

**Harbison-Fischer Cylinders**



Deep well pumps for oil wells are now providing ranchers with unbelievable service in pumps for water wells. About 1945, these pumps, which lift oil and salt water thousands of feet from the bottom of oil wells, were introduced in a limited area of western Texas. Today hundreds are in use, and the word of mouth recommendation of one rancher to another has been an important factor in this rapid growth. Harbison-Fischer Pumps have received this enthusiastic acceptance because they have proven to be rugged, easy pumping, and exceptionally long wearing.

The ruggedness of these pumps is the result of their being engineered and built for the extremely difficult job of pumping oil wells, which are deeper and dirtier.

Their easier pumping comes from precision all metal construction and absence of friction between the plunger and cylinder. Windmills can pump water with Harbison-Fischer pumps in breezes that are too light to operate the customary water well cylinder, because the plunger does not use cups which expand tightly against the cylinder under the pressure of the column of water above and thereby act as a brake.

The long wearing qualities of these pumps come from the materials used in them and the precision with which they are made.

Rod Type Cylinders are installed in the well as a complete unit attached to the end of the pump rods and can be removed for servicing without removing the well pipe. It is run into the well by attaching it to the lower end of the pump rods and is anchored at the bottom of the well by means of a seating nipple attached to the well pipe.

An additional advantage of the Rod Type Cylinder is that the cylinder travels with the up and down motion of the rods, while the plunger is stationary. This arrangement prevents sand or rust and scale from getting down into the pump when the windmill is not in operation.

The capacity of a Rod Type Cylinder can be given in theoretical terms only, because the number of strokes per minute will vary with wind velocity and must be estimated. Also the pump rod stretch becomes an important factor in deeper wells, and this is not taken into consideration in the theoretical calculation. The capacity per hour in gallons is computed by multiplying the length of stroke in inches times the number of strokes per minute times the factor shown in the following table for the size of pump being used.

Bore of Pump	Factor
1-1/2"	.459
2"	.815
2-1/2"	1.275

*Example:* The theoretical capacity of a 2-1/2" bore pump on a 14" stroke operating 5 strokes per minute is 14 x 5 x 1.275 = 89.25 gallons per hour.

The HF025 and the HF030 cylinders can be seated in either a Harbison-Fischer Seating Nipple or an old 2-1/4" or 2-3/4" cylinder. (HF025 would set in a 2-1/4" cylinder and a HF030 would set in a 2-3/4" cylinder.) For a HF020 cylinder use the 82190J30 seating cups if seating the cylinder in a Harbison-Fischer seating nipple or use 2311 seating cups if seating the Harbison-Fischer cylinder in an old 1-7/8" cylinder. The cylinders ending with a "C" come with the 2311 seating cups.

For pin sizes other than 15/16" see Section G for "API Rod Couplings".

Harbison-Fischer Seating Nipples have MNPT pipe threads on both ends. They do not require a special coupling for connection to drop pipe.

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Drop Pipe Size IPS (in)	Barrel Length (ft)	Stroke Length (in)	Max. Rec. Depth (ft)	Rod Pin Size MAPI (in)	Seating Cup	Approx. Weight (lbs)	Product Number
2	4	15	400	15/16	82190J30 2311	26	HF0204 HF0204C
	5	15	800		82190J30 2311	32	HF0205 HF0205C
	6	27	800		82190J30 2311	36	HF0206 HF0206C
	8	40	1200		82190J30 2311	46	HF0208 HF0208C
2-1/2	4	15	400		82190L30	38	HF0254
	5	15	800		82190L30	47	HF0255
	6	27	800		82190L30	52	HF0256
	8	39	1200		82190L30	66	HF0258
3	8	39	1200	82190N30	91	HF0308	