



# Air Driven Liquid Pumps

## For Pumping Hydraulic Oil and Corrosive Liquids at High Pressures Using Shop Air Pressure for Power

Can be operated on air pressures from 40 to 150 PSI to produce a flow of high pressure liquid. Flow ratings in the chart are based on 100 PSI inlet drive air.

Series AW pumps featured on this page are rated for 1.5 HP hydraulic output, and will pump most non-corrosive liquids. Models listed on the next page which are built with other materials and seals will pump most mildly corrosive liquids.

Many other pumps are available for special purposes. Ask your **Womack** office for information.



### Series AW – General Purpose Pumps

Constructed of nickel plated steel and stainless steel, with polyurethane and buna-N seals. Operates from air supply of 25 to 150 PSI or from nitrogen, carbon dioxide, or natural gas. The approximate size is 8" square and 12½" high. Weight is 24 lbs.

Models listed in chart are single-head models. Double or triple head models are available to pump to higher ratios than shown in the chart. Single head models produce about 1¼ HP of pumping power.

Use a cut-off valve, a filter and pressure regulator of at least 1/2" NPT size in the inlet air supply. Do not use a lubricator. The pumps are permanently lubricated with Molykote and air line lubrication may wash out the lubricant. Use an air muffler on the air exhaust port. Install a 100-mesh filter in the hydraulic inlet. Pump should be mounted no more than about 2 feet above the surface of the liquid being pumped.

Inlet and outlet air ports are 1/2" NPT. Bottom inlet port on AW-B10 and AWB15 is 1" NPT. Side inlet port on all other models is 1/2 NPT.

Control maximum outlet hydraulic pressure by adjusting the regulator in the inlet air line.

Model No.	Area Ratio	C.I.M. Free Flow	Stall PSI*	Max. PSI Cont.	Max. PSI Inter.	Example 1***		Example 2***	
						PSI*	C.I.M.	PSI*	C.I.M.
**1.5	1.6:1	6300	---	240	300	50	5000	150	1000
**4.1	4.6:1	2200	---	690	1200	100	2000	400	750
AW-B10	11.5:1	1150	1150	1600	1600	400	1000	990	500
AW-B15	17:1	750	1700	2400	2400	750	600	1600	200
AW-25	29:1	460	2900	4000	4000	1000	400	2500	90
AW-35	40:1	325	4000	5700	5700	2000	250	3600	98
AW-60	69:1	185	6900	9800	9800	3000	150	6200	50
AW-100	115:1	115	11,500	15,000	16,500	400	100	10,000	24
AW-150	173:1	72	17,300	15,000	20,000	7000	60	15,000	30
**151	173:1	72	17,300	20,000	25,000	7000	60	15,000	30
**225	260:1	45	22,500	30,000	37,000	7500	40	24,000	10
**300	346:1	36	34,600	30,000	50,000	15,000	30	27,000	20

\*PSI rating at 100 PSI air driven pressure. Maximum 150 PSI drive pressure on most models

\*\*These ratios available only in other models mentioned in text.

\*\*\*See Series AW Model Selection on page 238.



# Air Driven Liquid Pumps

**Series AW Model Selection.** The letter B in -B10 and -B15 indicates these models have a bottom oil inlet which allows them to be mounted on top of a closed reservoir. The maximum continuous pressure is 15,000 PSI or 20,000 PSI intermittent (on -150 area ratio models). The stall PSI column shows the theoretical liquid pressure at which the pump will cease pumping when supplied with 100 PSI drive air pressure, although it will hold this pressure in a static mode against a load. The column marked "Example 1" and "Example 2" are typical pumping rates against the back pressure indicated, one near the low end the other near the high end of the recommended pressure range. Values between or below these examples can be estimated by interpolation. The chart can also be used to estimate performance of any 1.5 HP pump having one of the area ratios shown in the chart. A set of performance curves is available which shows flow vs. back pressure over the entire pumping range.

**How to Increase Pumping Rate.** Use a Haskel air pilot switch. Select a pump model which will reach stall at the desired pressure when supplied with 100 PSI (for example) drive air. Increase drive air pressure to 150 PSI. The pilot switch will keep the pump working at a relatively high cycle rate up to the selected liquid pressure then will abruptly cut it off.

## Liquids Compatible with Haskel Pumps

Service Code	The following liquids are classified in groups and allocated a service code number. The service code numbers are referred to in the table below which indicates the models and ratios of pumps which can satisfactorily pump and pressurize each type of liquid.
(1)	Petroleum base oils, Water with 5% soluble oil.
(2)	Plain water, Diesel fuel.
(3)	Most Phosphate Ester base fire resistant hydraulic fluids, e.g., Pydraul, Lindol, Cellulube, Fyrquel, and Houghtosafe 1120 and some Petroleum base solvents compatible with UHMWPE (Ultra High Molecular Weight Polyethylene).
(4)	Petroleum base solvents, e.g., Boron fuels, Aromatic hydrocarbons (Bentene, Toluene, Xylene, Hylene), Kerosene, Chlorinated solvents (Trichlorethylene, Carbon Tetrachloride, Chlorobenzene, etc.), MeRcaptans, Dowtherm A, Fluorinated solvents (Fluorobenzene, Fluorochlofethylene, etc.), Dowtherm E, plus all of Code 3 plus some mildly corrosive acids compatible with wetted materials. See Code 5a or service with Methyl-Ethyl-Ketone, Methyl Acetone, Diacetone, Alcohol and Freon 22.
(5)	Skydrol and Aerosafe hydraulic fluid. Acetone and some Alcohols (Ethyl, Methyl and Isopropyl).
(5a)	Also suitable for Code 5 fluids if Static Seals replaced with EPR, specify modification number 51331 (no extra charge), e.g., 51331-DF-60. Most Phosphate Ester base fluids solidify at approximately 30,000 PSI.
(6)	Deionized water.

NOTE: Dynamic seal life with non-lubricating fluids will understandably be less than with lubricating types.

Pump Series	Service Code
M	(1)
MS	(1)(2)
MDTV	(1)(3)(5a)
AW	(1)
AFD	(1)
DFD	(1)(3)(5a)
ASFD	(1)(2)
ASF	(1)(2)
DSFD	(1)(2)(3)(5a)(6)
DF	(1)(3)(5a)
DSF	(1)(2)(3)(5a)(6)
HF	(1)
HSF	(1)(2)
DHF	(1)(5a)

Pump Series	Service Code
DSHF	(1)(2)(5a)(6)
DXHF	(1)(5a)
DSXHF	(1)(2)(5a)(6)
DSXHW	(1)(2)
DSTV	(1)(2)(3)(4)(5a)
ATV	(1)(2)
DTV	(1)(2)(5a)
DSTV	(1)(2)(3)(4)(5a)(6)
DSTVD	(1)(2)(3)(4)(5a)(6)
GW	(1)
GSF	(1)(2)
DGF	(1)(3)(5a)
DGSF	(1)(2)(3)(5a)(6)
DGSTV	(1)(2)(3)(4)(5a)

Pump Series	Service Code
GWD	(1)
GSFD	(1)(2)
DGFD	(1)(3)(5a)
DGSFD	(1)(2)(3)(5a)(6)
DGSTVD	(1)(2)(3)(4)(5a)
D14STD-125	(1)(2)(3)(4)(5a)
D14STD-315	(1)(2)(3)(4)(5a)
D12SFD-125	(1)(2)(3)(5a)(6)
D14SFD-315	(1)(2)(3)(5a)(6)



# Air Driven Liquid Pumps

## Series M Pumps

**Low Cost • Miniaturized • Pressures up to 15,000 PSI**

A smaller version of the liquid pumps on page 237, handling the same liquids and delivering 1/3 HP out and working from an air line of 25 to 125 PSI. An economical means of using shop air or vehicle compressor air to produce hydraulic pressures up to 15,000 PSI. They provide an inexpensive way of replacing hand pumps.

Standard **Series M** pumps are constructed of cad plated steel, aluminium, and stainless steel with polyurethane seals. For pumping hydraulic oil, kerosene diesel fuel or water with 5% soluble oil. Other models are shown below for pumping mildly corrosive liquids.

Inlet and outlet air ports are 1/4" NPT. Inlet oil port is 3/8" NPT and outlet is 1/4" NPT. Approximate size is 6" long x 3 1/4" square. Weight 6 lbs.



Refer to page 237, Series AW, for other information on installation, lubrication, etc.

Models with a †† symbol have a distance piece separating air and liquid sections to prevent oil wipe-off from contaminating the liquid section. Use the mounting bracket to mount these models with the vent port down so any leakage from the liquid section will not migrate into the air section.

Control maximum outlet hydraulic pressure by adjusting regulator in the air line.

Model No.	Area Ratio	C.I.M. Free Flow	Stall PSI*	Max. PSI Cont.	Max. PSI Inter.	Example 1***		Example 2***	
						PSI*	C.I.M.	PSI*	C.I.M.
M-5	5.6	650	560	625	625	240	543	415	250
M-7	7.8	500	780	900	900	280	400	600	200
M-21	25	165	2500	2600	2600	1500	100	2000	50
M-36	41	100	4100	4500	4500	1700	80	3100	40
M-71	82	50	8200	8800	8800	3000	40	6000	20
M-110	126	34	12,600	13,500	13,500	8500	20	10,000	10
M-188	217	20	21,700	15,000	15,000	7500	18	10,000	15

### M Series Pumps for Other Liquids

This chart shows variations of the **M Series** with other seals and materials for pumping mildly corrosive liquids. Use the prefix in the first column to replace "M" in the series number. Pumping performance of these models is the same as that shown in the above chart for the same area ratio.

Pump Series	Materials of Construction	Seal Type	For Fluids**	Ratios Available
MS	All stainless steel	A	(1)(2)	-7 thru -220
29723††	All stainless steel	A	(1)(2)(3)(5)(6)	-21 thru -110

\*PSI rating at 100 PSI air drive pressure. Maximum 125 PSI drive pressure.

\*\*See "Liquids Compatible with Haskel Pump" section on page 238.

†Seal Type A: UHMWPE; Type B: PTFE & Viton; Type C: PTFE.

††These models have distance piece between air and liquid sections.