

Choosing a vacuum unit or pump

APPROVED

By Rick Testani at 1:40 pm, 9/20/06

Depending on your operation Witte offers different vacuum supply systems:

Handheld pumps / Pumps

Standard solution, almost all of which can be used together with our liquid separators if fluids are used during machining.

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Vacuum units

In addition to the pumps mentioned above the vacuum units also have an additional vacuum tank as well as various safety devices.

► Page 14

Liquid ring pumps

These pumps are highly recommended when large amounts of cooling fluids are involved during the machining process and are sucked in

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Modular vacuum unit

In addition to the pump and tank the modular vacuum units also have an integrated liquid separator and various safety devices

► Page 16



Excellent downforces allow high machining performance (picture shows grid chuck) Excellent downforces allow high machining performance (picture shows grid chuck)

Choose your vacuum supply according to the clamping area:

Area	Suction-capacity	Type	No.
<100cm ²	3m ³ /h	Vacuum pump	80112
<1200cm ²	6m ³ /h	Vacuum pump	80389
	6m ³ /h	Vacuum pump	81320
	6m ³ /h	Vacuum unit	81010
	6m ³ /h	Vacuum unit	81011
	6m ³ /h	Modular unit	80172
	6m ³ /h	Modular unit	80173
<5000cm ²	16m ³ /h	Vacuum pump	82116
	16m ³ /h	Modular unit	82146
<1m ²	21m ³ /h	Vacuum pump	80078
	21m ³ /h	Vacuum unit	80000
	21m ³ /h	Modular unit	80175
	22m ³ /h	Liquid ring pump	93801
<2m ²	63m ³ /h	Vacuum pump	80126
	63m ³ /h	Modular unit, mobile	82150
	65m ³ /h	Liquid ring pump	93803
<3m ²	100m ³ /h	Vacuum pump	84410
	100m ³ /h	Liquid ring pump	93804
<4,5m ²	160m ³ /h	Vacuum pump	84412
	160m ³ /h	Vacuum unit, mobile	84414
	232m ³ /h	Liquid ring pump	93807
	250m ³ /h	Vacuum pump	84413
	250m ³ /h	Vacuum unit, mobile	84208

Witte VAC-MAT™

No. of Mats	Required suction capacity
1	3-6m ³ /h
≥ 8	16-21m ³ /h
≥ 20	40-63m ³ /h
≥ 50	100-160m ³ /h

FLIP-POD™

Each m² of FLIP-POD™ surface requires 60-100m³/h vacuum suction

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Choosing vacuum supply according to working conditions:

Dry machining



Handheld pump



Vacuum Unit



Liquid ring pump



Modular vacuum unit



Mobile modular vacuum unit

small clamping area,

small loss of vacuum

low machining forces

larger clamping area,

higher loss of vacuum,

higher machining forces

large clamping area

high loss of vacuum

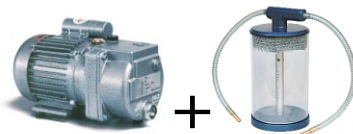
high machining forces

very large clamping area

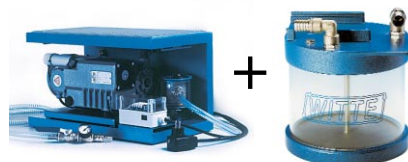
very high vacuum loss

very high machining forces

Working with fluids



Handheld pump with liquid separator



Vacuum unit with liquid separator

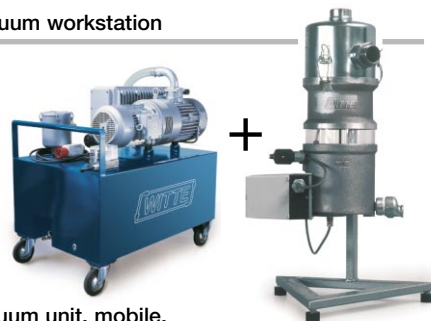


Liquid ring pump



Modular vacuum units and workstations are suitable for dry and lubricated machining

Vacuum workstation



Vacuum unit, mobile, with automatic liquid separator

Vacuum pumps

Oil lubricated vacuum pumps offer the following advantages:

- air-cooled, therefore do not require coolant
- highly reliable
- low operating costs
- good resistance to condensation
- integrated oil mist separator, oil filter, check valve on suction side with sieve



81320
Vacuum pump 6m³/h

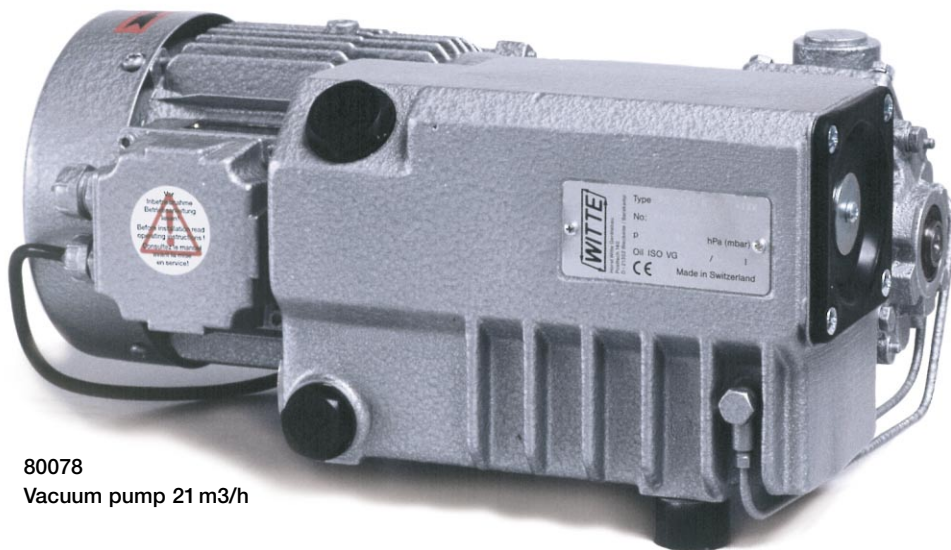


Supply includes:

- 3m wire spiral hose
- 3/2 way aerated handvalve
- and vacuummeter
- Schuko/CEE-Plug with overvoltage relay only in Europe included



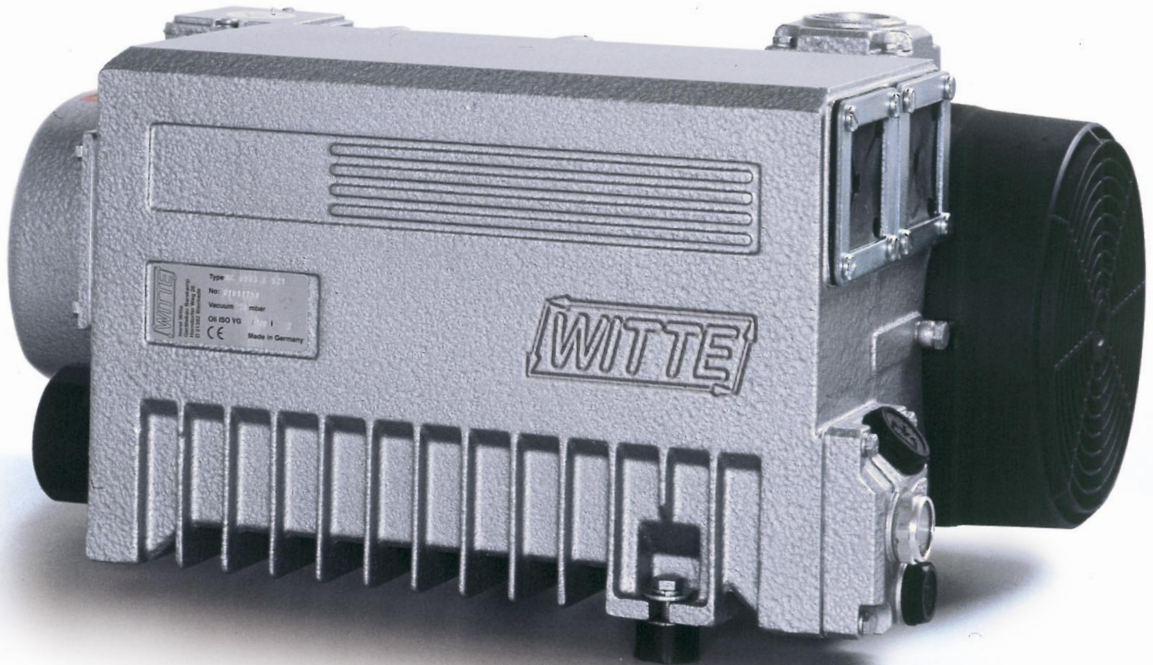
82115 Vacuum pump 16m³/h



80078
Vacuum pump 21 m³/h

Vacuum pumps, 230/400 V working voltage

No.	Suction-capacity	Motor V/kW	Lubricant	max. mbar	dB(A)	lxwxh mm	Kg
80112	3m ³ /h	230/0,12	dry	150	57	209x152x120	6,3
80389	6m ³ /h	230/0,25	dry	150	60	224x152x120	7,9
81320	6m ³ /h	230/0,37	oil	50	59	285x135x240	13
82115	16m ³ /h	230/0,55	oil	20	60	306x226x182	18
82116	16m ³ /h	400/0,55	oil	20	60	306x226x182	18
80156	21m ³ /h	230/0,75	oil	20	62	410x230x225	19
80078	21m ³ /h	400/0,75	oil	20	62	410x230x225	19
80126	63m ³ /h	400/1,5	oil	20	65	602x406x225	52
84410	100m ³ /h	400/3	oil	20	67	692x406x290	70
84412	160m ³ /h	400/5,5	oil	20	70	834x478x407	140
84413	250m ³ /h	400/5,5	oil	20	72	957x523x407	190



80126 Vacuum pump 63m³/h

Vacuum units

The operating vacuum required can be produced in many ways.
Witte vacuum units feature the following:

- oil lubricated vacuum pumps with an end vacuum rate of 20mbar absolute at full suction capability of i.e. 3m³ upto 250m³ per hour
- integrated pressure difference switch, which automatically switches the vacuum pump on or off thereby ensuring vacuum during machining but avoiding unnecessary idle running
- protection switch which protects electric motor from overheating
- air filter which protects pump from dirt (made of acrylic glass with exchangeable air filter cartridge)
- careful assembly of compatible components guarantee trouble-free and almost maintenance-free operation using Witte vacuum units in many applications
- drainage screw for coolants which have been sucked in
- 3m connecting cable with CEE or Schuko plug

The standard components of these tried and tested vacuum units are:

- a. vacuum storage tank
- b. oil lubricated vacuum pump
- c. vacuum valve unit
- d. air filter
- e. vacuum hose connector
- f. pressure difference switch
- g. on/off switch
- h. electric cable with plug
- i. overload protection

Supply includes:

- 1 Pce connection unit complete with
 - vacuum gauge
 - 3/2 way hand valve
 - 3m vacuum hose with quick coupling
 - Schuko/CEE-Plug with overvoltage relay only in Europe included



80165 Vacuum unit 21m³/h

Vacuum units

230/400 V working voltage



84208 Mobile vacuum unit

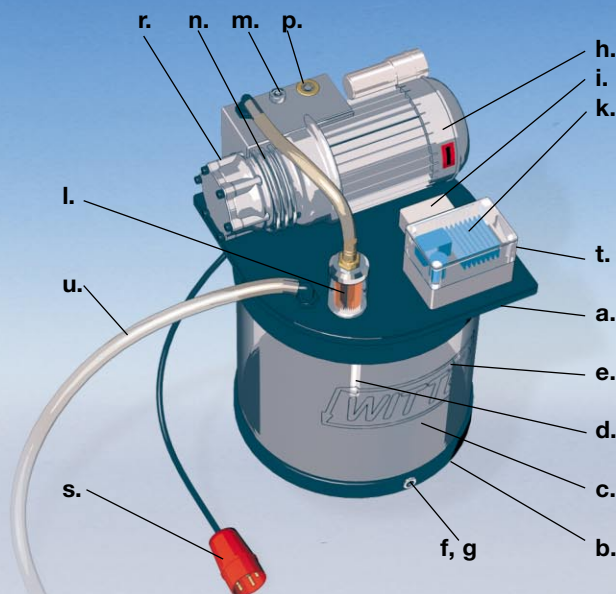
No.	Type	Suction capacity	Motor V/kW	max. mbar	dB(A)	lxwxh mm	Kg
81010	Vacuum unit	6m ³ /h	230/0,37	50	59	555x315x325	19
81011	Vacuum unit	6m ³ /h	400/0,37	50	56	555x315x325	19
85323	Vacuum unit	16m ³ /h	230/0,55	20	60	555x315x325	44
85324	Vacuum unit	16m ³ /h	400/0,55	20	60	555x315x325	44
80165	Vacuum unit	21m ³ /h	230/0,75	20	62	555x315x325	45
80000	Vacuum unit	21m ³ /h	400/0,75	20	62	555x315x325	45
80001	Vacuum unit	63m ³ /h	400/1,5	20	65	800x500x530	105
92302	Vacuum unit, mob.	100m ³ /h	400/3	20	67	1200x800x1240	130
84414	Vacuum unit, mob.	160m ³ /h	400/5,5	20	70	1200x800x1350	200
84208	Vacuum unit, mob.	250m ³ /h	400/5,5	20	72	1200x800x1350	250

All pumps and units are also available in 110V/60Hz.

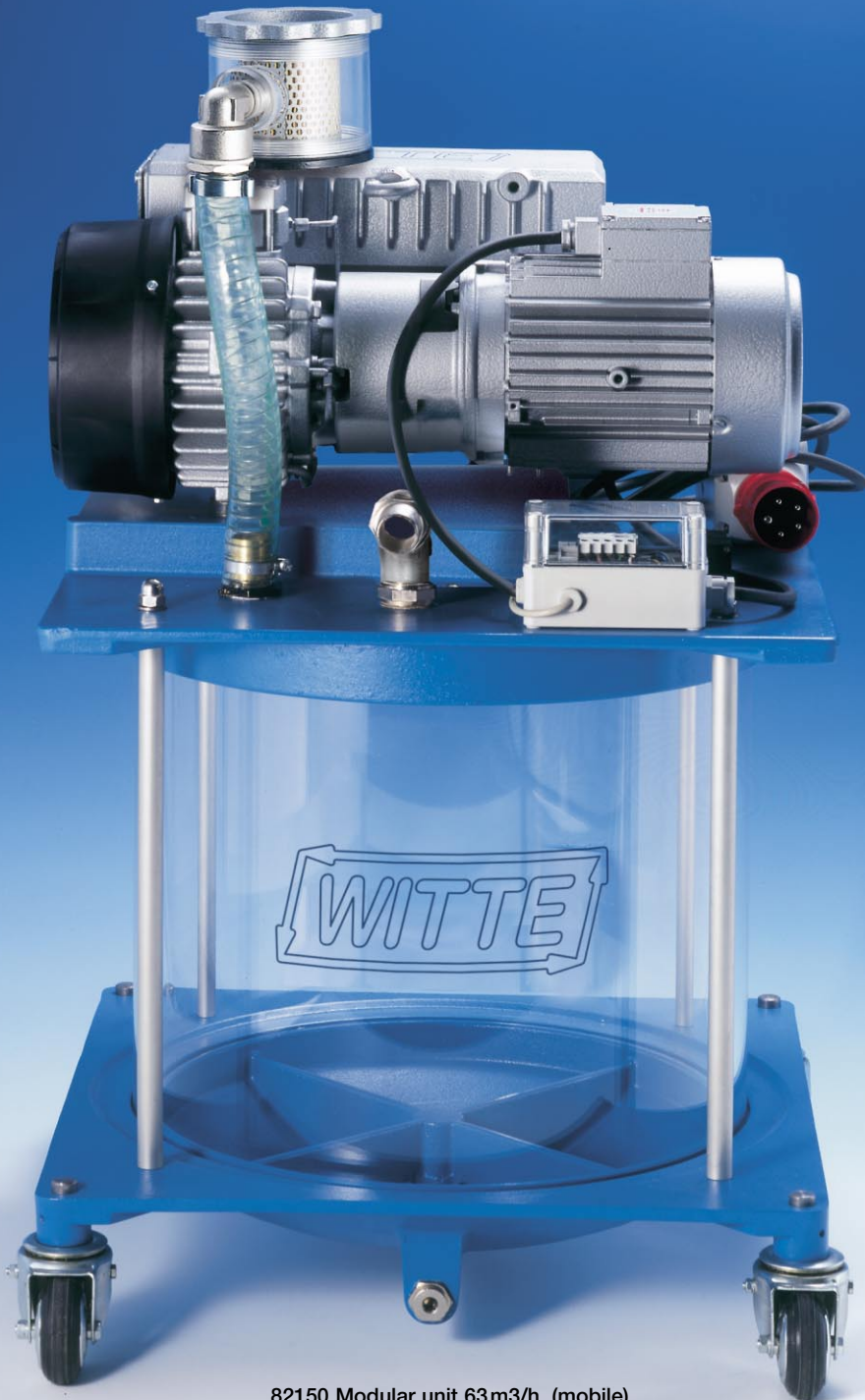
Modular vacuum units

Advantages:

- vacuum storage unit and liquid separator are integrated - an additional liquid separator is not required
- space saving assembly of all components
- see-through unit for liquid separator and vacuum storage unit all in one means safety "at a glance"
- different storage volumes possible simply by changing acrylic glass cylinder
- integrated air filter, drain separator, overvoltage relay, pressure difference switch
- available with different pump types from 6m³ to 63m³, on request also available with dry running pumps



- a. storage accumulator cover
- b. storage accumulator bottom
- c. acrylic glass cylinder
- d. threaded stud
- e. mist collector
- f. profile seal
- g. drainage plug
- h. e-motor
- i. pressure difference switch
- k. circuit relay
- l. airfilter
- m. oil filling plug
- n. vacuum pump
- p. exhaust air valve
- r. oil level gauge
- s. Schuko/CEE-Plug with overvoltage relay (In Europe only)
- t. on/off switch
- u. wire spiral hose



82150 Modular unit 63m³/h, (mobile)

Modular vacuum units, 230/400 V working voltage

No.	Type	Suction capacity m ³ /h	Motor V/kW	max. mbar	dB(A)	lxwxh mm	Kg
80172	Modular vac. unit	6	230/0,37	50	59	ø500x630	25
80173	Modular vac. unit	6	400/0,37	50	56	ø500x630	25
82147	Modular vac. unit	16	230/0,55	20	60	ø500x630	31
82146	Modular vac. unit	16	400/0,55	20	60	ø500x630	31
80174	Modular vac. unit	21	230/0,75	20	62	ø500x630	45
80175	Modular vac. unit	21	400/0,75	20	62	ø500x630	45
82150	Modular vac. unit, mobile	63	400/1,5	20	65	600x600x1030	95
83467	Modular vac. unit, mobile	100	400/3	20	67	700x700x1130	113

All pumps oil lubricated. Dry running pumps for modular units are available on request. All pumps and units are also available in 110V/60Hz.



Supply includes:

- 1 Pce connection unit complete with
 - vacuum gauge
 - 3/2 way hand valve
 - 3m vacuum hose with quick coupling
 - Schuko/CEE-Plug with overvoltage relay only in Europe included

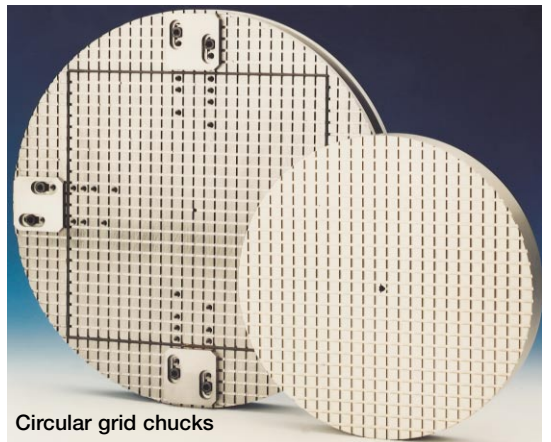




Vacuum fixture
on a lathe for clamping
alu wheel rims



Special chuck for helmets



Circular grid chucks

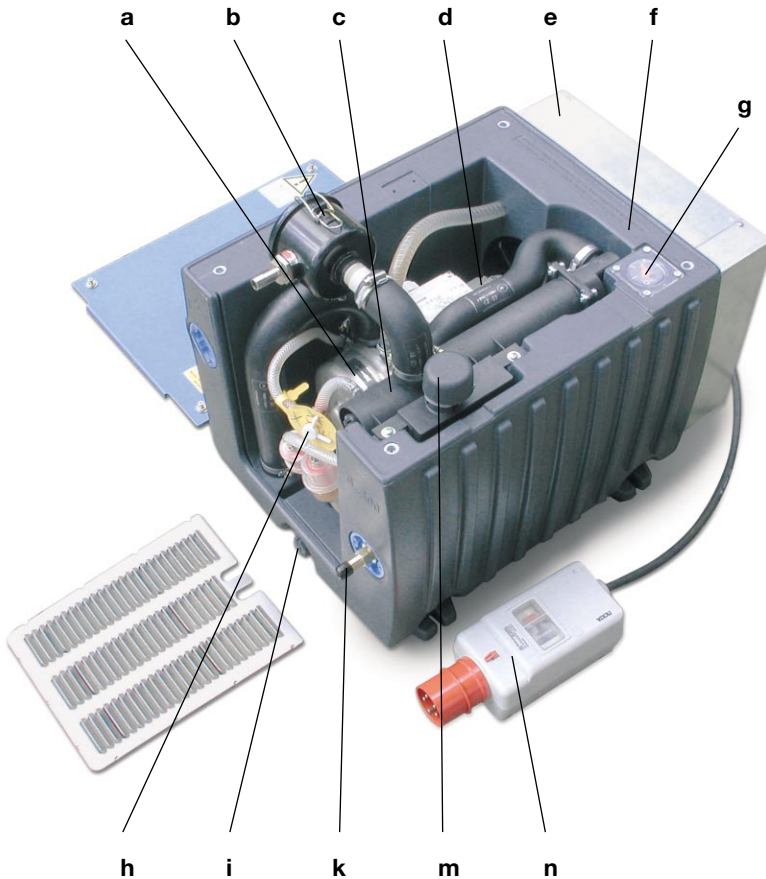
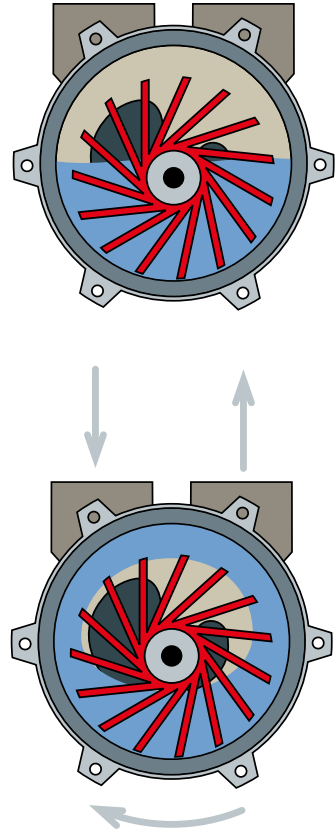
WITTE-Liquid ring vacuum pump

Only one unit for vacuum production and liquid separation

These robust pumps, are low on wear-and-tear and maintenance, work at up to 50 mbar vacuum and do not need an additional liquid separator.

A fast turning impeller causes water in the pump to rotate (see picture on right) simultaneously sealing itself off the impeller. A washable filter and a patented condenser clean air being sucked in before it enters the pump. Cooling lubricant is integrated into pump's operating cycle and a valve allows removal of excess fluid which can be returned to tool machine whilst in operation. An air chiller protects the unit from overheating.

An air chiller protects the unit from overheating.



- a Liquid ring vacuum pump
- b suction filter
- c condenser
- d motor
- e chiller
- f fluid reservoir
- g level indicator
- h operation selection
- i drain plug
- k valve
- m air release valve
- n shockproof plug

WITTE Liquid ring vacuum pump

No.	Dimensions h x w x l	Suction cap.	Motor, V/kW
93801	463 x 432 x 602	22m ³ /h	3ph. 400 Volt 50/60 HZ, 0,83/1,06kW
93802	515 x 572 x 743	45m ³ /h	3ph. 400 Volt 50/60 HZ, 1,2/1,6kW
93803	515 x 572 x 743	65m ³ /h	3ph. 400 Volt 50/60 HZ, 2,4/3,5kW
93804	525 x 620 x 920	100m ³ /h	3ph. 400 Volt 50 HZ, 3,85 kW
93805	710 x 845 x 1100	150m ³ /h	3ph. 400 Volt 50 HZ, 4,0 kW
93806	710 x 845 x 1100	198m ³ /h	3ph. 400 Volt 50 HZ, 5,5 kW
93807	710 x 845 x 1100	232m ³ /h	3ph. 400 Volt 50 HZ, 7,5 kW

WITTE Liquid ring pump - Accessories

No.	Name	For Pump	Version
13468	Air filter Element 3µm, polyester	Type 22	washable
13469	Air filter Element 3µm, polyester	Type 45-100	washable
13470	Air filter Element 3µm, polyester	Type 150-196	washable
13471	Air filter Element 3µm, polyester	Type 232	washable

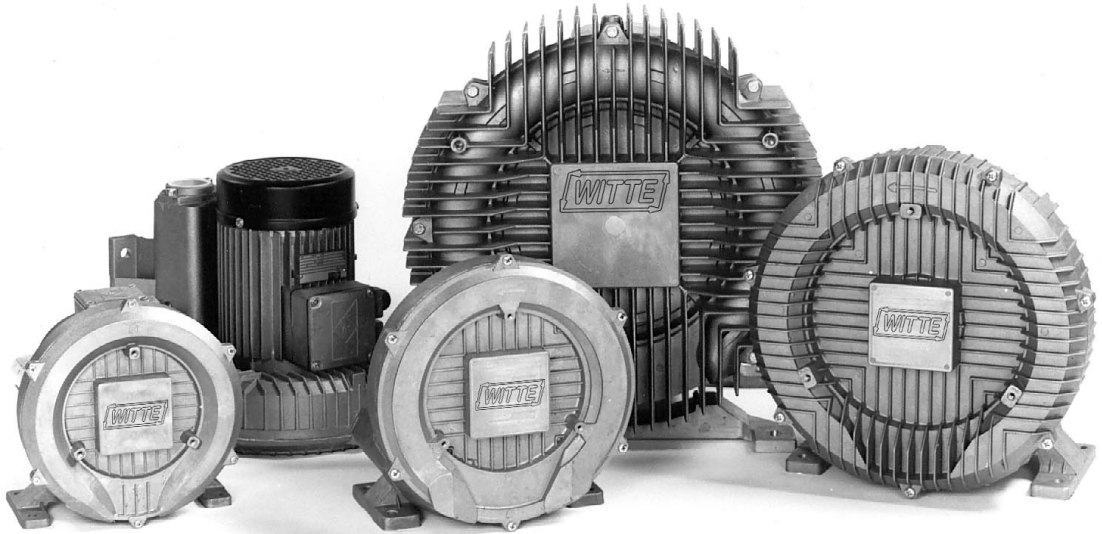
Supply includes:

1 Pce connection unit
complete with

- vacuum gauge
- 3/2 way hand valve
- 3m vacuum hose with quick coupling
- Schuko/CEE-Plug with overvoltage relay only in Europe included



WITTE radial compressor

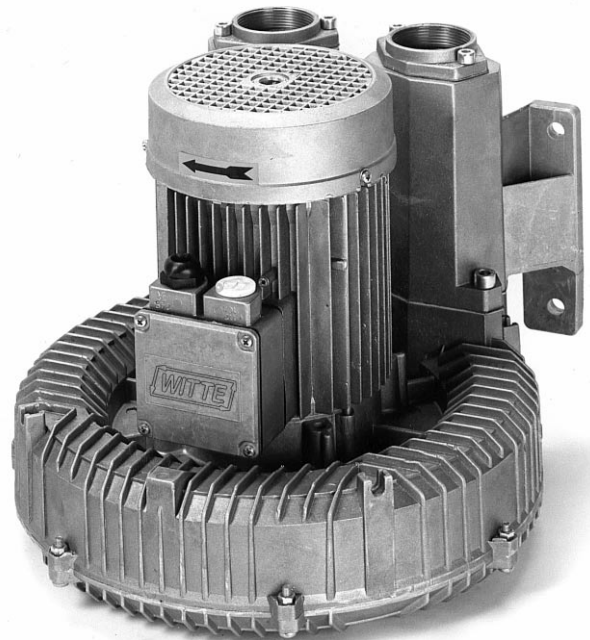


Radial compressors can be used when mechanical forces involved during machining are low, or when a high loss of vacuum occurs i.e.

- clamping porous materials
- large vacuum chucks
(i.e. perforated grid plates)
the surface of which cannot be covered completely by the workpiece

Advantages of Witte radial compressors :

- maintenance free due to permanently lubricated bearings, surface cooled motor, and contact free turbine wheel
- environmental-friendly due to oil-free seals
- low running costs
- high through-flow of vacuum



84399 Radial compressor

WITTE radial compressor

No.	Name	Thru-flow-volume	Motor	max. mbar	dB(A)	Connector thread	lxwxh mm	Kg
84395	SE 0040 C	40m ³ /h	0,10kW	930	63	G1 1/4"	176x196x204	5,7
84396	SE 0070 C	80m ³ /h	0,37kW	880	61	G1 1/4"	205x238x255	9,0
95704	SE 0120 C	140m ³ /h	0,75kW	875	66	G1 1/2"	263x287x306	13
84397	SE 0120 C	140m ³ /h	1,10kW	850	63	G1 1/2"	292x285x302	16
84398	SE 0170 C	220m ³ /h	1,10kW	860	72	G1 1/2"	294x327x348	18
84399	SE 0170 C	220m ³ /h	1,50kW	810	73	G1 1/2"	294x327x348	19
84400	SE 0300 C	340m ³ /h	2,20kW	830	73	G2"	319x375x384	27
84401	SE 0300 C	340m ³ /h	3,00kW	810	73	G2"	319x375x384	28,5
84403	SE 0420 C	510m ³ /h	4,00kW	830	80	G2 1/2"	486x493x510	38
84405	SE 0420 C	510m ³ /h	5,00kW	760	80	G2 1/2"	486x493x510	40

Also available for different voltages

Supply includes:

- 3m electro cable
- on/off switch with integrated overvoltage protection relay (Only in Europe)

Sound absorber for radial compressor

No.	Description
84416	Sound absorber SE 0040 C
84417	Sound absorber SE 0070 C
84418	Sound absorber SE 0120 C
84259	Sound absorber SE 0170 C
82979	Sound absorber SE 0300 C
84419	Sound absorber SE 0420 C



84400 Radial compressor

Maintenance and service kits

Maintenance and service kits for regular care of vacuum units and pumps

No.	For pump/unit with suction capacity	lxwxh	kg
81012	6m ³ , oil lubricated	100x200x210	1,1
82151	16m ³ , oil lubricated	200x200x260	1,7
80416	21m ³ , oil lubricated	200x200x260	1,9
80417	63m ³ , oil lubricated	220x280x380	6,0
89023	160m ³ , oil lubricated		
89024	250m ³ , oil lubricated		



Our maintenance and service kits guarantee trouble-free operation of Witte vacuum pumps and units

Comprising of:

No.	Oil separator	Air filter	Oil	Seal	O-Ring	Oil level gauge	Oil filter
81012	2x80166	2x80360	2x0,2l 80982	2x10645		1x10644	
80416	2x80345	2x80142	2x0,6l 80418	2x10448	2x10447	1x10644	
80417	4x80348	2x80143	4x0,75l 80419	2x10488	4x10447	1x80347	2x80346
82151	2x82155	2x80142	2x0,4l 82156	2x10488	2x10447	1x10644	
89023	2x84656	1x80325	1x5l 80982	1x12452	1x10447		1x84655
89024	3x84565	1x80325	1x10l 90959	1x12454	1x10447		1x84655