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INFORMATION

All Around Guidance **Vol.E1-5**



YOSHITAKE

I N D E X

Pressure Reducing Valve

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

1

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17

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Dear Customers,

Summary of Additions and Changes in this INFORMATION (Vol. E1-5)

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

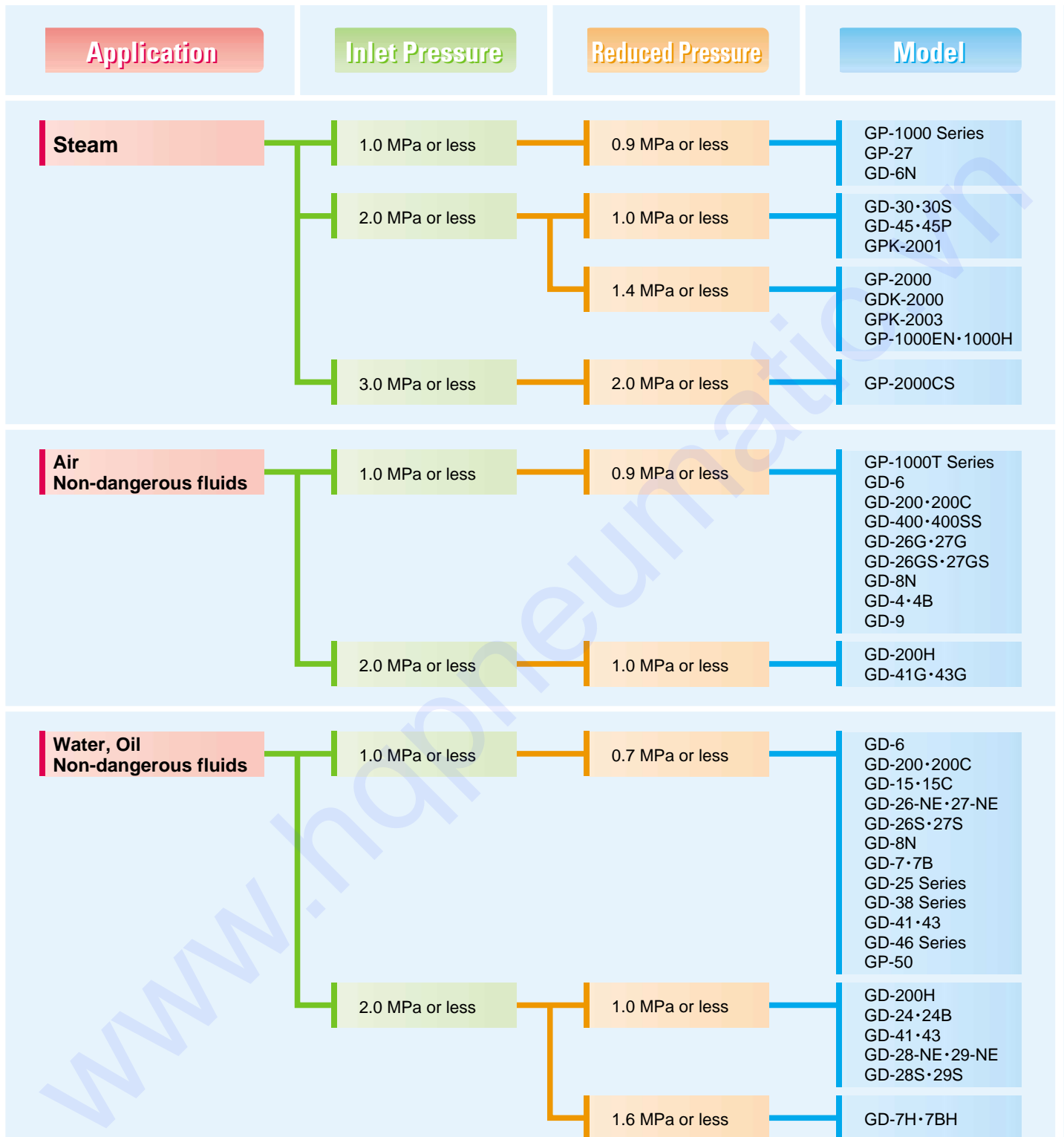
Model	Feature	Page
BSV-2EN	Bellows Sealed Valve	P. 15
AF-9EN	Full Bore safety valve of large capacity with lever	P. 24
TSF-10•10F/11•11F	Float trap of compact size but large capacity	P. 50
TB-20	Bucket Trap, made of FCD, complying with screwed type	P. 50
SCV-3	Disc check valve of wafer connection	P. 50
MXV-1	Mixing valve for hot-water supply	P. 63

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 Valve Selection

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



Primary Pressure Regulating Valve Page 13

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Falling Water Preventing Valve Page 13

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Bellows Sealed Globe Valve Page 15

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

GP-2000·2000CS·2000EN



Pressure reducing valve



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

Model		GP-2000	GP-2000EN
Application		Steam	
Inlet pressure		0.1-2.0 MPa	
Reduced pressure		(A) 0.02-0.15 MPa (B) 0.1-1.4 MPa (C) 1.3-1.7 MPa	
Max. temperature		220	
Connection		JIS Rc screwed JIS 20K RF flanged JIS 10K FF flanged	EN1092 PN25 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-100A	—
	Flanged	15A-200A	15A-100A

Model		GP-2000CS
Application		Steam
Inlet pressure		0.1-3.0 MPa
Reduced pressure		(A) 0.02-0.15 MPa (B) 0.1-1.4 MPa (C) 1.3-2.0 MPa
Max. temperature		260
Connection		JIS Rc screwed JIS 30K RF flanged
Material	Body	Cast carbon steel
	Main valve, Valve seat	Stellite overlaid stainless steel
	Pilot valve, Pilot valve seat	Stainless steel
	Diaphragm	Stainless steel
Size	Screwed	15A-50A
	Flanged	15A-100A *

* 15A to 40A are welded flanged.

GDK-2000·GPK-2001·2003



Pressure reducing valve



GDK-2000

For remote control

Model		GPK-2001 (Direct acting)	GPK-2001 (Pilot operated)	GPK-2003
Application		Steam		
Inlet pressure		0.1-2.0 MPa	0.1-2.0 MPa	0.25-2.0 MPa
Reduced pressure		0.05-1.4 MPa	0.05-0.9 MPa	0.2-1.4 MPa
Max. temperature		220		
Connection		JIS Rc screwed JIS 20K RF flanged 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
Actuation solenoid valve		Normally closed
Rated voltage		AC 100 V, 50/60 Hz available AC 200 V, 50/60 Hz available
Connection		JIS Rc screwed JIS 10K FF flanged
Size	Screwed	15A-50A
	Flanged	15A-100A

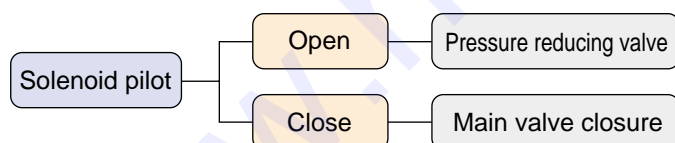
CP-2005

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

Operation

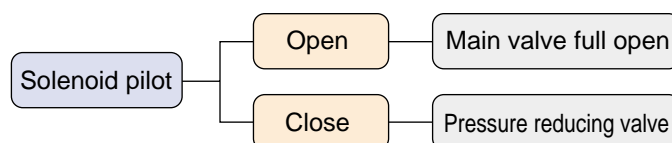
CP-2001

Pressure reducing valve with ON-OFF control



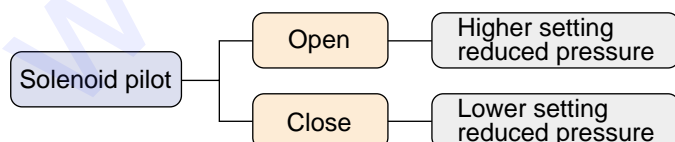
CP-2002

Pressure reducing valve and full-open valve



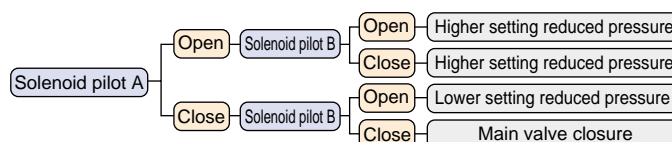
CP-2003

Two-point switching of reduced pressure



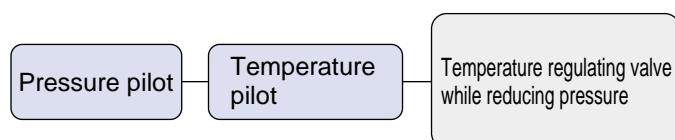
CP-2004

Switching of reduced pressure with ON-OFF control



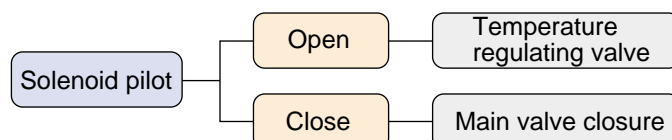
CP-2005

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		(A) 0.05-0.9 MPa (B) 0.9-1.4 MPa	
Max. temperature		220	
Connection		EN1092 PN25 flanged	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		Cast 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)	Stainless steel (FKM 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



Pressure reducing valve



GP-1010

Pilot operated piston type
Superior durability
Stable performance
Valve leakage meets ANSI Class
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			
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			
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
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	80
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 made.

*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	
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	220
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-45P•45



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
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 (B) 0.26-0.7 MPa		(A) 0.05-0.25 MPa (B) 0.26-0.7 MPa (C) 0.5-1.0 MPa
	65A, 80A	(B) 0.26-0.7 MPa		(A) 0.05-0.25 MPa (B) 0.26-0.7 MPa (C) 0.5-0.9 MPa
	100A-150A	(A) 0.05-0.25 MPa (B) 0.26-0.5 MPa		(A) 0.05-0.25 MPa (B) 0.26-0.5 MPa (C) 0.5-0.75 MPa
Max. temperature		80	60	80
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 type (except for the GD-200H(C) of 65A to 150A).
- Available with the GD-200HS for flushing water.

GD-24•24B



Pressure reducing valve



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

Model		GD-24	GD-24B
Application		Cold and hot water	Cold and hot water, Flushing water
Inlet pressure		0.2-1.6 MPa	
Reduced pressure		0.05-0.55 MPa	
Max. temperature		80	
Connection		JIS Rc screwed	
Material	Body	Cast bronze *1	
	Valve seat	Stainless steel	
	Valve, Valve disc	Brass, Urethane rubber	Bronze, Urethane rubber
	Diaphragm	NBR	
Size		15A-50A	

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

GD-15•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 (standard setting : 0.2 MPa)
Max. temperature		60
Connection		JIS Rc screwed
Material	Body	Cast bronze (NPB-treated)
	Valve	NBR
	Valve seat	Cast bronze (NPB-treated)
	Diaphragm	NBR
Size		15A, 20A

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 for 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		
Fluid temperature	5-90 *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 for washing steam or sterilization steam, be sure that maximum temperature is 130 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	
Working temperature	5-60	
Connection	JIS 10K FF flanged	
Material	Body	Cast iron
	Valve	Cast stainless steel (SCS14A)
	Diaphragm	Stainless steel (NBR disc incorporated)
	Spindle	NBR *2
Size		Stainless steel
		15A-50A

*1 Please contact us when using for other fluids.

*2 Available with FKM type.

GD-400SS

GD-26 Series



Pressure reducing valve



GD-26-NE · 28-NE

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-NE	GD-27-NE	GD-27-N	GD-27F-N	GD-27BP *1	GD-28-NE	GD-29-NE
Application		Cold and hot water						
Inlet pressure		1.0 MPa or less				1.6 MPa or less		
Reduced pressure		(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa		(A) 0.05-0.20 MPa (B) 0.2-0.5 MPa		(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa		
Application temperature		5-90		5-80		5-90		
Connection		JIS Rc screwed	JIS 10K FF flanged				JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast bronze (NPb-treated)						
	Valve seat	Cast bronze (NPb-treated)						
	Valve disc	FKM		NBR		FKM		
	Diaphragm	EPDM		NBR		FKM		EPDM
Size		15A-50A	25A-100A	125A, 150A		20A-100A	15A-50A	25A-100A

Model		GD-26S	GD-27S	GD-28S	GD-29S
Application		Cold and hot water			
Inlet pressure		1.0 MPa or less		1.6 MPa or less	
Reduced pressure		(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa			
Application temperature		5-90			
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 16K 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

Model	GD-26G	GD-27G	GD-26GS	GD-27GS
Application	Air, Other non-dangerous fluids *2			
Inlet pressure	1.0 MPa or less			
Reduced pressure	(A) 0.05-0.35 MPa (B) 0.3-0.7 MPa			
Fluid temperature	5-90			
Connection	JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 10K FF flanged
Material	Body		Cast bronze	
	Valve seat		Bronze	
	Valve disc		EPDM	
	Diaphragm		EPDM	
Size	15A-50A	25A-100A	20A-50A	20A-100A

*1 GD-27BP has three functions (PRV/STOP/BY-PASS).

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

- 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).
- Available with trim parts of stainless steel (GD-26-NED, GD-27-NED).

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-L
Application		City water			
Inlet pressure		1.0 MPa or less			
Reduced pressure		(A) 0.05-0.1 MPa (B) 0.10-0.22 MPa (C) 0.20-0.35 MPa			
Fluid temperature		5-90			5-40
Connection		JIS R1 screwed (union joint)		JIS Rc1 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	1.0 MPa or less
Reduced pressure	(A) 0.05-0.1 MPa (B) 0.10-0.22 MPa (C) 0.2-0.3 MPa
Working temperature	5-90 *1
Connection	JIS R screwed (union joint) *2
Material	Body
	Valve seat
	Spindle
	Valve disc
	Diaphragm
Size	20A

*1 40 for the product with pipe end core. 60 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)


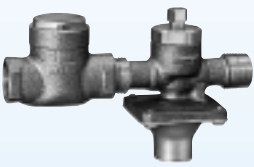

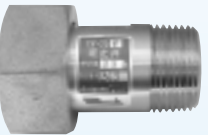
Model	GD-46 Series
Application	City water
Inlet pressure	1.0 MPa or less
Reduced pressure	(A) 0.05-0.1 MPa (B) 0.10-0.22 MPa (C) 0.2-0.3 MPa
Working temperature	5-90 *1
Connection	JIS R screwed (union joint) *2
Material	Body
	Spindle
	Valve disc
	Diaphragm
	Dezincification resistant material
Size	20A




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




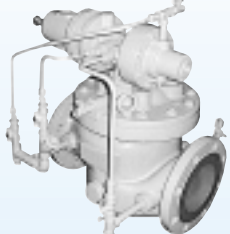
*2 Available with JIS Rc screwed and other types of connection.



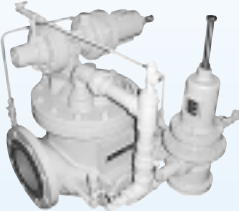
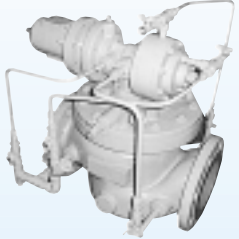
Feature		Low pressure	Low pressure / Balance type	316 Stainless steel
Model		GD-4	GD-4B	GD-8N
Picture				
Application		Air, Other non-dangerous fluids		Pure water, Cold and hot water, Air, N ₂ , CO ₂ , Ar
Inlet pressure		Max. 300 kPa	Max. 800 kPa (15A-50A) Max. 500 kPa (65A-150A)	0.1-1.0 MPa
Reduced pressure		2-200 kPa ·Contact us about the pressure range.		0.05-0.7 MPa
Max. temperature		80		60
Connection		JIS 10K FF flanged		JIS Rc screwed
Material	Body	Cast iron *		Stainless steel (SUS316)
	Valve	NBR (15A-50A) Stainless steel (65A-150A)	NBR	Stainless steel
	Valve seat	Stainless steel		Stainless steel
	Diaphragm	NBR		Fluororesin
Size		15A-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-9N	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		0.05-0.7 MPa	0.05-0.85 MPa	20A-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		80 *1	
Connection		JIS Rc screwed		JIS 10K FF flanged	
Material	Body	Aluminium die casting		Cast iron *2	
	Valve	NBR		Phosphor bronze *3	NBR
	Valve seat	Brass		Phosphor bronze *3	Stainless steel
	Diaphragm	NBR		-	
	Spindle	-		Stainless steel	
	Piston	-		Bronze	
Size		8A-20A	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 . *2 Available with the GD-7H and the GD-7BH, made of cast steel, with inlet pressure of 2.0 MPa or less and reduced pressure of 0.7 to 1.6 MPa. *3 Available with stainless steel made valve and valve seat. 	

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	60	90	35
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	Diaphragm: 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		-
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		8A
Others		· Operating unit for air loaded pressure reducing valves. Filtration: 5 μ m	Filtration: 5 μ m	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, Other 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	80	80	70
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
	Main 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 size.	• Available with the GD-7RH, made of cast steel, with pressure range of 0.7 MPa to 1.6 MPa.	-

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, Other non-dangerous fluids	Cold and hot water	Cold and hot water	Cold and hot water
Pressure regulating range		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	80	70	70
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

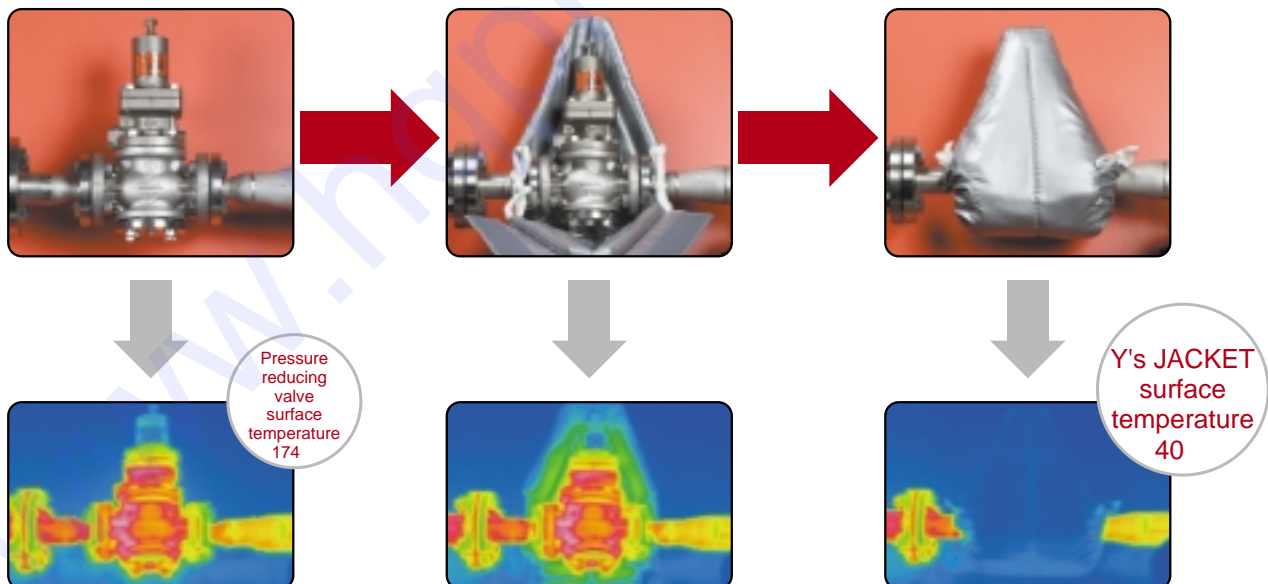
1. Energy saving
Prevents room temperature rise as well as energy loss caused by heat release.
2. CO₂-reduction effect
Contributes to CO₂-reduction of the global issue.
3. Safety
Prevents accidents, such as burns or bruises and brings a safe and comfortable work environment.
4. Environmental enhancement
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
	Maximum temperature	250

Effect



Features

1. Non-rising handwheel: Free from foreign substance trouble because most threaded surface is covered.
2. No leakage by two-stage sealing of double bellows and gland packing.
3. Gland packing does not need retightening nor applying pressure on spindle, thus handwheel can be turned with small torque without interference from the spindle.
4. Maintenance-free: No need to replace or retighten gland packing.



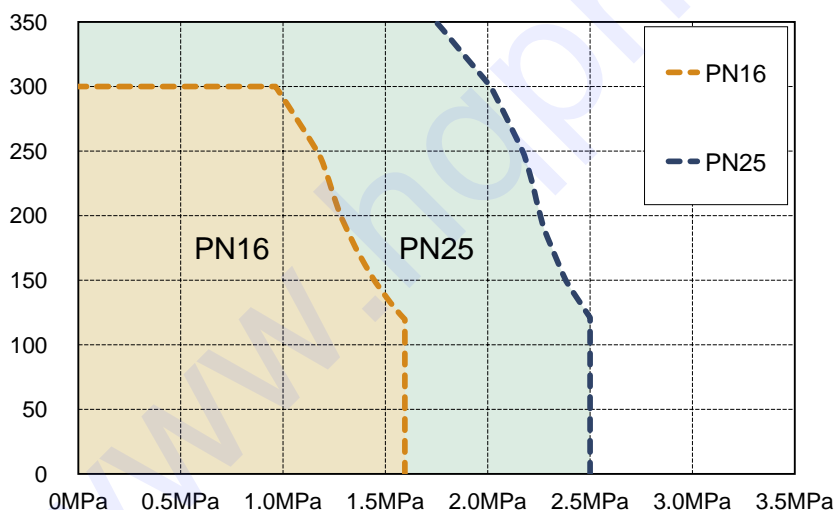
Specifications

Model		BSV-2EN	
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids	
Nominal size		15A-200A *1	
Max. pressure		1.6 MPa *2	2.5 MPa *2
Max. temperature		300 *2	350 *2
Material	Body	Cast iron	Ductile cast iron
	Bonnet	Ductile cast iron	
	Valve	Stainless steel	
	Valve seat	Stainless steel	
	Bellows	Stainless steel (SUS316Ti)	
Connection		EN 1092-2 PN16	EN 1092-2 PN25

*1 If 250A is needed, please contact us (for cast iron body only).

*2 According to Pressure and Temperature Rating.

Pressure and Temperature Rating



- This chart shows Pressure and Temperature Rating of PN16 for cast iron flanges and of PN25 for ductile cast iron flanges according to EN 1092-2.
- BSV-2EN PN16 flanged can be used in orange range. BSV-2EN PN25 flanged can be used in orange and green ranges.
- If detailed values of maximum fluid temperature and maximum pressure are needed, please see the following table:

Acc to EN 1092-2		Temperature[°C]					
Material	PN	- 10 up to 120	150	200	250	300	350
Cast iron	16	1.6 MPa	1.44 MPa	1.28 MPa	1.12 MPa	0.96 MPa	—
Ductile cast iron	25	2.5 MPa	2.43 MPa	2.3 MPa	2.18 MPa	2.0 MPa	1.75 MPa

MEMO

Handwriting practice lines (dotted lines) for the memo section.

Safety Relief Valve Selection

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

Application	Setting Pressure	Connection	Model
Steam	1.0 MPa or less	Screwed	AL-160·160L AL-150·150L AL-140 AL-10 AF-5S
		Flanged	AL-300 AL-31 AL-4·5·6 AF-4·4M AF-7
	1.6 MPa or less	Screwed	AL-150H·150HL AL-17 AF-5 AF-1
		Flanged	AL-301 AL-4·5·6 AF-2 AF-7
	2.0 MPa or less	Screwed	AL-140H
		Flanged	AL-31H AL-4S
Air, Water, Non-dangerous fluids	1.0 MPa or less	Screwed	AL-160·150 AL-150T·150TML AL-140·140T
		Flanged	AL-300T AL-31 AL-4T
	2.0 MPa or less	Screwed	AL-150H AL-140H AL-17
		Flanged	AL-301T AL-31H AL-4T·4ST
Air, Non-dangerous gases	1.0 MPa or less	Screwed	AL-160L·150L AF-5·5S
		Flanged	AF-4·4M AF-7·7M
	2.0 MPa or less	Screwed	AL-150HL
		Flanged	AF-6H·6HS AF-7·7M AF-9EN
Water, Oil, Non-dangerous liquids	1.0 MPa or less	Screwed	AL-150T-N AL-150TR AL-250·250R AL-260·260R AL-24
		Flanged	AL-280
	1.6 MPa or less	Screwed	AL-27

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

AL-160•150•150T•150T-N



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	AL-150T-N
Application		Steam, Air, Water, Oil, Other non-dangerous fluids	Air, Water, Oil, Other non-dangerous fluids	Cold and hot water
Working pressure		0.05-1.0 MPa		
Max. temperature		220 *	120	100
Connection		JIS Rc screwed		
Material	Spring case	Cast bronze		Cast bronze(NPB-treated)
	Valve and valve seat	Cast stainless steel (SCS14A)	Cast stainless steel(SCS14A) FKM	
Size		15A-50A		

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

AL-160L•150L•150HL•150H



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, Other non-dangerous fluids
Working pressure		0.05-1.0 MPa	1.0-1.6 MPa	
Max. temperature		220		220 *
Connection		JIS Rc screwed		
Material	Spring case	Cast bronze		
	Valve and valve seat	Cast stainless steel(SCS14A)		
Size		15A-50A		

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

AL-140•140H•140T



Safety relief valve



AL-140

Superior durability due to all stainless steel made

Simple structure and easy maintenance

Easy adjustment

Model		AL-140	AL-140H	AL-140T
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	1.0-2.0 MPa	0.05-1.0 MPa
Max. temperature		220 *		120
Connection		JIS Rc screwed		
Material	Spring case	Cast stainless steel		
	Valve and valve seat	Cast stainless steel(SCS14A)		Cast stainless steel (SCS14A) FKM
Size		15A-50A		

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

AL-250•250R



Relief valve



AL-250

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)



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	
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

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)



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	
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
Connection		JIS 10K 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	
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 *
Connection		JIS Rc screwed
Material	Spring case	Ductile cast iron
	Valve and valve seat	Stainless steel
Size		15A-50A

* Max. temperature is 150 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
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-10



Steam

Safety valve



Discharge inspection can be manually operated at 75% or more of the opening pressure. (Open type with a lever)
Blowdown can be adjusted with adjustable ring (seat ring).

Application		Steam
Working pressure		0.05-1.0 MPa
Max. temperature		220
Connection		JIS Rc screwed
Material	Spring case	Ductile cast iron
	Valve and valve seat	Cast bronze or stainless steel
Size		15A-50A

AL-300•301



Steam

Safety valve



Simple structure and easy maintenance
Easy adjustment

Model		AL-300	AL-301
Application		Steam	
Working pressure		0.05-1.0 MPa	0.05-1.6 MPa
Max. temperature		220	
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		15A-50A	

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

AL-300T•301T



Air



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	
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	PTFE • Stainless steel
Size		15A-50A	

*1 Please contact us if working pressure is between 1.31 MPa and 1.6 MPa.

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

AL-31•31H



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 *	
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 when using for water, oil or other liquids.

AL-4•4S



Safety valve



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

Model	AL-4	AL-4S
Application	Steam	
Working pressure	0.05-1.5 MPa *1	0.05-2.0 MPa
Max. temperature	220	
Connection	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	Stainless steel
Size	65A-150A for JIS 10K FF flanged 65A-125A for JIS 16K FF flanged *2	65A-100A

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

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

*3 Available with stainless steel made.

AL-4T•4ST



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	0.05-2.0 MPa *2
Max. temperature	150		
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	Ductile cast iron *4
	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 *3	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 JIS 16K FF flanged is used when working pressure is more than 1.0 MPa.

*4 Available with stainless steel made.

AL-5



Steam

Safety valve



Restricting structure to prevent unexpected pressure adjustment

Application		Steam
Working pressure		0.05-1.5 MPa
Max. temperature		220
Connection		JIS 10K FF flanged JIS 16K FF flanged *
Material	Valve case	Ductile cast iron
	Spring case	Ductile cast iron
	Valve and valve seat	Stainless steel
Size		20A-50A

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

AL-6



Steam

Safety valve



Blowout test can be performed with lever

Application		Steam
Working pressure		0.05-1.5 MPa *1
Max. temperature		220
Connection		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 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, Air, Other non-dangerous fluids
Working pressure	0.1-1.6 MPa	0.1-1.0 MPa	0.1-1.0 MPa
Max. temperature	220		
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.

AF-9EN



Safety valve



Full bore safety valve of open type.

Large discharge capacity.

Due to lift lever mechanism, a discharge inspection can be manually performed at least 80% of working pressure.

Application		Steam, Air, Other non-dangerous fluids		
Size		20A-100A	125A	150A
Working pressure		0.045-1.6 MPa	0.045-1.25 MPa	0.045-1.0 MPa
Max. temperature		* According to P/T rating.		
Connection		Inlet: EN1092 PN16 flanged, Outlet: EN1092 PN10 flanged		
Material	Valve case	Cast iron		
	Spring case	Ductile cast Iron		
	Valve	Stainless steel		
	Valve seat	Stainless steel		

- Spring replacement does not need any other part replacement but gaskets, however, it requires training by Yoshitake. Only certified person is allowed to replace the spring.
- AF-9EN is not closed type. Please contact us for the product of closed type.
- Please contact us for any further information.

AF-4•4M



Safety valve



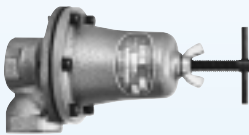

AF-4

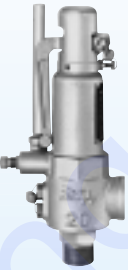



Large discharge capacity.

Blowout test can be performed with lever.

Application		Steam, Air, Other non-dangerous fluids		
Working pressure		0.1-1.0 MPa		
Max. temperature		220		
Connection		* Inlet: JIS 10K FF or JIS 10K RF Outlet: JIS 10K FF flanged		
Material	Valve case	Ductile cast iron		
	Valve	Stainless steel		
	Valve seat	Stainless steel		
	Size	25A-150A		

* Inlet connection for size 100A-150A is JIS 10K RF flanged.

Feature		Relief valve / Diaphragm type	Full bore / SCPH	Full bore / SCS
Model		AL-24	AF-6H	AF-6HS
Picture			 AF-6H	
Application		Cold and hot water	Air, Other non-dangerous fluids	
Working pressure		0.1-0.7 MPa *1	0.1-1.96 MPa	
Max. temperature		60	250 *1	
Connection		JIS Rc screwed	Inlet: JIS 20K RF flanged Outlet: JIS 10K FF flanged *2	
Material	Valve case	Cast bronze *2	Cast carbon steel	Cast stainless steel
	Valve	NBR *3	Stellite overlaid stainless steel	
	Valve seat	Stainless steel	Stellite overlaid stainless steel	
	Diaphragm	NBR (heat-resistant nylon contained)	—	
Size		15A-25A	25A-100A	
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).	*1 It may change depending on fluid and pressure. *2 The inlet flange is thicker than JIS standard value.	

Feature		Full bore / Screwed	Full bore / JIS B 8210 inlet	Full bore / Lever, SCPH	Full bore / Closed, SCPH
Model		AF-1	AF-2	AF-7	AF-7M
Picture					
Application		Steam	Steam	Steam, Air, Other non-dangerous fluids	Air, Other non-dangerous fluids
Working pressure		0.18-1.6 MPa	0.18-1.6 MPa	0.1-1.0 MPa *	
Max. temperature		220	220	350	300
Connection		Inlet: JIS R screwed Outlet: JIS Rp screwed	Inlet: JIS B 8210 10K RF flanged * Outlet: JIS B 2239 10K FF flanged	Inlet: JIS 10K RF flanged Outlet: JIS 10K FF flanged	
Material	Valve case	Ductile cast iron	Ductile cast iron	Cast carbon steel	
	Valve	Stainless steel	Stainless steel	Stainless steel	
	Valve seat	Stainless steel	Stainless steel	Stainless steel	
Size		20A-50A	65A, 80A	25A-100A	
Others		—	* JIS B 8210 20K RF flanged when working pressure is more than 1.0 MPa.	* 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-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	0.21-0.4	0.41-0.65	0.66-1.0				
		0.11-0.2							
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	0.76-1.6				
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	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	0.64-0.99	1.0-1.5		
	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	
AL-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	0.81-1.0	1.01-1.5		
	150A	0.05-0.1	0.11-0.2	0.21-0.4	0.41-0.8				

Strainer Selection

Application	Type	Max. Pressure	Model
Steam, Air, Water, Non-dangerous fluids	Y type / Screwed	1.3 MPa or less	SY-6
		2.0 MPa or less	SY-5 SY-17
	Y type / Flanged	1.0 MPa or less	SY-40 SY-20-10 SY-8 SY-13
		2.0 MPa or less	SY-40EN・40H SY-20-20
		3.0 MPa or less	SY-10-30 SY-10H・10HS
Air, Water, Non-dangerous fluids	Y type / Screwed	1.0 MPa or less	SY-9
	Y type / Flanged	1.0 MPa or less	SY-40C-N
Water, Oil, Non-dangerous fluids	Basket / Flanged	1.0 MPa or less	SU-50S・50SS SU-20・20S・20C SU-10・10S SU-12-10 SU-6
		2.0 MPa or less	SU-50H SU-12-20
	Duplex / Flanged	1.0 MPa or less	SW-10 SW-10S
Water	Y type / Screwed	1.0 MPa or less	SY-6L・6L-N
		1.3 MPa or less	SY-6-N
		1.6 MPa or less	SY-24・24-N
	Basket / Screwed	1.2 MPa or less	SU-55F
Temporary Strainer			ST-1

* 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, Oil, Other non-dangerous fluids
Max. pressure		2.0 MPa
Max. temperature		220
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Screen	Stainless steel
Size		10A-50A

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

SY-40•40C-N Y type strainer



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

Model		SY-40	SY-40C-N
Application		Steam, Air, Water, Oil, Other non-dangerous fluids	Air, Water, Other non-dangerous fluids
Max. pressure		1.0 MPa	
Max. temperature		220	60
Connection		JIS 10K FF flanged	
Material	Body	Ductile cast iron	
	Screen	Stainless steel	
Size		15A-300A	15A-150A

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

SY-40EN•40H Y type strainer



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

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

- Standard screen: 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 (250)*
Connection		JIS Rc screwed
Material	Body	Cast stainless steel
	Screen	Stainless steel
Size		15A-50A

- * Gasket material is non-asbestos, for more than 150 .
- Standard screen: 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	Carbon steel	Stainless steel
	Screen	Stainless steel (SUS316)		
Size		50A-150A (Except 125A)		

- Standard screen: 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 (60 in the case of the SU-20C)	80
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: 6-1.42 holes/cm² 60 mesh.
- Available with 20 to 250 mesh screen.

SU-20S



SW-10・10S



Duplex strainer



SW-10

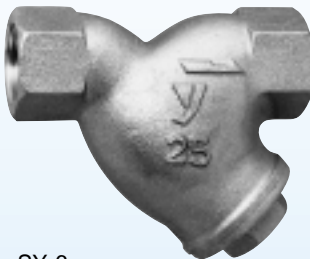
Flanged, duplex, ductile cast iron and 1.0 MPa
Easy maintenance because of one-touch cover (SW-10S)
Stainless steel made is available

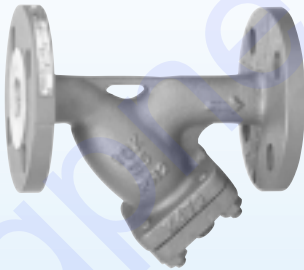
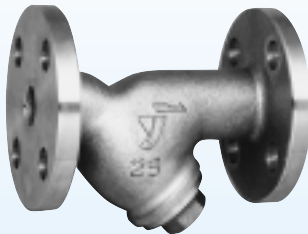
Model	SW-10	SW-10S
Application	Cold and hot water, Oil, Other non-dangerous fluids	
Max. pressure	1.0 MPa	
Max. temperature	80	
Connection	JIS 10K FF flanged	
Material	Body	Ductile cast iron
	Screen	Stainless steel
Size	20A-100A	


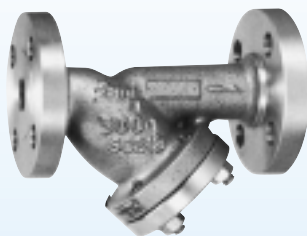
- Standard screen: 6-1.42 holes/cm² 60 mesh.
- Available with 20 to 250 mesh screen.




SW-10S

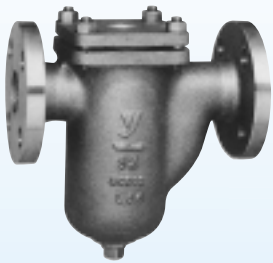
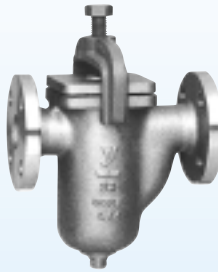




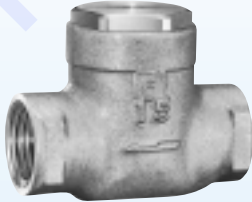
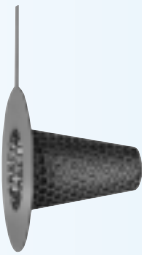
Feature		Y type screwed / Bronze	Leadless bronze	Anticorrosive core	Anticorrosive core
Model		SY-6	SY-6-N	SY-6L	SY-6L-N
Picture		<div></div> <div>SY-6</div>			
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids	Cold and hot water		
Max. pressure		1.3 MPa		1.0 MPa	
Max. temperature		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 (2.5-7.21 holes/cm ²)	60 mesh (2.5-7.21 holes/cm ²)		
Available screen		20-100 mesh (2.5-7.21 holes/cm ²)			
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		150 (250) *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 (6-1.8 holes/cm ²)		80 mesh (15A-100A: 2.5-7.21 holes/cm ²) (125A-150A: 6-2.05 holes/cm ²)
Available screen		20-60 mesh (6-1.8 holes/cm ²)		20-100 mesh *3 (15A-100A: 2.5-7.21 holes/cm ²) (125A-150A: 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 . *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 *	350 *	
Connection		JIS 30K RF flanged	JIS 10K/20K/30K RF flanged	
Material	Body	Cast carbon steel		Cast stainless steel
	Screen	Stainless steel		
Standard screen		80 mesh (6-1.8 holes/cm ²)		
Available screen		20-100 mesh (6-1.8 holes/cm ²)		
Size		15A-250A	15A-100A	
Others		* If the temperature is more than 260 , please contact us.	* 350 for working pressure up to 2.0 MPa, and 300 for more than 2.0 MPa.	* 350 for working pressure up to 2.0 MPa, and 300 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, Oil, Other non-dangerous fluids
Max. pressure		1.6 MPa		1.0 MPa	1.0 MPa
Max. temperature		80		80	220
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 (2.5-7.21 holes/cm ²)		60 mesh (2.5-7.21 holes/cm ²)	80 mesh (6-1.8 holes/cm ²)
Available screen		20-100 mesh (2.5-7.21 holes/cm ²)		20-100 mesh (2.5-7.21 holes/cm ²)	20-100 mesh *2 (6-1.8 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: 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						
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	0.7 MPa	0.5 MPa	1.0 MPa
Max. temperature		220	80			120
Connection		JIS 10K FF flanged				JIS 10K FF flanged
Material	Body	Cast stainless steel				Rolled steel for carbon steel piping and general structural rolled steel.
	Screen	Stainless steel				
Standard screen		60 mesh (6-1.42 holes/cm ²)				40 mesh (10-0.8 holes/cm ²)
Available screen		20-250 mesh (6-1.42 holes/cm ²)				20-100 mesh (10-0.8 holes/cm ²)
Size		20A-150A	20A-100A	125A	150A	200A-650A
Others		—	—			* Available with stainless steel wetted parts (SU-6SS). * Available with all stainless steel (SU-6AS).

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	60	220
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 (6-1.42 holes/cm ²)	60 mesh	80 mesh (8-0.954 holes/cm ²)
Available screen		20-250 mesh (6-1.42 holes/cm ²)	-	20-250 mesh (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

Solenoid Valve, Motor Valve, Air Operated Valve 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
	Air, Water, Oil, Non-dangerous fluids	1.0 MPa or less	DP-200・200F 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
	Air, Water, Oil, Non-dangerous fluids	0.12 MPa or less	DD-3
		0.7 MPa or less	DD-3-8
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	
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

- Available with normally opened type as the DP-100-C and DP-100F-C.
- Available with DC coil type as the DP-100-D and DP-100F-D.

DP-10



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
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
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 bronze
	Piston	Stainless steel
	Valve disc	PTFE
Size		10A-50A

DP-200•200F



Solenoid valve



DP-200

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

Model	DP-200• 200-N	DP-200F• 200F-N
Application	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(0.1 MPa or more is required for vertical installation)	
Max. temperature	60	
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-200-N and DP-200F-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	
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 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


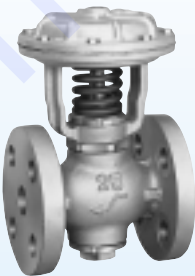


TN-2: With indication light

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

Feature		Motor valve / Screwed, 2 way	Motor valve / Screwed
Model		MD-53	MD-54
Picture			
Application		Air, Cold and hot water	Steam, Air, Cold and hot water
Working pressure		0-1.0 MPa	0-1.0 MPa (Steam: 0-0.6 MPa)
Max. temperature		80	Steam: 160 Air: 120 Water: 100
Ambient temperature		-15-55	
Rated voltage		AC 100 / 100 V 50 / 60 Hz common AC 200 / 220 V 50 / 60 Hz common	AC 100 / 110 V 50 / 60 Hz common AC 200 / 220 V 50 / 60 Hz common
Operation		ON-OFF	
Connection		JIS Rc screwed	
Material	Body	Cast stainless steel	
	Plunger	Stainless steel	Ball: Stainless steel
	Valve disc	PTFE	Seat: Reinforced fluorine resin for high temperature
Size		15A-50A	
Others		-	-

Feature		Motor valve / Screwed, 3 way	Motor valve / Screwed, 2 way
Model		MD-35R	MD-36R
Picture			
Application		Air, Cold and hot water	
Working pressure		0-1.0 MPa	
Max. temperature		80 (No freeze condition)	
Ambient temperature		-20-50(60) *	
Rated voltage		AC 100 / 110 V 50 / 60 Hz common AC 200 / 220 V 50 / 60 Hz common	
Operation		Diverting	ON-OFF
Connection		JIS Rc x JIS R screwed	JIS Rc screwed
Material	Body	Brass	
	Plunger	Ball: Brass(HCr plating)	
	Valve disc	Seat: PTFE	
Size		15A-25A	
Others		* The ambient temperature of 60 depends on the frequency of operation and the temperature of the fluid. Please contact us for details.	

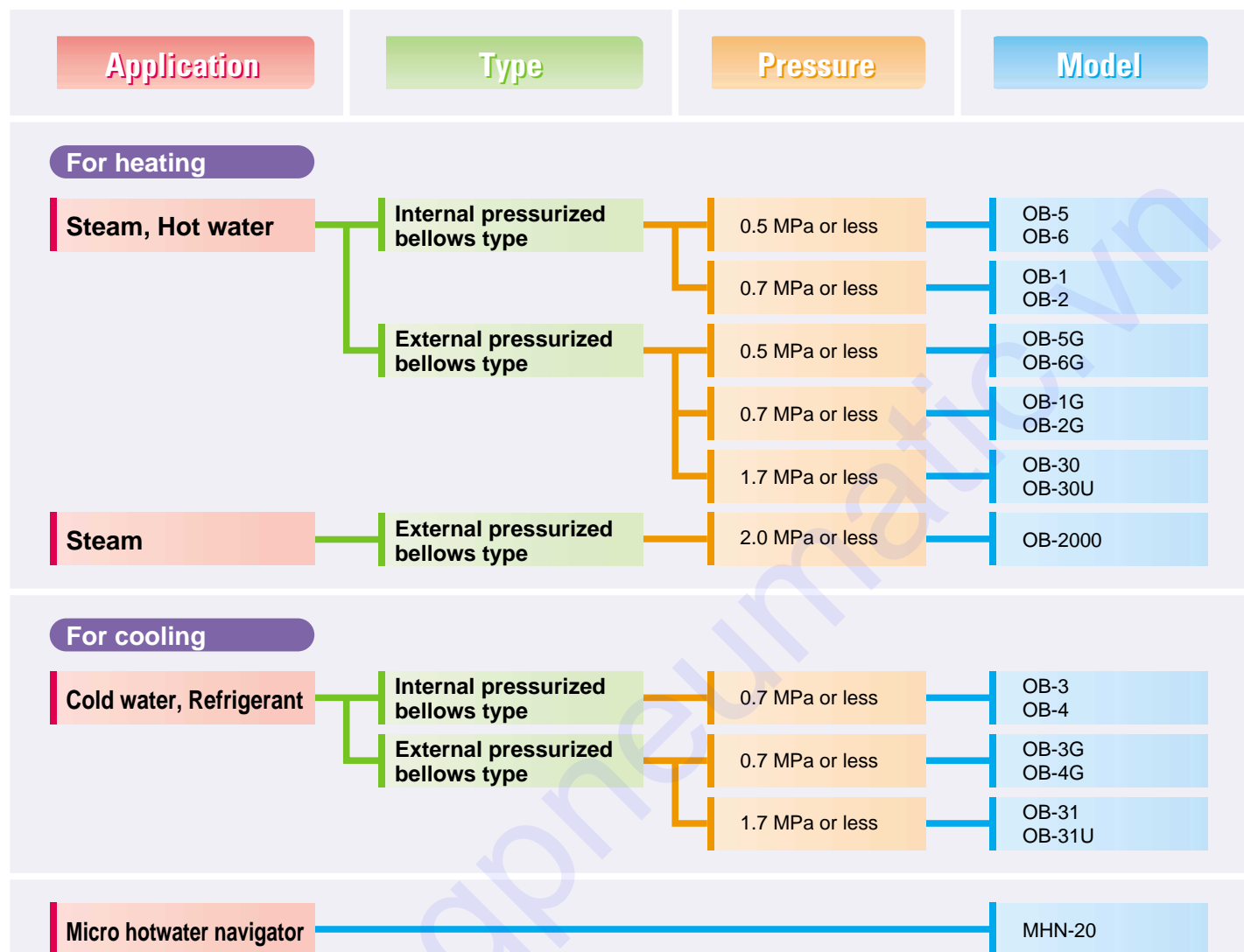
Feature		Pressure & flame proof solenoid valve		Motor valve / Flanged, 2 way	Motor valve / Stainless, 2 way
Model		DP-34		MD-55	MD-61
Picture					
Application		Air, Nitrogen gas	Cold and hot water, Heavy oil A, Light oil	Air, Cold and hot water	
Working pressure		0.05-0.9 MPa (unusable under vacuum)	0.05-1.6 MPa (unusable under vacuum)	0-1.0 MPa	
Min. differential pressure		0.05 MPa		-	
Max. temperature		60		80	
Ambient temperature		5-60		-20-50	
Rated voltage		AC 100 V 50 / 60 Hz common AC 200 V 50 / 60 Hz common		AC 100 / 110 V 50 / 60 Hz common AC 200 / 220 V 50 / 60 Hz common	
Operation		Normally closed		ON-OFF	
Connection		JIS Rc screwed		JIS 10K RF flanged	
Material	Body	Brass (C3771)		Ductile cast iron	Cast stainless steel
	Ball	Main valve: Brass (C3604)		Stainless steel	
	Seat	Valve disc: Fluororubber (FKM)		PTFE	
Size		15A-25A		65A-150A	65A-125A
Others		-		-	-

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		City water	—
Working pressure		0-1.0 MPa		0-1.0 MPa	-
Max. temperature		180		60	50
Ambient temperature		-		-20-55 (no freeze condition)	
Rated voltage		-		24 V DC	85-240 V AC, 50 / 60 Hz
Operation		Air-to-open *		ON-OFF	Output: 24 V DC
Connection		JIS Rc screwed	JIS 10K FF flanged	JIS 10K flanged	-
Material	Body	Cast bronze	Cast iron	Cast iron(FC 300) or Ductile cast iron	-
	Valve	Stainless steel		Stainless steel	-
	Valve seat	Stainless steel		FKM	-
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 Regulator 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, Liquid			
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	
Withstand temperature		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
Set point range		- 8-15 , 10-36 , 30-62 , 55-94 , 80-127 , 115-183
Withstand temperature		Upper set point +20
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 *1	
	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
Ambient temperature		set point -10 or less	set point +30 or less *2	set point -10 or less	set point +30 or less *2
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		15A-40A: 2 m 100A-150A: 3 m	
Size		15A-40A		15A-150A	

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

*2 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 -70
Hot water capacity	Minimum flow rate	5 L/min
	Flow rate range	5-30 L/min
Max. steam capacity		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		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
Ambient temperature		[Set point - 10] or less	[Set point +30] or less	[Set point - 10] or less	[Set point +30] or less
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 the nominal size.	

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

Expansion Joint and Flexible Joint 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
	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
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	
Max. axial extension	35 mm (Expansion 10 mm Compression 25 mm)	70 mm (Expansion 20 mm Compression 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	

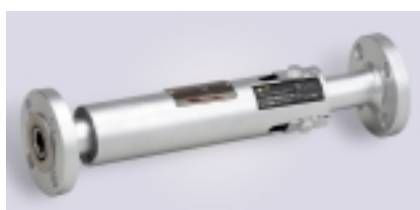
*1 Available with all stainless steel made.

*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

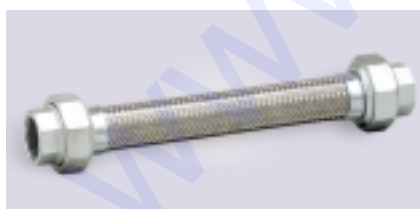
Model	EB-11	EB-12
Application	Steam, Air, Cold and hot Water, Oil, Other non-dangerous fluids	
Max. pressure	2.0 MPa	
Max. temperature	220	
Max. axial extension	35 mm (Expansion 10 mm Compression 25 mm)	70 mm (Expansion 20 mm Compression 50 mm)
Connection	JIS 20K RF flanged	
Material	Outer pipe	Carbon steel
	Bellows	Stainless steel(SUS316L)
	Inner pipe	Stainless steel(SUS316L)
Size	20A-250A *	

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

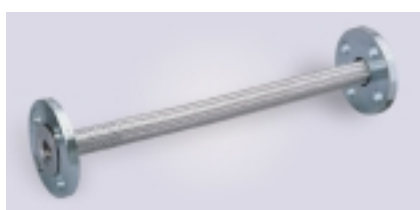
YBF-1E・2E



Flexible joint



YBF-1E



YBF-2E

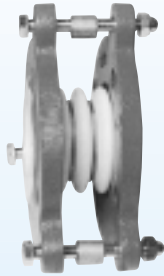
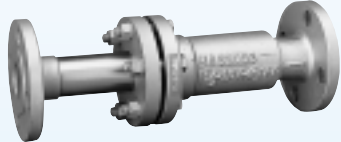
Flexible and durable for pressure up to 1.0MPa
Excellent weather resistance
Significantly improved service life

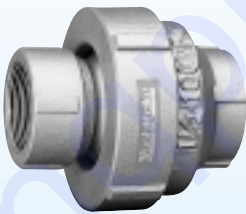
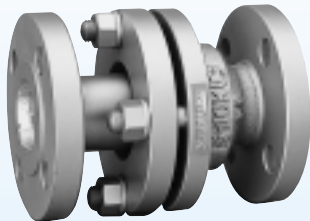
Model	YBF-1E	YBF-2E
Application	Steam, Air, Cold and hot Water, Oil, Other non-dangerous fluids	
Max. pressure	1.0 MPa	1.0 MPa *1
Max. temperature	220	
Length	300 mm, 500 mm, 800 mm, 1000 mm *2	
Connection	JIS Rc screwed (union joint)	JIS 10K FF flanged (loose flanges on both sides)
Material	Connection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

*1 Maximum pressure for 250A is 0.5 MPa.

*2 Available with 400 mm, 600 mm, 700 mm, 1200 mm, 1500 mm, 2000 mm length (YBF-2E)

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

Feature		Anti-corrosion / PTFE joint	Sleeve joint / 1.0, 2.0 MPa
Model		EB-51-3	ES-10·11
Picture			 ES-10-100
Application		Cold and hot water, Chemicals, etc.	Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids
Max. pressure		1.0 MPa *1	ES-10: 1.0 MPa ES-11: 2.0 MPa
Max. temperature		150 *1	220
Axial extension		13-20 mm *2	ES-10-100, ES-11-100: 20 mm ES-10-200, ES-11-200: 40 mm
Axial compression		13-35 mm *2	ES-10-100, ES-11-100: 80 mm ES-10-200, ES-11-200: 160 mm
Connection		JIS 10K RF flanged	ES-10: JIS 10K RF flanged ES-11: JIS 20K RF flanged
Material	Outer pipe	-	Body - ES-10: Cast iron or Rolled steel *1 ES-11: Rolled steel *1 Sleeve: Carbon steel(HCr plating)
	Bellows	PTFE	
	Connection	Flange: Ductile cast iron	
Size		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.	*1 The bodies of the ES-10-100 and of the ES-11-100 are FCD(25A-100A)

Feature		Ball joint / Screwed	Ball joint / Butt-weld	Ball joint / Flanged
Model		UB-1	UB-2	UB-10·11
Picture		 UB-1	 UB-10	
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids		
Max. pressure		0.98 MPa		
Max. temperature		220		
Max. displacement angle		20 °		
Max. axial displacement		-		
Connection		JIS Rc screwed	Butt-weld	JIS 10K RF flanged
Material	Body	Cast iron	Carbon steel	UB-10: Cast iron UB-11: Carbon steel
	Ball	Cast iron(HCr plating)	Carbon steel(HCr plating)	
Size		20A-50A	50A-250A	
Others		-	-	-

MEMO

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Steam Trap, Radiator Trap and Radiator Valve 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 TSF-10·10F·11·11F TB-20
	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
	2.0 MPa or less	SCV-3

* 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



TD-30NA

Model		TD-10NA		TD-30NA	
Application		Steam condensate			
Working pressure		0.035-2.0 MPa		0.035-1.0 MPa	0.035-2.0 MPa
Max. temperature		220			
Allowable back pressure		50% or less of inlet pressure			
Connection		JIS Rc screwed		JIS 10K FF flanged	JIS 20K FF flanged
Material	Body	Ductile cast iron			
	Disc	Stainless steel(special heat treatment)			
	Seat	Stainless steel(special heat treatment)			
Size		15A-25A			

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
Working pressure		0.035-4.2 MPa
Max. temperature		425
Allowable back pressure		50% or less of inlet pressure
Connection		JIS Rc, NPT, BSPT screwed
Material	Body	Stainless steel(SCS2A)
	Disc	Stainless steel(special heat treatment)
	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



TSD-7F

Model		TSD-7	TSD-7F
Application		Steam condensate	
Working pressure		0.035-1.0 MPa	
Max. temperature		183	
Allowable back pressure		50% 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	
	Disc	Stainless steel(special heat treatment)	
	Seat	Stainless steel(special heat treatment)	
Size		15A-25A	

TS-7・8



Steam condensate

Steam trap



TS-7

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



TS-8

Model		TS-7	TS-8
Application		Steam condensate	
Maximum pressure		1.0 MPa *	
Max. temperature		183	
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.

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
Working pressure		0.01-0.7 MPa
Max. temperature		170
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
Connection		JIS Rc screwed
Material	Body	Ductile cast iron
	Trim parts	Stainless steel
	Float	Stainless steel
Size		25A

TSF-10・10F・11・11F



Steam trap



TSF-10

Sufficient steam discharge
Quick warm-up
Easy maintenance
Installable at any angle

Model	TSF-10	TSF-10F	TSF-11	TSF-11F
Application	Steam condensate			
Working pressure	TSF-1	-5: 0.01-0.5 MPa		
	TSF-1	-10: 0.01-1.0 MPa		
	TSF-1	-21: 0.01-2.1 MPa		
Max. temperature	220			
Connection	JIS Rc screwed	JIS 10K FF flanged	JIS Rc screwed	JIS 10K FF flanged
	NPT	JIS 20K FF flanged	NPT	JIS 20K FF flanged
Material	Body	Ductile cast iron		
	Float	Stainless steel		
	Valve, Valve seat	Stainless steel		
Nominal size	15A-25A		25A-50A	

• Available with ASME or EN flanged.

TB-20



Steam trap



TB-20

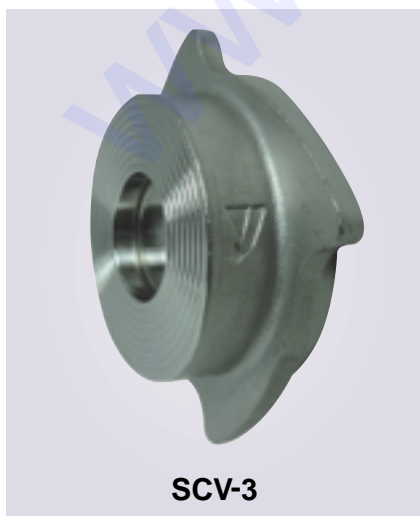
Excellent durability with free floating lever system and hemispherical valve.
Stainless steel internal parts provide reliable performance.
Stainless steel upper ring provides a good wear resistance.

Model		TB-20			
Application		Steam condensate			
Working pressure		(A) 0.01-0.3 MPa { 0.1-3 kgf/cm ² G }	(B) 0.2-0.6 MPa { 2-6 kgf/cm ² G }	(C) 0.3-1.0 MPa { 3-10 kgf/cm ² G }	(D) 0.6-1.6 MPa { 6-16 kgf/cm ² G }
Min. differential pressure		0.01 MPa { 0.1 kgf/cm ² }	0.03 MPa { 0.3 kgf/cm ² }	0.10 MPa { 1 kgf/cm ² }	0.10 MPa { 1 kgf/cm ² }
Max. temperature		220			
Connection		JIS Rc(PT screwed)			
Material	Body	Ductile cast iron			
	Valve	Stainless steel			
	Valve seat	Stainless steel			
Size		15A-25A			

SCV-3



Check valve

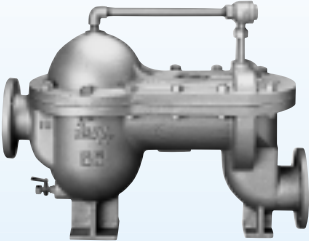
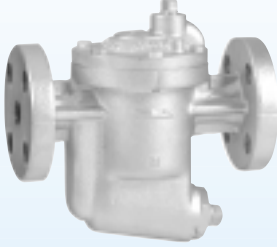
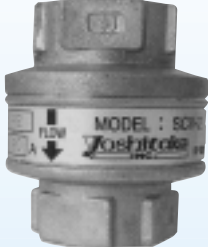


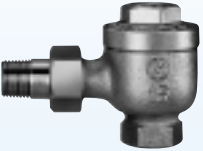
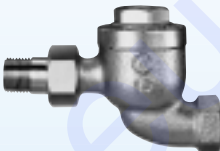
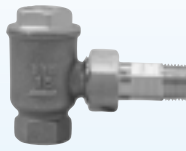

SCV-3


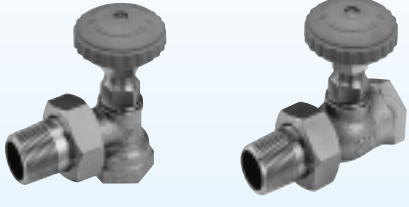
Compact design
Installable with JIS/EN/ASME flanges.
Installable at any angle
Outstanding corrosion resistance and durability

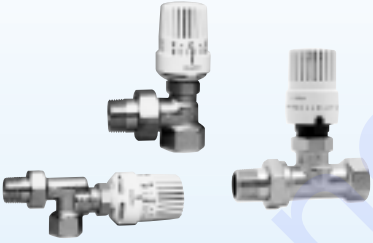
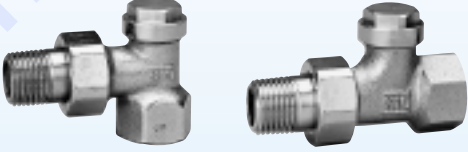
Model	SCV-3
Application	Steam, Cold and hot water
Maximum pressure	2.0 MPa
Maximum temperature	220
Minimum opening pressure	0.003 MPa
Material	Body
	Disc
Connection	
Wafer	

* A small amount of fluid leaks out of the product. So, it should not be used for applications requiring complete closing.

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	220	220
Connection		JIS 10K RF flanged	JIS 10K FF flanged	JIS Rc screwed
Material	Body	Ductile cast iron	Ductile cast iron	Cast stainless steel
	Valve, Valve seat	Cast bronze	Stainless steel	Disc: Stainless steel
	Float	Brass	Bucket: Stainless steel	-
	Size	65A, 80A	15A-50A	15A-50A
Others		-	-	-

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		 TS-1A	 TS-1S	 TS-3A	 TS-3S
Application		Steam condensate			
Max. pressure		0.1 MPa	0.2 MPa	0.2 MPa	0.35 MPa
Max. temperature		120		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
Model		FV-2A • 2S	HV-3A • 3S
Picture		 FV-2A FV-2S	 HV-3A HV-3S
Application		Steam(Cold and hot water)	Cold and hot water
Max. pressure		0.3 MPa	0.6 MPa
Max. temperature		150	90
Connection		Inlet: JIS Rc screwed Outlet: JIS R screwed (union joint)	
Material	Body	Cast bronze	Cast bronze
	Valve	Union: Brass	PTFE
	Valve seat	Valve disc: PTFE	Bronze
Size		15A-32A	15A-25A
Others		FV-2A: Angle type FV-2S: Straight type	HV-3A: Angle type HV-3S: Straight type

Feature		Thermo-radiator valve	Return valve
Model		118 Series	109 Series
Picture		 Oventrop	 Oventrop
Application		Hot water, Steam	Cold and hot water
Max. pressure		Hot water: 1.0 MPa Steam: 0.05 MPa	1.0 MPa
Max. temperature		Hot water: 120 Steam: 110	120
Connection		Inlet: JIS Rp screwed Outlet: JIS R screwed (union joint)	Inlet: JIS R screwed (union joint) Outlet: JIS Rp screwed
Material	Body	Bronze or Brass	Bronze or Brass
	Valve	EPDM	Brass
	Valve seat	Bronze or Brass	Bronze or Brass
Size		15A-25A(Angle, Straight) 15A-20A(Reversed angle)	15A, 20A
Others		Thermostats: Bellows, Liquid, Remote mount Valve: Angle, Straight, Reversed angle	Valve: Angle, Straight

Air Vent, Vacuum Relief Valve, Noiseless Heater, Drain Separator, 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)	
Working pressure		0.01-1.0 MPa	
Max. temperature		90	
Connection		JIS Rc screwed	
Material	Body, Cover	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 adequate 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	
Working pressure		0.01-0.3 MPa	
Max. temperature		100	
Connection	Inlet	JIS R screwed	
	Outlet	Cap type	Hose joint type
Material	Body	Brass	
	Disc	NBR	
	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	
Working pressure		0.01-1.0 MPa	
Max. temperature		100	
Connection	Inlet	JIS R screwed	
	Outlet	Cap type	Hose joint type
Material	Body	Bronze	
	Disc	FKM	
	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	
Working pressure		0.01-1.0 MPa	
Max. temperature		90	
Connection	Inlet	JIS R screwed	
	Outlet	JIS Rc screwed	Hose joint type
Material	Body, Cover	Stainless steel	
	Disc	FKM	
	Gasket	FKM	
	Float	Stainless steel	
Size		15A-25A	

* Please contact us when fluid is ozone water.

Option for exhaust connection

Manual valve with copper pipe
Swivel copper pipe joint

Manual valve with hose joint
Swivel hose joint

Swivel joint
L-shaped 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	
Max. pressure		1.0 MPa	
Pressure regulating range		Spring A: -0.5 to -21 kPa(standard set pressure: -4 kPa) Spring B: -21 to -48 kPa(standard set pressure: -21 kPa) Spring C: -48 to -81 kPa(standard set pressure: -48 kPa)	
Max. temperature		200	
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	
Working pressure		0.05-0.7 MPa	
Max. warning sound temperature limit		60	
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	
Working pressure	0.1-0.7 MPa	
Max. warning sound temperature limit	90	
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
Working pressure	0.05-0.7 MPa
Max. warning sound temperature limit	90
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	
Max. pressure	2.0 MPa (1.0 MPa for air)	
Max. temperature	220	
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

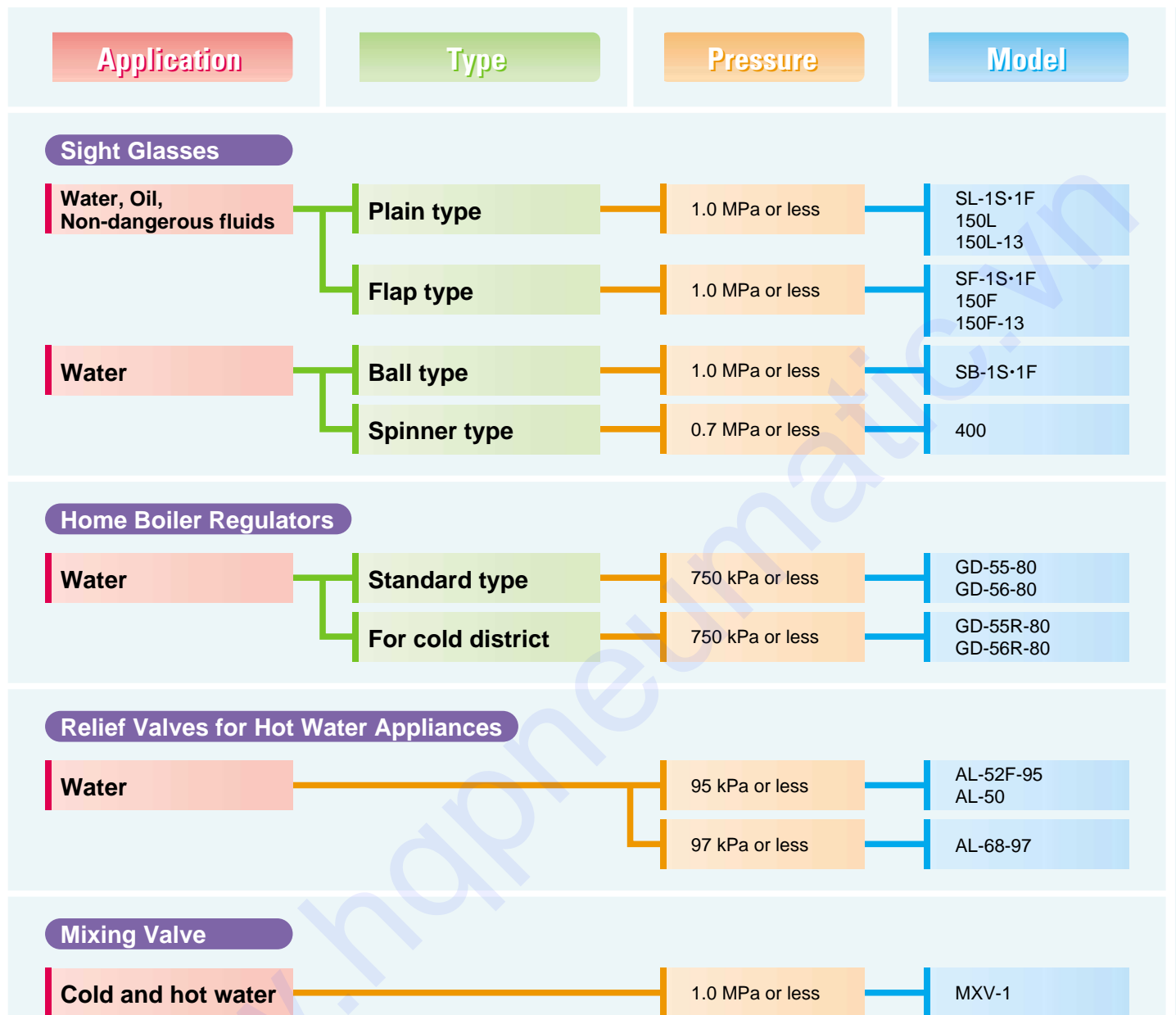
Feature		With quick ventilation mechanism	Bronze body	Nylon coating
Model		TA-2	TA-5·5F	TA-2C·3C
Picture		 TA-2		 TA-2C TA-3C
Application		Cold and hot water, Oil (specific gravity: 0.8 or more)		Cold and hot water, Oil (specific gravity: 0.8 or more)
Max. pressure		1.0 MPa		1.0 MPa
Max. temperature		90	TA-5: 90 TA-5F: 120	60
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	80 (no freeze condition) 35 (no freeze condition)		120
Connection		JIS R screwed	JIS R screwed		JIS Rc screwed
Material	Body	Stainless steel	Cast bronze (NPb-treated)		Cast bronze
	Valve	Disc: 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 lines (dotted lines) for the memo section.

Sight Glass, Home Boiler Regulator, Relief Valve and Mixing Valve Selection



* 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 fluids *	
Maximum working pressure	1.0 MPa	
Max. temperature	150	
Max. thermal shock	100	
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 fluids *	
Maximum working pressure	1.0 MPa	
Max. temperature	150	
Max. thermal shock	100	
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 by moving balls
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	
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 glass clean
For visible check by moving spinner
Horizontal and vertical installation

Application		Cold and hot water
Maximum working pressure		0.7 MPa
Max. temperature		100
Max. thermal shock		40
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



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 fluids *
Maximum working pressure		1.0 MPa
Max. temperature		150
Max. thermal shock		100
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



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 fluids
Maximum working pressure		1.0 MPa
Max. temperature		150
Max. thermal shock		100
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 fluids *	
Maximum working pressure	1.0 MPa	
Max. temperature	150	
Max. thermal shock	100	
Connection	JIS Rc screwed	JIS 10K FF flanged
Material	Body	Cast stainless steel
	Glass	Hardened glass
Size	15A-50A	15A-100A

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

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

150F-13


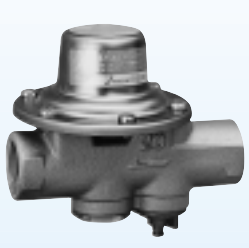


Stainless steel
Flap type



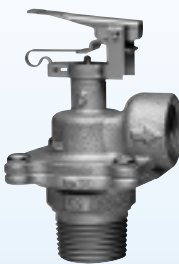
Stainless steel made
For visible check of continuous flow change
Horizontal and vertical installation

Model	150F-13S	150F-13F
Application	Cold and hot water, Oil, Other non-dangerous fluids *	
Maximum working pressure	1.0 MPa	
Max. temperature	150	
Max. thermal shock	100	
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			
Freezing test	-		usable at -20 or above	
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-52FS-95	AL-50	AL-68-97
Picture			
Application	Cold and hot water		
Commence-to-blow pressure	95 ± 4 / ± 6 kPa *	110-200 kPa 240-270 kPa 300 kPa	97 ± 2 / ± 4 kPa *
Reseating pressure	87 kPa or more	75 kPa or more	92 kPa or more
Breathing pressure	-	-	-12 kPa or less
Max. temperature	100		
Freezing test	usable at -20 or above		
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. AL-52FS: Valve seat made of stainless steel • Blowdown pressure is over 87 kPa.	-	* Available with commence-to-blow pressure 190 kPa (AL-68-190). • Blowdown pressure is over 92 kPa.



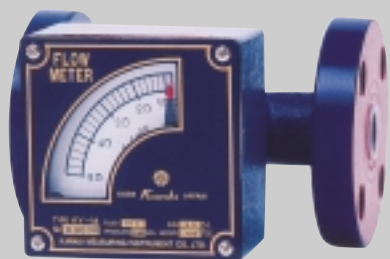
Stable mixed water temperature due to wax thermo-element.
 No electricity is required.
 Compact with built-in check valves at both inlets.
 Wide set temperature range and suitable for various purposes.
 Applicable for circulating water piping, having circulating water inlet joint.

Application		Cold and hot water
Nominal size		25A-50A
Working pressure		1.0 MPa or less
Minimum closing pressure of check valve		3 KPa
Supply pressure difference between cold water and hot water		Within 0.05 MPa
Set temperature range		38-65
Initial set pressure		48
Inlet temperature		90 or below (No freeze condition)
Difference between cold water temperature and set temperature		10 or more
Difference between hot water temperature and set temperature		10 or more
Installation posture		Vertical or horizontal installation
Material	Body	Cast brass
	Joint	Bronze
Connection		JIS Rc screwed
Connection for circulating water inlet		JIS G 1/2 screwed

Flow meters • Flow switches

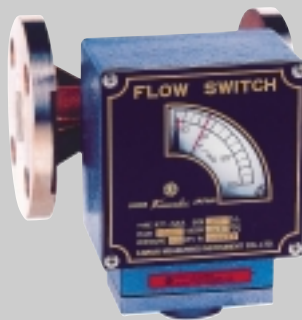
Mechanical flow meter / Area flow meter / Metal-tube area flow meter and Shuttle flow switch, etc.

Flow meter



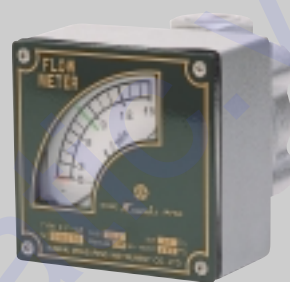
KY-M

Flow switch



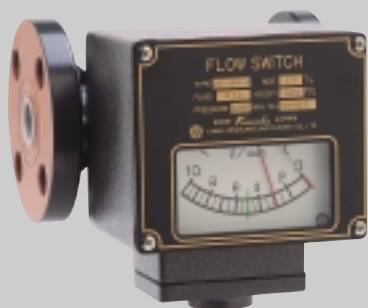
KY-MA

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 design each product according to each application.

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) Fluid name or its 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

Handwriting practice lines (dotted lines) for the memo section.

Born to Save Energy

The most important subject we aim at is to establish of the "Y's" brand – giving the best energy saving solutions to our customers, we step out into the wider world.

February, 1944
Establishment of
Yoshitake Inc.

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

An extensive improvement in quality, cost, and time for delivery, by integrated production system from casting to finished product.

June, 1995
Acquisition of ISO 9001.
For better quality management system.

September, 2000
Acquisition of ISO 14001.
For business in consideration of environmental preservation.



ISO9001



ISO14001

www.hqpneumatic.vn

YOSHITAKE

<http://www.yoshitake.jp>

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