

Frame size F12	-030	-040	-060	-080	-090	-110	-125	-152	-162	-182	-250
<b>Displacement</b> [cm <sup>3</sup> /rev]	30.0	40.0	59.8	80.4	93.0	110.1	125.0	149.8	163.1	179.8	242
<b>Operating pressure</b>											
max intermittent <sup>1)</sup> [bar]	480	480	480	480	420	480	480	480	480	480	420
max continuous [bar]	420	420	420	420	350	420	420	420	420	420	350
<b>Motor operating speed</b> [rpm]											
max intermittent <sup>1)</sup>	8600	6700	5800	5300	5000	4800	4600	4000	4000	4000	3000
max continuous <sup>3)</sup>	6700	6100	5300	4800	4600	4400	4200	3700	3700	3700	2700
min continuous	50	50	50	50	50	50	50	50	50	50	50
<b>Max pump selfpriming speed</b> <sup>2)</sup>											
L or R function; max [rpm]	3150	2870	2500	2300	2250	2200	2100	1700	1600	1500	1500
<b>Motor input flow</b>											
max intermittent <sup>1)</sup> [l/min]	219	268	347	426	465	528	575	608	648	728	726
max continuous [l/min]	201	244	317	386	428	484	525	547	583	655	653
<b>Drain temperature</b> <sup>3)</sup> , max [°C]											
min [°C]	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40	-40
<b>Theoretical torque at 100 bar</b> [Nm]	47.6	63.5	94.9	127.6	147.6	174.8	198.4	241	257	289	384.1
<b>Mass moment of inertia</b>											
(x10 <sup>-3</sup> ) [kg m <sup>2</sup> ]	1.7	2.9	5	8.4	8.4	11.2	11.2	21	21	21	46
<b>Weight</b> [kg]	11.5	15.7	18.6	25.7	25.7	33	33	40	40	40	77

1) Intermittent: max 6 seconds in any one minute.

2) Selfpriming speed valid at sea level. Find more info on page 42

3) See also installation information. Page 69

**Efficiency**

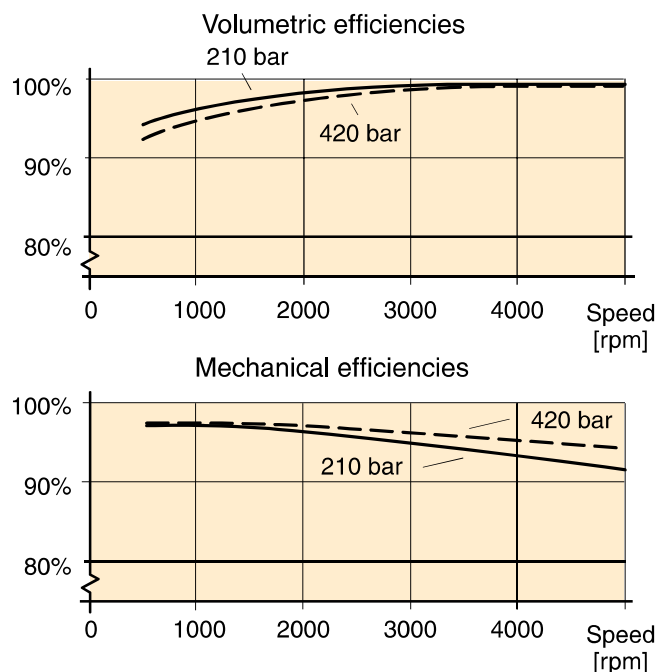
Because of its high overall efficiency, driving a motor/pump from series F12 requires less fuel or electric power.

Also, it allows the use of a small reservoir and heat exchanger, which in turn reduce cost, weight, and installation size.

The diagrams to the right show volumetric and mechanical efficiencies of an F12-030 motor.

F12-030 motors can be equipped with Power Boost which in high speed applications can decrease the mechanical losses by up to 15%, see page 7.

Contact Parker Hannifin for efficiency information on a particular F12 frame size that is being considered.



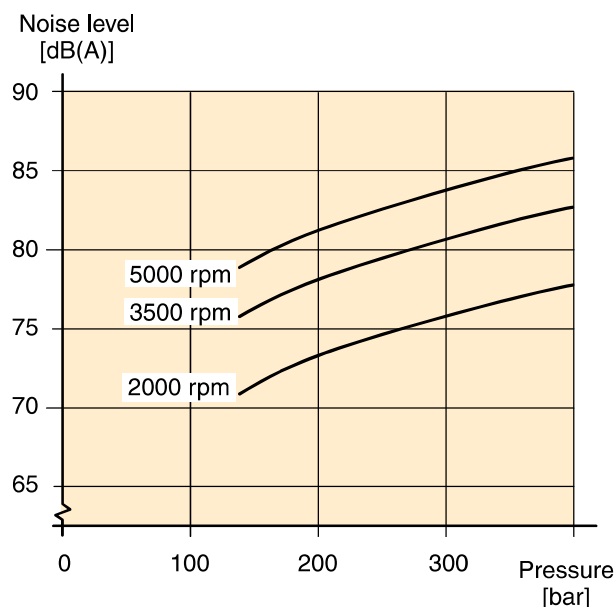
**Noise level**

Series F12 feature low noise levels from low to high speeds and pressures.

As an example, the diagram to the right shows the noise level of an F12-030 pump/motor.

The noise level is measured in a semi-anechoic room, 1 m behind the unit.

The noise level for a particular motor/pump may vary ±2 dB(A) compared to what is shown in the diagram.



NOTE: Noise information for F12 frame sizes are available from Parker Hannifin.

**Selfpriming speed and required inlet pressure**

**Series F12**

When operating the F12 as a pump (with L or R valve plate) above the selfpriming speed, the inlet must be pressurized. Increased noise and deteriorating performance may otherwise be experienced.

Diagrams 2 and 3 shows required pump inlet pressure vs. shaft speed.

The F12 motor (type M valve plate) sometimes operates as a pump e.g. when used in a propel transmission and the vehicle is going downhill.

Minimum required inlet pressure versus shaft speed is shown in the diagrams.

The inlet pressure can be charged by external pump, pressurized reservoir or using BLA Boost unit.

Find more info about the BLA unit at page 68.

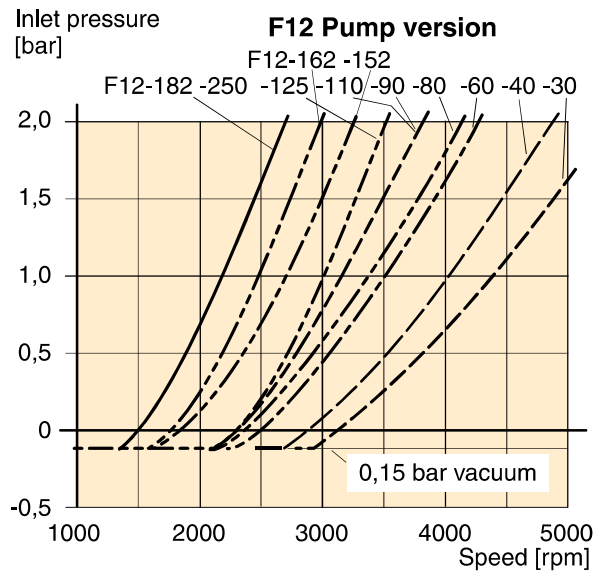


Diagram 2. Min. required pump (F12-L or -R) inlet press.

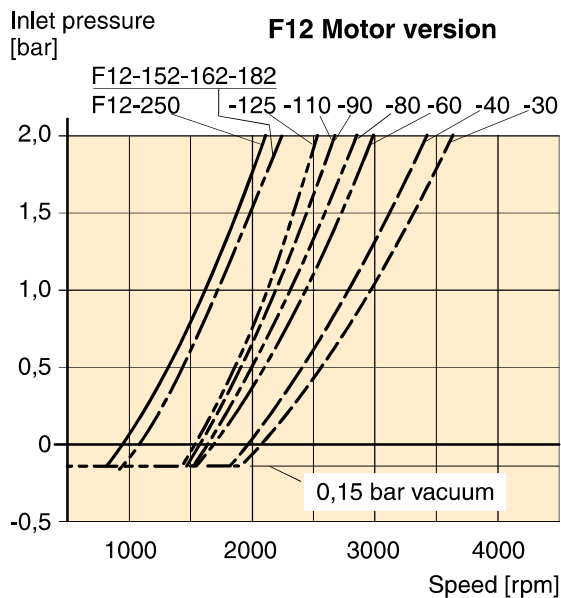
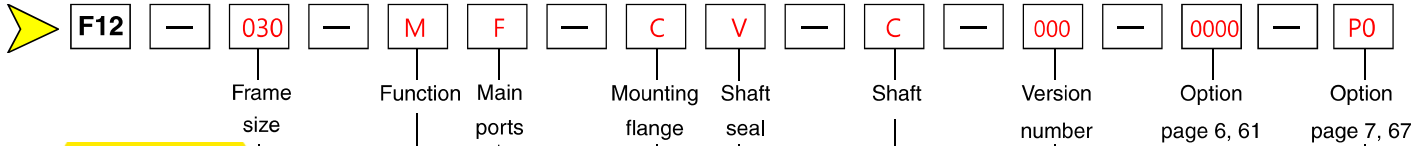


Diagram 3. Min. required motor (F12-M) inlet pressure.



**F12-Cartridge**

Frame size	
Code	Displacem. (cm <sup>3</sup> /rev)
030	30.0
040	40.0
060	59.8
080	80.4
090	93.0
110	110.1
125	125.0

Version number  
(assigned for special versions)

Frame size	30	40	60	80	90	110	125
Code	Shaft*						
C	DIN Spline, Std.	x	x	x	x	x	x
K	Metric key, Option	(x)	-	(x)	(x)	(x)	(x)
J	Metric key, Option	-	(x)	-	-	-	-
B	Spline DIN 5480	-	-	(x)	-	(x)	(x)
V	Tapered shaft	(x)	(x)	(x)	-	(x)	(x)

\*See also dimensional drawings on page 50.

Frame size	30	40	60	80	90	110	125
Code	Function						
M	Motor	x	x	x	x	x	x
S	Motor, high speed	(x)	(x)	(x)	-	-	-

For other versions, contact Parker Hannifin

Frame size	30	40	60	80	90	110	125
Code	Option						
0000	Standard	x	x	x	x	x	x
L130	Flushing valve 1.3 mm orifice	(x)	(x)	(x)	(x)	(x) <sup>-1)</sup>	(x) <sup>-1)</sup>
MUVR	Make up/Anti cavitation valve clockwise rotation	(x)	-	-	-	-	-
MUVL	Make up/Anti cavitation valve counter clockwise rotation	(x)	-	-	-	-	-
P <sub>2)</sub> R	Pressure relief valve clockwise rotation	(x)	(x)	(x)	-	-	-
P <sub>2)</sub> L	Pressure relief valve counter clockwise rotation	(x)	(x)	(x)	-	-	-

Frame size	30	40	60	80	90	110	125
Code	Main ports						
F	SAE 6000 psi flange	x	x	x	x	x	x

Frame size	30	40	60	80	90	110	125
Code	Mounting flange						
C	Cartridge	x	x	x	x	x	x

Frame size	30	40	60	80	90	110	125
Code	Option						
P0	Prepared for speed sensor	x	x	x	x	x	x
PT	Prepared for speed sensor and Painted Black	(x)	(x)	(x)	(x)	(x)	(x)
B0	Power Boost and Prepared for speed sensor	(x)	-	-	-	-	-
BT	Power Boost, Prepared for speed sensor and Painted Black	(x)	-	-	-	-	-

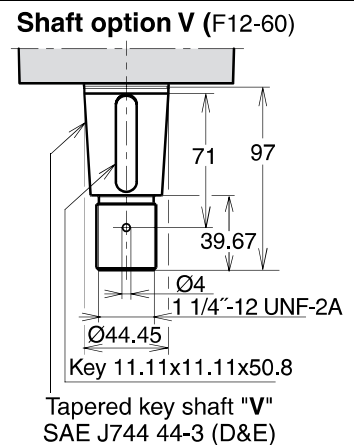
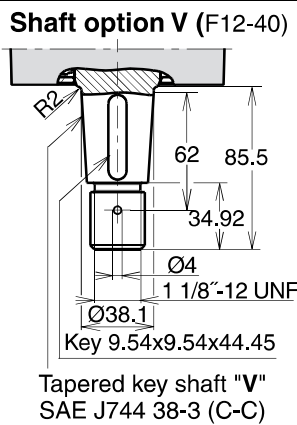
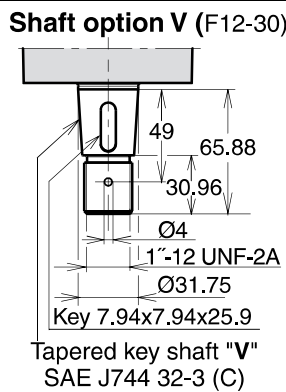
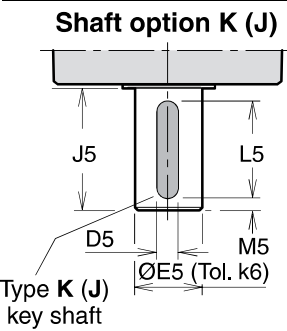
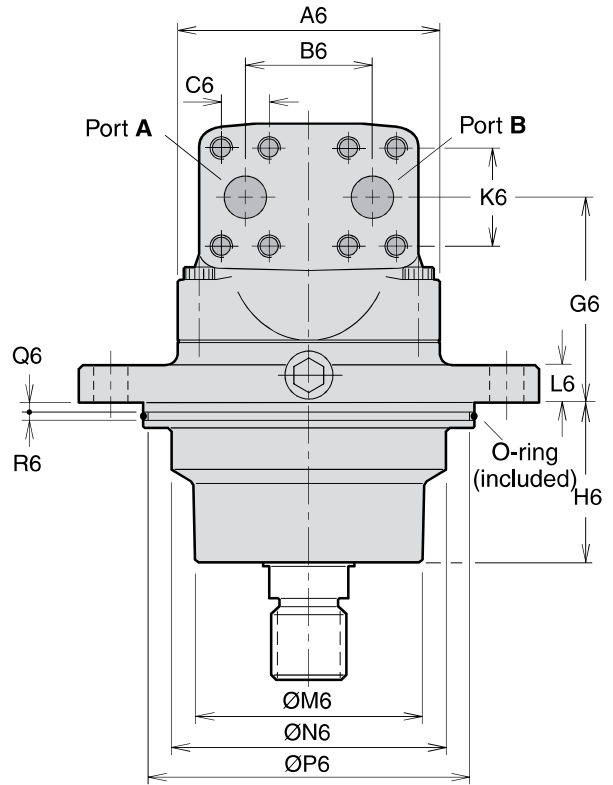
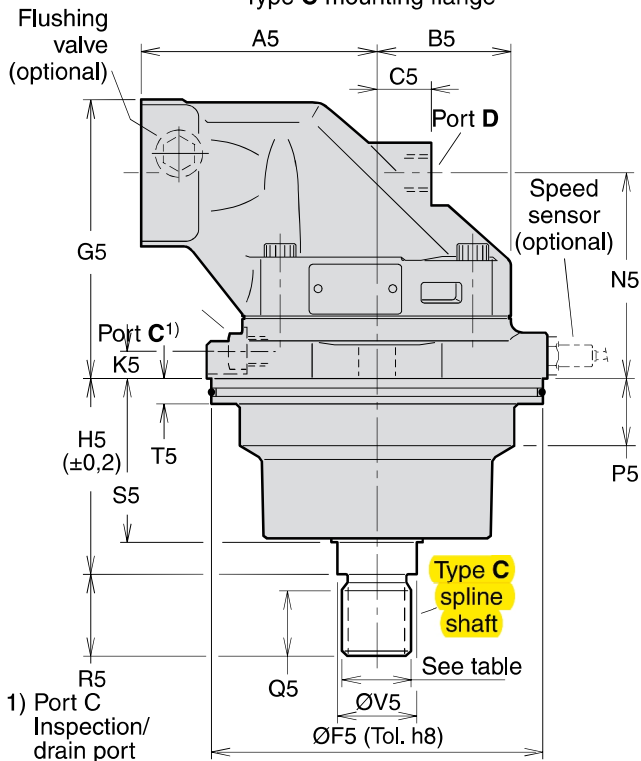
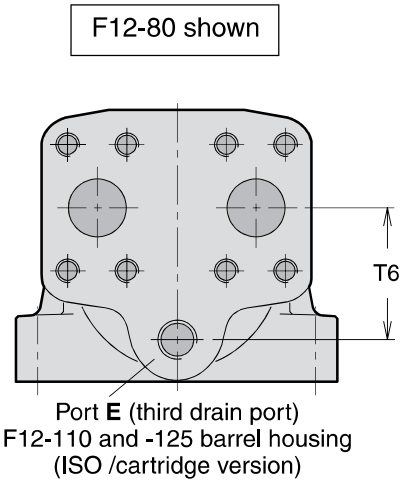
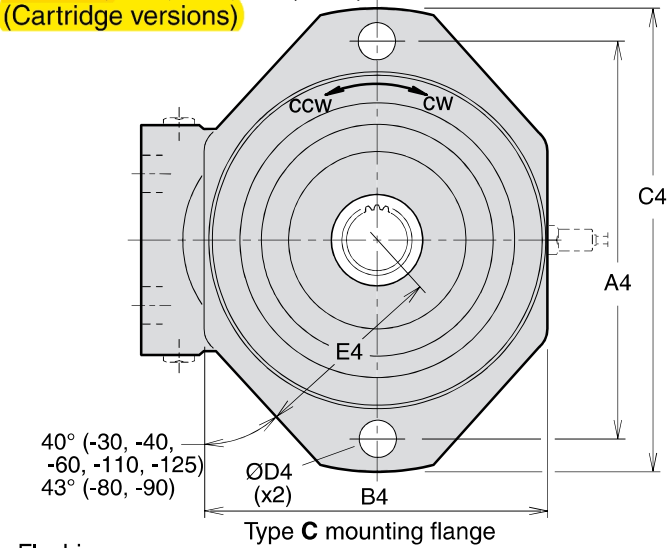
- x: Available      (x): Optional      -: Not available  
 1) F12-110 and -125: Accessory valve block (page 62)  
 2) Pressure setting on page 63

**NOTE:** All combinations are not valid, please contact Parker Hannifin

Frame size	30	40	60	80	90	110	125
Code	Shaft seal						
V	FPM, high pressure, high temperature	x	x	x	x	x	x

For other versions, contact Parker Hannifin

**F12-30, -40, -60, -80, -90, -110 and -125**  
 (Cartridge versions)



Dim.	F12-30	F12-40	F12-60	F12-80 F12-90	F12-110 F12-125
A4	160	200	200	224	250
B4	140	164	164	196	206
C4	188	235	235	260	286
D4	14	18	18	22	22
E4	77	95	95	110	116
A5	100	110	125	135	145
B5	59	65	70	77.5	85
C5	25	26	22	32	38
D5	8	8 <sup>1)</sup> 10 <sup>2)</sup>	10	12	14
E5	30	30 <sup>1)</sup> 35 <sup>2)</sup>	35	40	45
F5	135	160	160	190	200
G5	127	133	146	157	175
H5	89	92.3	92.3	110.5	122.8
J5	50	60	60	70	82
K5	14	16	15	15	15
L5	40	50	50	56	70
M5	5	5	5	7	6
N5	91	97	110	114	123
P5	22	30	31	40	40
Q5	28	28	28	37	37
R5	35	35	35	45	45
S5	70.5	72	76	91	95.7
T5	15	15	15	15	15
V5	32	35	35	45	45
A6	122	134	144	155	170
B6	66	66	66	75	83
C6	23.8	23.8	23.8	27.8	31.8
G6	91.5	97	110	114	123
H6	69.5	71	74	89.5	93.7
K6	50.8	50.8	50.8	57.2	66.7
L6	16	18	18	20	20
M6	92	115	115	130	140
N6	110	127	135	154	160
P6	128.2	153.2	153.2	183.2	193.2
Q6	5	5	5	5	5
R6	5	5	5	5	5
T6	-	-	-	-	68

- 1) Key shaft type **K**
- 2) Key shaft type **J** (opt.).

Ports	F12-30	F12-40	F12-60	F12-80 F12-90	F12-110 F12-125
A, B size	3/4"	3/4"	3/4"	1"	1 1/4"
Screw thread	M10 x20	M10 x20	M10 x20	M12 x22	M14 x26
C thread	M14 x1.5	M14 x1.5	M14 x1.5	M14 x1.5	M14 x1.5
D, E thread	M18 x1.5	M18 x1.5	M22 x1.5	M22 x1.5	M22 x1.5

A, B: ISO 6162

### Spline shaft (DIN 5480)

	Type C (standard)	Type B (optional)
F12-30	W30x2x14x9g	-
-40	W30x2x14x9g	-
-60	W30x2x14x9g	W35x2x16x9g
-80	W40x2x18x9g	-
-90	W40x2x18x9g	-
-110	W40x2x18x9g	W45x2x21x9g
-125	W40x2x18x9g	W45x2x21x9g

### Key shaft

	Type K (std)	Type J (opt.)	Type V (opt.)
F12-30	Ø30	-	32-3
-40	Ø30	Ø35	38-3
-60	Ø35	-	44-3
-80	Ø40	-	-
-90	Ø40	-	-
-110	Ø45	-	44-3
-125	Ø45	-	44-3

### O-ring dimensions

F12-30	127x4
-40	150x4
-60	150x4
-80	180x4
-90	180x4
-110	190x4
-125	190x4