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## **SC HYDRAULIC ENGINEERING CORPORATION**

Designers and Manufacturers of Hydraulic and Pneumatic Equipment Since 1953

# 10-4 SERIES AIR OPERATED LIQUID PUMPS



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# NO OTHER PUMPS OFFER ALL THESE ADVANTAGES

**Simple operating principle** – SC air operated hydraulic pumps operate on the simple but efficient principle of pressure intensification through the use of differential areas. Fulfilling Boyle's Law, a larger air-driven piston delivers pressure to a proportionally lesser diameter hydraulic piston, providing fluid flow at relatively higher pressures.

**High output capacity** and outstanding performance provided at very low cost.

**Guaranteed performance** – All SC Hydraulic pumps will give years of low cost, trouble free service when properly installed and maintained to manufacturer's instruction.

**Wide range of operating pressures** is provided by all models. For example, the D5000B55 operates efficiently when delivering from 400 to 5800 psi (see D5 Series specifications).

**Wide range of output capacities** – Only 100 psi air pressure is required for all models to attain maximum rate of flow (see performance charts for data).

**Complete flexibility** – SC Hydraulic pumps adapt to a wide variety of applications, from simple manual controls to fully automatic operation. Air motors are interchangeable for most models within each series.

**Automatic restart** – Whenever an SC Hydraulic pump is idle, the pilot valve is designed to re-position the pump on the power stroke for the next cycle of operation.

**Smooth operation** – The air piston actuating valve is precision fit to close tolerances for maximum efficiency and long service life.

**Both pressure and volume of flow** are easily and accurately controlled by a pressure regulator installed in the air supply line.

**Fluid Compatibility** – Pumps can operate with almost any type fluid service (specify when ordering).

**Hydraulic cylinders** are constructed from aluminum-bronze, stainless steel, or carbon steel.

**Hydraulic pistons** are constructed from stainless steel, hard chrome-plated.

**Materials incorporated** in the hydraulic assembly vary depending upon type of service and pump model.

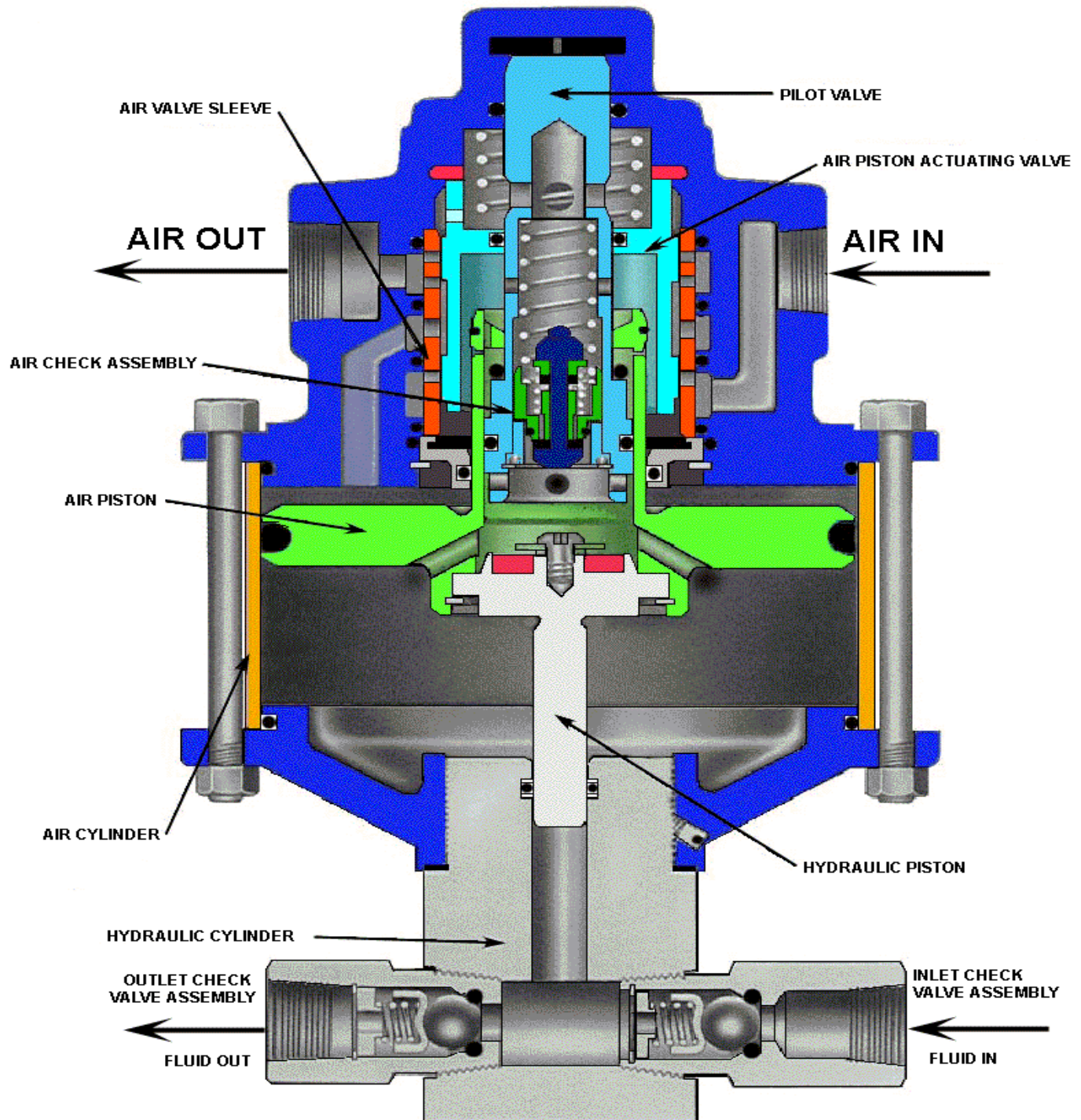
**Designed for easy maintenance** – Costly down time is reduced to a minimum when service is required. "D" Dry Lube Series pumps are packed at the factory with valve lubricant and may be operated without a lubricator in air supply. Hydraulic cylinder packing may be replaced without dismantling the air motor.

## 10-4 Series • 9 models • to 22,000 psi

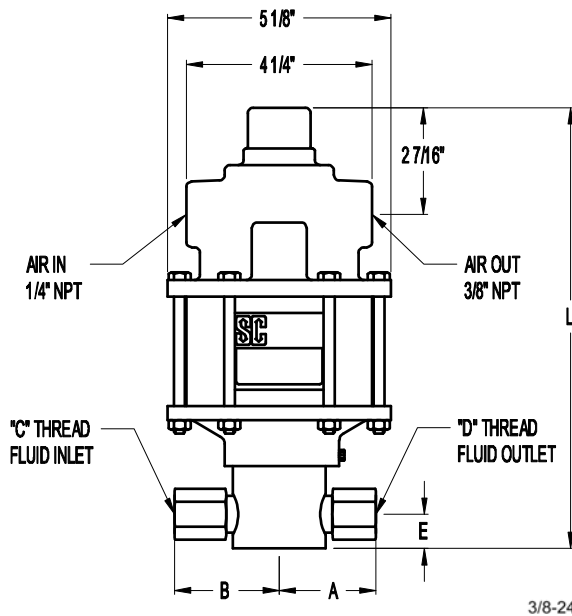
**Applications include** static and burst testing, flow testing requiring relatively low flows at high pressures, operation of hydraulic presses, clamping, pressing, metal forming, piercing, blanking, staking, etc. Applications requiring extreme intermittent pressure and velocity commonly associated with water blasting and jetting.



# Liquid Pump Cut-a-way



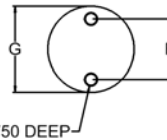
# 10-4 SERIES



10-4 Series pumps have a 4" diameter air piston and a 1 1/4" stroke. Nine models are available with pressures up to 29,500 psig.

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

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



**Mounting Dimensions in Inches**

10-4 Series Model	L	A	B	NPT (Standard)		E	F	G
				C Thread	D Thread			
-003	11.375	2.438	3.000	1/2"	3/8"	.813	1.500	2.125
-005	11.188	2.438	3.000	1/2"	3/8"	.813	1.500	2.125
-010 thru -015	11.063	2.438	2.438	3/8"	3/8"	.813	1.500	2.125
-020 thru -030	10.063	2.438	2.438	3/8"	3/8"	.813	1.500	2.125
-050 thru -125	10.500	2.375	2.313	3/8"	3/8"	.813	1.500	2.125
-165	10.752	1.993	2.062	3/8"	9/16-18*	1.000	1.750	2.500

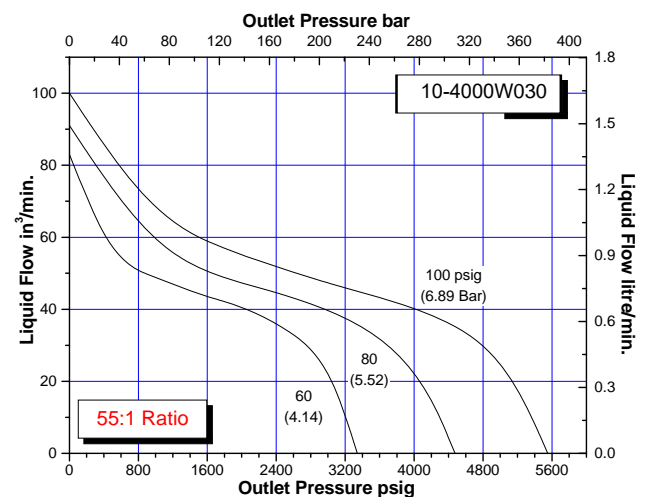
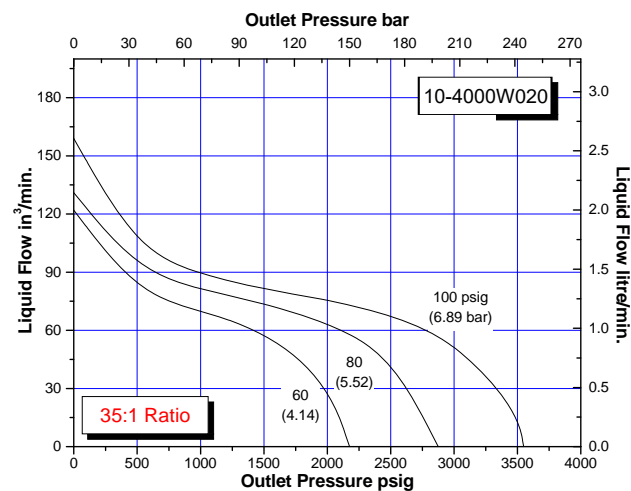
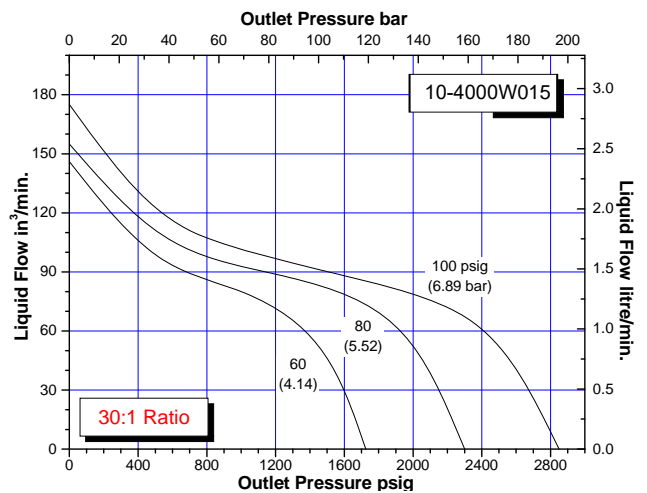
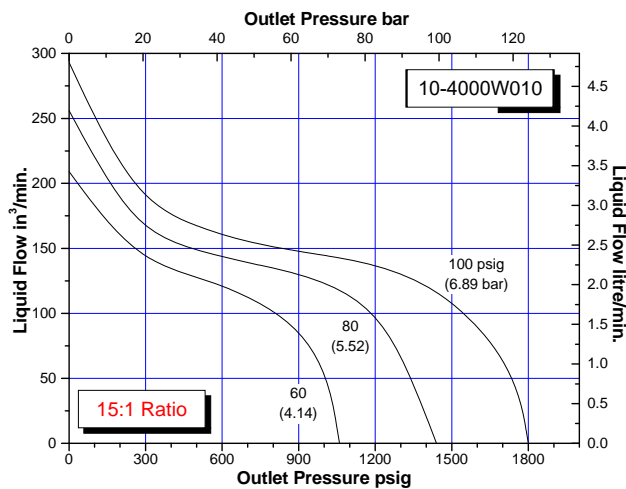
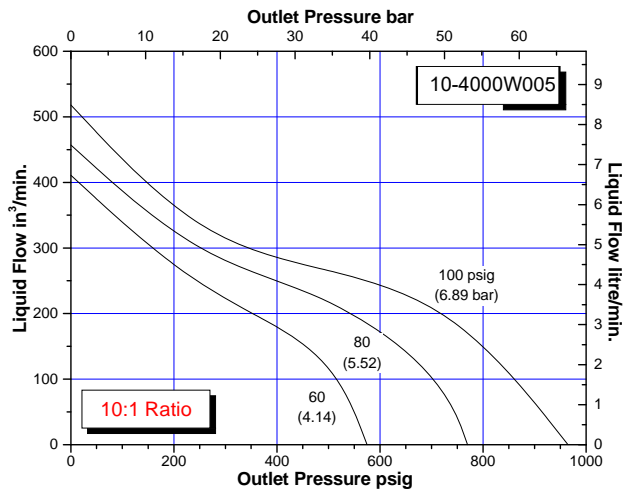
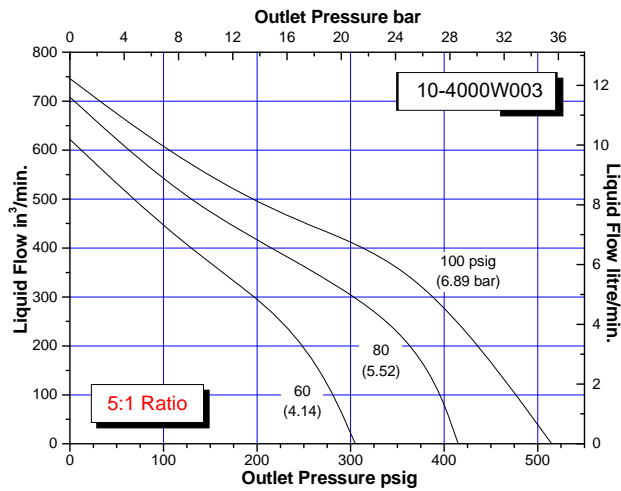
\*Coned and Threaded High Pressure Connection for 1/4" O.D. Tubing

**Measurements & Approximate Air to Hydraulic Pressure Ratios – Static Conditions**

10-4 Series Model	Ratio	Hydraulic Piston Diameter (in)	Hydraulic Piston Area (in <sup>2</sup> )	Volume per Stroke (in <sup>3</sup> )	Air Pressure (PSI)									
					10	20	30	40	50	60	70	80	90	100
-003	5	1.6250	2.070	2.590	35	90	145	200	250	305	360	415	465	515
-005	10	1.1875	1.110	1.390	80	180	280	375	475	575	675	770	870	965
-010	15	0.8750	0.601	0.751	160	340	520	700	880	1060	1240	1440	1600	1800
-015	30	0.6875	0.371	0.464	250	550	850	1150	1425	1725	2000	2300	2575	2850
-020	35	0.6250	0.307	0.384	300	675	1050	1450	1800	2175	2525	2875	3225	3550
-030	55	0.5000	0.196	0.245	500	1040	1620	2200	2750	3340	3850	4475	5000	5550
-050	100	0.3750	0.110	0.138	950	1850	2900	3800	4850	5900	6875	7900	8900	9900
-080	140	0.3125	0.077	0.096	1300	2700	4150	5700	7100	8600	9900	11200	12600	14000
-125	220	0.2500	0.049	0.061	2100	4400	6750	8750	11250	13250	15250	17500	19750	22000
-165	300	0.2180	0.037	0.047	3400	6000	8500	12400	14600	17000	20900	23500	26900	29500

# 10-4 SERIES

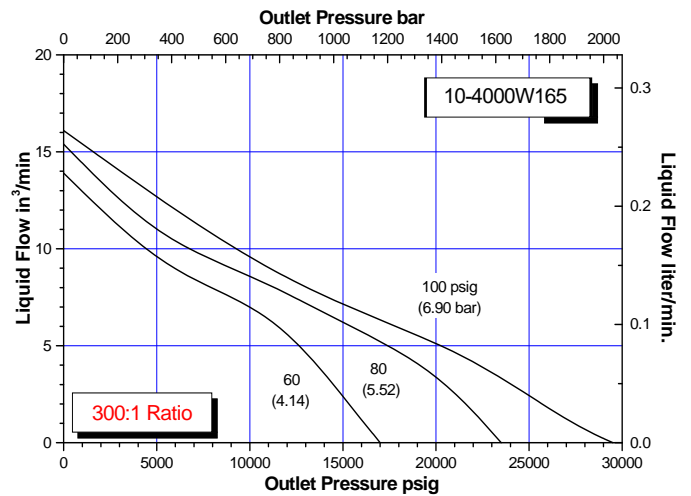
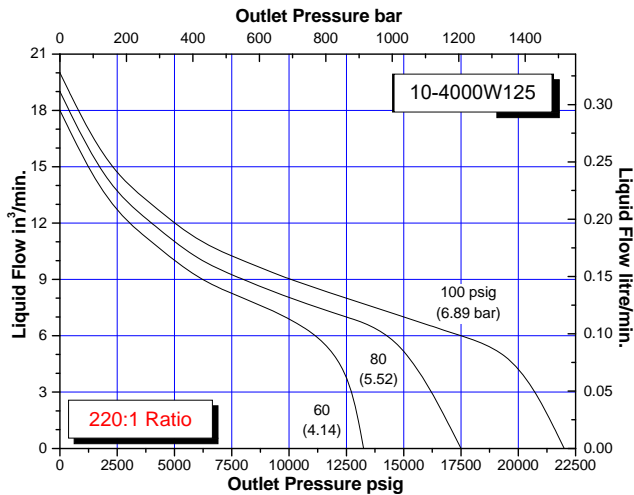
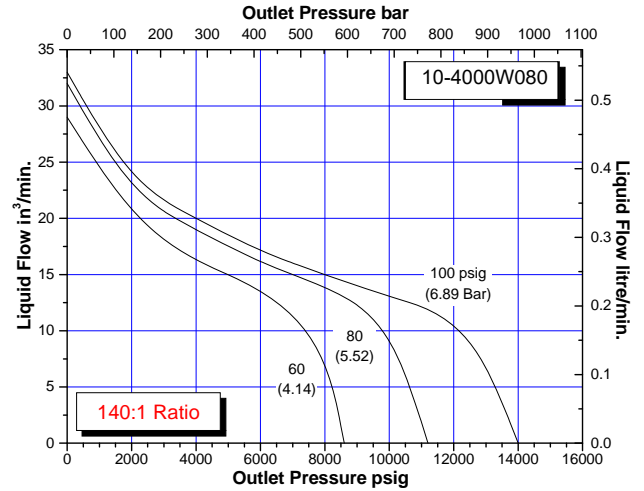
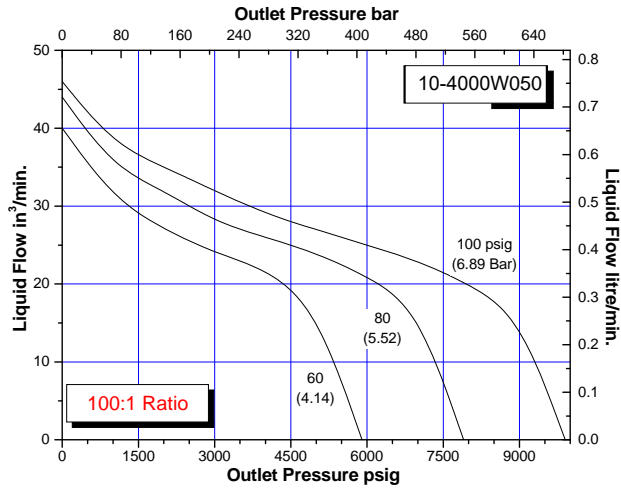
## APPROXIMATE RATE OF DISCHARGE





# 10-4 SERIES

## APPROXIMATE RATE OF DISCHARGE

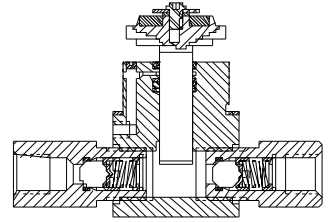


# PUMP MODIFICATIONS

A combination of any of the modifications shown can be supplied upon request. Consult factory for additional information and dimensional data if required.

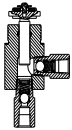
## **“A” Modification** – Available on all models

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



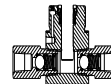
## **”K” Modification** – Available on 10-5/10-5L and 10-6/10-6L

This 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 life. Used in applications exhibiting rapid pressure losses, such as burst testing.



## **“B” Models** – Available on 10-5/10-5L and 10-6/10-6L

The “B” models have a bottom inlet connection for convenient tank top installation or alternate mounting configuration.

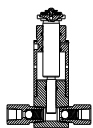


## **“H” Models** – Available on 10-5/10-5L and 10-6/10-6L

The “H” Models utilize special packing in the hydraulic assembly for maximum performance where hydraulic fluid media is contaminated with foreign matter, thus providing for a much greater life expectancy from the hydraulic seals than with standard o-ring seals. The “A” modification is included on all “H” models and the check valves have PTFE o-rings

## **“C” Models** – Available on 10-5/10-5L and 10-6/10-6L

The “C” Models utilize PTFE chevron packing in the hydraulic assembly for ultimate performance when other packing material is not compatible with the fluid used or because of extreme temperature conditions. The “A” modification is included on all “C” models and the check valves have PTFE o-rings.



**“R” Modification** – Available on 10-5/10-5L and 10-6/10-6L. The “R” Models are furnished with an isolator attachment which prevents the hydraulic piston retracting into the air motor during operation, thus providing for 100% non-contamination of the hydraulic assembly from the air motor. The isolator also acts as a heat barrier.

## LIMITED WARRANTY

**SC** manufactured products are warranted free of original defects in material and workmanship for a period of one year from date of purchase to first user. This warranty does not include packing, seals or failures caused by lack of proper maintenance, incompatible fluids, foreign materials in the air media, in the fluid media or application of pressures beyond catalog ratings. Products believed to be originally defective may be returned, freight prepaid, for repair and/or replacement to the distributor, authorized service representative or to the factory. If upon inspection by the factory or authorized service representative and the problem is found to be originally defective material or workmanship, repair or replacement will be made at no charge for labor and materials, F.O.B. the point of repair or replacement. Permission to return under warranty should be requested prior to shipment. A Return Material Authorization Number (RMA), the original purchase date, purchase order number, serial number, model number, reason for return or other pertinent data to establish warranty claim must be included in the documentation to expedite the return or replacement to the owner.

If the unit has been disassembled, misused, or altered without prior **written** authorization, warranty is void. If it has been improperly reassembled or substitute parts have been used in place of factory manufactured parts, warranty is void.

Any modification to any SC product which you have made or may make in the future will void warranty. SC disclaims any and all liability obligation, or responsibility for the modified product, and for any claims, demands or causes of action for damage or for personal injuries resulting from the modification and/or use of such a modified SC product.

**SC's obligation with respect to its products shall be limited to replacement, and in no event shall SC be liable for any loss or damage, consequential or special, of whatever kind or nature, or any other expense which may arise in connection with or as a result of such products or the use or incorporation thereof in a job. This warranty is expressly made in lieu of all other warranties of merchantability and fitness for a particular purpose. No express warranty and no implied warranties whether of merchantability or fitness for a particular purpose or otherwise, other than those expressly set forth above, shall apply to SC products.**



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