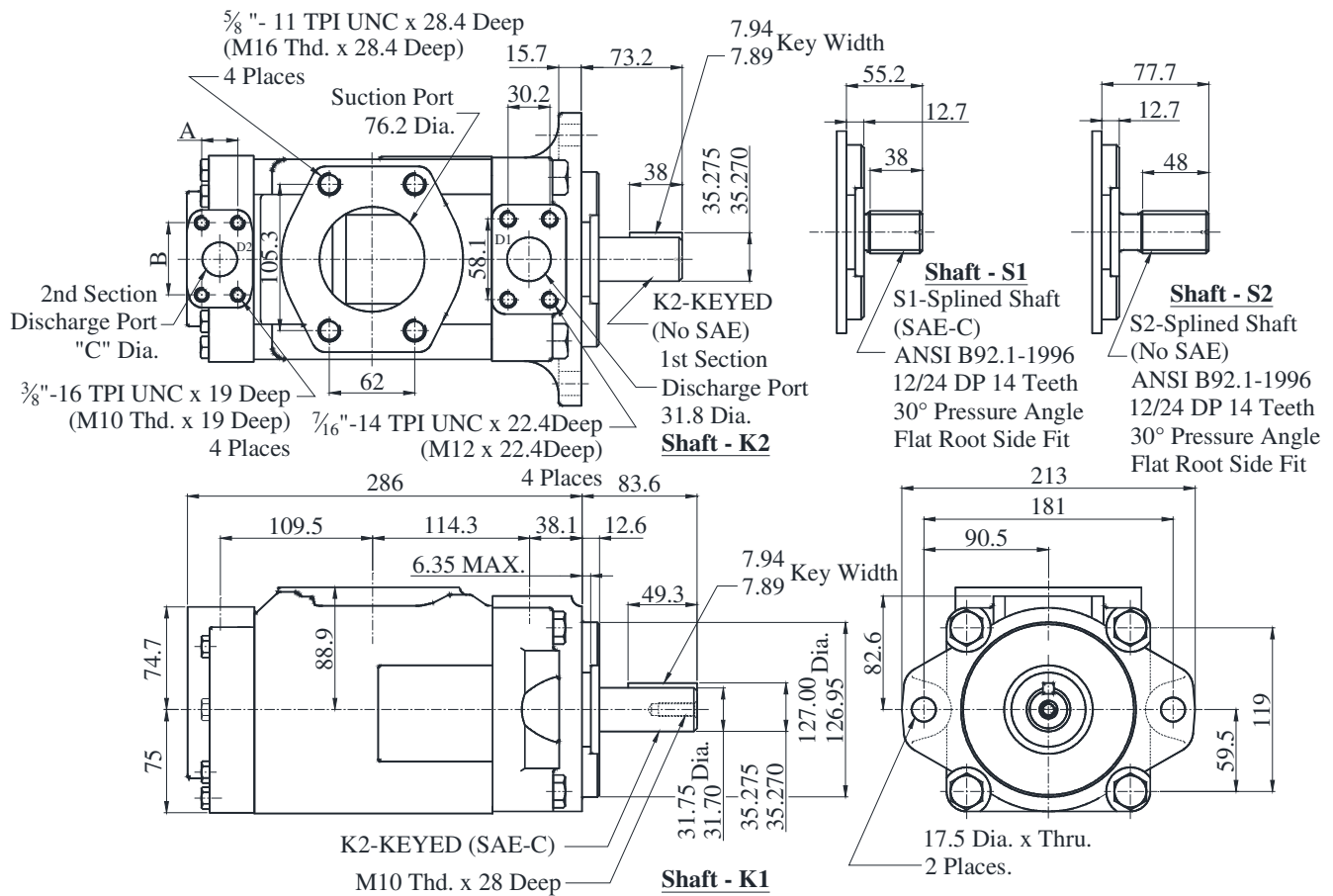
Note :

When ordering the Foot Mounting Parts,
please specify the Kit number HPV32-L-10.

HPV32M-**-**-**-**-**-10

DIMENSIONS IN
MILLIMETRES

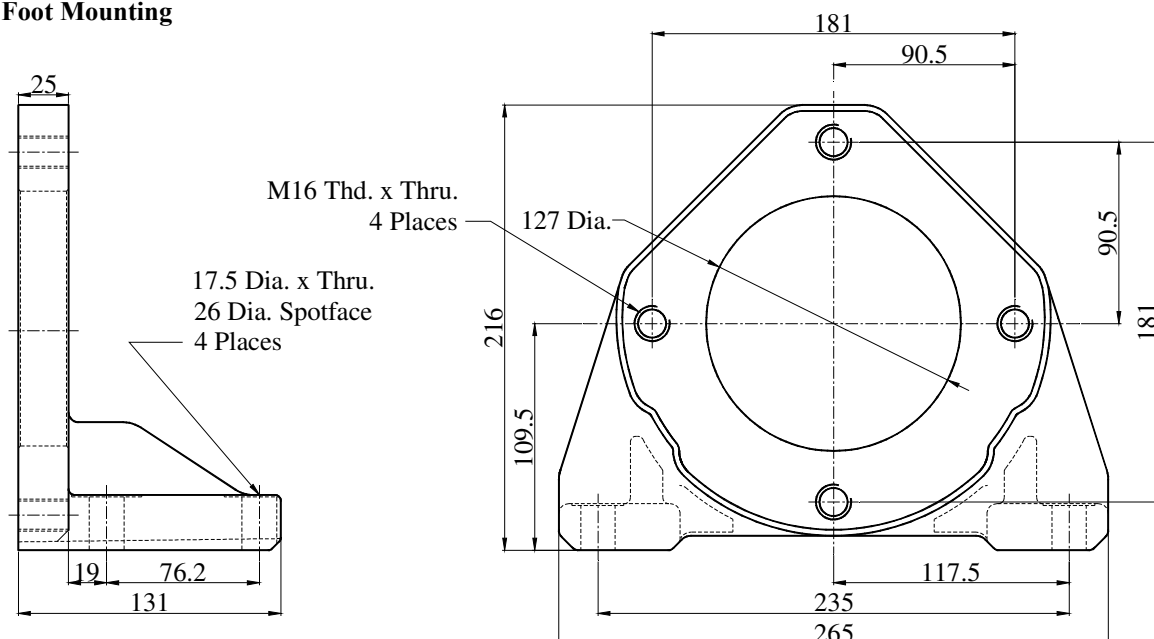
● Flange Mounting



Alternate Connect. Variables

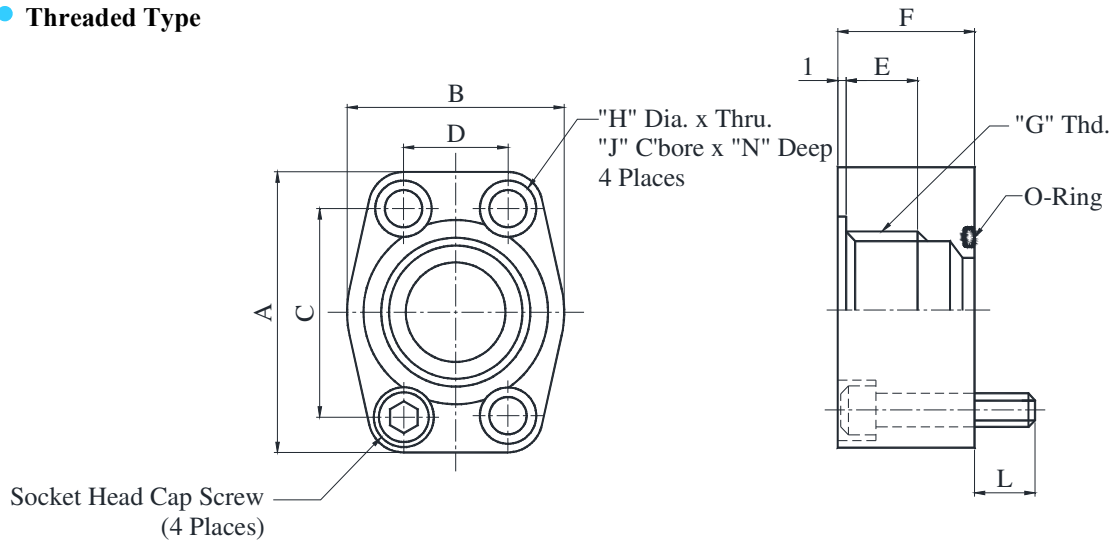
	U0 & M0	U1 & M1
A	26.2	22.2
B	52.4	47.6
C	25.4	19.05

● Foot Mounting



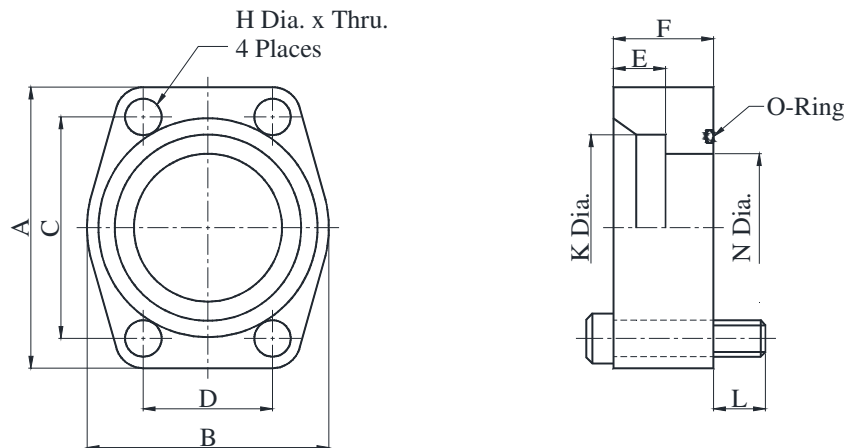
Flanges

Threaded Type



Kit Numbers	Piping Size G Thd.	Dimensions mm										Socket Head Cap Screw (4 Places)	O-Ring
		A	B	C	D	E	F	H	J	N	L		
HPV-F-0.75-U-T-10	3/4" BSP.F	72	53	47.6	22.2	20	28	11	17.5	11	18	3/8-16TPI UNC x 1-1/2	SO-NB-G30
HPV-F-0.75-M-T-10												M10 x 35Lg.	
HPV-F-1-U-T-10	1" BSP.F	73	50	52.4	26.2	21	30	11	15.5	11.5	16.5	3/8-16TPI UNC x 1-1/4	SO-NB-G35
HPV-F-1-M-T-10												M10 x 35Lg.	
HPV-F-1.25-U-T-10	1-1/4" BSP.F	85	56	58.7	30.2	24	38	13.5	20	13.5	10.5	7/16-14TPI UNC x 2-1/4	SO-NB-G40
HPV-F-1.25-M-T-10												M12 x 60Lg.	
HPV-F-3-U-T-10	3" BSP.F	138	138	106.4	62	30	41	17.5	26	17.5	26.5	5/8-11TPI UNC x 2	SO-NB-G90
HPV-F-3-M-T-10												M16 x 50Lg.	

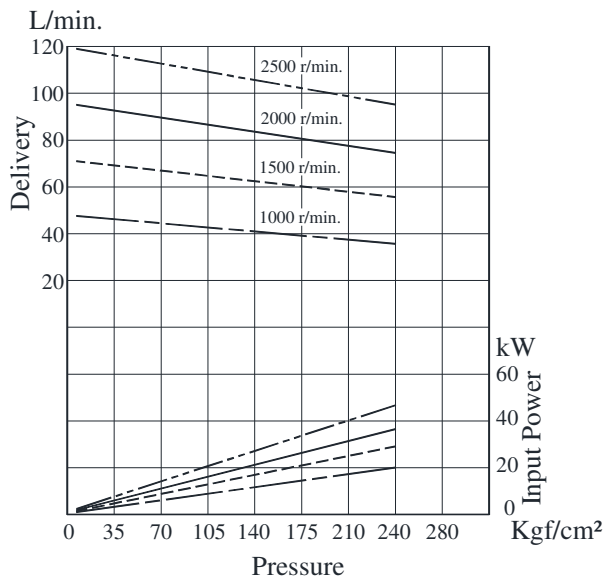
Welding Type



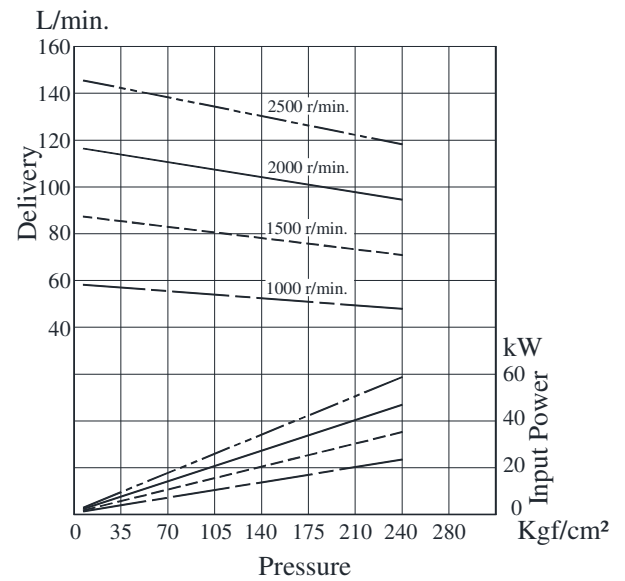
Kit Numbers	Piping Size BSP.F	Dimensions mm										Socket Head Cap Screw (4 Places)	O-Ring
		A	B	C	D	E	F	H	L	K	N		
HPV-F-0.75-U-W-10	3/4"	65	48	47.6	22.2	12	30	11	15	27.2	20	3/8-16TPI UNC x 1-3/4	SO-NB-G30
HPV-F-0.75-M-W-10												M10 x 45Lg.	
HPV-F-1-U-W-10	1"	70	55	52.4	26.2	14	30	11	15	33.9	25	3/8-16TPI UNC x 1-3/4	SO-NB-G35
HPV-F-1-M-W-10												M10 x 45Lg.	
HPV-F-1.25-U-W-10	1-1/4"	80	64	58.7	30.2	16	38	13.5	17	42.7	31.5	7/16-14TPI UNC x 2-1/4	SO-NB-G40
HPV-F-1.25-M-W-10												M12 x 60Lg.	
HPV-F-3-U-W-10	3"	135	116	106.4	62	25	48	17.5	27	89.4	71	5/8-11TPI UNC x 3	SO-NB-G90
HPV-F-3-M-W-10												M16 x 75Lg.	

Typical Pump Characteristics Oil Viscosity 20 cSt [ISO VG 32, Temp 50°C]

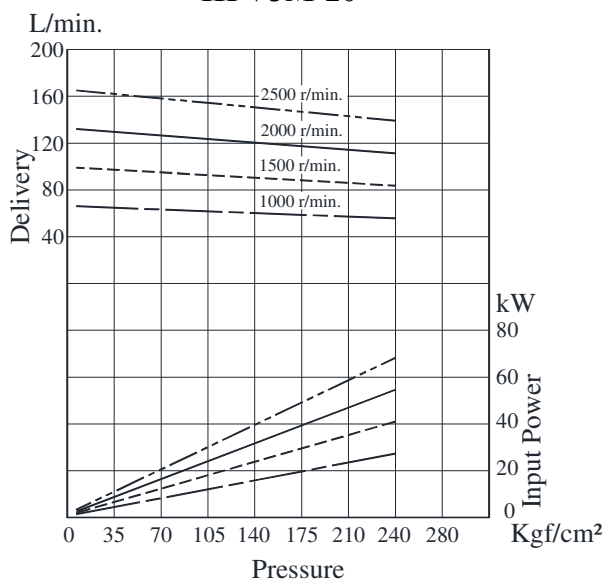
● HPV3M-14



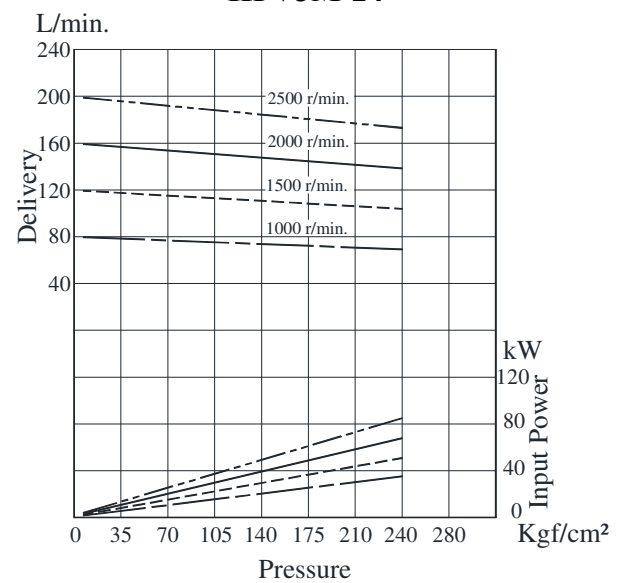
● HPV3M-17



● HPV3M-20

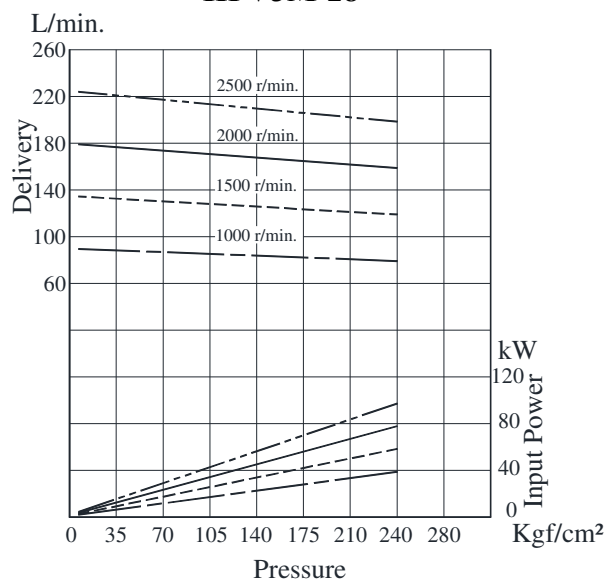


● HPV3M-24

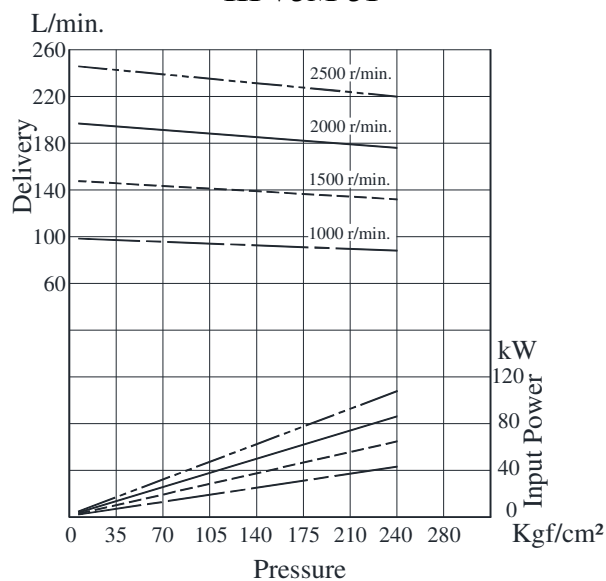


Typical Pump Characteristics Oil Viscosity 20 cSt [VG 32, Temp 50°C]

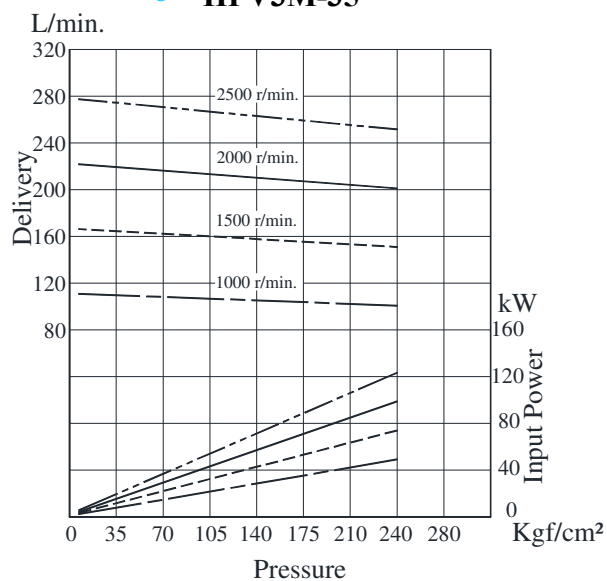
● HPV3M-28



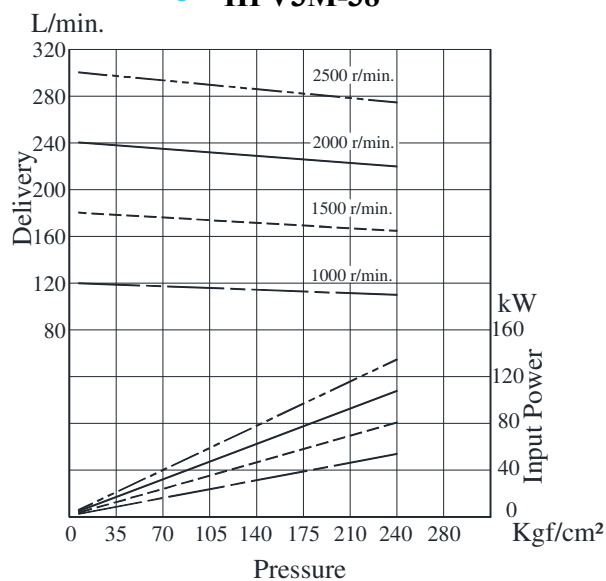
● HPV3M-31



● HPV3M-35

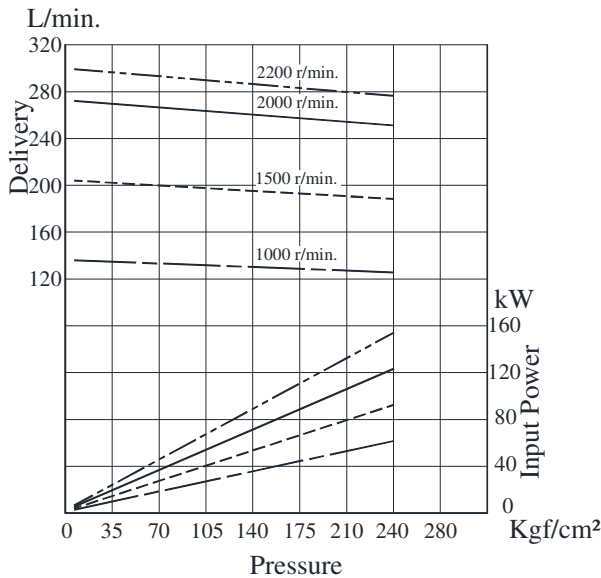


● HPV3M-38

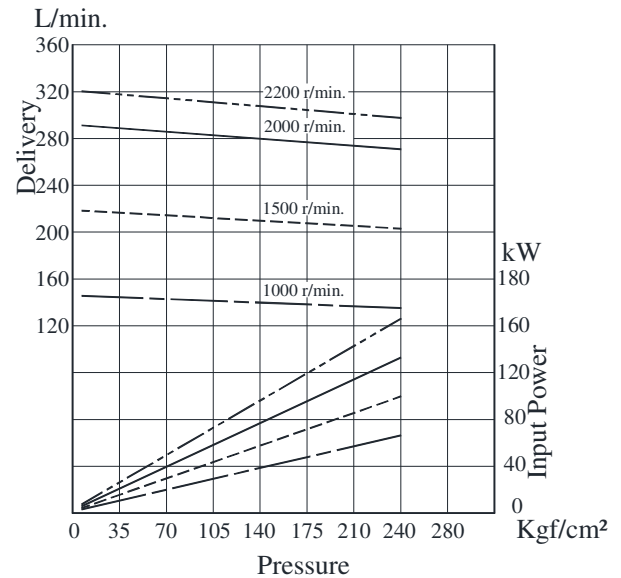


Typical Pump Characteristics Oil Viscosity 20 cSt [VG 32, Temp 50°C]

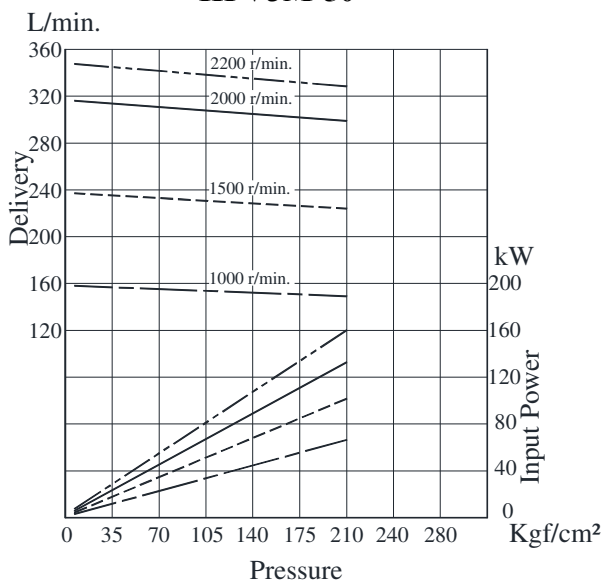
● HPV3M-42



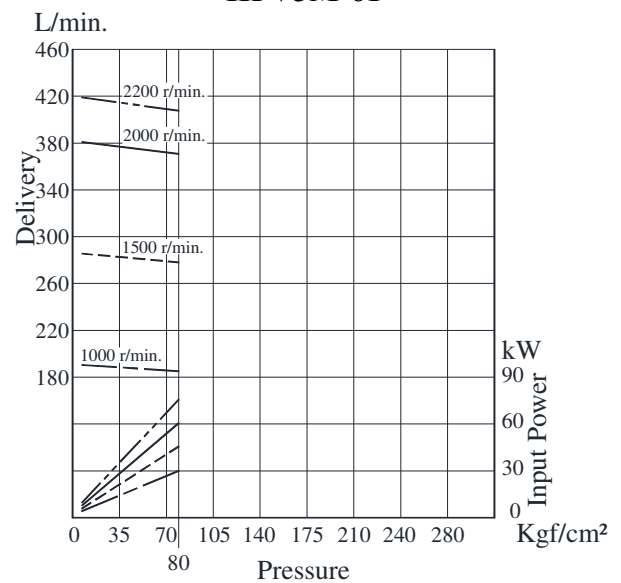
● HPV3M-45



● HPV3M-50



● HPV3M-61



Note :

For Typical Pump Characteristics of HPV2M, Refer Page no. 6,7,8 & 9.