

Piston Pump

Variable Displacement Piston Pump
Fixed Displacement Piston Pump



Contents

Piston Pump

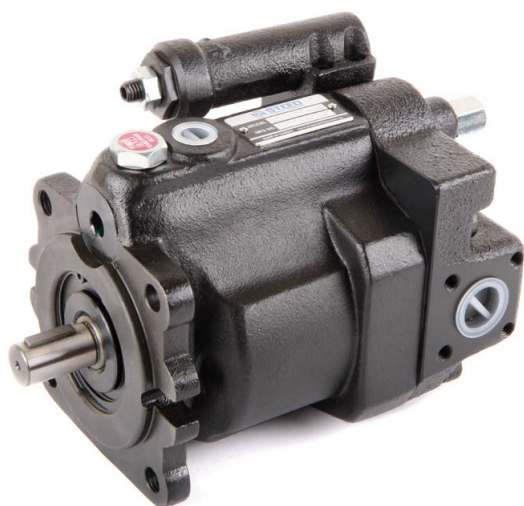
Variable Displacement Piston Pump

VPS	04
A	08
AR	16

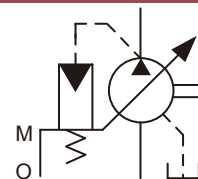
Fixed Displacement Piston Pump

SDL1	20
SDL2	22

VPS



SYMBOLS



ORDER CODES

VPS	-	F	-	10	-	A3	-	AB	-	S
1		2		3		4		5		6

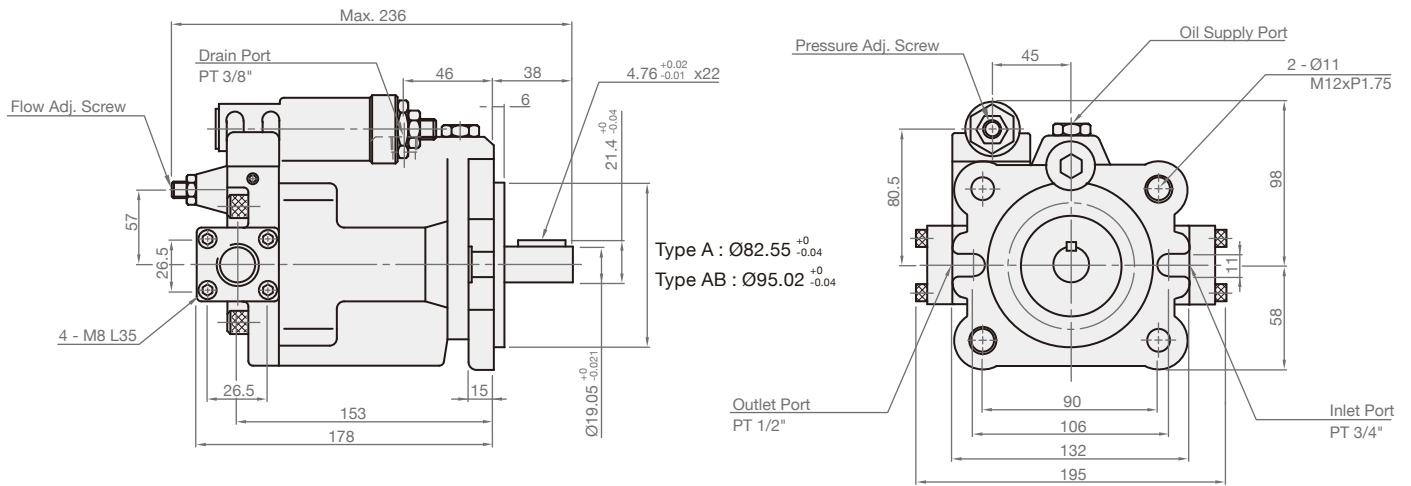
1	Model Name	VPS	
2	Mounting	F	flange type
		L	foot type
3	Delivery	10, 16, 23, 38, 43, 70	
4	Pressure Adj. Range	A3	30~210 kgf/cm ²
5	Flange Mounting Size *	A	Ø82.55
		AB	Ø95.02
6	Shaft Type *	none	straight shaft 19.05
		S	spline shaft 13T

* VPS-10, 16, 23 only

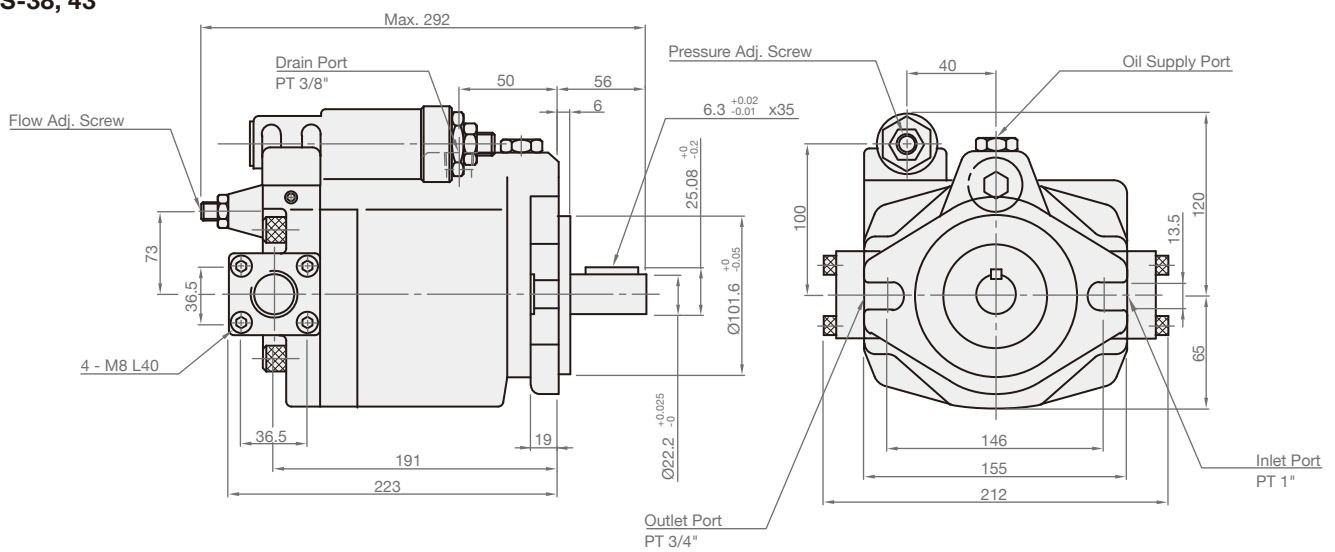
MODEL SPEC.

Model	Max. Pressure (kgf/cm ²)	Rated Pressure (kgf/cm ²)	Max. Output (l/min)	Speed (r.p.m.)		Ports Size (PT)			Weight (kg)
				Min.	Max.	Outlet	Inlet	DR	Flange Type
VPS-10	210	175	18	500	1800	3/4"	3/4"	3/8"	12
VPS-16			29.8			3/4"	3/4"	3/8"	13
VPS-23			40.5			3/4"	3/4"	3/8"	14
VPS-38			68			1"	1 1/4"	1/2"	24
VPS-43			77.4			1"	1 1/4"	1/2"	26
VPS-70			127.8			1 1/2"	1 1/2"	3/4"	48

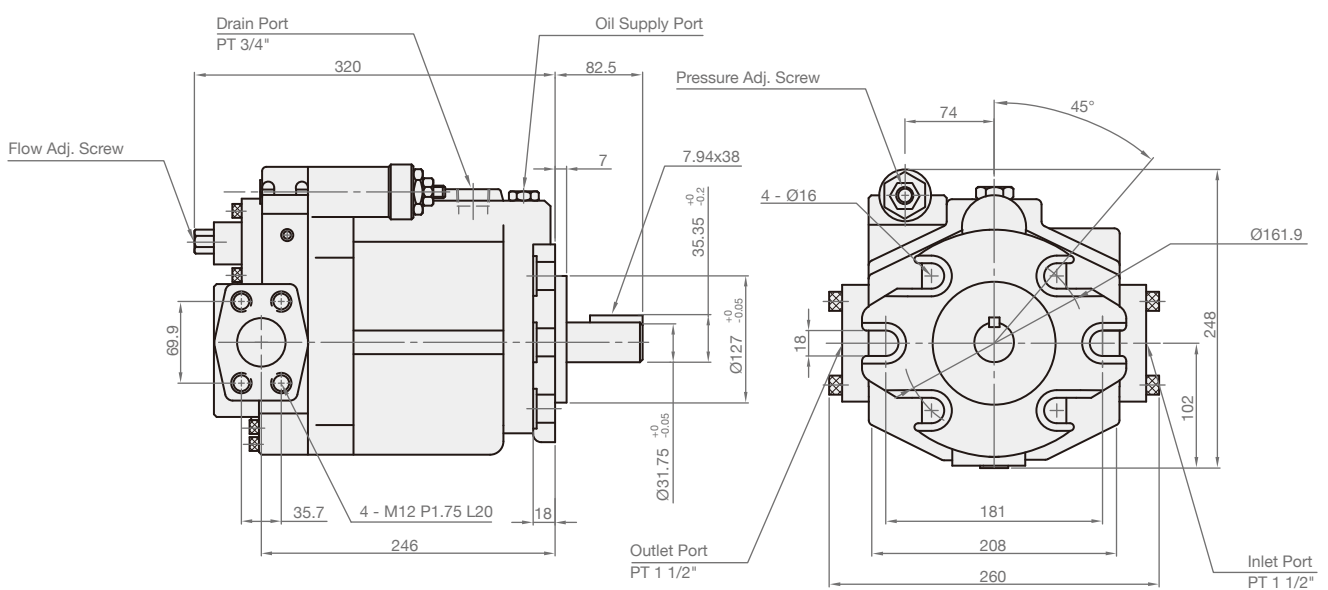
► VPS-10, 16, 23



► VPS-38, 43



► VPS-70



► Noise Characteristics (JIS B 8350, measuring position: 1 m from pump front)

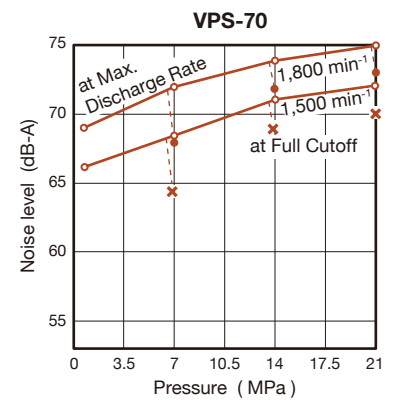
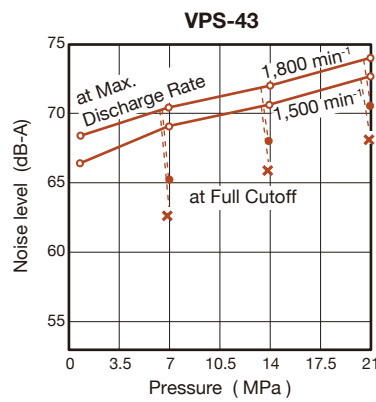
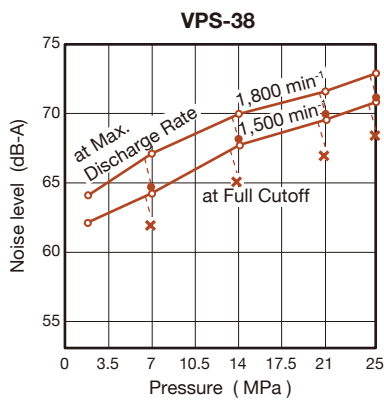
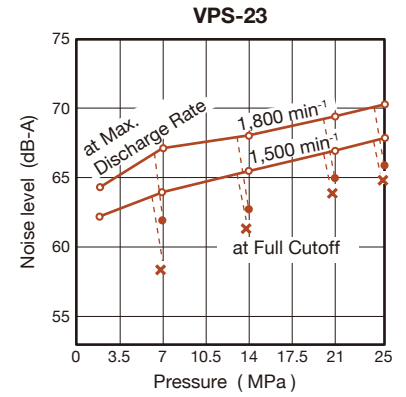
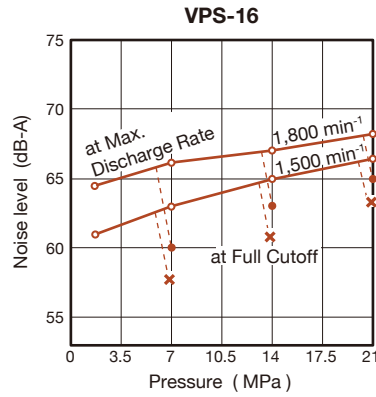
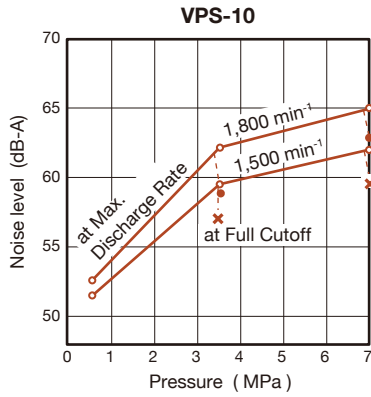
Input rotational speed : 1,800 min⁻¹, 1,500 min⁻¹

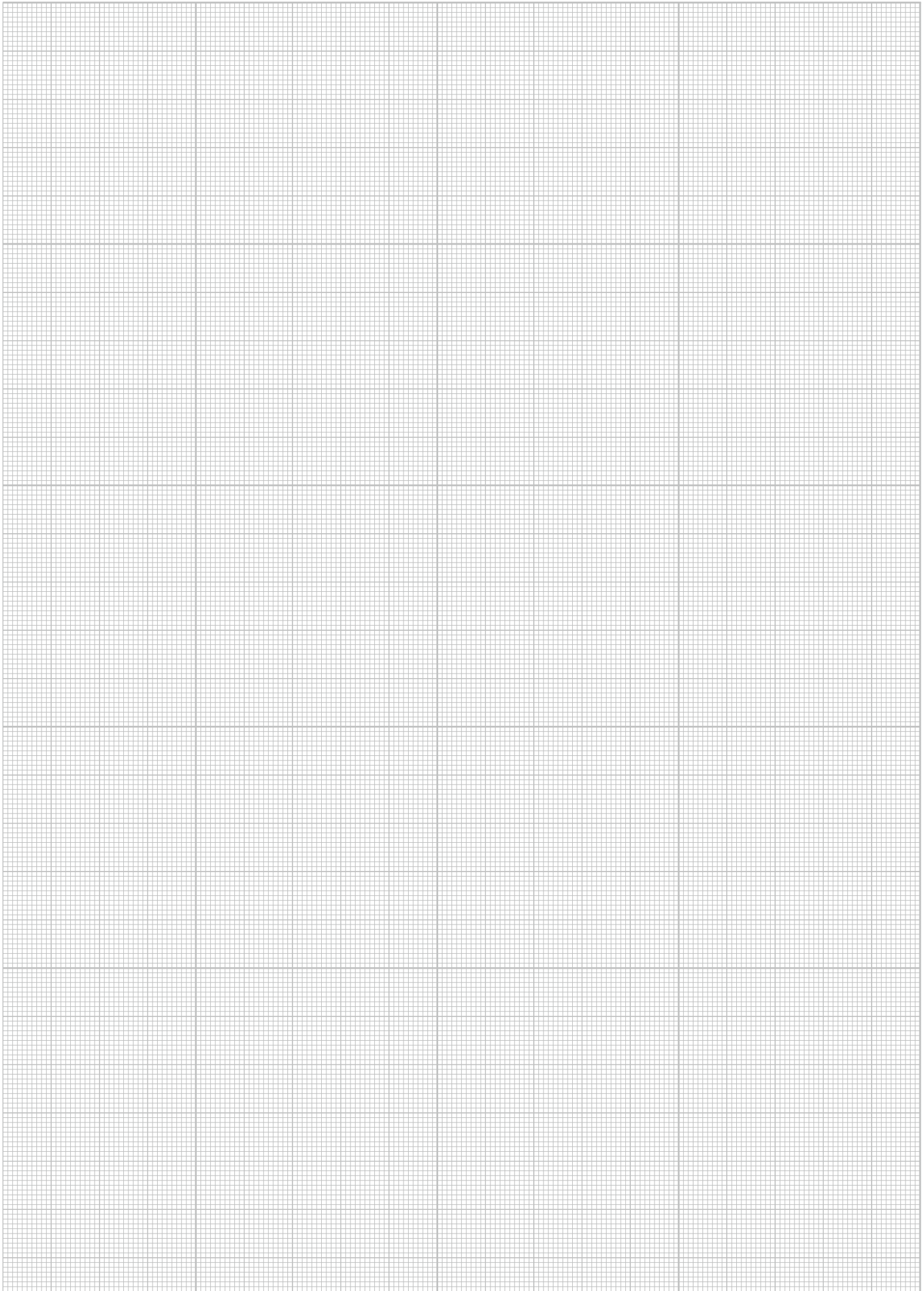
Fluid used : equivalent to ISO VG32

Oil temperature : 50°C

● At full-cutoff at 1,800 min⁻¹

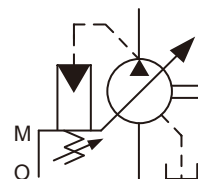
✕ At full-cutoff at 1,500 min⁻¹





A

SYMBOLS



ORDER CODES

A **16** - **F** **R** **01** - **H** - **S** - **K** - **32**

1 2 3 4 5 6 7 8 9

1	Model Name	A	
2	Delivery	10, 16, 22, 37, 56	
3	Mounting	F	flange type
4	Direction of Rotation (Viewed from Shaft Side)	R	clockwise direction
5	Control Type	01	pressure compensator type
6	Pressure Adj. Range (MPa)	H	A10 : 2.0 ~ 21 A16, A22, A37, A56 : 1.2 ~ 21
		B	1.2 ~ 7
7	Port Position	none	axial port
		S	side port *
8	Shaft Extension	K	keyed shaft
9	Design Number	32	

* Only for A37, A56

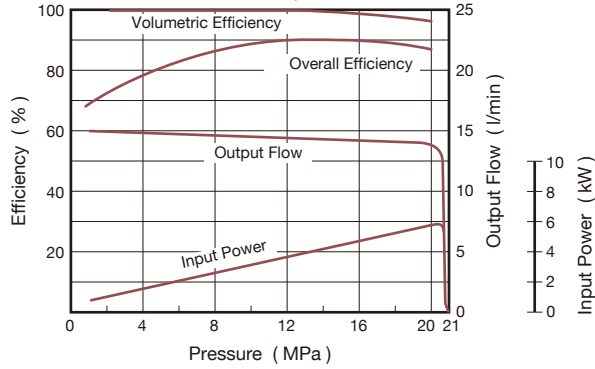
MODEL SPEC.

Model	Geometric Displacement (cm ³ /rev)	Min. Adj. Flow (cm ³ /rev)	Operating Pressure (MPa)		Shaft Speed Range (r.p.m.)		Weight (kg)
			Rated	Intermittent	Min.	Max.	Flange Type
A10	10	2	16	21	600	1800	8.5
A16	15.8	4	16	21	600	1800	16.5
A22	22.2	6	16	16	600	1800	16.5
A37	36.9	10	16	21	600	1800	28
A56	56.2	12	16	21	600	1800	35

► A10

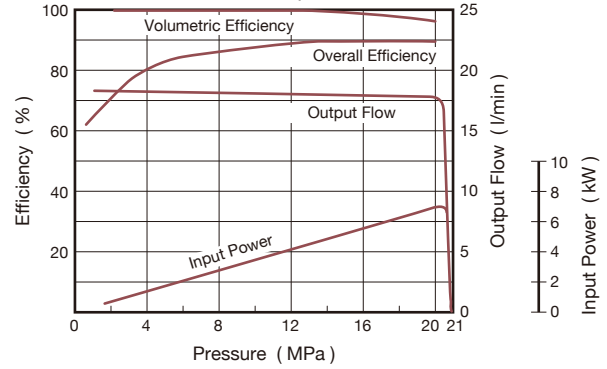
Performance Characteristic Curve

N = 1500 r.p.m.



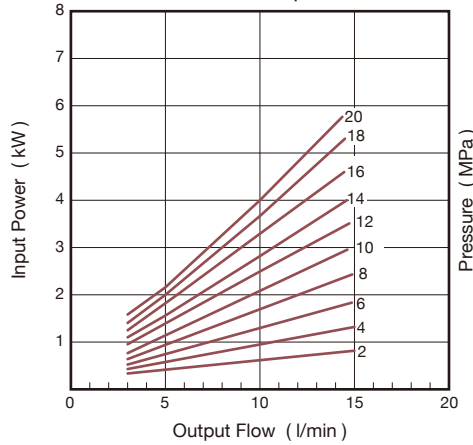
Performance Characteristic Curve

N = 1800 r.p.m.



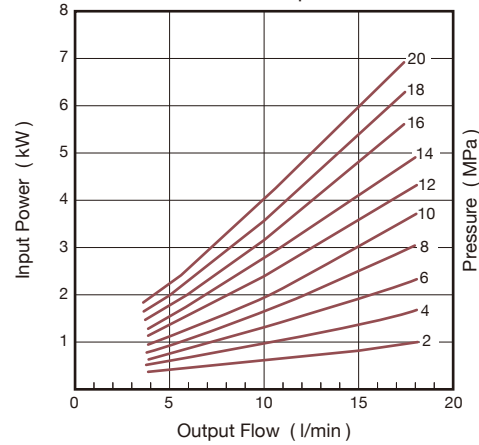
Input Power

N = 1500 r.p.m.

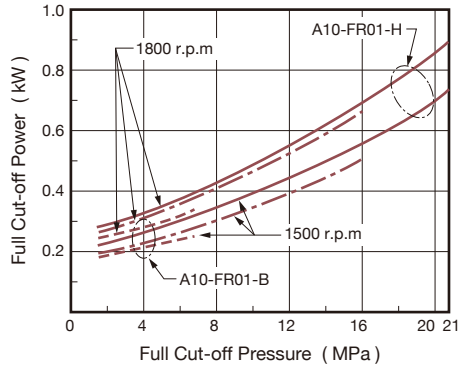


Input Power

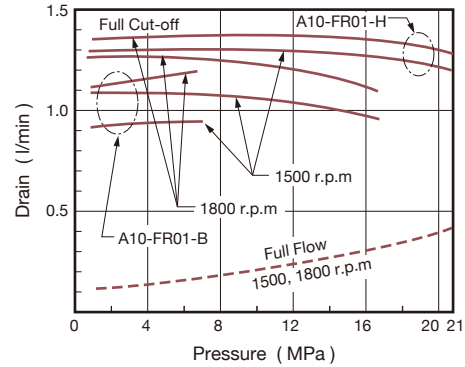
N = 1800 r.p.m.



Full Cut-off Power



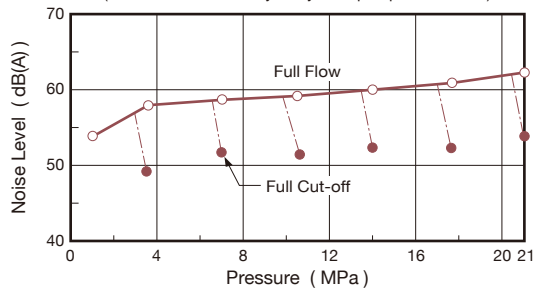
Drain



Noise Level

N = 1500 r.p.m.

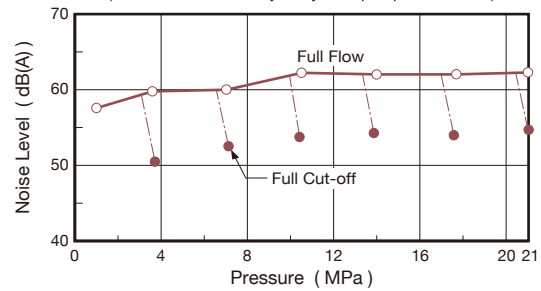
(One metre horizontally away from pump head cover)



Noise Level

N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

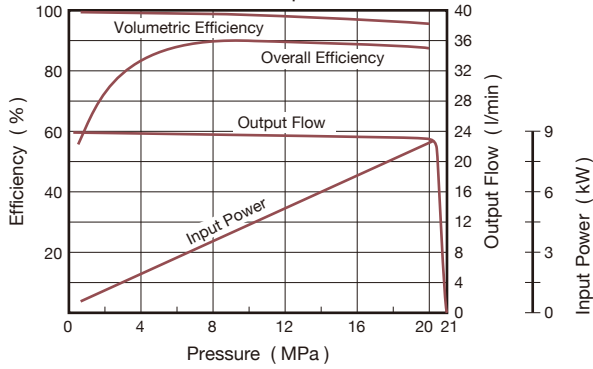


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► A16

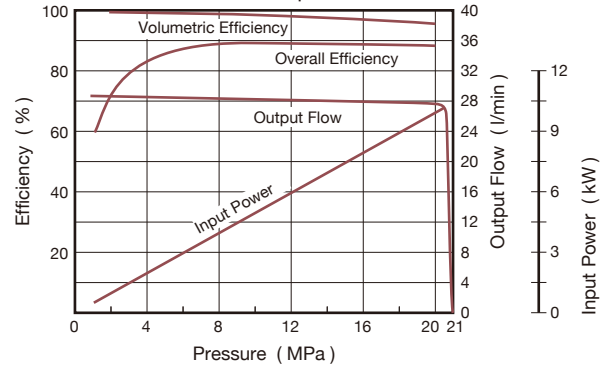
Performance Characteristic Curve

N = 1500 r.p.m.



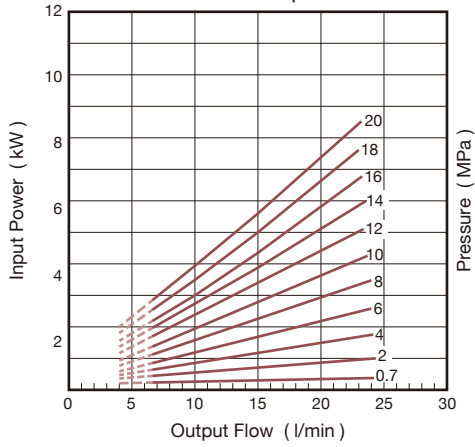
Performance Characteristic Curve

N = 1800 r.p.m.



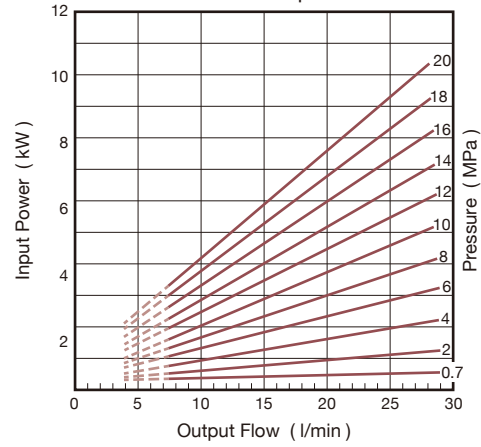
Input Power

N = 1500 r.p.m.

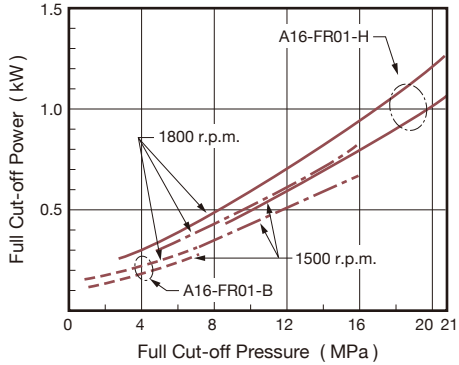


Input Power

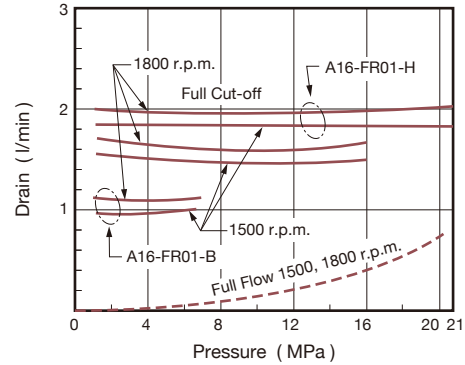
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Full Cut-off Power



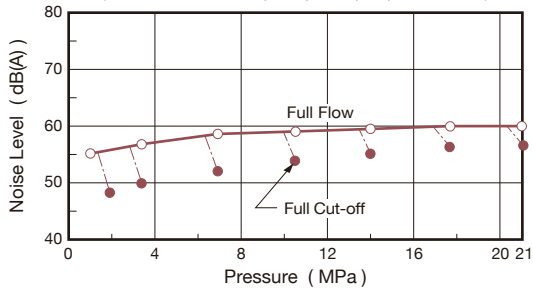
Drain



Noise Level

N = 1500 r.p.m.

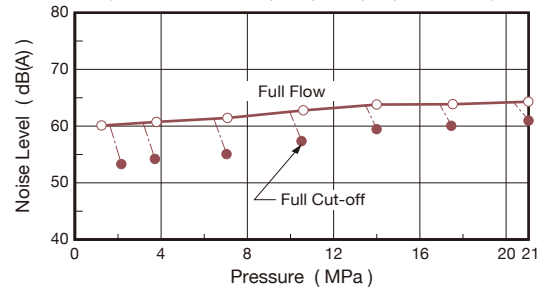
(One metre horizontally away from pump head cover)



Noise Level

N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

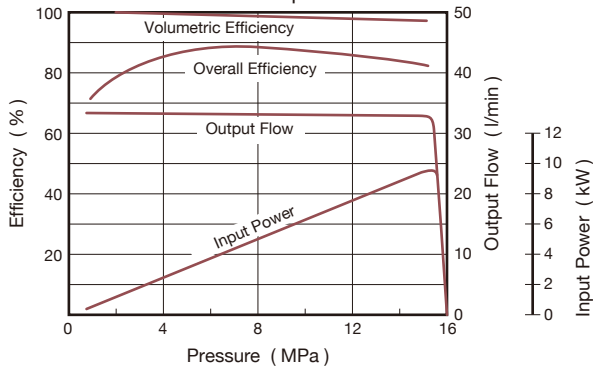


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► A22

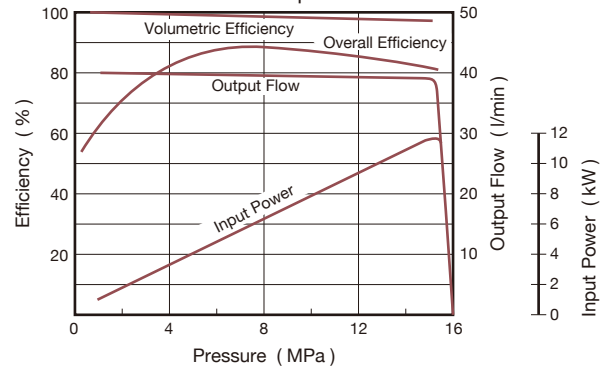
Performance Characteristic Curve

N = 1500 r.p.m.



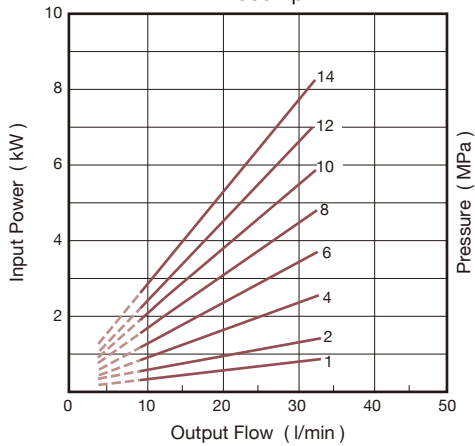
Performance Characteristic Curve

N = 1800 r.p.m.



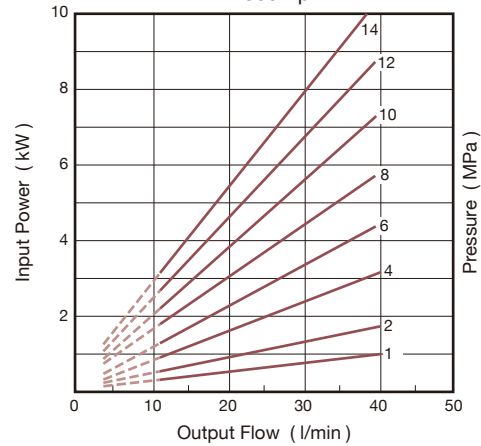
Input Power

N = 1500 r.p.m.

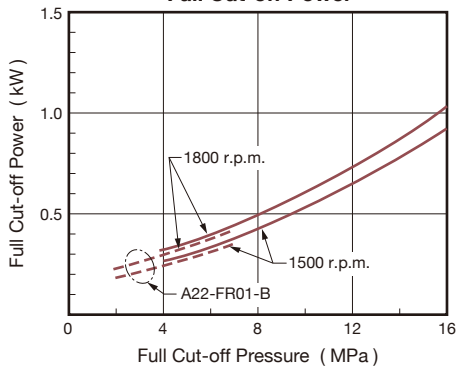


Input Power

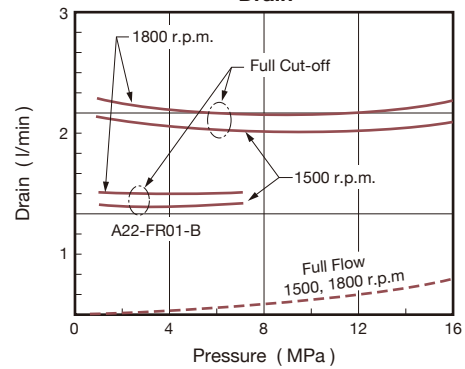
N = 1800 r.p.m.



Full Cut-off Power



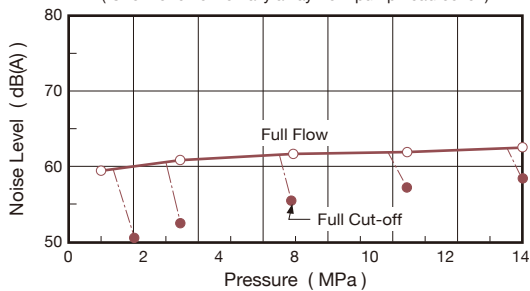
Drain



Noise Level

N = 1500 r.p.m.

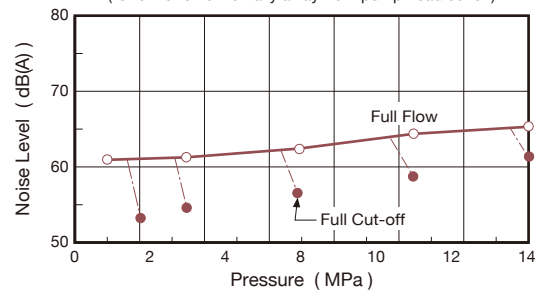
(One metre horizontally away from pump head cover)



Noise Level

N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

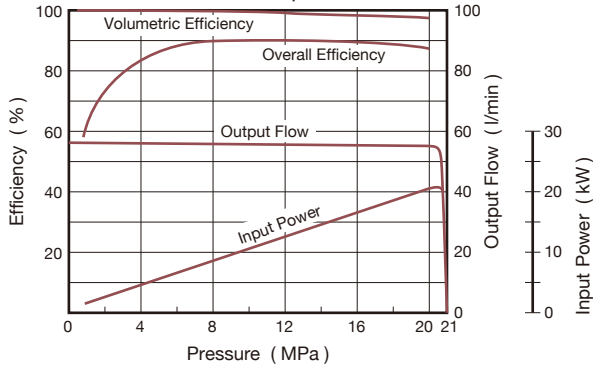


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► A37

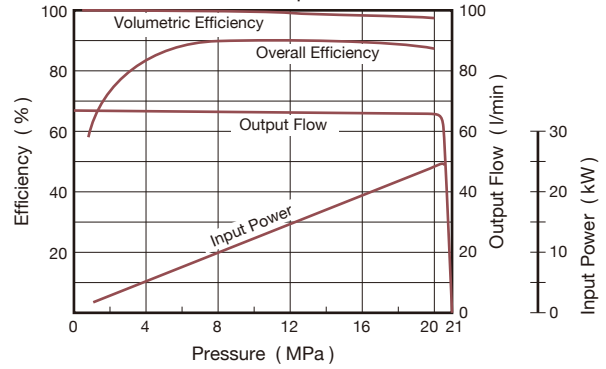
Performance Characteristic Curve

N = 1500 r.p.m.



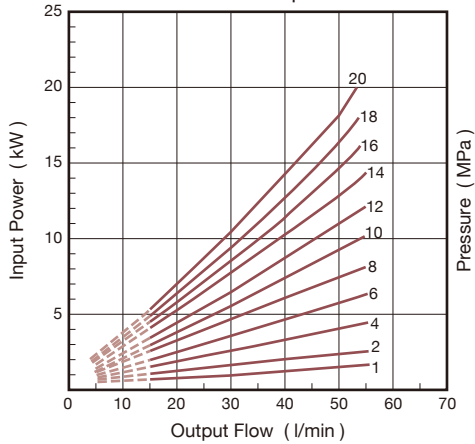
Performance Characteristic Curve

N = 1800 r.p.m.



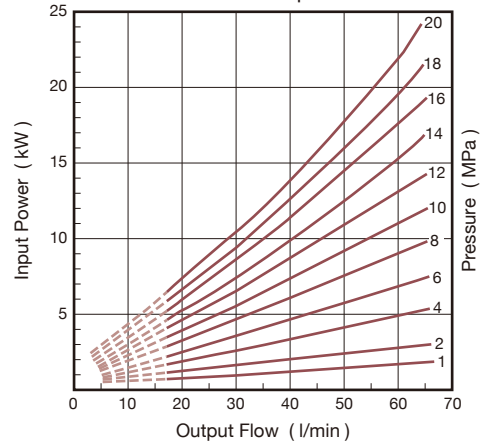
Input Power

N = 1500 r.p.m.

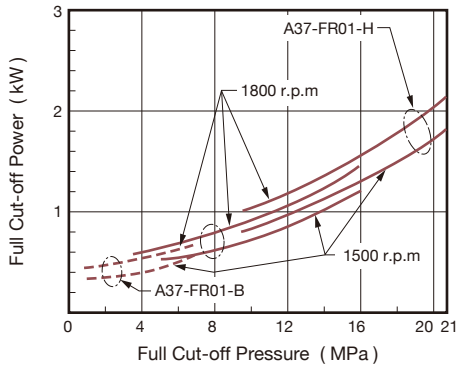


Input Power

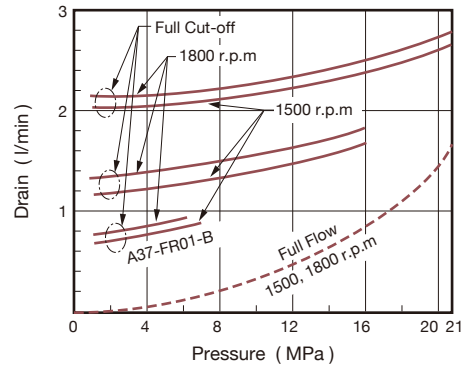
N = 1800 r.p.m.



Full Cut-off Power



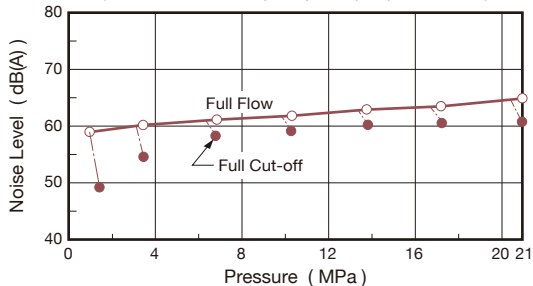
Drain



Noise Level

N = 1500 r.p.m.

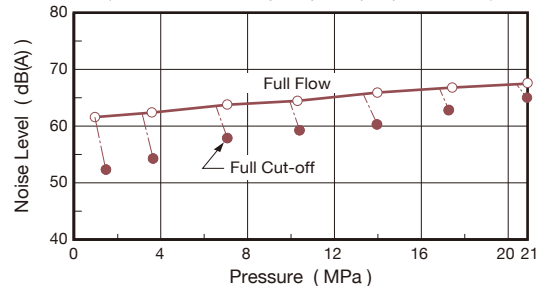
(One metre horizontally away from pump head cover)



Noise Level

N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

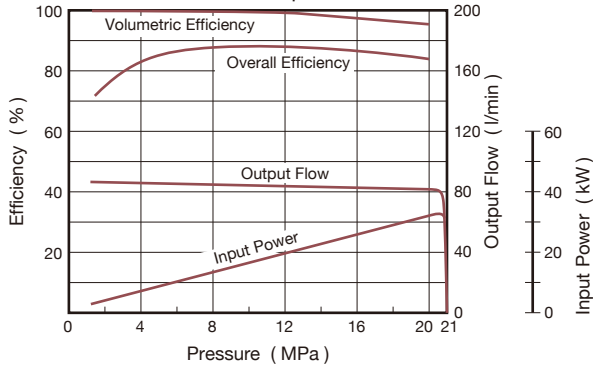


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► A56

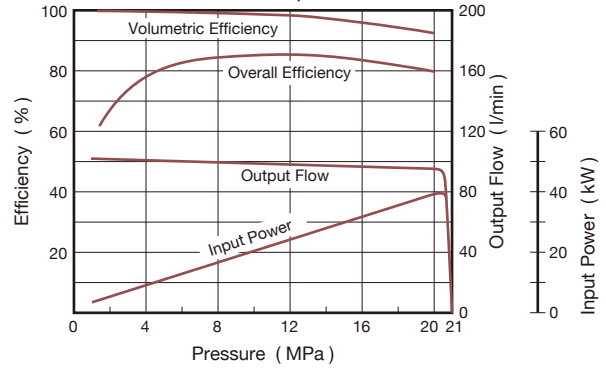
Performance Characteristic Curve

N = 1500 r.p.m.



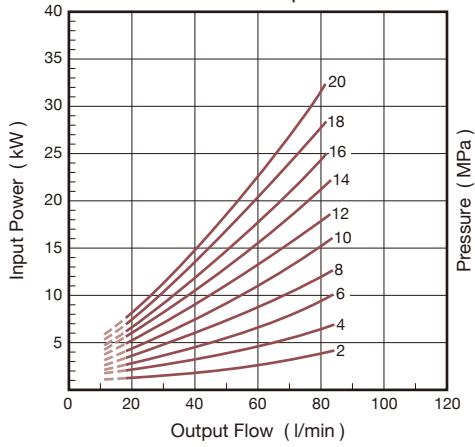
Performance Characteristic Curve

N = 1800 r.p.m.



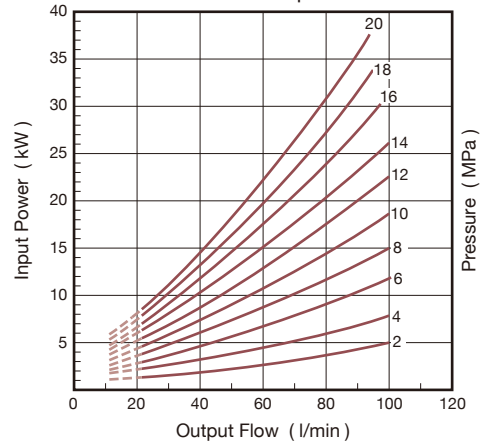
Input Power

N = 1500 r.p.m.

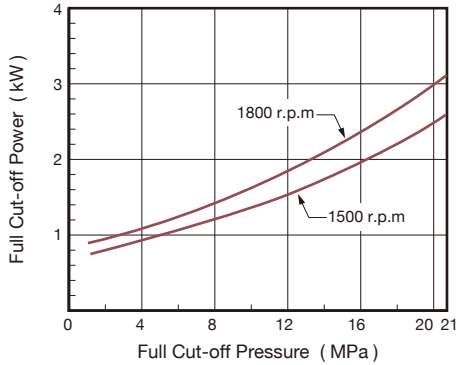


Input Power

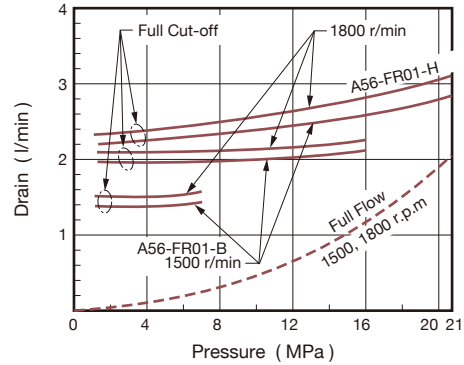
N = 1800 r.p.m.



Full Cut-off Power



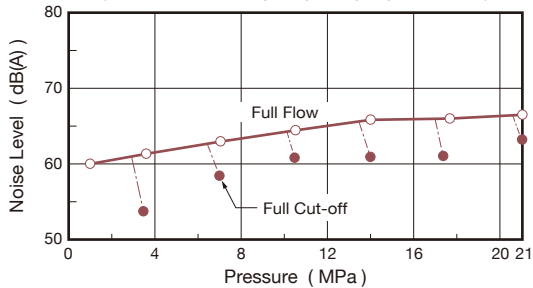
Drain



Noise Level

N = 1500 r.p.m.

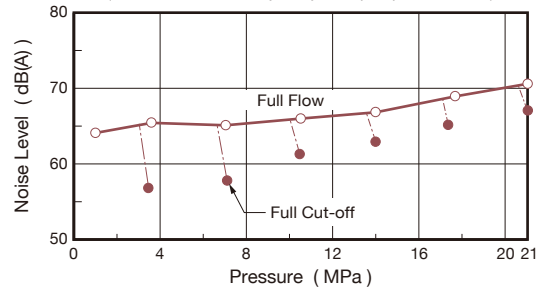
(One metre horizontally away from pump head cover)



Noise Level

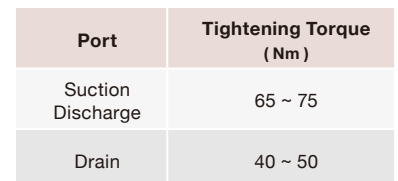
N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

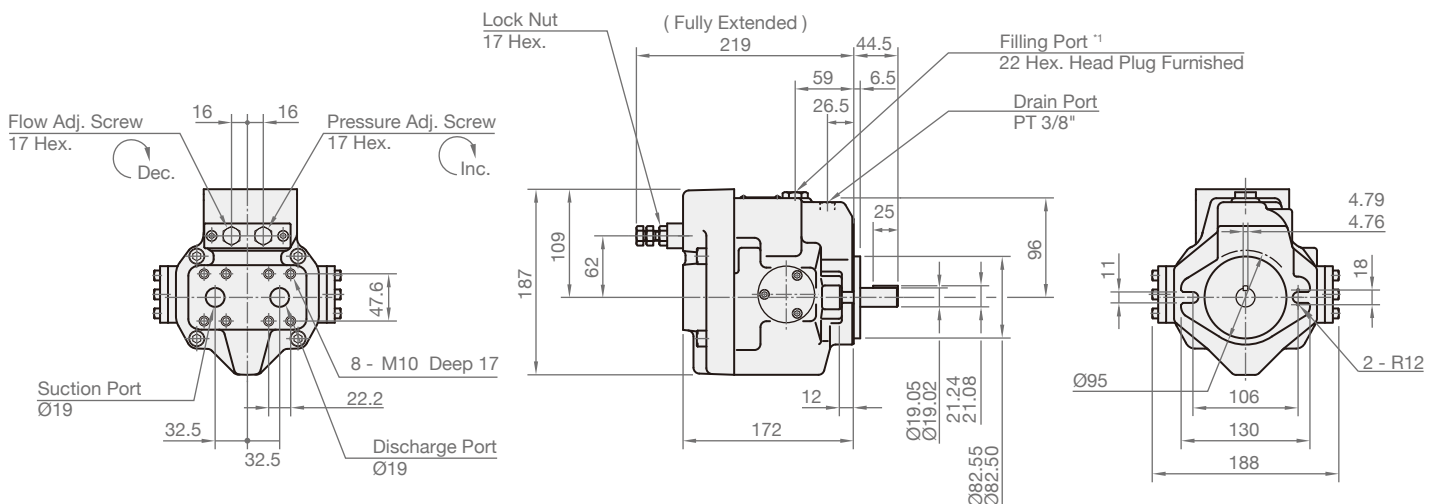


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► **A16, A22**

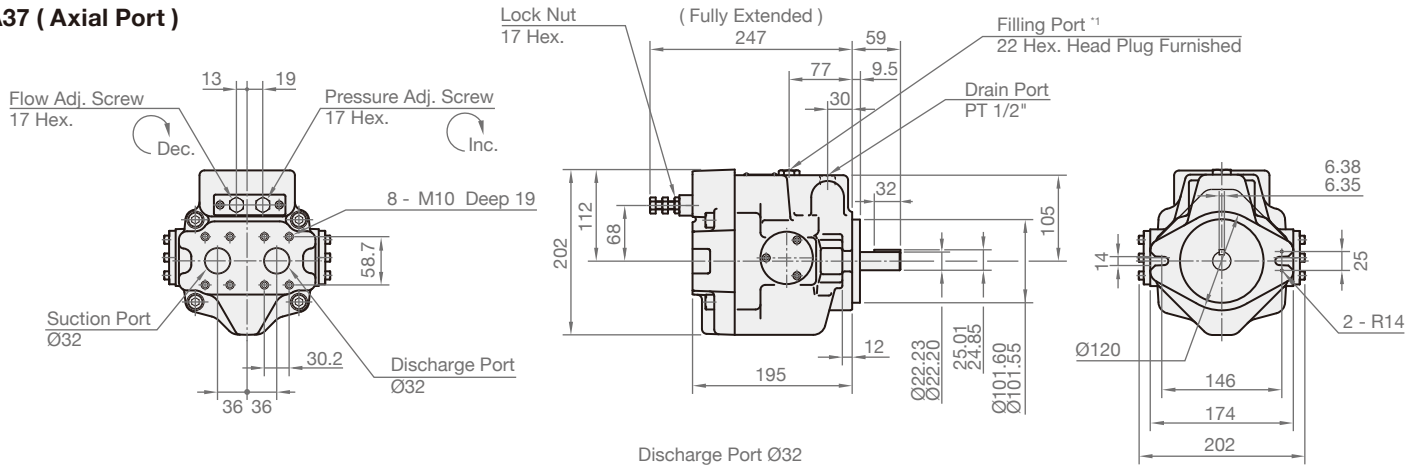


*3. As the tightening torques of suction, discharge and drain port fittings, conform to the below.

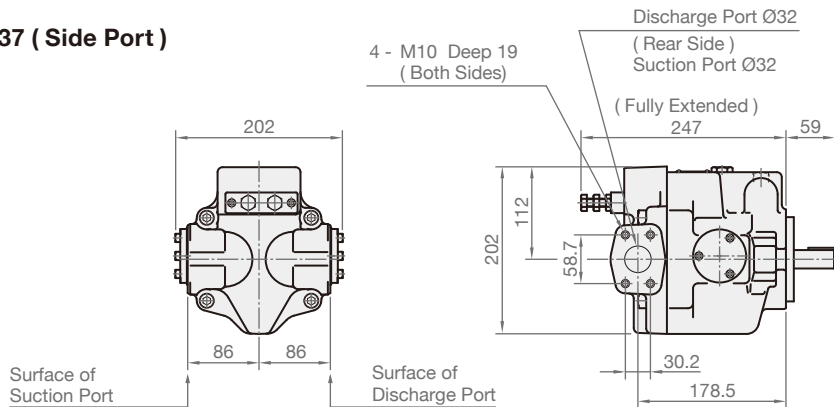


*1. Install the pump so that the "Filling Port" is at the top.

► A37 (Axial Port)

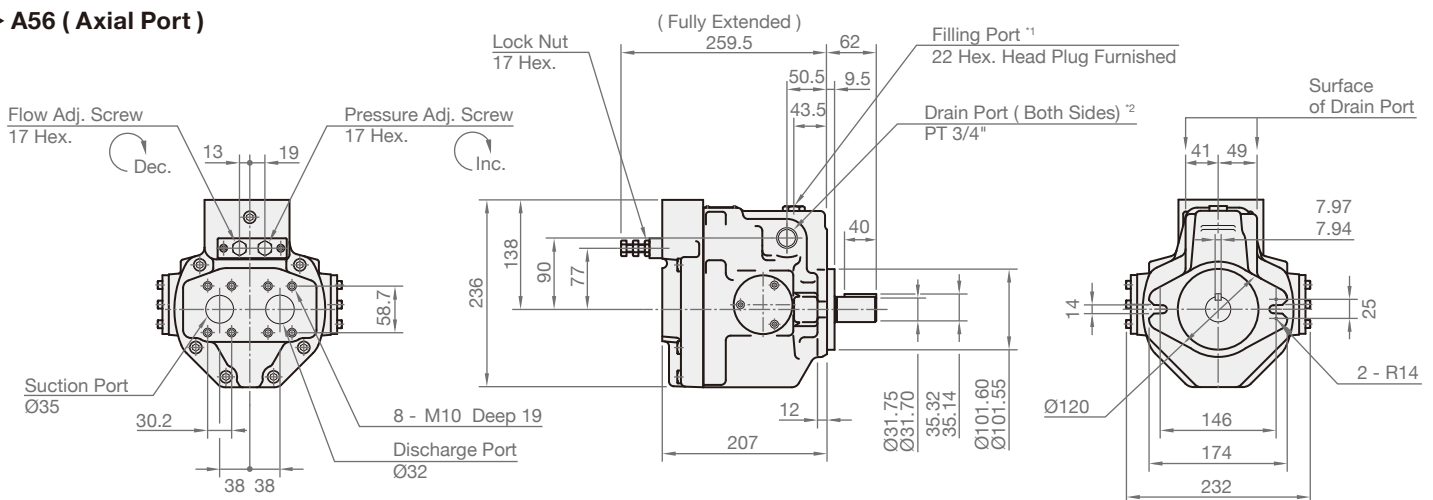


► A37 (Side Port)

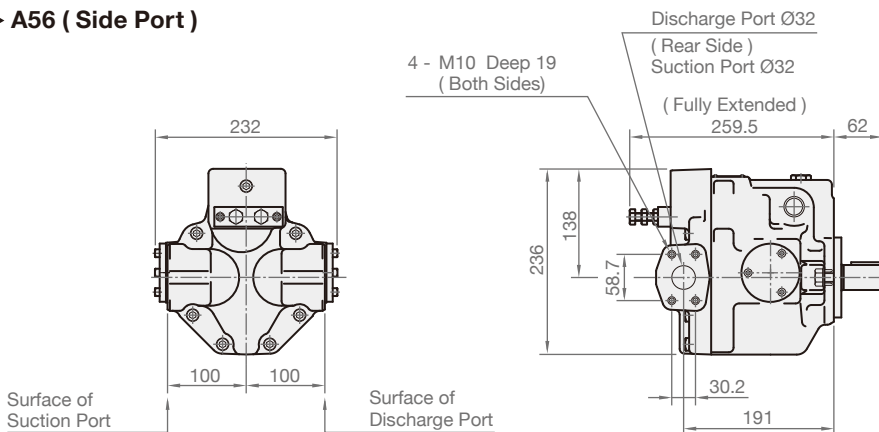


*1. Install the pump so that the "Filling Port" is at the top.

► A56 (Axial Port)



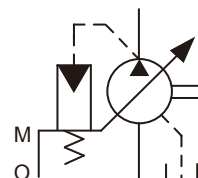
► A56 (Side Port)



*1. Install the pump so that the "Filling Port" is at the top.

AR

SYMBOLS



ORDER CODES

AR	16	-	F	R	01	-	C	S	-	20
1	2		3	4	5		6	7		8

1	Model Name	AR	
2	Delivery	16, 22	
3	Mounting	F	flange type
4	Direction of Rotation (Viewed from Shaft Side)	R	clockwise direction
		L	counter clockwise
5	Control Device	01	
6	Pressure Adj. Range (bar)	B	2 ~ 70
		C	12~210
7	Port Position	none	axial port
		S	side port
8	Design Number	20	

MODEL SPEC.

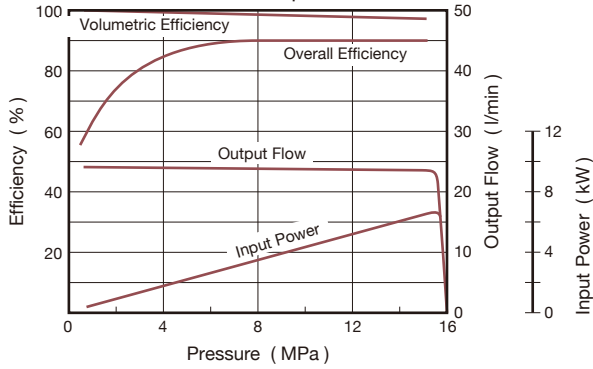
Model	Geometric Displacement (cm ³ /rev)	Min. Adj. Flow (cm ³ /rev)	Operating Pressure (MPa)		Speed (r.p.m.)		Weight (kg)
			Rated	Intermittent *	Min.	Max.	
AR16	15.8	6.0	16	16	600	1800	11.9
AR22	22.2	8.5	16	16	600	1800	12.6

* When setting the pressure, make sure the full cut-off pressure never exceeds the max. intermittent pressure.

► A16

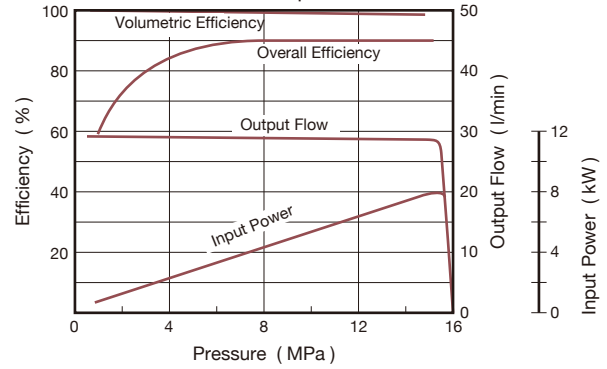
Performance Characteristic Curve

N = 1500 r.p.m.



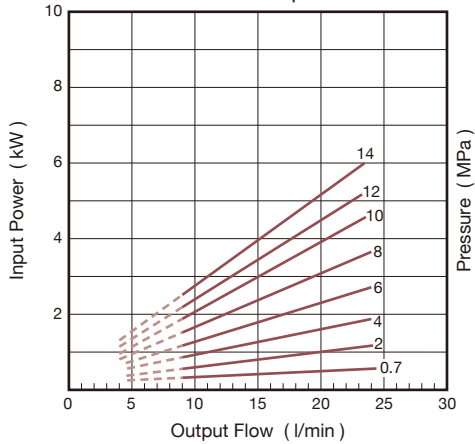
Performance Characteristic Curve

N = 1800 r.p.m.



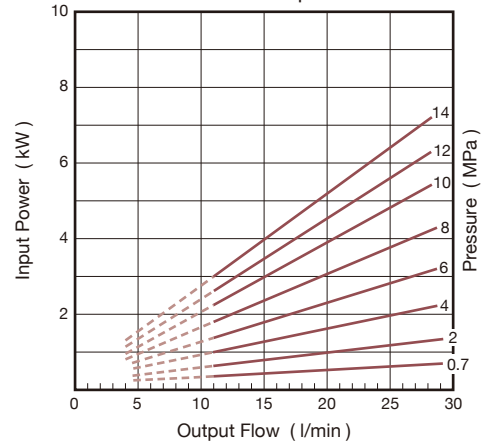
Input Power

N = 1500 r.p.m.

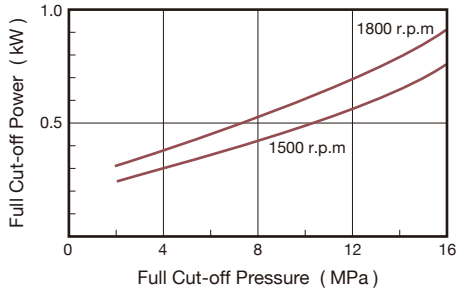


Input Power

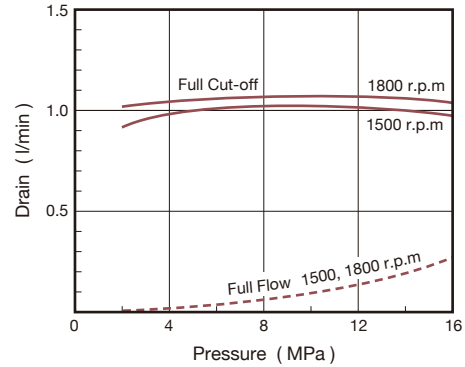
N = 1800 r.p.m.



Full Cut-off Power



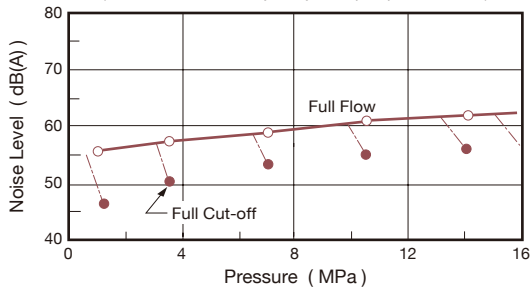
Drain



Noise Level

N = 1500 r.p.m.

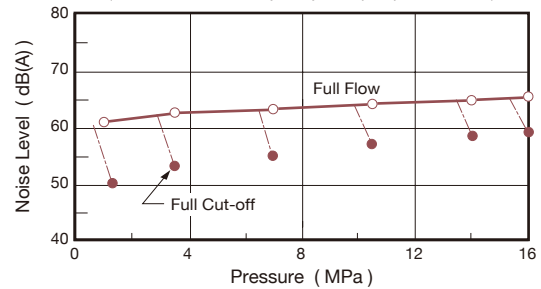
(One metre horizontally away from pump head cover)



Noise Level

N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

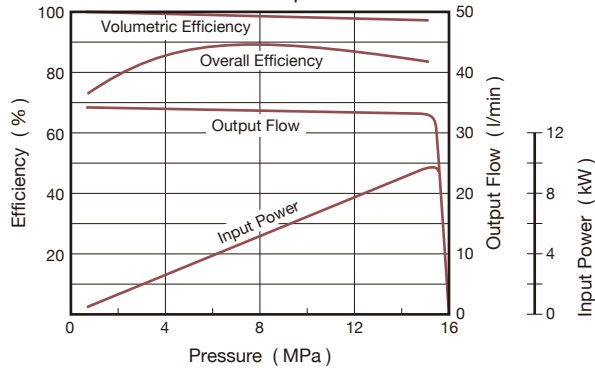


* Hydraulic oil : ISO VG32, oil temperature : 50°C

► A22

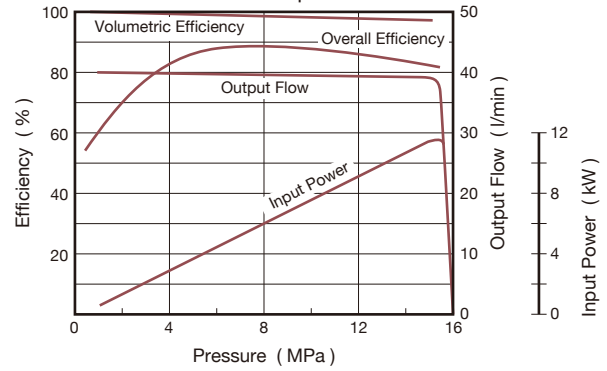
Performance Characteristic Curve

N = 1500 r.p.m.



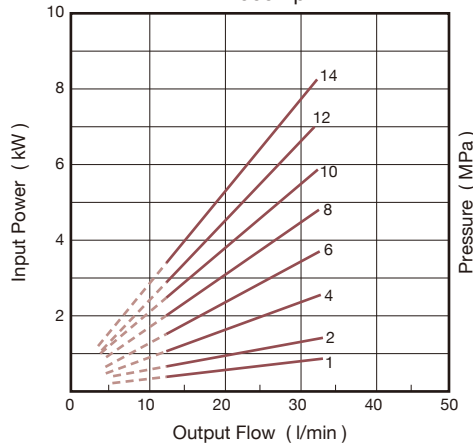
Performance Characteristic Curve

N = 1800 r.p.m.



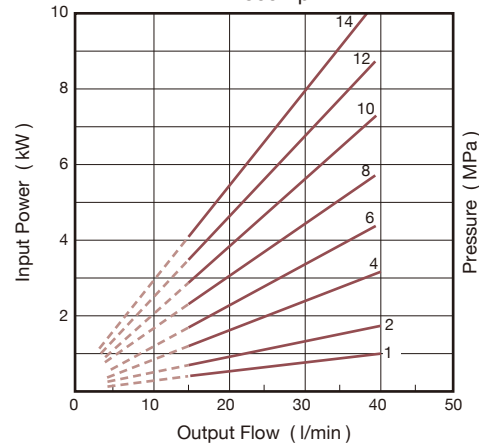
Input Power

N = 1500 r.p.m.

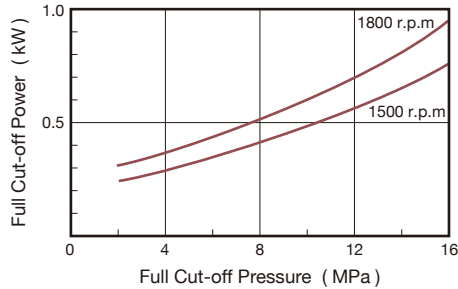


Input Power

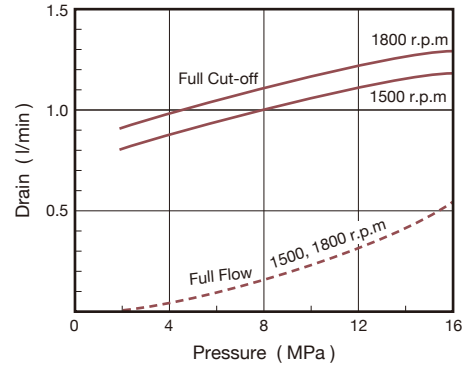
N = 1800 r.p.m.



Full Cut-off Power



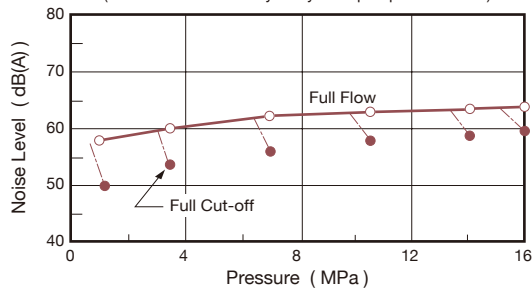
Drain



Noise Level

N = 1500 r.p.m.

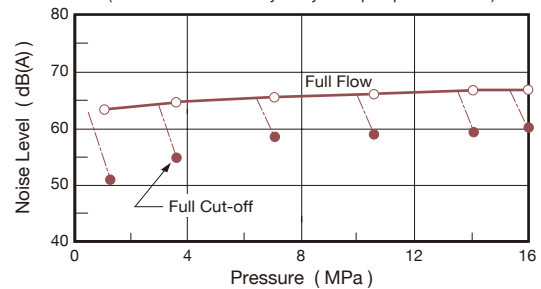
(One metre horizontally away from pump head cover)



Noise Level

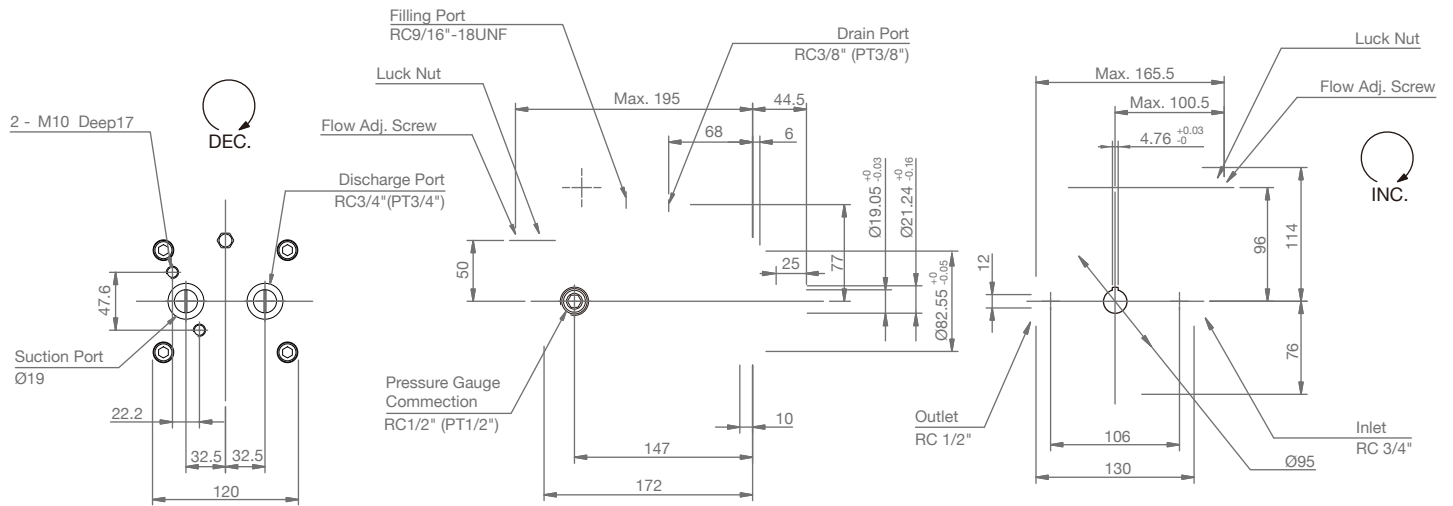
N = 1800 r.p.m.

(One metre horizontally away from pump head cover)

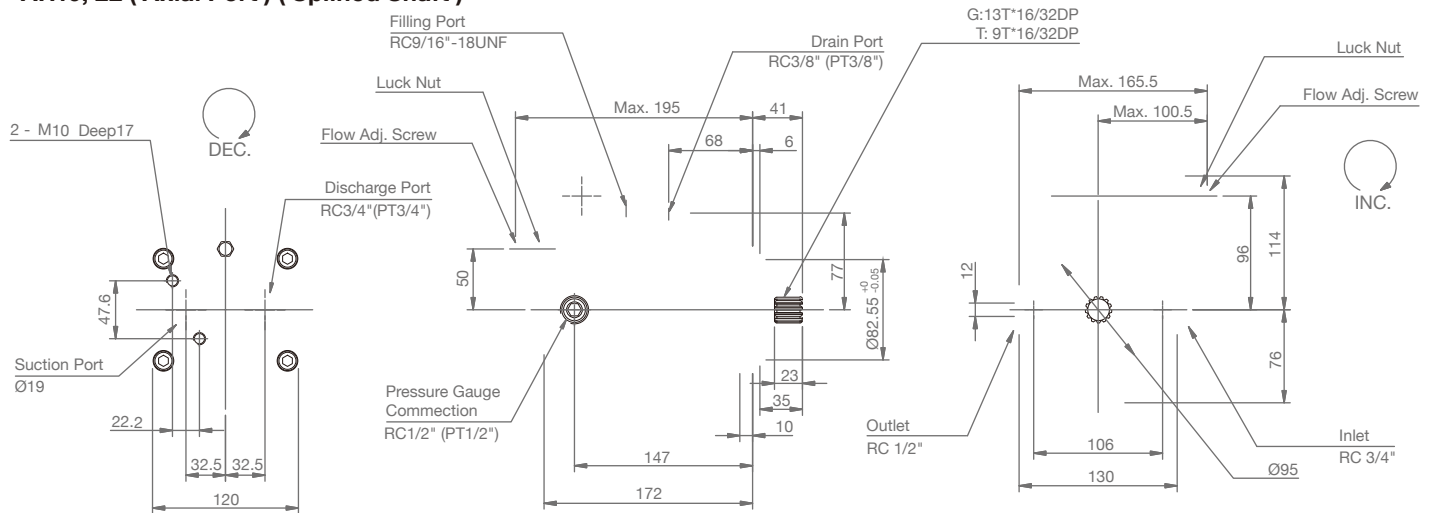


* Hydraulic oil : ISO VG32, oil temperature : 50°C

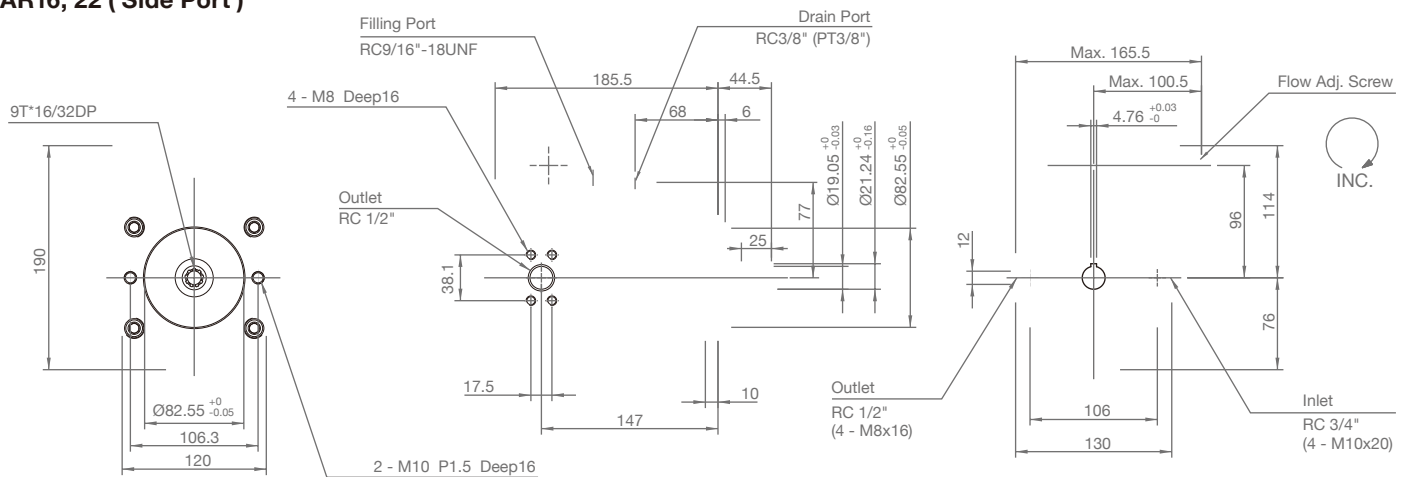
► AR16, 22 (Axial Port)



► AR16, 22 (Axial Port) (Splined Shaft)



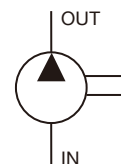
► AR16, 22 (Side Port)



SDL1



SYMBOLS



ORDER CODES

SDL1 - 35 - 1 5E

1

2

3

4

1	Model Name	SDL1	
2	Displacement	21, 28, 35, 42, 48, 52, 55, 60	
3	Thread	1	PF (BSPP, G)
4	Mounting & Shaft Type	2C	DIN 5462 (8*32*36)
		5E	SAE B - 13T

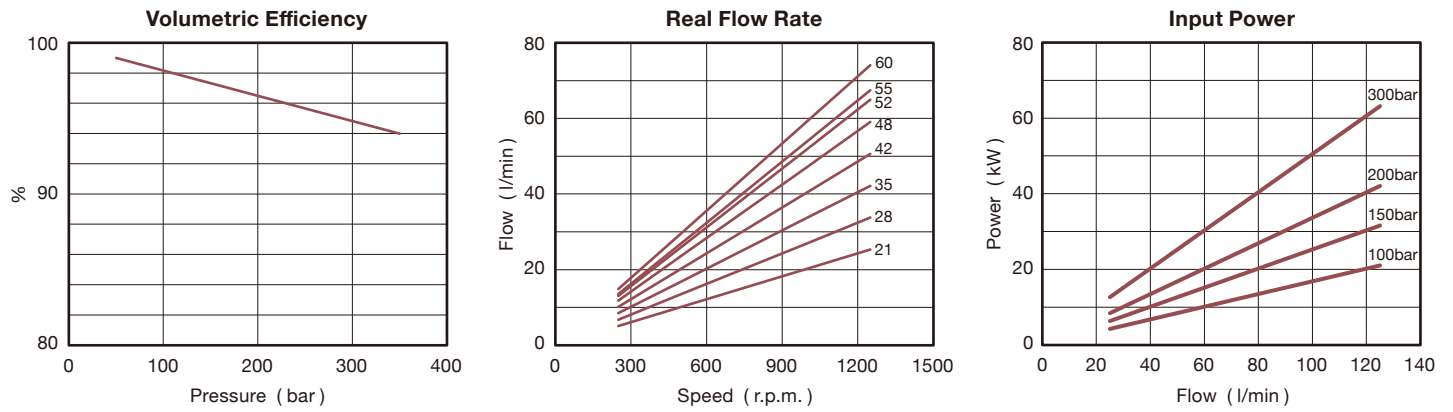
MODEL SPEC.

Model	Displacement (cm ³ /rev)	Operating Pressure (bar)	Max. Pressure (bar)	Max. Speed (r.p.m.)	
SDL1-21	20.25	350	400	1800	
SDL1-28	27.00				
SDL1-35	33.75				
SDL1-42	40.50				
SDL1-48	47.25				
SDL1-52	51.97	300	350	1500	
SDL1-55	54.00				
SDL1-60	59.30				
Direction of Rotation	Suction Port Pressure (bar)	Viscosity (mm ² /s)	Operating Temperature	Filtration Fineness	Weight (kg)
Bi-Direction	0.85 ~ 2	10 ~ 100	-15 ~ 100°C (5 ~ 212°F)	>200 bar : 10 um <200 bar : 25 um	13.5

* Verify that pump is at least 100 under the min. level of the tank. Bleed the air before starting the pump.

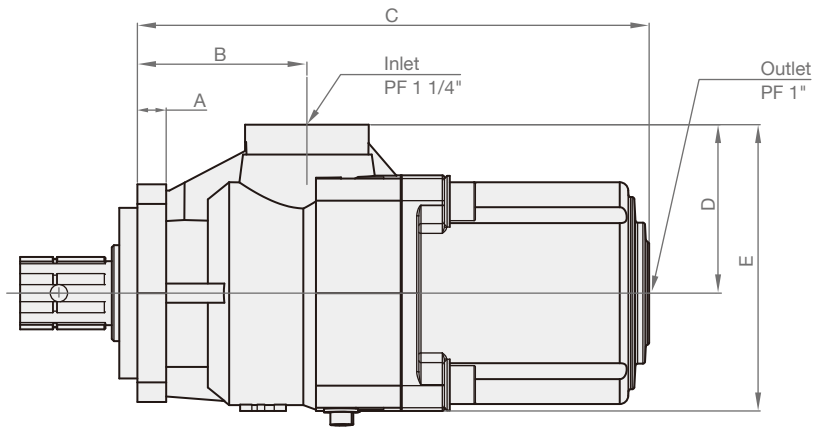
CURVE

(UNIT : mm)



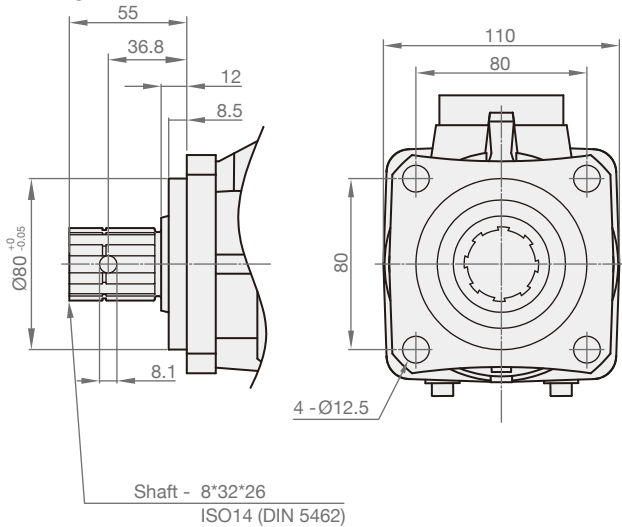
DIMENSION

(UNIT : mm)

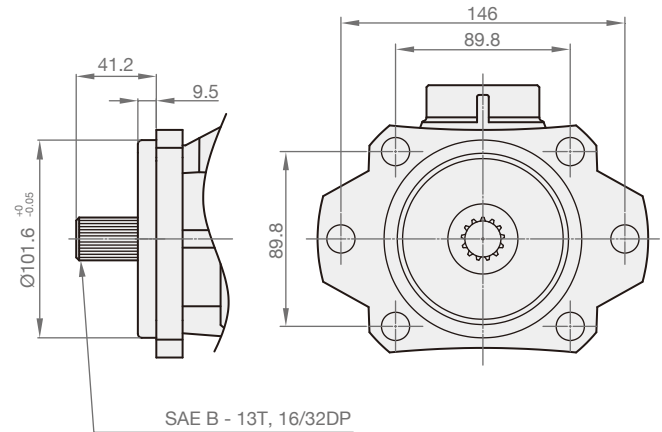


Model	A	B	C	D	E
SDL1-2C	13.5	79.5	240	80	135
SDL1-5E	15	84	249	80	135

► SDL1-2C



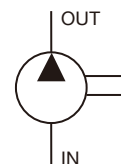
► SDL1-5E



SDL2



SYMBOLS



ORDER CODES

SDL2 - **80** - **1** **2C**

1 2 3 4

1	Model Name	SDL2	
2	Displacement	70, 80, 90, 100	
3	Thread	1	PF (BSPP, G)
4	Mounting & Shaft Type	2C	DIN 5462 (8*32*36)

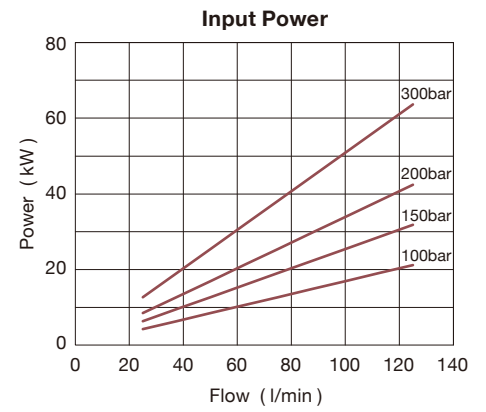
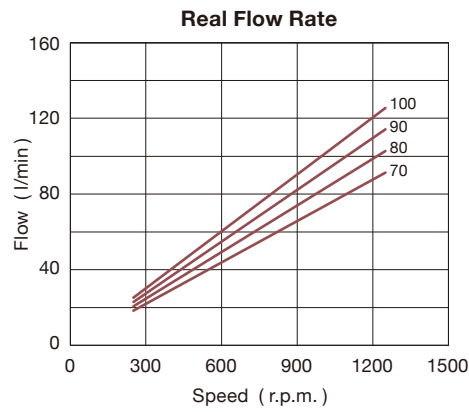
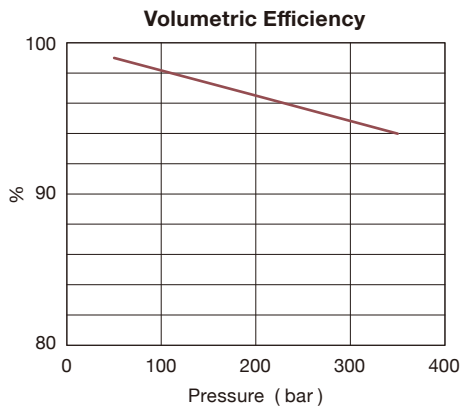
MODEL SPEC.

Model	Displacement (cm³/rev)	Operating Pressure (bar)	Max. Pressure (bar)	Max. Speed (r.p.m.)	
SDL2-70	73.0	300	350	1500	
SDL2-80	82.2				
SDL2-90	91.4				
SDL2-100	100.4				
Direction of Rotation	Suction Port Pressure (bar)	Viscosity (mm²/s)	Operating Temperature	Filtration Fineness	Weight (kg)
Bi-Direction	0.85 ~ 2	10 ~ 100	-15 ~ 100°C (5 ~ 212°F)	>200 bar : 10 um <200 bar : 25 um	22

* Verify that pump is at least 100 under the min. level of the tank. Bleed the air before starting the pump.

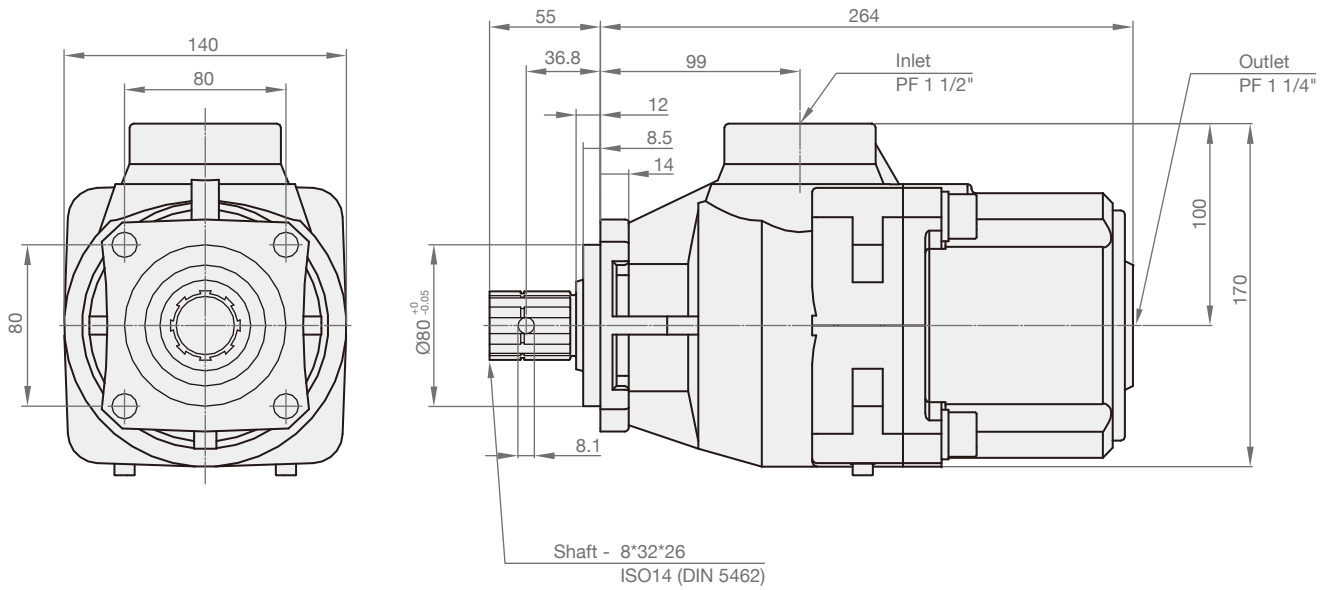
CURVE

(UNIT : mm)



DIMENSION

(UNIT : mm)



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