

WELCH[®]

An Ingersoll Rand Business

APPLIED VACUUM TECHNOLOGY

Vacuum Pumps and Systems



General information

Welch is a leading pump manufacturer of high quality, durable vacuum products. Our extensive portfolio includes diaphragm pumps, rotary vane pumps, WOB-L® piston pumps, benchtop roots blower systems and turbomolecular pumps and systems, in addition to a wide range of accessories and vacuum hardware.

As a global leader in vacuum technology, we are renowned for our solution-oriented vacuum expertise. Serving numerous laboratories and equipment manufacturers around the world, we add value to our customers' businesses through unique end-use solutions and innovative OEM products. In addition to our state-of-the-art product portfolio, our customers and business partners benefit from our exceptional service, valuable training programs, and fast, experienced technical support. Our commitment to developing new technologies, engaging highly qualified specialists, and extensive testing in our in-house laboratories ensure that we meet all our customers' requirements – both now and in the future.

History of Welch Vacuum

2020

2020 Gardner Denver and Ingersoll Rand merge, forming a new bigger Ingersoll Rand.

2016

Gardner Denver Medical acquired Zinsser Analytic GmbH and Innovative Labor Systeme GmbH. The experience, the global distribution network, and the worldwide production sites of Gardner Denver Medical enable us to be a unique provider of technical solutions for laboratory automation systems and components.

2015

Gardner Denver Medical acquired TriContinent Scientific Inc. With this acquisition Gardner Denver Medical increased its footprint in the liquid handling segment of laboratory automation by completing the product offering with precision syringe pumps, xyz-robots, micro plate washers and pipettes.

2010

Gardner Denver acquired Ilmvac GmbH in Ilmenau, Germany. Ilmvac was a leading European provider of deep vacuum equipment for laboratory applications. Today, the US company Welch Vacuum Technology and the German company Ilmvac GmbH are known in the market under the global brand, "Welch".

2005

Gardner Denver acquired Thomas Industries, a manufacturer of systems, compressors, vacuum pumps, liquid pumps and OEM pumps in the medical, laboratory, environmental and industrial sector, as well as Welch Vacuum Technology, a manufacturer of an innovative range of vacuum pumps, modular systems and network solutions for use in laboratory (laboratory vacuum pumps) and industry (industrial vacuum pumps).

1996

Thomas Industries, acquired Welch Vacuum Technology to create a new presence in the laboratory market for deep vacuum flow control devices

1948

The first investor to further build the foundation for the today's Medical Group was Lee B. Thomas who acquired 1948 a company from the Moe family that produced in lighting systems. He built Thomas Industries in 1953 with numerous acquisitions and re-organisations. The scope of the company moved from lighting to spray systems, leak detection systems and finally to the still available unique portfolio of different pump technologies.

PUMP TECHNOLOGIES

Diaphragm



Diaphragm

- Chemical Resistant
- Vacuum to 0.75 Torr
- Oil-Free
- DC Motor Option on select models



WOB-L Piston



WOB-L® Piston

- Moderate Vacuum/Pressure
- Wide Flow Range
- General Vacuum Usage
- Oil-Free
- Vacuum to 5 Torr



Rotary Vane

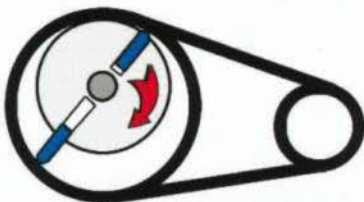


Rotary Vane

- Compact Oil-Seal Design
- Deep Vacuum
- Quiet
- Portable



Belt Drive Rotary Vane



Belt Drive Rotary Vane

- Deep Vacuum
- Rugged Oil-Seal Design
- Good Chemical Tolerance
- Advanced Chemical Resistance Option



Vacuum Blower



Benchtop Roots Blower System

- Deep Vacuum
- Oil-Free
- Advanced Chemical Resistance
- Plug and Play



WELCH
An Ingersoll Rand Business

C/RV *pro*

Your Robust Vacuum Pump



TECHNICAL DATA

PARAMETER	UNIT	CRVpro 4	CRVpro 6	CRVpro 8	CRVpro 16	CRVpro 24	CRVpro 30
Free air displacement							
- @ 50 Hz	m ³ /h (L/min)	4 (67)	6 (100)	8 (133)	18,3 (305)	26,2 (436)	33,1 (551)
- @ 60 Hz	CFM (L/min)	2,8 (78)	4,2 (118)	5,6 (158)	12,8 (363)	18,3 (519)	22,1 (627)
Pumping speed							
- @ 50 Hz	m ³ /h (L/min)	3,8 (63)	5,1 (85)	7,3 (122)	16,8 (280)	24 (400)	29 (483)
- @ 60Hz	CFM (L/min)	2,7 (77)	3,7 (105)	5,1 (143)	11,9 (336)	17 (480)	20,5 (580)
Ultimate pressure							
- Without gas ballast partial	mbar (Torr)		5x10 ⁻⁴ (4x10 ⁻⁴)			3x10 ⁻⁴ (2x10 ⁻⁴)	
- Without gas ballast total	mbar (Torr)		2x10 ⁻³ (1.5x10 ⁻³)			3x10 ⁻³ (2x10 ⁻³)	
- With gas ballast total	mbar (Torr)		7x10 ⁻² (5x10 ⁻²)			6x10 ⁻³ (5x10 ⁻³)	
Connection flanges	DN		16 KF			25 KF	
Ambient temperature	°C			10-40			
Noise level (50 Hz)	dB (A)		50			55	
Oil capacity	ml		1150	1000	2400	2200	2100
Motor speed	rpm 50/60 Hz		1450/1740			1450/1750	
Motor power	kW 50/60Hz		0,37/0,4			0,7/0,85	
Weight	kg	21	22	22,5	37	38,5	39,5
Dimensions, L x W x H	mm		463/157/230*			569/206/289	

ORDERING INFORMATION

DESCRIPTION	CRVpro 4	CRVpro 6	CRVpro 8	CRVpro 16	CRVpro 24	CRVpro 30
220-240 V / 50 Hz; 230 V / 60 Hz, 1 phase motor with line cord EU-plug (CEE 7/4), line cord UK-plug (BS1363), line cord US-plug (Nema-5)	3042-00	3062-00	3082-00	3162-00	3242-00	3302-00
Service kit	S3077-99	S3078-99	S3079-99	S3193-99	S3194-99	S3195-99
Seal kit		S3080-99			S3192-99	

Every pump is supplied complete with Directorr™ Premium vacuum pump oil, centering rings, clamping rings and motor overload protection. Ready for use after oil filling. Motor versions (e.g. explosion proof, 3-phase) upon request.

COMPLETE PACKAGES & ACCESSORIES

PACKAGES (PUMP + ACCESSORIES)	DESCRIPTION	CRVpro 4	CRVpro 6	CRVpro 8
CRVpro basic package	CRVpro with oil mist separator AKD 16, 2-way ball valve, hose connector DN 16KF-10/8 mm, vacuum hose (1,5 m), oil change set	330071	330072	330073
CRVpro measurement package	CRVpro with digital vacuum gauge PIZA 111 cr-gold, oil mist separator AKD 16, 2-way ball valve, T-piece, hose connector DN16KF-10/8 mm, vacuum hose (2,5 m), oil change set	330074	330075	-

CRVpro 48 & 65

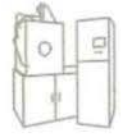


APPLICATIONS

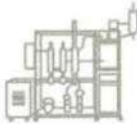
INDUSTRIAL
FREEZE
DRYER



VACUUM
COATING



THIN FILM
EVAPORATION



REFRIGERATION
& HVAC



SPACE
SIMULATION



INDUSTRIAL
APPLICATIONS



TECHNICAL DATA

PARAMETER	UNIT	NEW	
		CRVpro 48	CRVpro 65
Free air displacement			
– @ 50 Hz	m ³ /h (l/min)	55,7 (928)	74,3 (1238)
– @ 60 Hz	CFM (l/min)	39,4 (1113)	52,5 (1486)
Pumping speed			
– @ 50 Hz	m ³ /h (l/min)	48 (800)	65 (1083)
– @ 60 Hz	CFM (l/min)	33,4 (945)	44,8 (1266)
Ultimate pressure			
– Without gas ballast partial	mbar (Torr)	3x10 ⁻⁴ (2x10 ⁻⁴)	
– Without gas ballast total	mbar (Torr)	3x10 ⁻³ (2x10 ⁻³)	
– With gas ballast total	mbar (Torr)	6x10 ⁻³ (5x10 ⁻³)	
Connection flanges	DN	40 KF	
Ambient temperature	°C	10–40	
Noise level (50 Hz)	dB (A)	858	
Oil capacity	ml	4950	4300
Motor speed	rpm 50/60 Hz	1460/1760	
Motor power	kW 50/60 Hz	2,2	
Weight	kg	99	100
Dimensions L x W x H	mm	796/262/369	796/262/369

ORDERING INFORMATION

230-240/380-420 V / 50 Hz; 240-265/415-460 V / 60 Hz, 3 phase motor, requires hard wiring;

– Version with PFPE oil filling²

Service kit for overhaul servicing – contains wearing parts; vanes and springs, plus O-rings, gaskets and shaft seals

CRVpro 48

CRVpro 65

3487T-01

3657T-01

–

3657T-01-03

S3405-99

S3406-99

Welch® CRVpro8 Chem

**With integral
oil filtration system**



The Welch CRVpro8 Chem is effective for freeze drying or concentration of samples using a lyophilizer, including harsh chemicals such as TFA, Acetonitrile, HBr and others. These chemicals quickly attack the vacuum pump oil of unprotected vacuum pumps. CRVpro8 Chem is engineered to better combat the impact of such chemistries.

The oil filtration system uses an alumina element that neutralizes acids and removes solid reaction products from the oil. The system also has a large oil capacity of 1.3 liters that dilutes contaminants that mix with the pump oil during freeze drying runs.

The inside surface of the oil case has a PTFE coating and the outer surface of the pumping module has a black oxide coating.

The oil supplied for the pump is Welch Gold Oil (cat. no. 8995G-II) - a double distilled synthetic hydrocarbon oil designed for excellent chemical resistance. The synthetic base stock has no aromatic compounds or sulfur to accelerate varnishing, sludging and carbon build-up when pumps are used to pump corrosives.

The combination of oil filtration, internal surface protection, and synthetic hydrocarbon oil act to slow metal corrosion to extend pump's service interval compared to unprotected vacuum pumps.

- ✓ HOLDS UP TO HARSH CHEMICALS USED IN PROTEOMICS AND COMBINATORIAL CHEMISTRY
- ✓ SYSTEM INCLUDES CONTINUOUS ACID NEUTRALIZATION AND OIL FILTRATION
- ✓ INTERNAL SURFACE PROTECTION
- ✓ SYNTHETIC HYDROCARBON OIL

**You deserve the best
vacuum pump and you
get it with Welch**

AMERICAS
Gardner Denver Thomas Inc.
1601 Feehanville Drive
Suite 550
Mt. Prospect, IL 60056
USA

Tel: +1 847 676 8800
welch.na@irco.com



WELCH
An Ingersoll Rand Business

www.welchvacuum.com

New
Product!!!

SPECIFICATIONS OF WELCH® CRVpro8 CHEM

MODEL	CRVpro8 CHEM
Free Air Displacement	
CFM@60Hz, (lpm)	5.6 (158)
m ³ /hr@50Hz (lpm)	8 (133)
Vacuum Pressure	
Total Ult. Vacuum Pressure, Torr (mbar)	0.002 (0.003)
Total Ult. Vacuum Pressure with gas ballast, Torr (mbar)	0.1 (0.13)
Sound level, dBA(50Hz)	50
Pump Speed, 60/50Hz	1740/1450
Motor Power, kw 60/50Hz	0.4/0.37
Pump Oil Capacity, liters ¹	1.0
Oil filter Assembly, liters ^{1,4}	1.0
Total Oil Capacity (Pump + Filter), liters ¹	2.0
Intake/Exhaust Flange	NW16
Exhaust filter included ²	yes
Tubing Needed, I.D., in. (mm)	5/8-3/4 (16-19 mm)
Ambient temperature, °C	10-40
Weight, lbs. (kg)	61.6 (28)
Overall Dimensions ³	18.2 x 11.1 x 9.2
L x W x H, in. (mm)	(462 x 282 x 234)

ORDERING INFORMATION

MODEL	CRVpro8 CHEM
Wired 115V, 60Hz, 1Ph	3081-80
Wired 230V, 50/60Hz, 1Ph	3082-80

Notes:

- Includes 2 liters of Welch Gold Vacuum Pump Oil, cat. no. 89950-11 and oil filter change wrench.
- Includes Exhaust filter (1417E) with built-in coalesced oil drainback feature and inlet hose barb.
- Dimensions listed are when handle and exhaust filter are removed.
- Replacement alumina element for oil sump, cat. no. 1420E-05.

APPLICATION NOTE

FREEZE DRYERS

Vacuum pump oil can be quickly compromised by the vapors from a freeze dryer. Once oil is chemically damaged, lubrication properties diminish and vacuum pump quickly requires repair.

Organic solvents, acids, and other sublimated vapors may pass through the freeze dryer collector too rapidly to be effectively condensed. In general, better protection of your vacuum pump can be accomplished by:

- Using a freeze dryer with an ultra-low refrigeration collector. Often these cool to -84°C or colder.
- Ensuring that your freeze dryer is operating vacuum tight. Too high a flow - augmented by system leakage - prevents collector from operating efficiently.

Chemical duty diaphragm pumps

E035



Specification

	Dryfast Eco E035		
	220V/50Hz	220V/60Hz	230V/50Hz
Free air displacement	33 L/m	38 L/m	33 L/m
Max vacuum	6mbar		
Tubing needed, I.D.	9 mm		
Motor current	0.55 A	0.7 A	0.55 A
Motor power	110 W	140 W	120 W
Sound level (ISO11201)	≤48 dBA	≤50 dBA	≤48 dBA
Weight	9.5 kg		
Size	352mmX186mmX225mm (LWH)		

WOB-L Piston pumps

Dry piston pumps are available in a variety of power options, and the oil-free nature is an economical, portable vacuum solution that is widely used in a wide range of applications such as suction, filtration, washing and vacuum drying. According to the needs of use, you can choose anti-corrosion receiving bottles, vacuum valves, vacuum gauges, waterproof filters, automatic shut-off devices, simple and practical vacuum control valves. The WOB-L dry piston pump family offers you an ultra-cost-effective practical experience. WOB-L dry piston pumps offer limited chemical resistance, but are not suitable for strongly corrosive gases

Models	Flow Rate		Vacuum mbar	Max. Pressure		Motor W	Connection mm	Weight kg	Dimensions cm
	m3/hr	L/m		Pa	PSIG				
2511C-02	0.55	9.2	292	2.1×10^5	33	25	5	2.3	19.4 × 11.4 × 19.1
2522C-02	1.1	18	133	6.9×10^5	100	93	7	5.3	20.6 × 22.4 × 25.4
2534C-02W	1.7	28	93	3.5×10^5	50	93	7	5.3	20.6 × 22.4 × 25.4
2546C-02W	2.3	38	80	6.9×10^5	100	190	7	6.3	25.4 × 19.1 × 22.9
2562C-50W	3.4	56.7	12	–	–	250	7	7.5	38.1 × 25.4 × 25.4
2567C-50W	4.9	83	80	–	–	250	7	7.5	38.1 × 25.4 × 25.4
2581C-24	5.0	83	6.7	–	–	250	DN25KF	10.3	43.2 × 19.1 × 30.5
2581C-50	4.9	83	6.7	–	–	250	7	11.1	43.2 × 19.1 × 30.5
2585C-50	10	168	80	–	–	250	7	11.1	43.2 × 19.1 × 30.5



2511C-02



2562C-50W



2581C-24

Diaphragm Pumps

Premium selection Chemical Duty Diaphragm Pumps



Parameter	MPC 090 E	MPC 110 E	MPC 095 Z	MPC 155 Z	MPC 105 T	MPC 105 T IQ
Number of heads/stages	1/1	2/1	2/2	4/2	4/3	4/3
Free Air Displacement, m ³ /h	1,0	1,0	0,9	1,4	1,2	1,2
Free Air Displacement, l/min	16,7	16,7	15	23	20	20
Ultimate pressure, mbar	100	50	5	5	< 2	< 2
Intake connection	Hose nozzle DN 6	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8
Exhaust connection	Hose nozzle DN 6	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8
Sound level	<45	<45	<45	<45	<45	<45
Dimensions (B/T/H), mm	144/198(130) /244	235/140 /277	235/140 /277	235/145 /327	235/145 /327	235/145 /327
Weight, kg	2,7	6,15	6,15	6,5	6,5	6,5
Ordering information						
90...260VAC	412021	412421-02	412422-02	412642	412443-02	412443-17

One-Stage Direct-Driven Diaphragm Pumps, Ultimate pressure <75 mbar



Parameter	MPC 090 B-BC	MPC 201 E	MPC 301 E	MPC 302 E	MPC 601 E	MPC 602 E	MPC 1201 E	MPC 2401 E
Number of heads/stages	2/1	2/1	1/1	1/1	2/1	2/1	4/1	8/1
Free Air Displacement, m ³ /h	0,6	1,8/2	2,3/2,5	2,9/3,5	3,8/4,2	4,2/5,0	8,3/9,1	15,5/17,0
Free Air Displacement, l/min	10	30/33	38/41	48/58	63/70	70/83	138/151	258/283
Ultimate pressure, mbar	<60	< 75	< 75	< 40	< 75	< 30	< 75	< 75
Intake connection	Hose nozzle DN 6/8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF
Exhaust connection	Hose nozzle DN 6/8	Hose nozzle DN 8	Hose sleeve A 10 - 8 or optional (enclosed) Exhaust silencer A 10	Hose sleeve A 10 - 8 or optional (enclosed) Exhaust silencer A 10	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF
Sound level	42	<44	<45	<45	<44	<44	<44	<44
Dimensions (B/T/H), mm	115/165/145	195/225/147	156/260/253	156/260/253	230/265/170	233/260/171	230/380/170	540/300/240
Weight, kg	2,3	6,5	8,9	8,9	11,2	11,2	18,3	32,8
Ordering information								
90...260VAC	412121	-	-	-	-	-	-	-
230V 50/60Hz	-	412521	412711	414711	412721	414721	412741	412781
115V 50/60Hz	-	412521-01	412711-01	-	412721-01	414721-01	412741-01	412781-01
400V 50/60Hz	-	-	-	-	412721-02	414721-02	412741-02	412781-02

Multi-Stage Direct-Driven Diaphragm Pumps



Parameter	Two-Stage Direct-Driven Diaphragm Pumps Ultimate Pressure <8 mbar		Three-Stage Direct-Driven Diaphragm Pumps Ultimate Pressure <2 mbar					
	MPC 030 Z-CC	MPC 101 Z	MPC 501 Z	MPC 1801 Z	MPC 201 Y	MPC 801 Y	MPC 1201 Y	
Number of heads/stages	2/2	2/2	4/2	8/2	4/3	4/3	8/3	
Free Air Displacement, m ³ /h	0.35	1/1.1	6.8/7.5	12/13.3	2/2.2	4.5/4.9	8.3/9.1	
Free Air Displacement, l/min	5.8	16.7/18	113/124	201/221	33/36	75/81	135/151	
Ultimate pressure, mbar	<5	< 8	< 8	< 8	< 2	< 2	< 2	
Intake connection	Hose nozzle DN 6/8	Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF	Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF	
Exhaust connection	Hose nozzle DN 6/8	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF	
Sound level	38	<44	<44	<44	<45	<44	<44	
Dimensions (B/T/H), mm	115/165 /145	195/225 /147	230/380 /170	540/300 /240	200/260 /150	230/380 /170	540/300/240	
Weight, kg	2.3	6.5	18.3	32.8	10.3	18.3	32.8	
Ordering information								
90...260VAC	412122	-	-	-	-	-	-	
230V 50/60Hz	-	412522	412742	412782	412543	412743	412783	
115V 50/60Hz	-	412522-01	412742-01	412782-01	412543-01	412743-01	412783	
400V 50/60Hz	-	-	412742-02	412782-02	-	412743-02	412783-02	

*Note: MPC 301 Z and MPC 302 Z have been replaced by MPC 303 Z

High Chemical/Corrosion Duty Diaphragm Pumps



Parameter	MPC 301 E-X2	MPC 601 E-X2	MPC 1201 E-X2	MPC 2401 E-X2	MPC 301 Z-X2	MPC 901 Z-X2	MPC 1801 Z-X2	MPC 601 Y-X2	MPC 1201 Y-X2
Number of heads/stages	1/1	2/1	4/1	8/1	2/2	4/2	8/2	4/3	8/3
Free Air Displacement, m ³ /h	2.3/2.5	3.8/4.2	8.3/9.1	15.5/17.0	2.3/2.5	6.8/7.5	12/13.3	4.5/4.9	8.3/9.1
Free Air Displacement, l/min	38/41	63/70	138/151	258/283	38/41	113/124	201/221	75/81	135/151
Ultimate pressure, mbar	< 75	< 75	< 75	< 75	< 8	< 8	< 8	< 2	< 2
Intake connection	Hose nozzle DN8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF
Exhaust connection	Hose sleeve A 10 - 8 or optional (enclosed) Exhaust silencer A 10	Hose nozzle DN8	Hose nozzle DN8	DN 16 KF	Hose nozzle DN8	Hose nozzle DN8	DN 16 KF	Hose nozzle DN8	DN 16 KF
Sound level	<45	<44	<44	<44	<44	<44	<44	<44	<44
Dimensions (B/T/H), mm	156/260 /253	230/265 /170	230/380 /170	540/300 /240	230/265 /170	230/380 /170	540/300 /240	230/380 /170	540/300 /240
Weight, kg	8.9	11.2	18.3	32.8	11.2	18.3	32.8	18.3	32.8
Ordering information									
230V 50/60Hz	412711-03	412721-03	412741-03	412781-03	412722-17	412742-07	412782-03	412743-03	412783-03

more Multi-Stage Direct-Driven Diaphragm Pumps



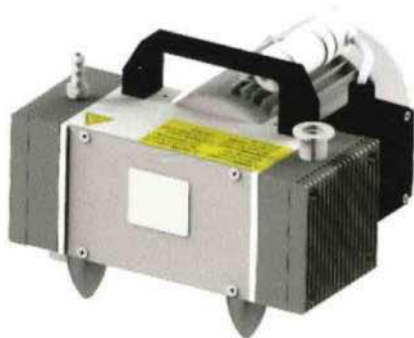
Parameter	Three-Stage Direct-Driven Diaphragm Pumps, Ultimate Pressure <2 mbar			Four-Stage Direct-Driven Diaphragm Pumps, Ultimate Pressure <1 mbar	
	MP 201 T	MP 601 T	MP 1201 T	MP 101 V	MP 301 V
Number of heads/stages	4/3	4/3	8/3	4/4	4/4
Free Air Displacement, m ³ /h	2/2.2	4,5/4,9	8,3/9,1	1,0 / 1,1	2,3/2,5
Free Air Displacement, l/min	33/36	75/81	135/151	16,7/18	38/41
Ultimate pressure, mbar	< 2	< 2	< 2	< 1	< 1
Intake connection	Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF	Hose nozzle DN 8	DN 16 KF with optional Hose nozzle DN 8
Exhaust connection	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF	Hose nozzle DN 8	Hose nozzle DN 8
Sound level	<45	<44	<44	<45	<44
Dimensions (B/T/H), mm	200/260 /150	230/380 /170	540/300 /240	200/260 /150	230/380 /170
Weight, kg	10,3	18,3	32,8	10,3	18,3
Ordering information					
90...260VAC	-	-	-	-	-
230V 50/60Hz	411543	411743	411783	411544	411744
115V 50/60Hz	411543-01	411743-01	411783-01	411544-01	411744-01
400V 50/60Hz	-	411743-02	411783-02	-	411744-02

More Diaphragm Pumps



Parameter	ATEX	Ecoflex	
	MPC 601 Tp, ATEX Kat.2	MPC 601 T ef	MPC 1201 T ef
Number of heads/stages	4/3	4/3	8/3
Free Air Displacement, m ³ /h	4,5	4,9	8,3
Free Air Displacement, l/min	75	75	138
Ultimate pressure, mbar	< 2	< 2	< 2
Intake connection	DN 16 KF	DN 16 KF with optional Hose nozzle DN 8	DN 16 KF
Exhaust connection	DN 16 KF	Hose nozzle DN 8	DN 16 KF
Sound level	<44	<47	<47
Dimensions (W/D/H), mm	240/425/272	260/390/170	540/262/390
Weight, kg	29,7	22,6	34,0
Ordering information			
90...260VAC	-	-	-
230V 50/60Hz	-	412943	412983
115V 50/60Hz	-	412943-01	412983-03
400V 50/60Hz	4000511-04	-	-

Technical Data MPC 303 Z



Parameter	Unit	Diaphragm pump models
		MPC 303 Z (two-stage)
Pumping speed 50/60 Hz DIN 28432 at speed of 1500 rpm	m ³ / h	2.0 / 2.2
	l / min	43 / 52
Ultimate pressure at speed of 1500 rpm	mbar	< 5
Ultimate pressure with gas ballast at speed of 1500 rpm		8
Max. inlet pressure	bar	1
Max. outlet pressure		1
Intake port	-	Small flange DN 16 KF <i>or enclosed:</i> Hose nozzle DN 8 for hose inside diameter 8 mm
Exhaust port		Hose nozzle DN 8 for hose inside diameter 8 mm
Ambient temperature	°C	+ 10 to + 40
Max. operating gas temperature		+ 40
Bearing	-	maintenance-free
Reference surface sound pressure level DIN EN ISO 2151	dB (A)	< 44
Voltage (with motor protection switch + switch)	V	230
Frequency	Hz	50 / 60
Power	W	180
Operating mode	-	S 1
Type of protection DIN EN 60529		IP 54
Motor / Class of insulation DIN EN 600034-1		F (160°C)
Weight	kg	11.5
Dimensions (W/D/H)	mm	250 / 265 / 185
Order numbers for :	-	415722-40
- Diaphragm pump (230V) inclusive mains connection cables IEC with plug China GB1002		

Laboratory Vacuum Systems (LVS)



LVS 210 T ef | 115234

Advantages

- analytically pure, oil free vacuum
- user friendly
- designed for permanent operation
- maintenance-free drive system and proven long diaphragm life
- wide vacuum and flow range to match application
- fully chemically resistant
- inlet separator to protect pump from liquid and particle ingestion
- exhaust condenser for optimal solvent recovery
- modular design to tailor the system to your application needs

Scope of Delivery

- Chemical duty diaphragm pump mounted on chassis
- ON/OFF switch and internal protective thermal switch for the motor, mains cable and plug
- vibration isolating feet
- inlet separator
- exhaust condenser (except for LVS 300 Z)
- gas ballast valve (except for LVS 105 T - 10 ef)
- 8mm inlet / exhaust hose nozzle

Range of Applications

- rotary evaporators
- vacuum ovens
- multi-user networks (Netvac)
- solvent concentration

Description

LVS systems are specially designed for solvent distillation / evaporation applications. They comprise an oil-free chemical duty diaphragm pump (MPC) with optional control packages, liquid containment and exhaust vapour condenser. All wetted parts are made from high quality chemically resistant materials with clear plastic coated glassware to allow solvent and acid vapours to be pumped.