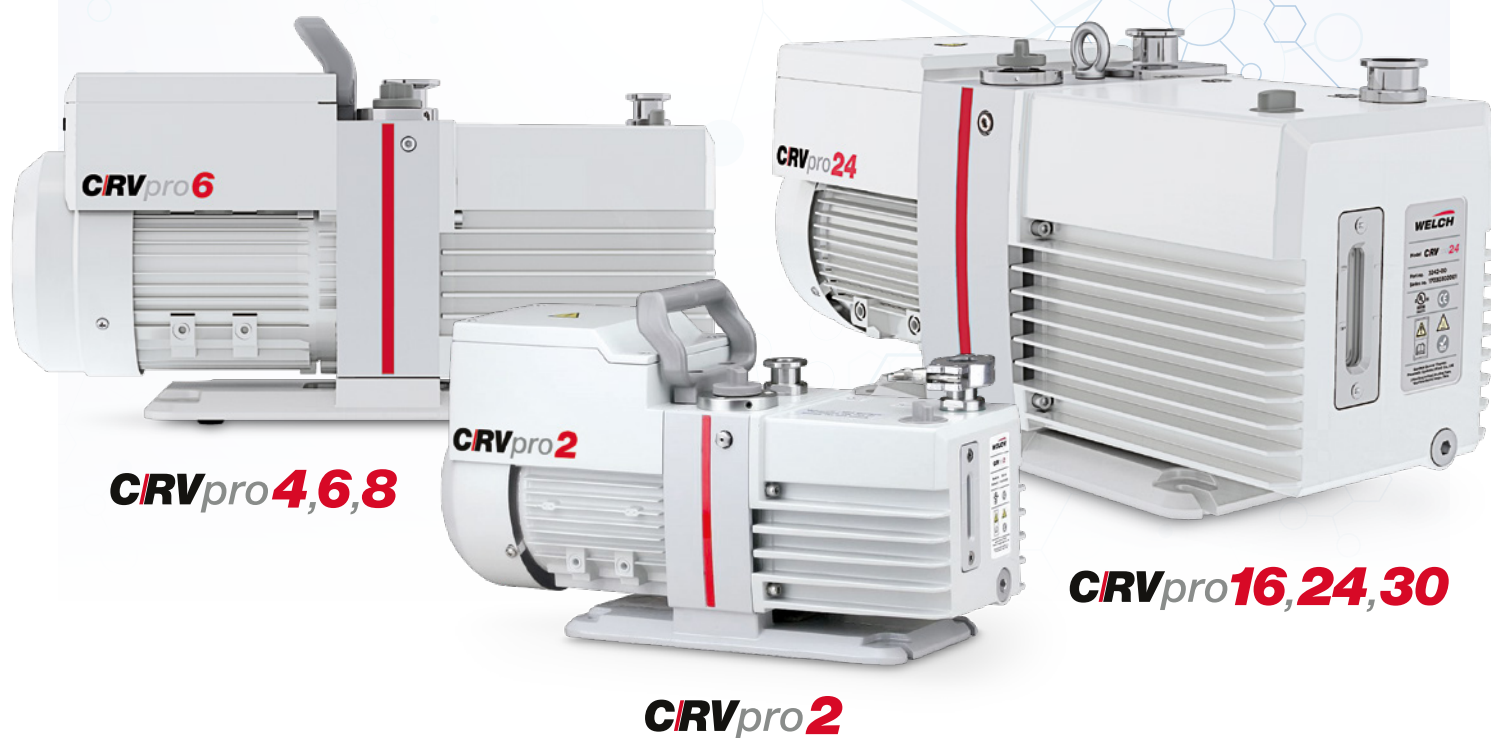


NEW
PRODUCTS & FEATURES

WELCH | Formerly
ILMVAC
by Gardner Denver

CRV*pro*

Your Robust Vacuum Pump



CRV*pro***16,24,30**

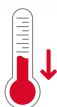
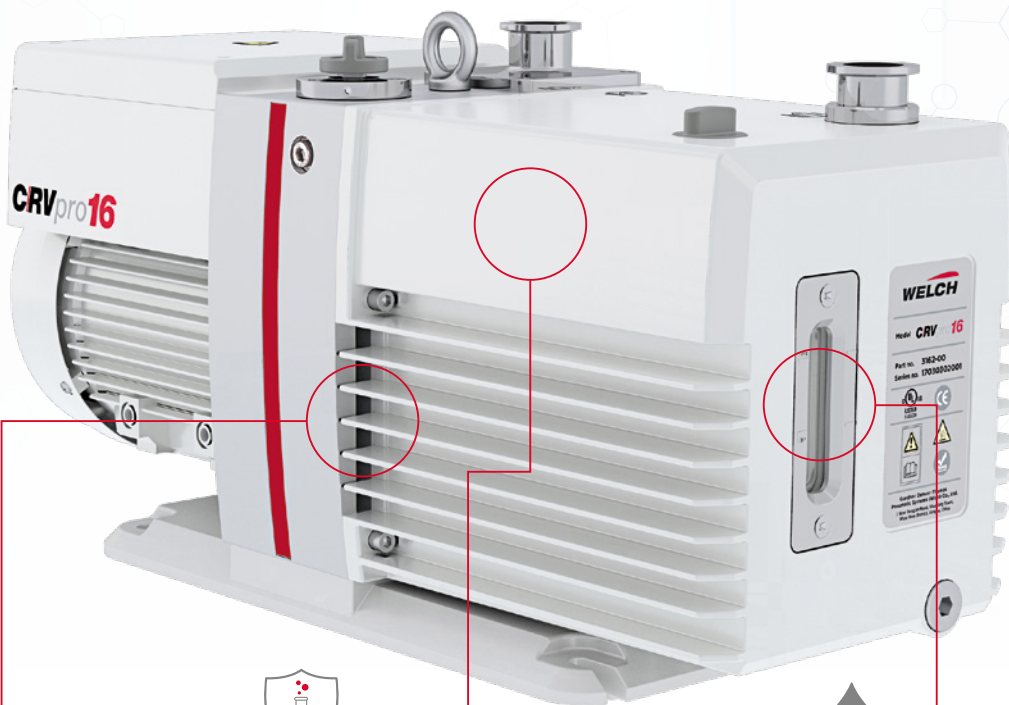
CRV*pro***2**

CRV*pro***4,6,8**

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.

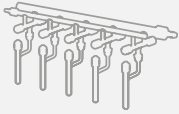

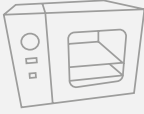


7 DUAL VOLTAGE MOTOR

Dual voltage motors meet IP54 standard. Motors of CRVpro 2,4,6,8 are switchable from 115V to 240V for global use excluding 100V and 200V pump versions. Each pump includes power cord suitable for country use.

8 LABYRINTH EXHAUST BAFFLING SYSTEM

To reduce oil mist emission and dampen noise level (excluding CRVpro2).

APPLICATIONS

| SCHLENK LINE | FREEZE DRYER | VACUUM OVEN | GLOVE BOX | VACUUM CONCENTRATOR |
|---|---|---|---|---|
|  |  |  |  |  |
| CRVpro 2/4/6 | CRVpro 2/4/6/8 | CRVpro 8 | CRVpro 8/16/24/30 | CRVpro 6 |

TECHNICAL DATA

NEW

| PARAMETER | UNIT | CRVpro 2 | CRVpro 4 | CRVpro 6 | CRVpro 8 | CRVpro 16 | CRVpro 24 | CRVpro 30 |
|-----------|------|----------|----------|----------|----------|-----------|-----------|-----------|
|-----------|------|----------|----------|----------|----------|-----------|-----------|-----------|

Free air displacement

| | | | | | | | | |
|-----------|---------------------------|----------|----------|-----------|-----------|------------|------------|------------|
| - @ 50 Hz | m ³ /h (l/min) | 2.5 (42) | 4 (67) | 6 (100) | 8 (133) | 18.3 (305) | 26.2 (436) | 33.1 (551) |
| - @ 60 Hz | CFM (l/min) | 1.8 (50) | 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) | 2.3 (38) | 3.8 (63) | 5.1 (85) | 7.3 (122) | 16.8 (280) | 24 (400) | 29 (483) |
| - @ 60 Hz | CFM (l/min) | 1.6 (47) | 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) | 3x10 ⁻⁴ (2x10 ⁻⁴) | 5x10 ⁻⁴ (4x10 ⁻⁴) | | | 3x10 ⁻⁴ (2x10 ⁻⁴) | | |
| - Without gas ballast total | mbar (Torr) | 3x10 ⁻³ (2x10 ⁻³) | 2x10 ⁻³ (1.5x10 ⁻³) | | | 3x10 ⁻³ (2x10 ⁻³) | | |
| - With gas ballast total | mbar (Torr) | 9x10 ⁻² (7x10 ⁻²) | 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 | 450 | 1150 | | 1000 | 2400 | 2200 | 2100 |
| Motor speed | rpm 50/60 Hz | 1440/1720 | 1450/1740 | | | 1450/1750 | | |
| Motor power | kW 50/60 Hz | 0.29/0.3 | 0.37/0.4 | | | 0.7/0.85 | | |
| Weight | kg | 15 | 21 | 22 | 22.5 | 37 | 38.5 | 39.5 |
| Dimensions L x W x H | mm | 384/138/ 211* | 463/157/230* | | | 569/206/289 | | |

* Without handle.

ORDERING INFORMATION

DESCRIPTION

220-240 V / 50 Hz; 230 V / 60 Hz, 115 V / 60 Hz, 1 phase motor with line cord EU-plug (CEE 7/4), line cord UK-plug (BS1363), line cord US-plug (NEMA 6-15)**

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)

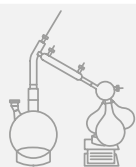
220-240 V / 50 Hz; 230 V / 60 Hz, 1 phase motor with line cord EU-plug (CEE 7/4), line cord UK-plug (BS1363) with PFPE oil filling
115 V / 60 Hz, 1 phase motor with line cord US-plug (NEMA 5-15)

190/380 V / 50 Hz; 280-230/460 V / 60 Hz, 3 phase motor, requires hard wiring with appropriate cable and suitable motor protection

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

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.

SHORT PATH



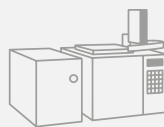
CRVpro 8/30

HVAC



CRVpro 8

MASS SPECTROMETER



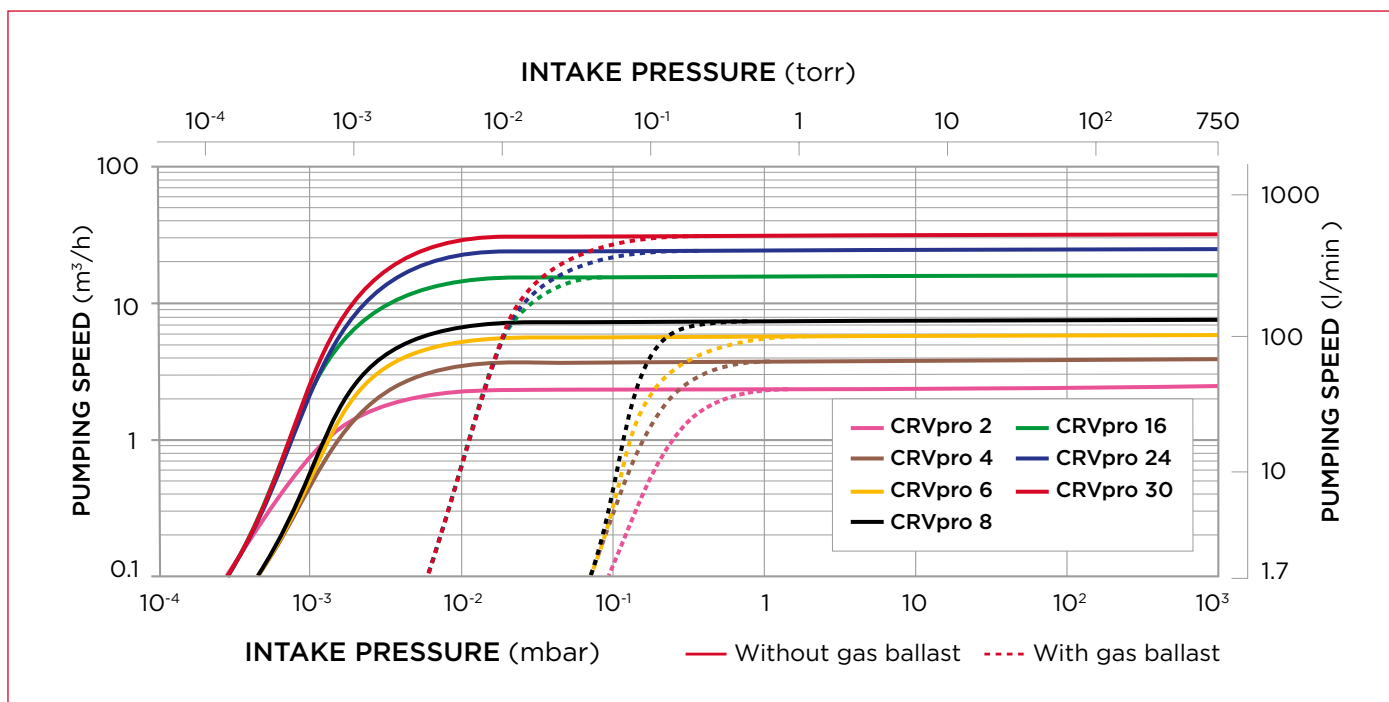
CRVpro 16/24/30

INDUSTRIAL APPLICATIONS



CRVpro 4/6/8/16/24/30

PERFORMANCE

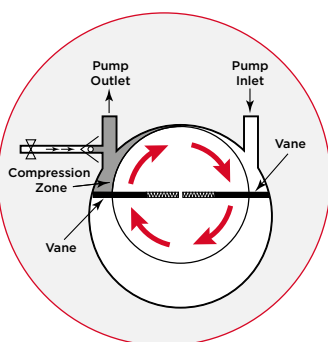


NEW

NEW CRVpro GAS BALLAST SYSTEM



Port enables use of dry inert gas for gas ballast



It's important to use the gas ballast function when pumping condensable vapours to ensure that they don't condense inside of the pump and cause oil degradation.

As well as having a standard gas ballast valve for operation with atmospheric air, all CRVpro now come with the option to use dry inert gas for more efficient gas ballast performance. Use adapter kit to facilitate inert gas connection.

| DESCRIPTION | ORDER NO. |
|-------------------------------|-----------|
| Inert gas ballast adapter kit | S3256-99 |

| CRVpro 2 | CRVpro 4 | CRVpro 6 | CRVpro 8 | CRVpro 16 | CRVpro 24 | CRVpro 30 |
|----------|----------|----------|----------|-----------|-----------|-----------|
| 3022-00 | 3042-00 | 3062-00 | 3082-00 | - | - | - |
| - | - | - | - | 3162-00 | 3242-00 | 3302-00 |
| - | - | 3062-03 | - | 3162-03 | - | 3302-03 |
| - | - | - | - | 3161-00 | 3241-00 | 3301-00 |
| | | | 3087T-01 | 3167T-01 | | 3307T-01 |
| S3344-99 | S3077-99 | S3078-99 | S3079-99 | S3193-99 | S3194-99 | S3195-99 |

** CRVpro 2,4,6,8 are switch selectable between 220-240 V / 50 Hz; 230 V / 60 Hz and 115 V / 60 Hz operation. CRVpro 16, 24, 30 models are not switch selectable.

COMPLETE PUMP PACKAGES



330070

330074

330080

| PACKAGE | DESCRIPTION | CRVpro 2 | CRVpro 4 | CRVpro 6 | CRVpro 8 |
|------------------------------------|---|----------|----------|----------|----------|
| CRVpro starter 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 | 330070 | 330071 | 330072 | 330073 |
| CRVpro premium 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 | 330077 | 330074 | 330075 | - |
| CRVpro Schlenk line package | CRVpro with oil mist separator AKD 16, oil change set, 2-way ball valve, KFG16 glass cold trap, adapters and connecting parts | - | 330080 | - | - |



700621

NEW WELCH FOM PROFESSIONAL OIL MIST FILTER WITH OIL DRAINBACK

NEW

- Coalesced oil drains back into pump oil case to reduce oil consumption and enables a clean work space
- Exhaust can be directed into existing fume hood
- Reduces pump noise
- Filters to 0.3 micron particle size

PREMIUM VACUUM PUMP OIL



800995-01



800995-05

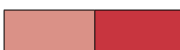
A triple-distilled hydrocarbon oil using severely hydrotreated base stock is designed to resist breakdown at higher RPMs and operating temperatures of direct-drive vacuum pumps. Premium oil enables direct-drive vacuum pumps to maintain the highest vacuum performance over time.

- Low vapor pressure
- Designed for high RPM direct drive vacuum pumps
- No additives or inhibitors to react with user chemistry
- Recommended for Welch direct-drive vacuum pumps

PUMP OIL CONDITION COLOUR



Good Oil



Bad Oil (Possible Pump Damage)

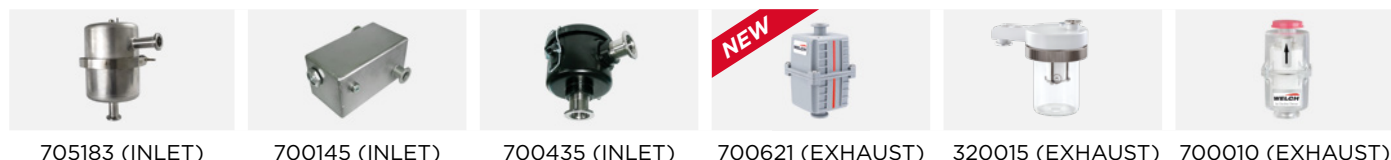
ORDERING INFORMATION

| Size | 1 litre | 5 litres | 20 litres |
|-----------|-----------|-----------|-----------|
| Order No. | 800995-01 | 800995-05 | 800995-20 |

For other vacuum pump oils, e.g PFPE oil, please see our website www.welchvacuum.com

ACCESSORIES

INLET AND EXHAUST



705183 (INLET)

700145 (INLET)

700435 (INLET)

700621 (EXHAUST)

320015 (EXHAUST)

700010 (EXHAUST)

| DESCRIPTION | ORDER NO. | |
|--|--------------------------|--------------------------|
| INLET | CRVpro 2, 4, 6, 8 | CRVpro 16, 24, 30 |
| ADT fine vacuum adsorption trap. With a very high affinity to Hydrocarbons to eliminate oil back-streaming | (ADT16) 705183 | (ADT25) 705184 |
| PT separator to prevent the suction of condensates. Large collection capacity with sight glass for level monitoring | (PT16) 700144 | (PT25) 700145 |
| ASF particle filter – for non-chemical applications only | (ASF10) 700435-01 | (ASF20) 700435 |
| EXHAUST | CRVpro 2, 4, 6, 8 | CRVpro 16, 24, 30 |
| FOM professional oil mist filter with oil drainback, for excellent elimination of oil mist | (FOM16) 700621 | (FOM25) 700622 |
| AKD oil mist separator with horizontal arrangement and glass jar for easy capture of oil mist | (AKD16) 320015 | - |
| OME economical oil mist filter with clear housing for easy oil level monitoring | (OME10/16) 700010 | - |

APPLICATION KITS



330031

330044

330051

330053

330055

| DESCRIPTION | ORDER NO. | |
|---|--------------------------|--------------------------|
| | CRVpro 2, 4, 6, 8 | CRVpro 16, 24, 30 |
| Freeze Dryer Adapter kit , with oil mist separator AKD, 2-way ball valve, 1.5m PVC vacuum hose, hose nozzle connectors, adapters, clamps and centring rings | (DN16) 330031 | - |
| Vacuum Concentrator Adapter kit , with 1.5m PVC vacuum hose, hose nozzle connectors, adapters, clamps and centring rings | (DN16) 330044 | - |
| Vacuum Measurement kit , with digital vacuum gauge PIZA 111 cr-gold, stand for gauge, T-piece, clamps and centring rings | (DN16) 330051 | (DN25) 330052 |
| Vacuum Control kit , with digital vacuum gauge MRV 100 & PIZA 111 cr-gold sensor, T-piece, solenoid control valve, clamps and centring rings | (DN16) 330053 | (DN25) 330054 |
| Vacuum Pump Protection kit , KFG16 glass cold trap with dewar vessel for liquid nitrogen, 500mm flexible Stainless Steel hose, clamps and centring rings. Pre-pump protection for comprehensive trapping of vapours and aggressive media. For use with Dry Ice, additional screen accessory 828944 is required | (DN16) 330055 | - |

HOSE AND CONNECTIONS



701011

701151

710755

701401

710213

| DESCRIPTION | ORDER NO. | |
|--|--------------------------|--------------------------|
| | CRVpro 2, 4, 6, 8 | CRVpro 16, 24, 30 |
| KF Clamping ring, Aluminium | (DN16) 701011 | (DN25) 701013 |
| KF External centring ring, Aluminium with FKM O-ring | (DN16) 701151 | (DN25) 701153 |
| KF Stainless steel flexible hose, 1500mm | (DN16) 710755 | (DN25) 710756 |
| KF Reducing adapter DN25/16, for inlet/exhaust | 701401 | - |
| Ground Cone adapter flange for Schlenk line NS14/23 – DN16KF | 710213 | - |

Visit www.welchvacuum.com for our complete range of vacuum hardware

GENERAL CONTACT

EMEA

Gardner Denver Thomas GmbH
Am Vogelherd 20
98693 Ilmenau
Germany

Tel: +49 3677 604 1000
Fax: +49 3677 604131
welch.emea@gardnerdenver.com

AMERICAS

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

Tel: +1 847 676 8800
Fax: +1 847 6778606
welch.na@gardnerdenver.com

ASIA PACIFIC

Gardner Denver Welch
Room 2206, Qiangsheng Mansion
No. 145 Pujian Road
200127 Shanghai
China

Tel: +86 21 51860238
Fax: +86 21 50396221
welch.as@gardnerdenver.com

GLOBAL HEADQUARTERS

Gardner Denver Thomas GmbH
Livry-Gargan-Str. 10
82256 Fürstentfeldbruck
Germany

Tel: +49 8141 2280 1000
Fax: +49 8141 8892136
welchvacuum@gardnerdenver.com

Please check out all our brands for your mission-critical flow control technologies:



OEM Pumps
www.gd-thomas.com



Vacuum Pumps & Systems
www.welchvacuum.com



Syringe Pumps
www.tricontinent.com



Lab Automation
www.zinsser-analytic.com



Syringes
www.microsyringes.com