

Innovative Engineered Solutions

MECHANICAL VACUUM BOOSTERS

EverestVacuum a brand of Everest Blower Systems Private Limited brings to its customers, mechanical vacuum boosters, import substitutes high-efficiency machines.



Everest Mechanical Vacuum Boosters **EVB** are used in growing number of applications where fast pump downtimes are required and environment or energy usage concerns, rule out any alternative pump selection. Mechanical Vacuum Booster enhances the Performance, Ultimate Vacuum and Pumping Speed of Oilsealed, Water Ring, Dry Screw and other vacuum pumps by increasing throughput pumping and improving staging ratios.

As these pumps are completely dry, the process vapour can pass through the pump without any contamination and be collected at the discharge of the system by a vent condenser. This offers the customer a very efficient vapour recovery management system and an environment-friendly vacuum ecosystem.

ENGINEERING | EVALUATION | DESIGNING | **EverestVacuum**
MANUFACTURING | TESTING | EXECUTION | POST SALES AND SERVICE



A TYPICAL INSTALLATION OF HIGH PUMPING CAPACITY OF 30,000 M³/HR BOOSTER TRAIN



EverestVacuum

Mechanical Vacuum Boosters

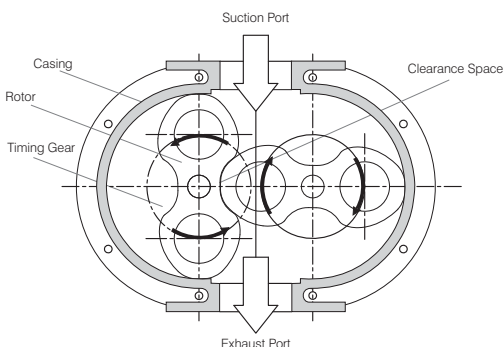
SALIENT FEATURES

- 100% Oil-Free Dry Pumping
- High Volumetric efficiency resulting in high pumping speed at low pressure, capacity boosting of 8 to 10 times
- Very low power consumption ratio (m³/Kw) as opposed to other vacuum pumps
- Considerable reduction in pump downtime by the use of such machines
- Restricts Oil back-streaming from the rotary vane vacuum pump
- Dry Pumping most appreciated for Gas/Vapour Load
- Proven reliable design with more than 10,000 installations
- Dynamically balanced rotors resulting in very low vibration levels

OPERATING PRINCIPLE

Everest Vacuum Boosters are positive displacement pumps with two figure-eight shaped impellers that rotate in the opposite direction inside the casing. As each lobe of an impeller passes the booster inlet, it traps a defined quantity of air equal to one-fourth of the displacement of the booster.

This entrapment occurs four times per revolution. The entrained air is forced around the casing to the booster outlet. Timing gears accurately position the impeller relative to each other to maintain the minute clearance so that vital pre-defined clearance can be maintained resulting in high volumetric efficiency of the pump.



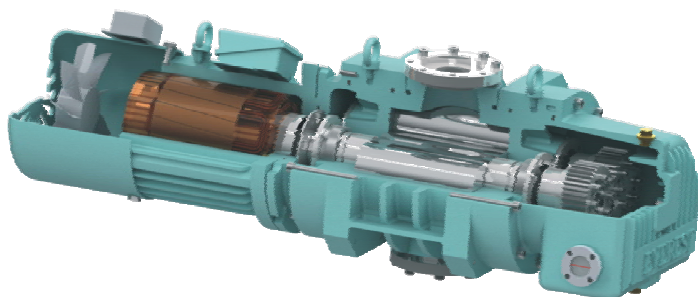
KEY FEATURES

Boost the vacuum through put when installed upstream to the backup pump, thereby reducing overall process time.

Boost the vacuum level of the backup pump thereby reducing the process temperature.

FIRST OF ITS KIND

Canned Motor Mechanical Vacuum Booster | Installed at BARC, India



MECHANICAL VACUUM BOOSTER

SPECIFICATIONS - STD EVB

Model	Nominal Displacement (50 Hz)		Recommended Differential Pressure		Connected Power (KW)	Rotation (RPM)		Recommended Line Size (NB)		Approx Weight (Bare Shaft) Kgs.
	m ³ /hr	CFM	mBar	Pa		50 Hz	50 Hz	Suction	Discharge	
EVB05	400	235	50	5000	2.2	1500	65	50	116	
EVB15	800	470	50	5000	3.7	1500	80	50	170	
EVB30	1670	985	50	5000	5.5	1500	125	80	316	
EVB50	2930	1725	80	8000	7.5	1500	125	100	425	
EVB60	3900	2295	65	6500	7.5	1500	200	125	500	
EVB70	5250	3090	50	5000	7.5	1500	200	150	585	
EVB200	10400	6121	120	12000	22.0	1500	300	250	1380	
EVB300	15100	8888	100	10000	22.0	1500	350	300	1625	

	EVB05	EVB15	EVB30	EVB50	EVB60	EVB70	EVB200	EVB300
MOC	ROTOR C.I FG 260 (SG450/10)			DUCTILE IRON SG 450/10				
	SHAFT ALLOY STEEL H&G (SG 450/10)			DUCTILE IRON SG 450/10				
	GEAR 16MnCr5/20MnCr5 (H&G)							
	BODY C.I FG 260							
SEAL TYPE	STD Nitrile (STD) VITON (OPT) PTFE (OPT) PISTON RING/LABYRINTH (OPT)							

SPECIFICATIONS - EVB (HIGH SPEED)

Model	Nominal Displacement (50 Hz)		Recommended Differential Pressure		Connected Power (KW)	Rotation (RPM)		Recommended Line Size (NB)		Approx Weight (Bare Shaft) Kgs.
	m ³ /hr	CFM	mBar	Pa		50 Hz	50 Hz	Suction	Discharge	
EVB SL HS800	800	470	30	3000	2.2	2950	65	50	120	
EVB SL HS1500	1600	945	40	4000	3.7	2950	80	50	175	
EVB SL HS3200	3200	1890	40	4000	5.5	2950	125	80	330	
EVB SL HS5600	5600	3300	50	5000	7.5	2950	125	100	425	
EVB SL HS7500	7500	4420	40	4000	11.0	2950	200	125	500	
EVB SL HS10000	10000	5890	30	3000	11.0	2950	200	250	586	

	EVB SL HS800	EVB SL HS1500	EVB SL HS3200	EVB SL HS5600	EVB SL HS7500	EVB SL HS10000
MOC	ROTOR C.I FG 260 (SG450/10)		DUCTILE IRON SG 450/10			
	SHAFT C.I FG 260 (SG450/10)		DUCTILE IRON SG 450/10			
	GEAR 16MnCr5/20MnCr5 (H&G)					
	BODY C.I FG 260					
SEAL TYPE	STD PISTON RING/LABYRINTH (STD) PTFE (OPT)					

EVEREST ADVANTAGE HIGH VOLUMETRIC EFFICIENCY

LOW ENERGY CONSUMPTION | PACKAGE SUPPLY | PLUG AND PLAY CONCEPT

Why Use a Mechanical Vacuum Booster

A BELL-SHAPED CURVE & HOW IT HELPS IMPROVE EFFICIENCY

In many vacuum systems, especially those where the chamber is large & has a large internal surface area, the chamber load adds to the extra surface area. The pump-down can be slowed substantially when the chamber pressure drops to a range where the vapor molecules on the surface desorb and must be pumped away.

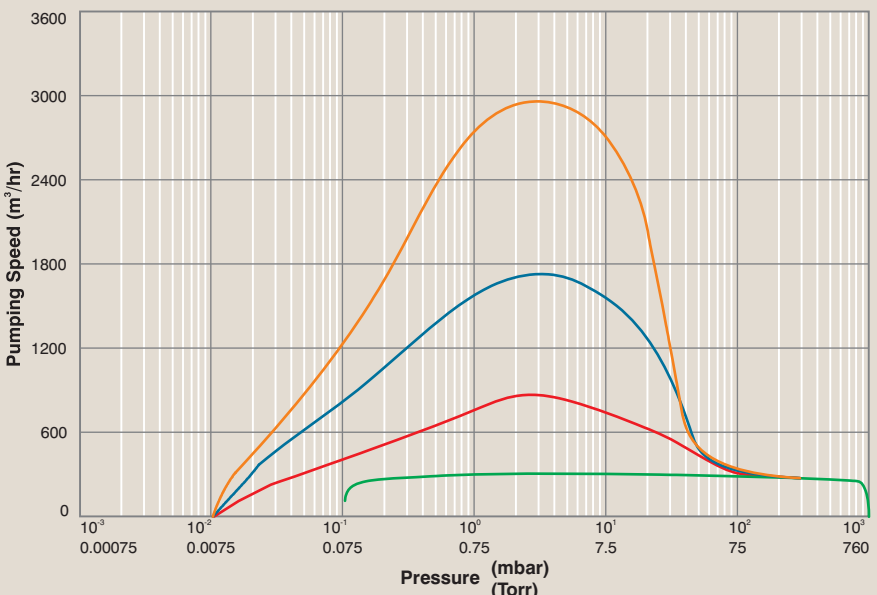
Pressure and temperature determine when this vapour desorbs, but at ambient temperature around 30°C the vapour desorbs from about 50 Torr down to about 0.1 Torr. The vapour pressure of water at ambient temperature is about 30 Torr, so that is where maximum desorption may occur.

Typical vacuum pumps have a fairly constant pump down speed from atmospheric pressure down to a pressure of about 10 Torr. At lower pressures the effective pumping speed reduces until the ultimate vacuum of the vacuum pump is reached. At the ultimate vacuum, i.e. the lowest pressure a specific pump can reach, the effective pumping speed is typically zero.

If the vacuum system only uses a mechanical vane or piston pump, when the vapour starts to desorb the rate of pressure drop will slow as the mechanical pump works at pumping away the large volume of vapour. In some cases, the chamber pressure may rise if the amount of vapour exceeds the ability of the pump to remove it from the system. A high pump down time will increase the process time and the overall cost of running it.

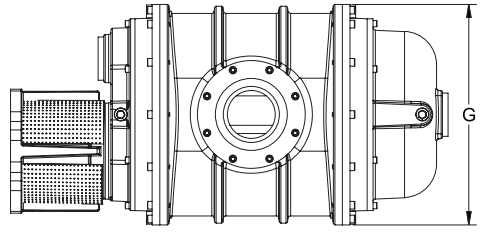
To handle this large vapour load, a vacuum pump is required that has a bell-shaped pumping speed curve and has a high pumping speed in the pressure range where the water vapour is generated. The vacuum pump that meets this need is the Everest Mechanical Vacuum Booster pump. From the pumping speed vs. pressure curve you see that the highest pumping speeds are from about 10 Torr down to about 0.01 Torr. On average a Mechanical Vacuum Booster pump will increase the system pumping speed by about 10 times. These pumps are controlled by an advanced electronic inverter drive that is programmed in closed loop feedback to the electric motor which continuously monitors the current and varies the frequency to ensure optimum pump down speeds for highest throughput and low process time.

EVB 50 | ESPH300 EVB 30 | ESPH300 EVB 15 | ESPH300 ESPH300

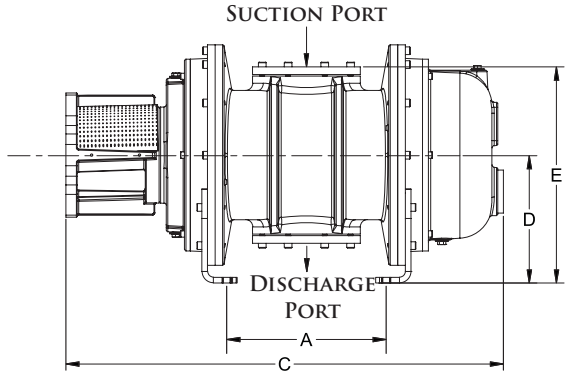
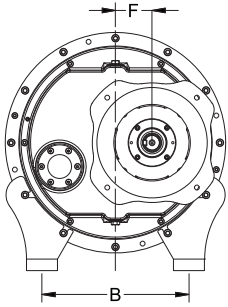


SECTORS SERVED

- EVAPORATIVE CONCENTRATION
- VACUUM DISTILLATION
- POLYMERIZATION
- CRYSTALLIZATION
- VACUUM IMPREGNATION
- VACUUM DRYING STERILIZATION
- VACUUM COOLING
- VACUUM METALLIZING
- VACUUM NITRIDING
- SPACE & RESEARCH ORGANIZATION



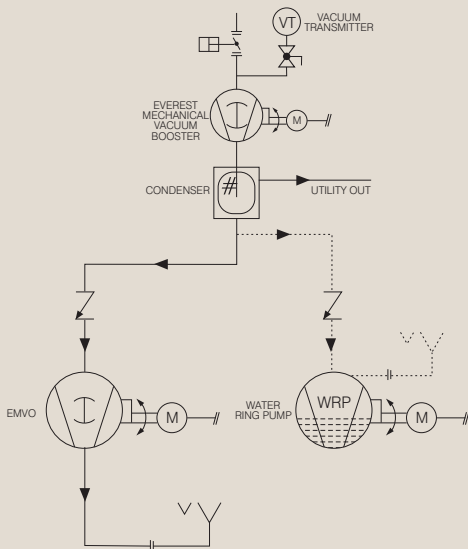
DIMENSION DIAGRAM



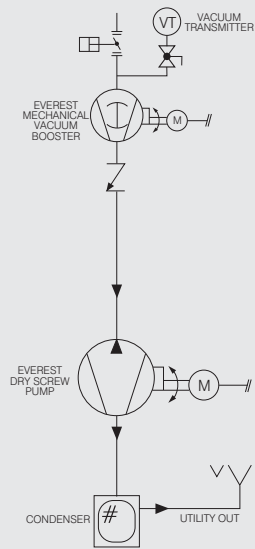
Model	A	B	C	D	E	F	G	Suction	Discharge
EVB 05	302	225	614	208	344	50	342	65	50
EVB 15	358	295	660	230	408	64	400	65	50
EVB 30	334	332	914	268	450	76	460	100	80
EVB 50	384	420	980	308	572	90	554	125	100
EVB 60	536	420	1158	308	536	90	554	150	125
EVB 70	650	420	1140	308	545	90	554	200	150
EVB 200	710	700	1380	450	785	150	940	300	250
EVB 300	960	700	1630	450	840	150	940	350	300

P&I DIAGRAM

EVB + EMVO | WRP



EVB + ESPH



EVEREST ADVANTAGE

EVEREST HAS THE SKILL, EXPERTISE, KNOWLEDGE AND CAPABILITY THAT IT HAS ACQUIRED OVER THE YEARS TO CUSTOM DESIGN VACUUM SYSTEMS FOR SPECIFIC CUSTOMER REQUIREMENTS AND DELIVER GUARANTEED RESULTS

EVEREST PRODUCT RANGE

VACUUM

MECHANICAL VACUUM BOOSTERS
 DRY SCREW VACUUM PUMPS
 SUPERVAC
 ROTARY VANE VACUUM PUMP
 SUPERVANE
 VACUUM SYSTEMS (WET)
 ENGINEERED VACUUM SYSTEMS
 MECHANICAL VAPOUR RECOMPRESSOR (MVR|MVC)

PRESSURE

TWIN LOBE ROOTS BLOWERS
 TRI LOBE ROOTS BLOWERS
 CENTRIFUGAL BLOWERS
 TURBO BLOWERS
 BLOWER PACKAGES

INDUSTRIES SERVED

CHEMICAL & PHARMACEUTICAL

Degassers
 Vacuum Distillation
 Evaporators
 Crystallizers
 Vacuum Filters
 Vacuum Dryers

VACUUM FURNACE INDUSTRY

Heat Treatment
 Hardening
 Optical Coating
 Metallizing
 Degreasers in Furnace

ELECTRICAL INDUSTRY

Transformer Vacuum Impregnation
 Transformer Oil Purifier
 Vapour Phase Drying

INDUSTRIAL PROCESSING

Impregnating Windings
 Drying Textiles Mills
 Sterilizing re-circulation through Ethylene Dioxide
 Incandescent CFL and Tube Light Manufacturing
 TV Tubes Manufacture

FOOD PROCESSING INDUSTRY

Vacuum Packaging-Fresh & Cooked Meats
 Freeze Drying
 Deodorization of Vegetable Oil (FFA Distillation)
 Sugar Refining
 Vacuum Evaporative Cooling
 Vacuum Tray Drying
 Flash Drying

Our technology is so flexible, we can custom manufacture **Special Blowers, Vacuum Pumps & Systems** by alloying and cross linking diverse designs to suit individual requirements and import substitutes.



EVEREST
 PRESSURE & VACUUM SYSTEMS

Corporate Office: B 44, Mayapuri Industrial Area, Phase 1, New Delhi 110 064, India
 T: +91 11 4545 7777 | E: sales@everestvacuum.com

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