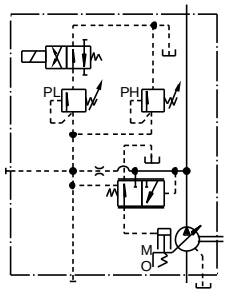
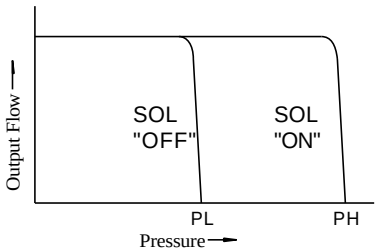
"A" Series Piston Pumps
Variable Displacement-Single Pumps
Solenoid Two Pressure Control Type
A16 / A22 / A37 / A56 / A70 / A90 / A145

Specifications

Graphic Symbol



Performance Characteristics



Specifications

Model Numbers	Geometric Displacement cm^3/rev (cu. in. /rev)	Minimum Adj. Flow cm^3/rev (cu. in. /rev)	Operating Pres. MPa (PSI)		Minimum Adj. Pres. MPa (PSI)	Shaft Speed Range r/min		Approx. Mass kg (lbs.)	
			Rated ★2	Intermittent ★1		Max.	Min.	Flange Mtg.	Foot Mtg.
A16-∗-R-02-∗-K-32∗	15.8(.964)	4(.244)	16(2320)	21(3050)	1.2(170)	1800	600	24.5(54.0)	26.7(58.9)
A22-∗-R-02-∗-K-32∗	22.2(1.355)	6(.366)	16(2320)	16(2320)	1.2(170)	1800	600	24.5(54.0)	26.7(58.9)
A37-∗-R-02-∗-K-32∗	36.9(2.25)	10(.61)	16(2320)	21(3050)	1.2(170)	1800	600	36(79.4)	40.3(88.9)
A56-∗-R-02-∗-K-32∗	56.2(3.43)	12(.73)	16(2320)	21(3050)	1.2(170)	1800	600	43(94.8)	47.3(104)
A70-∗R02S∗-60∗	70.0(4.27)	30(1.83)	25(3630)	25(3630)	2(290)	1800	600	63.5(140)	75.5(166)
A90-∗R02S∗-60∗	91.0(5.55)	56(3.42)	25(3630)	25(3630)	2(290)	1800	600	80.5(178)	101(223)
A145-∗R02S∗-60∗	145 (8.85)	83 (5.06)	25 (3630)	25 (3630)	2 (290)	1800	600	97.5 (215)	122.5

★1. Whenever setting pressure, make sure the full cut-off pressure never exceeds the maximum intermittent pressure.

★2. When operating the pump exceeding the rated pressure, operating conditions are restricted. Refer to page 6 for the details.

● Solenoid Ratings

Electric Source	Coil Type	Frequency (Hz)	Voltage (V)		Current & Power at Rated Voltage		
			Source Rating	Serviceable Range	Inrush★ (A)	Holding (A)	Power (W)
AC	A100	50	100	80 -110	2.42	0.51	—
		60	100	90 -120	2.14	0.37	
			110		2.35	0.44	
	A120	50	120	96 -132	2.02	0.42	
		60		108 -144	1.78	0.31	
	A200	50	200	160 -220	1.21	0.25	
		60	200	180 - 240	1.07	0.19	
			220		1.18	0.22	
	A240	50	240	192 - 264	1.01	0.21	
		60		216 - 288	0.89	0.15	
DC (K Series)	D12	—	12	10.8-13.2	—	2.45	29
	D24		24	-26.4		1.23	
	D48		48	21.6-52.8		0.61	
AC→DC Rectified	R100	50/60	100	-110	—	0.33	29
	R200		200	43.2- 220		0.16	

★Inrush current in the above table shows rms values at maximum stroke.

Model Number Designation

A16	-F	-R	-02	-S	-K	-A100	-32	*
Series Number	Mounting	Direction of Rotation	Control Type	Port Position	Shaft Extension	Coil Type of Solenoid Valve	Design Number	Design Std.
A16 (15.8 cm^3/rev)	**F:** Flange Mtg.	(Viewed from Shaft End)	**02:** Solenoid Two Prsuure Control Type	**None:** Axial Port ★2	**K:** Keyed Shaft	**AC** A100, A110, A220, A240	**32**	Refer to ★3
A22 (22.2 cm^3/rev)		**R:** Clockwise (Normal) ★1		**S:** Side Port		**DC** D12,D24 D48 (AC→DC Rectified)	**32**	
A37 (36.9 cm^3/rev)	**L:** Foot Mtg.					R100, R200	**32**	
A56 (56.2 cm^3/rev)							**32**	

A70	-F	R	02	S	A100	-60	*
Series Number	Mounting	Direction of Rotation	Control Type	Port Position	Coil Type of Solenoid Valve	Design Number	Design Std.
A70 (70 cm^3/rev)	**F:** Flange Mtg.	(Viewed from Shaft End)	**02:** Solenoid Two Prsuure Control Type	**S:** Side Port	**AC** A100, A110, A220, A240	**60**	Refer to ★3
A90 (91.0 cm^3/rev)	**L:** Foot Mtg.	**R:** Clockwise (Normal) ★1			**DC** D12,D24 D48 (AC→DC Rectified)	**60**	
A145 (145 cm^3/rev)					R100, R200	**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 series.

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

Performance Characteristics

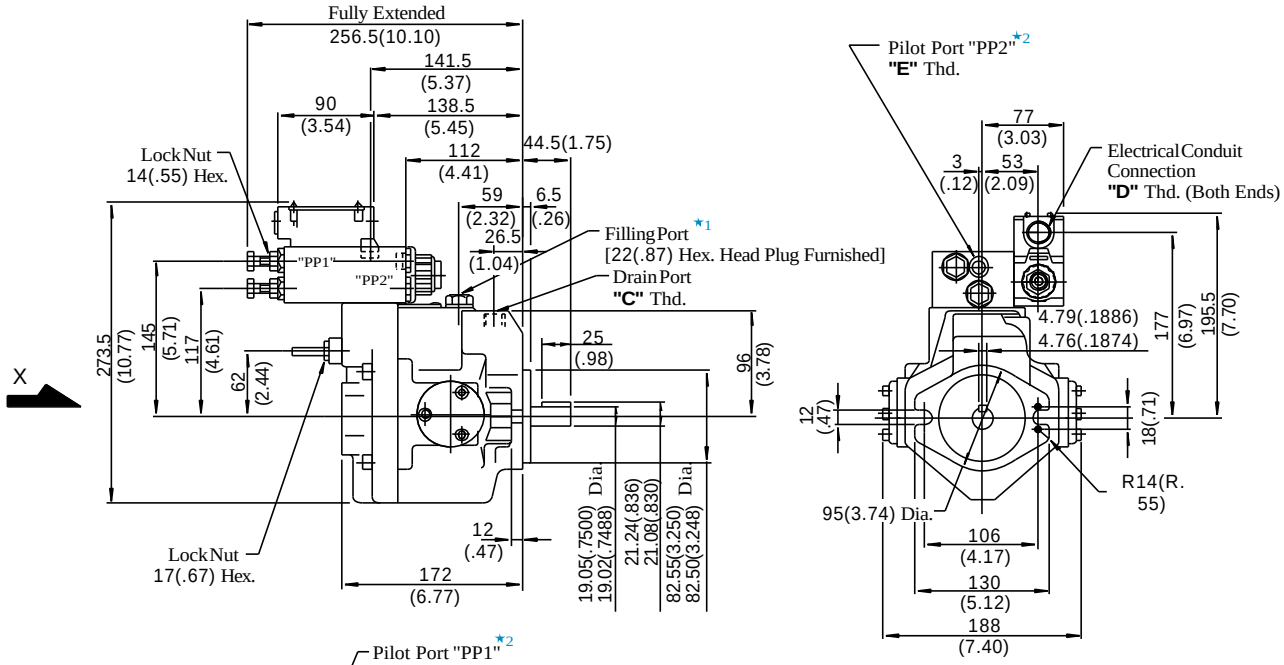
For performance characteristics, refer to models of pressure compensator type on page 10 to 16.

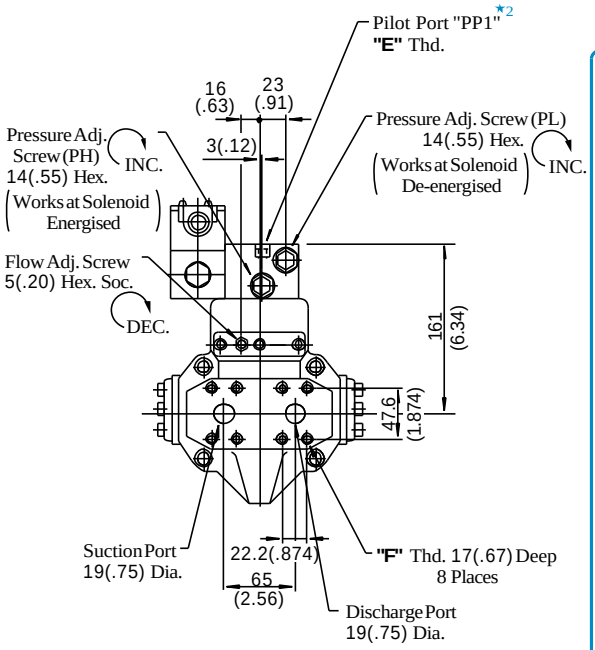
Pipe Flange Kit

For pipe flange, refer to form of pressure compensator type on page 7.

Axial Port Type

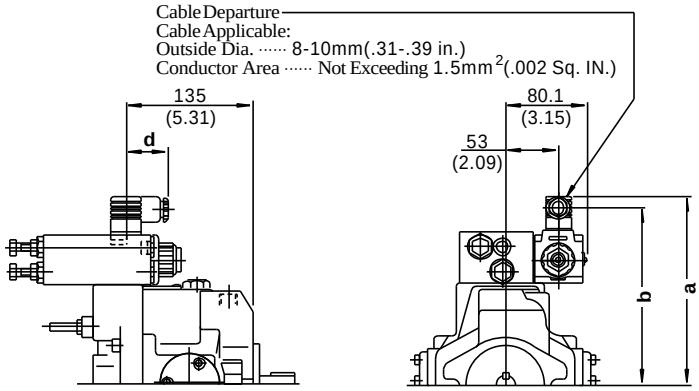
Flange Mtg.: A16-F-R-02-K-*-32/3290
A22-F-R-02-K-*-32/3290





View Arrow X

A16-F-R-02-K-*-3280
A22-F-R-02-K-*-3280



Model Numbers	mm (IN.)		
	a	b	d
A16/A22-F-R-02-K-A*-	194(7.64)	182.(7.17)	39(1.54)
3280	205(8.07)	193(7.60)	39(1.54)
A16/A22-F-R-02-K-D*-	208 (8.19)	186.2 (7.33)	53 (2.09)

• For other dimensions, refer to 32/3290 design.

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

★ 2. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.
A16/A22-F-R-02-K-*-32	Rc3/8	G1/2	Rc1/4	M10
A16/A22-F-R-02-K-*-3280	3/8BSP.F	—	1/4BSP.Tr	
A16/A22-F-R-02-K-*-3290	3/8 NPT	1/2 NPT	1/4 NPT	3/8-16 UNC

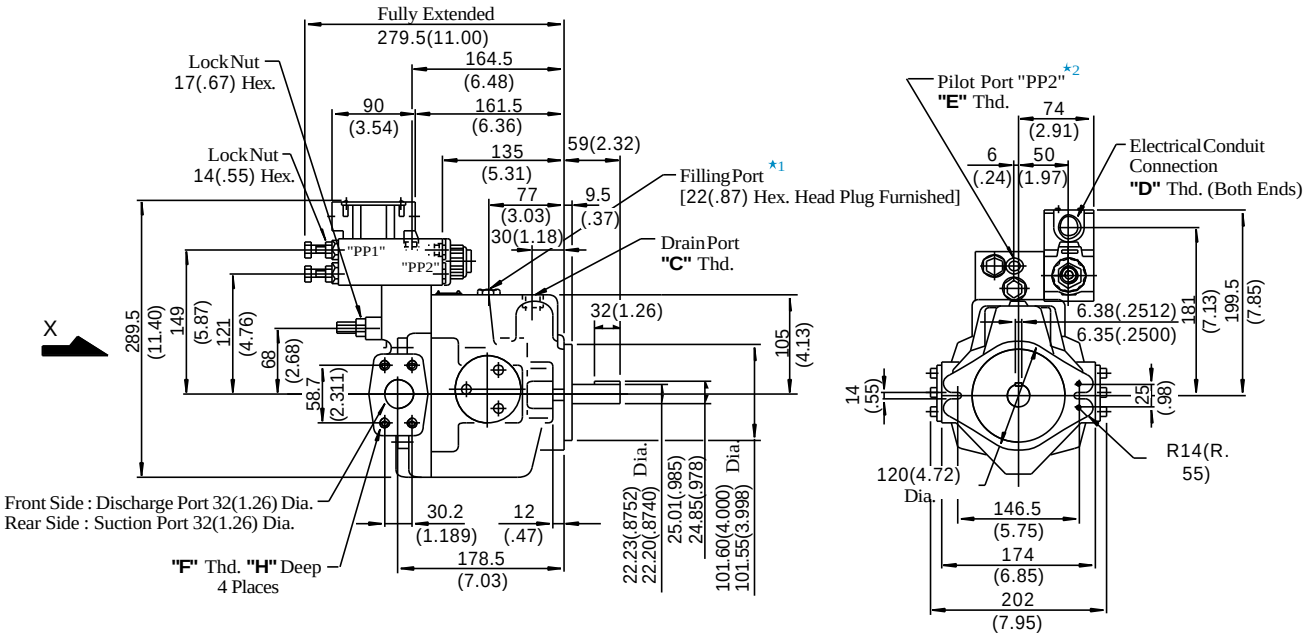
DIMENSIONS IN MILLIMETRES

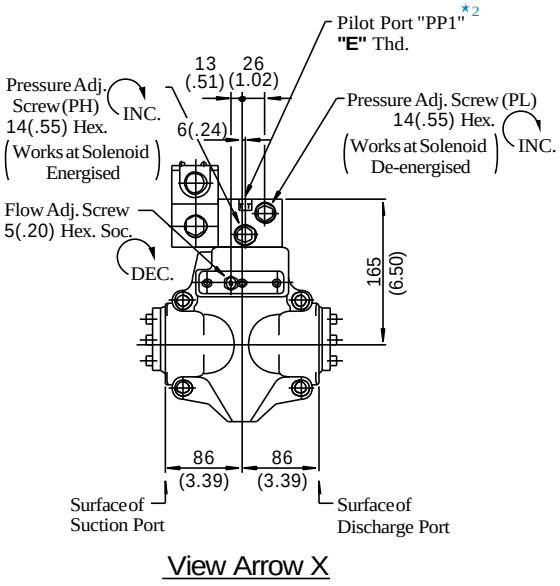
● **Side Port Type**
Port mounting dimensions are the same as those of pressure compensator model. Refer to page 18 for port mounting dimensions.

● **Foot Mounting Type**
Mounting bracket is common to that of pressure compensator model. Refer to page 18 for the dimensions of mounting bracket.

Side Port Type

Flange Mtg. : A37-F-R-02-S-K*-32/3290



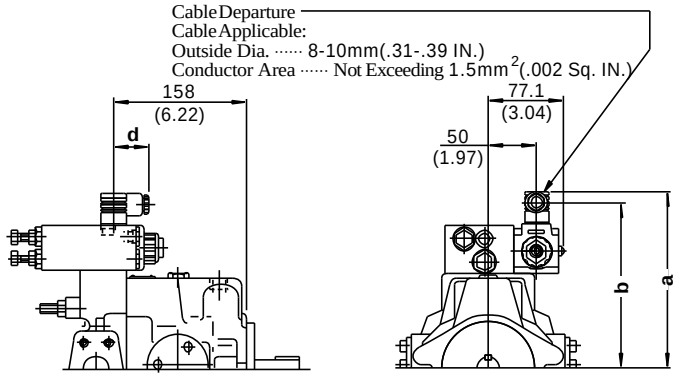


View Arrow X

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

★ 2. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

A37-F-R-02-S-K*-3280



Model Numbers	mm (IN.)		
	a	b	d
A37-F-R-02-S-K-A*-	198(7.80)	186(7.32)	39(1.54)
3280	209(8.23)	197(7.76)	39(1.54)
A37-F-R-02-S-K-D*-	212 (8.35)	190.2 (7.49)	53 (2.09)

● For other dimensions, refer to 32/3290 design.

Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.	"H" mm (IN.)
A37-F-R-02-S-K-*-32	Rc 1/2	G 1/2	Rc 1/4	M10	19 (.75)
A37-F-R-02-S-K-*-	1/2 BSP.F	—	1/4 BSP. Tr		
3280	1/2 NPT	1/2 NPT	1/4 NPT	7/16-14 UNC	20 (.79)

DIMENSIONS IN MILLIMETRES

● **Axial Port Type**

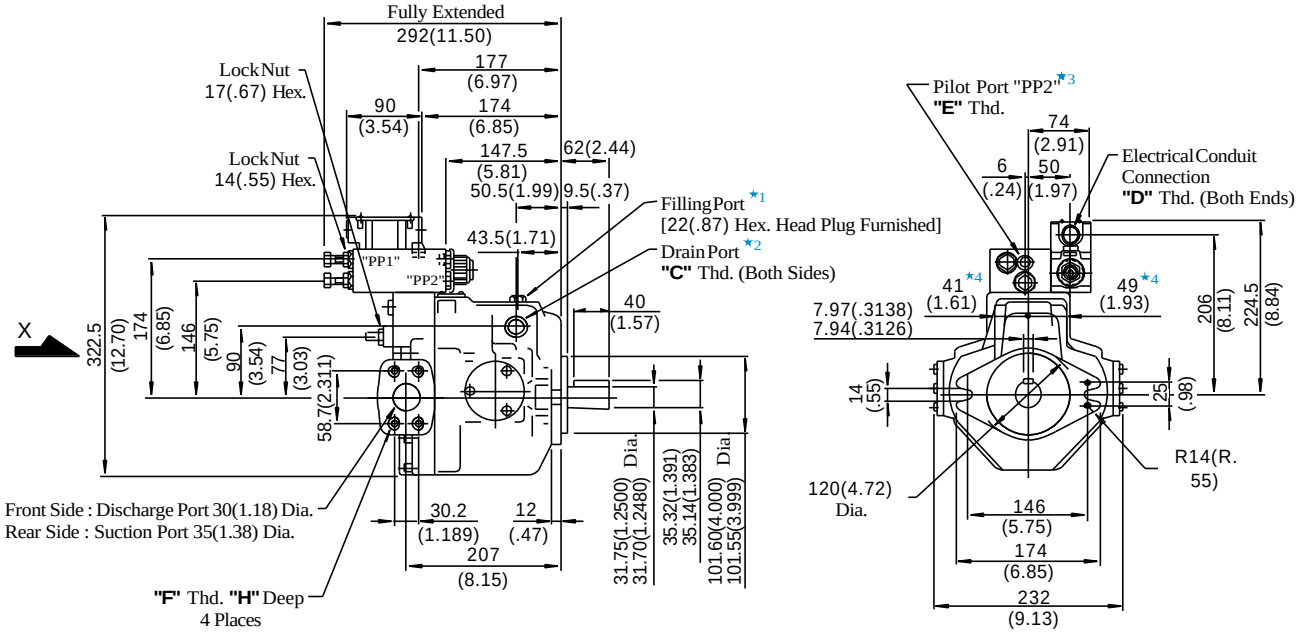
Port mounting dimensions are the same as those of pressure compensator model. Refer to page 19 for port mounting dimensions.

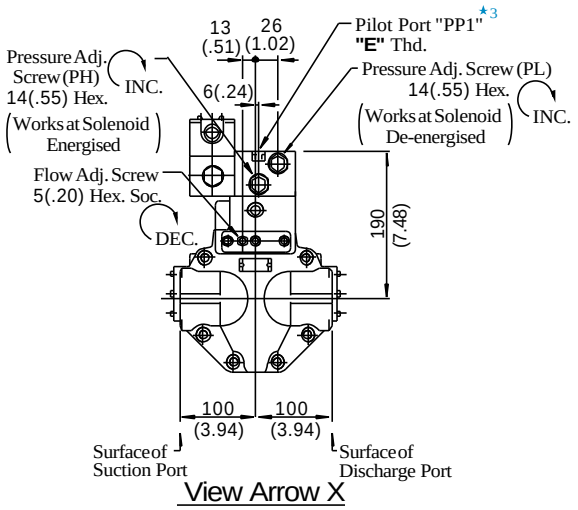
● **Foot Mounting Type**

Mounting bracket is common to that of pressure compensator model. Refer to page 19 for the dimensions of mounting bracket.

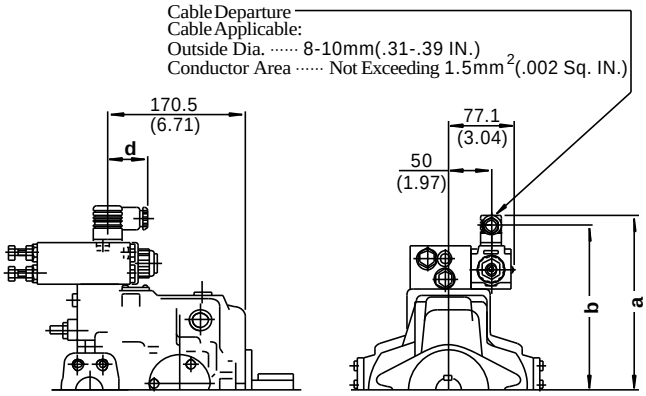
Side Port Type

Flange Mtg.: A56-F-R-02-S-K-*-32/3290





A56-F-R-02-S-K-*-3280



Model Numbers	mm (IN.)		
	a	b	d
A56-F-R-02-S-K-A*-	223(8.78)	211(8.31)	39(1.54)
3280	234(9.21)	222(8.74)	39(1.54)
A56-F-R-02-S-K-D*-	237 (9.33)	215.2 (8.47)	53 (2.09)

• For other dimensions, refer to 32/3290 design.

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

★2. Use either port of two drain ports at your option.
Keep the remaining port plugged. Note that on the European Design Standard (3280 Design), only the left side, as viewed from the shaft end, of the drain port is machined.

★3. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

★4. Dimensions show surface of drain port.

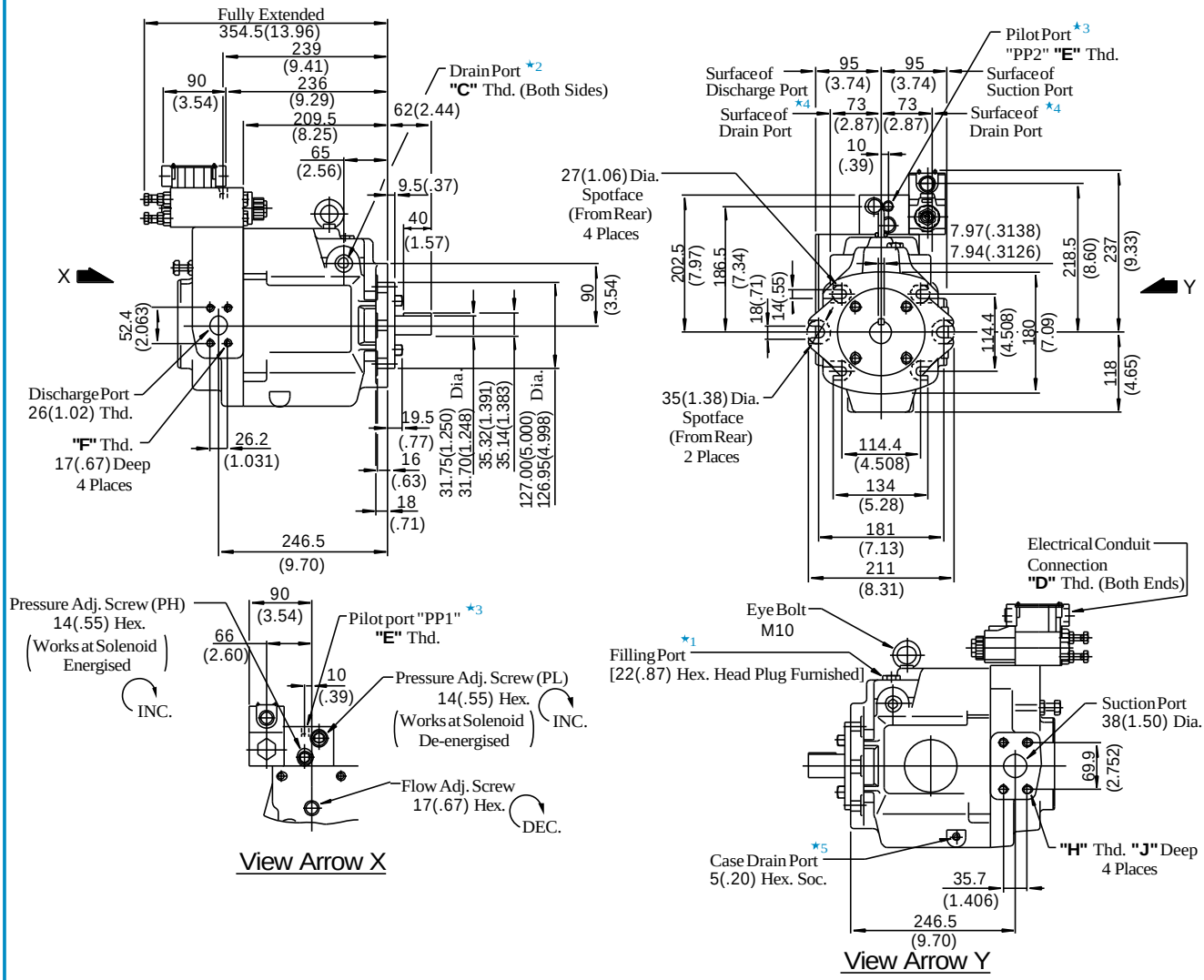
Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.	"H" mm (IN.)
A56-F-R-02-S-K-*-32	Rc3/4	G1/2	Rc1/4	M10	19 (.75)
A56-F-R-02-S-K-*-	3/4BSP.F	—	1/4BSP. Tr		
3280	3/4 NPT	1/2 NPT	1/4 NPT	7/16-14 UNC	20 (.79)

DIMENSIONS IN MILLIMETRES

● **Axial Port Type**
Port mounting dimensions are the same as those of pressure compensator model. Refer to page 20 for port mounting dimensions.

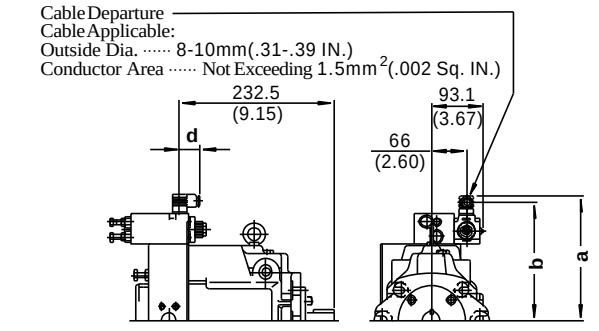
● **Foot Mounting Type**
Mounting bracket is common to that of pressure compensator model. Refer to page 20 for the dimensions of mounting bracket.

Flange Mtg. : A70-FR02S∗-60/6090



Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.	"H" Thd.	"J" mm (IN.)
A70-FR02S∗-60	Rc 3/4	G 1/2	Rc 1/4	M10	M12	19 (.75)
A70-FR02S∗-6080	3/4 BSP.F	—	1/4 BSP. Tr			
A70-FR02S∗-6090	3/4 NPT	1/2 NPT	1/4 NPT	7/16-14 UNC	1/2-13 UNC	21 (.83)

A70-FR02S∗-6080



Model Numbers	mm (IN.)		
	a	b	d
A70-FR02SA∗-	236(9.29)	224(8.82)	39(1.54)
6080	247(9.72)	235(9.25)	39(1.54)
A70-FR02SD∗-	250 (9.84)	228.2 (8.98)	53 (2.09)

• For other dimensions, refer to 60/6090 design.

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

★2. Use either port of two drain ports at your option. Keep the remaining port plugged. Note that on the European Design Standard (6080 Design), only the left side, as viewed from the shaft end, of the drain port is machined.

★3. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

★4. Dimensions show surface of drain port.

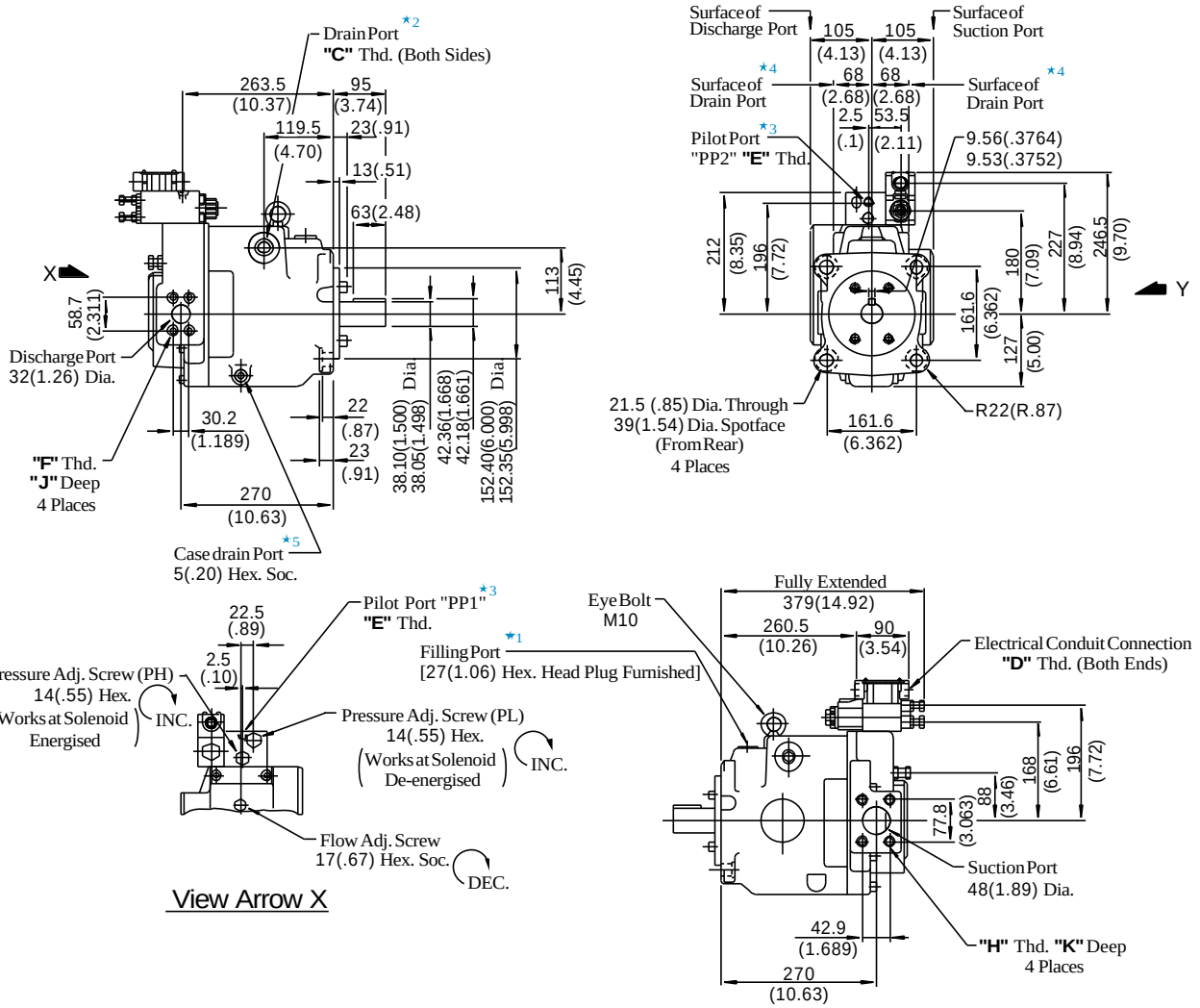
★5. Case drain port is available for use when draining hydraulic fluid from pump casing.

DIMENSIONS IN MILLIMETRES (INCHES)

• Foot Mounting Type

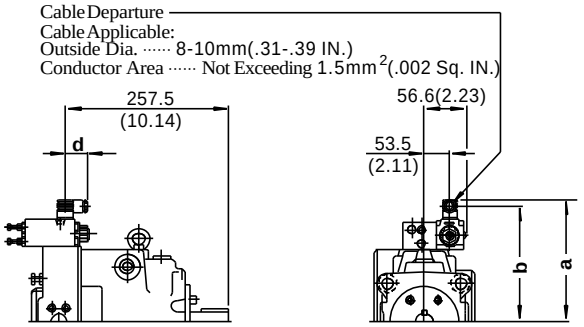
Mounting bracket is common to that of pressure compensator model. Refer to page 21 for the dimensions of mounting bracket.

Flange Mtg.: A90-FR02S∗-60/6090



Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.	"H" Thd.	"J" mm (IN.)	"K" mm (IN.)
A90-FR02S∗-60	Rc3/4	G1/2	Rc1/4	M10	M12	19 (.75)	19 (.75)
A90-FR02S∗-6080	3/4BSP.F	—	1/4BSP.Tr				
A90-FR02S∗-6090	3/4 NPT	1/2 NPT	1/4 NPT	7/16-14 UNC	1/2-13 UNC	20 (.79)	21 (.83)

A90-FR02S∗-6080



Model Numbers	mm (IN.)		
	a	b	d
A90-02FRSA∗-	245(9.65)	233(9.17)	39(1.54)
6080	256(10.08)	244(9.61)	39(1.54)
A90-02FRSD∗-	259 (10.20)	237.2 (9.34)	53 (2.09)

● For other dimensions, refer to 60/6090 design.

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

★2. Use either port of two drain ports at your option. Keep the remaining port plugged. Note that on the European Design Standard (6080 Design), only the left side, as viewed from the shaft end, of the drain port is machined.

★3. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

★4. Dimensions show surface of drain port.

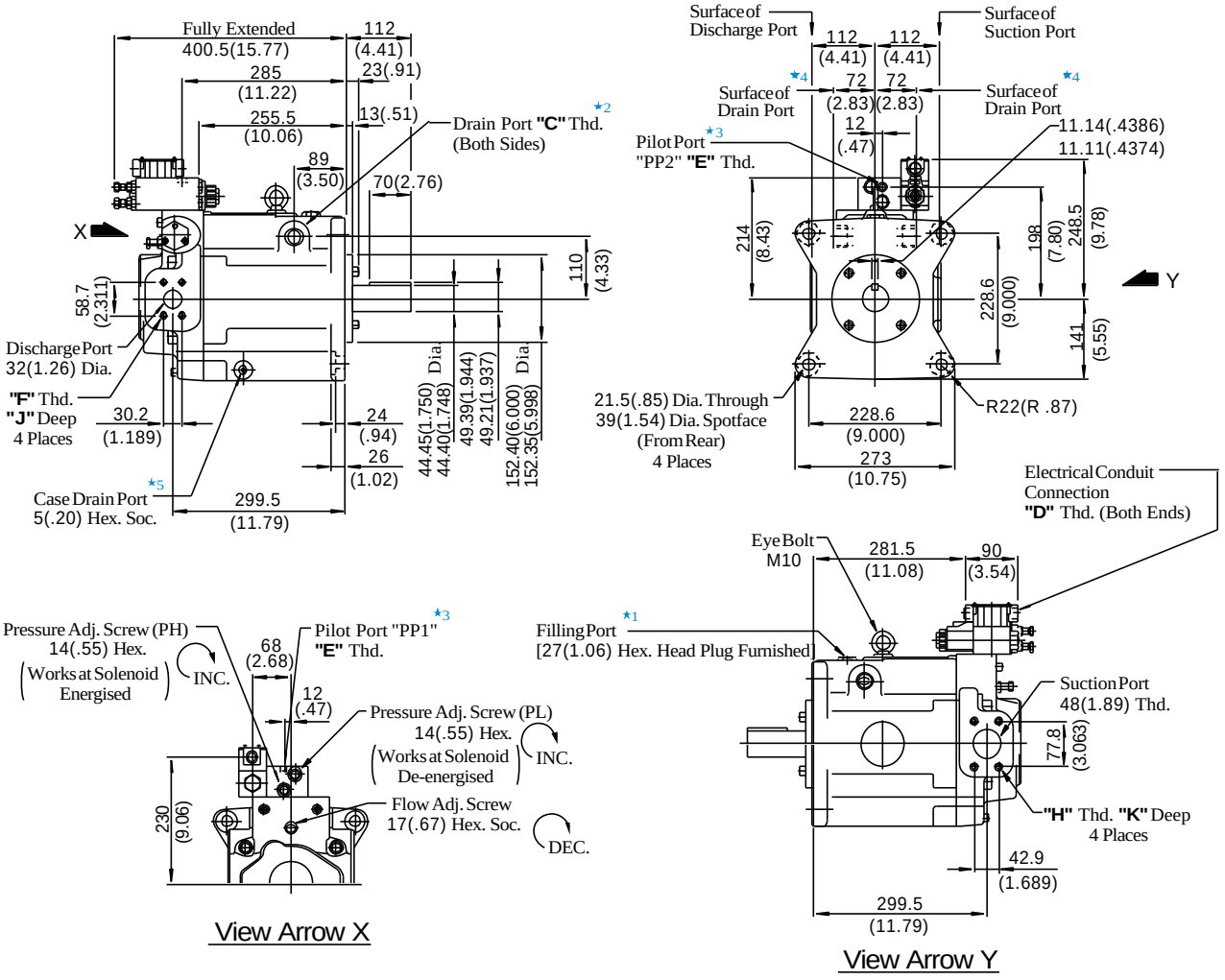
★5. Case drain port is available for use when draining hydraulic fluid from pump casing.

DIMENSIONS IN MILLIMETRES (INCHES)

● **Foot Mounting Type**

Mounting bracket is common to that of pressure compensator model. Refer to page 22 for the dimensions of mounting bracket.

Flange Mtg. : A145-FR02S∗-60/6090

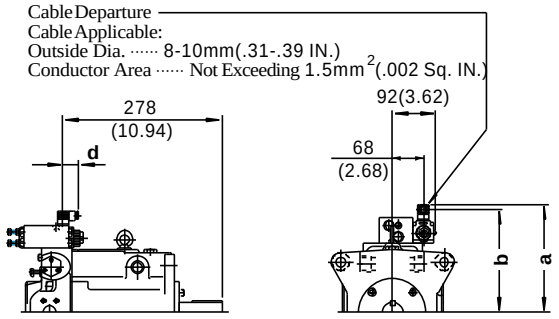


View Arrow X

View Arrow Y

Model Numbers	"C" Thd.	"D" Thd.	"E" Thd.	"F" Thd.	"H" Thd.	"J" mm (IN.)	"K" mm (IN.)
A145-FR02S∗-60	Rc3/4	G1/2	Rc1/4	M10	M12	19 (.75)	19 (.75)
A145-FR02S∗-	3/4BSP.F	—	1/4BSP. Tr				
6080	3/4 NPT	1/2 NPT	1/4 NPT	7/16-14 UNC	1/2-13 UNC	20 (.79)	21 (.83)

A145-FR02S∗-6080



Model Numbers	mm (IN.)		
	a	b	d
A145-FR02SA∗-	247(9.72)	235(9.25)	39(1.54)
6080	258(10.16)	246(9.69)	39(1.54)
A145-FR02SD∗-	261 (10.28)	239.2 (9.42)	53 (2.09)

• For other dimensions, refer to 60/6090 design.

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

★ 2. Use either port of two drain ports at your option. Keep the remaining port plugged. Note that on the European Design Standard (6080 Design), only the left side, as viewed from the shaft end, of the drain port is machined.

★ 3. The pilot port provided is for connecting a control valve, if multistage pressure control is required.

★ 4. Dimensions show surface of drain port.

★ 5. Case drain port is available for use when draining hydraulic fluid from pump casing.

DIMENSIONS IN MILLIMETRES (INCHES)

• Foot Mounting Type

Mounting bracket is common to that of pressure compensator model. Refer to page 23 for the dimensions of mounting bracket.