

A Global Approach to Vacuum Pumps Directorr®, GEM® & W-Series

Introducing the *W-Series*

- Thermal Sentry Light
- Global Motor
- Cool Running
- 3 Stage Gas Ballast

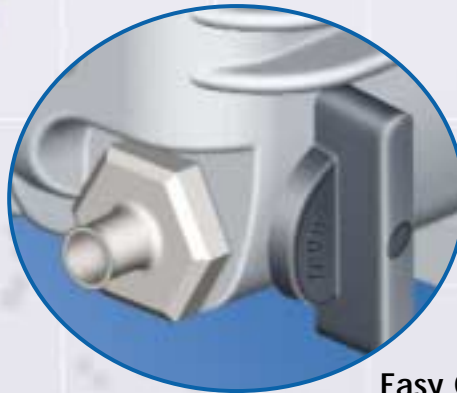


Take a Second Look

Today's most advanced design and manufacturing technologies make the Welch® W-Series the next generation of high vacuum pumps. These World-Class pumps set new standards for Convenience and Performance.



3 Position Gas Ballast



Easy Oil Change Valve



- **Thermal Sentry Light** - Warns of adverse operating conditions that could be damaging to the pump. Correction may be a simple oil change or system check and the pump is ready for continued performance.
- **Cool Running** - Special interstage fan delivers improved seal life, reliability and lengthens the time between oil changes.
- **Easy Oil Change Valve** - With a simple turn, spent oil is neatly directed into a beaker for inspection or a bottle for recycling. A 3/8" tube can be attached for remote collection.
- **Global Motor** - Specially developed for the W-Series. For use anywhere in the world independent of voltage or frequency. Universal connector on the pump makes it easy to change to any local cord.
- **3 Position Gas Ballast**
- **Continuous Oil Filtering**
- **Compact Footprint**

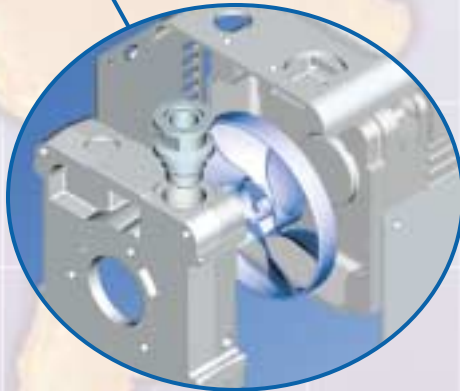
W-Series



Thermal Sentry Light



Global Motor

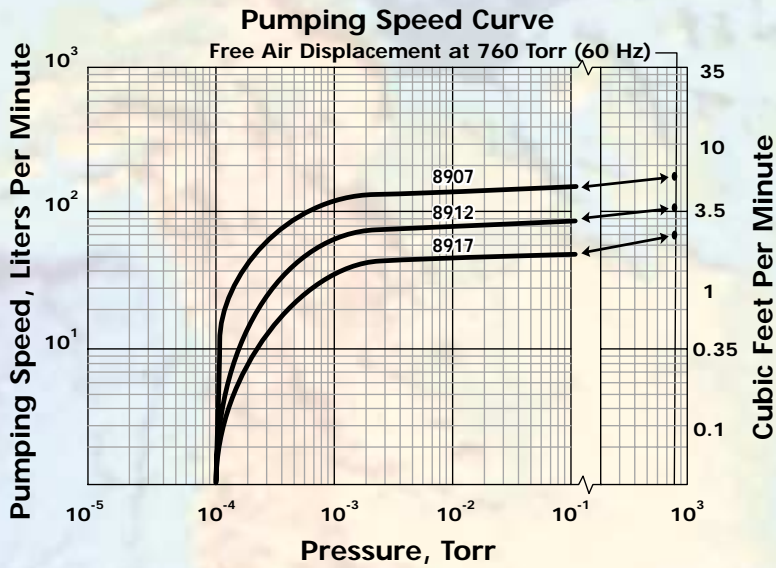


Internal Cooling Fan

Pumping Specifications					
Model	Ultimate Pressure Torr (mbar)	Free Air Displacement		Nominal Pumping Speed	
		60 Hz CFM(l/min)	50 Hz (l/m) ³ /h	60 Hz CFM(l/min)	50 Hz (l/m) ³ /h
8907	1 x 10 ⁻⁴ (1.3 x10 ⁻⁴)	2.6(70)	(56)3.68	2.3(64)	(53)3.20
8912	1 x 10 ⁻⁴ (1.3 x10 ⁻⁴)	3.8(108)	(86)5.37	3.4(96)	(80)4.78
8917	1 x 10 ⁻⁴ (1.3 x10 ⁻⁴)	6.1(173)	(138)8.63	5.3(150)	(125)7.51

Gas Ballast Specifications			
Model	Ultimate Vacuum Gas Ballast Closed Torr (mbar)	Ultimate Vacuum Gas Ballast III mbar	Water Vapor Tolerance Gas Ballast III Torr
8907	1x10 ⁻⁴ (1.3 x10 ⁻⁴)	80.00	19
8912	1x10 ⁻⁴ (1.3 x10 ⁻⁴)	60.00	12
8917	1x10 ⁻⁴ (1.3 x10 ⁻⁴)	40.00	12

Pumping Speed One Motor - Global Capability



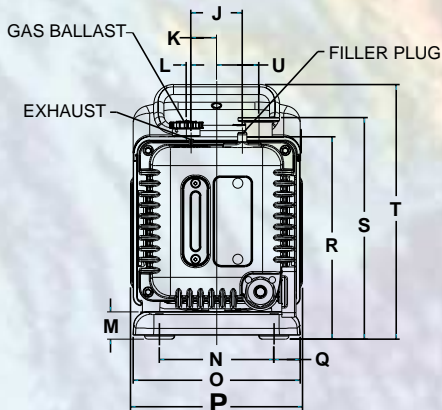
-  US, Canada, Mexico 
-  Germany, N. Europe 
-  Australia, New Zealand 
-  UK 
-  India, Asia 
-  Italy 
-  Japan 

W-Series

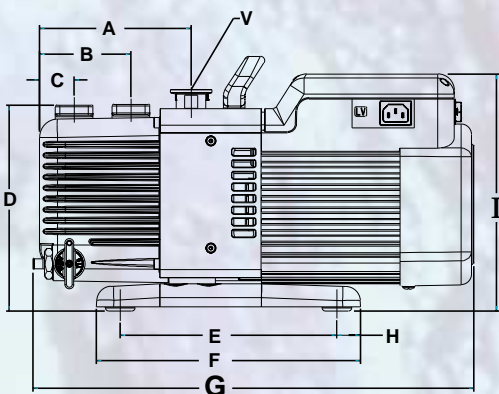
Global Motor				
Model	Horse-power	Electrical	Pump Speed Rpm	
			60 Hz	50 Hz
8907	1/3	100/120V or 200/230V 50 or 60Hz	1725	1425
8912	1/3	100/120V or 200/230V 50 or 60Hz	1725	1425
8917	1/2	100/120V or 200/230V 50 or 60Hz	1725	1425

Pumping Specifications							
Model	Inlet Connection	Exhaust Connection	Oil Capacity Liters	Sound Decibels @ 60Hz	Surface Temp. Rise F°	Pump Weight Lbs.(kg)	Shipping Weight Lbs.(kg)
8907	NW 25	Threaded 1-20	1.15	50	80	40(18)	46(21)
8912	NW 25	Threaded 1-20	1.08	50	80	41(18)	47(21)
8917	NW 25	Threaded 1-20	1.38	50	80	48(22)	53(24)

Dimensional Drawings



Model	A	B	C	D	E	F	G	H	I	J	K
8907 & 8912 (cm)	14.5	8.7	3.3	19.8	20.8	25.4	42.4	2.3	22.8	4.9	2.5
8917	18.6	8.9	3.3	19.8	20.8	25.4	46.5	2.3	22.8	4.9	2.5
	L	M	N	O	P	Q	R	S	T	U	V
8907, 8912, & 8917	0.5	2.6	11.0	16.1	16.5	2.3	19.5	21.3	24.5	4.1	NW25



Service Kits



Shaft Seal Replacement Kit

8907K-03 for 8907 & 8912
8917K-03 for 8917



Minor Repair Kit

8907K-02 for 8907 & 8912
8917K-02 for 8917



8804

8905

**Welch GEM®
Model 8890**

Ideal Laboratory Pump for:

- Rotary Evaporation
- Filtration Manifolds



Rotary Evaporator Vacuum System

Includes tubing, gauge, Model 1421 Vacuum Regulator, Model 1416B Exhaust Mist Eliminator, plus the GEM pump to connect to a rotary evaporator. Replaces water aspirator.

System Cat. No.	Pump Cat. No.	Operating Voltage
8890A-70	8890A	115V, 60 Hz
8890C-71	8890C-01	230V, 60 Hz
8890C-72	8890C-02	220V, 50 Hz

Filtration Vacuum Pump System

Includes tubing, gauge, Model 1421 vacuum regulator, Model 1416B Exhaust Mist Eliminator, collecting flask plus the GEM pump to connect to vacuum manifold. Especially suited for multi-station manifolds, or filtering viscous liquids.

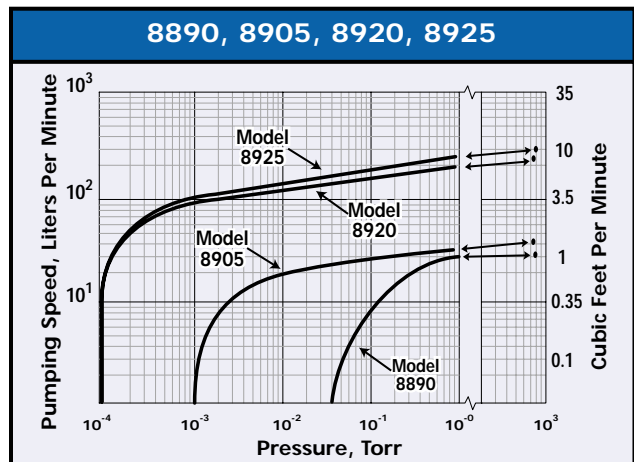
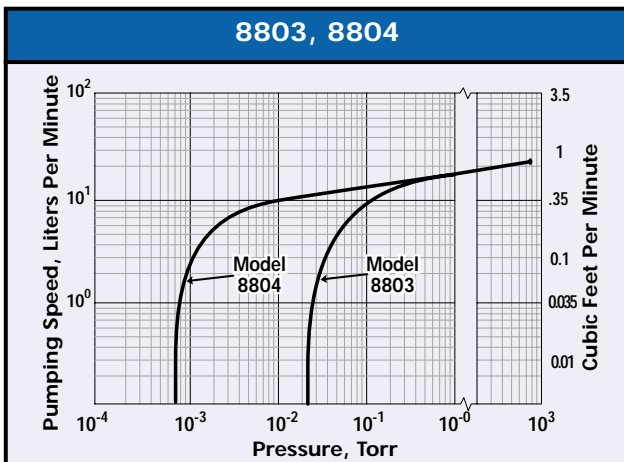
System Cat. No.	Pump Cat. No.	Operating Voltage
8890A-75	8890A	115V, 60 Hz
8890C-76	8890C-01	230V, 60 Hz
8890C-77	8890C-02	220V, 50 Hz

**SPECIFICATIONS
Two-Stage Vacuum Pumps**

Welch Model	8804	8890	8905
Free Air Displacement			
CFM (L/min) @ 60Hz	1(28)	1.1(3.1)	1.8(51)
(L/min) m ³ /h@ 50Hz	(23)	(26)1.56	(43)2.58
Ultimate Pressure Torr¹(mbar)	1x10 ⁻³	1x10 ⁻¹ (1.3x10 ⁻¹)	2x10 ⁻³ (2.6x10 ⁻³)
Sound Level, dBA	59	58	52
Motor/Pump Speed (60 Hz)	1725	3450	3450
Motor/Pump Speed (50 Hz)	-	2830	2830
Motor Horsepower	1/6	1/4	1/6
Oil Capacity, qt. (liters)	0.13(0.12)	0.48(0.45)	0.48(0.45)
Tubing Needed, I.D. in.²	3/8	3/8	7/16
Intake Connection²	3/8 in. Hose Barb	3/8 in. Hose Barb	NW16
Exhaust Connection³	Threaded 3/4-20	Threaded 3/4-20	Threaded 3/4-20
Weight, Lbs (Kg)	23(10.4)	24.5(11.1)	24.5(11.1)
Overall Dimensions			
L in. (cm)	13.5 (34.3)	14.5(36.8)	14.1(35.9)
W in. (cm)	5.8(14.7)	5.1(13)	5.1(13)
H in. (cm)	8.3(21.1)	8.4(21.3)	8.4(21.3)
Ship Weight, Lbs (Kg)	22.2(9.9)	26(11.8)	26(11.8)
Shipping Carton Dimensions	21 x 6.5 x 11.2	21 x 6.5 x 11.2	21 x 6.5 x 11.2
L x W x H in. (cm)	(53.3 x 16.5 x 28.6)	(53.3 x 16.5 x 28.6)	(53.3 x 16.5 x 28.6)
ORDERING INFORMATION⁴			
115V, 60Hz, 1 Ph N. Amer. Plug	8804B	8890A ^{5,7}	8905A ⁵
230V, 60Hz, 1 Ph N. Amer. Plug	8804C-01	8890C-01	8905C-01
230V, 50Hz, 1 Ph Cont. Euro. Pg	-	8890C-02 ^{6,7}	8905C-02 ⁵
3 Phase Options			

Notes:

1. Models 8804, 8905, 8907, 8912, 8917, 8920, 8925, 8951, 8961 and 8971 should not be operated continuously at pressures above 10 Torr.
2. Models 8905 through 8951 include ISO-to-hose adapter kits.
3. See back cover for exhaust filters. Models 8803, 8804 and 8890 include filter.





8920

8951

									One Stage
8907	8912	8917	8920	8925	8951	8961	8971	8803	
2.6(70) (56)3.68	3.8(108) (86)5.37	6.1(173) (138)8.63	7.7(218) (181)10.8	11.3(320) (263)15.8	20(566) (473)28.4	36.7(1038) (866)52.0	55(1558) (1303)78.2	1(28) (23)1.4	
1×10^{-4} (1.3×10^{-4})	1×10^{-4} (1.3×10^{-4})	1×10^{-4} (1.3×10^{-4})	3×10^{-4} (4×10^{-4})	4×10^{-4} (5×10^{-4})	5×10^{-4} (6×10^{-4})	5×10^{-4} (6×10^{-4})	5×10^{-4} (6×10^{-4})	3×10^{-2} (4×10^{-2})	
50	50	50	54	55	65	65	65	59	
1725	1725	1725	1725	1725	1745	1745	1745	1725	
1425	1425	1425	1425	1425	1425	1425	1425	1425	
1/3	1/3	1/2	1/2	3/4	1-1/2	2	3	1/10	
1.1(1.15)	0.99(1.08)	1.2(1.38)	1.4(1.3)	1.25(1.2)	2.8(2.6)	4.4(4.16)	4.4(4.16)	0.30(0.28)	
13/16	13/16	13/16	13/16	13/16	1-5/8	1-5/8	1-5/8	3/8	
NW25	NW25	NW25	NW25	NW25	NW 40	NW 40	NW 40	3/8 in. Hose Barb	
Threaded 1-20	Threaded 1-20	Threaded 1-20	Threaded 1-20	Threaded 1-20	NW 40 3/4-20	NW 40 3/4-20	NW 40 3/4-20	Threaded 3/4-20	
40(18)	41(18)	48(22)	58.5(26.6)	69(31.3)	135(62)	234(106)	266(103)	16(7.3)	
16.7(42.4) 6.5(16.5) 9.6(24.3)	16.7(42.4) 6.5(16.5) 9.6(24.3)	18.4(46.5) 6.5(16.5) 9.6(24.3)	20.5(52.1) 7.1(17.9) 10.7(27.2)	21.2(53.8) 7.1(17.9) 10.7(27.2)	26.6(67.6) 8.1(20.6) 16.6(42.2)	32.7(83.0) 9.7(24.8) 18.1(46.)	31.4(79.7) 9.7(24.8) 18.1(46.)	10.4(26.4) 4.0(10.1) 8.3(21.1)	
46(21)	47(21)	53(24)	68(30.8)	77(34.6)	165(75)	264(120)	256(116)	19(8.6)	
28.9 x 10.7 x 13.6 (74 x 25.8 x 35)	28.9 x 10.7 x 13.6 (74 x 25.8 x 35)	28.9 x 10.7 x 13.6 (74 x 25.8 x 35)	29 x 11.5 x 15.5 (73.7 x 29.2 x 39.4)	29 x 11.5 x 15.5 (73.7 x 29.2 x 39.4)	13 x 30 x 24 (33.0 x 76.2 x 60.9)	36 x 14 x 25 (91.4 x 35.6 x 63.5)	36 x 14 x 25 (91.4 x 35.6 x 63.5)	17 x 6.5 x 11.2 (53.3 x 16.5 x 28.6)	
GLOBAL MOTOR									
8907A	8912A	8917A	8920A ⁵	8925A ⁵	8951C	-	-	8803B	
See table below	See table below	See table below	8920C-01	8925C-01	8951C-01	-	-	-	
8907C-02	8912C-02	8917C-02	8920C-02 ⁶	8925C-02 ⁶	8951C-02	-	-	8803C-02	
					8951E	8961E	8971E		

4. Some motors have extended voltage ranges. All single phase motors have overload protection. Explosion-proof, TEFC and 3 phase motors available. Call Welch Customer Service Department for motor selections.

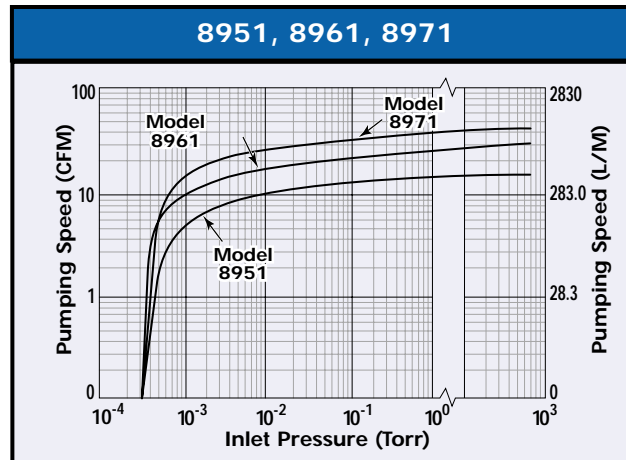
5. 115V, 60 Hz models are CSA approved.

6. 230V, 50 Hz models are provided with CE marking.

7. Model 1421 Vacuum Regulator and Model 1416B Exhaust Mist Eliminator are recommended when operating the GEM at pressures of 1 Torr or higher.

89_ _A pumps come with 115V N. Amer. Plug
89_ _C-02 pumps come with Cont. Euro. Plug
For other locations order pump and line cord combinations below.

N. American 230V	89_ _C-02 & 8906M
U.K. 230V	89_ _C-02 & 8906N
Australian 230V	89_ _C-02 & 8906P
Japan 100V	89_ _A & 8906Q
India 230V	89_ _C-02 & 8906R
Italy 230V	89_ _C-02 & 8906S
Israel 230V	89_ _C-02 & 8906T
China 230V	89_ _C-02 & 8906U



Accessories

Models		8803/8804	8890	8905	8907/8912	8917	8920/8925	8951	8961/8971
Standard Exhaust Filters		1417	1417 ³	1417	1417P	1417P-7	1417P-10	1417P-40 ¹	1417P-40 ¹
Replacement filter element		1417L	1417L	1417L	1417Q	1417R	1417G	1417H-04	1417H-04
Exhaust Filters (for aggressive gases)		-	-	-	Directional 1417A(1" OD)	Directional 1417A(1" OD)	Directional 1417A(1" OD)	Closed Type 41-120 ¹	Closed Type 41-137 ¹
Replacement filter element		-	-	-	1417G	1417G	1417G	085-040-369	085-021-474
Oil Filter		-	-	-	-	-	-	429-640-001	429-639-001
Exhaust Mist Eliminator		-	1416B	1416B	1416C	1416C	1416C	-	-
Exhaust Connectors to hose	I.D. 7/16	1393J	1393J	1393J	-	-	-	-	-
	I.D. 13/16	-	-	-	1393K	1393K	1393K	-	-
	I.D. 1-5/8	-	-	-	-	-	-	501283 ¹	501283 ¹
Exhaust Connectors to ISO	NW 16	1393F	1393F	1393F	-	-	-	-	-
	NW 25	-	-	-	1393G	1393G	1393G	-	-
	NW 40	-	-	-	-	-	-	Included	Included
Hinged Clamps ISO	NW 16	302201	302201	302201	-	-	-	-	-
	NW 25	-	-	-	302202	302202	302202	-	-
	NW 40	-	-	-	-	-	-	302203	302203
Centering Ring Assemblies	NW 16	303101	303101	303101	-	-	-	-	-
	NW 25	-	-	-	303102	303102	303102	-	-
	NW 40	-	-	-	-	-	-	303103	303103
Replacement O-Rings	NW 16	304801	304801	304801	-	-	-	-	-
	NW 25	-	-	-	304802	304802	304802	-	-
	NW 40	-	-	-	-	-	-	304803	304803
Blank-off Flanges	NW16	388101	388101	388101	-	-	-	-	-
	NW 25	-	-	-	388102	388102	388102	-	-
	NW 40	-	-	-	-	-	-	388103	388103
Dry Ice Traps	NW 16	545001	545001	545001	-	-	-	-	-
	NW 25	-	-	-	545002	545002	545002	-	-
	NW 40	-	-	-	-	-	-	545003	545003
	1/2" O.D.	1420H-14	1420H-14	1420H-14	1420H-14	1420H-14	1420H-14	1420H-14	1420H-14
Dry Ice Taps with Dewar									
1/4" I.D. tubing, 2 liter capacity		547001	547001	547001	547001	547001	547001	547001	547001
7/16" I.D. tubing, 4 liter capacity		547002	547002	547002	547002	547002	547002	547002	547002
Coaxial Traps ⁴	NW 16	541001	541001	541001	-	-	-	-	-
	NW 25	-	-	-	541002	541002	541002	-	-
	NW 40	-	-	-	-	-	-	541003	541003
copper element ⁴	NW 16	541911	541911	541911	-	-	-	-	-
	NW 25 or NW 40	-	-	-	541912	541912	541912	541912	541912
stainless steel element ⁴	NW 16	541921	541921	541921	-	-	-	-	-
	NW 25 or NW 40	-	-	-	541922	541922	541922	541922	541922
Molecular Sieve Traps ²	NW 16	543001	543001	543001	-	-	-	-	-
	NW 25	-	-	-	543002	543002	543002	-	-
	NW 40	-	-	-	-	-	-	543003	543003
synthetic zeolite charge ²		543950	543950	543950	543950	543950	543950	543950	543950
activated alumina charge ²		543960	543960	543960	543960	543960	543960	543960	543960
Liquid Nitrogen Cold Traps	NW 16	546001	546001	546001	-	-	-	-	-
	NW 25	-	-	-	546002	546002	546002	-	-
	NW 40	-	-	-	-	-	-	546003	546003

Models	Vacuum Pump Oils	1 Liter	1 Quart	1 Gallon	5 Gallon	55 Gallon
8803, 8804, 8890, 8905	Directorr Premium Y-L	8995P-11	-	8995P-15	8995P-20	8995P-25
8907, 8912, 8917, 8920	Directorr Gold	8995G-11	-	8995G-15	8995G-20	8995G-25
8925, 8951, 8961 & 8971						

Notes:

- NW 40 centering ring and NW 40 hinge clamp needed for assembly to NW 40 pump fitting.
- Sieve charge must be ordered with trap
- GEM[®] (8890) includes filter as standard equipment.
- Element must be ordered with trap.

For more information, see the Welch[®] Web Catalog at:
www.bcgrouppintl.com
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