

Tsurumi Production Network

SHANGHAI TSURUMI PUMP CO., LTD.
TSURUMI VACUUM ENGINEERING
(SHANGHAI) CO., LTD.



TSURUMI PUMP TAIWAN CO., LTD.



TSURUMI PUMP VIET NAM CO., LTD.



Yonago Plant



Kyoto Plant



Osaka Headquarters



For inquiries about our products or catalog requests, please contact us.

Vacuum Pump
Sales Division

Overseas Sales
Section

81-3-3833-0336

Contact



OSAKA HEADQUARTERS
16-40, 4-chome, Tsurumi, Tsurumi-ku,
Osaka 538-8585, Japan
Phone 81-6-6911-7111 Fax 81-6-6911-2930
E-mail: vpsales@tsurumipump.co.jp

TOKYO HEAD OFFICE
33-8, 1-chome, Taito, Taito-ku,
Tokyo 110-0016, Japan
Phone 81-3-3833-0336 Fax 81-3-3835-1695
E-mail: vpsales@tsurumipump.co.jp

TSURUMI PUMP KOREA CO., LTD.
Rm. 728, PoongLim Building, 127,
Mapo-daero Seoul 04144, Korea
Phone 82-2-701-6356 Fax 82-2-701-6358
E-mail: infor@tsurumipump.co.kr

KYOTO PLANT
1-1, Kaminaranagaike, Yawata-city,
Kyoto 614-8163, Japan
Phone 81-75-971-0831 Fax 81-75-971-1316

YONAGO PLANT
2700, Yomi-cho, Yonago-city,
Tottori 683-0851, Japan
Phone 81-859-29-0811 Fax 81-859-24-0602

TSURUMI VACUUM ENGINEERING (SHANGHAI) CO., LTD.
1st Floor No. 3 Building, No. 386 Hangyi Road,
Fengxian District, Shanghai 201499, China
Phone 86-21-5724-2030 Fax 86-21-5724-5545
E-mail: tsurumi@vip.sina.com

⚠ Safety precautions

Be sure to thoroughly read and understand the operation manual before using the equipment in order to operate correctly.

*The units and values shown in this catalog are based on the International System of Units.
*Product images and specifications may differ from actual products due to improvements.
*The OO series and model OO are indicated with our series/model codes in this catalog.

**TSURUMI
MANUFACTURING CO., LTD.**
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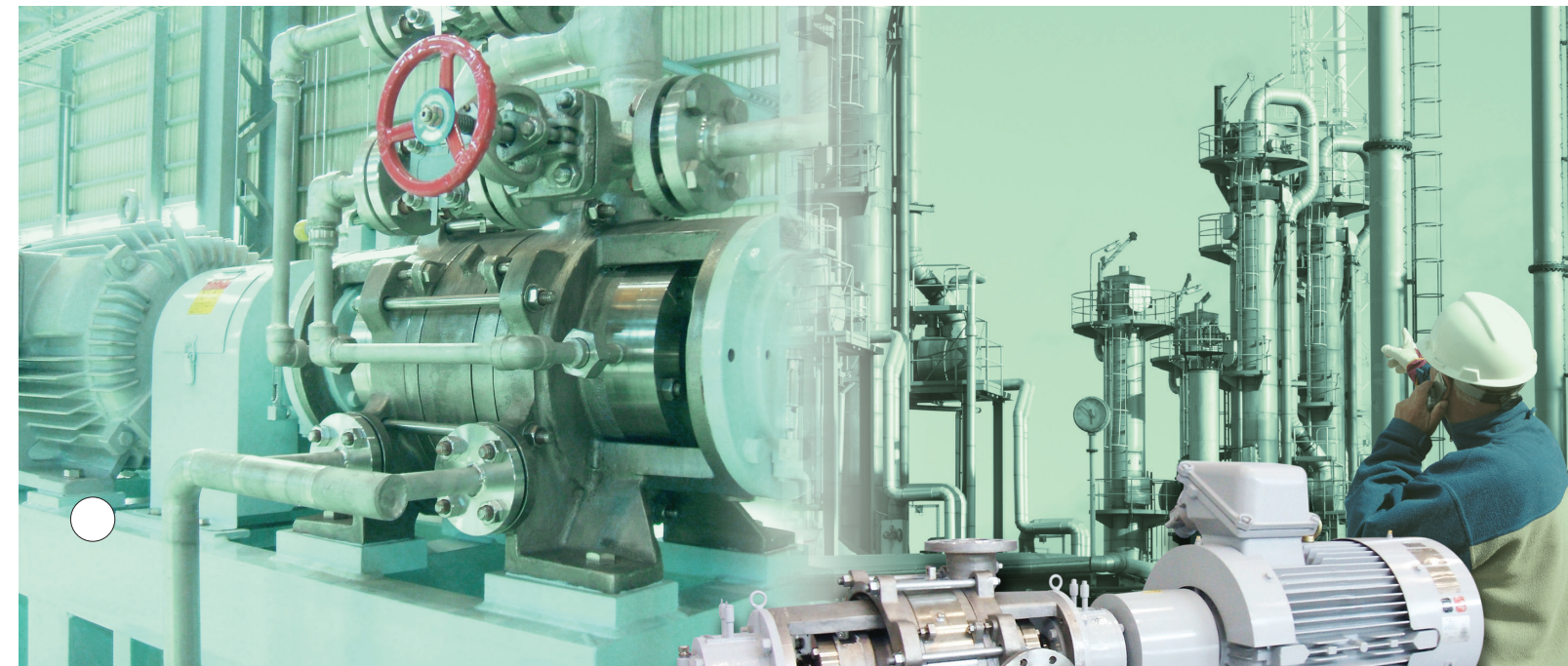


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TSURUMI PUMP
For The Earth, For All The People

Low-vibration and low-noise type
Liquid Ring Compressor

EC



EC
Wide performance range
Many models available



Liquid Ring Compressor

EC

Safe and sure EC Liquid Ring Compressors have been used in the petrochemical industry and in many other industries.

Features of Liquid Ring Compressor

- Using for all gases and steam compression
- Eco-friendly (no lubricant is needed in pump chamber)
- No metal-contact abrasion
So designed as to provide a large clearance between rotating and stationary parts
- Insusceptible to droplets in sucked air and to condensation of steam
- Effective release of heat of compression
Best suited for compression of flammable and explosive gases

Example of Use

Oil Refining



Inlet pressure	Atmospheric pressure
Discharge pressure	0.4 MPa G
Inlet capacity	5.7 m³/min
Speed	1500 min ⁻¹ (S.S)
Motor output	75 kW
Handling gas	Ethylene, Ethane, Propane
Ring liquid	Water

Acetylene Gas Compression



Inlet pressure	Atmospheric pressure
Discharge pressure	0.31 MPa G
Inlet capacity	24.5 m³/min
Speed	1500 min ⁻¹ (S.S)
Motor output	230 kW
Handling gas	Acetylene
Ring liquid	Water

We are not only a compressor manufacturer but also an inventor of the gas/ring liquid separation system, the ring liquid cooling technology and unique circulation flow. We design and manufacture a range of equipment as integrated compressor systems.

Application Examples

Handling gas

Acetylene	Butadiene	Hydrocarbon based
VCM	Hydrogen	Nitrogen

Ring liquid

Water	98% sulfuric acid	Acetic acid	Alcohol	Phenol	Toluene	EDC
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VCM Recovery



Inlet pressure	Atmospheric pressure
Discharge pressure	0.45 MPa G
Inlet capacity	21.7 m³/min
Speed	1500 min ⁻¹ (S.S)
Motor output	240 kW
Handling gas	VCM
Ring liquid	Water

Gas Recovery



Inlet pressure	121.3 kPa A
Discharge pressure	346.5 kPa A
Inlet capacity	1.77 m³/min
Speed	3600 min ⁻¹ (S.S)
Motor output	22 kW
Handling gas	Ethylene, Methanol, Vinyl acetate
Ring liquid	Methanol

The Others

- Rubber Refining
 - H₂ gas Compression
 - CO₂ gas Recovery
 - Petrol Desulfurization
 - LNG / LPG / Refinery gas Transfer LNG、LPG、
 - Pressure Filter / Pressure source for Rotary Pressure Filter (RPF Compressor)
(Terephthalic Acid / Bisphenol A / Adipic Acid / Polypropylene / Polyethylene / Polyvinyl Chloride Refining)
- Solvent Recovery
 - Chlorine gas Compression
 - Sewage gas Stirring

Low-vibration and low-noise type

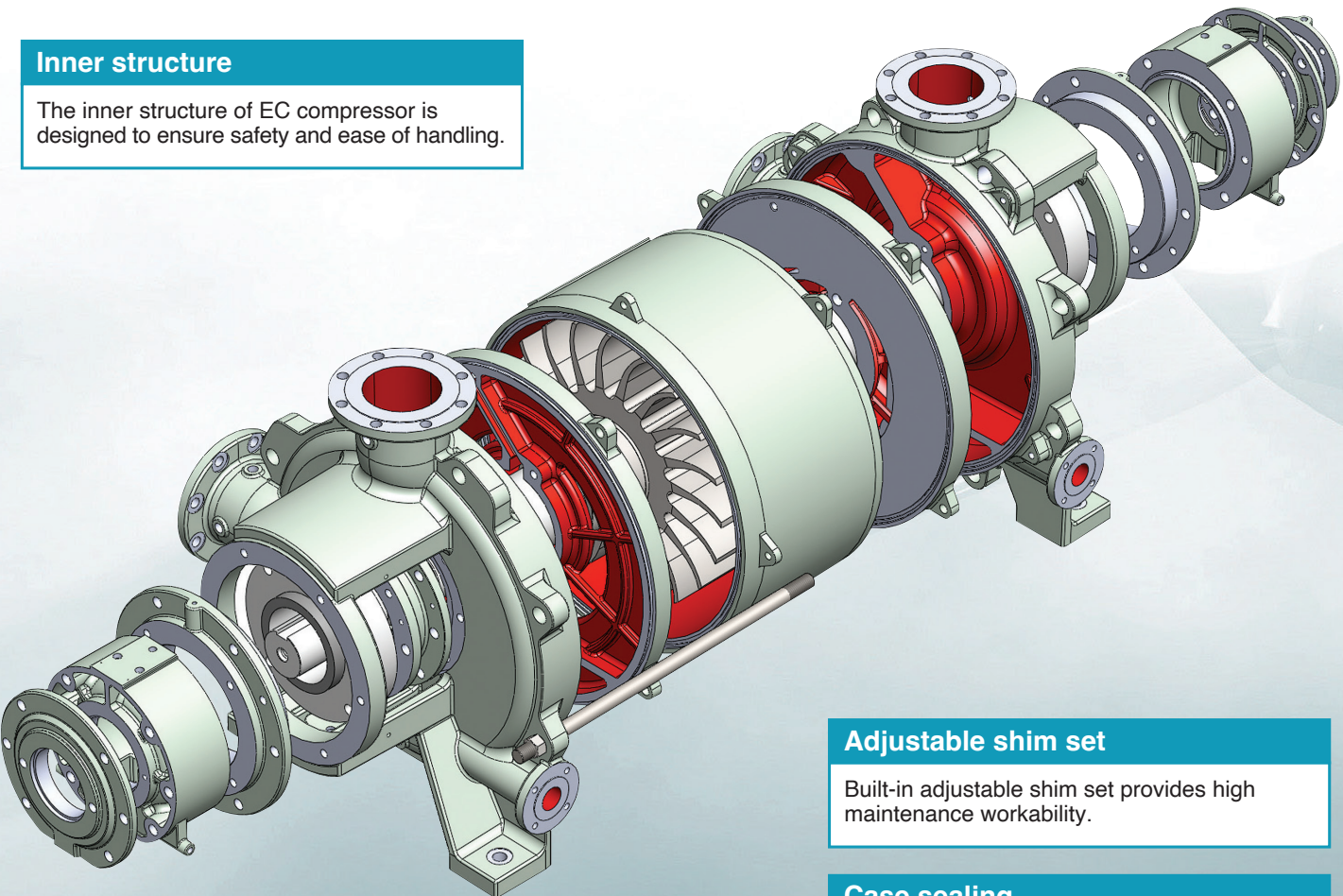
Low-vibration

Contribution to enhancing the service life of bearings and mechanical seals.

Single-action cylindrical casing ensures smooth flow of ring liquid, resulting in low-vibration operation. The vibration velocity is as low as 1/2 to 1/3 of that of our double-action compressor, which helps enhance the service life of bearings and mechanical seals.

Inner structure

The inner structure of EC compressor is designed to ensure safety and ease of handling.



Adjustable shim set

Built-in adjustable shim set provides high maintenance workability.

Case sealing

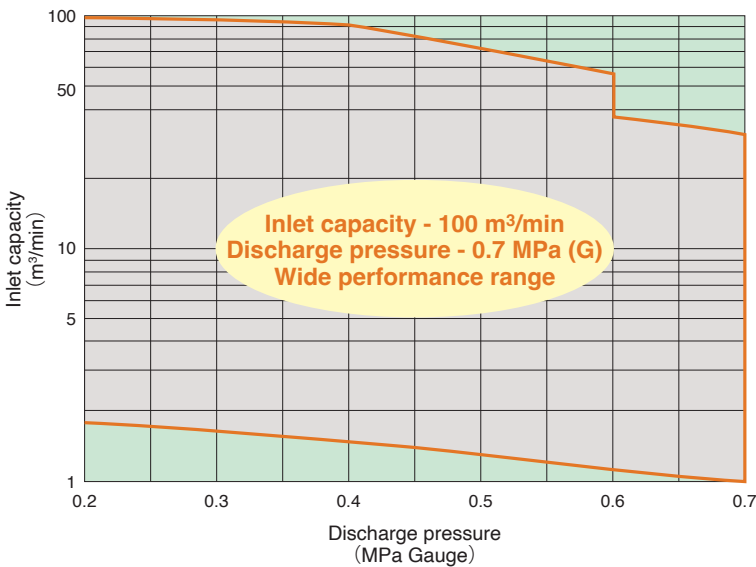
A full-fledged pressure-resistant structure using O-rings.

Low-noise

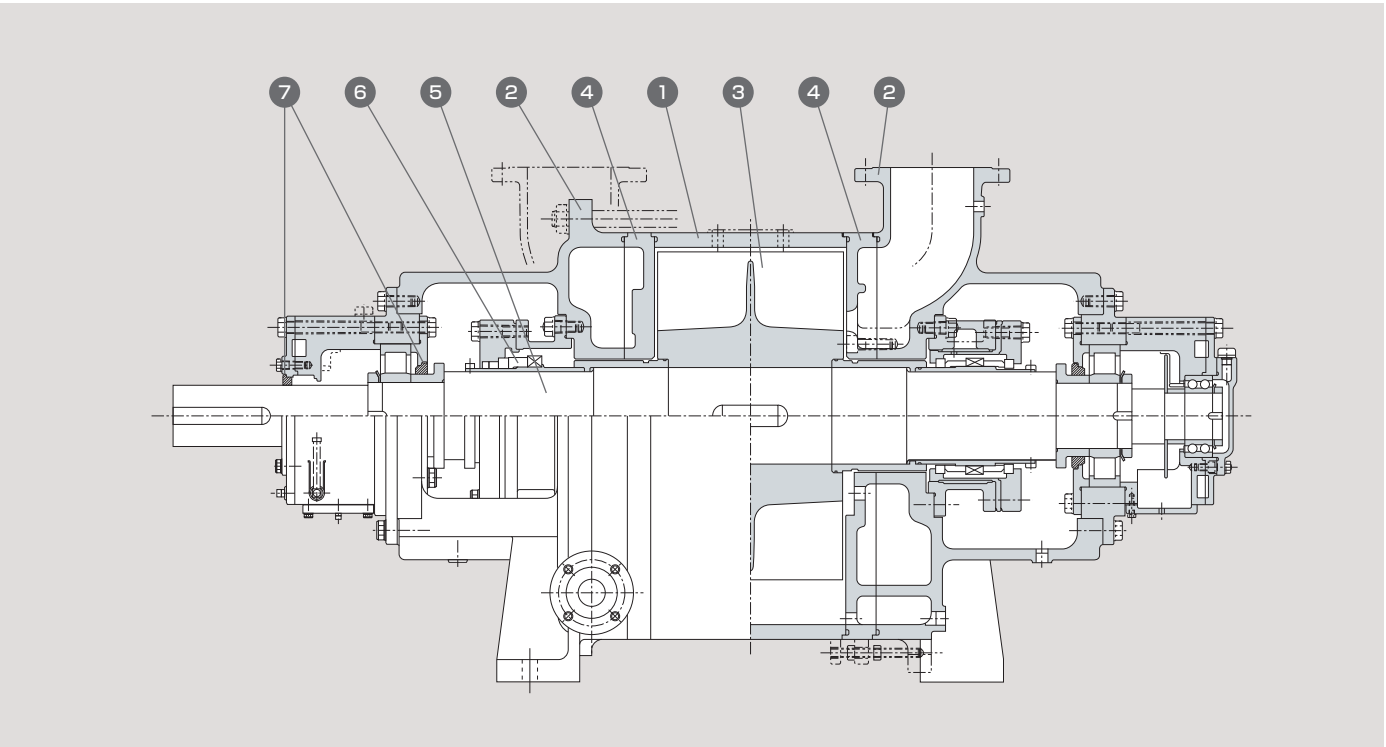
Reason for moderate compression process.

The single-action mechanism can double the gas compression process, and its noise is about 6 dB lower than that of our double-action compressor. The higher the discharge pressure, the more significant the low-noise effect.

Performance range



Sectional drawing



Part names and materials

No.	Part names	Materials (JIS)	
		Standard	Semi Std.
1	Casing	SCS13	SCS14
2	Side Cover	SCS13	SCS14
3	Impeller	SCS13	SCS14
4	Port Plate	SCS13	SCS14
5	Shaft	SUS420J2	SUS420J2
6	Mechanical Seal	SiC/C	SiC/C
7	Labyrinth Seal	CAC	CAC
-	O-Ring	FKM/NBR	FKM/NBR
-	Liquid Packing	TB1215/TB1207B	TB1215/TB1207B

Remarks

- 1) Flange type: ANSI#150(JPI)RF
- 2) Mechanical seal: Single type or Double type

Typical flow diagram

■ Typical accessories (devices and instruments)

● Separator

For separation of mixed gas and ring liquid at the discharge of a compressor.

● Ring liquid cooler and ring liquid pump

The ring liquid pump circulates the ring liquid, and the cooler controls the temperature rise of the ring liquid used continuously in a circulating system. Since the ring liquid feed pressure of the product is low, use of an additional bypass circuit allows for a shorter operation that can be performed only at startup or during discharge at a low pressure, resulting in a contribution to energy saving.

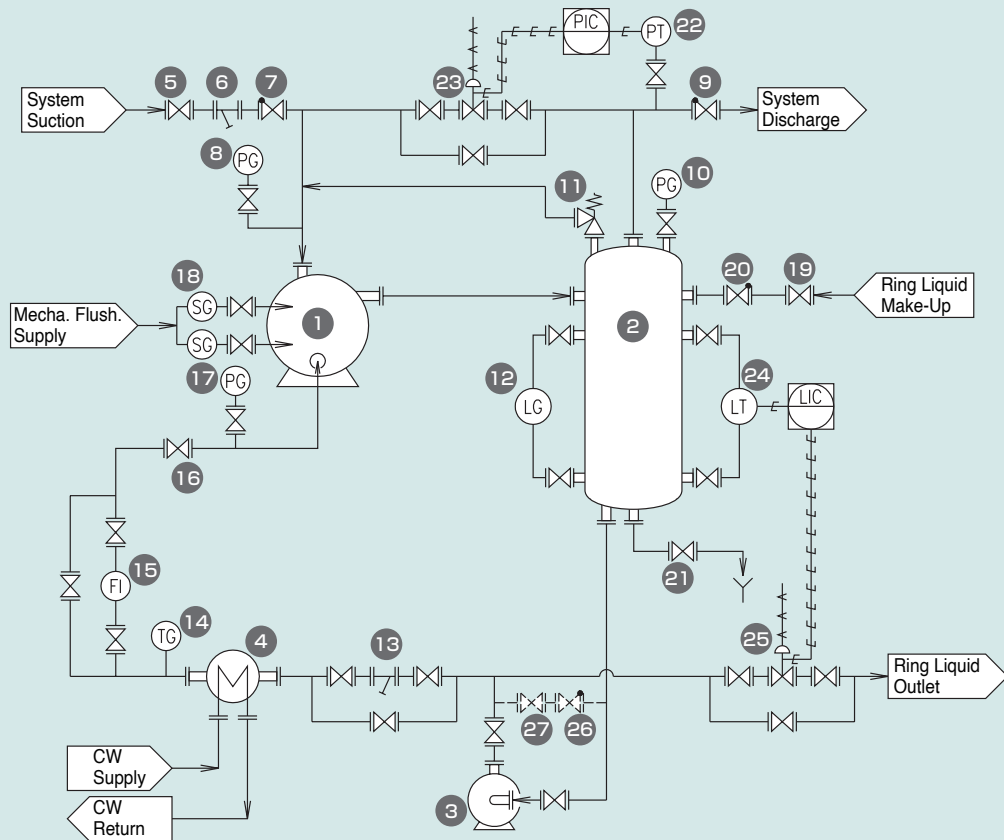
● Controller for refill and discharge of liquid

The controller is attached to the separator where quantity fluctuation and concentration of the ring liquid need to be controlled.

● Control valve and relief valve

The control valve regulates the gas flow rate and pressure during normal operation.

The relief valve releases pressure in an emergency.



■ Parts list

No.	Part names	No.	Part names	No.	Part names
1	Liquid Ring Compressor	11	Pressure relief valve	21	Drain valve
2	Gas/ring liquid separator	12	Level gauge	22	Pressure transmitter
3	Ring liquid pump	13	Ring liquid strainer	23	Pressure control valve
4	Ring liquid cooler	14	Temperature gauge	24	Level transmitter
5	Isolating valve	15	Sight flow indicator	25	Level control valve
6	Strainer	16	Flow regulating valve	26	By-pass check valve
7	Check valve	17	Ring liquid pressure gauge	27	By-pass valve
8	Pressure gauge	18	Sight flow		
9	Check valve	19	Make up valve		
10	Pressure gauge	20	Make up check valve		

Inquiry form



Fill out the form and fax a copy to the nearest dealer or to our sales office.

Company name				Date	
Company address		〒		Telephone	
Your department				F A X	
Your name			E-Mail		
Your product requirement		<input type="checkbox"/> Bare shaft compressor <input type="checkbox"/> with Drivers <input type="checkbox"/> Once through unit <input type="checkbox"/> Recircuration unit <input type="checkbox"/> Others ()			
Application					
Experience with our product		<input type="checkbox"/> Yes <input type="checkbox"/> No		Time of delivery ()	
		Mfg. No. ()		Model ()	
Quantity					
Inlet pressure		<input type="checkbox"/> mmHg <input type="checkbox"/> kPa <input type="checkbox"/> kgf/cm ² (<input type="checkbox"/> abs <input type="checkbox"/> G)			
Discharge pressure		<input type="checkbox"/> mmHg <input type="checkbox"/> kPa <input type="checkbox"/> kgf/cm ² (<input type="checkbox"/> abs <input type="checkbox"/> G)			
Inlet capacity		<input type="checkbox"/> m ³ /min <input type="checkbox"/> kg/h (kg/h requires average molecular weight kg/h)			
Gas name		<input type="checkbox"/> Air <input type="checkbox"/> Air-saturated water vapor <input type="checkbox"/> Others ()			
Gas temperature		°C			
Ring liquid	Name	<input type="checkbox"/> Water <input type="checkbox"/> Others ()			
	Temperature	°C			
	Specific gravity	(Not required for water)			mPa・s
	Specific heat	(Not required for water)			mPa・s
	Viscosity	(Not required for water)			mPa・s
	Thermal conductivity	(Only when cooler is needed. Not required for water)			W/m・K
Power supply frequency		<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz			
Voltage					
Motor type		(ex. IPxx ExdIICT4)			
Main materials		<input type="checkbox"/> Standard <input type="checkbox"/> See below			
Main materials	Casing			Port plate	
	Side cover			Shaft	
	Impeller			O-ring	
Shaft seal type		<input type="checkbox"/> Single mechanical seal <input type="checkbox"/> Double mechanical seal			
Shaft seal materials		<input type="checkbox"/> Standard <input type="checkbox"/> Request ()			
Accessory name					
Common base		<input type="checkbox"/> Yes <input type="checkbox"/> No		Ring liquid strainer	<input type="checkbox"/> Yes <input type="checkbox"/> No
Coupling		<input type="checkbox"/> Yes <input type="checkbox"/> No		Ring liquid pressure gauge	<input type="checkbox"/> Yes <input type="checkbox"/> No
Separator		<input type="checkbox"/> Yes <input type="checkbox"/> No		Gas suction strainer	<input type="checkbox"/> Yes <input type="checkbox"/> No
Level gauge		<input type="checkbox"/> Yes <input type="checkbox"/> No		Check valve	<input type="checkbox"/> Yes <input type="checkbox"/> No
Temperature gauge		<input type="checkbox"/> Yes <input type="checkbox"/> No		Pressure control valve	<input type="checkbox"/> Yes <input type="checkbox"/> No
Makeup valve		<input type="checkbox"/> Yes <input type="checkbox"/> No		Level control valve	<input type="checkbox"/> Yes <input type="checkbox"/> No
Ring liquid cooler		<input type="checkbox"/> Yes <input type="checkbox"/> No		Sight flow indicator	<input type="checkbox"/> Yes <input type="checkbox"/> No
Ring liquid pump		<input type="checkbox"/> Yes <input type="checkbox"/> No			
Cooling water condition	Name			Specific gravity kg/m ³	
	Temperature °C			Specific heat kJ/kg・K	
	Thermal conductivity W/m・K			Viscosity mPa・s	
	Fouling factor m ² ・K/W			Fouling factor of ring liquid m ² ・K/W	
Remarks			Spare parts		