



HARBISON-FISCHER®



SAND-PRO™
PUMP

Dover Artificial Lift, part of Dover Energy, is a team of industry-leading companies that utilize their collective resources to help oil & gas producers optimize revenues, profitability, safety and environmental compliance through high-quality production, completion, gathering and control systems.

Dover Artificial Lift delivers the latest technologies, innovations and solutions in rod lift, plunger lift, progressing cavity pump, surface production equipment, well site controls and analytic tools. Our expanding production offering consists of brands with industry-leading quality, performance and reputation.



Sand-Pro™ Pump

The newest tool in the sand box

Harbison-Fischer is the global leader in downhole reciprocating pumps and related equipment for the upstream oil and gas market. We are proud to be the industry leader in service, quality and technology for more than seven decades.

The patent-pending Sand-Pro Pump utilizes a unique method of separating produced sand from the pressure-sealing, leading edge of the sprayed-metal plunger. By keeping these hard sand particles separated from the plunger/barrel interface, the surface of the plunger and barrel can seal the pressure longer and thus improve downhole run times.

The Sand-Pro Pump uses two plungers connected in tandem to separate the upper-stage, sand-handling plunger

from the lower-stage, pressure-sealing plunger. The upper, soft-packed plunger has no pressure across it to force sand into it which will wear out its soft packing. This extends the wear life of the upper plunger. The lower, metal-sprayed plunger has no sand at its leading edge to wear it out, due to the upper plunger handling the sand. This gives the Sand-Pro the best of both worlds for each plunger's function. The Sand-Pro Pump is available in abrasive- and corrosive-resistant materials and coatings.



Extends pump run times in heavy sand production conditions



Cost effective due to the use of mostly standard pump components



Available in abrasion and corrosion resistant materials and coatings

The Sand-Pro™ Advantage



Particulate buildup becomes subject to hydrostatic pressure, which causes friction and abrasion that will degrade seal surfaces.

How a Typical Downhole Pump Works

Typical downhole pumps create an uneven pressure distribution during operation, which causes sand or other abrasive particulate to accumulate near the top of the plunger. This uneven pressure and lack of method for the removal of particulates cause a buildup at the pump's leading edge. As time goes on, this particulate buildup becomes subject to hydrostatic pressure, which causes friction and abrasion that will degrade seal surfaces.

PAIN POINTS



Abrasive particulate, such as sand, is one of the leading causes in pump downtimes and inefficiencies. When trapped by the pump plunger, these particulates can grind away at equipment causing abrasion, followed by corrosion—and ultimately—the need for intervention, replacement and a decrease in overall well production and profit.

OUR SOLUTION

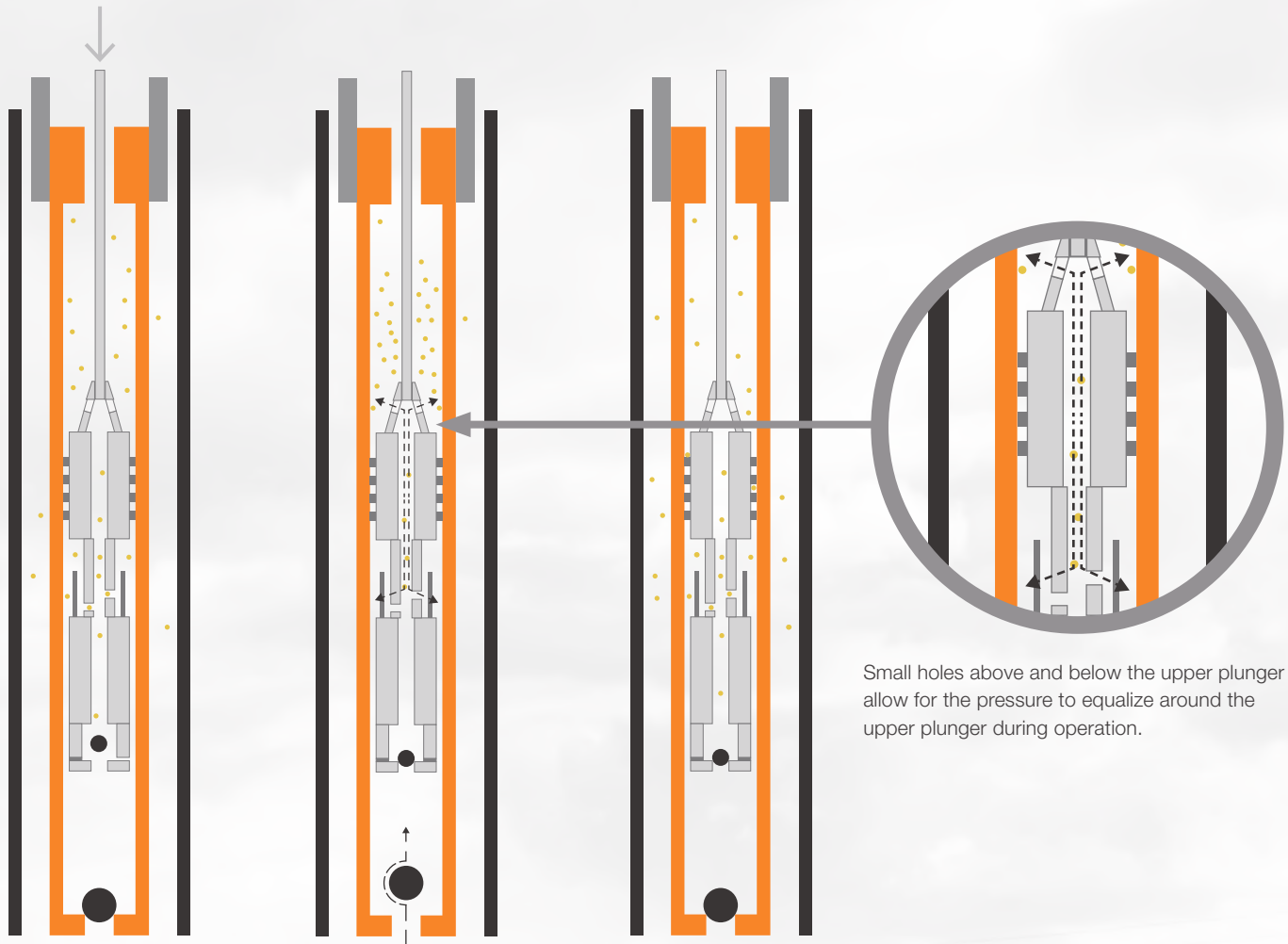


The Sand-Pro's innovative double-plunger design is specifically engineered to prevent sand and other abrasive particulates from becoming trapped within the pump system. This prevents the pump from becoming compromised by abrasive materials, extending equipment lifespan and enhancing long-term, measureable efficiency.

RESULTS



The Sand-Pro's unique design provides it a number of explicit financial benefits over competing and less application-specific equipment. Longer pump lifespan and a reduction in the need for well interventions directly reduce the costs associated with your operation, while maximizing operational revenue.



Small holes above and below the upper plunger allow for the pressure to equalize around the upper plunger during operation.

How the Sand-Pro™ Pump Works

The Sand-Pro actively combats particulate build up during its normal operation. Small holes above and below the upper plunger allow for the pressure to equalize around the upper plunger during operation, which alleviates the impact of particulates as they pass through the pump. These holes also allow for a small amount of fluid to act as lubrication through the area where the two main pump components overlap, and help prevent particulate from becoming trapped. The tube shield also further protects the cavity above the lower-stage plunger from particulate accumulation.

SEAMLESS FIT
 Industry-standard components allow the Sand-Pro to fit into nearly any well and make for a simple installation process.

CUSTOM BUILT
 Each Sand-Pro pump is built to meet the specific needs of the well in which it will be installed, enhancing product lifespan and efficiency.

LESS MAINTENANCE
 The Sand-Pro's focus on durability reduces the need for pump interventions and the associated downtime.

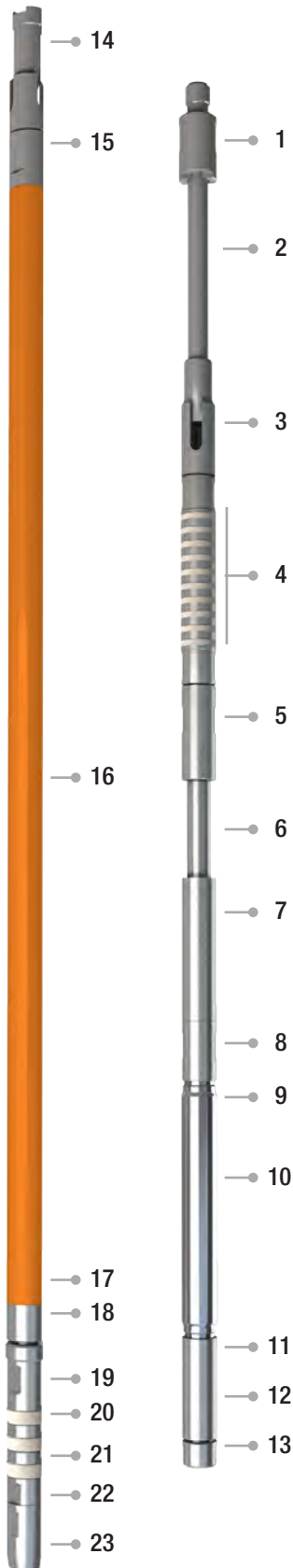
CLIENT SATISFACTION
 Almost 100% of Sand-Pro customers re-order the product when the equipment reaches the end of its lifespan or for their other wells.

DURABLE
 The Sand-Pro was engineered specifically to stand up against the abrasive properties of sand and other potentially site-compromising particulate.

LONGEVITY
 In 70% of past installations, the Sand-Pro has lasted significantly longer than the product it replaced.

Technical Specifications

The Sand-Pro™ Pump is available in all standard configurations of sucker rod pumps that are compatible with soft-packed plungers. For severe sand conditions that will stick the pump it is recommended to use a Top Sand Seal.



	Item	Description	No. Req'd.	Part Number		
				2-3/8" x 1-1/4"	2-3/8" x 1-1/2"	2-7/8" x 2"
Plunger Assembly	1	Bushing, Valve Rod	1	60E2	60K2	60K2
	2	Rod, Valve	1	65E*	65K*	65K*
	3	Coupling, Plunger	1	4-84C1	4-84E2	4-84K1
	4	Plunger, Soft-Packed	1	SEE PLUNGER SECTION OF HF CATALOG		
	5	Coupling	1	88C13	88E12	88K12
	6	Tube, Connecting	1	533B20-1	533C20-1	533E20-1
	7	Tube, Shield	1	5831C11	5831E1	5831K1
	8	Bushing	1	4-88C132	4-88E121	4-88K121
	9	Extension, Plunger	1	OPTIONAL ¹		
	10	Plunger	1	642C*	642E*	642K*
	11	Cage, Closed, Plunger	1	22-903C2-45	22-903E2-45	22-903K2-45
	12	Ball & Seat	1	2C2	2E2	2K2
	13	Plug, Seat	1	146C1	146E1	146K1
Barrel Assembly	14	Guide, Rod	1	71E1	71E2	71K1
	15	Connector, Barrel	1	90C3	4-90E22	4-90K22
	16	Barrel	1	222C*	222E*	222K*
	17	Cage, Closed Barrel	1	22-358C22-45	22-358E22-45	22-358K22-45
Seating Assembly, 3-cup	18	Ball & Seat	1	2H2	2H2	2L2
	19	Mandrel	1	95H1	95H1	95L1
	20	Cup	3	180-190J+30	180-190J+30	180-190L+70
	21	Spacer	2	175H1	175H1	175L1
	22	Locknut	1	156H1	156H1	156L1
	23	Coupling	1	163H21	163H21	163L21
Seating Nipple		Nipple, Seating	1	299K312	299K213	299M312
		Nipple I.D.	1	1.780"	1.780"	2.280"



Item	Description	No. Req'd.	Part Number			
			1-3/4"	2-3/4"	3-1/4"	3-3/4"
5	Coupling	1	88H22	88N12	88S12	88T12
6	Tube, Connecting	1	533H20-1	232M20-1	232S20-1	232T20-1
7	Tube, Shield	1	5831H1	5831N1	5831S1	5831T1
8	Bushing	1	4-88H221	88N121	88S121	88T121

Parts list for additional sizes, see opposite page for complete parts list and more sizes.

Tubing Size	2-3/8"	2-3/8"	2-7/8"
Pump Bore	1-1/4"	1-1/2"	2"
Bore Factor	0.182	0.262	0.466
Barrel O.D.	1.500	1.750	2.250

* Specify the following:
 - Valve rod length (inches)
 - Plunger length (feet) and plunger minus size (thousands of an inch)
 - Barrel length (feet)

¹ Soft-packed plunger extension not shown, see plunger section of catalog, used to add additional life to plunger.

Note: Slippage should be minimized by using -0.002" lower metal plunger. Use -0.060" ball clearance cages for heavy sand conditions.



To learn more about the Harbison-Fischer Sand Pro™ Pump, visit:

www.doverals.com