



**U
BUSCH
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VACUUM SOLUTIONS

**VACUUM
for Metallurgy**

Your Partner. For All Your Vacuum Needs.



The future of vacuum. Since 1963.

Busch Vacuum Solutions offers vacuum and overpressure solutions for all industries. From individual vacuum pumps, blowers, and compressors to tailor-made vacuum systems. More than 50 years ago, Dr.-Ing. Karl and Ayhan Busch developed the ideal vacuum pump for the food packaging industry. Today, the family business from Maulburg in the Black Forest is the market leader in all areas of industrial vacuum. With over 3500 employees in more than 40 countries. Thanks to our great experience

and highly qualified specialists, we are driving innovation. And working on the vacuum world of the future.

The first overseas subsidiary. In the UK.

Busch (UK) Ltd was established in 1971 as the first overseas subsidiary within the global Busch Group. The Busch (UK) Ltd headquarters, national service center and systems building department is located in Telford, Shropshire. Additionally, we have a dedicated medium/high vacuum service center based in East Kilbride, which also

provides support to our customers in Scotland. Our dedicated systems department designs and builds standard and individual vacuum and low overpressure systems to meet the requirements of our customers and their processes. Vacuum pumps and systems are fully supported by our established and comprehensive range of service products. Customers can rely on expert advice, repair, vacuum pump and system audits and maintenance capability, either at our UK service centers, or on-site via our extensive



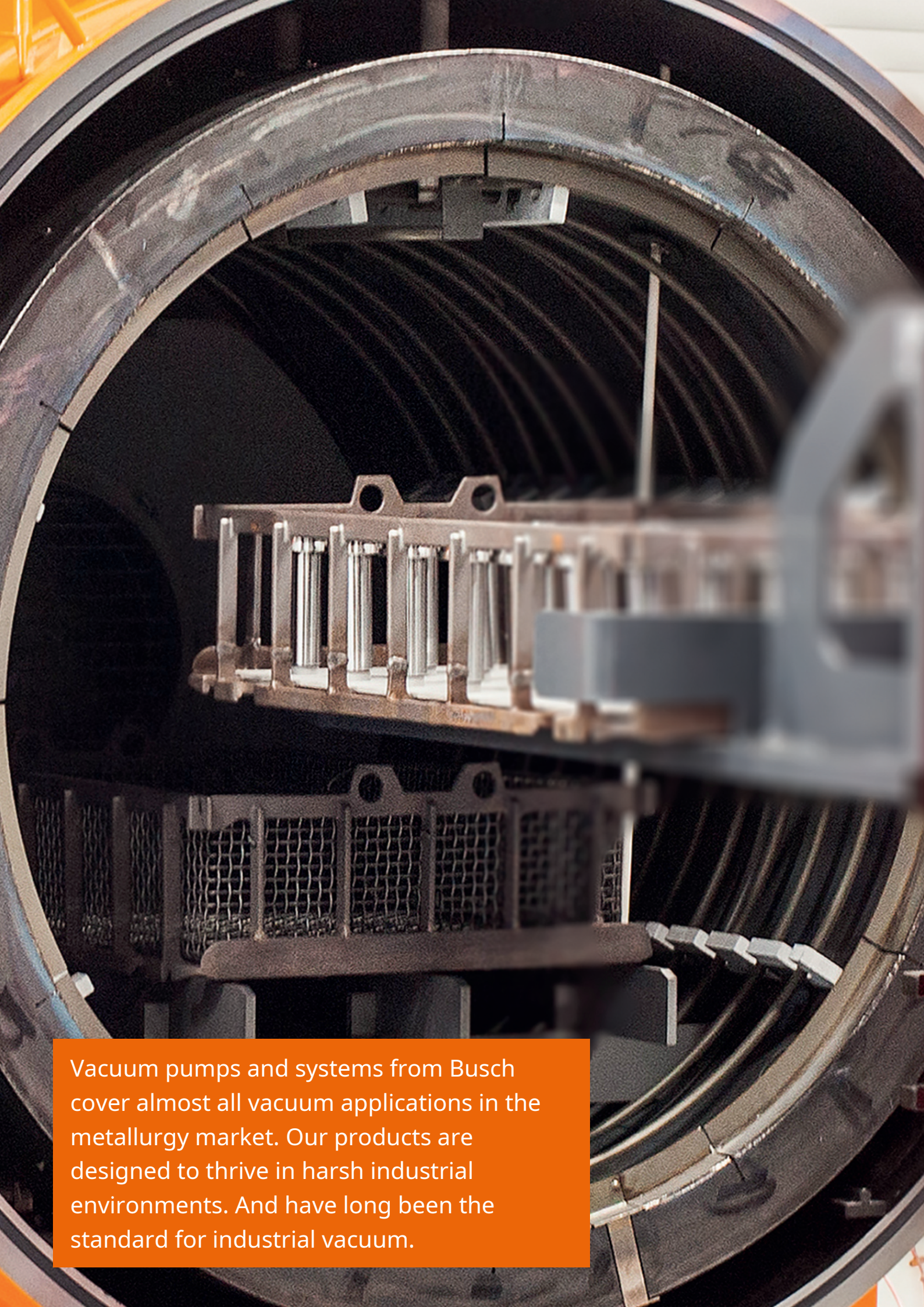
network of field-based Busch service engineers.

Reliable Vacuum. Tailored to the needs of the metallurgy market.

Reliable vacuum technology is essential in many metallurgical processes. To produce high-quality products in a repeatable manner. The appropriate vacuum solution can help streamline operations, reduce maintenance efforts and improve the bottom line. Whether your company is melting and casting alloys or performing

any number of heat treatment processes. We can offer the perfect solution. For every challenge.

Our extensive product portfolio draws on the widest range of vacuum and overpressure technologies.



Vacuum pumps and systems from Busch cover almost all vacuum applications in the metallurgy market. Our products are designed to thrive in harsh industrial environments. And have long been the standard for industrial vacuum.

The Perfect Solution. For All Applications.

- **R5** Oil-lubricated rotary vane vacuum pumps
- **COBRA** Dry screw vacuum pumps
- **PANDA/PUMA** Vacuum booster
- **ZEBRA** Two-stage oil-lubricated rotary vane vacuum pumps
- **FOSSA** Scroll vacuum pumps
- **RANGU** Diffusion vacuum pumps

	R5	COBRA	PANDA/PUMA	ZEBRA	FOSSA	RANGU
Heat treatment	⦿	●	●	●	●	●
Brazing	⦿	●	●	●	●	●
Welding	⦿	●	●	●	●	●
Coating	⦿	●	●	●	●	●

- perfectly suited
- ⦿ possible

R5 RA 0025/0040 F

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly durable fiber-reinforced epoxy resin vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for continuous operation

Flexible

Various design options available, easy adaption to individual customer requirements and processes

	R5 RA 0025 F	R5 RA 0040 F
Nominal pumping speed	25 / 30 m ³ /h (50 / 60 Hz)	40 / 48 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	1.0 / 1.2 kW (50 / 60 Hz)	1.4 / 1.7 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	0.8 / 0.9 kW (50 / 60 Hz)	1.1 / 1.2 kW (50 / 60 Hz)
Power consumption at ultimate pressure	0.5 / 0.6 kW (50 / 60 Hz)	0.6 / 0.7 kW (50 / 60 Hz)
Noise level (ISO 2151)	60 / 63 dB(A) (50 / 60 Hz)	63 / 66 dB(A) (50 / 60 Hz)
Oil capacity	1 l	1 l
Approximate weight	36 kg	42 kg
Dimensions (L x W x H)	585 x 284 x 263 mm	625 x 284 x 263 mm
Gas inlet / outlet	G 1¼" / G 1¼"	G 1¼" / G 1¼"

Accessories and spare parts – R5 RA 0025/0040 F

	R5 RA 0025 F	R5 RA 0040 F
Service kit R5 RA 0025/0040 C/ E/F	0992101463	0992101463
Inlet filter cartridge paper	0532000002	0532000002
Inlet filter cartridge polyester	0532121862	0532121862
Oil VSC 100 1l	0831168356	0831168356
Oil VSC 100 5l	0831168357	0831168357
Gas-ballast valve	0916154155	0916154155
Gas-ballast valve with shut-off valve	0916142106	0916142106
Manometer, measurement range 0 to 1 bar(g)	0946134753	0946134753
Vacuum regulating unit incl. hose nipple Ø 39.5 mm	0947000449	0947000449
Vacuum regulating unit incl. hose nipple Ø 31.9 mm	0947000461	0947000461
Oil level switch, G1	0947143199	0947143199
Activated carbon filter for exhaust gases	0945000251	0945000251
Replacement insert for activated carbon filter	0530000150	0530000150
Hose nipple, R 1, Ø 31.9 mm	0574000104	0574000104
Hose nipple, R 1¼, Ø 39.5 mm	0574000105	0574000105

R5 RA 0063/0100 F

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly durable fiber-reinforced epoxy resin vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for continuous operation

Flexible

Various design options available, easy adaption to individual customer requirements and processes

	R5 RA 0063 F	R5 RA 0100 F
Nominal pumping speed	63 / 76 m ³ /h (50 / 60 Hz)	100 / 120 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	2.0 / 2.4 kW (50 / 60 Hz)	2.7 / 3.4 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	1.3 / 1.5 kW (50 / 60 Hz)	1.9 / 2.4 kW (50 / 60 Hz)
Power consumption at ultimate pressure	0.7 / 0.8 kW (50 / 60 Hz)	1.2 / 1.5 kW (50 / 60 Hz)
Noise level (ISO 2151)	64 / 67 dB(A) (50 / 60 Hz)	65 / 68 dB(A) (50 / 60 Hz)
Oil capacity	2 l	2 l
Approximate weight	55 kg	73 kg
Dimensions (L x W x H)	627 x 406 x 290 mm	701 x 406 x 290 mm
Gas inlet / outlet	G 1¼" / G 1¼"	G 1¼" / G 1¼"

Accessories and spare parts – R5 RA 0063/0100 F

	R5 RA 0063 F	R5 RA 0100 F
Service kit R5 RA 0063/0100 C/E/F	0992106214	0992106214
Inlet filter cartridge paper	0532000002 0532000003	0532000002 0532000003
Inlet filter cartridge polyester	0532121862 0532121863	0532121862 0532121863
Oil VSC 100 1 l	0831168356	0831168356
Oil VSC 100 5 l	0831168357	0831168357
Inlet filter FIL 0063 with paper insert, horizontal orientation	0945000133	0945000133
Inlet filter FIL 0063 with paper insert, vertical orientation	0945000132	0945000132
Inlet filter FIL 0063 with polyester insert, horizontal orientation	0945121874	0945121874
Inlet filter FIL 0063 with polyester insert, vertical orientation	0945121873	0945121873
Inlet filter FIL 0100 with paper insert, horizontal orientation	0945000135	0945000135
Inlet filter FIL 0100 with paper insert, vertical orientation	0945000134	0945000134
Inlet filter FIL 0100 with polyester insert, horizontal orientation	0945121876	0945121876
Inlet filter FIL 0100 with polyester insert, vertical orientation	0945121875	0945121875
Inlet filter FIL 0100 screengrid, vertical orientation	0945000136	0945000136
Gas-ballast valve	0916154155	0916154155
Gas-ballast valve with shut-off valve	0916142106	0916142106
Vacuum regulating unit incl. hose nipple Ø 39.5 mm	0947000449	0947000449
Vacuum regulating unit incl. hose nipple Ø 31.9 mm	0947000461	0947000461
Oil level switch, G 1	0947143199	0947143199
Activated carbon filter for exhaust gases	0945000251	0945000251

	R5 RA 0063 F	R5 RA 0100 F
Replacement insert for activated carbon filter	0530000150	0530000150
Hose nipple, R 1, Ø 31.9 mm	0574000104	0574000104
Hose nipple, R 1¼, Ø 39.5 mm	0574000105	0574000105

R5 RA 0155 A

Oil-Lubricated Rotary Vane Vacuum Pump



Flexible

Easy adaption to individual customer requirements and processes, level and temperature switch as standard

High performance

High pumping speed at low pressures, designed for continuous operation in the rough vacuum range

Reliable

Robust construction, highly durable fiber-reinforced epoxy resin vanes, proven rotary vane technology, long service life

	R5 RA 0155 A
Nominal pumping speed	150 / 175 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	4.0 / 4.2 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	3.2 / 3.8 kW (50 / 60 Hz)
Power consumption at ultimate pressure	2.1 / 2.5 kW (50 / 60 Hz)
Noise level (ISO 2151)	70 / 72 dB(A) (50 / 60 Hz)
Oil capacity	3.5 l
Approximate weight	110 kg
Dimensions (L x W x H)	765 x 470 x 340 mm
Gas inlet / outlet	G 2" / G 2"

Accessories and spare parts – R5 RA 0155 A

	R5 RA 0155 A
Inlet filter with paper cartridge, vertical orientation	0945 215 248
Inlet filter with paper cartridge, horizontal orientation	0945 215 249
Inlet filter with polyester cartridge, vertical orientation	0945 215 251
Inlet filter with polyester cartridge, horizontal orientation	0945 215 252
Replacement paper cartridge	0532 000 004
Replacement polyester cartridge	0532 121 864
Gas-ballast valve, side fan cover	0916 563 690
Gas-ballast valve	0947 568 872
Exhaust pressure gauge	0946 504 734
Level switch	0652 566 788

R5 RA 0160–0302 D

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly resilient carbon fiber vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for fast cycle times, e.g. vacuum packaging and continuous operation at ultimate pressure

Flexible

Easy adaption to individual customer requirements and processes

	R5 RA 0160 D	R5 RA 0202 D	R5 RA 0250 D	R5 RA 0302 D
Nominal pumping speed	160 / 190 m ³ /h (50 / 60 Hz)	200 / 240 m ³ /h (50 / 60 Hz)	250 / 300 m ³ /h (50 / 60 Hz)	300 / 360 m ³ /h (50 / 60 Hz)
Ultimate pressure (gas-ballast valve closed)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)
Ultimate pressure (gas-ballast valve open)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	4.0 / 6.6 kW (50 / 60 Hz)	4.0 / 6.6 kW (50 / 60 Hz)	5.5 / 9.2 kW (50 / 60 Hz)	7.5 / 9.2 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	3.7 / 4.7 kW (50 / 60 Hz)	4.4 / 5.4 kW (50 / 60 Hz)	5.8 / 7.0 kW (50 / 60 Hz)	6.3 / 7.8 kW (50 / 60 Hz)
Power consumption at ultimate pressure	2.6 / 3.1 kW (50 / 60 Hz)	3.5 / 4.2 kW (50 / 60 Hz)	4.5 / 5.5 kW (50 / 60 Hz)	5.0 / 5.8 kW (50 / 60 Hz)
Noise level (ISO 2151)	70 / 72 dB(A) (50 / 60 Hz)	72 / 74 dB(A) (50 / 60 Hz)	72 / 74 dB(A) (50 / 60 Hz)	74 / 76 dB(A) (50 / 60 Hz)
Oil capacity	5 l	5 l	6.5 l	6.5 l
Approximate weight	140 kg	140 kg	190 kg	190 kg
Dimensions (L x W x H)	920 x 536 x 410 mm	920 x 536 x 410 mm	1000 x 581 x 410 mm	1011 x 581 x 410 mm
Gas inlet / outlet	G 2" / G 2"	G 2" / G 2"	G 2" / G 2"	G 2" / G 2"

Accessories and spare parts – R5 RA 0160–0302 D

	R5 RA 0160 D	R5 RA 0202 D	R5 RA 0250 D	R5 RA 0302 D
Service kit R5 RA 0160/0202 D	0945215248	0945215248	0945215248	0945215248
Service kit R5 RA 0250/0302 D	0945215249	0945215249	0945215249	0945215249
Inlet filter cartridge paper with impact plate	0945215251	0945215251	0945215251	0945215251
Inlet filter cartridge paper	0945215252	0945215252	0945215252	0945215252
Inlet filter cartridge polyester	0985568619	0985568619	0985568619	0985568619
Oil VSC 100 1 I	0985571089	0985571089	0985571089	0985571089
Oil VSC 100 5 I	0916516610	0916516610	0916516610	0916516610
Inlet filter FIL 0250 with paper insert, vertical orientation	0916517460	0916517460	0916517460	0916517460
Inlet filter FIL 0250 with paper insert, horizontal orientation	0916518385	0916518385	0916518385	0916518385
Inlet filter FIL 0250 with polyester insert, vertical orientation	0652566788	0652566788	0652566788	0652566788
Inlet filter FIL 0250 with polyester insert, horizontal orientation	0651566632	0651566632	0651566632	0651566632
Direct starter unit	0651566842	0651566842	0651566842	0651566842
Soft starter	0653566736	0653566736	0653566736	0653566736
Gas-ballast valve in B cover plate	0653567425	0653567425	0653567425	0653567425
Gas-ballast valve in A and B cover plate	0946504734	0946504734	0946504734	0946504734
Gas-ballast valve in B cover plate, with solenoid valve 24 VDC	0947000482	0947000482	0947000481	0947000481
Oil level/temperature switch ≤ 230 VAC / 100 VDC	0947522025	0947522025	0947522025	0947522025
Temperature switch ≤ 250 VAC / VDC	0574000014	0574000014	0574000014	0574000014
Temperature transmitter 0–150°C, Ex, 4–20 mA	0945000135	0945000135	0945000135	0945000135
Pressure switch ≤ 230 VDC / VAC	0918558131	0918558131	0918558131	0918558131
Pressure transmitter, 0–1 bar(g) Ex, 4–20 mA	0918205658	0918205658	0918205658	0918205658
Manometer	0945527592	0945527592	0945527592	0945527592
Vacuum regulating unit	0945569488	0945569488	0945569488	0945569488

	R5 RA 0160 D	R5 RA 0202 D	R5 RA 0250 D	R5 RA 0302 D
Oil separator with automatic oil return	0945215248	0945215248	0945215248	0945215248
Hose nipple, R 2, Ø 59.6 mm	0945215249	0945215249	0945215249	0945215249
Reducing nipple, type 241, 2½"-2"	0945215251	0945215251	0945215251	0945215251
Water regulating unit for heat exchanger (thermostatic valve, pressure switch, dirt trap)	0945215252	0945215252	0945215252	0945215252
Water regulating unit for heat exchanger (2/2 solenoid valve, thermostatic valve, pressure switch, dirt trap)	0985568619	0985568619	0985568619	0985568619
Activated carbon filter for exhaust gases, vertical orientation	0985571089	0985571089	0985571089	0985571089
Activated carbon filter for exhaust gases, horizontal orientation	0916516610	0916516610	0916516610	0916516610

R5 RA 0165-0305 D

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly resilient carbon fiber vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for continuous operation in the rough vacuum range

Flexible

Various design options available, easy adaption to individual customer requirements and processes

	R5 RA 0165 D	R5 RA 0205 D	R5 RA 0255 D	R5 RA 0305 D
Nominal pumping speed	160 / 190 m ³ /h (50 / 60 Hz)	200 / 240 m ³ /h (50 / 60 Hz)	250 / 300 m ³ /h (50 / 60 Hz)	300 / 360 m ³ /h (50 / 60 Hz)
Ultimate pressure (gas-ballast valve closed)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)
Ultimate pressure (gas-ballast valve open)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)	0.5 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	5.5 / 6.6 kW (50 / 60 Hz)	5.5 / 6.6 kW (50 / 60 Hz)	7.5 / 9.2 kW (50 / 60 Hz)	8.3 / 10.0 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)	1500 / 1800 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	3.7 / 4.7 kW (50 / 60 Hz)	4.2 / 5.2 kW (50 / 60 Hz)	5.5 / 6.6 kW (50 / 60 Hz)	6.1 / 7.2 kW (50 / 60 Hz)
Power consumption at ultimate pressure	2.4 / 2.9 kW (50 / 60 Hz)	3.3 / 4.0 kW (50 / 60 Hz)	4.1 / 4.5 kW (50 / 60 Hz)	4.7 / 5.1 kW (50 / 60 Hz)
Noise level (ISO 2151)	70 / 72 dB(A) (50 / 60 Hz)	72 / 74 dB(A) (50 / 60 Hz)	72 / 74 dB(A) (50 / 60 Hz)	74 / 76 dB(A) (50 / 60 Hz)
Oil capacity	6.5 l	6.5 l	6.5 l	6.5 l
Approximate weight	160 kg	160 kg	195 kg	195 kg
Dimensions (L x W x H)	977 x 583 x 418 mm	977 x 583 x 418 mm	1056 x 583 x 418 mm	1057 x 583 x 418 mm
Gas inlet / outlet	G 2" / G 2"	G 2" / G 2"	G 2" / G 2"	G 2" / G 2"

Accessories and spare parts – R5 RA 0165–0305 D

	R5 RA 0165 D	R5 RA 0205 D	R5 RA 0255 D	R5 RA 0305 D
Service kit R5 RA 0165–0305 D	0992525287	0992525287	0992525287	0992525287
Inlet filter cartridge paper with impact plate	0532107987	0532107987	0532107987	0532107987
Inlet filter cartridge paper	0532000004	0532000004	0532000004	0532000004
Inlet filter cartridge polyester	0532121864	0532121864	0532121864	0532121864
Oil VSC 100 1 l	0831168356	0831168356	0831168356	0831168356
Oil VSC 100 5 l	0831168357	0831168357	0831168357	0831168357
Inlet filter FIL 0250 with paper insert, vertical orientation	0945215248	0945215248	0945215248	0945215248
Inlet filter FIL 0250 with paper insert, horizontal orientation	0945215249	0945215249	0945215249	0945215249
Inlet filter FIL 0250 with polyester insert, vertical orientation	0945215251	0945215251	0945215251	0945215251
Inlet filter FIL 0250 with polyester insert, horizontal orientation	0945215252	0945215252	0945215252	0945215252
Direct starter unit	0985568619	0985568619	0985568619	0985568619
Soft starter	0985571089	0985571089	0985571089	0985571089
Gas-ballast valve in B cover plate	0916516610	0916516610	0916516610	0916516610
Gas-ballast valve in A and B cover plate	0916517460	0916517460	0916517460	0916517460
Gas-ballast valve in B cover plate, with solenoid valve 24 VDC	0916518385	0916518385	0916518385	0916518385
Oil level/temperature switch ≤ 230 VAC / 100 VDC	0652566788	0652566788	0652566788	0652566788
Temperature switch ≤ 250 VAC / V DC	0651566632	0651566632	0651566632	0651566632
Temperature transmitter 0–150°C, Ex, 4 – 20 mA	0651566842	0651566842	0651566842	0651566842
Pressure switch ≤ 230 VDC / VAC	0653566736	0653566736	0653566736	0653566736
Pressure transmitter, 0–1 bar(g) Ex, 4–20 mA	0653567425	0653567425	0653567425	0653567425
Manometer	0946504734	0946504734	0946504734	0946504734
Vacuum regulating unit	0947000482	0947000482	0947000481	0947000481

	R5 RA 0165 D	R5 RA 0205 D	R5 RA 0255 D	R5 RA 0305 D
Oil separator with automatic oil return	0947522025	0947522025	0947522025	0947522025
Hose nipple, R 2, Ø 59.6 mm	0574000014	0574000014	0574000014	0574000014
Reducing nipple, type 241, 2½"-2"	0945000135	0945000135	0945000135	0945000135
Water regulating unit for heat exchanger (thermostatic valve, pressure switch, dirt trap)	0918558131	0918558131	0918558131	0918558131
Water regulating unit for heat exchanger (2/2 solenoid valve, thermostatic valve, pressure switch, dirt trap)	0918205658	0918205658	0918205658	0918205658
Activated carbon filter for exhaust gases, vertical orientation	0945527592	0945527592	0945527592	0945527592
Activated carbon filter for exhaust gases, horizontal orientation	0945569488	0945569488	0945569488	0945569488

R5 RA 0400–0630 C

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly resilient carbon fiber vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for continuous operation

Flexible

Various design options available, easy adaption to individual customer requirements and processes, variable speed drive available

	R5 RA 0400 C	R5 RA 0502 C	R5 RA 0630 C
Nominal pumping speed	410 / 480 m ³ /h (50 / 60 Hz)	510 / 590 m ³ /h (50 / 60 Hz)	630 / 760 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)	0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	11 / 15 kW (50 / 60 Hz)	11 / 15 kW (50 / 60 Hz)	15 / 18.5 kW (50 / 60 Hz)
Nominal motor speed	1000 / 1200 min ⁻¹ (50 / 60 Hz)	1000 / 1200 min ⁻¹ (50 / 60 Hz)	1000 / 1200 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	8.2 / 10.0 kW (50 / 60 Hz)	9.9 / 12.0 kW (50 / 60 Hz)	11.6 / 14.4 kW (50 / 60 Hz)
Power consumption at ultimate pressure	4.7 / 5.6 kW (50 / 60 Hz)	5.8 / 6.4 kW (50 / 60 Hz)	6.5 / 8.0 kW (50 / 60 Hz)
Noise level (ISO 2151)	77 / 79 dB(A) (50 / 60 Hz)	77 / 79 dB(A) (50 / 60 Hz)	77 / 79 dB(A) (50 / 60 Hz)
Oil capacity	12 l	12 l	15 l
Approximate weight	435 kg	530 kg	550 kg
Dimensions (L x W x H)	1309 x 862 x 711 mm	1374 x 864 x 712 mm	1723 x 912 x 712 mm
Gas inlet / outlet	G 3" / G 3"	G 3" / G 3"	G 3" / G 3"

R5 RA 0750 A

Oil-Lubricated Rotary Vane Vacuum Pump



Flexible

Various design options available, easy adaption to individual customer requirements and processes, variable speed drive available

High performance

High pumping speed at low pressures, specially designed for medium vacuum applications like heat treatment, coating and surface treatment processes

Reliable

Robust construction, special water-cooling system for high thermal stability, highly resilient carbon fiber vanes, proven rotary vane technology, long service life

R5 RA 0750 A	
Nominal pumping speed	750 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.08 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	18.5 kW (50 / 60 Hz)
Nominal motor speed	1200 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	11.7 / 14.5 kW (50 / 60 Hz)
Power consumption at ultimate pressure	6.8 / 8.4 kW (50 / 60 Hz)
Noise level (ISO 2151)	78 dB(A) (50 / 60 Hz)
Oil capacity	15 l
Approximate weight	670 kg
Dimensions (L x W x H)	1570 x 975 x 915 mm
Gas inlet / outlet	DN 100 / DN 100

R5 RA 1000/1600 B

Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Robust construction, highly resilient carbon fiber vanes, proven rotary vane technology, long service life

High performance

High pumping speed at low pressures, designed for continuous operation

Flexible

Various design options available, easy adaption to individual customer requirements and processes, level and temperature switch as standard

	R5 RA 1000 B	R5 RA 1600 B
Nominal pumping speed	1000 / 1200 m ³ /h (50 / 60 Hz)	1600 / 1800 m ³ /h (50 / 60 Hz)
Ultimate pressure	0.3 hPa (mbar) (50 / 60 Hz)	0.3 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	22.0 / 30.0 kW (50 / 60 Hz)	30.0 / 37.0 kW (50 / 60 Hz)
Nominal motor speed	1000 / 1200 min ⁻¹ (50 / 60 Hz)	1000 / 1200 min ⁻¹ (50 / 60 Hz)
Power consumption at 100 mbar	17.3 / 22.4 kW (50 / 60 Hz)	26.8 / 33.0 kW (50 / 60 Hz)
Power consumption at ultimate pressure	9.3 / 12.1 kW (50 / 60 Hz)	13.8 / 17.9 kW (50 / 60 Hz)
Noise level (ISO 2151)	82 dB(A) (50 / 60 Hz)	83 dB(A) (50 / 60 Hz)
Oil capacity	30 l	30 l
Approximate weight	1000 / 1060 kg	1330 / 1350 kg
Dimensions (L x W x H)	1894 x 1003 x 936 mm	2234 x 1040 x 936 mm
Gas inlet / outlet	DN 150 / DN 125	DN 150 / DN 125

Accessories and spare parts – R5 RA 1000/1600 B

	R5 RA 1000 B	R5 RA 1600 B
Inlet filter with paper cartridge, horizontal orientation	0945 502 545	0945 502 545
Inlet filter with polyester cartridge, horizontal orientation	0945 516 558	0945 516 558
Replacement paper cartridge	0532 000 007	0532 000 007
Replacement polyester cartridge	0532 516 239	0532 516 239
Gas-ballast valve, fan cover side	0916 000 307	0916 000 307
Gas-ballast valve, motor side	0916 000 307	0916 000 307
Gas-ballast with 24V solenoid valve, fan cover side	0916 533 281	0916 533 281
Gas-ballast with 24V solenoid valve, motor side	0916 533 281	0916 533 281
Exhaust pressure gauge	0946 000 102	0946 000 102
Water-oil heat exchanger	On request	On request
Level switch	0652 566 788	0652 566 788
Pressure switch	0653 566 736	0653 566 736
Pressure transmitter	0653 567 425	0653 567 425

COBRA NC 0100–0300 B

Dry Screw Vacuum Pumps



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for chemical processes, distillation and vacuum drying

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

Flexible

Air cooling, various sealing and coating configurations as well as ATEX-certified versions available

	COBRA NC 0100 B	COBRA NC 0200 B	COBRA NC 0300 B
Pumping speed	110 / 130 m ³ /h (50 / 60 Hz)	220 / 265 m ³ /h (50 / 60 Hz)	320 / 385 m ³ /h (50 / 60 Hz)
Ultimate pressure	≤ 0.05 / ≤ 0.01 hPa (mbar) (50 / 60 Hz)	≤ 0.05 / ≤ 0.01 hPa (mbar) (50 / 60 Hz)	≤ 0.05 / ≤ 0.01 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	3.5 / 4.8 kW (50 / 60 Hz)	6.0 / 7.6 kW (50 / 60 Hz)	7.5 / 9.5 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Noise level (ISO 2151)	≤ 70 / ≤ 74 dB(A) (50 / 60 Hz)	≤ 71 / ≤ 76 dB(A) (50 / 60 Hz)	≤ 72 / ≤ 77 dB(A) (50 / 60 Hz)
Approximate weight	300 kg	350 kg	400 kg
Dimensions (L x W x H)	957 x 520 x 914 mm	1207 x 520 x 914 mm	1279 x 520 x 914 mm
Gas inlet / outlet	DN 40 PN 16 / DN 40 PN 16	DN 50 PN 16 / DN 50 PN 16	DN 50 PN 16 / DN 50 PN 16

COBRA NC 0400–1000 B/C

Dry Screw Vacuum Pumps



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for chemical processes, distillation and vacuum drying

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

Flexible

Air cooling, various sealing and coating configurations as well as ATEX-certified versions available

	COBRA NC 0400 B	COBRA NC 0630 C	COBRA NC 1000 B
Nominal pumping speed	350 / 420 m ³ /h (50 / 60 Hz)	630 m ³ /h (50 / 60 Hz)	840 / 1000 m ³ /h (50 / 60 Hz)
Ultimate pressure	≤ 0.05 / ≤ 0.01 hPa (mbar) (50 / 60 Hz)	≤ 0.01 hPa (mbar) (50 / 60 Hz)	≤ 0.5 / ≤ 0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	7.5 / 9.5 kW (50 / 60 Hz)	15.0 / 17.0 kW (50 / 60 Hz)	22.0 / 25.0 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Noise level (ISO 2151)	66 / 69 dB(A) (50 / 60 Hz)	70 / 75 dB(A) (50 / 60 Hz)	74 / 81 dB(A) (50 / 60 Hz)
Approximate weight	500 kg	600 kg	1500 kg
Dimensions (L x W x H)	1367 x 480 x 700 mm	1502 x 602 x 640 mm	1928 x 620 x 974 mm
Gas inlet / outlet	DN 80 PN 6 / DN 63 ISO-K	DN 100 ISO-K / DN 100 ISO-K	DN 125 PN 16 / DN 125 PN 16

COBRA NC 0600 C

Dry Screw Vacuum Pump



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for chemical processes, distillation and vacuum drying

Flexible

Air cooling, various sealing and coating configurations as well as ATEX-certified versions available

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

COBRA NC 0600 C	
Pumping speed	600 m ³ /h
Ultimate pressure	≤ 0.01 hPa (mbar)
Nominal motor rating	18.5 kW
Power consumption at ultimate pressure	9 kW
Nominal motor speed	3000 / 3600 min ⁻¹
Noise level (ISO 2151)	≤ 74 / ≤ 76 dB(A)
Approximate weight	600 kg
Dimensions (L x W x H)	1502 x 602 x 640 mm
Gas inlet / outlet	DN 100 ISO-K / DN 100 ISO-K

COBRA NC 2500 B

Dry Screw Vacuum Pump



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for steel degassing, space simulation or vacuum drying

Flexible

Various sealing configurations and ATEX-certified versions available

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

COBRA NC 2500 B	
Nominal pumping speed	2000 / 2500 m ³ /h (50 / 60 Hz)
Ultimate pressure	≤ 1.0 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	55.0 / 63.0 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Noise level (ISO 2151)	82 / 84 dB(A) (50 / 60 Hz)
Approximate weight	2000 kg
Dimensions (L x W x H)	2243 x 1053 x 1437 mm
Gas inlet / outlet	DN 150 PN 16 / DN 100 PN 16

COBRA NS 0070-0600 C

Dry Screw Vacuum Pumps



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for coating applications, helium pumping or fluorination

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

Leak-tight design

Integrated motor, no contamination of process gases, gas-tight

	COBRA NS 0070 C	COBRA NS 0160 C	COBRA NS 0600 C
Nominal pumping speed	70 / 85 m ³ /h (50 / 60 Hz)	135 / 160 m ³ /h (50 / 60 Hz)	600 m ³ /h (50 / 60 Hz)
Ultimate pressure	3.0 · 10 ⁻² hPa (mbar) (50 / 60 Hz)	3.0 · 10 ⁻² hPa (mbar) (50 / 60 Hz)	1.0 · 10 ⁻² hPa (mbar) (50 / 60 Hz)
Nominal motor rating	4.0 / 4.4 kW (50 / 60 Hz)	5.5 / 6.6 kW (50 / 60 Hz)	15 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Noise level (ISO 2151)	62 dB(A) (50 / 60 Hz)	68 dB(A) (50 / 60 Hz)	68 dB(A) (50 / 60 Hz)
Approximate weight	250 kg	250 kg	600 kg
Dimensions (L x W x H)	809 x 483 x 416 mm	873 x 483 x 416 mm	1329 x 589 x 645 mm
Gas inlet / outlet	DN 40 ISO-KF / DN 40 ISO-KF	DN 50 ISO-KF / DN 40 ISO-KF	DN 100 ISO-K / DN 100 ISO-K

COBRA NX 0450/0650 A

Dry Screw Vacuum Pumps



High performance

Advanced screw design, patented self-balancing screws, perfectly suited for heat treatment, coating, vacuum packaging, vacuum drying and degassing

Efficient

Low cost of ownership, minimal maintenance, long service intervals, high uptime, efficient water cooling

Flexible

Modular design, easy combination with PANDA vacuum boosters for increased ultimate pressure and pumping speed

	COBRA NX 0450 A	COBRA NX 0650 A
Nominal pumping speed	350 / 420 m ³ /h (50 / 60 Hz)	650 m ³ /h (50 / 60 Hz)
Ultimate pressure	≤ 0.1 hPa (mbar) (50 / 60 Hz)	≤ 0.1 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	7.5 / 9.5 kW (50 / 60 Hz)	12.5 / 15.0 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Noise level (ISO 2151)	65 / 70 dB(A) (50 / 60 Hz)	71 / 75 dB(A) (50 / 60 Hz)
Approximate weight	500 kg	700 kg
Dimensions (L x W x H)	1321 x 450 x 551 mm	1521 x 524 x 623 mm
Gas inlet / outlet	G 3"/ ISO-F DN 100 / G 2"/ ISO-F DN 63	G 3"/ ISO-F DN 100 / G 3"/ ISO-F DN 100

PANDA WV 0250–1000 C

Vacuum Boosters



Reliable

Solid lobe design, robust construction, reliable under varying operating conditions, barrier gas connection

High performance

Excellent volumetric efficiency, high ultimate pressure, increases the performance of a vacuum system by up to a factor of ten, integrated bypass valve, specially designed for rough and medium vacuum applications

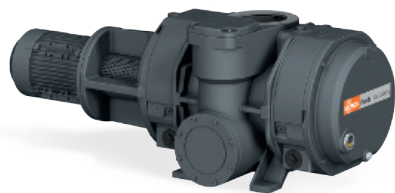
Flexible

Can be flanged directly on the system at any position, boosts the performance of all types of backing pumps, with vertical or lateral discharge, perfectly suited for chemical processes

	PANDA WV 0250 C	PANDA WV 0500 C	PANDA WV 1000 C
Nominal pumping speed	250 / 300 m ³ /h (50 / 60 Hz)	500 / 600 m ³ /h (50 / 60 Hz)	1050 / 1200 m ³ /h (50 / 60 Hz)
Pumping speed	235 / 285 m ³ /h (50 / 60 Hz)	480 / 575 m ³ /h (50 / 60 Hz)	950 / 1140 m ³ /h (50 / 60 Hz)
Max. differential pressure	100 hPa (mbar) (50 / 60 Hz)	100 hPa (mbar) (50 / 60 Hz)	53 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	1.1 / 1.5 kW (50 / 60 Hz)	2.2 / 3.0 kW (50 / 60 Hz)	3.5 / 4.8 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Approximate weight	150 kg	150 kg	250 kg
Dimensions (L x W x H)	904 x 352 x 422 mm	917 x 352 x 422 mm	1048 x 402 x 483 mm
Gas inlet / outlet (vertical)	DN 100 ISO / DN 100 ISO	DN 100 ISO / DN 100 ISO	DN 160 ISO / DN 100 ISO
Gas inlet / outlet (horizontal)	DN 100 ISO / DN 063 ISO	DN 100 ISO / DN 063 ISO	DN 160 ISO / DN 100 ISO

PANDA WV 1200–2400 A

Vacuum Boosters



Reliable

Solid lobe design, robust construction made of GGG40 material, reliable under varying operating conditions, barrier gas connection, standard mechanical shaft seals

High performance

Excellent volumetric efficiency, high ultimate pressure, increases the performance of a vacuum system by up to a factor of ten, integrated bypass valve, specially designed for rough and medium vacuum applications

Flexible

Can be flanged directly on the system at any position, boosts the performance of all types of backing pumps, with vertical or lateral discharge, perfectly suited for chemical processes

	PANDA WV 1200 A	PANDA WV 1800 A	PANDA WV 2400 A
Nominal pumping speed	1050 / 1260 m ³ /h (50 / 60 Hz)	1600 / 1920 m ³ /h (50 / 60 Hz)	2120 / 2540 m ³ /h (50 / 60 Hz)
Pumping speed	950 / 1141 m ³ /h (50 / 60 Hz)	1443 / 1718 m ³ /h (50 / 60 Hz)	1920 / 2290 m ³ /h (50 / 60 Hz)
Max. differential pressure	53 hPa (mbar) (50 / 60 Hz)	53 hPa (mbar) (50 / 60 Hz)	53 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	3.5 / 4.8 kW (50 / 60 Hz)	4.3 / 5.2 kW (50 / 60 Hz)	6.0 / 7.6 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Approximate weight	290 kg	300 kg	520 kg
Dimensions (L x W x H)	1094 x 470 x 353 mm	1114 x 470 x 398 mm	1286 x 568 x 503 mm
Gas inlet / outlet (vertical)	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 160 ISO
Gas inlet / outlet (horizontal)	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 160 ISO

PANDA WV 1500/4500 B/C

Vacuum Boosters



Reliable

Solid lobe design, robust construction, reliable under varying operating conditions, barrier gas connection

High performance

Excellent volumetric efficiency, high ultimate pressure, increases the performance of a vacuum system by up to a factor of ten, integrated bypass valve, specially designed for rough and medium vacuum applications

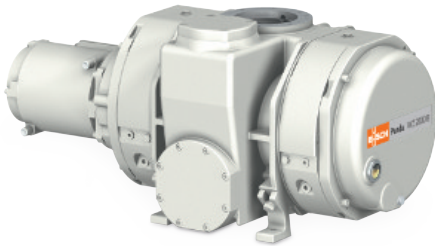
Flexible

Can be flanged directly on the system at any position, boosts the performance of all types of backing pumps, with vertical or lateral discharge, perfectly suited for a wide range of applications

	PANDA WV 1500 C	PANDA WV 4500 B
Nominal pumping speed	1500 / 1800 m ³ /h (50 / 60 Hz)	4500 / 5400 m ³ /h (50 / 60 Hz)
Pumping speed	1400 / 1670 m ³ /h (50 / 60 Hz)	4100 / 4950 m ³ /h (50 / 60 Hz)
Max. differential pressure	43 hPa (mbar) (50 / 60 Hz)	25 hPa (mbar) (50 / 60 Hz)
Nominal motor rating	4.3 / 5.2 kW (50 / 60 Hz)	11.0 / 12.6 kW (50 / 60 Hz)
Nominal motor speed	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Approximate weight	270 kg	690 kg
Dimensions (L x W x H)	1068 x 432 x 516 mm	690 x 690 x 510 mm
Gas inlet / outlet	DN 160 ISO / DN 100 ISO	DN 250 ISO / DN 160 ISO

PANDA WZ 0250–2000 B

Vacuum Boosters



Reliable

Solid lobe design, robust construction, reliable under varying operating conditions, leak-tight, barrier gas connection

High performance

Excellent volumetric efficiency, high ultimate pressure, increases the performance of a vacuum system by up to a factor of ten, integrated bypass valve, specially designed for medium and high vacuum applications including semiconductor processes

Flexible

Can be flanged directly on the system at any position, boosts the performance of all types of backing pumps, with vertical or lateral discharge

	PANDA WZ 0250 B	PANDA WZ 0500 B	PANDA WZ 1000 B	PANDA WZ 2000 B
Nominal pumping speed	263 / 315 m ³ /h (50 / 60 Hz)	525 / 630 m ³ /h (50 / 60 Hz)	1050 / 1260 m ³ /h (50 / 60 Hz)	2120 / 2540 m ³ /h (50 / 60 Hz)
Pumping speed	233 / 281 m ³ /h (50 / 60 Hz)	464 / 560 m ³ /h (50 / 60 Hz)	971 / 1160 m ³ /h (50 / 60 Hz)	1830 / 2132 m ³ /h (50 / 60 Hz)
Max. differential pressure	100 hPa (mbar) (50 / 60 Hz)	100 hPa (mbar) (50 / 60 Hz)	53 hPa (mbar) (50 / 60 Hz)	43 hPa (mbar) (50 / 60 Hz)
Leakage rate	≤ 1 · 10 ⁻⁶ mbar · l/s	≤ 1 · 10 ⁻⁶ mbar · l/s	≤ 1 · 10 ⁻⁶ mbar · l/s	≤ 1 · 10 ⁻⁶ mbar · l/s
Nominal motor rating	1.5 / 1.8 kW (50 / 60 Hz)	4.0 / 4.4 kW (50 / 60 Hz)	4.0 / 4.4 kW (50 / 60 Hz)	5.5 / 6.6 kW (50 / 60 Hz)
Nominal motor speed	1500 / 1800 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)	3000 / 3600 min ⁻¹ (50 / 60 Hz)
Approximate weight	165 kg	175 kg	270 kg	510 kg
Dimensions (L x W x H)	819 x 372 x 422 mm	819 x 372 x 422 mm	870 x 402 x 483 mm	1086 x 558 x 503 mm
Gas inlet / outlet (vertical)	DN 100 ISO / DN 100 ISO	DN 100 ISO / DN 100 ISO	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 160 ISO
Gas inlet / outlet (horizontal)	DN 100 ISO / DN 63 ISO	DN 100 ISO / DN 63 ISO	DN 160 ISO / DN 100 ISO	DN 160 ISO / DN 160 ISO

ZEBRA RH 0003-0010 B

Two-Stage Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Specially designed for a wide range of applications in the medium vacuum range, robust construction, proven rotary vane vacuum technology

High performance

Stable pumping speed even in low pressure range

Quiet

Perfectly suited for research labs and low-noise working environments, < 60 dB(A) at 50 Hz

	ZEBRA RH 0003 B	ZEBRA RH 0010 B	ZEBRA RH 0010 B
Pumping speed	2.4 / 2.9 m ³ /h (50 / 60 Hz)	8.1 / 9.7 m ³ /h (50 / 60 Hz)	8.1 / 9.7 m ³ /h (50 / 60 Hz)
Pumping speed	40 / 48 l/min (50 / 60 Hz)	135 / 162 l/min (50 / 60 Hz)	135 / 162 l/min (50 / 60 Hz)
Ultimate partial pressure (gas-ballast valve closed)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)
Ultimate total pressure (gas-ballast valve closed)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)
Ultimate total pressure (gas-ballast valve open)	6.7 · 10 ⁻² hPa (mbar)	6.7 · 10 ⁻² hPa (mbar)	6.7 · 10 ⁻² hPa (mbar)
Max. continuous inlet pressure	100 hPa (mbar)	100 hPa (mbar)	100 hPa (mbar)
Max. back pressure (gauge)	300 hPa (mbar)	300 hPa (mbar)	300 hPa (mbar)
Water vapor capacity (gas-ballast valve open)	5 g/h	38 g/h	38 g/h
Nominal motor rating	0.2 kW	0.4 kW	0.4 kW
Operating voltage	100 – 120 / 200 – 240 V (50 / 60 Hz)	100 – 120 / 200 – 240 V (50 / 60 Hz)	200 – 240 / 380 – 415 / 200 – 240 / 380 – 460 V (50 / 60 Hz)
Motor phase	Single-phase	Single-phase	Three-phase
Ambient temperature	7 – 40 °C	7 – 40 °C	7 – 40 °C
Oil	VSD 026	VMA 055	VMA 055
Oil capacity	0.8 l	1 l	1 l

	ZEBRA RH 0003 B	ZEBRA RH 0010 B	ZEBRA RH 0010 B
Noise level (ISO 2151)	< 52 / < 53 dB(A) (50 / 60 Hz)	< 52 / < 54 dB(A) (50 / 60 Hz)	< 49 / < 52 dB(A) (50 / 60 Hz)
Approximate weight	16 kg	29 kg	26 kg
Dimensions (L x W x H)	427 x 150 x 228 mm	488 x 170 x 250 mm	486 x 170 x 250 mm
Gas inlet / outlet	ISO-KF 25 / ISO-KF 25	ISO-KF 25 / ISO-KF 25	ISO-KF 25 / ISO-KF 25
Marking	cTUVus	cTUVus	cTUVus
Additional information	<ul style="list-style-type: none"> • M/A switch • Prefilled with VSD 026 oil 	<ul style="list-style-type: none"> • M/A switch • Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> • Terminal box • Prefilled with VMA 055 oil

Accessories and spare parts - ZEBRA RH 0003–0010 B

	ZEBRA RH 0003 B	ZEBRA RH 0010 B
FIL 0040 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 25 ISO-KF, supplied with a DN 25 ISO-KF hose clamp	0530168811	0530168811
Replacement polyester cartridge for FIL 0040	0532121861	0532121861
Special replacement cartridge for FIL 0040	On request	On request
OMS 0003 oil mist separator: PET cartridge, 0.3µ retention, inlet / outlet G ¾", integrated oil return, stainless steel	0960168804	-
Replacement cartridge for OMS 0003	0532169042	-
OMS 0021 oil mist separator: PET cartridge, retention 0.3µ, inlet / outlet G 1", integrated oil return, stainless steel	-	0960168805
Replacement cartridge for OMS 0021	-	0532169043
Gas-ballast valve	Included	Included
VSD 026 oil, 1 l	0831169419	-
VMA 055 oil, 1 l	-	0831169415
VMA 055 oil, 5 l	-	0831169416
Maintenance kit: O-rings, sealing ring, exhaust valve with spring	0992168912	0992168944

	ZEBRA RH 0003 B	ZEBRA RH 0010 B
Repair kit: vanes, vane springs	0993168943	0993168945
Cable kit, Europe	Open electrical wire included	Included
Cable kit, North America NEMA 5/15, 2 m	-	0659930583
Cable kit, North America NEMA 6/15, 2 m	-	0659930582
Other cable kits	-	On request

ZEBRA RH 0015–0021 B

Two-Stage Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Specially designed for a wide range of applications in the medium vacuum range, robust construction, proven rotary vane vacuum technology

High performance

Stable pumping speed even in low pressure range

Quiet

Perfectly suited for research labs and low-noise working environments, < 60 dB(A) at 50 Hz

	ZEBRA RH 0015 B	ZEBRA RH 0015 B	ZEBRA RH 0021 B	ZEBRA RH 0021 B
Pumping speed	12.0 / 14.4 m ³ /h (50 / 60 Hz)	12.0 / 14.4 m ³ /h (50 / 60 Hz)	16.9 / 20.2 m ³ /h (50 / 60 Hz)	16.9 / 20.2 m ³ /h (50 / 60 Hz)
Pumping speed	200 / 240 l/min (50 / 60 Hz)	200 / 240 l/min (50 / 60 Hz)	280 / 336 l/min (50 / 60 Hz)	280 / 336 l/min (50 / 60 Hz)
Ultimate partial pressure (gas-ballast valve closed)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)
Ultimate total pressure (gas-ballast valve closed)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)
Ultimate total pressure (gas-ballast valve open)	6.7 · 10 ⁻² hPa (mbar)	6.7 · 10 ⁻² hPa (mbar)	6.7 · 10 ⁻² hPa (mbar)	6.7 · 10 ⁻² hPa (mbar)
Max. continuous inlet pressure	100 hPa (mbar)	100 hPa (mbar)	100 hPa (mbar)	100 hPa (mbar)
Max. back pressure (gauge)	300 hPa (mbar)	300 hPa (mbar)	300 hPa (mbar)	300 hPa (mbar)
Water vapor capacity (gas-ballast valve open)	40 g/h	40 g/h	73 g/h	73 g/h
Nominal motor rating	0.55 kW	0.55 kW	0.75 kW	0.7 kW
Operating voltage	100 – 120 / 200 – 240 V (50 / 60 Hz)	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)	115 / 200 – 240 V (50 / 60 Hz)	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)
Motor phase	Single-phase	Three-phase	Single-phase	Three-phase
Ambient temperature	7 – 40 °C	7 – 40 °C	7 – 40 °C	7 – 40 °C

	ZEBRA RH 0015 B	ZEBRA RH 0015 B	ZEBRA RH 0021 B	ZEBRA RH 0021 B
Oil	VMA 055	VMA 055	VMA 055	VMA 055
Oil capacity	1.1 l	1.1 l	1.1 l	1.1 l
Noise level (ISO 2151)	< 54 / < 56 dB(A) (50 / 60 Hz)	< 52 / < 55 dB(A) (50 / 60 Hz)	< 59 / < 61 dB(A) (50 / 60 Hz)	< 59 / < 63 dB(A) (50 / 60 Hz)
Approximate weight	31 kg	29 kg	42 kg	34.5 kg
Dimensions (L x W x H)	516 x 170 x 250 mm	514 x 170 x 240 mm	585 x 182 x 271 mm	536 x 181 x 269 mm
Gas inlet / outlet	ISO-KF 25 / ISO-KF 25	ISO-KF 25 / ISO-KF 25	ISO-KF 25 / ISO-KF 25	ISO-KF 25 / ISO-KF 25
Marking	cTUVus	cTUVus	cTUVus	cTUVus
Additional information	<ul style="list-style-type: none"> • M/A switch • Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> • Terminal box • Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> • M/A switch • Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> • Terminal box • Prefilled with VMA 055 oil

Accessories and spare parts – ZEBRA RH 0015–0021 B

	ZEBRA RH 0015 B	ZEBRA RH 0021 B
FIL 0040 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 25 ISO-KF, supplied with a DN 25 ISO-KF hose clamp	0530168811	0530168811
Replacement polyester cartridge for FIL 0040	0532121861	0532121861
Special replacement cartridge for FIL 0040	On request	On request
OMS 0021 oil mist separator: PET cartridge, retention 0.3µ, inlet / outlet G 1", integrated oil return, stainless steel	0960168805	0960168805
Replacement cartridge for OMS 0021	0532169043	0532169043
Gas-ballast valve	Included	Included
VMA 055 oil, 1 l	0831169415	0831169415
VMA 055 oil, 5 l	0831169416	0831169416
Maintenance kit: O-rings, sealing ring, exhaust valve with spring	0992168946	0992168948
Repair kit: vanes, vane springs	0993168947	0993168949
Cable kit, Europe	Included	Included

	ZEBRA RH 0015 B	ZEBRA RH 0021 B
Cable kit, North America NEMA 5/15, 2 m	0659930583	0659930583
Cable kit, North America NEMA 6/15, 2 m	0659930582	0659930582
Other cable kits	On request	On request

ZEBRA RH 0030–0090 B

Two-Stage Oil-Lubricated Rotary Vane Vacuum Pumps



Reliable

Specially designed for a wide range of applications in the medium vacuum range, robust construction, proven rotary vane vacuum technology

High performance

Stable pumping speed even in low pressure range

Quiet

Perfectly suited for research labs and low-noise working environments, < 60 dB(A) at 50 Hz

	ZEBRA RH 0030 B	ZEBRA RH 0040 B	ZEBRA RH 0060 B	ZEBRA RH 0090 B
Pumping speed	24 / 29 m ³ /h (50 / 60 Hz)	33 / 39 m ³ /h (50 / 60 Hz)	55 / 65 m ³ /h (50 / 60 Hz)	80 / 95 m ³ /h (50 / 60 Hz)
Pumping speed	400 / 483 l/min (50 / 60 Hz)	550 / 650 l/min (50 / 60 Hz)	917 / 1083 l/min (50 / 60 Hz)	1333 / 1583 l/min (50 / 60 Hz)
Ultimate partial pressure (gas-ballast valve closed)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)	6.7 · 10 ⁻⁴ hPa (mbar)
Ultimate total pressure (gas-ballast valve closed)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)	6.7 · 10 ⁻³ hPa (mbar)
Ultimate total pressure (gas-ballast valve open)	2 · 10 ⁻² hPa (mbar)	2 · 10 ⁻² hPa (mbar)	2 · 10 ⁻² hPa (mbar)	2 · 10 ⁻² hPa (mbar)
Max. continuous inlet pressure	65 hPa (mbar)	65 hPa (mbar)	65 hPa (mbar)	10 hPa (mbar)
Max. back pressure (gauge)	300 hPa (mbar)	300 hPa (mbar)	300 hPa (mbar)	300 hPa (mbar)
Water vapor capacity (gas-ballast valve open)	190 / 250 g/h (50 / 60 Hz)	270 / 410 g/h (50 / 60 Hz)	430 / 1100 g/h (50 / 60 Hz)	480 / 600 g/h (50 / 60 Hz)
Nominal motor rating	1.5 kW	1.5 kW	2.2 kW	3.7 kW
Operating voltage	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)	200 – 240 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 460 V (60 Hz)
Ambient temperature	4 – 40 °C	4 – 40 °C	4 – 40 °C	4 – 40 °C
Oil	VMA 055	VMA 055	VMA 055	VMA 055

	ZEBRA RH 0030 B	ZEBRA RH 0040 B	ZEBRA RH 0060 B	ZEBRA RH 0090 B
Oil capacity	2.5 l	2.5 l	4 l	4 l
Noise level (ISO 2151)	< 57 / < 61 dB(A) (50 / 60 Hz)	< 60 / < 64 dB(A) (50 / 60 Hz)	< 60 / < 64 dB(A) (50 / 60 Hz)	< 60 / < 66 dB(A) (50 / 60 Hz)
Approximate weight	58 kg	60 kg	90 kg	113 kg
Dimensions (L x W x H)	671 x 214 x 326 mm	691 x 214 x 326 mm	772 x 264 x 373 mm	831 x 264 x 373 mm
Gas inlet / outlet	ISO-KF 40 / ISO-KF 40	ISO-KF 40 / ISO-KF 40	ISO-KF 40 / ISO-KF 40	ISO-K 63 / ISO-KF 40
Marking	cTUVus	cTUVus	cTUVus	cTUVus
Additional information	<ul style="list-style-type: none"> Terminal box Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> Terminal box Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> Terminal box Prefilled with VMA 055 oil 	<ul style="list-style-type: none"> Terminal box Prefilled with VMA 055 oil Vacuum pump not intended for continuous operation at pressures > 10 mbar abs.

Accessories and spare parts – ZEBRA RH 0030–0090 B

	ZEBRA RH 0030 B	ZEBRA RH 0040 B	ZEBRA RH 0060 B	ZEBRA RH 0090 B
FIL 0080 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 40 ISO-KF, supplied with a clamping ring, a DN 40 ISO-KF centering ring	0530566434	0530566434	0530566434	-
Replacement polyester cartridge for FIL 0080	0532121862	0532121862	0532121862	-
Special replacement cartridge for FIL 0080	On request	On request	On request	-
FIL 0350 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 63 ISO-K, supplied with a centering ring, four DN 63 ISO-KF clamps	-	-	-	0530168812
Replacement polyester cartridge for FIL 0350	-	-	-	0532121864
Special replacement cartridge for FIL 0350	-	-	-	On request
OMS 0040 oil mist separator: PET cartridge, retention 0.5µ, inlet / outlet VF 40 / DN 40 ISO-KF, stainless steel	0960168806	0960168806	-	-

	ZEBRA RH 0030 B	ZEBRA RH 0040 B	ZEBRA RH 0060 B	ZEBRA RH 0090 B
Replacement cartridge for OMS 0040	0532169044	0532169044	-	-
OMS 0090 oil mist separator: PET cartridge, retention 0.5μ, inlet / outlet VF 40 / DN 40 ISO-KF, stainless steel	-	-	0960168807	0960168807
Replacement cartridge for OMS 0090	-	-	0532169045	0532169045
Oil return line	0946168809	0946168809	0946168809	0946168809
Gas-ballast valve	0916168803	0916168803	0916168803	0916168803
VMA 055, 1 l	0831169415	0831169415	0831169415	0831169415
VMA 055, 5 l	0831169416	0831169416	0831169416	0831169416
Maintenance kit: O-rings, flat gaskets, sealing rings, coupling flector	0992168950	0992168952	0992168954	0992168956
Repair kit: vanes, exhaust flaps, flap springs	0993168951	0993168953	0993168955	0993168957

FOSSA FO 0015 A

Scroll Vacuum Pumps



Robust

Specially designed for analytical and scientific applications, for example leak detection, single-sided scroll design, dry compression, gas-tight, lifetime-lubricated bearings, minimal maintenance

Easy servicing

No special tools necessary, modular design for rapid exchange of stages

Quiet

Low noise and vibration levels, can be installed at workstations

	FOSSA FO 0015 A	FOSSA FO 0015 A	FOSSA FO 0015 A	FOSSA FO 0015 A
Pumping speed	15 / 18 m ³ /h (50 / 60 Hz)	15 / 18 m ³ /h (50 / 60 Hz)	15 / 18 m ³ /h (50 / 60 Hz)	15 / 18 m ³ /h (50 / 60 Hz)
Pumping speed	250 / 300 l/min (50 / 60 Hz)	250 / 300 l/min (50 / 60 Hz)	250 / 300 l/min (50 / 60 Hz)	250 / 300 l/min (50 / 60 Hz)
Ultimate total pressure (gas-ballast valve closed)	0.025 hPa (mbar)	0.025 hPa (mbar)	0.025 hPa (mbar)	0.025 hPa (mbar)
Ultimate total pressure (gas-ballast valve open)	0.09 hPa (mbar)	0.09 hPa (mbar)	0.09 hPa (mbar)	0.09 hPa (mbar)
Max. continuous inlet pressure	1000 hPa (mbar) rel.	1000 hPa (mbar) rel.	1000 hPa (mbar) rel.	1000 hPa (mbar) rel.
Max. back pressure	500 hPa (mbar) rel.	500 hPa (mbar) rel.	500 hPa (mbar) rel.	500 hPa (mbar) rel.
Water vapor capacity (gas-ballast valve open)	300 g/h	300 g/h	300 g/h	300 g/h
Leakage rate (helium)	< 1 · 10 ⁻⁶ mbar · l/s	< 1 · 10 ⁻⁶ mbar · l/s	< 1 · 10 ⁻⁶ mbar · l/s	< 1 · 10 ⁻⁶ mbar · l/s
Nominal motor rating	0.4 kW	0.4 kW	0.4 kW	0.4 kW
Operating voltage	100 – 240 V (50 / 60 Hz)	190 – 220 V (50 / 60 Hz)	100 – 115 V (50 / 60 Hz)	200 – 240 V (50 / 60 Hz)
Motor phase	Single-phase	Three-phase	Single-phase	Single-phase
Ambient temperature	5 – 40 °C	5 – 40 °C	5 – 40 °C	5 – 40 °C
Vibration level at inlet (ISO 10816-1)	Class 1B, < 1.5 mm · s ⁻¹	Class 1B, < 1.5 mm · s ⁻¹	Class 1B, < 1.5 mm · s ⁻¹	Class 1B, < 1.5 mm · s ⁻¹

	FOSSA FO 0015 A	FOSSA FO 0015 A	FOSSA FO 0015 A	FOSSA FO 0015 A
Noise level (ISO 2151)	42 dB(A) (idle mode) / 59 dB(A) (max.)	42 dB(A) (idle mode) / 59 dB(A) (max.)	42 dB(A) (idle mode) / 59 dB(A) (max.)	42 dB(A) (idle mode) / 59 dB(A) (max.)
Approximate weight	48 kg	48 kg	48 kg	48 kg
Dimensions (L x W x H)	450 x 338 x 369 mm	450 x 338 x 369 mm	450 x 338 x 369 mm	450 x 338 x 369 mm
Gas inlet / outlet	NW 40 / NW 16	NW 40 / NW 16	NW 40 / NW 16	NW 40 / NW 16
Emissions and immunity	EN 61236-1:2013 as a class A device	EN 61236-1:2013 as a class A device	EN 61236-1:2013 as a class A device	EN 61236-1:2013 as a class A device
Safety	EN/IEC 61010 third edition certified	EN/IEC 61010 third edition certified	EN/IEC 61010 third edition certified	EN/IEC 61010 third edition certified
Additional information	<ul style="list-style-type: none"> • Integrated frequency converter • IEC cable and connector + M/A IP40 switch • Female Sub-D 9-pin communication port • Certification ATEX II 3G Ex Ex h IIB T4 Gc X (inside) 	<ul style="list-style-type: none"> • IP44 cable gland • Certification ATEX II 3G Ex Ex h IIB T4 Gc X (inside) 	<ul style="list-style-type: none"> • IEC cable and connector + M/A IP40 switch • Certification ATEX II 3G Ex Ex h IIB T4 Gc X (inside) 	<ul style="list-style-type: none"> • IEC cable and connector + M/A IP40 switch • Certification ATEX II 3G Ex Ex h IIB T4 Gc X (inside)

Accessories and spare parts – FOSSA FO 0015 A

FOSSA FO 0015 A	
FIL 0080 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 40 ISO-KF, supplied with a clamping ring, a DN 40 ISO-KF centering ring	0530566434
Replacement polyester cartridge for FIL 0080	0532121862
Special replacement cartridge for FIL 0080	On request
Silencer and exhaust filter	0562566435
Replacement cartridge	0532566436
Kit with four castor wheels	0999569268
Purge kit	0916566457
Vibration isolation kit	Included
Gas-ballast valve	0540559847

FOSSA FO 0015 A	
Maintenance kit: right-angle joint, O-ring O₂, drain valve, pressure spring, valve guide, O-ring, sealing ring	0992205441
Set of cables	On request

FOSSA FO 0035 A

Scroll Vacuum Pumps



Robust

Specially designed for analytical and scientific applications, for example leak detection, single-sided scroll design, dry compression, gas-tight, lifetime-lubricated bearings, minimal maintenance

Easy servicing

No special tools necessary, modular design for rapid exchange of stages

Quiet

Low noise and vibration levels, can be installed at workstations

	FOSSA FO 0035 A	FOSSA FO 0035 A
Pumping speed	35 / 42 m ³ /h (50 / 60 Hz)	35 / 42 m ³ /h (50 / 60 Hz)
Pumping speed	583 / 700 l/min (50 / 60 Hz)	583 / 700 l/min (50 / 60 Hz)
Ultimate total pressure (gas-ballast valve closed)	0.01 hPa (mbar)	0.01 hPa (mbar)
Ultimate total pressure (gas-ballast valve open)	0.09 hPa (mbar)	0.09 hPa (mbar)
Max. continuous inlet pressure	100 hPa (mbar) rel.	100 hPa (mbar) rel.
Max. back pressure	200 hPa (mbar) rel.	200 hPa (mbar) rel.
Water vapor capacity (gas-ballast valve open)	400 g/h	400 g/h
Leakage rate (helium)	< 1 · 10 ⁻⁶ mbar · l/s	< 1 · 10 ⁻⁶ mbar · l/s
Nominal motor rating	0.75 kW	0.75 kW
Operating voltage	100 – 240 V (50 / 60 Hz)	190 – 220 / 380 – 415 V (50 Hz) / 200 – 240 / 380 – 480 V (60 Hz)
Motor phase	Single-phase	Three-phase
Ambient temperature	5 – 40 °C	5 – 40 °C
Vibration level at inlet (ISO 10816-1)	Class 1B, < 1.5 mm · s ⁻¹	Class 1B, < 1.5 mm · s ⁻¹
Noise level (ISO 2151)	43 dB(A) (idle mode) / 60 dB(A) (max.)	43 dB(A) (idle mode) / 60 dB(A) (max.)

	FOSSA FO 0035 A	FOSSA FO 0035 A
Approximate weight	50 kg	50 kg
Dimensions (L x W x H)	462 x 338 x 369 mm	462 x 338 x 369 mm
Gas inlet / outlet	NW 40 / NW 16	NW 40 / NW 16
Emissions and immunity	EN 61236-1:2013 as a class A device	EN 61236-1:2013 as a class A device
Safety	EN/IEC 61010 third edition certified	EN/IEC 61010 third edition certified
Additional information	<ul style="list-style-type: none"> • Integrated frequency converter • IEC cable and connector + M/A IP40 switch • Sub-D 9-pin, female communication port • ATEX II 3G Ex Ex h IIB T4 Gc X certification (inside) 	<ul style="list-style-type: none"> • IP44 cable gland • Motor without integrated thermal protection • ATEX II 3G Ex Ex h IIB T4 Gc X certification (inside)

Accessories and spare parts – FOSSA FO 0035 A

	FOSSA FO 0035 A
FIL 0080 inlet filter: polyester cartridge, 99% efficiency at 5µ, inlet / outlet DN 40 ISO-KF, supplied with a clamping ring, a DN 40 ISO-KF centering ring	0530566434
Replacement polyester cartridge for FIL 0080	0532121862
Special replacement cartridge for FIL 0080	On request
Silencer and exhaust filter	0562566435
Replacement cartridge	0532566436
Kit with four castor wheels	0999569268
Purge kit	0916566457
Vibration isolation kit	Included
Gas-ballast valve	0540559847
Maintenance kit: right-angle joint, O-ring O₂, drain valve, pressure spring, valve guide, O-ring, sealing ring	0992205442
Maintenance kit, oxygen	0992205443
Set of cables	On request

RANGU DF 1000–2800 A

Diffusion Vacuum Pumps



High performance

Designed for all industrial high vacuum applications, such as glass coating, vacuum furnaces, metal coating, high and stable pumping speeds under varying conditions, inlet pressure $\leq 10^{-3}$ hPa (mbar)

Reliable

Robust construction, perfectly suited for demanding processes, nearly maintenance-free

Quiet

Low noise and vibration levels

	RANGU DF 1000 A	RANGU DF 1700 A	RANGU DF 2800 A
Nominal pumping speed for N₂	10000 l/s	17300 l/s	28000 l/s
Recommended size of backing pump	170 m ³ /h	510 m ³ /h	510 m ³ /h
Ultimate pressure	$< 7 \cdot 10^{-8}$ hPa (mbar)	$< 7 \cdot 10^{-8}$ hPa (mbar)	$< 7 \cdot 10^{-8}$ hPa (mbar)
Max. foreline pressure for N₂	0.86 hPa (mbar)	0.66 hPa (mbar)	0.73 hPa (mbar)
Operating power	12 kW	24 kW	24 kW
Cooling water consumption	6 l/min	15 l/min	15 l/min
Required cooling water temperature	15 – 26 °C	15 – 26 °C	15 – 26 °C
Warm-up time	45 min	60 min	60 min
Operating fluid charge	4.7 l	11.4 l	11.4 l
Weight approx.	272 kg	682 kg	682 kg
Dimensions (W x H x Ø)	1070 x 1219 x 690 mm	1253 x 1740 x 920 mm	1753 x 1832 x 1120 mm
Gas inlet / outlet	DN 630 ISO-K / DN 160 ISO-K	DN 800 ISO-K / DN 200 ISO-K	DN 1000 ISO-K / DN 200 ISO-K



Furnace manufacturers and plant designers throughout the world rely on Busch vacuum technology. And appreciate the experienced advice and support given to the development of new plants and processes.

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Busch is the number 1 worldwide for innovative vacuum systems. In all areas of industry. Every new project incorporates more than 50 years of experience in the design and construction of tailor-made systems. Experts from different fields work together to provide each customer with the best possible solution. All systems are manufactured in dedicated Busch systems

building centers. Located all around the globe. We provide turnkey systems. Including installation of pipework and control units. Start-up service and training for the operating team are also on offer.

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In more than 40 years of providing tailor-made systems to industry, there are few applications in which Busch (UK) Ltd has not gained experience. Our team of 14 engineers designs the best possible solution for every customer. In our 750 m² dedicated workshop space. All project steps are managed by our team: From an in-depth requirement analysis to turnkey installation. To ensure the project is delivered on time and to the exact specification. Performance guaranteed.

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