

How to order SC Air Operated Liquid Pumps

1. Available Air pressure and Flow Rate

For optimum performance, the maximum recommended air pressure for continuous duty is 100 psig for all pumps and power units. Air - drive pressure up to 150 psig may be used intermittently.

**Notice: Some Charts and Diagrams may need to be enlarged to see fine detail.*

2. Required Hydraulic Output pressure and Flow Rate

We recommend that SC pumps be selected to deliver the required hydraulic flow rate and output pressure with 70 psig of air-drive pressure. This will provide a safety factor if air-drive pressure decreases for any reason. For hydraulic pressure, see "Approximate Air to Hydraulic Pressure Ratios -- Static Conditions". For hydraulic flow, see "Hydraulic Pump Approximate Rate of Discharge".

3. Type of Fluid Being Pumped

The type of fluid being pumped is an important consideration in the selection of a pump. The materials of the hydraulic assembly and compounds of the hydraulic seals are determined by the specific fluid. Standard SC pumps are available for oil, water and most benign fluids. The standard hydraulic seal compound is Nitrile (Buna-N) with Tetrafluoroethylene (Teflon back up rings.) Pumps and power units can be purchased for other types of fluids. Consult the factory for recommended seal combinations.

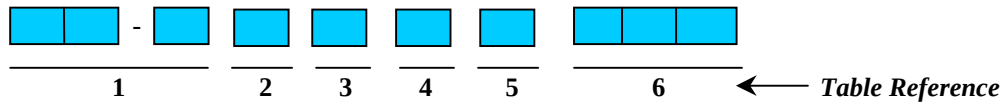
**Note: hydraulic seal performance and life will be effected to some degree with non-lubricating fluids, such as water, than with lubrication type fluids.*

4. Acceptable Size and Weight

For some applications, the unit's physical size and weight may be an important consideration.

SC Air Operated Liquid Pumps

Model Selection table:



Example #1

1) Hydraulic Pump series	10-5
2) Seal Compound Air drive	V
3) Seal Compound Hydraulic	V
4) Modifications	D
5) Hydraulic section Material	W
6) Model Number	060

10-5 V V D W 060

10-5 Series Pump with Viton Air seal and Viton Hydraulic seal with Heavy Duty bottom Inlet Mod. in Aluminum Bronze & Stainless Steel construction with a Pressure Ratio of 105:1. Max Output 10,500 psi.

Example #2

1) Hydraulic Pump series	10-6
2) Seal Compound Air drive	0
3) Seal Compound Hydraulic	0
4) Modifications	E
5) Hydraulic section Material	S
6) Model Number	020

10-6 0 0 E S 020

10-6 Series Pump with Standard Air and Hydraulic seals with bottom inlet "A" Mod. in Stainless Steel construction with a Pressure Ratio of 35:1. Max Output 3,500 psi.

Table 1. Pump Series Designation

10 - 4	10 - 4 Series air operated liquid pump
10 - 5	10 - 5 Series air operated liquid pump
10 - 6	10 - 6 Series air operated liquid pump

Table 2. Seal Compound Air Drive

O	Buna - N (Standard)
V	Viton

Table 3. Seal Compound Hydraulic

O	Buna - N (Standard)
E	EPR
V	Viton
*	Special compounds contact factory

Table 5. Construction Material Hydraulic Section

C	Cadmium plated Carbon Steel & Stainless Steel (2)
S	All Stainless Steel
W	Aluminum Bronze & Stainless Steel

Table 6. Model Description and Ratio

Refer to our Pressure Ratio Chart for Model # Selection.

"Max Pressure calculation "

Inlet Air Drive psi times Ratio number equals max Hydraulic Outlet psi.

100 psi * 35 = 3,500 psi max.

Table 4. Modifications

O	Standard Pump
A	"A" Modification (See Mod Chart)
B	Bottom Inlet
D	Bottom Inlet Heavy Duty (notes 1,3)
E	Bottom Inlet "A" Modification (1)
G	Isolator Heavy Duty (1,3)
H	Heavy Duty (1)
J	Bottom Inlet "K" Modification (1)
K	"K" Modification (See Mod Chart) (1)
M	Bottom Inlet "A" and "K" Modification (1)
N	Isolator "A" Modification (1)
P	Isolator "K" Modification (1)
Q	Isolator "A" and "K" Modification (1)
R	Isolator (1)
S	Heavy Duty "K" Modification (1,3)
U	Heavy Duty Bottom Inlet "K" Modification (1,3)
V	Heavy Duty Isolator "K" Modification (1,3)

Notes:

- 1) Not available for 10-4 series pump.
- 2) For oil service only, with orders of 25 units or more.
- 3) "A" Modification standard on all "H" models.

*** 10-4 Series**

When operating from 0 to rated hydraulic pressure, air consumption will be approximately 14 scfm of free air to 100-psi input. At lower air pressures and higher hydraulic pressures air consumption will be reduced proportionately to flow rates indicated.

*** 10-5 Series**

When operating from 0 to rated hydraulic pressure, air consumption will be approximately 28 scfm of free air at 100-psi input. At lower air pressures and higher hydraulic pressures air consumption will be reduced proportionately to flow rates indicated.

*** 10-6 Series**

When operating from 0 to rated hydraulic pressure, air consumption will be approximately 56 scfm of free air at 100-psi input. At lower air pressures and higher hydraulic pressures air consumption will be reduced proportionately to flow rates indicated.

PRESSURE RATIO CHART

10-4 SERIES			10-5 SERIES			10-6 SERIES		
Model Number		PRESSURE RATIO	Model Number		PRESSURE RATIO	Model Number		PRESSURE RATIO
OLD	REF.		OLD	REF.		OLD	REF.	
0.25	003	5	0.24	003	5	.35QR	003	5
0.5	005	10	0.5	005	10	.5QR	005	10
1	010	15	0.65	007	12	1	010	20
1.5	015	30	1	010	20	1.5	015	25
2	020	35	1.5	015	25	2	020	35
3	030	55	1.75	018	30	3	030	55
5	050	100	2	020	35	5	050	95
8	080	140	3	030	55	8	080	145
12.5	125	220	4	040	70	10	100	180
			4.5	045	85	15	C151	240
			6	060	105	20	C201	330
			8	080	140	30	301	460
			10	100	195	40	402	740
			16	160	280			
			25	250	440			
			35	350	555			

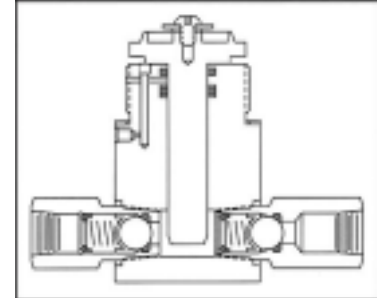
Special and Modified Pumps

10-4, 10-5, and 10-6 Series

A combination of any of the modifications shown can be supplied upon request. Write or call the factory for information and prices.

. "A" Modification *

The "A" modification utilizes dual seals in the hydraulic assembly with a bleed port between the seals to atmosphere, providing a visual indication of hydraulic seal leakage. Used where contamination of the air motor from the hydraulic fluid being pumped is objectionable.



. "K" Modification *

The "K" modification utilizes a special air piston in the air motor assembly which decreases the stroke of the pump, thus minimizing the internal forces and increasing air motor service life. Used in applications exhibiting rapid pressure losses, such as burst pressure testing.

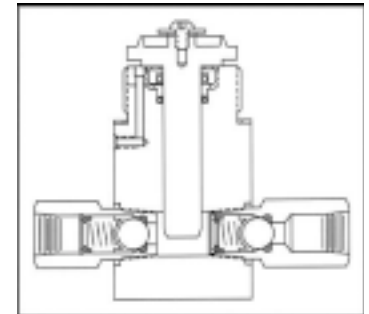


. "B" Models *

The "B" models have a bottom inlet connection for convenient tank top installation.

. "H" Models *

The "H" models utilize special packing in the hydraulic assembly for maximum performance where hydraulic fluid media is contaminated with foreign matter, providing for a much greater life expectancy from the hydraulic seals than with standard "O" ring seals. "A" modification is standard on all "H" models.



. "R" Models *

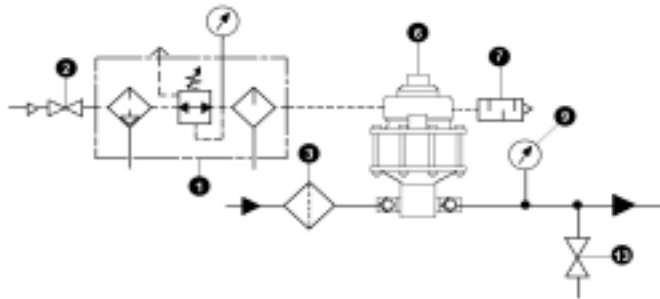
The "R" models are furnished with an isolator attachment which prevents the hydraulic piston from retracting into the air motor during operation, providing for 100% non contamination of the hydraulic assembly from the air motor. The isolator attachment also acts as a heat barrier.

* Not available in 10-4 Series

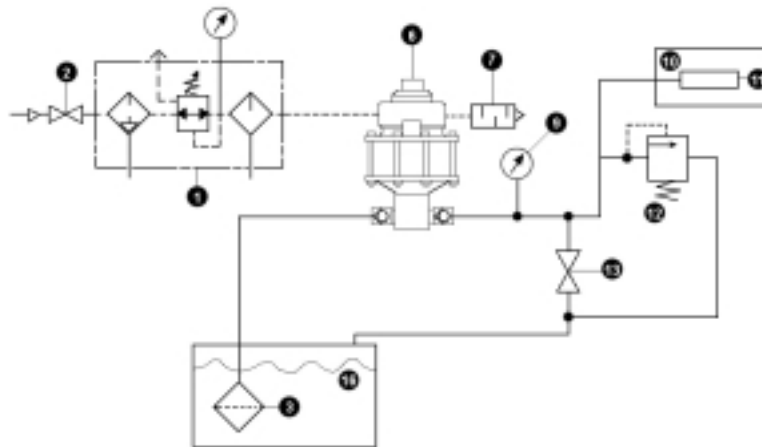
LEGEND

- | | | |
|---|---|-------------------------|
| 1. Filter, regulator, lubricator assembly | 7. Air exhaust muffler | 13. Fluid bleed valve |
| 2. Air shut off valve | 8. Pressure unloading valve, air operated | 14. Hydraulic press |
| 3. Hydraulic filter | 9. Hydraulic pressure gauge | 15. Check valve |
| 4. Manual 4 way air valve | 10. Test chamber | 16. Hydraulic reservoir |
| 5. Air sequence valve | 11. Test object | |
| 6. SC air operated hydraulic pump | 12. Pressure relief valve | |

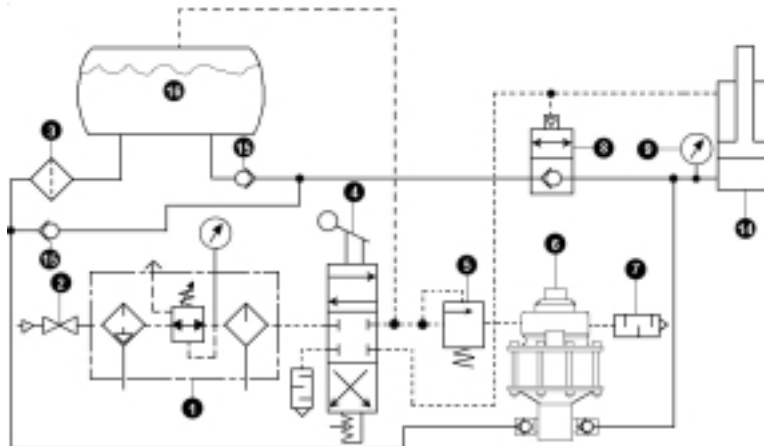
TYPICAL CIRCUIT FOR INSTALLATION

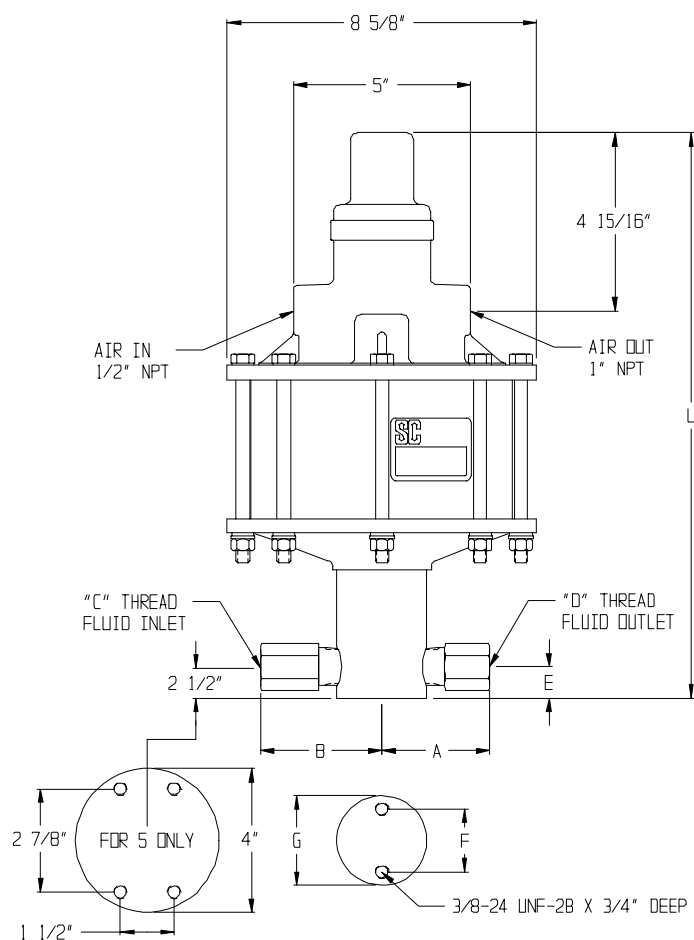


TYPICAL CIRCUIT FOR STATIC PRESSURE TEST



TYPICAL CIRCUIT FOR OPERATION OF HYDRAULIC PRESS





Mounting may be in any position, Vertical preferred. When mounting is in an inverted position, a drain cock should be provided to drain off any liquid that might accumulate in the pilot valve air chamber.

10-6 Series Mounting Dimensions (Inches)

10-6 Series Model No.	L	A	B	C NPTF	D NPTF	E	F	G
-003	$19 \frac{5}{8}$	$4 \frac{7}{8}$	$2 \frac{3}{8}$	$1 \frac{1}{4}$	1	$1 \frac{1}{2}$	--	4
-005	$18 \frac{5}{8}$	$4 \frac{3}{4}$	$4 \frac{3}{8}$	1	1	$1 \frac{3}{8}$	$2 \frac{3}{8}$	3
-010 thru -020	$17 \frac{1}{16}$	3	4	1	$\frac{1}{2}$	1	$1 \frac{3}{4}$	$2 \frac{1}{2}"$
-030 thru -100	$15 \frac{3}{4}$	3	$3 \frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{8}$	$1 \frac{3}{4}$	$2 \frac{1}{2}"$
-151 thru -301	16	$2 \frac{1}{2}$	$2 \frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{8}$	$1 \frac{3}{4}$	$2 \frac{1}{2}"$
-402	$16 \frac{1}{4}$	†	$2 \frac{5}{16}$	$\frac{3}{8}$	†	$1 \frac{1}{8}$	$2 \frac{3}{8}$	3

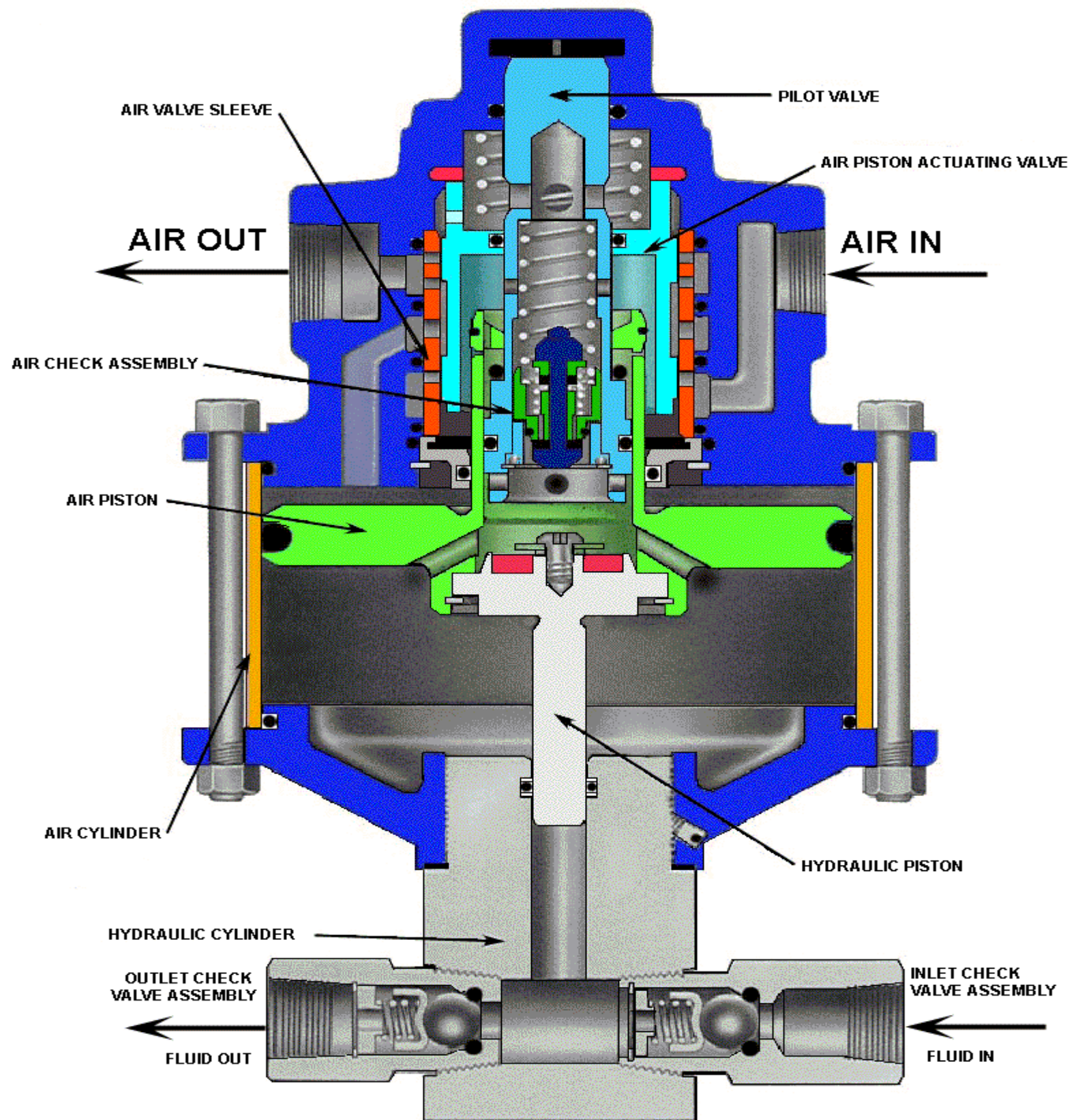
10-6 Series Approximate Air to Hydraulic Pressure Ratios Static Conditions

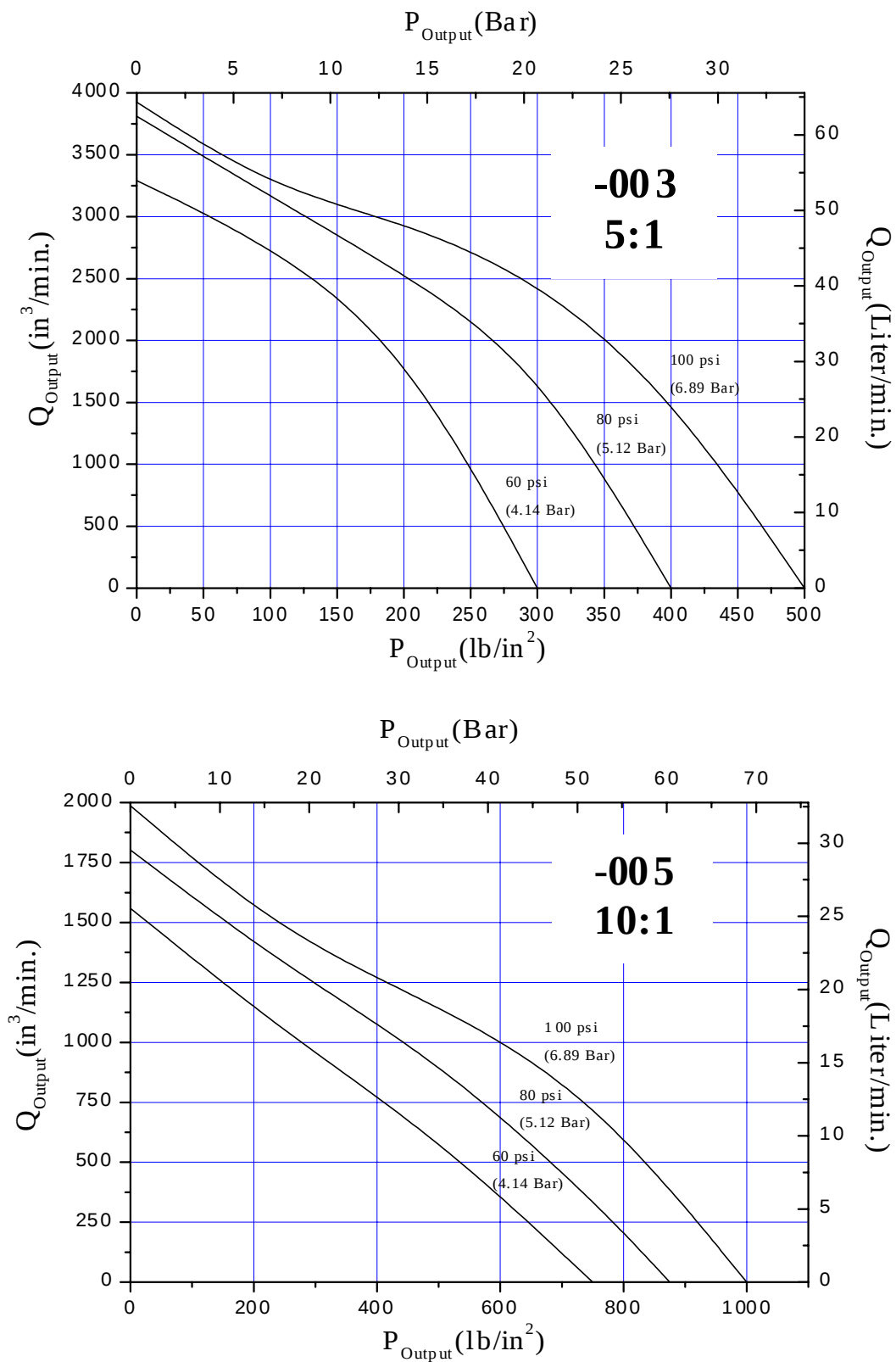
10-6 Series Model	Air Pressure (PSI)									
	10	20	30	40	50	60	70	80	90	100
-003	50	100	150	200	250	300	350	400	450	500
-005	85	185	285	390	490	590	690	795	900	1,000
-010	165	425	650	875	1,075	1,300	1,550	1,750	1,950	2,150
-015	180	450	725	1,000	1,300	1,550	1,850	2,125	2,400	2,700
-020	250	625	1,025	1,400	1,800	2,150	2,500	2,850	3,250	3,600
-030	450	1,050	1,700	2,275	2,900	3,500	4,100	4,650	5,200	6,000
-050	750	1,750	2,800	3,700	4,750	5,900	6,875	7,700	8,750	9,700
-080	1,100	2,600	4,200	5,550	7,100	8,500	10,000	11,500	12,950	14,400
-100	1,500	3,200	5,200	7,100	9,000	10,800	12,500	14,500	16,300	18,000
-151	1,910	4,400	6,900	9,100	11,600	14,000	16,400	18,800	21,300	23,700
-201	3,000	6,000	9,500	12,600	16,000	19,100	22,300	25,600	29,000	32,300
-301	4,000	8,800	13,700	18,000	22,500	27,000	31,500	36,500	41,400	45,800
-402	6,000	13,000	21,000	27,000	34,000	40,500	46,000	52,000	59,000	65,000

10-6 Series Measurements

10-6 Series Model No.	Hydraulic Piston Diameter (Inches)	Hydraulic Piston Area (Square Inches)	Volume per Stroke (Cubic Inches)
-003	3.000	7.07	17.7
-005	2.125	3.56	8.90
-010	1.4375	1.62	4.05
-015	1.315	1.35	3.38
-020	1.125	.994	2.49
-030	.875	.601	1.50
-050	.6875	.371	.928
-080	.5625	.249	.623
-100	.500	.196	.490
-151	.4375	.150	.375
-201	.375	.110	.275
-301	.3125	.077	.193
-402	.250	.049	.123

Liquid Pump Cut-a-way

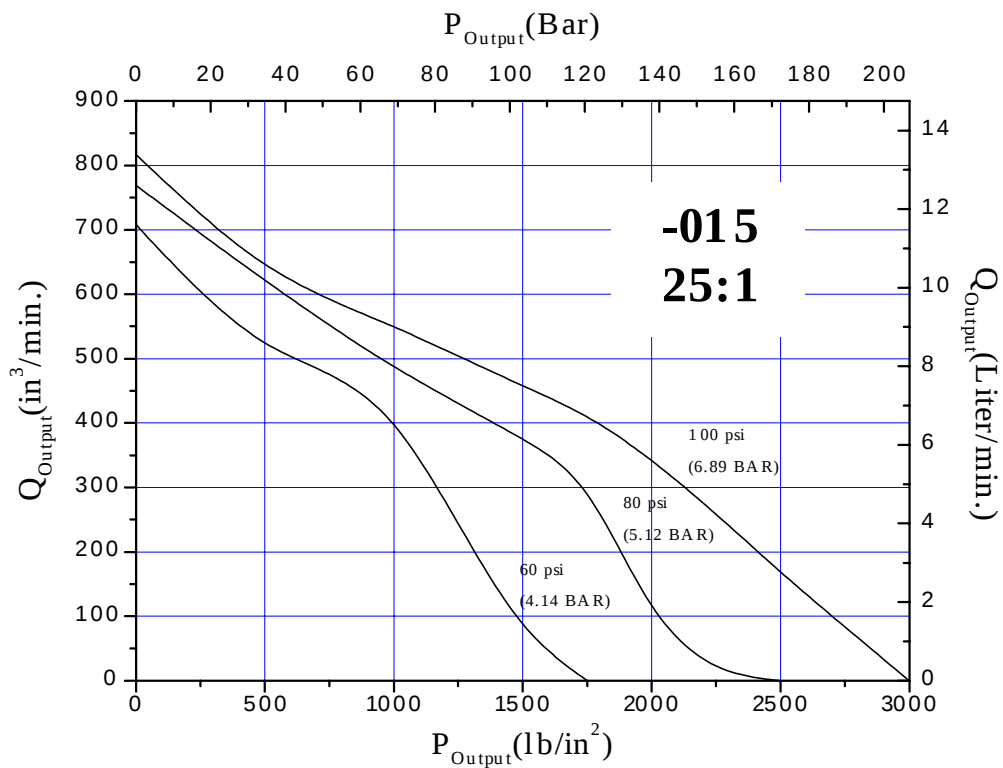
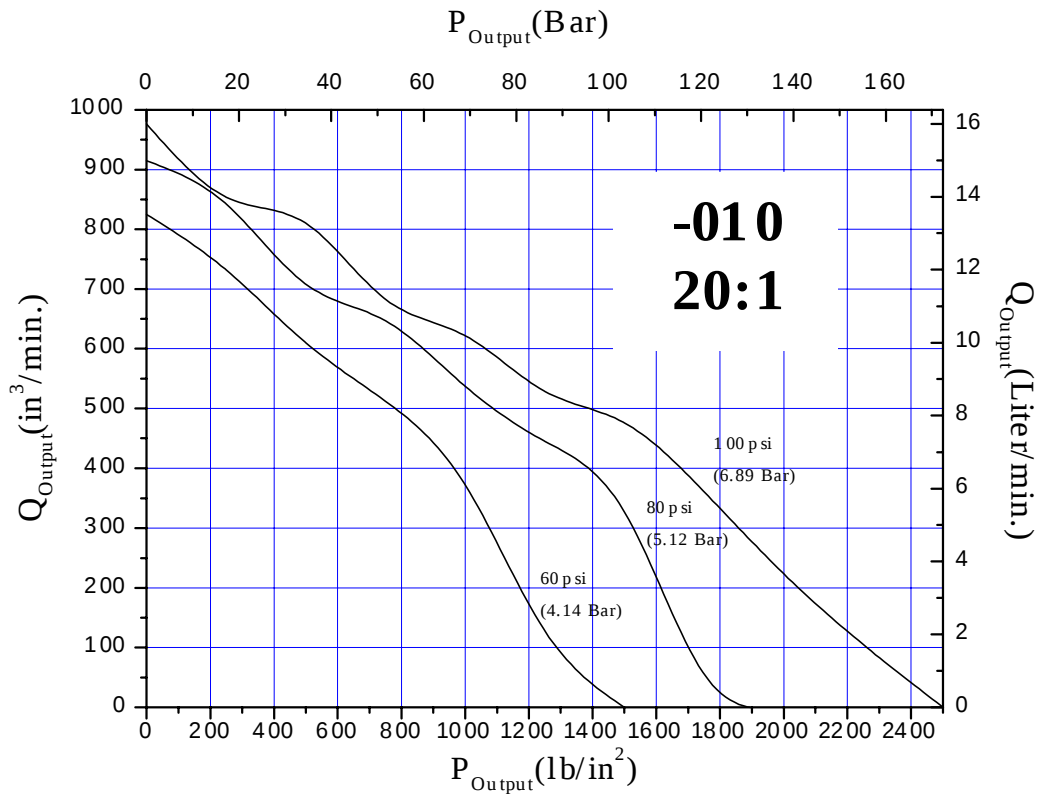


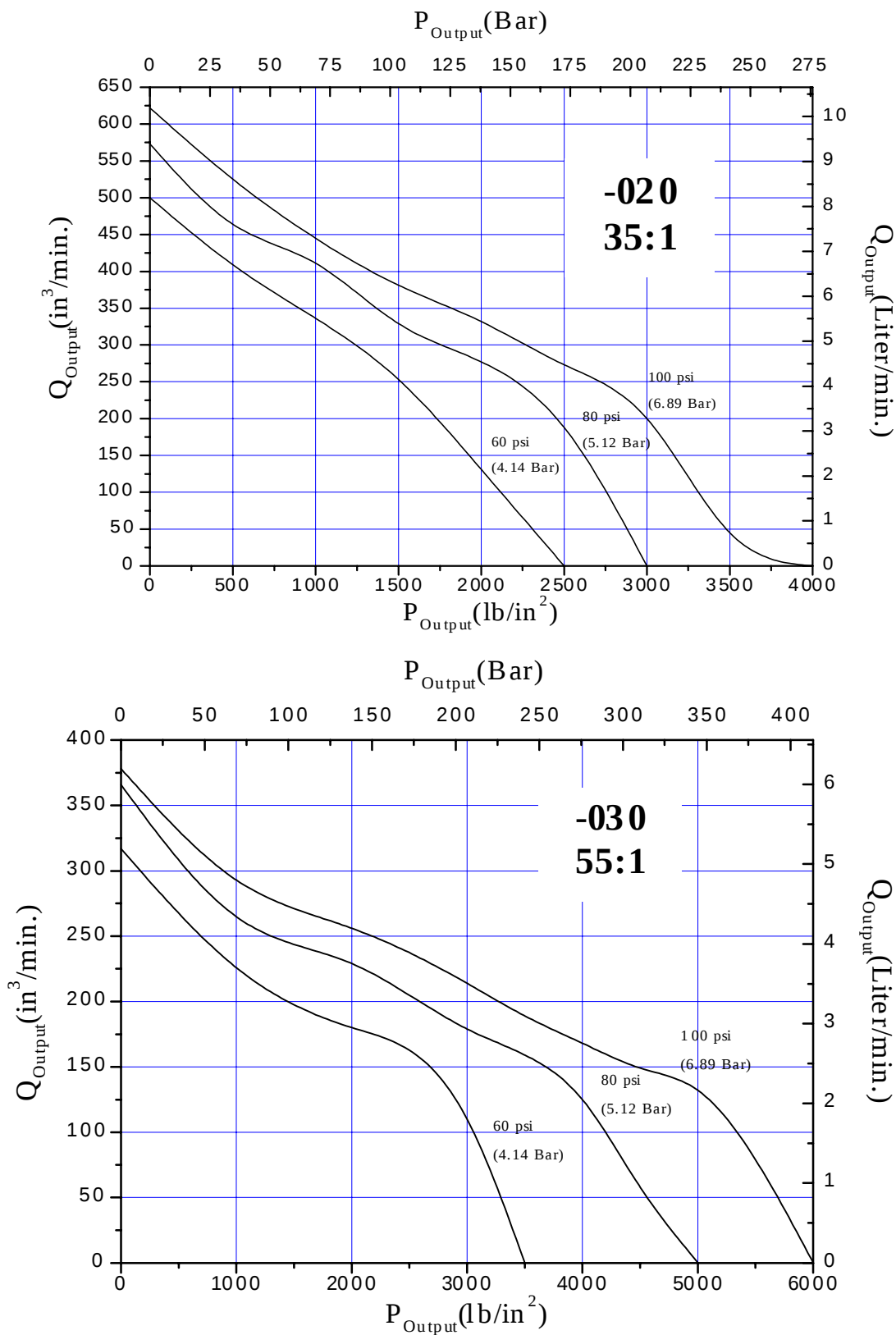


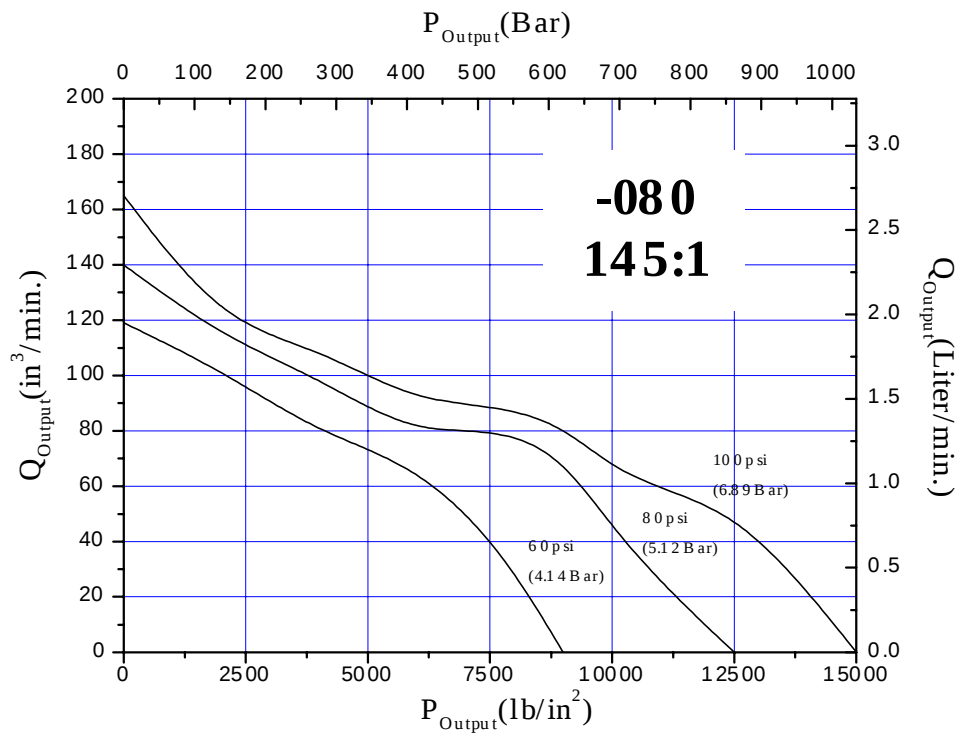
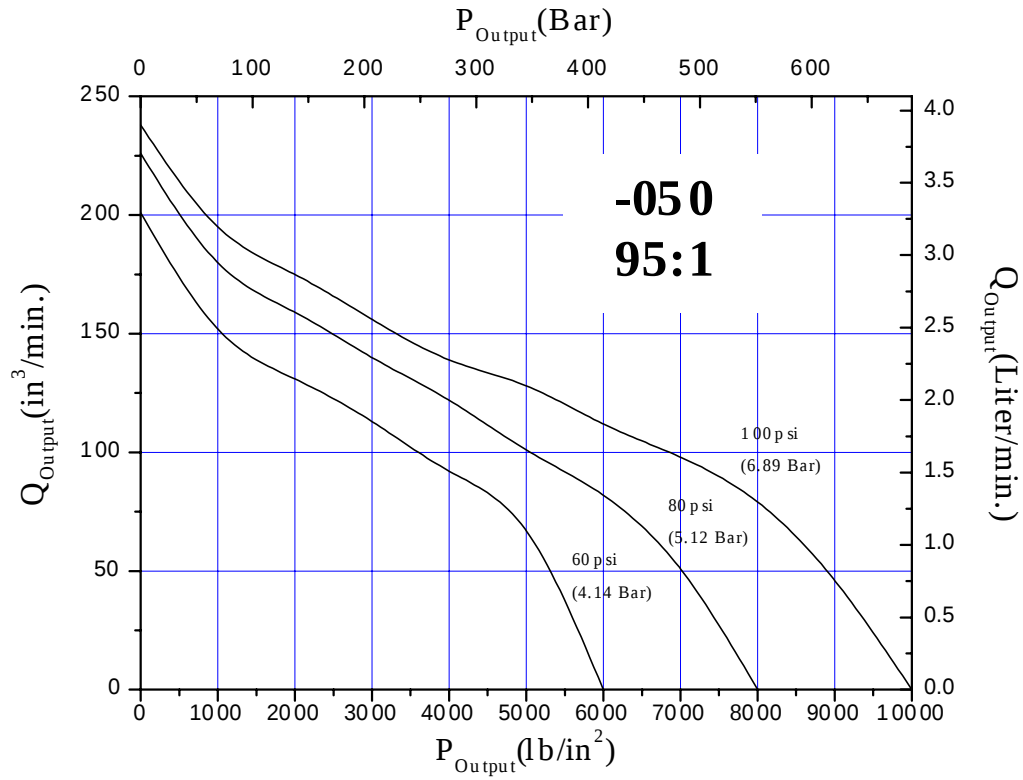
Air Operated Hydraulic Pump

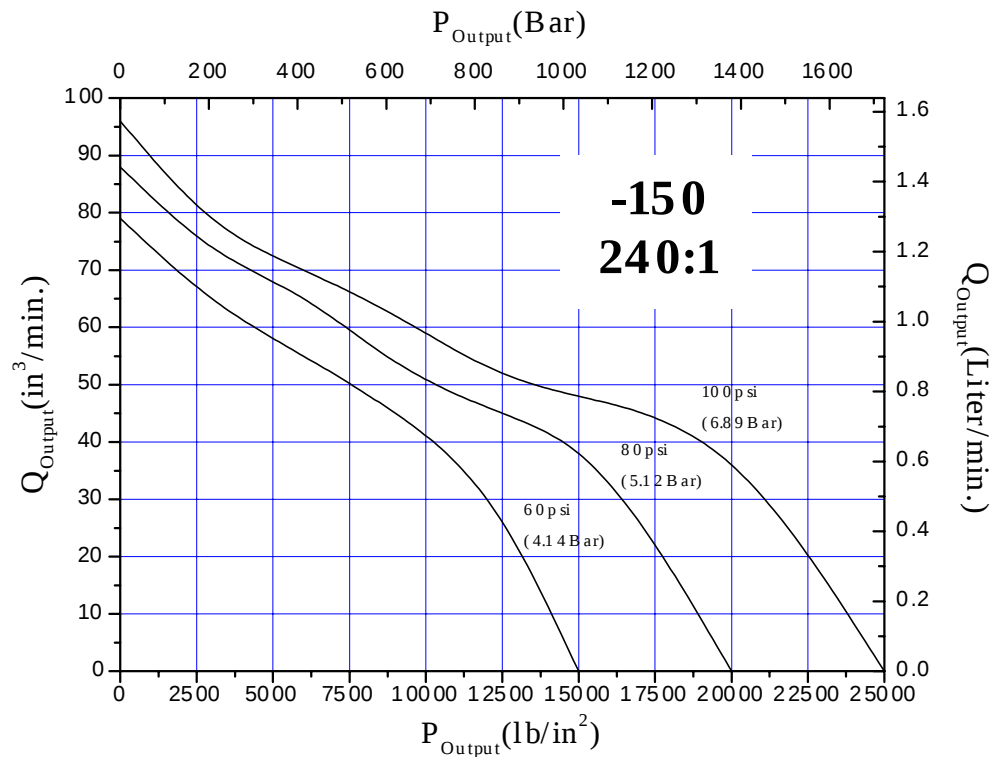
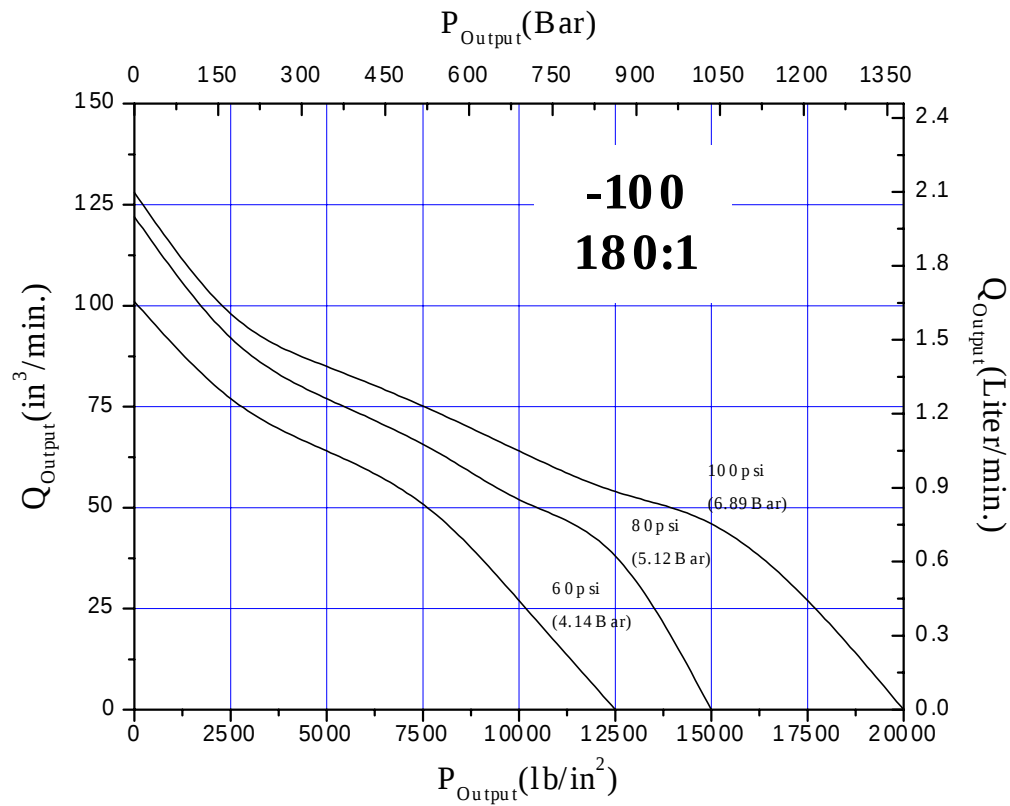
10-6 Series

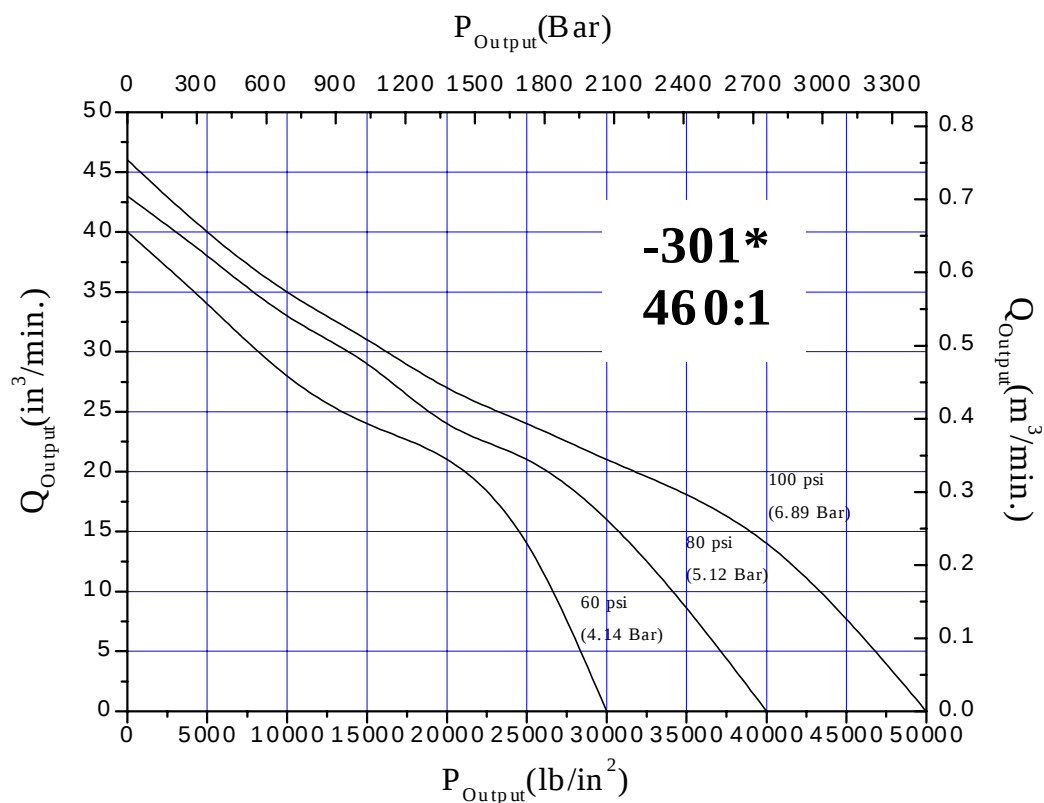
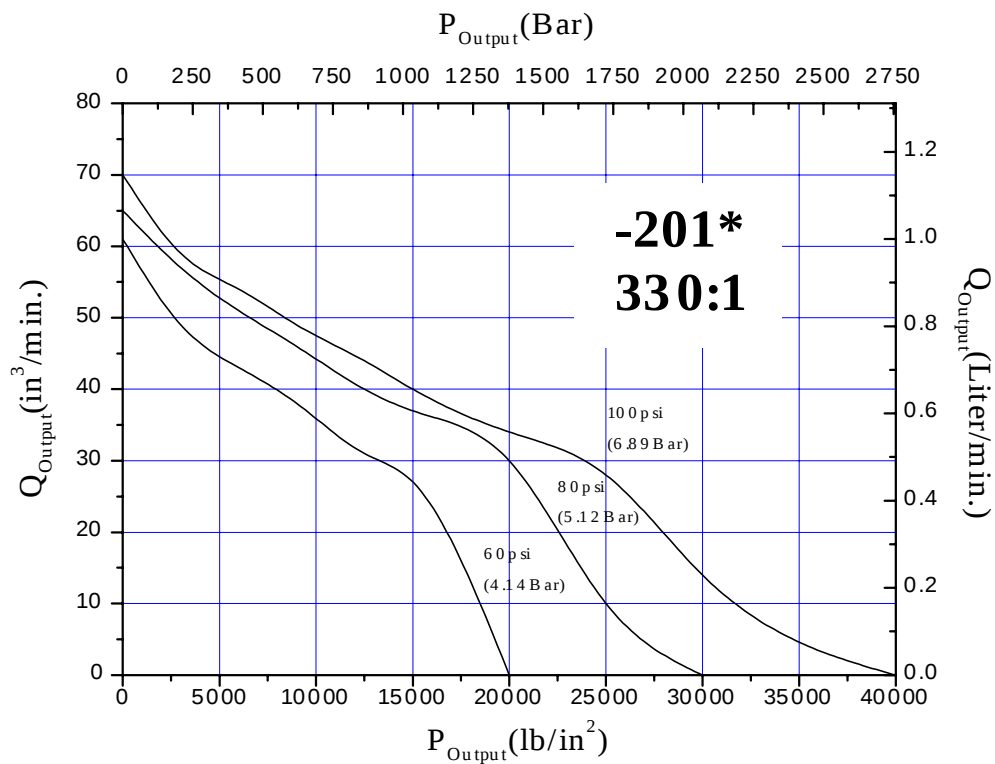
Approximate Rate of Discharge



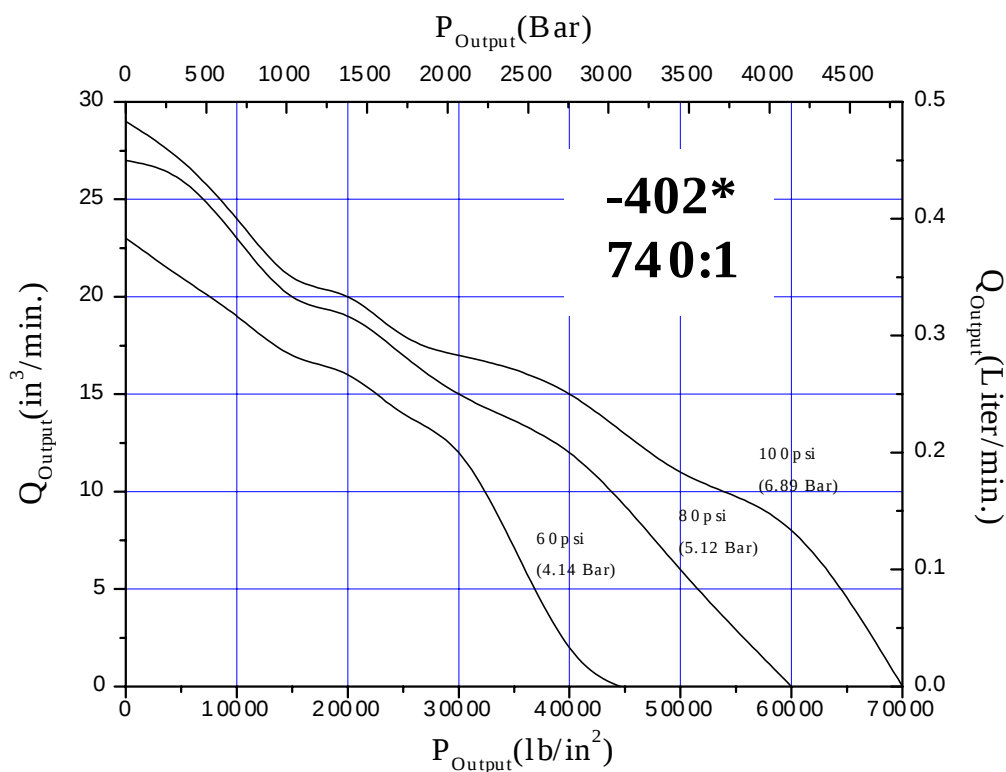








Air Operated Hydraulic Pump **10-6 Series** Approximate Rate of Discharge



* Recommended for continuous duty at pressures to 30,000 psi. Intermittent duty above 30,000 psi.

If 10-6 Series Hydraulic Pump Approximate Rate of Discharge (CIPM) exceeds your requirements, refer to 10-5 Series Hydraulic Pump Approximate Rate of Discharge (CIPM) charts.