



ROOTS PUMPING SYSTEMS



Pumping solutions based on the Alcatel products and experience.

The Adixen Roots Pumps are suitable for a wide range of vacuum applications. In combination with primary vane pumps, they achieve low pressures with high pumping speeds.

Typical applications:

- Glass coating
- Leak detection
- Research & Development
- Sputtering
- Laser applications
- Freeze drying
- Pharmaceutical
- Food industries
- Nuclear applications
- Chemistry



Pumping unit integrated in an industrial Leak Detection System



RVP + Roots for Freeze drying
(Condensable gas)



R&D accelerator



Glass coating



Pharmaceutical



Car industry

From products to pumping solutions

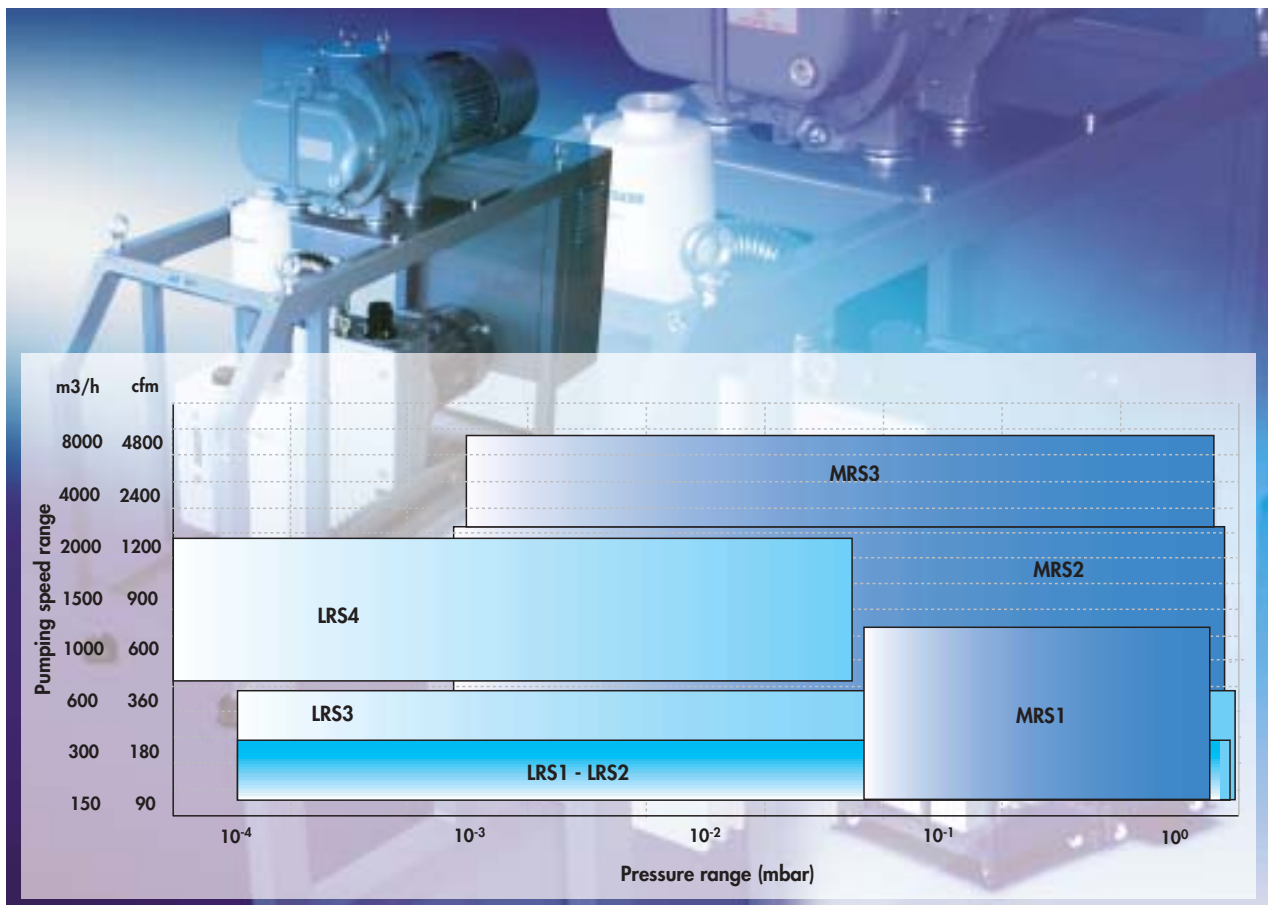
In order to meet the requirements of a wide range of applications, Alcatel has developed a comprehensive range of pumping packages based on the combination of vacuum Roots blowers and lubricated roughing pumps.

Pressure range : 10^{-3} mbar to 10^{-5} mbar

From the most simple LRS1 to the most powerful LRS4, these solutions offer optimized pumping capacity and high reliability for high performance applications.

Pressure range : 10^{-1} mbar to 10^{-3} mbar

MRS configurations offer high pumping speed and cost effective design along with modularity for easy integration.



Lubricated Roots Systems

LRS 1 150 - 300 m³/h (85-177 cfm)

Rotary Vane Pump connected to a roots blower without frame.
The most compact and cost effective configuration.

see p. C08.06



LRS 2 150 - 300 m³/h (85-177 cfm)

Wide choice of combinations with flexible design.

see p. C08.07



LRS 3 150 - 300 - 600 m³/h (85-177-350 cfm)

More pumping speed with modular design and options.

see p. C08.09



LRS 4 1000 - 2000 m³/h (60-1200 cfm)

Customized configurations for better adaptation to applications requirements.

Configuration on request.

Contact Alcatel.



Multivanes Roots Systems

MRS 1

300 - 600 - 1000 m³/h

Multivane Pump 100 to 300 m³/h associated with a roots blower without electrical control box.

see p. C08.11



MRS 2

300 - 600 - 1000 - 2000 m³/h

Multivane Pump 300 to 600 m³/h associated with one or several roots blower with modular frame and electrical control box.

see p. C08.12



MRS 3

2000 to 8000 m³/h

Multivane Pump 300 to 1400 m³/h associated with one or several roots blower with frame and electrical control box.

Configuration on request.

Contact Alcatel.

see p. C08.12



OPTIONS : Frequency converter - Electrical box/Monitoring - Castors/Leveling pads.

LRS 1

Where compactness is required

Rotary vane pump connected to a Roots blower without frame and without electrical box.

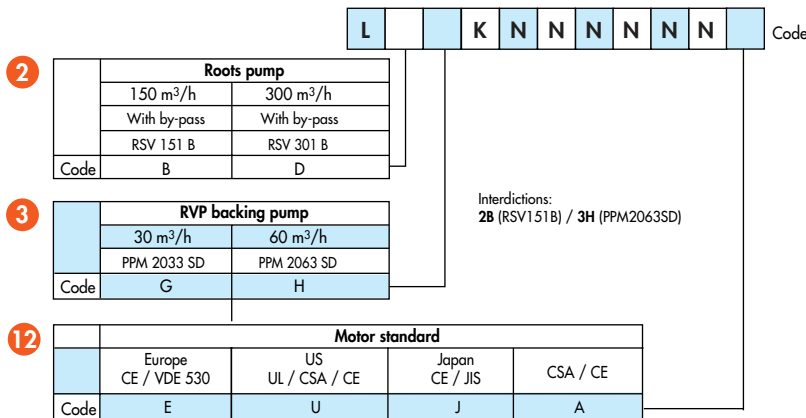


RSV 301B + RVP 2063SD

Technical data

		Units	RSV 151B + RVP 2033 SD	RSV 301B + RVP 2033 SD	RSV 301B + RVP 2063 SD
Pumping speed (swept volume)	50/60 Hz	m ³ /h	150/180	300/360	300/360
		cfm	89/106	177/212	177/212
Pumping speed at 1 mbar	50/60 Hz	m ³ /h	120/140	240/290	265/320
		cfm	70/82	141/170	156/188
Max. ultimate total pressure		mbar	2 x 10 ⁻⁴	2 x 10 ⁻⁴	2 x 10 ⁻⁴
Max. continuous inlet pressure		mbar	1000	1000	1000
Inlet flange		ISO-DN	63	63	63
Outlet flange		ISO-DN	40	40	40
Power requirement		KW	2,5	2,8	4,1
Voltage	50/60 Hz	Volt	3 phase 200/240 - 380/415 (50 Hz) 3 phase 200/240 - 380/480 (60 Hz)		
Oil capacity		liter	4,4	4,7	7,7
Oil type		type	A120	A120	A120
Dimensions	L	mm (inch)	743 (29,2)	786 (31)	856 (33,7)
	W	mm (inch)	271 (10,7)	331 (13)	331 (13)
	H	mm (inch)	564 (22,2)	652 (25,6)	685 (27)
Weight		kg/lb	128 (281,6)	154 (338,8)	186 (409,2)

Ordering information



Example: **LBGKNNNNNNNE**
RSV 151 B + RVP 2033 SD motor Europe

LRS 2

Robust and versatile

The proven reliability of the Adixen Vacuum Pumps makes these units ideal for a wide range of high-performance applications.

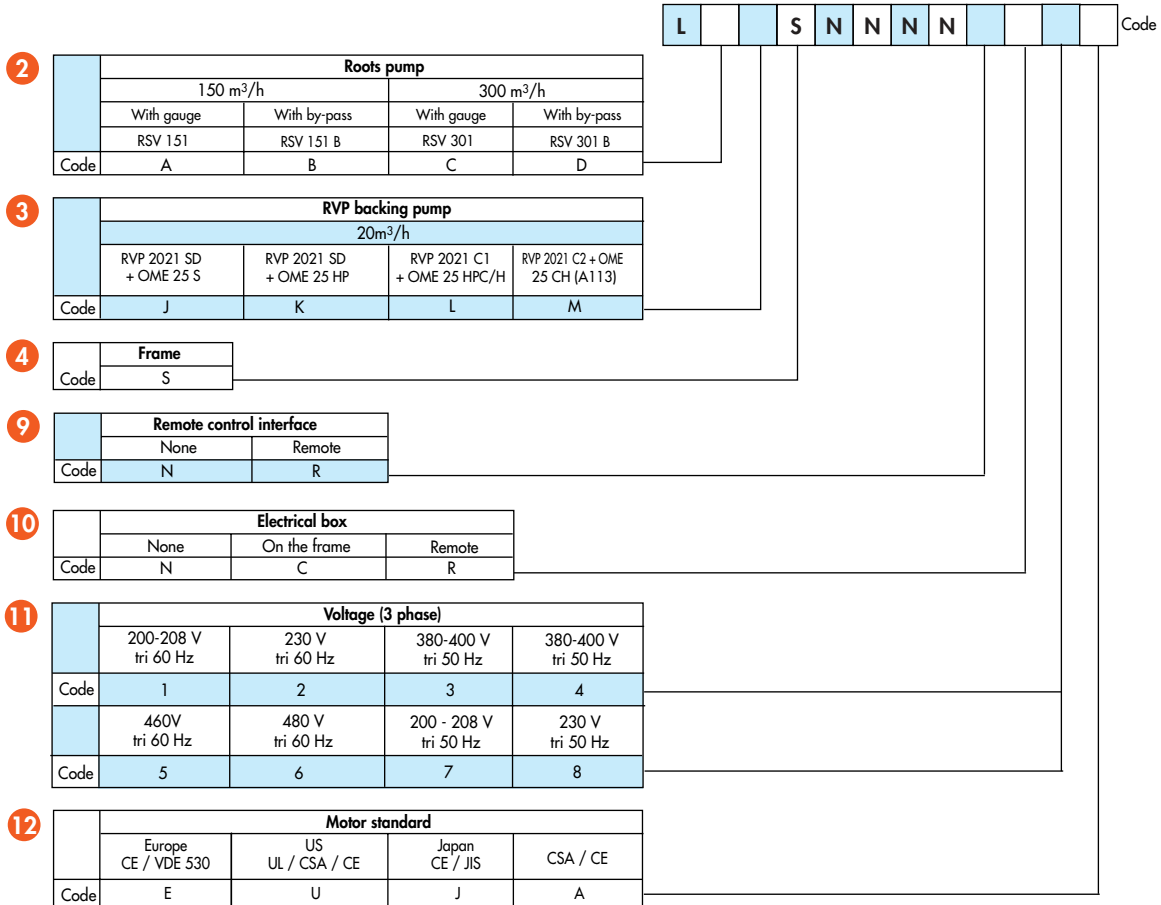


Technical data

		Units	RSV 151/151B RVP 2021 SD/C1	RSV 151/151B RVP 2021 C2
Pumping speed (swept volume)	50/60 Hz	m ³ /h	150/180	150/180
		cfm	89/106	89/106
Pumping speed at 1 mbar	50/60 Hz	m ³ /h	125/145	125/145
		cfm	74/86	74/86
Max. ultimate total pressure		mbar	2 x 10 ⁻⁴	3 x 10 ⁻⁴
Max. continuous inlet pressure		mbar	30 (RSV151) 1000 (RSV151B)	30 (RSV151) 1000 (RSV151B)
Inlet flange		ISO-DN	63	63
Outlet flange		ISO-DN	25	25
Power requirement		KW	1,4	1,4
Voltage	50/60 Hz	Volt	3 phase 180/250 - 360/480	
Oil capacity		liter	1,75	1,75
Oil type		type	A120	A113
Dimensions	L	mm (inch)	800 or 1100 with elec.box	800 or 1100 with elec.box
	W	mm (inch)	400	400
	H	mm (inch)	920	920
Weight		kg/lb	125 (275)	125 (275)

		Units	RSV 301/301B RVP 2021 SD/C1	RSV 301/301B RVP 2021 C2
Pumping speed (swept volume)	50/60 Hz	m ³ /h	300/360	300/360
		cfm	177/212	177/212
Pumping speed at 1 mbar	50/60 Hz	m ³ /h	240/265	240/265
		cfm	140/156	140/156
Max. ultimate total pressure		mbar	2 x 10 ⁻⁴	3 x 10 ⁻⁴
Max. continuous inlet pressure		mbar	15 (RSV301) 1000 (RSV301B)	15 (RSV301) 1000 (RSV301B)
Inlet flange		ISO-DN	63	63
Outlet flange		ISO-DN	25	25
Power requirement		KW	1,75	1,75
Voltage	50/60 Hz	Volt	3 phase 180/250 - 360/480	
Oil capacity		liter	2,05	2,05
Oil type		type	A120	A113
Dimensions	L	mm (inch)	800 or 1100 with elec.box	800 or 1100 with elec.box
	W	mm (inch)	400	400
	H	mm (inch)	992	992
Weight		kg/lb	150 (330)	150 (330)

Ordering information



Example: LBSNNNNRC3E

RSV 151 B + RVP 2021 C1 Electrical box with remote control plug, motor Europe 400 V 50 Hz.

LRS 3

Designed for reliability, performance, easy maintenance

The 150/300/600 Roots pumps are combined with a two-stage Pascal Rotary Vane Pumps in a robust frame that can accommodate several options.



Technical data

		Units	RSV 151 + RVP 2033	RSV 301 + RVP 2033	RSV 601 + RVP 2033
			RSV 151 B + RVP 2033	RSV 301 B + RVP 2033	RSV 601 B + RVP 2033
Pumping speed (swept volume)	50/60 Hz	m ³ /h	150/180	300/360	600/720
		cfm	89/106	177/212	354/424
Pumping speed at 1 mbar	50/60 Hz	m ³ /h	120/140	240/290	330/415
		cfm	70/82	141/170	194/244
Max. ultimate total pressure		mbar	2 x 10 ⁻⁴	2 x 10 ⁻⁴	2 x 10 ⁻⁴
Max. continuous inlet pressure		mbar	30 (RSV151) 1000 (RSV151B)	15 (RSV301) 1000 (RSV301B)	10 (RSV601) 1000 (RSV601B)
Inlet flange		ISO-DN	63	63	100
Outlet flange		ISO-DN	40	40	40
Power requirement		KW	1,85/2,05	2,2/2,4	2,6/2,8
Voltage		50/60 Hz	Volt		
Oil capacity		liter	4	4,3	4,3
Oil type		type	A120 or A113 with C2 pump		
Dimensions	L	mm (inch)	1020 or 1320 with elec.box	1020 or 1320 with elec.box	1020 or 1320 with elec.box
	W	mm (inch)	400 or 600 with DE filter	400 or 600 with DE filter	400 or 600 with DE filter
	H	mm (inch)	1020	1090	1090
Weight		kg/lb	161 (354,2)*	187 (411,4)*	206 (453,2)*

		Units	RSV 301 + RVP 2063	RSV 601 + RVP 2063
			RSV 301 B + RVP 2063	RSV 601 B + RVP 2063
Pumping speed (swept volume)	50/60 Hz	m ³ /h	300/360	600/720
		cfm	177/212	354/424
Pumping speed at 1 mbar	50/60 Hz	m ³ /h	265/320	400/490
		cfm	156/188	235/288
Max. ultimate total pressure		mbar	2 x 10 ⁻⁴	2 x 10 ⁻⁴
Max. continuous inlet pressure		mbar	15 (RSV301) 1000 (RSV301B)	10 (RSV601) 1000 (RSV601B)
Inlet flange		ISO-DN	63	100
Outlet flange		ISO-DN	40	40
Power requirement		KW	3,3/3,7	3,7/4,1
Voltage		50/60 Hz	Volt	
Oil capacity		liter	7,7	7,7
Oil type		type	A120 or A113 with C2 pump	
Dimensions	L	mm (inch)	1020 or 1320 with elec.box	1020 or 1320 with elec.box
	W	mm (inch)	400 or 600 with DE filter	400 or 600 with DE filter
	H	mm (inch)	1090	1090
Weight		kg/lb	219 (481,8)*	238 (523,6)*

* Add 40 kg (88 lb) for option elec.box.

* Add 12 kg (24,6 lb) for option DE1.

* Add 17 kg (37,4 lb) for option DE2.

Ordering information

				Code	L			A	N	N								
2	Roots pump																	
	150 m ³ /h	300 m ³ /h	600 m ³ /h															
	Without by-pass valve																	
	RSV 151	RSV 301	RSV 601															
	Code	A	C	E														
	With by-pass valve																	
RSV 151 B	RSV 301 B	RSV 601 B																
Code	B	D	F															
3	Rotary vane pump and oil mist eliminator																	
	33 m ³ /h (19 cfm)																	
	RVP 2033 SD standard OME 40 S	RVP 2033 C1 corrosive 1 OME 40 C1	RVP 2033 C2 Corrosive 2 (A113) OME 40 C2															
	Code	N	O	P														
	33 m ³ /h (19 cfm)																	
	RVP 2063 SD standard OME 40 S	RVP 2063 C1 corrosive 1 OME 40 C1	RVP 2063 C2 Corrosive 2 (A113) OME 40 C2															
Code	Q	R	S															
4	Frame																	
	Code	A																
7	Oil filtration																	
	None	DE 1 filter	DE 2 filters															
	Code	N	1	2														
8	N2 purge																	
	None	Purge																
	Code	N	G															
9	Remote control interface																	
	None	Remote																
	Code	N	R															
10	Electrical box																	
	None	On the frame	Remote															
	Code	N	C	R														
11	Voltage (3-phase)																	
	200-208 V tri 60 Hz	230 V tri 60 Hz	380-400 V tri 50 Hz	415 V tri 50 Hz														
	Code	1	2	3	4													
	460 V tri 60 Hz	480 V tri 60 Hz	200 - 208 V tri 50 Hz	230 V tri 50 Hz														
	Code	5	6	7	8													
	Motor standard																	
Europe CE / VDE 530	US UL / CSA / CE	Japan CE / JIS	CSA / CE															
Code	E	U	J	A														

Example: LFSANNNRC3E

RSV 601 B + RVP 2063 C2 Electrical box with remote control plug, motor Europe 400 V 50 Hz.

MRS 1

Compact system with basic configuration of multivane pump associated with a roots blower without electrical control box.

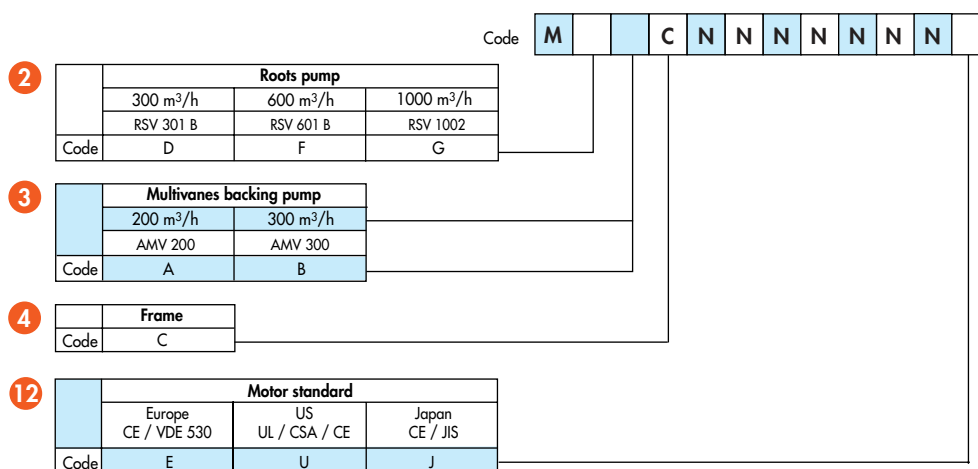


RSV301B + AMV200

Technical data

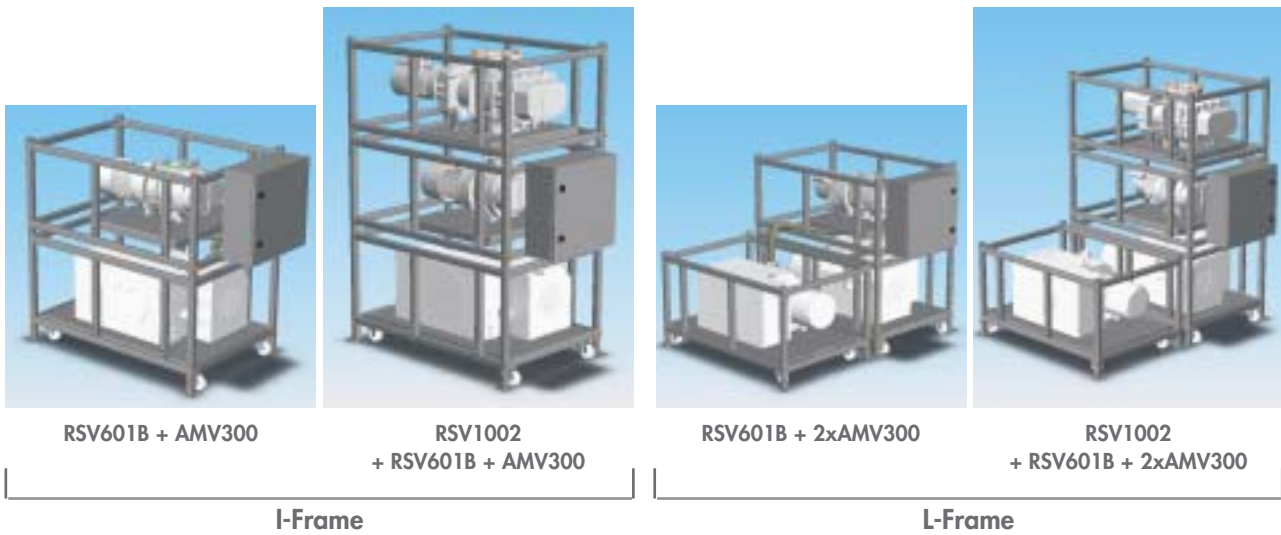
	Units	RSV 301 B + AMV 200	RSV 601 B + AMV 200	RSV 1002 + AMV 200
		RSV 301 B + AMV 300	RSV 601 B + AMV 300	RSV 1002 + AMV 300
Pumping speed (swept volume) 50/60 Hz	m ³ /h	300/360	300/360	600/720
	cfm	177/212	177/212	354/424
Pumping speed at 1 mbar 50/60 Hz	m ³ /h	260/330	240/290	330/415
	cfm	153/195	141/170	194/244
Max. ultimate total pressure	mbar	7 x 10 ²	7 x 10 ²	7 x 10 ²
Max. continuous inlet pressure	mbar	1000	1000	1000
Inlet flange	ISO-DN	63	63	100
Outlet flange	ISO-DN	50	40	40
Power requirement	KW	6,6/8,6 with AMV 200	6,6/8,6 with AMV 200	6,6/8,6 with AMV 200
		8,6/10,1 with AMV 300	8,6/10,1 with AMV 300	8,6/10,1 with AMV 300
Voltage 50/60 Hz	Volt	3 phase 180/250 - 360/480		
Oil capacity	liter	6,7 with AMV 200	6,7 with AMV 200	8 with AMV 200
		8,7 with AMV 300	8,7 with AMV 300	10 with AMV 300
Oil type	type	A120		
Dimensions	L mm (inch)	1050 (42,3)		
	W mm (inch)	700 (27,5)		
	H mm (inch)	885 (34,8)		
Weight	kg/lb	290 (630)	320 (695)	435 (945)

Ordering information



MRS 2

The most flexible and modular design for association of Multivane pumps with Roots blowers.

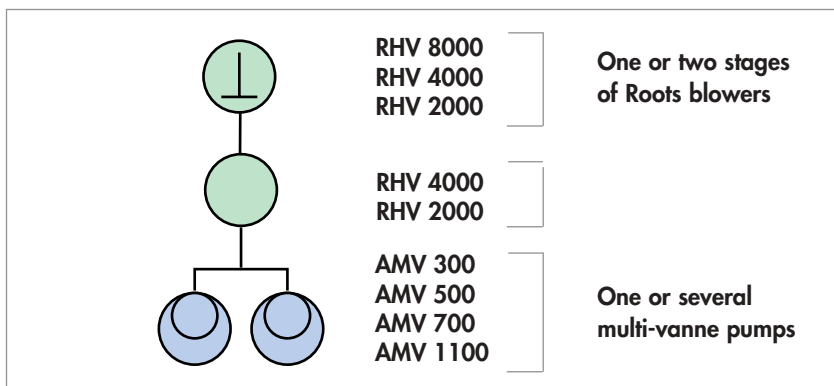


Choose your pumping speed and you ultimate pressure. 300 to 2000 m³/h - 7×10^2 to 9×10^3 mbar.
Modular frame, easy access for maintenance. Electrical box in option.

See ordering information on next page.

MRS 3

Up to 8000 m³/h, different customized pumping systems can be design on request. Consult Alcatel.



MRS 2 - Ordering information

Code					M					N	N	N	N				
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2	Single roots pump			
	300 m ³ /h	600 m ³ /h	1000 m ³ /h	2000 m ³ /h
	Without by-pass valve			
	RSV 301	RSV 601	RSV 1002	RSV 2000
Code	C	E	G	J
	With by-pass valve			
	RSV 301		RSV 601	
	Code	D		
	Two roots pumps in series			
	600 m ³ /h	1000 m ³ /h	2000 m ³ /h	
	Without by-pass valve			
	RSV 601* + RSV 301	RSV 1002 + RSV 601	RSV 2000 + RSV 601	RSV 2000 + RSV 1002
	Code	N	O	Q

3	Multivanes backing pump	
	300 m ³ /h	600 m ³ /h
	1 x AMV 300	2 x AMV 300
Code	B	C (R)

4	Frame modul position	
	"L"	"I"
Code	L	I

9	Remote control interface	
	None	Remote
	Code	N

10	Electrical box		
	None	On the frame	Remote
	Code	N	C

11	Voltage (3 phase)				
	200-208 V tri 60 Hz	230 V tri 60 Hz	380-400 V tri 50 Hz	415 V tri 50 Hz	
	Code	1	2	3	4
	460V tri 60 Hz	480 V tri 60 Hz	200 - 208 V tri 50 Hz	230 V tri 50 Hz	
	Code	5	6	7	8

12	Motor standard		
	Europe CE / VDE 530	US UL / CSA / CE	Japan CE / JIS
	Code	E	U

(R): position 3 selection C (2 x AMV300) is not compatible with:
 - position 2 selections C, D, N
 - position 4 selection I

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