



VACUUM PUMP

NEW MDP-V
MDP/SLT
SDV/SDF

DRY



TAIKO KIKAI INDUSTRIES CO., LTD.

Create & Challenge

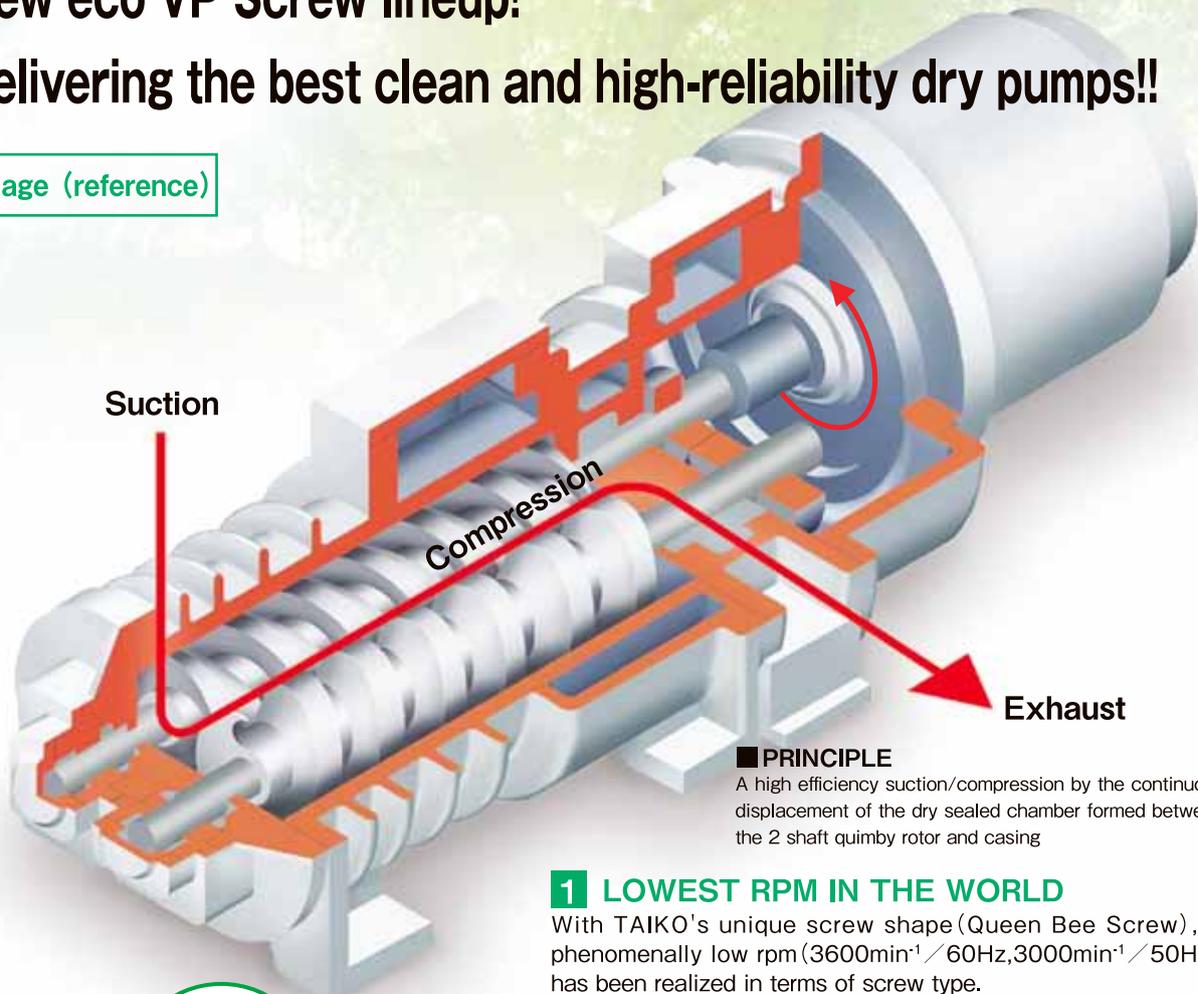
Create & Challenge

The Queen Bee Screw - globally recognized performance...

New eco VP Screw lineup!

Delivering the best clean and high-reliability dry pumps!!

Image (reference)



PRINCIPLE

A high efficiency suction/compression by the continuous displacement of the dry sealed chamber formed between the 2 shaft quimby rotor and casing

1 LOWEST RPM IN THE WORLD

With TAIKO's unique screw shape (Queen Bee Screw), a phenomenally low rpm (3600min⁻¹ / 60Hz, 3000min⁻¹ / 50Hz) has been realized in terms of screw type.

- ① Long life span of bearings, shaft seals and timing gears
- ② Low Noise
- ③ Low Vibration

Low rpm gives you the following benefits to obtain performance stabilization.

2 EXCELLENT PERFORMANCE OF EXHAUSTING SOLID MATERIALS

Condensate and dust are effectively discharged without residue inside the pump.

3 SIMPLE STRUCTURE

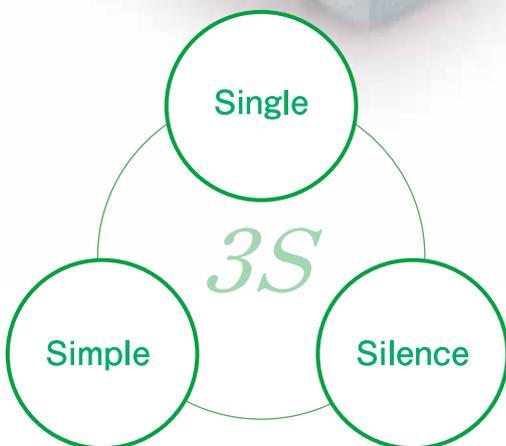
Extremely simplified structure with less parts allowing for easy assembling and disassembling.

4 SUPERIOR 10⁻¹Pa ORDER OF ULTIMATE PRESSURE

Ultimate pressure of 10⁻¹ Pa can be achieved with low rpm which meets a continual operation under every pressure area ranging from atmospheric pressure to ultimate pressure.

5 HANDLES CORROSIVE GASES

Materials in contact with process gas are special coated which develops superior corrosion resistivity. Upgraded version with metal plating is also available.



Single is tough and long life!!

Simple is easy for maintenance!!

Silence achieves low noise by low speed/high balance rotor!!

(Patent Obtained)

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	Model	Pumping Speed	Characteristics		Page	Applications
MDP-V series	MDP-680V	5500/6500	Harsh Process	Energy-saving Specification	3~4	Si Crystal Pulling Drying Freeze Drying Solvent Recovery Distillation
	MDP-1015V	10000/12000				
	MDP-1225V	18000/22000				
MDP series	MDP-415A	1100/1400	Harsh Process	Specification of Standard	5~6	Concentration Vacuum furnace Molding Impregnation PSA Degassing Deaeration Packaging Absorption Miscellaneous Vacuum Other
	MDP-535A	2500/3000				
	MDP-680	5000/6200				
	MDP-1015	9000/11000				
	MDP-1550K	27000/35000				
SLT series	SLT-413A	1100/1400	Harsh Process	Long screw Specification		
	SLT-513A	2500/3000				
SDV series	SDV-25	500	Light Process	Specification of Standard	7~8	Vacuum washer Drying Molding Impregnation Degassing Deaeration Packaging Absorption Miscellaneous Vacuum Other
	SDV-30	850				
	SDV-30S	1100				
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	SDV-65	5000/6200				
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Vacuum Pump Specification Selection Form (for quotation)						

The screw-type dry vacuum pumps for semiconductor, FPD, and solar panel manufacturing processes are a separate series.

eco VP Screw

The Queen Bee Screw has evolved to create the **eco VP Screw**, beginning a new age of vacuum pumps!! The long-awaited “V” series has been added to the world-famous MDP series!!

This series maintains the high durability of the MDP series, while also delivering energy savings and a large reduction in running costs.

FEATURE

- 1.Up to approximately 20% reduction in power consumption (comparison with our company's products)
- 2.Up to a 100% reduction in N2 gas used for cooling (Gas recovery is possible when cooling N2 gas is set to zero.)
- 3.Parts are interchangeable with earlier MDP Series models.

SPECIFICATION

Upper 60Hz
Lower 50Hz

Model	Bore IN/OUT	Maximum Pumping Speed ℓ/min [Note1]	Ultimate Pressure Pa	Motor Rating kW×P	Minimum Power kW	Diluent Gas Flow ℓ/min	Lubrication Oil Amount ℓ	Cooling Water Amount ℓ/min
MDP-680V	65A/50A	6500	1.0	11×2	7.8	Light Process:0 Standard:25 Harsh Process:200 [Note1]	3.0	6
		5500	2.0	7.5×2	6.7			
MDP-1015V	100A/65A	12000	1.0	22×2	16.8	Light Process:0 Standard:50 Harsh Process:400 [Note1]	3.5	12
		10000	2.0	18.5×2	15.0			
MDP-1225V	125A/80A	22000	0.5	37×2	18.3	Light Process:0 Standard:100 Harsh Process:400 [Note1]	3.5	15
		18000	1.0	30×2	16.7			

[Note 1] The diluent gas flow must be adjusted to match the customer's specifications.

[Note 2] If you intend to use a MDP-V Series model outside of Japan, please consult with our company in advance.

MATERIAL TABLE

Wetted Part	Standard	Corrosion-Resistant (Z)	Corrosion-Resistant (C)
Casing	FCD450+Special Coating	FCD450+Electroless Ni plating	FCD450+Clean S
Rotorshaft	FCD450+Special Coating	FCD450+Electroless Ni plating	FCD450+Clean S
Gas Seal	PTFE Dry Lip Seal	PTFE Dry Lip Seal	PTFE Dry Lip Seal
Gasket (O-ring)	Fluororubber (Kalrez , PTFE and EPDM is available)		

COOLING WATER

Use water based on the Japanese Industrial Water Quality Standard at temperature between 5~32°C and pressure 0.2~0.4MpaG. Pure Water cannot be used.

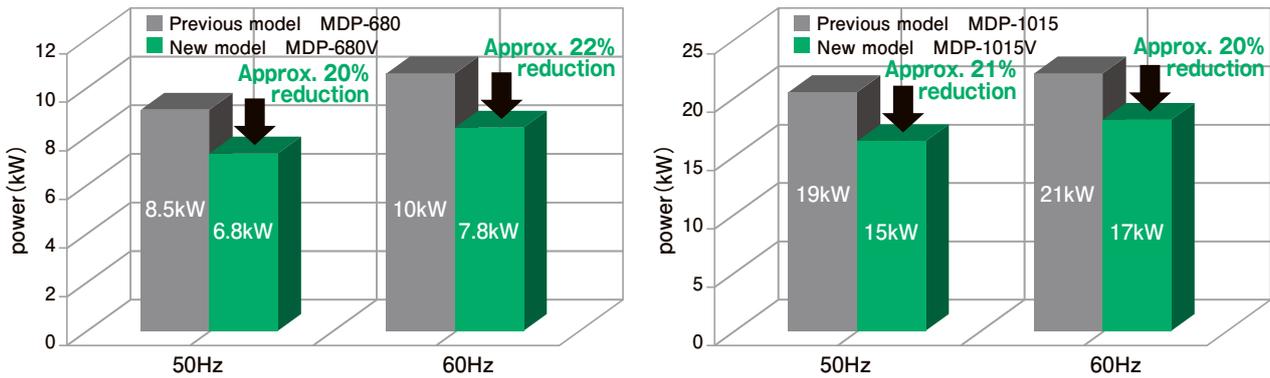
LUBRICATION OIL

Genuine Oil Mineral Oil : SHELL Tellus S2M68
Fluorine Oil : FOMBLIN Y14/6RP
Note : Standard is mineral oil

INLET GAS TEMPERATURE

Inlet Gas Temperature shall be 0~40°C. In the case the temperature exceeds the range, please consult to Taiko Kikai.

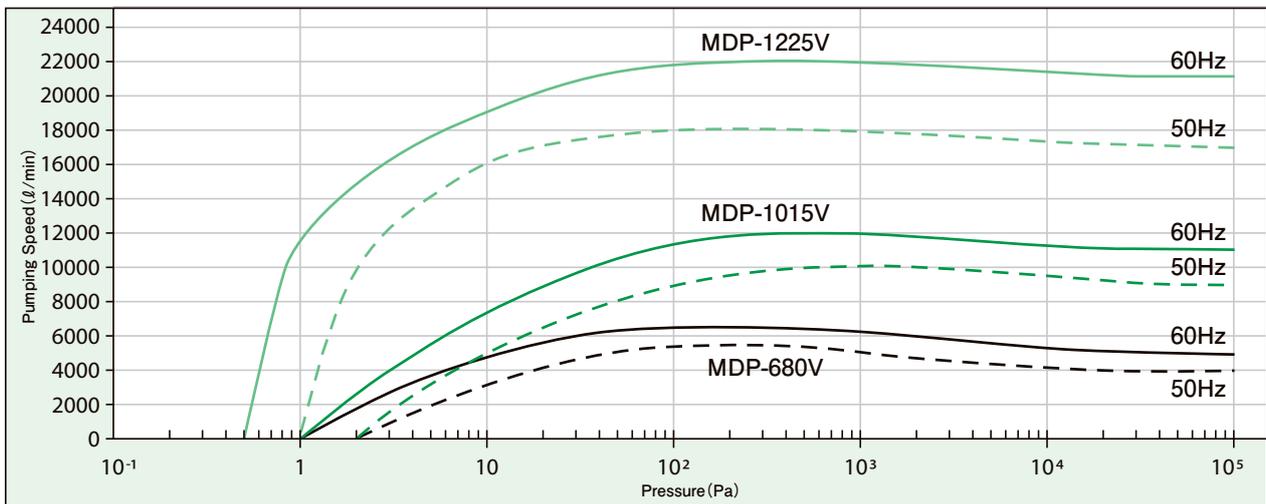
COMPARISON OF POWER CONSUMPTION [Note]



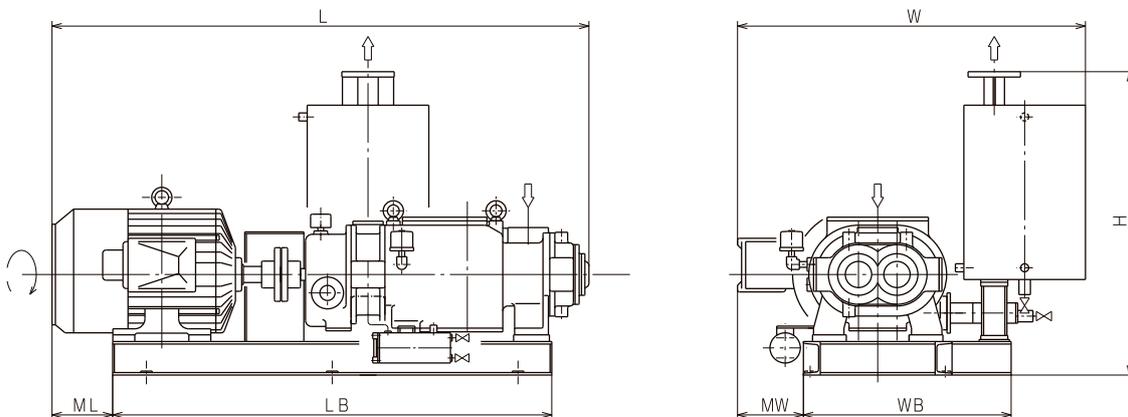
[Note] The power varies depending on the specifications.
 (This figure shows a case with vacuum = 2 kPa, back pressure = atmospheric pressure, and the use of a countercooling filter.)

PERFORMANCE

ESTIMATED PERFORMANCE CURVE



DIMENSION



Dimension Table (mm)								Estimated Mass (kg)
Model	L	LB	ML	W	WB	MW	H	
MDP-680V	1600	1300	180	1040	615	200	905	640
MDP-1015V	1890	1550	200	1180	765	190	1020	1230
MDP-1225V	1980	1680	190	1420	970	170	1256	1780

[Note] The approximate weight includes the weight of the motor.

SPECIFICATION

SPECIFICATION TABLE (Standard)

Upper 60Hz
Lower 50Hz

Model	Bore IN/OUT	Pumping Speed ℓ/min	Ultimate Pressure Pa	Motor Rating kW×P	Lubrication Oil Amount ℓ	Cooling Water Amount ℓ/min
MDP-415A	40A/40A	1400	40	3.7×2	1.0	2.0 (4.0)
		1100	80	3.7×2		
SLT-413A	40A/40A	1400	1.0	3.7×2	1.0	2.0 (4.0)
		1100	1.3	3.7×2		
MDP-535A	50A/40A	3000	13	7.5×2	1.5	4.0 (8.0)
		2500	50	5.5×2		
SLT-513A	50A/40A	3000	0.7	7.5×2	1.5	4.0 (8.0)
		2500	1.0	5.5×2		
MDP-680	65A/50A	6200	1.0	15×2	3.0	6.0 (12.0)
		5000	1.3	11×2		
MDP-1015	100A/65A	11000	0.7	30×2	3.5	12.0 (12.0+12.0)
		9000	1.0	22×2		
MDP-1550K	150A/100A	35000	50	90×4	14.5	30.0 (30.0+90.0)
		27000	100	75×4		

Note : () in the case fitted with reverse cooler

MATERIAL TABLE

Wetted Part	Standard	Corrosion-Resistant (Z)	Corrosion-Resistant (C)
Casing	MDP FCD450+Special Coating SLT FC200+Special Coating	FCD450+Electroless Ni plating	FCD450+Clean S
Rotorshaft	FCD450+Special Coating	FCD450+Electroless Ni plating	FCD450+Clean S
Gas Seal	PTFE Dry Lip Seal	PTFE Dry Lip Seal	PTFE Dry Lip Seal
Gasket (O-ring)	Fluororubber (Kalrez , PTFE and EPDM is available)		

Note : There are models that cannot fulfill the corrosion-resistant requirement.

COOLING WATER

Use water based on the Japanese Industrial Water Quality Standard at temperature between 5~32°C and pressure 0.2~0.4MpaG. Pure Water cannot be used.

LUBRICATION OIL

Genuine Oil Mineral Oil : SHELL Tellus S2M68
Fluorine Oil : FOMBLIN Y14/6RP
Note : Standard is mineral oil

INLET GAS TEMPERATURE

Inlet Gas Temperature shall be 0~40°C.
In the case the temperature exceeds the range, please consult to Taiko Kikai.

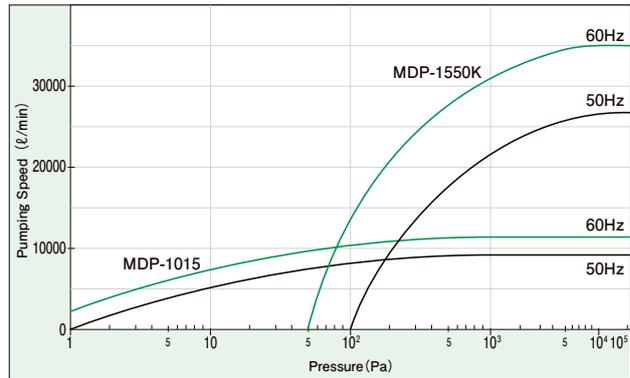
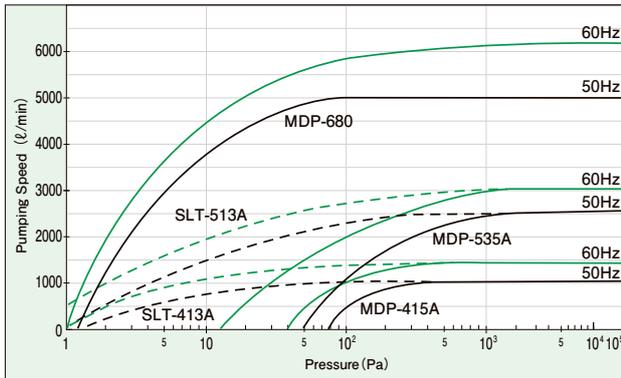
COOLING GAS

Cooling gas (reverse cooling gas) below 40°C is required in order to cool the high compression ratio of the machine. Select from the below:

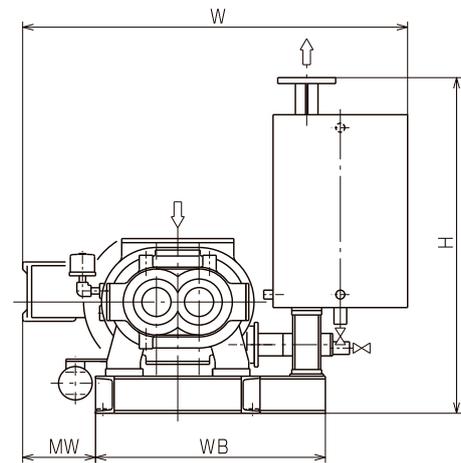
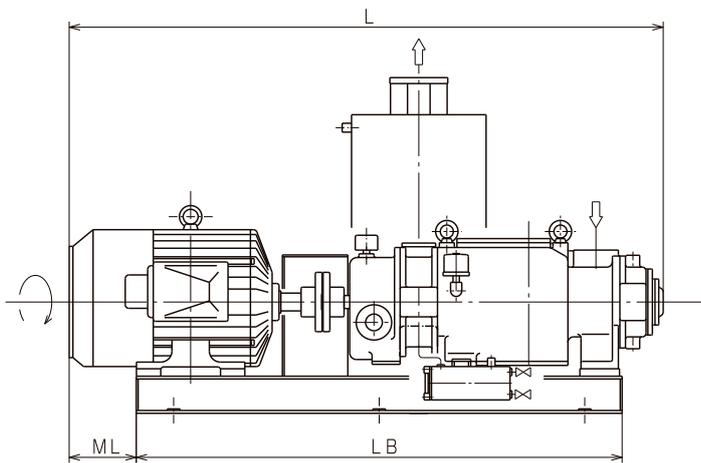
- (1) Atmospheric Self-Suctioning Type
Not suitable for handling hazardous gas as the type is self-suctioned through a filter by air
- (2) N₂ Gas Purge Type
Provides a purge unit (only available below MDP-1015)
- (3) Cooler Type
Cools the exhaust gas for pumping in.

PERFORMANCE

ESTIMATED PERFORMANCE CURVE



DIMENSION



Dimension Table (mm)								Estimated Mass (kg)
Model	L	LB	ML	W	WB	MW	H	
MDP-415A	1090	900	95	840	515	115	862	290
SLT-413A	1160	960	95	840	515	115	862	320
MDP-535A	1370	1100	160	900	545	145	840	420
SLT-513A	1560	1300	145	900	545	145	840	450
MDP-680	1600	1300	180	1040	615	200	905	640
MDP-1015	1890	1550	200	1180	765	190	1020	1230
MDP-1550K	3000	2300	300	1600	1200	120	1580	3500

[Note] The approximate weight includes the weight of the motor.

SPECIFICATION

Model	IN Bore	OUT Bore	Pumping Speed ℓ/min	Ultimate Pressure Pa	Motor Rating kW×P	Rotating Speed min ⁻¹	Lubrication Oil Amount ℓ	Cooling Water Amount ℓ/min
SDV-25	VG25	25A(R1)	500	300	1.5×2	2900	0.6	2
SDF-25	VG25	25A(R1)	500	300	1.5×2	2900	0.6	Air-cooled
SDV-30	VG25	25A(R1)	850	30	2.2×2	2900	0.6	2
SDF-30	VG25	25A(R1)	850	30	2.2×2	2900	0.6	Air-cooled
SDV-30S	VG25	25A(R1)	1100	30	3.7×2	3500	0.6	2
SDV-40	VG40	32A(R1-1/4)	1900	20	3.7×2	2400	1.0	4
SDV-40S	VG40	32A(R1-1/4)	2800	20	5.5×2	3500	1.0	4
SDV-50	VG50	VG40	2400/2900	300/130	5.5×2	2900/3550	1.0	4
SDV-65	VG65	VG50	5000/6200	90/35	11×2	2900/3550	2.0	6
SDV-100	VG100	VG65	9700/11500	60/25	18.5/22×2	2900/3550	5.0	12

[Note]The SDV-100 motor rating is 18.5 kW at 50 Hz and 22 kW at 60 Hz.

MATERIAL TABLE

Wetted Part	Standard
Casing	FC200+Special Coating
Rotorshaft	FCD450+Special Coating
Gas Seal	PTFE Dry Lip Seal

COOLING WATER

Use water based on the Japanese Industrial Water Quality Standard at temperature between 5~32°C and pressure 0.2~0.4MpaG. Pure Water cannot be used.

LUBRICATION OIL

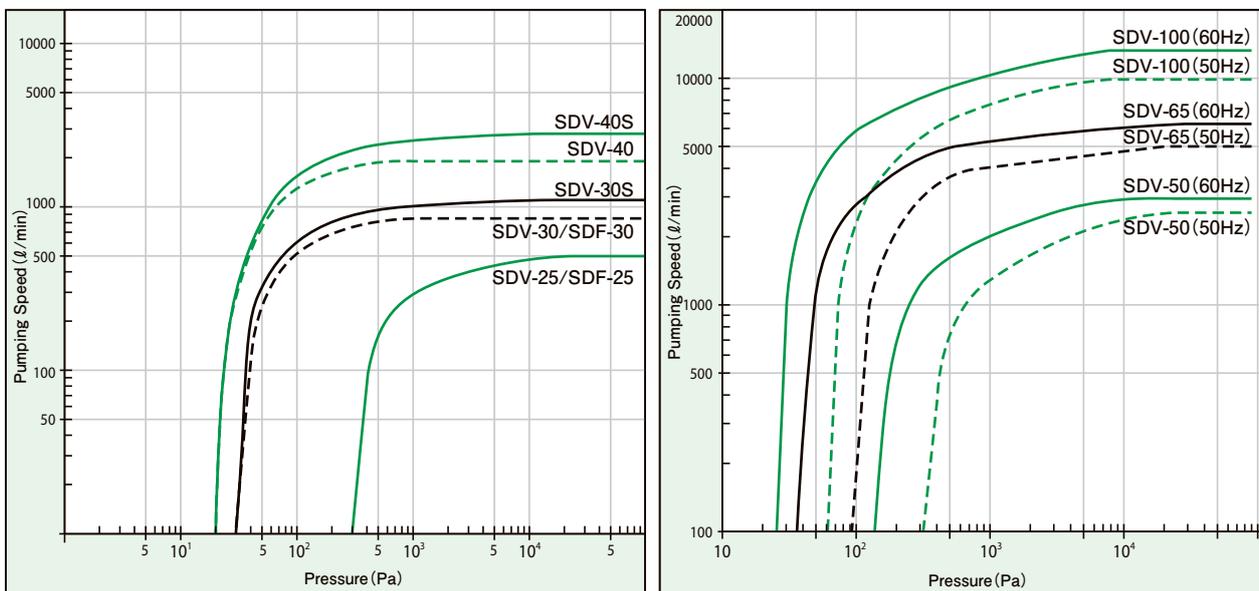
Genuine Oil Mineral Oil : SHELL Tellus S2M68

INLET GAS TEMPERATURE

Inlet Gas Temperature shall be 0~40°C. In the case the temperature exceeds the range, please consult to Taiko Kikai.

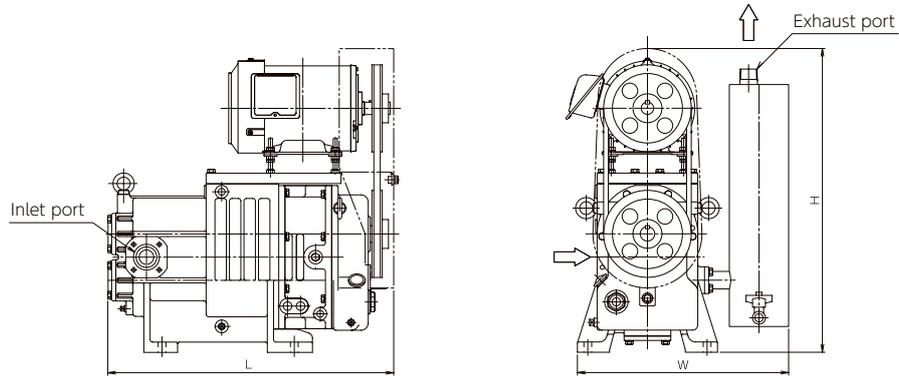
PERFORMANCE

ESTIMATED PERFORMANCE CURVE

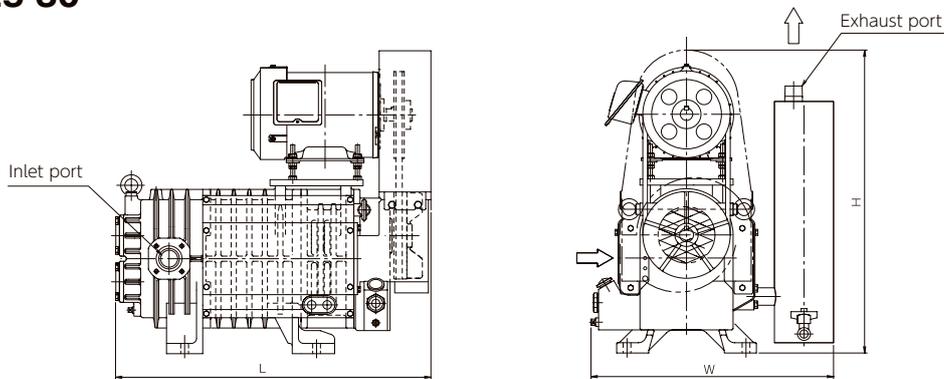


DIMENSION

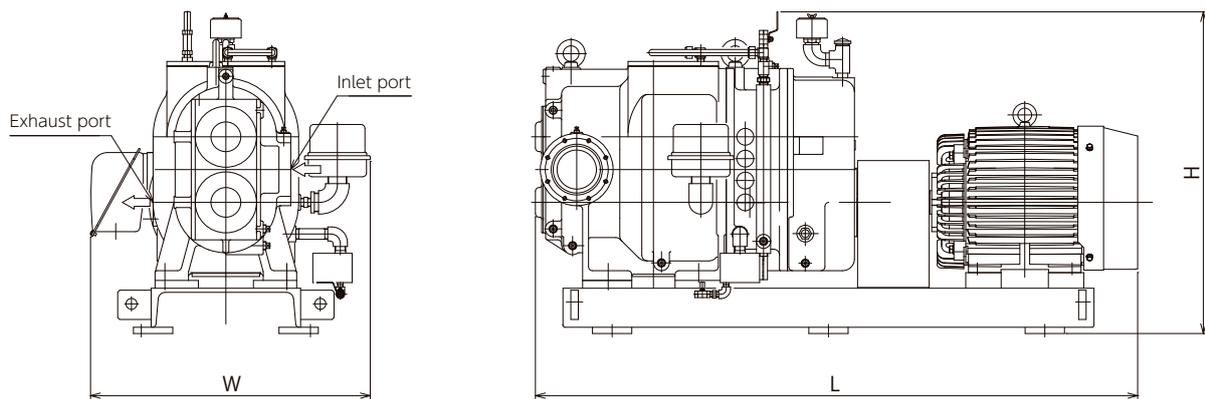
■SDV-25·30·30S·40·40S



■SDF-25·30



■SDV-50·65·100

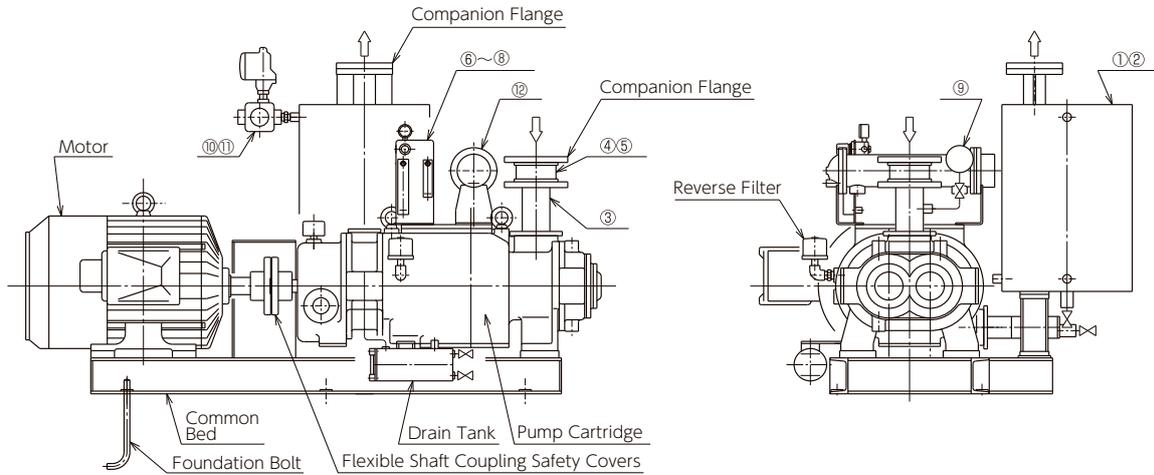


Model	SDV-25	SDF-25	SDV-30	SDF-30	SDV-30S	SDV-40	SDV-40S	SDV-50	SDV-65	SDV-100
Dimension Table(mm)										
W	435	475	435	475	460	540	570	445	525	675
L	475	495	595	615	570	850	800	1110	1380	1570
H	590	590	590	590	690	715	790	600	660	840
Estimated Mass (kg)	125kg	115kg	155kg	140kg	165kg	270kg	245kg	250kg	385kg	760kg

[Note] The approximate weight includes the weight of the motor.

ACCESSORY

REFERENCE DRAWING



STANDARD ACCESSORY

MDP-V series, MDP/SLT series

Common Bed · Flexible Shaft Coupling · Safety Covers · Companion Flange · Foundation Bolt · Reverse Filter (included only for atmospheric self-suctioning type) · Drain Tank

SDV-25~40S, SDF series

V-pulley · V-belt · Safety Covers · Silencer · Intake-side companion flange

SDV-50~100

Common Bed · Flexible Shaft Coupling · Safety Covers · Companion Flange · Reverse Filter

SPECIAL ACCESSORY TABLE

No.	Name of Accessory	Standard Material	Special Material	Bore · Size	Remark
①	Water Cooled Silencer	SS400	SUS304,316	40~100A	
②	Water Cooled Silencer	SS400	SUS304,316	40~100A	with a hole for cleaning
③	Suction Pipe	SUS304	SUS316	40~150A	
④	Check Valve	FC250 Fluororubber		40~150A	Mini-torque type
⑤	Check Valve	SCS13 Fluororubber	SCS14,PTFE	40~150A	Mini-torque type
⑥	N ₂ Purge Kit (A)	purge for cooling gas and shaft seal at the suction and discharge side			Regulator Pressure Gauge Flow Meter Fitting Plate Pipe Small Check Valve
⑦	N ₂ Purge Kit (B)	purge for shaft seal at the discharge side			
⑧	N ₂ Purge Kit (C)	purge for shaft seal at the suction and discharge side			
⑨	Bourdon Tube Pressure Gauge	SUS316			Ball Valve included
⑩	Cooling Water Flow Switch	CAC			Outdoor Type
⑪	Cooling Water Flow Switch	FCD450·FC200			Explosionproof Type
⑫	Reverse Cooler	SUS304 Fluororubber	SUS316 PTFE	1/2 · 3/4 · 32A	

Note 1: Make sure that a back stream prevention valve is provided and is linked with the vacuum pump at the suction side. The check valve indicated at the above chart is for complementary use.

Note 2: The SDV/SDF Series is for light processes, and ⑥ - ⑧ do not apply.

OTHERS

Vibrationproof Rubber, Electric Control Panel, Inlet/Outlet Flexible Joints, Hole in Anchor, Chemical Anchor, Large Drain Tank, Site Flow, Acoustical Panel



LARGE PUMPING
(Equipped with Mechanical Booster)



HARSH PROCESS
(Large Drain Tank · Solvent Drop Specification)



HARSH PROCESS
(Standard)



HARSH PROCESS
(Large Drain Tank · Reverse Cooler)



PACKAGED
(Muffling · Portable)



LIGHT PROCESS
(Standard)



LIGHT PROCESS
(Air-cooled Specification)

Screw Type Dry Vacuum Pump for Semiconductor Process (CVD,PVD,ETCHING etc...) is series separately.

Vacuum Pump Specification Selection Form (for quotation)

Company	Division			
	Name			
Address				
Telephone	E-mail			
FAX				
Application	Installation	Indoor · Outdoor	Quantity	
Handling Gas	Composition of Gas	A()% B()% C()%		
Temperature of Gas ()°C	Molecular Weight	Corrosivity	No / Yes()	
Other Characteristic	Flammable	Yes / No()	Pumping Speed	working pressure at()ℓ /min
Working Pressure ()Pa	Ultimate Pressure ()Pa	Back Pressure	Atmospheric Pressure ()MPaG	
Material of Casing	Standard · Z · C · Others()	Material of O-ring	Standard · PTFE · EPDM · Others()	
Three Phase Power Supply	()V × ()Hz	Cooling Water	()°C ()MPaG Industrial Water · Chilled Water · Others()	
N ₂ Gas	()MPaG ()°C MAX()Nℓ /min	Motor	Totally Enclosed Indoor · Totally Enclosed Outdoor · eG3 Indoor · eG3 Outdoor · d2G4 Indoor · d2G4 Outdoor Within Quoted Scope · Supplied by · None Preference of Maker : Yes / No()	
Driving Method of Motor	Direct on Line · Star-delter Drive · Others()	Paint Specification	Designation Yes / No()	
Equipment	Light Process · Harsh Process · Liquefaction · Package Others()	Special Accessory No.	○○○○○○○○○○○○○○○○○○ Others()	
Other Requirements				

⚠ CAUTION

- Depending on the handling gas, the best suitable materials and equipment shall be selected, but in such unlikely event of condensation, solidification and corrosion effects from the handling gas causes troubles, service charge will be required. Taiko Kikai shall not compensate for any secondary damages caused by the vacuum pump(s).
- Precautions against Pumping Special Gases : If you want to make a request for us to repair the dry pump(s) that have pumped special gases, please consult us in advance. Especially toxic gases (such as AsH₃ , PH₃ , HF)that have been pumped, customers are basically required to dismantle the pump(s) and clean before returning to Taiko Kikai for service work.

TAIKO KIKAI INDUSTRIES CO., LTD.

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