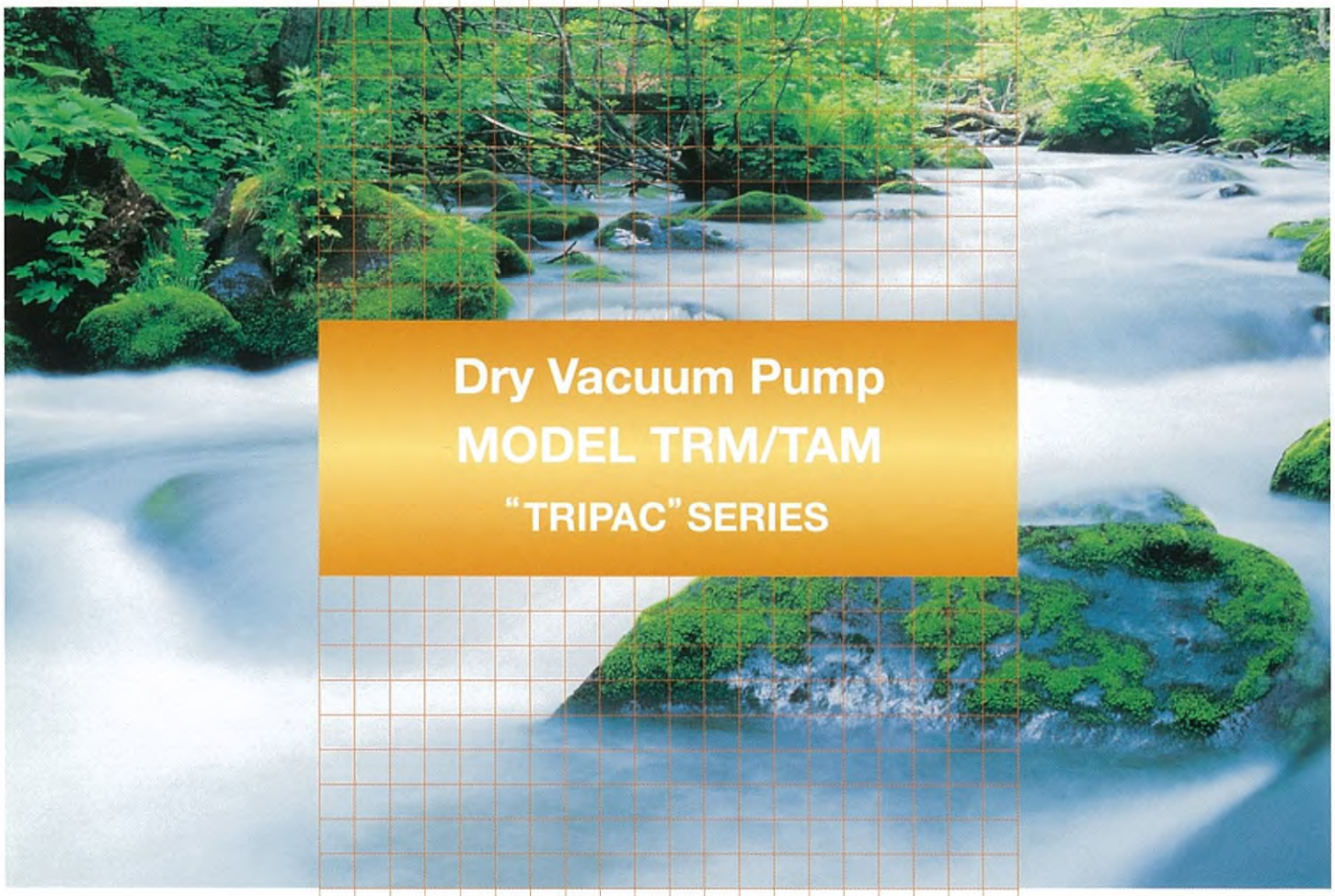
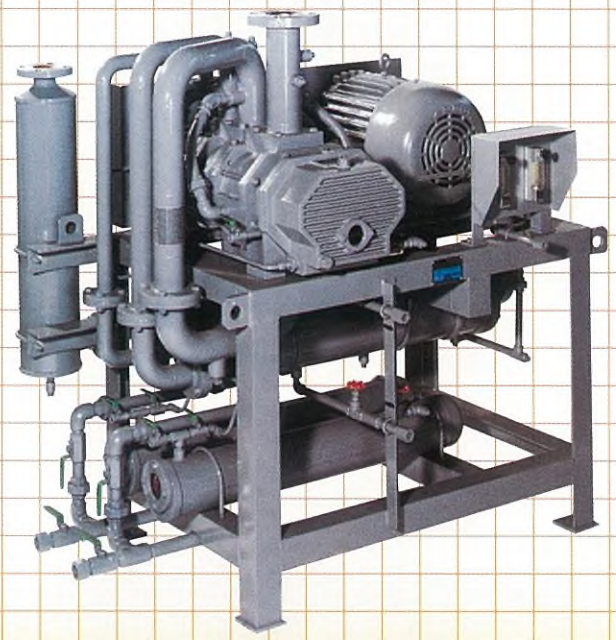
Unozawa

DRY VACUUM PUMP



Dry Vacuum Pump
MODEL TRM/TAM
"TRIPAC" SERIES



UNOZAWA-GUMI IRON WORKS,LTD.

DRY VACUUM PUMP MODEL TRM/TAM

We have been manufacturing the vacuum pump

model "TRM/TAM" for about 25 years.

The dry vacuum pump is multi-stage Roots type.

It is constricted as a three stage horizontal type with

intermediate heat exchangers.

The vacuum pump can be operated completely dry condition

at any suction pressure on the performance curve.

[TRIPAC] DRY

The intermediate heat exchangers insure easy solvent recovery.

The all pump equipments are equipped together on a common frame.

The pump capacity is about 2 m3/min to 21 m3/min.

Depending on your request,

the special design vacuum pump is available with material of stainless steel,

ductile cast iron, and also high design pressure.

Through the use of high vacuum mechanical boosters,

the pumping capacity of "TAM" Series Dry vacuum pump

can be extended as required.

FEATURES

1 Wide operating range

This pump can be operated at suction pressure from atmosphere to 80 Pa. or 260 Pa. with nomechanical booster. Tri-lobed design permits stable performance at any inlet pressure from atmospheric to blank-off.

2 Clean effluent

The pump is sealant-free: therefore there is no contamination of the cooling fluid or seal fluid with the process gases, also there in no carryover of the cooling fluid to the pump exhaust.

3 Safe

Leak-tight pumping mechanism that uses no oil or sealing fluid for vacuum production. Limits worker exposure to leaking process gas or contaminated oil.

4 Low maintenance

The "TRM" dry vacuum pump is designed for continuous, unattended operation with infrequent maintenance.

VACUUM PUMP



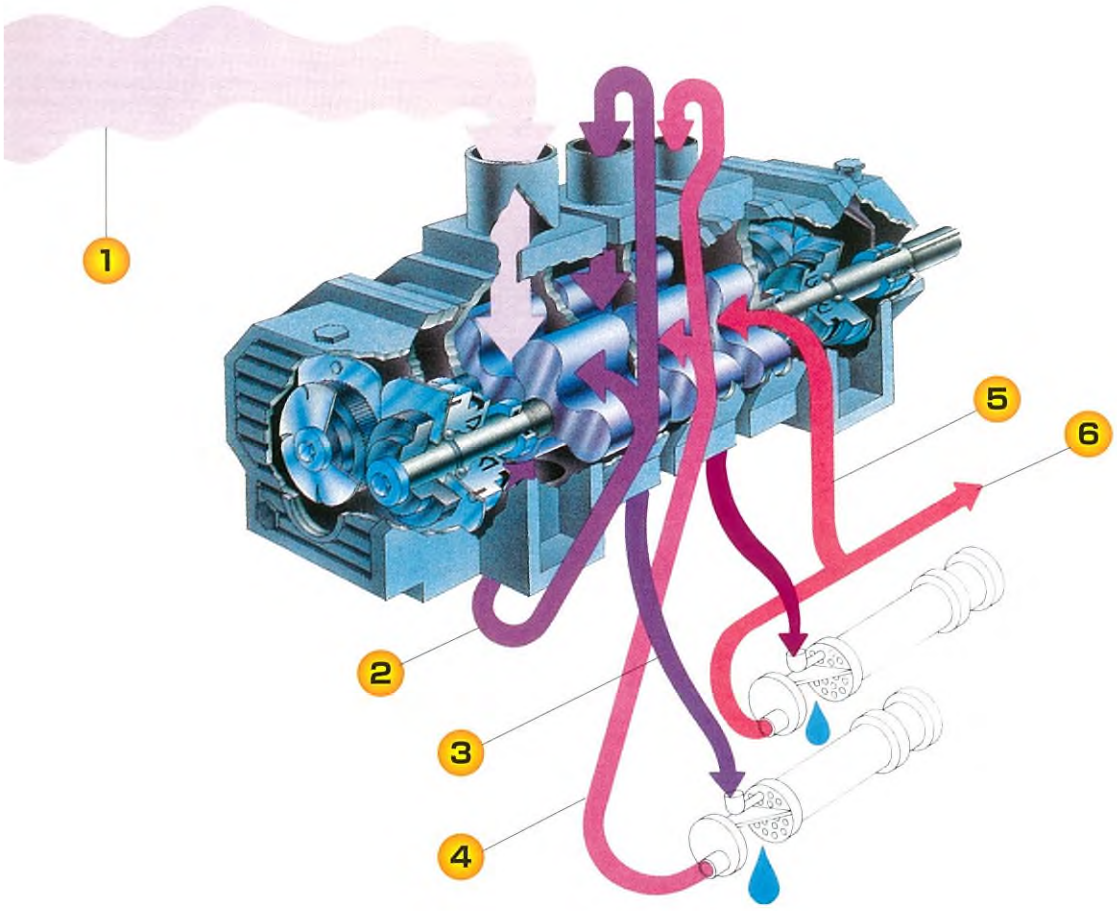
APPLICATION

Vacuum distillation,
Medical devices,
Solvent recovery,
Evaporation,
Drying,
Vacuum refrigeration,
Polymer processing,
Pharmaceutical & Food industry,
Special gases in Chemical industry.

Dry Vacuum Pump "TRM/TAM" Series

PRINCIPLE

The vacuum pump section of each stage in this machine is constructed with a Roots type pump.
The pump consists of two rotors having a three-lobe shaped cross section each,
and mounted to parallel shafts, while keeping a slight clearance against the inside wall of enclosing casing,
and also between rotors. The compression function is as follows.



1. The suction gas into the inlet of vacuum pump is compressed by rotation of rotors.
2. The discharged gas divided into two portions, one portion of gas flows into back-flow cooling port and another portion flows into second stage.
3. The discharged gas from second stage is transferred into cooler.
4. A part of cooled gas flows into back-flow cooling port of second stage. And another gas transferred to third stage.
5. The discharged gas from third stage is transferred into cooler. A part of cooled gas flows into back-flow cooling port of third stage.
6. And another gas is discharged to atmosphere.



Inert gas purge

It is possible to provide the inert gas purge system to prevent process gas entering bearings and gear casing.

Drain tank

The drain tanks can be installed under heat exchanger.
The drain tanks permit low-level condensate collection and removal from pump system.

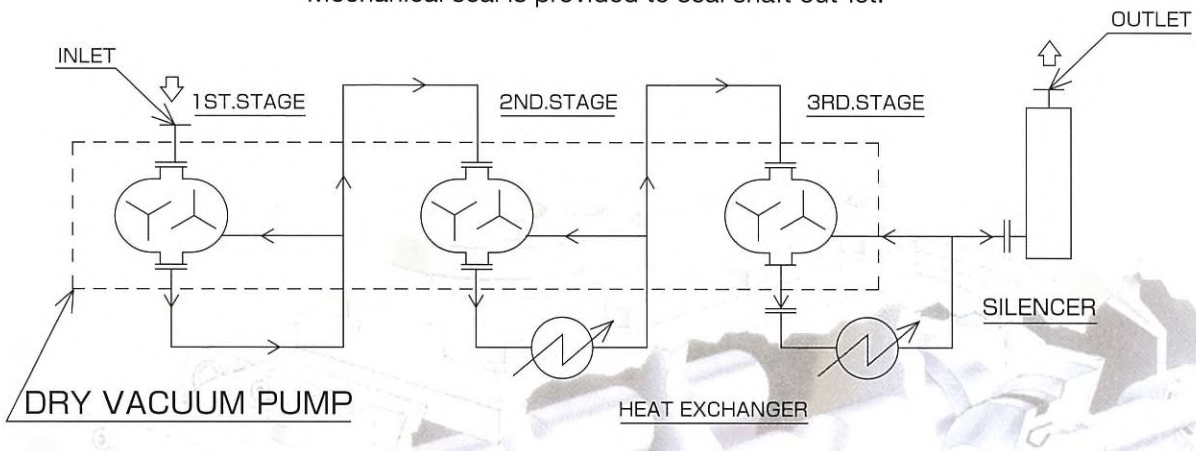
CONFIGULATIONS

There are two kind of system to back-flow cooling for the third stage.
The first system 【Fig.1】 shows the third stage compression caused by
cooled internal gas through heat exchanger and
the another compression system 【Fig.2】 is caused by introduced atmospheric air.

Internal gas compression

【Fig.1】

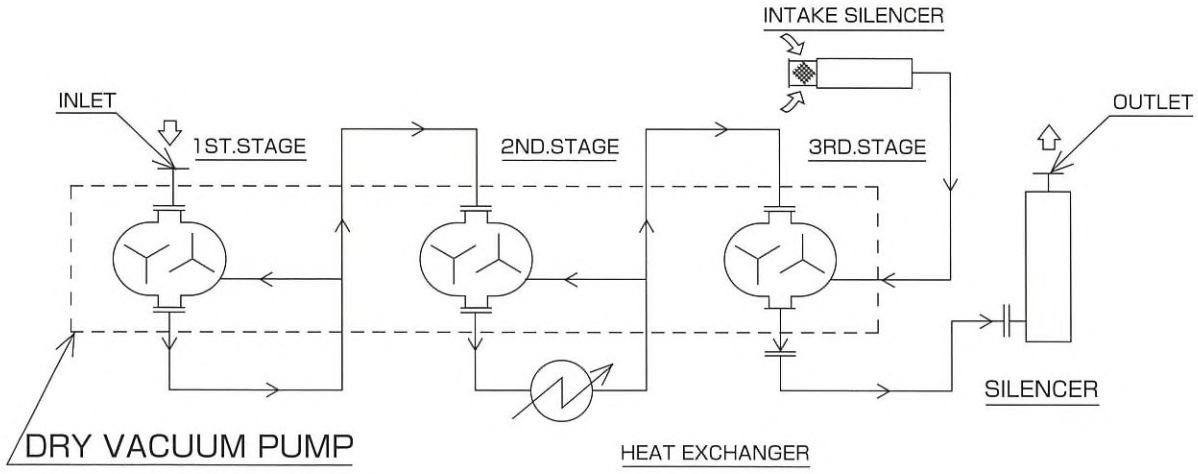
The vacuum pump system has 2 sets of heat exchanger under frame
and compression at the third stage causes by cooled internal gas through heat exchanger.
Mechanical seal is provided to seal shaft out-let.



Atmospheric air compression

【Fig.2】

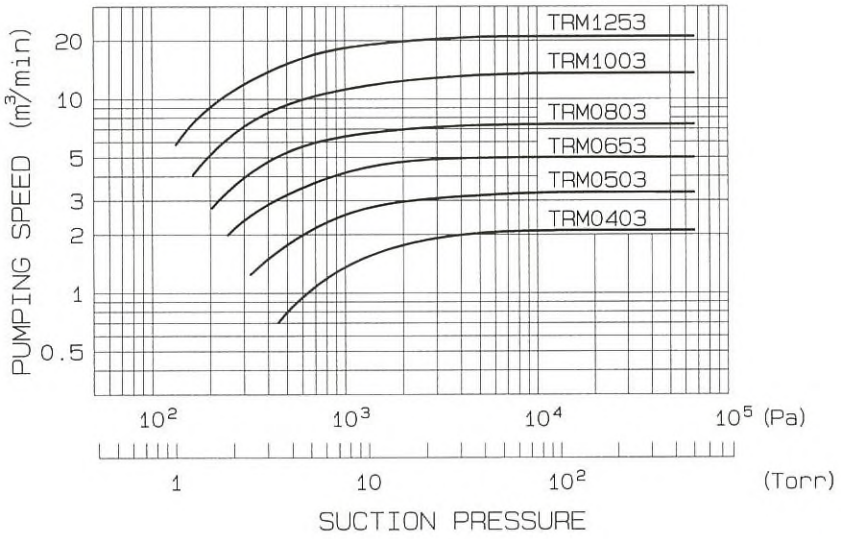
The vacuum pump system has one heat exchanger under frame
and compression at the third stage causes by introduced atmospheric air.
Lip seal is provided to seal shaft out-let.



DRY VACUUM PUMP MODEL TRM

Performance table

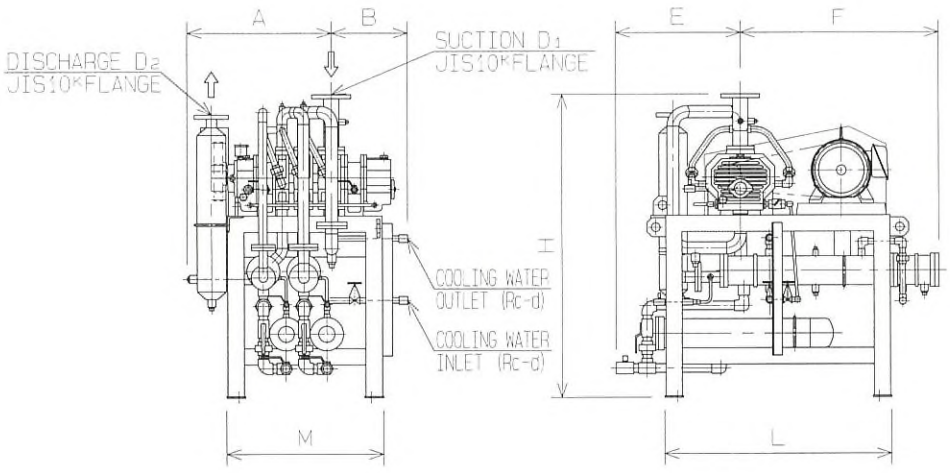
MODEL	SUCTION D1(mm)	DISCHARGE D2(mm)	PUMPING (m³/min)	MOTOR (kw)	COOLING WATER CAPACITY (Lit/min)
TRM0403	40	25	2.1	3.7	10
TRM0503	50	32	3.3	5.5	15
TRM0653	65	40	5.0	7.5	20
TRM0803	80	50	7.4	11	25
TRM1003	100	65	14	22	35
TRM1253	125	80	21	30	45



Externals dimensional drawing

MODEL	A	B	E	F	H	L	M	d
TRM0403	525	275	500	800	1180	890	560	1/2
TRM0503	570	300	500	800	1200	910	620	1/2
TRM0653	620	310	525	885	1400	1070	660	1/2
TRM0803	725	320	525	1050	1435	1100	750	1/2
TRM1003	960	380	540	1060	1650	1200	1010	3/4
TRM1253	1100	450	650	1160	1920	1360	1190	3/4

DIMENSION IN (mm)

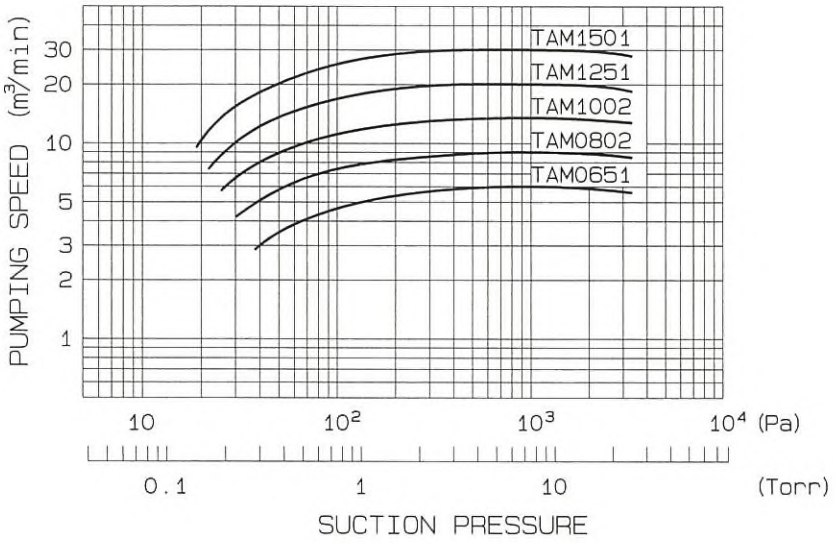


Dimensions may change without any notice.

DRY VACUUM PUMP MODEL TAM

Performance table

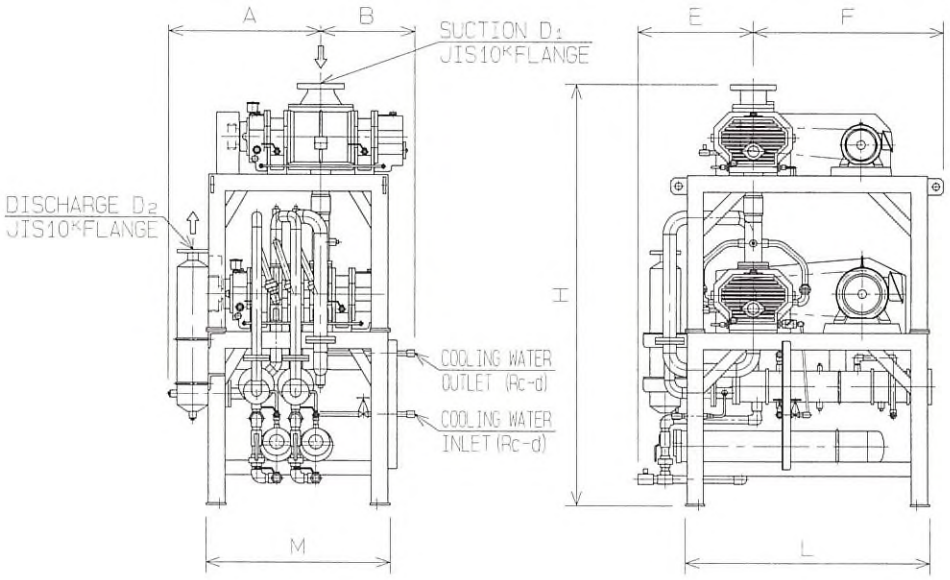
MODEL	SUCTION D1(mm)	DISCHARGE D2(mm)	MECH. BOOSTER MODEL	PUMPING SPEED (m³/min)	MOTOR (kw)	DRY VACUUM PUMP MODEL	MOTOR (kw)	COOLING WATER CAPACITY (Lit/min)
TAM0651	65	25	TRA0651	6.0	2.2	TRM0403	3.7	15
TAM0802	80	32	TRA0802	9.0	3.7	TRM0503	5.5	20
TAM1002	100	40	TRA1002	13.5	3.7	TRM0653	7.5	25
TAM1251	125	50	TRJ1251	20	5.5	TRM0803	11	30
TAM1501	150	65	TRJ1501	30	7.5	TRM1003	22	40



Externals dimensional drawing

MODEL	A	B	E	F	H	L	M	d
TAM0651	575	350	500	825	1630	1020	700	1/2
TAM0802	650	350	500	825	1650	1020	760	1/2
TAM1002	680	420	525	875	1900	1120	820	1/2
TAM1251	750	425	1170	890	1945	1640	800	1/2
TAM1501	965	480	1190	910	2200	1720	1020	3/4

DIMENSION IN (mm)



Dimensions may change without any notice.

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Mr.Kirachai Lengudomlap / Sales Department
M : 061-269-9269
Email : kirachaijob@gmail.com and kirachai@siamind.co.th

Unozawa Products

1. Rotary blower(Roots type)
2. Rotary vacuum pump(Roots type)
3. Dry Vacuum pump
4. Mechanical booster
5. Water ring Vacuum pump

Inquiries

When inquiring about Unozawa Dry vacuum pump,
please furnish the following information.

1. Application:	Solvent recovery, Vacuum Distillation, Vacuum refrigeration, etc.…
2. Specification:	Pumping capacity, Suction pressure, Suction temperature.
3. Type of gas:	Gas name, Gas constant, Specific heat ratio. Evaporation pressure, Corrosiveness, Contamination of solid.
4. Condition for installation:	Indoor or outdoor, Ambient temperature
5. Driver and Utility:	Motor type, Source voltage, Frequency, Cooling water temperature, Cooling water pressure.
6. Accessories&Spare parts:	Required or not.
7. Painting color:	

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