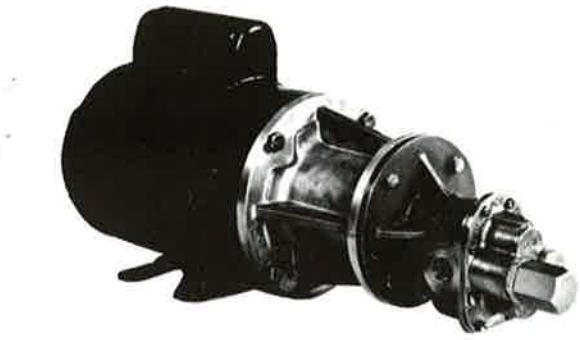
GEAR PUMPS

OBERDORFER-BRONZE

2.8 TO 22 LPM
MODELS N999E, N991E, N992E
N999RE, N991RE, N992RE



32 TO 180 LPM
MODELS 994E, N970E, N990E, N1100E
N994RE, N970RE, N990RE

GENERAL DESCRIPTION

Pump housings and gears are made of top quality bronze, shafts are made from Stainless Steel 303. Bronze bearings are designed of high performance carbon-graphite materials 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 bar for oil and lubricants. maximum shaft speed is 1750 rpm.

DRIVE ARRANGEMENT

Close coupled pumps are mounted directly to the electric motor by means of a suitable adapter casting. The pump drive shaft is connected to the motor shaft by a flexible coupling.

Depending on pump size and power requirements, IEC motor frame sizes from 71 to 112m are used as outlined on page 3.

SHAFT SEALS

Close coupled gear pumps are available with lip seals or mechanical seals in buna or viton.

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 960 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 very low shaft speed.

The recommended liquid temperature range is from 0^0 - 60^0C 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 low speed and extra power.

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 size should be at least one or two sizes larger than the pump inlet port. A reducing pipe coupling must be used at the pump entrance port.

RELIEF VALVE (R-MODEL PUMPS)

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, 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.

PUMP MAINTENANCE AND REPAIR

Oberdorfer gear pumps are essentially maintenance-free. If the pump is to be shut down for an extended period of time, it should be flushed thoroughly and filled with lubricating oil.

As a general rule, it is seldom economical to repair a worn out gear pump. However, if the gear chamber inside the pump body is still in good condition, the replacement of all interior parts by use of a repair kit may restore up to 80% of the original pump performance. Repair kit numbers and parts contained in each kit are listed on the parts lists on pages 4 and 5.

WARRANTY

Oberdorfer gear pumps are covered by a limited warranty against defective workmanship and materials for a period of one year from date of purchase.

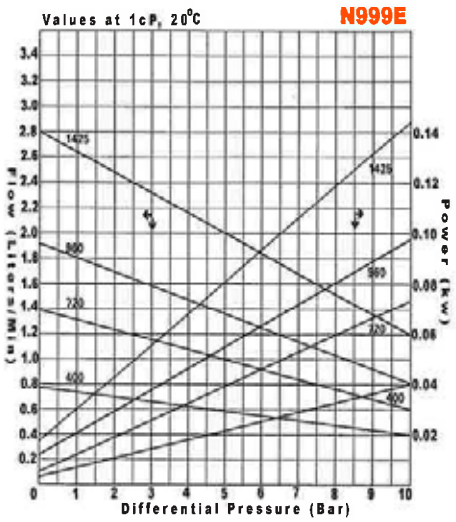
For the purpose of warranty claim, the pump must be returned prepaid to the factory for a warranty inspection with prior notification and approval of such return.

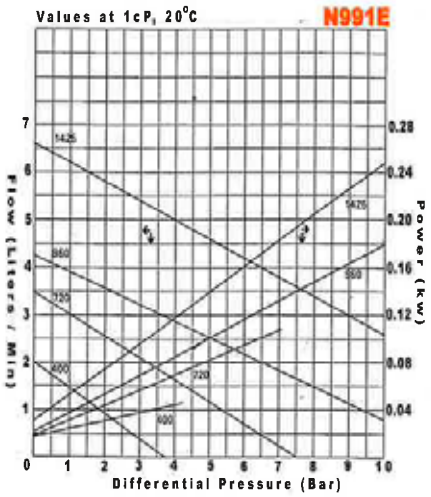
Short service life of a pump caused by pumping of abrasive materials or pump damage caused by aggressive chemicals, mis-aligned motor shafts, excessive pressure, or other installation-related problems does not constitute a warranty claim.

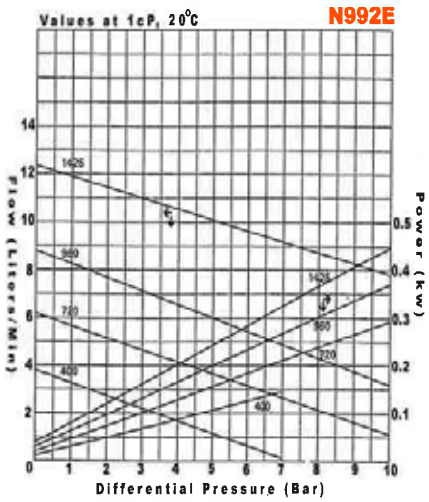
OBERDORFER

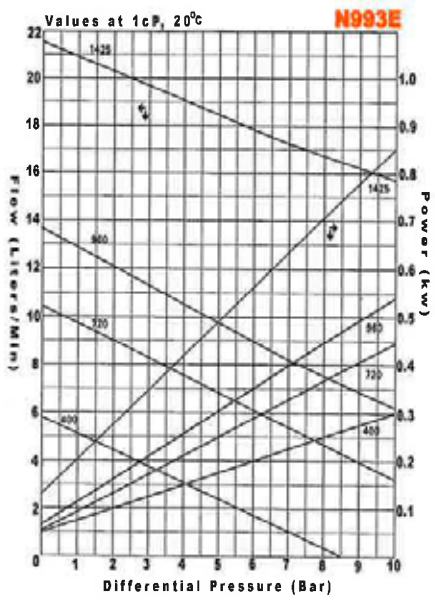
GEAR PUMPS

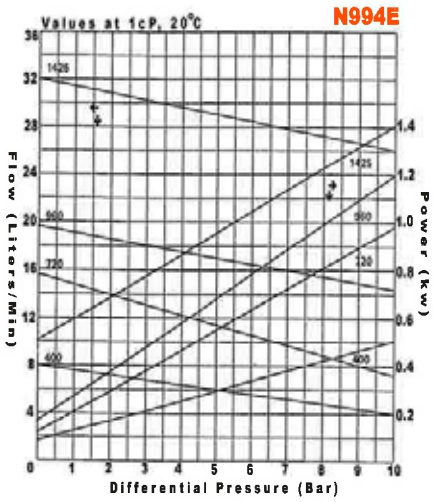
OBERDORFER-BRONZE

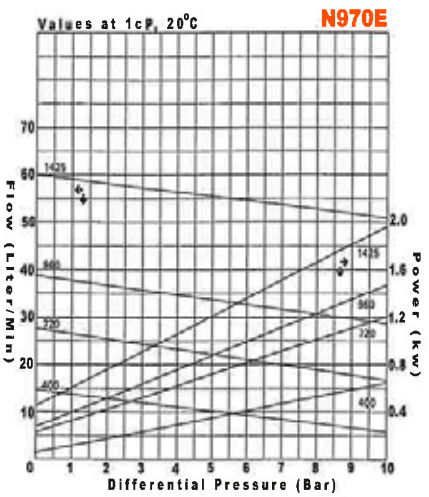


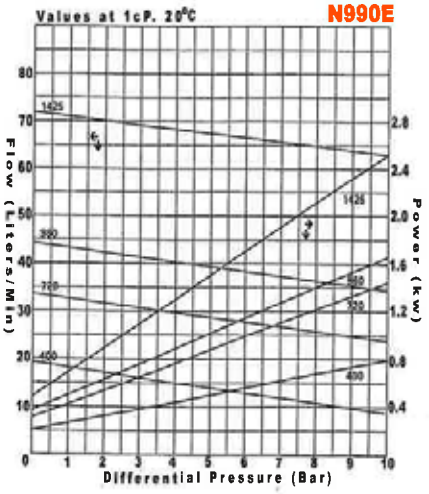


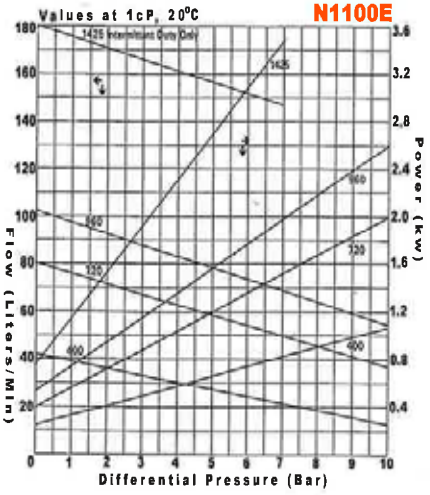












MOTORS			
PUMP SERIES	IEC MOTOR FRAME[1]	KIT PART NO.	KIT CODE
N999E	71	11332	F
N991E			
N992E			
N993E			
N994E	71	11380	G
N970E	80	11386	T
N990E	90S/90L	11875	U
	100L/112M	11876	V
N1100E	90S/90L	12032	------
	100L/112M	12003	------

[1]TO IEC 72 STANDARD B3/B14
(RIGID BASE AND "C" FACE)

GEAR PUMPS

OBERDORFER- CHEMSTEEL

BI-DIRECTIONAL OPERATION
- For applications requiring reversing flow

BODY/COVER STATIC O-RINGS
- Teflon® encapsulating silicone for sealing with a memory

COMBINED BEARING & WEARPLATE
- Full size bearings match the gear diameter and eliminate the need for separate wear plates
- Gear trimming for desired flow rates
- Made of carbon-graphite, Teflon®or Rulon®

SEAL HOUSINGS
- Ported for flush, drain, barrier fluid and lantern packing lubrication
- Access to seals without removal of cover

HELICAL GEARS
- Noise reduction up to 10 db

UPPER DRIVE STANDARD
- Lends itself to in-line pump seal maintenance without leakage of trapped chemicals
- Easily converted to a lower drive configuration

OPTIONAL BEARING FLUSH PORTS
- To extend bearing life when pumping non-lubricating fluids or fluids with a small degree of fine solids

INTERFACING TO WORLD STANDARDS
- NPT & BSPT porting
- Metric pump hardware
- Close-coupled adapters for NEMA and IEC standard motor frame sizes

DYNAMIC SEAL OPTIONS INCLUDE
- Single or double mechanical wedge & bellows styles
- Standard compression packing
- Lantern Ring compression packing
- Lip seals

EXTENDED LIFE
- Gear & bearing combinations of metallic and non-metallic wear surfaces
- Slotted bearings to lubricate shaft and gear surfaces
- Hydraulic porting to balance axial thrust and reduce wear

METALLIC & NON-METALLIC
- Wide range of capability
- Effective weight and cost selection

TANDEM PUMPS

- Tandem Pumps double the output flow for a single fluid.
- Or with isolation, handle different fluids in direct ratio to each other.

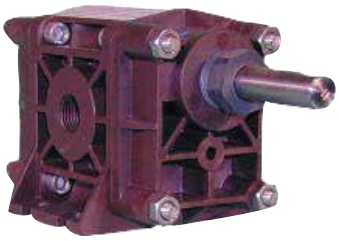
Construction

BODY

Ryton®, Polyphenylene Sulfide PPS, an engineered, reinforced plastic, offering a wide range of chemical compatibility, physical stability, and high temperature resistance (to 200° F).

Type 316, An all purpose austenitic stainless, excellent corrosion resistance; premium choice of all 300 series alloys.

Alloy C, Most used of exotic high/nickel alloys. Superior corrosion resistance for severe alkaline and acidic pumping applications.



BEARINGS

Full gear diameter carbon sleeve bearings for maximum chemical resistance and high load capacity. Teflon® or Rulon® plastic bearings available for product purity.

BODY/COVER O-RINGS

Teflon® encapsulating, silicone o-rings provide elastic memory to assure an effective long lasting seal. Avoiding the re-torquing required of pumps using pure TFE.

GEARS

Precision machined metallic gears of 316SS, W88 stainless, and Alloy C. Also available in glass reinforced Teflon®, Ryton® and carbon reinforced PEEK.

SEALS

Single and/or double mechanical seals are offered in elastomer bellows and Teflon® wedge designs. Bellows design available with Viton® or EPDM formed elastomer shaft seal. Wedge designs available with Teflon® wedge shaft seal and perfluoroelastomer stationary seat o-rings. Packing materials: Teflon®, Grafoil® and Teflon®/Graphite.

SHAFTS

Shafts are 316 stainless steel or Alloy C.

CLOSE COUPLED MAG DRIVE PUMPS	
BODY	Stainless Steel, Ryton and Alloy C constructions
GEARS	Ryton®, Peek, 316 SS, W88, Alloy C and Teflon®
SHAFTS	316 SS or Alloy C
BEARINGS	Carbon, Teflon® and Rulon®

- Neodymium or Samarium cobalt magnets
- Close Coupled Adapters for NEMA and IEC standard motor frame sizes
- 316 Stainless Steel, Ryton and Alloy C containment cans
- 1/2 to 30 GPM

OBERDORFER

GEAR PUMPS

OBERDORFER- CHEMSTEEL

Numbering System

Basic Pump Series

SEAL-LESS MAG-DRIVE			SEALED		Flow Rate Code		Max Flow (0 psi GPM @ 1725 RPM
Code	Metal	RYTON®	Code	RYTON®			
RM1	X		R1		02	-	0.5
	X				03	-	1.5
	X				04	-	2
	X				06	-	3
SM2		X	S2	X	03	-	1.5
		X		X	04	-	2
		X		X	05	-	2.8
	X	X		X	07	-	4
	X	X		X	10	-	5.6
	X	X		X	14	-	8
SM4	X		S4		17	-	10
			S9	X	17	-	10
SM9	X			X	23	-	15
	X			X	30	-	20
	X			X	35	-	23
	X			X	46	-	30

Housing and Shaft Material

Code		Housing Material	Shaft Material
1	-	316 Stainless Steel	316 Stainless Steel
3	-	Alloy C	Alloy C
6	-	RYTON®	316 Stainless Steel
9	-	RYTON®	Alloy C

Gear Material Combination

Code		Drive	Idle
1	-	RYTON®	RYTON®
2	-	316 SS	PEEK®
3	-	PEEK®	PEEK®
4	-	Alloy C	Alloy C
5	-	Alloy C	TEFLON®
6	-	W88	W88
7	-	TEFLON®	TEFLON®
8	-	W88	TEFLON®
9	-	Alloy C	PEEK®
A	-	Alloy C	RYTON®
B	-	316 SS	RYTON®
C	-	W88	RYTON®
E	-	316 SS	316 SS
F	-	316 SS	TEFLON®

Bearing Material

Code		Material
C	-	Carbon Graphite
P	-	TEFLON®
J	-	Rulon®

Shaft Seal

Code	Style			Materials			
				Rotary Head		Stationary Head	
	Design	Seals	Case	Face	Elastomer	Face	O-Ring
B	Bellows	Single	316	Carbon	VITON®	Ceramic	VITON®
J	Bellows	Single	316	Silicon Carbide	EPDM	Silicon Carbide	EPDM
H	Bellows	Double	316	Carbon	VITON®	Ceramic	VITON®
Z	Bellows	Single	316	Silicon Carbide	VITON®	Silicon Carbide	VITON®
A	Wedge	Single	316	Carbon	TEFLON®	Ceramic	KALREZ®
C	Wedge	Single	316	Carbon	TEFLON®	Silicon Carbide	KALREZ®
D	Wedge	Single	Alloy C	Carbon	TEFLON®	Ceramic	KALREZ®
F	Wedge	Single	Alloy C	Carbon	TEFLON®	Silicon Carbide	KALREZ®
V	Wedge	Single	Alloy C	Silicon Carbide	TEFLON®	Silicon Carbide	KALREZ®
G	Wedge	Double	316	Carbon	TEFLON®	Silicon Carbide	KALREZ®
L	Two Lip Seals		304	VITON® backed by TEFLON®			
N	Packing			TEFLON® with Graphite			
P	Packing			GRAFOIL®			
Q	Packing			TEFLON®			
R	Packing with Lantern Ring			TEFLON® with Graphite			
S	Packing with Lantern Ring			GRAFOIL®			
T	Packing with Lantern Ring			TEFLON®			
Mag-Drive M	MAG-COUPLED			Neodymium Iron			
W	MAG-COUPLED			Samarium Cobalt			

Additional Options

Code		Option
C1 through C7	-	Factory Installed Close Coupled Adapter
T1 through T5	-	Non-Metallic Gear - Temperature Trim
H	-	Tandem - High Flow
D	-	Tandem - Duplex
B	-	Bearing Flush Ports
E	-	BSPT Threads
L	-	Lower Shaft Drive
XX	-	Specials - Consult Factory
Mag-Drive M1-M7	-	Factory Installed Close Coupled Adapter - Mag-Coupled
R	-	Ryton Containment Can