

RED-WHITE



PN Rating Valves

Bronze, Brass & Cast Iron Valves



Toyo Valve Co., Ltd.
<http://www.toyovalve.co.jp/>



CHINO PLANT, JAPAN

INDEX

	Valve type	Fig	Page
Bronze Valves	PN16 Gate Valves	272P	4
	PN16 Gate Valves	286P	4
	PN25 Gate Valves	206P	4
	PN25 Gate Valves (Solder joint)	207P	5
	PN16 Globe Valves	210P	5
	PN25 Globe Valves	213P	5
	PN16 Swing Check Valves	236P	6
	PN25 Lift Check Valves	230P	6
	PN25 Y-pattern Strainers	380P	6
Cast Iron Valves	PN16 Gate Valves	500	8
	PN16 Gate Valves	501(I)	8
	PN16 Globe Valves	510	9
	PN16 Swing Check Valves	520	9
	PN16 Y-pattern Strainers	530	10

P-T Rating

Service Temperature (°C)	Bronze valves		Cast iron valves
	PN16	PN25	PN16
-10 to 66	16.0	25.0	16.0
100			
120	13.5	21.8	14.4
150	9.5	16.5	
170	7.0	12.8	13.7
180	-	11.3	13.4
186	-	10.5	13.2
198	-	-	12.9
200	-	-	12.8

Toyo DZR brass (Dezincification Resistant brass)

Water pollution and employment of new piping material have amplified valve dezincification problems.

The copper alloy used in bronze valves contains zinc, tin, and lead with copper as a base. When bronze valves are subjected to unfavorable service conditions, the zinc component contained in the copper alloy separates from the copper base, and the metal corrodes. This is called dezincification.

In case of bronze valve, the body, bonnet, and other cast bronze parts hardly corrode due to the small percent of zinc contained in the alloy. But brass valve parts such as stems, which contain 40% zinc, often corrodes due to extreme dezincification.

The following factors cause dezincification. These factors are generally believed to occur together, rather than independently.

- 1) Excessive aqueous solution in acidity.
- 2) Warm water containing excessive free carbonic acid with high electric conductivity.
- 3) High electric conductivity with excessive presence of chlorides and sulfides.
- 4) Copper or vinyl chloride pipes.
- 5) Excessive dissolved oxygen.

To struggle with dezincification corrosion, Toyo Valve developed DZR brass as the stem materials of bronze/brass valves. Our test data show excellent corrosion resistance to be comparable to bronze continuous casting bars.

TOYO bronze/brass valve have these DZR brass or bronze stems in standard specification, and offer long service life.

Notes

- 1) Refer to the individual specification sheet or the drawing for details of a product.
- 2) Main units of this catalog are shown in SI (MPa, °C, millimeter) and psig.
- 3) Refer to the attached P-T ratings about applicable pressure and temperature.
- 4) The non-asbestos product is used for the gland packing and gasket of bronze, brass and cast iron valves as a manufacturer's standard.
- 5) Bronze and cast iron strainers have the perforated metal screen equivalent to 12-16 meshes. Other meshes of the screen are also available upon request. Please consult Toyo sales staff for details.

Products guarantee

Term of guarantee: Within one year after the date of delivery from our factory to the original customer.

Contents of a guarantee: If the installations and the service conditions (such as pressure, temperature, fluid, etc.) are proper, necessary replacement and repair of our product will be carried out without charge.

Guarantee exceptions: Please keep in mind that the above articles of guarantee will not apply to the case owing to the following reasons:

- 1) Non-compliance of the customer with the technical instructions furnished by our catalog and specification sheet
- 2) Natural disaster incidents, such as a fire, flood damage, an earthquake, and falling stone
- 3) Reconstruction or repair by any third party other than Toyo Valve Co., Ltd.
- 4) Deterioration (such as rust, degradation, chemical changes, etc.)
- 5) Any other matter resulting from the damage not being regarded as manufacturer's responsibility

In addition, you will be required necessary charge for repair or exchange of parts on failure or damage by the guarantee exceptions. Please contact our sales staff or agency for details.

The specification and the performance term of our product indicated in this catalog are based on the internationally governed standards and specifications, our products experience or the design calculation and our in-house examination.

When using the product beyond the service conditions mentioned in this catalog, users are requested to consult Toyo Valve for further advice in advance, or to conduct the verification or evaluation for the performance under user's responsibility. We shall not be liable for any damages resulting from lack of aforementioned procedures by the customer.

Item mentioned in this catalog are subject change without prior notice to the customers.
Don't use our products in flammable or toxic gas service.

272P

Gate Valve

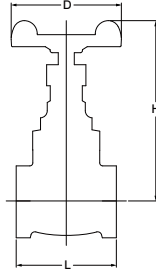
PN16 Cast Bronze Gate Valve
Non-rising Stem, Solid Wedge Disc.

16 bar at 100°C, 7 bar at 170°C, P-T rating : See page 02



Fig. 272P

• Threaded ends: BS21(JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Special Brass*1
Disc	Bronze
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass

Dimensions	inch DN	Unit : mm							
		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
L		43	48	53	60	63	71	87	96
H		76	85	97	117	128	151	180	211
D		48	55	63	70	70	80	90	100

286P

Gate Valve

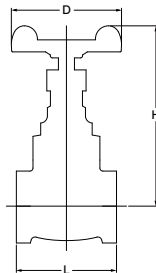
PN16 Cast Bronze Gate Valve
Non-rising Stem, Solid Wedge Disc.

16 bar at 100°C, 7 bar at 170°C, P-T rating : See page 02



Fig. 286P

• Threaded ends: BS21(JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Brass
Stem	Special Brass*1
Disc	Brass
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass

Dimensions	inch DN	Unit : mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		42	47	50	60	63	72
H		76	86	98	118	126	154
D		48	55	63	70	80	90

206P

Gate Valve

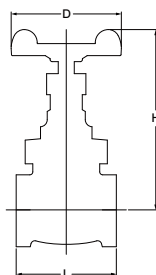
PN25 Cast Bronze Gate Valve
Non-rising Stem, Solid Wedge Disc.

25 bar at 100°C, 10.5 bar at 186°C, P-T rating : See page 02



Fig. 206P

• Threaded ends: BS21(JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Special Brass*1
Disc	Special Brass*1*2/Bronze
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass
*2: Size 1/2 only

Dimensions	inch DN	Unit : mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		45	50	57	61	67	74
H		81	90	106	119	135	159
D		48	55	63	70	80	90

207P

Gate solder joint

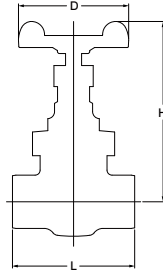
PN25 Cast Bronze Gate Valve
Non-rising Stem, Solid Wedge Disc.

25 bar at 100°C, 10.5 bar at 186°C, P-T rating : See page 02



Fig. 207P

• Solder joint ends: BS 864



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Special Brass*1
Disc	Special Brass*1*2/Bronze
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass
*2: Size 1/2 only

Caution Solder joint end valves should not be used in service where the temperature of line fluid is higher than the softening point of solder.

Dimensions	inch DN	Unit : mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		46	61	72	78	87	102
H		81	90	106	119	135	159
D		48	55	63	70	80	90

210P

Globe Valve

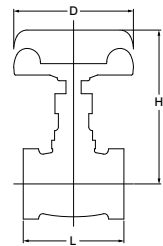
PN16 Cast Bronze Globe Valve
Rising Stem, Screwed Bonnet

16 bar at 100°C, 7 bar at 170°C, P-T rating : See page 02



Fig. 210P

• Threaded ends: BS21 (JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Brass
Stem	Special Brass*1
Disc	Bronze
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass

Dimensions	inch DN	Unit : mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		48	53	63	73	81	94
H		69	81	95	104	127	147
D		55	63	70	80	90	100

213P

Globe Valve

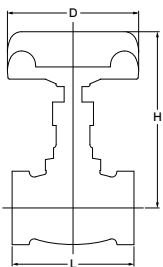
PN25 Cast Bronze Globe Valve
Rising Stem, Screwed Bonnet

25 bar at 100°C, 10.5 bar at 186°C, P-T rating : See page 02



Fig. 213P

• Threaded ends: BS21 (JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Brass
Stem	Special Brass*1
Disc	Bronze
Gland Packing	Aramid Fibers Graphite

*1: Dezincification Resistant Brass

Dimensions	inch DN	Unit : mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		53	65	77	85	100	119
H		80	94	104	127	145	173
D		63	70	80	90	100	110

236P

Swing Check Y-Pattern

PN16 Cast Bronze Swing Check Valve
Y-pattern, Screwed Cap

16 bar at 100°C, 7 bar at 170°C, P-T rating : See page 02

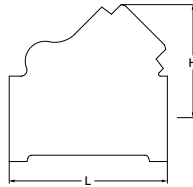


Fig. 236P

• Threaded ends: BS21(JIS B0203)

Materials

Parts	Material
Body	Bronze
Cap	Brass
Disc	Brass
Hinge Pin	Copper

Dimensions	inch DN	Unit: mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		56	70	80	95	110	128
H		40	49	58	71	80	95

230P

Lift Check

PN25 Cast Bronze Lift Check Valve
Screwed Cap

25 bar at 100°C, 10.5 bar at 186°C, P-T rating : See page 02

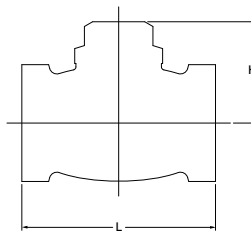


Fig. 230P

• Threaded ends: BS21(JIS B0203)

Materials

Parts	Material
Body	Bronze
Cap	Brass
Disc	Bronze

Dimensions	inch DN	Unit: mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		53	65	77	85	100	119
H		28	34	42	50	56	67

380P

Y-Pattern Strainer

PN25 Cast Bronze "Y" Pattern Strainer
304 Stainless Steel Screen

25 bar at 100°C, 10.5 bar at 186°C, P-T rating : See page 02

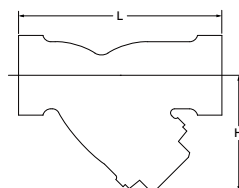


Fig. 380P

• Threaded ends: BS21(JIS B0203)

Materials

Parts	Material
Body	Bronze
Cap	Brass
Disc	Stainless Steel (Type 304)

Dimensions	inch DN	Unit: mm					
		1/2	3/4	1	1 1/4	1 1/2	2
L		80	100	115	135	160	195
H		49	57	70	82	98	121

500

Gate Valve

PN16 Cast Iron Gate Valve
Outside screw, Rising stem

16 bar at 120°C, 12.8 bar at 200°C, P-T rating : See page 02

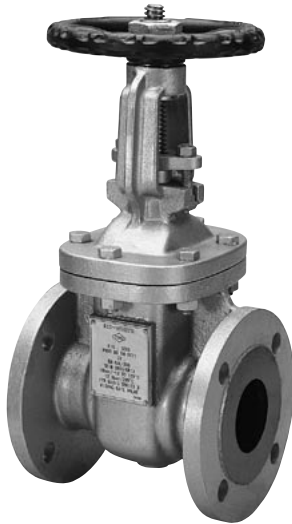
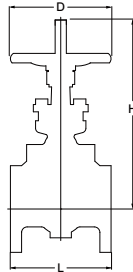


Fig. 500

Materials

Parts	Material	Specifications		
		Trim B/CR13 (500B)	Trim CR13/CR13 (500S)	Trim 316/316 (500M)
Body	Cast Iron	EN-GJL-200		
Bonnet	Cast Iron	EN-GJL-200		
Stem	Stainless Steel	ASTM A276 Type420		ASTM A276 Type316
Disc	Cast Iron	EN-GJL-200		
Disc seat ring	Cast Bronze/Stainless Steel	ASTM B62	ASTM A182 Gr.F6a	ASTM A182 Gr.F316
Body seat ring	Cast Bronze/Stainless Steel	ASTM B62	Carbon Steel + 13CR	Carbon Steel + 316
Gland	Ductile Iron			
Grand packing	Graphite			
Gasket	Graphite			
Gland bolt/ nut	Carbon Steel			
Bonnet bolt/nut	Carbon Steel			
Yoke sleeve	Forged Brass / Cast Brass*1			
Hand wheel	Ductile Iron			

*1 Size DN250 & DN300



Dimensions	inch mm	Unit : mm								
		2	2 1/2	3	4	5	6	8	10	12
L		178	190	203	229	254	267	292	330	356
H(Open)		360	416	458	561	669	747	964	1165	1374
D		180	180	180	200	250	280	300	360	400

Design Specifications

Face-to-face or End-to-end dimensions	BS EN 558 Basic series 3
End connection	BS EN 1092-2 PN16
Wall thickness	Maker's standard

501, 5011

Gate Valve

PN16 Cast Iron Gate Valve
Inside screw, Non-rising stem with Indicator*2

16 bar at 120°C, 12.8 bar at 200°C, P-T rating : See page 02

*2 Indicator: 5011 only

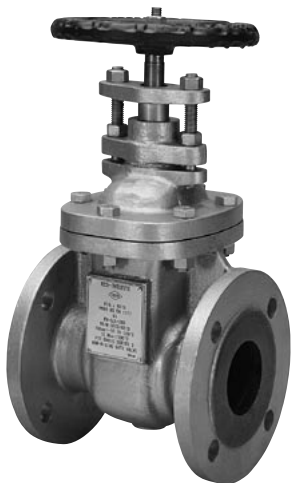
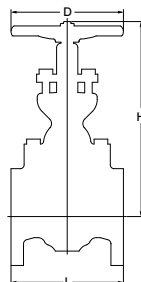


Fig. 501/5011

Materials

Parts	Material	Specifications		
		Trim B/CR13 (501(I)B)	Trim CR13/CR13 (501(I)S)	Trim 316/316 (501(I)M)
Body	Cast Iron	EN-GJL-200		
Bonnet	Cast Iron	EN-GJL-200		
Stem	Stainless Steel	ASTM A276 Type420		ASTM A276 Type316
Disc	Cast Iron	EN-GJL-200		
Disc seat ring	Cast Bronze/Stainless Steel	ASTM B62	ASTM A182 Gr.F6a	ASTM A182 Gr.F316
Body seat ring	Cast Bronze/Stainless Steel	ASTM B62	Carbon Steel + 13CR	Carbon Steel + 316
Gland	Ductile Iron			
Grand packing	Graphite			
Gasket	Graphite			
Gland bolt/ nut	Carbon Steel			
Bonnet bolt/nut	Carbon Steel			
Hand wheel	Ductile Iron			



Dimensions	inch mm	Unit : mm								
		2	2 1/2	3	4	5	6	8	10	12
L		178	190	203	229	254	267	292	330	356
H		278	311	339	393	454	501	592	730	852
D		180	180	180	200	250	280	300	360	400

Design Specifications

Face-to-face or End-to-end dimensions	BS EN 558 Basic series 3
End connection	BS EN 1092-2 PN16
Wall thickness	Maker's standard

510

Globe Valve

PN16 Cast Iron Globe Valve
Outside screw, Rising stem

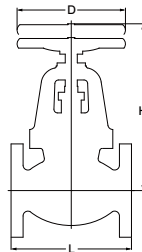
16 bar at 120°C, 12.8 bar at 200°C, P-T rating : See page 02



Fig. 510

Materials

Parts	Material	Specifications		
		Trim B/CR13 (510B)	Trim CR13/CR13 (510S)	Trim 316/316 (510M)
Body	Cast Iron	EN-GJL-200		
Bonnet	Cast Iron	EN-GJL-200		
Stem	Stainless Steel	ASTM A276 Type420		ASTM A276 Type316
Disc	Cast Iron/Stainless Steel	EN-GJL-200	Carbon Steel + 13CR	Carbon Steel + 316
Disc seat ring	Cast Bronze	ASTM B62	-	-
Body seat ring	Cast Bronze/Stainless Steel	ASTM B62	Carbon Steel + 13CR	Carbon Steel + 316
Gland	Ductile Iron			
Grand packing	Graphite			
Gasket	Graphite			
Gland bolt/ nut	Carbon Steel			
Bonnet bolt/nut	Carbon Steel			
Yoke bush	Cast Brass			
Hand wheel	Cast Iron			



Dimensions	inch mm	Unit : mm									
		2	2 1/2	3	4	5	6	8	10	12	
L		203	216	241	292	330	356	495	622	698	
H(Open)		322	338	359	392	438	503	552	639	755	
D		200	200	200	250	300	300	360	450	500	

Design Specifications

Face-to-face or End-to-end dimensions	BS EN 558 Basic series 10
End connection	BS EN 1092-2 PN16
Wall thickness	Maker's standard

520

Swing Check

PN16 Cast Iron Swing Check Valve

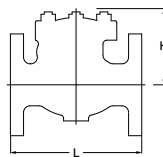
16 bar at 120°C, 12.8 bar at 200°C, P-T rating : See page 02



Fig. 520

Materials

Parts	Material	Specifications		
		Trim B/CR13 (520B)	Trim CR13/CR13 (520S)	Trim 316/316 (520M)
Body	Cast Iron	EN-GJL-200		
Cover	Cast Iron	EN-GJL-200		
Hinge pin	Stainless Steel	ASTM A276 Type420		ASTM A276 Type316
Disc	Stainless Steel	EN-GJL-200		
Disc seat ring	Cast Bronze/Stainless Steel	ASTM B62	ASTM A182 Gr.F6a	ASTM A182 Gr.F316
Body seat ring	Cast Bronze/Stainless Steel	ASTM B62	Carbon Steel + 13CR	Carbon Steel + 316
Arm	Carbon Steel			
Gasket	Graphite			
Cover bolt/nut	Carbon Steel			
Plug	Malleable Iron	ASTM A47		



Dimensions	inch mm	Unit : mm									
		2	2 1/2	3	4	5	6	8	10	12	
L		203	216	241	292	330	356	495	622	698	
H		154	162	176	220	226	307	325	384	426	

Design Specifications

Face-to-face or End-to-end dimensions	BS EN 558 Basic series 10
End connection	BS EN 1092-2 PN16
Wall thickness	Maker's standard

530

Y-Pattern Strainer

PN16 Cast Iron Y-Pattern Strainer
Stainless Steel Screen

16 bar at 120°C, 12.8 bar at 200°C, P-T rating : See page 02

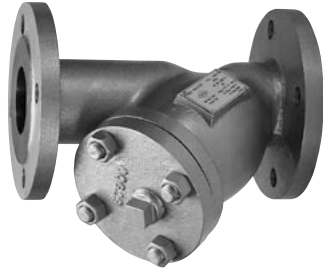
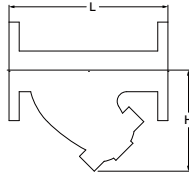


Fig. 530



Materials

Parts	Material	Specifications	
		Trim 304 (530U)	Trim 316 (530M)
Body	Cast Iron	EN-GJL-200	
Cover	Cast Iron	EN-GJL-200	
Screen	Stainless Steel	304	316
Gasket	Graphite		
Cover bolt/nut	Carbon Steel		
Plug	Malleable Iron	ASTM A47	

Dimensions	inch mm	Unit : mm								
		2	2 1/2	3	4	5	6	8	10	12
L		220	270	290	350	390	440	540	660	720
H		178	177	195	243	294	320	397	480	557

Design Specifications

Face-to-face or End-to-end dimensions	Maker's standard
End connection	BS EN 1092-2 PN16
Wall thickness	Maker's standard

 **NOTICE**

If any products designated as strategic material in the Foreign Exchange and Foreign Trade Law, Cabinet Order Concerning Control of Export Trade, Cabinet order Concerning Control of Foreign Exchange and other related laws and ordinances ("Foreign Exchange Laws") are exported to any foreign country or countries, an export license issued by the Japanese Government will be required under the Foreign Exchange Laws.

Further, there may be cases where an export license issued by the government of the United States or other country will be required under the applicable export-related laws and ordinances in such relevant countries.

The contract shall become effective subject to that a relevant export license is obtained from the Japanese Government.

Distributed by :

Manufactured by :

RED-WHITE



Toyo Valve Co., Ltd.

TT-2 BLDG., 8-1, 3-CHOME, NIHONBASHI-NINGYOCHO, CHUO-KU, TOKYO 103-0013, JAPAN
<http://www.toyovalve.co.jp>

Sold by :

KITZ CORPORATION

1-10-1, Nakase, Mihama-ku, Chiba 261-8577, Japan
International Sales Dept. Phone:81-43-299-1730, 1732 and 1733
Fax:81-43-299-0121