

DORRCO Diaphragm Pumps



Heavy Duty Pumps for
Thickener Underflow

The Minerals industry is tough on equipment, we make our Dorrco Pumps meet the challenge.



Who expects a light-weight to do a heavy job?

The Dorrco's are made of extra-heavy duty construction to withstand the hard service they can expect.

Who can afford high horsepower, "prima-donna" motors?

All you need to power the Dorrco is a standard electric motor.

Who has time to turn a pump off just to vary the flow rate?

The Dorrco design allows you to easily adjust the stroke to vary the discharge rate while the pump is running.

Who wants to hire and engineer just to run a pump?

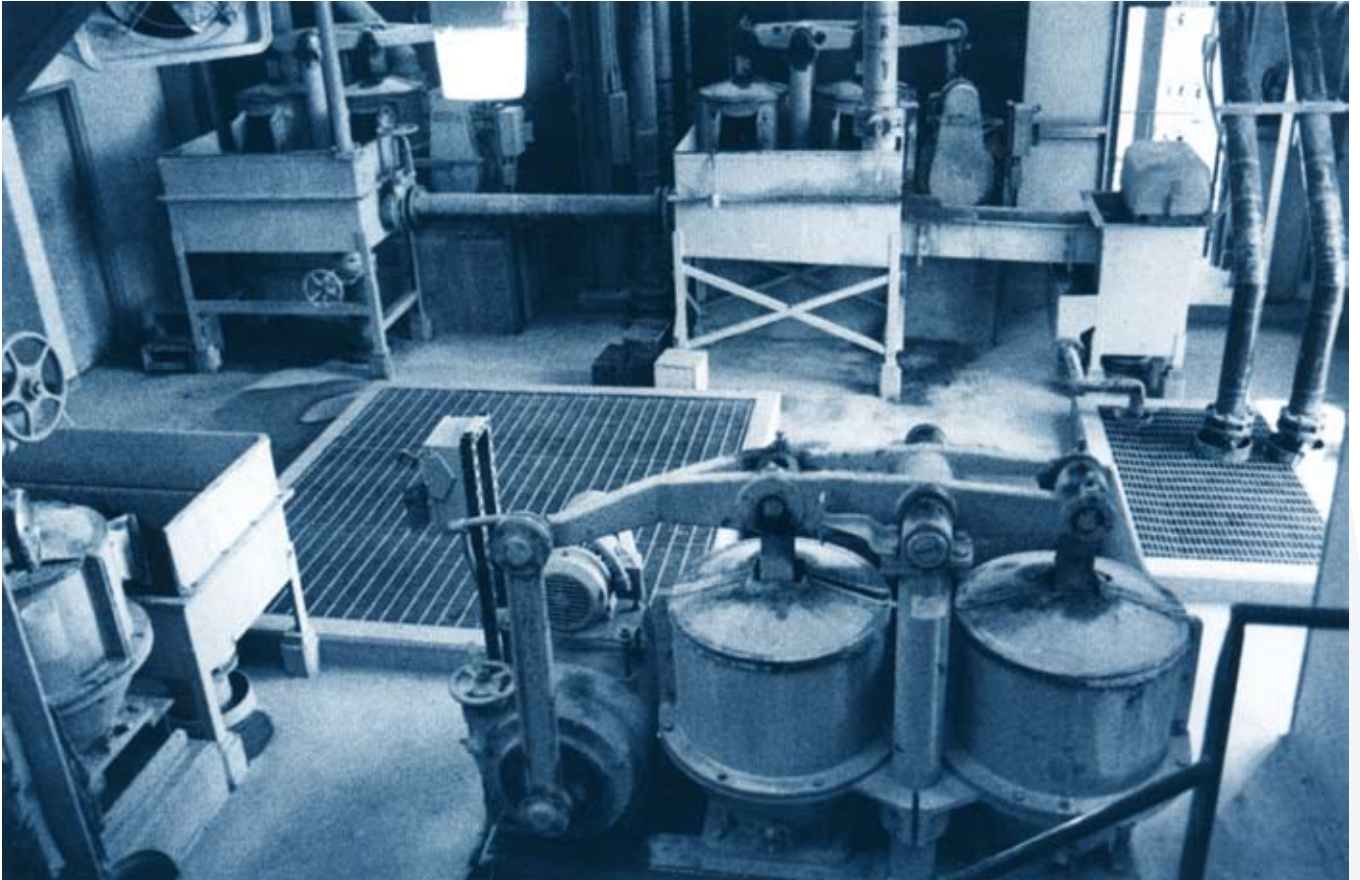
Our Dorrco Pumps have a conveniently located stroke adjustment handwheel and calibrated stroke indicator that make it a snap to keep a close check on the pumping operation at all times.

Who needs a centrifugal impeller that churns up flocs and abrades parts faster?

Dorrco's are positive displacement diaphragm pumps – the action is smooth and parts won't wear out as fast.

Why would you ever want a pump on a tank base level?

You can install the Dorrco Pumps externally and adjacent to the thickener at liquid level. No flooding or startup problems.



When it comes to selecting the right pump for handling thickener underflows, choose Dorrco Diaphragm Pumps, used successfully in metallurgical applications for over fifty years.

Which Dorrco model will work best for you?

There are two models to consider, so let's get down to specifics. If your thickener flows are between 9gpm and 90gpm, choose the VM model. If your flows are larger between 40gpm and 600gpm, you're better off with the W model. However, there are some additional considerations that should be mentioned.

Certain applications require a more sophisticated handling of slurries, such as green liquor in pulp mills and acids in

chemical processes. The VM model was designed with certain refinements to accommodate special transfers, such as a completely enclosed pumping system to prevent splashing and the ability to meter flows. It's a tidier pump for better housekeeping.

Now if you need a beast of a pump, one that will transfer your underflow with a minimum of fuss and maintenance, you'll probably lean to the W model. It's exactly as we said before – tough, rugged and no slurry is too abrasive to too hard to handle.

Dorrco Type VM Pump

All about the VM model

Two sizes to choose from – the 2" and the 4". It's twin pumping chambers are each provided with individual suction and discharge valves. In appearance the VM looks like an inverted V-type automotive engine.

How it operates

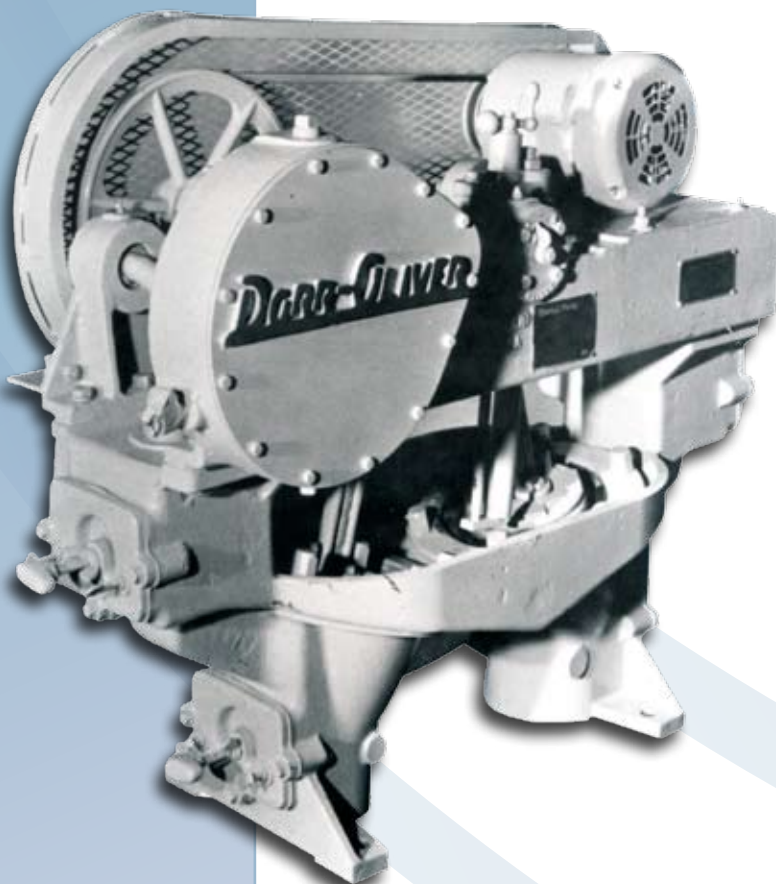
The twin plunger rods are moved alternately, directly up and down at right angles to the normal planes of the diaphragms by a rocking member, which is driven by a connecting rod that terminates in a crank on a horizontal counter shaft. A bit plus – the stroke of the plunger rod and the rate of discharge may be changed at will while the pump is in operation. A calibrated stroke indicator dial and a pointer are provided to facilitate stroke adjustments.

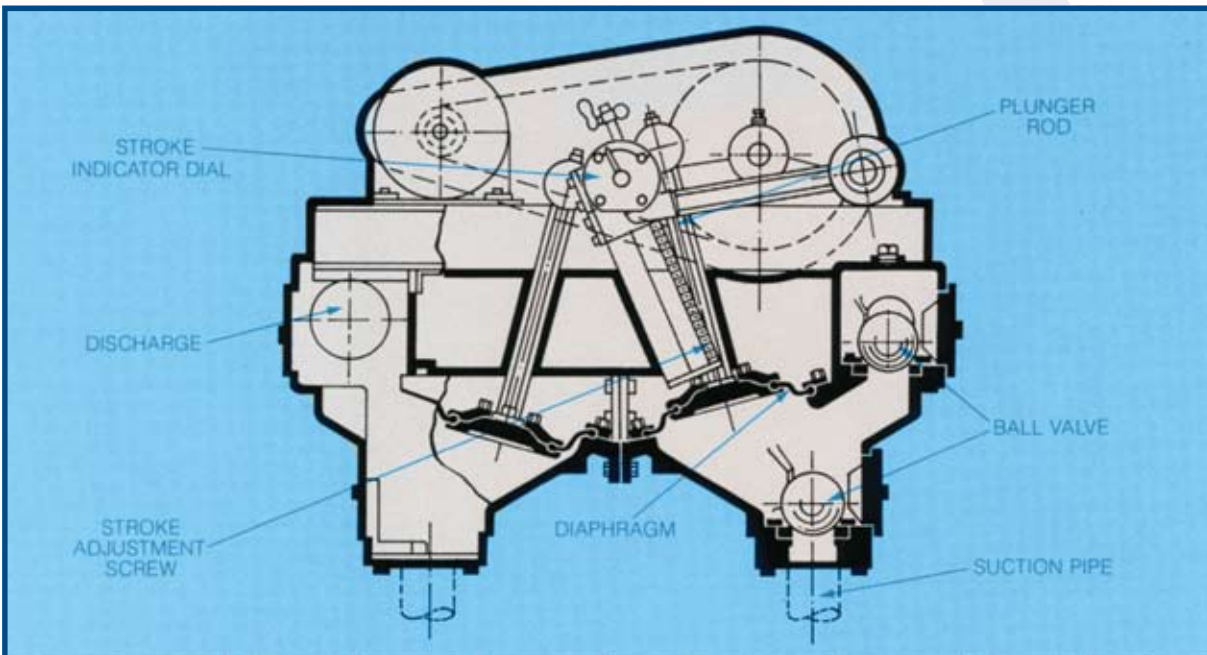
How it's driven

A standard motor is connected to a counter shaft by V-belts and to the horizontal crank shaft by helical gear and pinion. All speed reduction is effected by the V-belt sheaves and gear train. This economical principle lets you use an easily replaceable standard motor rather than one of the more expensive, complex gear types.

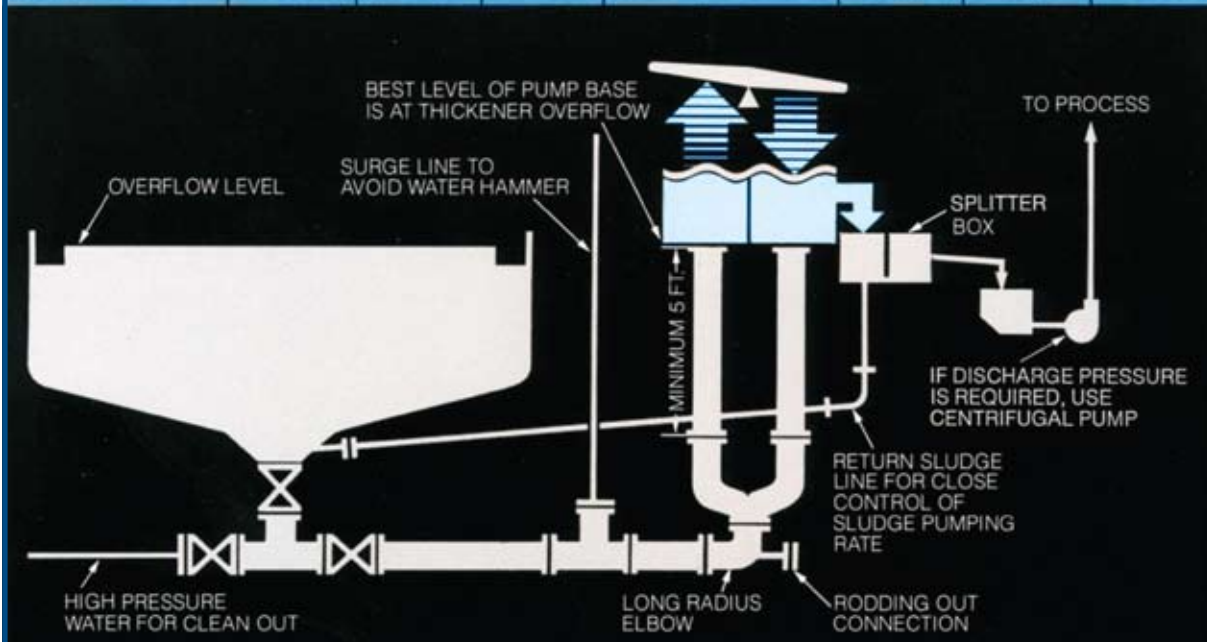
Built for dependable service

- All bearings are anti-friction, ball type, and castings are of Meehanite, a special semi-steel possessing far better qualities than the conventional cast iron. Diaphragms are arranged at an angle to the horizontal to prevent air trapping.
- Longer diaphragm life because the motion of the plunger rods is at right angles to the planes of the diaphragm. No sideways oscillation can take place to cause excessive mechanical wear.
- Acid proof construction is optional with a protective lining of rubber





	TYPE:	VM2	VM4		TYPE:	VM2	VM4
Suction connection diameter	in	2	4	Main shaft input torque	in-lbs m kg	420 4.84	1890 21.78
Max. capacity	gpm m ³ /h	31 7.05	90 20.45	Displacement at recommended stroke	gal liters	0.34 1.3	1.4 5.3
Min. capacity	gpm m ³ /h	9 2.05	25 5.7	Stroke length adjustment		3.3:1	3.3:1
Total suction lift with water	ft m	10 3.05	10 3.05	Size of base	in mm	12x21 305x533	19x33 483x838
Motor input	HP kw	0.5 0.37	1.5 1.1	Headroom	in mm	32 813	45 1143
Number of strokes/min.		75	50	Total weight	lbs kg	540 245	1400 763



Dorrco Type W Pump

All about the W Model

An extension of the VM pump line, the W covers the next range of sizes, 6" and 8". Because it is asked to do a heavier job, it was designed with similarities to the VM, but with a different pumping method.

How it operates

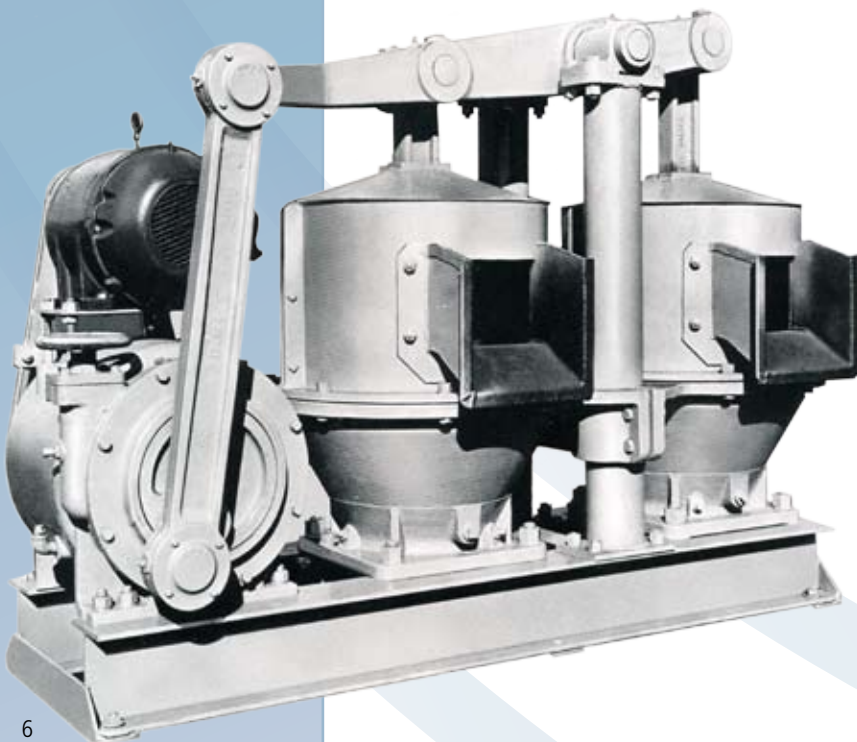
The W pump has the inlet below and the outlet above the diaphragm, with the outlet valve located in the center of the diaphragm. The crank on the drive unit actuates a connecting rod which is secured to the rocker arm which in turn is supported by two bearing posts. The plunger rods alternately raise and lower the attached diaphragms. As the diaphragm is raised, the bottom inlet check valve lifts, permitting slurry to fill the cavity below the diaphragm. As the diaphragm is lowered, the lower check valve drops sealing the inlet opening. The top valve opens due to the pressure build-up in the chamber.

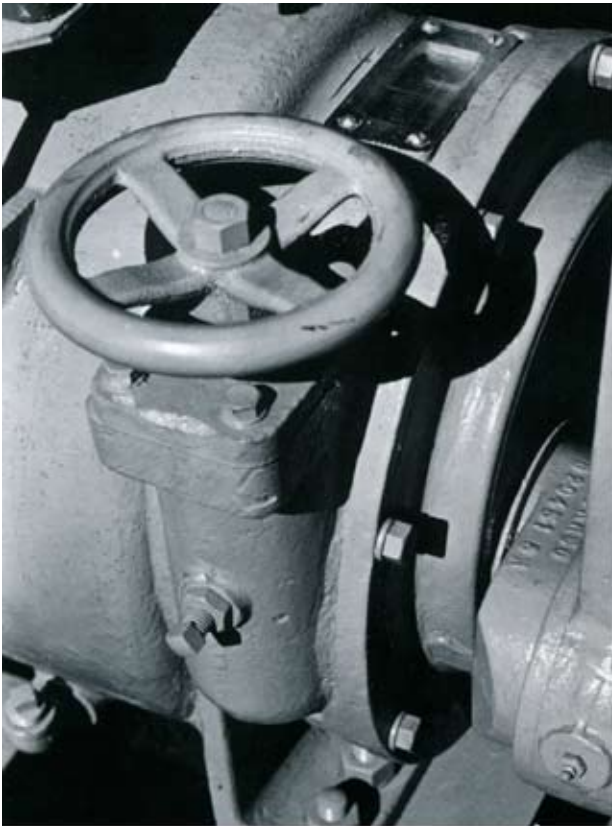
How it's driven

This duplex diaphragm is powered by a standard electric motor. As with the "VM", this economical principle eliminates costly and time-consuming specialty motor replacements. A conventional V-belt drive connects it to a variable speed drive unit encased in and oil-tight housing, permitting a stroke adjustment while the pump is operating.

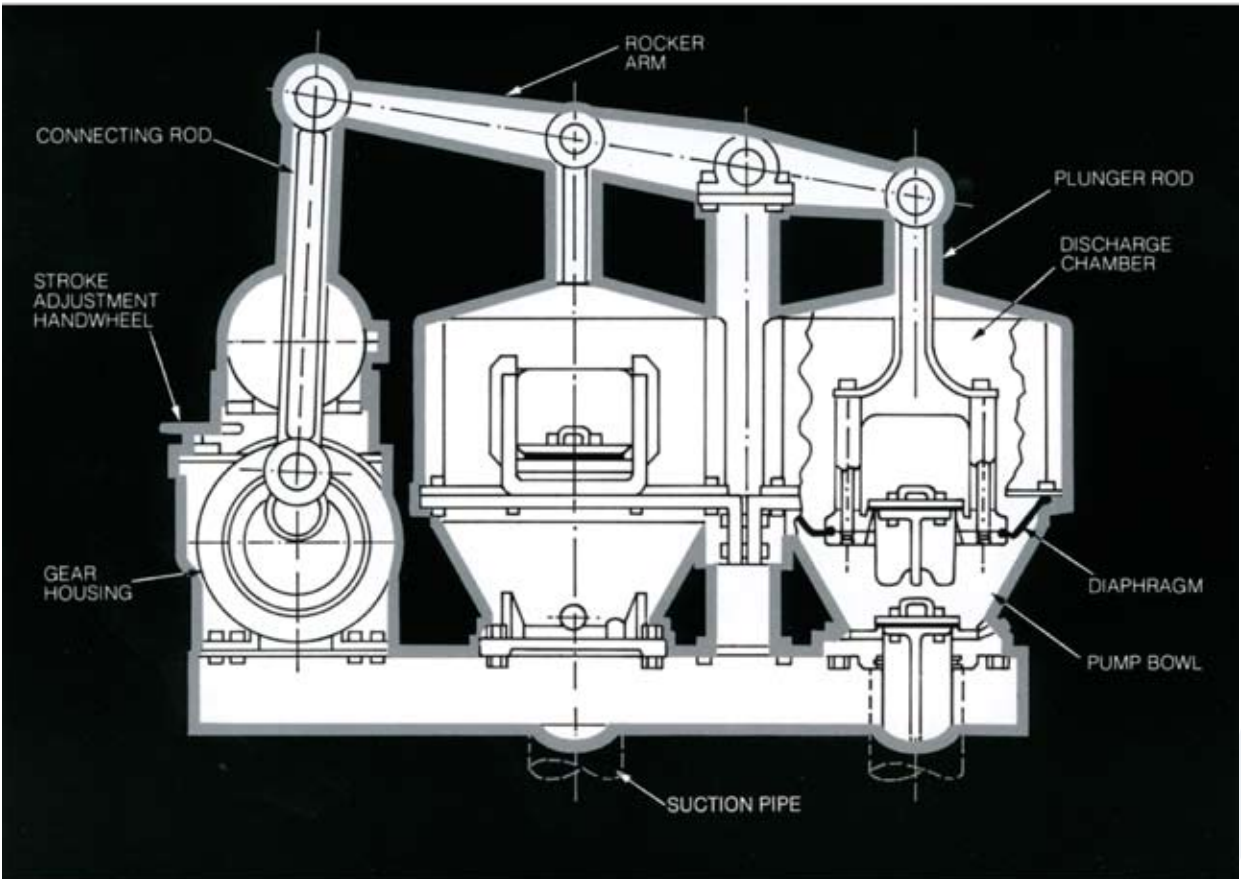
Built for dependable service

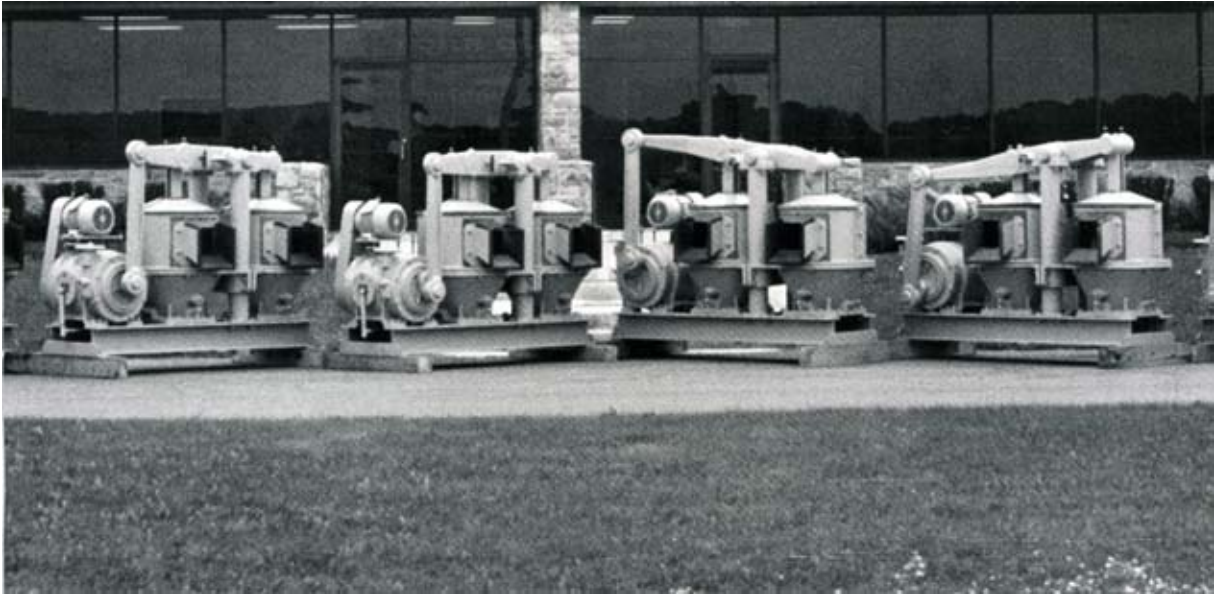
- The plunger stroke can be varied by an easy turn of the stroke adjustment handwheel, varying discharge rate within a six to one range, while the pump is in operation.
- Cranks and anti-friction ball or roller bearings are used instead of power-consuming eccentrics and low efficiency sleeve bearings, for high mechanical efficiency.
- Beaded-construction diaphragms are easily and quickly replaced.
- The #8 duplex Type W will handle up to 75 cubic feet per minute of pulps, over 100 tons per hour.
- Both discharge spouts are rubber-lined for maximum protection against abrasive action.
- The wetted surfaces can be lined to protect the pump in corrosive applications





	TYPE:	W6	W8
Suction connection diameter	in	6	8
Max. capacity	gpm m ³ /h	160-220 36-50	400-600 91-136
Min. capacity	gpm m ³ /h	40-75 9-17	120-200 27-45
Total suction lift with water	ft m	10 3.05	10 3.05
Motor input	HP kw	3 2.2	7.5 5.6
Number of strokes/min.		40	35
Main shaft input torque	in-lbs. m kg	4725 54.5	13500 155.6
Displacement at recommended stroke	gal liters	3.4 12.9	10.0 37.6
Stroke length adjustment		3:1	3:1
Size of base	in mm	21x65 533x1651	26x85 660x2159
Headroom	in mm	52 1321	69 1753
Total weight	lbs kg	2700 1225	5400 2452





Our specialty pump center in Pennsylvania prides itself on meeting delivery dates. They even had time to take this picture of #8WR Dorrco pumps before the shipping deadline. See them in action on page 2/3. We wanted to show you that all of Dorr-Oliver serves its customers, the Sales Engineers, Order Control, Production, and Parts Service – with a complete package.