SVC

Dry Screw Vacuum Pump & System

Vacuum Solution by **Screwstar**

PARTNERING CHEMICAL & INDUSTRIAL PROCESSES WITH DRY VACUUM EXPERTISE

"**SVC**" is established on advanced technologies and management philosophy of value creation with customers through New Adventure, New Technology, New Mechanism and an specialized company which manufactures global level vacuum pump and system.

SVC has been designing, manufacturing and supplying important process of Dry Screw Vacuum Pump & System, Liquid Ring Vacuum Pump & System and Steam Ejector system. New technology of ***Screwstar*** Dry Screw Vacuum Pump has been exporting to global markets such as USA, EU, China, India and satisfying customers of local leading companies.

SVC is doing their best with aiming of providing the best ***Vacuum Solution*** to give customer satisfaction based on over 30 years accumulated various experiences & data of specialized application know-how and perfect commissioning of company members in Chemical and General Industries.

Screwstar

DRY SCREW VACUUM PUMP

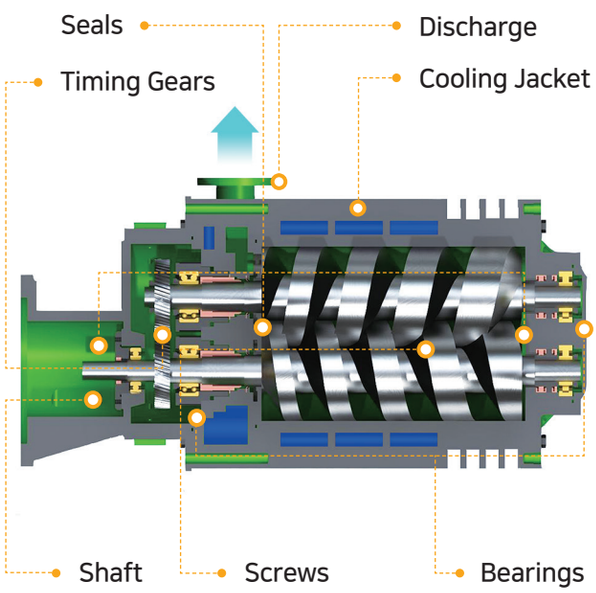
OPERATING PRINCIPLE

The screw developed by improving the mechanical problems caused by high temperature and high power consumption of Single Pitch Screw and caused by the accumulation of process gas due to narrow gap of pitch at the rear end of Variable Pitch Screw.

FEATURES & CHARACTERISTICS

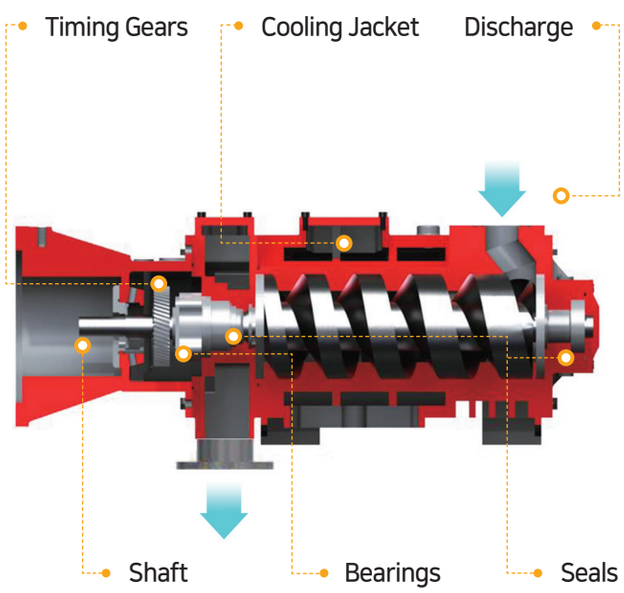
- Hybrid Combined Variable Pitch
- Minimizing Condensation by Special Casing Mechanism (Patented)
- Enhanced Durability with Special Coating
- Enhanced Durability with Special Sealing Mechanism
- Enhanced Durability with Special Flushing Mechanism
- Stability with Low Discharge Temperature
- Minimizing condensation by Hot Pumping
- Applied operating temperature control(TCV) and Prevention of Overheating(TE)
- Cooling Gas is Not Necessary
- Minimizing Power Consumption with Power-saving Design

Horizontal Type



< Top View >

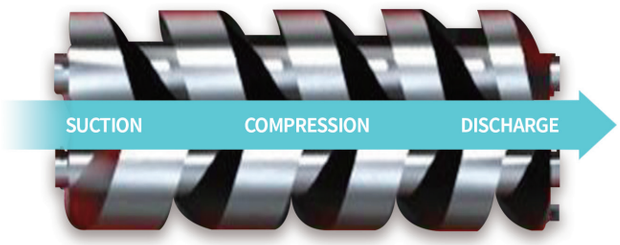
Vertical Type



< Side View >

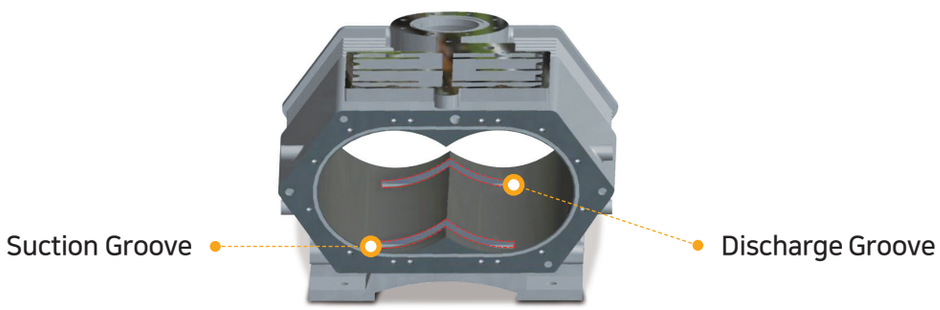
PATENTED HYBRID COMBINED VARIABLE PITCH SCREW

Screwstar☆ rotates non-contact with two screw rotors in pair and maintaining constant gap. It forms a vacuum based on the basic principle of inhaling, compressing, and exhausting through two small pitches having constant gap after passing through two large pitches having constant gap in the suction section and one variable pitch in intermediate section.



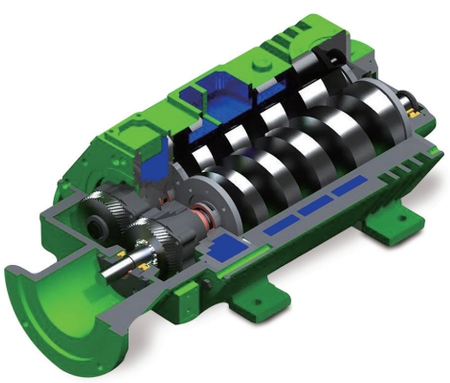
PATENTED SPECIAL CASING MECHANISM

Suction Groove minimizes corrosion by minimizing condensation between the first and second stage screws of the Dry Screw Vacuum Pump, and Discharge Groove minimizes corrosion and wear by smoothly discharging process gas.



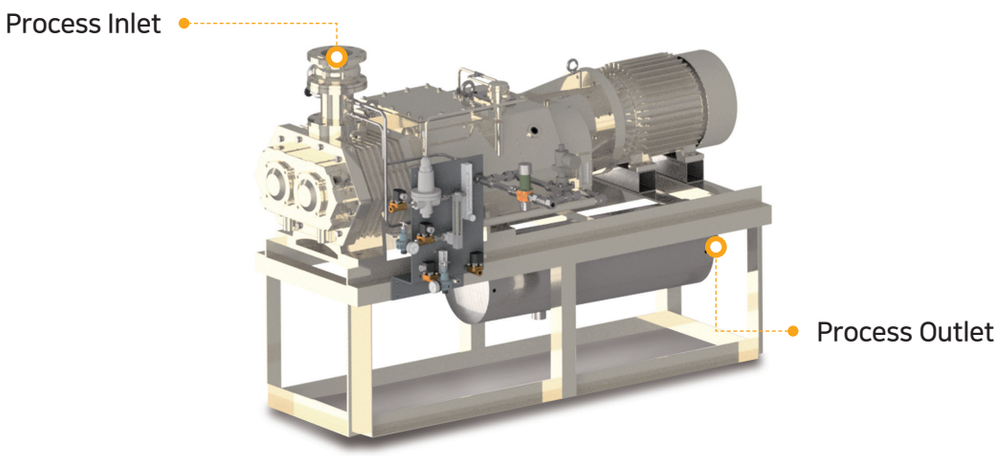
PATENTED COOLING MECHANISM & HOT WATER COOLING MECHANISM

- Hydrodynamic spiral jacket cooling mechanism is applied to maximize cooling effect and minimize installation area with vertical exhaust.
- Durability is enhanced by maintaining smooth exhaust without condensation of process gas inside the pump.



VERTICAL TYPE DRY SCREW VACUUM PUMP

■ The vertical exhaust smoothly discharges condensates such as corrosive substances, polymers, and oligomers to enhance the durability of the dry screw vacuum pump and minimize the installation area.



APPLICATIONS

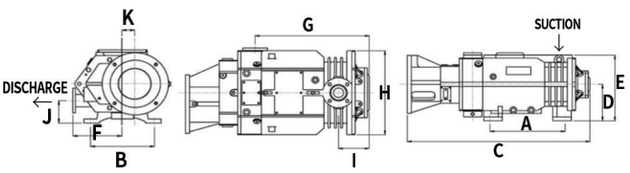
Application	CSS	VSS	RSS	HSS	LSS	SSS
Die Casting	○					
Distillation	○					
Drying	○					
Evaporation	○					
Extrusion	○					
Filtration	○					
Food			○			
Freezing Drying			○			
House Vacuum				○		
Impregnation	○					
LNG Stripping					○	
Molecular Distillation	○					
Pervaporation	○					
Poly-silicone	○					
Reacting	○					
Semiconductor & Electric				○		
Steel Degassing						○
Sterilization			○			
Vapor Recovery		○				

SPECIFICATION

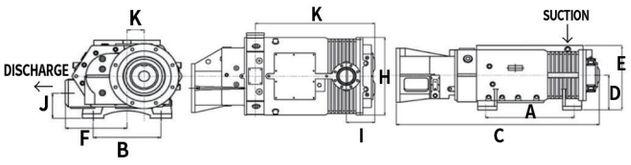
Description \ Model	SS150	SS300	SS400	SS800	SS1500	SS2000	SS3000
Displacement (m^3/hr, 50/60Hz)	110/130	250/300	330/400	660/800	1,250/1,500	1,850/2,150	2,250/2,700
Ultimate Pressure (Torr)	5 X 10^{-2}	7.5 X 10^{-3}	7.5 X 10^{-3}	7.5 X 10^{-3}	5 X 10^{-2}	5 X 10^{-2}	5 X 10^{-2}
Standard Motor (kW, 50/60Hz)	3.7/3.7	7.5/7.5	7.5/11	15/18.5	30/37	55/55	45/55*
Rotation (Max. rpm, 50/60Hz)	2,900/3,500	2,900/3,500	2,900/3,500	2,900/3,500	1,450/1,750	2,900/3,500	1,450/1,750
Connection (ANSI, Inlet/Outlet)	1 1/2" 1 1/2"	2" 1 1/2"	2 1/2" 2"	4" 2 1/2"	5" 3"	5" 4"	6" 4"
Cooling Water Flow (l/min)	5~10	10~15	10~15	15~20	30~40	40~50	40~50
Gear Oil Capacity (l/min)	1	2	2	2.5	8	15	10
Seal Type	HV(Suction) : Double Lip Seal + Double Lip Seal(Special Double Seal) LV(Discharge) : Gas Purge + Double Lip Seal + Drain Chamber+ Groove + Mechanical Seal						
Approx.. Weight (Bare Shaft, kg)	200	340	450	630	1,500	1,550	2,200

■ According to application and process conditions, higher standard motor can be considered.

DIMENSION



SS150 / 300 / 400 / 800

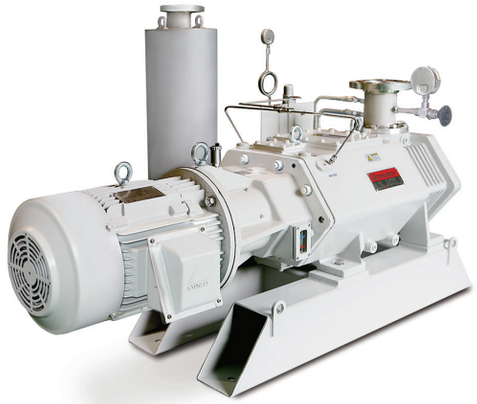


SS1500 / 3000

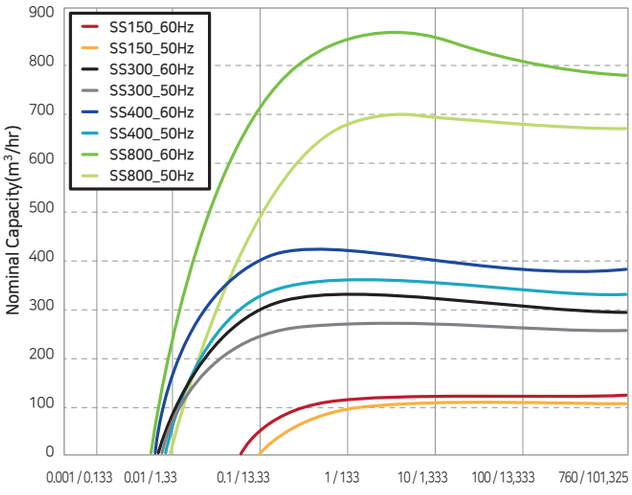
Description \ Model	SS150	SS300	SS400	SS800	SS1500	SS2000	SS3000
A	262	367	416	493	694	694	880
B	210	290	310	348	440	470	470
C	723	947	1045	1170	1592	1632	1838
D	144	180	202	212	290	290	390
E	260	342	367	391	538	563	800
F	170	222	260	295	400	406	446
G	435	552	626	704	1037	1060	1240
H	316	432	483	544	717	717	820
I	124	148	161	193	248	253	266
J	74	109	106	116	180	180	210
K	42.5	58	63.5	73	110	110	125
Suction Port	ANSI 1 1/2"	ANSI 2"	ANSI 2 1/2"	ANSI 4"	ANSI 5"	ANSI 5"	ANSI 6"
Discharge Port	ANSI 1 1/2"	ANSI 1 1/2"	ANSI 2"	ANSI 2 1/2"	ANSI 3"	ANSI 4"	ANSI 4"

Screwstar SERIES

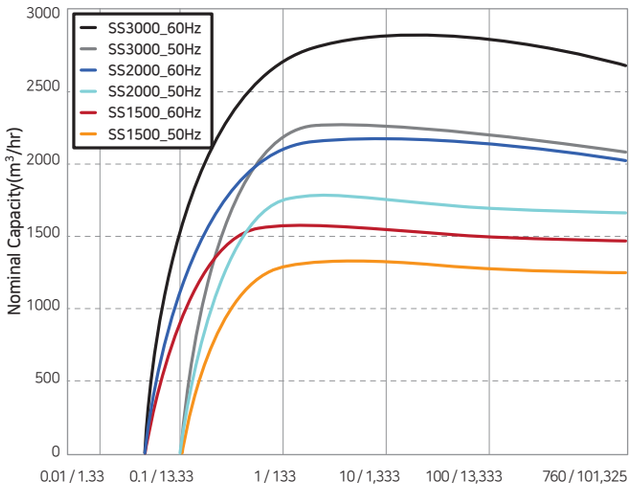
- CSS Series : Chemical
- RSS Series : General Industry
- HSS Series : Process Vacuum
- LSS Series : LNG Stripping
- SSS Series : Steel Degassing
- VSS Series : Tank Terminal(VRU) & VOCs Industries



PERFORMANCE CURVE



* Performance based on ambient condition, tolerance ±10%



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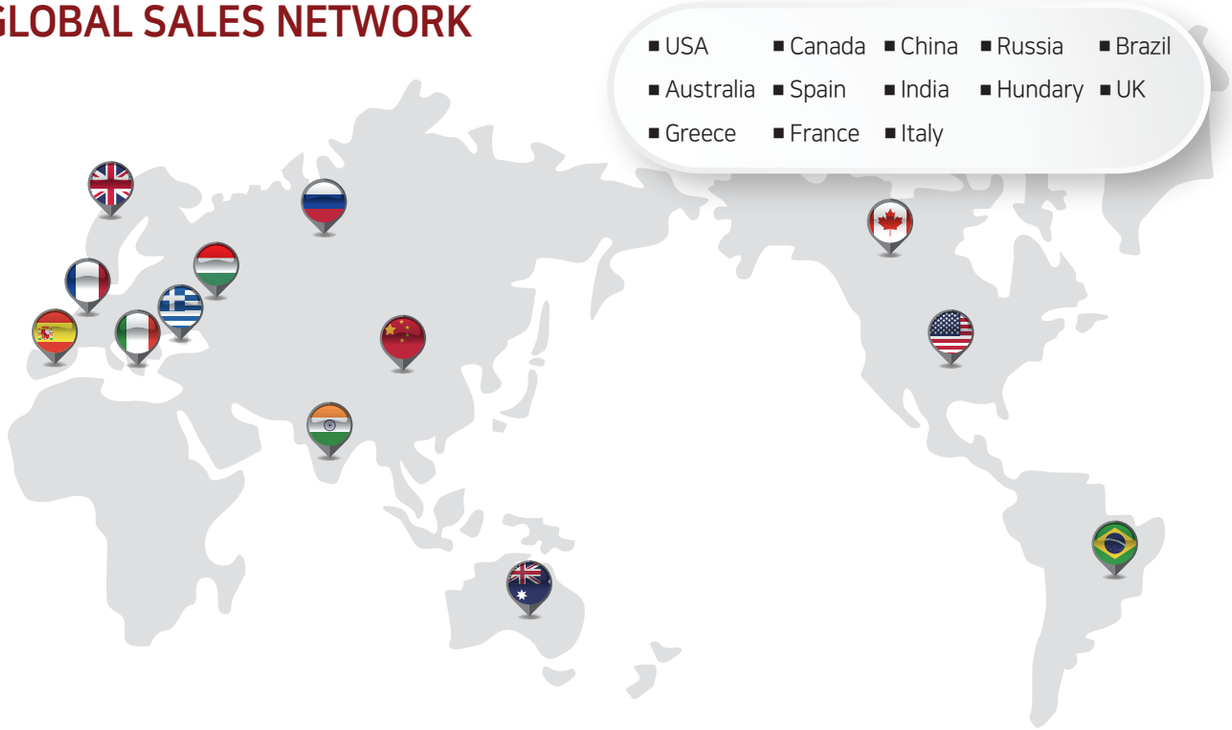
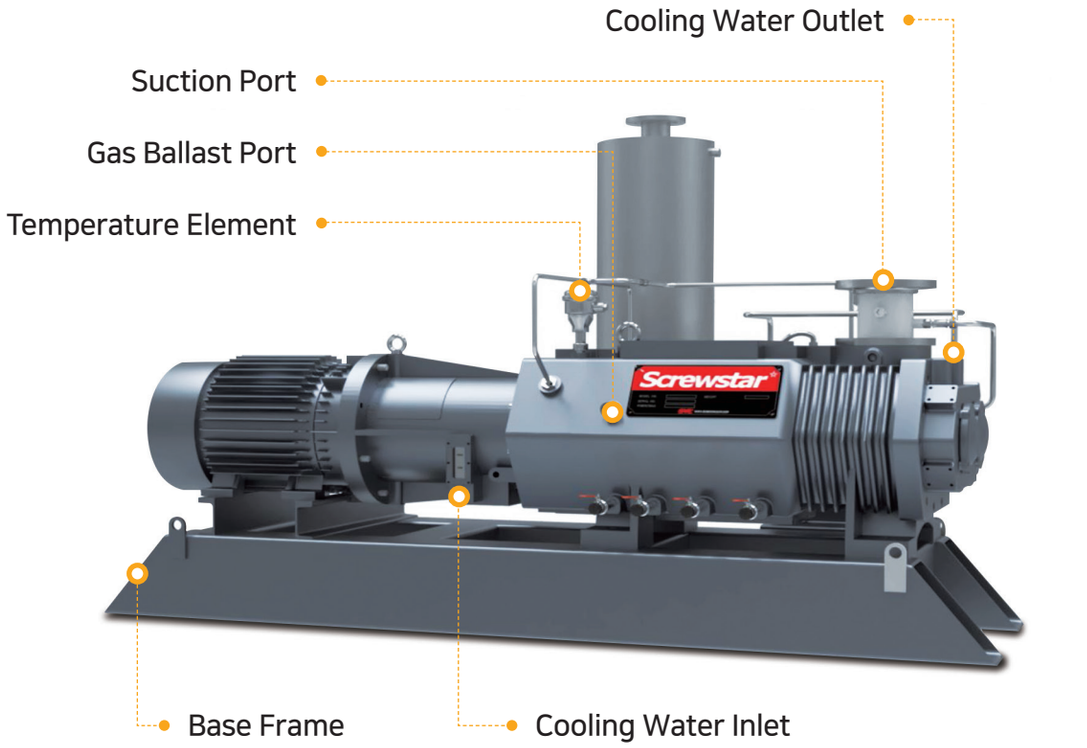
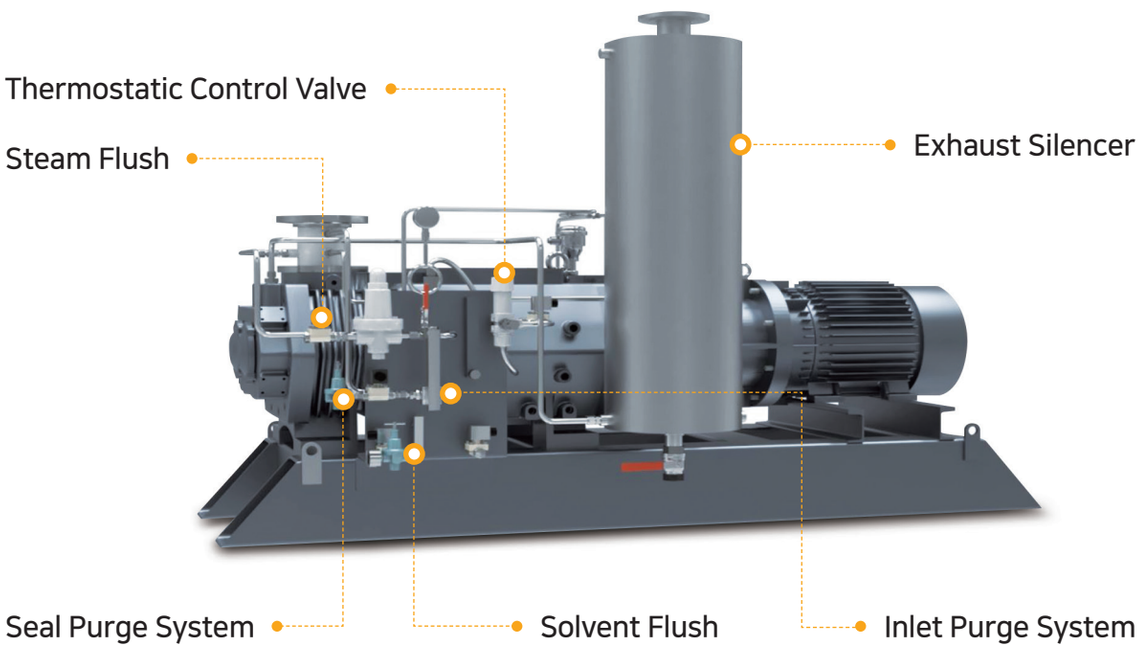
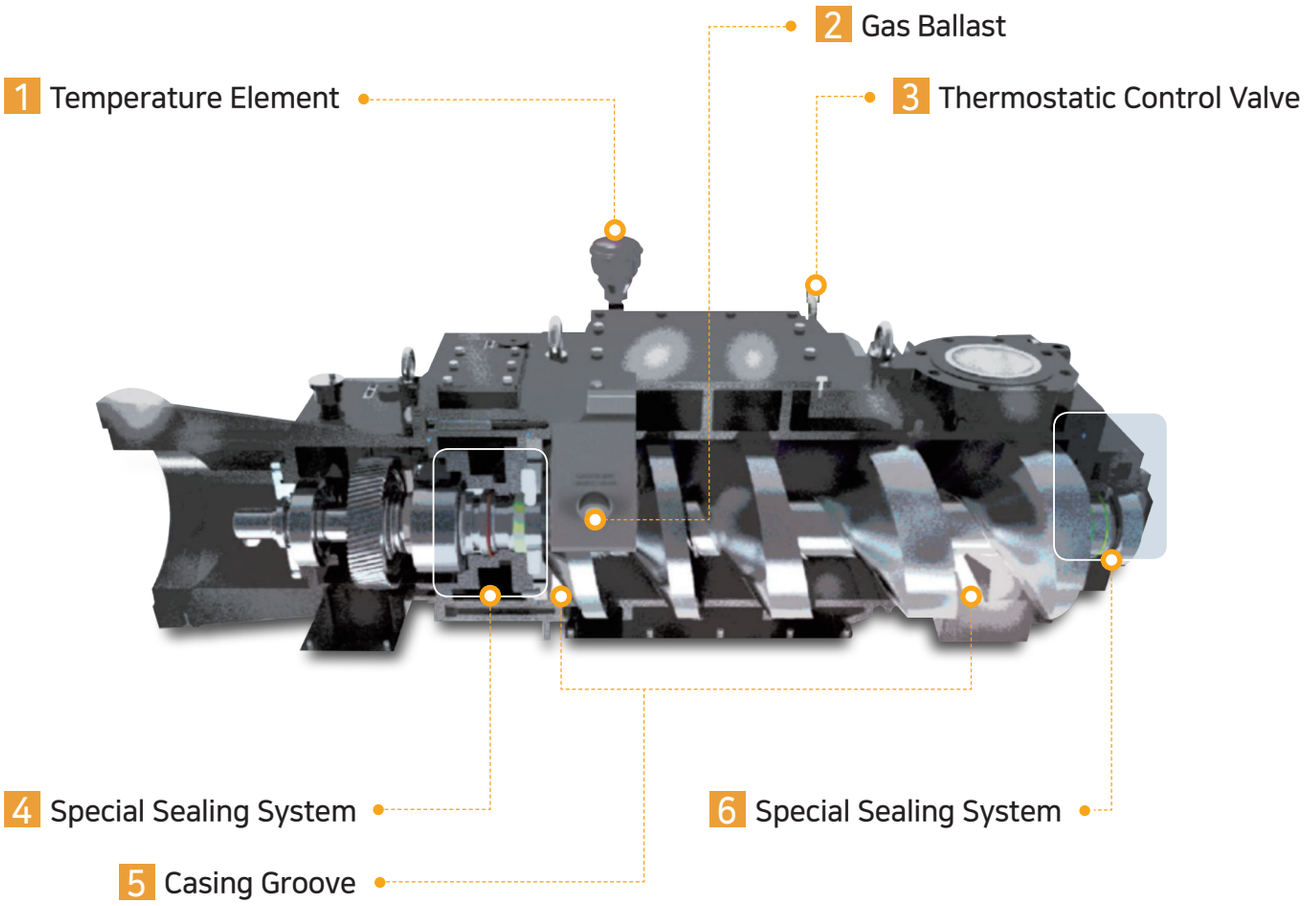
GLOBAL SALES NETWORK



DRY SCREW VACUUM PUMP SYSTEM







1 Temperature Element

- Prevents mechanical damage from overheating and protects a vacuum pump by temperature monitoring

2 Gas Ballast

- Prevents a vacuum pump from damage due to condensation by discharging condensates smoothly

3 Thermostatic Control Valve

- Hot pumping by controlling the amount of cooling water minimizes condensation and prevents pump damage

4 Special Sealing System

- 1.5 times longer mechanical seal life than other competitors by applying gas purge, double lip seal, drain chamber, and groove

5 Casing Groove

- Prevents damage to the pump by minimizing corrosion and abrasion by preventing condensation of process gas and smoothly discharging dust, powder, etc

6 Special Sealing System

- Special Double Seal is applied to enhance durability of bearing by preventing the inflow of process gas during initial startup and operation

DRY SCREW VACUUM PUMPING SYSTEM

In various processes, a booster pump is combined when a single vacuum pump does not achieve sufficient capacity or not reach to maximum target vacuum level. In addition, when process gas or Vapor needs to be pre-treated to meet process conditions, for example, Condenser, Receiver, Knock out ports, Filters, Control panels, etc. can be configured as a vacuum system.
SVC provides a comprehensive solution to meet the requirements of the customer's process based on our long experience in designing, manufacturing, and installing vacuum systems.

INTRODUCTION TO MECHANICAL BOOSTER

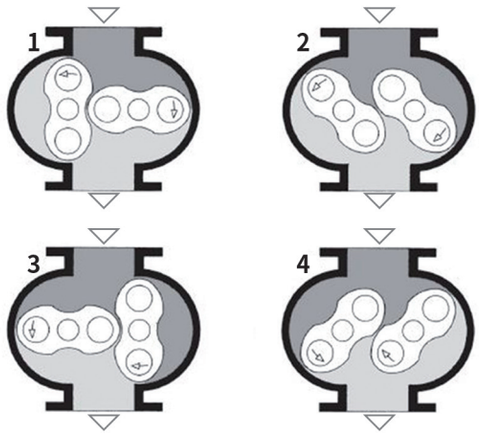
Dry screw vacuum pump works well in combination with mechanical booster pump.
The mechanical booster pump is a pump that dramatically increases the pumping speed.
The pump increases the pumping speed drastically in the pressure range where the pumping speed of the dry screw vacuum pump decreases by combining with a dry screw vacuum pump.

SPECIFICATION

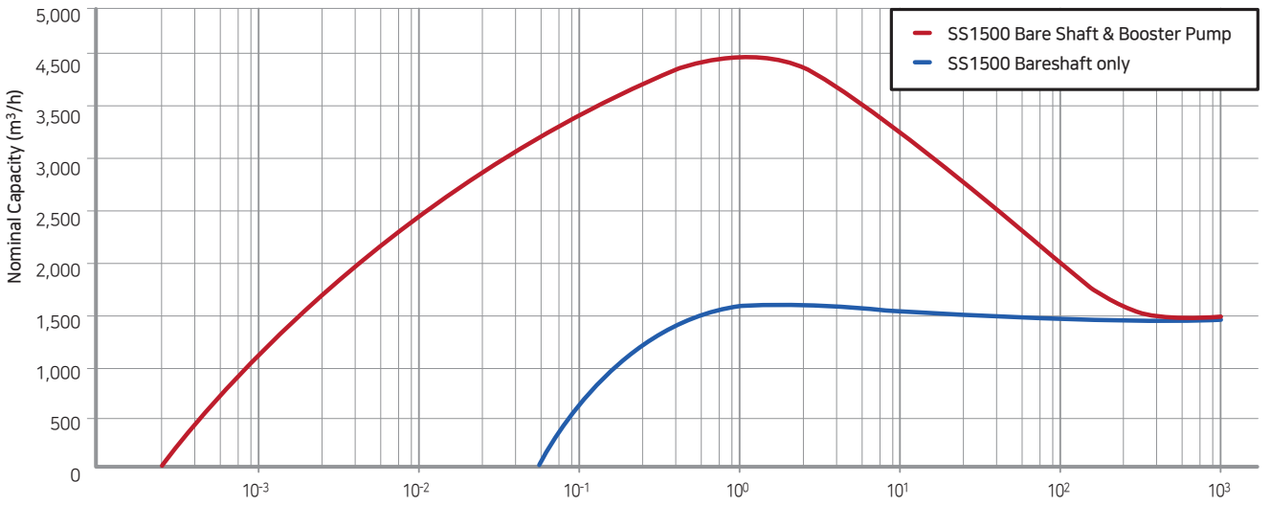
Description \ Booster Displacement		1,435m^3/hr	3,110m^3/hr	4,985m^3/hr	8,640m^3/hr
Effective Pumping Capacity	SS150 (m^3/hr, 60Hz)	1,140			
	SS300 (m^3/hr, 60Hz)	1,160	2,280	3,480	
	SS400 (m^3/hr, 60Hz)		2,400	3,600	
	SS800 (m^3/hr, 60Hz)		2,700	4,100	6,750
Typical Ultimate Pressure (Torr, 60Hz)		7.5×10^{-4}			3×10^{-4}
Motor Power (kW, 60Hz)		3.7	7.5	7.5	18.5
Cooling Water (l/h)		180	360	360	900
Weight (kg)		149	308	400	570

MECHANISM OF MECHANICAL BOOSTER

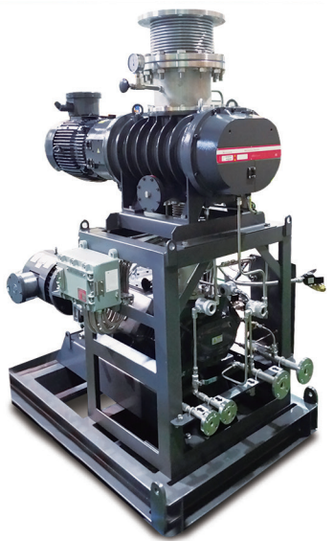
During rotation, a progressively growing space is created which corresponds to the suction stage: phases 1 and 2, being gradually decreased phases 3 and 4, compressing the volume of gas.
This cycle is repeated four times per each complete rotation of the drive shaft.



BOOSTER IMPACT



Performance based on ambient condition, tolerance ±10%



SVC

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