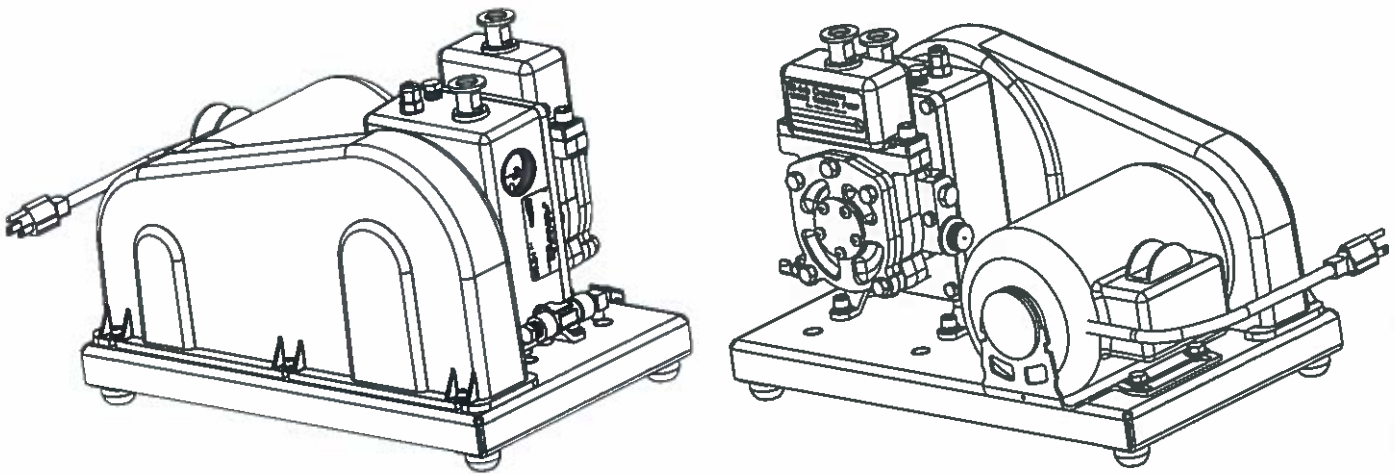


WELCH-ILMVAC

OWNER'S MANUAL FOR CHEMSTAR® VACUUM PUMP MODELS: 1400N



WARNING

Never block the Exhaust Port.

If the exhaust port is blocked, pressure will build-up in the pump with the potential of the pump body bursting and causing possible injury to personnel in the area.

Welch-Ilmvac
5621 W. Howard Street
Niles, IL 60714
Phone: (847) 676-8800 (Technical Support)
Fax: (847) 677-8606
E-Mail: gdwelchvacuum@gardnerdenver.com
Web-Page: www.welchvacuum.com

Part No. 67-0544 R3.6
Printed in USA

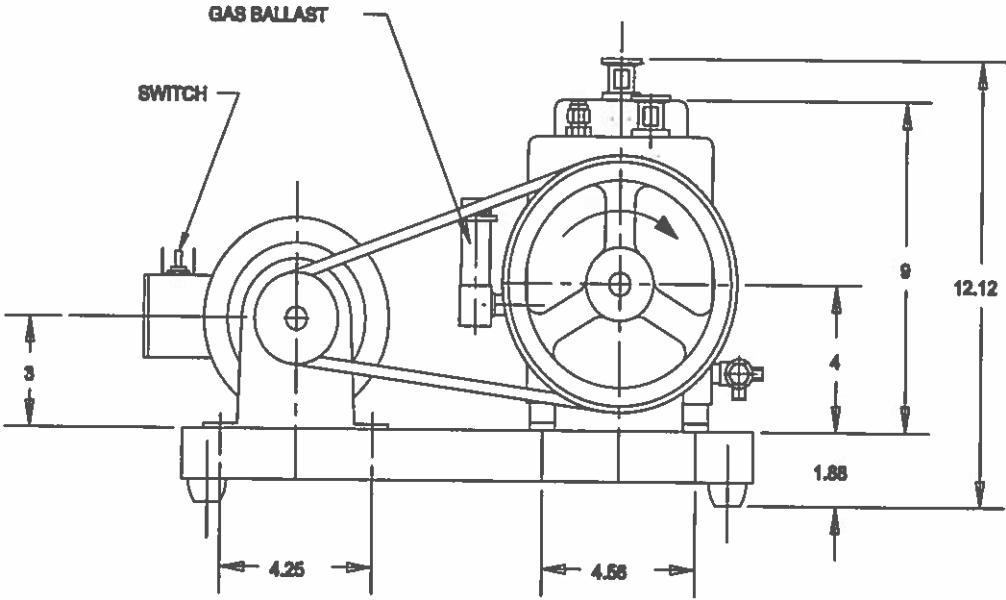
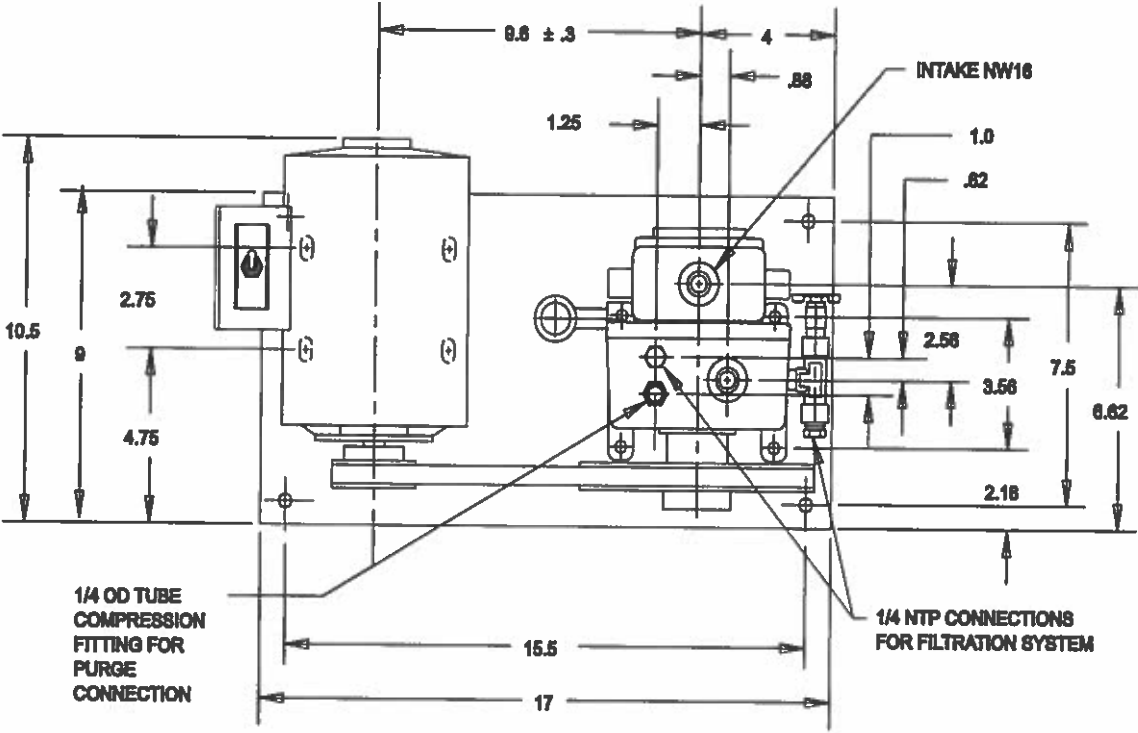
Section 5: QUICK REFERENCE CHART

Motor Options	1400N
Wired for 115V, 60Hz, 1Ph	1400N-01
Wired for 230V, 50Hz, 1Ph	1400N-50

Replacement Parts	
Shaft Seal: Lip Seal	1401E-01
Shaft Seal: Mechanical Seal	1401E
Air Filter Screen	41-0890
Intake Chamber Cover Gasket	41-0383
Oil Case Gasket	41-1052
Drain Plug	61-2278
Oil Window	41-3753
Large Vane	41-1059
Small Vane	41-1059
Large Vane Spring	41-1304
Small Vane Spring	41-1304
Large Vane Spring Holder	41-1063
Small Vane Spring Holder	41-1063
Shaft	41-1060
Upper Exhaust Valve	41-1239
Optional Exhaust Filter	1417
Optional Exhaust Filter Element	1417L
Pump Pulley	41-2191
Standard Belt	1400A
Standard Hose Barb Fitting	1393J
Standard Flange Adapter Fitting	1393F
Repair Kits	
Minor Repair Kit	1400K-09
Major Repair Kit	1400K-10
Base and Belt Guard Kit	1371E

Specifications	
Free Air Displacement, L/M (CFM)	25 (0.9)
Gas Ballast	Yes
Ultimate Pressure, Torr (mbar)	1 (1.3)x10 ⁻⁴
Number of Stages	2
Rotational Pump (RPM)	580
Oil Capacity, quarts (Liters)	0.62 (0.59)
Net Wt. Unmounted Pump, lb (Kg)	33 (15)
Net Wt. Mounted Pump, lb (Kg)	58 (26)
Standard Flange Size	NW16
Tubing Needed-I.D. Inches	7/16
Intake Thread Size	3/4-20
Exhaust Thread Size	3/4-20
Electrical Requirements 1	115V/230V
Electrical Requirements 2	50/60Hz
Electrical Requirements 3	1 Phase

Section 6: DIMENSIONAL DRAWING



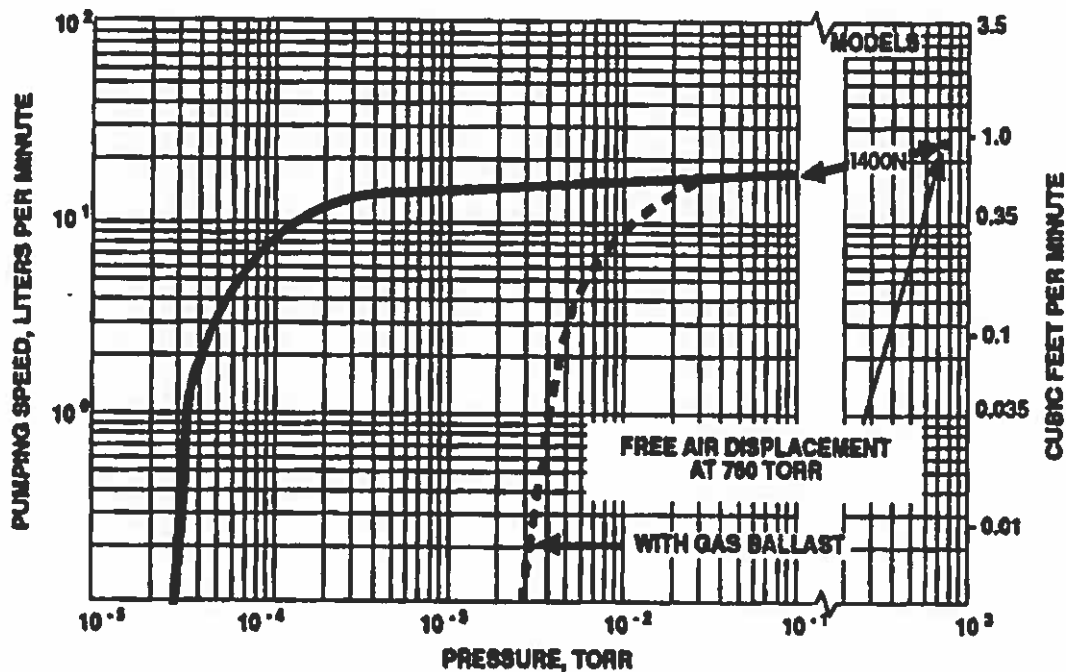
Section 7: PUMPING SPEED CURVES

HIGH EFFICIENCY PUMPING CHARACTERISTIC OF CHEMSTAR® PUMPS

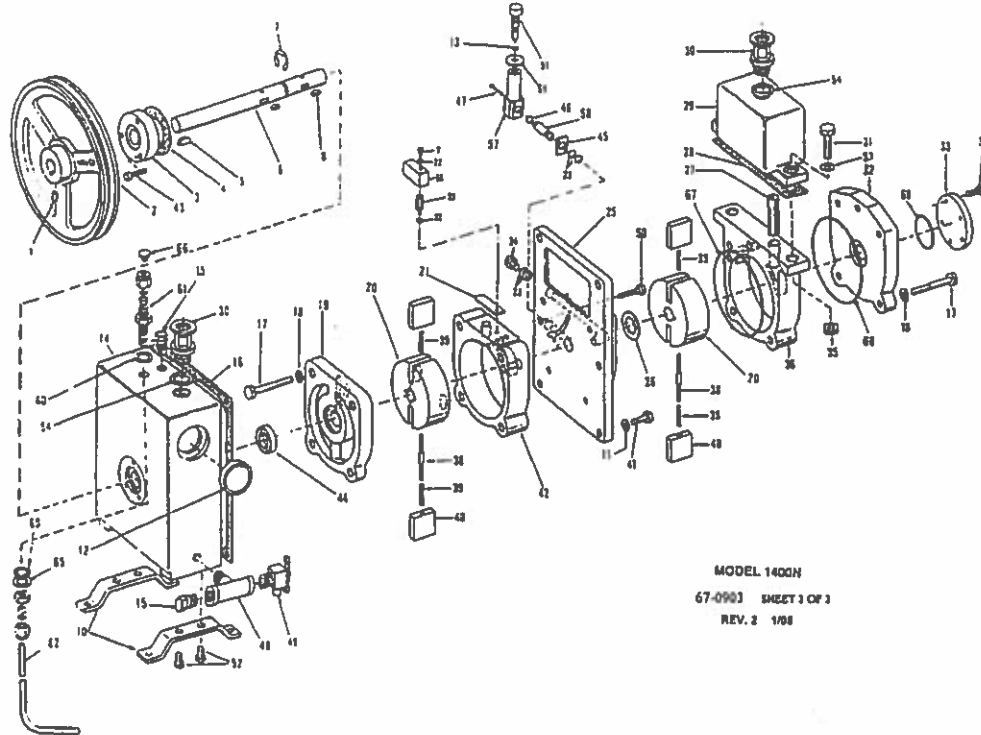
The low RPM design of CHEMSTAR vacuum pumps makes it possible to maintain high pumping efficiencies into the low micron range. High RPM direct drive vacuum pumps, on the other hand, experience a rapid fall off of pumping speed below 100 microns.

A comparison of the CHEMSTAR pumping speed curves shown below, versus high RPM pump speed curves conclusively illustrates the superior performance of the CHEMSTAR pump.

What does that mean for the vacuum pump user? CHEMSTAR pumps provide considerable faster pump down time in the low micron range.



PARTS LIST FOR MODEL 1400N



MODEL 1400N
67-0903 SHEET 1 OF 1
REV. 2 1/88

ITEM	QTY	P/N	A*	B*	DESCRIPTION	ITEM	QTY	P/N	A*	B*	DESCRIPTION
01	1	2-01-9306			Soc. Hd. Screw 5/16 - 18x3/8	36	1	61-8674			Intake Ring
02	1	41-2191			Pulley Including Set Screw Item 1	38	2	41-1063	2	2	Spring Holder
03	1	41-3696			Shaft Seal	39	4	61-8559A	4	4	Vane Spring
04	1	41-0643			Shaft Seal Gasket	40	4	41-1059	4		Vane, Metal
05	1	41-0624	1	1	Pulley Key	41	5	2-01-0112			Hex Hd. Cap Screw 1/4 - 20x3/4
06	1	41-1060			Shaft	42	1	41-1042			Exhaust Ring
07	1	41-1150	1	1	Retaining Ring	43	3	2-00-6712			Soc Hd Screw 10-32x3/4
08	2	41-0613	2	2	Woodruff Key	44	1	41-0578	1	1	Lip Seal
09	1	2-00-2704			Fil. Hd. SS Screw 10-32x1/4	45	1	61-8102A			Flange For G.B. Valve
10	2	61-8682			Leg	46	1	61-8103	1	1	O-Ring Fluoroelastomer
11	6	41-1138			Washer, Copper 7/16 OD	47	2	61-8362			Soc. Hd. Screw 8 - 32x1
12	1	41-3753			Oil Sight	48	1	61-8266			Tee 1/4 NTP
13	1	41-1742	1	1	O-Ring #011	49	1	41-1734			Drain Valve
14	1	61-8548C			Oil Case Assy. (see note below)	50	1	2-01-0120			Hex Hd. Cap Screw 1/4 - 20x1-1/4
15	2	61-8384			Plug, 1/4 NTP	51	1	41-1736			Gas Ballast Valve incl. Item 13
16	1	61-8355B	1	1	Oil Case Gasket	52	4	2-01-0308			Hex. Hd. Screw 5/16 - 18x1/2
17	9	2-01-0332			Hex Hd. Cap Screw 5/16 - 18x1-1/2	53	2	2-61-0571			Steel Washer .071 x 3/8 I.D.
18	9	41-2363			Washer	54	2	61-2159A	1	1	O-Ring, Fluoroelastomer #116
19	1	41-1045			Back Endplate	55	1	61-8348A	1	1	Baffle Stud
20	2	41-1040			Rotor	56	1	61-8347B			Exhaust Baffle
21	1	61-1239	1	1	Exhaust Valve	57	1	61-8100A			Valve Adapter
22	2	2-71-0040	2	2	Brass Washer #10	58	1	61-8101A			Connector
23	8	41-1056			Aluminum Washer	59	1	41-2757			Locknut
24	1	41-1039			Vented Exhaust Plug	60	2	62-0118	2	2	O-Ring, Tetr., #013
25	1	61-8678			Center Plate	61	1	61-8382			Union
26	1	41-1285			Steel Washer	62	1	61-8327B			Bubbler Tube
27	1	41-0890	1	1	Air Filter	65	1	62-0121			Washer, SS
28	1	41-0383	1	1	Gasket, Intake Chamber	66	1	66-0117			Stopper, Purge
29	1	61-8676			Intake Chamber	67	1	61-8665	1	1	O-Ring, M2 .5x86, Fluoroelastomer
30	2	61-8464A			Adapter, NW16	68	1	61-9378	1	1	O-Ring, #152, Fluoroelastomer
31	2	2-01-0524			Hex. Hd. Cap Screw 3/8 - 16x1-1/2	69	1	66-0183	1	1	O-Ring, #120, Fluoroelastomer
32	1	61-8701			Back End plate			1401E-01	1	1	Shaft Seal Kit**
33	1	61-8672			End Cap			1-99-5282	1	1	Sealant, 6cc
34	5	2-00-2706			Hex. Hd. Screw 10 - 32x3/8						
35	2	2-31-2521			Hex. Nut 3/8x16						

Note: Oil Case Assy. Item # 14 Includes Items #10, 12, 15, 30, 48, 49, 52, 54, 60, 61, 62, 65 & 66

A*: MAJOR REPAIR KIT CAT# 1400K-10

B*: MINOR REPAIR KIT CAT# 1400K-09

** 1401E-01 is a shaft seal repair kit, it includes a shaft seal, gasket, and 3 screws

Section 9: ACCESSORY SECTION

Exhaust Filter

Filters oil mist from pump exhaust / Easy Replacement
Reduces pump noise / Filters to 0.3 micron particle size

Standard Exhaust Filter				
Use with pump model	Dimension		Catalog Number	
	Diameter	Height	Filter	Replacement Element
1392, 1399, 1400	2.5	2.5	1417	1417L
1376,1380, 1402,1400	5	6.25	1417P-10	1417G
1397,1374	5	9	1417P-20	1417H-01

Directional Exhaust Filter

Large, high capacity / Screw-in type / 360 Swivel outlet with tubing connector

Directional Exhaust Filter				
Use with pump model	Dimension		Catalog Number	
	Diameter	Height	Filter	Replacement Element
1392, 1399, 1400	2.5	2.5	1417L	1417L
1376,1380, 1402,1400	5	6.25	1417G	1417G
1397,1374	5	9	1417H-01	1417H-01

Exhaust Mist Eliminator

Exhaust oil recyclers capture oil mist expelled from the pump, separated air from oil, and return collected oil to the pump via a line connected to the gas ballast inlet. This process effectively reduces oil consumption and minimizes maintenance requirements by extending the time between oil changes.

Catalog Number	Use with pump model
1416H-01	1400
1416C-01	1405, 1376, 1380, 1400

Requires gas ballast connection kit: Cat. No. 141601 - For models 1400, 1405, 1376, 1380, 1402

Coaxial Traps

Reduces oil back streaming / Stainless steel construction / Easy Replacement of Element

ISO Size	Capacity	Diameter	Height	A2	Cat.No.1
NW16	to 4 CFM (140 L/min)	3.75	5.25	8.25	541001
Stainless Steel Element for ISO NW 16 Trap 1					541921
Stainless Steel Element for ISO NW 25 and NW 40 Traps1					541922

Cat. No.1. Element must be ordered with trap.

A2. Distance between ISO NW inlet and outlet connections

Dry Ice Cold Traps

Removable 3 quarter center well for dry ice/alcohol slurry (do not use acetone) / Visible trapping surface

Cold temperature up to 12 hours depending on vapor / Available with straight tube connections

ISO Size	Diameter	Height	A1	I/O Offset	Cat. No	Replacement Seal Cat. No.
Straight Tube						
1/2 O.D.	10.00	8.25	10.75	3.5	1420H-14	545200

A1. Distance between ISO NW inlet and outlet connections