



OBERDORFER PUMPS

by Gardner Denver

Bronze Close Coupled Rotary Gear Pumps Model N993E Series

3/8" BSPT Ports Standard



FEATURES:

- Rugged corrosion resistant bronze construction
- Compact close-coupled design
- Stainless steel shafts
- Durable bronze helical gears provide quiet operation
- Process lubricated carbon graphite bearings
- O-ring cover seal for maximum leak protection
- Lip Seal or Mechanical Seal
- Easy field assembly to a variety of motor frames
 - For compact AC motor pump units see Close Coupled Bronze Adapterless Rotary Gear Pumps
 - For Danfoss hydraulic motor driven pump units see adapter 9960
- For bronze pedestal pumps see model N3000E
- For close-coupled ductile iron pumps see model C993

GENERAL DESCRIPTION:

Pump housings and gears are made of top quality bronze, shafts are 303 stainless steel. Bearings are designed of high performance carbon-graphite material selected for wear resistance and long service life.

Gear pumps are positive displacement pumps. Each shaft revolution displaces a definite amount of liquid relatively unaffected by the back pressure in the discharge line. Shaft speed and flow are directly proportional. Recommended pressure limits are 7 bar for water and non-lubricants, 10.3 bar for oil and other lubricants. The maximum shaft speed is 1750 RPM.

SHAFT SEALS:

Close coupled gear pumps are normally supplied with a NBR lip seal. For a FKM Seal, add S5 to the pump model number. For NBR mechanical add S16. For FKM mechanical add S17. For PTFE mechanical add S18. For EPDM mechanical add S8.

LIQUIDS AND TEMPERATURE:

These pumps are suitable for all liquids that are compatible with bronze. Most common liquids are water, oil, and mild chemicals in the pH range of 4 to 11. Viscous liquids require reduced shaft speeds of 1150 RPM or lower. (Consult factory.)

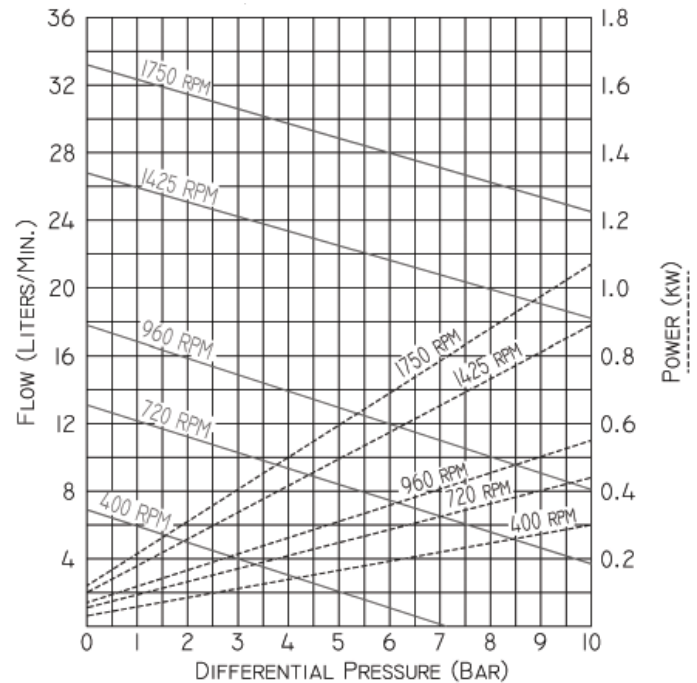
Liquids containing solids, abrasives, powders, or paint pigments are definitely not recommended for gear pumps. If abrasives are unavoidable, use a very low shaft speed.

The recommended liquid temperature range is from 0° C to 60° C for best pump life. If more extreme temperature conditions exist, factory should be consulted. Freezing of water-filled pumps can cause damage and must be avoided. Oils at low temperatures are very viscous requiring a lower speed or extra power.

Pump	Description	Pump	Description
N993E	Standard Pump w/ 1/2" ports	N993ES17	Pump w/ FKM mechanical seal
N993RE	Pump w/ 1/2" ports & relief valve	N993RES17	Pump w/ FKM mech. seal & relief valve
N993ES5	Pump w/ FKM lipseal	N993ES18	Pump w/ PTFE mechanical seal
N993RES5	Pump w/ FKM lipseal & relief valve	N993RES18	Pump w/ PTFE mech. seal & relief valve
N993ES16	Pump w/ NBR mechanical seal	N993ES8	Pump w/ EPDM mechanical seal
N993RES16	Pump w/ NBR mech. seal & relief valve	N993RES8	Pump w/ EPDM mech. seal & relief valve

PERFORMANCE:

Values @ 1cP, 20° C



SUCTION LIFT:

As a general rule, the suction lift should be kept at an absolute minimum by placing the pump as close to the liquid source as possible. A gear pump in new condition can lift 6 meters of water in the suction line. A foot valve (preferably with built-in strainer) is recommended at the beginning of the suction line. For a first start-up, the pump should be primed to avoid dry running. Minimum size of the suction pipe is the size of the pump inlet port. For longer suction lines (over 1 meter) or for viscous liquids, the pipe should be at least one size or two sizes larger than the pump inlet port.

ROTATION AND RELIEF VALVE:

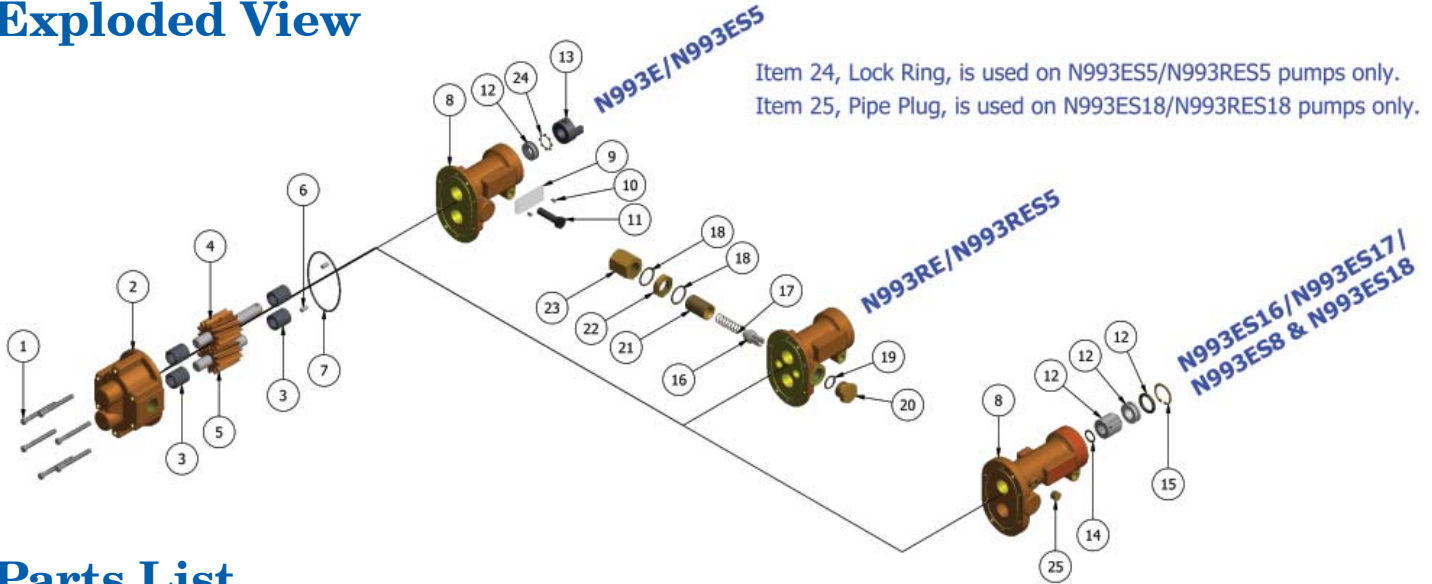
If the discharge line contains any throttling devices such as a shut-off valve, a spray nozzle or other restrictive device, it is necessary to have a relief valve in the system which returns the liquid to the suction side or to the tank. The relief valve is also available as part of the pump itself (R-model pumps). However, built-in relief valves are only good for intermittent service. If used continuously, the pump will overheat. A built-in relief valve is strictly a safety device against overpressure. It will not work successfully as a pressure or flow control device. For this purpose a separate relief valve in the pressure line must be used.

Unless otherwise specified, the pump motor unit is supplied by the factory for shaft rotation counterclockwise from shaft end. Reversing motor will reverse "in and "out" ports and also requires changing relief valve location. The relief valve is always on the inlet side of this pump series. The factory pressure setting is 3.5 bar. To increase pressure, turn the relief valve adjusting screw in a clockwise direction.

Bronze Close Coupled Rotary Gear Pumps

Model N993E Series

Exploded View



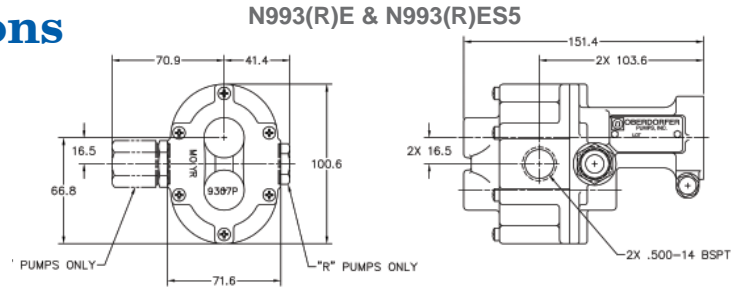
Parts List

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25			
	Screw	Body	Bearing	Drive Gear Assy	Idle Gear Assy	Dowel Pin	O-Ring	Cover	Tag	Tag Screw	Screw	Lipseal	Mechanical Seal	Coupling Half	Retaining Ring	Retaining Ring	Poppet or Ball	Spring	O-Ring	O-Ring	Nut Plug	Adjust. Screw	Lock Nut	Nut Bypass	Lock Ring	Pipe Plug	Repair Kits	
Model	Qty. 6	Qty. 1	Qty. 4	Qty. 1	Qty. 1	Qty. 2	Qty. 1	Qty. 1	Qty. 1	Qty. 2	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 2	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1	Qty. 1		
N993E	9837-20	9307ND5N-E	5024	32950	32937	8885	9797-038	9308NN2N	9344	9345	5595	5007	N/A	5604	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12070
N993RE	9837-20	9307ND5N-E	5024	32950	32937	8885	9797-038	9308NN3B	9344	9345	5595	5007	N/A	5604	N/A	N/A	5803	6301	9797-019	9797-019	1838	5237	5240D	5239	N/A	N/A	N/A	12101
N993ES5	9837-20	9307ND5N-E	5024	32950	32937	8885	9797-038	9308NN2N	9344	9345	5595	7580	N/A	5604	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7626	N/A	12101
N993RES5	9837-20	9307ND5N-E	5024	32950	32937	8885	9797-038	9308NN3B	9344	9345	5595	7580	N/A	5604	N/A	N/A	5803	6301	9797-019	9797-019	1838	5237	5240D	5239	7626	N/A	N/A	12101
N993ES16	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN4N	9344	9345	5595	N/A	32584	5604	5373	7639	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12398
N993RES16	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN4B	9344	9345	5595	N/A	32584	5604	5373	7639	5803	6302	9797-019	9797-019	1838	5237	5240D	5239	N/A	N/A	N/A	12398
N993ES17	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN4N	9344	9345	5595	N/A	32585	5604	5373	7639	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12399
N993RES17	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN4B	9344	9345	5595	N/A	32585	5604	5373	7639	5803	6302	9797-019	9797-019	1838	5237	5240D	5239	N/A	N/A	N/A	12399
N993ES18	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN6N	9344	9345	5595	N/A	32335	5604	5373	7639	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6052	TBD
N993RES18	9837-20	9307ND5N-E	5024	33342	32937	8885	9797-038	9309PN6B	9344	9345	5595	N/A	32335	5604	5373	7639	5803	6302	9797-019	9797-019	1838	5237	5240D	5239	N/A	6052	TBD	
N993ES8	9837-20	9307ND5N-E	5024	33342	32937	8885	9999-038	9309PN4N	9344	9345	5595	N/A	32754	5604	5373	7639	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	TBD
N993RES8	9837-20	9307ND5N-E	5024	33342	32937	8885	9999-038	9309PN4B	9344	9345	5595	N/A	32754	5604	5373	7639	5803	6302	9999-019	9999-019	1838	5237	5240D	5239	N/A	N/A	N/A	TBD

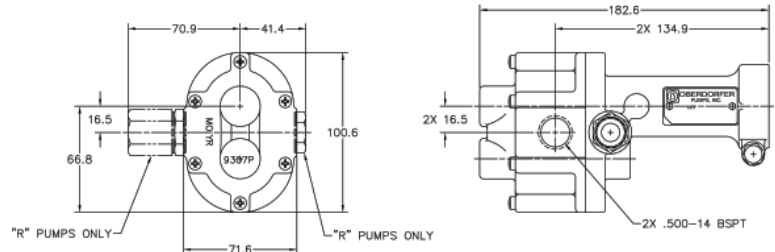
Repair Kits contain items 3, 4, 5, 7, 12, 14, 15, 24

Dimensions

Adapter Kits		
Adapter Kit	Part Number	Description
M	10562	48 Frame
N	10816	56 Frame
P	11722	S56 Frame
Q	11331	56C Frame (to 3/4 HP)
C	11331H	56C Frame (above 3/4 HP)
F	11332	IEC71
N/A	N/A	Adapterless - Modified 48



N993(R)ES16, N993(R)ES17, N993(R)ES18 & N993(R)ES8



NBR = Acrylonitrile-Butadiene PTFE = Polytetrafluorethylene FKM = Fluoroelastomer



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Visit www.oberdorfer-pumps.com to find in-depth descriptions of the world's leading high-quality, dependable pumps.

Due to ongoing product improvements, data shown here is subject to change without notice. Contact Oberdorfer Pumps for latest specifications.