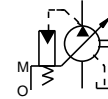


Specifications



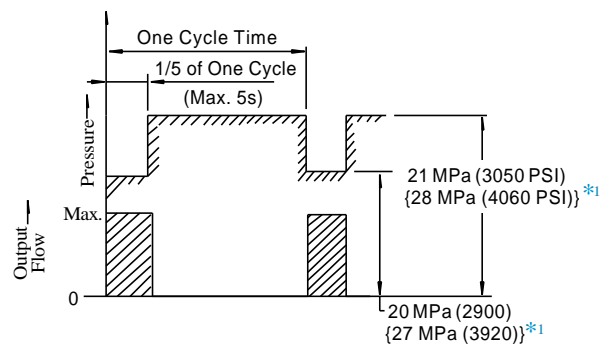
Graphic Symbol



Specifications

Model Numbers	Geometric Displacement cm ³ /rev (cu. in. /rev)	Minimum Adj. Flow cm ³ /rev (cu. in. /rev)	Operating Pres. MPa (PSI)		Shaft Speed Range r/min		Approx. Mass kg (lbs.)	
			Rated *2	Intermittent *1	Max.	Min.	Flange Mtg.	Foot Mtg.
A10-FR01B-12*	10.0 (.610)	2 (.122)	16 (2320)	21 (3050)	1800	600	5.1 (11.2)	—
A10-FR01C/H-12*							8.5 (18.7)	
A16-*R-01-*-*K-32	15.8 (.964)	4 (.244)	16 (2320)	21 (3050)	1800	600	16.5 (36.4)	18.7 (41.2)
A22-*R-01-*-*K-32	22.2 (1.355)	6 (.366)	16 (2320)	16 (2320)	1800	600	16.5 (36.4)	18.7 (41.2)
A37-*R-01-*-*K-32	36.9 (2.25)	10 (.610)	16 (2320)	21 (3050)	1800	600	28.0 (61.7)	32.3 (71.2)
A56-*R-01-*-*K-32	56.2 (3.43)	12 (.732)	16 (2320)	21 (3050)	1800	600	35.0 (77.2)	39.3 (86.7)
A70-*R01*S-60*	70.0 (4.27)	30 (1.83)	25 (3630)	28 (4060)	1800	600	58.5 (129)	70.5 (155)
A90-*R01*S-60*	91.0 (5.55)	56 (3.42)	25 (3630)	28 (4060)	1800	600	72.5 (160)	93 (205)
A145-*R01*S-60*	145 (8.85)	83 (5.06)	25 (3630)	28 (4060)	1800	600	92.5 (204)	117.5

- ★ 1. Whenever setting pressure, make sure the full cut-off pressure never exceeds the maximum intermittent pressure.
- ★ 2. Care should be taken in cases of used at a higher pressure than the rated pressure, because operating terms may be restricted. For example, if used as per maximum illustrated operating conditions, intermittent time at maximum flow is restricted to under 1/5 of one cycle time and under 6 seconds simultaneously. Conditions may vary according to the actual working pressure and delivery (inclination angle of the swash plate). Consult factory or Yuken sales representative for further information.



*1. Applicable only for "A70/90/145"

Model Number Designation

A16	-F	-R	-01	-B	-S	-K	-32	*
Series Number	Mounting	Direction of Rotation	Control Type	Pres. Adj. Range MPa (PSI)	Port Position	Shaft Extension	Design Number	Design Std.
A16 (15.8 cm ³ /rev)	F: Flange Mtg. L: Foot Mtg.	(Viewed from Shaft End) R: Clockwise ^{*1} (Normal)	01: Pressure Compensator Type	B: 1.2 - 7 (170 - 1020) C: 1.2 - 16 (170 - 2320) H: 1.2 - 21 (170 - 3050)	None: Axial Port ^{*2} S: Side Port	K: Keyed Shaft	32	Refer to ^{*3}
A22 (22.2 cm ³ /rev)				B: 1.2 - 7 (170 - 1020) C: 1.2 - 16 (170 - 2320)			32	
A37 (36.9 cm ³ /rev)				B: 1.2 - 7 (170 - 1020) C: 1.2 - 16 (170 - 2320) H: 1.2 - 21 (170 - 3050)			32	
A56 (56.2 cm ³ /rev)				B: 1.2 - 7 (170 - 1020) C: 1.2 - 16 (170 - 2320) H: 1.2 - 21 (170 - 3050)			32	

A70	-F	R	01	B	S	-60	*
Series Number	Mounting	Direction of Rotation	Control Type	Pres. Adj. Range MPa (PSI)	Port Position	Design Number	Design Std.
A10 (10.0 cm ³ /rev)	F: Flange Mtg. ^{*4}	(Viewed from Shaft End) R: Clockwise ^{*1} (Normal)	01: Pressure Compensator Type	B: 1.2 - 7 (170 - 1020) C: 2.0 - 16 (290 - 2320) H: 2.0 - 21 (290 - 3050)	—	12	Refer to ^{*3}
A70 (70.0 cm ³ /rev)	F: Flange Mtg.			B: 1.2 - 7 (170 - 1020) C: 1.5 - 16 (220 - 2320) H: 1.8 - 21 (260 - 3050) K: 2.0 - 28 (290 - 4060)	S: Side Port	60	
A90 (91.0 cm ³ /rev)	L: Foot Mtg.			60			
A145 (145 cm ³ /rev)	L: Foot Mtg.			60			

★ 1. Available to supply pump with anti-clockwise rotation. Consult Yuken for details.

★ 2. The axial port is not available to the N.American Design Standard of A37 and A56.

★ 3. Design Standards: None..... Japanese Standard "JIS"
80..... European Design Standard
90..... N. American Design Standard

★ 4. When A10 pump is used as the foot Mtg., order the Mtg. Bracket kit shown below separately. Refer to page 17 for dimensions of the Mtg. bracket.

Note: The mounting bracket kit consists of a mounting bracket, 2 hex. bolts and 2 plain washer.

Mtg. Bracket Kit Numbers	Approx. Mass kg (lbs.)
LP-1A-10	2.2 (4.9)

Pipe Flange Kits

Pipe flange kits are available. When ordering, specify the kit number from the table below.

Pump Model Numbers	Name of Port	Pipe Flange Kit Numbers						
		Threaded Connection			Socket Welding [*]		Butt Welding	
		Japanese Std. "JIS"	European Design Std.	N. American Design Std.	Japanese Std. "JIS" European Design Std.	N. American Design Std.	Japanese Std. "JIS" European Design Std.	N. American Design Std.
A16-* -R-01	Suction	F5-06-A-10	F5-06-A-1080	F5-06-A-1090	F5-06-B-10	F5-06-B-1090	F5-06-C-10	F5-06-C-1090
A22-* -R-01	Discharge	F5-06-A-10	F5-06-A-1080	F5-06-A-1090	F5-06-B-10	F5-06-B-1090	F5-06-C-10	F5-06-C-1090
A37-* -R-01	Suction	F5-10-A-10	F5-10-A-1080	F5-10-A-1090	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
A56-* -R-01	Discharge	F5-10-A-10	F5-10-A-1080	F5-10-A-1090	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090
A70-* R01	Suction	F5-12-A-10	F5-12-A-1080	F5-12-A-1090	F5-12-B-10	F5-12-B-1090	F5-12-C-10	F5-12-C-1090
	Discharge	F5-08-A-10	F5-08-A-1080	F5-08-A-1090	F5-08-B-10	F5-08-B-1090	F5-08-C-10	F5-08-C-1090
A90-* R01	Suction	F5-16-A-10	F5-16-A-1080	F5-16-A-1090	F5-16-B-10	F5-16-B-1090	F5-16-C-10	F5-16-C-1090
A145-* R01	Discharge	F5-10-A-10	F5-10-A-1080	F5-10-A-1090	F5-10-B-10	F5-10-B-1090	F5-10-C-10	F5-10-C-1090

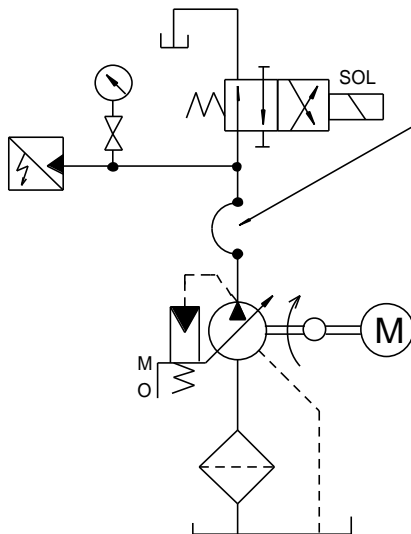
★ In case of using socket welding flanges, there is a case where the operating pressure should be set lower than the normal because of strength of the flanges. Therefore, please pay cautious attention to the operating pressure when the socket welding flanges are used.

• Details of the pipe flange kits are given in the Catalogue No. Pub. EC-3001

Response Characteristics Change in Accordance with Circuits and Operating Conditions.

Test Circuit and Conditions

● Circuit



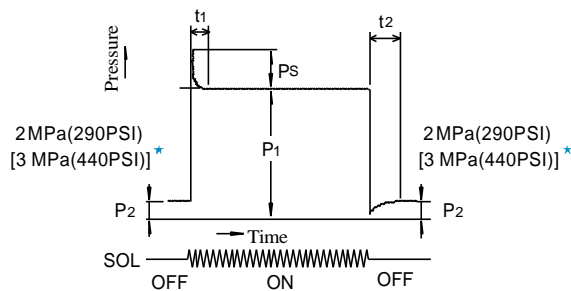
● Conditions

Drive Speed : 1500 r/min
 Hydraulic Fluid : ISO VG32 oil
 Oil Temperature A10-A56: 50 蛭 (122 蚌) [Viscosity 20 mm²/s (100 SSU)]
 A70-A145: 40 蛭 (104 蚌) [Viscosity 32 mm²/s (150 SSU)]

High Pressure Rubber Hose

Model	Ruber Hose Size
A10	1/2" × 800 mm (2.6 ft.)
A16 A22	3/4" × 700 mm (2.3 ft.)
A37 A56	3/4" × 2000 mm (6.6 ft.)
A70	3/4" × 3500 mm (11.5 ft.)
A90 A145	3/4" × 3000 mm (9.8 ft.) + 1-1/4" × 2000 mm (6.6 ft.)

Result of Measurement



★ Applicable only for "A90/A145"

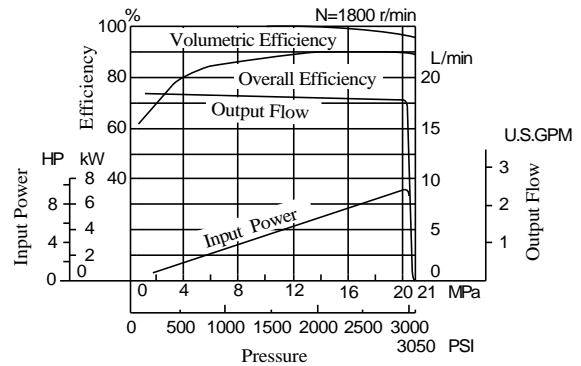
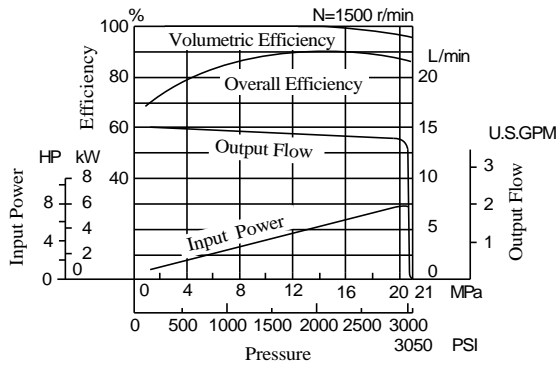
Model	Full Cut-off Pressure P ₁ MPa (PSI)	Response Time ms		Overshoot Pressure P _s MPa (PSI)
		t ₁	t ₂	
A10	21 (3050)	100	75	2.6 (380)
A16	16 (2320)	38*	59*	3.6 (520)
A22	16 (2320)	30*	72*	5.9 (860)
A37	16 (2320)	40*	78*	7.8 (1130)
A56	16 (2320)	38*	88*	7.6 (1100)
A70	25 (3630)	80	100	7.8 (1130)
A90	25 (3630)	90	110	7.9 (1150)
A145	25 (3630)	100	150	8.8 (1280)

* Response time except A10, A70, A90 and A145 is measured Yoke travel.

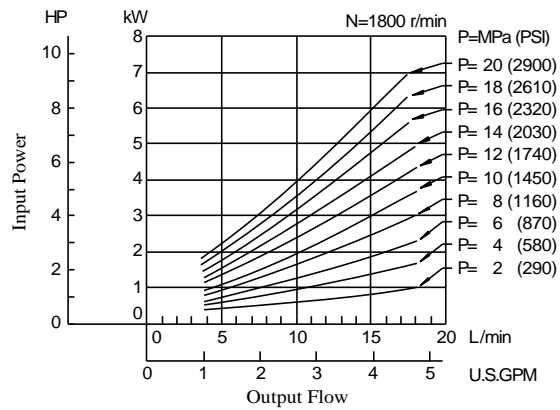
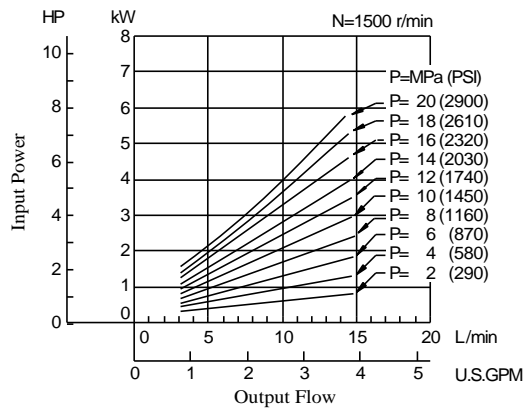
Typical Pump Characteristics

Typical Performance Characteristics of Type "A10" at Viscosity 20 mm²/s (100 SSU) [ISO VG32 Oils, 50 蛸 (122 蛸)]

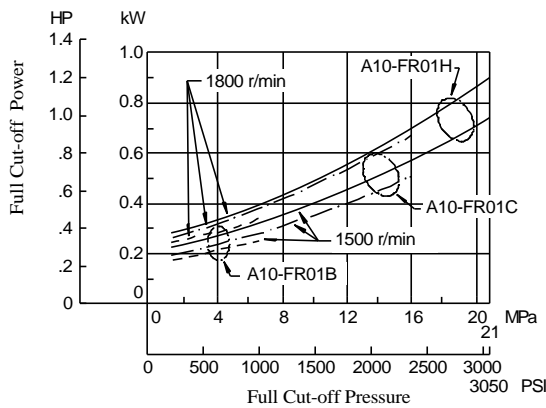
Performance Characteristic Curve



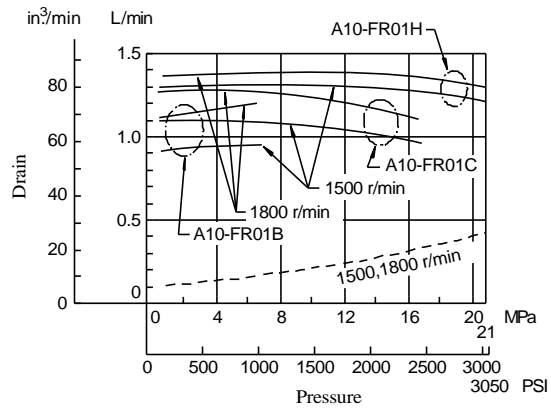
Input Power



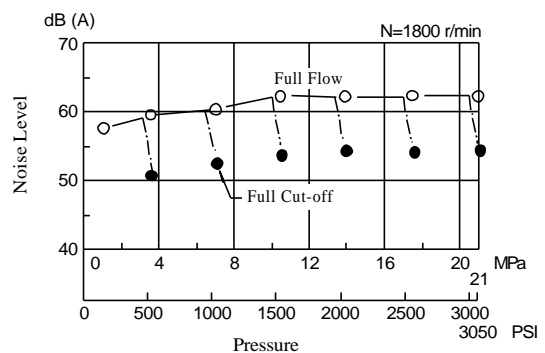
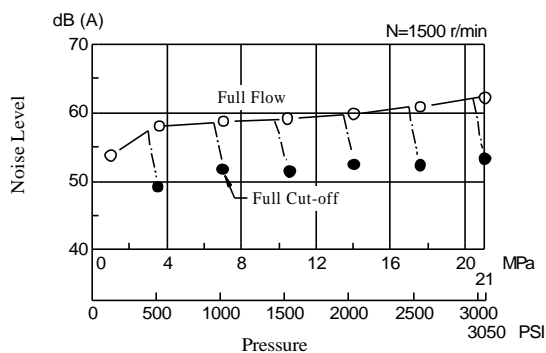
Full Cut-off Power



Drain

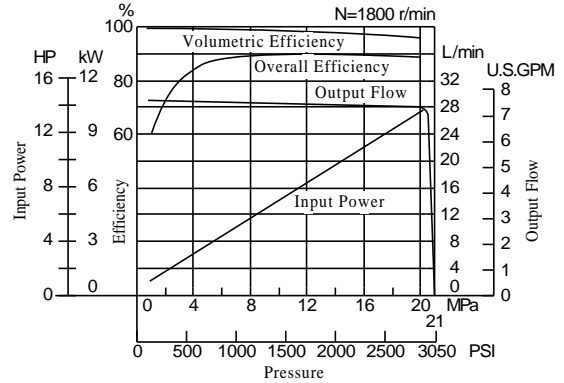
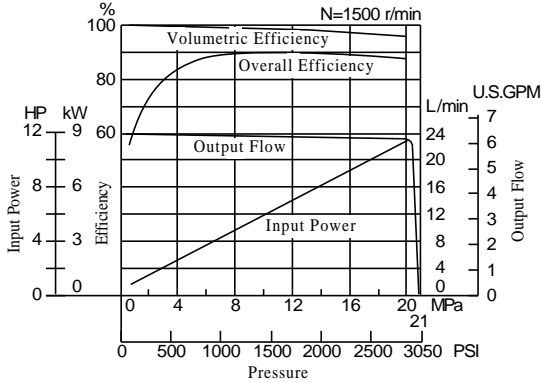


Noise Level [One metre (3.3 ft.) horizontally away from pump head cover]



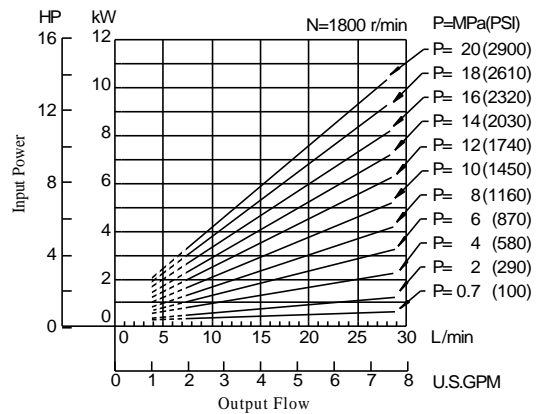
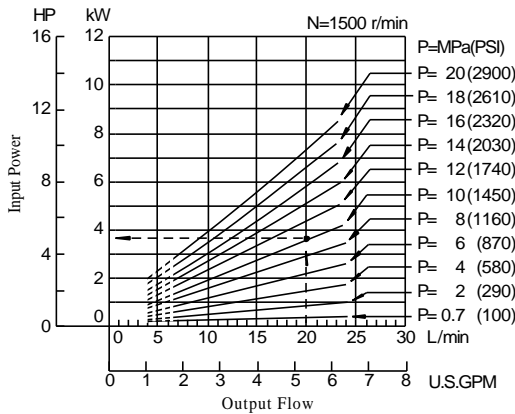
Typical Performance Characteristics of Type "A16" at Viscosity 20 mm²/s (100 SSU) [ISO VG32 Oils, 50℃] (122)

■ Performance Characteristic Curve

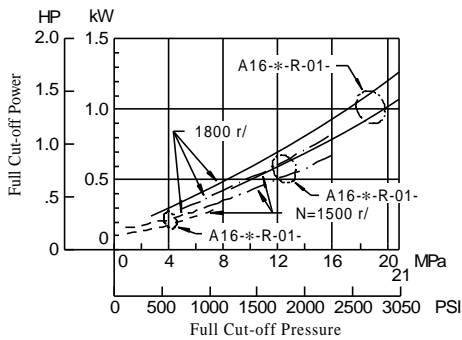


■ Input Power

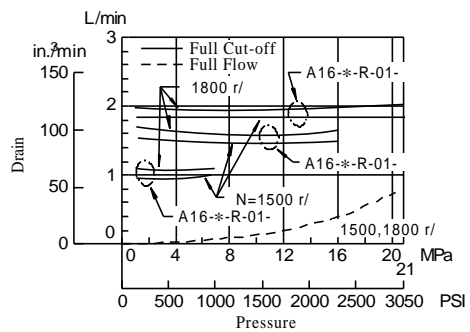
Example: At a pressure of under 10 MPa (1450 PSI), a flow 20 L/min (5.3 U.S.GPM), and rotation 1500 r/min, the axial input becomes about 3.7 kW (5 HP) as shown the dotted line in the graph.



■ Full Cut-off Power



■ Drain



■ Noise Level [One metre (3.3 ft.) horizontally away from pump head cover

