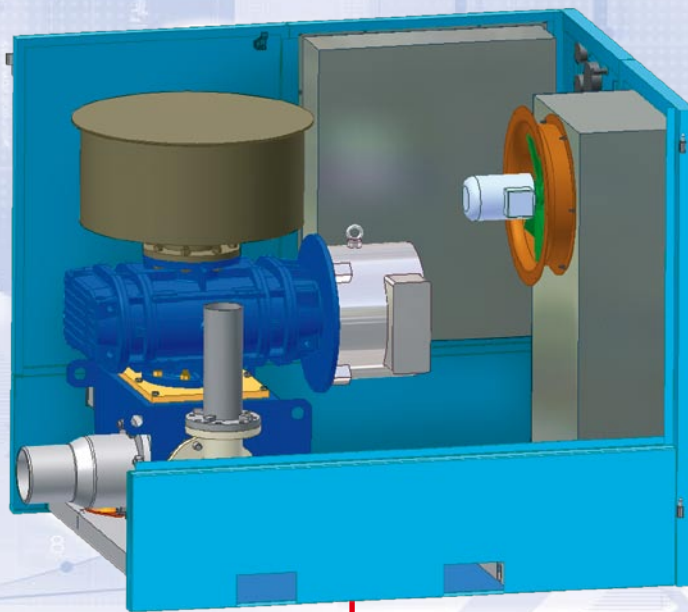


# Variable Speed Blower packages

## V-SF PLUS

**A New concept** for the aeration process in Waste Water Treatment

- Reduced Power consumption
- Reduced cost of ownership
- Increased efficiency
- Reduced maintenance costs



- Compact arrangement
- Process control monitoring
- Greater flow variation
- Ease of installation



## > General

- The water industry has developed in recent years an increasing interest in the use of variable speed drive arrangements on blowers (positive displacement and centrifugal) to allow flexibility of oxygen demand. This has been the consequence of tailoring the kW demand to suit period fluctuations and thereby to optimise electricity cost. The use of VSD by water companies is increasing at a high rate as power costs increase.

## > Increased efficiency

- A new concept of blower package is now available offering the user a complete system to allow variable speed drive with additional benefits. The system, including the inverter equipment is now available from one source. BOC EDWARDS is the first manufacturer which brings the innovative system

## the V-SF PLUS



## > Innovation

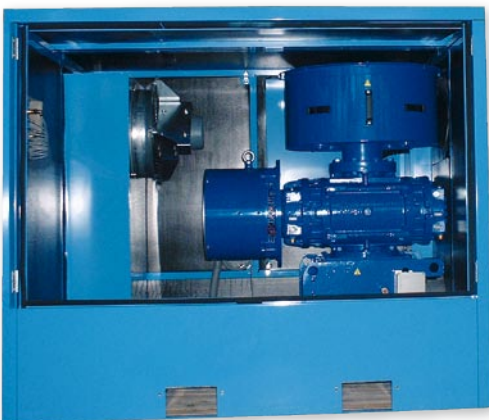
- The centre of this new BOC EDWARDS system is a hybrid permanent magnet motor HPM<sup>®</sup>\*, a direct drive arrangement with variable speed inverter.
- The hybrid permanent magnet motor HPM<sup>®</sup> is one third the size of conventional motors. It is controlled by a variable speed inverter giving constant torque.

## > Ease of installation

- Since the hybrid permanent magnet motor directly drives the blower, there are no mechanical pulleys, coupling or motor shaft seals to wear out, leak or need replacing.
- This also serves to increase the BOC EDWARDS blower package efficiency.

## > Ease of maintenance

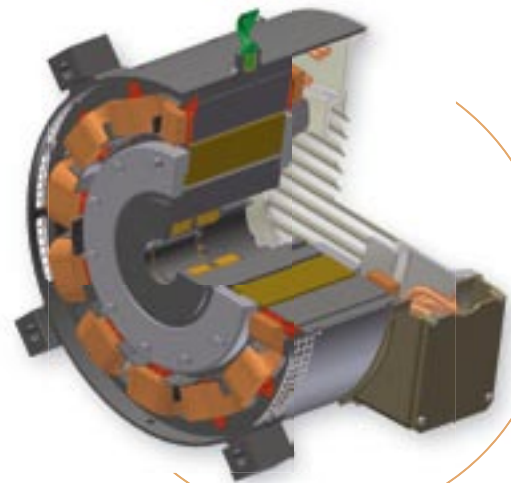
- In addition, the motor is easier to maintain/repair than conventional motors. The stator features independent coil modules which can be removed and serviced on site.



\* HPM<sup>®</sup> is a trademark registered by the Moteurs Leroy Somer company

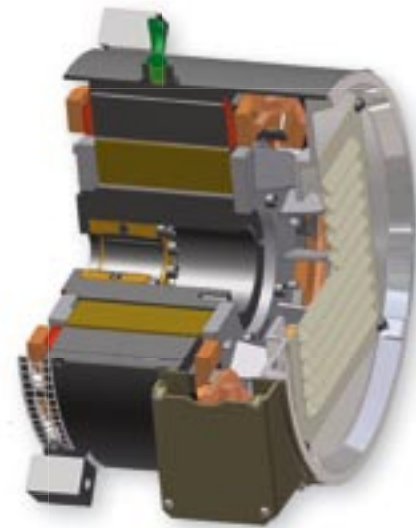
> **Benefits :**

- Flow variation - turndown minimum 60 %
- Power saving
- Monitoring facilities
- Reduction in maintenance costs



- No bearings
- No shaft seal
- No alignment difficulties

- The hybrid permanent magnet motor HPM® gives a much better efficiency compared to conventional motors.

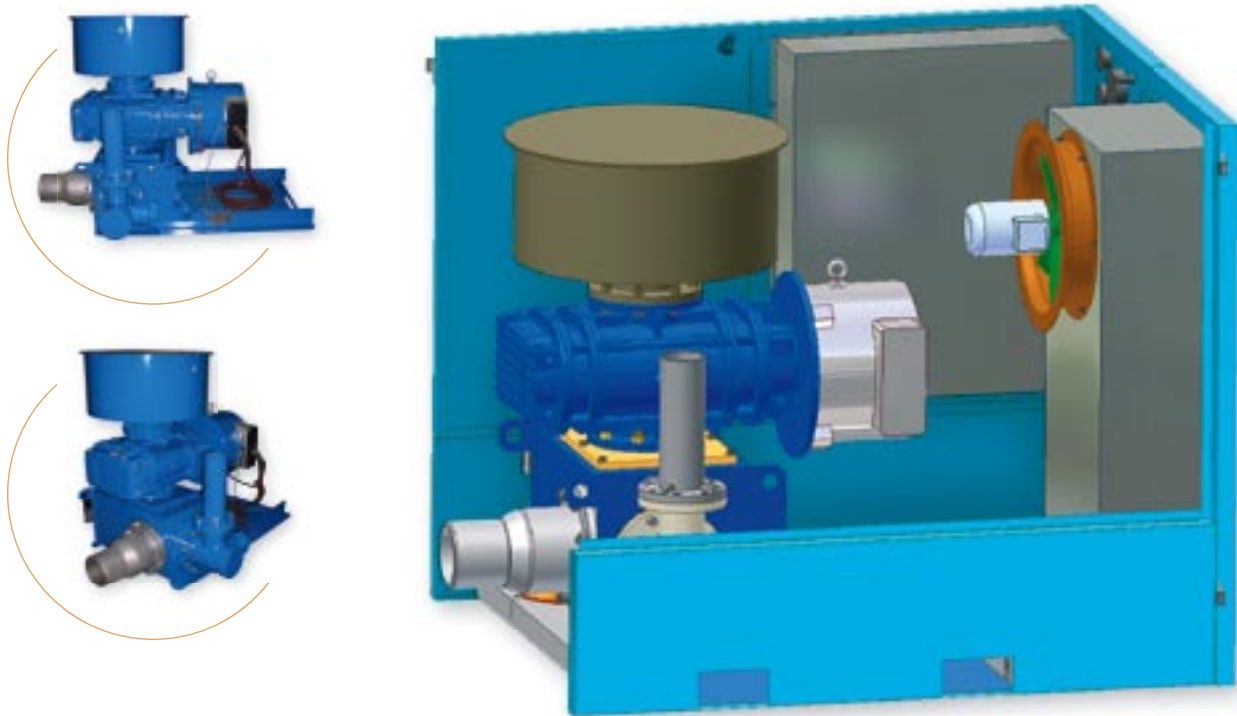


> **Blower range**

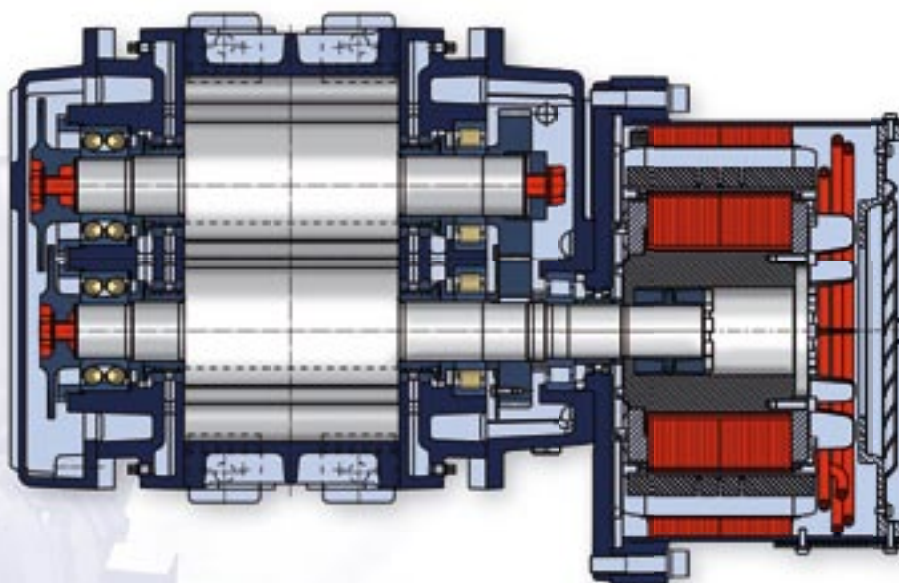
Model	Flow-m <sup>3</sup> /h		Shaft end power kW	
	mini	maxi	mini	maxi
VSF+H2/6	564	1409	21,2	43,8
VSF+H2/9	773	1932	27,9	59,6
VSF+H2/11	896	2239	30,5	67,2
VSF+H3/25	1439	3597	53,7	113
VSF+H4/42	2000	5022	70,6	152
VSF+H4/70	2804	7011	98,8	215
VSF+H5/92	3274	8185	122	270

Pressure losses of filter, silencers and NRV included  
 The above values are based on 800 mbar Delta P 20°C 1013 mbar inlet.

> V-SF PLUS typical package



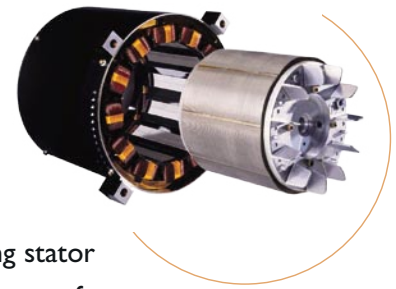
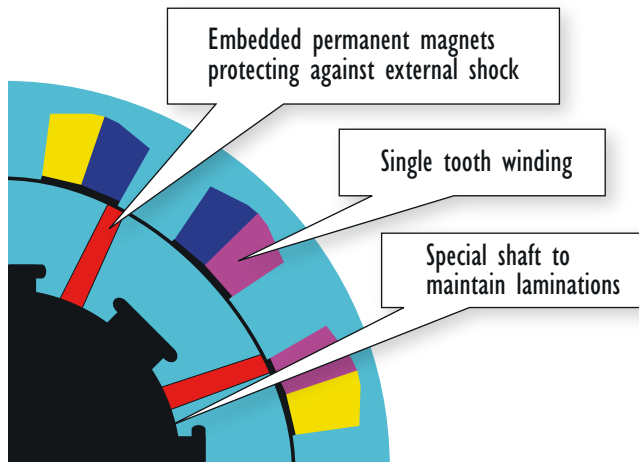
> Section drawing of Blower/Motor



## > FEATURES

Synchronous machine with internal permanent magnets

### 1- Description of the motor



#### Stator

- Single tooth winding stator
- Three hall effect sensors for rotor position transducer
- Thermal sensor in the winding
- Simple steel frame

#### Rotor

- Rotor with permanent magnets and neither glue nor lacing (autoblocking)
- Special shaft to maintain rotor laminations
- Fan directly fitted onto the shaft

### 2- Advantages of the motor

- High efficiency even at low speed because no rotor losses
- Very small size and suitable for very flat and cantilever assembly
- No coil overlap (reliability)
- No glue and no interference sleeve fitted (reliability)
- No demagnetisation risk
- Low noise, vibration and torque ripple
- Low electronic size (efficiency and power factor)
- No bearings
- No couplings
- Constant torque, variable speed

### 3- Advantages of the Blower Package

- Unloading valve not necessary
- Reduced total life cycle cost (own & operate)
- No pulleys, belts, couplings or drive support
- Reduced floor area
- Reduced size and weight
- Integral inverter
- Increased available torque
- Increased efficiency
- Increased life cycle
- Reduced power consumption
- Reduced noise/vibration
- Greater reliability
- Low maintenance, easier to repair
- Ease of installation



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CHEMICAL MANAGEMENT  
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THERMAL MANAGEMENT  
INSTRUMENTATION  
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PRESSURE BLOWERS  
PHARMACEUTICAL SYSTEMS

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COMPONENT CLEANING  
EQUIPMENT MAINTENANCE & REMANUFACTURE  
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E-DIAGNOSTICS  
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Publication no : V-SF PLUS - 1104 - 895

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