



DuoLine 1.6 – 11

**Two-stage rotary vane pumps with new pumping system
for a wide range of low and medium vacuum applications**

Compact, reliable, efficient

DuoLine 1.6 – 11

**Two-stage rotary vane pumps with new pumping system
for a wide range of low and medium vacuum applications**

DuoLine 1.6 M – 11 M with magnetic coupling

The new two-stage rotary vane pumps with contactless, magnetically coupled drive could not be cleaner or more dependable for your process.

These pumps offer reliable operation as a stand-alone pump or as a backing pump in turbopumping stations.

Their innovative drive concept is energy saving. Thanks to the use of a magnetic coupling, these pumps are hermetically sealed, making them clean and environmentally compatible. This also minimizes maintenance requirements, leads to considerable cost savings per pump and extends maintenance intervals.

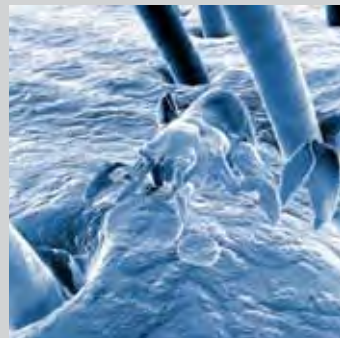


Typical applications

- Electron microscopy
- Gas analysis
- Industrial leak detection
- General basic research
- Sputtering processes
- X-ray fluorescence analysis (XRF)



Industrial leak detection



Electron microscopy



Sputtering processes

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**Two-stage rotary vane pumps with new pumping system
for a wide range of low and medium vacuum applications**

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The new series of high performance two-stage rotary vane pumps with pumping speeds of 1.25 to 11 m³/h.

The pumps are equipped with a single-phase motor plus an integrated safety and gas ballast valve. The availability of various motor voltages expands the field of applications.

Due to its compact design and an optimized cooling the pumps are well suited for system integration.

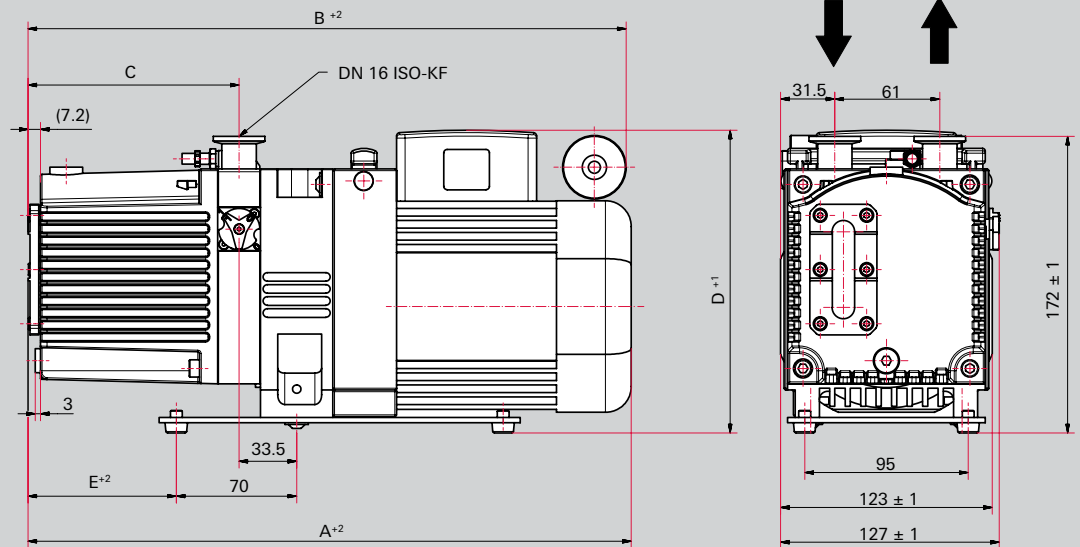


Customer benefits

- Optional maintenance-free magnetic coupling allows for individual process integration
- High operating reliability through hydraulically controlled high vacuum safety valve
- Convenient system integration due to smaller footprint and optimized arrangement of vacuum connections
- Integrated oil return connection makes for easier retrofit
- Optimized pump cooling increases the lifespan and range of applications
- Energy-efficient single-phase electric motors

DuoLine 1.6 M – 11 M with magnetic coupling

Dimensions DuoLine M (mm)

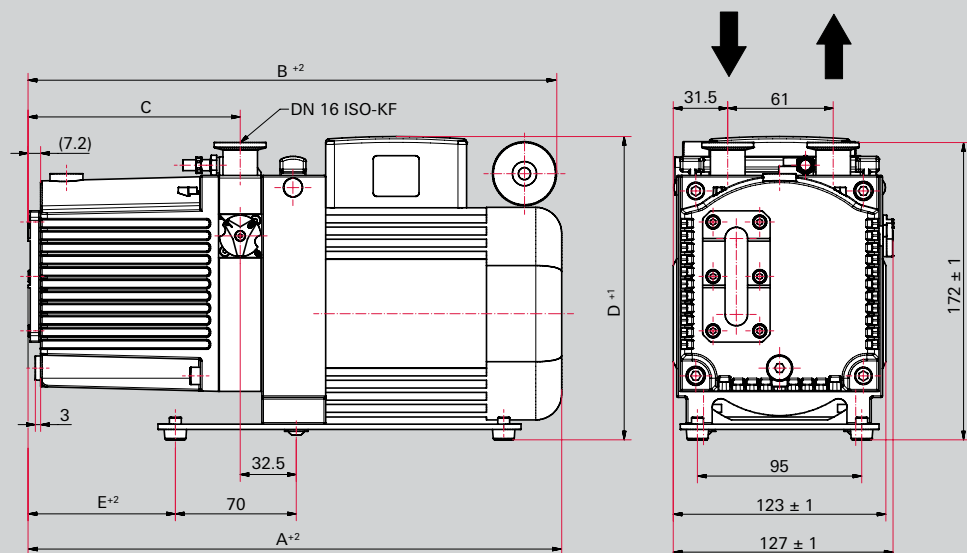


	DUO 1.6 M 1-ph motor 220–240 V 50/60 Hz	DUO 3 M 1-ph motor 220–240 V 50/60 Hz	DUO 6 M 1-ph motor 220–265 V 50/60 Hz	DUO 11 M 1-ph motor 180–265 V 50/60 Hz
A	357 mm	351 mm	413 mm	463 mm
B	357 mm	351 mm	413 mm	463 mm
C	123 mm	123 mm	145 mm	185 mm
D	190 mm	176 mm	177.5 mm	192 mm
E	86.5 mm	86.5 mm	108.5 mm	154 mm

1-ph motor = 1-phase motor

DuoLine 1.6 – 11

Dimensions DuoLine (mm)

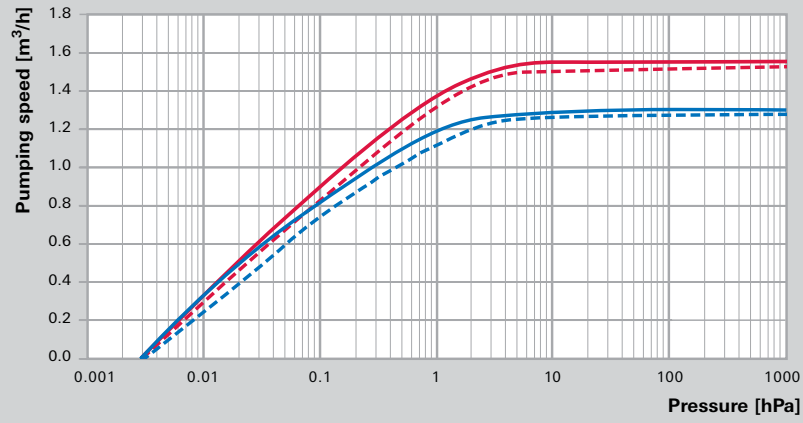


	DUO 1.6	DUO 3	DUO 6	DUO 11
	1-ph motor	1-ph motor	1-ph motor	1-ph motor
	220–240 V	220–240 V	220–240 V	180–265 V
	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
A	315 mm	309 mm	371 mm	411 mm
B	315 mm	309 mm	370 mm	409 mm
C	123 mm	123 mm	145 mm	185 mm
D	189 mm	176 mm	177 mm	191 mm
E	85.5 mm	85.5 mm	107.5 mm	147.5 mm

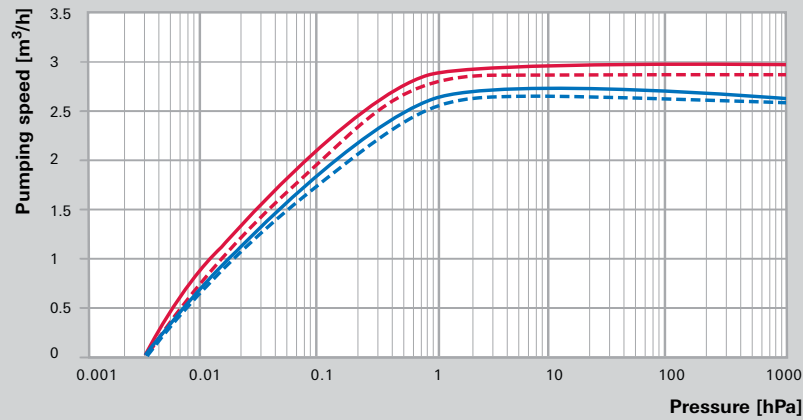
1-ph motor = 1-phase motor

Pumping speed

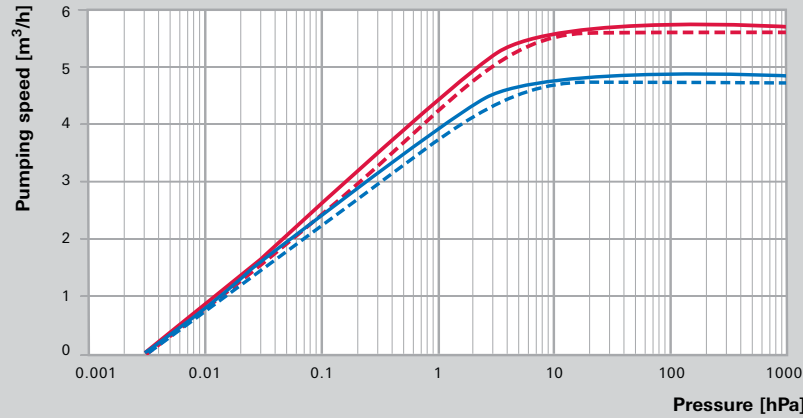
DUO 1.6 M / DUO 1.6



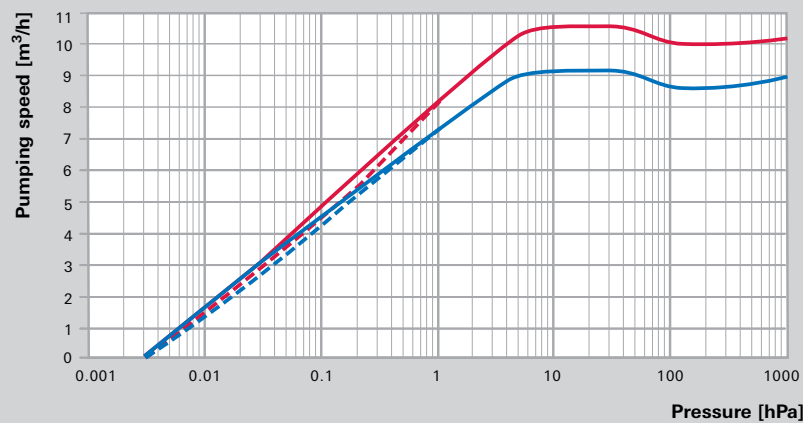
DUO 3 M / DUO 3



DUO 6 M / DUO 6



DUO 11 M / DUO 11



- without gas ballast
- - - with gas ballast
- 60 Hz
- 50 Hz

Technical data

	DUO 1.6 M / DUO 1.6	DUO 3 M / DUO 3	DUO 6 M / DUO 6	DUO 11 M / DUO 11
	1-ph motor	1-ph motor	1-ph motor	1-ph motor
	220–240 V	220–240 V	220–265 V	180–265 V
	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Flange (out)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Exhaust pressure, max.	1,500 hPa	1,500 hPa	1,500 hPa	1,500 hPa
Exhaust pressure, min.	250 hPa	250 hPa	250 hPa	250 hPa
Operating fluid	P3	P3	P3	P3
Operating fluid filling	0.4 l	0.4 l	0.5 l	0.6 l
Rotation speed at 50 Hz	1,500 min ⁻¹	3,000 min ⁻¹	3,000 min ⁻¹	3,000 min ⁻¹
Rotation speed at 60 Hz	1,800 min ⁻¹	3,600 min ⁻¹	3,600 min ⁻¹	3,600 min ⁻¹
Emission sound pressure level				
without gas ballast at 50 Hz	≤ 48 dB (A)	≤ 53 dB (A)	≤ 53 dB (A)	≤ 55 dB (A)
Ultimate pressure with gas ballast	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa
Ultimate pressure without gas ballast	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa	3 · 10 ⁻³ hPa
Weight	10.5 kg / 9.6 kg	12 kg / 11.3 kg	17.5 kg / 16 kg	19 kg / 17 kg
Cooling method, standard	Air	Air	Air	Air
Leak rate safety valve	≤ 1 · 10 ⁻⁵ Pa m ³ /s	≤ 1 · 10 ⁻⁵ Pa m ³ /s	≤ 1 · 10 ⁻⁵ Pa m ³ /s	≤ 1 · 10 ⁻⁵ Pa m ³ /s
Magnetic coupling	Yes / No	Yes / No	Yes / No	Yes / No
Rated power 50 Hz	0.075 kW	0.15 kW	0.25 kW	0.25 kW
Rated power 60 Hz	0.090 kW	0.18 kW	0.30 kW	0.30 kW
Mains requirement: voltage 50 Hz	220–240 V	220–240 V	200–265 V	180–265 V
Mains requirement: voltage 60 Hz	220–240 V	220–240 V	200–265 V	180–265 V
Mains cable	No	No	No	No
Pumping speed at 50 Hz	1.25 m ³ /h	2.5 m ³ /h	5 m ³ /h	9 m ³ /h
Pumping speed at 60 Hz	1.50 m ³ /h	2.9 m ³ /h	6 m ³ /h	10.5 m ³ /h
Switch	Yes	Yes	Yes	Yes
Protection category	IP 40	IP 55	IP 55	IP 55
Ambient temperature	12–40 °C	12–40 °C	12–40 °C	12–40 °C

1-ph motor = 1-phase motor

Order numbers

	DUO 1.6 M / DUO 1.6	DUO 3 M / DUO 3	DUO 6 M / DUO 6	DUO 11 M / DUO 11
With magnetic coupling	PK D56 112	PK D57 112	PK D58 112	PK D59 112
Standard	PK D56 712	PK D57 712	PK D58 712	PK D59 712

Other motor voltages upon request

Accessories:

Extensive accessories available, including:

- Condensate separator (KAS)
- Oil mist filter (ONF)
- Oil return unit from oil mist filter
- Dust separator (SAS)
- Zeolite trap (ZFO)
- Catalytic trap (URB)

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