

For the printing industry

# Proposal for Globally-compatible Thermo-chillers

Conforming to international standards



Global power supply

**No transformers required**

(Europe, Asia, Oceania, Central and South America)

Bringing “Made in Japan” to the world



P-E20-3

# Controlling the temperature of cooling water for the retention and improvement of printing quality

Cooling of circuit boards

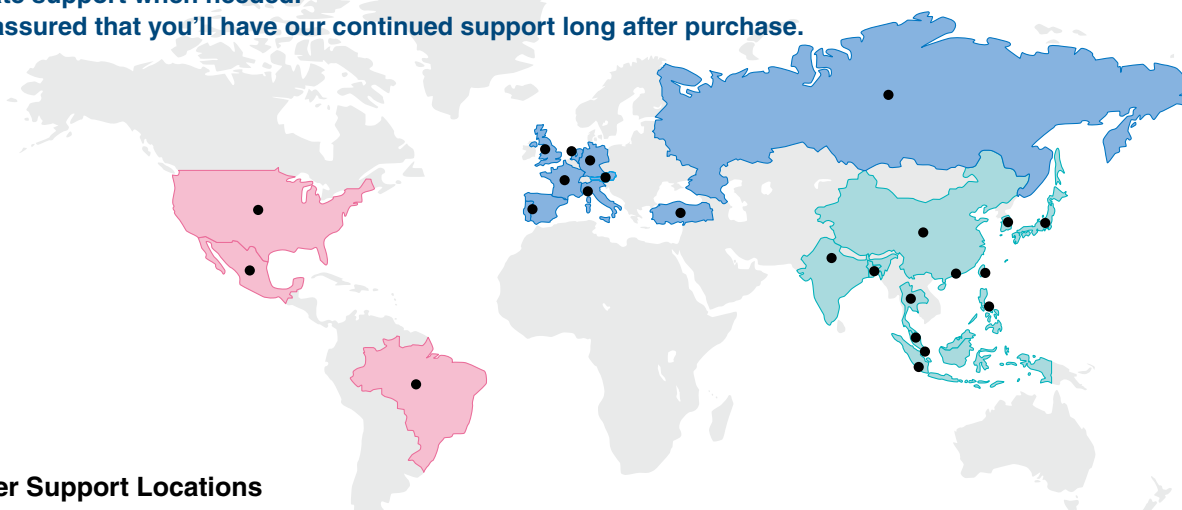
Thermo-chillers can be used to control the temperature of facility and device heat sources by controlling the temperature of circulating fluid. By maintaining a constant temperature, printing quality, as well as the reliability and lifespan of facilities, can be improved.



Cooling points of on-demand printing

## Reliable Global Support 560 local subsidiaries or agents in 83 countries and regions around the world

SMC's global network is able to support customers with their eyes on overseas expansion. As for maintenance services, chiller support teams are stationed worldwide, offering quick and appropriate support when needed. You can rest assured that you'll have our continued support long after purchase.



### Thermo-chiller Support Locations

#### Americas

Brazil  
Mexico  
U.S.A.

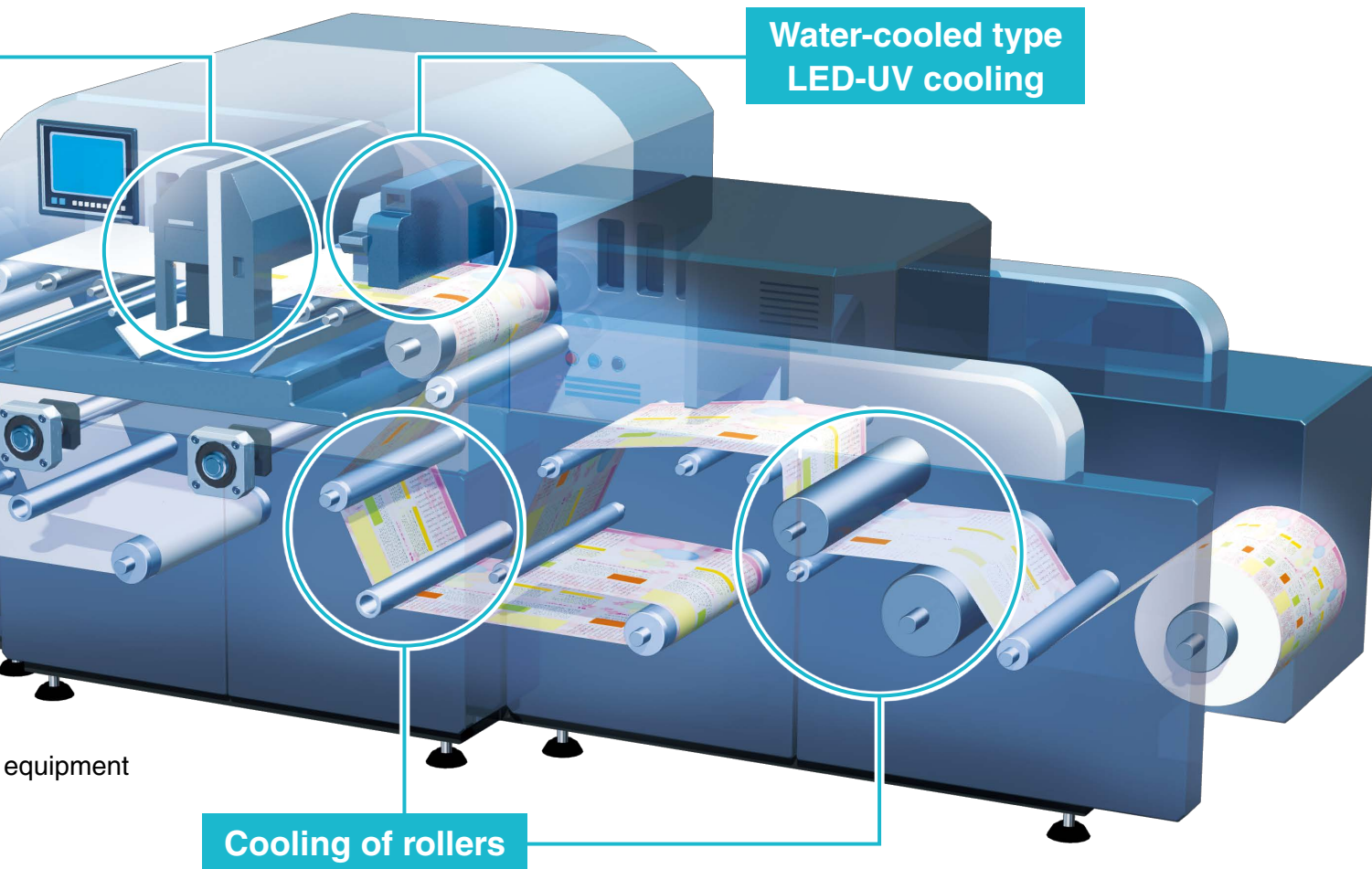
#### Europe

Austria  
France  
Germany  
Italy  
Netherlands  
Russia  
Spain/Portugal  
Turkey  
U.K.

#### Asia

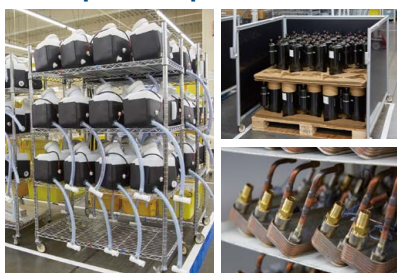
Bangladesh  
China (Beijing/Shanghai/Guangzhou Area)  
Hong Kong  
India  
Indonesia  
Japan  
Malaysia  
Philippines  
Singapore  
South Korea  
Taiwan  
Thailand





equipment

#### ■ Well-stocked parts inventory for quick response time



We stock replacement parts in the form of sub-assemblies, which allows for a reduction in the time required to replace parts in products such as heat exchangers, compressors, and pumps.

#### ■ Global maintenance service expansion

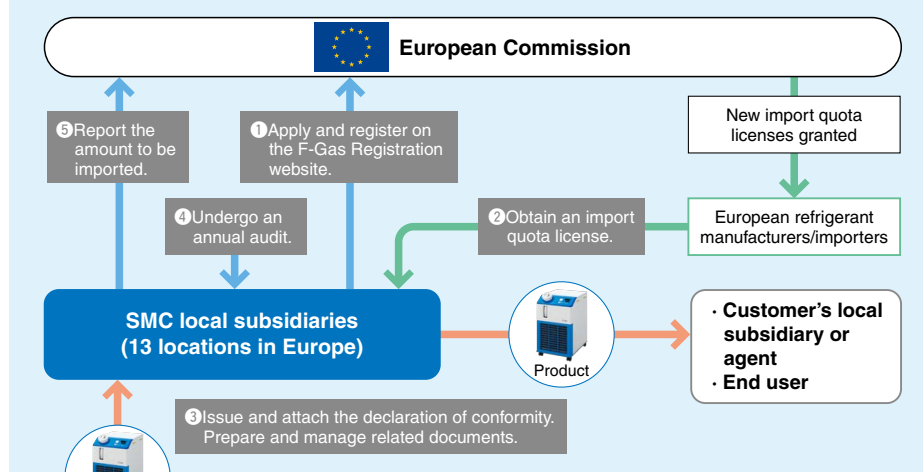


In order for our chiller support teams to be able to provide quality maintenance services, proper education and training has been implemented at SMC locations in each country.

## Information on the EU F-Gas Regulation (517/2014)

SMC Europe holds import quota licenses. Purchasing products from our local subsidiaries eliminates cumbersome procedures.


























### SMC's response to the EU F-Gas Regulation



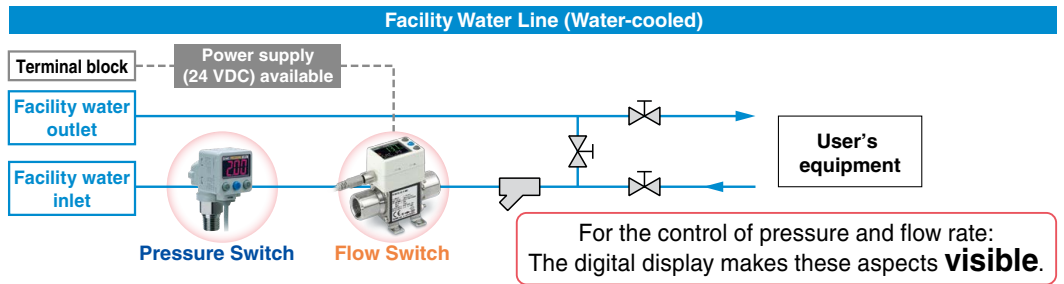
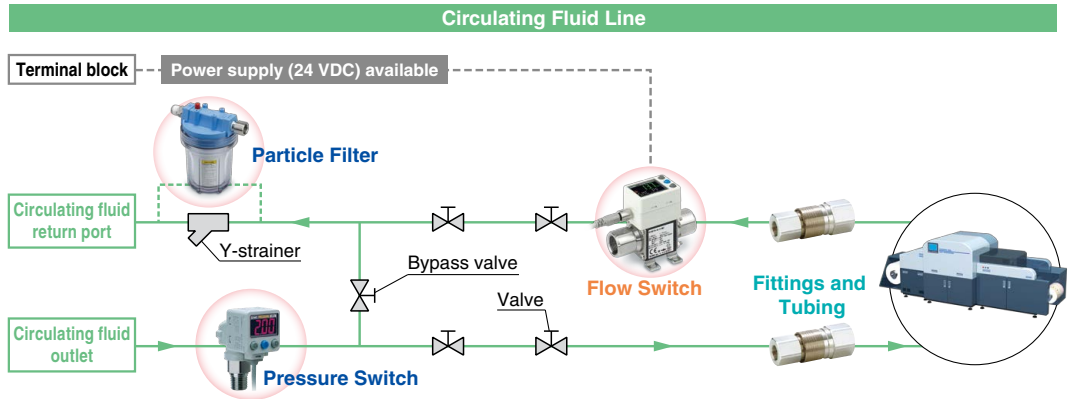
- 1 Applies and registers on the F-Gas Registration website
  - 2 Obtains import quota licenses from European refrigerant manufacturers/importers in Europe who hold these licenses
  - 3 When importing products, prepares the declaration of conformity and related documents
  - 4 Undergoes an annual audit
  - 5 Reports annually through the F-Gas Registration website
- \* SMC does not sell import quota licenses.

# Thermo-chiller Variations

For details, refer to the **Web Catalog**.

Series	Cooling method	Temperature stability	Cooling capacity kW															Temperature range setting °C	Pump capacity	Power supply	International standards
			1.0	1.2	1.8	2.4	3	4	5	6	9	10	15	20	25	28					
<b>Thermo-chiller Standard type</b> <i>HRS Series</i> 	Air-cooled/ Water-cooled refrigeration	±0.1°C	●	●	●	●	●	●	●								5 to 40°C	42 L/min	Single-phase 100 VAC (50 Hz) Single-phase 100 to 115 VAC (60 Hz) Single-phase 200 to 230 VAC (50/60 Hz)	  (Only 60 Hz)	
<b>Thermo-chiller Environmentally resistant type Standard type</b> <i>HRS-R Series</i> 	Air-cooled refrigeration	±0.1°C		●			●		●								5 to 40°C	40 L/min	Single-phase 200 to 230 VAC (50/60 Hz)		
<b>Thermo-chiller Standard type</b> <i>HRS090 Series</i> 	Air-cooled/ Water-cooled refrigeration	±0.5°C									●						5 to 35°C	68 L/min	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz) 3-phase 380 to 415 VAC (50/60 Hz)	 (400 V as standard)	
<b>Thermo-chiller Standard type</b> <i>HRS100/150 Series</i> 		±1.0°C											●	●			5 to 35°C	68 L/min		 (400 V as standard)	
<b>Thermo-chiller Standard type</b> <i>HRS200 Series</i> 	Air-cooled refrigeration	±1.0°C														20.5 kW	5 to 35°C	130 L/min	3-phase 380 to 415 VAC (50 Hz) 3-phase 460 to 480 VAC (60 Hz)	  (UL Standards)	
<b>Thermo-chiller Inverter type</b> <i>HRSH090 Series</i> 	Air-cooled/ Water-cooled refrigeration	±0.1°C									●						5 to 40°C	60 L/min	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz) 3-phase 380 to 415 VAC (50/60 Hz)	 (400 V as standard, 200 V as an option)  (Only 200 V as an option)	
<b>Thermo-chiller Inverter type</b> <i>HRSH Series</i> 	Air-cooled/ Water-cooled refrigeration	±0.1°C										●	●	●	●		5 to 35°C	180 L/min	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz) 3-phase 380 to 415 VAC (50/60 Hz) 3-phase 460 to 480 VAC (60 Hz)	 (400 V as standard, 200 V as an option)  (Only 200 V as an option)	
<b>Thermo-chiller Basic type</b> <i>HRSE Series</i> 	Air-cooled refrigeration	±2.0°C		●	●	●											10 to 30°C	25 L/min	Single-phase 100 VAC (50/60 Hz) Single-phase 200 VAC (50/60 Hz) Single-phase 230 VAC (50/60 Hz)	 (Only 230 VAC type)	
<b>Thermo-chiller Rack mount type</b> <i>HRR Series</i>  Equivalent to 7U    Equivalent to 9U	Air-cooled/ Water-cooled refrigeration	±0.1°C	●	●	●	●											5 to 35°C	21 L/min	Single-phase 100 VAC (50/60 Hz) Single-phase 115 VAC (60 Hz) Single-phase 200 to 230 VAC (50/60 Hz)	  (Air-cooled: Option U) (Water-cooled: Standard)	
<b>Dual Channel Refrigerated Thermo-chiller for Lasers</b> <i>HRL Series</i> 	Air-cooled refrigeration	CH1 ±0.1°C									●					19 kW	[CH1] 15 to 25°C	CH1: 180 L/min CH2: 16 L/min	3-phase 200 VAC (50 Hz) 3-phase 200 to 230 VAC (60 Hz)		
		CH2 ±0.5°C	●													26 kW	[CH2] 20 to 40°C				

# Thermo-chiller Circulating Fluid/Facility Water Line Equipment



## Flow Switch: Monitors the flow rate and temperature of the circulating fluid and facility water

3-Color Display  
Digital Flow Switch  
for Water  
**PF3W**

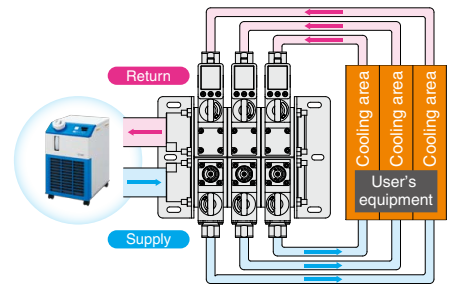


3-Color Display  
Electromagnetic  
Digital Flow Switch  
**LFE**



Digital Flow Switch for Deionized Water  
and Chemical Liquids **PF2D**

4-Channel Flow Monitor **PF2□200**

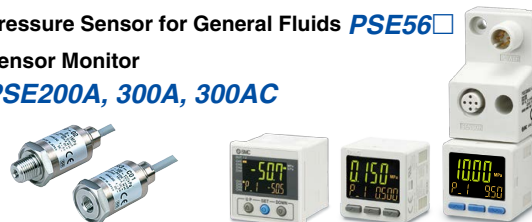


## Pressure Switch: Monitors the pressure of the circulating fluid and facility water

2-Color Display High-Precision  
Digital Pressure Switch  
**ISE80**



Pressure Sensor for General Fluids **PSE56□**  
Sensor Monitor  
**PSE200A, 300A, 300AC**



## Particle Filter



## Fittings

S Coupler  
**KK**



S Coupler/Stainless Steel  
(Stainless Steel 304)  
**KKA**



Metal One-touch  
Fittings  
**KQB2**



Stainless Steel 316  
One-touch Fittings  
**KQG2**



Stainless Steel 316  
Insert Fittings  
**KFG2**



Fluoropolymer  
Fittings  
**LQ**



Tubing **T□**



Series	Material
T	Nylon
TU	Polyurethane
TH	FEP (Fluoropolymer)
TD	Modified PTFE (Soft fluoropolymer)
TL	Super PFA
TLM	PFA





# Integrated production system for the production of high-quality products

## Factory (Yamatsuri 1st Factory)

All parts manufacturing processes, from machining and assembly to inspection and shipping, are conducted at the Yamatsuri 1st factory (site area: approx. 320,000 m<sup>2</sup>; total floor space: approx. 80,000 m<sup>2</sup>) using SMC's unique integrated development and production system that ensures production efficiency.



Yamatsuri 2nd Factory

