



ROOTS VACUUM PUMPS  
**RSV SERIES**



## Roots Vacuum Pumps

### 150-600 m<sup>3</sup>/h Series (85-350 cfm)

Pumps with a hermetic canned motor,  
with or without by-pass.



### 1000-2000 m<sup>3</sup>/h Series (600-1200 cfm)

Pumps with a hermetic canned motor,  
without by-pass.  
Horizontal or Vertical Pumping axis  
depending on models.



## Applications

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



### **Alcatel quality and reliability**

Without any mechanical contact, and proven in industrial and chemical applications, the Adixen Roots pumps achieve high reliability.

### **Canned motor concept**

The motor armature and drive shaft are enclosed in a vacuum tight "can", this design eliminates external shaft seals and potential leaks.

### **Resistant to process gases and condensables**

The careful choice of quality components makes Adixen Roots well adapted to aggressive environments.

Aggressive environments require vertical flow Roots, to prevent condensate from accumulating inside the pumping chamber.

### **Simplified maintenance**

"On-site" repair and maintenance capability.

### **Low noise**

Compact design, quiet operation, low vibration level.

### **Air cooled**

### **Vacuum integrity**

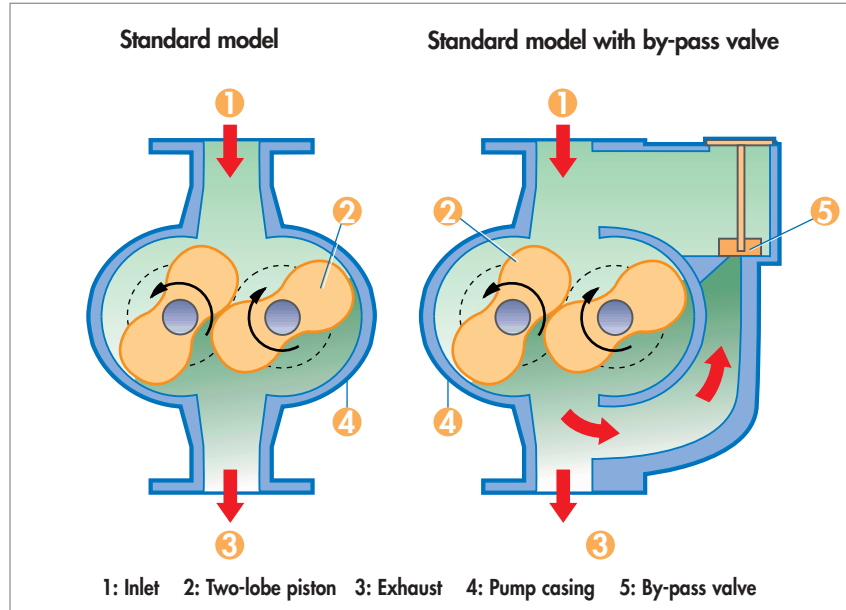
The RSV Series is helium leak tested to  $< 1 \cdot 10^{-7}$  mbar l/s and is ideally suited for hazardous or precious gas transfer.

## Integrated by-pass principle

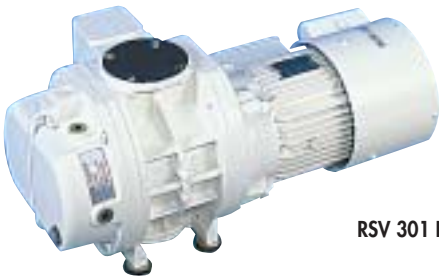
The RSV "B" models have a by-pass valve and manifold integrated into the Roots stator.

The concept allows extended operation at a high inlet pressure or pumpdown from atmospheric pressure simultaneously with a mechanical roughing pump. The by-pass action is activated by high differential pressure inside the Roots vacuum chamber which opens the by-pass valve.

The "excess" gas is metered to the mechanical pump with a portion recycled into the Roots to assist in cooling the lobes during high pressure operation. The by-pass reduces the demand of the drive motor, reducing energy consumption and the need for an external pressure switch.



RSV 151 B



RSV 301 B



RSV 601 B

## 8 models, 5 pumping speeds

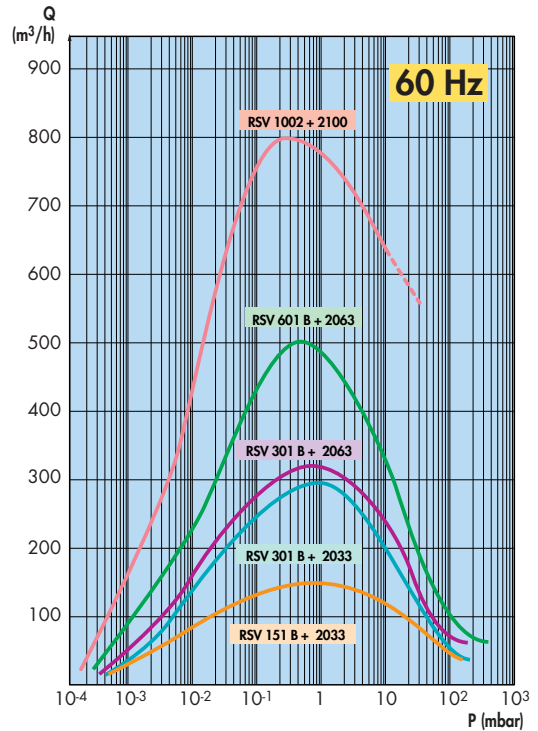
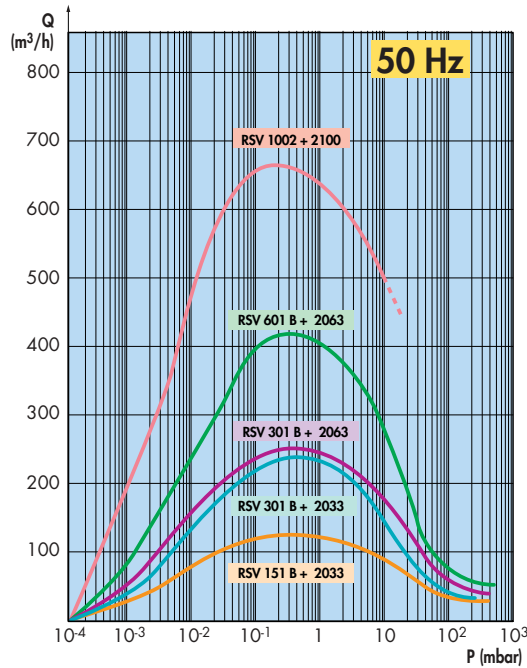
Pumping speed	Vertical pumping axis		Horizontal pumping axis	
	With by-pass	Without by-pass	With by-pass	Without by-pass
150 m <sup>3</sup> /h 89 cfm	RSV 151 B	RSV 151		
300 m <sup>3</sup> /h 177 cfm	RSV 301 B	RSV 301		
600 m <sup>3</sup> /h 354 cfm	RSV 601 B	RSV 601		
1000 m <sup>3</sup> /h 594 cfm		RSV 1002		
2000 m <sup>3</sup> /h 1200 cfm		RSV 2000		RSV 2000



RSV 2000

## Pumping characteristics (with appropriate mechanical pumps)

### Pumping speed vs inlet pressure



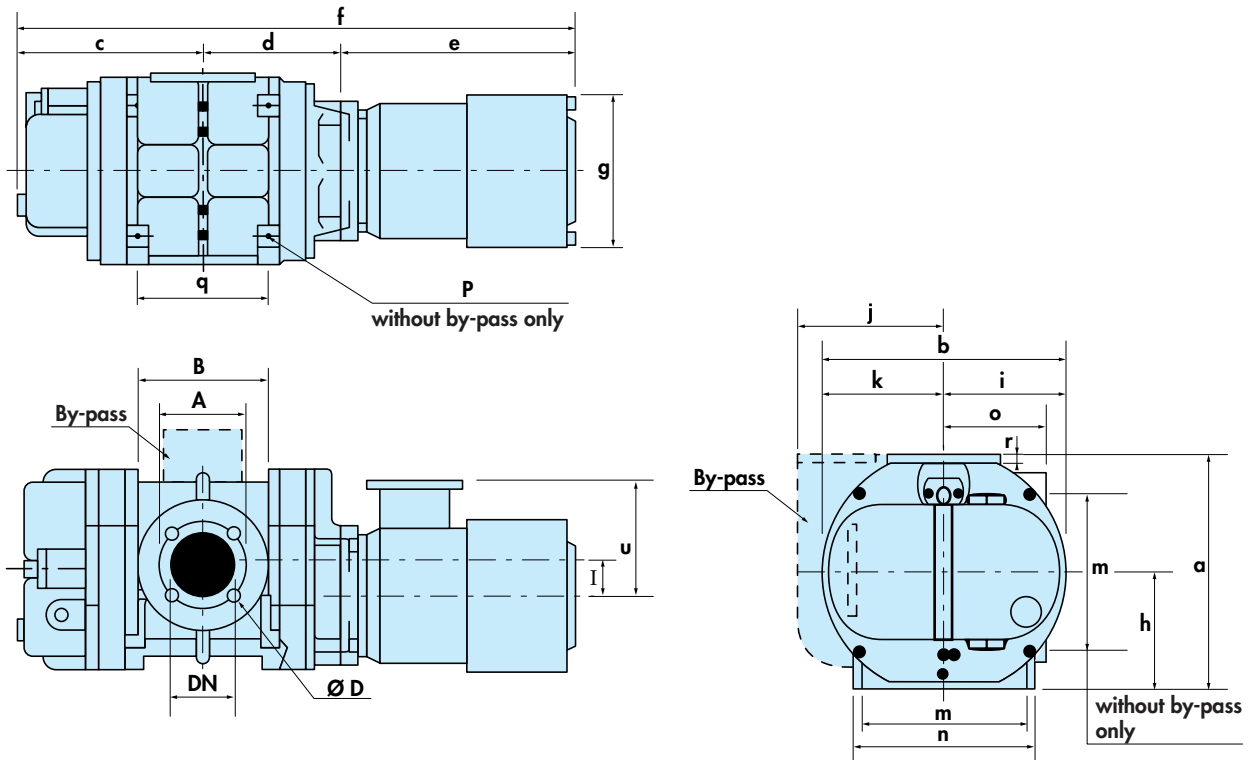
### Technical data

Characteristics	Units	RSV 151	RSV 151B	RSV 301	RSV 301B	RSV 601	RSV 601B	RSV 1002	RSV 2000
Nominal pumping speed (swept volume) 50/60 Hz	m³/h	150/180	150/180	300/360	300/360	600/720	600/720	1090/1310	2040/2450
	cfm	89/106	89/106	177/212	177/212	354/424	354/424	640/770	1200/1442
Pneurop pumping speed at 1 mbar (type of backing pump) 50/60 Hz	m³/h	125/145	125/145	260/330	260/330	430/510	430/510	630/750	Contact
	cfm	74/86	74/86	153/195	153/195	254/300	254/300	370/440	Alcatel
		(2033)	(2033)	(2063)	(2063)	(2063)	(2063)	(2100)	
Ultimate total pressure with 2 stage backing pump	mbar	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	$2 \times 10^{-4}$	Contact
Ultimate partial pressure with 2 stage backing pump	mbar	$5 \times 10^{-5}$	$5 \times 10^{-5}$	$5 \times 10^{-5}$	$5 \times 10^{-5}$	$5 \times 10^{-5}$	$5 \times 10^{-5}$	$5 \times 10^{-5}$	Contact
Max. continuous inlet pressure	mbar	30	1000	15	1000	10	1000	14	5
Max. continuous differential pressure	mbar	100	-	60	-	40	-	50	40
Leak rate	mbar.l/s	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$	$< 10^{-7}$
Inlet/outlet flange	ISO-DN	63	63	63	63	100	100	100 *	160 *
Motor power 50/60 Hz	KW	0.75	0.75	1.1	1.1	1.5	1.5	3.5/4	4.35
Voltage 50/60 Hz	Volt	3 phase 200/240 - 380/415 (50 Hz) 3 phase 200/240 - 380/480 (60 Hz)						3 phase 220/380 (50 Hz) 220/460 (60 Hz)	
Oil capacity	liter	0.4	0.4	0.4	0.7	0.7	0.7	2	3.1
Weight	kg/lbs	58/128	62/137	84/185	88/194	102/225	107/236	235/518	365/805

\* Nota : the flanges of Roots RSV 1002/2000 are conformable to ISO 2084 (PN - Petroleum standard).  
For connection with ISO 1609 fittings (Pneurop standard) flanges are available. See accessories page C07.09.

### Standard Roots Pumps

#### RSV 151 to RSV 601 - Dimensions (mm)



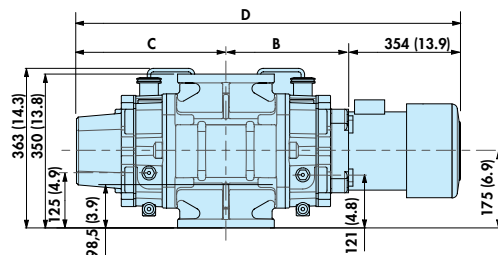
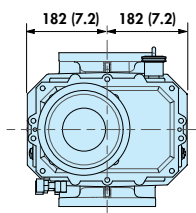
Model	Dimensions (mm)											
	a	b	c	d	e	f	g Ø	h	i	j	k	l
RSV 151	208	236	192	147	248	586	174	104	121	-	115	34
RSV 151B	208	271	192	147	248	586	174	104	121	150	-	34
RSV 301	280	293	193	140	310	643	211	140	148	-	145	42
RSV 301B	280	331	193	140	310	643	211	140	148	183	-	42
RSV 601	280	293	243	190	310	743	211	140	148	-	145	42
RSV 601B	280	331	243	190	310	743	211	140	148	183	-	42

Model	Dimensions (mm)											
	m	n	o	Nb <sup>P</sup> Ø	q	r	u	DN	A	B	Nb <sup>D</sup> Ø	
RSV 151	150	168	95	4 M 8	135	11	120	63	110	130	4 M 8	
RSV 151B	150	168	-	-	135	11	120	63	110	130	4 M 8	
RSV 301	180	204	125	4 M 10	120	14	154	63	110	130	4 M 8	
RSV 301B	180	204	-	-	120	14	154	63	110	130	4 M 8	
RSV 601	180	204	125	4 M 10	220	14	154	100	145	165	4 M 8	
RSV 601B	180	204	-	-	220	14	154	100	145	165	4 M 8	

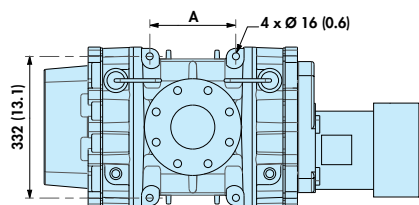
## High capacity Roots Pumps

### RSV 1002 - Dimensions mm (inches)

#### Vertical pumping

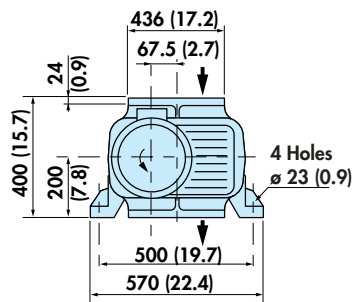


Model	Dimensions mm (inch)			
	A	B	C	D
RSV 1002	196 (8)	276 (11.3)	340 (13.9)	970 (39.6)

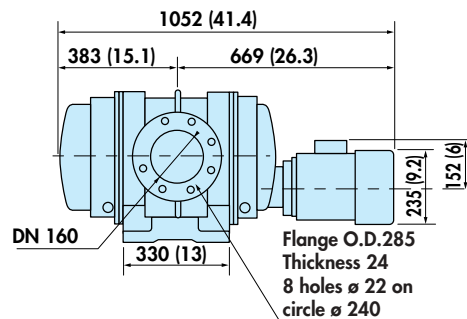
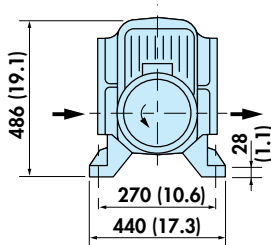


### RSV 2000 - Dimensions mm (inches)

#### Vertical pumping



#### Horizontal pumping



**Nota :** the flanges of Roots RSV 1002/2000 are conformable to ISO 2084 (PN - Petroleum standard).  
For connection with ISO 1609 fittings (Pneurop standard) flanges are available. See accessories page C07.09.

## Ordering information

### P/N for order

Model	Pumping seed		PART NUMBER	
	50 Hz m <sup>3</sup> /h	60 Hz cfm	Prepared* With Synthetic Fluid	Prepared** With Mineral Oil
RSV 151	150	106	793271	793270
RSV 151B	150	106	793273	793272
RSV 301	300	212	793275	793274
RSV 301B	300	212	793277	793276
RSV 601	600	424	793279	793278
RSV 601B	600	424	793281	793280
RSV 1002	1090	770	106968	106967
RSV 2000	2040	1442	On request	786619

\* Roots prepared with synthetic fluid A 113 are drained prior to shipment.  
The fluid is not included in the price and must be ordered separately.

\*\* Roots prepared with mineral oil A 119 or A 120 are delivered with an initial charge of oil.

## Accessories

Roots RSV 1002	PART NUMBER
Weldable flange (PN standard) for stainless steel tubing DN100 ISO-K	102481
Weldable flange (PN standard) for stainless steel tubing Ø 4"	102482
Adaptation flange PN/DN100 ISO-K	102483
Same as above with DN25 port	107339

Roots RSV 2000	PART NUMBER
Weldable flange (PN standard) for stainless steel tubing DN160 ISO-K	102484
Weldable flange (PN standard) for stainless steel tubing Ø 6"	102485
Adaptation flange PN/DN160 ISO-K	102486
Same as above with DN25 port	107340



## Maintenance parts

The maintenance kit includes the seals kit as well as the usual maintenance parts.

Model for RSV pump	PART NUMBER
RSV 151 / RSV 151B	051990
RSV 301 / RSV 301B	051992
RSV 601 / RSV 601B	051992
RSV 1002 / RSV 1502	107341
RSV 2000	058788

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