



okobio

REMAKING VACUUM



YOUR VACUUM
PARTNER >>>



OUR COMPANY

We are a company specialized in services and sealing products for the industry in general.

We stand out for the efficiency of the service in the repair of vacuum pumps offering to our customer's specific solutions.



25

years of
experience

Throughout our history we have been characterized by our quality of service as well as the professionalism to offer the best solution to our clients.

We are official **Chesterton's** distributor in the **Basque Country** and **South of France**.



ACTIVITY



Engineering

We offer **Basic Engineering** and **Development** to create vacuum systems or optimize the existing ones.

Basic Engineering carry out performance studies, either on a test bench or in the installation itself, in order to subsequently present the optimal recommendations.

Developed Engineering, we operate in the integral circuit of the vacuum system carrying out studies of improvement and efficiency to obtain energy saving solutions.



Repair

We repair vacuum pumps from **any manufacturer** thanks to our great experience, knowledge and our technical means.

Thanks to our **Bench Test**, we can perform initial and final performance tests to determine the benefits obtained after repair.

We have available a **maintenance exchange program** where refurbished pumps can be sent to the customer prior to the repair of their damaged pump.



New Equipment & Parts

We are available to offer our customers new equipment with total guarantee.

We have, for our repairs and for commercialization, spare parts of the most common vacuum pumps

SECTORS

We have extensive experience in developing solutions for these sectors.



GEOGRAPHIC SCOPE

The location of our facilities allows us to establish a close and direct relationship with our customers in different countries such as **Spain, France, Germany, Turkey, Portugal, Norway, Netherlands, Finland, United Kingdom, Mexico, etc.**



CUSTOMER REFERENCES

Smurfit Kappa

SPIE

Kunert Gruppe
Näsen - Wellpappe - Papier
Wir machen mehr daraus

ABSugar

tembec

JTK®
JULIO FIBERLINE KRAFTEN

STORAENSO

BEFESA

Munksjö

EUROPAC

mondi

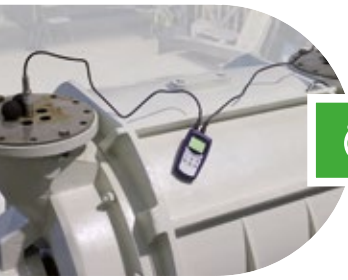
FIRST QUANTUM
MINERALS LTD

ARJOWIGGINS

HV
Hollingsworth
& Vose

VOITH

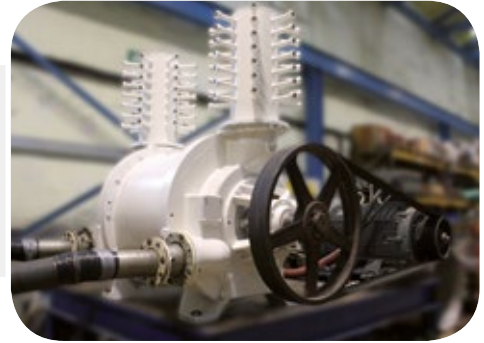
INTERNATIONAL PAPER



Performance Test

The performance test **allows us to know** the real performance of the equipment in **flow and power consumption** compared to the manufacturer's data. The vacuum and power consumption data are taken at 5 different points, obtaining the ratio $Kw / m^3 / min$.

Performance Test can also be done at the customer's site to make a predictable maintenance.



Okobio 's Bench Test:

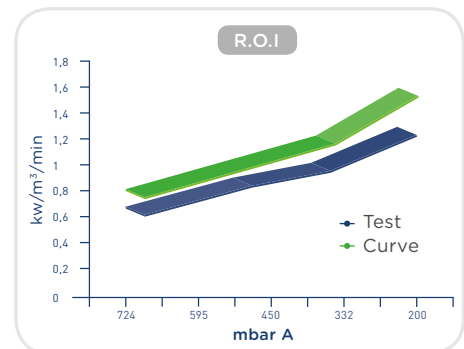
1. 315Kw motor.
2. Liquid Ring Closed Circuit.
3. Flow and power calculation software.



Repair and commissioning process



Through the performance test done in our workshops and comparing it with the performance test done before the repair, **we know the benefits obtained** with the refurbish and / or set-up performed, decreasing the ratio $Kw / m^3 / min$.



Results report

Once the final performance test is done, a report is made to be delivered to the customer that includes the following information:

- Measurements taken according to the norm applied.
- Comparative flow curve.
- Comparative curve of consumption.
- Comparative curve of specific consumption.
- Analysis and recommendations for the equipment/vacuum system.



Spare parts, coatings / lining

We have most of the spare parts that are necessary for optimal repair for all kind of vacuum pumps. Cones, body, lids and impellers are available in both cast iron and stainless steel.

The SS304 or SS316 stainless steel lining allows us to transform a cast iron pump by protecting it against corrosion / abrasion. The life of the equipment increases, as does the MTBF.

The use of Chesterton ARC (ceramic base) products as a coating helps us to recover internal parts or to protect them against corrosion / abrasion.



For any need for spare parts for your installed pumps, please ask our availability.

ADVANTAGES AND BENEFITS OF A REPAIR

A liquid ring vacuum pump has an annual estimated loss between 1% and 2% of its capacity, operated with liquid ring flows, water qualities and separators within the needs of the installation.

Repair of the pump should be done when we detect a drop in performance (through an on-site performance test), a mechanical anomaly (vibration analysis) or any impact on the paper machine (increased breakage, poor drying, etc).

Lower performance/more energy consumption ❌

Increase in breakage percentage ❌

Deterioration of quality ❌

Increased steam consumption ❌

Increased Unplanned machine shut-down ❌



✓ Higher performance/lower energy consumption

✓ Decrease in breakage percentage

✓ Quality Improvement

✓ Decreased steam consumption

✓ Reducing Unplanned machine shut-down



We offer a **one year warranty** on all parts and repairs.

 **AP**

The **AP** series are conical distributor pumps and have great success in the Pulp and Paper Industry. Its direction of rotation is independent of the drive.

 Flow rate up to 420 m³/min

AP 90	285 - 420 m ³ /min
AP 60	180 - 283 m ³ /min
AP 40	130 - 196 m ³ /min
AP 30	60 - 96 m ³ /min
AP 20	30 - 62 m ³ /min
AP 10	19 - 31 m ³ /min
AP 07	11 - 20 m ³ /min
AP 04	8 - 12 m ³ /min
AP 03	5 - 9 m ³ /min
AP 02	3 - 6 m ³ /min



MATERIAL CODE	ROTOR	CONES	HOUSING	HEADS	SHAFT	PACKING GLANDS
FCD	CI	CI	CI	CI	CS	CI
XVS	304 SS	304 SS	304 SS	CI + 304 SS	410 SS	CI
SS4	304 SS	304 SS	304 SS	304 SS	410 SS	304 SS
SS6	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS

CI Cast Iron

SS Stainless Steel

CS Carbon Steel

 **AP94**

The **AP94** series are conical distributor pumps, capable of supplying large flow rates with high performance, adapting to the needs of vacuum systems.

 Flow rate up to 366 m³/min

AP 94T	200 - 366,66 m ³ /min
AP 94S	156,66 - 315,65 m ³ /min
AP 94R	150 - 266,66 m ³ /min
AP 94P	125 - 225 m ³ /min
AP 94M	113,33 - 156,66 m ³ /min
AP 94L	88,33 - 136,66 m ³ /min



MATERIAL CODE	ROTOR	CONES	HOUSING	HEADS	SHAFT	PACKING GLANDS
FCD	CI	CI	CI	CI	CS	CI
XVS	304 SS	304 SS	304 SS	CI + 304 SS	410 SS	CI
SS4	304 SS	304 SS	304 SS	304 SS	410 SS	304 SS
SS6	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS

CI Cast Iron

SS Stainless Steel

CS Carbon Steel

The **2AP** series are flat plate distributor pumps, for applications where the aspirated gas is clean, without entrainment of materials that will deteriorate the equipment.

This type of equipment needs to be installed with the auxiliary elements (separators, extractions pumps, etc.) essential for its proper operation.

2AP1

→ Flow rate up to 120 m³/min

2AP1 353	59,7 - 97,5 m ³ /min
2AP1 303	53,3 - 66,7 m ³ /min
2AP1 253	29,2 - 50,3 m ³ /min
2AP1 252	20 - 35 m ³ /min
2AP1 203	14,7 - 23,3 m ³ /min
2AP1 202	9,8 - 15,8 m ³ /min
2AP1 153	7,4 - 11,7 m ³ /min
2AP1 152	5,7 - 8,9 m ³ /min



2AP3

→ Flow from 80 - 635 m³/min

2AP3 720	365 - 635 m ³ /min
2AP3 670	305 - 516 m ³ /min
2AP3 620	206 - 436,7 m ³ /min
2AP3 600	211,7 - 360 m ³ /min
2AP3 520	178,3 - 311,7 m ³ /min
2AP3 500	145 - 258,3 m ³ /min
2AP3 420	110,8 - 193,3 m ³ /min
2AP3 400	80,8 - 143,3 m ³ /min

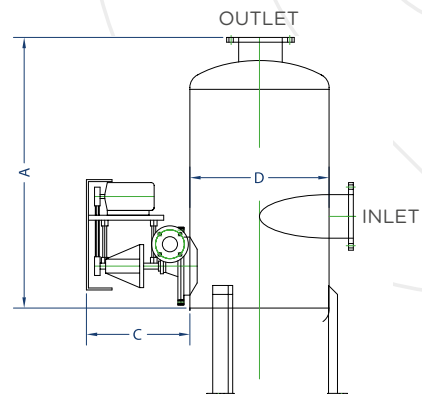
MATERIAL CODE	ROTOR	PLATES	PORT PLATES	HEADS	SHAFT	PACKING GLANDS
FCD	CI	CI	CI	CI	CS	CI
XVS	304 SS	304 SS	304 SS	CI	410 SS	CI
SS4	304 SS	304 SS	304 SS	304 SS	410 SS	304 SS
SS6	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS

- CI Cast Iron
- SS Stainless Steel
- CS Carbon Steel

AUXILIARY ELEMENTS

Auxiliary elements are used for water recovery, separation of air and water facilitating the maintenance of vacuum levels and protecting the pump from corrosion and erosion.

SIZE	A (mm)	D (mm)	INLET	OUTLET
OK 5	1.500	500	200	200
OK 6	1.700	600	250	250
OK 7	1.950	700	250	300
OK 8	2.125	800	300	300
OK 9	2.280	900	300	350
OK 10	2.460	1.000	350	400
OK 11	2.590	1.100	400	400
OK 12	2.710	1.200	400	450
OK 13	2.810	1.300	450	500
OK 14	3.010	1.400	500	500
OK 15	3.100	1.500	500	600



* Dimensions shown are general. Each particular project will be properly defined by our engineering department.

BAS PUMPS

SIZE	C	CAPACITY m ³ /h		R.P.M.	POWER INSTALLED
		15m	20m		
2	604	50	42	1.750	5,5 Kw
2 1/2	604	60	48	1.750	7,5 Kw
3	733	120	90	1.750	11 Kw
4	733	156	132	1.750	11 Kw



* All "wet parts" are made of SS 316, and sealing is done by Mechanical Seal.



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HEADQUARTERS
PRODUCTION PLANT

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