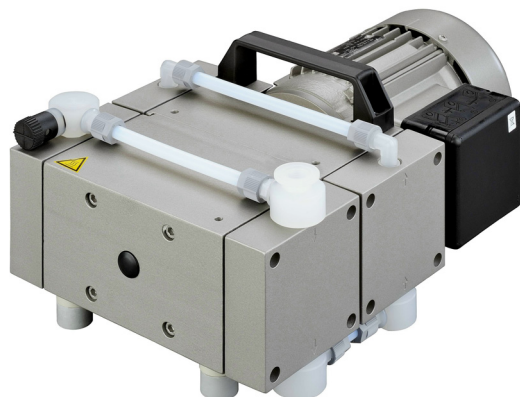


Dry, oilfree Diaphragm Pumps



MPC 601 T | 412743

Advantages

- analytically pure, oil free vacuum
- user friendly
- light weight, rugged design
- designed for permanent operation
- maintenance-free drive system and proven long diaphragm life
- minimal operation vibration
- wide vacuum and flow range to match application
- superior chemical resistance (MPC models)

Scope of Delivery

- ON/OFF switch and internal protective thermal switch for the motor, mains cable and plug
- carry handle
- vibration isolating feet
- MP models come with and exhaust silencer
- MPC models come with a gas ballast valve

Range of Applications

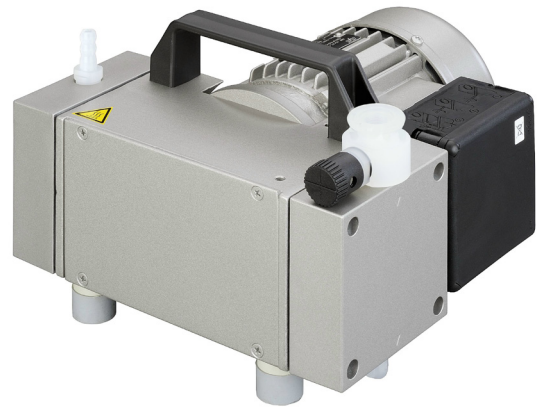
- rotary evaporators
- vacuum ovens
- degassing / desiccation
- vacuum distillation
- vacuum filtration
- solid phase extraction (SPE)
- gas sampling
- vacuum drying
- vacuum holding
- pick and place
- backing turbomolecular pumps

Description

Welch diaphragm pumps have been developed specifically to meet the requirement for oil-free vacuum generation. Their low weight and excellent ergonomics, make Welch diaphragm pumps the first choice for most laboratory applications. With ultimate vacuum from 75 to 1 mbar and peak flow rates up to 138 l/min there is a specific model configuration to suit almost all applications. Our proven diaphragm technology offers a double benefit to the user – out-

standing diaphragm life and market leading cost of ownership. Use MP models for standard duty applications and MPC models for chemical duty applications. The MPC models use PTFE and other fluorinated plastics for the wetted parts to allow aggressive solvent and acid vapours to be pumped. For extra harsh chemical vapours use X2 versions. Ecoflex versions with variable speed motors are also available.

Highlight NEW MPC 302 Z



MPC 302 Z | 414722

Advantages

- analytically pure, oil free vacuum
- user friendly
- light weight, rugged design
- designed for permanent operation
- maintenance-free drive system and proven long diaphragm life
- minimal operation vibration
- significantly improve flow and vacuum performance in the application critical range
- superior chemical resistance
- stabilised process flow
- enhanced repeatability

Scope of Delivery

- ON/OFF switch and internal protective thermal switch for the motor, mains cable and plug
- carry handle
- vibration isolating feet
- gas ballast valve
- KF 16 inlet flange / 8mm hose nozzle

NEW MPC 302 Z

No matter if for research and development applications or in the analysis field, the latest generation of Welch's diaphragm pumps are suitable for a wide range of laboratory applications. The new MPC 302 Z uses a patented pump head design to provide significantly improved performance, particularly in the application critical range. Optimised construction of the pump heads allows the MPC 302 Z to reach a 17% higher pumping speed in the application critical vacuum range compared

to similar products of the previous generation. Besides the pumping speed, the ultimate vacuum is improved as well to 5 mbar. These significant improvements directly influence the process flow and the repeatability. A more stable applied vacuum gives a more repeatable application and achieves more reliable results. The effectiveness and quality of chemical applications, especially distillation processes are improved.

Accessories for MPC 302 Z

Accessoires	CAT.No.
Digital Vacuum Control Box VCB 521 cv, 1100 - 1 mbar, 90-260V, 50/60Hz with Schuko, UK and US plug leads	600053
Vacuum Regulator with Dial Gauge for MP/MPC 301 Z, 601 E, 601 T, 901 Z, 1201 E	700458
Vacuum Hose, Rubber red, 18/8x5, meter	828310-4

3 Diaphragm Pumps

Technical Data - Chemical Duty 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, m³/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	MPR 060 E-EC	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, m³/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

Technical Data - Chemical Duty Diaphragm Pumps

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		
	MPR 030 Z-EC	MPC 101 Z	MPC 301 Z	MPC 302 Z	MPC 901 Z	MPC 1801 Z	MPC 201 T	MPC 601 T	MPC 1201 T
Number of heads/stages	2/2	2/2	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	2,3/2,5	2,6/3,1	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	38/41	43/52	113/124	201/221	33/36	75/81	135/151
Ultimate pressure, mbar	<5	< 8	< 8	< 5	< 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 with optional 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	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	<44	<44	<45	<44	<44
Dimensions (B/T/H), mm	115/165 /145	195/225 /147	230/265 /170	233/260 /171	230/380 /170	540/300 /240	200/260 /150	230/380 /170	540/300 /240
Weight, kg	2,3	6,5	11,2	11,2	18,3	32,8	10,3	18,3	32,8
Ordering Information									
90...260VAC	412122	-	-	-	-	-	-	-	-
230V 50/60Hz	-	412522	412722	414722	412742	412782	412543	412743	412783
115V 50/60Hz	-	412522-01	412722-01	414722-01	412742-01	412782-01	412543-01	412743-01	412783
400V 50/60Hz	-	-	412722-02	414722-02	412742-02	412782-02	-	412743-02	412783-02






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 T-X2	MPC 1201 T-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









Technical Data - Chemical Duty Diaphragm Pumps

More Diaphragm Pumps

					
	ATEX		Ecoflex		
Parameter	MPC 301 Zp, ATEX Kat.2	MPC 601 Tp, ATEX Kat.2	MPC 301 Z ef	MPC 601 T ef	MPC 1201 T ef
Number of heads/stages	2/2	4/3	2/2	4/3	8/3
Free Air Displacement, m³/h	2,3	4,5	2,6	4,9	8,3
Free Air Displacement, l/min	38	75	43	75	138
Ultimate pressure, mbar	< 8	< 2	< 8	< 2	< 2
Intake connection	Hose nozzle DN8	DN 16 KF	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 8	DN 16 KF	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF
Sound level	<44	<44	<47	<47	<47
Dimensions (W/D/H), mm	240/300/260	240/425/272	260/310/190	260/390/170	540/262/390
Weight, kg	22,9	29,7	15,5	22,6	34,0
Ordering Information					
90...260VAC	-	-	-	-	-
230V 50/60Hz	-	-	412922	412943	412983
115V 50/60Hz	-	-	412922-01	412943-01	412983-03
400V 50/60Hz	4000481-04	4000511-04	-	-	-

Technical Data - Standard Duty Diaphragm Pumps

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

								
Parameter	MP 065 E	MP 065 E + Inlinefilter-Kit	MP 105 E	MP 201 E	MP 301 E	MP 601 E	MP 1201 E	MP 2401 E
Number of heads/stages	2/1	2/1	2/1	2/1	1/1	2/1	4/1	8/1
Free Air Displacement, m³/h	0,7	0,7	0,9/1,0	1,8/2	2,3/2,5	3,8/4,2	8,3/9,1	15,5/17,0
Free Air Displacement, l/min	11,6	11,6	15/16,6	30/33	38/41	63/70	138/151	258/283
Ultimate pressure, mbar	100	100	< 60	< 75	<75	< 75	< 75	< 75
Intake connection	Hose nozzle DN 6	Hose nozzle DN 6	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
Exhaust connection	Hose nozzle DN 6, w/exhaust silencer (removable)	Hose nozzle DN 6, w/exhaust silencer (removable)	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF
Sound level	<45	<45	<45	<44	<45	<44	<44	<44
Dimensions (B/T/H), mm	144/127/196	144/127/196	235/140/277	195/225/147	156/260/253	230/265/170	230/380/170	540/300/240
Weight, kg	2,3	2,3	6,25	6,5	8,9	11,2	18,3	32,8
Ordering Information								
90...260VAC	411011	411011-01	-	-	-	-	-	-
230V 50/60Hz	-	-	411421	411521	411711	411721	411741	411781
115V 50/60Hz	-	-	411421	411521-01	411711-01	411721-01	411741-01	411781-01
400V 50/60Hz	-	-	-	-	-	411721-02	411741-02	411781-02

Technical Data - Standard Duty Diaphragm Pumps

Two-Stage Direct-Driven Diaphragm Pumps, Ultimate Pressure <8 mbar



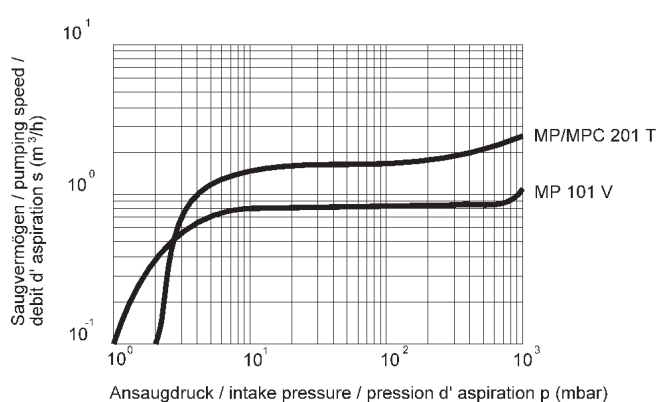
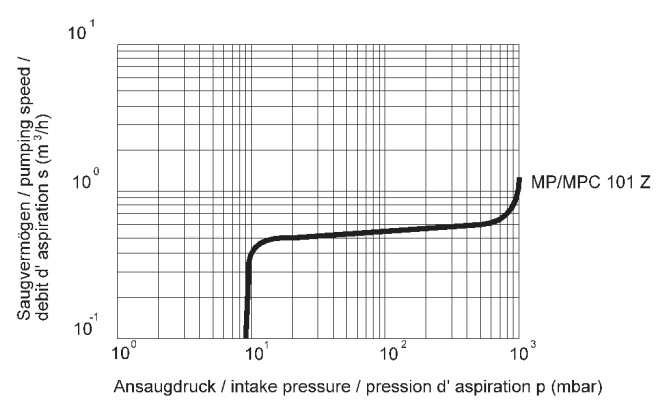
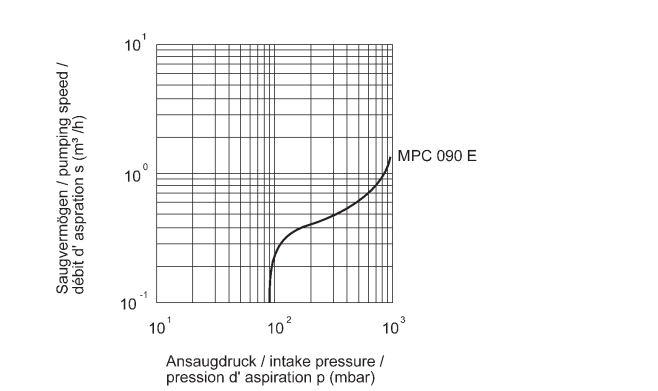
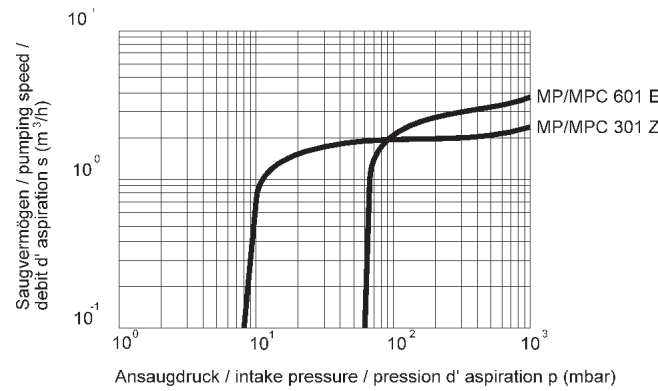
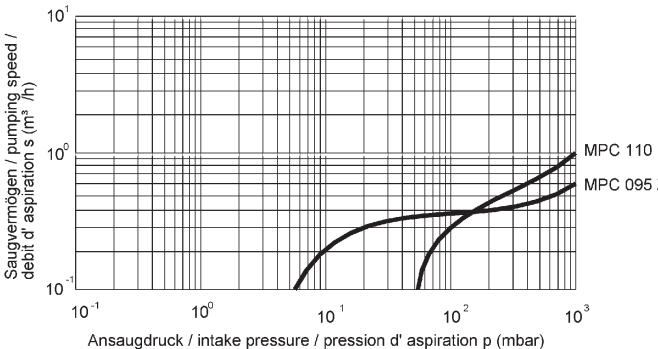
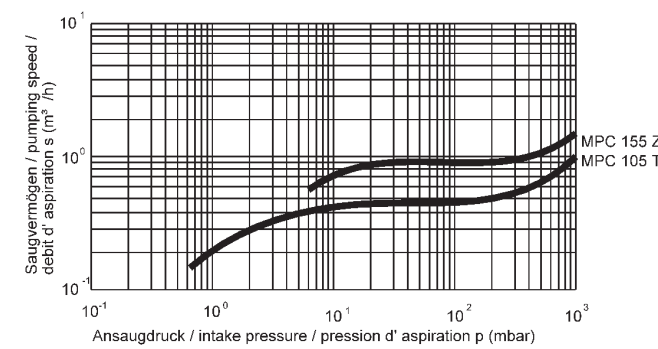
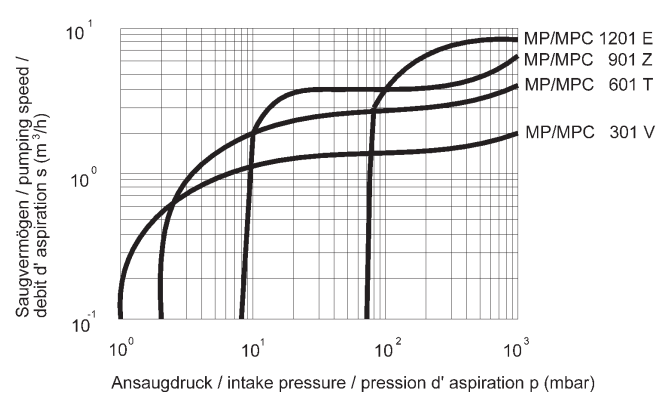
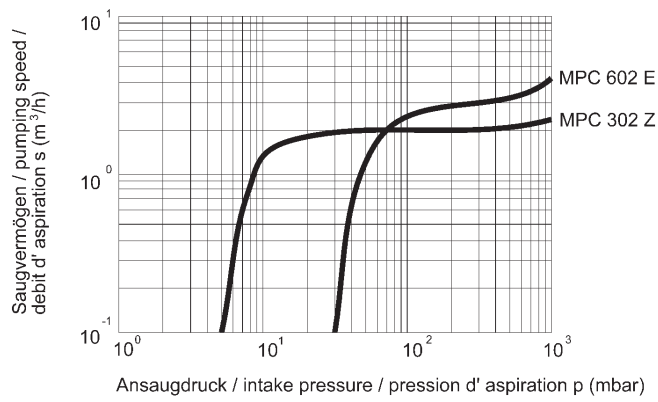
Parameter	MP 030 Z-EC	MP 055 Z	MP 101 Z	MP 301 Z	MP 901 Z	MP 1801 Z
Number of heads/stages	2/2	2/2	2/2	2/2	4/2	8/2
Free Air Displacement, m³/h	0,35	0,5/0,55	1/1,1	2,3/2,5	6,8/7,5	12/13,3
Free Air Displacement, l/min	5,8	8/9,1	16,7/18	38/41	113/124	201/221
Ultimate pressure, mbar	< 5	< 5	< 8	< 8	< 8	< 8
Intake connection	Hose nozzle DN6/8	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
Exhaust connection	Hose nozzle DN6/8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	Hose nozzle DN 8	DN 16 KF
Sound level	38	<45	<44	<44	<44	<44
Dimensions (B/T/H), mm	115/165 /145	235/140 /277	195/225 /147	230/265 /170	230/410 /170	540/300 /240
Weight, kg	2,3	6,25	6,5	11,2	18,3	32,8
Ordering Information						
90...260VAC	411122	-	-	-	-	-
230V 50/60Hz	-	411422	411522	411722	411742	411782
115V 50/60Hz	-	411422	411522-01	411722-01	411742-01	411782-01
400V 50/60Hz	-	-	-	411722-02	411742-02	411782-02

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, m³/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

Intake Pressure / Pumping Speed - Diagrams



NEW

WELCH | Formerly
ILMVAC

by Gardner Denver

C/RVpro

Your Robust Vacuum Pump



C/RVpro **4, 6, 8, 16, 24, 30**

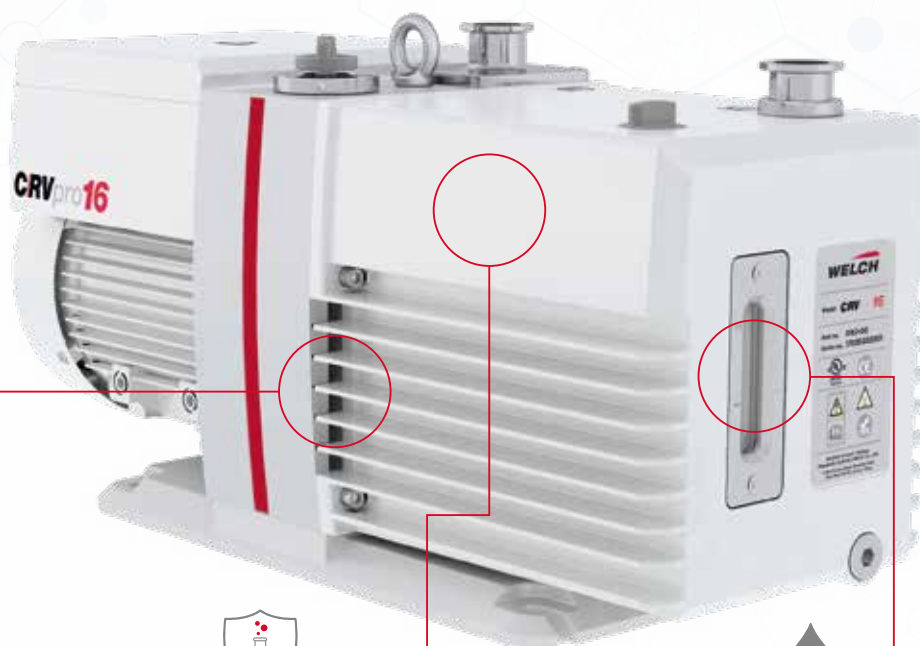
APPLIED VACUUM TECHNOLOGY. ASK THE EXPERTS!

www.welchvacuum.com/crvpro

CRVpro

Your Robust Vacuum Pump

Discover the evolution of two-stage rotary vane vacuum pumps. Built to last. Born to perform. And designed to simplify your work. Meet the robust vacuum pump series – CRVpro.



COOL RUNNING

Enhanced air flow allows the pump to run 10°C cooler than standard rotary vane pumps. The lower temperature leads to reduced chemical activity within the pump and slows down rates of oil consumption.

INTERNAL SURFACE PROTECTION

Inside surface of the oil case has a PTFE coating and the outer surface of the pumping module has a black oxide coating. Both coatings act to slow metal corrosion and, when coupled with foreline traps, extend service interval.

LARGE OIL CAPACITY

Chemical vapors that sublime from the foreline cold trap into the pump oil are more diluted due to the larger oil capacity. This minimizes the rates of oil breakdown and reduce chemical attacks within the pump.

HIGHEST RELIABILITY

LONG PRODUCT LIFESPAN

LESS MAINTENANCE

EXTENDS SERVICE INTERVAL

YOUR BENEFITS

Highest reliability for stable operation and long product lifespan

- ✓ Reduced risk of chemical attacks and oil breakdown by diluting chemical vapors with a larger oil chamber
- ✓ Slowing down corrosion by cool running operation
- ✓ Provides a measure of protection from sublimed chemical vapors with coating on pump module and oil case

Extended oil change intervals for less maintenance costs

- ✓ Less oil consumption by cool running operation
- ✓ Extended usability of oil due to high dilution effect by a larger oil chamber



1 LOW NOISE LEVEL

Exceptionally quiet for undisturbed work.

2 FORCED OIL LUBRICATION

Ensures moving parts are bathed in fresh oil. Equilibrates temperature, minimizes oil breakdown, and prolongs mechanical life.

3 ANTI-SUCK BACK VALVE

Prevents oil from being sucked into application in the event of a power failure.

4 GAS BALLAST WITH INERT GAS OPTION

Minimizes entrained chemicals in pump oil. Protects pump from condensable liquids from application such as water, acetyl nitrile, etc.

5 cUL AND CE CERTIFICATION

Compliance with local regulations and safety directives for safety operation.

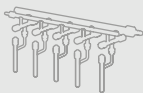







6 SIZED TO FIT YOUR APPLICATION

Modern and compact design to fit different applications and performance requirements.

7 DUAL VOLTAGE MOTOR

Dual voltage motors meet IP54 standard. Motors of CRVpro 4,6,8 are switchable from 115V to 240V for global use excluding 100V and 200V pump versions. Each pump includes power cord suitable for country use.

APPLICATIONS

SCHLENK LINE	FREEZE DRYER	VACUUM CONCENTRATOR	HVAC	VACUUM OVEN	GLOVE BOX	MASS SPECTROMETER	INDUSTRIAL APPLICATIONS
							
CRVpro 4/6	CRVpro 4/6/8	CRVpro 6	CRVpro 8	CRVpro 8	CRVpro 8/16/24/30	CRVpro 16/24/30	CRVpro 4/6/8/16/24/30

TECHNICAL DATA

PARAMETER	UNIT	CRVpro 4	CRVpro 6	CRVpro 8	CRVpro 16	CRVpro 24	CRVpro 30
Free air displacement							
- @ 50 Hz	m³/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	m³/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		

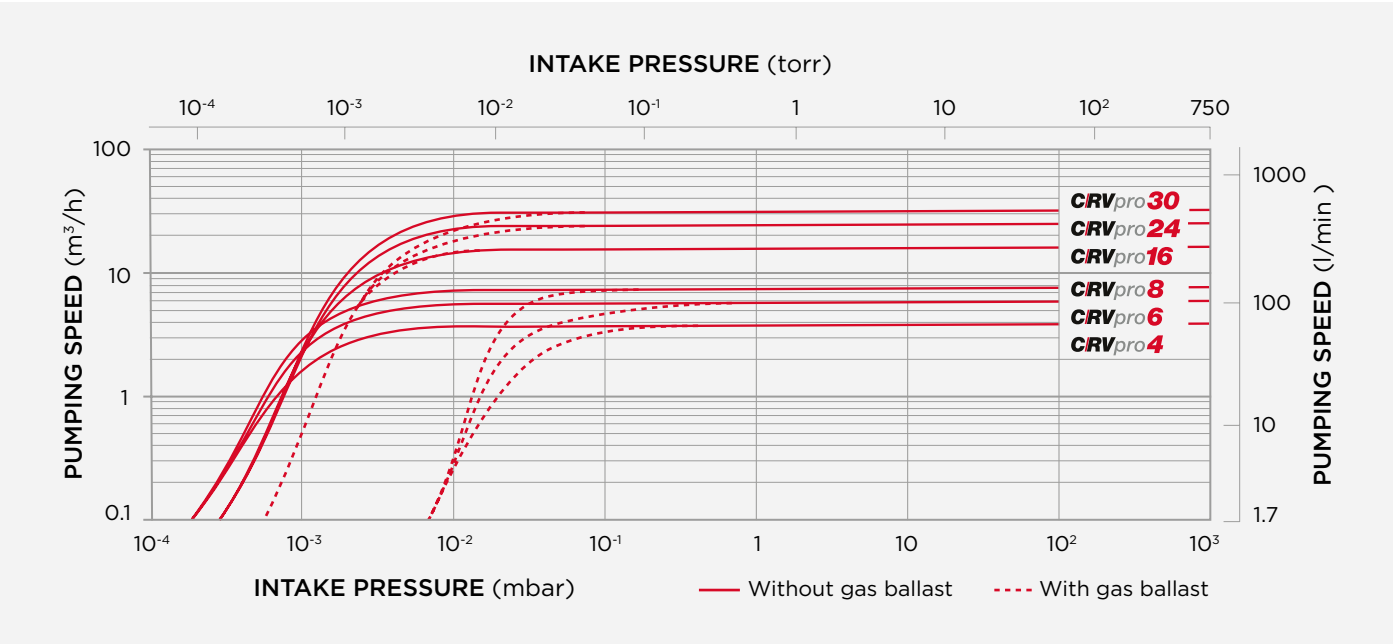
* Without handle

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.

PERFORMANCE



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	-

ACCESSORIES	DESCRIPTION	ORDER NO.	
		CRVpro 4,6,8	CRVpro 16,24,30
Vacuum pump oil	Directorr™ premium vacuum oil, 1 liter	800995-01	
	Directorr™ premium vacuum oil, 5 liter	800995-05	
On inlet	Inlet condenser	(AKS 16) 320016	(AKS 25) 320018
	Nitrogen (dry ice) cold trap DN10	1420H-14	-
On outlet	Oil mist separator AKD with large glass jar for easy capture and horizontal arrangement alongside the pump	(AKD 16) 320015	(AKD 25) 320017 CRVpro 16 only
	Economic oil mist filter OME with exchangeable cartridge (plastic)	(10/16) 700010	(30/25) 700012
	Standard exhaust filter with good capture of oil mist (metal)	1417P-8	1417P-11
	Professional exhaust filter with excellent capture of oil mist and pump noise reduction (metal)	1417C	1417D
Vacuum hose	Hose adaptor kit with hose connector, red rubber vacuum hose 1,5 m and clamps	330060	
	Stainless steel vacuum hose, 1,5 m	(DN16) 710755	(DN25) 710756
Oil change set	Oil drain valve, funnel	340011	
Application and vacuum control kit	Freeze dryer adapter kit, with oil mist separator AKD, 2-way ball valve, PVC vacuum hose (1,5 m) and hose connector DN 16KF / DN 25KF, hinge clamp ring and centering ring	(DN16) 330031	(DN25) 330032
	Vacuum control kit, digital vacuum gauge MRV 100 with PIZA 111 cr-gold, T-piece, solenoid valve, hinge clamp ring and centering ring	(DN16) 330053	(DN25) 330054

ChemStar Dry

Revolutionary multistage vacuum system

- Oil-free
- Low vacuum mostly without cold trap
- Chemical resistant
- Plug & Play



ChemStar Dry

Revolutionary multistage vacuum system

With the new ChemStar Dry, you get the advantages of two combined technologies: Roots blower and diaphragm vacuum pump. The result is an oil-free, software-driven vacuum system, ready to work on your tough chemical applications – clean, fast, and thorough. ChemStar Dry pumps quickly down (9 m³/h) to the working range for most evaporative operations (2.0 to 0.1 mbar) with an ultimate pressure of 10⁻² mbar.

The innovative software electronically controls and optimises the pumping speed depending on the vapour load. You can even pump corrosive vapours, since all wetted parts of the system are coated with PTFE and other proprietary coatings so they are chemical resistant. The integrated self-cleaning function also contributes to the system's long lifetime and enables repeatable results. Take advantage of its state-of-the-art technology for optimal operating conditions and results.





Applications

ChemStar Dry is suitable for all applications where high gas flow and deep vacuum are needed.

- Schlenk Line
- Freeze Dryer
- Vacuum Oven
- Glove Boxes



Product characteristic

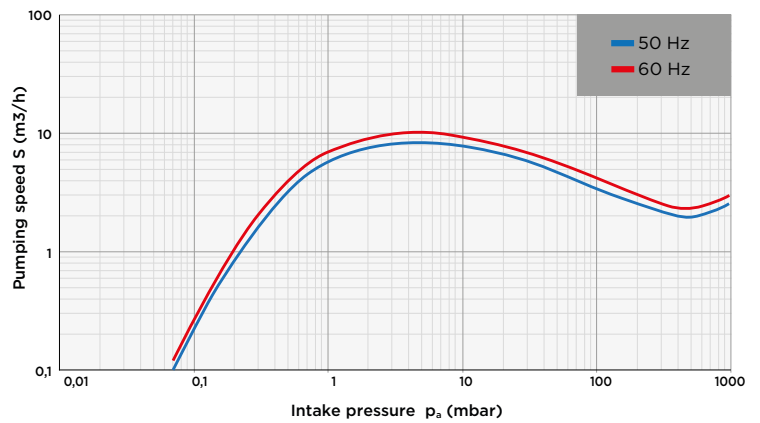
-  Oil-free
-  Low vacuum mostly without cold trap
-  Chemical resistant
-  Plug & Play



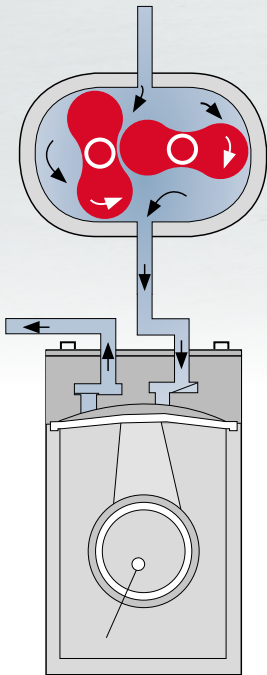
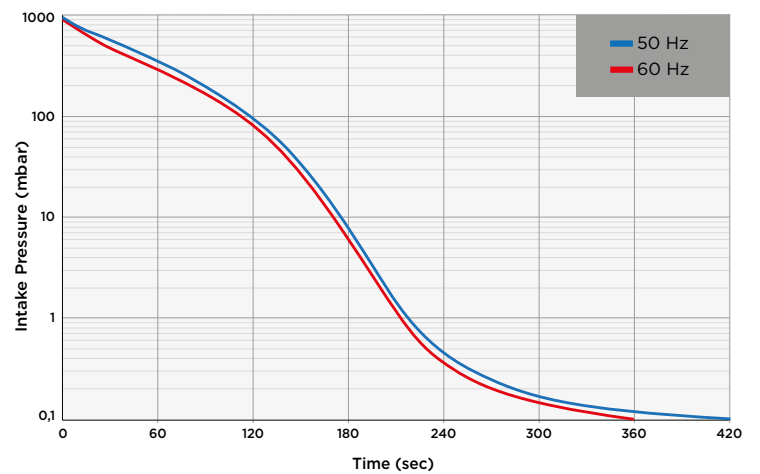
Pump design
ChemStar Dry

Technical Features

Pumping speed



Pumpdown on 41 L tank



Roots blower

Operation principle
ChemStar Dry

Diaphragm vacuum pump

Specification

Pumping speed 50/60 HZ	9/10.1 m^3/h
Ultimate vacuum pressure (DIN 28432)	7×10^{-2} mbar
Inlet-/Outlet Connection	DN 25 KF
Overall Dimensions (L/W/H)	460/220/470 mm
Weight	23 kg



> Oil-Free

- No oil back-streaming
- No oil maintenance/disposal
- Cleaner work place
- Cleaner samples
- Less maintenance



> Plug and Play

- Patented software control
- Auto speed control from atm to 0.07 mbar
- Self-cleaning function
- Protection from surges



> Low vacuum mostly without cold trap

- No dry ice or trap apparatus needed
- Less maintenance
- Lower cost of ownership
- Extra bench space



> Chemical Resistant

- Pumps corrosive vapour/gases
- PTFE and proprietary coatings

Best results in laboratory research



Benefits at a glance:

Time-saving

Increase productivity

- > No oil-related maintenance work is required
- > There's no cold trap, so you don't need to add cooling medium
- > In case of the cold trap becoming empty of cooling media, ChemStar Dry still provides good vacuum performance

Environmentally friendly

Eliminate waste and save energy

- > Avoid oil disposal
- > End oil contamination
- > Cleaner working environment

Outstanding reliability

Improve your vacuum supply reliability

- > Robust, chemical resistant vacuum mechanism
- > Corrosive and organic vapour cannot damage the system or shorten its lifetime, since the wetted parts are chemical resistant
- > The diaphragm lasts longer due to the integrated self-cleaning function, which removes condensate vapour at shutdown

Space-saving

Have more room to move in your lab

- > You won't need a cold trap or its connecting components
- > The compact design gives you flexible installation options

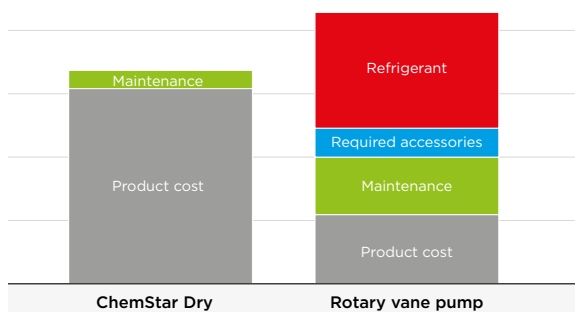
Cost-efficient

Minimize your vacuum supply costs

- > Eliminate oil-related costs (oil exchange and disposal)
- > Minimize the risk of pump exchanges due to corrosive and organic vapour damage (chemical resistance)
- > Avoid the expense of purchasing and refilling a cold trap with cooling medium

5-Year Cost Comparison (TCO)

Beside the pump purchasing costs it is important to compare maintenance, needed accessories and service costs to get a clear picture on the expected cost of ownership for the chosen technology.



Maintenance:

Service parts, oil changes/disposal, shaft seal replacement, filter replacement

Needed accessories:

Cold trap, exhaust filter

Refrigerant:

250 days per year, 2,5 kg dry ice per day, 1kg/1,25€

Order Information

ChemStar Dry 115V, 60Hz, 1 Ph with North American cord set	2070B-01
ChemStar Dry 230V, 50/60 Hz, 1 Ph with Schuko and UK cord set	2070C-02

Accessories

Starter Kit <ul style="list-style-type: none"> • 2 way butterfly valve • DN25KF hose nozzle adapters, clamps and centring rings • Red rubber vacuum hose • Hose clamps 	102950
Schlenk Line Kit <ul style="list-style-type: none"> • Starter kit (102950) • PIZA 111 cr-gold chemical duty multi-range vacuum gauge • DN25KF flexible steel hose, 750mm • Stainless steel T-piece with clamps and centring rings • Stainless Steel DN25KF - Cone NS29/32 flange adapter 	102951
Freeze Dryer Kit <ul style="list-style-type: none"> • DN25KF flexible steel hose, 750mm • DN25KF and DN16KF clamps and centring rings • Stainless steel DN25KF - DN16KF adapter 	102952
Vacuum Control Package <ul style="list-style-type: none"> • MRV 100 gauge with PIZA 111 cr-gold chemical duty vacuum sensor • Stainless steel T-piece • Solenoid valve • Clamps and centering rings • All electrical connections for quick setup 	330054

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Handheld General Range Vacuum Gauge - PIZA 101



- Portable unit connects easily to any vacuum source

PIZA 101, an economical raw gauge for uses in laboratory. The external PIZA sensor reads results to large LCD. Use either the DN 16 KF connection or an optional hose connector. Operates on standard 9V battery or with AC/DC adapter. Comes with sensor, cable and AC/DC adapter + 9V.

Ilmvac Model	Range mbar(torr)	Overall Dimensions LxWxH cm(in.)	Voltage	CAT. No.	Spare Sensor
PIZA 101	1050 - 1(785 - 1)	80x36x125(3.1x1.4x4.9)	90-260V, 50/60Hz ¹	600071	620001-01

1. With AC/DC adapter, Schuko, UK and US plug adapter

Handheld Multi Range Vacuum Gauge - PIZA 111



- Economical, portable vacuum gauge for common applications in laboratories with vacuum measurement from **1050 - 10⁻³ mbar**

Take accurate vacuum reading at multiple vacuum levels with combination sensor Piezo/Pirani. The external sensor comes with 2 meters of data cable and can be extended. Vacuum connection is DN 16 or optional hose nozzle. Operates on 9V battery or AC/DC adapter (both included).

Ilmvac Model	Range mbar(torr)	Overall Dimensions LxWxH cm(in.)	Voltage	CAT. No.	Spare Sensor
PIZA 111	1050 - 10 ⁻³ (785 - 10 ⁻³)	80x36x125(3.1x1.4x4.9)	90-260V, 50/60Hz ¹	600072	620002-01

1. With AC/DC adapter, Schuko, UK and US plug adapter

Pirani Fine Vacuum Gauge/Controller - PIA 1.2



- Rugged, reliable Pirani thermal conductivity sensor

PIA 1.2 provides an accurate, reliable vacuum measurement. Comes with a 0.5-4.5V recorder output. The sensor has a DN 16 KF connection. Comes with Pirani sensor and mounting bracket.

Ilmvac Model	Range mbar(torr)	Overall Dimensions LxWxH cm(in.)	Voltage	CAT. No.	Spare Sensor
PIA 1.2	1000 - 10 ⁻³ (750 - 10 ⁻³)	96x118x48(3.8x4.7x1.9)	230V, 50/60Hz ¹	600008	620053
PIA 1.2	1000 - 10 ⁻³ (750 - 10 ⁻³)	96x118x48(3.8x4.7x1.9)	115V, 50/60Hz ²	600008-03	620053

1. With Schuko and UK plug leads

2. With US plug lead

Explosion Proof Digital Vacuum Gauge - PIZA 102 ATEX (ATEX category 2 - II 2G Ex ib IIB T4)



- Compact vacuum gauge for use in areas with potentially explosive atmosphere.

Operates on certified Ilmvac battery. PIZA 102 ATEX comes with sensor, battery and certificate.

Ilmvac Model	Range mbar(torr)	Overall Dimensions LxWxH cm(in.)	Voltage	CAT. No.	Spare Sensor
PIZA 102 ATEX	1050 - 1(785 - 1)	80x36x125(3.1x1.4x4.9)	9V	600077	620001-01

Calibration Service - CAT. No. L955110

We offer a recalibration service for all your Ilmvac vacuum gauges, including test / calibration certificate.

Accessories

Accessories for PIZA Gauges

Carrying Case

Robust plastic case to protect your PIZA gauge from damage during transportation.

Type	CAT. No.
carrying case	620095



Table Top Stand

Type	CAT. No.
Table Stand	620007



Hose Connectors

Type	CAT. No.
DN 8 male 1/4 inch	710953
DN 10 male 1/4 inch	710955



KF Reducing Adapter

Type	CAT. No.
DN 25 / 16 KF	701420



Dial Vacuum Gauge VMF

VMF gauge and inexpensive gauge for measuring vacuum level in the rough vacuum range. VMF is independent of the type of gas.

Features

- Usable for rough vacuum measurement
- Measurement range from 1000 - 1mbar



Type	Size	CAT. No.
VMF 16 Stainless Steel	DN 16 KF	600201-1