



DRY ROOTS PUMPING SYSTEMS



The Roots history

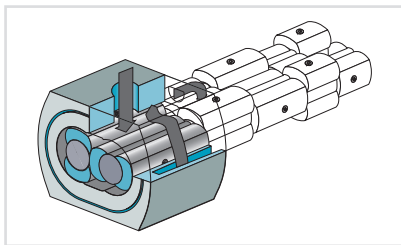
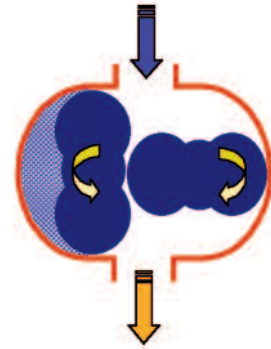
The principle of the Roots pump was discovered by two brothers (Philander H. and Francis M. Roots) in the mid 1800's. They were, owners of a woollen mill in Connersville Indiana.

The Roots blower was exhibited in Paris during 1867 and was considered (at the time) as a potential solution to the difficult problems of deep mine ventilation.

Roots pumps are positive displacement machines using two synchronized rotors rotating in opposite directions.

The rotors feature profiles, usually shaped like the figure of 8.

During the rotation, a quantity of molecules is isolated between the lobes and the stator and then led to exhaust side **without variation of volume.**



The Multi-Roots technology

Considering the compression ratio of each stage, several stages working in series are necessary to get a vacuum level in the range of 10^{-2} mbar.

This technology brings **the unique advantage of not requiring friction seals inside the pumping module.**

The Alcatel experience in Multi-Roots technology

From the early beginning of its vacuum activity, Alcatel Vacuum Technology has been involved in the design and manufacturing of vacuum Roots Blowers. Widely used in Industry, R&D as well as most demanding applications of the Semiconductor industry, the Multi-Roots technology is the leading one for many applications where dry vacuum is a key requirement.

2007 : DRS Series

2006 : ACP 15/28/40 series 2

2004 : ACP 15 series 1

2003 : ACP 40 series 1

2002 : A300

2001 : ACP 28 series 1

1999 : Series Two and A100

1998 : ACP 20

1993 : Series One

1988 : First Alcatel Dry Pump

1970 : Conventional Roots



ACP 40 series 1



ACP 15/28/40 series 2



DRS Series



A300



ACP 20



ACP 28 series 1



ADP/ADS series Two



A100



First Alcatel Dry Pump



Conventional Roots



Series One

Pumping solutions based on the Alcatel products and experience

The Adixen Dry Roots pumping Systems are suitable for a wide range of vacuum applications. Combination of a Roots Blower with ACP pump, they achieve low pressures with high pumping speeds.

No particulate contamination

Thanks to the frictionless design, there is no wearing parts in the path of pumped gases and therefore no particulate generation.

The DRS series design incorporates the Alcatel multi-stage Roots type pumping concept, extensively field proven in the most difficult processes. The DRS series pump feature frictionless pumping modules optimized for operation without internal lubricant.

The benefits of this new evolution are important for applications requiring high levels of cleanliness and reliability.

No hydrocarbon vapors backstreaming

ACP series pumps are free of lubricant inside the pumping module; giving benefit of no hydrocarbon vapors backstreaming.



Constant performances

Thanks to constant internal clearances and constant rotational speed (frequency converter driven motor) the ACP series pumps will provide:

- constant pumping speed
- constant ultimate pressure

High reliability

Thanks to the Alcatel expertise in the design of dry multi-stage Roots pumps, used in the most demanding applications.



Low maintenance costs

Field serviceable, the ACP series pumps require a complete overhaul only every 22 000 hours for ACP 28/40 and 20 000 hours for ACP 15.

Dry Roots Pumping Systems

DRS 1 300 m³/h (177 cfm)

For applications requiring higher pumping speed, ACP series pumps can be combined with conventional Roots blowers.

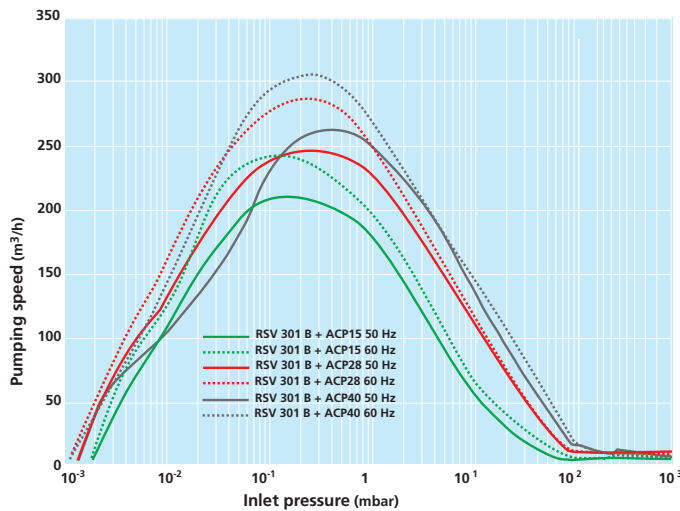
Such dry pumping packages feature ACP 15, ACP 28 or ACP 40 pumps associated with RSV 301B roots pumps.



		Units	RSV 301B + ACP 15	RSV 301B + ACP 28	RSV 301B + ACP 40
Peak pumping speed		m ³ /h	190/205	235/260	250/285
	50/60 Hz	cfm	112/120	138/153	147/168
Max. ultimate total pressure		mbar (Torr)	5 x 10 ⁻³ (3,75 x 10 ⁻³)	3 x 10 ⁻³ (2,25 x 10 ⁻³)	3 x 10 ⁻³ (2,25 x 10 ⁻³)
Leak rate		mbar.l/s	< 10 ⁻⁶	< 10 ⁻⁶	< 10 ⁻⁶
Inlet flange		ISO-DN	63	63	63
Outlet flange		ISO-DN	16	25	25
Power requirement		KW	1.7	1.8	1.8
Voltage	50/60 Hz	Volt	3 phase 180/250 - 360/480 for RSV 301B		
Oil capacity		liter	0.7	0.7	0.7
Oil type		type	A120	A120	A120
Dimensions	L	mm (inch)	800 (31,5) or 1100 (43) if elec.box	800 (31,5) or 1100 (43) if elec.box	800 (31,5) or 1100 (43) if elec.box
	W	mm (inch)	400 (16)	400 (16)	400 (16)
	H	mm (inch)	990 (39)	990 (39)	990 (39)
Weight		kg/lb	149 (327)*	161 (354,2)*	166 (365,2)*

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

Pumping curves



Ordering information

The suitable Part Number can be generated by choosing the appropriate options listed in the chart below:

D D **S** **N** **N** **N** **N** **E**

2

Roots pump type	
	300 m3/h
	RSV 301B with by-pass
Code	D

3

ACP pump type						
	15 m3/h		28 m3/h		40 m3/h	
	ACP15 Std	ACP15 G	ACP28 Std	ACP28 G	ACP40 Std	ACP40 G
Code	1	4	2	5	3	6

4

Frame	
Code	S

9

Remote control interface	
	Without*
	With
Code	N R

10

Electrical box		
	Without**	On the frame Remote
Code	N	C R

11

Voltage configuration				
	200/208 V 60 Hz	230 V 60 Hz	380/400 V 50 Hz	415 V 50 Hz
Code	1	2	3	4
	460 V 60 Hz	480 V 60 Hz	200/208 V 50 Hz	230 V 50 Hz
Code	5	6	7	8

* N is the only choice for combination without electrical box

** Without electrical box, Roots pump must be supplied with three-phase voltage and ACP pump must be supplied with simple-phase voltage

**China**

Alcatel Vacuum
Technology Shanghai
Tel: (8621) 5027 0628
Fax: (8621) 3895 3815

France (Headquarters)

Alcatel Vacuum
Technology France
Tel: 33 (0)4 50 65 77 77
Fax: 33 (0)4 50 65 77 89

Germany

Alcatel Hochvakuum
Technik GmbH
Tel: (49) 9342 96 10 0
Fax: (49) 9342 96 10 30

Italy

Alcatel Vacuum
Systems S.p.A.
Tel: (39) 039 686 3855
Fax: (39) 039 667 125

India

Alcatel Vacuum
Technology India
Tel: (91) 124 473 7777
Fax: (91) 124 473 7799

Japan

Alcatel-Lucent Japan Ltd
Tel: (81) 3 6431 7130
Fax: (81) 45 544 0049

Korea

Alcatel Vacuum
Technology Korea
Tel: (82) 31 206 6277
Fax: (82) 31 204 6279

Netherlands

Alcatel Vacuum
Technology Netherlands
Tel: (31) 345 478 400
Fax: (31) 345 531 076

Singapore

Alcatel-Lucent Singapore
Tel: (65) 6254 0828
Fax: (65) 6254 7018

Sweden

Adixen Scandinavia
Tel: (46) 13 35 59 00
Fax: (46) 13 35 59 01

Taiwan

Alcatel Vacuum
Technology Taiwan
Tel: (886) 3 5599 230
Fax: (886) 3 5599 231

United Kingdom

Alcatel Vacuum
Technology (U.K.) Ltd
Tel: (44) 1 506 418 000
Fax: (44) 1 506 418 002

USA

Alcatel Vacuum
Products
Tel: (1) 781 331 4200
Fax: (1) 781 331 4230

Alcatel Vacuum Technology France

98, avenue de Brogny - BP 2069 - 74009 ANNECY CEDEX - FRANCE - Tel.: 33 (0)4 50 65 77 77 - Fax: 33 (0)4 50 65 77 89
www.adixen.com