Pascal Series

Rotary vane pumps and accessories

ALCATEL

PASCAL series
Rotary vane pumps

Specific solutions for all major applications

I series
Addressing specific requirements of the Analytical Instrument market.

SD series
Standard pumps for general purpose, non-corrosive applications.

C1 series
Designed for high resistance to corrosive gases.

C2 series
Suitable for the most corrosive applications found in the Semiconductor industry.

H1 series
Hermetic series features a very high level of tightness.

PASCAL series
Rotary vane pumps

A wide range of dedicated solutions

PUMPING	m^3/h	2	5	10	15	21	30	60	100
SPEED	cfm	1.4	3.8	6.8	10.6	14.6	24	43	85
I series	2 stages	2002 I	2005 I	2010 I	2015 I	2021 I	-	-	-
SD series	2 stages	-	2005 SD	2010 SD	2015 SD	2021 SD	2033 SD	2063 SD	2100 SD
SD series	1 stage	-	1005 SD	1010 SD	1015 SD	1021 SD	1033 SD	1063 SD	-
C1 series	2 stages	2002 C1	2005 C1	2010 C1	2015 C1	2021 C1	2033 C1	2063 C1	2100 C1
C1 series	1 stage	-	1005 C1	1010 C1	1015 C1	1021 C1	1033 C1	1063 C1	-
C2 series	2 stages	-	-	2010 C2	2015 C2	2021 C2	2033 C2	2063 C2	-
H1 series	2 stages	-	2005 H1	-	2015 H1	-	2033 H1	2063 H1	-

PASCAL series
Rotary vane pumps

Selection guide according to applications

PASCAL series rotary vane pumps can meet the requirements of your specific application by offering a wide range of dedicated series.
This pump selection table will help you to choose the most suitable product for a wide variety of vacuum processes in Industry, R&D, and Instrumentation equipment.

APPLICATIONS	SERIES				
	SD SERIES	I SERIES	C1 SERIES	C2 SERIES	H1 SERIES
Gas analyzers		●			
Leak detection	❍	●			
Mass spectrometers		●			
Other spectrometers	❍	●			
Electron microscopes		●			
Surface analyzers		●			
Centrifuges	●				
Sterilization		●	❍		
Electron tubes	●	❍			
Lamps	●	❍			
TV tubes (CRT)	●	❍			
Refrigeration	●	❍			❍
Air conditioning	●	❍			❍
Drying	❍	●	❍		
Distillation	❍	●	❍		
Metallurgy	●	❍			
Freeze drying		●	❍	❍	
CVD.LPCVD			❍	●	
Ion implantation				●	
Dry etching				●	
Load-lock		❍	●	❍	
Cryogenics		❍			●
Gas recovery					●
Oxygen pumping				●	

●: recommanded ❍: possible

Note: The above chart indicates the recommended pump for general groups of applications.
The choice may be different according to several parameters such as: working cycles, temperatures, corrosive gas concentrations...
In addition, use of inlet or exhaust accessories can improve the pump's behaviour and lifetime. See chapter Accessories, pages: 35 to 51.
For specific applications, not listed above, or specific running conditions, our applications specialists will assist you in selecting the most efficient solution.

PASCAL series
Rotary vane pumps

Selecting the appropriate pump size

Simplified vacuum calculations

The pressure factor graph can be used in order to estimate: required pumping speed(nominal), pump down time and volume when two of these parameters are known.

Formulas:

T= time required to evacuate (min)
S= pumping speed of the rotary vane pump (nominal in l/min)
V= volume (liters)
F= factor from the graph

• Factor is determined at the intersection of the horizontal pressure line and the factoring curve (see example: 1 Torr –> factor 7)
• T, S and V must have consistant units

Example of calculation:

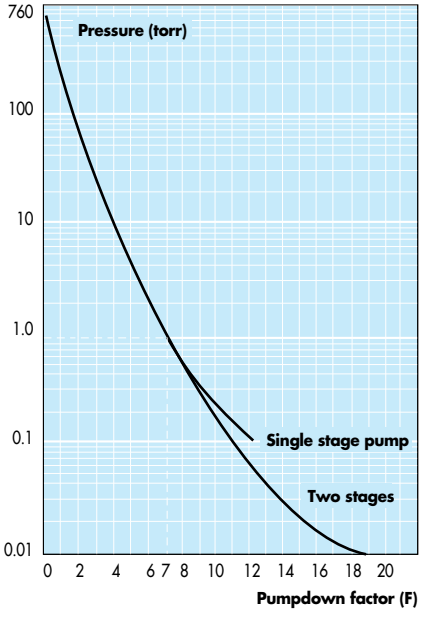
A chamber of 60 liters must be evacuated to 1 Torr in 3 minutes.
The pump nominal speed is given by:

$S = \frac{V \times F}{T}$: from graph : F=7

$S = \frac{60 \times 7}{3} = 140$ l/mn

A pump with a minimum speed of 140 l/mn (8.4 m^3/h) and an ultimate pressure below 1 Torr is required.
Looking at pump specifications, the 2010 is found to be suitable.

Pressure factor graph



Note:

The volume must be clean, dry, empty, leak free and without conductance limitations.
The accuracy of the above calculation may be radically affected if any of these parameters are altered.

Single stage pumps are recommended for all applications involving operation above 100 mbar.

PASCAL series
Rotary vane pumps

I series 2 stages
2005I - 2010I - 2015I - 2021I

Specially designed for analytical Instrument applications:
- Mass spectrometers
- GC/MS
- LC/MS
- Electron microscopes
- Residual Gas Analyzers
- Sterilizers...

I series rotary vane pumps incorporate all the ALCATEL expertise in product design; they addresse all major requirements of the most sensitive applications of analytical instruments.

High performance

The forced lubrication system, which includes a built-in oil vane pump, enables high performance from atmosphere to the 10^{-4} mbar range. Low backstreaming rate, pumping stability even for light gases are the results of the advanced engineering design of the I series pumps.

Low noise level

Specific work on both the pump and the motor design has reduced noise levels and irritating frequencies. Noise level of 49 dBA is typical value for I series rotary vane pumps.

Easy to use

In order to facilitate maintenance actions or routine inspections, all controls and service access are located on the front of the oil-casing.

Universal single-phase motor

In order to meet one of the major requirements of international OEMs, I series pumps feature a unique single-phase motor covering all world-wide electrical supplies. In addition, this motor complies with all major electrical standards: UL/CSA/CE.
See page 16.

Compact design

Reduced dimensions, retractable handle, combined with the choice of horizontal or vertical positionning of inlet and exhaust ports allow easy integration in space-limited areas.

Flexible assembly of accessories

Easily accessible controls on the front of the oil casing

Optimized tightness

Efficient and reliable anti-suckback system is activated by the oil pump. For all static components attached to oil-casing or central housing, sealing is secured by O-rings. External shaft sealing arrangement can be renewed easily, without dismantling the pump, using the specific shaft seal kit.

Sleeve and leaktight lip seal, accessible for easy maintenance.

PASCAL series
Rotary vane pumps

Specifications
I series 2 stages

		UNITS	2005I	2010I	2015I	2021I
Nominal pumping speed (*)	50Hz	m^3/h	5.4	9.7	15	20.7
	60Hz	cfm	3.8	6.8	10.6	14.6
Pneurop pumping speed (*)	50Hz	m^3/h	4.8	8.5	12.5	16.5
	60Hz	cfm	3.4	6	8.8	11.8
Ultimate partial pressure (*)		mbar	10^{-4}	10^{-4}	10^{-4}	10^{-4}
Ultimate total pressure (*) closed gas ballast		mbar	2.10^{-3}	2.10^{-3}	2.10^{-3}	2.10^{-3}
Ultimate total pressure (*) open gas ballast		mbar	10^{-2}	10^{-2}	10^{-2}	10^{-2}
Water vapor capacity	50/60Hz	g/h	120/110	125/100	110/100	90/90
Water vapor pressure	50/60Hz	mbar	35/25	20/15	12/10	7/7
Noise level (**)	50Hz	dBA	48	49	50	50
	60Hz	dBA	50	51	52	53
Weight		kg (lbs)	25 (55)	26 (57.2)	27 (59.4)	28 (61.6)
Dimensions		see page 33				
Electrical motors		see page 16				
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	0.45/0.55	0.45/0.55
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity		l	0.83	0.95	0.95	0.98
Inlet flange		ISO-KF	DN 25	DN 25	DN 25	DN 25
Exhaust flange		ISO-KF	DN 25	DN 25	DN 25	DN 25

(*) : according to Pneurop specifications; with ALCATEL mineral oil.
(**) : typical values, according to Pneurop specifications.

Maintenance kits

In order to simplify maintenance performed in the field, ALCATEL provides maintenance kits with interchangeable components.

- Minor kit includes all necessary seals (shaft seals, valves, o-rings...)
- Major kit includes Minor kit components plus vanes, springs, plugs...
- Shaft seal kit includes all components (lip seal, shaft sleeve...) necessary for fast periodic renewal of external shaft sealing.

Accessories

ALCATEL offers a comprehensive range of accessories (mist eliminators, filters, traps...) in order to optimize pump operation in various running conditions.
These accessories are described pages 35 to 51.

Oils

Oils of different viscosities and specifications are available, to enable customers to obtain the best performance from rotary vane pumps under different application conditons.
See pages 33 and 34.

Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

Ordering information: see pages 30 and 32.

PASCAL series
Rotary vane pumps

Universal single-phase and three-phase motors for all series from 5 to 21 m^3/h

Unique universal motors

- international usage
- covering all worldwide voltages
- complying with all electrical standards
- easy to configure
- wide choice of plugs and cables
- quiet operation

Easy to use, functional interface

High/low voltage configuration with changeover switch

They are supplied with power cable and plugs for single-phase types; and without for three-phase types (exept for US market: 6' cable included).

Universal single-phase motor

- **voltage ranges:**
  High voltage: 180V to 254V 50/60 Hz
  Low voltage: 90V to 132V 50/60Hz
- voltage range is determined by the position of a simple **rocker switch**, enabling the pump to be configured easily, without need for hard wiring.
- **indication** of voltage range is visible through a window provided in the box cover.
- **on/off switch** controls pump operation (optional)
- **IEC socket** allows flexibility for a wide choice of power lead terminations.
- **complies** with major international electrical standards: **UL/CSA/CE**
- protection level: **IP43** (**TEFC** type)
- **thermally protected** (automatic reset)

Universal three-phase motor

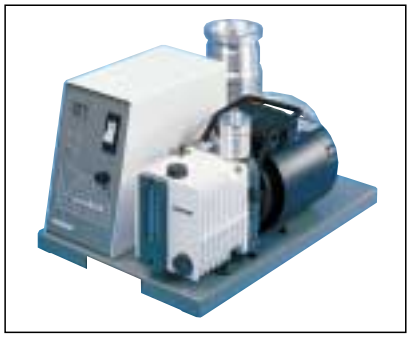
- **voltage ranges**:
  High voltage: 342V to 460V 50Hz
  342V to 520V 60Hz
  Low voltage: 170V to 254V 50Hz
  170V to 300V 60Hz
- **complies** with major international standards: **UL/CSA/CE**
- protection level: **IP43** (**TEFC** type)
- **thermally protected: dry contact** (**N**ormally **C**losed) is available inside the terminal box.

Three-phase universal motor

PASCAL series
Rotary vane pumps

I series 2002I

Among the smallest pumps available on the market, their innovative design allows to offer high performances for small dimensions and light weight.



TURBOTEL with 2002I

2002I is specially designed for integration into portable or compact systems (spectrometers, analyzers, leak detectors, centrifuges...).

Offering all advantages of new generation rotary vane pumps with small dimensions and weight, they include all necessary features for high performance:

- forced lubrication
- built-in anti-suckback
- gas ballast valve ...

Specifications
I series 2002I

		UNITS	2002I
Nominal pumping speed (*)	50Hz	m^3/h	2
	60Hz	cfm	1.4
Pneurop pumping speed (*)	50Hz	m^3/h	1.6
	60Hz	cfm	1.1
Ultimate total pressure (*) closed gas ballast		mbar	3.10^{-3}
Ultimate total pressure (*) open gas ballast		mbar	3.10^{-2}
Water vapor capacity	50/60Hz	g/h	36/35
Water vapor pressure	50/60Hz	mbar	30/30
Noise level (**)	50Hz	dBA	50
	60Hz	dBA	54
Weight (max)		kg (lbs)	12 (26.4)
Dimensions		see page 33	
Electrical motors		see page 39	
Max nominal power rating	50/60Hz	W	190/230
Min ambient temperature		°C (°F)	12 (54)
Max ambient temperature		°C (°F)	35 (95)
Oil capacity		l	0.35
Inlet flange		ISO-KF	DN 16
Exhaust port		mm	Ø 10

(*) : according to Pneurop specifications; with ALCATEL mineral oil.
(**) : typical values, according to Pneurop specifications.

Maintenance kits

- minor kit includes all necessary O-rings and seals.
- major kit includes minor kit plus vanes, springs, plugs ...

Accessories

ALCATEL offers a full range of conventional accessories in order to optimize pump operation in various running conditions.
See pages 35 to 51.

Oils

A wide choice of oils is available to obtain the best performance from pumps under different application conditions. See pages 33 and 34.

Important:

A121 is the recommended oil for 2002 pumps in case of intensive usage.

Ordering information: see page 31 for more details concerning different motor versions.

PASCAL series
Rotary vane pumps

SD series 2 stages
2005SD - 2010SD - 2015SD - 2021SD
2033SD - 2063SD - 2100SD

Adapted to all current non-corrosive applications:
- Lamps manufacturing
- Neon signs manufacturing
- Electron tubes evacuation
- TV tubes manufacturing
- Metallurgy
- Centrifuges....

2010SD

SD series rotary vane pumps address the requirements of all major vacuum applications in diverse industries.

From 5 to 21 m^3/h:

- **no oil mist pollution** at the exhaust: the natural lubrication design offers the lowest oil mist level, even with high throughputs or frequent cycling between atmosphere and ultimate pressure.
- **compact design:** reduced dimensions, choice of horizontal or vertical inlet and exhaust ports, all controls and service access located on the front.
- **optimized tightness:** integrated anti-suckback; all static sealings secured by O-rings; external shaft seal can be renewed easily, without dismantling the pump.
- **universal single-phase and three-phase motors:** see page 8.

From 33 to 100 m^3/h:

- **forced lubrication** for continuous operation at all pressures.
- **built-in anti-suckback**, activated by the oil pump, for protection of vacuum system against pressure rise.
- **rugged design** for improved efficiency and reliability.
- **universal and specific** three-phase motors, in line with international requirements (see ordering information page 31).

From 5 to 100 m^3/h:

- **high pumping speed** from atmosphere to vacuum.
- **efficient gas ballast** for vapor pumping.
- **air cooleed** for optimum performance
- **field serviceable**, using the appropriate maintenance kits.

2033SD

2100SD

PASCAL series
Rotary vane pumps

Specifications
SD series 2 stages

		UNITS	2005SD	2010SD	2015SD	2021SD	2033SD	2063SD	2100SD
Nominal pumping speed (*)	50Hz	m^3/h	5.4	9.7	15	20.7	30	60	120
	60Hz	cfm	3.8	6.8	10.6	14.6	23.3	42.4	85
Pneurop pumping speed (*)	50Hz	m^3/h	4.8	8.5	12	15.5	27	55	100
	60Hz	cfm	3.4	6	8.8	11.8	18.8	38	70.6
Ultimate partial pressure (*)		mbar	10^{-4}	10^{-4}	10^{-4}	10^{-4}	2.10^{-4}	3.10^{-4}	2.10^{-4}
Ultimate total pressure (*) closed gas ballast		mbar	2.10^{-3}	2.10^{-3}	2.10^{-3}	2.10^{-3}	3.10^{-3}	3.10^{-3}	3.10^{-3}
Ultimate total pressure (*) open gas ballast		mbar	10^{-2}	10^{-2}	10^{-2}	10^{-2}	2.10^{-2}	2.10^{-2}	3.10^{-2}
Water vapor capacity	50/60Hz	g/h	120/110	125/100	110/100	90/90	700	1200	3000
Water vapor pressure	50/60Hz	mbar	35/25	20/15	12/10	7/7	30	25	40
Weight (max)		kg (lbs)	25 (55)	26 (57.2)	27 (59.4)	28 (61.6)	61 (134)	93 (205)	231 (508)
Dimensions		see page	33	33	33	33	35	35	37
Electrical motors		see page	16	16	16	16	39	39	39
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6	3/3.6
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity		l	0.83	0.95	0.95	0.98	3.6	7	7.5
Inlet flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40	DN 50
Exhaust flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40	DN 50

(*) : according to Pneurop specifications; with ALCATEL mineral oil.

Maintenance kits

In order to simplify maintenance performed in the field, ALCATEL provides maintenance kits including interchangeable components.

- Minor kit includes all necessary seals (shaft seals, valves, o-rings...)
- Major kit includes Minor kit plus vanes, springs, plugs...
- Shaft seal kit (for 2005SD to 2021SD) includes all components (lip seal, shaft sleeve...) necessary for fast periodic renewal of external shaft seal.

Accessories

ALCATEL offers a comprehensive range of accessories (mist eliminators, filters, traps...) in order to optimize pump operation in various running conditions. These accessories are described page 35 to 51.

Oils

Oils of different viscosities and specifications are available, to enable customers to obtain the best performance from rotary vane pumps, under different application conditions.
See pages 33 and 34.

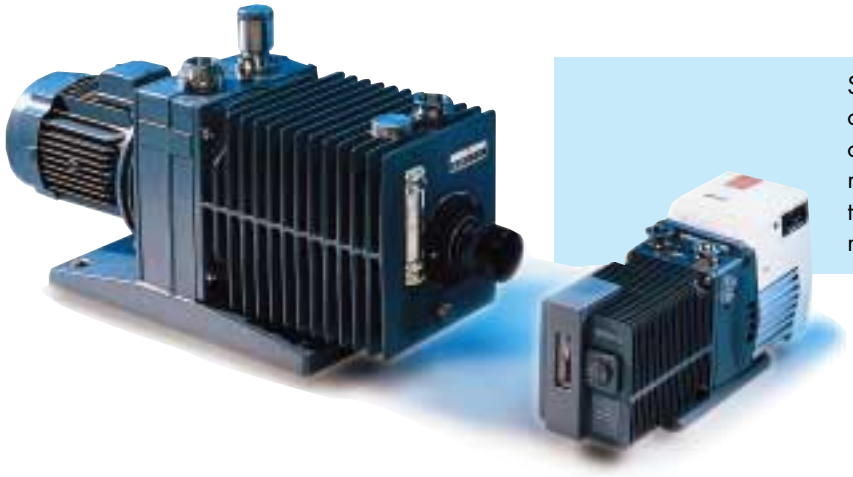
Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

Ordering information: see pages 30 and 31.

PASCAL series
Rotary vane pumps

C1 series 2 stages
2002C1 - 2005C1 - 2010C1 - 2015C1
2021C1 - 2033C1 - 2063C1 - 2100C1



Specially designed for pumping corrosive or aggressive gases in the chemical industry and R&D, meeting strict requirements with regards to material compatibility and corrosion resistance.

C1 series rotary vane pumps are adapted to different applications involving corrosive media; free of sensitive materials, they offer reliable operation even in aggressive conditions.

2002C1

Design features for improved corrosion protection

FEATURES MATERIALS	2002C1	2005C1 to 2021C1	2033C1 and 2063C1	2100C1
Stainless steel, grey cast iron, aluminium...	●	●	●	●
Viton seals	●	●	●	●
Chromium oxide coating on bearing surfaces		● all shafts	● external shafts	
High strenght oil sight glass	●	●	●	●
Integrated oil filter			●	
Oil casing gas purge			●	

2021C1

2063C1

High performance:
efficient pumping and low ultimate pressure, ensured by forced lubrication from oil pump.

Integrated anti-suckback activated by the oil pump, providing vacuum integrity.

Efficient gas ballast, preventing vapor condensation in the pump.

Universal and specific motors:
2002C1: single-phase, see page 31.
2005C1 to 2021C1: single-phase and three-phase, see page 8.
2033C1, 2063C1: three-phase, see page 31.

Easy to operate and to maintain
Field serviceable, using the appropriate maintenance kits.

PASCAL series
Rotary vane pumps

Specifications
C1 series 2 stages

	UNITS	2002C1	2005C1	2010C1	2015C1	2021C1	2033C1	2063C1	2100C1
Nominal pumping speed (*) 50Hz	m^3/h	2	5.4	9.7	15	20.7	30	60	120
60Hz	cfm	1.4	3.8	6.8	10.6	14.6	23.3	42.4	85
Pneurop pumping speed (*) 50Hz	m^3/h	1.6	4.8	8.5	12.5	16.5	27	55	100
60Hz	cfm	1.1	3.4	6	8.8	11.8	18.8	38	70.6
Ultimate partial pressure (*)	mbar	-	10^{-4}	10^{-4}	10^{-4}	10^{-4}	3.10^{-4}	3.10^{-4}	3.10^{-4}
Ultimate total pressure (*) closed gas ballast	mbar	3.10^{-3}	2.10^{-3}	2.10^{-3}	2.10^{-3}	2.10^{-3}	3.10^{-3}	3.10^{-3}	3.10^{-3}
Ultimate total pressure (*) open gas ballast	mbar	3.10^{-2}	10^{-2}	10^{-2}	10^{-2}	10^{-2}	2.10^{-2}	2.10^{-2}	2.10^{-1}
Water vapor capacity 50/60Hz	g/h	36/35	120/110	125/100	110/100	90/90	700	1200	3000
Water vapor pressure 50/60Hz	mbar	30/30	35/25	20/15	12/10	7/7	30	25	40
Weight (max)	kg (lbs)	-	25 (55)	26 (57.2)	27 (59.4)	28 (61.6)	74 (163)	98 (216)	231 (508)
Dimensions	see page	33	33	33	33	33	35	35	37
Electrical motors	see page	39	16	16	16	16	39	39	39
Max nominal power rating 50/60Hz	kW	0.19/0.23	0.45/0.55	0.45/0.55	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6	3/3.6
Min ambient temperature	°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature	°C (°F)	35 (95)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity	l	0.35	0.83	0.95	0.95	0.98	3.6	7	7.5
Inlet flange	ISO-KF	DN 16	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40	DN 50
Exhaust flange	ISO-KF	Ø 10	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40	DN 50

(*) : according to Pneurop specifications; with ALCATEL mineral oil.

Maintenance kits

In order to simplify maintenance performed in the field, ALCATEL provides maintenance kits including interchangeable components.

- Minor kit includes all necessary seals (shaft seals, valves, o-rings...)
- Major kit includes Minor kit plus vanes, springs, plugs...
- Shaft seal kit (for 2005C1 to 2021C1) includes all components (lip seal, shaft sleeve...) necessary for fast periodic maintenance.

Accessories

A comprehensive range of accessories is available, in order to optimize pump operation in various running conditions. These accessories are described page 35 to 51.

Oils

Oils of different viscosities and chemical compatibility are available, to enable customers to obtain the best performance from rotary vane pumps. See pages 33 and 34.
A121 is the recommended oil for 2002 pumps in case of intensive usage.

Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

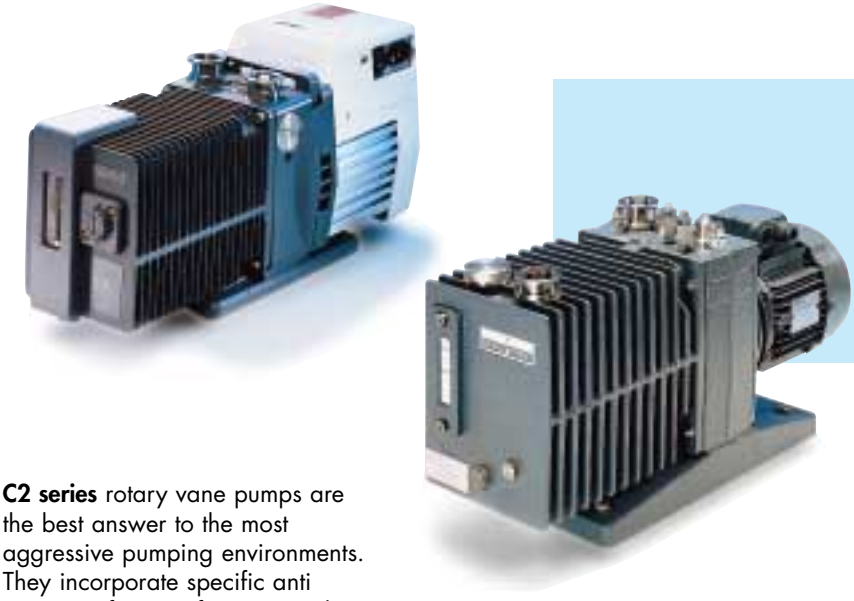
Important

Industries and R&D are using a wide range of different chemicals; C1series rotary vane pumps can be used with many of these products.
As far as material compatibility is concerned, we advise our customers to contact our applications specialists, in order to define the most appropriate solution.

Ordering information:
see pages 30 and 31.

PASCAL series
Rotary vane pumps

C2 series 2 stages
2010C2 - 2015C2 - 2021C2 - 2033C2 - 2063C2



Adapted to harsh processes in the semiconductor manufacturing industry:
- Plasma etching
- Reactive sputtering
- Ion implantation
- PECVD
- RIE....

C2 series rotary vane pumps are the best answer to the most aggressive pumping environments. They incorporate specific anti corrosion features for improved reliable operation.

Sensors connections on 2033C2

Specific design features

FEATURES	2010C2 to 2021C2	2033C2 and 2063C2
Viton seals	●	●
Chromium oxide coating on bearing surfaces	● all shafts	● all shafts
Synthetic oil sight material	●	●
Oil casing purge		●
Gas ballast connection for neutral gas purge	●	●
Oil degassing system : bubbler	●	●
Composite solid vane material (HP stage, oil pump)	●	●
Oil pump pressure sensor connection		●
Oil temperature sensor connection		●

Oil degassing system: bubbler on 2021C2

Forced lubrication for reliable operation.

Built-in anti-suckback for vacuum integrity.

Bubbler purge: providing continuous nitrogen injection into the oil, resulting in a 10° C lower operating temperature and reduced corrosion rate due to uniform degassing.

Sensor connections for pump operation monitoring, available on models 2033C2 and 2063C2.

Designed and prepared for PFPE fluids fluids must be ordered separately; see pages 33 and 34.

2021C2

PASCAL series
Rotary vane pumps

Specifications
C2 series 2 stages

		UNITS	2010C2	2015C2	2021C2	2033C2	2063C2
Nominal pumping speed (*)	50Hz	m^3/h	9.7	15	20.7	30	60
	60Hz	cfm	6.8	10.6	14.6	23.3	42.4
Pneurop pumping speed (*)	50Hz	m^3/h	8.5	12.5	16.5	27	55
	60Hz	cfm	6	8.8	11.8	18.8	38
Ultimate partial pressure (*)		mbar	5.10^{-4}	5.10^{-4}	5.10^{-4}	5.10^{-4}	5.10^{-4}
Ultimate total pressure (*) closed gas ballast		mbar	3.10^{-3}	3.10^{-3}	3.10^{-3}	3.10^{-3}	3.10^{-3}
Weight (max)		kg (lbs)	26 (57.2)	27 (59.4)	28 (61.6)	76 (167)	98 (216)
Dimensions		see page	33/34	33/34	33/34	36	36
Electrical motors		see page	16	16	16	39	39
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity		l	0.95	0.95	0.98	3.6	7
Inlet flange		ISO-KF	DN 25	DN 25	DN 25	DN 40	DN 40
Exhaust flange		ISO-KF	DN 25	DN 25	DN 25	DN 40	DN 40

(*) : according to Pneurop specifications; with ALCATEL 113 synthetic fluid.

Maintenance kits

In order to simplify maintenance performed in the field, ALCATEL provides maintenance kits including interchangeable components:

- Minor kit includes all necessary seals (shaft seals, valves, o-rings...)
- Major kit includes Minor kit plus vanes, springs, plugs...
- Shaft seal kit (for 2010C2, 2015C2 and 2021C2) includes all components (lip seal, shaft sleeve...) necessary for fast periodic maintenance.

Accessories

A comprehensive range of accessories is available, in order to optimize pump operation in various running conditions. These accessories are described pages 35 to 51.

Oils

Synthetic oils of different viscosities and chemical compatibility are available, to enable customers to obtain the best performance from rotary vane pumps. Recommended oil is A113. See pages 33 and 34.

Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure, flow/pressure and pressure drop curves.

Important

Semiconductor manufacturing industry uses a wide range of different corrosive gases.
As far as material and fluid compatibility are concerned, as well as for particles or solids generation in the pumps, we advise our customers to contact our applications specialists in order to define the most appropriate solution.

Ordering information: see pages 30 and 31.

PASCAL series
Rotary vane pumps

H1 series 2 stages
2005H1 - 2015H1 - 2033H1 - 2063H1

Specially designed for pumping and handling precious gases, while preserving a high level of tightness.

H1 series rotary vane pumps are specially designed for pumping helium 3 and other precious or exotic gases used in closed-loop cryogenic systems.
These **hermetic** pumps feature specific technological design, allowing high level of tightness for pumped gases and ambient atmosphere.
Each pump is individually tested and delivered with a tightness control certificate.

Specific design features for improved tightness

• **static:** oil casing is made of welded stainless steel; all seals are secured with O-rings. Central housing is machined from a solid piece of aluminum.
• **dynamic:** shaft sealing arrangement design includes an additional oil sealed compartment between lip seals.

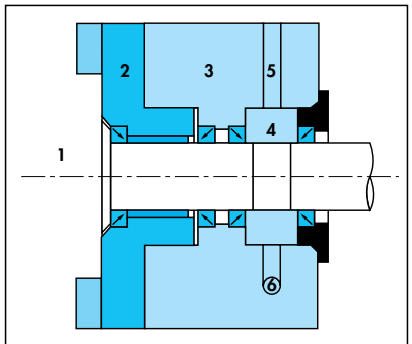
Operating pressures

H1 series rotary vane pumps can operate with exhaust pressure from 50 to 2000 mbar (absolute pressure).
For 2033H1 and 2063H1, the direction of the external lip seal is different, whether the exhaust pressure is above or below atmosphere;
part numbers are different: consult Alcatel before ordering.

Forced lubrication for reliable operation at all pressures.

Built-in anti suckback for vacuum integrity.

Efficient cooling:
2005/2015 H1: air
2033/2063 H1: water



1/ rotor - 2/ flange - 3/housing
4/ oil sealed compartment (oil)
5/ fill - 6/ drain

Tightness design of shaft sealing

Stainless steel oil-casing

Water cooling: 2033/2063H1

Power limitation/operating pressures

Exhaust pressure	Max inlet pressure • continuous operation mbar			
mbar	2005H1	2015H1	2033H1	2063H1
50	1000	1000	60	60
1000	1000	200	60	60
2000	100	20	60	60

PASCAL series
Rotary vane pumps

Specifications
H1 series 2 stages

		UNITS	2005H1	2015H1	2033H1	2063H1
Nominal pumping speed (*)	50Hz	m^3/h	5.4	15	30	60
	60Hz	cfm	3.8	10.6	23.3	42.4
Pneurop pumping speed (*)	50Hz	m^3/h	4.8	12.5	27	55
	60Hz	cfm	3.4	8.8	18.8	38
Ultimate partial pressure (*)		mbar	10^{-4}	10^{-4}	2.10^{-4}	3.10^{-4}
Ultimate total pressure (*)		mbar	2.10^{-3}	2.10^{-3}	3.10^{-3}	3.10^{-3}
Min exhaust pressure		mbar	50	50	50	50
Max exhaust pressure		mbar	2000	2000	2000	2000
Tightness: leak rate		mbar.l/s	2.10^{-7}	2.10^{-7}	2.10^{-7}	2.10^{-7}
Water cooling flow (20°C)		l/mn	-	-	2	3
Dimensions		see page	34	34	36	36
Electrical motors		see page	16	16	39	39
Weight (max)		kg (lbs)	27 (59.5)	29.5 (65)	74 (163)	100 (220)
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	35 (95)	35 (95)	45 (113)	45 (113)
Oil capacity		l	0.58	0.78	4.8	7.8
Inlet flange		ISO-KF	DN 25	DN 25	DN 40	DN 40
Exhaust flange		ISO-KF	DN 25	DN 25	DN 40	DN 40

(*) : according to Pneurop specifications; with ALCATEL mineral oil.

Maintenance kits

In order to simplify maintenance performed in the field, ALCATEL provides maintenance kits including interchangeable components:
• Minor kit includes all necessary seals (shaft seals, valves, o-rings...)
• Major kit includes Minor kit plus vanes, springs, plugs....

Oils

Oils of different viscosities and specifications are available, to enable customers to obtain the best performance from rotary vane pumps, under different application conditions.
See pages 33 and 34.

Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

Ordering information: see pages 30 and 31.

Accessories

ALCATEL offers a comprehensive range of accessories (mist eliminators, filters, traps...) in order to optimize pump operation in various running conditions. These accessories are described page 35 to page 51.

PASCAL series
Rotary vane pumps

SD series 1 stage
1005SD - 1010SD - 1015SD
1021SD - 1033SD - 1063SD

Single stage rotary vane pumps are the best choice whenever high condensable vapor pumping capacity is needed or low ultimate pressure is not necessary.
They are of the same design as the corresponding 2 stages models (except 1015 and 1021 SD, using forced lubrication).

Specifications

		UNITS	1005SD	1010SD	1015SD	1021SD	1033SD	1063SD
Nominal pumping speed (*)	50Hz	m^3/h	5.4	9.7	15	20.7	30	60
	60Hz	cfm	3.8	6.8	10.6	14.6	23.3	42.4
Pneurop pumping speed (*)	50Hz	m^3/h	4.8	8.5	12.5	16.5	27	55
	60Hz	cfm	3.4	6	8.8	11.8	18.8	38
Ultimate total pressure (*) closed gas ballast		mbar	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}
Ultimate total pressure (*) open gas ballast		mbar	4	4	7	7	5	5
Water vapor capacity	50/60Hz	g/h	120/130	260/280	330/370	340/340	1000	1700
Water vapor pressure	50/60Hz	mbar	35/25	40/35	35/30	25/22	45	35
Weight (max)		kg (lbs)	21 (46.2)	22 (48.4)	24.5 (54)	25 (55)	55 (121)	85 (187)
Dimensions		see page	33	33	33	33	35	35
Electrical motors		see page	16	16	16	16	39	39
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity		l	1.1	1	1	1	4.1	8.7
Inlet flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40
Exhaust flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40

(*) : according to Pneurop specifications; with ALCATEL mineral oil.

Maintenance kits

ALCATEL provides maintenance kits including interchangeable components:
- Minor kit includes all necessary seals
- Major kit includes Minor kit plus vanes, springs, plugs...

Accessories

A comprehensive range of accessories is described pages 35 to 51.

Oils

Oils of different viscosities and specifications are available; see pages 33 and 34.

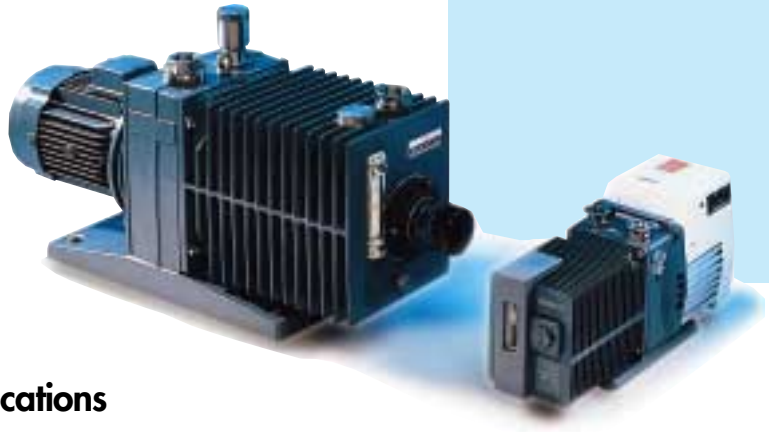
Pumping speed characteristics

See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

Ordering information: see pages 30 and 31.

PASCAL series
Rotary vane pumps

C1 series 1 stage
1005C1 - 1010C1 - 1015C1
1021C1 - 1033C1 - 1063C1



Specially designed for pumping corrosive gas, C1 series single stage rotary vane pumps are the best choice whenever high condensable vapor pumping capacity is needed or low ultimate pressure is not necessary.
They are of the same design as the corresponding 2 stages models.

Specifications

		UNITS	1005C1	1010C1	1015C1	1021C1	1033C1	1063C1
Nominal pumping speed (*)	50Hz	m^3/h	5.4	9.7	15	20.7	30	60
	60Hz	cfm	3.8	6.8	10.6	14.6	23.3	42.4
Pneurop pumping speed (*)	50Hz	m^3/h	4.8	8.5	12.5	16.5	27	55
	60Hz	cfm	3.4	6	8.8	11.8	18.8	38
Ultimate total pressure (*) closed gas ballast		mbar	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}	5.10^{-2}
Ultimate total pressure (*) open gas ballast		mbar	4	4	7	7	5	5
Water vapor capacity	50/60Hz	g/h	120/130	260/280	330/370	340/340	1000	1700
Water vapor pressure	50/60Hz	mbar	35/25	40/35	35/30	25/22	45	35
Weight (max)		kg (lbs)	21 (46.2)	22 (48.4)	24.5 (54)	25 (55)	68 (150)	90 (198)
Dimensions		see page	33	33	33	33	35	35
Electrical motors		see page	16	16	16	16	39	39
Max nominal power rating	50/60Hz	kW	0.45/0.55	0.45/0.55	0.45/0.55	0.45/0.55	1.1/1.3	2.2/2.6
Min ambient temperature		°C (°F)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)	12 (54)
Max ambient temperature		°C (°F)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)	45 (113)
Oil capacity		l	1.1	1	1	1	4.1	8.7
Inlet flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40
Exhaust flange		ISO-KF	DN 25	DN 25	DN 25	DN 25	DN 40	DN 40

(*) : according to Pneurop specifications; with ALCATEL mineral oil.

Maintenance kits

ALCATEL provides maintenance kits including interchangeable components:
- Minor kit includes all necessary seals
- Major kit includes Minor kit plus vanes, springs, plugs...

Accessories

A comprehensive range of accessories is described pages 35 to 51.

Oils

Oils of different viscosities and specifications are available; see pages 33 and 34.

Pumping speed characteristics

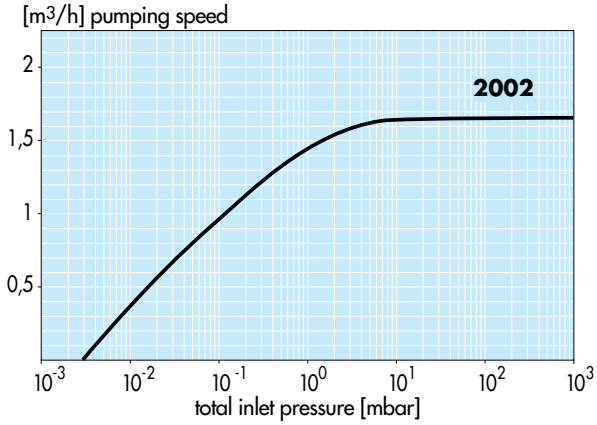
See pages 20 to 24 for pumping speed/pressure and pressure drop curves.

Ordering information: see pages 30 and 31.

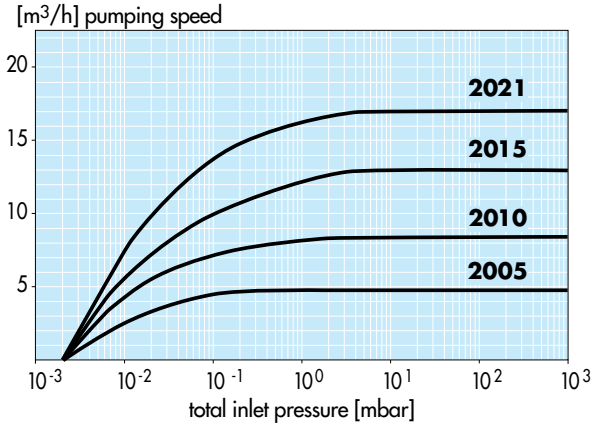
PASCAL series
Rotary vane pumps

Pumping curves 50 Hz

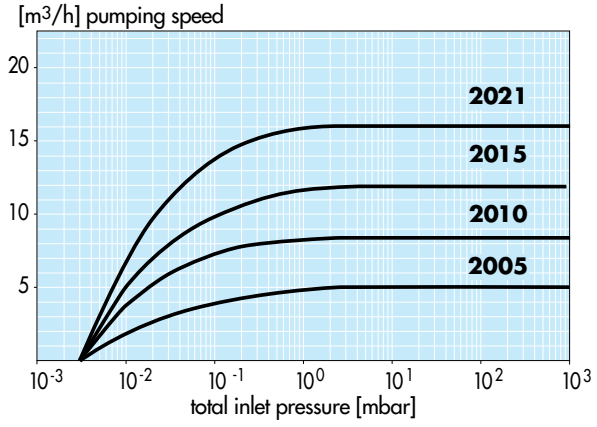
2002I - 2202C1



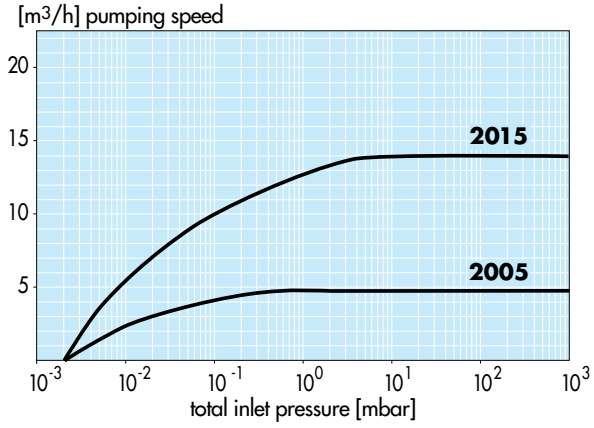
2005I/C1 - 2010I/C1/C2
2015I/C1/C2 - 2021I/C1/C2



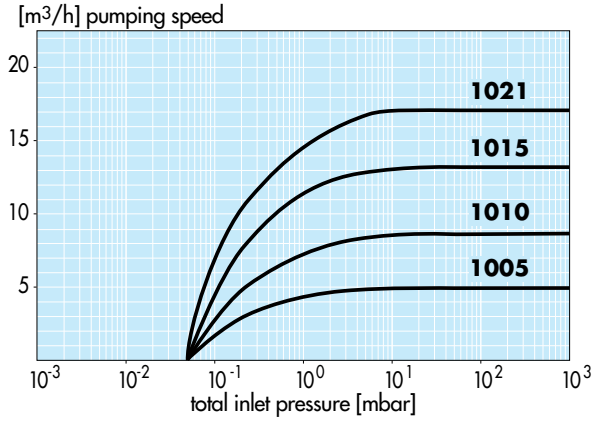
2005SD - 2010SD
2015SD - 2021SD



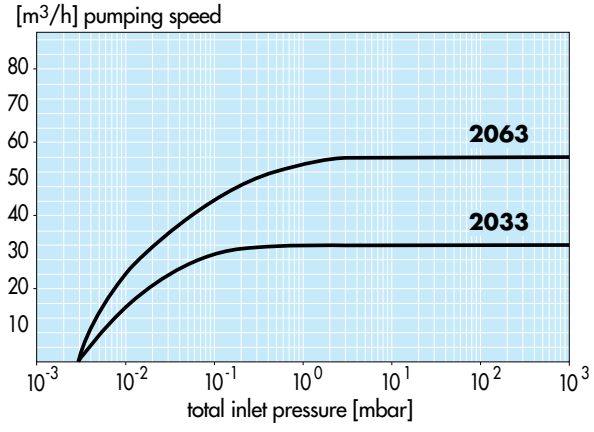
2005H1 - 2015H1



1005SD/C1 - 1010SD/C1
1015SD/C1 - 1021SD/C1



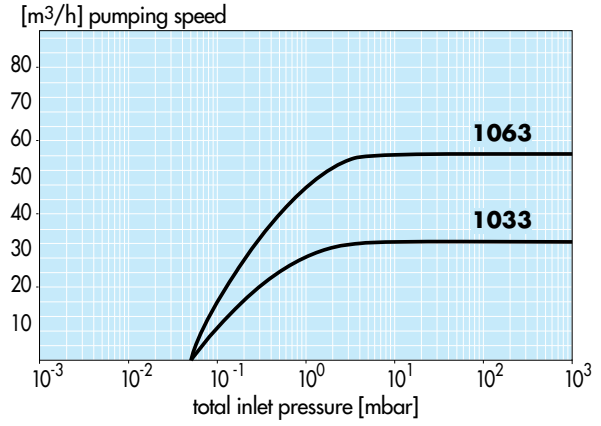
2033SD/C1/C2/H1
2063SD/C1/C2/H1



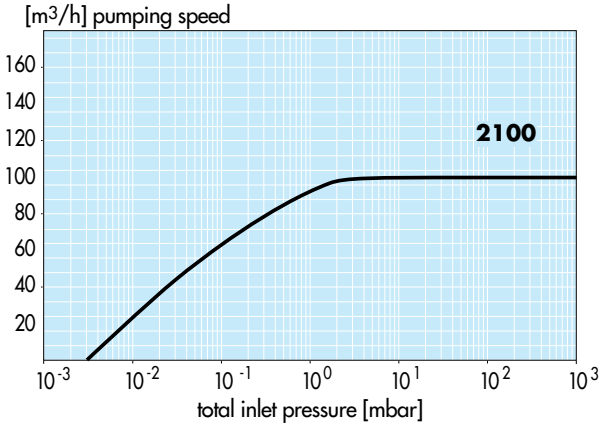
PASCAL series
Rotary vane pumps

Pumping curves 50 Hz

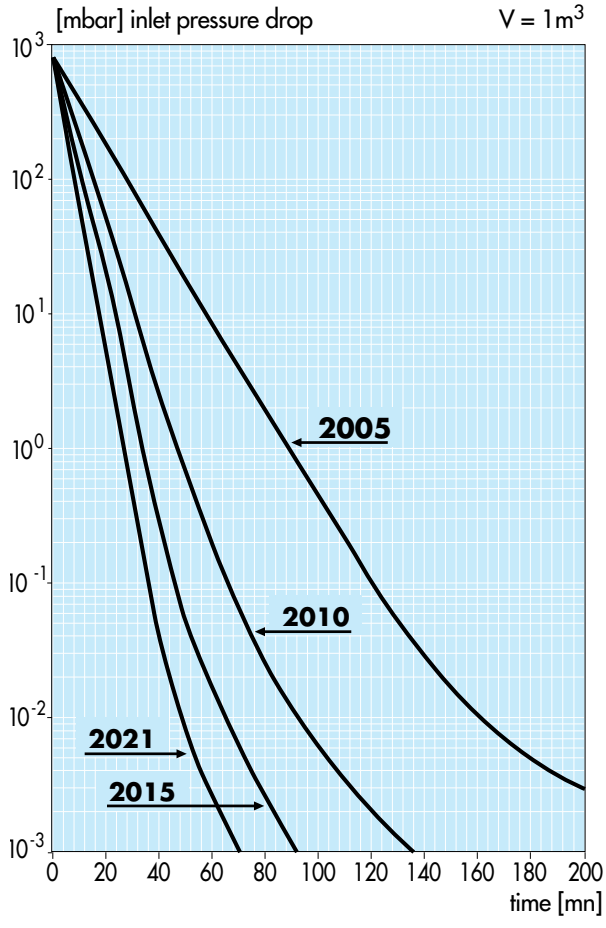
1033SD/C1
1063SD/C1



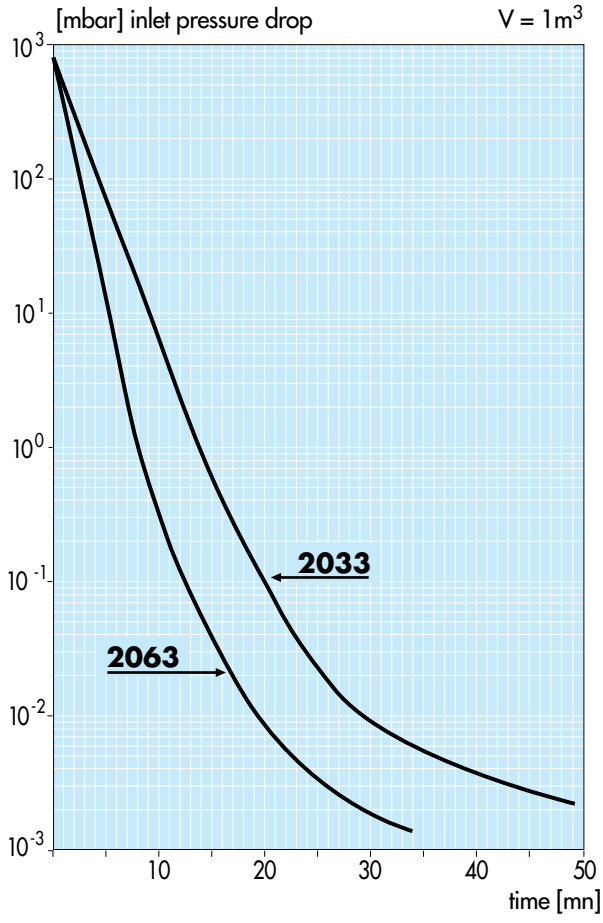
2100SD/C1



2005SD/I/C1/H1 - 2010SD/I/C1/C2
2015SD/I/C1/C2/H1
2021SD/I/C1/C2



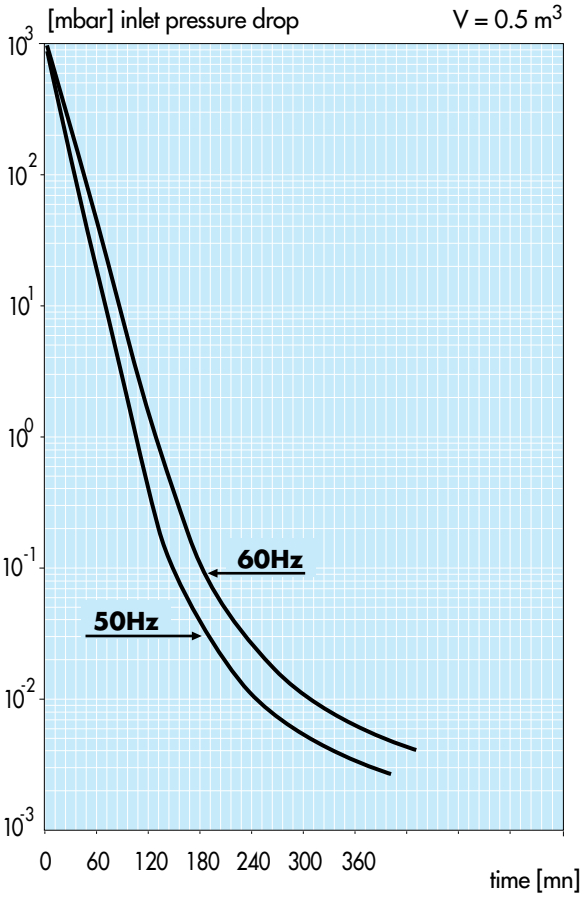
2033SD/C1/C2/H1
2063SD/C1/C2/H1



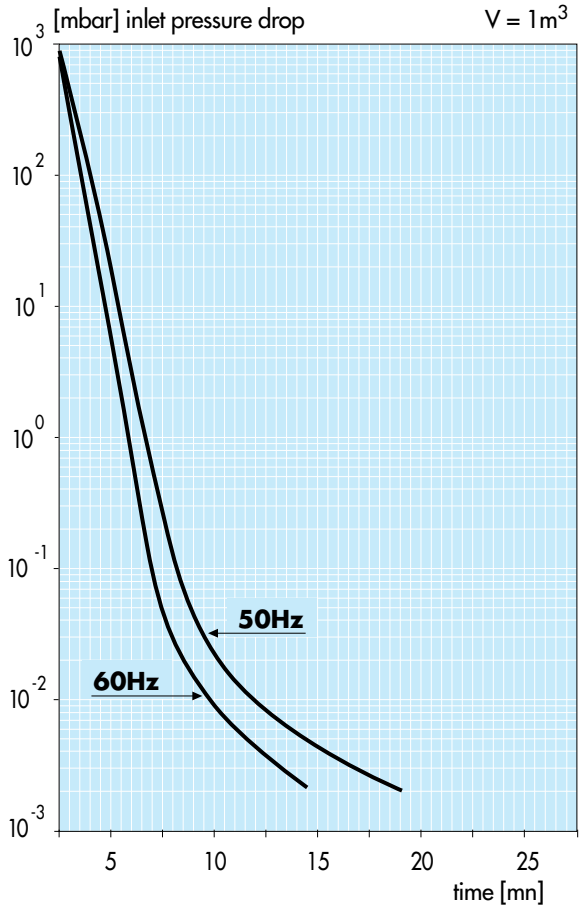
PASCAL series
Rotary vane pumps

Pumping curves 50 Hz - 60 Hz

2002I/C1



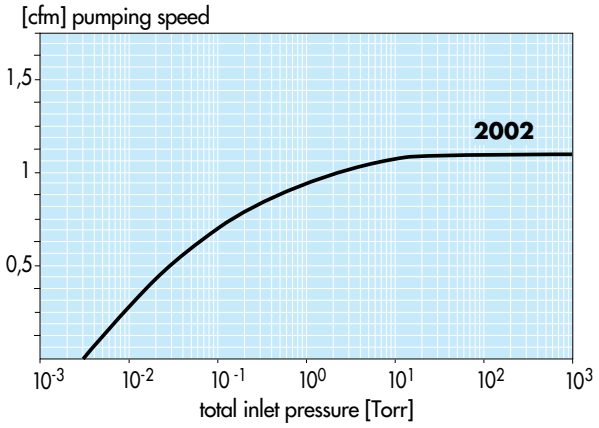
2100SD/C1



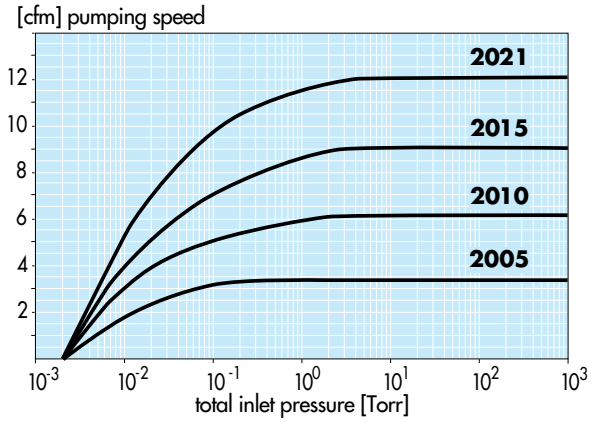
PASCAL series
Rotary vane pumps

Pumping curves 60 Hz

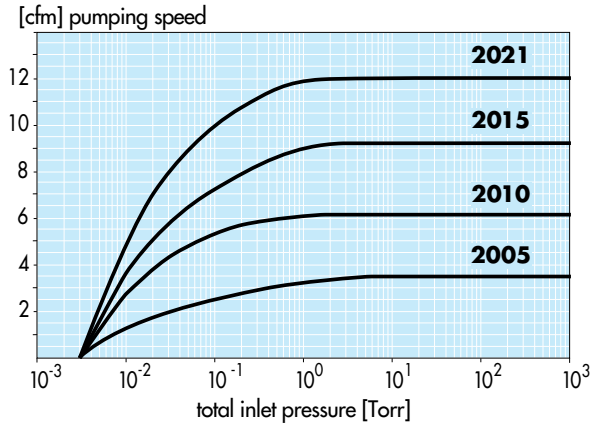
2002I - 2202C1



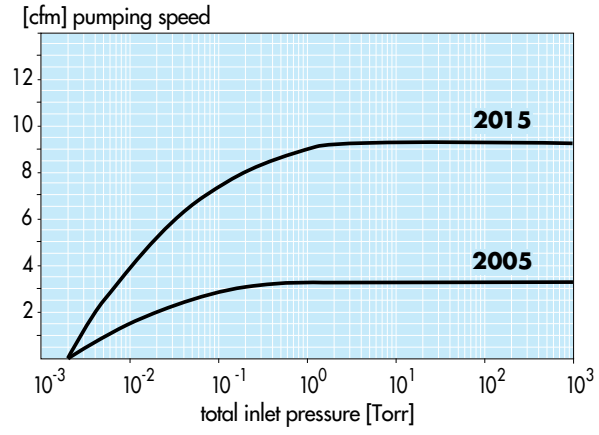
2005I/C1 - 2010I/C1/C2
2015I/C1/C2 - 2021I/C1/C2



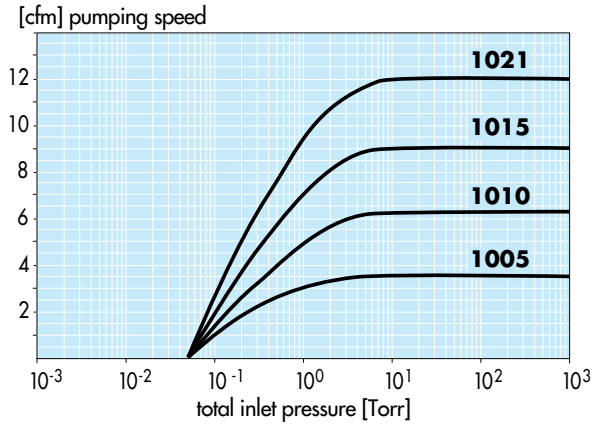
2005SD - 2010SD
2015SD - 2021SD



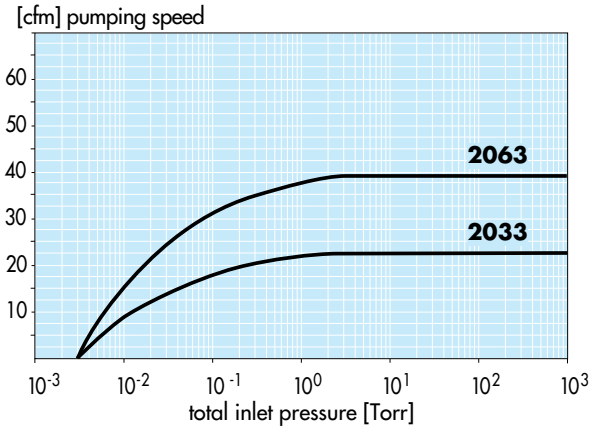
2005H1 - 2015H1



1005SD/C1 - 1010SD/C1
1015SD/C1 - 1021SD/C1



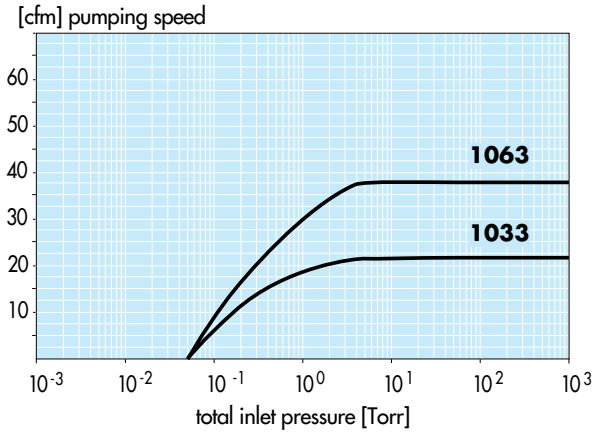
2033SD/C1/C2/H1
2063SD/C1/C2/H1



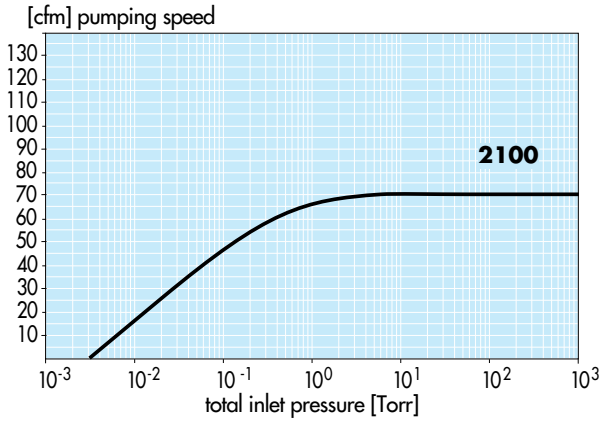
PASCAL series
Rotary vane pumps

Pumping curves 60 Hz

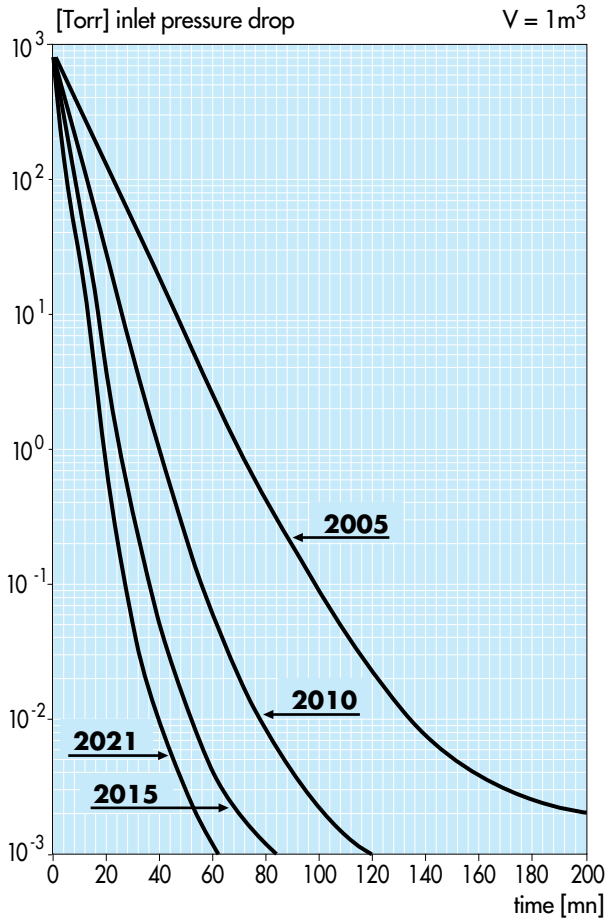
1033SD/C1
1063SD/C1



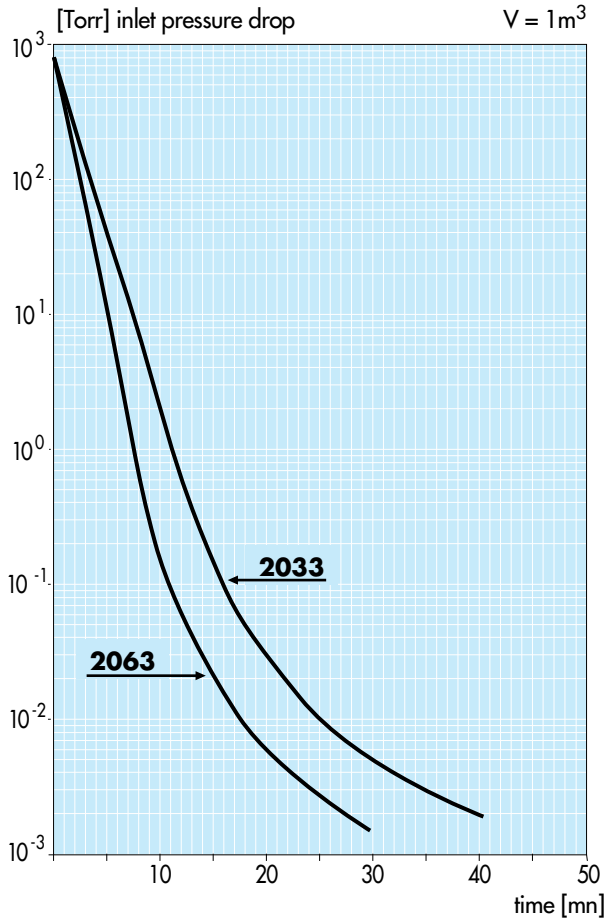
2100SD/C1



2005SD/I/C1/H1 - 2010SD/I/C1/C2
2015SD/I/C1/C2/H1
2021SD/I/C1/C2



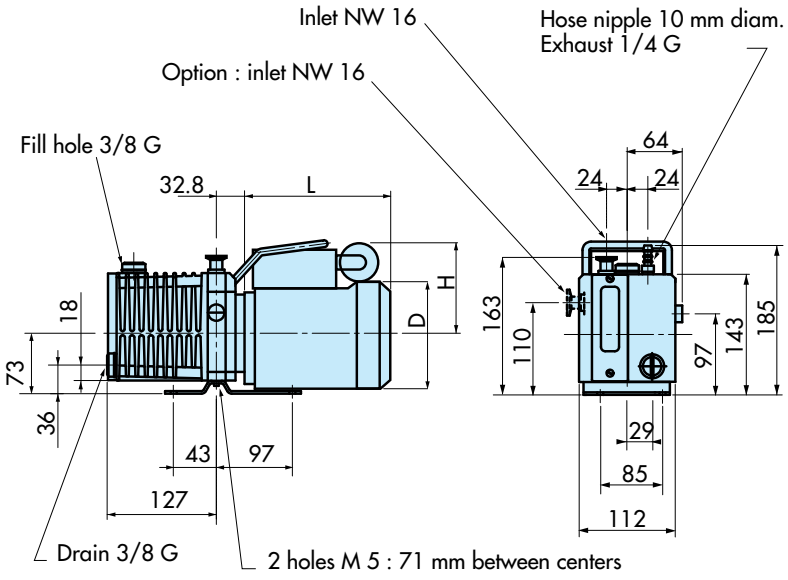
2033SD/C1/C2/H1
2063SD/C1/C2/H1



PASCAL series
Rotary vane pumps

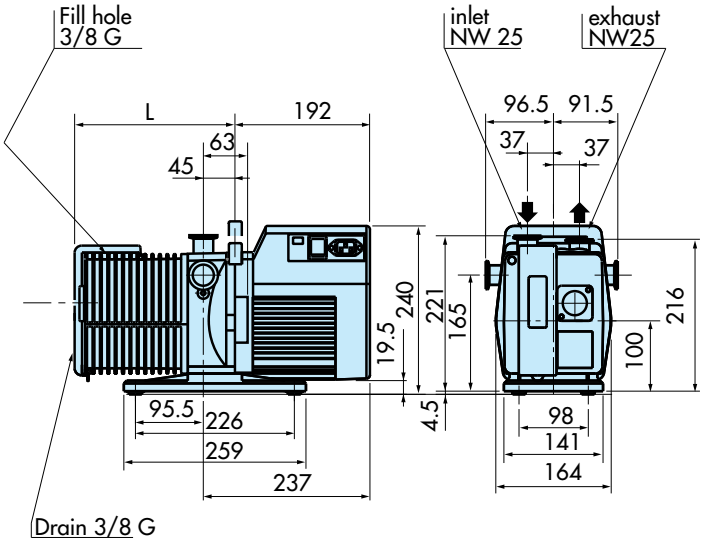
Dimensional drawings

2002I/C1



Specific dimensions according to different motors			
P/N	1021SD	1021SD	1021SD
785830	164	164	164
785829	164	164	164
785800	190	190	190
785801	186	186	186
UM2002	195	195	195

2005SD/I/C1 - 2010SD/I/C1 - 2015SD/I/C1 - 2021SD/I/C1
1005SD/C1 - 1010SD/C1 - 1015SD/C1 - 1021SD/C1



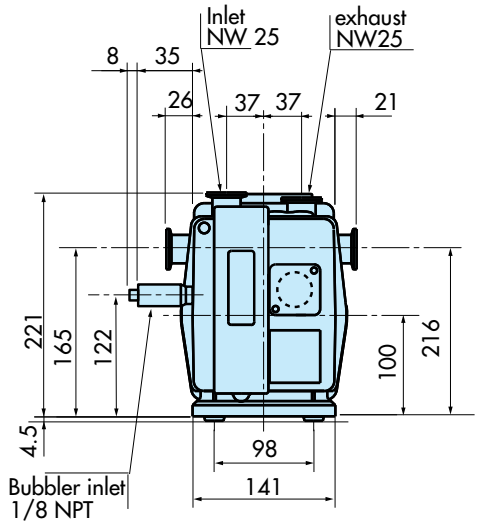
Specific dimensions	
Model	L mm
2005	228
2010	245
2015	270
2021	291
1005	228
1010	228
1015	245
1021	270

*same dimensions for single and three-phase motors

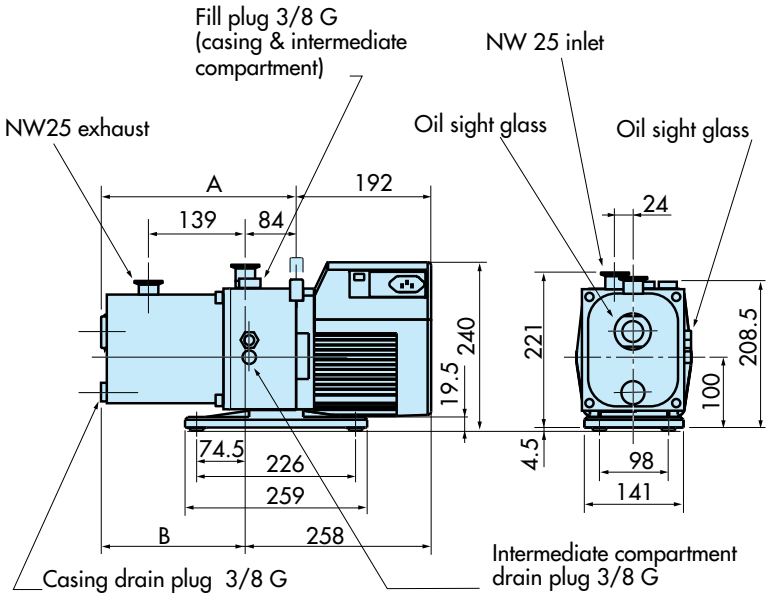
PASCAL series
Rotary vane pumps

Dimensional drawings

2010C2 - 2015C2 - 2021C2



2005H1 - 2015H1

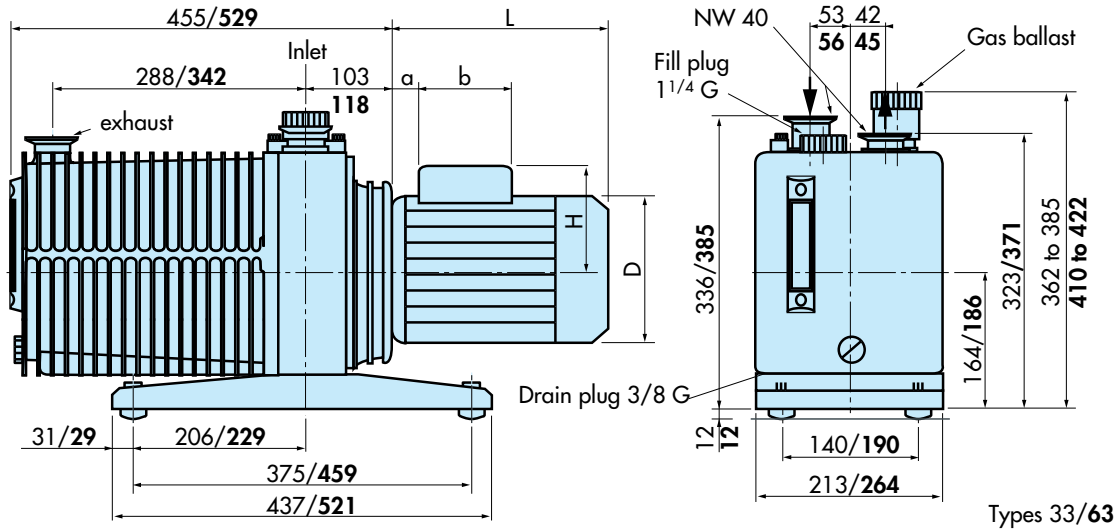


Specific dimensions		
Model	A mm	B mm
2005	279	195
2015	310	226

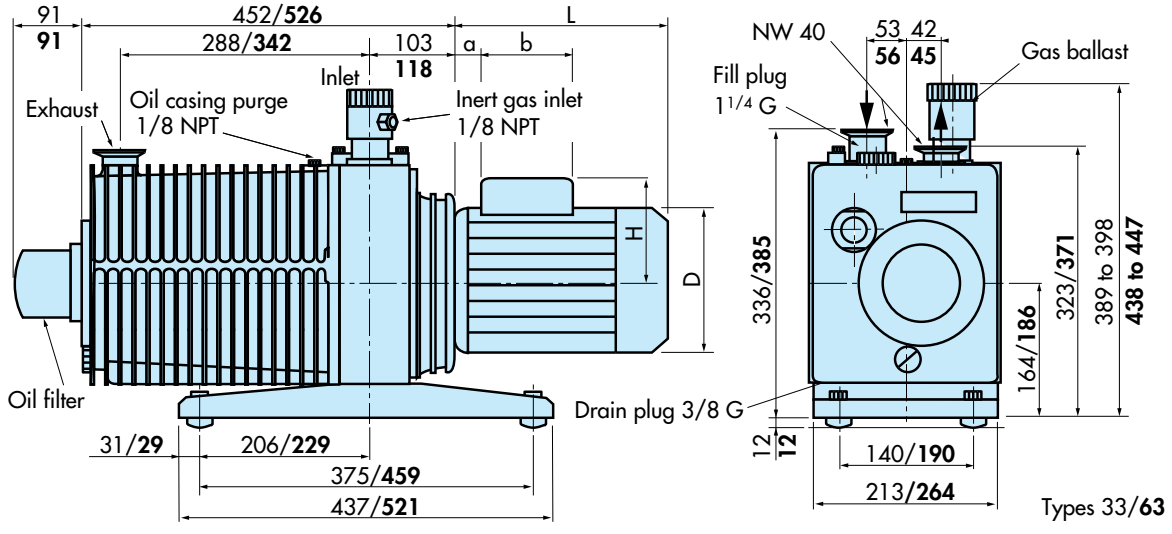
PASCAL series
Rotary vane pumps

Dimensional drawings

2033SD - 2063SD - 1033SD - 1063SD



2033C1 - 2063C1 - 1033C1 - 1063C1



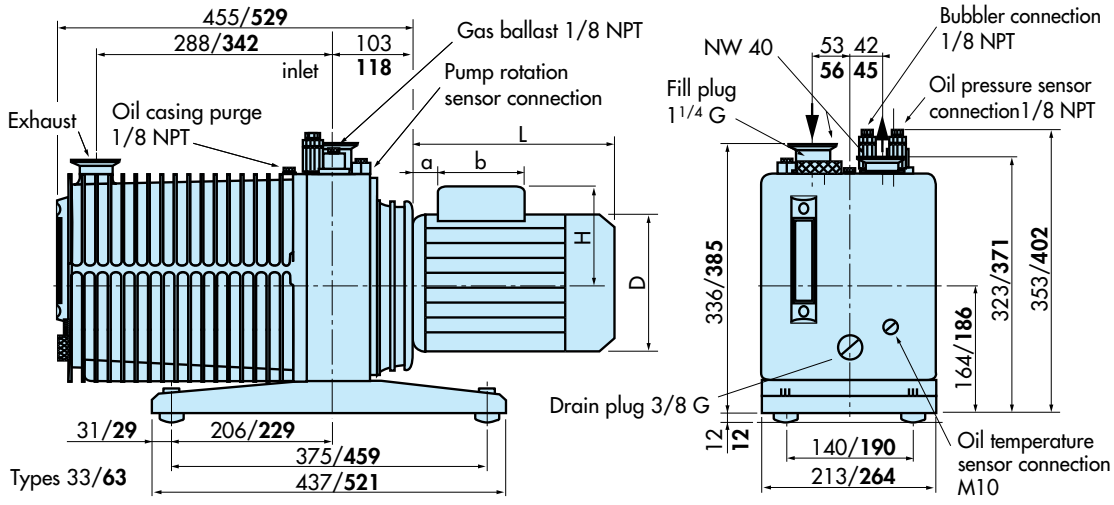
Specific dimensions according to motors						
P/N	Motor type	L mm	D mm	H mm	a mm	b mm
2033 1033	VDE	224	180	135	255.5	86
	CSA	212	184	132	26	87
	JIS	246	180	135	25.5	86
	UL/CSA CE	240	185	142	265	87

Specific dimensions according to motors						
P/N	Motor type	L mm	D mm	H mm	a mm	b mm
2063 1063	VDE	290	196	140	26.5	86
	CSA	285	195	140	25	87
	JIS	290	196	140	26.5	86
	UL/CSA CE	285	195	149	25	87

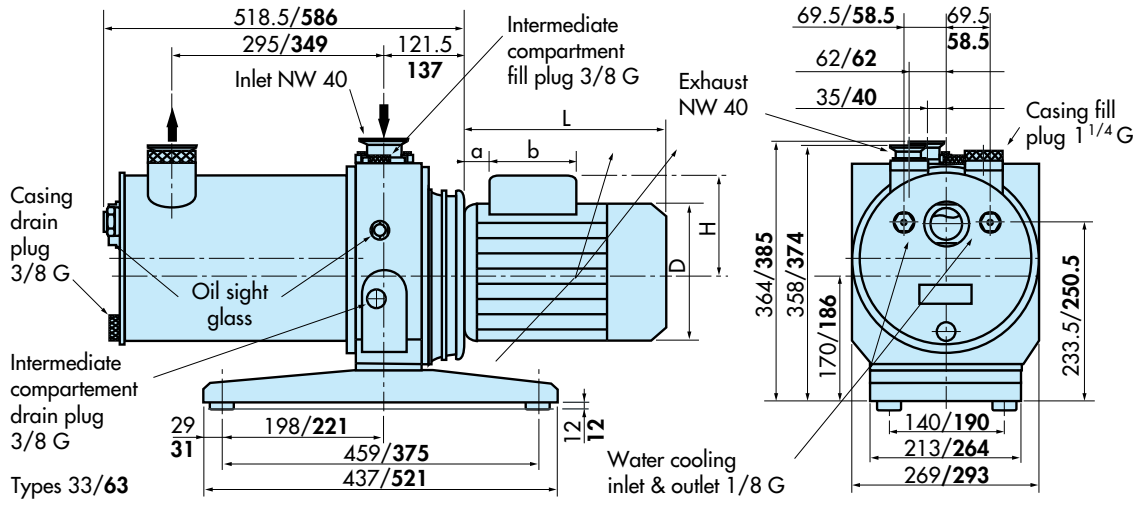
PASCAL series
Rotary vane pumps

Dimensional drawings

2033C2 - 2063C2



2033H1 - 2063H1



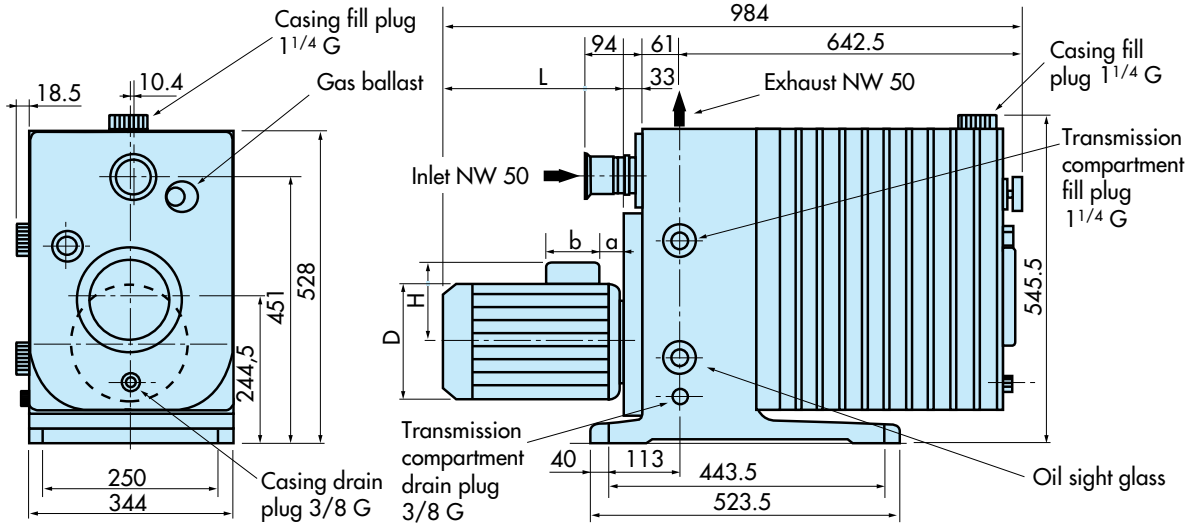
specific dimensions according to motors:

Same dimensions as for SD and C1 series. See page 27.

PASCAL series
Rotary vane pumps

Dimensional drawings

2100SD/C1



Specific dimensions according to motors						
P/N	Motor type	L mm	D mm	H mm	a mm	b mm
2100	VDE	310	196	140	44.5	86
	CSA	305	195	140	44.5	86
	JIS	310	196	140	44.5	86

PASCAL series
Rotary vane pumps

5 to 21 m^3/h all series ordering information

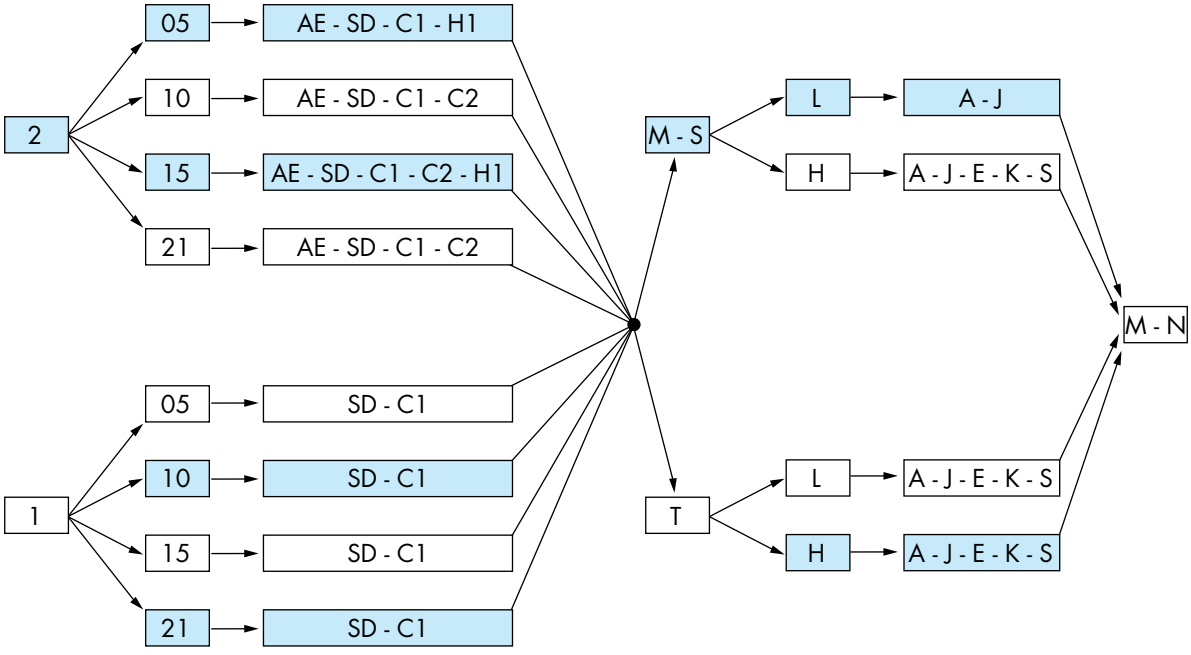
Rotary vane pump part numbers can be generated using the following table:

NUMBER OF STAGES	NOMINAL PUMPING SPEED m^3/h	SERIES	TYPE OF MOTOR	VOLTAGE CONFIGURATION	LINE CORD SET 2 m long (*)	OIL (**)
1 **2**	**05** **10** **15** **21**	**AE**: I Series **SD**: SD Series **C1**: C1 Series **C2**: C2 Series **H1**: H1Series	**M**: Single-phase with on/off switch **S**: Single-phase without switch **T**: Three-phase	**L**: Low voltage **H**: High voltage	**A**: for USA **J**: for Japan **E**: continental Europe **K**: for UK **S**: for Switzerland	**M**: with mineral oil **N**: without oil
X	**XX**	**XX**	**X**	**X**	**X**	**X**

(*): For single-phase motor only. Three-phase motors are delivered without cable and plug (except for US market), but in any case codes A, J, E, K, S must be indicated.
(**): for C2 series, code N is the only choice.

Example: Part number **215SDMLAM** is a 2015SD series with universal single-phase motor (with on/off switch) in low voltage configuration, equipped with cable and 115V plug for USA, supplied with mineral oil charge.

Available configurations



Lubricating fluid

• **I/SD/C1/H1 Series**: delivered with one initial charge of mineral oil (A119 for the US market; A120 for other countries).

C2 Series: factory prepared for operation with A113 synthetic fluid; fluid must be ordered separately: see page 33 and 34.

PASCAL series
Rotary vane pumps

2-33-63-100 m^3/h (1.4-27-50-90 cfm) all series ordering information

SINGLE-PHASE MOTORS	CSA/VDE	CSA	CSA	CSA	UL/CSA
MODEL	220/240 V 50 Hz	115 V 60 Hz	100/110 V 50 Hz 100/115 V 60 Hz	200/220 V 50 Hz 200/230 V 60 Hz	115/208.230 V 50/60 Hz
2002 I	785830	785829	785800	785801	UM2002I (*)
2002 C1	795751	795752	795753	795754	UM2002C1 (*)

THREE-PHASE MOTORS	VDE	CSA	JIS	UL/CSA/CE (***)
MODEL	Universal (**)	Universal (**)	200 V 50/60 Hz 220 V 60 Hz	190.220/380 V 50 Hz 200.230/460 V 60 Hz (***)
2033 SD	786008	785211	794226	UT2033SD (*)
2033 C1	786012	785212	794227	UT2033C1 (*)
2033 C2	785849	794212	794228	UT2033C2 (*)
2033 H1				
Exhaust pressure < atm	794287	794293	794285	UT2033H1.B (*)
Exhaust pressure > atm	785263	794214	794229	UT2033H1.A (*)
2063 SD	786021	785214	794217	UT2063SD (*)
2063 C1	786022	785215	794218	UT2063C1 (*)
2063 C2	785848	794213	794219	UT2063C2 (*)
2063 H1				
Exhaust pressure < atm	794290	794292	794286	UT2063H1.B (*)
Exhaust pressure > atm	785261	794215	794220	UT2063H1.A *)
2100 SD	786030	794270	794272	UT2100SD (*) (**)
2100 C1	786510	794271	794273	UT2100C1 (*) (**)
1033 SD	795735	795736	795737	UT1033SD (*)
1033 C1	795743	795744	795745	UT1033C1 (*)
1063 SD	795739	795740	795741	UT1063SD (*)
1063 C1	795747	795748	795749	UT1063C1 (*)

(*) : add L or H to the part number for desired Low or High voltage configuration.
(**) : universal three phase motors are compatible with the following voltages and frequencies.
(***) : specific motor for US market, featuring a 12 pin terminal box.

FREQUENCIES	50 Hz			60 Hz			
VOLTAGES V	220 380	230 400	240 415	230 460	220 380	255 440	280 480

PASCAL series rotary vane pumps are delivered with the following:

• Lubricating fluid
SD.I.C1.H1 series: one initial charge of mineral oil (A119 for US market; A120 for other countries).
C2 series: factory prepared for operation with A113 synthetic fluid; fluid must be ordered separately: see page 33.

• Electrical motors
They are supplied with power cable and plugs for single phase types; and without for three phase types.

Single phase and three phase motors are available in different versions complying with major international standards: VDE/UL/CSA/JIS.
Specific motor for pumps from 5 to 21 m^3/h are described page 8.
Special motors are available on request (explosion-proof...).

PASCAL series
Rotary vane pumps

Maintenance kits ordering information

In order to simplify maintenance performed in the field, ALCATEL offers maintenance kits including interchangeable components:

- Minor kit includes all necessary seals (shaft seals, o-rings, valves...).
- Major kit includes Minor kit plus vanes, springs, plugs...
- Shaft seal kit includes all components (lip seals, shaft sleeve...) necessary for fast periodic renewal of external shaft sealing. (only for 5 to 21 m^3/h SD,I,C1,C2 series).

MODEL	MAJOR KIT	MINOR KIT	SHAFT SEAL KIT
2002 I	052132	052133	-
2002 C1	104421	104420	-
2005 I	103906	103912	065612
2010 I	103907	103912	065612
2015 I	103908	103912	065612
2021 I	103909	103912	065612
2005 SD	103902	103911	065875
2010 SD	103903	103911	065875
2015 SD	103904	103911	065875
2021 SD	103905	103911	065875
2005 C1	104976	104975	065612
2010 C1	104977	104975	065612
2015 C1	104978	104975	065612
2021 C1	104979	104975	065612
2010 C2	104614	104975	065612
2015 C2	104615	104975	065612
2021 C2	104616	104975	065612
2005 H1	104612	104611	-
2015 H1	104613	104611	-
1005 SD	104622	103911	065875
1010 SD	104623	103911	065875
1015 SD	104643	105515	065875
1021 SD	104644	105515	065875
1005 C1	104617	104975	065612
1010 C1	104618	104975	065612
1015 C1	104619	104975	065612
1021 C1	104620	104975	065612

MODEL	MAJOR KIT	MINOR KIT
2033 SD	054288	054285
2063 SD	054487	054485
2100 SD	054595	083282
2033 C1	054289	054286
2063 C1	054489	054488
2100 C1	054664	054663
2033 C2	065124	065123
2063 C2	065553	065552
2033 H1	054283	054282
2063 H1	054484	054483
1033 SD	104416	054285
1063 SD	104417	054485
1033 C1	104418	054286
1063 C1	104419	054488

PASCAL series
Rotary vane pumps

Oils and fluids

Rotary vane pumps are mechanical pumps in which lubricating fluid performes three major functions:
• lubrication between moving parts
• heat exchange between pumping module and oil casing cooling fins.
• internal clearance reduction between moving parts for high compression ratio.
In order to achieve the desired ultimate pressure, oils and fluids must have very low saturated vapor pressure and specific viscosities within the internal temperature range of the pumps.

Alcatel has selected high quality oils and fluid, suitable for a wide range of applications.
Selection of the appropriated fluid must take into consideration operating conditions as well as gas corrosion.

PASCAL series rotary vane pumps can be operated with other oils than the ones listed below; using different oils can affect all specified ultimate pressures (consult ALCATEL).

PASCAL series rotary vane pumps are delivered with the following:
• Lubricating fluid
- SD. I. C1. H1 series: one initial charge of mineral oil (A119 for US market; A120 for other countries).
- C2 series: factory prepared for operation with A113 synthetic fluid; fluid must be ordered separately.

	TYPE	VAPOR PRESSURE	VISCOSITY	DENSITY	FLASH POINT	APPLICATIONS
A119	mineral oil	4.10^{-5} mbar at 25°C	54 cst at 40°C 8.1 cst at 100°C	0.860	213°C	general purposes, non corrosive gases, low temperature starting
A120	Paraffin based mineral oil	$1.3.10^{-6}$ mbar at 65°C	118 cst at 40°C 12.5 cst at 100°C	0.886	260°C	general purposes non corrosive gases
A121	special hydrocarbon, based mineral oil	$6.6.10^{-7}$ mbar at 25°C	67 cst at 38°C	0.830	296°C	high pressure and high temperature, frequent cycling
A102	mineral oil	10^{-2} mbar at 65°C	98 cst at 40°C 11.1 cst at 100°C	0.880	230°C	anti-emulsion water vapor and organic acids vapor pumping
A111	hydrocarbon based synthetic oil	10^{-6} mbar at 65°C	100 cst at 40°C 7.8 cst at 100°C	0.870	212°C	high pressure and high temperature
A113	PFPE synthetic fluid	6.10^{-5} mbar at 100°C	100 cst at 40°C 11 cst at 100°C	1.9	none	oxygen and highly corrosive gases pumping
A200	vacuum distilled mineral oil	6.10^{-6} mbar at 25°C	58 cst at 40°C 8.5 cst at 100°C	0.860	223°C	low backstreaming chemical resistance
A300	double distilled hydrocarbon based mineral oil	2.10^{-6} mbar at 25°C	56 cst at 40°C 8.9 cst at 100°C	0.860	243°C	highly resistant to chemical attack, pumping of Lewis acid, halogens...

PASCAL series
Rotary vane pumps

Oils and fluids ordering information

OIL TYPE	CONTAINER SIZE	PART NUMBER	
		USA	OTHER COUNTRIES
A119	1 liter	**98101**	**103855**
	1 gallon	**98102**	
	55 gallons	**98103**	
A120	2 liters		**068099**
	5X2 litres		**068844**
	56 litres		**010991**
A121	1 liter	**14128**	**102724**
A102	2 liters	**010996**	**010996**
	5X2 liters		**068853**
	56 liters		**010987**
A111	1 liter	**064656**	
	2 liters		**064655**
	5X2 liters		**068854**
A113	1 kg	**98703**	
	2 kg	**98704**	
	8 kg	**98705**	
	0.5 liter		**064657**
	2.5 liters		**064659**
A200	1 liter	**98201**	**068694**
	1 gallon	**98202**	
	55 gallons	**98203**	
	3.8 liters		**068695**
	19 liters		**068696**
A300	1 liter	**98301**	**068890**
	1 gallon	**98302**	
	55 gallons	**98303**	
	3.8 liters		**068891**
	19 liters		**068892**

Optional "inert" fluid pump preparation

Factory preparation of new rotary vane pump with ALCATEL 113 PFPE fluid is necessary for all series (except C2 series).

PFPE fluid

The PFPE fluid must be ordered separately (see above).
Class B preparation includes: complete pump disassembly, degreasing and reassembly with new viton seals and re-certification of pump to specifications with PFPE fluid.

PASCAL series
Rotary vane pumps

Accessories

A full and comprehensive line of accessories.

Configuring and optimizing rotary vane pumps operation for some applications requires the use of different accessories.

ALCATEL has developed a full line of accessories to be used with the PASCAL series.
These accessories have been designed in order to facilitate operation, assembly and disassembly; inlet and exhaust flanges comply with ISO-KF standard.
For some applications, the use of accessories may be the best way to enhance performance and reliability of vacuum systems.
Our specialists can assist you in making the proper selection.


OME 25 S


ST 25 C


OME 25 HP


OME 50 C


OME 40 C1


LNT 25 C


DE 2


LNT 25 P1

PASCAL series
Rotary vane pumps

	2002 I	2002 C1	2005 - 2021 I	2005 - 2021 SD 1005 - 1021 SD	2005 - 2021 C1 1005 - 1021 C1	2010 - 2021 C2	2005 - 2015 H1	2033 - 2063 SD 1033 - 1063 SD	2033 - 2063 C1 1033 - 1063 C1	2033 - 2063 C2	2033 - 2063 H1	2100 SD	2100 C1
Oil mist eliminators													
OME 2002 I	●												
OME 2002 C		●											
OME 25 S			●	●									
OME 25 HP			●	●									
OME 25 C/H					●	●	●						
OME 40 S								●					
OME 40 C1									●	●			
OME 40 C2										●			
OME 40 H											●		
OME 50 S												●	
OME 50 C													●
Oil drain kits													
ODK 1			●	●									
ODK 2			●	●									
Liquid nitrogen traps													
LNT 25 S			●	●									
LNT 25 C					●	❍	❍						
LNT 25 P1			●	●	❍	❍							
LNT 25 P2			●	●	❍	❍							
LNT 40								●	●	❍	❍		
LNT 50								❍	❍	❍	❍	●	●
Sorption traps													
ST 25 S			●	●									
ST 25 C			●	●									
ST 40								●					
ST 50												●	
Dust filter													
DFT 25			●	●									
DFT 40								●					
DFT 50												●	
Condensate trap													
CT 25			●	●	❍	❍							
Remote gas ballast													
AGB 4			●	●	❍								
AGB 36								●	❍				
Water condensers													
CO 12								●					
CO 20								●				●	
External oil filters													
DE 1					●	●			●	●			
DE 2									●	●			
Oil level switches													
OLS 4			●	●									
OLS 36								●					

●: Possible without restrictions ❍: Possible with restrictions

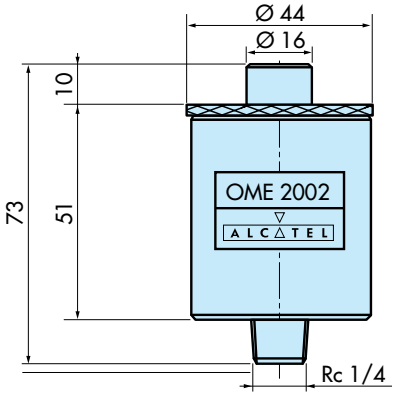
PASCAL series
Rotary vane pumps

Oil mist eliminators

During rotary vane pump operation, oil mist escapes from the exhaust port; mainly when pumping between atmospheric pressure and 1 mbar.

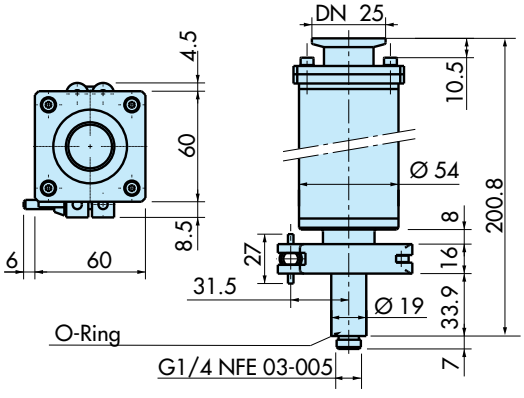
Oil mist eliminators retain oil mist contained in the exhausted gases with a high level of separation; an internal over pressure valve prevents exceeding the maximum permissible exhaust pressure.

OME 2002 I



- ❏ material : ..... body : aluminum
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 0.1 kg 0.22 lbs
- ❏ inlet port :..... thread RC 1/4"
- ❏ exhaust port : .... Ø 16 mm
- ❏ **p/n :..... 062886**
- ❏ replacement cartridge (single) : p/n 062824

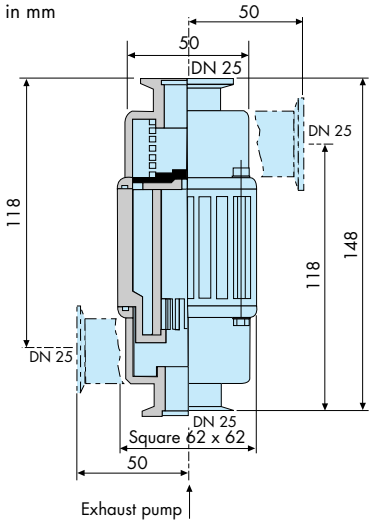
OME 2002 C



- ❏ material : ..... body : stainless steel
  ..... cartridge : PTFE/glass micro-fiber
- ❏ weight : ..... 0.9 g 2 lbs
- ❏ inlet port :..... thread RC 1/4"
- ❏ exhaust port : .... DN25 ISO-KF
- ❏ **p/n :..... 104378**
- ❏ replacement cartridge (set of 5) : p/n 066806

OME 25 S

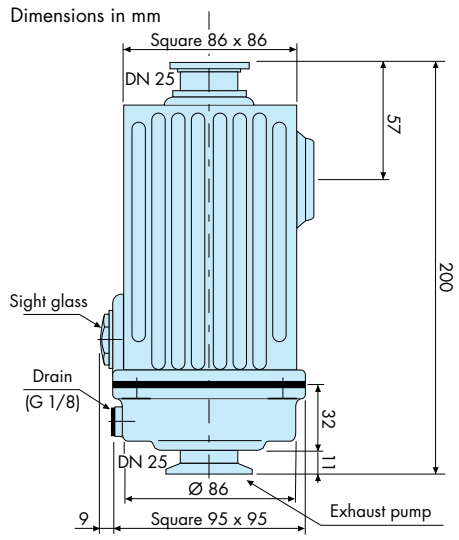
Dimensions in mm



- ❏ material : ..... body : polyamide
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 0.217kg 0.477 lbs
- ❏ inlet port/exhaust port : DN25 ISO-KF
- ❏ **p/n :..... 104200**
- ❏ replacement cartridge, set of 5 : p/n 068838
  single : p/n 068304
- ❏ supplied with : 1 centering ring, 1 clamp, 1 additional angle port

PASCAL series
Rotary vane pumps

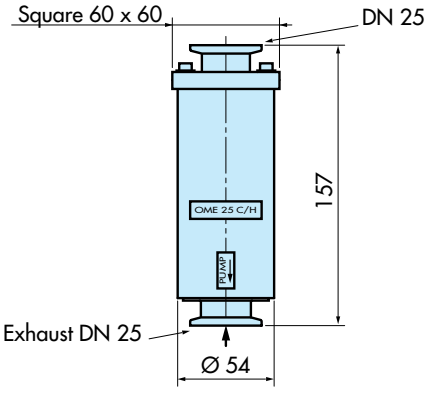
OME 25 HP



Specially designed for applications involving frequent cycling or high pressure operation; OME 25 HP is mainly dedicated to 15 m^3/h and 21 m^3/h rotary vane pumps.

- ❏ material : ..... body : aluminum
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 1.2 kg 2.64 lbs
- ❏ inlet port/exhaust port : DN25 ISO-KF
- ❏ **p/n : 104199**
- ❏ replacement cartridge (single) : p/n 100522
- ❏ supplied with : 1 centering ring and 1 clamp

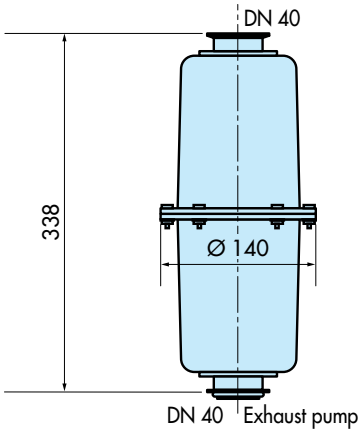
OME 25 C/H



For applications involving corrosive gases or high level of tightness.

- ❏ material : ..... body : stainless steel
  ..... cartridge : PTFE/glass micro-fiber
- ❏ weight : ..... 0.530 kg 1.77 lbs
- ❏ leak rate :..... ≤ 2.10^{-7} mbar l/s
- ❏ inlet port/exhaust port : DN25 ISO-KF
- ❏ **p/n : 066849**
- ❏ replacement cartridge set of 5 : p/n 066806
- ❏ supplied with : 1 centering ring and 1 clamp

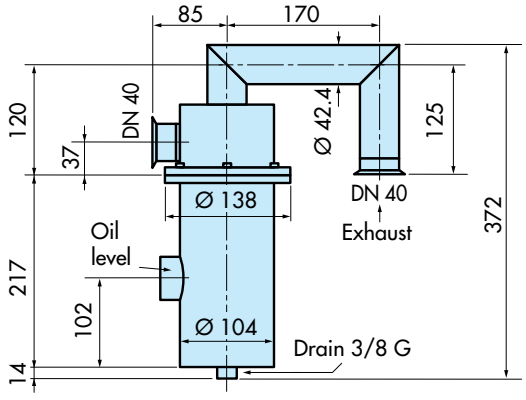
OME 40 S



- ❏ material : ..... body : aluminum
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 0.9kg 1.9 lbs
- ❏ inlet port/exhaust port : DN40 ISO-KF
- ❏ **p/n : 104887**
- ❏ replacement cartridge (single) : p/n 068443

PASCAL series
Rotary vane pumps

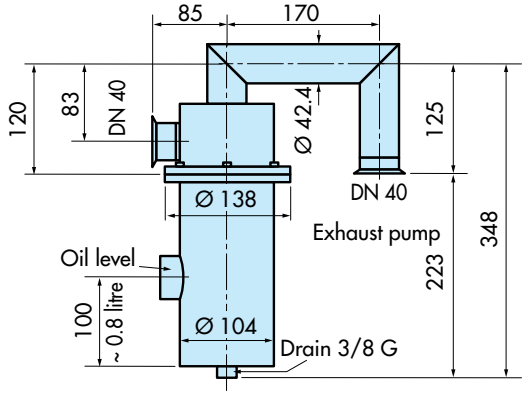
OME 40 C1



For applications involving corrosive gases, **except fluorinated** gases.

- ❏ material : ..... body : stainless steel
  ..... cartridge : PTFE/glass micro-fiber
- ❏ weight : ..... 4.1 kg 9 lbs
- ❏ inlet/exhaust port : DN40 ISO-KF
- ❏ **p/n : 068785**
- ❏ replacement cartridge (single) : p/n 068778

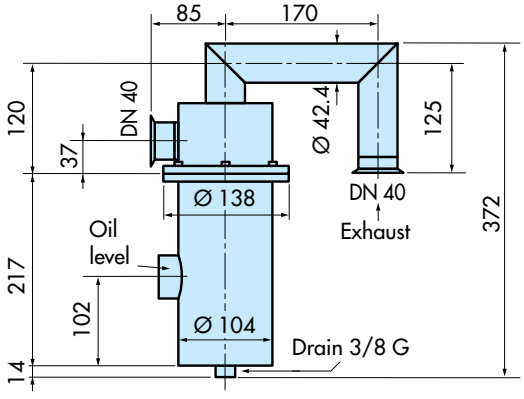
OME 40 C2



Suitable for corrosive applications involving fluorinated gases.

- ❏ material : ..... body : stainless steel
  ..... cartridge : polypropylene
- ❏ weight : ..... 4.1 kg 9 lbs
- ❏ inlet/exhaust port : DN40 ISO-KF
- ❏ **p/n : 068942**
- ❏ replacement cartridge (single) : p/n 100802

OME 40 H

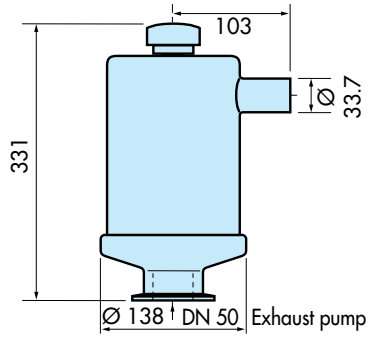


Specially designed for applications involving high level of tightness.

- ❏ material : ..... body : stainless steel
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 4.1 kg 9 lbs
- ❏ leak rate .....≤ 2.10^{-7} mbar.l/s
- ❏ inlet/exhaust port : DN40 ISO-KF
- ❏ **p/n : 068744**
- ❏ replacement cartridge (single) : p/n 068443

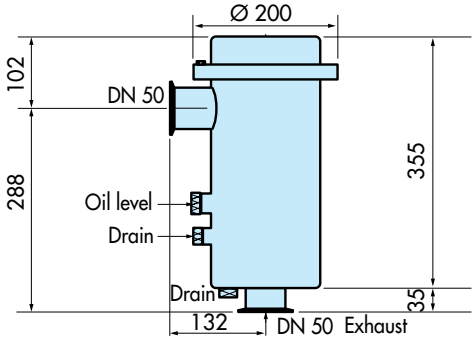
PASCAL series
Rotary vane pumps

OME 50 S



- ❏ material : ..... body : steel
  ..... cartridge : cellulose
- ❏ weight : ..... 3.5 kg 7.7 lbs
- ❏ inlet port : ..... DN50 ISO-KF
- ❏ exhaust port : .... Ø 33.7 mm 1⅓ inch
- ❏ **p/n : 104888**
- ❏ replacement filter (1 set) : p/n 082672

OME 50 C

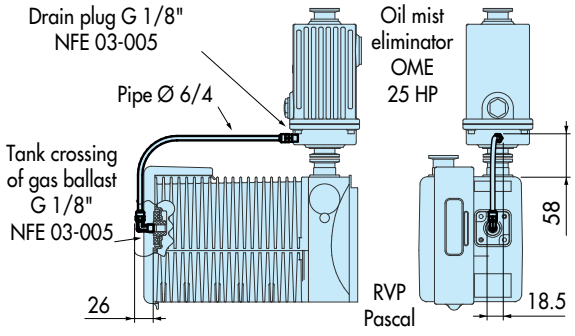


- ❏ material : ..... body : stainless steel
  ..... cartridge : PTFE/glass micro-fiber
- ❏ weight : ..... 9 kg 19.8 lbs
- ❏ inlet/exhaust port : DN50 ISO-KF
- ❏ **p/n : 068996**
- ❏ replacement cartridge (single) : p/n 068778
  (3 are necessary)

PASCAL series
Rotary vane pumps

Oil drain kits

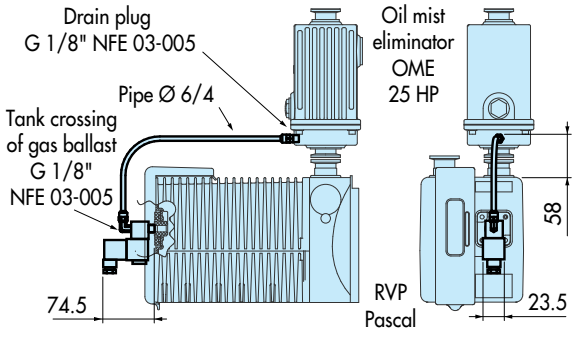
ODK 1 for 5 to 21 m³/h pumps I/SD series



Oil Drain Kit 1 must be used with oil mist eliminator OME 25 HP. It consists of a drain pipe which is connected on one end to the bottom of the OME 25 HP, and on the other end to the inlet of the gas ballast. When operating the pump at high pressure, the oil accumulated in the OME HP is re-injected through the gas ballast.
***When using ODK 1, the pump is not tight when stopped**

❑ weight : ..... 0.1 kg 0.22 lbs
❑ **p/n : 104360**

ODK 2 for 5 to 21 m³/h pumps I/SD series



Oil Drain Kit 2 is similar to ODK 1 with a NC solenoid valve located at the inlet of the gas ballast.
The valve must be energized by the same electrical supply as the pump; in case of power failure, the valve will close and the pump will stay tight when stopped.

❑ weight : ..... 0.3 kg 0.66 lbs
❑ **part numbers**

	230 V 50/60 HZ	115 V 60 HZ	100 V 50/60 HZ	200 V 50/60 HZ	24 V DC
p/n	**104361**	**104362**	**104363**	**104364**	**104365**

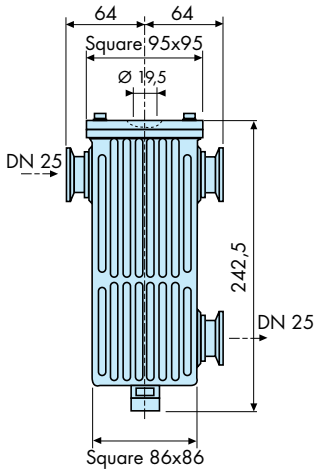
PASCAL series
Rotary vane pumps

Liquid nitrogen traps

Liquid nitrogen traps condense at the pump inlet all gases whose critical condensation temperature is above -196° C (77K). They can be used either to protect the pump against condensable vapor introduction or to prevent backstreaming of oil vapors at the pump inlet when an absolutely clean vacuum is desired (exhaust of molecular drag or turbomolecular pumps)

LNT 25 S

Dimensions in mm



- ❏ material : ..... body : aluminum
  ..... thimble : stainless steel
- ❏ weight : ..... 1.690 kg 3.72 lbs
- ❏ liquid nitrogen capacity : 0.5 l
- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ conductance
- ❏ fill interval

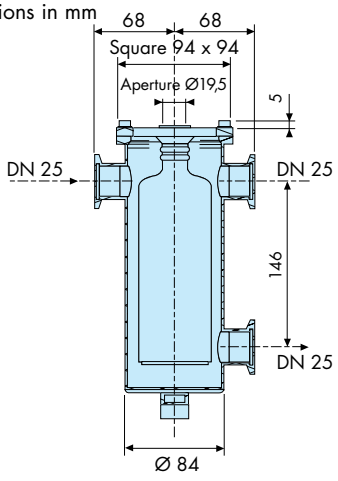
conductance	inlet pressure
44 l/s	10^{-1} mbar
10 l/s	10^{-2} mbar

fill interval	inlet pressure
5h	10^{-2} mbar
11h	ultimate

- ❏ supplied with : 1 centering ring and 1 clamp
- ❏ **p/n :..... 104197**

LNT 25 C

Dimensions in mm



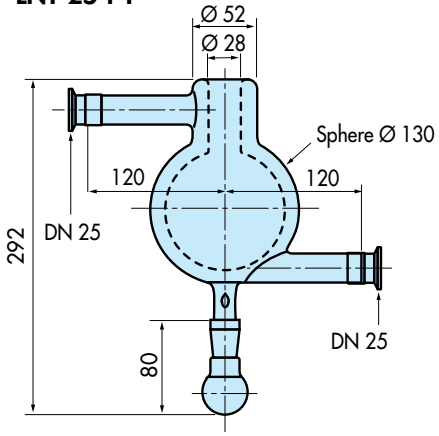
- ❏ material : ..... body : stainless steel
  ..... thimble : stainless steel
- ❏ weight : ..... 1.885 kg 4.15 lbs
- ❏ liquid nitrogen capacity : 0.5 l
- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ conductance
- ❏ fill interval

conductance	inlet pressure
33 l/s	10^{-1} mbar
6 l/s	10^{-2} mbar

fill interval	inlet pressure
5h30	10^{-2} mbar
14h	ultimate

- ❏ supplied with : 1 centering ring and 1 clamp
- ❏ **p/n :..... 066889**

LNT 25 P1



- ❏ material : ..... body : glass
  ..... flanges : aluminum
- ❏ weight : ..... 1kg 2.2 lbs
- ❏ liquid nitrogen capacity : 0.5 l
- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ conductance
- ❏ fill interval

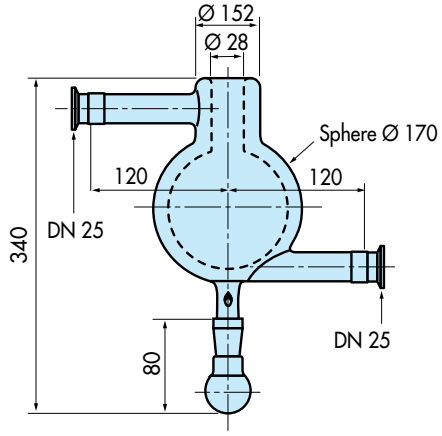
conductance	inlet pressure
6 l/s	10^{-2} mbar

fill interval	inlet pressure
5h	ultimate

- ❏ **p/n :..... 786346**

PASCAL series
Rotary vane pumps

LNT 25 P2



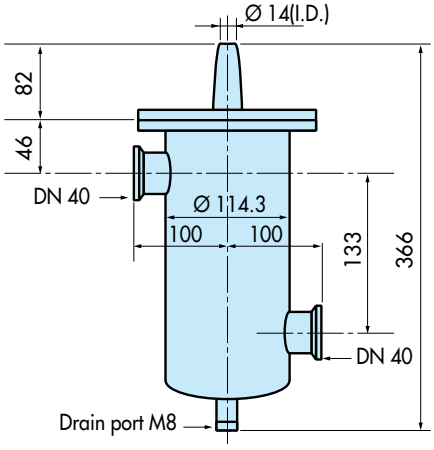
❑ material : ..... body : glass
..... flanges : aluminum
❑ weight : ..... 1.5 kg 3.3 lbs
❑ liquid nitrogen capacity : 1 l
❑ inlet/exhaust ports : DN25 ISO-KF
❑ conductance ❑ fill interval

conductance	inlet pressure
6 l/s	10^{-2} mbar

fill interval	inlet pressure
6h	ultimate

❑ **p/n : 786347**

LNT 40



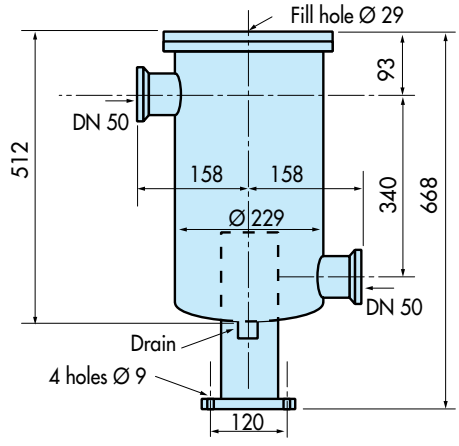
❑ material : ..... body : stainless steel
..... thimble : stainless steel
❑ weight : ..... 3 kg 7.2 lbs
❑ liquid nitrogen capacity : 1 l
❑ inlet/exhaust ports : DN40 ISO-KF
❑ conductance ❑ fill interval

conductance	inlet pressure
43 l/s	10^{-2} mbar

fill interval	inlet pressure
15h	ultimate

❑ **p/n : 786537**

LNT 50



❑ material : ..... body : stainless steel
..... thimble : stainless steel
❑ weight : ..... 20 kg 48 lbs
❑ liquid nitrogen capacity : 6 l
❑ inlet/exhaust ports : DN50 ISO-KF
❑ conductance ❑ fill interval

conductance	inlet pressure
110 l/s	10^{-2} mbar

fill interval	inlet pressure
15h	ultimate

❑ **p/n : 786530**

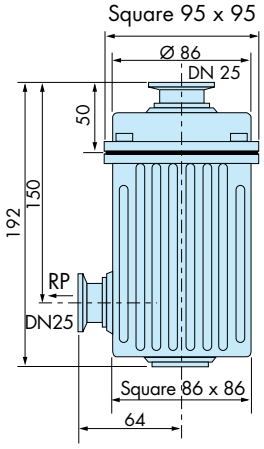
PASCAL series
Rotary vane pumps

Sorption traps

Sorption traps consist of a sealed body filled with adsorbent media whose extremely porous surfaces adsorb water or hydrocarbon molecules contained in the pumped gases. Sorption traps provide simple and effective protection against oil backstreaming whenever clean vacuum is desired. The saturated adsorbent elements can be regenerated by heating (baked out in oven, or using integrated heater, according to models).

ST 25 S

Dimensions in mm



- ❏ material : ..... body : aluminum
  ..... cartridge : stainless steel
- ❏ weight : ..... trap : 1.15 kg 2.53 lbs
  ..... adsorbent : 0.36 kg 0.79 lbs
- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ conductance

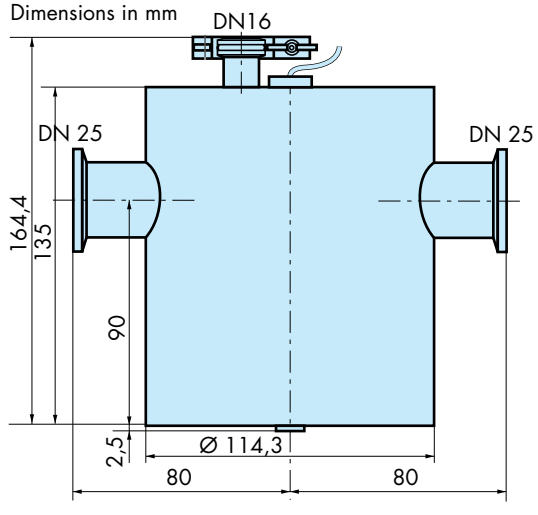
conductance	inlet pressure
45 l/s	10^{-1} mbar
11 l/s	10^{-2} mbar

- ❏ **p/n :..... 104107 - without adsorbent charge**
- ❏ adsorbent charge : activated alumina : p/n 068779
  ..... zeolite : p/n 068182
- ❏ supplied with : 1 centering ring and 1 clamp

ST 25 C

With electrical heating element

Dimensions in mm



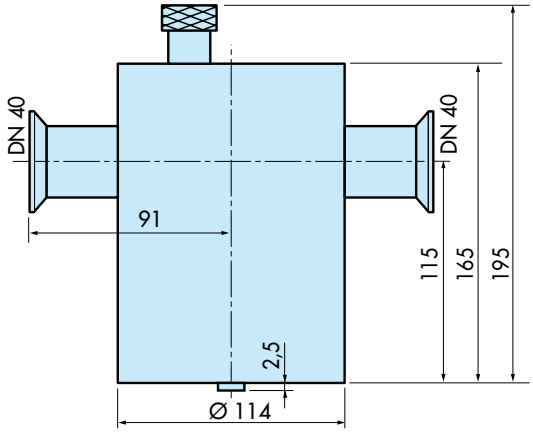
- ❏ material : ..... body : stainless steel
  ..... cartridge : stainless steel
- ❏ weight : ..... trap : 1.4 kg 3.08 lbs
  ..... adsorbent : 0.26 kg 0.57 lbs
- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ conductance

conductance	inlet pressure
45 l/s	10^{-1} mbar
20 l/s	10^{-2} mbar

- ❏ **p/n : 066845 for 115V - without charge**
- ❏ **p/n : 066841 for 220V - without charge**
- ❏ adsorbent charge : activated alumina : p/n 068779
  ..... zeolite : p/n 068182
- ❏ heating element : 115V p/n 066876
  ..... 220V p/n 068319
- ❏ supplied with : 1 centering ring and 1 clamp

PASCAL series
Rotary vane pumps

ST 40 not available in USA
With electrical heating element

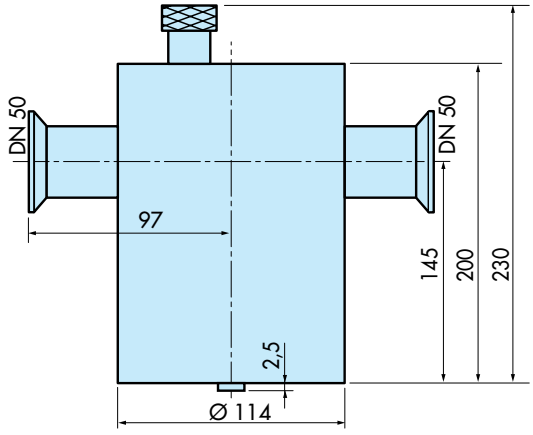


- ❏ material : ..... body : stainless steel
  ..... cartridge : stainless steel
- ❏ weight : ..... trap : 1.7 kg 3.74 lbs
  ..... adsorbent : 0.36 kg 0.79 lbs
- ❏ inlet/exhaust ports : DN40 ISO-KF
- ❏ conductance

conductance	inlet pressure
25 l/s	10^{-2} mbar

- ❏ **p/n : 104371 115V - 053380 220V-with zeolite charge**
- ❏ adsorbent charge : activated alumina : p/n 068779
  ..... zeolite : p/n 068182
- ❏ heating element : 115V p/n 066876
  ..... 220V p/n 068319

ST 50 not available in USA
With electrical heating element

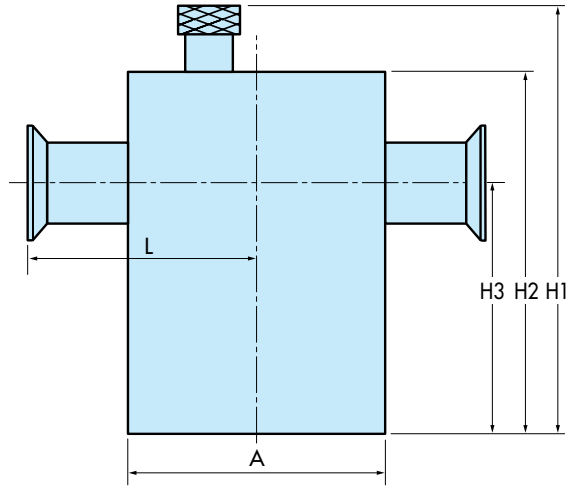


- ❏ material : ..... body : stainless steel
  ..... cartridge : stainless steel
- ❏ weight : ..... trap : 2 kg 4.4 lbs
  ..... adsorbent : 0.36 kg 0.79 lbs
- ❏ inlet/exhaust ports : DN50 ISO-KF
- ❏ conductance

conductance	inlet pressure
30 l/s	10^{-2} mbar

- ❏ **p/n : 104372 115V - 053381 220V-with zeolite charge**
- ❏ adsorbent charge : activated alumina : p/n 068779
  ..... zeolite : p/n 068182
- ❏ heating element : 115V p/n 066876
  ..... 220V p/n 068319

Specific sorption traps for USA customers
FTML 25/40/50
With 115V heating element



- ❏ material : ..... body and cartridge : stainless steel
- ❏ weight : lbs

	FTML25	FTML40	FTML50
trap	3.1	3.74	4.4
charge	0.57	0.73	0.86

- ❏ dimensions : inch

	H1	H2	H3	L	A
FTML 25	5.12	3.54	2.36	3.35	4.53
FTML 40	8.46	6.89	4.72	3.54	4.53
FTML 50	8.46	6.89	4.72	4.33	5.91

- ❏ ordering information

p/n	trap	alumina charge	heater 115V
FTML 25	**55014**	**55020**	**55021**
FTML 40	**55016**	**55020**	**55022**
FTML 50	**55017**	**55020**	**55023**

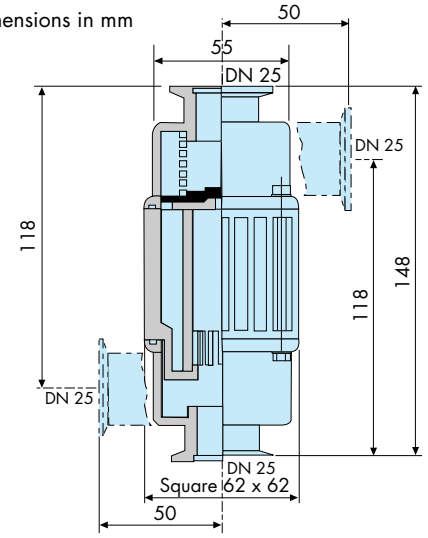
PASCAL series
Rotary vane pumps

Inlet dust filter

Using inlet dust filters will prevent solid particles from entering into the rotary vane pump and avoid concentration of solid media which can act as abrasive and shorten the pump lifetime. Periodic maintenance is required in order to keep highest pumping efficiency.

DFT 25

Dimensions in mm

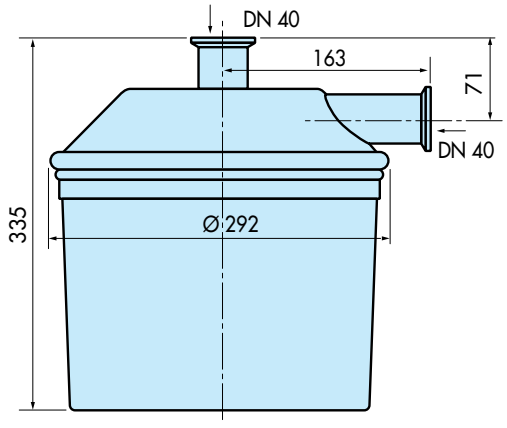


- ❏ material : ..... body : polyamide
  ..... cartridge : epoxy/glass micro-fiber
- ❏ weight : ..... 0.217 kg 0.45 lbs
- ❏ filtration threshold : 6 µm
- ❏ conductance

conductance	inlet pressure
2 l/s	10^{-1} mbar
0.6 l/s	10^{-2} mbar

- ❏ inlet/exhaust ports : DN25 ISO-KF
- ❏ **p/n :..... 104202**
- ❏ replacement cartridge (set of 5) p/n 068837
- ❏ supplied with : 1 centering ring and 1 clamp
  1 additonal angle port

DFT 40

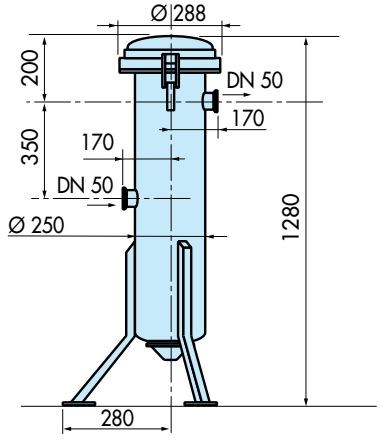


- ❏ material : ..... body : steel
  ..... cartridge : PVC foam
- ❏ weight : ..... 3.9 kg 8.58 lbs
- ❏ filtration threshold : 5 µm
- ❏ conductance

conductance	inlet pressure
44 l/s	10^{-1} mbar
12 l/s	10^{-2} mbar

- ❏ inlet/exhaust ports : DN40 ISO-KF
- ❏ **p/n :..... 104889**
- ❏ replacement cartridge (set of 26) p/n : 068485

DFT 50



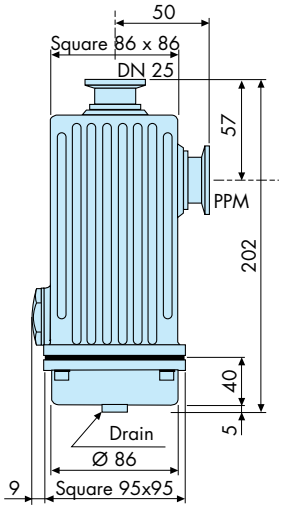
- ❏ material : ..... body : steel
  ..... cartridge : PVC foam
- ❏ weight : ..... 50kg 110 lbs
- ❏ filtration threshold : 5 µm
- ❏ inlet/exhaust ports : DN50 ISO-KF
- ❏ **p/n :..... 104890**
- ❏ replacement cartridge (set of 19) p/n : 068486

PASCAL series
Rotary vane pumps

Condensate traps

Using condensate traps at the pump inlet will prevent introduction of some solid or liquid products (foam, deposits...) which could mix with the oil and reduce pump lifetime. Pumped gases pass through metalic filter and stainless steel wool which retain particles, solid deposits and ensure liquid coalescence. Used at the exhaust, condensate trap can trap oil mist when operating the pump at high pressure; it can be used along with conventional oil mist eliminator.

CT 25



Dimensions in mm

- material : ..... body : aluminum
  ..... filter : stainless steel
- trap capacity : .. 0.6 l
- weight : ..... 1.2 kg 2.64 lbs
- conductance

conductance	inlet pressure
15 l/s	10^{-1} mbar
6 l/s	10^{-2} mbar

- inlet/exhaust ports : DN25 ISO-KF
- **p/n :..... 104201**
- replacement filter p/n : 066825
- supplied with : 1 centering ring and 1 clamp

PASCAL series
Rotary vane pumps

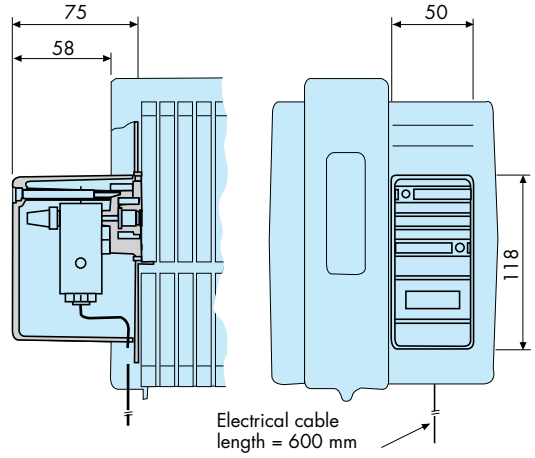
Remote controlled gas ballast

Electrically operated gas ballast is the remote controlled version of the manual gas ballast of the rotary vane pump. It consists of a **N**ormally **C**losed solenoid valve which enables air injection into the high pressure stage of the pump.

The **A**utomatic **G**as **B**allast can be connected to a source of dry and neutral gas; it is a convenient solution in all cases of frequent use or difficult access to the manual gas ballast.

AGB 4 for 5 to 21 m³/h pumps I/SD/C1 series

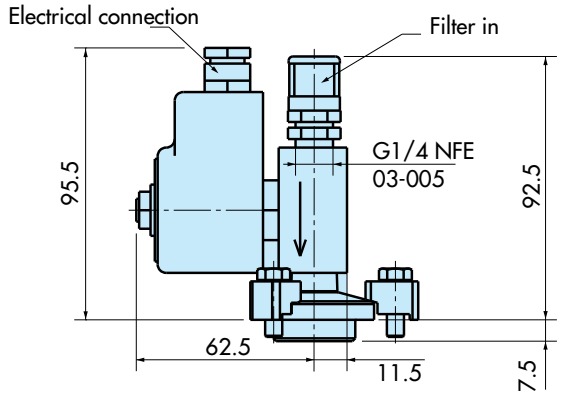
Dimensions in mm



❏ delivered with : 600 mm cable (without plug)
all necessary connection parts
❏ weight : ..... 0.3 kg 0.66 lbs
❏ ordering information

p/n	230V 50/60 HZ	115V 60 HZ	100V 50/60 HZ	200V 50/60 HZ	24 V DC
AGB 4	**104086**	**104087**	**104088**	**104366**	**104089**
spare coil	**103552**	**038122**	**038126**	**038125**	**038066**

AGB 36 for 33/63 m³/h pumps SD/C1 series



❏ delivered : without cable and plug
with all necessary connection parts
❏ weight : ..... 0.7 kg 1.54 lbs
❏ ordering information

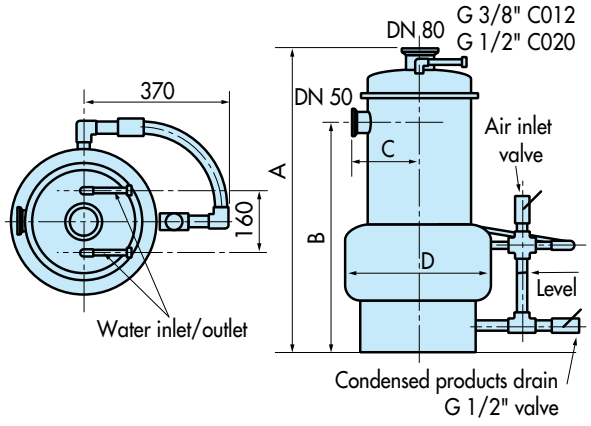
p/n	230/240V 50/60 HZ	115V 60 HZ	100V 50/60 HZ	200V 50/60 HZ	24V DC
AGB 36	**068391**	**104367**	**104368**	**104369**	**104370**
spare coil	**104866**	**104867**	**104868**	**104869**	**104870**

PASCAL series
Rotary vane pumps

Condensers

Whenever large amount of condensable vapors have to be evacuated, the use of a water-cooled condenser is recommended in order to avoid condensation and concentration of liquids into the rotary vane pump.
The CO 12 and CO 20 condensers can be drained without interrupting the vacuum process.

CO 12 - CO 20



❏ material : ..... steel/copper

❏ dimensions :

mm/inch	A	B	C	D
CO 12	780/30.7	533/21	172/6.77	354/13.9
CO 20	1060/41.7	813/32	172/6.77	354/13.9

❏ inlet/exhaust port : DN80 ISO-K/DN50 ISO-KF

❏ specification :

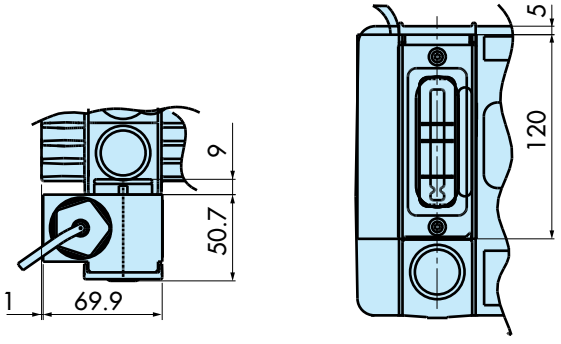
	CO 12	CO 20
RVP size	33.63 m^3/h	100 m^3/h
condensation surface	1.2 m^2	2 m^2
condensation capacity	15 kg/h	32 kg/h
tank capacity	20 l	35 l
water flow (3.5 bar)	20 l/mn	32 l/mn
water temperature	20° C	20° C
weight kg/lbs	20/44	30/66

❏ **p/n CO 12 : 104891 - CO 20 : 104892**

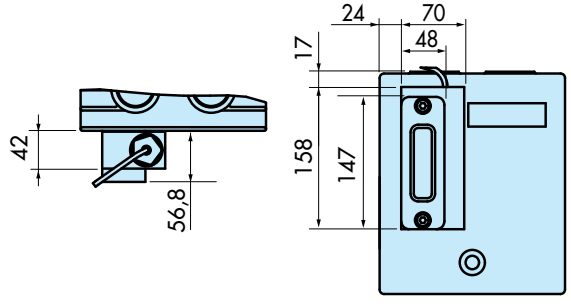
PASCAL series
Rotary vane pumps

Oil level switches

OLS 4



OLS 36



OLS 4 for 5 to 21 m³/h pumps I.SD series
OLS 36 for 33/63 m³/h pumps SD series

Oil **L**evel **S**witch provide information about oil level inside the oil casing of the rotary vane pump. Whenever the pump is located in an unaccessible area or whenever a large number of pumps is to be supervised, the **OLS** is a convenient solution for remote oil level check.

- ❏ material : ..... stainless steel/aluminum
- ❏ weight : ..... **OLS 4** : 0.85 kg 1.87 lbs
  ..... **OLS 36** : 1.1 kg 2.42 lbs
- ❏ specification :
  - number of contact : 2 relays
  - status : .....Open when below oil level
    .....Closed when above oil level
  - switching capacity : 10 VA 250V AC/DC 0.5A
  - cable : .....1m length (without plug)
- ❏ **p/n**:..... **OLS 4 : 104376**
  ..... **OLS 36 : 104377**
- ❏ supplied with all necessary components for installation on the oil casing

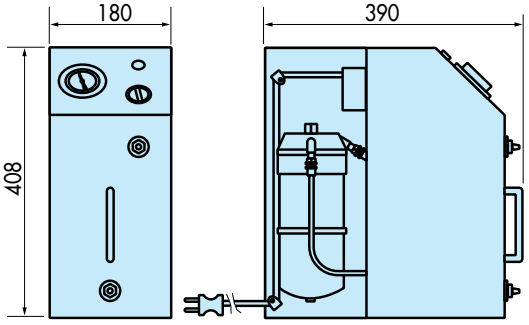
PASCAL series
Rotary vane pumps

External oil filters

DE filtration system is a stand-alone unit consisting of a magnetically driven gear pump which circulates oil through filtration cartridges (DE 1: 1 cartridge - DE 2: 2 cartridges). According to filtration media and number of cartridge,

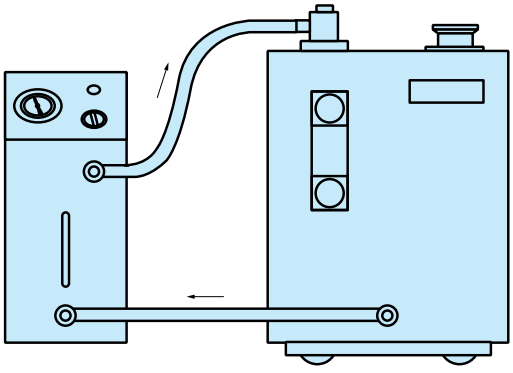
DE filter retains solid particles and/or neutralizes corrosive products contained in the oil of the pump. DE filters can be connected to any rotary vane pump from 5 m^3/h to 100 m^3/h; all necessary components for connexion are included.

DE 1 - DE 2



DE filters can be used with different types of filtration medias :

- **Fullers earth :** external envelope/charge of activated earth
Applications : general use.
- **Cellulose filter :** filtration of solid particles only
- **Activated alumina :** envelope/charge of activated alumina
Applications : mineral acids, Lewis acids, Polar compounds.
- **Activated charcoal :** envelope/charge of activated charcoal
Applications : Chlorinated products, water and chlorine, Nitrous vapors, Ammonia.



❏ specification/ordering information

	DE1	DE2
weight kg/lbs	12/24.6	17/37.4
electrical supply	110/220V 50HZ	115/230V 60 HZ
oil flow hydrocarbon synthetic	1000 - 1500 cm^3/mn 1000 cm^3/mn at 65° C	
p/n **110/115V** **220/230V**	**068991** **068990**	**104375** **104374**

❏ replacement cartridges

type	activated alumina	activated charcoal	fullers earth	cellulose (*)
p/n	**068880**	**068881**	**068533**	**078212**

(*) 12633 for USA

❏ standard (factory installed) cartridges are :
DE 1 : activated alumina
DE 2 : cellulose and activated alumina
❏ oil volume : DE 1 : 1.2 l - DE 2 : 1.8 l