

# Profile of Yamatake's Control Valves

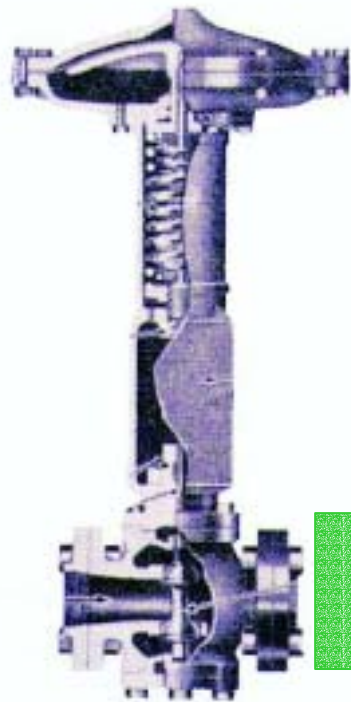


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- IV. Special Customized Valves
- V. On the JOB “Report from the field”

# I. Prologue :

## History of Yamatake Control Valves



First control valve  
domestically produced

**Yamaguchi Takehiko**, who was established Yamatake, first introduced control valves to Japan in 1932. Since then, for nearly 70 years, it had been the world leading supplier of control valves.



V-Series



CV3000 Series



Alphaplus Series

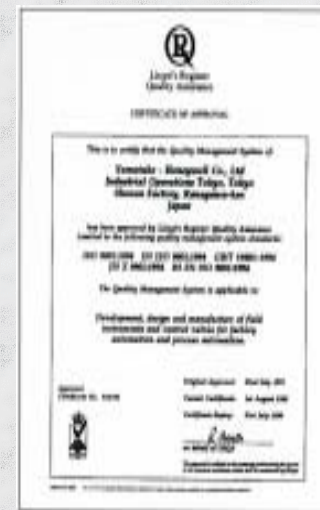
# I. Prologue :

## Highest Quality Level

Shonan factory is covered by ISO9001 Quality Assurance Certification from Lloyd's Register Quality Assurance Ltd.



**Shonan Factory**  
Site area 40,400m<sup>2</sup>  
Floor space 20,000m<sup>2</sup>  
Open in 1973



# I. Prologue :

## Keeping Highest Quality Level

For keeping highest quality level, control valves are assured by various kind of inspection and test at the factory.



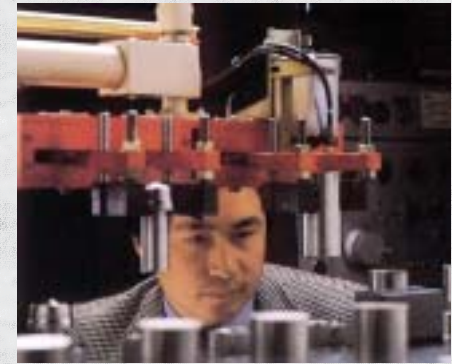
Dust test



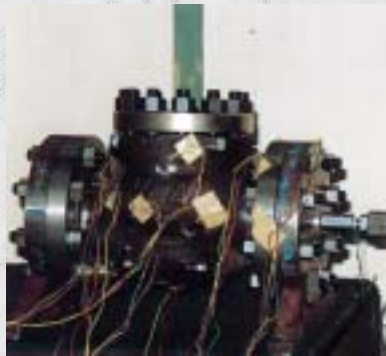
Vibration test



High-temp. Stem Test



Visual inspection of Valve Plug



Hydrostatic pressure test



Piping stress test



Flow test

# I. Prologue :

## A Wide Product Range

Yamatake can provide  
Control valves which are :

Standard valves



Special Specification valves

Special Customized valves



For :



Refineries



Chemicals



Power plants



Pulp & Paper

and various markets.

# II. Standard Control Valves :

## CV3000 Alphaplus series with smart valve positioner (SVP3000)



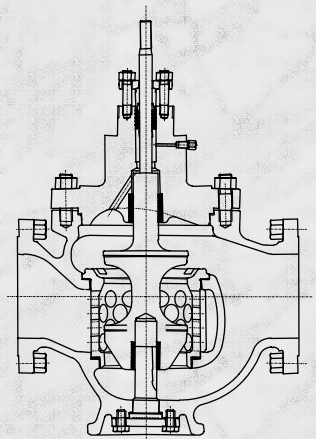
From 1/2 inch to 4 inches, CV3000 Alphaplus  
Top guided single seated control valve

- **High performance**
  - Extremely low seat leakage
    - IEC Class V is available as standard.
  - More powerful Actuator
    - Smaller size Actuator with a greater shut-off pressure rating
- **More safety**
  - Ticker tough stem
    - Buckling strength is 2.9 times us from conventional one.
  - Strongest Actuator yoke
    - Tensile strength is 2.4 times up from conventional one.



From 6 inch to 12 inches, CV3000 Alphaplus  
Top & Bottom guided double seated control valve

- **Compact and light weight**
  - Height is reduced 43% at maximum.
  - Weight is reduced 32% at maximum.
- **New type of unique plug offers:**
  - Excellent control stability
  - Seat leakage performance (IEC Class IV) as single seated valve
  - Easy to maintain
- Patent application structure in world 6 countries  
(Japan, U.S.A., Germany, China, Korea, India)



## II. Standard Control Valves :

### Smart valve positioner (SVP3000)



- Easy to adjust only with a screwdriver.
  - Auto setup function
  - Easy to adjust zero & span
- One model satisfies various process requirements.
  - Data/parameters can be changed by software, not changed hardware.  
Reduce/Minimize spare parts.

# II. Standard Control Valves :

## CV 3000 Series

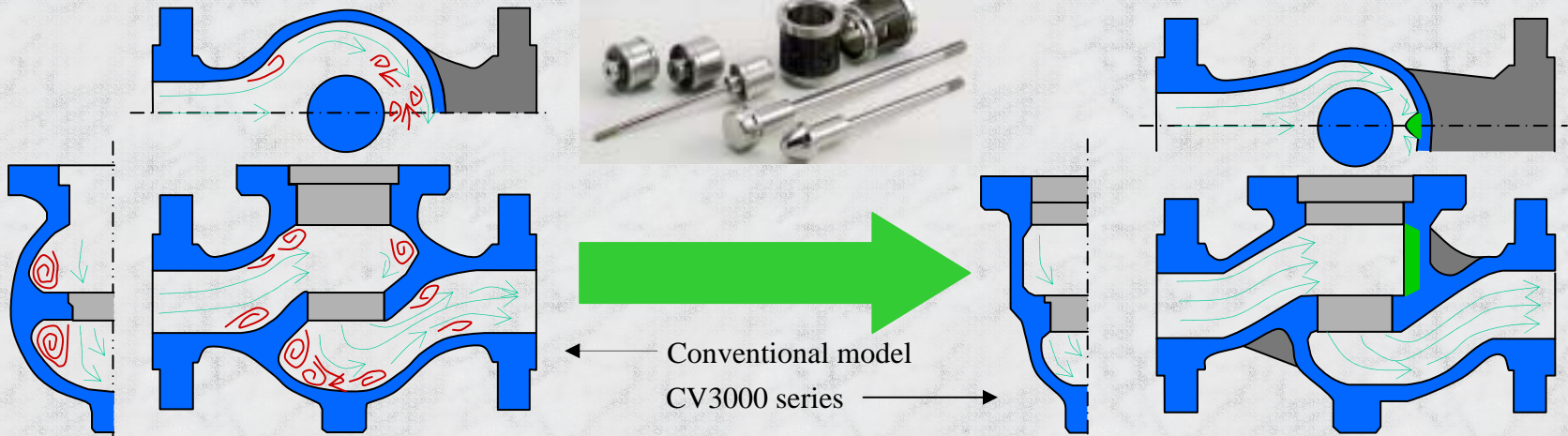


More than 200 thousand sets of CV 3000 Series control valves are delivered to all over the world user. Various kind of specifications are available.

### Comparison of

conventional flow (left) and the improved CV3000 flow (right)

A stabilizer is incorporated within the valve body which suppresses turbulence and improves flow. This innovative design means that the CV3000 series provides a 30% increase in CV values over previous models.



# II. Standard Control Valves :

## CV 3000 Series



### **Top guided single seated control valve**

Model HLS Size 3/4B, 1B

Model HLC Size 3/4B, 1B

Model HTS Size 1-1/2B to 8B

Model HSC Size 1-1/2B to 8B



### **Cage Type control valve**

Model HCU Size 1-1/2B to 8B

Model HCB Size 1-1/2B to 8B

### **High-pressure type control valve**

Model HPS Size 1B to 3B

Model HPC Size 1-1/2B to 8B



### **Low-noise Type control valve**

Model HCN Size 1-1/2B to 8B

### **Angle Type control valve**

Model HAV Size 1-1/2B to 6B

Model HAH Size 3/4B to 1-1/2B

Model HAG 1-1/2B to 6B

### **Three way type control valve**

Model HMT (Mixed service) Size 1B to 6B

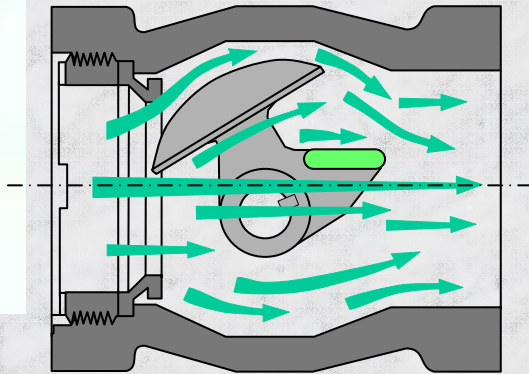
Model HDT (Diverting service) Size 3B to 6B

# II. Standard Control Valves :

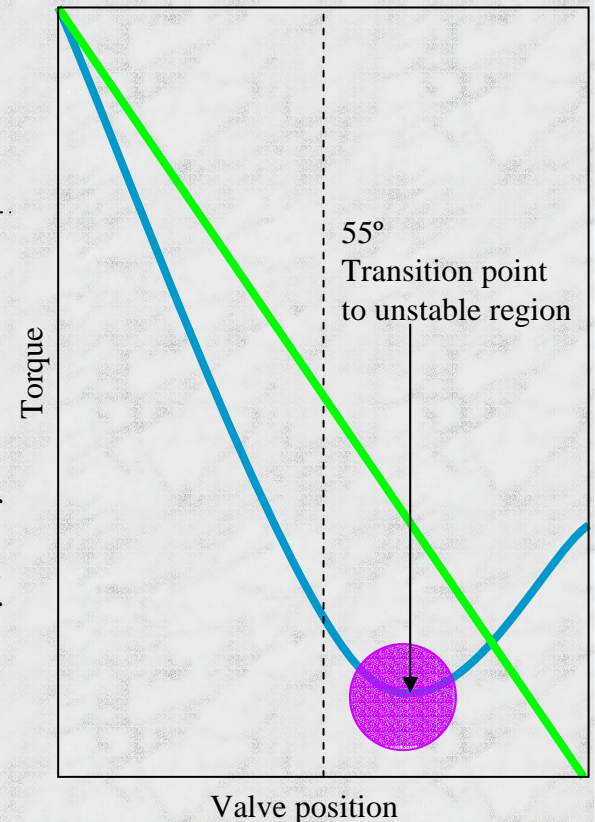
## Eccentric Rotary Valve : FloWing



The unique patented structuring winged plug solves the problem of dynamic instability and renders high dynamic stability.



The valve plug has a stabilizer wing which acts as a strainer and rectifies the flow near the plug by actually making use of the force of the fluid itself. This stabilizes the fluid torque at any valve plug position and neatly solves the problem of dynamic instability. The plug and wing comprise a single unit.



# III. Special Specification valves.

Based on nearly 70 years experiences, Yamatake can provide Special Specification valves for meet customer's needs.



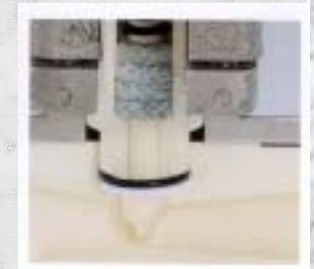
## Micro-Flow Control Valve

Model	VSM, VSP
Size	VSM RC 1/4 Internal thread VSP 10mm, 15mm, 20mm
Port	<b>Cv = 0.001 to 0.63</b>
Customer	Pharmaceuticals, Dye Manufacturers, Cosmetics, Polypropylene Plant



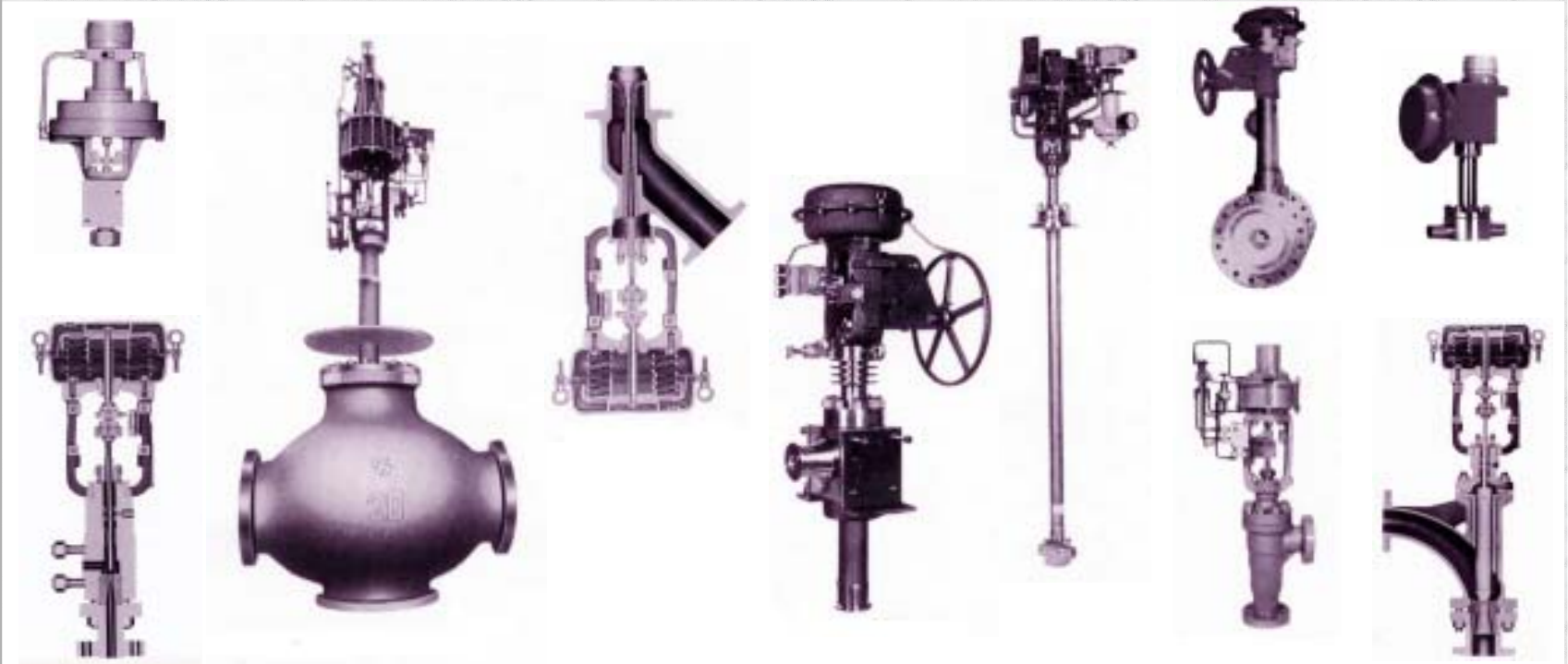
## Corrosion-Resistant Type Small Size Ceramic Control Valve

Model	HMC
Size	1B to 3B
Max Press.	2000KPa
Temperature	0 to 200°C
Material	<b>99% Aluminous Ceramic</b> <b>Silicon carbide Ceramic</b>
Customer	Process line for magnesium hydroxide, gypsum, etc.



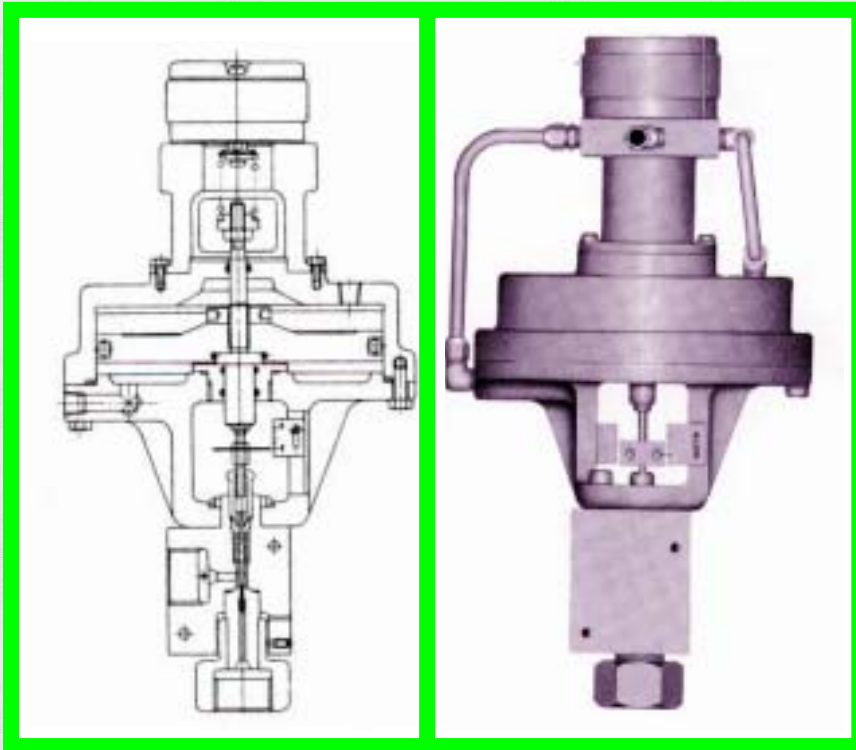
# IV. Special Customized Valves

Here are a few examples of highly customized control valve designed, in consultation with customers around the world, to operate continuously under extreme operating conditions/requirements.



# IV. Special Customized Valves : For Ultra High Pressure Application

**Type : Ultra High Pressure Control Valve**



Size As customer's request

Port As customer's request

Material SUS630

Flow Various

**Pressure 3,500 kgf/cm<sup>2</sup>**

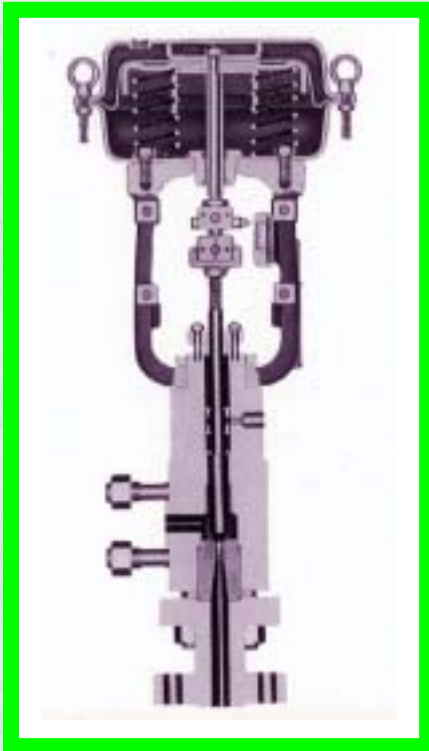
Temperature -30 to 70°C

Customers : Low Density Polyethylene Manufactures

# IV. Special Customized Valves :

For High-temperature/pressure with cavitation Application

**Type : Labyrinth trim, Angle Type Control Valve**



Size 3/4B, 1B, 1-1/2B

Pressure rating ANSI2500

Body material SF440A, SUSF304, SUSF316

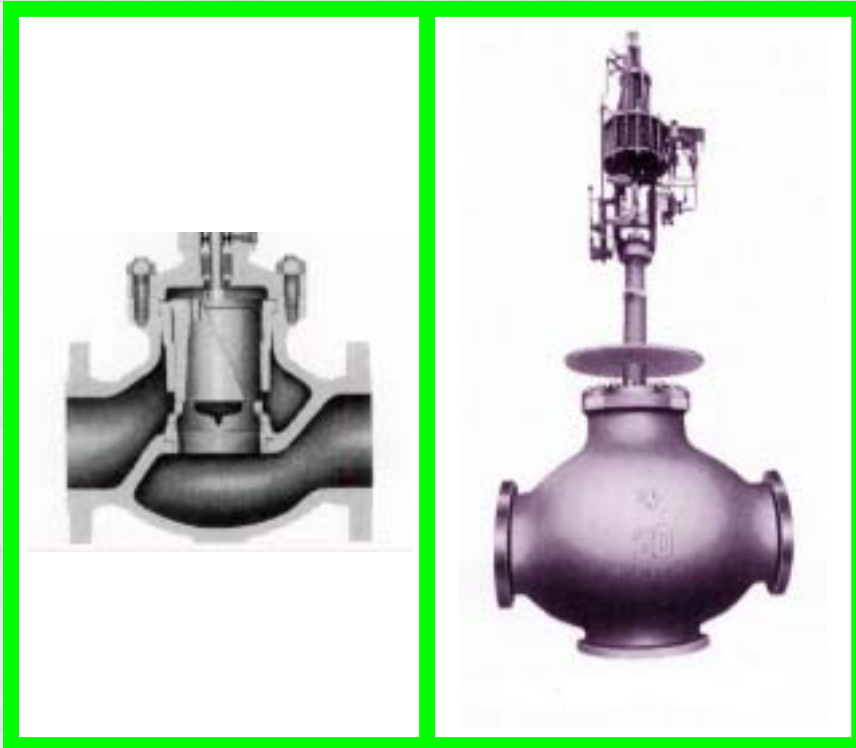
Trim material SUS440C

**Temperature 0 to +425°C**

Application : Saturated water in which cavitation and erosion are frequently generated at high temperature and high differential pressure.

# IV. Special Customized Valves : For LNG Application

**Type : Cage Type Control Valve for LNG**



<b>Size</b>	<b>20B</b>
<b>Port</b>	<b>20B</b>
<b>Material</b>	SUS316
<b>Flow</b>	Liquid Natural Gas
<b>Pressure</b>	300lb.
<b>Temperature</b>	<b>-196°C</b>

Customers : LNG manufactures/suppliers

# IV. Special Customized Valves : For High-Viscosity Fluid Application

## Type : Bottom Plug Type Control Valve



Size As customer's request

Port As customer's request

Rating JIS10K to 40K  
ANSI 150 to 600  
JPI 150 to 600

**Material** **Seat : Stellite base**

Flow Various

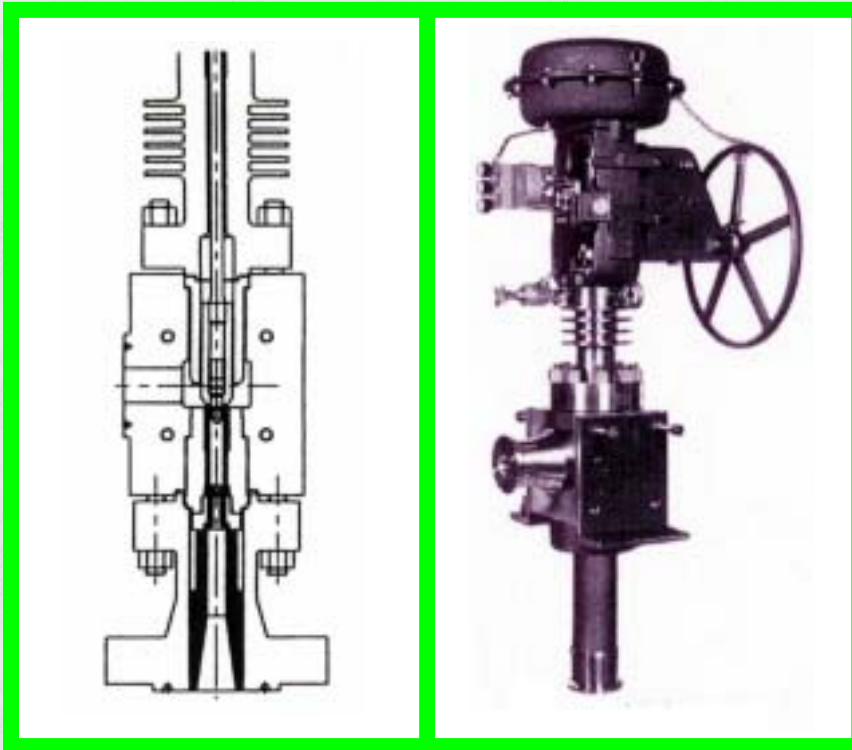
Pressure Various

Temperature -196 to +566°C

Customers : For high-viscosity service in the petrochemical, chemical,  
Pulp and paper, and Steel milling

# IV. Special Customized Valves : For Coal Liquefaction Application

**Type : Letdown Angle Type Control Valve**



Nominal size	3B x 4B
Body material	SUSF347
Trim material	SUS347+WC* +Diamond
Pressure rating	JPI2500# (ANSI2500)
Pressure P1	170kgf/cm <sup>2</sup>
Differential pressure	169kgf/cm <sup>2</sup>
Temperature	394°C

WC\* : Tungsten Carbide

Customers : Mitsui SRC Development Co., Ltd.

# IV. Special Customized Valves : For Liquid Hydrogen Application

**Type : Super Low Temperature Type Control Valve**



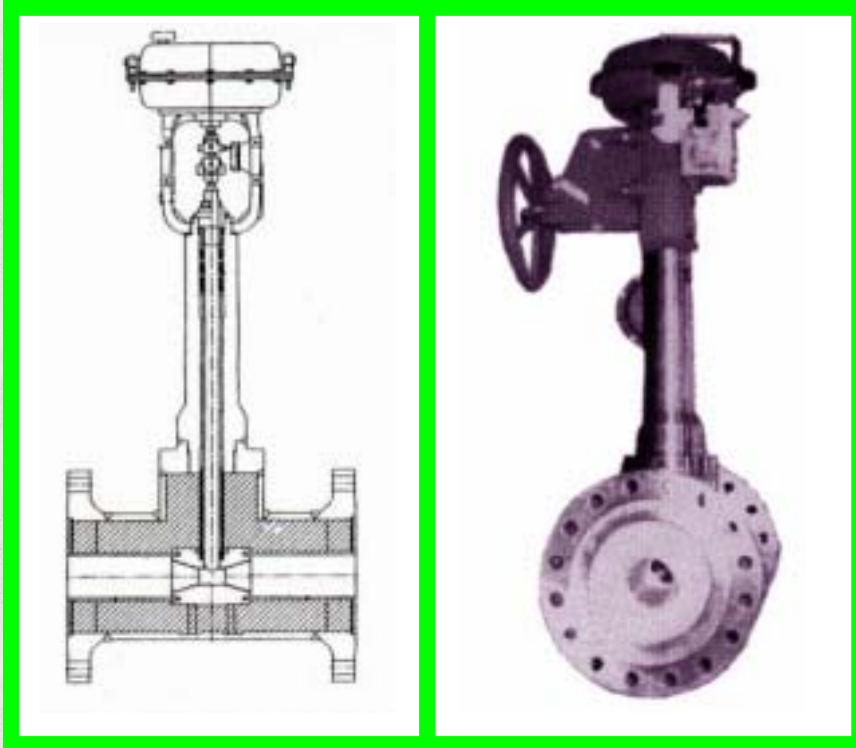
Size	3B x 2B
Pressure rating	ANSI900
Material	SUSF316L/SUS316 FST
Flow	Liquid Hydrogen
Pressure	71kgf/cm <sup>2</sup>
<b>Temperature</b>	<b>-253°C</b>

Customers : National Space Development Agency of Japan

# IV. Special Customized Valves :

## For Ultra High Temperature Application

**Type : Hot Bypass Control Valve**



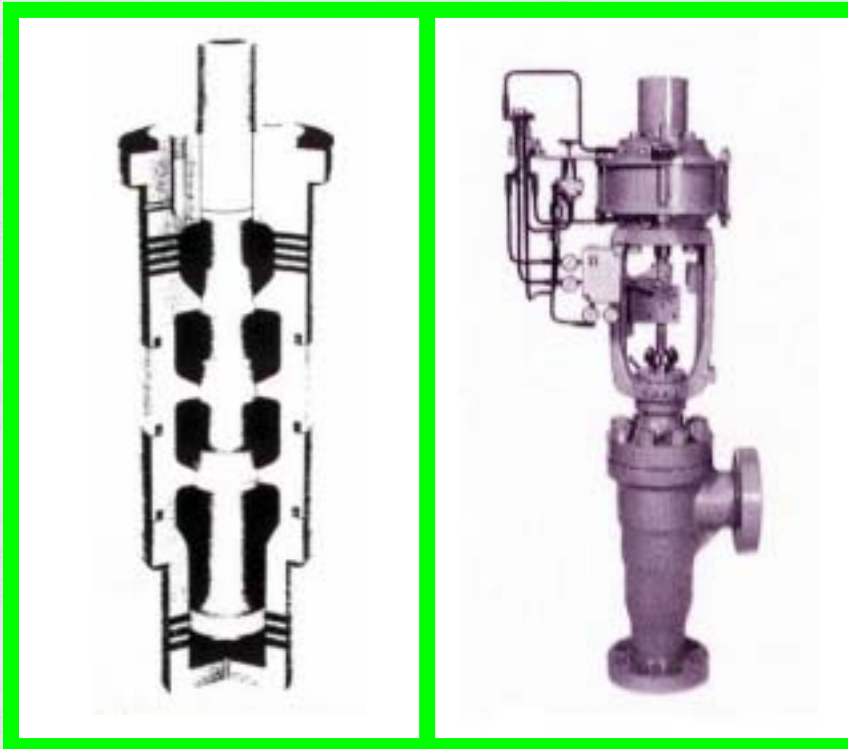
<b>Size</b>	<b>10B</b>
<b>Port</b>	<b>3B</b>
<b>Material</b>	316SS with castable lining
<b>Flow rate</b>	1050 Nm <sup>3</sup> /Hr (gas)
<b>Pressure</b>	24kgf/cm <sup>2</sup>
<b>Temperature</b>	<b>+700 to +800°C</b>

Customers : Flue gas tower of New Energy Development Organization

# IV. Special Customized Valves :

## For Pump Minimum Flow Re-circulation Application

### Type : Multi-stage Pressure Reduction Control Valve

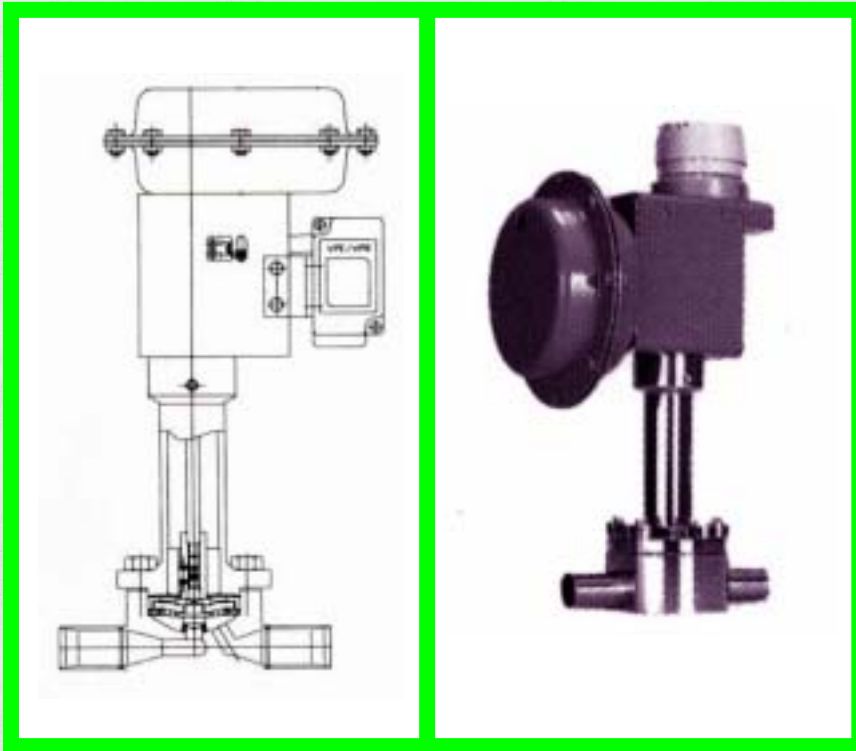


Size	1-1/2B to 6B
Port	Cv = 2.5 to 60
Connection	BW (Bud Weld) or RTJ (Ring Type Joint)
Differential pressure (Close)	326kgf/cm <sup>2</sup> (32MPa)
Inlet pressure	306kgf/cm <sup>2</sup> (30MPa)
Temperature	+204°C
Seat Leakage	ANSI Class V
Application	Boiler feed water pump

Customers : Utilities for Power Plants

# IV. Special Customized Valves : For Ultra Clean Application

## Type : Ultra Clean Control Valve



Size	15mm to 80mm
Port	Cv = 0.63 to 80mm
Material	316SS low carbon
Pressure	20kgf/cm <sup>2</sup>
Temperature	-196 to +30°C
Application	Flow and Pressure for N <sub>2</sub> tank

Customers : Semiconductor Manufacturers

# IV. Special Customized Valves : For Hard-Slurry Service Application

**Type : Angle Type Control Valve for hard Slurry**



Size As customer's request

Port As customer's request

Rating JIS10K to 40K  
ANSI 150 to 600  
JPI 150 to 600

**Material** **Seat : Stellite base**

Flow Various

Pressure Various

Temperature -196 to +566°C

Customers : For hard slurry service in the petrochemical, chemical,  
Pulp and paper, and Steel milling