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INFORMATION

All Around Guidance **Vol.E1-4**



I N D E X

Pressure Reducing Valve

Primary Pressure Regulating Valve
Differential Pressure Regulating Valve
Falling Water Preventing Valve

1

Safety Relief Valve

15

Strainer

25

Solenoid Valve

Motor Valve
Air Operated Valve
Emergency Shut-off Valve

31

Temperature Regulator

37

Expansion Joint & Flexible Joint

41

Steam Trap

Radiator Trap
Radiator Valve
Return Valve / Check Valve

45

Air Vent & Drain Separator

Vacuum Relief Valve
Noiseless Heater
Air Out

49

Sight Glass

Home Boiler Regulator
Relief Valve for Hot Water Appliance

55

Kawraki®

Flow Meters
Sight Glass

60

Dear Customers,

Summary of Additions and Changes in this INFORMATION (Vol. E1-4)

We would like to take this opportunity to express our sincere appreciation for your kind cooperation, and wish for your continuous success for your business in the future.

We are pleased to inform you that several additions and changes have been made in the product lineup of this INFORMATION as follows.

New released and Improved Products

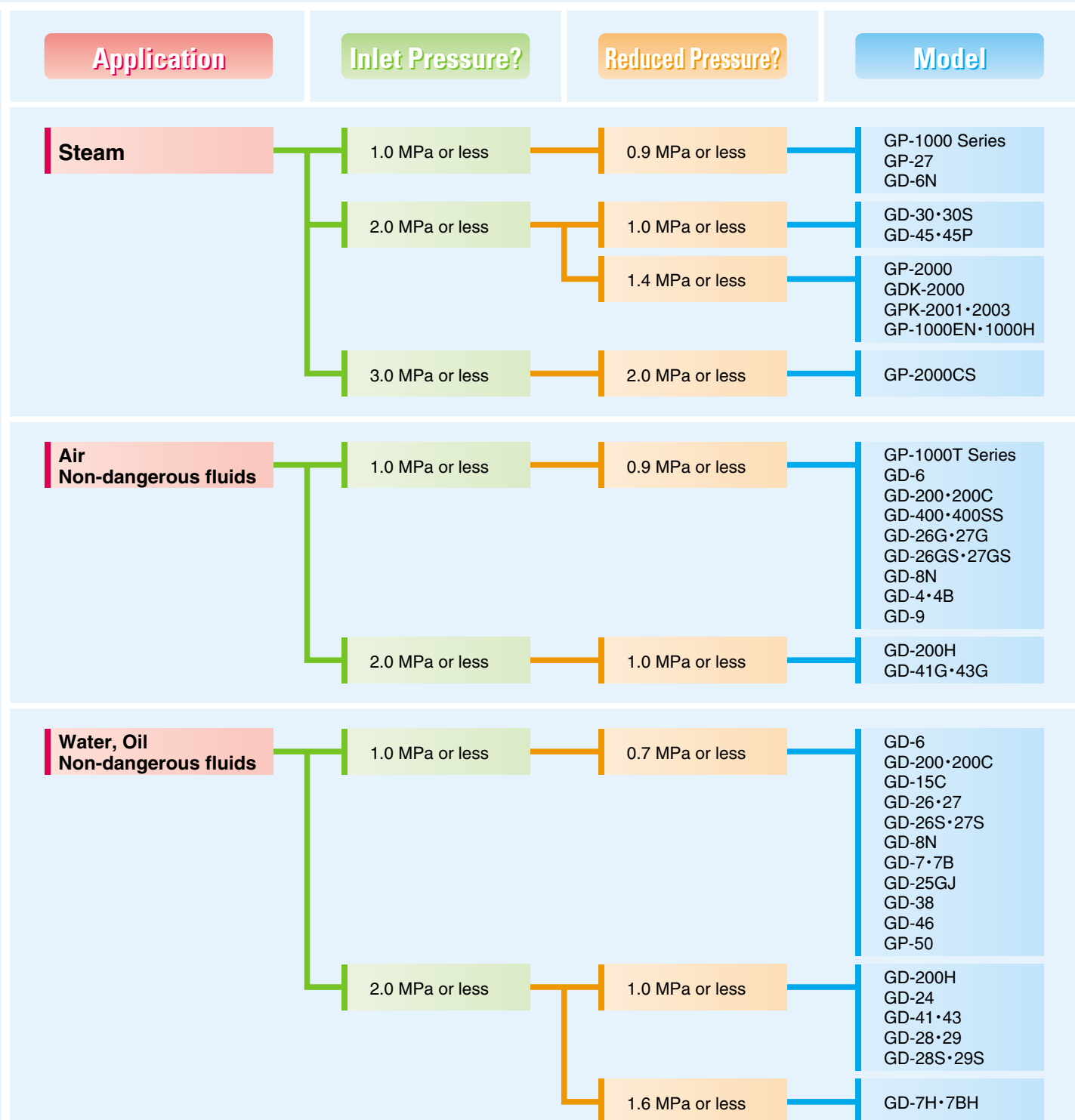
Model	Feature	Page
GP-2000CS	Carbon steel made pressure reducing valve for steam	P. 2
GP-1000EN	Pressure reducing valve for steam, complying with EN standard	P. 4
GD-41G•43G	Direct acting type pressure reducing valve, applicable to air and gas	P. 8
Y's Jacket	For energy saving and CO ₂ reduction effect	P.14
SY-40H•40EN	Y-strainer, made of FCD, max. temperature of 2.0 MPa, complying with EN and ASME standards	P.26
DP-100•100F	Solenoid valve made of stainless steel, applicable to various fluids	P.32
DD-2•3	Stainless steel made direct acting type solenoid valve, compact and lightweight	P.33
MHN-20	Micro hotwater navigator	P.39
TSD-7•7F	Disc trap with bypass function	P.46
TSD-42	Disc trap, made of stainless steel, compact size, high pressure type	P.46
TFA-2000	Assist trap equipped with float type steam trap and pump function by driven pressure	P.47
TAV-3A	Air vent valve with vacuum breaker, with large and quick intake and smooth exhaust	P.53

Switched Products

GP-12•22	Switched to the new released GP-2000CS
SY-2	Switched to the new released SY-40H•40EN
DP-15•17	Switched to the new released DP-100•100F

Pressure Reducing Valves Selection

GP types are pilot-operated valves, GD types are direct acting valves.



Primary Pressure Regulating Valve Page 13

Differential Pressure Regulating Valve

Falling Water Preventing Valve

* Please see the specification of the text for the detailed application and pressure of each model.

GP-2000·2000CS



Pressure reducing valve



- Pilot operated diaphragm type
- Far superior capacity and performance
- Stable reduced pressure control
- Valve leakage meets ANSI class IV
- High reduction ratio (20 : 1)

Model	GP-2000	GP-2000CS
Application	Steam	
Inlet pressure	0.1-2.0 MPa	0.1-3.0 MPa
Reduced pressure	(A) 0.02-0.15 MPa (B) 0.1-1.4 MPa	(A) 0.02-0.15 MPa (B) 0.1-1.4 MPa (C) 1.3-2.0 MPa
Max. temperature	220℃	260℃
Connection	JIS Rc screwed	
	JIS 20K RF flanged JIS 10K FF flanged	JIS 30K RF flanged
Material	Body	Ductile cast iron
	Main valve, valve seat	Stainless steel
	Pilot valve, pilot valve seat	Stainless steel
	Diaphragm	Stainless steel
Size	Screwed	15A-50A
	Flanged	15A-200A

* 15A to 40A are welded flanged.

GDK-2000·GPK-2001·2003



Air loaded pressure reducing valve



GDK-2000

- For remote control

GDK-2000 (Direct acting)

Application	Steam
Inlet pressure	0.1-2.0 MPa
Reduced pressure	0.05-1.4 MPa
Max. temperature	220℃
Connection	JIS Rc screwed
	JIS 20K RF, JIS 10K FF flanged
Material	Body
	Valve, valve seat
	Diaphragm
Size	Screwed
	Flanged

GPK-2001·2003 (Pilot operated)

Model	GPK-2001	GPK-2003
Application	Steam	
Inlet pressure	0.1-2.0 MPa	0.25-2.0 MPa
Reduced pressure	0.05-0.9 MPa	0.2-1.4 MPa
Max. temperature	220℃	
Connection	JIS Rc screwed	
	JIS 20K RF, JIS 10K FF flanged	
Material	Body	Ductile cast iron
	Main valve, valve seat	Stainless steel
	Pilot valve, pilot valve seat	Stainless steel
	Diaphragm	Stainless steel
Size	Screwed	15A-50A
	Flanged	15A-100A



CP-2005

CP-2001·2002·2003·2004·2006

Application		Steam
Inlet pressure		0.1-1.0 MPa
Reduced pressure	(A)	0.02-0.15 MPa
	(B)	0.1-0.85 MPa
Max. temperature		183°C
Operation		Normally closed
Rated voltage		AC 100 V, 110 V, 200 V, 220 V
Connection		JIS Rc screwed
		JIS 10K FF flanged
Size	Screwed	15A-50A
	Flanged	15A-100A

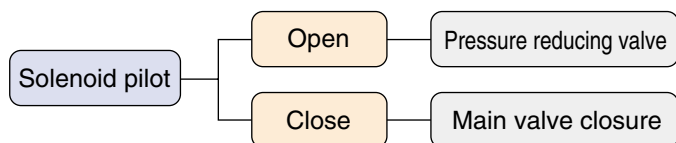
CP-2005

Application		Heating: Steam Heated: Water, Oil, Liquids
Inlet pressure		0.1-2.0 MPa
Reduced pressure	(A)	0.02-0.15 MPa
	(B)	0.1-1.4 MPa
Max. temperature		220°C
Bulb max. pressure		1.0 MPa
Temp. adj. range		-8 - 183°C
Connection		JIS Rc screwed
		JIS 20K RF, JIS 10K FF flanged
Size	Screwed	15A-50A
	Flanged	15A-100A

Operation

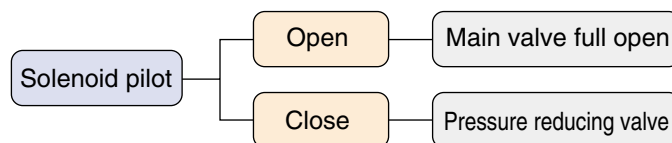
CP-2001

Pressure reducing valve with ON-OFF control



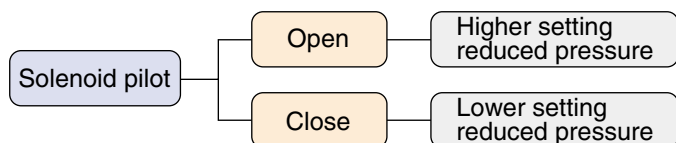
CP-2002

Pressure reducing valve and full-open valve



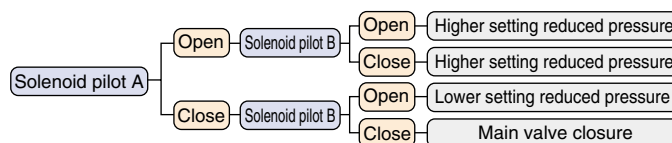
CP-2003

Two-point switching of reduced pressure



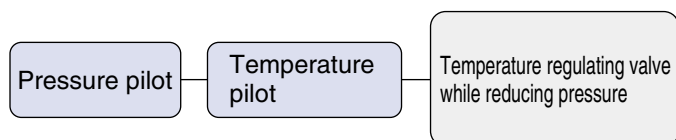
CP-2004

Switching of reduced pressure with ON-OFF control



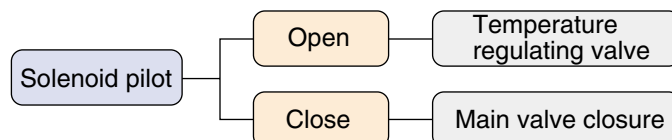
CP-2005

Temperature regulating valve with pressure control



CP-2006

Temperature regulating valve with ON-OFF control



GP-1000 Series



Pressure reducing valve



GP-1000

- Pilot operated piston type
- Inlet pressure up to 1.6 MPa (GP-1000EN and GP-1000H)
- Wetted parts stainless steel (GP-1□□□SS)
- All stainless steel (GP-1□□□AS)
- Air-loaded type (GP-1200 Series)

Model		GP-1000
Application		Steam
Inlet pressure		0.1-1.0 MPa
Reduced pressure		0.05-0.9 MPa
Max. temperature		220℃
Connection		JIS 10K FF flanged
Material	Body	Ductile cast iron
	Valve	Stainless steel
	Valve seat	Stainless steel
	Piston, cylinder	Brass or bronze
Size		15A-100A

Model		GP-1000EN	GP-1000H
Application		Steam	
Inlet pressure		0.1-1.6 MPa	
Reduced pressure		0.05-0.9 MPa 0.9-1.4 MPa	
Max. temperature		220℃	
Connection		EN1092 PN25	JIS 16K FF flanged ASME Class 300 flanged
Material	Body	Ductile cast iron	
	Valve	Stainless steel	
	Valve seat	Stainless steel	
	Piston, cylinder	Stainless steel	
Size		15A-100A	

Model		GP-1000S	GP-1000SS	GP-1000AS	GP-1200	GP-1200S	GP-1200SS
Application		Steam					
Inlet pressure		0.1-1.0 MPa					
Reduced pressure		0.05-0.9 MPa					
Max. temperature		220℃					
Connection		JIS 10K FF flanged					
Material	Body	Ductile cast iron	Cast stainless steel		Ductile cast iron		Stainless steel
	Valve	Stainless steel					
	Valve seat	Stainless steel					
	Piston, cylinder	Stainless steel			Brass or bronze	Stainless steel	
Size		15A-100A					

Model		GP-1000T	GP-1000TS	GP-1000TSS	GP-1000TAS	GP-1200T	GP-1200TS	GP-1200TSS
Application		Air, Other non-dangerous fluids						
Inlet pressure		0.1-1.0 MPa						
Reduced pressure		0.05-0.9 MPa						
Max. temperature		80℃						
Connection		JIS 10K FF flanged						
Material	Body	Ductile cast iron		Cast stainless steel		Ductile cast iron		Cast stainless steel
	Valve	Brass (NBR contained)	Stainless steel (NBR contained)			Brass (NBR contained)	Stainless steel (NBR contained)	
	Valve seat	Stainless steel						
	Piston, cylinder	Brass or bronze	Stainless steel			Brass or bronze	Stainless steel	
Size		15A-100A		15A-50A		15A-100A		15A-50A

GP-1000 Series



Steam

Air

Pressure reducing valve



GP-1010

- Pilot operated piston type
- Superior durability
- Stable performance
- Valve leakage meets ANSI class IV
- High reduction ratio (20:1)
- Air-loaded type for remote control (GP-1200 Series)



GP-1001

All GP-1000 Series valves except GP-1200 Series can be with adjusting handle (GP-10□1).

Model		GP-1010	GP-1010S	GP-1210	GP-1210S
Application		Steam			
Inlet pressure		0.1-1.0 MPa			
Reduced pressure		0.05-0.9 MPa			
Max. temperature		220°C			
Connection		JIS Rc screwed			
Material	Body	Ductile cast iron			
	Valve	Stainless steel			
	Valve seat	Stainless steel			
	Piston, cylinder	Brass or bronze	Stainless steel	Brass or bronze	Stainless steel
Size		15A-50A			

Model		GP-1010T	GP-1010TS	GP-1210T	GP-1210TS
Application		Air, Other non-dangerous fluids			
Inlet pressure		0.1-1.0 MPa			
Reduced pressure		0.05-0.9 MPa			
Max. temperature		80°C			
Connection		JIS Rc screwed			
Material	Body	Ductile cast iron			
	Valve	Brass (NBR contained)	Stainless steel (NBR contained)	Brass (NBR contained)	Stainless steel (NBR contained)
	Valve seat	Stainless steel			
	Piston, cylinder	Brass or bronze	Stainless steel	Brass or bronze	Stainless steel
Size		15A-50A			

GP-27



Steam

Pressure reducing valve



- Pilot operated piston type
- Reliable performance
- Large capacity for controlling reduced pressure
- Wide pressure range

Application		Steam
Inlet pressure		0.1-1.0 MPa
Reduced pressure		0.03-0.8 MPa
Max. temperature		220°C
Connection		JIS 10K FF flanged
Material	Body	Ductile cast iron
	Main valve, valve seat	Stainless steel
	Pilot valve, pilot valve seat	Stainless steel
	Piston, cylinder	Bronze
Size		125A-200A

GD-6N·6



Steam

Air



Pressure reducing valve



GD-6N

- Direct acting type
- Easy installation and operation

Model		GD-6N	GD-6
Application		Steam	Water, Oil, Air, Non-dangerous fluids
Inlet pressure		1.0 MPa or less	
Reduced pressure		(A) 0.02-0.1 MPa	
		(B) 0.1-0.4 MPa	
Max. temperature		220°C	80°C
Connection		JIS Rc screwed	
Material	Body	Ductile cast iron *1	
	Valve, valve seat	Stainless steel	Brass and bronze (FKM disc) *2
	Diaphragm	Stainless steel	
Size		10A-25A	

*1 Available with stainless steel wetted parts and all stainless steel.

*2 Available with stainless steel made valve disc and valve seat on request. Also available with PTFE disc on request.

GD-30·30S



Steam

Pressure reducing valve



GD-30

- Direct acting type
- Small, compact and advanced design
- Superior performance and durability
- Easy adjustment with handle
- Incorporated screen prevents dirt problem
- Wetted parts stainless steel (GD-30S)

Model		GD-30	GD-30S
Application		Steam	Steam
Inlet pressure		1.7 MPa or less	2.0 MPa or less
Reduced pressure		(A) 0.02-0.1 MPa	
		(B) 0.05-0.4 MPa	
		(C) 0.35-1.0 MPa	
Max. temperature		210°C	220°C
Connection		JIS Rc screwed	
Material	Body	Cast bronze	Cast stainless steel (SCS14A)
	Valve, valve seat	Stainless steel	
	Bellows	Phosphor bronze	Stainless steel
Size		15A-25A, 40A, 50A	15A-25A

GD-45•45P



Pressure reducing valve



GD-45

- Direct acting type • Small and compact
- Superior performance and durability • Easy installation and operation
- Incorporated screen prevents dirt problem

Application		Steam
Inlet pressure		2.0 MPa or less
Reduced pressure		(A) 0.02-0.1 MPa
		(B) 0.05-0.4 MPa
		(C) 0.35-1.0 MPa
Max. temperature		220°C
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Valve, valve seat	Stainless steel
	Bellows	Phosphor bronze
Size		15A-25A

GD-45P



GD-200 Series



Pressure reducing valve



GD-200

Model		GD-200	GD-200C	GD-200H
Application		Water, Oil (kerosene, heavy oils A and B), Air, Non-dangerous fluids		
Inlet pressure		1.0 MPa or less		2.0MPa or less
Reduced pressure	15A-50A	(A) 0.05-0.25 MPa		(A) 0.05-0.25 MPa
	65A, 80A	(B) 0.26-0.7 MPa		(B) 0.26-0.7 MPa
	100A-150A	(A) 0.05-0.25 MPa		(A) 0.05-0.25 MPa
Temperature		80°C	60°C	80°C
Connection		JIS 10K FF flanged		JIS 20K RF flanged
Material	Body	Ductile cast iron		
	Valve seat	Stainless steel		
	Valve disc	NBR		
	Diaphragm	NBR		
Size		15A-150A		

- Available with FKM (except for the GD-200H(C) of 65A to 150A).
- Available with the GD-200HS for flushing water.

GD-24



Pressure reducing valve



- Direct acting type • Small and compact
- Superior performance and durability
- Easy installation and operation

Application		Cold and hot Water
Inlet pressure		0.2-1.6 MPa
Reduced pressure		0.05-0.55 MPa
Max. temperature		80°C
Connection		JIS Rc screwed
Material	Body	Cast bronze *1
	Valve seat	Stainless steel *2
	Valve, valve disc	Brass and Urethane rubber
	Diaphragm	NBR
Size		15A-50A

*1 Available with the body of leadless bronze (Non-Pb treatment) as the GD-24-N.

*2 Available with valve and cap made of bronze (GD-24B).

GD-15C



Pressure reducing valve



- Direct acting type • Low noise and stable pressure control
- Hand-removable cap and incorporated strainer • Incorporated strainer prevents dirt problem
- With built-in check valve

Application		City water
Inlet pressure		0.1-1.0 MPa
Reduced pressure		0.05-0.25 MPa
Temperature		5-90°C
Connection		JIS Rc screwed
Material	Body	Cast bronze (NPb-treated)
	Spindle	Cast bronze
	Valve disc	EPDM, Bronze
	Diaphragm	EPDM
Size		15A-25A

GD-41•43



Pressure reducing valve



- Direct acting type • SCS14A/SUS316 stainless steel for wetted parts
- Material identification for recycling • Stable pressure control by pressure balance structure

Model	GD-41	GD-43-10	GD-43-20
Application	Cold and hot Water, Steam for washing or sterilization		
Inlet pressure	0.07-2.0 MPa (0.2 MPa or less in the case of steam for washing or sterilization) *1		
Reduced pressure	(A) 0.02-0.1 MPa		
	(B) 0.1-0.25 MPa		
	(C) 0.25-0.5 MPa		
Temperature	5-90°C *2		
Connection	JIS Rc screwed	JIS 10K FF flanged	JIS 20K RF flanged
Material	Body	Cast stainless steel (SCS14A)	
	Valve disc	Special synthetic rubber (special FKM)	
	Diaphragm	Heat-resistant synthetic rubber and PTFE (PTFE applied to wetted face)	
Size		15A-25A	

*1 The inlet pressure of the GD-43-10 is 0.07 to 1.0 MPa.

*2 If using washing steam or sterilization steam, be sure that maximum temperature is 130°C and avoid continuous use for more than 30 minutes.

• Available with the product for Air, Carbon dioxide gas, Nitrogen gas (GD-41G•43G).

GD-41

GD-400•400SS



Pressure reducing valve



- For extremely low pressure control • Max. reduction ratio is 400:1
- GD-400SS: Wetted parts made of stainless steel

Model	GD-400	GD-400SS
Application	Air, Nitrogen gas *1	
Inlet pressure	2.5-400 kPa	
Reduced pressure	(A) 0.5-1.4 kPa	
	(B) 1.2-3.3 kPa	
	(C) 3.0-8.0 kPa	
	(D) 7.0-20 kPa	
Temperature	5-60°C	
Connection	JIS 10K FF flanged	
Material	Body	Cast iron / Cast stainless steel (SCS14A)
	Valve	Stainless steel (NBR disc incorporated)
	Diaphragm	Synthetic rubber *2
	Spindle	Stainless steel
Size		15A-25A

*1 Please contact us when using for other fluids.

*2 Available with FKM.

GD-400SS



GD-26

- Direct acting type
- Anti-corrosion material for wetted parts
- Low noise and stable pressure control
- Incorporated strainer prevents dirt problem
- Leadless bronze (Non-Pb surface treatment) for the products with “N” letter



GD-27S · 29S · 27GS

Model		GD-26-N	GD-27-N	GD-28-N	GD-29-N	GD-26G	GD-27G
Application		Cold and hot water				Air, Other non-dangerous fluids *1	
Inlet pressure			Max. 1.0 MPa	Max. 1.6 MPa		Max. 1.0 MPa	
Reduced pressure		(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa	25A-100A (A) 0.05-0.35 MPa (B) 0.3-0.7 MPa 125A-150A (A) 0.05-0.2 MPa (B) 0.2-0.5 MPa	(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa			
Temperature		5-90℃	25A-100A: 5-90℃ 125A-150A: 5-80℃ *2	5-90℃			
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 16K FF flanged	JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze (NPb-treated)				Cast bronze	
	Valve seat	Cast bronze (NPb-treated)				Bronze	
	Valve disc	EPDM	25A-100A: EPDM 125A-150A: NBR	EPDM			
	Diaphragm	EPDM	25A-100A: EPDM 125A-150A: NBR	EPDM			
Size		15A-50A	25A-150A	15A-50A	25A-100A	15A-50A	25A-100A

Model		GD-26S	GD-27S	GD-28S	GD-29S	GD-26GS	GD-27GS
Application		Cold and hot water				Air, Other non-dangerous fluids *1	
Inlet pressure		Max. 1.0 MPa		Max. 1.6 MPa		Max. 1.0 MPa	
Reduced pressure		(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa					
Temperature		5-90℃					
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel					
	Valve seat	Cast stainless steel					
	Valve disc	EPDM					
	Diaphragm	EPDM					
Size		20A-50A	20A-100A	20A-50A	20A-100A	20A-50A	20A-100A

*1 Please contact us when using for gas containing oil.

*2 Available with the GD-27F withstanding 90°C, of 125A and 150A.

- Available with pipe end core (GD-26L-N, maximum temperature: 40°C)
- Avoid use of 125A and 150A under differential pressure of more than 0.8 MPa.
- Available with FKM (GD-26GS, GD-27GS, and GD-26S Series).

GD-25 Series



Pressure reducing valve



GD-25GJ

- Low noise and stable pressure control
- GD-25JC: With check valve
- GD-25GJ-K(P) : With pipe end core
- Leadless bronze (Non-Pb surface treatment)

Model		GD-25GJ	GD-25JC	GD-25GJ-K	GD-25GJ-K(P)
Application		City water			
Inlet pressure		Max. 1.0 MPa			
Reduced pressure		(A) 0.05-0.10 MPa (B) 0.10-0.22 MPa (C) 0.20-0.35 MPa			
Temperature		90℃			40℃
Connection		JIS R screwed (Union joint)		JIS Rc screwed (Union joint)	
Material	Body	Cast bronze (NPb-treated)			
	Valve seat	Cast bronze (NPb-treated)			
	Spindle	Brass			
	Valve disc	FKM			
	Diaphragm	EPDM			
Size		25A			

GD-38 Series



Pressure reducing valve



GD-38VV • 38PP

- Low noise and stable pressure control
- With "Bypass" function
- Leadless bronze (Non-Pb surface treatment)

Model	GD-38 Series
Application	City water
Inlet pressure	Max. 1.0 MPa
Reduced pressure	(A) 0.05-0.1 MPa (B) 0.10-0.22 MPa (C) 0.20-0.30 MPa
Temperature	90°C *1
Connection	JIS R screwed (Union joint) *2
Material	Body
	Valve seat
	Spindle
	Valve disc
	Diaphragm
Size	20A

*1 40°C for the product with pipe end core. 60°C for the product with check valve.

*2 Available with JIS Rc screwed and other types of connection.

GD-46 Series



Pressure reducing valve





GD-46PP



- Low noise and stable pressure control
- Hydraulic pressure test can be done easily by reversing the cap
- Leadless bronze (Non-Pb surface treatment)


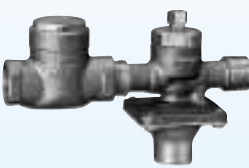


Model	GD-46 Series
Application	City water
Inlet pressure	Max. 1.0 MPa
Reduced pressure	(A) 0.05-0.10 MPa (B) 0.10-0.22 MPa (C) 0.20-0.30 MPa
Temperature	90°C *1
Connection	JIS R screwed (Union joint) *2
Material	Body
	Spindle
	Valve disc
	Diaphragm
	Dezincification resistant material
Size	20A




*1 40°C for the product with pipe end core. 60°C for the product with check valve.




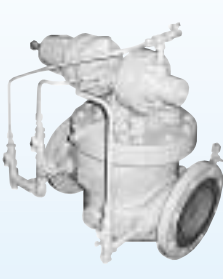
*2 Available with JIS Rc screwed and other types of connection.



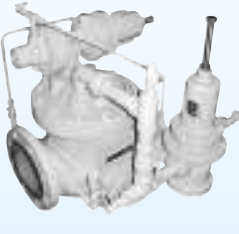
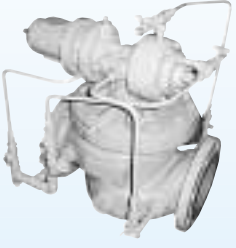
Feature		Low pressure	Low pressure / balance type	316 Stainless steel
Model		GD-4	GD-4B	GD-8N
Picture				
Application		Air, Other non-dangerous fluids		Pure Water, Air, N ₂ , CO ₂ , Ar
Inlet pressure		Max. 300 kPa	Max. 800 kPa (20A-50A) Max. 500 kPa (65A-150A)	0.1-1.0 MPa
Reduced pressure		2-200 kPa · Contact us for pressure range for each valve.		0.05-0.7 MPa
Max. temperature		80°C		60°C
Connection		JIS 10K FF flanged		JIS Rc screwed
Material	Body	Cast iron *		Stainless steel (SUS316)
	Valve	NBR (20A-50A) Stainless steel (65A-150A)	NBR	Stainless steel
	Valve seat	Stainless steel		Stainless steel
	Diaphragm	NBR		Fluororesin
Size		20A-150A		6A-15A
Others		* Available with carbon steel or stainless steel body.		<ul style="list-style-type: none"> · Available with reduced pressure of 0.02 to 0.2 MPa. · Pressure gauge connection port is JIS Rc 1/4 screwed. · Available with dedicated brackets.

Feature		General air regulator	Piston type	Piston type / balance type
Model		GD-9	GD-7	GD-7B
Picture				
Application		Air, Other non-dangerous fluids	Cold and hot water, Oil, Other non-dangerous fluids	
Inlet pressure		0.1-0.99 MPa	0.1-1.0 MPa	
Reduced pressure		0.05-0.85 MPa	25A-50A (A) 0.05-0.25 MPa (B) 0.25-0.45 MPa (C) 0.45-0.7 MPa	65A-150A (A) 0.05-0.2 MPa (B) 0.2-0.5 MPa (C) 0.5-0.7 MPa
Max. temperature		60°C	80°C *1	
Connection		JIS Rc screwed	JIS 10K FF flanged	
Material	Body	Aluminium die casting	Cast iron	
	Valve	NBR	Phosphor bronze *2	NBR
	Valve seat	Brass	Phosphor bronze *2	Stainless steel
	Diaphragm	NBR	—	
	Spindle	—	Stainless steel	
	Piston	—	Bronze	
Size		8A-25A	20A-150A	
Others		<ul style="list-style-type: none"> · The product cannot be used for toxic and flammable gases. · Available with dedicated brackets. 	<ul style="list-style-type: none"> *1 Available with withstanding up to 120°C. *2 Available with stainless steel made valve and valve seat. · Available with the GD-7H, made of cast steel, with inlet pressure of 2.0 MPa or less and reduced pressure of 0.7 to 1.6 MPa. 	

Feature		Large capacity	PRV unit for kerosene	Water hammer arrestor	Check valve
Model		GP-50	GD-65F · SU-55F	WP-1	CV-25U
Picture					
Application		Cold and hot water	Kerosene	Cold and hot water, City water	City water
Inlet pressure		0.14-1.0 MPa	0.05-0.1 MPa	Max. 1.0 MPa	1.0 MPa or less
Reduced pressure		0.07-0.2 MPa 0.2-0.4 MPa 0.4-0.7 MPa	0.02 MPa	—	Shut-off pressure: Min. 0.005 MPa
Max. temperature		70°C	60°C	90°C	35°C
Connection		JIS 10K RF flanged	JIS Rc screwed x JIS R screwed	JIS R screwed	JIS G screwed x JIS R screwed
Material	Body	Cast iron	Cast Bronze	Brass	Brass
	Valve	NBR, Stainless steel	FKM	Pipe: Copper	POM
	Valve seat	Stainless steel	Cast Bronze	Piston: Brass	—
	Piston, cylinder	Bronze	FKM	O ring: NBR	—
Size		125A-300A	15A	15A-25A	20A, 25A
Others		—	Incorporated screen: 60 mesh	—	—

Feature		For air loaded PRV	PRV with filter	3 port solenoid valve
Model		GD-37U	GD-37	DD-37
Picture				
Application		Air		Air, Water, Oil
Inlet pressure		Max. 0.99 MPa		Max. 0.6 MPa
Reduced pressure		0.05-0.85 MPa		—
Max. temperature		60°C		—
Connection		JIS Rc screwed		JIS Rc screwed
Material	Body	Zinc die casting		Brass
	Valve	NBR		NBR
	Valve seat	Zinc die casting		—
	Diaphragm	NBR		—
Size		8A	6A-8A	8A
Others		• Operating unit for air loaded pressure reducing valves. Filtration: 5 μm	Filtration: 5 μm	Rated voltage: AC 110 V 50 / 60 Hz AC 220 V 50 / 60 Hz

Feature		Primary pressure regulating valves			
Model		GPR-2000	GD-4R	GD-7R	GP-50R
Picture					
Application		Steam	Air, Other non-dangerous fluids	Water, Oil, Non-dangerous fluids	Cold and hot water
Pressure regulating range		(A) 0.02-0.15 MPa (B) 0.1-1.1 MPa (C) 1.0-1.4 MPa	2-200 kPa *	20-50A (A) 0.05-0.25 MPa (B) 0.25-0.45 MPa (C) 0.45-0.7 MPa 65-150A (A) 0.05-0.2 MPa (B) 0.2-0.5 MPa (C) 0.5-0.7 MPa	0.1-0.2 MPa 0.2-0.4 MPa 0.4-0.7 MPa
Max. temperature		220°C	80°C	80°C	70°C
Connection		JIS Rc screwed JIS 20K RF, JIS 10K FF flanged	JIS 10K FF flanged	JIS 10K FF flanged	JIS 10K RF flanged
Material	Body	Ductile cast iron	Cast iron	Cast iron	Cast iron
	Main valve	Stainless steel	Stainless steel	Phosphor bronze	NBR・Stainless steel
	Valve seat	Stainless steel	Stainless steel	Phosphor bronze	Stainless steel
	Pilot valve	Stainless steel	—	—	—
	Pilot valve seat	Stainless steel	—	—	—
	Diaphragm	Stainless steel	NBR	Piston: Bronze	Piston: Bronze
Size		Screwed: 15A-50A Flanged: 15A-100A	20A-150A	20A-150A	125A-300A
Others		—	* Please contact us for pressure range of each valve.	• Available with the GD-7RH with pressure range of 0.7 MPa to 1.6 MPa (made of cast steel).	—

Feature		Primary pressure regulating valve	Differential pressure regulating valve	Falling water preventing valve	Differential pressure regulating valve
Model		GD-20R	GD-21	GP-50S	GP-50RD
Picture					
Application		Water, Oil (kerosene・heavy oils A and B), Air, Non-dangerous fluids	Cold and hot water	Cold and hot water	Cold and hot water
Regulating pressure		15A-80A (A) 0.05-0.25 MPa (B) 0.26-0.7 MPa 100A-150A (A) 0.05-0.25 MPa (B) 0.26-0.5 MPa	15A-80A (A) 0.05-0.25 MPa (B) 0.26-0.7 MPa 100A-150A (A) 0.05-0.25 MPa (B) 0.26-0.5 MPa	0.1-0.2 MPa 0.2-0.4 MPa 0.4-0.7 MPa	0.1-0.2 MPa 0.2-0.4 MPa 0.4-0.7 MPa
Max. temperature		80°C	80°C	70°C	70°C
Connection		JIS 10K FF flanged	JIS 10K FF flanged	JIS 10K RF flanged	JIS 10K RF flanged
Material	Body	Ductile cast iron	Ductile cast iron	Cast iron	Cast iron
	Valve	NBR	NBR	NBR・Stainless steel	NBR・Stainless steel
	Valve seat	Stainless steel or Bronze	Bronze	Stainless steel	Stainless steel
	Diaphragm	NBR	NBR	Piston: Bronze	Piston: Bronze
Size		15A-150A	15A-150A	125A-300A	125A-300A
Others		• Available with the GD-20RC coated with Nylon 11.	—	—	—

Y's JACKET

This specially designed jacket completely fits Yoshitake products in use at your site. The energy-saving and CO₂-reduction effects can be estimated prior to order.

Features

1. Energy saving
Prevents room temperature rise as well as energy loss caused by heat release.
2. CO₂-reduction effect
Contributes to CO₂-reduction of the global issue.
3. Safety
Prevents accidents, such as burns or bruises and brings a safe and comfortable work environment.
4. Environmental enhancement
Easy to set and reusable after valve maintenance, it produces no waste and thus is environment-friendly.



Specifications

Material	Surface material	Glass cloth + Silicone coating
	Inner material	Glass cloth + Silicone coating
	Insulating material	Needle punched mat made of glass fiber



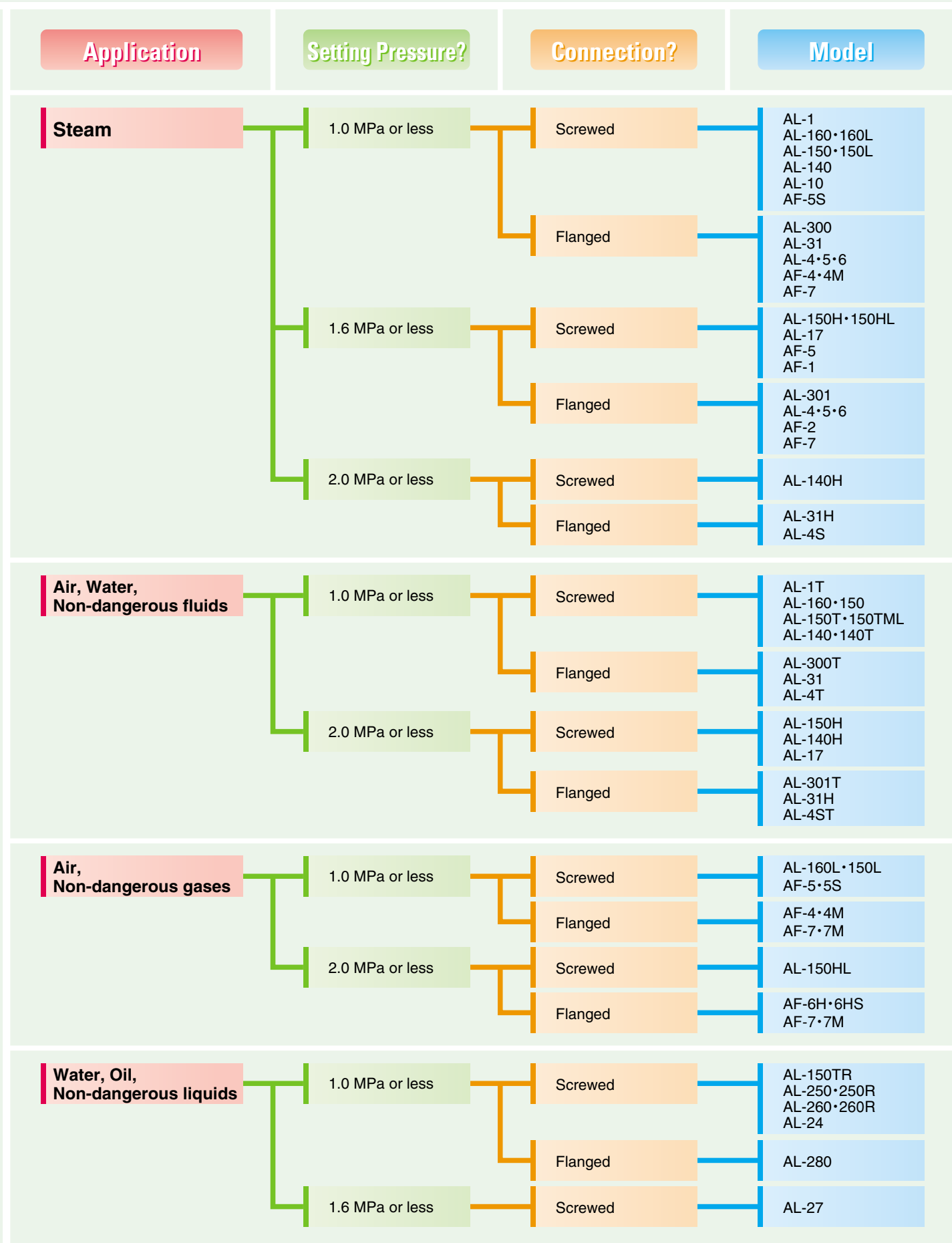
Table of Energy-saving Effect and Amount of Decrease in CO₂ Emission (with Y's JACKET)

	Model (Size)		Amount of heat release (kg/J)	Amount of steam reduction (kg/year)	Amount of decrease in CO ₂ emission (kg-CO ₂ /year)
Pressure reducing valve	GP-2000	15A	2,253	7,540	1,049
		25A	2,655	8,886	1,237
		50A	4,470	14,959	2,082
		100A	8,959	29,981	4,172
	GP-1000	15A	1,724	5,768	803
		25A	2,095	7,011	976
		50A	3,285	10,993	1,530
		100A	6,426	21,505	2,993
Drain separator	DS-1	15A	1,663	5,566	775
		25A	1,706	5,707	794
		50A	3,389	11,341	1,578
		100A	6,778	22,682	3,156
	DS-2	15A	2,003	6,705	933
		25A	2,521	8,438	1,174
		50A	3,929	13,150	1,830
		100A	7,858	26,300	3,660
Strainer	SY-40	15A	393	1,316	183
		25A	621	2,079	289
		50A	1,227	4,105	571
		100A	2,454	8,210	1,143
	SY-5	15A	113	380	53
		25A	256	856	119
		50A	512	1,712	238
		100A	1,024	3,424	476

- Calculated conditions: 1 MPa steam pressure, 24 hours per day, and Heavy oil A
- When steam pressure is 1 MPa,
Surface temperature of the valve without Y's jacket: 174°C
Surface temperature of the valve with Y's jacket: 47°C
(The temperature varies depending on the measurement conditions.)

Safety Relief Valves Selection

AL types are lift type safety and relief valves, AF types are full-bore safety valves.



* Please confirm the specification of the text about the detailed application and pressure of each model.

AL-160・150・150T



Steam

Air



Safety relief valve



AL-160

- Small and compact
- Superior durability due to stainless steel made valve and valve seat

Model	AL-160・150	AL-150T
Application	Steam, Air, Cold and hot water, Oil, Other Non-dangerous fluids	Air, Cold and hot water, Oil, Other non-dangerous fluids
Working pressure	0.05-1.0 MPa	
Max. temperature	220°C *	120°C
Connection	JIS Rc screwed	
Material	Cast bronze	
Spring case	Cast bronze	
Valve and valve seat	Cast Stainless steel (SCS14A)	Cast Stainless steel (SCS14A) FKM
Size	15A-50A	

* Max. temperature is 150°C when using for water, oil or other liquids.

AL-160L・150L・150H・150HL



Steam

Air



Safety relief valve



AL-160L

- Small and compact lever type (AL-160L・150L・150HL)
- Superior durability due to stainless steel made valve and valve seat

Model	AL-160L・150L	AL-150HL	AL-150H
Application	Steam, Air		Steam, Air, Water, Oil, Non-dangerous fluids
Working pressure	0.05-1.0 MPa	1.0-1.6 MPa	
Max. temperature	220°C		220°C *
Connection	JIS Rc screwed		
Material	Cast bronze		
Spring case	Cast bronze		
Valve and valve seat	Cast stainless steel (SCS14A)		
Size	15A-50A		

* Max. temperature is 150°C when using for water, oil or other liquids.

AL-140・140T・140H



Steam

Air



Safety relief valve



AL-140

- Superior durability due to all stainless steel made
- Simple structure and easy maintenance
- Easy adjustment

Model	AL-140	AL-140T	AL-140H
Application	Steam, Air, Cold and hot water, Oil	Air, Cold and hot water, Oil	Steam, Air, Other non-dangerous fluids
Working pressure	0.05-1.0 MPa		1.0-2.0 MPa
Max. temperature	220°C *	120°C	220°C *
Connection	JIS Rc screwed		
Material	Cast stainless steel		
Spring case	Cast stainless steel		
Valve and valve seat	Cast stainless steel (SCS14A)	Cast stainless steel (SCS14A)・FKM	Cast stainless steel (SCS14A)
Size	15A-50A		

* Max. temperature is 150°C when using for water, oil or other liquids.

AL-250·250R



Relief valve



AL-250



AL-250R

- Superior durability due to all stainless steel made
- Simple structure and easy maintenance
- Unique structure especially for relief valve
- Stable operation even with back pressure change produced in continuous blow
- Set pressure is easily changed by handle (AL-250R)

Model		AL-250	AL-250R
Application		Cold and hot water, Oil, Other non-dangerous fluids	
Working pressure		0.05-1.0 MPa	
Max. temperature		120°C	
Connection		JIS Rc screwed	
Material	Spring case	Cast stainless steel	
	Valve and valve seat	Stainless steel	
	Size	15A-50A	

AL-260·260R



Relief valve



AL-260



AL-260R

- Superior durability due to stainless steel trim parts
- Simple structure and easy maintenance
- Unique structure especially for relief valve
- Stable operation even with back pressure change produced in continuous blow
- Set pressure is easily changed by handle (AL-260R)

Model		AL-260	AL-260R
Application		Cold and hot water, Oil, Other non-dangerous fluids	
Working pressure		0.05-1.0 MPa	
Max. temperature		120°C	
Connection		JIS Rc screwed	
Material	Valve case	Cast bronze	
	Spring case	Cast bronze	
	Valve and valve seat	Stainless steel	
	Size	15A-50A	

AL-280



Relief valve



AL-280

- Superior durability due to stainless steel trim parts
- Effective for pump with high pulsation pressure or large pressure fluctuation
- Body made of high tensile strength material "FCD450"

Model		AL-280
Application		Cold and hot water, Oil (Heavy oil A, Heavy oil B, Kerosene)
Working pressure		0.05-1.0 MPa
Max. temperature		120°C
Connection		JIS10K FF flanged
Material	Valve case	Ductile cast iron
	Spring case	Ductile cast iron
	Valve and valve seat	Stainless steel
Size		15A-50A

AL-150TML・150TR



Safety relief valve



AL-150TML

- Superior durability due to stainless steel made valve and valve seat
- Simple structure and easy maintenance
- With closed test lever (AL-150TML)
- Set pressure is easily changed by handle (AL-150TR)

Model	AL-150TML	AL-150TR
Application	Air, Cold and hot water, Oil, Other non-dangerous fluids	Cold and hot water, Oil, Other non-dangerous fluids
Working pressure	0.05-1.0 MPa	
Max. temperature	120°C	
Connection	JIS Rc screwed	
Material	Spring case	Cast bronze
	Valve and valve seat	Stainless steel (SCS14A)・FKM
	Adjusting spring	Stainless steel
Size	15A-50A	



AL-150TR

AL-17



Safety relief valve



- Superior durability due to stainless steel made valve and valve seat
- Popping structure permits a reliable blow-off operation
- Blow-down pressure is adjustable

Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids
Working pressure		0.05-1.6 MPa
Max. temperature		220°C *
Connection		JIS Rc screwed
Material	Spring case	Ductile cast iron
	Valve and valve seat	Stainless steel
Size		15A-50A

* Max. temperature is 150°C when using for water, oil or other liquids.

AL-27



Relief valve



- Unique structure especially for relief valve
- Stable operation even with back pressure change produced in continuous blow

Application		Cold and hot water, Oil, Other non-dangerous fluids
Working pressure		0.05-1.6 MPa
Max. temperature		120°C
Connection		JIS Rc screwed
Material	Valve case	Ductile cast iron
	Spring case	Ductile cast iron
	Valve and valve seat	Stainless steel
Size		15A-50A

AL-1・1T



Safety relief valve



- Simple structure and easy maintenance
- Easy adjustment
- Tight seal because of PTFE disc (AL-1T)

Model	AL-1	AL-1T
Application	Steam	Air, Oil, Cold and hot water, Non-dangerous fluids
Working pressure	0.05-1.0 MPa	
Max. temperature	220°C	150°C
Connection	JIS Rc screwed	
Material	Valve case	Cast iron
	Valve and valve seat	Cast bronze
Size	15A-50A	

AL-300・301



Safety valve



- Simple structure and easy maintenance
- Easy adjustment

Model	AL-300	AL-301
Application	Steam	
Working pressure	0.05-1.0 MPa	0.05-1.5 MPa
Max. temperature	220°C	
Connection	JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged *
Material	Valve case	Ductile cast iron
	Spring case	Ductile cast iron
	Valve and valve seat	Cast bronze
Size	15A-50A	

* JIS 16K FF flanged when working pressure is more than 1.0 MPa.

AL-300T・301T



Safety relief valve



- Simple structure and easy maintenance
- Easy adjustment
- Tight seal because of PTFE disc

Model	AL-300T	AL-301T
Application	Air, Cold and hot water, Oil, Other non-dangerous fluids	
Working pressure	0.05-1.0 MPa	0.05-1.3 MPa *1
Max. temperature	150°C	
Connection	JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged *2
Material	Valve case and spring case	Ductile cast iron
	Valve and valve seat	PTFE · Cast bronze
Size	15A-50A	

*1 The AL-301 is available for 1.3 to 1.5 MPa.

*2 JIS 16K FF flanged when working pressure is more than 1.0 MPa.

AL-31・31H



Steam

Air



Safety relief valve



- Superior durability due to all stainless steel made
- Small and compact
- Simple structure and easy maintenance

Model	AL-31	AL-31H
Application	Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids	
Working pressure	0.05-1.0 MPa	1.0-2.0 MPa
Max. temperature	220°C *	
Connection	JIS 10K RF flanged	JIS 16K RF flanged JIS 20K RF flanged
Material	Valve case	Cast stainless steel
	Spring case	Cast stainless steel
	Valve and valve seat	Stainless steel
Size	15A-50A	

* Max. temperature is 150°C when using for water, oil or other liquids.

AL-4・4S



Steam

Safety valve



- Simple structure and easy maintenance
- Line-up of body material: ductile cast iron and stainless steel

Model	AL-4		AL-4S
Type	Standard	With SUS trim parts	—
Application	Steam		
Working pressure	0.05-1.0 MPa *1	0.05-1.5 MPa *1	0.05-2.0MPa
Max. temperature	220°C		
Connection	JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged	JIS 10K FF flanged JIS 16K FF flanged JIS 20K FF flanged
Material	Valve case	Ductile cast iron	
	Spring case		
	Valve and valve seat	Cast bronze	Stainless steel
Size	65A-150A	65A-150A for JIS 10K FF flanged 65A-125A for JIS 16K FF flanged	65A-100A

*1 Maximum working pressure for 150A is 0.8 MPa (connection: JIS 10K FF flanged).

*2 Available with stainless steel made as the AL-4S.

AL-4T・4ST



Air



Safety relief valve



- Simple structure and easy maintenance
- Tight seal because of PTFE disc
- Line-up of body material : ductile cast iron and stainless steel

Model	AL-4T		AL-4ST
Type	Standard	With SUS trim parts	—
Application	Air, Cold and hot water, Oil, Other non-dangerous fluids		
Working pressure	0.05-1.0 MPa *1	0.05-1.5 MPa *1 *2	0.05-2.0MPa *2
Max. temperature	150°C		
Connection	JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged	JIS 10K FF flanged JIS 16K FF flanged JIS 20K FF flanged
Material	Valve case	Ductile cast iron	
	Spring case		
	Valve and valve seat	PTFE・Cast bronze	PTFE・Stainless steel
Size	65A-150A	65A-150A for JIS 10K FF flanged 65A-125A for JIS 16K FF flanged	65A-100A

*1 Maximum working pressure for 150A is 0.8 MPa (connection: JIS 10K FF flanged).

*2 When working pressure is more than 1.2 MPa (for 65A and 80A) or 1.0 MPa (for 100A and 125A), a metal-to-metal seating is incorporated in.

*3 Available with stainless steel made as the AL-4ST.

AL-5



Steam

Safety valve



- Compliant with JIS standard
- Restricting structure to prevent unexpected pressure adjustment

Type		Standard	With SUS trim parts
Application		Steam	
Working pressure		0.05-1.0MPa	0.05-1.5MPa
Max. temperature		220°C	
Connection		JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged *
Material	Valve case	Ductile cast iron	
	Spring case	Ductile cast iron	
	Valve and valve seat	Cast bronze	Stainless steel
Size		20A-50A	

* JIS 16K FF flanged when working pressure is more than 1.0 MPa.

AL-6



Steam

Safety valve



- Compliant with JIS standard
- Blowout test can be performed with lever

Type		Standard	With SUS trim parts
Application		Steam	
Working pressure		0.05-1.0 MPa *1	0.05-1.5 MPa *1
Max. temperature		220°C	
Connection		JIS 10K FF flanged	JIS 10K FF flanged JIS 16K FF flanged *2
Material	Valve case	Ductile cast iron	
	Spring case	Ductile cast iron	
	Valve and valve seat	Cast bronze	Cast stainless steel
Size		65A-150A	

*1 Maximum working pressure for 150A is 0.8 MPa.

*2 JIS 16K FF flanged when working pressure is more than 1.0 MPa.

AF-5•5S



Steam

Air

Safety valve


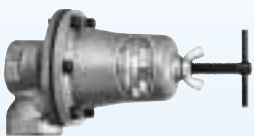




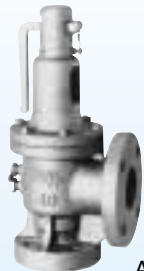



AF-5

- Small and compact
- Superior durability due to corrosion-proof material
- The AF-5S is all stainless steel made

Model		AF-5		AF-5S
Application		Steam	Air, Other non-dangerous fluids	Steam, Other non-dangerous fluids
Working pressure		0.1-1.6MPa	0.1-1.0MPa	0.1-1.0MPa
Max. temperature		220°C		
Connection		Inlet: JIS R screwed Outlet: JIS Rc screwed		
Material	Spring case	Cast bronze		Cast stainless steel
	Valve and valve seat	Stainless steel		
Size		20A-50A *		

* The nominal size and the connection size are different.

Feature		Safety valve / Lever	Relief valve / Diaphragm type	Full bore / screwed	Full bore / JIS B 8210 inlet
Model		AL-10	AL-24	AF-1	AF-2
Picture					
Application		Steam	Cold and hot water	Steam	Steam
Working pressure		0.05-1.0 MPa.	0.1-0.7 MPa *1	0.18-1.6 MPa	0.18-1.6 MPa
Max. temperature		220℃	60℃	220℃	220℃
Connection		JIS Rc screwed	JIS Rc screwed	Intel: JIS R screwed Outlet: JIS Rp screwed	Intel: JIS B 8210 10K RF flanged * Outlet: JIS B 2239 10K FF flanged
Material	Valve case	Spring case: Ductile cast iron	Cast bronze *2	Ductile cast iron	Ductile cast iron
	Valve	Cast bronze or stainless steel	NBR *3	Stainless steel	Stainless steel
	Valve seat	Cast bronze or stainless steel	Stainless steel	Stainless steel	Stainless steel
	Diaphragm	—	NBR (heat-resistant nylon contained)	—	—
Size		15A-50A	15A-25A	20A-50A	65A-80A
Others		—	*1 Available with working pressure between 0.05 MPa and 0.1 MPa. *2 Available with NPb-treated. *3 Available with FKM (AL-24F).	—	* JIS B 8210 20K RF flanged when working pressure is more than 1.0 MPa.

Feature		Full bore / JIS B 2239 flanged	Full bore / SCPH, SCS	Full bore / Lever, SCPH	Full bore / Closed, SCPH
Model		AF-4 • 4M	AF-6H • 6HS	AF-7	AF-7M
Picture					
Application		Steam, Air, Other non-dangerous fluids	Air, Other non-dangerous fluids	Steam, Air, Other non-dangerous fluids	Air, Other non-dangerous fluids
Working pressure		0.1-1.0 MPa	0.1-1.96 MPa	0.1-1.0 MPa *	
Max. temperature		220℃	250℃ *1	350℃	300℃
Connection		JIS 10K FF flanged	Inlet: JIS 20K RF flanged Outlet: JIS 10K FF flanged *2	Inlet: JIS 10K RF flanged Outlet: JIS 10K FF flanged	
Material	Valve case	Ductile cast iron	Cast carbon steel	Cast carbon steel	
	Valve	Stainless steel *	Stellite overlaid stainless steel	Stainless steel	
	Valve seat	Stainless steel *	Stellite overlaid stainless steel	Stainless steel	
Size		25A-150A	25A-100A	25A-100A	
Others		* Stellite overlaid stainless steel for 80A or larger in nominal size.	*1 It may change depending on fluid and pressure. *2 The inlet flange is thicker than JIS standard value.	* Available with working pressure between 1.0 MPa and 1.6 MPa (Inlet: JIS 20K RF flanged).	

●Setting pressure range for each model

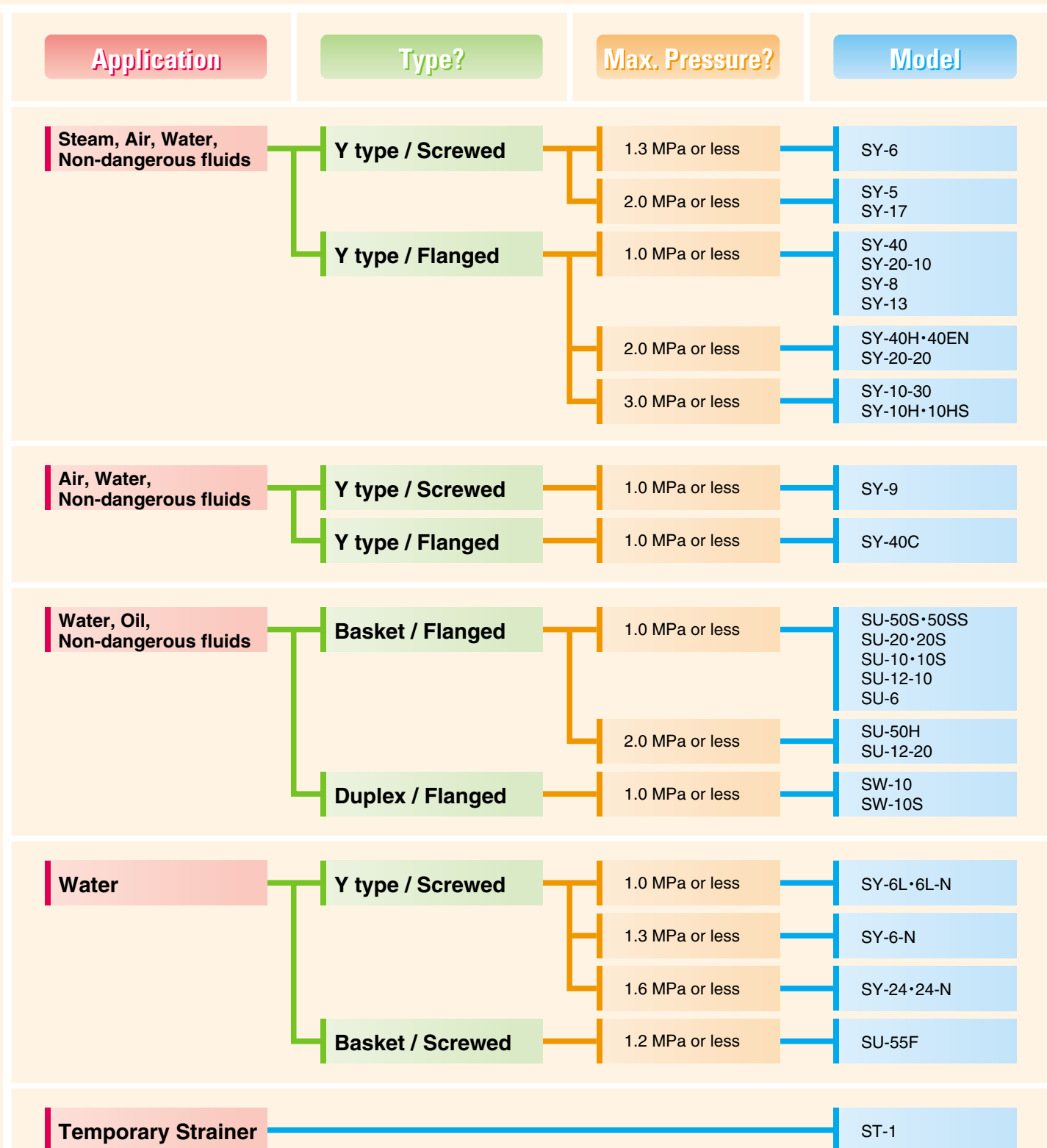
(MPa)

Model	Size	A	B	C	D	E	F	G	H
AL-1•1T	15A	0.05-0.25	0.26-0.4	0.41-0.75	0.76-1.0				
	20A-50A	0.05-0.25	0.26-0.5	0.51-0.75	0.76-1.0				
AL-160 AL-160L	15A-50A	0.05-0.2	0.21-0.4	0.41-0.7	0.66-1.0				
AL-150 AL-150L AL-140	15A	0.05-0.2	B1: 0.21-0.3 B2: 0.31-0.4	0.41-0.55	0.56-0.75	0.76-1.0			
	20A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.6	0.61-0.75	0.76-1.0		
	25A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.55	0.56-0.8	0.81-1.0		
	32A	0.05-0.2	B1: 0.21-0.3 B2: 0.31-0.4	0.41-0.65	0.66-1.0				
	40A • 50A	0.05-0.2	B1: 0.21-0.3 B2: 0.31-0.4	0.41-0.65	0.66-0.8	0.81-1.0			
AL-150H•150HL	15A						1.0-1.6		
	20A • 25A							1.0-1.6	
	32A					1.0-1.6			
	40A • 50A						1.0-1.6		
AL-140H	15A						1.0-1.3	1.31-2.0	
	20A • 25A							1.0-1.6	1.61-2.0
	32A					1.0-1.6	1.61-2.0		
	40A						1.0-1.6	1.61-2.0	
AL-150T•150TR AL-150TML AL-140T AL-250•250R AL-260•260R	15A	0.05-0.2	0.21-0.4	0.41-0.55	0.56-0.75	0.76-1.0			
	20A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.6	0.61-0.75	0.76-1.0		
	25A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.55	0.56-0.8	0.81-1.0		
	32A	0.05-0.2	0.21-0.4	0.41-0.65	0.66-1.0				
	40A • 50A	0.05-0.2	0.21-0.4	0.41-0.65	0.66-0.8	0.81-1.0			
AL-17•27	15A-50A	0.05-0.2	0.21-0.4	0.41-0.65	0.66-1.0	1.01-1.6			
AL-10	15A-40A	0.05-0.2							
	50A	0.05-0.1 0.11-0.2	0.21-0.4	0.41-0.65	0.66-1.0				
AL-31•31H	15A	0.05-0.15	0.16-0.25	0.36-0.45	0.56-0.65	0.76-0.85	1.0-1.3	1.31-1.6	1.61-2.0
			0.26-0.35	0.46-0.55	0.66-0.75	0.86-1.0		1.61-2.0	
	20A	0.05-0.2	0.21-0.3		0.31-0.4 0.41-0.5	0.51-0.7	0.71-1.0	1.0-1.3 1.31-1.6	
	25A	0.05-0.2	0.21-0.3	0.31-0.45	0.46-0.55	0.56-0.65 0.66-0.8	0.81-1.0	1.0-1.6	
	32A-50A	0.05-0.2	0.21-0.3	0.31-0.5	0.51-0.65	0.66-0.8	0.81-1.0	1.0-1.6	1.61-2.0
AL-300•301	15A-50A	0.05-0.25	0.26-0.5	0.51-0.75	0.76-1.5				
AL-300T•301T	15A-50A	0.05-0.25	0.26-0.5	0.51-0.75	0.76-1.3				
AL-280	15A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.6	0.61-0.75	0.76-1.0		
	20A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.6	0.61-0.75	0.76-1.0		
	25A	0.05-0.2	0.21-0.35	0.36-0.45	0.46-0.55	0.56-0.8	0.81-1.0		
	32A	0.05-0.2	0.21-0.4	0.41-0.65	0.66-1.0				
	40A-50A	0.05-0.2	0.21-0.4	0.41-0.65	0.66-0.8	0.81-1.0			
AL-4•4T•6	65A	0.05-0.1	0.11-0.25	0.26-0.55	0.56-1.0	1.01-1.5			
	80A-125A	0.05-0.1	0.11-0.2	0.21-0.4	0.41-0.8	0.81-1.5			
	150A	0.05-0.1	0.11-0.2	0.21-0.4	0.41-0.8				
AL-4S•4ST	65A	0.05-0.1	0.11-0.25	0.26-0.55	0.56-1.0	1.01-2.0			
	80A • 100A	0.05-0.1	0.11-0.2	0.21-0.4	0.41-0.8	0.81-1.6	1.61-2.0		
AL-5	20A	0.05-0.12	0.13-0.21	0.22-0.35	0.36-0.63	0.64-1.0		1.01-1.5	
	25A	0.05-0.08	0.09-0.15	0.16-0.25	0.26-0.45	0.46-0.75	0.76-1.0	1.01-1.1	1.11-1.5
	32A	0.05-0.08	0.09-0.17	0.18-0.25	0.26-0.45	0.46-0.75	0.76-1.0	1.01-1.1	1.11-1.5
	40A	0.05-0.08	0.09-0.15	0.16-0.4	0.41-0.7	0.71-1.0		1.01-1.1	1.11-1.5
	50A	0.05-0.09	0.1-0.25	0.26-0.5	0.51-0.7	0.71-1.0 1.01-1.1	1.11-1.5		

MEMO

Handwriting practice lines consisting of 20 horizontal dotted lines.

Strainers Selection



* Please confirm the specification of the text about the detailed application and pressure of each model.

SY-5 Y type strainer



- Screwed, ductile cast iron and 2.0 MPa • Small and compact
- Low pressure loss and large capacity

Application		Steam, Air, Cold and hot water, Other non-dangerous fluids
Max. pressure		2.0 MPa
Max. temperature		220°C
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Screen	Stainless steel
Size		10A-50A

- Standard screen: ϕ 2.5-7.21 holes/cm² 80 mesh.
- Available with 20 to 100 mesh screen.

SY-40•40C Y type strainer



- Flanged, ductile cast iron and 1.0 MPa • Low pressure loss and large capacity
- SY-40C is coated with Nylon 11

Model		SY-40	SY-40C
Application		Steam, Air, Water, Non-dangerous fluids	Air, Water, Non-dangerous fluids
Max. pressure		1.0 MPa	
Max. temperature		220°C	60°C
Connection		JIS 10KFF flanged	
Material	Body	Ductile cast iron	
	Screen	Stainless steel	
Size		15A-300A	

- Standard screen: ϕ 2.5-7.21 holes/cm² 80 mesh for the SY-40 or 60 mesh for the SY-40C.
- Available with 20 to 100 mesh screen.

SY-40H•40EN Y type strainer



- Flanged, ductile cast iron and 2.0 MPa
- Low pressure loss and large capacity

Model		SY-40H	SY-40EN
Application		Steam, Air, Cold and hot water, Non-dangerous fluids	
Max. pressure		2.0 MPa	
Max. temperature		220°C	
Connection		JIS 20K FF flanged ASME CLASS 300 flanged	EN1092 PN25 flanged
Material	Body	Ductile cast iron	
	Screen	Stainless steel	
Size		15A-150A	

- Standard screen: ϕ 2.5-7.21 holes/cm² 80 mesh.
- Available with 20 to 100 mesh screen.

SY-17 Y type strainer



- Screwed, stainless steel and 2.0 MPa • Small and compact
- Low pressure loss and large capacity

Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids
Max. pressure		2.0 MPa
Max. temperature		150°C (250°C) *
Connection		JIS Rc screwed
Material	Body	Cast stainless steel
	Screen	Stainless steel
Size		15A-50A

- * Gasket material is non-asbestos, for more than 150°C.
- Standard screen: ϕ 2.5-7.21 holes/cm² 80 mesh.
- Available with 20 to 100 mesh screen.
- Available with 120 to 200 mesh screen as the SY-37.

SU-50 Series



Basket strainer



SU-50H

- Flanged, ductile cast iron and 2.0 MPa
- Small and compact
- Easy maintenance because of unique cover (SU-50S•50SS)

Model		SU-50H	SU-50S	SU-50SS
Application		Water, Oil		Water, Oil, Flushing water
Max. pressure		2.0 MPa	1.0 MPa	
Max. temperature		80℃		
Connection		JIS 20K RF or BS4504 PN16 flanged		
Material	Body	Ductile cast iron		Ductile cast iron with Epoxy coating
	Cover	Ductile cast iron		Stainless steel (SUS316)
	Screen	Stainless steel (SUS316)		
Size		50A-150A (Except 125A)		

- Standard screen: ϕ 2.5-7.21 holes/cm² 60 mesh.
- Available with 20 to 100 mesh screen.

SU-50S



SU-20•20S•20C



Basket strainer



SU-20

- Flanged, ductile cast iron and 1.0 MPa
- Easy maintenance because of one-touch cover (SU-20S)
- Stainless steel made are available as the SU-10 and SU-10S

Model	SU-20•20C	SU-20S
Application	Cold and hot water, Oil, Other non-dangerous fluids	
Max. pressure	1.0 MPa	1.0 MPa *
Max. temperature	220°C	80°C
Connection	JIS 10K FF flanged	
Material	Body	Ductile cast iron
	Screen	Stainless steel
Size	20A-150A	

* Max. pressure is 0.7 MPa for 125A and 0.5 MPa for 150A.

- Standard screen: ϕ 6-1.42 holes/cm² 60 mesh.
- Available with 20 to 250 mesh screen.

SU-20S



SW-10•10S



Duplex strainer



SW-10


- Flanged, duplex, ductile cast iron and 1.0 MPa
- Easy maintenance because of one-touch cover (SW-10S)
- Stainless steel made is available

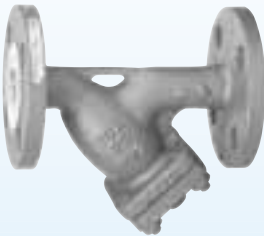
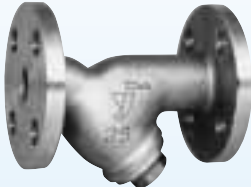
Model	SW-10	SW-10S
Application	Cold and hot water, Oil, Oter non-dangerous fluids	
Max. pressure	1.0 MPa	
Max. temperature	80°C	
Connection	JIS 10K FF flanged	
Material	Body	Ductile cast iron
	Screen	Stainless steel
Size	20A-100A	


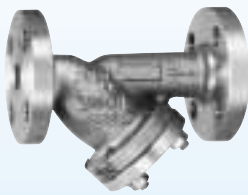
- Standard screen: ϕ 6-1.42 holes/cm² 60 mesh.
- Available with 20 to 250 mesh screen.

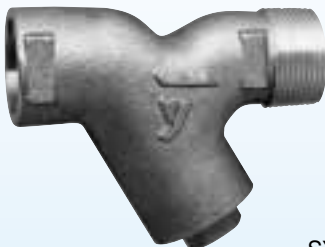


SW-10S






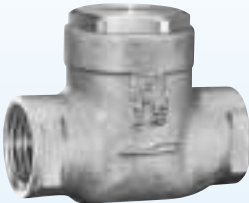

Feature		Y type screwed / Bronze	Leadless bronze	Anticorrosive core	Anticorrosive core
Model		SY-6	SY-6-N	SY-6L	SY-6L-N
Picture		<div><p>SY-6</p></div>			
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids	Cold and hot water	Cold and hot water	Cold and hot water
Max. pressure		1.3 MPa		1.0 MPa	
Max. temperature		220℃	80℃	40℃	
Connection		JIS Rc screwed			
Material	Body	Cast bronze	Cast bronze (NPb-treated)	Cast bronze	Cast bronze (NPb-treated)
	Screen	Stainless steel			
Standard screen		80 mesh (ϕ 2.5-7.21 holes/cm²)	60 mesh (ϕ 2.5-7.21 holes/cm²)		
Available screen		20-100 mesh (ϕ 2.5-7.21 holes/cm²)			
Size		15A-50A			
Others		—	—	—	—

Feature		Y type flanged / Cast carbon steel		Y type flanged / Stainless steel
Model		SY-20-10	SY-20-20	SY-8
Picture				
Application		Steam, Air, Cold and hot water, Other non-dangerous fluids		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids
Max. pressure		1.0 MPa	2.0 MPa	1.0 MPa *1
Max. temperature		260°C		150°C (250°C) *2
Connection		JIS 10K RF flanged	JIS 20K RF flanged	JIS 10K FF flanged *1
Material	Body	Cast carbon steel		Cast stainless steel
	Screen	Stainless steel		Stainless steel
Standard screen		80 mesh (ϕ 6-1.80 holes/cm ²)		80 mesh (15A-100A: ϕ 2.5-7.21 holes/cm ²) (125A-150A: ϕ 6-2.05 holes/cm ²)
Available screen		20-60 mesh (ϕ 6-1.80 holes/cm ²)		20-100 mesh *3 (15A-100A: ϕ 2.5-7.21 holes/cm ²) (125A-150A: ϕ 6-2.05 holes/cm ²)
Size		15A-150A		15A-150A
Others		—	—	*1 Available with JIS 20K FF flanged (up to 50A). *2 Gasket material is non-asbestos, for more than 150°C. *3 Available with 120 to 200 mesh screen as the SY-38.

Feature		Y type flanged / Carbon steel		Y type flanged / Stainless steel
Model		SY-10	SY-10H	SY-10HS
Picture		 SY-10		
Application		Steam, Air, Cold and hot water, Other non-dangerous fluids	High pressure gas, Steam, Cold and hot water, Other non-dangerous fluids	
Max. pressure		3.0 MPa	1.0, 2.0, or 3.0 MPa	
Max. temperature		260°C *	350°C *	
Connection		JIS 30K RF flanged	JIS 10K/20K/30K RF flanged	
Material	Body	Cast carbon steel	Cast carbon steel	Cast stainless steel
	Screen	Stainless steel		
Standard screen		80 mesh (ϕ 6-1.80 holes/cm ²)		
Available screen		20-100 mesh (ϕ 6-1.8 holes/cm ²)		
Size		15A-250A	15A-100A	
Others		* If the temperature is more than 260°C, please contact us.	* 350°C for working pressure up to 2.0 MPa, and 300°C for more than 2.0 MPa.	* 350°C for working pressure up to 2.0 MPa, and 300°C for more than 2.0 MPa.

Feature		Y type screwed / Bronze	Leadless bronze	Y type screwed / Easy plug	Y type flanged / Large size
Model		SY-24	SY-24-N	SY-9	SY-13
Picture		 SY-24			
Application		Cold and hot water		Air, Cold and hot water, Other non-dangerous fluids	Steam, Air, Cold and hot water, Other non-dangerous fluids
Max. pressure		1.6 MPa		1.0 MPa	1.0 MPa
Max. temperature		80°C		80°C	220°C
Connection		Inlet: JIS Rc screwed Outlet: JIS R screwed		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze	Cast bronze (NPb-treated)	Ductile cast iron	Carbon steel *1
	Screen	Stainless steel		Stainless steel	Stainless steel
Standard screen		60 mesh (ϕ 2.5-7.21 holes/cm ²)		60 mesh (ϕ 2.5-7.21 holes/cm ²)	80 mesh (ϕ 6-1.80 holes/cm ²)
Available screen		20-100 mesh (ϕ 2.5-7.21 holes/cm ²)		20-100 mesh (ϕ 2.5-7.21 holes/cm ²)	20-100 mesh *2 (ϕ 6-1.80 holes/cm ²)
Size		15A-50A		15A-50A	200A-600A
Others		—	—	—	*1 Carbon steel pipes for pressure service and rolled steels for general structure. *2 Available only with perforations (20A to 80A: ϕ 1.5-11.2 holes/cm ²) on request. • Available with stainless wetted parts (SY-13SS).

Feature		Basket / Stainless steel	One-touch / Stainless steel	Basket flanged / Large size
Model		SU-10	SU-10S	SU-6
Picture		 SU-10		
Application		Cold and hot water, Oil, Other non-dangerous fluids		Cold and hot water, Oil, Other non-dangerous fluids
Max. pressure		1.0 MPa	1.0 MPa *	1.0 MPa
Max. temperature		220°C	80°C	120°C
Connection		JIS 10K FF flanged		JIS 10K FF flanged
Material	Body	Cast stainless steel		Carbon steel *
	Screen	Stainless steel		Stainless steel
Standard screen		60 mesh (ϕ 6-1.42 holes/cm ²)		40 mesh (ϕ 10-0.739 holes/cm ²)
Available screen		20-250 mesh (ϕ 6-1.42 holes/cm ²)		20-100 mesh (ϕ 10-0.739 holes/cm ²)
Size		20A-150A		200A-600A
Others		—	* 0.7 MPa for 125A and 0.5 MPa for 150A.	* Rolled steel for carbon steel piping and general structural rolled steel. * Available with stainless steel wetted parts (SU-6SS).

Feature		Basket flanged / CS	Small type / Bronze	Corn type / Temporary
Model		SU-12	SU-55F	ST-1
Picture				
Application		Cold and hot water, Oil, Other non-dangerous fluids	Cold and hot water	Steam, Air, Cold and hot water, Other non-dangerous fluids
Max. pressure		1.0, 1.6 or 2.0 MPa *	1.2 MPa	1.0, 2.0, 3.0 or 4.0 MPa *
Max. temperature		260°C	60°C	220°C
Connection		JIS, ASME flanged *	JIS Rc screwed	JIS flanged *
Material	Body	Cast carbon steel	Cast Bronze	—
	Screen	Stainless steel	Stainless steel	Stainless steel
Standard screen		60 mesh (ϕ 6-1.42 holes/cm ²)	60 mesh	80 mesh (ϕ 8-0.954 holes/cm ²)
Available screen		20-250 mesh (ϕ 6-1.42 holes/cm ²)	—	20-250 mesh (ϕ 8-0.954 holes/cm ²)
Size		20A-150A	15A	25A-300A
Others		* SU-12-10: JIS 10K RF flanged SU-12-16: JIS 16K RF flanged SU-12-20: JIS 20K RF flanged SU-12-150: ASME CLASS 150 flanged SU-12-300: ASME CLASS 300 flanged	—	* ST-1-10: JIS 10K flanged ST-1-20: JIS 20K flanged ST-1-30: JIS 30K flanged ST-1-40: JIS 40K flanged

1MPa \div 10kgf/cm²G

Solenoid Valves, Motor Valves, Air Operated Valves Selection

Type?

Application

Pressure?

Model

Solenoid Valves

DP type
(Pilot operated type)

Steam, Air, Water, Oil,
Non-dangerous fluids

1.0 MPa or less

DP-100•100F
DP-10•13
DP-10C•13C

Air, Water, Oil,
Non-dangerous fluids

1.0 MPa or less

DP-12•14
DP-12C•14C
DP-16•18

DD type
(Direct acting type)

Steam, Air, Water, Oil,
Non-dangerous fluids

0.15 MPa or less

DD-2

0.8 MPa or less

DD-2-8

Steam

0.15 MPa or less

DD-1S

0.8 MPa or less

DD-1S-5•7

Air, Water, Oil,
Non-dangerous fluids

0.15 MPa or less

DD-3
DD-1W

0.8 MPa or less

DD-3-8
DD-1W-5•7

Motor Valves

Two Way type

Steam

0.6 MPa or less

MD-54

Air, Water

1.0 MPa or less

MD-53•54
MD-36R
MD-55
MD-61

Three Way type

Air, Water

1.0 MPa or less

MD-35R

Air Operated Valves

Steam, Air, Water, Oil,
Non-dangerous fluids

1.0 MPa or less

PD-1
PD-2

Emergency Shut-off Valve

Water

1.0 MPa or less

MD-71

* Please confirm the specification of the text about the detailed application and pressure of each model.

DP-100•100F



Solenoid valve



DP-100

- Applicable for steam, air, water and oil
- Small and compact, but large capacity
- Vertical or horizontal installation is possible

Model		DP-100	DP-100F
Application		Steam, Air, N₂ gas, CO₂ gas (dry), Ar gas, Cold and hot water, Oil (20 cSt or less)	
Working pressure		0-1.0 MPa (Unusable under vacuum)	
Min. differential pressure		0 MPa (0.03 MPa or more is required for vertical installation)	
Max. temperature		180°C	
Rated voltage		AC 100 / 200 V, AC 110 / 220 V	
		50 / 60 Hz common	
Operation		Normally closed	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel (SCS14A)	
	Piston	Stainless steel (SCS14A)	
	Valve disc	PTFE	
Size		10A-50A	15A-65A

DP-10•13



Solenoid valve



DP-10

- Applicable for steam, air, water and oil
- Small and compact, but large capacity
- Vertical or horizontal installation is possible

Model		DP-10	DP-13
Application		Steam, Air, Cold and hot water, Oil (20 cSt or less)	
Working pressure		0.05-1.0 MPa (Unusable under vacuum)	
Min. differential pressure		0.05 MPa (0.1 MPa or more is required for vertical installation)	
Max. temperature		180°C	
Rated voltage		AC 100 / 200 V, AC 110 / 220 V, AC 120 / 240 V	
		50 / 60 Hz common	
Operation		Normally closed	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze	
	Piston	Stainless steel	
	Valve disc	PTFE	
Size		10A-50A	15A-65A

- Available with normally opened type as the DP-10C and DP-13C.
- Available with DC coil type as the DP-10D and DP-13D.
- Available with normally opened & DC coil type as the DP-10CD and DP-13CD.

DP-12•14



Solenoid valve



DP-12

- Zero leakage
- Zero differential working pressure
- Vertical or horizontal installation is possible

Model		DP-12	DP-14
Application		Air, Cold and hot water, Oil (20 cSt or less)	
Working pressure		0-1.0 MPa (Unusable under vacuum)	
Min. differential pressure		0 MPa (0.1 MPa or more is required for vertical installation)	
Max. temperature		60°C (FKM: 120°C is available)	
Rated voltage		AC 100 / 200 V, AC 110 / 220 V, AC 120 / 240 V	
		50 / 60 Hz common	
Operation		Normally closed	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze *	
	Valve	NBR (Diaphragm)	
Size		10A-50A	15A-50A

- * Available with leadless bronze (Non-Pb surface treatment) as the DP-12-N and DP-14-N.
- Available with normally opened type as the DP-12C and DP-14C.
- Available with DC coil type as the DP-12D and DP-14D.
- Available with normally opened & DC coil type as the DP-12CD and DP-14CD.

DP-16·18



Solenoid valve



DP-16

- Stainless steel made ensures long life
- Small and compact, but large capacity

Model	DP-16	DP-18
Application	Air, Cold and hot Water, Oil (20 cSt or less)	
Working pressure	0-1.0 MPa (Unusable under vacuum)	
Min. differential pressure	0 MPa (0.1 MPa or more is required for vertical installation)	
Max. temperature	60°C	
Rated voltage	AC 100 / 200 V, AC 110 / 220 V, AC 120 / 240 V 50 / 60 Hz common	
Operation	Normally closed	
Connection	JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel
	Valve	NBR (Diaphragm)
Size	15A-50A	

- Available with normally opened type as the DP-16C and DP-18C.
- Available with DC coil type as the DP-16D and DP-18D.
- Available with normally opened & DC coil type as the DP-16CD and DP-18CD.

DD-2·3



Solenoid valve



DD-2

- Small and compact direct acting type
- Stainless steel made ensures long life
- Applicable for steam, air, water and oil

Model		DD-2	DD-2-8	DD-3	DD-3-8
Application		Steam, Air, N ₂ gas, CO ₂ gas, Ar gas, Cold and hot water, Oil		Air, N ₂ gas, CO ₂ gas, Ar gas, Cold and hot water, Oil	
Maximum pressure		0-0.15 MPa	0-0.8 MPa	0-0.15 MPa	0-0.8 MPa
Maximum. temperature		175℃		100℃	
Rated voltage		AC 100 / 200 V, AC 110 / 220 V, AC 120 / 240 V 50 / 60 Hz common			
Operation		Normally closed			
Connection		JIS Rc screwed			
Material	Body	Cast stainless steel (SCS14A)			
	Valve	PTFE		FKM	
Size		10A-20A			

DP-100·10 Series option

Solenoid valve



TN-1



TN-1C



TN-2



TN-2C

Terminal box

Terminal box can be installed to the DP-100·10 Series for both outdoor and indoor usage.


The TN-2 and TN-2C cannot be used for DC voltage.

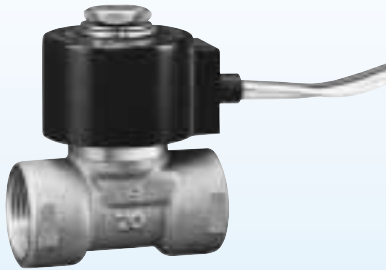


TN-1: Standard terminal box



TN-1C: With cab tire cable

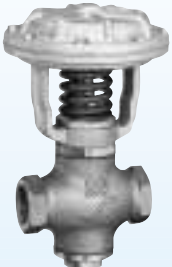
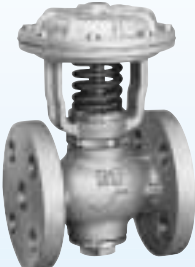


TN-2: With indication light

TN-2C: With indication light and cab tire cable

Feature		Piston type / Screwed	Piston type / Flanged	Diaphragm type / Screwed	Diaphragm type / Flanged
Model		DP-10C	DP-13C	DP-12C	DP-14C
Picture		<div></div> <div>DP-10C</div>			
Application		Steam, Air, Cold and hot water, Oil		Air, Cold and hot water, Oil	
Working pressure		0.05-1.0 MPa (Unusable under vacuum)		0-1.0 MPa (Unusable under vacuum)	
Min. differential pressure		0.05 MPa (0.1 MPa or more is required for vertical installation)		0 MPa (0.1 MPa or more is required for vertical installation)	
Max. temperature		180℃		60℃	
Rated voltage		AC 100 / 200 V, AC 110 / 220 V, AC 120 / 240 V 50 / 60 Hz common			
Operation		Normally opened			
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze			
	Valve	PTFE		NBR (Diaphragm)	
Size		10A-50A-10CD.	15A-50A	10A-50A	15A-50A
Others		• Available with DC coil type as the DP-10CD, DP-13CD, DP-12CD and DP-14CD.			

Feature	Direct acting / For steam	Direct acting / For air, water	Motor valve / Screwed, 3 way	Motor valve / Screwed, 2 way
Model	DD-1S	DD-1W	MD-35R	MD-36R
Picture				
Application	Steam	Air, Cold and hot water, Oil	Air, Cold and hot water	
Max. pressure	DD-1S: 0.12MPa 120°C	DD-1W: 0.12MPa 120°C	1.0 MPa	
Max. temperature	DD-1S-5: 0.5MPa 160°C DD-1S-7: 0.7MPa 170°C	DD-1W-5: 0.5MPa 120°C DD-1W-7: 0.7MPa 120°C	80°C (No freeze condition)	
Min. differential pressure	0 MPa		0 MPa	
Rated voltage	AC 100 V, AC 200 V		AC 100 / 110 V, AC 200 / 220 V	
	50 / 60 Hz selective		50 / 60 Hz common	
Operation	Normally closed		Diverting	ON-OFF
Connection	JIS Rc screwed		JIS Rc x R screwed	JIS Rc screwed
Material	Body	Cast bronze	Brass	
	Plunger	Stainless steel	Ball: Brass (HCr plating)	
	Valve disc	PTFE	Seat: PTFE	
Size	10A-20A		15A-25A	
Others	—	—	—	—

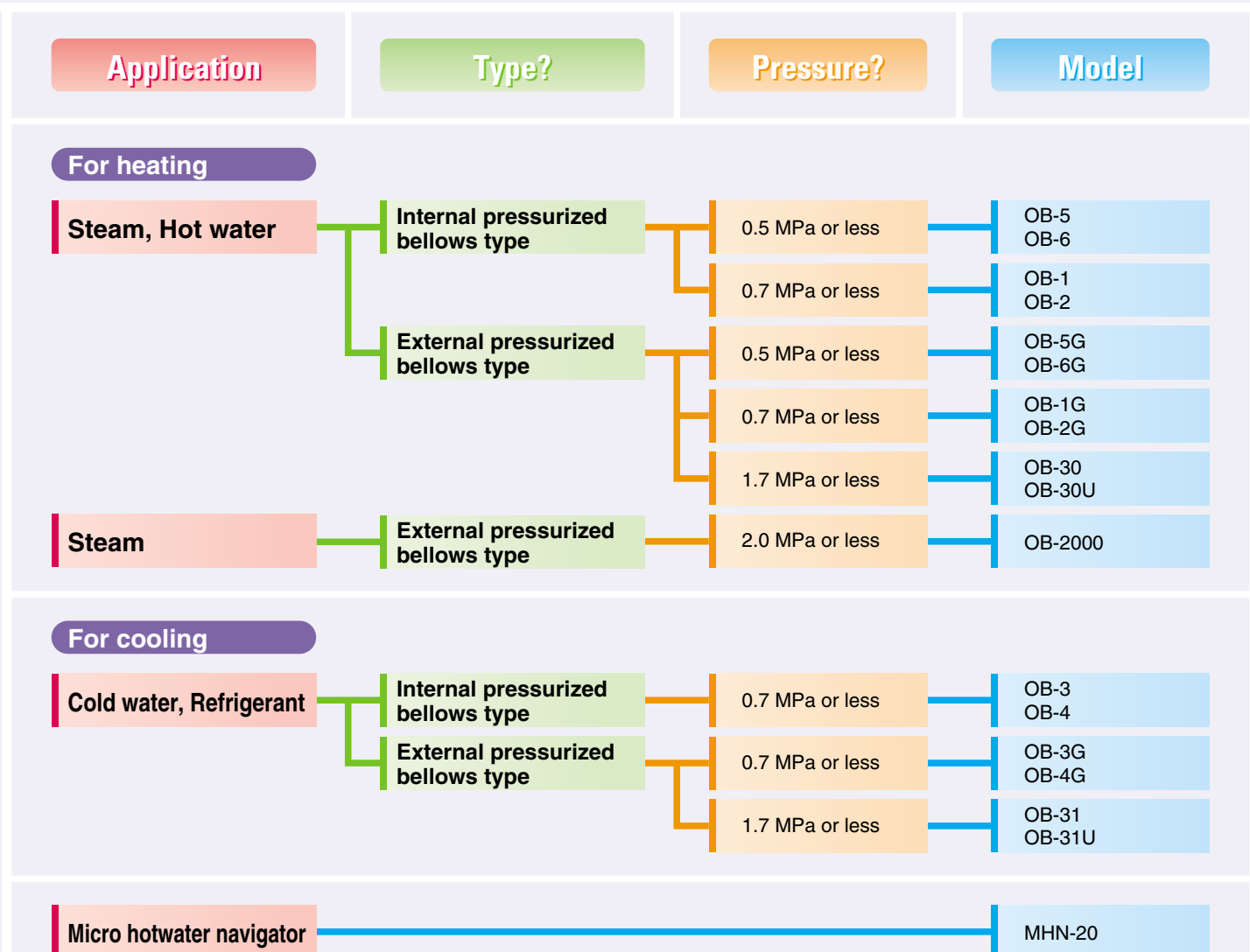
Feature		Motor valve / Screwed	Motor valve / Flanged, 2 way	Motor valve / Stainless, 2 way
Model		MD-54	MD-55	MD-61
Picture			 MD-61	
Application		Steam, Air, Cold and hot water	Air, Cold and hot water	
Working pressure		0-1.0 MPa (Steam: 0-0.6 MPa)	0-1.0 MPa	
Min. differential pressure		—	0 MPa	
Max. temperature		Steam: 160°C Air: 120°C Water: 100°C	80°C	
Rated voltage		AC 100 / 110 V, AC 200 / 220 V 50 / 60 Hz common	AC 100 / 110 V, AC 200 / 220 V 50 / 60 Hz common	
Operation		ON-OFF	ON-OFF	
Connection		JIS Rc screwed	JIS 10K RF flanged	JIS 10K RF flanged
Material	Body	Cast stainless steel	Ductile cast iron	Cast stainless steel
	Ball	Stainless steel	Stainless steel	
	Seat	Reinforced fluorine resin for high temperature	PTFE	
Size		15A-50A	65A-150A	65A-125A
Others		* Available with the MD-53 for cold and hot water and air (Max. temp.: 80°C).	—	—

Feature		Diaphragm valve / Screwed	Diaphragm valve / Flanged	Emergency shut-off valve	Control unit for MD-71
Model		PD-1	PD-2	MD-71	KS-5
Picture					
Application		Steam, Air, Cold and hot water, Other non-dangerous fluids		Tap water	—
Working pressure		0-1.0 MPa		0-1.0 MPa	—
Max. temperature		180°C		60°C	50°C
Rated voltage		—		24 V DC	85-240 V AC, 50 / 60 Hz
Operation		Air-to-open *		ON-OFF	Output : DC 24 V
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS 10K (also available JIS 5K)	—
Material	Body	Cast bronze	Cast iron	Ductile cast iron	—
	Main valve	Stainless steel		Stainless steel	—
	Valve seat	Stainless steel		EPDM	—
Size		15A-25A	15A-50A	50A-200A	—
Others		* Available with air-to-close operation type.		—	• Standard unit is for 2 emergency shut-off valves. Contact us for details.

MEMO

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Temperature Regulators Selection



* Please confirm the specification of the text about the detailed application and pressure of each model.

OB-30 Series



Temperature regulator



OB-30

- The OB-30 and OB-30U for heating, the OB-31 and OB-31U for cooling
- Small and compact, but accurate control
- PTFE/Stainless steel valve & valve seat ensure long durability

Model		OB-30	OB-30U	OB-31	OB-31U
Purpose		For heating		For cooling	
Application	Cooling/Heating	Steam, Hot water		Cold water, Refrigerant	
	Cooled/Heated	Cold and hot water, Oil, Liquids			
Max. pressure	Body	1.0 MPa (1.7 MPa for hot water)		1.7 MPa	
	Thermal bulb	1.0 MPa			
Max. differential pressure		1.0 MPa			
Max. temperature		185℃			
Set point range		0-35℃, 25-70℃, 40-100℃, 60-130℃, 70-150℃		0-35℃, 25-70℃, 40-100℃	
Max. temp. for bulb		Upper set point +40℃			
Connection		JIS Rc screwed	JIS Rc screwed (Union joint)	JIS Rc screwed	JIS Rc screwed (Union joint)
Material	Body	Cast bronze			
	Valve disc	PTFE			
	Valve seat	Stainless steel			
	Thermal bulb	Copper pipe (Nickel chrome plated)			
Standard capillary length		2 m			
Size		15A-25A			

- Available with thermal well (stainless steel made).
- Available with capillary of 3 or 5 meter.

OB-2000



Temperature regulator



- Large capacity and accurate control
- Wide temperature range
- Valve leakage meets ANSI class IV

Model		OB-2000
Application	Heating	Steam
	Heated	Cold and hot water, Oil, Non-dangerous fluids
Max. pressure	Body	2.0 MPa *
	Thermal bulb	1.0 MPa
Max. temperature		220°C
Set point range		-8-15°C, 10-36°C, 30-62°C, 55-94°C, 80-127°C, 115-183°C
Max. temp. for bulb		Upper set point +20°C
Connection		JIS Rc screwed JIS 10K FF, 20K RF flanged
Material	Body	Ductile cast iron
	Main valve, valve seat	Stainless steel
	Diaphragm	Stainless steel
	Pilot valve	Stainless steel
	Pilot valve seat	Stainless steel
	Thermal bulb	Copper pipe (Nickel chrome plated)
Standard capillary length		2 m
Size		15A-50A 15A-100A

* Maximum pressure of JIS 10K FF flanged is 1.0 MPa.

- Available with thermal well (stainless steel made).
- Available with capillary of 3 or 5 meter.

OB-1·1G·2·2G



Temperature regulator



OB-2

- Adjusting handle enables easy setting
- Double valve structure and large capacity
- External pressure type bellows ensures distinguished temperature resistance (OB-1G·2G)

Model		OB-1	OB-1G	OB-2	OB-2G
Application	Heating	Steam, Hot water			
	Heated	Cold and hot water, Oil, Non-dangerous fluids			
Max. pressure	Body	0.7 MPa		0.2-0.7 MPa *	
	Thermal bulb	1.0 MPa			
Max. temperature		180℃			
Set point range		40-60℃, 50-70℃, 60-80℃, 80-100℃, 100-120℃	15-35℃, 20-40℃, 35-55℃, 40-60℃, 50-70℃, 60-80℃, 70-90℃, 80-100℃	40-60℃, 50-70℃, 60-80℃, 80-100℃, 100-120℃	15-35℃, 20-40℃, 35-55℃, 40-60℃, 50-70℃, 60-80℃, 70-90℃, 80-100℃
Max. temp. for bulb		Upper set point +10℃	Upper set point +30℃	Upper set point +10℃	Upper set point +30℃
Connection		JIS Rc screwed (Union joint)		JIS 10K FF flanged	
Material	Body	Cast bronze		Cast iron	
	Valve	Phosphor bronze		Phosphor bronze (Stainless steel)	
	Valve spindle	Stainless steel			
	Bellows	Phosphor bronze			
	Thermal bulb	Stainless steel			
Standard capillary length		2 m			
Size		15A-40A		15A-150A	

* Maximum pressure varies on nominal size. Contact us for details.

• Available with capillary of up to 5 meter.



MHN-20



Micro hotwater navigator



- No generation of chemical substances due to heating
- Stainless steel encased body ensures safety and hygiene
- Compact sized wall mounted type
- Immediate supply of hot water improves work efficiency

Model		MHN-20
Application	Heating	Steam
	Heated	Cold and hot water
Steam supply pressure		0.1-0.3 MPa
Water supply pressure		0.15-0.4 MPa
Relationship between steam supply pressure and water supply pressure		Steam supply pressure < Water supply pressure
Temperature adjusting range		40°C-70°C
Hot water capacity	Minimum flow rate	5 L/min
	Flow rate range	5-30 L/min
Max. steam capacities		93 kg/h
Max. heat exchange capacity		54 kW (46,200 kcal/h)
Material		Stainless steel, Copper, PTFE, Synthetic rubber

Feature		For cooling / Screwed	For cooling / External pressurized	For cooling / Flanged	For cooling / External pressurized
Model		OB-3	OB-3G	OB-4	OB-4G
Picture					
Application	Cooling/Heating	Cold water, Refrigerant		Cold water, Refrigerant	
	Cooled/Heated	Cold and hot water, Oil, Non-dangerous fluids		Cold and hot water, Oil, Non-dangerous fluids	
Max. pressure	Body	0.7 MPa		0.2-0.7 MPa *	
	Thermal bulb	1.0 MPa		1.0 MPa	
Body max. temperature		180°C		180°C	
Set point range		40-60°C, 50-70°C, 60-80°C, 80-100°C, 100-120°C	15-35°C, 20-40°C, 35-55°C, 40-60°C, 50-70°C, 60-80°C, 70-90°C, 80-100°C	40-60°C, 50-70°C, 60-80°C, 80-100°C, 100-120°C	15-35°C, 20-40°C, 35-55°C, 40-60°C, 50-70°C, 60-80°C, 70-90°C, 80-100°C
Max. temp. for bulb		Upper set point +10°C	Upper set point +30°C	Upper set point +10°C	Upper set point +30°C
Connection		JIS Rc screwed (Union joint)		JIS 10K FF flanged	
Material	Body	Cast bronze		Cast iron	
	Valve	Phosphor bronze		Phosphor bronze (Stainless steel)	
	Valve seat	Phosphor bronze		Phosphor bronze (Stainless steel)	
	Thermal bulb	Stainless steel		Stainless steel	
Standard capillary length		2 m		15A-80A: 2 m 100A-150A: 3 m	
Size		15A-40A		15A-150A	
Others		—		*Maximum pressure varies on nominal size.	

Feature		For heating / Screwed	For heating / Flanged
Model		OB-5	OB-6
Picture			
Application	Cooling/Heating	Steam, Hot water	Steam, Hot water
	Cooled/Heated	Cold and hot water, Oil, Non-dangerous fluids	Cold and hot water, Oil, Non-dangerous fluids
Max. pressure	Body	0.5 MPa	0.5 MPa
	Thermal bulb	1.0 MPa	1.0 MPa
Body max. temperature		180°C	180°C
Set point range		40-60°C, 50-70°C, 60-80°C, 80-100°C, 100-120°C	40-60°C, 50-70°C, 60-80°C, 80-100°C, 100-120°C
Max. temp. for bulb		Set temp. -10°C or less	Set temp. -10°C or less
Connection		JIS Rc screwed (Union joint)	JIS 10K FF flanged
Material	Body	Cast bronze	Cast iron
	Valve	Stainless steel	Stainless steel
	Valve seat	Stainless steel	Stainless steel
	Thermal bulb	Stainless steel	Stainless steel
Standard capillary length		2 m	2 m
Size		15A-25A	15A-25A
Others		• Available with the OB-5G for low-temperature heating (15-35°C, 20-40°C, 35-55°C).	• Available with the OB-6G for low-temperature heating (15-35°C, 20-40°C, 35-55°C).

Expansion Joints and Flexible Joints Selection

Type?	Application	Pressure?	Model
Expansion Joints Bellows Type	Steam, Air, Water, Oil, Non-dangerous fluids	0.98 MPa or less	EB-1J EB-2J
		2.0 MPa or less	EB-11 EB-12
	Air, Water, Oil, Non-dangerous fluids	1.0 MPa or less	EB-31 EB-32
	Cold and hot water, Chemicals	1.0 MPa or less	EB-51-3
Expansion Joints Sleeve Type	Steam, Air, Water, Non-dangerous fluids	1.0 MPa or less	ES-10
		2.0 MPa or less	ES-11
Ball Joints	Steam, Air, Water, Oil, Non-dangerous fluids	0.98 MPa or less	UB-1 UB-2 UB-10・11
Universal Joints	Air, Water, Non-dangerous fluids	1.0 MPa or less	UB-3・13
Flexible Joints	Steam, Air, Water, Oil, Non-dangerous fluids	1.0 MPa or less	YBF-1E YBF-2E

* Please confirm the specification of the text about the detailed application and pressure of each model.

EB-1J・2J



Expansion joint



EB-1J



EB-2J

- Design and dimension comply with JIS standard
- 316L stainless steel wetted parts
- With outer pipe and inner pipe

Model	EB-1J	EB-2J
Application	Steam, Air, Cold and hot Water, Oil, Other non-dangerous fluids	
Max. pressure	0.98 MPa	
Max. temperature	220°C	
Axial extension	10 mm	20 mm
Axial compression	25 mm	50 mm
Connection	JIS 10K FF flanged	
Material	Outer pipe	Carbon steel *1
	Bellows	Stainless steel (SUS316L)
	Inner pipe	Stainless steel (SUS316L)
Size	20A-250A *2	

*1 Available with all stainless steel made.

*2 Available with nominal size from 300A to 450A (EB-3・4).

EB-11・12



Expansion joint



EB-11



EB-12

- With control ring and up to 2.0 MPa
- 316L stainless steel wetted parts
- With outer pipe and inner pipe

Model	EB-11	EB-12
Application	Steam, Air, Cold and hot Water, Oil, Other non-dangerous fluids	
Max. pressure	2.0 MPa	
Max. temperature	220°C	
Axial extension	10 mm	20 mm
Axial compression	25 mm	50 mm
Connection	JIS 20K RF flanged	
Material	Outer pipe	Carbon steel
	Bellows	Stainless steel (SUS316L)
	Inner pipe	Stainless steel (SUS316L)
Size	20A-250A *	

* Available with nominal size from 300A to 450A (EB-7・8).

YBF-1E・2E



Flexible joint



YBF-1E



YBF-2E

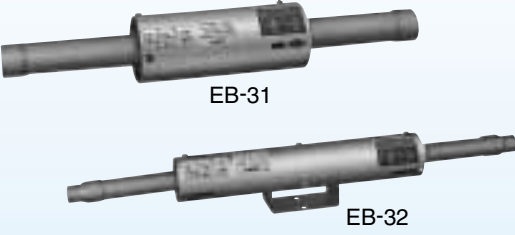
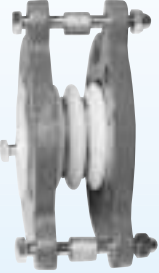
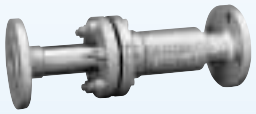
- Flexible and durable for pressure up to 1.0MPa
- Excellent weather resistance
- Significantly improved service life

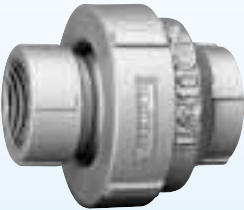
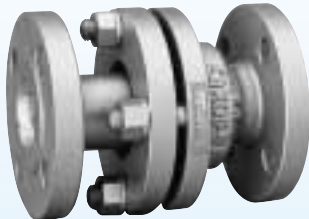

Model	YBF-1E	YBF-2E
Application	Steam, Air, Cold and hot Water, Oil, Other non-dangerous fluids	
Max. pressure	1.0 MPa	*1
Max. temperature	220°C	
Length	300mm, 500mm, 800mm, 1000mm *2	
Connection	JIS Rc screwed (Union joint)	JIS 10K FF flanged
Material	Bellows	Stainless steel *3
	Braid	Stainless steel *3
Size	15A-50A	15A-250A

*1 15A-100A: 1.0 MPa, 125A-150A: 0.99 MPa, 200A: 0.77 MPa, 250A: 0.59 MPa

*2 Available with 1200mm, 1500mm, 2000mm length.

*3 Available with all stainless steel made (YBF-6E・7E).

Feature		For copper pipe / Single type	For copper pipe / Double type	Anti-corrosion / PTFE joint	Sleeve joint / 1.0, 2.0 MPa
Model		EB-31	EB-32	EB-51-3	ES-10·11
Picture		 EB-31 EB-32			 ES-10-100
Application		Air, Cold and hot water, Oil, Other non-dangerous fluids		Cold and hot water, Chemicals, etc.	Steam, Air, Water, Non-dangerous fluids
Max. pressure		1.0 MPa		1.0 MPa *1	ES-10: 1.0 MPa ES-11: 2.0 MPa
Max. temperature		120°C		150°C *1	220°C
Axial extension		10 mm	20 mm	10-20 mm *2	ES-10-100, ES-11-100: 20mm ES-10-200, ES-11-200: 40mm
Axial compression		25 mm	50 mm	10-35 mm *2	ES-10-100, ES-11-100: 80mm ES-10-200, ES-11-200: 160mm
Connection		Socket soldered type		JIS 10K RF flanged	ES-10: JIS 10K RF flanged ES-11: JIS 20K RF flanged
Material	Outer pipe	Carbon steel		—	Body - ES-10: Cast iron or Rolled steel ES-11: Rolled steel Sleeve: Carbon steel (HCr plating)
	Bellows	Stainless steel		PTFE	
	Connection	Copper		Flange: Ductile cast iron	
Size		20A-80A		25A, 40A-200A	20A-300A
Others		—	—	*1 Depends on the size and rating. Contact us for details. *2 Depends on the size. Contact us for details.	—

Feature		Ball joint / Screwed	Ball joint / Butt-weld	Ball joint / Flanged	Universal joint / Axial & angle
Model		UB-1	UB-2	UB-10・11	UB-3・13
Picture		 UB-1	 UB-10	 UB-13	
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids			Air, Water, Non-dangerous fluids
Max. pressure		0.98 MPa			1.0 MPa
Max. temperature		220℃			80℃ *1
Max. displacement angle		20°			UB-3: 20° UB-13: 30°
Max. axial displacement		—			12 mm-80 mm *2
Connection		JIS Rc screwed	Butt-weld	JIS 10K RF flanged	UB-3: JIS Rc screwed UB-13: JIS 10K RF flanged
Material	Body	Cast iron	Carbon steel	UB-10: Cast iron UB-11: Carbon steel	Cast iron
	Ball	Cast iron (HCr plating)	Carbon steel (HCr plating)		Cast iron (HCr plating)
Size		20A-50A	50A-250A		UB-3: 20A-50A UB-13: 40A-300A
Others		—	—	—	*1 Available with max. temp. 120℃. *2 Depends on the size. Contact us for details.

MEMO

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Steam Traps, Radiator Traps and Radiator Valves Selection

Application

Pressure?

Model

Steam Traps

Steam condensate

0.3 MPa or less

TF-1

0.7 MPa or less

TF-2

1.0 MPa or less

TSD-7•7F
TS-7•8
TB-5

2.0 MPa or less

TD-10NA•30NA

4.2 MPa or less

TSD-42

Assist Trap

Steam condensate

0.5 MPa or less

TFA-2000

Radiator Traps

Steam condensate

0.1 MPa or less

TS-1

0.2 MPa or less

TS-3
TS-1H

0.35 MPa or less

TS-4

Radiator Valves

Steam, Water

0.3 MPa or less

FV-2

Water: 1.0 MPa
Steam: 0.05 MPa

118 Series

Water

0.6 MPa or less

HV-3

Return Valves

Water

0.6 MPa or less

HV-3

1.0 MPa or less

109 Series

Check Valve

Steam, Water

1.6 MPa or less

SCV-2

* Please confirm the specification of the text about the detailed application and pressure of each model.

TD-10NA·30NA



Steam condensate

Steam trap



TD-10NA

- Bi-metal ring eliminates air-binding problem
- Stable performance and superior durability
- Ductile cast iron body and up to 2.0 MPa

Model		TD-10NA	TD-30NA
Application		Steam condensate	
Working pressure		0.035-2.0 MPa	
Max. temperature		220°C	
Allowable back pressure		50% or less of inlet pressure	
Connection		JIS Rc screwed	JIS 20K FF flanged *
Material	Body	Ductile cast iron	
	Valve disc	Stainless steel (Special heat treatment)	
	Valve seat	Stainless steel (Special heat treatment)	
Size		15A-25A	

* Available with JIS 10K FF flanged.



TD-30NA

TSD-42



Steam condensate

Steam trap



- Stainless steel body and up to 4.2 MPa
- Bi-metal ring eliminates air-binding problem
- Stable performance and superior durability

Application		Steam condensate
Maximum pressure		4.2 MPa
Max. temperature		425°C
Allowable back pressure		50% or less of inlet pressure
Connection		JIS Rc, NPT, BSPT screwed
Material	Body	Stainless steel (SCS2A)
	Valve disc	Stainless steel (Special heat treatment)
	Valve seat	Stainless steel (Special heat treatment)
Size		15A-25A

TSD-7·7F



Steam condensate

Steam trap



TSD-7

- “Stop”, “Bypass”, “Trap”, “Test” functions
- Stable operation in wide pressure range

Model		TSD-7	TSD-7F
Application		Steam condensate	
Maximum pressure		0.035-1.0 MPa	
Max. temperature		183°C	
Allowable back pressure		50% or less of inlet pressure	
Connection		JIS Rc screwed	JIS 10K FF flanged
Installation posture		At any angle between vertical and horizontal (Do not put the cover under the horizontal level)	
Material	Body	Ductile cast iron	
	Valve disc	Stainless steel (Special heat treatment)	
	Valve seat	Stainless steel (Special heat treatment)	
Size		15A-25A	



TSD-7F

TS-7·8



Steam condensate

Steam trap



TS-7

- “Stop”, “Bypass”, “Trap”, “Test” functions
- Stable operation in wide pressure range
- Incorporated strainer

Model		TS-7	TS-8
Application		Steam condensate	
Maximum pressure		1.0 MPa	
Max. temperature		183°C	
Min. working differential pressure		0.03 MPa	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Ductile cast iron	
	Cock (Valve seat)	Stainless steel	
	Bellows (Valve)	Stainless steel	
Size		15A-25A	

* When performing an airtightness test using water or air, keep the pressure at 0.5 MPa or less.

TS-8



TF-2



Steam condensate

Steam trap



- Stainless steel valve disc and valve seat offer excellent durability
- Built-in air vent prevents air-binding problem, offering higher durability
- Compact, lightweight and large discharge capacity

Application		Steam condensate
Maximum pressure		0.7 MPa
Max. temperature		170°C
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Valve, valve seat	Stainless steel
	Float	Stainless steel
Size		15A-50A

TFA-2000



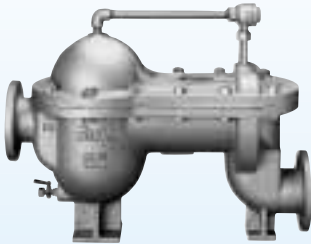


Steam condensate

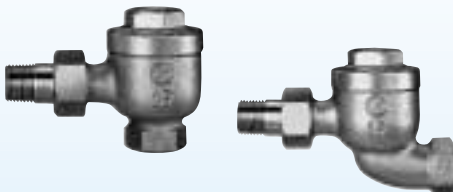
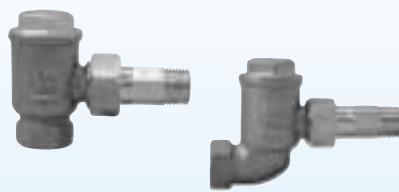
Assist trap



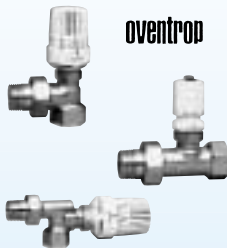



- Float trap equipped with pumping/assist functions
- Appropriate for discharging low-pressure condensate in heating equipment and air conditioner, etc.

Application		Steam condensate
Maximum pressure		0.5 MPa
Max. temperature		160°C
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Valve, valve seat	Stainless steel
	Float	Stainless steel
Size		25A

Feature	Float type / Flanged	Bucket type / Screwed	Check valve
Model	TF-1	TB-5	SCV-2
Picture			
Application	Steam condensate	Steam condensate	Steam, Cold and hot water
Max. pressure	0.3 MPa	1.0 MPa	1.6 MPa
Max. temperature	150°C	220°C	220°C
Connection	JIS 10K RF flanged	JIS 10K FF flanged	JIS Rc screwed
Material	Body	Ductile cast iron	Stainless steel
	Valve, valve seat	Cast bronze	Stainless steel
	Float	Brass	—
Size	65A, 80A	15A-50A	15A-50A

Feature		Radiator trap / Bellows type	Radiator trap / Bellows type	Radiator trap / Bellows type	Radiator trap / Wax type
Model		TS-1A・1S	TS-1HA・1HS	TS-3A・3S	TS-4A・4S
Picture					
Application		Steam condensate			
Max. pressure		0.1 MPa	0.2 MPa	0.2 MPa	0.35 MPa
Max. temperature		120℃	135℃	135℃	150℃
Connection		Inlet: JIS R screwed (Union joint) Outlet: JIS Rc screwed			
Material	Body	Cast bronze	Cast bronze	Cast bronze	Cast bronze
	Valve, valve seat	Brass	Brass	Brass, Stainless steel	Stainless steel
	Bellows	Phosphor bronze	Phosphor bronze	Phosphor bronze	Thermoelement: Brass, others
Size		15A-25A	25A	15A, 20A	15A, 20A
Others		TS-□A: Angle type TS-□S: Straight type			

Feature	Radiator valve / Bellows type	Radiator valve / Return valve	Thermo-radiator valve	Return valve
Model	FV-2	HV-3	118 Series	109 Series
Picture			 oventrop	 oventrop
Application	Steam (Cold and hot water)	Cold and hot water	Hot water, Steam	Cold and hot water
Max. pressure	0.3 MPa	0.6 MPa	Water: 1.0 MPa Steam: 0.05 MPa	1.0 MPa
Max. temperature	150°C	120°C	Water: 120°C Steam: 110°C	120°C
Connection	Inlet: JIS Rc screwed Outlet: JIS R screwed (Union joint)		Inlet: JIS Rp screwed Outlet: JIS R screwed (Union joint)	Inlet: JIS R screwed (Union joint) Outlet: JIS Rp screwed
Material	Body	Cast bronze	Bronze or Brass	Bronze or Brass
	Valve, valve seat	PTFE, Bronze	EPDM, Bronze or Brass	Brass, Bronze or Brass
Size	15A-32A	15A-25A	15A-25A (Angle, straight) 15A-20A (Reversed angle)	15A, 20A
Others	FV-2A: Angle type FV-2S: Straight type	HV-3A: Angle type HV-3S: Straight type	Thermostats: Bellows, wax, remote mount	Valve: Angle, straight

Air Vent, Vacuum Relief Valves, Noiseless Heaters, Drain Separators, Air Out Selection

Application	Pressure?	Model
Air Vent Valves		
Water	0.3 MPa or less	TA-11•11L TA-18•18L
	1.0 MPa or less	TA-22•22L TA-16•16L
Water, Oil	1.0 MPa or less	TA-3•6 TA-2 TA-5•5F TA-2C•3C
Vacuum Relief Valves		
Steam, Air	1.0 MPa or less	VB-7 VB-7S
Noiseless Heaters		
Steam	0.7 MPa or less	MS-1 MS-3-13 MS-2 MS-4-13 MS-6
Drain Separators		
Steam, Air	Steam: 2.0 MPa Air: 1.0 MPa	DS-1 DS-2
Air Vent with Vacuum Breaker		
Water	1.0 MPa or less	TAV-2 TAV-3A
Air Out		
Water	1.0 MPa or less	AO-2
* Please confirm the specification of the text about the detailed application and pressure of each model.		

TA-3•6



Air vent valve



TA-3

- Wide pressure range and long durability
- Large capacity and compact design
- Tight seal and easy maintenance

Model		TA-3	TA-6
Application		Cold and hot water, Oil (Specific gravity: 0.8 or more)	
Maximum pressure		1.0 MPa	
Max. temperature		90°C	
Connection		JIS Rc screwed	
Material	Body	Ductile cast iron	Cast bronze
	Valve	Brass	
	Valve seat	Brass (Equipped with NBR disc)	
	Float	Stainless steel	
Size		15A-32A	

TA-11•11L



Air vent valve



TA-11

- Compact and enough discharge capacity
- Easy maintenance with removable valve seat
- Emergency shut-off cap or hose connection

Model		TA-11	TA-11L
Application		Cold and hot water	
Maximum pressure		0.3 MPa	
Max. temperature		100°C	
Connection	Inlet	JIS R screwed	
	Outlet	Cap type	Hose joint type
Material	Body	Brass	
	Valve disc	NBR	
	Valve seat	Brass	
	Float	Heat-resistant resin	
Size		6A, 10A-20A	

TA-22•22L



Air vent valve



TA-22

- Wide pressure range in a compact body
- Easy maintenance with removable valve seat
- Emergency shut-off cap or hose connection

Model		TA-22	TA-22L
Application		Cold and hot water	
Maximum pressure		1.0 MPa	
Max. temperature		100°C	
Connection	Inlet	JIC R screwed	
	Outlet	Cap type	Hose joint type
Material	Body	Bronze	
	Valve disc	FKM	
	Valve seat	Brass	
	Float	Heat-resistant resin	
Size		15A-25A	

TA-16·16L



Air vent valve



TA-16

- Stainless steel made, anti-corrosion and long durability
- Wide pressure range in a compact body
- Easy connection by attaching optional connection parts

Model		TA-16	TA-16L
Application		Cold and hot water	
Maximum pressure		1.0 MPa	
Max. temperature		90°C	
Connection	Inlet	JIS R screwed	
	Outlet	JIS Rc screwed	Hose joint type
Material	Body	Stainless steel	
	Valve disc	FKM	
	Valve seat	Stainless steel	
	Float	Stainless steel	
Size		15A-25A	

Option for exhaust connection

- Manual valve for copper pipe
- Manual valve hose joint
- Rotating screwed joint
- Rotating joint for copper pipe
- Rotating hose joint
- Angle hose joint

VB-7·7S



Vacuum relief valve



VB-7

- Stable performance without chattering and hunting
- Easy handling due to small and light weight
- Corrosion-proof by anti-corrosion material

Model		VB-7	VB-7S
Application		Steam, Air	
Maximum pressure		1.0 MPa	
Regulating pressure range		A: -0.5 to -21 kPa B: -21 to -48 kPa C: -48 to -81 kPa	
Max. temperature		200°C	
Connection		JIS R screwed	
Material	Body	Brass	Stainless steel
	Valve	Cast bronze	Cast stainless steel
	Valve seat	Brass	Stainless steel
Size		15A-50A	

MS-1·3-13



Noiseless heater



MS-1

- Easy installation for noise reduction
- Simple construction and trouble-free
- Anti-corrosion (MS-3-13)

Model		MS-1	MS-3-13
Application		Steam	
Maximum pressure		0.7 MPa	
Max. warning sound temperature limit		60°C	
Connection		JIS Rc screwed	
Material		Cast bronze	Cast stainless steel
Size		15A-50A	

MS-2·4-13



Steam

Noiseless heater



MS-2

- Easy installation for noise reduction
- Simple construction and trouble-free
- Anti-corrosion (MS-4-13)

Model	MS-2	MS-4-13
Application	Steam	
Maximum pressure	0.7 MPa	
Max. warning sound temperature limit	90°C	
Connection	JIS Rc screwed	
Material	Cast bronze	Cast stainless steel
Size	15A-50A	

MS-6



Steam

Noiseless heater



- Stainless steel made and corrosion-proof
- Easy installation for noise reduction
- Simple construction and trouble-free

Model	MS-6
Application	Steam
Maximum pressure	0.7 MPa
Max. warning sound temperature limit	90°C
Connection	JIS Rc screwed
Material	Stainless steel
Size	15A-50A

DS-1·2



Steam





Drain separator

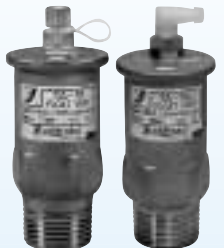





DS-1

- Highly efficient drain separation due to cyclone type
- Extremely low pressure loss
- Simple construction and trouble-free

Model	DS-1	DS-2
Application	Steam, Air	
Maximum pressure	Steam: 2.0 MPa Air: 1.0 MPa	
Max. temperature	220°C	
Connection	JIS Rc screwed	JIS 10K/20K FF flanged
Material	Body	Ductile cast iron
	Nozzle	Cast iron
	Receiver	Ductile cast iron
Size	15A-50A	15A-100A

Feature		With quick ventilation mechanism	Bronze body	Nylon coating
Model		TA-2	TA-5·5F	TA-2C·3C
Picture		 TA-2		 TA-2C TA-3C
Application		Cold and hot water, Oil (Specific gravity: 0.8 or more)		Water, Oil (Specific gravity: 0.8 or more)
Max. pressure		1.0 MPa		1.0 MPa
Max. temperature		90°C	TA-5: 90°C TA-5F: 120°C	60°C
Connection		JIS Rc screwed		JIS Rc screwed
Material	Body	Ductile cast iron	Cast bronze	Ductile cast iron
	Valve	Brass, NBR	TA-5: Brass, NBR TA-5F: Brass, FKM	Brass, NBR
	Valve seat	Brass		Brass
	Float	Stainless steel		Stainless steel
Size		15A-32A		15A-32A
Others		—	—	• Nylon coated TA-2C: Body TA-3C: Body and cover

Feature		Stainless steel body	Air vent with vacuum breaker		Air out
Model		TA-18·18L	TAV-2	TAV-3A	AO-2
Picture		 TA-18 TA-18L			
Application		Cold and hot water	City Water		Cold and hot water
Max. pressure		0.3 MPa	1.0 MPa		1.0 MPa
Max. temperature		100°C	80°C	35°C	120°C
Connection		JIS R screwed	JIS R screwed		JIS Rc screwed
Material	Body	Stainless steel	Cast bronze (NPb-treated)		Cast bronze
	Valve	FKM	EPDM	EPDM, NBR	—
	Valve seat	Brass	Bronze, Heat-resistant resin		—
	Float	Heat-resistant resin	Heat-resistant resin		—
Size		15A, 20A	15A	20A, 25A	20A-50A
Others		—	• Operating pressure of vacuum breaker is –1.0 kPa or less.		—

MEMO

Handwriting practice area with horizontal dotted lines.

Sight Glasses, Home Boiler Regulators and Relief Valves Selection

Application	Type?	Pressure?	Model
Sight Glasses			
Water, Oil, Non-dangerous liquids	Plain type	1.0 MPa or less	SL-1S·1F 150L 150L-13
	Flap type	1.0 MPa or less	SF-1S·1F 150F 150F-13
Water	Ball type	1.0 MPa or less	SB-1S·1F
	Spinner type	0.7 MPa or less	400
Home Boiler Regulators			
Water	Standard type	750 kPa or less	GD-55-80 GD-56-80
	For cold district	750 kPa or less	GD-55R-80 GD-56R-80
Relief Valves for Hot Water Appliances			
Water		95 kPa or less	AL-52F-95 AL-50
		97 kPa or less	AL-68-97

* Please confirm the specification of the text about the detailed application and pressure of each model.

SL-1S•1F



Plain type

Sight glass



SL-1S

- For visible check of two component fluid flow
- Suitable for check of intermittent flow
- Horizontal and vertical installation

Model		SL-1S	SL-1F
Application		Cold and hot water, Oil, Other non-dangerous liquids *	
Maximum working pressure		1.0 MPa	
Max. temperature		150°C	
Max. thermal shock		100°C	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Ductile cast iron	
	Glass	Hardened glass	
Size		15A-50A	

* Available with mica plate for steam condensate (SLM-1S•1F) .

• Glass part is consumable supply.

SF-1S•1F



Flap type

Sight glass



SF-1S

- For visible check of continuous flow change
- Suitable for check of continuous flow
- Horizontal and vertical installation

Model		SF-1S	SF-1F
Application		Cold and hot water, Oil, Other non-dangerous liquids *	
Maximum working pressure		1.0 MPa	
Max. temperature		150°C	
Max. thermal shock		100°C	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Ductile cast iron	
	Glass	Hardened glass	
	Flap	Stainless steel	
Size		15A-50A	

* Available with mica plate for steam condensate (SFM-1S•1F) .

• Glass part is consumable supply.

SB-1S•1F



Ball type

Sight glass



SB-1S

- For visible check of one fluid flow
- Balls keep glasses clean
- Horizontal and vertical installation

Model		SB-1S	SB-1F
Application		Cold and hot water	
Maximum working pressure		1.0 MPa	
Max. temperature		85°C	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Ductile cast iron	
	Glass	Hardened glass	
	Ball	Synthetic resin	
Size		15A-50A	

• Glass part and balls are consumable supply.

400



Spinner type

Sight glass



- Spinner keeps glasses clean
- For visible check of one fluid flow
- Horizontal and vertical installation

Application		Cold and hot water
Maximum working pressure		0.7 MPa
Max. temperature		100°C
Max. thermal shock		40°C
Connection		JIS Rc screwed
Material	Body	Cast bronze
	Glass	Heat-resistant glass
	Spinner	Special heat-resistant resin
Size		10A-25A

- Glass part and spinner are consumable supply.

150L-F



Plain type

- For visible check of two component fluid flow
- Suitable for check of intermittent flow
- Horizontal and vertical installation

Model		150L-F
Application		Cold and hot water, Oil, Other non-dangerous liquids *
Maximum working pressure		1.0 MPa
Max. temperature		150°C
Max. thermal shock		100°C
Connection		JIS 10K FF flanged
Material	Body	Ductile cast iron
	Glass	Hardened glass
Size		65A-150A

* Available with mica plate for steam condensate (150LM-F).

- Available with protector (150LP-F).
- Glass part is consumable supply.

150F-F



Flap type

- For visible check of continuous flow change
- Extremely low pressure loss
- Horizontal and vertical installation

Model		150F-F
Application		Cold and hot water, Oil, Other non-dangerous liquids *
Maximum working pressure		1.0 MPa
Max. temperature		150°C
Max. thermal shock		100°C
Connection		JIS 10K FF flanged
Material	Body	Ductile cast iron
	Glass	Hardened glass
	Flap	Stainless steel
Size		65A-150A

* Available with mica plate for steam condensate (150FM-F).

- Available with protector (150FP-F).
- Glass part is consumable supply.

150L-13

Stainless steel
Plain type

- Stainless steel made
- For visible check of two component fluid flow
- Horizontal and vertical installation

Model		150L-13S	150L-13F
Application		Cold and hot water, Oil, Other non-dangerous liquids *1	
Maximum working pressure		1.0 MPa	
Max. temperature		150°C	
Max. thermal shock		100°C	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel *2	
	Glass	Hardened glass	
Size		15A-50A	15A-100A

*1 Available with mica plate for steam condensate (150LM-13S•13F).

*2 Available with the body made of SCS14.

- Available with protector (150LP-13S•13F).
- Glass part is consumable supply.

150F-13

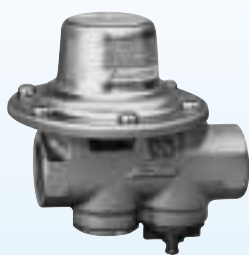
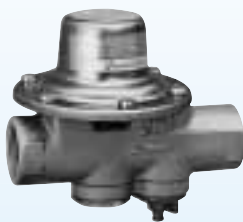

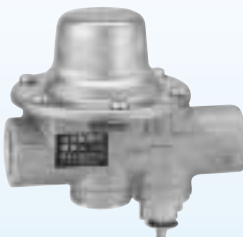
Stainless steel
Flap type

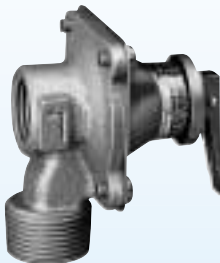

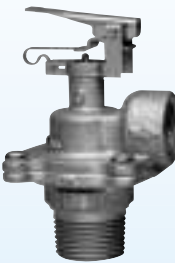
- Stainless steel made
- For visible check of continuous flow change
- Horizontal and vertical installation

Model		150F-13S	150F-13F
Application		Cold and hot water, Oil, Other non-dangerous liquids *	
Maximum working pressure		1.0 MPa	
Max. temperature		150°C	
Max. thermal shock		100°C	
Connection		JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel	
	Glass	Hardened glass	
	Flap	Stainless steel	
Size		15A-50A	15A-100A

* Available with mica plate for steam condensate (150FM-13S•13F).

- Available with protector (150FP-13S•13F).
- Glass part is consumable supply.

Home boiler regulator				
Feature	Standard / L = 90 mm	Standard / L = 115 mm	For cold district / L = 90 mm	For cold district / L = 115 mm
Model	GD-55-80	GD-56-80	GD-55R-80	GD-56R-80
Picture				
Application	Cold and hot water			
Inlet pressure	100-750 kPa			
Reduced pressure	Standard set pressure: 80 ± 6 kPa Available with 30-200 kPa.			
Max. temperature	60°C			
Freezing test	—		Suitable for -20°C	
Connection	JIS Rc screwed			
Material	Body	Cast bronze		
	Diaphragm	Synthetic rubber		
	Main valve	Synthetic rubber		
	Check valve	Synthetic rubber		
	Screen	Stainless steel		
Size	20A			
Face to face dimension	90 mm	115 mm	90 mm	115 mm
Others	—	—	—	—

Home boiler relief valve			
Feature	Relief valve / Closed lever	Relief valve / Handle	Relief valve
Model	AL-52F-95	AL-50	AL-68-97
Picture			
Application	Cold and hot water		
Commence-to-blow pressure	$95 \begin{smallmatrix} +4 \\ -6 \end{smallmatrix}$ kPa	95 kPa	$97 \begin{smallmatrix} +2 \\ -4 \end{smallmatrix}$ kPa
Reseating pressure	87 kPa or more	75 kPa or more	92 kPa or more
Breathing pressure	—	—	-12 kPa or less
Max. temperature	100°C		
Freezing test	Suitable for -20°C		
Connection	Inlet: JIS R screwed Outlet: JIS Rc screwed		
Material	Body	Bronze	
	Valve	Synthetic rubber (Diaphragm)	Synthetic rubber
	Valve seat	Bronze	Stainless steel
Size	Inlet 20A x Outlet 15A		
Others	* Available with commence-to-blow pressure 60-190 kPa. AF-52FS: Valve seat made of stainless steel	* Available with commence-to-blow pressure 90-300 kPa.	* Available with commence-to-blow pressure 190 kPa (AL-68-190).

MEMO

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Flow meters • Flow switches

Mechanical flow meter / Area flow meter / Metal-tube area flow meter and Shuttle flow switch, etc.

Flow meter



KY-M

Flow switch



KY-MA

Flow switch



FY-M

Flow switch



SF-MA

River flow



RFH type

Flow meter



KNR

Sight glasses

A wide variety of sight glasses, such as Transparent, Compact, Magnet following, Nozzle, Normal / Reverse dual use type, etc.

Nozzle type



FS-1-N

Magnet following type



FS-M

Normal/Reverse dual-use



FS-IV

Flow meters are used mainly for lubricant oil, water supply line of steel, electric, paper manufacturing plant and we produce each product in original design.

When ordering, please specify the following information. We will recommend the best suitable model for your specific needs. The product will be built to order.

1. Application
 - (a) Name or Chemical component
 - (b) Mass density or specific gravity
 - (c) Viscosity (mm^2/s)
 - (d) Corrosivity
2. Flow capacity
 - (a) Maximum flow capacity
 - (b) Flow rate (Normal condition)
 - (c) Contact capacity
 - (d) Velocity
3. Pressure
4. Temperature
5. Flow direction
 - (a) From left to right
 - (b) From right to left
 - (c) From bottom to top
 - (d) From top to bottom

KAWAKI MEASURING INSTRUMENT CO., LTD. manufactures high quality flow meter, based on the long time experience and performance in producing flow meter for various application, such as oil, gas, steam, particulate, and so on. We propose the best suited products to required specification, and provide unique custom-made flow meters.



MEMO

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Born to Save Energy

The new big subject which we aim at is establishment of the "Y's" brand. We are trying to establish the Yoshitake brand trusted all over the world through our energy saving solutions.

February, 1944
Establishment of
Yoshitake Inc.

August, 1989
Established the subsidiary
company "Yoshitake Works.
(Thailand) Ltd." in Thailand

An extensive improvement of quality, cost, and time for delivery are achieved by integrated system of production from raw material to finished product.

April, 2002
Acquisition of CE Marking.

Conformance to requirements in the Euro market and further improvement to safety of our product are pursued.

June, 1995
Acquisition of ISO 9001.

Establishment, maintenance and improvement of international quality control system are aimed at.

September, 2000
Acquisition of ISO 14001.

The active conduct of business in consideration of environmental preservation is aimed at.



ISO9001



ISO14001



CE Marking



<http://www.yoshitake.jp>

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