

HYO SHIN

HSN HYO SHIN INDUSTRIAL CORP

The Best Partner For Your Business

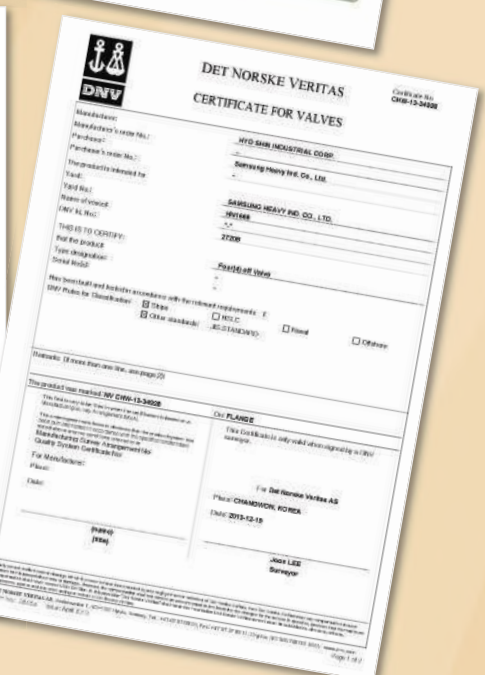
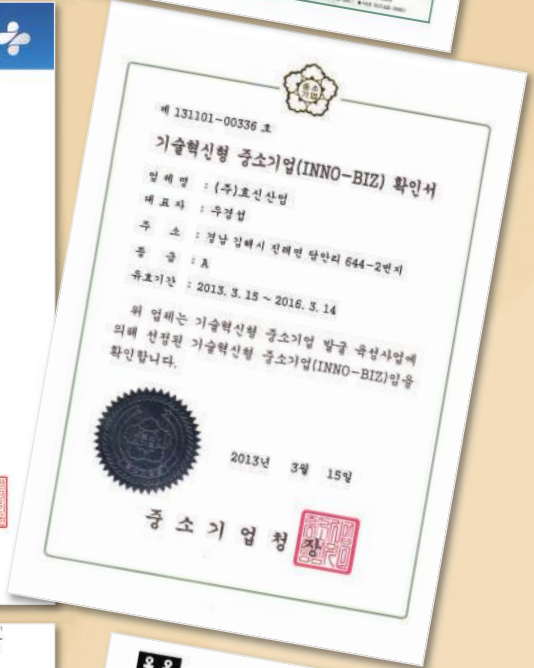
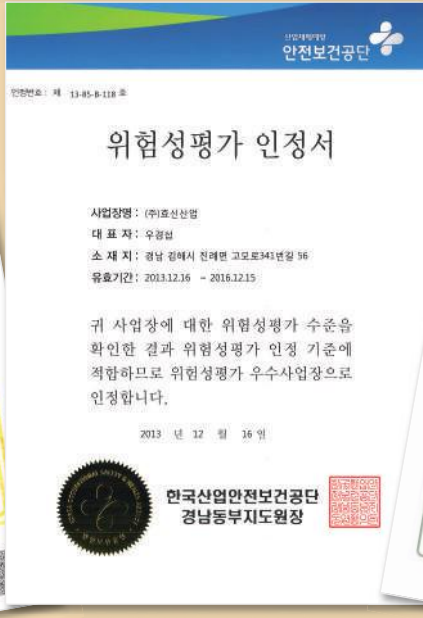
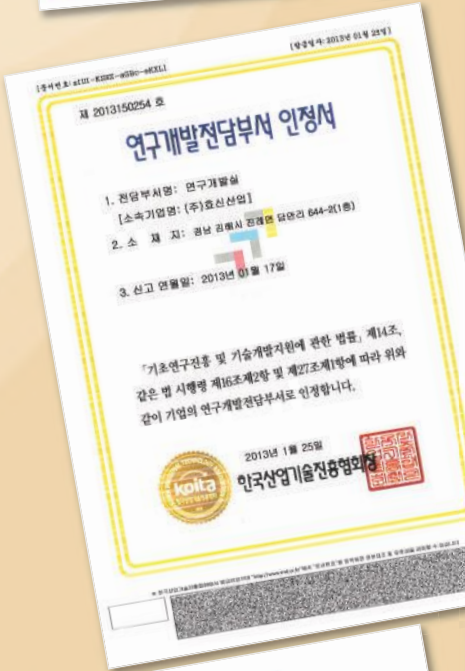
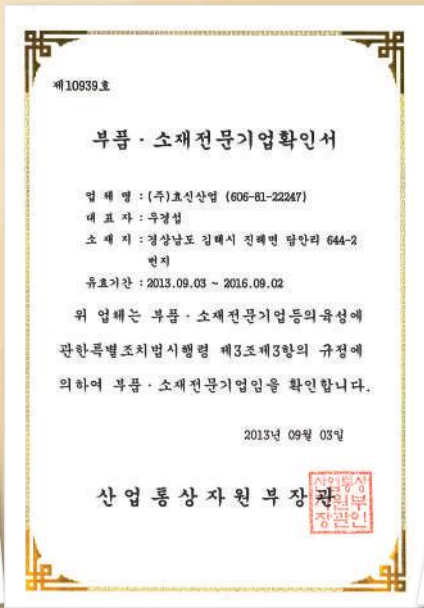
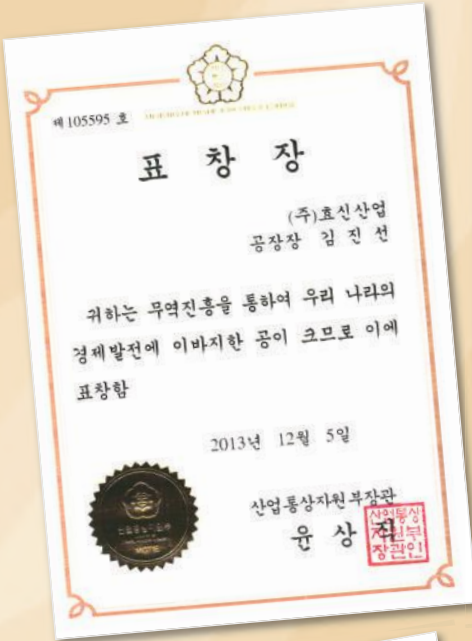




The background of the page is a grayscale photograph of an industrial facility. It features a complex network of pipes, valves, and structural steel. A prominent vertical pipe with several horizontal access points is visible on the left side. The overall scene is a dense, technical environment.

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Test Certificate **GL**

Certificate No. 1339 BJA
Page 1 of 1

General Data
 Manufacturer: HYOSHI INDUSTRIAL CORP.
 Model No.: 1339 BJA
 Date of Issue: 2013.01.07
 Location: Gwangju

Item of Test: 1339 VALVES
 Technical Data: Size: 100mm, Material: SS304, Pressure: 10MPa, Temperature: 150°C, Test Method: Hydrostatic Test

Inspection / Test: HYDROSTATIC TEST BY WATER, TOUGHNESS TEST OF VALVE SEAT, VISUAL CHECK AT RANDOM

Results / Remarks: As for it could be seen, the workmanship of the component during inspection had been in the satisfaction of the underwriting surveyor.

Additional Statements: Colson Manufacturing Co. Ltd. (Inspector)
 Date: 2013.01.07
 Place: Gwangju

OR

Orion Registrar, Inc. USA
Certificate of Registration

This is to certify that the Quality Management System of
HYOSHIN INDUSTRIAL CORP.
 644-2, Damae-ri, Jillye-myeon,
 Gimhae-si, Gyeongsangnam-do, Korea

Has been assessed by Orion Registrar and found to be in accordance with the following Quality Standard:
ISO 9001:2008

The Registration period is from May 23, 2012 to May 22, 2015

This registration is subject to the company maintaining its system in the required standard which will be reassessed by Orion Registrar. Certificate Number: 2008-03990-01

ANAB **IAF**

Orion Registrar, Inc. • PO Box 740020, Atlanta, Georgia 30364-9020 • 404-554-6019 • FAX 404-554-7000
 To authorize this certificate please visit www.orionreg.com

KR

Certificate for Valve

Date of Issue: 20 January 2014
 Certificate No.: CWNEN-088-04
 Place of Inspection: Gwangju, Korea
 Date of Commencement: 20 January 2014
 Manufacturer: Hyo Shin Industrial Corp.
 Production Order No.: 1339
 Order No.: 1339

This Certificate is issued to the above client to certify that the underlined Surveyor did in their report stated the certificate in accordance with the criteria Rules for the Classification of the Ships and found it satisfactory.

Particulars: 20 2A

Testing and Inspection: 20 2A

Marking, Serial No. and Remarks: 20 2A

KOREAN REGISTER OF SHIPPING

예비검사증서
CERTIFICATE OF ARTICLES FOR SHIP USE

신용인 April 19th

| 번호 | 구분 | 종류 | 수량 | 제조업체 | 제조일자 | 검사일자 | 검사결과 |
|------|------|------|------|------|------|------|------|
| 0001 | 0001 | 0001 | 0001 | 0001 | 0001 | 0001 | 0001 |
| 0002 | 0002 | 0002 | 0002 | 0002 | 0002 | 0002 | 0002 |
| 0003 | 0003 | 0003 | 0003 | 0003 | 0003 | 0003 | 0003 |
| 0004 | 0004 | 0004 | 0004 | 0004 | 0004 | 0004 | 0004 |

KST
 Korea Ship Safety Technology Authority

선박안전기술공단이사장
 Chief Director of Korea Ship Safety Technology Authority

R

Certificate for Valves

Date: 19 January 2014
 Client: Hyo Shin Ind. Corporation
 Manufacturer: Hyo Shin Ind. Corporation
 Model No.: 1339 BJA
 Pressure: 10MPa
 Temperature: 150°C

Particulars: 20 2A

Testing and Inspection: 20 2A

Marking, Serial No. and Remarks: 20 2A

ClassNK **NIPPON KAIJI KYOKAI**

Certificate No.: F14P046818
 Date: 18 January 2014

CERTIFICATE for TWENTY EIGHT(28) VALVES

THIS IS TO CERTIFY that the undersigned Surveyor to Nippon Kaiji Kyokai did in its report of the inspection, stated the quantity and characteristics of the products described below in accordance with the applicable rules and standards and found it satisfactory.

Manufacturer: HYOSHI INDUSTRIAL CORPORATION
 Place of Manufacture: 644-2, Damae-ri, Jillye-myeon, Gimhae-si, Gyeongsangnam-do, Korea

Particulars are as per attached sheets: 28

Test and Inspection: 28

Marking, Serial No. and Remarks: 28

RINA

TEST CERTIFICATE FOR VALVES
CERTIFICATE DI PROVA PER VALVOLE

N. 124700102-1A.1.B.

Manufacturer or Supplier: HYOSHI INDUSTRIAL CORP.
 Component No.: DATWOOD SHIPBUILDING & MAKING ENGINEERING CO., LTD.
 Purchase Contract: DISME Ltd No. 4467 (04/02/2013)

This is to certify that the valves, particulars of which are given below, have been tested on per RINA rules with satisfactory results.

| Item | DN (mm) | Description, standard or approval drawing | Hydrostatic test pressure (bar) |
|------|---------|---|---------------------------------|
| 1 | 25 | SK Angle Valve | 11.78 |
| 2 | 40 | SK Angle Valve | 11.78 |
| 3 | 50 | SK Angle Valve | 11.78 |
| 4 | 40 | SK Angle Check Valve | 11.78 |
| 5 | 40 | SK Globe Valve | 33.24 |
| 6 | 40 | SK Globe Valve | 33.24 |
| 7 | 40 | SK Globe Valve | 33.24 |
| 8 | 40 | SK Globe Valve | 33.24 |

Markings: 12 P1 04 T1
 Test certificate for valve bodies material: Certificate of proof of material of each valve.

Issued at: Gwangju, Korea
 Date: 08 January 2012

VIETNAM REGISTER

GIẤY CHỨNG NHẬN CÔNG NHẬN CƠ SỞ SẢN XUẤT
CERTIFICATE OF MANUFACTURER APPROVAL

CỤC ĐĂNG KÝ VIỆT NAM CHỨNG NHẬN
 VIETNAM REGISTER CERTIFIES THAT

Manufacturer: HYOSHI INDUSTRIAL CORP.
 Address: 644-2, Damae-ri, Jillye-myeon, Gimhae-si, Gyeongsangnam-do, Korea.

It is hereby approved and approved to manufacture the following products in compliance with the Guidelines for Inspection and Approval of Marine Products of Vietnam Register (hereinafter refer to as "the Guidelines").

Serial Numbers according to JIS Classname Industrial Standards: F3000, F3000, F3001, F3002, F3003, F3004, F3005, F3006, F3007, F3008, F3009, F3010, F3011, F3012, F3013, F3014, F3015, F3016, F3017, F3018, F3019, F3020, F3021, F3022, F3023, F3024, F3025, F3026, F3027, F3028, F3029, F3030, F3031, F3032, F3033, F3034, F3035, F3036, F3037, F3038, F3039, F3040, F3041, F3042, F3043 and F3044.

Ngày ấn định đơn vị hàng năm: 04 Tháng mỗi năm

Ngày hết hạn đơn vị hàng năm: 04 Tháng mỗi năm

Địa điểm: Hà Nội, Vietnam

OR

Orion Registrar, Inc. USA
인증서

인증번호: KRP-086-803-14-01
 인증일: 17 (04/12/14)
 총 인출 일자: 2014년 04월 24일
 유효 일자: 2015년 04월 23일

ANAB **IAF**

Introduction

- Name : HSN HYO SHIN INDUSTRIAL CORP
- Representative Director : Kyung Seob, Woo
- Registration No : 606-81-22247
- Foundation : 1997. 3. 3
- Employees : 43명
- Closing date : 12월 31일
- Main items : Marine Valves
- Capitals : 0.4 Billion (Korean Won)
- Business Type : Manufacturing
- Factory Space : Land: 3,105m², Building 1,650m²



■ Main Customer

- Domestic**
- Hyundai Sam-Ho Heavy Industries Co., Ltd.
 - Han-Jin Heavy Industries Co., Ltd.
 - Sam-Sung Heavy Industries Co., Ltd.
 - STX Shipbuilding Co., Ltd.
 - Dae-San Engineering Co., Ltd.
 - Sun-Bo Heavy Industries Co., Ltd. & etc.

- Overseas**
- KOKURYO MARIN VALVE CO.,LTD.
 - KEIKA SANGYO KAISAI, LTD.
 - BINGO VALVE CO.,LTD,
 - HINOMOTO BEN SHOJI CO.,LTD
 - MIKI VALVE ENGINEERING.
 - WORLD VALVE ENGINEERING.
 - W&O SUPPLY , STX OFFSHORE & SHIPBUILDING ..외





CEO : Woo Kyung Seop

1997

- 03 Foundation of "Hyo Shyn Industrail Corp.
- 03 Registered as the exporter through YOSHIDA VALVE CO., LTD. in Japan
- 09 Registered as the exporter through NEW PEITAI MACHINERY CO., LTD. in Taiwan

1998

- 10 Registered as the supplier for Hyundai Samho Heavy Ind. Co., Ltd.

1999

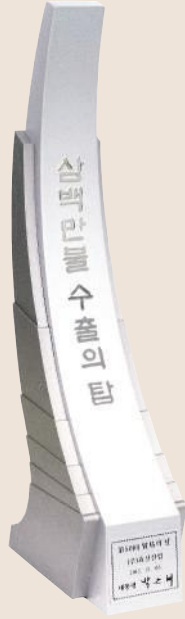
- 07 Convert into Hyo Shyn Industrial Co., Ltd.

2000

- 10 Moved to New factory

2001

- 11 Registered as the main supplier of Sunbo Heavy Industrial Co., Ltd.
- 11 Registered as the exporter through KOKURYO MARIN VALVE CO.,LTD. in Japan.



- 12 Award 3 Million Export Tower at 50th Trade Day
- 09 Parts Specialized Company
- 03 Registered as Technological Innovation Company(INNO-BIZ)
- 01 Found Research & Development Dept.

04 ISO 14001 : 2004 /
KS A 14001 : 2004

2014

2013

2011

11 Registered as cooperative supplier of Samsung Heavy Ind. Ltd.

2010

02 Registered as cooperative supplier of Daesan Engineering Co., Ltd.

2008

05 VIETNAM-VR Class approved factory

2007

2006

09 Registered as cooperative supplier of STX Shipbuilding Co., Ltd.

09 Merged "Bu-IL Industries Co.

2005

03 Registered as cooperative supplier of Hanjin Heavy Ind. Ltd.

2004

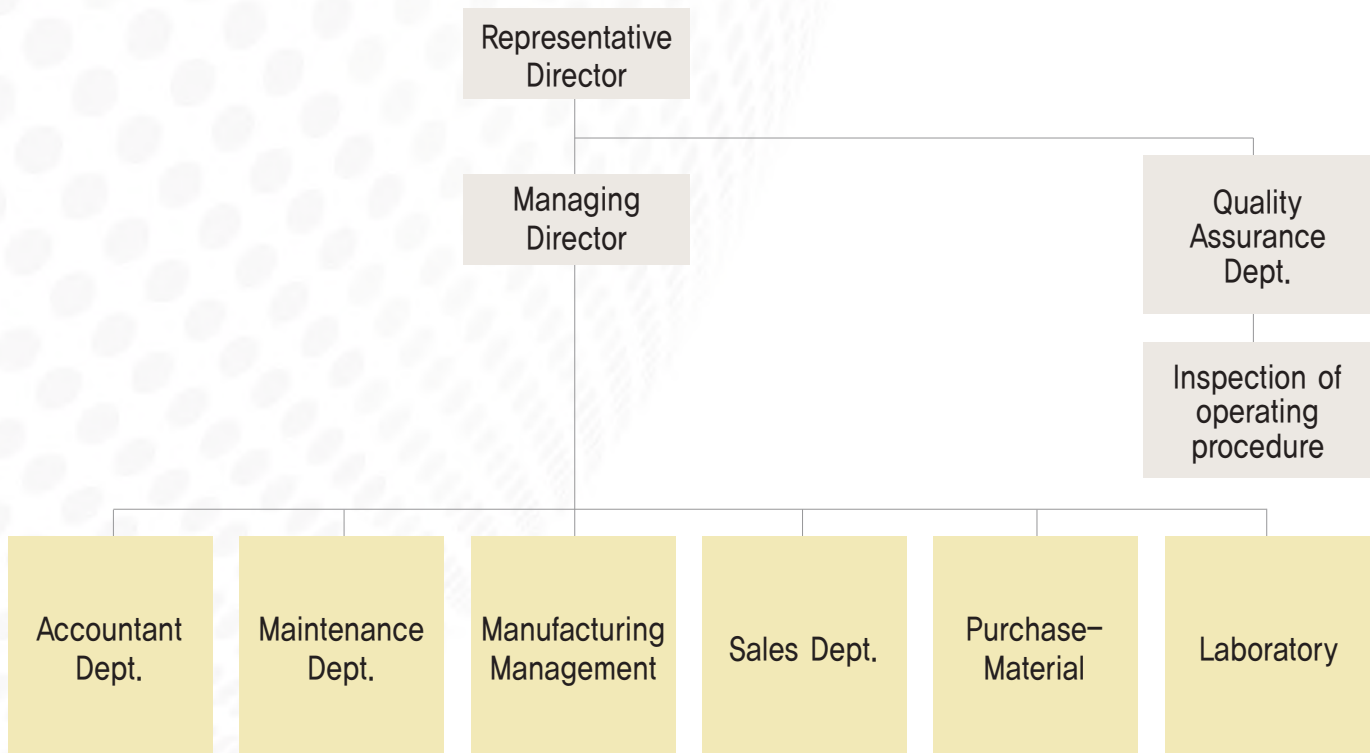
12 Registered as "CLEAN Factory" from Korea Occupational Safety & health Agency

2003

03 Obtain the Trading Registration No.

05 ISO 9001 : 2008

Organization



Technical cooperation

Registered as Korean agent & technical cooperor for marine valves from KOKURYO IRON WORKS,(JAPAN)

Registered as Korean agent & technical cooperor from KEIKA SANGYO KAISAI, LTD.(JAPAN)

Registered as Business Cooperor from MIKI VALVE ENGINEERING CO.,LTD.(JAPAN)
Supplied Inert Gas V/V for 10 ship sets to MITSUI Shipbuilding Co., Ltd.

Vietnam Register – Certificate of Manufacturer Approval

Found Research & Development Dept.

Parts Specialized Company

Registered as Technological Innovation Company (INNO – BIZ)

ISO 14001 : 2004 / KS A 14001 : 2004

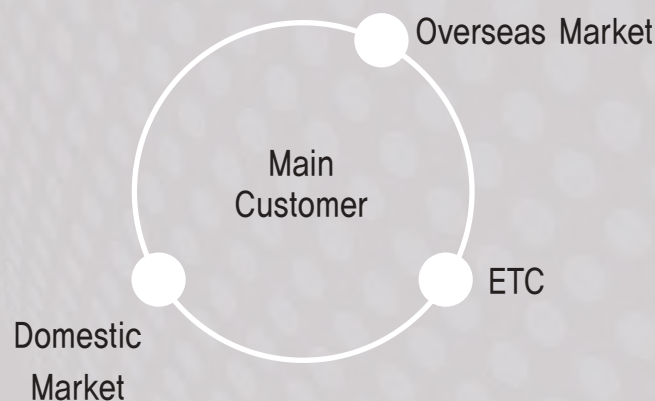
Main customer & Technical cooperation

▶ Overseas

| BUYER | Remark | Class |
|--|--|--------------------------------|
| KOKURYO MARIN VALVE CO.,LTD. (JAPAN) | SASEBO HEAVY INDUSTRY S753/7/8/9,S761/4/5/7 ~外..50 SHIPS | ABS, NK, LR, DNV, KR, GL, BV |
| KEIKA SANGYO KAISAI CO.,LTD. (JAPAN) | STOCK - SWING CH 5K50A ~外..10000 PCS / YEARS | ABS, NK, LR, DNV, KR, GL, BV |
| BINGO VELVE CO.,LTD. (JAPAN) | STOCK - SC GATE 16K80A ~外..10000 PCS / YEARS | ABS, NK, LR, DNV, KR, GL, BV |
| HINOMOTO BEN SHOJI CO.,LTD. (JAPAN) | STOCK - FC GATE 5K450A ~外..10000 PCS / YEARS | ABS, NK, LR, DNV, KR, GL, BV |
| MIKI VALVE ENGINEERING CO.,LTD.. (JAPAN) | MITSUI ENGINEERING & SHIPBUILDING CO.,LTD CHIBA WORK - CS1668/1680/1718~外..60 SHIPS | ABS, NK, LR DNV, KR, GL, BV |
| W&O SUPPLY (U.S.A/BELGIUM) | STOCK - 15000 PCS / YEARS | ABS |
| STX OFFSHOREV& SHIP BUILDING | CHINA - F1004 Noble 2nd Drillship Project | ABS |
| NAJIN CORP. | STOCK SHIP SDN BHD (YARD2)....外 | BV |

▶ Domestic

| BUYER | Remark | Class |
|-------------------------------|--|--------------------------------|
| HYUNDAI SAM-HO HEAVY IND. | S276/8/9~339~外..35 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| HAN-JIN HEAVY IND' CO., LTD. | SN159/160/SN161/SN167.. ETC...20 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| SUN-BO HEAVY IND' CO., LTD. | P0013,N203/204 ~ ETC...20 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| DAE-SAN ENGINEERING CO., LTD. | N200/206~209,S2000/2023/2028/2109, DH1005/1015 ~ ETC...42 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| SAM-SUNG HEAVY IND' CO., LTD. | HN2041/42/43 , HN2042..~ ETC...27 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| STX SHIPBUILDING CO., LTD. | S1235~3011, B5019~39. ~ ETC...110 SHIP SETS | ABS, NK, LR DNV, KR, GL, BV |
| STX OFFSHOREV& SHIP BUILDING | CHINA - F1004 NOBLE 2ND DRILLSHIP PROJECT | ABS |



Product List

| MATE'S | CAST STEEL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|--------|--------|------------|------------|------------|
| ITEM | GLOBE VALVE | | | | | | | | | | | | | | ANGLE VALVE | | | | | | | | | | GATE VALVE | | | | | | |
| PRESS | 5K | | | 10K | | | 20K | | 30K | | 30K(AIR) | | 40K | | 5K | | | 10K | | | 20K | | 30K | | 30K(AIR) | | 40K | | 5K | 10K | 16K |
| TYPE | STOP | SDNR | HULL | STOP | SDNR | HULL | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | HULL | STOP | SDNR | HULL | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | NON RISING | NON RISING | NON RISING |
| JIS F | F 7311 | F 7311 | F 7311 | F 7319 | F 7471 | F 7365 | F 7313 | F 7373 | F 7315 | F 7315 | F 7340 | F 7340 | F 7317 | F 7317 | F 7312 | F 7312 | F 7312 | F 7320 | F 7372 | F 7366 | F 7314 | F 7374 | F 7316 | F 7316 | F 7475 | F 7475 | F 7318 | F 7318 | F 7363 | F 7366 | F 7369 |
| 32A | | | | | | | ○ | ○ | | | ○ | ○ | ○ | ○ | | | | | | | | | | | | | | | | | |
| 40A | | | | | | | ○ | ○ | | | ○ | ○ | ○ | ○ | | | | | | | | | | | | | | | | | |
| 50A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 65A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 80A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 100A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 125A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 150A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 200A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 250A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 300A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 350A | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 400A | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 450A | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 500A | | | | | | | | | | | | | | ○ | ○ | ○ | | | | | | | | | | | | | ○ | ○ | |

REMARK

- QUICK CLOSING VALVE 5K50A~300A, 10K50A~300A, 16K50~300A (Required Specification Of Air Cylinder)
- STORM VALVE
 - VERTICAL 5K50A~300A, 10K50A~300A, 16K50~300A
 - GLOBE 5K50A~300A, 10K50A~300A, 16K50~300A (JIS F 3060, 3058 - W/Spindle, W/Out Spindle type)
- INERT GAS VALVE(I.G) 5K300A~700A, 10K300A~600, 16K300~600A (Material : SC480 FCD450, FC400)

| MATE'S | CAST IRON | | | | | | | | | | | | | | | | | | | | |
|--------|-------------|--------|--------|--------|--------|--------|-------------|--------|--------|--------|--------|--------|------------|------------|------------|--------------|--------|----------------|--------|------------|--------|
| ITEM | GLOBE VALVE | | | | | | ANGLE VALVE | | | | | | GATE VALVE | | | SWING CH V/V | | LIFE CHECK V/V | | HOSE VALVE | |
| PRESS | 5K | | 10K | | 16K | | 5K | | 10K | | 16K | | 5K | 10K | 16K | 5K | 10K | 5K | 10K | 5K | 10K |
| TYPE | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | STOP | SDNR | NON RISING | NON RISING | NON RISING | | | GLOBE | ANGLE | GLOBE | ANGLE |
| JIS F | F 7305 | F 7353 | F 7307 | F 7375 | F 7309 | F 7377 | F 7306 | F 7354 | F 7308 | F 7376 | F 7310 | F 7378 | F 7363 | F 7364 | F 7369 | F 7372 | F 7373 | F 7358 | F 7359 | F 7333 | F 7333 |
| 32A | | | | | | | | | | | | | | | | | | | | | |
| 40A | | | | | | | | | | | | | | | | | | | | | |
| 50A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 65A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 80A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 100A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 125A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 150A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 200A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 250A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 300A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 350A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 400A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 450A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 500A | | | | | | | ○ | ○ | | | | | ○ | ○ | | | | | | | |

REMARK

- SOIL LINE BRANCH (3WAY) 5K100A, 5K125A, 5K150A

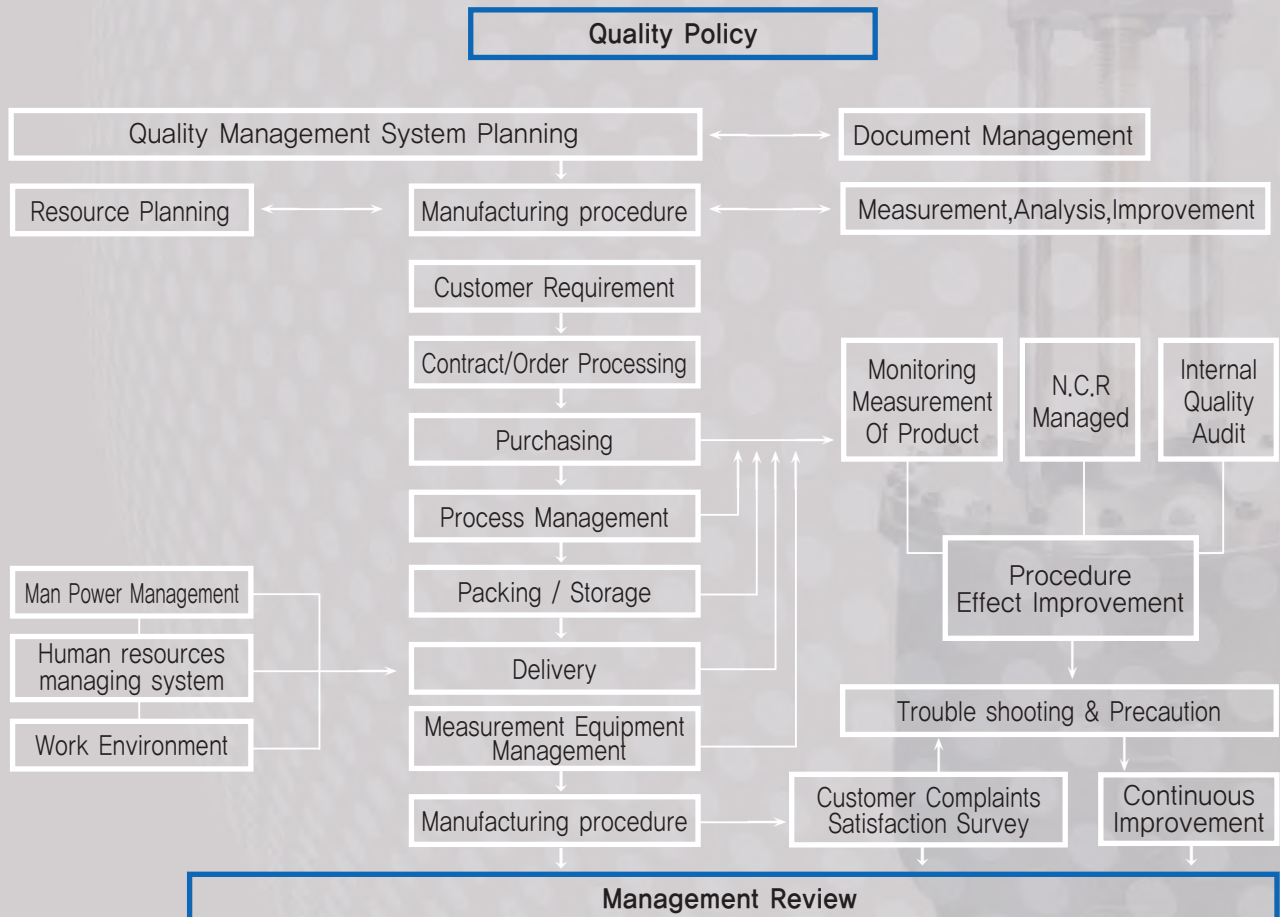
Product List

| MATE'S | CAST BRONZE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-------------|--------|--------|--------|--------|--------|---------|--------|--------|--------|-------------|--------|--------|--------|--------|--------|---------|--------|--------|--------|------------|--------|--------------|-------------|---------------------|------------------|--------------------|---------|---|---|---|
| ITEM | GLOBE VALVE | | | | | | | | | | ANGLE VALVE | | | | | | | | | | GATE VALVE | | SWING CH V/V | LIFT CH V/V | LIFT CHECK V/V (UB) | HOSE VALVE | CONNECTION FITTING | | | | |
| PRESS | 5K | | 5K(UB) | | 16K | | 16K(UB) | | 20K | | 5K | | 5K(UB) | | 16K | | 16K(UB) | | 20K | | 5K | 10K | 5K | 5K,16K | 5K,16K | 5K,16K | 5K, 10K | 5K, 10K | | | |
| TYPE | STOP | SDNR | STOP | SDNR | STOP | SDNR | HULL | STOP | SDNR | S,U | STOP | SDNR | STOP | SDNR | STOP | SDNR | HULL | STOP | SDNR | S,U | RISING | RISING | GLOBE | GLOBE ANGLE | GLOBE | ANGLE | GLOBE ANGLE | | | | |
| JS F | F 7301 | F 7351 | F 7346 | F 7410 | F 7348 | F 7409 | F 7403 | F 7413 | F 7413 | F 7388 | F 7302 | F 7352 | F 7347 | F 7412 | F 7349 | F 7410 | F 7404 | F 7414 | F 7414 | F 7389 | F 7367 | F 7368 | F 7371 | F 7356 | F 7415 F 7417 | F 7416 F 7418 | F 7333 | F 7335 | | | |
| 6A | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | |
| 10A | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | |
| 15A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 20A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 25A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 32A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 40A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 50A | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | ○ | ○ |
| 65A | ○ | ○ | | | | | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | ○ | ○ |

REMARK

- F7399 QUICK CLOSING VALVE
 - A TYPE - 5K15A~40A, 16K15A~40A (Required Specification Of Air Cylinder)
 - L TYPE - 5K15A~40A, 16K15A~40A (Required Specification Of Air Cylinder)
- F7379 Brass 30k Stop Valves with Bits Joint(s)
(Globe balve with both bite joints, Screw globe valve with bite joint, Screwed angle with bite joint)
- F7381 5K Flanged Cocks (Two way cock, L-type three way cock, T-type three way cock)
- F7390 Cock with Lock 10A~25A

Quality Control System



Sales Records & Management Policy

1) Sales Record

(Unit : USD)

| Yea | Capital | Sales amount |
|------|---------|--------------|
| 2007 | 400 | 5,000,000 |
| 2008 | 400 | 9,300,000 |
| 2009 | 400 | 8,400,000 |
| 2010 | 400 | 8,700,000 |
| 2011 | 400 | 11,600,000 |
| 2012 | 400 | 11,200,000 |
| 2013 | 400 | 10,100,000 |

2) Management Policy & Plan

- Consolidating of Domestic sales : Consolidate the domestic sales with high quality.
- Strengthen the domestic competitiveness by activating the sales in shipbuilding & plant field
- Compliance of international quality approval system : Foundation of Reliable Quality Approval by International quality approval system ISO9001:2000
- Establish Research & Development Dept.
: Leap to Technology Innovative company (Registered in INNO-BIZ)
- Technology reinforcement of Internal personnel & Foundation of office automation
- Consolidation of Corresponding system for Customer satisfaction
- Leap into an expert corporate on export : Award 3 Million Export Tower at 50th Trade Day
- ISO 14001 : 2004 / KS A 14001 : 2004

List of Manufacturing equipment & Test device

1) Manufacturing equipment

| Name | Q'ty | Size | Maker | Remark |
|-----------------------------|------|-----------|-----------|--------|
| Machine Lathe only for Stem | 1 | 580×2500 | NAM SUNG | |
| Lathe | 2 | 900×3000 | HAN KOOK | |
| Lathe | 2 | 900×1200 | NAM SUNG | |
| Lathe | 3 | 710×2500 | 화 천 | |
| Lathe | 6 | 450×1050 | 세일중공업 | |
| CNC | 2 | 6" | DAE WOO | |
| CNC | 2 | 8" | DAE WOO | |
| Radial | 2 | 1500 | JO KWANG | |
| Radial | 2 | 1100 | JO KWANG | |
| tand Drill | 3 | 1100 | JO KWANG | |
| tand Drill | 2 | 950 | JO KWANG | |
| tand Drill | 2 | 600 | WOO CHANG | |
| Bench Drill | 8 | ST410 | SMC | |
| Milling machine | 3 | 2호기 | TONG IL | |
| Lapping machine | 2 | 1000×1000 | - | |

List of Manufacturing equipment & Test device

1) Manufacturing equipment

| Name | Q'ty | Size | Maker | Remark |
|---|------|-------------|---------------|------------|
| Back spot facing machine | 6 | – | – | |
| Electric forklift | 1 | 2.5TON | T.C.M | |
| Hydraulic Water Test Machine for Swing CH | 1 | Max dia 125 | – | |
| Hydraulic Water Test Machine | 2 | Max dia 600 | – | |
| Hydraulic Water Test Machine | 2 | Max dia 250 | – | |
| Hydraulic Water Test Machine | 2 | Max dia 80 | – | |
| Electric Welder | 2 | – | 大大 | |
| Oxygen Welder | 2 | – | – | |
| Hoist | 5 | 2.8TON | SUNG DO HOIST | |
| CNC – TERNING CENTER | 1 | L400C | HYUNDAI WIA | 2014,01,14 |

2) Test device

| Name | Q'ty | Size | Maker | Official Approval |
|-------------------------|------|-------|-----------|-------------------|
| Height Gauge | 3 | 300mm | Mitutoyo | KTCTI |
| Depth Gauge | 3 | 300mm | Mitutoyo | KTCTI |
| Vernier callipers | 12 | 200mm | Mitutoyo | KTCTI |
| Vernier callipers | 10 | 300mm | Mitutoyo | KTCTI |
| Vernier callipers | 5 | 600mm | 2005 | KTCTI |
| Coating thickness gauge | 3 | 300mm | elcometer | KTCTI |
| Spring indicating scale | 1 | | | KTCTI |
| Balance level | 2 | | | KTCTI |
| Dial pressure gauge | 6 | 100kg | HISCO | KTCTI |
| Dial pressure gauge | 4 | 50kg | HISCO | KTCTI |
| Dial pressure gauge | 4 | 25kg | HISCO | KTCTI |
| Radial & Digital Gauge | 1 | 200mm | Mitutoyo | KTCTI |

2) Test device

| Name | Q'ty | Size | Maker | Official Approval |
|----------------------------|------|------------|-----------------|-------------------|
| Cylinder Gauge | 1 | 18~34mm | Mitutoyo | KTCTI |
| Cylinder Gauge | 1 | 1~17mm | Mitutoyo | KTCTI |
| Cylinder Gauge | 1 | 35~60mm | Mitutoyo | KTCTI |
| Block Gauge | 1 | 2급 (193EA) | Mitutoyo | KTCTI |
| Micro Gauge | 1 | 175~200mm | Mitutoyo | KTCTI |
| Ultrasonic thickness gauge | 1 | 1.2~225mm | TIME Group Inc. | KTCTI |



Hyo Shin Industrial Corp.

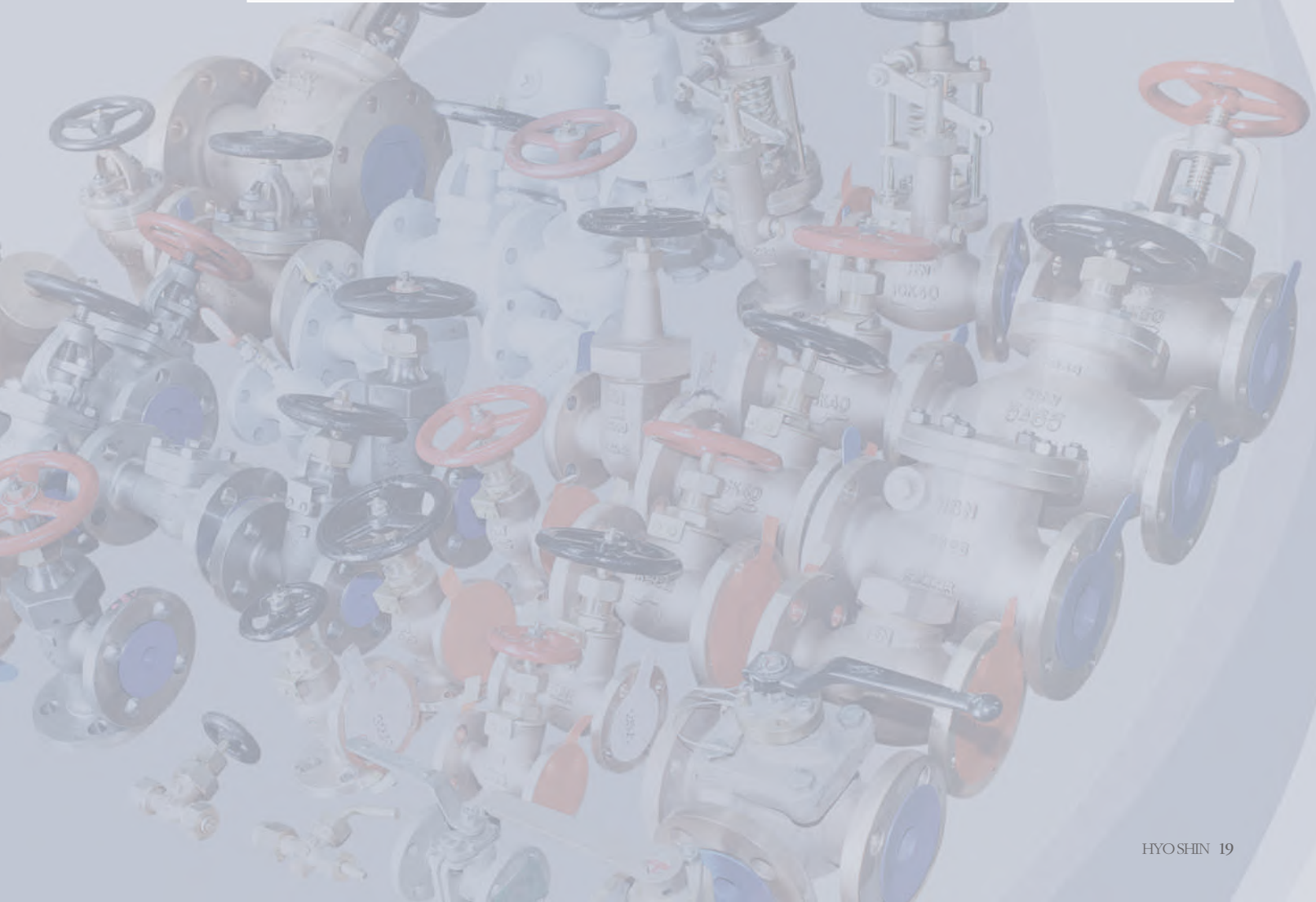




HYO SHIN VALVES



SPECIAL VALVES



BRONZE VALVES



CAST STEEL & CAST IRON & STAINLESS VALVES









TABLE OF CONTENTS - JIS VALVE -

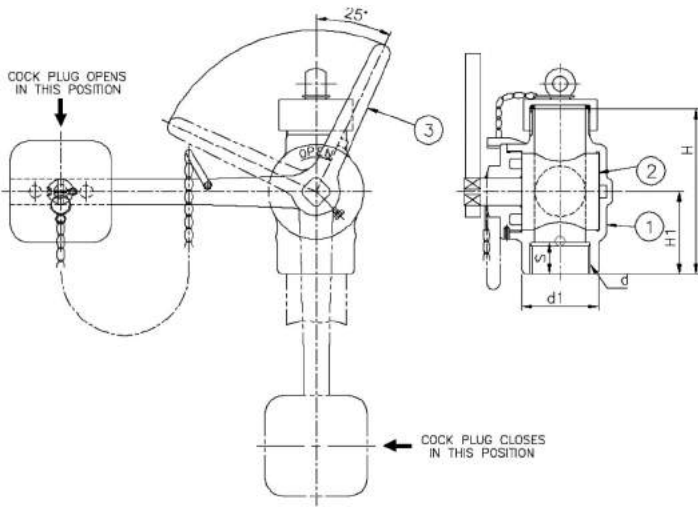
| NO. | SERIES NO. | | PRESSURE | DESCRIPTION |
|-----|-----------------|--------|-----------|---|
| 26 | F 3018 | | 40A~80A | Self Closing Parallel Cock Heads |
| 26 | F 3019 | | 40A~80A | Self Closing Gate Valve Heads For Short Sounding Pipe |
| 27 | F 3056 | 5K | 40A~80A | Foot Valve |
| 27 | F 3057 | 5K,10K | 50A~200A | Cast Bronze Storm Valve Without Handle |
| 28 | F 3058 | 5K,10K | 50A~200A | Cast Steel Storm Valve Without Handle |
| 28 | F 3059 | 5K,10K | 50A~200A | Cast Bronze Storm Valve Vertical & Angle Type |
| 29 | F 3060 | 5K,10K | 50A~200A | Cast Steel Storm Valve Vertical & Angle Type |
| 29 | F 7121 | 5K | 25A~400A | Cast Iron & Cast Steel Can Water Filter |
| 30 | F 7121 | 10K | 25A~400A | Cast Iron & Cast Steel Can Water Filter |
| 30 | F 7203 | 5K | 40A~250A | Cast Iron & Cast Steel Mud Box |
| 31 | F 7208 | 5K | 40A~200A | Cast Iron & Cast Steel Duplex Oil Strainer (H-Type) |
| 31 | F 7208 | 10K | 40A~200A | Cast Iron & Cast Steel Duplex Oil Strainer (H-Type) |
| 32 | F 7209 | 5K | 25A~300A | Cast Iron & Cast Steel Simplex Oil Strainers |
| 32 | F 7218 | 5K | 25A~200A | Cast Iron & Stainless Steel Cylindrical Sight Classes |
| 33 | F 7224 | 5K | 20A~40A | Cast Iron & Cast Steel Small Size Duplex Oil Strainer |
| 33 | F 7234 | 10K | 15A~100A | Flat Sight Classes |
| 34 | F 7301 | 5K | 15A~65A | Bronze Globe Valve |
| 34 | F 7302 | 5K | 15A~65A | Bronze Angle Valve |
| 35 | F 7303 & F 7409 | 16K | 15A~40A | Bronze Globe Valve & Globe Check Valve |
| 35 | F 7304 & F 7410 | 16K | 15A~40A | Bronze Angle Valve & Angle Check Valve |
| 36 | F 7305 & F 7353 | 5K | 50A~450A | Cast Iron Globe Valve & Globe Check Valve |
| 36 | F 7306 & F 7354 | 5K | 50A~550A | Cast Iron Angle Valve & Angle Check Valve |
| 37 | F 7307 & F 7375 | 10K | 50A~450A | Cast Iron Globe Valve & Globe Check Valve |
| 37 | F 7308 & F 7376 | 10K | 50A~550A | Cast Iron Angle Valve & Angle Check Valve |
| 38 | F 7309 & F 7377 | 16K | 50A~200A | Cast Iron Globe Valve & Globe Check Valve |
| 38 | F 7310 & F 7378 | 16K | 50A~200A | Cast Iron Angle Valve & Angle Check Valve |
| 39 | F 7305 Base | 5K | 50A~450A | Cast Steel Globe Valve & Globe Check Valve |
| 39 | F 7306 Base | 5K | 50A~550A | Cast Steel Angle Valve & Angle Check Valve |
| 40 | F 7311 | 5K | 250A,300A | Cast Steel Globe Valve & Globe Check Valve |
| 40 | F 7312 | 5K | 250A,300A | Cast Steel Angle Valve & Angle Check Valve |
| 41 | F 7313 & F 7473 | 20K | 32A~400A | Cast Steel Globe Valve & Globe Check Valve |
| 41 | F 7314 & F 7474 | 20K | 32A~350A | Cast Steel Angle Valve & Angle Check Valve |
| 42 | F 7315 & F 7316 | 30K | 100A~150A | Cast Steel Globe Valve & Angle Valve |
| 42 | F 7317 & F 7318 | 40K | 32A~150A | Cast Steel Globe Valve & Angle Valve |
| 43 | F 7319 & F 7471 | 10K | 50A~450A | Cast Steel Globe Valve & Globe Check Valve |
| 43 | F 7320 & F 7472 | 10K | 50A~550A | Cast Steel Angle Valve & Angle Check Valve |
| 44 | F 7321 & F 7322 | 5K | 15A~40A | Malleable Iron & Ductile Iron Globe , Angle Valve |
| 44 | F 7323 & F 7324 | 16K | 15A~40A | Malleable Iron & Ductile Iron Globe , Angle Valve |
| 45 | F 7333 | 5K,10K | 50A~65A | Cast Iron Hose Globe Valve & Hose Angle Valve |
| 45 | F 7334 | 5K,10K | 15A~25A | Bronze Hose Globe Valve & Hose Angle Valve |
| 46 | F 7334 | 5K,10K | 40A | Bronze Hose Globe Valve & Hose Angle Valve |
| 46 | F 7334 | 5K,10K | 50A~65A | Bronze Hose Globe Valve & Hose Angle Valve |
| 47 | F 7334 | 5K,10K | 50A~65A | Bronze Hose Globe Valve & Hose Angle Valve (Small) |
| 47 | F 7336 | 30K | 6A~40A | Forged Steel Globe Air Valve – S , F , U Type |
| 48 | F 7337 | 30K | 6A~25A | Forged Steel Angle Air Valve– S , F Type |
| 48 | F 7340 | 30K | 32A~150A | Cast Steel Globe Valve |
| 49 | F 7475 | 30K | 32A~200A | Cast Steel Angle Valve |
| 49 | F 7346 & F 7347 | 5K | 15A~40A | Bronze Globe Valve & Angle Valve – Union Bonnet |
| 50 | F 7348 & F 7349 | 16K | 15A~40A | Bronze Globe Valve & Angle Valve – Union Bonnet |
| 50 | F 7350 | 10K | 50A~300A | Cast Steel Hull Angle Valve |

TABLE OF CONTENTS - JIS VALVE -

| NO. | SERIES NO. | PRESSURE | | DESCRIPTION |
|-----|-----------------|------------------------|------------|---|
| 51 | F 7350 | 10K | 350A~800A | Cast Steel Hull Angle Valve |
| 51 | F 7351 | 5K | 15A~65A | Bronze Globe Check Valve |
| 52 | F 7352 | 5K | 15A~65A | Bronze Angle Check Valve |
| 52 | F 7356 & F 7371 | 5K | 10A~40A | Bronze Lift Check Valve & Swing Check Valve |
| 53 | F 7358 & F 7359 | 5K | 50A~200A | Cast Iron Lift Globe Check & Lift Angle Check Valve |
| 53 | F 7360 | 10K | 50A~500A | Cast Steel Hull Gate Valve |
| 54 | F 7360 | 10K | 550A~800A | Cast Steel Hull Gate Valve |
| 54 | F 7363 | 5K | 50A~400A | Cast Iron & Cast Steel Gate Valve |
| 55 | F 7363 | 5K | 450A~600A | Cast Iron & Cast Steel Gate Valve |
| 55 | F 7364 | 10K | 50A~600A | Cast Iron Gate Valve |
| 56 | F 7365 | 10K | 50A~450A | Cast Steel Hull Globe Valve |
| 56 | F 7366 | 10K | 50A~400A | Cast Steel Gate Valve |
| 57 | F 7367 & F 7368 | 5K,10K | 15A~40A | Bronze Gate Valve (Rising Stem) |
| 57 | F 7369 | 16K | 50A~400A | Cast Iron Gate & Cast Steel Valve |
| 58 | F 7372 & F 7373 | 5K,10K | 50A~350A | Cast Iron & Cast Steel Swing Check Valve |
| 58 | F 7381 | 5K | 25A~65A | Bronze Cock Valve - 2Way & 3Way |
| 59 | F 7387 | 16K | 6A~20A | Bronze Cock Valve - S & U TYPE |
| 59 | F 7398 | 5K,10K | 15A~50A | Bronze Self Closing Drain Valve - F & U Type |
| 60 | F 7399 | 5K,10K | 15A~40A | Emergency Shut-Off Valves - A & L Type |
| 60 | F 7399 | 5K,10K | 50A~200A | Emergency Shut-Off Valves - A & L Type |
| 61 | F 7403 & F 7404 | 16K | 15A~40A | Bronze Hull Globe Valve , Bronze Hull Angle Valve |
| 61 | F 7411 & F 7412 | 5K | 15A~40A | Bronze Globe Check , Angle Check Valve Union Bonnet |
| 62 | F 7413 & F 7414 | 16K | 15A~40A | Bronze Globe Check , Angle Check Valve Union Bonnet |
| 62 | F 7415 & F 7416 | 5K | 15A~40A | Bronze Lift Check Globe , Angle Valve Union Bonnet |
| 63 | F 7417 & F 7418 | 16K | 15A~40A | Bronze Lift Check Globe , Angle Valve Union Bonnet |
| 63 | B 2026 & F 2027 | 10K | 15A~50A | Bronze Globe Valve , Bronze Angle Valve |
| 64 | | 5K,10K | 15A~100A | 2-Way Ball Valve |
| 64 | | 20K,30K | 15A~50A | 2-Way Ball Valve |
| 65 | | 5K,10K | 15A~150A | 3-Way Ball Valve |
| 65 | | 10K, 20K, 150Lb, 300Lb | 50A~600A | Duo Check Valve - Wafer Type |
| 66 | | 5K, 10K, 20K | 50A~650A | Duo Check Valve - Flange Type |
| 66 | F 7399 Base | 5K,16K | 15A~40A | Hydraulic Operated Shut-Off Valve |
| 67 | F 7399 Base | 5K,10K | 50A~200A | Hydraulic Operated Shut-Off Valve |
| 67 | | 16K | 300A~600A | Inert Gas Line Non Return Valve (I.G Valve) |
| 68 | | 10K | 300A~600A | Inert Gas Line Non Return Valve (I.G Valve) |
| 68 | | 5K | 300A~600A | Inert Gas Line Non Return Valve (I.G Valve) |
| 69 | | 5K | 100A~150A | Cast Iron Soil Line Branch Valve (3-Way Valve) |
| 69 | | | 8A~50A | Screw Ball Valve |
| 70 | | 5K,10K | 40A~80A | Box Type Air Vent Head Disc Float |
| 70 | | 5K | 100A~600A | Box Type Air Vent Head Disc Float |
| 71 | | 10K | 15A~80A | Safety Relief Valve |
| 71 | | 5K,16K | 15A~25A | STEAM TRAP |
| 72 | | | 15A~50A | Air Trap - PT Screw |
| 72 | | 30K | 32A | JIS 30K32A For Air Pressure Reducing Valve Unit |
| 73 | | | | Reflex Type Level Gauge |
| 73 | F 7480 | 5K,10K,16K | 40A~300A | Butterfly Valve (Wafer, Lug, Flange Type) |
| 74 | F 7480 | 5K,10K,16K | 350A~1000A | Butterfly Valve (Wafer, Lug, Flange Type) |
| 74 | | 10K | 15A~40A | Y - Type Strainer |
| 75 | | 10K | 50A~350A | Y - Type Strainer |
| 76 | | | | Reference Date / Flange Table (ANSI) |

SERIES F 3018 Self Closing Parallel Cock Heads

Manufactured in accordance to JIS F 7400



SERIES F 3018

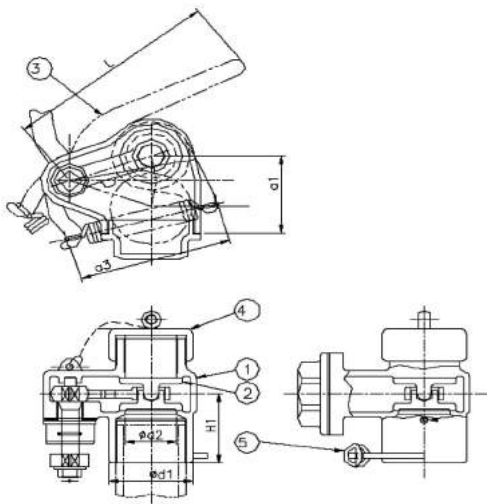
| Part No. | Material |
|-----------|----------|
| 1 - Body | Bronze |
| 2 - Plug | Bronze |
| 3 - Lever | Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.3 [3.0] |
| Seat | - |

| SIZE | H | H1 | S | d1 | d |
|------|-----|----|----|-----|----------|
| 040 | 130 | 65 | 25 | 60 | PF 1-1/2 |
| 050 | 135 | 70 | 30 | 70 | PF 2 |
| 065 | 135 | 70 | 30 | 86 | PF 2-1/2 |
| 080 | 145 | 80 | 35 | 100 | PF 3 |

SERIES F 3019 Self Closing Gate Valve Heads For Short Sounding Pipe

Manufactured in accordance to JIS F 7400



SERIES F 3019

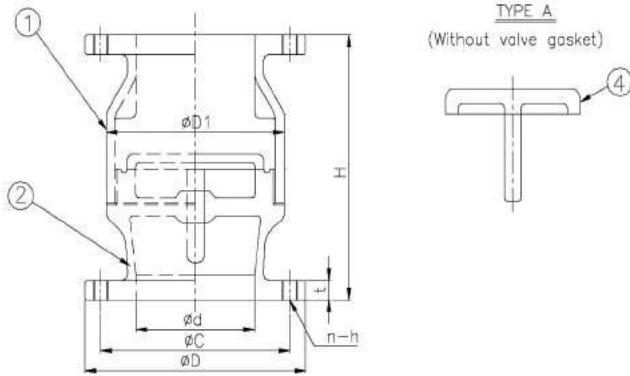
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Disc | Bronze |
| 3 - Lever | Bronze |
| 4 - Cap | Bronze |
| 5 - Spring | Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.3 [3.0] |
| Seat | - |

| SIZE | d1 | d2 | a1 | a3 | H1 | L |
|------|-----|----|----|-----|----|-----|
| 040 | 58 | 35 | 60 | 109 | 54 | 180 |
| 050 | 70 | 50 | 75 | 119 | 60 | 200 |
| 065 | 85 | 50 | 75 | 119 | 65 | 200 |
| 080 | 100 | 50 | 75 | 119 | 70 | 200 |

SERIES F 3056 Foot Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2220 - 5K



SERIES F 3056 Foot Valve

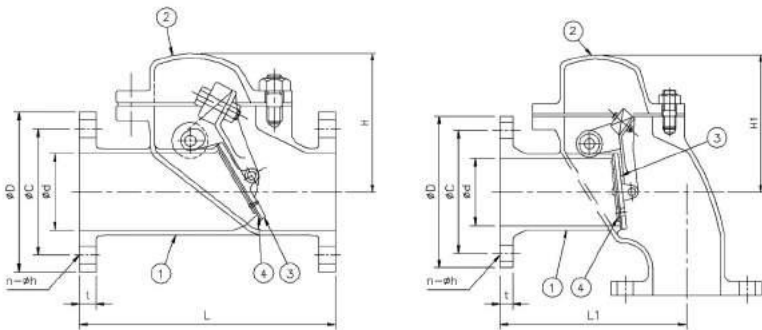
| Part No. | Material |
|------------------|----------|
| 1 - Body (Upper) | Bronze |
| 2 - Body (Lower) | Bronze |
| 3 - Valve | Bronze |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.2 [2.0] |
| Seat | - |

| SIZE | d | C | D | t | D1 | H |
|------|----|-----|-----|----|-----|-----|
| 040 | 40 | 95 | 120 | 12 | 80 | 130 |
| 050 | 50 | 105 | 130 | 14 | 95 | 142 |
| 080 | 80 | 145 | 180 | 14 | 142 | 194 |

SERIES F 3057 - JIS 5K , 10K Cast Bronze Storm Valve - Without Handle

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2220 - 5K, 10K



SERIES F 3057 Vertical Storm Valve

SERIES F 3057 Angle Storm Valve

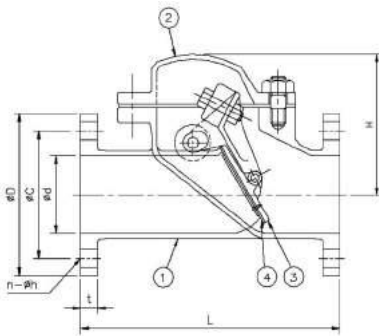
| Part No. | Material |
|------------|------------------------------|
| 1 - Body | Cast Bronze |
| 2 - Bonnet | Cast Bronze |
| 3 - Seat | NBR |
| 4 - Disc | Cast Bronze, Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.5 [5.0] |
| Seat | - |

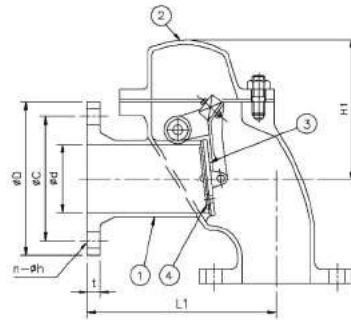
| SIZE | d | FLANGE 5K | | | | FLANGE 10K | | | | L | H | L1 | H1 |
|------|-----|-----------|-----|------|----|------------|-----|-------|----|-----|-----|-----|-----|
| | | C | D | n-h | t | C | D | n-h | t | | | | |
| 050 | 50 | 105 | 130 | 4-15 | 14 | 120 | 155 | 4-19 | 16 | 210 | 106 | 170 | 130 |
| 065 | 65 | 130 | 155 | 4-15 | 14 | 140 | 175 | 4-19 | 18 | 240 | 124 | 200 | 140 |
| 080 | 80 | 145 | 180 | 4-19 | 14 | 150 | 185 | 8-19 | 18 | 260 | 136 | 220 | 154 |
| 100 | 100 | 165 | 200 | 8-19 | 16 | 175 | 210 | 8-19 | 18 | 280 | 161 | 250 | 170 |
| 125 | 125 | 200 | 235 | 8-19 | 16 | 210 | 250 | 8-23 | 20 | 330 | 181 | 270 | 198 |
| 150 | 150 | 230 | 265 | 8-19 | 18 | 240 | 280 | 8-23 | 22 | 360 | 199 | 310 | 211 |
| 200 | 200 | 280 | 320 | 8-23 | 20 | 290 | 330 | 12-23 | 22 | 500 | 265 | 400 | 265 |

SERIES F 3058 - JIS 5K, 10K Cast Steel Storm Valve - Without Handle

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2220 - 5K, 10K



SERIES F 3058 Vertical Storm Valve



SERIES F 3058 Angle Storm Valve

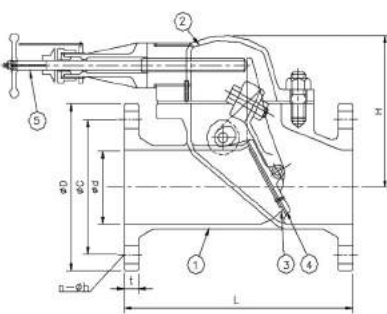
| Part No. | Material |
|------------|-------------------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Seat | NBR |
| 4 - Disc | Stainless Steel, Bronze |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.5 [5.0] |
| Seat | - |

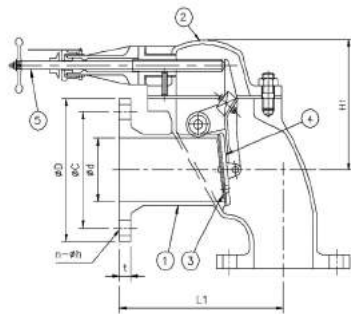
| SIZE | d | FLANGE 5K | | | | FLANGE 10K | | | | L | H | L1 | H1 |
|------|-----|-----------|-----|------|----|------------|-----|-------|----|-----|-----|-----|-----|
| | | C | D | n-h | t | C | D | n-h | t | | | | |
| 050 | 50 | 105 | 130 | 4-15 | 14 | 120 | 155 | 4-19 | 16 | 210 | 106 | 170 | 130 |
| 065 | 65 | 130 | 155 | 4-15 | 14 | 140 | 175 | 4-19 | 18 | 240 | 124 | 200 | 140 |
| 080 | 80 | 145 | 180 | 4-19 | 14 | 150 | 185 | 8-19 | 18 | 260 | 136 | 220 | 154 |
| 100 | 100 | 165 | 200 | 8-19 | 16 | 175 | 210 | 8-19 | 18 | 280 | 161 | 250 | 170 |
| 125 | 125 | 200 | 235 | 8-19 | 16 | 210 | 250 | 8-23 | 20 | 330 | 181 | 270 | 198 |
| 150 | 150 | 230 | 265 | 8-19 | 18 | 240 | 280 | 8-23 | 22 | 360 | 199 | 310 | 211 |
| 200 | 200 | 280 | 320 | 8-23 | 20 | 290 | 330 | 12-23 | 22 | 500 | 265 | 400 | 265 |

SERIES F 3059 - JIS 5K, 10K Cast Bronze Storm Valve - Vertical & Angle Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2220 - 5K, 10K



SERIES F 3059 Vertical Storm Valve



SERIES F 3059 Angle Storm Valve

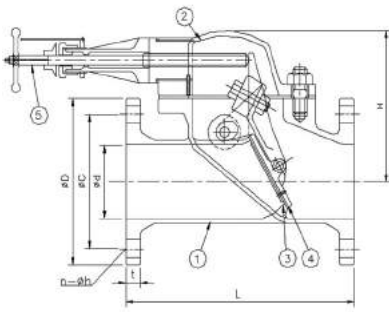
| Part No. | Material |
|------------|------------------------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Seat | NBR |
| 4 - Disc | Cast Bronze, Stainless Steel |
| 5 - Stem | Brass, Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.5 [5.0] |
| Seat | - |

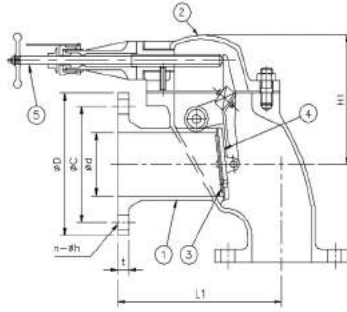
| SIZE | d | FLANGE 5K | | | | FLANGE 10K | | | | L | H | L1 | H1 |
|------|-----|-----------|-----|------|----|------------|-----|-------|----|-----|-----|-----|-----|
| | | C | D | n-h | t | C | D | n-h | t | | | | |
| 050 | 50 | 105 | 130 | 4-15 | 14 | 120 | 155 | 4-19 | 16 | 210 | 127 | 170 | 130 |
| 065 | 65 | 130 | 155 | 4-15 | 14 | 140 | 175 | 4-19 | 18 | 240 | 136 | 200 | 140 |
| 080 | 80 | 145 | 180 | 4-19 | 14 | 150 | 185 | 8-19 | 18 | 260 | 161 | 220 | 154 |
| 100 | 100 | 165 | 200 | 8-19 | 16 | 175 | 210 | 8-19 | 18 | 280 | 167 | 250 | 170 |
| 125 | 125 | 200 | 235 | 8-19 | 16 | 210 | 250 | 8-23 | 20 | 330 | 190 | 270 | 198 |
| 150 | 150 | 230 | 265 | 8-19 | 18 | 240 | 280 | 8-23 | 22 | 360 | 206 | 310 | 211 |
| 200 | 200 | 280 | 320 | 8-23 | 20 | 290 | 330 | 12-23 | 22 | 500 | 265 | 400 | 265 |

SERIES F 3060 - JIS 5K, 10K Cast Steel Storm Valve Vertical & Angle Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2220 - 5K, 10K



SERIES F 3060 Vertical Storm Valve



SERIES F 3060 Angle Storm Valve

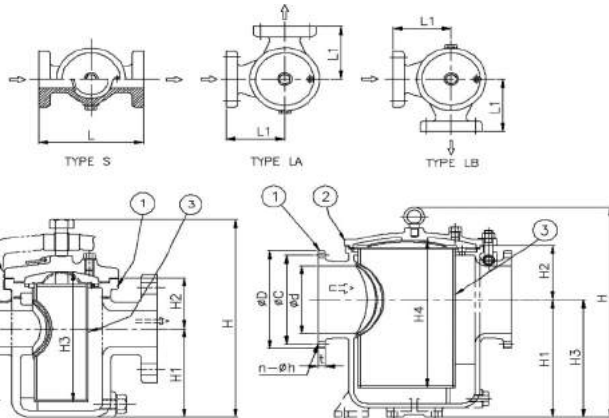
| Part No. | Material |
|------------|------------------------------|
| 1 - Body | Cast Bronze |
| 2 - Bonnet | Cast Bronze |
| 3 - Seat | NBR |
| 4 - Disc | Cast Bronze, Stainless Steel |
| 5 - Stem | Brass, Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.5 [5.0] |
| Seat | - |

| SIZE | d | FLANGE 5K | | | | FLANGE 10K | | | | L | H | L1 | H1 |
|------|-----|-----------|-----|------|----|------------|-----|-------|----|-----|-----|-----|-----|
| | | C | D | n-h | t | C | D | n-h | t | | | | |
| 050 | 50 | 105 | 130 | 4-15 | 14 | 120 | 155 | 4-19 | 16 | 210 | 131 | 170 | 130 |
| 065 | 65 | 130 | 155 | 4-15 | 14 | 140 | 175 | 4-19 | 18 | 240 | 141 | 200 | 140 |
| 080 | 80 | 145 | 180 | 4-19 | 14 | 150 | 185 | 8-19 | 18 | 260 | 155 | 220 | 154 |
| 100 | 100 | 165 | 200 | 8-19 | 16 | 175 | 210 | 8-19 | 18 | 280 | 171 | 250 | 170 |
| 125 | 125 | 200 | 235 | 8-19 | 16 | 210 | 250 | 8-23 | 20 | 330 | 195 | 270 | 198 |
| 150 | 150 | 230 | 265 | 8-19 | 18 | 240 | 280 | 8-23 | 22 | 360 | 212 | 310 | 211 |
| 200 | 200 | 280 | 320 | 8-23 | 20 | 290 | 330 | 12-23 | 22 | 500 | 265 | 400 | 265 |

SERIES F 7121 - JIS 5K Cast Iron & Cast Steel Can Water Filter

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7121 [25A~100A] Water Strainer

SERIES F 7121 [125A~400A] Water Strainer

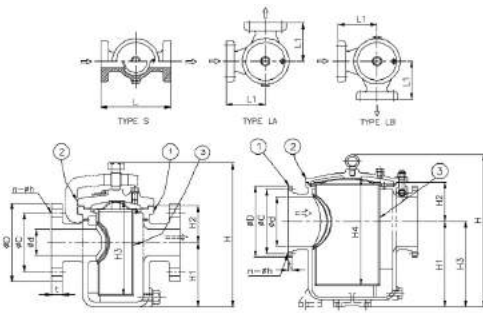
| Part No. | Material |
|-----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Cover | Cast Iron / Cast Steel |
| 3 - Strainer Cylinder | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.3 [3.0] |

| SIZE | d | C | D | n-h | t | H | H1 | H2 | H3 | H4 |
|------|-----|-----|-----|-------|----|------|-----|------|-----|-----|
| 025 | 25 | 75 | 95 | 4-12 | 14 | 180 | 75 | 34,5 | 100 | - |
| 032 | 40 | 90 | 115 | 4-15 | 16 | 215 | 85 | 42 | 119 | - |
| 040 | 40 | 95 | 120 | 4-15 | 16 | 215 | 85 | 42 | 119 | - |
| 050 | 50 | 105 | 130 | 4-15 | 16 | 240 | 100 | 49 | 140 | - |
| 065 | 65 | 130 | 155 | 4-15 | 18 | 305 | 135 | 59 | 184 | - |
| 080 | 80 | 145 | 180 | 4-19 | 18 | 340 | 152 | 68 | 209 | - |
| 100 | 100 | 165 | 200 | 8-19 | 20 | 400 | 185 | 80 | 251 | - |
| 125 | 125 | 200 | 235 | 8-19 | 20 | 485 | 207 | 125 | 235 | 295 |
| 150 | 150 | 230 | 265 | 8-19 | 22 | 575 | 258 | 145 | 290 | 360 |
| 200 | 200 | 280 | 320 | 8-23 | 24 | 665 | 320 | 170 | 350 | 440 |
| 250 | 250 | 345 | 385 | 12-23 | 26 | 825 | 412 | 210 | 450 | 565 |
| 300 | 300 | 390 | 430 | 12-23 | 28 | 920 | 473 | 235 | 515 | 645 |
| 350 | 335 | 435 | 480 | 12-25 | 30 | 1030 | 529 | 265 | 575 | 780 |
| 400 | 380 | 495 | 540 | 16-25 | 30 | 1135 | 595 | 300 | 645 | 830 |

SERIES F 7121 - JIS 10K Cast Iron & Cast Steel Can Water Filter

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 10K



SERIES F 7121 [25A~100A] Water Strainer SERIES F 7121 [125A~400A] Water Strainer

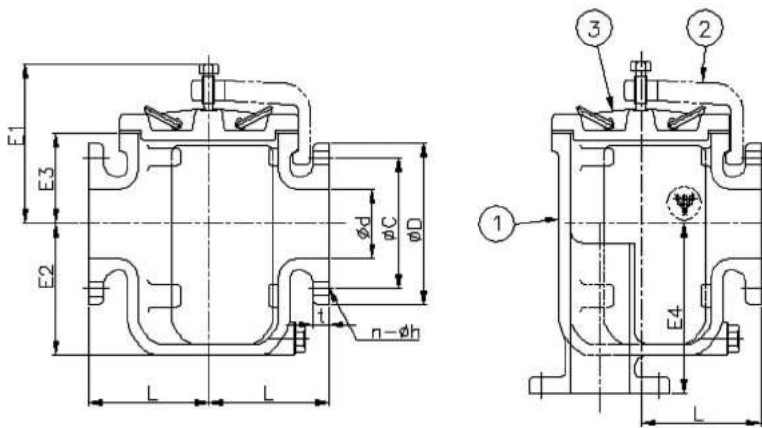
| Part No. | Material |
|-----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Cover | Cast Iron / Cast Steel |
| 3 - Strainer Cylinder | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.3 [3.0] |

| SIZE | d | C | D | n-h | t | H | H1 | H2 | H3 | H4 |
|------|-----|-----|-----|-------|----|------|-----|------|-----|-----|
| 025 | 25 | 90 | 125 | 4-15 | 18 | 180 | 75 | 34.5 | 100 | - |
| 032 | 40 | 100 | 135 | 4-19 | 20 | 215 | 85 | 42 | 119 | - |
| 040 | 40 | 105 | 140 | 4-19 | 20 | 215 | 85 | 42 | 119 | - |
| 050 | 50 | 120 | 155 | 4-19 | 20 | 240 | 100 | 49 | 140 | - |
| 065 | 65 | 140 | 175 | 4-19 | 22 | 305 | 135 | 59 | 184 | - |
| 080 | 80 | 150 | 185 | 8-19 | 22 | 340 | 152 | 68 | 209 | - |
| 100 | 100 | 175 | 210 | 8-19 | 24 | 400 | 185 | 80 | 251 | - |
| 125 | 125 | 210 | 250 | 8-23 | 24 | 485 | 207 | 125 | 235 | 295 |
| 150 | 150 | 240 | 280 | 8-23 | 26 | 575 | 258 | 145 | 290 | 360 |
| 200 | 200 | 290 | 330 | 12-23 | 26 | 665 | 320 | 170 | 350 | 440 |
| 250 | 250 | 355 | 400 | 12-25 | 30 | 825 | 412 | 210 | 450 | 565 |
| 300 | 300 | 400 | 445 | 16-25 | 32 | 920 | 473 | 235 | 515 | 645 |
| 350 | 335 | 445 | 490 | 12-25 | 34 | 1030 | 529 | 265 | 575 | 780 |
| 400 | 380 | 510 | 560 | 16-27 | 36 | 1135 | 595 | 300 | 645 | 830 |

SERIES F 7203 - JIS 5K Cast Iron & Cast Steel Mud Box

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7203 - S type Mud Box

SERIES F 7203 - L type Mud Box

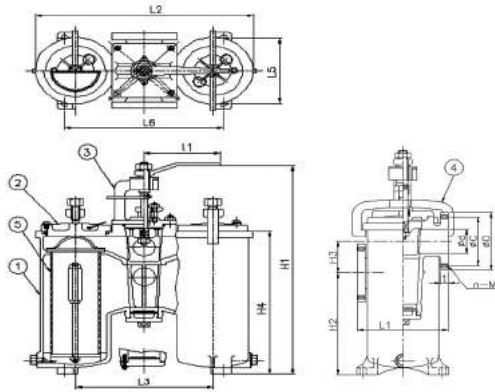
| Part No. | Material |
|-------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Yoke Of Cover | Cast Iron / Cast Steel |
| 3 - Cover | SS41 |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.1 [1.0] |
| Seat | - |

| SIZE | d | C | D | n-h | t | L | E1 | E2 | E3 | E4 |
|------|-----|-----|-----|-------|----|-----|-----|-----|-----|-----|
| 040 | 40 | 95 | 120 | 4-15 | 16 | 90 | 145 | 73 | 55 | 110 |
| 050 | 50 | 105 | 130 | 4-15 | 16 | 120 | 145 | 90 | 70 | 135 |
| 065 | 65 | 130 | 155 | 4-15 | 18 | 150 | 180 | 116 | 90 | 160 |
| 080 | 80 | 145 | 180 | 4-19 | 18 | 160 | 195 | 131 | 100 | 180 |
| 100 | 100 | 165 | 200 | 8-19 | 20 | 190 | 225 | 152 | 110 | 210 |
| 125 | 125 | 200 | 235 | 8-19 | 20 | 235 | 275 | 214 | 140 | 285 |
| 150 | 150 | 230 | 265 | 8-19 | 22 | 280 | 320 | 267 | 170 | 345 |
| 200 | 200 | 280 | 320 | 8-23 | 24 | 330 | 405 | 330 | 210 | 440 |
| 250 | 250 | 345 | 385 | 12-23 | 26 | 380 | 525 | 400 | 280 | 500 |

SERIES F 7208 - JIS 5K Cast Iron & Cast Steel Duplex Oil Strainer (H-Type)

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7208 Duplex Oil Strainer

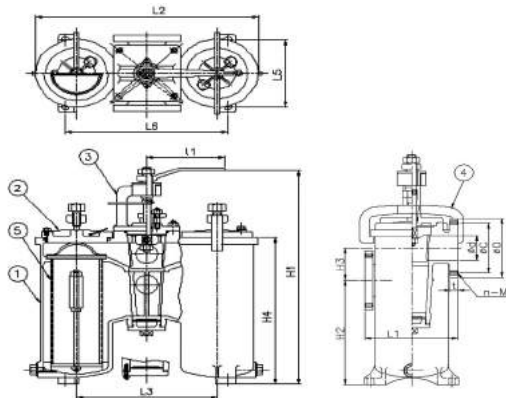
| Part No. | Material |
|----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Bonnet | Cast Iron / Cast Steel |
| 3 - Upper Cock Cover | Cast Iron / Cast Steel |
| 4 - Cover Yoke | Cast Iron / Cast Steel |
| 5 - Strainer Filter | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.6 [6.0] |
| Cock Plug | 0.44 [4.4] |

| SIZE | d | C | D | n-M | t | L1 | L2 | L3 | L5 | L6 | H1 | H2 | H3 | H4 | I1 |
|------|-----|-----|-----|-------|----|-----|------|-----|-----|-----|-------|-------|-----|------|-----|
| 040 | 40 | 95 | 120 | 4-M12 | 12 | 170 | 384 | 236 | 150 | 280 | 449 | 135 | 54 | 232 | 170 |
| 050 | 50 | 105 | 130 | 4-M12 | 17 | 180 | 415 | 260 | 150 | 302 | 515.5 | 219 | 66 | 322 | 170 |
| 065 | 65 | 130 | 155 | 4-M12 | 18 | 215 | 514 | 324 | 185 | 375 | 660.5 | 272.5 | 85 | 405 | 200 |
| 080 | 80 | 145 | 180 | 4-M16 | 20 | 245 | 600 | 380 | 215 | 440 | 684.5 | 312 | 102 | 470 | 250 |
| 100 | 100 | 165 | 200 | 8-M16 | 20 | 285 | 718 | 456 | 225 | 524 | 816 | 317 | 126 | 565 | 300 |
| 125 | 125 | 200 | 235 | 8-M16 | 20 | 330 | 852 | 544 | 305 | 620 | 952 | 430.5 | 157 | 670 | 350 |
| 150 | 150 | 230 | 265 | 8-M16 | 22 | 410 | 1046 | 680 | 365 | - | 1299 | 516 | 201 | 818 | 370 |
| 200 | 200 | 280 | 320 | 8-M20 | 24 | 490 | 1250 | 820 | 430 | - | 1520 | 645 | 245 | 1020 | 430 |

SERIES F 7208 - JIS 10K Cast Iron & Cast Steel Duplex Oil Strainer (H-Type)

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 10K



SERIES F 7208 Duplex Oil Strainer

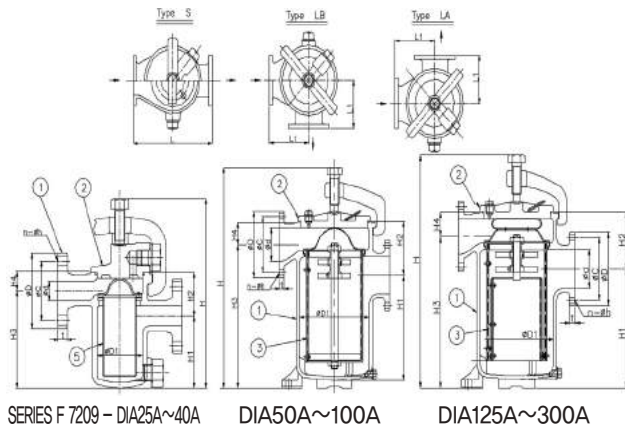
| Part No. | Material |
|----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Bonnet | Cast Iron / Cast Steel |
| 3 - Upper Cock Cover | Cast Iron / Cast Steel |
| 4 - Cover Yoke | Cast Iron / Cast Steel |
| 5 - Strainer Filter | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.6 [6.0] |
| Cock Plug | 0.44 [4.4] |

| SIZE | d | C | D | n-M | t | L1 | L2 | L3 | L5 | L6 | H1 | H2 | H3 | H4 | I1 |
|------|-----|-----|-----|--------|----|-----|------|-----|-----|-----|------|-----|-----|------|-----|
| 040 | 40 | 105 | 140 | 4-M16 | 20 | 170 | 384 | 236 | 150 | 280 | 449 | 135 | 54 | 232 | 170 |
| 050 | 50 | 120 | 155 | 4-M16 | 20 | 180 | 415 | 260 | 150 | 302 | 515 | 219 | 66 | 322 | 170 |
| 065 | 65 | 140 | 175 | 4-M16 | 22 | 215 | 514 | 324 | 185 | 375 | 660 | 272 | 85 | 405 | 200 |
| 080 | 80 | 150 | 185 | 4-M16 | 22 | 245 | 600 | 380 | 215 | 440 | 684 | 312 | 102 | 470 | 250 |
| 100 | 100 | 175 | 210 | 8-M16 | 24 | 285 | 718 | 456 | 225 | 524 | 816 | 317 | 126 | 565 | 300 |
| 125 | 125 | 210 | 250 | 8-M16 | 24 | 330 | 852 | 544 | 305 | 620 | 952 | 430 | 157 | 670 | 350 |
| 150 | 150 | 240 | 280 | 8-M20 | 26 | 430 | 1046 | 680 | 365 | - | 1299 | 516 | 201 | 818 | 370 |
| 200 | 200 | 290 | 330 | 12-M20 | 26 | 490 | 1250 | 820 | 430 | - | 1520 | 645 | 245 | 1020 | 430 |

SERIES F 7209 - JIS 5K Cast Iron & Cast Steel Simplex Oil Strainers

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7209 - DIA25A~40A

DIA50A~100A

DIA125A~300A

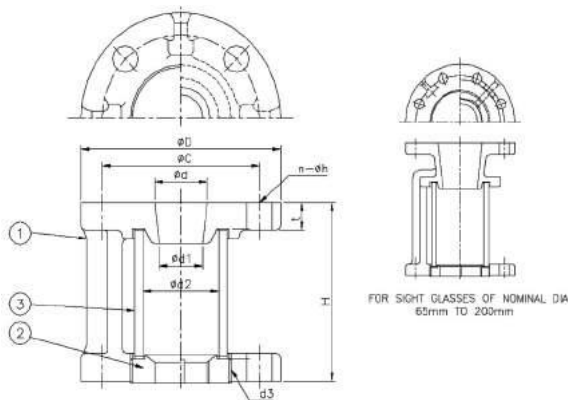
| Part No. | Material |
|-----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Cover | Cast Iron / Cast Steel |
| 3 - Strainer Cylinder | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.75 [7.5] |

| SIZE | d | C | D | n-h | t | L | L1 | D1 | H | H1 | H2 | H3 | H4 |
|------|-----|-----|-----|-------|----|-----|-----|-----|------|-----|-----|-----|-----|
| 025 | 25 | 75 | 95 | 4-12 | 14 | 190 | 95 | 70 | 240 | 91 | 55 | 123 | 23 |
| 032 | 40 | 90 | 115 | 4-15 | 16 | 260 | 130 | 110 | 315 | 145 | 75 | 188 | 32 |
| 040 | 40 | 95 | 120 | 4-15 | 16 | 260 | 130 | 110 | 315 | 145 | 75 | 188 | 32 |
| 050 | 50 | 105 | 130 | 4-15 | 16 | 280 | 140 | 160 | 395 | 187 | 92 | 258 | 42 |
| 065 | 65 | 130 | 155 | 4-15 | 18 | 340 | 170 | 200 | 495 | 248 | 118 | 340 | 51 |
| 080 | 80 | 145 | 180 | 4-19 | 18 | 370 | 185 | 230 | 525 | 258 | 132 | 356 | 59 |
| 100 | 100 | 165 | 200 | 8-19 | 20 | 420 | 210 | 265 | 630 | 315 | 160 | 430 | 70 |
| 125 | 125 | 200 | 235 | 8-19 | 20 | 450 | 225 | 285 | 745 | 373 | 193 | 482 | 84 |
| 150 | 150 | 230 | 265 | 8-19 | 22 | 470 | 235 | 300 | 825 | 410 | 231 | 540 | 101 |
| 200 | 200 | 280 | 320 | 8-23 | 24 | 570 | 285 | 360 | 970 | 475 | 285 | 630 | 130 |
| 250 | 250 | 345 | 385 | 12-23 | 26 | 700 | 350 | 440 | 1140 | 529 | 361 | 729 | 161 |
| 300 | 300 | 390 | 430 | 12-23 | 28 | 800 | 400 | 470 | 1220 | 542 | 420 | 772 | 190 |

SERIES F 7218 - JIS 5K Cast Iron & Stainless Steel Cylindrical Sight Classes

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7218 Sight Class

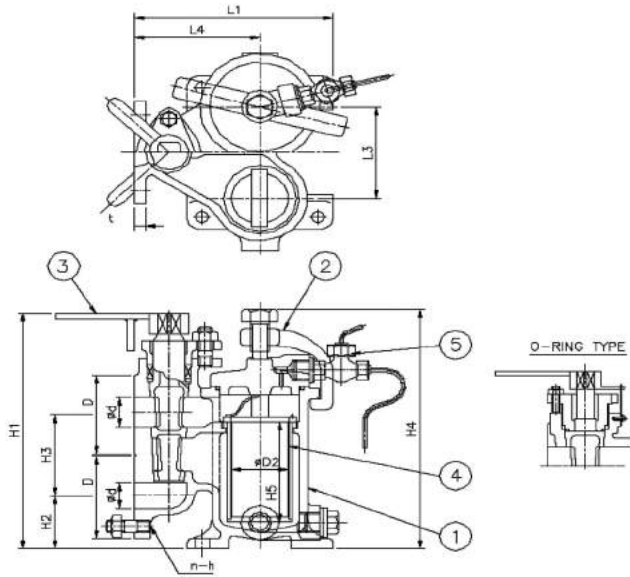
| Part No. | Material |
|-----------------------|--------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Cover | Bronze / Stainless Steel |
| 3 - Strainer Cylinder | Polymethyl |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.15 [1.5] |

| SIZE | d | C | D | n-h | t | d1 | d2 | d3 | H | Kg |
|------|-----|-----|-----|------|----|------|-----|--------|-----|------|
| 025 | 25 | 75 | 95 | 4-12 | 14 | 20,5 | 36 | M48x2 | 90 | 1,67 |
| 032 | 40 | 90 | 115 | 4-15 | 16 | 27 | 45 | M60x2 | 100 | 2,67 |
| 040 | 40 | 95 | 120 | 4-15 | 16 | 35 | 52 | M68x2 | 100 | 2,80 |
| 050 | 50 | 105 | 130 | 4-15 | 16 | 45 | 61 | M76x2 | 115 | 3,30 |
| 065 | 65 | 130 | 155 | 4-15 | 18 | 53 | 83 | M100x2 | 160 | 5,56 |
| 080 | 80 | 145 | 180 | 4-19 | 18 | 66 | 92 | M110x2 | 180 | 8,87 |
| 100 | 100 | 165 | 200 | 8-19 | 20 | 85 | 110 | M130x2 | 210 | 11,6 |
| 125 | 125 | 200 | 235 | 8-19 | 20 | 110 | 140 | M165x2 | 245 | 15,8 |
| 150 | 150 | 230 | 265 | 8-19 | 22 | 128 | 168 | M195x2 | 310 | 23,3 |
| 200 | 200 | 280 | 320 | 8-23 | 24 | 175 | 210 | M240x2 | 380 | 36. |

SERIES F 7224 - JIS 5K *Cast Iron & Cast Steel Small Size Duplex Oil Strainer*

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 5K



SERIES F 7224 Small Duplex Oil Strainer

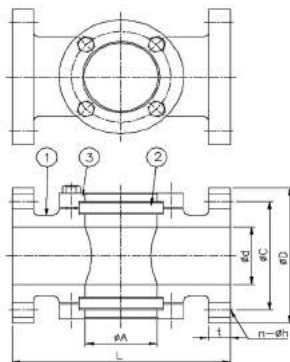
| Part No. | Material |
|-----------------------|------------------------|
| 1 - Body | Cast Iron / Cast Steel |
| 2 - Cover | Cast Iron / Cast Steel |
| 3 - Handle | SS41 |
| 4 - Strainer Cylinder | Stainless Steel |
| 3 - Air Purge Plug | F 7387 |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.3 [3.0] |
| Seat | - |

| SIZE | d | D | n-h | t | L1 | L3 | L4 | H1 | H2 | H3 | H4 | H5 | D2 |
|------|----|----|-------|----|-----|-----|-----|-----|----|-----|-----|-----|----|
| 020 | 25 | 78 | 4-M10 | 14 | 167 | 90 | 105 | 235 | 53 | 80 | 250 | 100 | 48 |
| 025 | 25 | 78 | 4-M10 | 14 | 167 | 90 | 105 | 235 | 53 | 80 | 250 | 100 | 48 |
| 032 | 32 | 78 | 4-M12 | 16 | 211 | 112 | 130 | 315 | 75 | 100 | 295 | 120 | 67 |
| 040 | 40 | 95 | 4-M12 | 16 | 241 | 132 | 150 | 355 | 78 | 125 | 330 | 125 | 86 |

SERIES F 7234 - JIS 10K *Flat Sight Classes*

Manufactured in accordance to JIS F 7200 / Flanges as per JIS B 2220 - 10K



SERIES F 7234 Sight Class

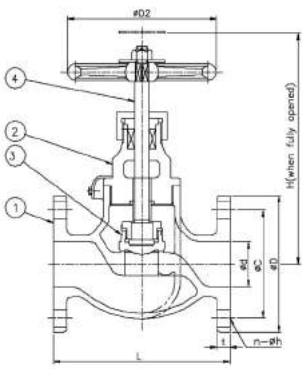
| Part No. | Material |
|----------------|-----------|
| 1 - Body | Cast Iron |
| 2 - Flat Glass | Class |
| 3 - Cover | Cast Iron |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.7 [7.1] |

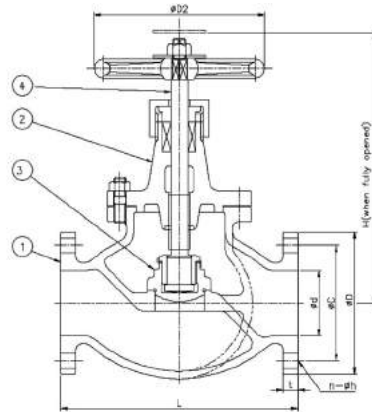
| SIZE | d | C | D | n-h | t | L | A |
|------|-----|-----|-----|------|----|-----|-----|
| 015 | 15 | 70 | 95 | 4-15 | 12 | 150 | 40 |
| 020 | 20 | 75 | 100 | 4-15 | 14 | 150 | 40 |
| 025 | 25 | 90 | 125 | 4-19 | 16 | 170 | 50 |
| 032 | 32 | 100 | 135 | 4-19 | 18 | 200 | 70 |
| 040 | 40 | 105 | 140 | 4-19 | 18 | 200 | 70 |
| 050 | 50 | 120 | 155 | 4-19 | 18 | 220 | 80 |
| 065 | 65 | 140 | 175 | 4-19 | 18 | 250 | 100 |
| 080 | 80 | 150 | 185 | 8-19 | 18 | 270 | 120 |
| 100 | 100 | 175 | 210 | 8-19 | 20 | 320 | 150 |

SERIES F 7301 - JIS 5K Bronze Globe Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7301 DIA 15A~40A Globe Valve



DIA 50A~65A Globe Valve

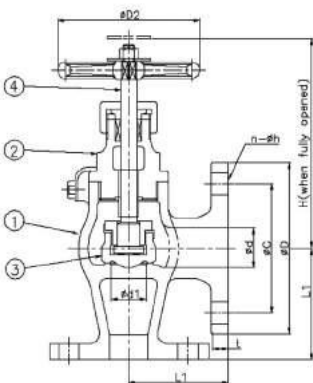
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

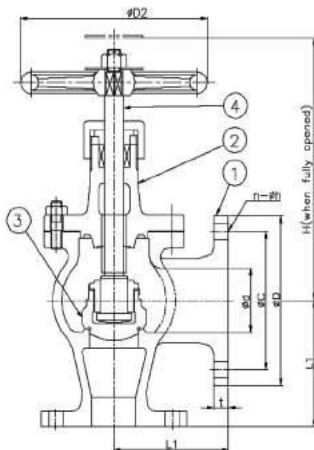
| SIZE | d | L | C | D | n-h | t | H | D2 | Kg |
|------|----|-----|-----|-----|------|----|-----|-----|------|
| 015 | 15 | 100 | 60 | 80 | 4-12 | 9 | 130 | 80 | 2.02 |
| 020 | 20 | 110 | 65 | 85 | 4-12 | 10 | 140 | 100 | 2.86 |
| 025 | 25 | 120 | 75 | 95 | 4-12 | 10 | 160 | 125 | 3.54 |
| 032 | 32 | 140 | 90 | 115 | 4-15 | 12 | 170 | 125 | 5.00 |
| 040 | 40 | 160 | 95 | 120 | 4-15 | 12 | 190 | 140 | 6.48 |
| 050 | 50 | 210 | 105 | 130 | 4-15 | 14 | 235 | 140 | 11.7 |
| 065 | 65 | 250 | 130 | 155 | 4-15 | 14 | 260 | 160 | 17.0 |

SERIES F 7302 - JIS 5K Bronze Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7302 DIA 15A~40A Angle Valve



DIA 50A~65A Angle Valve

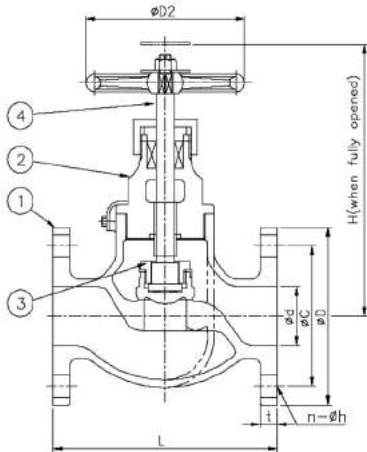
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

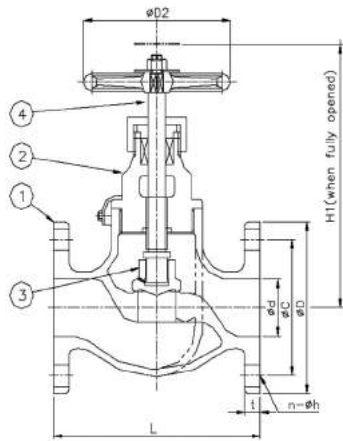
| SIZE | d | L1 | C | D | n-h | t | H | D2 | Kg |
|------|----|-----|-----|-----|------|----|-----|-----|------|
| 015 | 15 | 55 | 60 | 80 | 4-12 | 9 | 120 | 80 | 1.98 |
| 020 | 20 | 60 | 65 | 85 | 4-12 | 10 | 130 | 100 | 2.73 |
| 025 | 25 | 65 | 75 | 95 | 4-12 | 10 | 145 | 125 | 3.44 |
| 032 | 32 | 80 | 90 | 115 | 4-15 | 12 | 150 | 125 | 4.77 |
| 040 | 40 | 85 | 95 | 120 | 4-15 | 12 | 165 | 140 | 5.99 |
| 050 | 50 | 100 | 105 | 130 | 4-15 | 14 | 200 | 140 | 10.1 |
| 065 | 65 | 115 | 130 | 155 | 4-15 | 14 | 220 | 160 | 15.6 |

SERIES F 7303 - JIS 16K Bronze Globe Valve / SERIES F 7409 - JIS 16K Bronze Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7303 Globe Valve



SERIES F 7409 Globe Check Valve

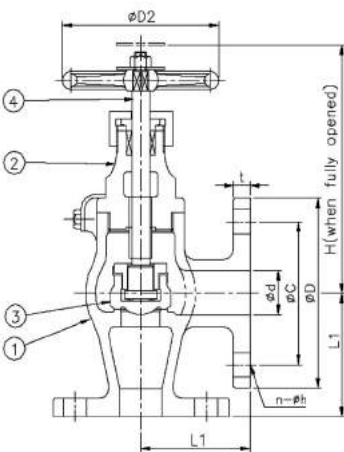
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

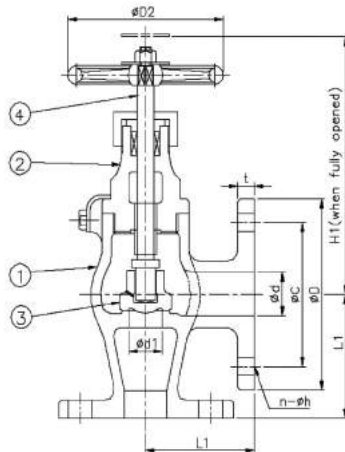
| SIZE | d | L | C | D | n-h | t | H | H1 | D2 | F7303(Kg) | F7409(Kg) |
|------|----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 110 | 70 | 95 | 4-15 | 12 | 130 | 130 | 80 | 2.76 | 2.70 |
| 020 | 20 | 120 | 75 | 100 | 4-15 | 14 | 140 | 140 | 100 | 3.72 | 3.63 |
| 025 | 25 | 130 | 90 | 125 | 4-19 | 14 | 160 | 155 | 125 | 5.20 | 5.09 |
| 032 | 32 | 160 | 100 | 135 | 4-19 | 16 | 170 | 165 | 125 | 6.91 | 6.77 |
| 040 | 40 | 180 | 105 | 140 | 4-19 | 16 | 190 | 185 | 140 | 8.43 | 8.25 |

SERIES F 7304 - JIS 16K Bronze Angle Valve / SERIES F 7410 - JIS 16K Bronze Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7304 Angle Valve



SERIES F 7410 Angle Check Valve

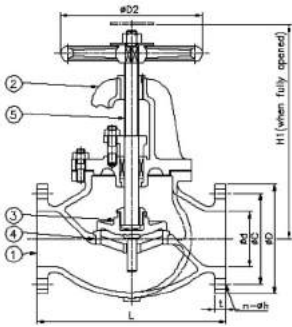
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

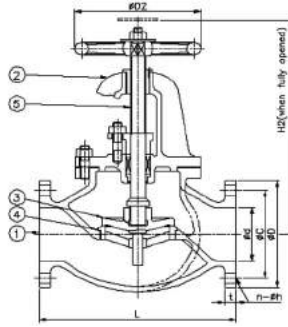
| SIZE | d | L1 | C | D | n-h | t | H | H1 | D2 | F7304(Kg) | F7410(Kg) |
|------|----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 70 | 70 | 95 | 4-15 | 12 | 120 | 120 | 80 | 2.73 | 2.67 |
| 020 | 20 | 75 | 75 | 100 | 4-15 | 14 | 130 | 125 | 100 | 3.65 | 3.56 |
| 025 | 25 | 85 | 90 | 125 | 4-19 | 14 | 145 | 140 | 125 | 5.16 | 5.02 |
| 032 | 32 | 95 | 100 | 135 | 4-19 | 16 | 150 | 145 | 125 | 6.72 | 6.58 |
| 040 | 40 | 100 | 105 | 140 | 4-19 | 16 | 165 | 160 | 140 | 8.13 | 7.95 |

SERIES F 7305 - JIS 5K Cast Iron Globe Valve / SERIES F 7353 - JIS 5K Cast Iron Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7305 Globe Valve



SERIES F 7353 Globe Check Valve

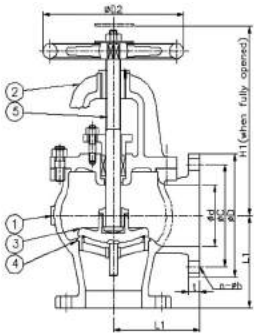
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|------------|
| Nominal Dia | Body | Seat |
| 300 or less | 1.05 [10.5] | 0.77 [7.7] |
| 350 and More | 0.9 [9.0] | 0.66 [6.6] |

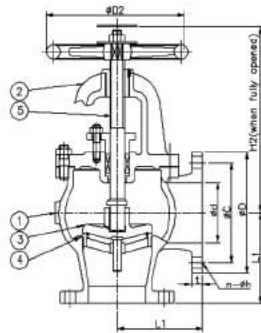
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | F7305(Kg) | F7353(Kg) |
|------|-----|------|-----|-----|-------|----|-----|-----|-----|-----------|-----------|
| 050 | 50 | 210 | 130 | 105 | 4-15 | 16 | 270 | 270 | 160 | 14.7 | 14.8 |
| 065 | 65 | 250 | 155 | 130 | 4-15 | 18 | 300 | 290 | 180 | 21.3 | 21.3 |
| 080 | 80 | 280 | 180 | 145 | 4-19 | 18 | 310 | 300 | 180 | 27.7 | 27.6 |
| 100 | 100 | 340 | 200 | 165 | 8-19 | 20 | 360 | 350 | 224 | 40.8 | 40.4 |
| 125 | 125 | 410 | 235 | 200 | 8-19 | 20 | 390 | 380 | 250 | 57.6 | 57.9 |
| 150 | 150 | 480 | 265 | 230 | 8-19 | 22 | 445 | 430 | 280 | 80.3 | 80.9 |
| 200 | 200 | 570 | 320 | 280 | 8-23 | 24 | 530 | 505 | 315 | 139 | 139 |
| 250 | 250 | 740 | 385 | 345 | 12-23 | 26 | 650 | 620 | 355 | 246 | 243 |
| 300 | 300 | 840 | 430 | 390 | 12-23 | 28 | 740 | 715 | 400 | 377 | 377 |
| 350 | 335 | 940 | 480 | 435 | 12-25 | 30 | 840 | 815 | 500 | 462 | 463 |
| 400 | 380 | 1050 | 540 | 495 | 16-25 | 30 | 940 | 905 | 560 | 647 | 643 |
| 450 | 430 | 1080 | 605 | 555 | 16-25 | 30 | 940 | 925 | 560 | 741 | 741 |

SERIES F 7306 - JIS 5K Cast Iron Angle Valve / SERIES F 7354 - JIS 5K Cast Iron Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7306 Angle Valve



SERIES F 7354 Angle Check Valve

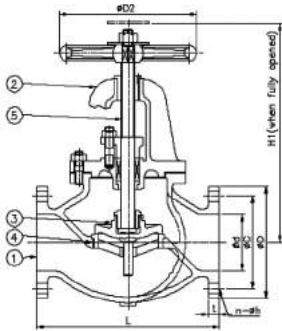
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|------------|
| Nominal Dia | Body | Seat |
| 300 or less | 1.05 [10.5] | 0.77 [7.7] |
| 350 and More | 0.9 [9.0] | 0.66 [6.6] |
| 450 or more | 0.75 [7.5] | 0.55 [5.5] |

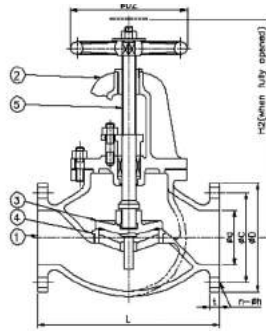
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | F7306(Kg) | F7354(Kg) |
|------|-----|-----|-----|-----|-------|----|------|-----|-----|-----------|-----------|
| 050 | 50 | 100 | 130 | 105 | 4-15 | 16 | 240 | 240 | 160 | 12.9 | 13.8 |
| 065 | 65 | 115 | 155 | 130 | 4-15 | 18 | 255 | 245 | 180 | 18.2 | 18.2 |
| 080 | 80 | 130 | 180 | 145 | 4-19 | 18 | 265 | 255 | 180 | 23.4 | 23.3 |
| 100 | 100 | 150 | 200 | 165 | 8-19 | 20 | 310 | 300 | 224 | 33.7 | 33.5 |
| 125 | 125 | 170 | 235 | 200 | 8-19 | 20 | 330 | 320 | 250 | 46.2 | 46.5 |
| 150 | 150 | 190 | 265 | 230 | 8-19 | 22 | 380 | 365 | 280 | 63.4 | 64.0 |
| 200 | 200 | 220 | 320 | 280 | 8-23 | 24 | 450 | 425 | 315 | 105 | 104 |
| 250 | 250 | 275 | 385 | 345 | 12-23 | 26 | 540 | 510 | 355 | 176 | 175 |
| 300 | 300 | 310 | 430 | 390 | 12-23 | 28 | 610 | 585 | 400 | 243 | 243 |
| 350 | 335 | 360 | 480 | 435 | 12-25 | 30 | 690 | 660 | 500 | 327 | 336 |
| 400 | 380 | 395 | 540 | 495 | 16-25 | 30 | 770 | 730 | 560 | 459 | 455 |
| 450 | 430 | 440 | 605 | 555 | 16-25 | 30 | 870 | 835 | 630 | 618 | 618 |
| 500 | 480 | 485 | 655 | 605 | 20-25 | 32 | 1020 | 915 | 710 | 800 | 800 |
| 550 | 530 | 530 | 720 | 665 | 20-27 | 32 | 1350 | 985 | 800 | 1161 | 1161 |

SERIES F 7307 - JIS 10K Cast Iron Globe Valve / SERIES F 7375 - JIS 10K Cast Iron Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7307 Globe Valve



SERIES F 7375 Globe Check Valve

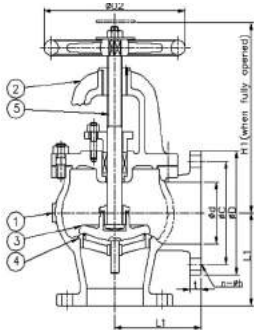
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|------------|-------------|
| Nominal Dia | Body | Seat |
| 200 or less | 2.1 [21.0] | 1.54 [15.4] |
| 250 and More | 1.5 [15.0] | 1.1 [11.0] |

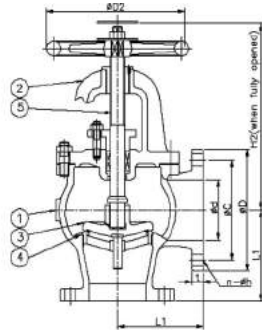
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | F7307(Kg) | F7375(Kg) |
|------|-----|------|-----|-----|-------|----|-----|-----|-----|-----------|-----------|
| 050 | 50 | 220 | 155 | 120 | 4-19 | 20 | 285 | 285 | 160 | 19.9 | 19.9 |
| 065 | 65 | 270 | 175 | 140 | 4-19 | 22 | 310 | 305 | 200 | 28.7 | 28.6 |
| 080 | 80 | 300 | 185 | 150 | 8-19 | 22 | 320 | 315 | 200 | 32.4 | 32.5 |
| 100 | 100 | 350 | 210 | 175 | 8-19 | 24 | 370 | 360 | 250 | 48.7 | 48.7 |
| 125 | 125 | 420 | 250 | 210 | 8-23 | 24 | 420 | 410 | 280 | 73.1 | 73.0 |
| 150 | 150 | 490 | 280 | 240 | 8-23 | 26 | 470 | 455 | 315 | 104 | 104 |
| 200 | 200 | 570 | 330 | 290 | 12-23 | 26 | 555 | 530 | 355 | 162 | 161 |
| 250 | 250 | 740 | 400 | 355 | 12-25 | 30 | 680 | 620 | 450 | 304 | 304 |
| 300 | 300 | 840 | 445 | 400 | 16-25 | 32 | 770 | 715 | 450 | 458 | 458 |
| 350 | 335 | 940 | 490 | 445 | 16-25 | 30 | 840 | 815 | 500 | 508 | 508 |
| 400 | 380 | 1050 | 560 | 510 | 16-27 | 30 | 940 | 905 | 560 | 718 | 718 |
| 450 | 430 | 1080 | 620 | 565 | 20-27 | 30 | 940 | 925 | 560 | 816 | 816 |

SERIES F 7308 JIS 10K Cast Iron Angle Valve / SERIES F 7376 - JIS 10K Cast Iron Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7308 Angle Valve



SERIES F 7376 Angle Check Valve

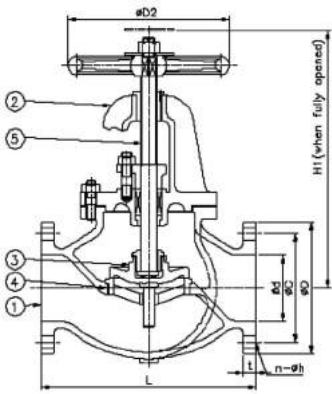
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|------------|-------------|
| Nominal Dia | Body | Seat |
| 200 or less | 2.1 [21.0] | 1.54 [15.4] |
| 250 and More | 1.5 [15.0] | 1.1 [11.0] |

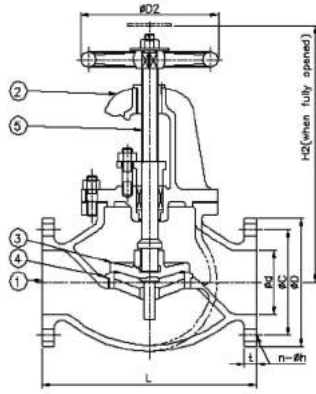
| SIZE | d | L1 | D | C | n-h | t | H1 | H2 | D2 | F7308(Kg) | F7376(Kg) |
|------|-----|-----|-----|-----|-------|----|------|------|-----|-----------|-----------|
| 050 | 50 | 120 | 155 | 120 | 4-19 | 20 | 255 | 255 | 160 | 18.2 | 18.2 |
| 065 | 65 | 130 | 175 | 140 | 4-19 | 22 | 270 | 260 | 200 | 25.4 | 25.3 |
| 080 | 80 | 140 | 185 | 150 | 8-19 | 22 | 275 | 270 | 200 | 27.4 | 27.5 |
| 100 | 100 | 160 | 210 | 175 | 8-19 | 24 | 315 | 305 | 250 | 40.6 | 40.6 |
| 125 | 125 | 180 | 250 | 210 | 8-23 | 24 | 360 | 350 | 280 | 69.9 | 69.8 |
| 150 | 150 | 205 | 280 | 240 | 8-23 | 26 | 405 | 390 | 315 | 81.0 | 81.2 |
| 200 | 200 | 230 | 330 | 290 | 12-23 | 26 | 475 | 450 | 355 | 125 | 124 |
| 250 | 250 | 290 | 400 | 355 | 12-25 | 30 | 570 | 570 | 450 | 211 | 211 |
| 300 | 300 | 320 | 445 | 400 | 16-25 | 32 | 645 | 645 | 450 | 293 | 293 |
| 350 | 335 | 360 | 490 | 445 | 16-25 | 34 | 710 | 710 | 500 | 386 | 386 |
| 400 | 380 | 395 | 560 | 510 | 16-27 | 36 | 790 | 790 | 560 | 544 | 544 |
| 450 | 430 | 440 | 620 | 565 | 20-27 | 30 | 940 | 870 | 560 | 680 | 680 |
| 500 | 480 | 485 | 675 | 620 | 20-27 | 32 | 1020 | 1020 | 560 | 880 | 880 |
| 550 | 530 | 530 | 745 | 680 | 20-33 | 32 | 1350 | 1350 | 630 | 1278 | 1278 |

SERIES F 7309 - JIS 16K Cast Iron Globe Valve / SERIES F 7377 - JIS 16K Cast Iron Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 16K



SERIES F 7309 Globe Valve



SERIES F 7377 Globe Check Valve

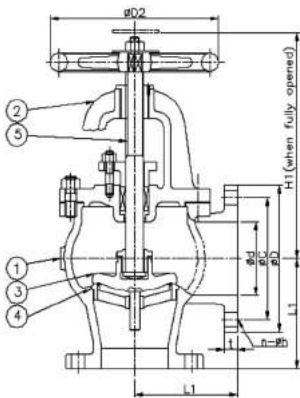
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

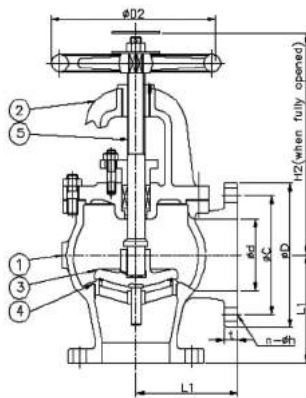
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | F7309(Kg) | F7377(Kg) |
|------|-----|-----|-----|-----|-------|----|-----|-----|-----|-----------|-----------|
| 050 | 50 | 220 | 155 | 120 | 8-19 | 20 | 285 | 285 | 160 | 19.6 | 19.6 |
| 065 | 65 | 270 | 175 | 140 | 8-19 | 22 | 310 | 305 | 200 | 28.3 | 28.2 |
| 080 | 80 | 300 | 200 | 160 | 8-23 | 24 | 340 | 335 | 224 | 40.4 | 40.5 |
| 100 | 100 | 350 | 225 | 185 | 8-23 | 26 | 385 | 375 | 250 | 56.9 | 56.9 |
| 125 | 125 | 430 | 270 | 225 | 8-25 | 26 | 455 | 440 | 315 | 89.5 | 89.5 |
| 150 | 150 | 500 | 305 | 260 | 12-25 | 28 | 510 | 500 | 355 | 123 | 123 |
| 200 | 200 | 570 | 350 | 305 | 12-25 | 30 | 630 | 530 | 450 | 188 | 188 |

SERIES F 7310 JIS 16K Cast Iron Angle Valve / SERIES F 7378 - JIS 16K Cast Iron Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 16K



SERIES F 7310 Angle Valve



SERIES F 7378 Angle Check Valve

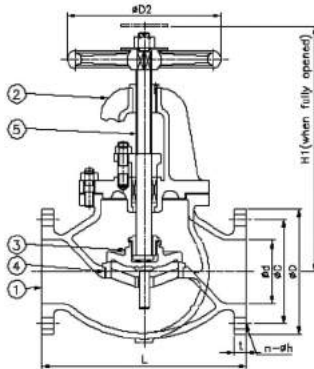
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

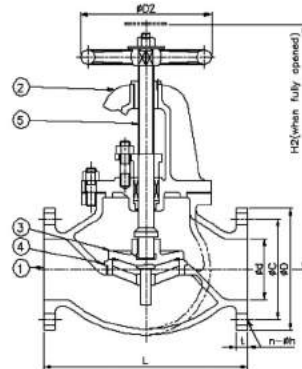
| SIZE | d | L1 | D | C | n-h | t | H1 | H2 | D2 | F7310(Kg) | F7378(Kg) |
|------|-----|-----|-----|-----|-------|----|-----|-----|-----|-----------|-----------|
| 050 | 50 | 120 | 155 | 120 | 8-19 | 20 | 255 | 255 | 160 | 18.0 | 18.0 |
| 065 | 65 | 130 | 175 | 140 | 8-19 | 22 | 270 | 260 | 200 | 25.0 | 24.9 |
| 080 | 80 | 150 | 200 | 160 | 8-23 | 24 | 295 | 260 | 224 | 35.7 | 35.8 |
| 100 | 100 | 170 | 225 | 185 | 8-23 | 26 | 330 | 290 | 250 | 49.2 | 49.2 |
| 125 | 125 | 200 | 270 | 225 | 8-25 | 26 | 390 | 320 | 315 | 76.1 | 76.1 |
| 150 | 150 | 225 | 305 | 260 | 12-25 | 28 | 435 | 375 | 355 | 103 | 103 |
| 200 | 200 | 250 | 350 | 305 | 12-25 | 30 | 540 | 425 | 450 | 155 | 155 |

SERIES F 7311 JIS 5K - JIS F 7305 Base Cast Steel Globe Valve / Cast Steel Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7311 Globe Valve



SERIES F 7311 Globe Check Valve

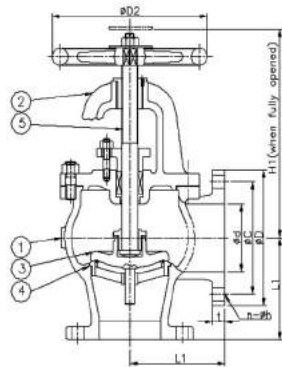
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|------------|
| Nominal Dia | Body | Seat |
| 300 or less | 1.05 [10.5] | 0.77 [0.7] |
| 350 and More | 0.9 [9.0] | 0.66 [6.6] |

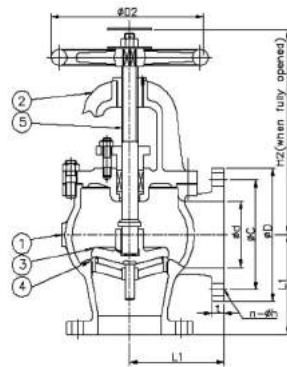
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | (Kg) | Check (Kg) |
|------|-----|------|-----|-----|-------|----|-----|-----|-----|-------|------------|
| 050 | 50 | 210 | 130 | 105 | 4-15 | 14 | 270 | 270 | 160 | 15.9 | 15.9 |
| 065 | 65 | 250 | 155 | 130 | 4-15 | 14 | 300 | 290 | 180 | 23.0 | 23.0 |
| 080 | 80 | 280 | 180 | 145 | 4-19 | 14 | 310 | 300 | 180 | 30.0 | 29.9 |
| 100 | 100 | 340 | 200 | 165 | 8-19 | 16 | 360 | 350 | 224 | 44.2 | 43.7 |
| 125 | 125 | 410 | 235 | 200 | 8-19 | 16 | 390 | 380 | 250 | 62.4 | 62.7 |
| 150 | 150 | 480 | 265 | 230 | 8-19 | 18 | 445 | 430 | 280 | 150.5 | 87.9 |
| 200 | 200 | 570 | 320 | 280 | 8-23 | 20 | 530 | 505 | 315 | 230 | 150.5 |
| 250 | 250 | 740 | 385 | 345 | 12-23 | 22 | 650 | 620 | 355 | 309 | 263.2 |
| 300 | 300 | 840 | 430 | 390 | 12-23 | 22 | 740 | 715 | 400 | 377 | 377 |
| 350 | 335 | 940 | 480 | 435 | 12-25 | 24 | 840 | 815 | 500 | 462 | 463 |
| 400 | 380 | 1050 | 540 | 495 | 16-25 | 24 | 940 | 905 | 560 | 647 | 643 |
| 450 | 430 | 1080 | 605 | 555 | 16-25 | 24 | 940 | 925 | 560 | 741 | 741 |

SERIES F 7312 JIS 5K - JIS F 7306 Base Cast Steel Angle Valve / Cast Steel Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7312 Angle Valve



SERIES F 7312 Angle Check Valve

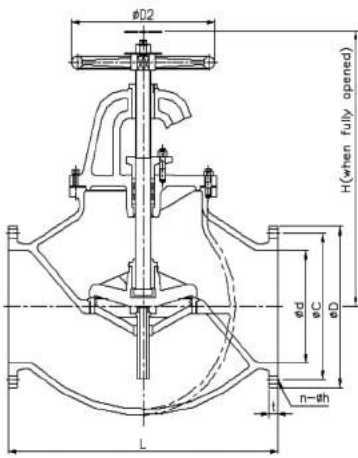
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|------------|
| Nominal Dia | Body | Seat |
| 300 or less | 1.05 [10.5] | 0.77 [0.7] |
| 350 and More | 0.9 [9.0] | 0.66 [6.6] |
| 450 or more | 0.75 [7.5] | 0.55 [5.5] |

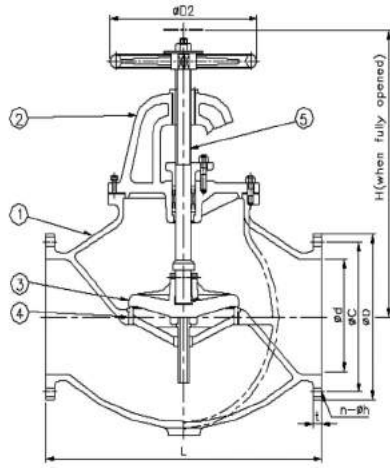
| SIZE | d | L1 | D | C | n-h | t | H1 | H2 | D2 | (Kg) | Check (Kg) |
|------|-----|-----|-----|-----|-------|----|------|-----|-----|-------|------------|
| 050 | 50 | 100 | 130 | 105 | 4-15 | 14 | 240 | 240 | 160 | 13.9 | 14.0 |
| 065 | 65 | 115 | 155 | 130 | 4-15 | 14 | 255 | 245 | 180 | 19.8 | 19.7 |
| 080 | 80 | 130 | 180 | 145 | 4-19 | 14 | 265 | 255 | 180 | 25.3 | 25.2 |
| 100 | 100 | 150 | 200 | 165 | 8-19 | 16 | 310 | 300 | 224 | 36.5 | 36.2 |
| 125 | 125 | 170 | 235 | 200 | 8-19 | 16 | 330 | 320 | 250 | 50.0 | 50.3 |
| 150 | 150 | 190 | 265 | 230 | 8-19 | 18 | 380 | 365 | 280 | 88.8 | 69.3 |
| 200 | 200 | 220 | 320 | 280 | 8-23 | 20 | 450 | 425 | 315 | 113.7 | 112.6 |
| 250 | 250 | 275 | 385 | 345 | 12-23 | 22 | 540 | 510 | 355 | 178 | 169.5 |
| 300 | 300 | 310 | 430 | 390 | 12-23 | 22 | 610 | 585 | 400 | 275 | 263.2 |
| 350 | 335 | 360 | 480 | 435 | 12-25 | 24 | 690 | 660 | 500 | 327 | 336 |
| 400 | 380 | 395 | 540 | 495 | 16-25 | 24 | 770 | 730 | 560 | 459 | 455 |
| 450 | 430 | 440 | 605 | 555 | 16-25 | 24 | 870 | 835 | 630 | 618 | 618 |
| 500 | 480 | 485 | 655 | 605 | 20-25 | 24 | 1020 | 915 | 710 | 800 | 800 |
| 550 | 530 | 530 | 720 | 665 | 20-27 | 26 | 1350 | 985 | 800 | 1161 | 1161 |

SERIES F 7311 - JIS 5K Cast Steel Globe Valve / Cast Steel Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7311 Globe Valve



SERIES F 7311 Globe Check Valve

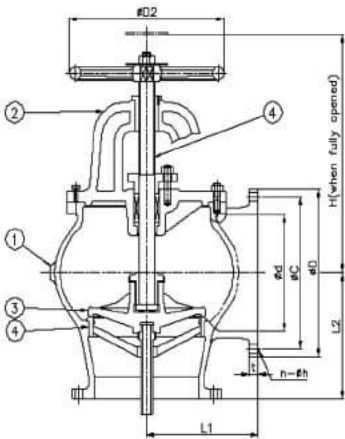
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.04 [10.5] |
| Seat | 0.76 [7.7] |

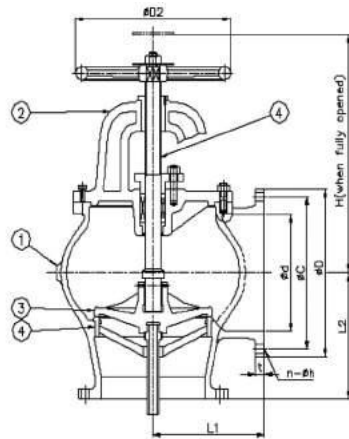
| SIZE | d | L | D | C | n-h | t | H | D2 | kg |
|------|-----|-----|-----|-----|-------|----|-----|-----|-----|
| 250 | 250 | 740 | 385 | 345 | 12-23 | 22 | 791 | 355 | 230 |
| 300 | 300 | 840 | 430 | 390 | 12-23 | 22 | 929 | 400 | 309 |

SERIES F 7312 - JIS 5K Cast Steel Angle Valve / Cast Steel Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7312 Globe Valve



SERIES F 7312 Globe Check Valve

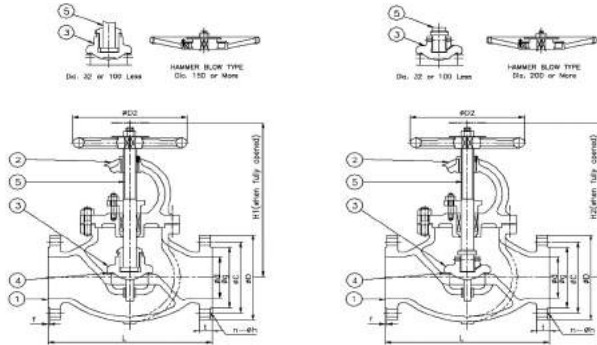
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class B | Class S |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

| SIZE | d | L1 | L2 | D | C | n-h | t | H | D2 | kg |
|------|-----|-----|-----|-----|-----|-------|----|-----|-----|-----|
| 250 | 250 | 275 | 320 | 385 | 345 | 12-23 | 22 | 641 | 355 | 178 |
| 300 | 300 | 310 | 370 | 430 | 390 | 12-23 | 22 | 748 | 400 | 275 |

SERIES F 7313 - JIS 20K Cast Steel Globe Valve / SERIES F 7473 - JIS 20K Cast Steel Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 20K



SERIES F 7313 Globe Valve

SERIES F 7473 Globe Check Valve

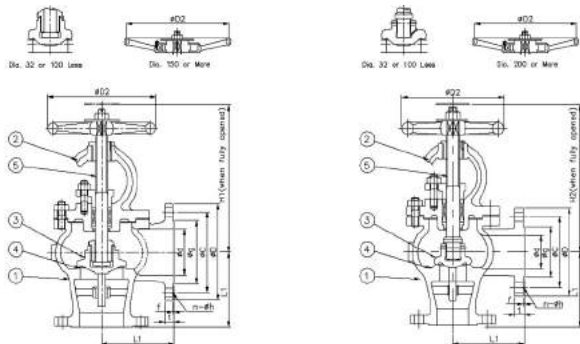
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Deposite |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 5.1 [51.0] |
| Seat | 3.74 [37.4] |

| SIZE | d | L | D | C | g | n-h | t | f | H1 | H2 | D2 | F7313(Kg) | F7473(Kg) |
|------|-----|------|-----|-----|-----|-------|----|---|-----|-----|-----|-----------|-----------|
| 032 | 32 | 190 | 135 | 100 | 80 | 4-19 | 18 | 2 | 270 | 265 | 160 | 14.4 | 14.4 |
| 040 | 40 | 200 | 140 | 105 | 85 | 4-19 | 18 | 2 | 290 | 280 | 160 | 16.0 | 16.0 |
| 050 | 50 | 230 | 155 | 120 | 100 | 8-19 | 18 | 2 | 305 | 295 | 200 | 21.6 | 21.6 |
| 065 | 65 | 270 | 175 | 140 | 120 | 8-19 | 20 | 2 | 345 | 330 | 224 | 30.4 | 30.1 |
| 080 | 80 | 300 | 200 | 160 | 135 | 8-23 | 22 | 2 | 385 | 370 | 250 | 43.5 | 43.5 |
| 100 | 100 | 350 | 225 | 185 | 160 | 8-23 | 24 | 2 | 440 | 420 | 280 | 62.3 | 62.1 |
| 125 | 125 | 430 | 270 | 225 | 195 | 8-25 | 26 | 2 | 500 | 475 | 315 | 95.7 | 97.0 |
| 150 | 150 | 500 | 305 | 260 | 230 | 12-25 | 28 | 2 | 550 | 525 | 355 | 133.3 | 136 |
| 200 | 200 | 560 | 350 | 305 | 275 | 12-25 | 30 | 2 | 630 | 605 | 450 | 296.1 | 212 |
| 250 | 250 | 660 | 430 | 380 | 345 | 12-27 | 34 | 2 | 725 | 700 | 560 | 339.1 | 349 |
| 300 | 300 | 711 | 480 | 430 | 395 | 16-27 | 36 | 2 | 765 | 765 | 560 | - | - |
| 350 | 335 | 940 | 540 | 480 | 440 | 16-33 | 40 | 2 | 875 | 875 | 560 | - | - |
| 400 | 380 | 1050 | 605 | 540 | 495 | 16-33 | 46 | 2 | 970 | 970 | 560 | - | - |

SERIES F 7314 - JIS 20K Cast Steel Angle Valve / SERIES F 7474 - JIS 20K Cast Steel Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 20K



SERIES F 7314 Angle Valve

SERIES F 7474 Angle Check Valve

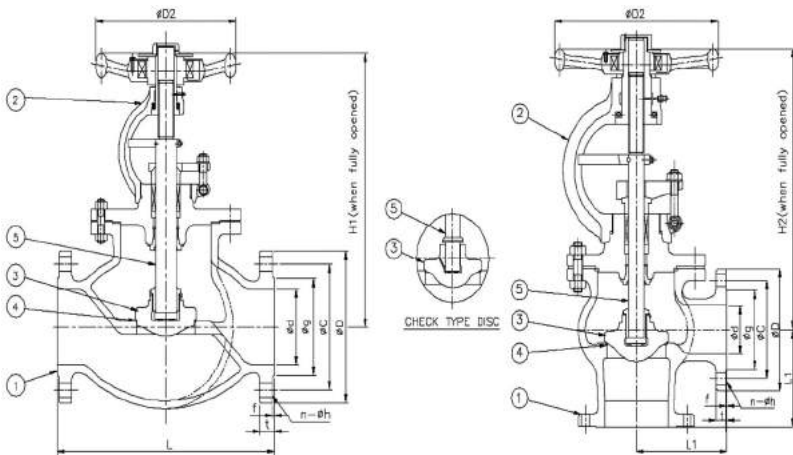
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Deposite |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 5.1 [51.0] |
| Seat | 3.74 [37.4] |

| SIZE | d | L1 | D | C | g | n-h | t | f | H1 | H2 | D2 | F7314(Kg) | F7474(Kg) |
|------|-----|-----|-----|-----|-----|-------|----|---|-----|-----|-----|-----------|-----------|
| 032 | 32 | 100 | 135 | 100 | 80 | 4-19 | 18 | 2 | 250 | 240 | 160 | 13.0 | 13.0 |
| 040 | 40 | 110 | 140 | 105 | 85 | 4-19 | 18 | 2 | 265 | 255 | 160 | 15.2 | 15.1 |
| 050 | 50 | 125 | 155 | 120 | 100 | 8-19 | 18 | 2 | 275 | 270 | 200 | 20.0 | 19.9 |
| 065 | 65 | 135 | 175 | 140 | 120 | 8-19 | 20 | 2 | 305 | 295 | 224 | 26.9 | 26.7 |
| 080 | 80 | 150 | 200 | 160 | 135 | 8-23 | 22 | 2 | 340 | 325 | 250 | 38.9 | 38.8 |
| 100 | 100 | 170 | 225 | 185 | 160 | 8-23 | 24 | 2 | 385 | 365 | 280 | 54.4 | 54.2 |
| 125 | 125 | 200 | 270 | 225 | 195 | 8-25 | 26 | 2 | 440 | 415 | 315 | 80.7 | 83.0 |
| 150 | 150 | 225 | 305 | 260 | 230 | 12-25 | 28 | 2 | 485 | 460 | 355 | 112.3 | 115 |
| 200 | 200 | 280 | 350 | 305 | 275 | 12-25 | 30 | 2 | 540 | 520 | 450 | 183.0 | 189 |
| 250 | 250 | 310 | 430 | 380 | 345 | 12-27 | 34 | 2 | 620 | 595 | 560 | 285.9 | 296 |
| 300 | 300 | 350 | 480 | 430 | 395 | 16-27 | 36 | 2 | 825 | 825 | 560 | - | - |
| 350 | 335 | 380 | 540 | 480 | 440 | 16-33 | 40 | 2 | 875 | 875 | 560 | - | - |

SERIES F 7315 - JIS 30K Cast Steel Globe Valve / SERIES F 7316 - JIS 30K Cast Steel Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 30K



SERIES F 7315 Globe Valve

SERIES F 7316 Angle Valve

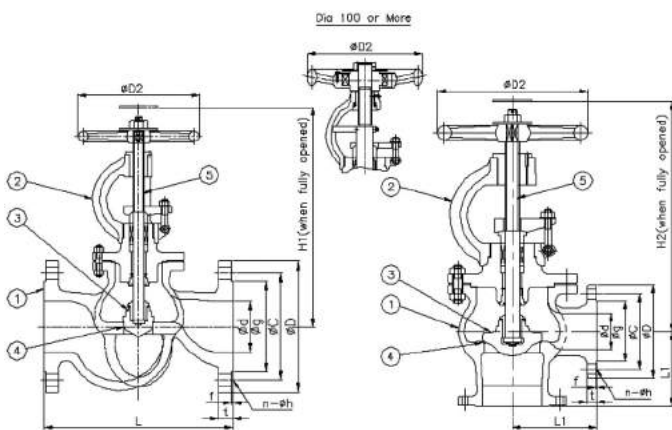
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Deposite |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-------------|
| Body | 6.9 [69.0] |
| Seat | 5.06 [50.6] |

| SIZE | d | L | L1 | D | C | g | n-h | t | f | H1 | H2 | D2 | F7315(Kg) | F7316 (Kg) |
|------|-----|-----|-----|-----|-----|-----|-------|----|---|-----|-----|-----|-----------|------------|
| 100 | 100 | 410 | 205 | 240 | 195 | 160 | 8-25 | 32 | 2 | 575 | 530 | 355 | 115.0 | 106.0 |
| 125 | 125 | 460 | 230 | 275 | 230 | 195 | 8-25 | 36 | 2 | 670 | 615 | 400 | 168.0 | 154.0 |
| 150 | 150 | 500 | 250 | 325 | 275 | 235 | 12-27 | 38 | 2 | 755 | 690 | 500 | 242.0 | 223.0 |

SERIES F 7317 - JIS 40K Cast Steel Globe Valve / SERIES F 7318 - JIS 40K Cast Steel Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 40K



SERIES F 7317 Globe Valve

SERIES F 7318 Angle Valve

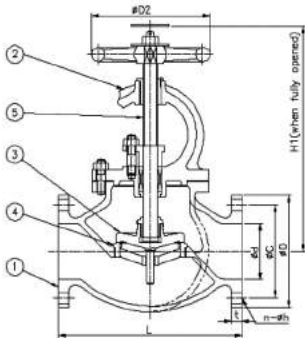
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Deposite |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-------------|
| Body | 9.3 [93.0] |
| Seat | 6.82 [68.2] |

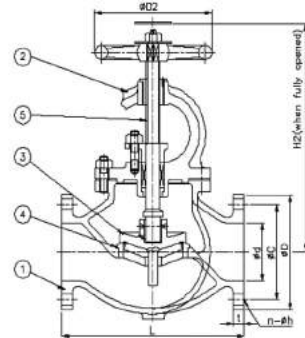
| SIZE | d | L | L1 | D | C | g | n-h | t | f | H1 | H2 | D2 | F7315(Kg) | F7316 (Kg) |
|------|-----|-----|-----|-----|-----|-----|-------|----|---|-----|-----|-----|-----------|------------|
| 032 | 32 | 229 | 114 | 140 | 105 | 80 | 4-19 | 24 | 2 | 370 | 350 | 200 | 25.4 | 24.9 |
| 040 | 38 | 241 | 121 | 160 | 120 | 90 | 4-23 | 24 | 2 | 395 | 370 | 200 | 30.2 | 29.4 |
| 050 | 50 | 292 | 146 | 165 | 130 | 105 | 8-19 | 26 | 2 | 435 | 405 | 224 | 41.0 | 40.0 |
| 065 | 62 | 330 | 165 | 200 | 160 | 130 | 8-23 | 30 | 2 | 490 | 455 | 250 | 62.3 | 60.3 |
| 080 | 76 | 356 | 178 | 210 | 170 | 140 | 8-23 | 32 | 2 | 540 | 500 | 315 | 79.0 | 76.2 |
| 100 | 100 | 432 | 216 | 250 | 205 | 165 | 8-25 | 36 | 2 | 640 | 590 | 400 | 140.0 | 135.0 |
| 125 | 120 | 508 | 254 | 300 | 250 | 200 | 8-27 | 40 | 2 | 720 | 660 | 450 | 197.0 | 189.0 |
| 150 | 145 | 559 | 279 | 355 | 295 | 240 | 12-33 | 44 | 2 | 815 | 740 | 500 | 298.0 | 284.0 |

SERIES F 7319 - JIS 10K Cast Steel Globe Valve / SERIES F 7471 - JIS 10K Cast Steel Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7319 Globe Valve



SERIES F 7471 Globe Check Valve

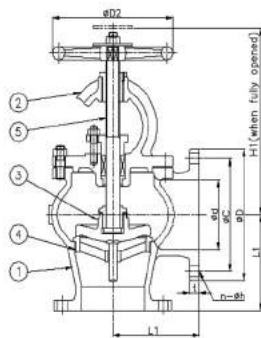
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 2.1 [21.0] |
| Seat | 1.54 [15.4] |

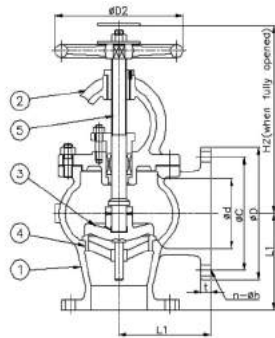
| SIZE | d | L | D | C | n-h | t | H1 | H2 | D2 | F7319(Kg) | F7471(Kg) |
|------|-----|------|-----|-----|-------|----|-----|-----|-----|-----------|-----------|
| 050 | 50 | 220 | 155 | 120 | 4-19 | 16 | 270 | 265 | 160 | 17.9 | 17.9 |
| 065 | 65 | 270 | 175 | 140 | 4-19 | 18 | 300 | 295 | 200 | 26.0 | 26.1 |
| 080 | 80 | 300 | 185 | 150 | 8-19 | 18 | 310 | 300 | 200 | 29.8 | 29.8 |
| 100 | 100 | 350 | 210 | 175 | 8-19 | 18 | 355 | 345 | 250 | 44.7 | 44.8 |
| 125 | 125 | 420 | 250 | 210 | 8-23 | 20 | 415 | 405 | 280 | 70.3 | 69.8 |
| 150 | 150 | 490 | 280 | 240 | 8-23 | 22 | 470 | 455 | 315 | 96.4 | 96.3 |
| 200 | 200 | 570 | 330 | 290 | 12-23 | 22 | 565 | 545 | 355 | 159.0 | 158.0 |
| 250 | 250 | 740 | 400 | 355 | 12-25 | 24 | 645 | 645 | 400 | 257.0 | 304.0 |
| 300 | 300 | 840 | 445 | 400 | 16-25 | 24 | 735 | 735 | 450 | 370.0 | 458.0 |
| 350 | 335 | 940 | 490 | 445 | 16-25 | 26 | 840 | 840 | 500 | 508.0 | 508.0 |
| 400 | 380 | 1050 | 560 | 510 | 16-27 | 28 | 940 | 940 | 560 | 718.0 | 718.0 |
| 450 | 430 | 1080 | 620 | 565 | 20-27 | 30 | 940 | 870 | 560 | 816.0 | 816.0 |

SERIES F 7320 JIS 10K Cast Steel Angle Valve / SERIES F 7472 - JIS 10K Cast Steel Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7320 Angle Valve



SERIES F 7472 Angle Check Valve

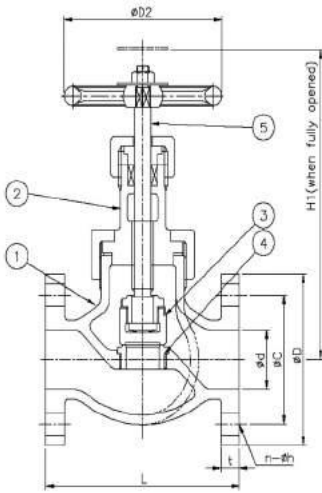
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 2.1 [21.0] |
| Seat | 1.54 [15.4] |

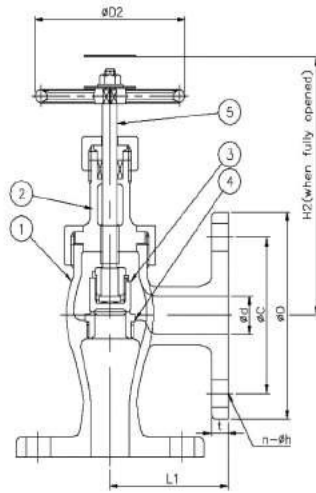
| SIZE | d | L1 | D | C | n-h | t | H1 | H2 | D2 | F7320(Kg) | F7472(Kg) |
|------|-----|-----|-----|-----|-------|----|------|------|-----|-----------|-----------|
| 050 | 50 | 120 | 155 | 120 | 4-19 | 16 | 240 | 235 | 160 | 16.3 | 16.3 |
| 065 | 65 | 130 | 175 | 140 | 4-19 | 18 | 260 | 250 | 200 | 23.0 | 23.1 |
| 080 | 80 | 140 | 185 | 150 | 8-19 | 18 | 265 | 255 | 200 | 25.3 | 25.3 |
| 100 | 100 | 160 | 210 | 175 | 8-19 | 18 | 300 | 290 | 250 | 37.0 | 37.0 |
| 125 | 125 | 180 | 250 | 210 | 8-23 | 20 | 350 | 340 | 280 | 57.1 | 56.6 |
| 150 | 150 | 205 | 280 | 240 | 8-23 | 22 | 400 | 385 | 315 | 77.2 | 77.1 |
| 200 | 200 | 230 | 330 | 290 | 12-23 | 22 | 480 | 460 | 355 | 116.0 | 116.0 |
| 250 | 250 | 290 | 400 | 355 | 12-25 | 24 | 535 | 570 | 400 | 188.0 | 188.0 |
| 300 | 300 | 320 | 445 | 400 | 16-25 | 24 | 610 | 645 | 450 | 256.0 | 256.0 |
| 350 | 335 | 360 | 490 | 445 | 16-25 | 26 | 710 | 710 | 500 | 386 | 386 |
| 400 | 380 | 395 | 560 | 510 | 16-27 | 28 | 790 | 790 | 560 | 544 | 544 |
| 450 | 430 | 440 | 620 | 565 | 20-27 | 30 | 940 | 870 | 560 | 680 | 680 |
| 500 | 480 | 485 | 675 | 620 | 20-27 | 30 | 1020 | 1020 | 560 | 880 | 880 |
| 550 | 530 | 530 | 745 | 680 | 20-33 | 32 | 1350 | 1350 | 630 | 1278 | 1278 |

SERIES F 7321 - JIS 5K / SERIES F 7322 - JIS 5K Malleable Iron & Ductile Iron Globe, Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7321 Globe Valve



SERIES F 7322 Angle Valve

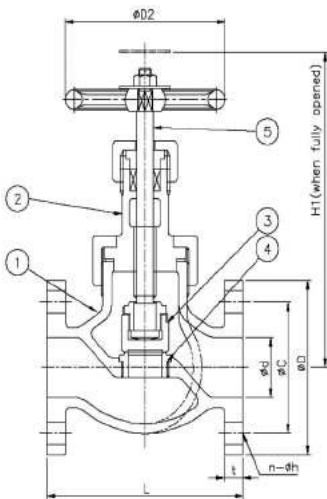
| Part No. | Material | |
|------------|-------------------------------|-------------------|
| | Class B | Class S |
| 1 - Body | Malleable Iron / Ductile Iron | |
| 2 - Bonnet | Malleable Iron / Ductile Iron | |
| 3 - Disc | Bronze | / Stainless Steel |
| 4 - Seat | Bronze | / Stainless Steel |
| 5 - Stem | Bronze | / Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

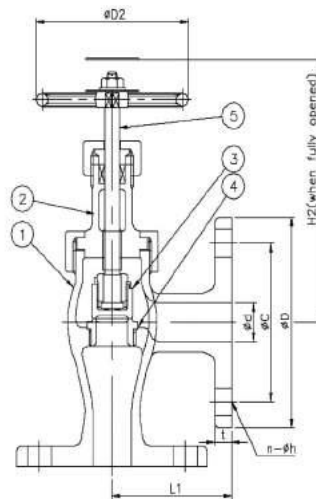
| SIZE | d | L | L1 | C | D | n-h | t | H1 | H2 | D2 | F7321(Kg) | F7322(Kg) |
|------|----|-----|----|----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 100 | 55 | 60 | 80 | 4-12 | 9 | 145 | 135 | 80 | 1.98 | 1.88 |
| 020 | 20 | 110 | 60 | 65 | 85 | 4-12 | 10 | 160 | 150 | 100 | 2.80 | 2.65 |
| 025 | 25 | 120 | 65 | 75 | 95 | 4-12 | 10 | 185 | 175 | 125 | 4.18 | 3.85 |
| 032 | 32 | 140 | 80 | 90 | 115 | 4-15 | 12 | 195 | 180 | 125 | 5.53 | 5.29 |
| 040 | 40 | 160 | 85 | 95 | 120 | 4-15 | 12 | 215 | 200 | 140 | 7.08 | 6.86 |

SERIES F 7323 - JIS 16K / SERIES F 7324 - JIS 16K Malleable Iron & Ductile Iron Globe, Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 16K



SERIES F 7323 Globe Valve



SERIES F 7324 Angle Valve

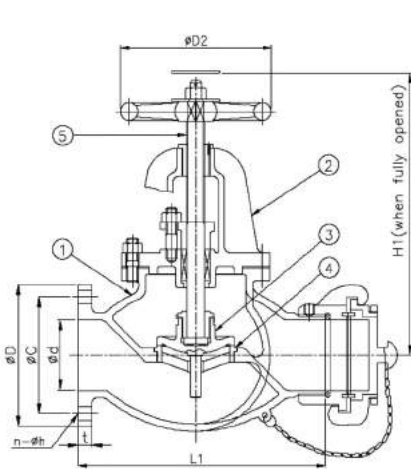
| Part No. | Material | |
|------------|-------------------------------|-------------------|
| | Class B | Class S |
| 1 - Body | Malleable Iron / Ductile Iron | |
| 2 - Bonnet | Malleable Iron / Ductile Iron | |
| 3 - Disc | Bronze | / Stainless Steel |
| 4 - Seat | Bronze | / Stainless Steel |
| 5 - Stem | Bronze | / Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

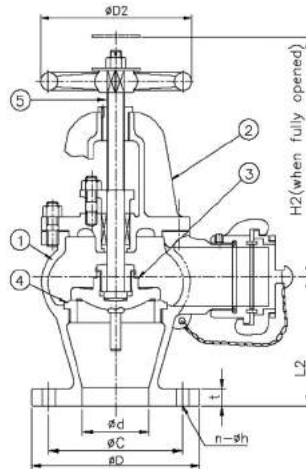
| SIZE | d | L | L1 | C | D | n-h | t | H1 | H2 | D2 | F7323(Kg) | F7324(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 110 | 70 | 70 | 95 | 4-15 | 12 | 145 | 135 | 80 | 2.91 | 2.85 |
| 020 | 20 | 120 | 75 | 75 | 100 | 4-15 | 14 | 160 | 150 | 100 | 3.85 | 3.75 |
| 025 | 25 | 130 | 85 | 90 | 125 | 4-19 | 14 | 185 | 175 | 125 | 5.57 | 5.36 |
| 032 | 32 | 160 | 95 | 100 | 135 | 4-19 | 16 | 195 | 180 | 125 | 7.40 | 7.05 |
| 040 | 40 | 180 | 100 | 105 | 140 | 4-19 | 16 | 215 | 200 | 140 | 9.29 | 8.80 |

SERIES F 7333 - JIS 5K , JIS 10K *Cast Iron Hose Globe Valve / Cast Iron Hose Angle Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K , 10K



SERIES F 7333 - Hose Globe Valve



SERIES F 7333 - Hose Angle Valve

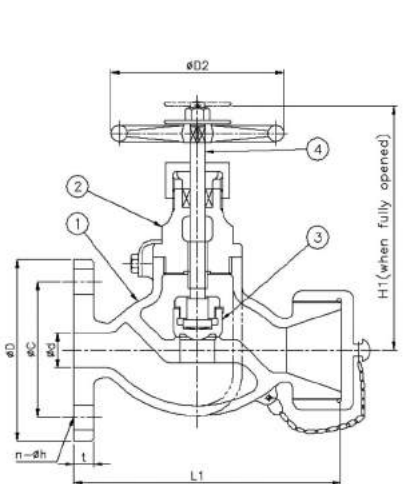
| Part No. | Material | |
|------------|-------------------------------|---------|
| | Class B | Class S |
| 1 - Body | Malleable Iron / Ductile Iron | |
| 2 - Bonnet | Malleable Iron / Ductile Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Bronze / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| Nominal Dia | Body | Seat |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

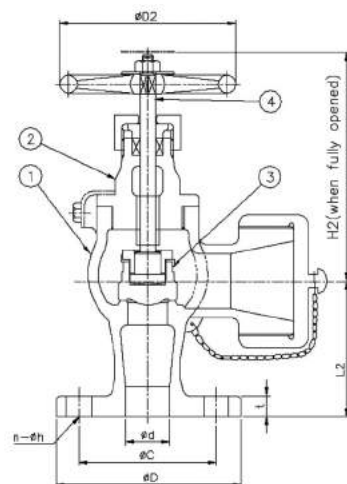
| SIZE | d | L1 | L2 | D | C | n-h | t | H1 | H2 | D2 | Globe(Kg) | Angle(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 5K | 50 | 215 | 100 | 130 | 105 | 4-15 | 16 | 270 | 240 | 160 | 14.7 | 12.8 |
| | 65 | 275 | 130 | 155 | 130 | 4-15 | 18 | 310 | 270 | 200 | 28.2 | 24.3 |
| 10K | 50 | 225 | 120 | 155 | 120 | 4-19 | 20 | 285 | 255 | 160 | 18.9 | 17.0 |
| | 65 | 275 | 130 | 175 | 140 | 4-19 | 22 | 310 | 270 | 200 | 28.2 | 24.3 |

SERIES F 7334 - JIS 5K , JIS 10K (15A~25A) *Bronze Hose Globe Valve / Bronze Hose Angle Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K , 10K



SERIES F 7334 - Hose Globe Valve



SERIES F 7334 - Hose Angle Valve

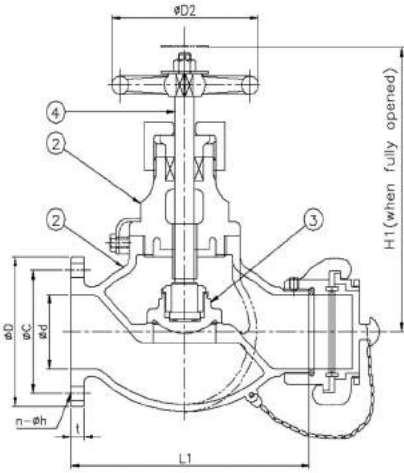
| Part No. | Material |
|------------|-------------|
| 1 - Body | Cast Bronze |
| 2 - Bonnet | Cast Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | brass |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| Nominal Dia | 5K | 10K |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

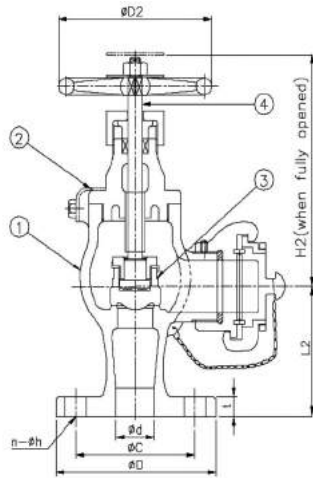
| SIZE | d | L1 | L2 | D | C | n-h | t | H1 | H2 | D2 | Globe(Kg) | Angle(Kg) |
|------|----|-----|----|-----|----|------|----|-----|-----|-----|-----------|-----------|
| 5K | 15 | 110 | 55 | 80 | 60 | 4-12 | 9 | 130 | 120 | 80 | 2.51 | 2.41 |
| | 25 | 125 | 65 | 95 | 75 | 4-12 | 10 | 160 | 145 | 125 | 3.55 | 3.44 |
| 10K | 15 | 115 | 70 | 95 | 70 | 4-15 | 12 | 130 | 120 | 80 | 2.76 | 2.72 |
| | 25 | 135 | 85 | 125 | 90 | 4-19 | 14 | 160 | 145 | 125 | 4.15 | 4.04 |

SERIES F 7334 - JIS 5K , JIS 10K (40A) Bronze Hose Globe Valve / Bronze Hose Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K , 10K



SERIES F 7334 – Hose Globe Valve



SERIES F 7334 – Hose Angle Valve

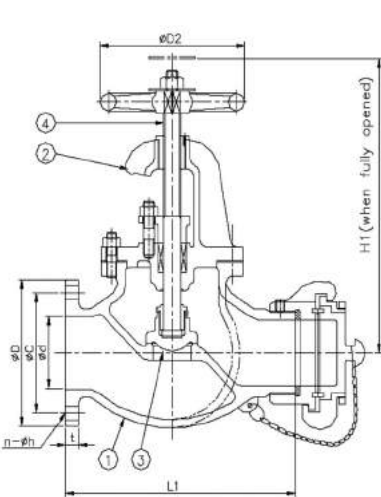
| Part No. | Material |
|------------|-------------|
| 1 – Body | Cast Bronze |
| 2 – Bonnet | Cast Bronze |
| 3 – Disc | Bronze |
| 4 – Stem | brass |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| Nominal Dia | 5K | 10K |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

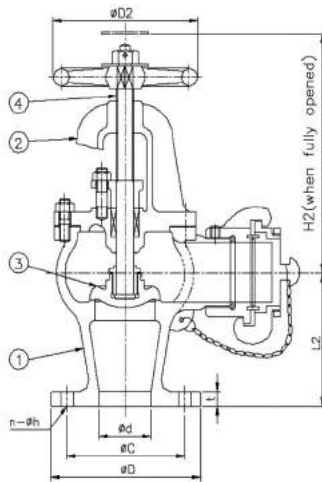
| SIZE | d | L1 | L2 | D | C | n-h | t | H1 | H2 | D2 | Globe(Kg) | Angle(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 5K | 40 | 160 | 85 | 120 | 95 | 4-15 | 12 | 190 | 165 | 140 | 6.26 | 5.91 |
| 10K | 40 | 175 | 100 | 140 | 105 | 4-19 | 16 | 190 | 165 | 140 | 8.43 | 8.19 |

SERIES F 7334 - JIS 5K , JIS 10K (50A~65A) Bronze Hose Globe Valve / Bronze Hose Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K , 10K



SERIES F 7334 – Hose Globe Valve



SERIES F 7334 – Hose Angle Valve

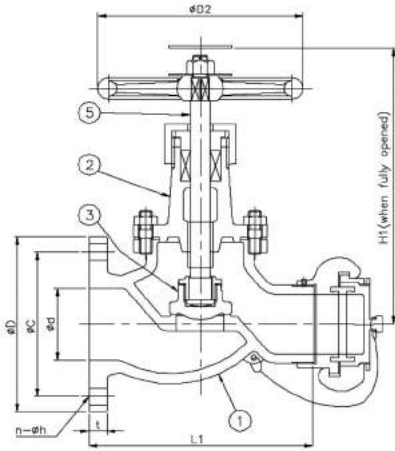
| Part No. | Material |
|------------|-------------|
| 1 – Body | Cast Bronze |
| 2 – Bonnet | Cast Bronze |
| 3 – Disc | Bronze |
| 4 – Stem | brass |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| Nominal Dia | 5K | 10K |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

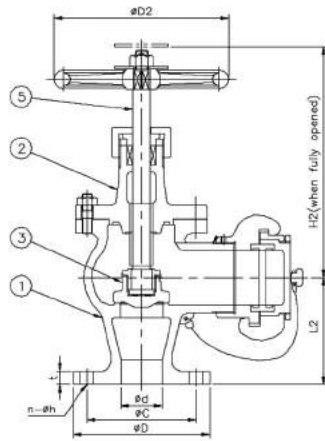
| SIZE | d | L1 | L2 | D | C | n-h | t | H1 | H2 | D2 | Globe(Kg) | Angle(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 5K | 50 | 210 | 100 | 130 | 105 | 4-15 | 14 | 255 | 225 | 160 | 12.9 | 11.0 |
| | 65 | 275 | 130 | 155 | 130 | 4-15 | 14 | 295 | 255 | 200 | 27.8 | 23.0 |
| 10K | 50 | 220 | 120 | 155 | 120 | 4-19 | 16 | 270 | 240 | 160 | 15.4 | 14.3 |
| | 65 | 275 | 130 | 175 | 140 | 4-19 | 18 | 295 | 255 | 200 | 27.8 | 23.0 |

SERIES F 7334 Small Type - JIS 5K , JIS 10K *Bronze Hose Globe Valve / Bronze Hose Angle Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K , 10K



SERIES F 7334 - Hose Globe Valve



SERIES F 7334 - Hose Angle Valve

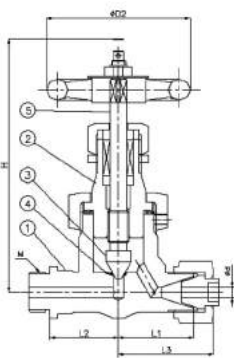
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Bronze |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| Nominal Dia | 5K | 10K |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

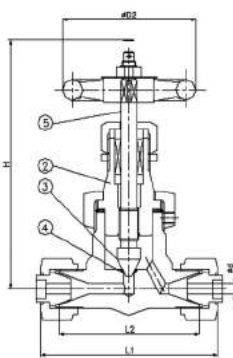
| SIZE | d | L1 | L2 | D | C | n-h | t | H1 | H2 | D2 |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|
| 5K | 50 | 205 | 120 | 130 | 105 | 4-15 | 14 | 233 | 240 | 140 |
| | 65 | 224 | 130 | 155 | 130 | 4-15 | 14 | 257 | 255 | 160 |
| 10K | 50 | 205 | 120 | 155 | 120 | 4-19 | 16 | 233 | 240 | 140 |
| | 65 | 224 | 130 | 175 | 140 | 4-19 | 18 | 257 | 255 | 160 |

SERIES F 7336 - JIS 30K *Forged Steel Globe Air Valve*

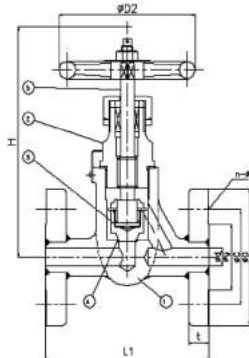
Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 30K



SERIES F 7336 - S TYPE



SERIES F 7336 - U TYPE



SERIES F 7336 - F TYPE

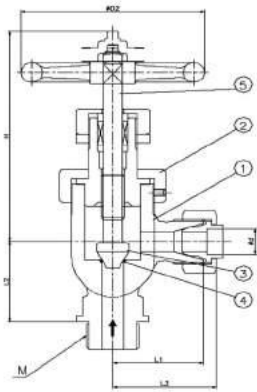
| Part No. | Material |
|------------|----------------------------|
| 1 - Body | Forged Steel |
| 2 - Bonnet | Forged Steel |
| 3 - Disc | Bronze / Stainless Steel |
| 4 - Stem | Deposite - Stainless Steel |
| 5 - Stem | Brass / Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 6.9 [69.0] |
| Seat | 5.06 [50.6] |

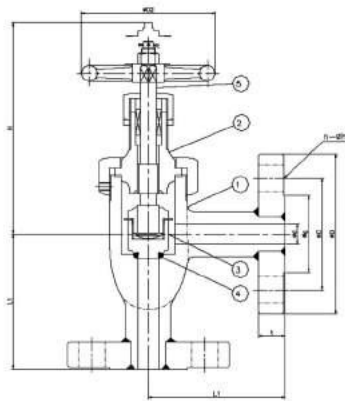
| TYPE | Size | d | L1 | L2 | L3 | D | C | n-h | t | g | M | H | D2 | Kg |
|------|------|----|-----|-----|----|-----|-----|------|----|----|---------|-----|-----|------|
| S | 6 | 6 | 42 | 38 | 51 | - | - | - | - | - | M20x1,5 | 130 | 80 | 1,26 |
| | 10 | 10 | 51 | 45 | 63 | - | - | - | - | - | M24x2,0 | 150 | 100 | 1,80 |
| U | 6 | 6 | 102 | 84 | - | - | - | - | - | - | - | 130 | 80 | 1,30 |
| | 10 | 10 | 126 | 102 | - | - | - | - | - | - | - | 150 | 100 | 1,94 |
| F | 15 | 15 | 150 | - | - | 115 | 80 | 4-19 | 18 | 55 | - | 200 | 125 | 5,60 |
| | 20 | 20 | 170 | - | - | 120 | 85 | 4-19 | 18 | 60 | - | 220 | 140 | 7,09 |
| | 25 | 25 | 200 | - | - | 130 | 95 | 4-19 | 20 | 70 | - | 250 | 140 | 9,46 |
| | 32 | 32 | 220 | - | - | 140 | 105 | 4-19 | 22 | 80 | - | 300 | 160 | - |
| | 40 | 40 | 220 | - | - | 160 | 120 | 4-23 | 22 | 90 | - | 300 | 160 | - |

SERIES F 7337 - JIS 30K Forged Steel Angle Air Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 30K



SERIES F 7337 - S TYPE



SERIES F 7337 - F TYPE

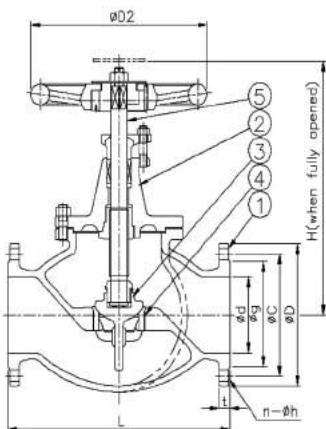
| Part No. | Material |
|------------|----------------------------|
| 1 - Body | Forged Steel |
| 2 - Bonnet | Forged Steel |
| 3 - Disc | Bronze / Stainless Steel |
| 4 - Stem | Deposite - Stainless Steel |
| 5 - Stem | Brass / Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 6.9 [69.0] |
| Seat | 5.06 [50.6] |

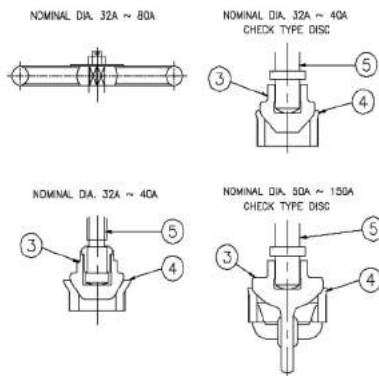
| TYPE | Size | d | L1 | L2 | L3 | D | C | n-h | t | g | M | H | D2 | Kg |
|------|------|----|-----|----|----|-----|----|------|----|----|---------|-----|-----|------|
| S | 6 | 6 | 42 | 38 | 51 | - | - | - | - | - | M20x1,5 | 115 | 80 | 1,26 |
| | 10 | 10 | 46 | 45 | 58 | - | - | - | - | - | M24x2,0 | 130 | 100 | 1,80 |
| | 15 | 15 | 90 | - | - | 115 | 80 | 4-19 | 18 | 55 | - | 175 | 125 | 5,60 |
| F | 20 | 20 | 95 | - | - | 120 | 85 | 4-19 | 18 | 60 | - | 185 | 140 | 7,09 |
| | 25 | 25 | 100 | - | - | 130 | 95 | 4-19 | 20 | 70 | - | 210 | 140 | 9,46 |

SERIES F 7340 - JIS 30K Cast Steel Globe Air Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 30K



SERIES F 7340 Globe Air Valve



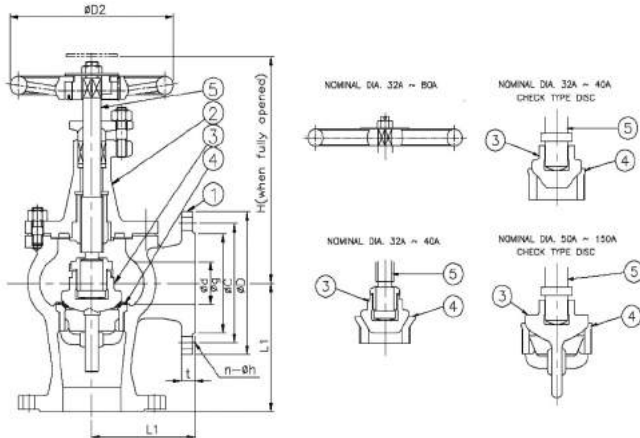
| Part No. | Material |
|------------|--------------------------------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel / High Brass Casting |
| 4 - Stem | Stainless Steel / High Brass Casting |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 6.9 [69.0] |
| Seat | 5.06 [50.6] |

| SIZE | d | L | D | C | g | n-h | t | f | H | D2 | F7340(Kg) |
|------|-----|-----|-----|-----|-----|-------|----|---|-----|-----|-----------|
| 032 | 32 | 220 | 140 | 105 | 80 | 4-19 | 22 | 2 | 270 | 180 | 16.7 |
| 040 | 40 | 240 | 160 | 120 | 90 | 4-23 | 22 | 2 | 280 | 180 | 21.1 |
| 050 | 50 | 260 | 165 | 130 | 105 | 8-19 | 22 | 2 | 350 | 224 | 28.8 |
| 065 | 65 | 310 | 200 | 160 | 130 | 8-23 | 26 | 2 | 390 | 250 | 48.7 |
| 080 | 80 | 340 | 210 | 170 | 140 | 8-23 | 28 | 2 | 430 | 280 | 60.9 |
| 100 | 100 | 390 | 240 | 195 | 160 | 8-25 | 32 | 2 | 480 | 315 | 86.0 |
| 125 | 125 | 470 | 275 | 230 | 195 | 8-25 | 36 | 2 | 570 | 400 | 139.0 |
| 150 | 150 | 540 | 325 | 275 | 235 | 12-27 | 38 | 2 | 655 | 450 | 199.0 |

SERIES F 7475 - JIS 30K Cast Steel Angle Air Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 30K



SERIES F 7475 Angle Air Valve

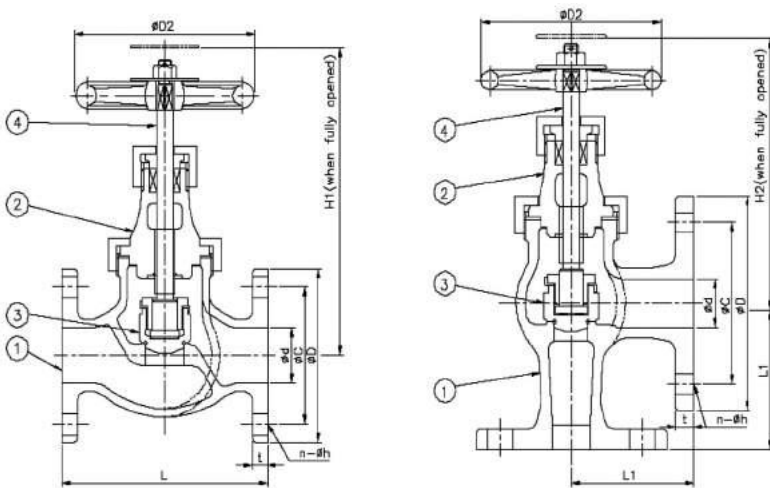
| Part No. | Material |
|------------|--------------------------------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel / High Brass Casting |
| 4 - Stem | Stainless Steel / High Brass Casting |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 6.9 [69.0] |
| Seat | 5.06 [50.6] |

| SIZE | d | L1 | D | C | g | n-h | t | f | H1 | D2 | F7475(Kg) |
|------|-----|-----|-----|-----|-----|-------|----|---|-----|-----|-----------|
| 032 | 32 | 114 | 140 | 105 | 80 | 4-19 | 22 | 2 | 245 | 180 | 16.6 |
| 040 | 40 | 121 | 160 | 120 | 90 | 4-23 | 22 | 2 | 255 | 180 | 20.3 |
| 050 | 50 | 146 | 165 | 130 | 105 | 8-19 | 22 | 2 | 310 | 224 | 27.6 |
| 065 | 65 | 165 | 200 | 160 | 130 | 8-23 | 26 | 2 | 340 | 250 | 46.6 |
| 080 | 80 | 178 | 210 | 170 | 140 | 8-23 | 28 | 2 | 380 | 280 | 55.6 |
| 100 | 100 | 205 | 240 | 195 | 160 | 8-25 | 32 | 2 | 435 | 315 | 80.9 |
| 125 | 125 | 230 | 275 | 230 | 195 | 8-25 | 36 | 2 | 510 | 400 | 126.0 |
| 150 | 150 | 250 | 325 | 275 | 235 | 12-27 | 38 | 2 | 585 | 450 | 177.0 |
| 200 | 200 | 300 | 370 | 320 | 280 | 12-27 | 42 | 2 | 685 | 500 | 258.0 |

SERIES F 7346 - JIS 5K / SERIES F 7347 - JIS 5K Bronze Globe Valve, Angle Valve - Union Bonnet

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7346 Globe Valve

SERIES F 7347 Angle Valve

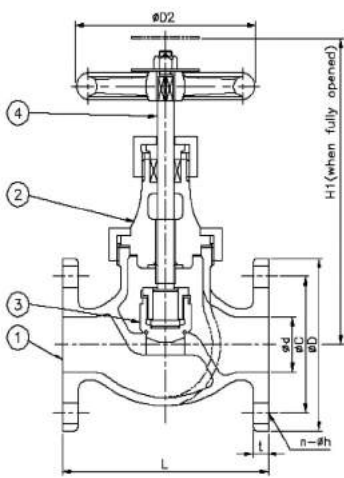
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

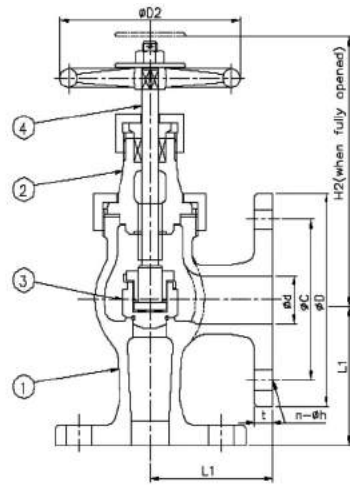
| SIZE | d | L | L1 | D | C | n-h | t | H1 | H2 | D2 | F7346(Kg) | F7347(Kg) |
|------|----|-----|----|-----|----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 100 | 55 | 80 | 60 | 4-12 | 9 | 155 | 145 | 80 | 2.21 | 2.15 |
| 020 | 20 | 110 | 60 | 85 | 65 | 4-12 | 10 | 165 | 155 | 100 | 3.04 | 2.94 |
| 025 | 25 | 120 | 65 | 95 | 75 | 4-12 | 10 | 185 | 175 | 125 | 3.97 | 3.82 |
| 032 | 32 | 140 | 80 | 115 | 90 | 4-15 | 12 | 195 | 175 | 125 | 5.23 | 4.99 |
| 040 | 40 | 160 | 85 | 120 | 95 | 4-15 | 12 | 210 | 190 | 140 | 6.94 | 6.40 |

SERIES F 7348 - JIS 16K / SERIES F 7349 - JIS 16K *Bronze Globe Valve, Angle Valve - Union Bonnet*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7348 Globe Valve



SERIES F 7349 Angle Valve

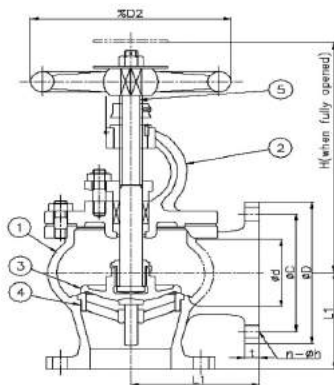
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

| SIZE | d | L | L1 | D | C | n-h | t | H1 | H2 | D2 | F7348(Kg) | F7349(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 110 | 70 | 95 | 70 | 4-15 | 12 | 155 | 145 | 80 | 2.96 | 2.94 |
| 020 | 20 | 120 | 75 | 100 | 75 | 4-15 | 14 | 165 | 155 | 100 | 3.92 | 3.88 |
| 025 | 25 | 130 | 85 | 125 | 90 | 4-19 | 14 | 185 | 175 | 125 | 5.65 | 5.53 |
| 032 | 32 | 160 | 95 | 135 | 100 | 4-19 | 16 | 195 | 175 | 125 | 7.24 | 6.98 |
| 040 | 40 | 180 | 100 | 140 | 105 | 4-19 | 16 | 210 | 190 | 140 | 9.12 | 8.57 |

SERIES F 7350 JIS 10K *Cast Steel Hull Angle Valve (50A ~ 300A)*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7350 50A~300A Hull Angle Valve

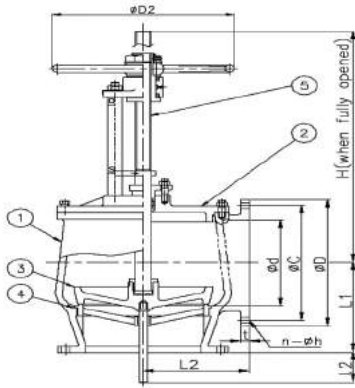
| Part No. | Material | |
|------------|------------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Stainless Steel, Cast Bronze | |
| 4 - Seat | Stainless Steel, Cast Bronze | |
| 5 - Stem | Stainless Steel, Brass | |

| Nominal Dia | Test Pressure MPa[Kgf/cm ²] | | | |
|-------------|---|---------|-----------|---------|
| | Body | | Seat | |
| | Class B | Class S | Class B | Class S |
| 200 or less | 1.1[11] | | 1.5[15] | |
| 250 &, 300 | 1.05[10.5] | 1.5[15] | 0.77[7.7] | 1.1[11] |

| SIZE | d | L1 | D | C | n-h | t | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|-----|-----|-------|
| 050 | 50 | 120 | 155 | 120 | 4-19 | 16 | 265 | 160 | 16.5 |
| 065 | 65 | 130 | 175 | 140 | 4-19 | 18 | 290 | 200 | 23.3 |
| 080 | 80 | 140 | 185 | 150 | 8-19 | 18 | 300 | 200 | 25.5 |
| 100 | 100 | 160 | 210 | 175 | 8-19 | 18 | 340 | 250 | 37.3 |
| 125 | 125 | 180 | 250 | 210 | 8-23 | 20 | 400 | 280 | 57.7 |
| 150 | 150 | 205 | 280 | 240 | 8-23 | 22 | 455 | 315 | 78.0 |
| 200 | 200 | 230 | 330 | 290 | 12-23 | 22 | 555 | 355 | 117.0 |
| 250 | 250 | 290 | 400 | 355 | 12-25 | 24 | 625 | 400 | 190.0 |
| 300 | 300 | 320 | 445 | 400 | 16-25 | 24 | 720 | 450 | 258.0 |

SERIES F 7350 JIS 10K Cast Steel Hull Angle Valve (350A ~ 800A)

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7350 350A~800A Hull Angle Valve

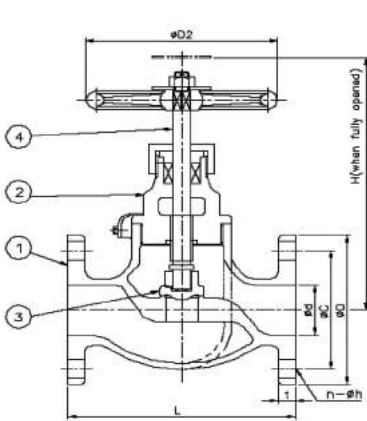
| Part No. | Material | |
|------------|-------------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Stainless Steel , Cast Bronze | |
| 4 - Seat | Stainless Steel , Cast Bronze | |
| 5 - Stem | Stainless Steel , Brass | |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|------------|
| Body | 0.5 [5] |
| Seat | 0.25 [2.5] |

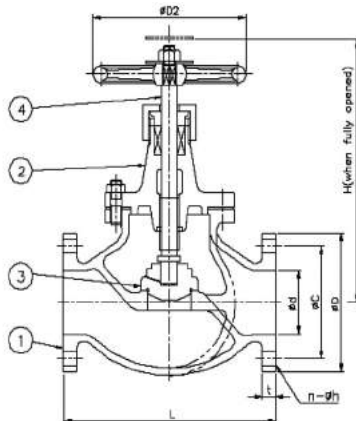
| SIZE | d | L1 | L2 | D | C | n-h | t | l2 | H | D2 | Kg |
|------|-----|-----|-----|------|-----|-------|----|-----|------|------|-------|
| 350 | 335 | 360 | 320 | 490 | 445 | 16-25 | 26 | 166 | 1010 | 500 | 376.0 |
| 400 | 380 | 400 | 350 | 560 | 510 | 16-27 | 28 | 195 | 1130 | 600 | 490.0 |
| 450 | 430 | 450 | 380 | 620 | 565 | 20-27 | 30 | 218 | 1250 | 710 | 632.0 |
| 500 | 480 | 500 | 430 | 675 | 620 | 20-27 | 30 | 242 | 1380 | 800 | 839.0 |
| 550 | 530 | 550 | 460 | 745 | 680 | 20-33 | 32 | 269 | 1505 | 900 | 1060 |
| 600 | 580 | 610 | 500 | 795 | 730 | 24-33 | 32 | 288 | 1630 | 900 | 1270 |
| 650 | 630 | 660 | 540 | 845 | 780 | 24-33 | 34 | 312 | 1765 | 1000 | 1590 |
| 700 | 680 | 710 | 570 | 905 | 840 | 24-33 | 34 | 334 | 1890 | 1000 | 1930 |
| 750 | 730 | 760 | 610 | 970 | 900 | 24-33 | 36 | 357 | 2005 | 1250 | 2300 |
| 800 | 780 | 810 | 650 | 1020 | 950 | 28-33 | 36 | 380 | 2115 | 1250 | 2720 |

SERIES F 7351 - JIS 5K Bronze Globe Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7351 DIA 15A~40A Globe Check Valve



DIA 50A~65A Globe Check Valve

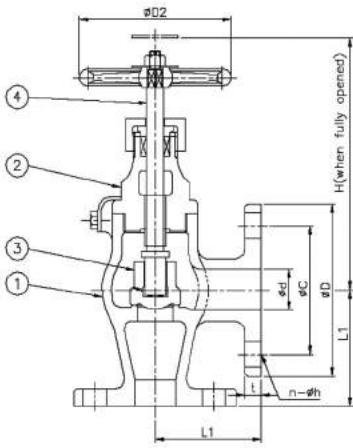
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

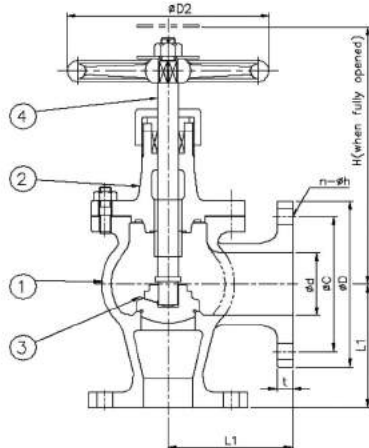
| SIZE | d | L | C | D | n-h | t | H | D2 | Kg |
|------|----|-----|-----|-----|------|----|-----|-----|------|
| 015 | 15 | 100 | 60 | 80 | 4-12 | 9 | 130 | 80 | 1.96 |
| 020 | 20 | 110 | 65 | 85 | 4-12 | 10 | 140 | 100 | 2.77 |
| 025 | 25 | 120 | 75 | 95 | 4-12 | 10 | 155 | 125 | 3.41 |
| 032 | 32 | 140 | 90 | 115 | 4-15 | 12 | 165 | 125 | 4.86 |
| 040 | 40 | 160 | 95 | 120 | 4-15 | 12 | 185 | 140 | 6.30 |
| 050 | 50 | 210 | 105 | 130 | 4-15 | 14 | 235 | 140 | 11.7 |
| 065 | 65 | 250 | 130 | 155 | 4-15 | 14 | 260 | 160 | 17.0 |

SERIES F 7352 - JIS 5K Bronze Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7301 DIA 15A~40A Angle Check Valve



DIA 50A~65A Angle Check Valve

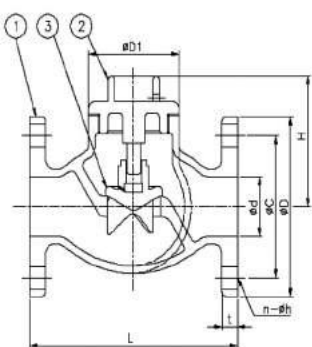
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

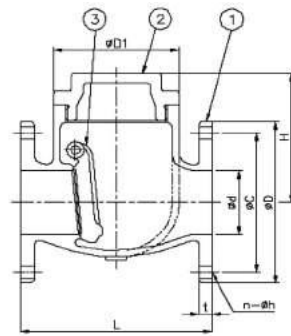
| SIZE | d | L1 | C | D | n-h | t | H | D2 | Kg |
|------|----|-----|-----|-----|------|----|-----|-----|------|
| 015 | 15 | 55 | 60 | 80 | 4-12 | 9 | 120 | 80 | 1.92 |
| 020 | 20 | 60 | 65 | 85 | 4-12 | 10 | 125 | 100 | 2.64 |
| 025 | 25 | 65 | 75 | 95 | 4-12 | 10 | 140 | 125 | 3.30 |
| 032 | 32 | 80 | 90 | 115 | 4-15 | 12 | 145 | 125 | 4.63 |
| 040 | 40 | 85 | 95 | 120 | 4-15 | 12 | 160 | 140 | 5.81 |
| 050 | 50 | 100 | 105 | 130 | 4-15 | 14 | 200 | 140 | 10.1 |
| 065 | 65 | 115 | 130 | 155 | 4-15 | 14 | 220 | 160 | 15.6 |

SERIES F 7356 - JIS 5K Bronze Lift Check Valve / SERIES F 7371 - JIS 5K Bronze Swing Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7356 Lift Check Valve



SERIES F 7371 Swing Check Valve

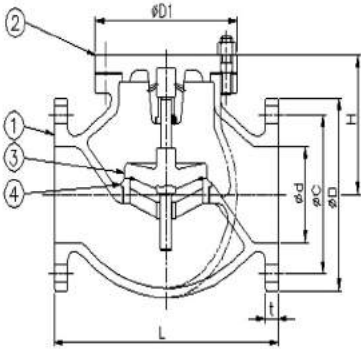
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

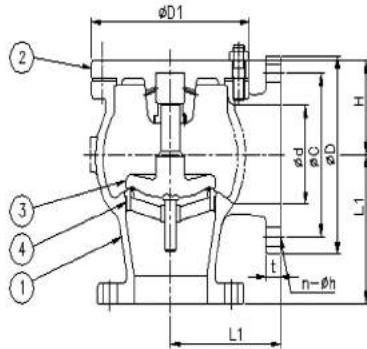
| Type | Size | d | L | C | D | n-h | t | H | D1 | Kg |
|-------------|------|----|-----|----|-----|------|----|----|----|------|
| Lift Check | 010 | 15 | 100 | 55 | 75 | 4-12 | 9 | 61 | 45 | 2.02 |
| | 015 | 15 | 100 | 60 | 80 | 4-12 | 9 | 61 | 45 | 2.02 |
| | 020 | 20 | 110 | 65 | 85 | 4-12 | 10 | 72 | 52 | 2.39 |
| | 025 | 25 | 120 | 75 | 95 | 4-12 | 10 | 77 | 52 | 2.39 |
| | 032 | 32 | 140 | 90 | 115 | 4-15 | 12 | 81 | 65 | 3.80 |
| | 040 | 40 | 160 | 95 | 120 | 4-15 | 12 | 91 | 70 | 4.95 |
| Swing Check | 015 | 25 | 110 | 60 | 80 | 4-12 | 10 | 69 | 58 | 2.24 |
| | 020 | 25 | 110 | 65 | 85 | 4-12 | 10 | 69 | 58 | 2.24 |
| | 025 | 25 | 110 | 75 | 95 | 4-12 | 10 | 69 | 58 | 2.24 |
| | 032 | 32 | 130 | 90 | 115 | 4-15 | 12 | 79 | 66 | 3.07 |
| | 040 | 40 | 140 | 95 | 120 | 4-15 | 12 | 93 | 75 | 4.34 |

SERIES F 7358 - JIS 5K / SERIES F 7359 - JIS 5K Cast Iron Lift Globe Check, Lift Angle Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7358 Globe Lift Check Valve



SERIES F 7359 Angle Lift Check Valve

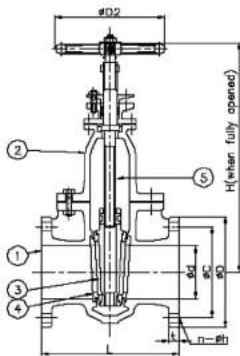
| Part No. | Material |
|------------|-----------|
| 1 - Body | Cast Iron |
| 2 - Bonnet | Cast Iron |
| 3 - Disc | Bronze |
| 4 - Seat | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

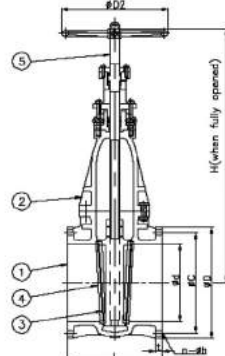
| SIZE | d | L | L1 | C | D | n-h | t | H | H1 | D2 | F7358 (Kg) | F7359 (Kg) |
|------|-----|-----|-----|-----|-----|------|----|-----|-----|-----|------------|------------|
| 050 | 50 | 210 | 100 | 105 | 130 | 4-15 | 16 | 107 | 77 | 140 | 11.3 | 9.5 |
| 065 | 65 | 250 | 115 | 130 | 155 | 4-15 | 18 | 124 | 81 | 160 | 16.8 | 13.8 |
| 080 | 80 | 280 | 130 | 145 | 180 | 4-19 | 18 | 129 | 84 | 190 | 23.2 | 18.9 |
| 100 | 100 | 340 | 150 | 165 | 200 | 8-19 | 20 | 146 | 96 | 215 | 32.5 | 25.6 |
| 125 | 125 | 410 | 170 | 200 | 235 | 8-19 | 20 | 166 | 108 | 245 | 48.1 | 36.7 |
| 150 | 150 | 480 | 190 | 230 | 265 | 8-19 | 22 | 188 | 125 | 270 | 67.9 | 50.9 |
| 200 | 200 | 570 | 220 | 280 | 320 | 8-23 | 24 | 235 | 157 | 335 | 109 | 95.0 |

SERIES F 7360 JIS 10K Cast Steel Hull Gate Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7360 (Size 50A~400A) Gate Valve



SERIES F 7360 (Size 450A~500A) Gate Valve

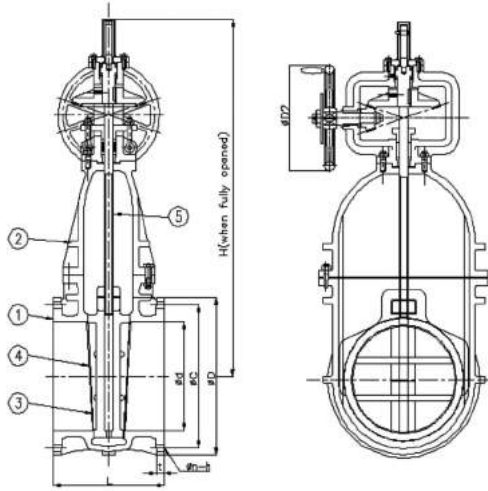
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Bronze / Stainless Steel | |
| 4 - Seat | Bronze / Stainless Steel | |
| 5 - Stem | Brass / Stainless Steel | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|----------|------------|
| Nominal Dia | Body | Seat |
| 400 or less | 1.5 [15] | 1.1 [11] |
| 450 and More | 0.5 [5] | 0.25 [2.5] |

| SIZE | d | L | D | C | n-h | T | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|------|-----|------|
| 050 | 50 | 200 | 155 | 120 | 4-19 | 16 | 300 | 140 | 17.1 |
| 065 | 65 | 220 | 175 | 140 | 4-19 | 18 | 350 | 160 | 26.5 |
| 080 | 80 | 230 | 185 | 150 | 8-19 | 18 | 400 | 180 | 31.5 |
| 100 | 100 | 250 | 210 | 175 | 8-19 | 18 | 450 | 200 | 44.9 |
| 125 | 125 | 270 | 250 | 210 | 8-23 | 20 | 520 | 224 | 63.2 |
| 150 | 150 | 290 | 280 | 240 | 8-23 | 22 | 580 | 250 | 82.3 |
| 200 | 200 | 310 | 330 | 290 | 12-23 | 22 | 700 | 315 | 130 |
| 250 | 250 | 340 | 400 | 355 | 12-25 | 24 | 840 | 400 | 203 |
| 300 | 300 | 380 | 445 | 400 | 16-25 | 24 | 960 | 450 | 291 |
| 350 | 335 | 420 | 490 | 445 | 16-25 | 26 | 1050 | 500 | 368 |
| 400 | 380 | 480 | 560 | 510 | 16-27 | 28 | 1150 | 560 | 507 |
| 450 | 430 | 450 | 620 | 565 | 20-27 | 30 | 1300 | 450 | 580 |
| 500 | 480 | 500 | 675 | 620 | 20-27 | 30 | 1420 | 500 | 735 |

SERIES F 7360 JIS 10K Cast Steel Hull Gate Valve - Worm Gear Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7360 (Size 550~800A) Ball Bearing Gate Valve

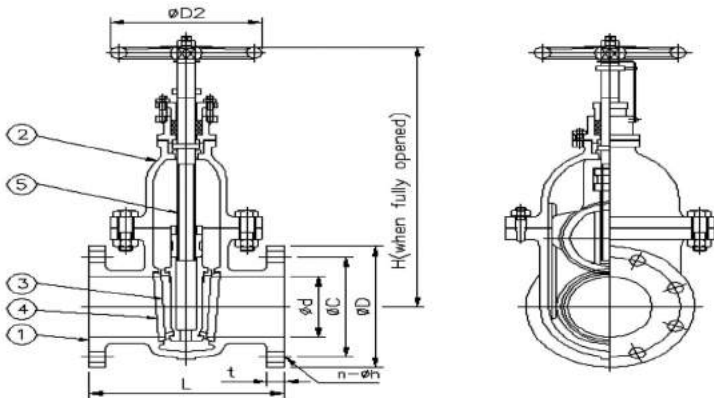
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.5 [5] |
| Seat | 0.25 [2.5] |

| SIZE | d | L | D | C | n-h | t | H | D2 | Kg |
|------|-----|-----|------|-----|-------|----|------|-----|------|
| 550 | 530 | 550 | 745 | 680 | 20-33 | 32 | 1550 | 500 | 930 |
| 600 | 580 | 600 | 795 | 730 | 24-33 | 32 | 1650 | 500 | 1120 |
| 650 | 630 | 650 | 845 | 780 | 24-33 | 34 | 1750 | 560 | 1330 |
| 700 | 680 | 700 | 905 | 840 | 24-33 | 34 | 1850 | 560 | 1590 |
| 750 | 730 | 750 | 970 | 900 | 24-33 | 36 | 1950 | 630 | 1950 |
| 800 | 780 | 800 | 1020 | 950 | 28-33 | 36 | 2050 | 630 | 2260 |

SERIES F 7363 JIS 5K Cast Iron & Cast Steel Gate Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7363 (Size 50~400A) Gate Valve

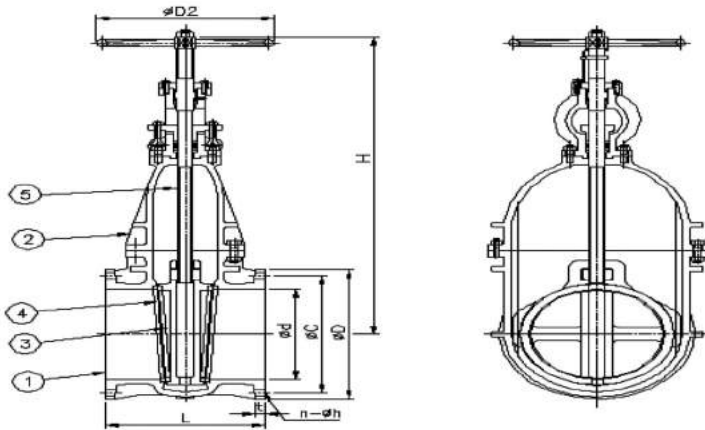
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Iron / Cast Steel | |
| 2 - Bonnet | Cast Iron / Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Bronze | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|------------|
| SIZE | Body | Seat |
| 400 or less | 1.05 [10.5] | 0.77 [7.7] |

| SIZE | d | L | D | C | n-h | t | | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|----|------|-----|------|
| | | | | | | FC | SC | | | |
| 050 | 50 | 180 | 130 | 105 | 4-15 | 16 | 14 | 285 | 125 | 13.5 |
| 065 | 65 | 190 | 155 | 130 | 4-15 | 18 | 14 | 330 | 140 | 19.0 |
| 080 | 80 | 200 | 180 | 145 | 4-19 | 18 | 14 | 380 | 160 | 24.2 |
| 100 | 100 | 230 | 200 | 165 | 8-19 | 20 | 16 | 430 | 180 | 35.3 |
| 125 | 125 | 250 | 235 | 200 | 8-19 | 20 | 16 | 495 | 200 | 48.1 |
| 150 | 150 | 270 | 265 | 230 | 8-19 | 22 | 18 | 560 | 224 | 65.3 |
| 200 | 200 | 290 | 320 | 280 | 8-23 | 24 | 20 | 680 | 280 | 103 |
| 250 | 250 | 330 | 385 | 345 | 12-23 | 26 | 22 | 800 | 355 | 164 |
| 300 | 300 | 370 | 430 | 390 | 12-23 | 28 | 22 | 920 | 400 | 236 |
| 350 | 335 | 410 | 480 | 435 | 12-25 | 30 | 24 | 1000 | 450 | 307 |
| 400 | 380 | 470 | 540 | 495 | 16-25 | 30 | 24 | 1100 | 500 | 405 |

SERIES F 7363 JIS 5K Cast Iron & Cast Steel Gate Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES F 7363 (Size 450~600A) Gate Valve

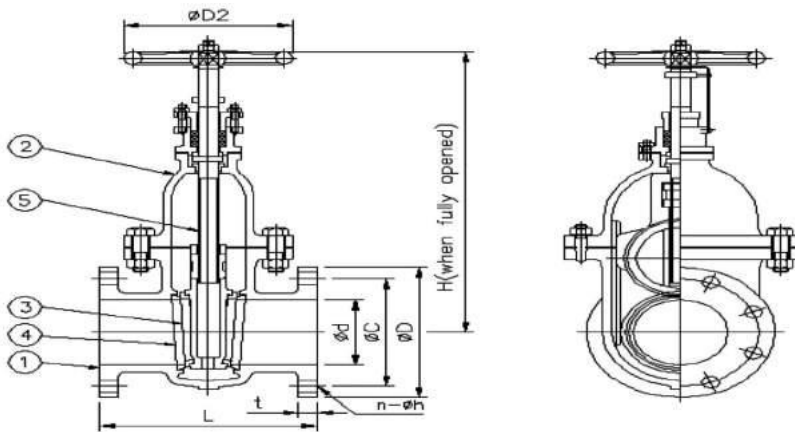
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Iron / Cast Steel | |
| 2 - Bonnet | Cast Iron / Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|------------|------------|
| SIZE | Body | Seat |
| 450 or less | 0.75 [7.5] | 0.55 [5.5] |

| SIZE | d | L | D | C | n-h | t | | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|----|------|-----|------|
| | | | | | | FC | SC | | | |
| 450 | 430 | 500 | 605 | 555 | 16-25 | 30 | 24 | 1420 | 560 | 556 |
| 500 | 480 | 550 | 655 | 605 | 20-25 | 32 | 24 | 1500 | 560 | 700 |
| 550 | 530 | 600 | 720 | 665 | 20-27 | 32 | 26 | 1650 | 630 | 878 |
| 600 | 580 | 660 | 770 | 715 | 20-27 | 32 | 26 | 1680 | 710 | 1120 |

SERIES F 7364 JIS 10K Cast Iron Gate Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7364 (Size 50A~400A) Gate Valve

SERIES F 7364 (Size 450A~600A) Gate Valve

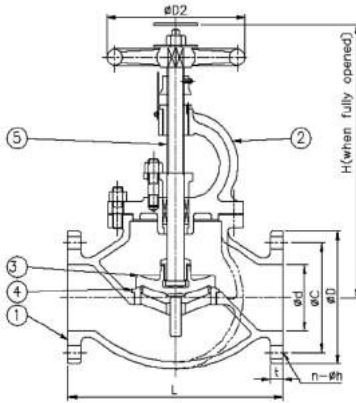
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Iron | |
| 2 - Bonnet | Cast Iron | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|------------|-------------|
| SIZE | Body | Seat |
| 400 or less | 2.1 [21.0] | 1.54 [15.4] |
| 450 or more | 1.8 [18.0] | 1.32 [13.2] |

| SIZE | d | L | D | C | n-h | t | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|------|-----|------|
| 050 | 50 | 200 | 155 | 120 | 4-19 | 20 | 300 | 140 | 19.4 |
| 065 | 65 | 220 | 175 | 140 | 4-19 | 22 | 350 | 160 | 27.6 |
| 080 | 80 | 230 | 185 | 150 | 8-19 | 22 | 400 | 180 | 33.0 |
| 100 | 100 | 250 | 210 | 175 | 8-19 | 24 | 450 | 200 | 45.8 |
| 125 | 125 | 270 | 250 | 210 | 8-23 | 24 | 520 | 224 | 65.9 |
| 150 | 150 | 290 | 280 | 240 | 8-23 | 26 | 580 | 250 | 86.0 |
| 200 | 200 | 320 | 330 | 290 | 12-23 | 26 | 700 | 315 | 136 |
| 250 | 250 | 380 | 400 | 355 | 12-25 | 30 | 840 | 400 | 230 |
| 300 | 300 | 440 | 445 | 400 | 16-25 | 32 | 960 | 450 | 331 |
| 350 | 335 | 500 | 490 | 445 | 16-25 | 34 | 1050 | 500 | 433 |
| 400 | 380 | 590 | 560 | 510 | 16-27 | 36 | 1150 | 560 | 597 |
| 450 | 430 | 640 | 620 | 565 | 20-27 | 38 | 1208 | 560 | 704 |
| 500 | 480 | 710 | 675 | 620 | 20-27 | 40 | 1320 | 560 | 901 |
| 550 | 530 | 780 | 745 | 680 | 20-33 | 42 | 1320 | 630 | 1192 |
| 600 | 580 | 850 | 795 | 730 | 24-33 | 44 | 1680 | 710 | 1490 |

Series F 7365 - JIS 10K Cast Steel Hull Globe Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7365 Hull Globe Valve

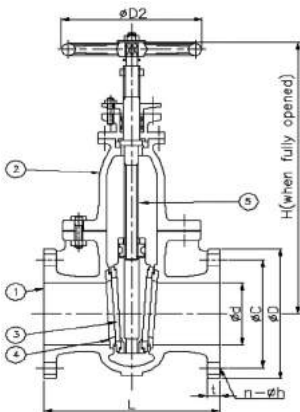
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| SIZE | Test Pressure MPa[Kgf/cm ²] | | | |
|-------------|---|----------|-----------|----------|
| | Body | | Seat | |
| | Class B | Class S | Class B | Class S |
| 200 or less | 1.5 [15] | | 1.1 [11] | |
| 250 or more | 10.5[1,06] | 1.47[15] | 0.76[7.7] | 1.08[11] |

| SIZE | d | L | D | C | n-h | t | H | D2 | Kg |
|------|-----|------|-----|-----|-------|----|------|-----|------|
| 050 | 50 | 220 | 155 | 120 | 4-19 | 16 | 295 | 160 | 18.1 |
| 065 | 65 | 270 | 175 | 140 | 4-19 | 18 | 330 | 200 | 26.3 |
| 080 | 80 | 300 | 185 | 150 | 8-19 | 18 | 345 | 200 | 30.0 |
| 100 | 100 | 350 | 210 | 175 | 8-19 | 18 | 395 | 250 | 45.1 |
| 125 | 125 | 420 | 250 | 210 | 8-23 | 20 | 465 | 280 | 70.9 |
| 150 | 150 | 490 | 280 | 240 | 8-23 | 22 | 525 | 315 | 97.2 |
| 200 | 200 | 570 | 330 | 290 | 12-23 | 22 | 640 | 335 | 160 |
| 250 | 250 | 740 | 400 | 355 | 12-25 | 24 | 735 | 400 | 259 |
| 300 | 300 | 840 | 445 | 400 | 16-25 | 24 | 845 | 450 | 372 |
| 350 | 335 | 940 | 490 | 445 | 16-25 | 30 | 952 | 500 | 513 |
| 400 | 380 | 1050 | 560 | 510 | 16-27 | 30 | 1150 | 560 | 780 |
| 450 | 430 | 1080 | 620 | 565 | 20-27 | 30 | 1300 | 560 | 890 |

SERIES F 7366 JIS 10K Cast Steel Gate Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES F 7366 10K Gate Valve

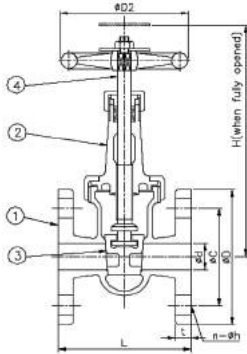
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Steel | |
| 2 - Bonnet | Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 2.1 [21.0] |
| Seat | 1.54 [15.4] |

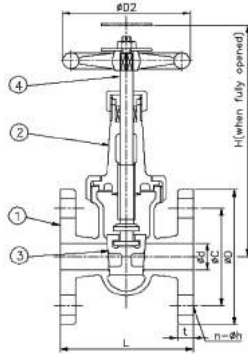
| SIZE | d | L | D | C | n-h | t | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|------|-----|------|
| 050 | 50 | 200 | 155 | 120 | 4-19 | 16 | 300 | 140 | 17.1 |
| 065 | 65 | 220 | 175 | 140 | 4-19 | 18 | 350 | 160 | 26.5 |
| 080 | 80 | 230 | 185 | 150 | 8-19 | 18 | 400 | 180 | 31.5 |
| 100 | 100 | 250 | 210 | 175 | 8-19 | 18 | 450 | 200 | 44.9 |
| 125 | 125 | 270 | 250 | 210 | 8-23 | 20 | 520 | 224 | 63.2 |
| 150 | 150 | 290 | 280 | 240 | 8-23 | 22 | 580 | 250 | 82.3 |
| 200 | 200 | 310 | 330 | 290 | 12-23 | 22 | 700 | 315 | 130 |
| 250 | 250 | 340 | 400 | 355 | 12-25 | 24 | 840 | 400 | 203 |
| 300 | 300 | 380 | 445 | 400 | 16-25 | 24 | 960 | 450 | 291 |
| 350 | 335 | 420 | 490 | 445 | 16-25 | 26 | 1050 | 500 | 368 |
| 400 | 380 | 480 | 560 | 510 | 16-27 | 28 | 1150 | 560 | 507 |

SERIES F 7367 - JIS 5K / SERIES F 7368 - JIS 10K *Bronze Gate Valve (Rising Stem)*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 10K



SERIES F 7367 5K Gate Valve



SERIES F 7368 10K Gate Valve

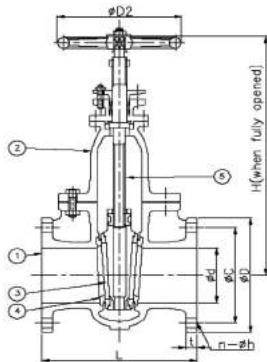
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|------------|-------------|
| SIZE | Body | Seat |
| 5K | 1,5 [10,5] | 0,77 [7,7] |
| 10K | 2,1 [21,0] | 1,54 [15,4] |

| Size | d | L | D | C | n-h | t | H | D2 | Kg | |
|---------------|-----|----|-----|-----|-----|------|----|-----|-----|------|
| F7367 -5K | 015 | 15 | 90 | 80 | 60 | 4-12 | 9 | 175 | 80 | 2,29 |
| | 020 | 20 | 100 | 85 | 65 | 4-12 | 10 | 200 | 80 | 2,98 |
| | 025 | 25 | 110 | 95 | 75 | 4-12 | 10 | 220 | 100 | 4,10 |
| | 032 | 32 | 130 | 115 | 90 | 4-15 | 12 | 250 | 100 | 5,79 |
| | 040 | 40 | 140 | 120 | 95 | 4-15 | 12 | 290 | 125 | 7,78 |
| F7368 -10K | 015 | 15 | 100 | 95 | 70 | 4-15 | 12 | 175 | 80 | 2,96 |
| | 020 | 20 | 110 | 100 | 75 | 4-15 | 14 | 200 | 80 | 3,89 |
| | 025 | 25 | 120 | 125 | 90 | 4-19 | 14 | 220 | 100 | 5,82 |
| | 032 | 32 | 140 | 135 | 100 | 4-19 | 16 | 250 | 100 | 7,52 |
| | 040 | 40 | 150 | 140 | 105 | 4-19 | 16 | 290 | 125 | 9,71 |

SERIES F 7369 JIS 16K *Cast Iron & Cast Steel Gate Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 16K



SERIES F 7369 Gate Valve

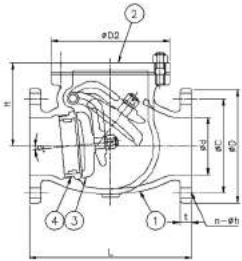
| Part No. | Material | |
|------------|--------------------------|---------|
| | Class S | Class B |
| 1 - Body | Cast Iron / Cast Steel | |
| 2 - Bonnet | Cast Iron / Cast Steel | |
| 3 - Disc | Stainless Steel / Bronze | |
| 4 - Seat | Stainless Steel / Bronze | |
| 5 - Stem | Stainless Steel / Brass | |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 2,4 [24,0] |
| Seat | 1,76 [17,6] |

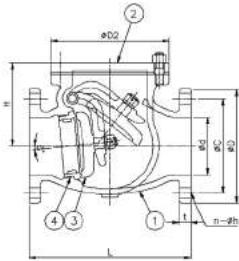
| SIZE | d | L | D | C | n-h | t | | H | D2 | Kg |
|------|-----|-----|-----|-----|-------|----|----|------|-----|------|
| | | | | | | FC | SC | | | |
| 050 | 50 | 210 | 155 | 120 | 8-19 | 20 | 16 | 300 | 140 | 17,1 |
| 065 | 65 | 240 | 175 | 140 | 8-19 | 22 | 18 | 350 | 160 | 26,5 |
| 080 | 80 | 260 | 200 | 160 | 8-23 | 24 | 20 | 400 | 180 | 31,5 |
| 100 | 100 | 290 | 225 | 185 | 8-23 | 26 | 22 | 450 | 200 | 44,9 |
| 125 | 125 | 310 | 270 | 225 | 8-25 | 26 | 22 | 520 | 224 | 63,2 |
| 150 | 150 | 330 | 305 | 260 | 12-25 | 28 | 24 | 580 | 250 | 82,3 |
| 200 | 200 | 370 | 350 | 305 | 12-25 | 30 | 26 | 700 | 315 | 130 |
| 250 | 250 | 430 | 430 | 380 | 12-27 | 34 | 28 | 840 | 400 | 203 |
| 300 | 300 | 490 | 480 | 430 | 16-27 | 36 | 30 | 1010 | 560 | 430 |
| 350 | 335 | 540 | 540 | 480 | 16-33 | 38 | 34 | 1070 | 560 | 580 |
| 400 | 380 | 610 | 605 | 540 | 16-33 | 42 | 38 | 1185 | 630 | 780 |

SERIES F 7372 - JIS 5K / SERIES F 7373 - JIS 10K Cast Iron Swing Check Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 10K



SERIES F 7372 5K Swing Check Valve3



SERIES F 7373 10K Swing Check Valve

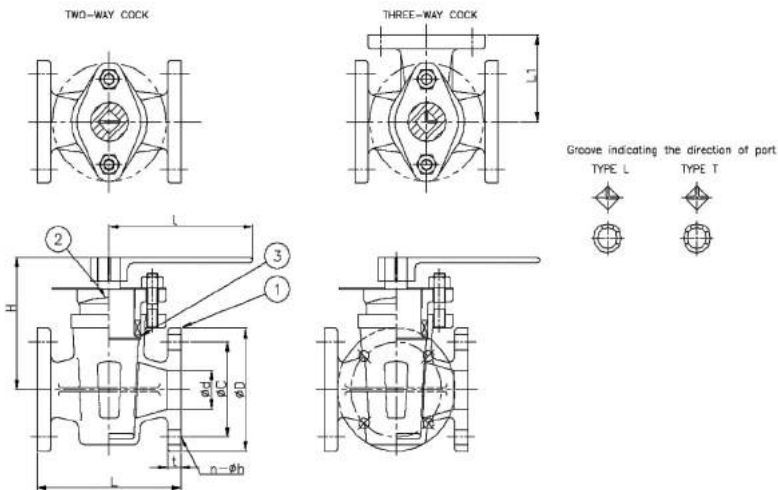
| Part No. | Material |
|------------|-----------|
| 1 - Body | Cast Iron |
| 2 - Bonnet | Cast Iron |
| 3 - Disc | Bronze |
| 4 - Seat | Bronze |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| SIZE | 5K | 10K |
| Body | 1.05 [10.5] | 2.1 [21.0] |
| Seat | 0.77 [7.7] | 1.54 [15.4] |

| Size | d | L | C | D | n-h | t | H | D2 | Kg | |
|---------------|-----|-----|-----|-----|-------|-------|-----|-----|-----|---------|
| F7372 -5K | 050 | 50 | 190 | 105 | 130 | 4-15 | 16 | 97 | 135 | 9.06 |
| | 065 | 65 | 220 | 130 | 155 | 4-15 | 18 | 119 | 155 | 13.9 |
| | 080 | 80 | 250 | 145 | 180 | 4-19 | 18 | 129 | 185 | 19.1 |
| | 100 | 100 | 280 | 165 | 200 | 8-19 | 20 | 146 | 205 | 27.1 |
| | 125 | 125 | 330 | 200 | 235 | 8-19 | 20 | 171 | 235 | 39.0 |
| | 150 | 150 | 380 | 230 | 265 | 8-19 | 22 | 198 | 265 | 53.7 |
| | 200 | 200 | 460 | 280 | 320 | 8-23 | 24 | 235 | 330 | 94.4 |
| | 250 | 250 | 550 | 345 | 385 | 12-23 | 26 | 290 | 390 | 150 |
| F7373 -10K | 050 | 50 | 210 | 120 | 155 | 4-19 | 20 | 109 | 150 | 13.6 |
| | 065 | 65 | 240 | 140 | 175 | 4-19 | 22 | 126 | 170 | 19.6 |
| | 080 | 80 | 270 | 150 | 185 | 8-19 | 22 | 136 | 185 | 22.6100 |
| | 100 | 100 | 300 | 175 | 210 | 8-19 | 24 | 153 | 205 | 30.9 |
| | 125 | 125 | 350 | 210 | 250 | 8-23 | 24 | 180 | 250 | 49.2 |
| | 150 | 150 | 400 | 240 | 280 | 8-23 | 26 | 205 | 275 | 64.9 |
| | 200 | 200 | 480 | 290 | 330 | 12-23 | 26 | 242 | 330 | 103 |
| | 250 | 250 | 550 | 355 | 400 | 12-25 | 30 | 290 | 390 | - |
| 300 | 300 | 700 | 400 | 445 | 16-25 | 32 | 290 | 470 | - | |
| 350 | 335 | 787 | 445 | 490 | 16-25 | 34 | - | - | - | |

SERIES F 7381 - JIS 5K Bronze Cock Valve - 2Way & 3Way

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7381 Cock Valve

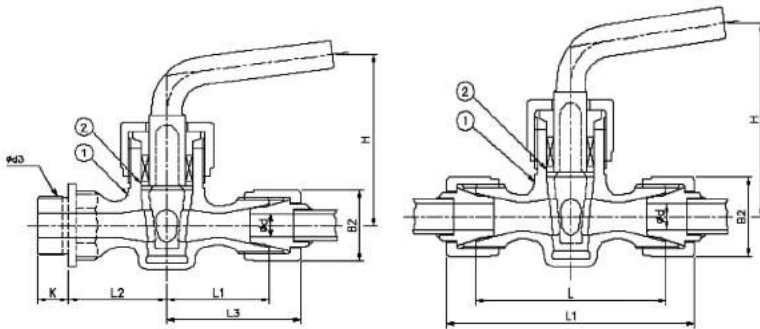
| Part No. | Material |
|---------------|----------|
| 1 - Body | Bronze |
| 2 - Plug | Bronze |
| 3 - Seat Ring | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.75 [7.5] |
| plug | 0.55 [5.5] |

| SIZE | d | L | L1 | C | D | n-h | t | H | l | 2Way Kg | 3Way | kg |
|------|----|-----|-----|-----|-----|------|----|-----|-----|---------|------|----|
| 025 | 25 | 130 | 65 | 75 | 95 | 4-12 | 10 | 105 | 160 | 3.13 | 3.81 | |
| 032 | 32 | 160 | 80 | 90 | 115 | 4-15 | 12 | 125 | 180 | 5.02 | 6.31 | |
| 040 | 40 | 170 | 85 | 95 | 120 | 4-15 | 12 | 135 | 190 | 6.66 | 7.93 | |
| 050 | 50 | 190 | 95 | 105 | 130 | 4-15 | 14 | 163 | 200 | 10 | 11.8 | |
| 065 | 65 | 220 | 110 | 130 | 155 | 4-15 | 14 | 201 | 250 | 16.7 | 19 | |

SERIES F 7387 - JIS 16K Bronze Cock Valve - S & U TYPE

Manufactured in accordance to JIS F 7400



SERIES F 7387 "S" Type

SERIES F 7387 "U" Type

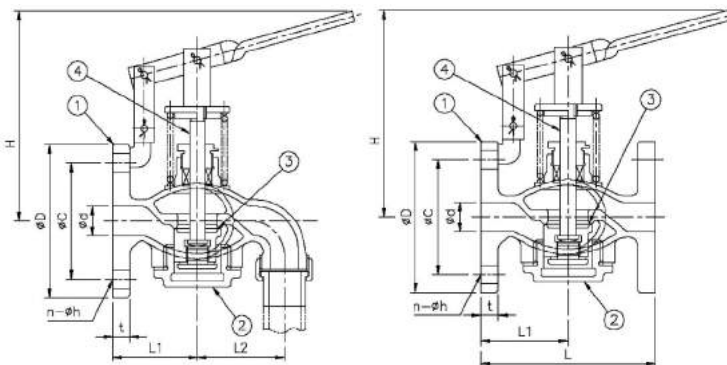
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-----------|------------|
| Nominal Dia | BODY | PLUG |
| 6 AND 10 | 3[30.0] | 2.20[22.0] |
| 15 AND 20 | 2.4[24.0] | 1.76[17.6] |

| TYPE | Size | Size | | L | L1 | L2 | L3 | K | d3 | B2 | H |
|--------|------|--------|-------|----|-----|----|----|----|---------|----|-----|
| | | Copper | Steel | | | | | | | | |
| S TYPE | 6 | 8/10 | 10.5 | - | 28 | 28 | 37 | 12 | M20x1.5 | 30 | 65 |
| | 10 | 15 | 17.3 | - | 35 | 35 | 52 | 16 | M24x2.0 | 41 | 73 |
| | 15 | 20 | 21.7 | - | 45 | 45 | 58 | 22 | M30x2.0 | 46 | 92 |
| | 20 | 25 | 27.2 | - | 50 | 50 | 65 | 24 | M36x2.0 | 50 | 104 |
| U TYPE | 6 | 8/10 | 10.5 | 56 | 74 | - | - | - | - | 30 | 65 |
| | 10 | 15 | 17.3 | 80 | 104 | - | - | - | - | 41 | 73 |

SERIES F 7398 - JIS 5K , 10K Bronze Self Closing Drain Valve - F & U Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 10K



SERIES F 7398 - "U" Type

SERIES F 7398- "F" Type

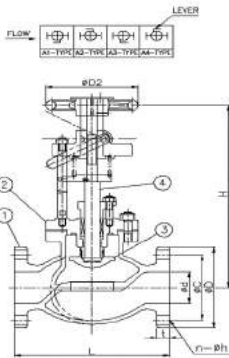
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.15 [1.5] |
| Seat | 0.11 [1.1] |

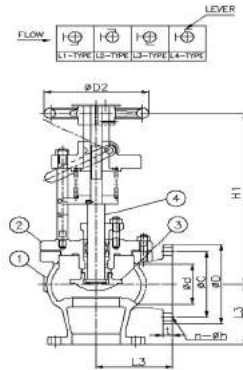
| | Size | d | D | C | n-h | t | L | L1 | L2 | H |
|---------------|------|----|-----|-----|------|----|-----|------|------|-----|
| F7398 -5K | 015 | 15 | 80 | 60 | 4-12 | 10 | 105 | 52.5 | 52.5 | 110 |
| | 020 | 20 | 85 | 65 | 4-12 | 10 | 130 | 65 | 65 | 140 |
| | 025 | 25 | 95 | 75 | 4-12 | 10 | 130 | 65 | 65 | 140 |
| | 040 | 40 | 120 | 95 | 4-15 | 12 | 180 | 90 | 100 | 235 |
| | 050 | 50 | 130 | 105 | 4-15 | 14 | 220 | 110 | 130 | 275 |
| F7398 -10K | 015 | 15 | 95 | 70 | 4-15 | 12 | 105 | 52.5 | 52.5 | 110 |
| | 020 | 20 | 100 | 75 | 4-15 | 14 | 130 | 65 | 65 | 140 |
| | 025 | 25 | 125 | 90 | 4-19 | 14 | 130 | 65 | 65 | 140 |
| | 040 | 40 | 135 | 105 | 4-19 | 16 | 180 | 90 | 100 | 235 |
| | 050 | 50 | 155 | 120 | 4-19 | 16 | 220 | 110 | 130 | 275 |

SERIES F 7399 - JIS 5K , 16K Emergency Shut-Off Valves - A & L Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 16K



SERIES F 7399 - "A" Type



SERIES F 7399 - "L" Type

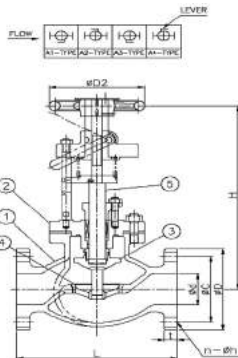
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.7 [7.0] |
| Seat | 0.2 [2.0] |

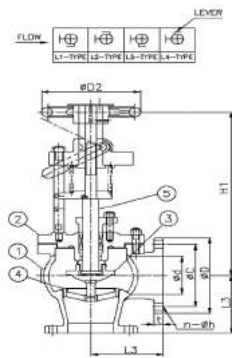
| | Size | d | D | C | n-h | t | H | H1 | L | L3 | D2 |
|---------------|------|----|-----|-----|------|----|-----|-----|-----|-----|-----|
| F7399 -5K | 015 | 15 | 80 | 60 | 4-12 | 9 | 260 | 240 | 110 | 75 | 120 |
| | 020 | 20 | 85 | 65 | 4-12 | 10 | 253 | 250 | 120 | 85 | 120 |
| | 025 | 25 | 95 | 75 | 4-12 | 10 | 253 | 250 | 120 | 85 | 140 |
| | 032 | 32 | 115 | 90 | 4-15 | 12 | 290 | 275 | 160 | 100 | 140 |
| | 040 | 40 | 120 | 95 | 4-15 | 12 | 290 | 275 | 160 | 100 | 140 |
| F7399 -10K | 015 | 15 | 95 | 70 | 4-15 | 12 | 260 | 240 | 110 | 75 | 120 |
| | 020 | 20 | 100 | 75 | 4-15 | 14 | 253 | 250 | 130 | 85 | 120 |
| | 025 | 25 | 125 | 90 | 4-19 | 14 | 253 | 250 | 130 | 85 | 140 |
| | 032 | 32 | 135 | 100 | 4-19 | 16 | 290 | 275 | 170 | 100 | 140 |
| | 040 | 40 | 145 | 105 | 4-19 | 16 | 290 | 275 | 170 | 100 | 140 |

SERIES F 7399 - JIS 5K , 10K Emergency Shut-Off Valves - A & L Type

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 10K



SERIES F 7399 - "A" Type



SERIES F 7399 - "L" Type

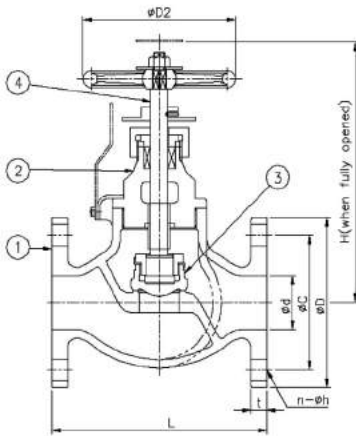
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.7 [7.0] |
| Seat | 0.2 [2.0] |

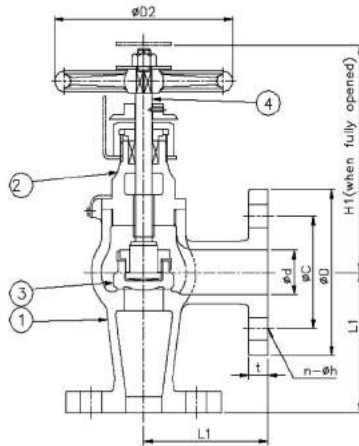
| | Size | d | D | C | n-h | t | H | H1 | L | L3 | D2 |
|---------------|------|-----|-----|-----|-------|----|-----|-----|-----|-----|-----|
| F7399 -5K | 050 | 50 | 130 | 105 | 4-15 | 16 | 335 | 305 | 220 | 120 | 160 |
| | 065 | 65 | 155 | 130 | 4-15 | 18 | 395 | 355 | 270 | 130 | 180 |
| | 080 | 80 | 180 | 145 | 4-19 | 18 | 420 | 370 | 300 | 140 | 180 |
| | 100 | 100 | 200 | 165 | 8-19 | 18 | 510 | 450 | 350 | 160 | 224 |
| | 125 | 125 | 235 | 200 | 8-19 | 20 | 570 | 515 | 420 | 180 | 250 |
| | 150 | 150 | 265 | 230 | 8-19 | 22 | 595 | 575 | 490 | 205 | 280 |
| | 200 | 200 | 320 | 280 | 8-23 | 22 | 625 | 605 | 570 | 230 | 315 |
| F7399 -10K | 050 | 50 | 155 | 120 | 4-19 | 16 | 335 | 305 | 220 | 120 | 160 |
| | 065 | 65 | 175 | 140 | 4-19 | 18 | 395 | 355 | 270 | 130 | 180 |
| | 080 | 80 | 185 | 150 | 8-19 | 18 | 420 | 370 | 300 | 140 | 180 |
| | 100 | 100 | 210 | 175 | 8-19 | 18 | 510 | 450 | 350 | 160 | 224 |
| | 125 | 125 | 250 | 210 | 8-23 | 20 | 570 | 515 | 420 | 180 | 250 |
| | 150 | 150 | 280 | 240 | 8-23 | 22 | 595 | 575 | 490 | 205 | 280 |
| | 200 | 200 | 330 | 290 | 12-23 | 22 | 625 | 605 | 570 | 230 | 315 |

SERIES F 7403 - JIS 16K Bronze Hull Globe Valve / SERIES F 7404 - JIS 16K Bronze Hull Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7403 Hull Globe Valve



SERIES F 7404 Hull Angle Valve

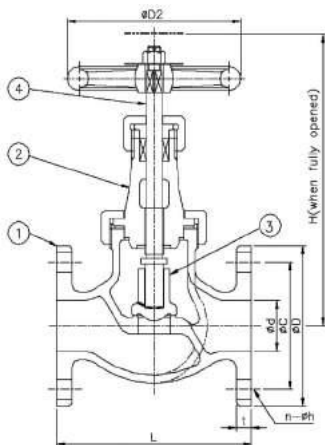
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 2.4 [24.0] |
| Seat | 1.76 [17.6] |

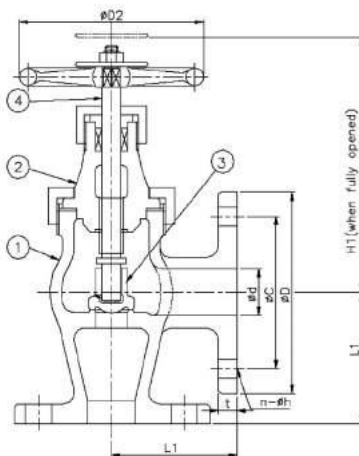
| SIZE | d | L | L1 | D | C | n-h | t | H | H1 | D2 | F7403(Kg) | F7404(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 110 | 70 | 95 | 70 | 4-15 | 12 | 135 | 125 | 80 | 2.86 | 2.83 |
| 020 | 20 | 120 | 75 | 100 | 75 | 4-15 | 14 | 145 | 135 | 100 | 3.82 | 3.75 |
| 025 | 25 | 130 | 85 | 125 | 90 | 4-19 | 14 | 165 | 150 | 125 | 5.35 | 5.31 |
| 032 | 32 | 160 | 95 | 135 | 100 | 4-19 | 16 | 175 | 155 | 125 | 7.06 | 6.87 |
| 040 | 40 | 180 | 100 | 140 | 105 | 4-19 | 16 | 195 | 170 | 140 | 8.63 | 8.33 |

SERIES F 7411 - JIS 5K Bronze Globe Check Valve Union Bonnet / SERIES F 7412 - JIS 5K Bronze Angle Check Valve Union Bonnet

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K00



SERIES F 7411 Globe Valve



SERIES F 7412 Angle Valve

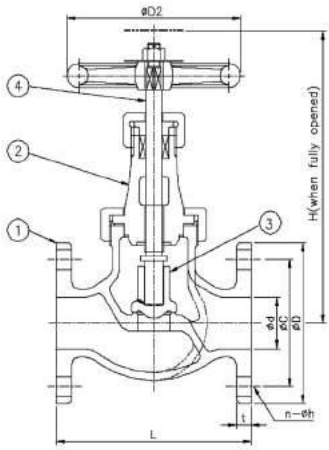
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

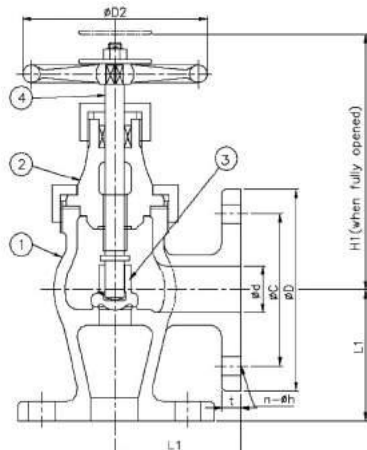
| SIZE | d | L | L1 | D | C | n-h | t | H | H1 | D2 | F7411(Kg) | F7412(Kg) |
|------|----|-----|----|-----|----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 100 | 55 | 80 | 60 | 4-12 | 9 | 150 | 140 | 80 | 2.12 | 2.07 |
| 020 | 20 | 110 | 60 | 85 | 65 | 4-12 | 10 | 160 | 150 | 100 | 2.91 | 2.81 |
| 025 | 25 | 120 | 65 | 95 | 75 | 4-12 | 10 | 185 | 170 | 125 | 3.82 | 3.67 |
| 032 | 32 | 140 | 80 | 115 | 90 | 4-15 | 12 | 190 | 170 | 125 | 5.09 | 4.85 |
| 040 | 40 | 160 | 85 | 120 | 95 | 4-15 | 12 | 205 | 180 | 140 | 6.71 | 6.17 |

SERIES F 7413 - JIS 16K Bronze Globe Check Valve Union Bonnet / **SERIES F 7414 - JIS 16K** Bronze Angle Check Valve Union Bonnet

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7413 Globe Valve



SERIES F 7414 Angle Valve

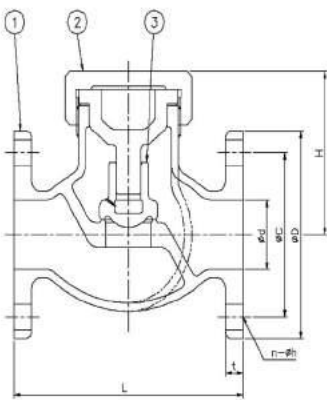
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

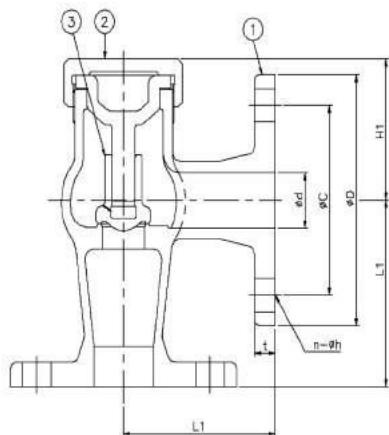
| SIZE | d | L | L1 | D | C | n-h | t | H | H1 | D2 | F7413(Kg) | F7414(Kg) |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|-----------|-----------|
| 015 | 15 | 110 | 70 | 95 | 70 | 4-15 | 12 | 150 | 140 | 80 | 2.87 | 2.86 |
| 020 | 20 | 120 | 75 | 100 | 75 | 4-15 | 14 | 160 | 150 | 100 | 3.79 | 3.75 |
| 025 | 25 | 130 | 85 | 125 | 90 | 4-19 | 14 | 185 | 125 | 125 | 5.44 | 5.38 |
| 032 | 32 | 160 | 95 | 135 | 100 | 4-19 | 16 | 190 | 125 | 125 | 7.04 | 6.84 |
| 040 | 40 | 180 | 100 | 140 | 105 | 4-19 | 16 | 205 | 140 | 140 | 8.89 | 8.34 |

SERIES F 7415 - JIS 5K Bronze Lift Check Globe Valve Union Bonnet / **SERIES F 7416 - JIS 5K** Bronze Lift Check Angle Valve Union Bonnet

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K



SERIES F 7415 Lift Check Globe Valve



SERIES F 7416 Lift Check Angle Valve

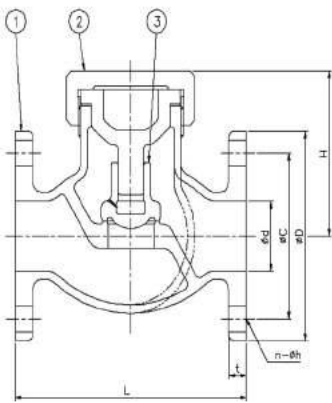
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

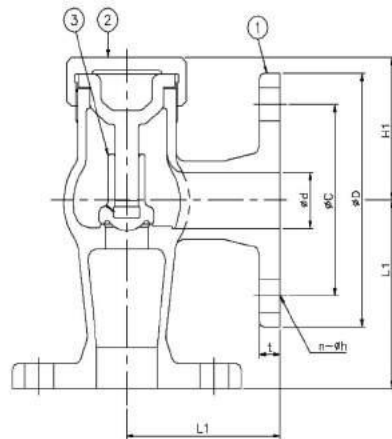
| SIZE | d | L | L1 | D | C | n-h | t | H | H1 | F7415(Kg) | F7416(Kg) |
|------|----|-----|----|-----|----|------|----|----|----|-----------|-----------|
| 015 | 15 | 100 | 55 | 80 | 60 | 4-12 | 9 | 66 | 56 | 1.62 | 1.57 |
| 020 | 20 | 110 | 60 | 85 | 65 | 4-12 | 10 | 71 | 59 | 2.17 | 2.07 |
| 025 | 25 | 120 | 65 | 95 | 75 | 4-12 | 10 | 81 | 67 | 2.80 | 2.65 |
| 032 | 32 | 140 | 80 | 115 | 90 | 4-15 | 12 | 83 | 65 | 3.92 | 3.68 |
| 040 | 40 | 160 | 85 | 120 | 95 | 4-15 | 12 | 91 | 69 | 5.49 | 4.95 |

SERIES F 7417 - JIS 16K Bronze Lift Check Globe Valve Union Bonnet / **SERIES F 7418 - JIS 16K** Bronze Lift Check Angle Valve Union Bonnet

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 16K



SERIES F 7417 Lift Globe Check Valve



SERIES F 7418 Lift Check Angle Valve

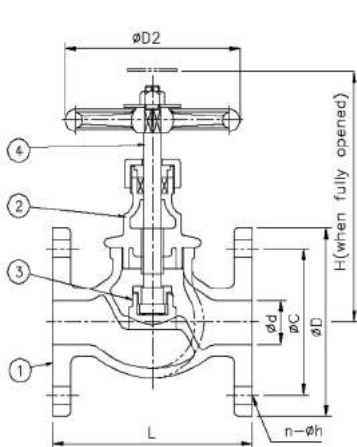
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 3.3 [33.0] |
| Seat | 2.42 [24.2] |

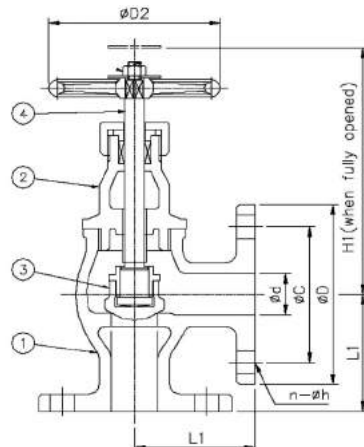
| SIZE | d | L | L1 | D | C | n-h | t | H | H1 | F7417(Kg) | F7418(Kg) |
|------|----|-----|-----|-----|-----|------|----|----|----|-----------|-----------|
| 015 | 15 | 110 | 70 | 95 | 70 | 4-15 | 12 | 66 | 56 | 2.37 | 2.36 |
| 020 | 20 | 120 | 75 | 100 | 75 | 4-15 | 14 | 71 | 59 | 3.05 | 3.01 |
| 025 | 25 | 130 | 85 | 125 | 90 | 4-19 | 14 | 81 | 67 | 4.42 | 4.36 |
| 032 | 32 | 160 | 95 | 135 | 100 | 4-19 | 16 | 83 | 65 | 5.87 | 5.67 |
| 040 | 40 | 180 | 100 | 140 | 105 | 4-19 | 16 | 91 | 69 | 7.67 | 7.12 |

SERIES B 2026 - JIS 10K Bronze Globe Valve / **SERIES B 2027 - JIS 10K** Bronze Angle Valve

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 10K



SERIES B 2026 Globe Valve



SERIES B 2027 Angle Valve

| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

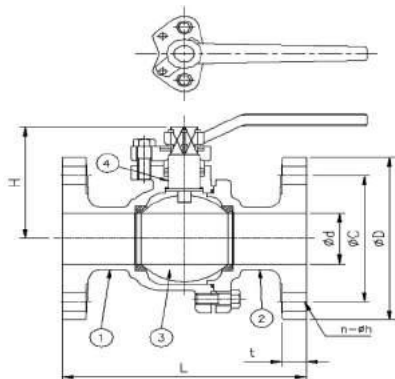
| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.96 [20.0] |
| Seat | 1.47 [15.0] |

| SIZE | d | L | L1 | C | D | n-h | t | H | H1 | D2 |
|------|----|-----|-----|-----|-----|------|----|-----|-----|-----|
| 015 | 15 | 85 | 62 | 70 | 95 | 4-15 | 12 | 110 | 105 | 80 |
| 020 | 20 | 95 | 65 | 75 | 100 | 4-15 | 14 | 125 | 130 | 80 |
| 025 | 25 | 110 | 80 | 90 | 125 | 4-19 | 14 | 140 | 145 | 100 |
| 032 | 32 | 130 | 85 | 100 | 135 | 4-19 | 16 | 170 | 175 | 125 |
| 040 | 40 | 150 | 90 | 105 | 140 | 4-19 | 16 | 180 | 190 | 125 |
| 050 | 50 | 180 | 100 | 120 | 155 | 4-19 | 16 | 205 | 225 | 140 |

Special products

STAINLESS STEEL , CAST STEEL , CAST BRONZE 2-Way Ball Valve JIS 5K , 10K

Manufactured in accordance to JIS B 2003 / Flanges as per JIS B 2210 - 5K, 10K / Manufactured In Face to Face to JIS B 2002 / Manufactured In Design To JIS B 2002



SERIES HSN SCS 10BA 01 2-Way Ball Valve

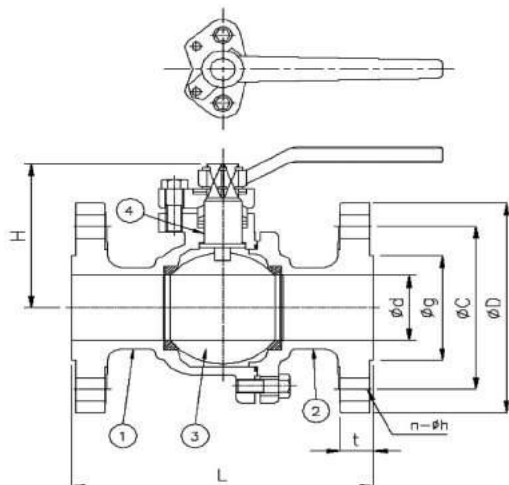
| Part No. | Material |
|--------------|--|
| 1 - Body | Stainless Steel / Cast Steel / Cast Bronze |
| 2 - Body Cap | Stainless Steel / Cast Steel / Cast Bronze |
| 3 - Ball | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| SIZE | Body | Seat |
| 5K | 1.05 [10.5] | 0.77 [7.7] |
| 10K | 2.1 [21.0] | 1.54 [15.4] |

| SIZE | d | 5K FLANGE | | | | | 10K FLANGE | | | | | H |
|------|-----|-----------|-----|-----|------|----|------------|-----|-----|------|----|-----|
| | | L | D | C | n-h | t | L | D | C | n-h | t | |
| 015 | 15 | 100 | 80 | 60 | 4-12 | 9 | 110 | 95 | 70 | 4-15 | 12 | 70 |
| 020 | 20 | 110 | 85 | 65 | 4-12 | 10 | 120 | 100 | 75 | 4-15 | 14 | 75 |
| 025 | 25 | 120 | 95 | 75 | 4-12 | 10 | 130 | 125 | 90 | 4-19 | 14 | 100 |
| 032 | 32 | 140 | 115 | 90 | 4-15 | 12 | 160 | 135 | 100 | 4-19 | 16 | 110 |
| 040 | 40 | 160 | 120 | 95 | 4-15 | 12 | 180 | 140 | 105 | 4-19 | 16 | 110 |
| 050 | 50 | 178 | 130 | 105 | 4-15 | 14 | 178 | 155 | 120 | 4-19 | 16 | 125 |
| 065 | 65 | 190 | 155 | 130 | 4-15 | 14 | 190 | 175 | 140 | 4-19 | 18 | 155 |
| 080 | 80 | 203 | 180 | 145 | 4-19 | 14 | 203 | 185 | 150 | 8-19 | 18 | 165 |
| 100 | 100 | 229 | 200 | 165 | 8-19 | 16 | 229 | 210 | 175 | 8-19 | 18 | 185 |

STAINLESS STEEL , CAST STEEL , CAST BRONZE 2-Way Ball Valve JIS 20K , 30K

Manufactured in accordance to JIS B 2003 / Flanges as per JIS B 2210 - 20K, 30K / Manufactured In Face to Face to JIS B 2002 / Manufactured In Design To JIS B 2002



SERIES HSN SCS 10BA 02 2-Way Ball Valve

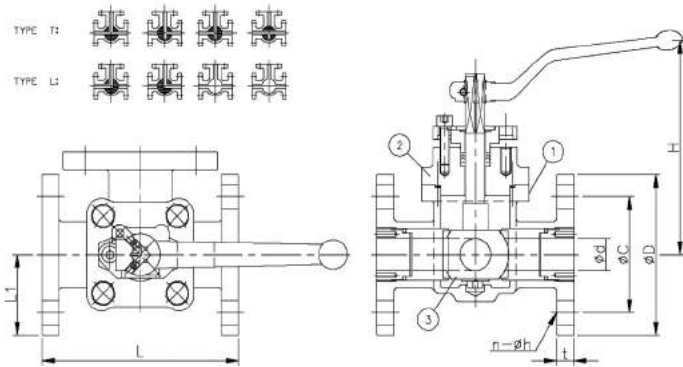
| Part No. | Material |
|--------------|--|
| 1 - Body | Stainless Steel / Cast Steel / Cast Bronze |
| 2 - Body Cap | Stainless Steel / Cast Steel / Cast Bronze |
| 3 - Ball | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| SIZE | Body | Seat |
| 20K | 5.01 [51.0] | 3.74 [37.4] |
| 30K | 6.9 [69.0] | 5 [50.0] |

| SIZE | d | 20K FLANGE | | | | | 30K FLANGE | | | | | H | |
|------|----|------------|-----|-----|------|----|------------|-----|-----|-----|------|----|-----|
| | | L | D | C | n-h | t | L | D | C | g | n-h | | t |
| 015 | 15 | 104 | 95 | 70 | 4-15 | 14 | 112 | 115 | 80 | 55 | 4-19 | 18 | 70 |
| 020 | 20 | 114 | 100 | 75 | 4-15 | 16 | 118 | 120 | 85 | 60 | 4-19 | 18 | 75 |
| 025 | 25 | 124 | 125 | 90 | 4-19 | 16 | 132 | 130 | 95 | 70 | 4-19 | 20 | 100 |
| 032 | 32 | 144 | 135 | 100 | 4-19 | 18 | 152 | 140 | 105 | 80 | 4-19 | 22 | 110 |
| 040 | 40 | 164 | 140 | 105 | 4-19 | 18 | 172 | 160 | 120 | 90 | 4-23 | 22 | 110 |
| 050 | 50 | 214 | 155 | 120 | 8-19 | 18 | 180 | 165 | 130 | 105 | 8-19 | 22 | 125 |

STAINLESS STEEL , CAST STEEL , CAST BRONZE 3-Way Ball Valve JIS 5K , 10K

Manufactured in accordance to JIS B 2003 / Flanges as per JIS B 2210 - 5K, 10K / Manufactured In Face to Face to JIS B 2002 / Manufactured In Design To JIS B 2002



SERIES HSN SCS 10BA 03 3-Way Ball Valve

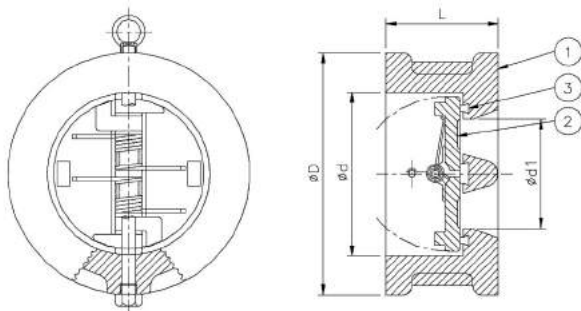
| Part No. | Material |
|--------------|--|
| 1 - Body | Stainless Steel / Cast Steel / Cast Bronze |
| 2 - Body Cap | Stainless Steel / Cast Steel / Cast Bronze |
| 3 - Ball | Stainless Steel |

| Test Pressure MPa[Kgf/cm ²] | | |
|---|-------------|-------------|
| SIZE | Body | Seat |
| 5K | 1.05 [10.5] | 0.77 [7.7] |
| 10K | 2.1 [21.0] | 1.54 [15.4] |

| SIZE | d | 5K FLANGE | | | | | | 10K FLANGE | | | | | | H |
|------|-----|-----------|-----|-----|-----|------|----|------------|-----|-----|-----|------|----|-----|
| | | L | L1 | D | C | n-h | t | L | L1 | D | C | n-h | t | |
| 015 | 15 | 110 | 55 | 80 | 60 | 4-12 | 9 | 130 | 65 | 95 | 70 | 4-15 | 12 | 195 |
| 020 | 20 | 120 | 60 | 85 | 65 | 4-12 | 10 | 150 | 75 | 100 | 75 | 4-15 | 14 | 196 |
| 025 | 25 | 130 | 65 | 95 | 75 | 4-12 | 10 | 160 | 80 | 125 | 90 | 4-19 | 14 | 194 |
| 032 | 32 | 160 | 80 | 115 | 90 | 4-15 | 12 | 190 | 95 | 135 | 100 | 4-19 | 16 | 215 |
| 040 | 40 | 170 | 85 | 120 | 95 | 4-15 | 12 | 220 | 110 | 140 | 105 | 4-19 | 16 | 236 |
| 050 | 50 | 190 | 95 | 130 | 105 | 4-15 | 14 | 240 | 120 | 155 | 120 | 4-19 | 16 | 245 |
| 065 | 65 | 220 | 110 | 155 | 130 | 4-15 | 14 | 300 | 150 | 175 | 140 | 4-19 | 18 | 289 |
| 080 | 80 | 320 | 160 | 180 | 145 | 4-19 | 14 | 320 | 160 | 185 | 150 | 8-19 | 18 | 304 |
| 100 | 100 | 370 | 185 | 200 | 165 | 8-19 | 16 | 370 | 185 | 210 | 175 | 8-19 | 18 | 326 |
| 125 | 125 | 440 | 220 | 235 | 200 | 8-19 | 16 | 440 | 220 | 250 | 210 | 8-23 | 20 | 351 |
| 150 | 150 | 470 | 235 | 265 | 230 | 8-19 | 16 | 470 | 235 | 280 | 240 | 8-23 | 22 | 379 |

STAINLESS STEEL , CAST STEEL , CAST IRON , CAST BRONZE Duo Check Valve - Wafer Type

Manufactured in accordance to JIS B 2003 / Flanges as per JIS B 2210 - 5K, 10K / Manufactured In Face to Face to JIS B 2002 / Manufactured In Design To JIS B 2002



SERIES HSN SCS 10BA 03 3-Way Ball Valve

| Part No. | Material |
|----------|--|
| 1 - Body | Stainless Steel / Cast Steel / Cast Bronze |
| 2 - Disc | Stainless Steel / Cast Steel / Cast Bronze |
| 3 - Seat | NBR |

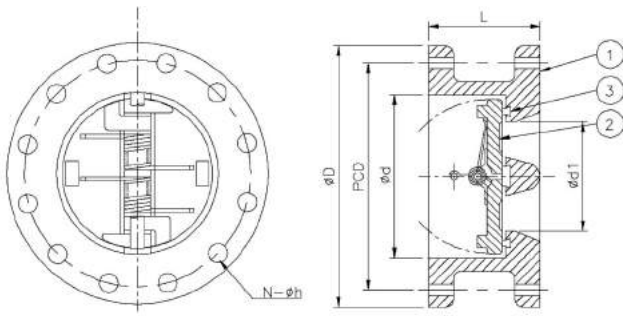
| Test Pressure Kgf/cm ² | | |
|-----------------------------------|---------|------------|
| SIZE | Body | Seat |
| 10K, 150LBS | 1.5[15] | 1.1[11] |
| 20K, 300LBS | 2.1[21] | 15.4[15.4] |

| SIZE | d | 10K WAFER | | | 20K WAFER | | | Inch | d | ANSI 150LBS | | | ANSI 300LBS | | |
|------|-----|-----------|-----|-----|-----------|-----|-----|------|-----|-------------|-----|-----|-------------|-----|-----|
| | | L | D | d1 | L | D | d1 | | | L | D | d1 | L | D | d1 |
| 050 | 60 | 60 | 101 | - | 60 | 101 | - | 2" | 60 | 60 | 105 | - | 60 | 111 | - |
| 065 | 75 | 67 | 121 | 51 | 67 | 121 | 51 | 2.5" | 75 | 67 | 124 | 51 | 67 | 130 | 51 |
| 080 | 89 | 73 | 131 | 63 | 73 | 137 | 63 | 3" | 89 | 73 | 137 | 63 | 73 | 149 | 63 |
| 100 | 114 | 73 | 156 | 82 | 73 | 162 | 82 | 4" | 114 | 73 | 175 | 82 | 73 | 181 | 82 |
| 125 | 141 | 86 | 187 | 104 | 86 | 200 | 104 | 5" | 141 | 86 | 197 | 104 | 86 | 216 | 104 |
| 150 | 168 | 98 | 217 | 131 | 98 | 35 | 131 | 6" | 168 | 98 | 222 | 131 | 98 | 251 | 131 |
| 200 | 219 | 127 | 267 | 172 | 127 | 280 | 172 | 8" | 219 | 127 | 279 | 172 | 127 | 308 | 172 |
| 250 | 273 | 146 | 330 | 220 | 146 | 353 | 220 | 10" | 273 | 146 | 340 | 220 | 146 | 362 | 220 |
| 300 | 324 | 181 | 375 | 270 | 181 | 403 | 270 | 12" | 324 | 181 | 410 | 270 | 181 | 422 | 270 |
| 350 | 350 | 184 | 420 | 284 | 222 | 447 | 284 | 14" | 350 | 184 | 451 | 284 | 222 | 486 | 284 |
| 400 | 420 | 191 | 483 | 354 | 232 | 507 | 354 | 16" | 420 | 191 | 514 | 354 | 232 | 540 | 354 |
| 450 | 453 | 203 | 538 | 370 | 264 | 572 | 370 | 18" | 453 | 203 | 549 | 370 | 264 | 597 | 370 |
| 500 | 512 | 219 | 593 | 420 | 292 | 627 | 420 | 20" | 512 | 219 | 606 | 420 | 292 | 654 | 420 |
| 600 | 579 | 222 | 697 | 469 | 318 | 731 | 469 | 24" | 579 | 222 | 718 | 469 | 318 | 775 | 469 |

Special products

STAINLESS STEEL , CAST STEEL , CAST IRON , CAST BRONZE Duo Check Valve - Flange Type

Manufactured In Design To API 594, ASME B 16.34 / Manufactured In Face to Face to API 594, ASME B 16.10 / Flanges as per JIS B 2210 - 5K, 10K, 16K, 20K



SERIES HSN SCS 10BA 04 Duo Check Valve Flange Type

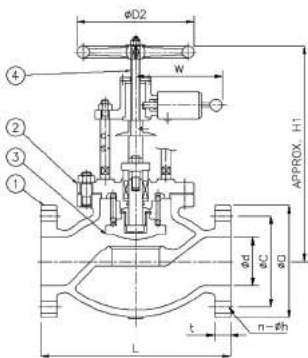
| Part No. | Material |
|----------|--|
| 1 - Body | Stainless Steel / Cast Steel / Cast Bronze |
| 2 - Disc | Stainless Steel / Cast Steel / Cast Bronze |
| 3 - Seat | NBR |

| Test Pressure Kg/cm ² | | |
|----------------------------------|---------|------------|
| SIZE | Body | Seat |
| 10K, 10K | 1.5[15] | 1.1[11] |
| 20K | 2.1[21] | 15.4[15.4] |

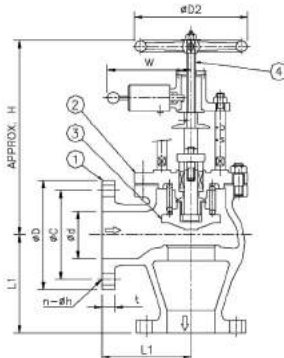
| SIZE | d | 5K FLANGE | | | | 10K FLANGE | | | | 20K FLANGE | | | |
|------|-----|-----------|-----|-----|-------|------------|-----|-----|-------|------------|-----|-----|-------|
| | | D | C | PCD | n-h | D | L | PCD | n-h | D | L | PCD | n-h |
| 050 | 60 | 130 | 60 | 105 | 4-15 | 155 | 60 | 120 | 4-19 | 155 | 60 | 120 | 8-19 |
| 065 | 75 | 155 | 67 | 130 | 4-15 | 175 | 67 | 140 | 4-19 | 175 | 67 | 140 | 8-19 |
| 080 | 89 | 180 | 73 | 145 | 4-19 | 185 | 73 | 150 | 8-19 | 200 | 73 | 160 | 8-23 |
| 100 | 114 | 200 | 73 | 165 | 8-19 | 210 | 73 | 175 | 8-19 | 225 | 73 | 185 | 8-23 |
| 125 | 141 | 235 | 86 | 200 | 8-19 | 250 | 86 | 210 | 8-23 | 270 | 86 | 225 | 8-25 |
| 150 | 166 | 265 | 98 | 230 | 8-19 | 280 | 98 | 240 | 8-23 | 305 | 98 | 260 | 12-25 |
| 200 | 207 | 320 | 127 | 280 | 8-23 | 330 | 127 | 290 | 12-23 | 350 | 127 | 305 | 12-25 |
| 250 | 260 | 385 | 146 | 345 | 12-23 | 400 | 146 | 355 | 12-23 | 430 | 146 | 380 | 12-27 |
| 300 | 300 | 430 | 181 | 390 | 12-23 | 445 | 181 | 400 | 16-25 | 480 | 181 | 430 | 16-27 |
| 350 | 339 | 480 | 184 | 435 | 12-25 | 490 | 184 | 445 | 12-25 | 540 | 222 | 480 | 16-33 |
| 400 | 387 | 540 | 191 | 495 | 16-25 | 560 | 191 | 510 | 16-27 | 605 | 232 | 540 | 16-33 |
| 450 | 438 | 605 | 203 | 555 | 16-25 | 620 | 203 | 565 | 20-27 | 675 | 264 | 605 | 20-33 |
| 500 | 487 | 655 | 219 | 605 | 20-25 | 675 | 219 | 620 | 20-27 | 730 | 292 | 660 | 20-33 |
| 550 | 533 | 720 | 222 | 665 | 20-27 | 745 | 222 | 680 | 20-27 | 795 | 305 | 720 | 20-39 |
| 600 | 579 | 770 | 222 | 715 | 20-27 | 795 | 222 | 730 | 24-33 | 845 | 318 | 770 | 24-39 |
| 650 | 629 | 825 | 356 | 770 | 24-27 | 845 | 356 | 780 | 24-33 | 945 | 356 | 850 | 24-48 |

HYDRAULIC EMERGENCY SHUT-OFF VALVES Hydraulic Operated Valves - F7399 Base

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 16K



SERIES - Hydraulic Operated "A"-Type



SERIES - Hydraulic Operated "L"-Type

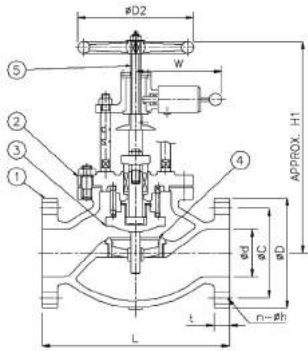
| Part No. | Material |
|------------|----------|
| 1 - Body | Bronze |
| 2 - Bonnet | Bronze |
| 3 - Disc | Bronze |
| 4 - Stem | Brass |

| Test Pressure MPa[Kgf/cm ²] | |
|---|-----------|
| Body | 0.7 [7.0] |
| Seat | 0.2 [2.0] |

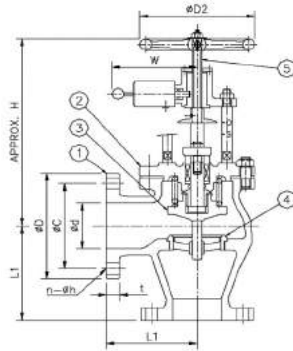
| Size | d | D | C | n-h | t | H1 | H | L | L1 | W | D2 | |
|------|-----|----|-----|-----|------|----|-----|-----|-----|-----|-----|-----|
| 5K | 015 | 15 | 80 | 60 | 4-12 | 9 | 200 | 190 | 110 | 70 | 125 | 100 |
| | 020 | 20 | 85 | 65 | 4-12 | 10 | 200 | 190 | 120 | 75 | 125 | 100 |
| | 025 | 25 | 95 | 75 | 4-12 | 10 | 200 | 190 | 130 | 85 | 125 | 100 |
| | 032 | 32 | 115 | 90 | 4-15 | 12 | 230 | 215 | 160 | 95 | 130 | 100 |
| | 040 | 40 | 120 | 95 | 4-15 | 12 | 235 | 215 | 170 | 100 | 130 | 100 |
| 16K | 015 | 15 | 95 | 70 | 4-15 | 12 | 200 | 190 | 110 | 70 | 125 | 100 |
| | 020 | 20 | 100 | 75 | 4-15 | 14 | 200 | 190 | 120 | 75 | 125 | 100 |
| | 025 | 25 | 125 | 90 | 4-19 | 14 | 200 | 190 | 130 | 85 | 125 | 100 |
| | 032 | 32 | 135 | 100 | 4-19 | 16 | 230 | 215 | 160 | 95 | 130 | 100 |
| | 040 | 40 | 145 | 105 | 4-19 | 16 | 235 | 215 | 170 | 100 | 130 | 100 |

HYDRAULIC EMERGENCY SHUT-OFF VALVES *Hydraulic Operated Valves - F7399 Base*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2240 - 5K, 10K



SERIES - Hydraulic Operated "A"-Type



SERIES - Hydraulic Operated "L"-Type

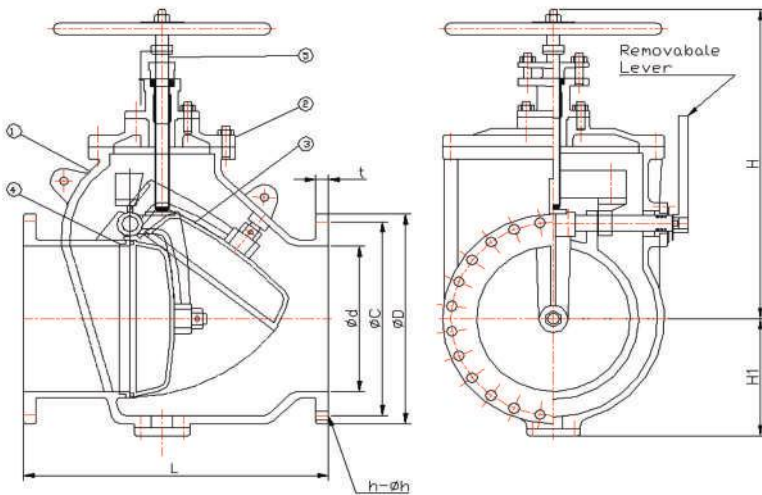
| Part No. | Material |
|------------|-----------------|
| 1 - Body | Cast Steel |
| 2 - Bonnet | Cast Steel |
| 3 - Disc | Stainless Steel |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.7 [7.0] |
| Seat | 0.2 [2.0] |

| Size | d | D | C | n-h | t | H1 | H | L | L1 | W | D2 | |
|------|-----|-----|-----|-------|------|-----|-----|-----|-----|-----|-----|-----|
| 5K | 050 | 50 | 130 | 105 | 4-15 | 16 | 265 | 240 | 220 | 120 | 135 | 125 |
| | 065 | 65 | 155 | 130 | 4-15 | 18 | 305 | 275 | 270 | 130 | 135 | 125 |
| | 080 | 80 | 180 | 145 | 4-19 | 18 | 385 | 285 | 300 | 140 | 135 | 140 |
| | 100 | 100 | 200 | 165 | 8-19 | 18 | 370 | 320 | 350 | 160 | 150 | 160 |
| | 125 | 125 | 235 | 200 | 8-19 | 20 | 400 | 340 | 420 | 180 | 150 | 160 |
| | 150 | 150 | 265 | 230 | 8-19 | 22 | 450 | 380 | 490 | 205 | 150 | 180 |
| 10K | 050 | 50 | 155 | 120 | 4-19 | 16 | 265 | 240 | 220 | 120 | 135 | 125 |
| | 065 | 65 | 175 | 140 | 4-19 | 18 | 305 | 275 | 270 | 130 | 135 | 125 |
| | 080 | 80 | 185 | 150 | 8-19 | 18 | 385 | 285 | 300 | 140 | 135 | 140 |
| | 100 | 100 | 210 | 175 | 8-19 | 18 | 370 | 320 | 350 | 160 | 150 | 160 |
| | 125 | 125 | 250 | 210 | 8-23 | 20 | 400 | 340 | 420 | 180 | 150 | 160 |
| | 150 | 150 | 280 | 240 | 8-23 | 22 | 450 | 380 | 490 | 205 | 150 | 180 |
| 200 | 200 | 330 | 290 | 12-23 | 22 | 570 | 470 | 570 | 230 | 170 | 180 | |

INERT GAS LINE NON RETURN VALVE -16K *I.G VALVE*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 16K



SERIES HSN SCIG 01 Inert Gas Line Valve

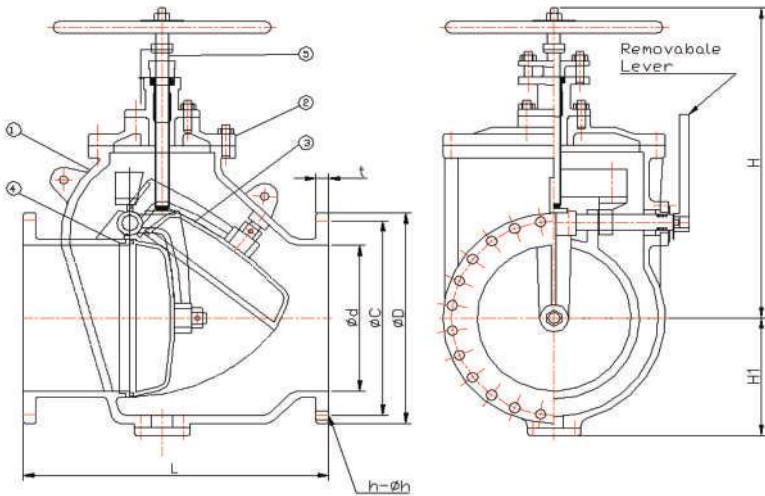
| Part No. | Material |
|------------|---|
| 1 - Body | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 2 - Bonnet | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 3 - Disc | Stainless Steel +O-Ring |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | | |
|----------------------------|------|------|
| Material | Body | Seat |
| Stainless | 2.40 | 0.5 |
| Cast Steel | 2.40 | 0.5 |
| Ductile Iron | 0.75 | 0.5 |
| Cast Iron | 0.75 | 0.5 |

| SIZE | d | L | D | C | n-h | t | H1 | H |
|------|-----|------|-----|-----|-------|----|-----|--------|
| 300 | 300 | 680 | 480 | 430 | 16-27 | 30 | 286 | 762 |
| 350 | 335 | 730 | 540 | 480 | 16-33 | 34 | 304 | 802 |
| 400 | 380 | 820 | 605 | 540 | 16-33 | 38 | 340 | 820 |
| 450 | 430 | 920 | 675 | 606 | 20-33 | 40 | 386 | 1018 |
| 500 | 480 | 990 | 730 | 660 | 20-33 | 42 | 410 | 1064 |
| 550 | 530 | 1024 | 795 | 720 | 20-39 | 44 | 436 | 1119.5 |
| 600 | 580 | 1128 | 845 | 770 | 24-39 | 46 | 462 | 1218 |

INERT GAS LINE NON RETURN VALVE -10K I.G VALVE

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES HSN SCIG 02 Inert Gas Line Valve

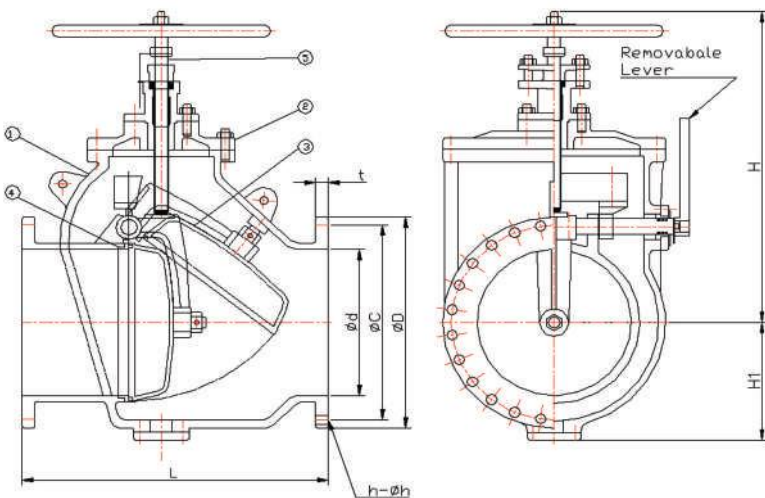
| Part No. | Material |
|------------|---|
| 1 - Body | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 2 - Bonnet | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 3 - Disc | Stainless Steel +O-Ring |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | | |
|----------------------------|------|------|
| Material | Body | Seat |
| Stainless | 2.40 | 0.5 |
| Cast Steel | 2.40 | 0.5 |
| Ductile Iron | 0.75 | 0.5 |
| Cast Iron | 0.75 | 0.5 |

| SIZE | d | L | D | C | n-h | t | H1 | H |
|------|-----|------|-----|-----|-------|----|-----|--------|
| 300 | 300 | 680 | 445 | 400 | 16-25 | 30 | 286 | 762 |
| 350 | 335 | 730 | 490 | 445 | 16-25 | 34 | 304 | 802 |
| 400 | 380 | 820 | 560 | 510 | 16-27 | 38 | 340 | 820 |
| 450 | 430 | 920 | 620 | 565 | 20-27 | 40 | 386 | 1018 |
| 500 | 480 | 990 | 675 | 620 | 20-27 | 42 | 410 | 1064 |
| 550 | 530 | 1024 | 745 | 680 | 20-33 | 44 | 436 | 1119.5 |
| 600 | 580 | 1128 | 795 | 730 | 24-33 | 46 | 462 | 1218 |

INERT GAS LINE NON RETURN VALVE - 5K I.G VALVE

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES HSN SCIG 03 Inert Gas Line Valve

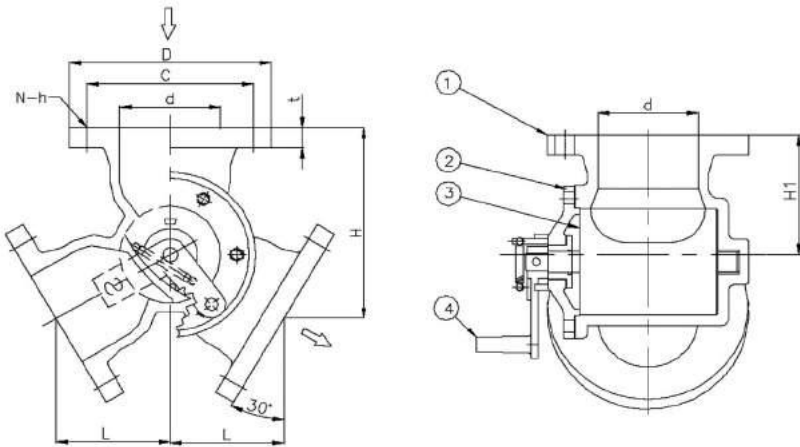
| Part No. | Material |
|------------|---|
| 1 - Body | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 2 - Bonnet | Stainless Steel / Cast Steel / Ductile Iron / Cast Iron |
| 3 - Disc | Stainless Steel +O-Ring |
| 4 - Seat | Stainless Steel |
| 5 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | | |
|----------------------------|------|------|
| Material | Body | Seat |
| Stainless | 1.10 | 0.5 |
| Cast Steel | 1.10 | 0.5 |
| Ductile Iron | 0.75 | 0.5 |
| Cast Iron | 0.75 | 0.5 |

| SIZE | d | L | D | C | n-h | t | H1 | H |
|------|-----|------|-----|-----|-------|----|-----|--------|
| 300 | 300 | 680 | 430 | 390 | 12-23 | 30 | 286 | 762 |
| 350 | 335 | 730 | 480 | 435 | 12-25 | 34 | 304 | 802 |
| 400 | 380 | 820 | 540 | 495 | 16-25 | 38 | 340 | 820 |
| 450 | 430 | 920 | 605 | 555 | 16-25 | 40 | 386 | 1018 |
| 500 | 480 | 990 | 655 | 605 | 20-25 | 42 | 410 | 1064 |
| 550 | 530 | 1024 | 720 | 665 | 20-27 | 44 | 436 | 1119.5 |
| 600 | 580 | 1128 | 770 | 715 | 20-27 | 46 | 462 | 1218 |

CAST IRON SOIL LINE BRANCH VALVE *Soil Branch 3-Way Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES HSN FCSB Soil Branch 3-Way Valve

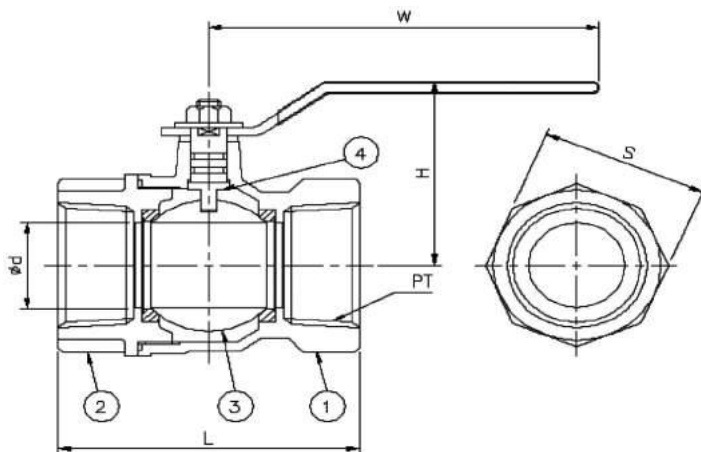
| Part No. | Material |
|--------------|-----------|
| 1 - Body | Cast Iron |
| 2 - Bonnet | Cast Iron |
| 3 - Cylinder | Bronze |
| 4 - Lever | Bronze |

| Test Pressure MPa[Kgf/cm ²] | |
|---|------------|
| Body | 0.20 [2.0] |
| Seat | - |

| SIZE | d | L | D | C | n-h | t | H | H1 |
|------|-----|-----|-----|-----|------|----|-----|-----|
| 100 | 100 | 113 | 200 | 165 | 8-19 | 20 | 195 | 130 |
| 125 | 125 | 126 | 235 | 200 | 8-19 | 20 | 218 | 145 |
| 150 | 150 | 143 | 265 | 230 | 8-19 | 22 | 248 | 165 |

BRASS BALL VALVE (SCREW END) *Screw Ball Valve*

Manufactured in accordance to JIS F 7400



SERIES HSN SHBC 5BAS L02 Screw Ball Valve

| Part No. | Material |
|------------|----------|
| 1 - Body | BRASS |
| 2 - Bonnet | BRASS |
| 3 - Ball | BRASS |
| 4 - Stem | BRASS |

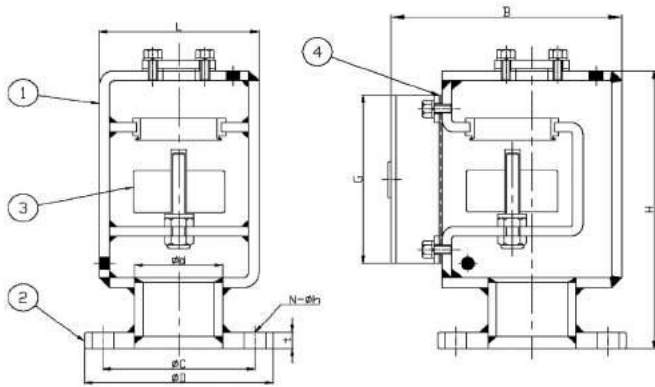
| Test Pressure MPa[Kgf/cm ²] | |
|---|-------------|
| Body | 1.05 [10.5] |
| Seat | 0.77 [7.7] |

| SIZE | d | L | H | W | S | PT |
|------|----|-----|------|-----|----|--------|
| 008 | 8 | 41 | 29.5 | 62 | 18 | 1/4" |
| 010 | 8 | 43 | 29.5 | 62 | 20 | 3/8" |
| 015 | 10 | 53 | 35.9 | 88 | 26 | 1/2" |
| 020 | 15 | 60 | 45.5 | 95 | 31 | 3/4" |
| 025 | 20 | 73 | 54.5 | 121 | 38 | 1" |
| 032 | 25 | 84 | 59 | 121 | 47 | 1-1/4" |
| 040 | 32 | 94 | 65.5 | 135 | 54 | 1-1/2" |
| 050 | 40 | 107 | 73.5 | 144 | 67 | 2" |

Special products

Air Vent Head (40A ~ 80A) *Box Type Air Vent Head Disc Float*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K,10K



SERIES HSN AVHFC 510AV D01 Air Vent Head

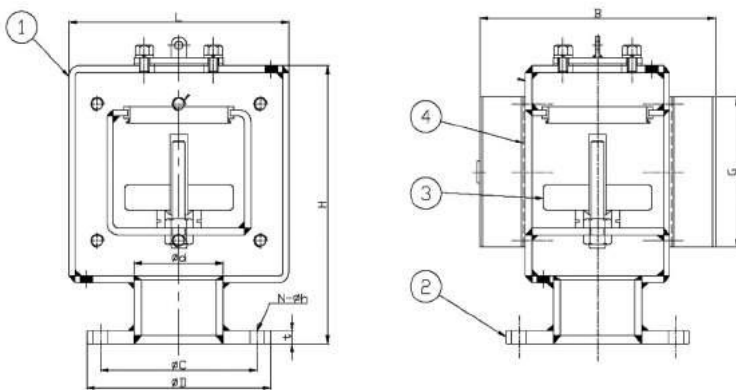
| Part No. | Material |
|------------------|--------------------------------------|
| 1 - Body | Mild Steel , Ductil Iron , Cast Iron |
| 2 - Flange | Mild Steel , Ductil Iron , Cast Iron |
| 3 - Disc Float | Stainless Steel |
| 4 - Flame Screen | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.1 [1.0] |
| Seat | 0.1 [1.0] |

| Size | d | C | D | n-h | t | H | L | G | B | |
|------|-----|------|-----|-----|------|----|-----|-----|-----|-----|
| 5K | 040 | 49.1 | 95 | 120 | 4-15 | 12 | 234 | 105 | 123 | 163 |
| | 050 | 61.1 | 105 | 130 | 4-15 | 14 | 234 | 105 | 123 | 163 |
| | 065 | 77.1 | 130 | 155 | 4-15 | 14 | 238 | 120 | 123 | 186 |
| | 080 | 90.0 | 145 | 180 | 4-19 | 14 | 250 | 135 | 133 | 221 |
| 10K | 040 | 49.1 | 105 | 140 | 4-19 | 16 | 234 | 105 | 123 | 163 |
| | 050 | 61.1 | 120 | 155 | 4-19 | 20 | 234 | 105 | 123 | 163 |
| | 065 | 77.1 | 140 | 175 | 4-19 | 22 | 238 | 120 | 123 | 186 |
| | 080 | 90.0 | 150 | 185 | 8-19 | 22 | 250 | 135 | 133 | 221 |

Air Vent Head (100A ~ 600A) *Box Type Air Vent Head Disc Float*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K



SERIES HSN AVHFC 5AV D01 Air Vent Head

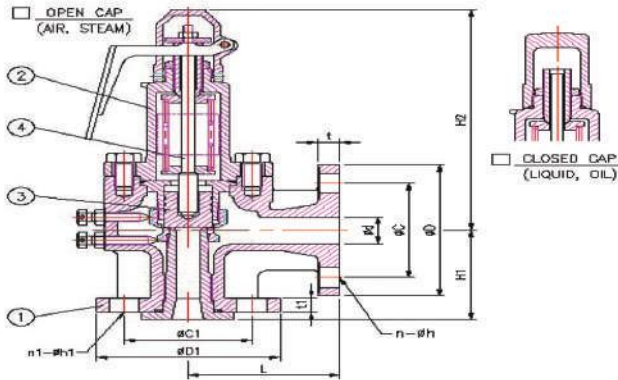
| Part No. | Material |
|------------------|--------------------------------------|
| 1 - Body | Mild Steel , Ductil Iron , Cast Iron |
| 2 - Flange | Mild Steel , Ductil Iron , Cast Iron |
| 3 - Disc Float | Stainless Steel |
| 4 - Flame Screen | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] | |
|----------------------------|-----------|
| Body | 0.1 [1.0] |
| Seat | 0.1 [1.0] |

| Size | d | C | D | n-h | t | H | L | G | B | |
|------|-----|-------|-----|-----|-------|----|------|------|-----|------|
| 5K | 100 | 115.4 | 165 | 200 | 8-19 | 16 | 270 | 232 | 151 | 254 |
| | 125 | 141.2 | 200 | 235 | 8-19 | 16 | 306 | 276 | 164 | 286 |
| | 150 | 166.6 | 230 | 265 | 8-19 | 18 | 323 | 318 | 183 | 330 |
| | 200 | 218.0 | 280 | 320 | 8-23 | 20 | 392 | 425 | 228 | 409 |
| | 250 | 269.5 | 345 | 385 | 12-23 | 22 | 440 | 520 | 249 | 514 |
| | 300 | 321.0 | 390 | 430 | 12-23 | 22 | 557 | 588 | 272 | 598 |
| | 350 | 358.1 | 435 | 480 | 12-25 | 24 | 584 | 678 | 298 | 674 |
| | 400 | 409.0 | 495 | 540 | 16-25 | 24 | 644 | 758 | 329 | 767 |
| | 450 | 460.0 | 555 | 605 | 16-25 | 24 | 695 | 840 | 374 | 848 |
| | 500 | 511.0 | 605 | 655 | 20-25 | 24 | 780 | 917 | 409 | 904 |
| | 500 | 562.0 | 665 | 720 | 20-27 | 26 | 910 | 1001 | 489 | 1028 |
| | 600 | 613.0 | 715 | 770 | 20-27 | 26 | 1010 | 1091 | 539 | 1123 |

STAINLESS STEEL , CAST STEEL , DUCTILE IRON , CAST BRONZE *Safety Relief Valve*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES HSN SRSC Y01 Safety Valve

| Part No. | Material |
|------------|------------------------------|
| 1 - Body | Stainless Steel , Cast Steel |
| 2 - Bonnet | Ductile Iron , Cast Bronze |
| 3 - Disc | Stainless Steel |
| 4 - Stem | Stainless Steel |

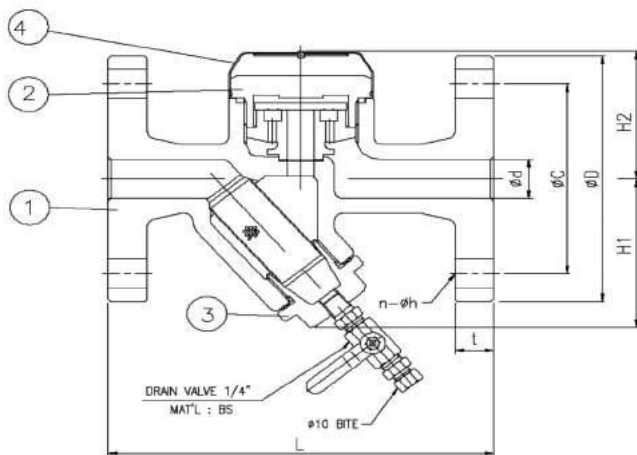
*** NOTE**

1. Max. Working Pressure : 11Kgf/Cm²
2. Max. Working Temperature : 220°C
3. Setting Pressure Range : 0.35~11Kgf/Cm²
4. Hydro. Test Pressure : Working Pressure x 1.5

| SIZE IN x OUT | L | H1 | H2 | INLET FLANGE 10K | | | | OUTLET FLANGE 10K FF | | | | |
|---------------|-----|-----|-----|------------------|-----|----|-------|----------------------|-----|----|----|------|
| | | | | D1 | C1 | t1 | n1-h1 | D | C | d | t | n-h |
| 15Ax25A | 95 | 85 | 220 | 95 | 70 | 14 | 4-15 | 125 | 90 | 25 | 14 | 4-19 |
| 20Ax25A | 95 | 85 | 220 | 100 | 75 | 16 | 4-15 | 125 | 90 | 25 | 14 | 4-19 |
| 25Ax40A | 100 | 105 | 240 | 125 | 90 | 16 | 4-19 | 140 | 105 | 40 | 16 | 4-19 |
| 25Ax50A | 100 | 105 | 240 | 125 | 90 | 16 | 4-19 | 155 | 120 | 50 | 16 | 4-19 |
| 32Ax50A | 125 | 125 | 320 | 135 | 100 | 18 | 4-19 | 155 | 120 | 50 | 16 | 4-19 |
| 32Ax65A | 125 | 125 | 320 | 135 | 100 | 18 | 4-19 | 175 | 140 | 65 | 18 | 4-19 |
| 40Ax65A | 130 | 125 | 320 | 140 | 105 | 18 | 4-19 | 175 | 140 | 65 | 18 | 4-19 |
| 50Ax80A | 145 | 135 | 360 | 155 | 120 | 18 | 4-19 | 185 | 150 | 80 | 18 | 8-19 |

THERMODYNAMIC TYPE STEAM TRAP *Steam Trap*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K, 16K



SERIES HSN ST Y01 Steam Trap

| Part No. | Material |
|--------------------|-----------------|
| 1 - Body | Ductile Iron |
| 2 - Cap | Stainless Steel |
| 3 - Plug | Cast Steel |
| 4 - Insulation Cap | Stainless Steel |

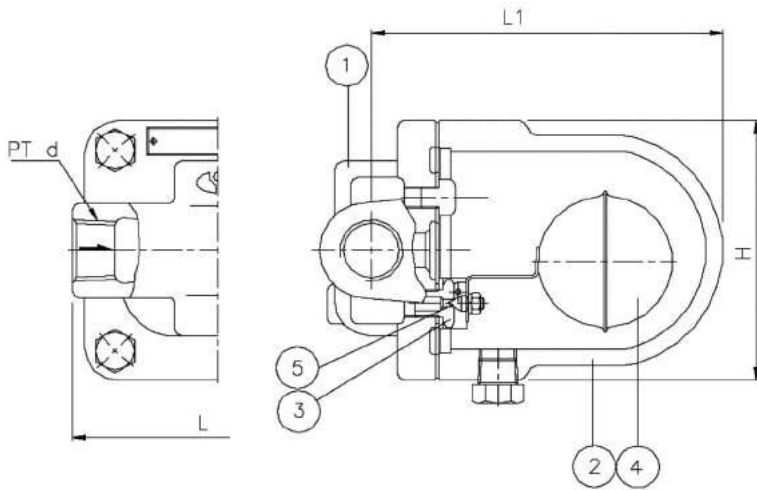
*** NOTE**

1. Max. Working Pressure : 16Kgf/Cm²
2. Max. Working Temperature : 220°C
3. Applicable Fluid : Steam
4. Hydro. Test Pressure : Working Pressure x 1.5

| SIZE | | L | H1 | H2 | d | D | C | t | n-h | Weight(Kg) |
|------|----|-----|----|----|----|-----|----|----|------|------------|
| 5K | 15 | 130 | 60 | 52 | 15 | 80 | 60 | 9 | 4-12 | 2.0 |
| | 20 | 132 | 60 | 52 | 20 | 85 | 65 | 10 | 4-12 | 2.3 |
| | 25 | 142 | 60 | 52 | 25 | 95 | 75 | 14 | 4-12 | 2.5 |
| 16K | 15 | 136 | 60 | 52 | 15 | 95 | 70 | 12 | 4-15 | 3.0 |
| | 20 | 140 | 60 | 52 | 20 | 100 | 75 | 14 | 4-15 | 2.5 |
| | 25 | 150 | 60 | 52 | 25 | 125 | 90 | 14 | 4-19 | 3.2 |

BALL FLOAT TYPE AIR TRAP *Air Trap - PT Screw*

Manufactured in accordance to JIS F 7400 / Connection - PT Screwed



| Part No. | Material |
|----------------|-----------------|
| 1 - Body | Ductile Iron |
| 2 - Bonnet | Ductile Iron |
| 3 - Seat | Stainless Steel |
| 4 - Ball Float | Stainless Steel |
| 5 - Disc | Stainless Steel |

*** NOTE**

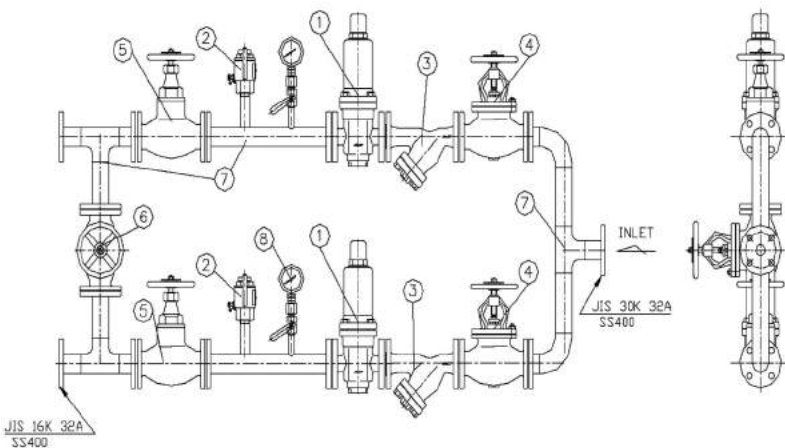
1. Max. Working Pressure : 14Kgf/Cm²
2. Max. Working Temperature : 220°C
3. Applicable Fluid : Air
4. Hydro. Test Pressure : Working Pressure x 1,5
5. Connection : Pt Screwed

SERIES HSN AT Y01 Air Trap

| SIZE | L | L1 | H | d (PT) |
|------|-----|-----|-----|--------|
| 15 | 120 | 120 | 155 | 1/2" |
| 20 | 120 | 120 | 155 | 3/4" |
| 25 | 120 | 120 | 190 | 1" |
| 32 | 270 | 240 | 295 | 1-1/4" |
| 40 | 270 | 240 | 295 | 1-1/2" |
| 50 | 300 | 260 | 310 | 2" |

BY-PASS VALVE UNIT *JIS 30K 32A For Air Pressure Reducing Valve UNIT*

Manufactured in accordance to JIS F 7400



| SPECIFICATIONS |
|------------------------------------|
| 1. NOMINAL PRESSURE : 30K |
| 2. DESIGN TEMPERATURE : 100°C |
| 3. APPLICATION FLUID : AIR |
| 4. PRESSURE : P1: 30.0K , P2: 7.0K |

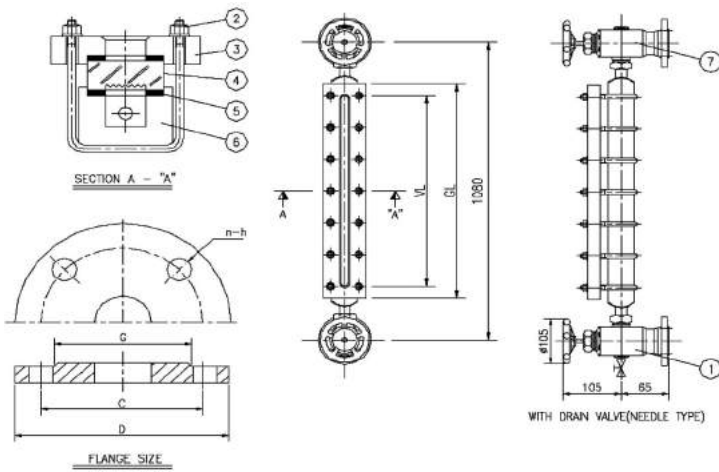
| SPECIFICATIONS |
|------------------------------------|
| 1. NOMINAL PRESSURE : 30K |
| 2. DESIGN TEMPERATURE : 100°C |
| 3. APPLICATION FLUID : AIR |
| 4. PRESSURE : P1: 30.0K , P2: 7.0K |

SERIES HSN BY Y01 Pressure Reducing Valve UNIT

| DESCRIPTION | Q'ty | Material | REMARK |
|----------------------------------|-------|-------------|-------------|
| 1 - REDUCING VALVE JIS30K-32A | 2 | Cast Steel | 30 → 7.0K |
| 2 - SAFETY VALVE PT1"xPT1" | 2 | Cast Bronze | Set : 7.7K |
| 3 - STRAINER JIS 30K 32A | 2 | Cast Steel | |
| 4 - GLOBE VALVE JIS30K-32A | 2 | Cast Steel | |
| 5 - GLOBE CHECK VALVE JIS16K-32A | 2 | Cast Bronze | |
| 6 - GLOBE VALVE JIS16K-32A | 1 | Cast Bronze | |
| 7 - PIPE PICE | 5 | STPG370 | Sch40 |
| 8 - PRESSURE GUAGE & BALL VALVE | 2Sets | - | ∅60.0 (15K) |

REFLEX TYPE LEVEL GAUGE - SCREW DOWN TYPE *Reflex Type Level Gauge*

Manufactured in accordance to JIS F 7400



SERIES HSN SLG-RH-S0320 Level Gauge

| Part No. | Material | Q'ty |
|------------------------|------------------------|------|
| 1 - Screw Down V/V | Stainless Steel | 2 |
| 2 - U-Bolt | - | - |
| 3 - Gauge Cover | - | 1 |
| 4 - Glass/Borosilicate | 1 | |
| 5 - Packin | Non-Asbestos | 2 |
| 6 - Gauge Body | Stainless Steel, Steel | 1 |
| 7 - Gauge Valve | Stainless Steel | |

*** NOTE**

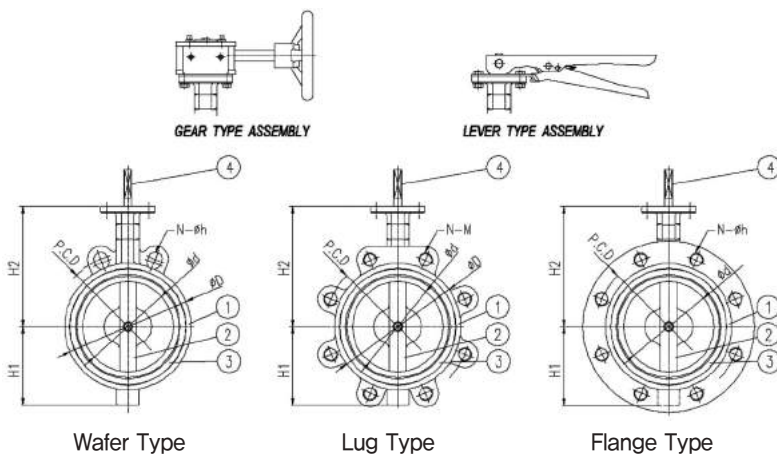
1. Max. Working Pressure : 23Kgf/Cm²
2. Max. Working Temperature : 200°C
3. Applicable Fluid : Boiler Water Tank⁵

| SIZE | D | C | G | n-h | Remark |
|--------------|-----|------|----|------|--------|
| 5K 25A | 95 | 75 | - | 4-15 | |
| 10K 20A | 100 | 75 | - | 4-15 | |
| 16K 20A | 100 | 75 | 58 | 4-15 | |
| 150Lbs x 25A | 108 | 79,5 | 51 | 4-16 | |
| 300Lbs x 25A | 124 | 89 | 51 | 4-20 | |
| PN10 x 25A | 115 | 85 | - | 4-14 | |

| Part No. | Material | Q'ty |
|--------------------|------------------------|------|
| 1 - Screw Down V/V | Stainless Steel | 2 |
| 2 - U-Bolt | - | - |
| 3 - Gauge Cover | - | 1 |
| 4 - Glass | Borosilicate | 1 |
| 5 - Packing | Non-Asbestos | 2 |
| 6 - Gauge Body | Stainless Steel, Steel | 1 |
| 7 - Gauge Valve | Stainless Steel | |

SIRES F 7480 BUTTERFLY VALVE *Butterfly Valve (Wafer, Lug, Flange Type)*

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K, 10K, 16K



| Part No. | Material |
|----------|--|
| 1 - Body | Stainless Steel, Cast Steel Ductile Iron, Cast Bronze |
| 2 - Disc | Stainless Steel |
| 3 - Seat | Viton |
| 4 - Stem | Stainless Steel |

Test Pressure MPa[Kgf/cm²]

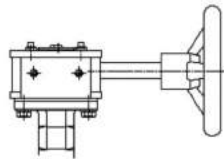
*** NOTE**

Hydro. Test Pressure : Working Pressure x 1,5

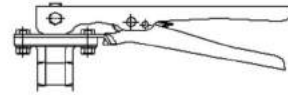
| SIZE | d | D | L | H1 | H2 | Flange 5K | | Flange 10K | | Flange 16K(20K) | |
|------|-----|-----|----|-----|-----|-----------|------------|------------|------------|-----------------|------------|
| | | | | | | PCD | N-h (M) | PCD | N-h (M) | PCD | N-h (M) |
| 40 | 40 | 86 | 40 | 54 | 122 | 95 | 4-15(M12) | 105 | 4-19(M16) | 105 | 4-19(M16) |
| 50 | 52 | 105 | 43 | 57 | 129 | 105 | 4-15(M12) | 120 | 4-19(M16) | 120 | 8-19(M16) |
| 65 | 65 | 114 | 46 | 67 | 139 | 130 | 4-15(M12) | 140 | 4-19(M16) | 140 | 8-19(M16) |
| 80 | 80 | 129 | 46 | 78 | 156 | 145 | 4-19(M16) | 150 | 8-19(M16) | 160 | 8-23(M20) |
| 100 | 100 | 155 | 52 | 100 | 164 | 165 | 8-19(M16) | 175 | 8-19(M16) | 185 | 8-23(M20) |
| 125 | 125 | 180 | 56 | 107 | 187 | 200 | 8-19(M16) | 210 | 8-23(M20) | 225 | 8-25(M22) |
| 150 | 150 | 207 | 56 | 122 | 200 | 230 | 8-19(M16) | 240 | 8-23(M20) | 260 | 12-25(M22) |
| 200 | 198 | 260 | 60 | 160 | 238 | 280 | 8-23(M20) | 290 | 12-23(M20) | 305 | 12-25(M22) |
| 250 | 248 | 331 | 68 | 215 | 383 | 345 | 12-23(M20) | 355 | 12-25(M22) | 380 | 12-27(M24) |
| 300 | 298 | 377 | 78 | 245 | 316 | 390 | 12-23(M20) | 400 | 16-25(M22) | 430 | 16-27(M24) |

SIRES F 7480 BUTTERFLY VALVE *F 7480 Butterfly Valve (Wafer, Lug, Flange Type)*

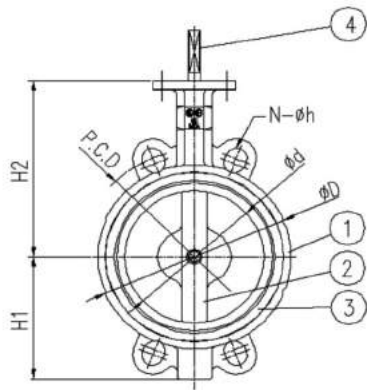
Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 5K, 10K, 16K



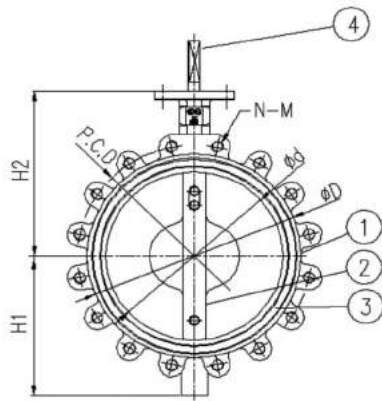
GEAR TYPE ASSEMBLY



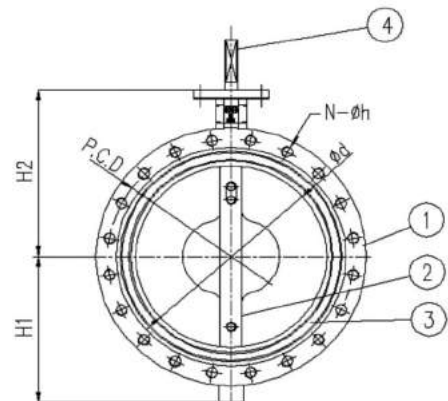
LEVER TYPE ASSEMBLY



Wafer Type



Lug Type



Flange Type

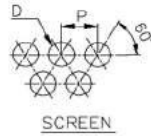
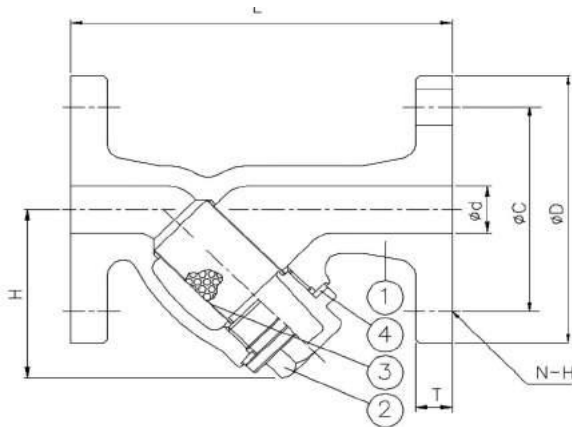
| Part No. | Material |
|----------|--|
| 1 - Body | Stainless Steel, Cast Steel Ductile Iron, Cast Bronze |
| 2 - Disc | Stainless Steel |
| 3 - Seat | Viton |
| 4 - Stem | Stainless Steel |

| Test Pressure MPa[Kgf/cm2] |
|---|
| * NOTE Hydro. Test Pressure : Working Pressure x 1,5 |

| SIZE | d | D | L | H1 | H2 | Flange 5K | | Flange 10K | | Flange 16K(20K) | |
|------|-----|------|-----|-----|-----|-----------|------------|------------|------------|-----------------|------------|
| | | | | | | PCD | N-h (M) | PCD | N-h (M) | PCD | N-h (M) |
| 350 | 327 | 416 | 78 | 285 | 341 | 435 | 12-25(M22) | 445 | 16-33(M22) | 480 | 16-33(M30) |
| 400 | 387 | 475 | 102 | 304 | 382 | 495 | 16-25(M22) | 510 | 16-33(M24) | 540 | 16-33(M30) |
| 450 | 438 | 535 | 114 | 330 | 403 | 555 | 16-25(M22) | 565 | 20-33(M24) | 605 | 20-33(M30) |
| 500 | 477 | 590 | 127 | 370 | 442 | 605 | 20-25(M22) | 620 | 20-33(M24) | 660 | 20-33(M30) |
| 550 | 518 | 680 | 140 | 410 | 475 | 665 | 20-27(M24) | 680 | 20-33(M30) | 720 | 20-39(M36) |
| 600 | 560 | 695 | 154 | 420 | 510 | 715 | 20-27(M24) | 730 | 24-33(M30) | 770 | 24-39(M36) |
| 650 | 585 | 735 | 165 | 455 | 530 | 770 | 24-27(M24) | 780 | 24-33(M30) | 820 | 24-39(M36) |
| 700 | 690 | 800 | 165 | 480 | 580 | 820 | 24-27(M24) | 840 | 24-33(M30) | 875 | 24-42(M39) |
| 750 | 729 | 857 | 180 | 535 | 585 | 880 | 24-33(M30) | 900 | 24-33(M30) | 935 | 24-42(M39) |
| 800 | 785 | 920 | 180 | 570 | 630 | 930 | 24-33(M30) | 950 | 28-33(M30) | 990 | 24-48(M45) |
| 850 | 820 | 945 | 200 | 590 | 660 | 980 | 24-33(M30) | 1000 | 28-33(M30) | 1040 | 24-48(M45) |
| 900 | 870 | 1000 | 203 | 640 | 700 | 1030 | 24-33(M30) | 1050 | 28-33(M30) | 1090 | 28-48(M45) |
| 1000 | 960 | 1095 | 216 | 700 | 750 | 1130 | 28-33(M30) | 1160 | 28-39(M36) | 1210 | 28-56(M52) |

CAST STEEL , DUCTILE IRON , CAST BRONZE Y - Type Strainer (15A ~ 40A)

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES HSN YSR Y01 Y Strainer

| Part No. | Material |
|------------|--------------------------|
| 1 - Body | Cast Steel / Cast Bronze |
| | Ductile Iron |
| 2 - Cap | Cast Bronze |
| 3 - Screen | Stainless Steel |
| 4 - Gasket | Non - Asbestos |

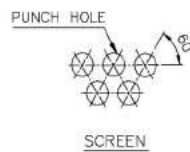
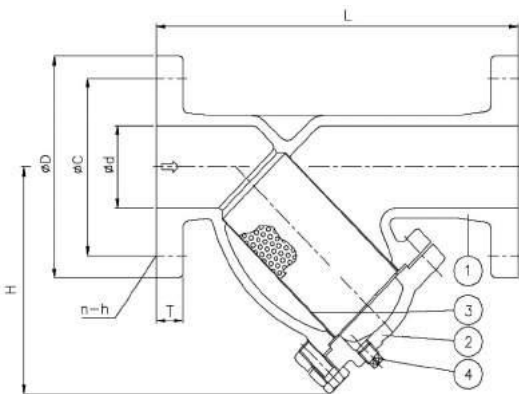
*** NOTE**

- Nominal Pressure : 6 Kgf/Cm²
- Design Temperature : 220°C
- Applicable Std.: KS B 1538
- Applicable Fluid. : Steam & Liquid (Water & Oil)
- Hydrostatic Pressure : 9 Kgf/Cm²
(Holding Time : Min, 5 Minute)

| SIZE | d | C | D | n-h | t | L | H | REMARK | | | | | | | | | |
|------------------|-------|-----|-----|------|----|-----|-----|--|------------------|--|--|---|---|---|-----|-------|-----|
| 15 | 15 | 70 | 95 | 4-15 | 12 | 125 | 60 | <table border="1"> <thead> <tr> <th colspan="3">SCREEN DIMENSION</th> </tr> <tr> <th>t</th> <th>D</th> <th>P</th> </tr> </thead> <tbody> <tr> <td>0.5</td> <td>Ø 3.0</td> <td>4.0</td> </tr> </tbody> </table> | SCREEN DIMENSION | | | t | D | P | 0.5 | Ø 3.0 | 4.0 |
| SCREEN DIMENSION | | | | | | | | | | | | | | | | | |
| t | D | P | | | | | | | | | | | | | | | |
| 0.5 | Ø 3.0 | 4.0 | | | | | | | | | | | | | | | |
| 20 | 20 | 75 | 100 | 4-15 | 14 | 130 | 75 | | | | | | | | | | |
| 25 | 25 | 90 | 125 | 4-19 | 14 | 165 | 85 | | | | | | | | | | |
| 32 | 32 | 100 | 135 | 4-19 | 16 | 178 | 95 | | | | | | | | | | |
| 40 | 40 | 105 | 140 | 4-19 | 16 | 195 | 105 | | | | | | | | | | |
| 32 | 32 | 100 | 135 | 4-19 | 16 | 160 | 95 | | | | | | | | | | |
| 50 | 50 | 120 | 155 | 4-19 | 16 | 200 | 160 | | | | | | | | | | |

CAST STEEL , DUCTILE IRON , CAST BRONZE Y - Type Strainer (50A ~ 350A)

Manufactured in accordance to JIS F 7400 / Flanges as per JIS B 2210 - 10K



SERIES HSN YSR Y02 Y Strainer

| Part No. | Material |
|------------|--------------------------|
| 1 - Body | Cast Steel / Cast Bronze |
| | Ductile Iron |
| 2 - Cap | Cast Bronze |
| 3 - Screen | Stainless Steel |
| 4 - Plug | SS400 |

*** NOTE**

- Nominal Pressure : 10 Kgf/Cm²
- Design Temperature : 220°C
- Applicable Std.: KS B 1538
- Applicable Fluid. : Steam & Liquid (Water & Oil)
- Hydrostatic Pressure : 15 Kgf/Cm²
(Holding Time : Min, 5 Minute)

| SIZE | d | C | D | n-h | t | L | H | REMARK | | | | | | | | | | | | | | | | | | |
|------------------|-----|------------|-----|-------|----|-----|-----|--|------------------|--|--|------|---|------------|-----|-----|-----|----------|-----|-----|-----------|-----|-----|-----------|-----|------|
| 50 | 50 | 120 | 155 | 4-19 | 16 | 240 | 160 | <table border="1"> <thead> <tr> <th colspan="3">SCREEN DIMENSION</th> </tr> <tr> <th>SIZE</th> <th>t</th> <th>Punch Hole</th> </tr> </thead> <tbody> <tr> <td>50A</td> <td>0.5</td> <td>Ø 3</td> </tr> <tr> <td>65A~100A</td> <td>0.7</td> <td>Ø 5</td> </tr> <tr> <td>125A~200A</td> <td>1.0</td> <td>Ø 8</td> </tr> <tr> <td>250A~350A</td> <td>1.5</td> <td>Ø 10</td> </tr> </tbody> </table> | SCREEN DIMENSION | | | SIZE | t | Punch Hole | 50A | 0.5 | Ø 3 | 65A~100A | 0.7 | Ø 5 | 125A~200A | 1.0 | Ø 8 | 250A~350A | 1.5 | Ø 10 |
| SCREEN DIMENSION | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SIZE | t | Punch Hole | | | | | | | | | | | | | | | | | | | | | | | | |
| 50A | 0.5 | Ø 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65A~100A | 0.7 | Ø 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 125A~200A | 1.0 | Ø 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 250A~350A | 1.5 | Ø 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 65 | 140 | 175 | 4-19 | 18 | 255 | 155 | | | | | | | | | | | | | | | | | | | |
| 80 | 80 | 150 | 185 | 8-19 | 18 | 290 | 190 | | | | | | | | | | | | | | | | | | | |
| 100 | 100 | 175 | 210 | 8-19 | 18 | 330 | 215 | | | | | | | | | | | | | | | | | | | |
| 125 | 125 | 210 | 250 | 8-23 | 20 | 400 | 290 | | | | | | | | | | | | | | | | | | | |
| 150 | 150 | 240 | 280 | 8-23 | 22 | 470 | 300 | | | | | | | | | | | | | | | | | | | |
| 200 | 200 | 290 | 330 | 12-23 | 22 | 570 | 400 | | | | | | | | | | | | | | | | | | | |
| 250 | 250 | 355 | 400 | 12-25 | 24 | 640 | 440 | | | | | | | | | | | | | | | | | | | |
| 300 | 300 | 400 | 445 | 16-25 | 24 | 785 | 545 | | | | | | | | | | | | | | | | | | | |
| 350 | 350 | 445 | 490 | 16-25 | 26 | 880 | 600 | | | | | | | | | | | | | | | | | | | |

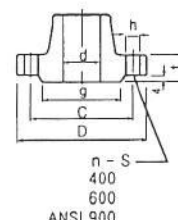
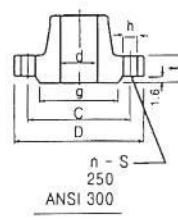
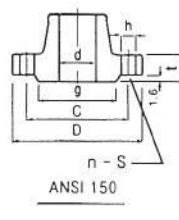
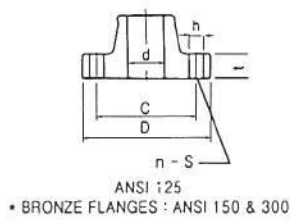
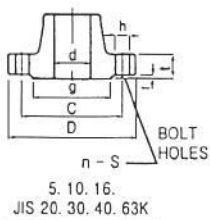
참고자료 / 관플랜지 기준치수 (JIS) Reference Date / Flange Table (JIS)

Disappearance dimension in JIS 20K table should be followed JIS 16K

JISB2214-1976

| d | JIS 5kgf/cm ² JIS B2211-1977 | | | | | | | | | JIS 10kgf/cm ² JIS B2212-1977 | | | | | | | | | JIS 16kgf/cm ² JIS B2213-1976 | | | | | | | | | JIS20k | |
|-----|---|----|-------|----|-----|-----|----|----|-----|--|----|-------|----|-----|-----|----|----|-----|--|----|-------|----|-----|-----|----|----|-----|--------|---|
| | D | t | | f̄ | g | c | n | h | δ | D | t | | f̄ | g | c | n | h | δ | D | t | | f̄ | g | c | n | h | δ | | t |
| | | FC | other | | | | | | | | FC | other | | | | | | | | FC | other | | | | | | | | |
| 15 | 80 | 12 | 9 | 1 | 48 | 60 | 4 | 12 | M10 | 95 | 16 | 12 | 1 | 52 | 70 | 4 | 15 | M12 | 95 | - | 12 | 1 | 52 | 70 | 4 | 15 | M12 | 14 | |
| 20 | 85 | 14 | 10 | 1 | 52 | 65 | 4 | 12 | M10 | 100 | 18 | 14 | 1 | 58 | 75 | 4 | 15 | M12 | 100 | - | 14 | 1 | 58 | 75 | 4 | 15 | M12 | 16 | |
| 25 | 95 | 14 | 10 | 1 | 62 | 75 | 4 | 12 | M10 | 125 | 18 | 14 | 1 | 70 | 90 | 4 | 19 | M16 | 125 | - | 14 | 1 | 70 | 90 | 4 | 19 | M16 | 16 | |
| 32 | 115 | 16 | 12 | 2 | 72 | 90 | 4 | 15 | M12 | 135 | 20 | 16 | 2 | 80 | 100 | 4 | 19 | M16 | 135 | - | 16 | 2 | 80 | 100 | 4 | 19 | M16 | 18 | |
| 40 | 120 | 16 | 12 | 2 | 78 | 95 | 4 | 15 | M12 | 140 | 20 | 16 | 2 | 85 | 105 | 4 | 19 | M16 | 140 | - | 16 | 2 | 85 | 105 | 4 | 19 | M16 | 18 | |
| 50 | 130 | 16 | 14 | 2 | 88 | 105 | 4 | 15 | M12 | 155 | 20 | 16 | 2 | 100 | 120 | 4 | 19 | M16 | 155 | 20 | 16 | 2 | 100 | 120 | 8 | 19 | M16 | 18 | |
| 65 | 155 | 18 | 14 | 2 | 112 | 130 | 4 | 15 | M12 | 175 | 22 | 18 | 2 | 120 | 140 | 4 | 19 | M16 | 175 | 22 | 18 | 2 | 120 | 140 | 8 | 19 | M16 | 20 | |
| 80 | 180 | 18 | 14 | 2 | 125 | 145 | 4 | 19 | M16 | 185 | 22 | 18 | 2 | 130 | 150 | 8 | 19 | M16 | 200 | 24 | 20 | 2 | 135 | 160 | 8 | 23 | M20 | 22 | |
| 100 | 200 | 20 | 16 | 2 | 145 | 165 | 8 | 19 | M16 | 210 | 24 | 18 | 2 | 155 | 175 | 8 | 19 | M16 | 225 | 26 | 22 | 2 | 160 | 185 | 8 | 23 | M20 | 24 | |
| 125 | 235 | 20 | 16 | 2 | 180 | 200 | 8 | 19 | M16 | 250 | 24 | 20 | 2 | 185 | 210 | 8 | 23 | M20 | 270 | 26 | 22 | 2 | 195 | 225 | 8 | 25 | M22 | 26 | |
| 150 | 265 | 22 | 18 | 2 | 210 | 230 | 8 | 19 | M16 | 280 | 26 | 22 | 2 | 215 | 240 | 8 | 23 | M20 | 305 | 28 | 24 | 2 | 230 | 260 | 12 | 25 | M22 | 28 | |
| 200 | 320 | 24 | 20 | 2 | 255 | 280 | 8 | 23 | M20 | 330 | 26 | 22 | 2 | 265 | 290 | 12 | 23 | M20 | 350 | 30 | 26 | 2 | 275 | 305 | 12 | 25 | M22 | 30 | |
| 250 | 385 | 26 | 22 | 2 | 320 | 345 | 12 | 23 | M20 | 400 | 30 | 24 | 2 | 325 | 355 | 12 | 25 | M22 | 430 | 34 | 28 | 2 | 345 | 380 | 12 | 27 | M24 | 34 | |
| 300 | 430 | 28 | 22 | 3 | 365 | 390 | 12 | 23 | M20 | 445 | 32 | 24 | 3 | 370 | 400 | 16 | 25 | M22 | 480 | 36 | 30 | 3 | 395 | 430 | 16 | 27 | M24 | 36 | |

| d | JIS 30kgf/cm ² JIS B2215-1976 | | | | | | | | | JIS 40kgf/cm ² JIS B2216-1976 | | | | | | | | | JIS 63kgf/cm ² JIS B2217-1976 | | | | | | | | |
|-----|--|----|----|-----|-----|----|----|-----|-----|--|----|----|-----|-----|----|----|-----|-----|--|----|----|-----|-----|----|----|-----|--|
| | D | t | f̄ | g | c | n | h | δ | d | D | t | f̄ | g | c | n | h | δ | d | D | t | f̄ | g | c | n | h | δ | |
| 15 | 115 | 18 | 1 | 55 | 80 | 4 | 19 | M16 | 15 | 115 | 20 | 1 | 55 | 80 | 4 | 19 | M16 | 12 | 120 | 23 | 1 | 55 | 85 | 4 | 19 | M16 | |
| 20 | 120 | 18 | 1 | 60 | 85 | 4 | 19 | M16 | 20 | 120 | 20 | 1 | 60 | 85 | 4 | 19 | M16 | 17 | 135 | 25 | 1 | 60 | 95 | 4 | 23 | M20 | |
| 25 | 130 | 20 | 1 | 70 | 95 | 4 | 19 | M16 | 25 | 130 | 22 | 1 | 70 | 95 | 4 | 19 | M16 | 22 | 140 | 27 | 1 | 70 | 100 | 4 | 23 | M20 | |
| 32 | 140 | 22 | 2 | 80 | 105 | 4 | 19 | M16 | 32 | 140 | 24 | 2 | 80 | 105 | 4 | 19 | M16 | 29 | 150 | 30 | 2 | 80 | 110 | 4 | 23 | M20 | |
| 40 | 160 | 22 | 2 | 90 | 120 | 4 | 23 | M20 | 38 | 160 | 24 | 2 | 90 | 120 | 4 | 23 | M20 | 35 | 175 | 32 | 2 | 90 | 130 | 4 | 25 | M22 | |
| 50 | 165 | 22 | 2 | 105 | 130 | 8 | 19 | M16 | 50 | 165 | 26 | 2 | 105 | 130 | 8 | 19 | M16 | 48 | 185 | 34 | 2 | 105 | 145 | 8 | 23 | M20 | |
| 65 | 200 | 26 | 2 | 130 | 160 | 8 | 23 | M20 | 62 | 200 | 30 | 2 | 130 | 160 | 8 | 23 | M20 | 57 | 220 | 38 | 2 | 130 | 175 | 8 | 25 | M22 | |
| 80 | 210 | 28 | 2 | 140 | 170 | 8 | 23 | M20 | 75 | 210 | 32 | 2 | 140 | 170 | 8 | 23 | M20 | 73 | 230 | 40 | 2 | 140 | 185 | 8 | 25 | M22 | |
| 100 | 240 | 32 | 2 | 160 | 195 | 8 | 25 | M22 | 100 | 250 | 36 | 2 | 165 | 205 | 8 | 25 | M22 | 98 | 270 | 44 | 2 | 165 | 220 | 8 | 27 | M24 | |
| 125 | 275 | 36 | 2 | 195 | 230 | 8 | 25 | M22 | 120 | 300 | 40 | 2 | 200 | 250 | 8 | 27 | M24 | 120 | 325 | 50 | 2 | 200 | 265 | 8 | 33 | M30 | |
| 150 | 325 | 38 | 2 | 235 | 275 | 12 | 27 | M24 | 150 | 355 | 44 | 2 | 240 | 295 | 12 | 33 | M30 | 146 | 365 | 54 | 2 | 240 | 305 | 12 | 33 | M30 | |
| 200 | 370 | 42 | 2 | 280 | 320 | 12 | 27 | M24 | 200 | 405 | 50 | 2 | 290 | 345 | 12 | 33 | M30 | 190 | 425 | 60 | 2 | 290 | 360 | 12 | 33 | M30 | |
| 250 | 450 | 48 | 2 | 345 | 390 | 12 | 33 | M30 | 245 | 475 | 56 | 2 | 355 | 410 | 12 | 33 | M30 | 238 | 500 | 68 | 2 | 355 | 430 | 12 | 39 | M36 | |
| 300 | 515 | 52 | 3 | 405 | 450 | 16 | 33 | M30 | 295 | 540 | 60 | 3 | 410 | 470 | 16 | 39 | M36 | 283 | 560 | 77 | 3 | 410 | 485 | 16 | 39 | M36 | |



Unless otherwise specified flange facing finish shall not be serrated

Concerning boltings (δ) used for those flanges shown below table metric system screw threads shall be applied.

참고자료 / 관플랜지 기준치수 (ANSI) Reference Data / Flange Table (ANSI)

CAST IRON PIPE FLANGE

BRONZE FLANGE

| d | ANSI CLASS 125 ANSI B16.1-1975 | | | | | | ANSI CLASS 250 ANSI B16.1-1975 | | | | | | ANSI CLASS 150 ANSI B16.24-1979 | | | | | | ANSI CLASS 300 ANSI B16.24-1979 | | | | | | |
|-----|--------------------------------|----|-----|----|----|-----|--------------------------------|----|-----|-----|----|----|---------------------------------|-----|----|-----|----|----|---------------------------------|-----|----|-----|----|----|-----|
| | D | t | c | n | h | δ | D | t | g | c | n | h | δ | D | t | c | n | h | δ | D | t | c | n | h | δ |
| 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | 89 | 8 | 60 | 4 | 16 | M14 | 95 | 13 | 67 | 4 | 16 | M14 |
| 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | 98 | 9 | 70 | 4 | 16 | M14 | 117 | 13 | 83 | 4 | 19 | M16 |
| 25 | 108 | 12 | 79 | 4 | 16 | M14 | 124 | 18 | 68 | 89 | 4 | 20 | M16 | 108 | 10 | 79 | 4 | 16 | M14 | 124 | 15 | 89 | 4 | 19 | M16 |
| 32 | 118 | 13 | 89 | 4 | 16 | M14 | 133 | 19 | 78 | 98 | 4 | 20 | M16 | 117 | 10 | 89 | 4 | 16 | M14 | 133 | 16 | 98 | 4 | 19 | M16 |
| 40 | 127 | 15 | 98 | 4 | 16 | M14 | 156 | 21 | 91 | 114 | 4 | 23 | M20 | 127 | 11 | 98 | 4 | 16 | M14 | 156 | 18 | 114 | 4 | 23 | M20 |
| 50 | 152 | 16 | 121 | 4 | 20 | M16 | 165 | 23 | 106 | 127 | 8 | 20 | M16 | 152 | 13 | 121 | 4 | 19 | M16 | 165 | 19 | 127 | 8 | 23 | M20 |
| 65 | 178 | 18 | 140 | 4 | 20 | M16 | 191 | 26 | 125 | 149 | 8 | 23 | M20 | 178 | 14 | 140 | 4 | 19 | M16 | 191 | 21 | 149 | 8 | 23 | M20 |
| 80 | 191 | 19 | 152 | 4 | 20 | M16 | 210 | 29 | 144 | 168 | 8 | 23 | M20 | 191 | 16 | 152 | 4 | 19 | M16 | 210 | 23 | 168 | 8 | 23 | M20 |
| 100 | 229 | 24 | 191 | 8 | 20 | M16 | 254 | 32 | 176 | 200 | 8 | 23 | M20 | 229 | 17 | 191 | 8 | 19 | M16 | 254 | 27 | 200 | 8 | 23 | M20 |
| 125 | 254 | 24 | 216 | 8 | 23 | M20 | 279 | 35 | 211 | 235 | 8 | 23 | M20 | 254 | 19 | 216 | 8 | 23 | M20 | 279 | 28 | 235 | 8 | 23 | M20 |
| 150 | 279 | 26 | 241 | 8 | 23 | M20 | 318 | 37 | 246 | 270 | 12 | 23 | M20 | 279 | 21 | 241 | 8 | 23 | M20 | 318 | 30 | 270 | 12 | 23 | M20 |
| 200 | 343 | 29 | 299 | 8 | 23 | M20 | 381 | 42 | 303 | 330 | 12 | 26 | M22 | 343 | 24 | 298 | 8 | 23 | M20 | 381 | 35 | 330 | 12 | 25 | M22 |
| 250 | 406 | 31 | 362 | 12 | 26 | M22 | 445 | 48 | 357 | 387 | 16 | 30 | M27 | 406 | 25 | 362 | 12 | 25 | M22 | - | - | - | - | - | - |
| 300 | 483 | 32 | 432 | 12 | 26 | M22 | 521 | 51 | 418 | 451 | 16 | 33 | M30 | 483 | 27 | 432 | 12 | 25 | M22 | - | - | - | - | - | - |

| d | ANSI CLASS 150 ANSI B16.5-1977 | | | | | | |
|-----|--------------------------------|------|-------|-------|----|------|-----|
| | D | t | g | c | n | h | & |
| 15 | 88.9 | 11.2 | 35.1 | 60.5 | 4 | 15.7 | M14 |
| 20 | 98.6 | 12.7 | 42.9 | 69.9 | 4 | 15.7 | M14 |
| 25 | 108 | 14.2 | 50.8 | 79.2 | 4 | 15.7 | M14 |
| 32 | 117.3 | 15.7 | 63.5 | 88.9 | 4 | 15.7 | M14 |
| 40 | 127 | 17.5 | 73.2 | 98.6 | 4 | 15.7 | M14 |
| 50 | 152.4 | 19.1 | 91.9 | 120.7 | 4 | 19.1 | M16 |
| 65 | 177.8 | 22.4 | 104.6 | 139.7 | 4 | 19.1 | M16 |
| 80 | 190.5 | 23.9 | 127 | 152.4 | 4 | 19.1 | M16 |
| 100 | 228.6 | 23.9 | 157.2 | 190.5 | 8 | 19.1 | M16 |
| 125 | 254 | 23.9 | 185.7 | 215.9 | 8 | 22.4 | M20 |
| 150 | 279.4 | 25.4 | 215.9 | 241.3 | 8 | 22.4 | M20 |
| 200 | 342.9 | 28.4 | 269.7 | 298.5 | 8 | 22.4 | M20 |
| 250 | 406.4 | 30.2 | 323.9 | 362 | 12 | 25.4 | M22 |
| 300 | 482.6 | 31.8 | 381 | 431.8 | 12 | 25.4 | M22 |

| d | ANSI CLASS 300 ANSI B16.5-1977 | | | | | | |
|-----|--------------------------------|------|-------|-------|----|------|-----|
| | D | t | g | c | n | h | & |
| 15 | 95.2 | 14.2 | 35.1 | 66.5 | 4 | 15.7 | M14 |
| 20 | 117.3 | 15.7 | 42.9 | 82.6 | 4 | 19.1 | M16 |
| 25 | 123.9 | 17.5 | 50.8 | 88.9 | 4 | 19.1 | M16 |
| 32 | 133.3 | 19.1 | 63.5 | 98.6 | 4 | 19.1 | M16 |
| 40 | 155.4 | 20.6 | 73.2 | 114.3 | 4 | 22.4 | M20 |
| 50 | 165.1 | 22.4 | 91.9 | 127 | 8 | 19.1 | M16 |
| 65 | 190.5 | 25.4 | 104.6 | 149.4 | 8 | 22.4 | M20 |
| 80 | 209.5 | 28.4 | 127 | 168.1 | 8 | 22.4 | M20 |
| 100 | 254 | 31.8 | 157.2 | 200.2 | 8 | 22.4 | M20 |
| 125 | 279.4 | 35.1 | 185.7 | 235 | 8 | 22.4 | M20 |
| 150 | 317.5 | 36.6 | 215.9 | 269.7 | 12 | 22.4 | M20 |
| 200 | 381 | 41.1 | 269.7 | 330.2 | 12 | 25.4 | M22 |
| 250 | 444.5 | 47.8 | 323.9 | 387.4 | 16 | 28.4 | M26 |
| 300 | 520.7 | 50.8 | 381 | 450.9 | 16 | 31.8 | M30 |

참고자료 / 관플랜지 기준치수 (ANSI) Reference Date / Flange Table (ANSI)

| d | ANSI CLASS 400 ANSI B16.5-1977 | | | | | | |
|-----|--------------------------------|------|-------|-------|----|------|-----|
| | D | t | g | c | n | h | & |
| 15 | 95.2 | 14.2 | 35.1 | 66.5 | 4 | 15.7 | M14 |
| 20 | 117.3 | 15.7 | 42.9 | 82.6 | 4 | 19.1 | M16 |
| 25 | 123.9 | 17.5 | 50.8 | 88.9 | 4 | 19.1 | M16 |
| 32 | 133.3 | 20.6 | 63.5 | 98.6 | 4 | 19.1 | M16 |
| 40 | 155.4 | 22.4 | 73.2 | 114.3 | 4 | 22.4 | M20 |
| 50 | 165.1 | 25.4 | 91.9 | 127 | 8 | 19.1 | M16 |
| 65 | 190.5 | 28.4 | 104.6 | 149.4 | 8 | 22.4 | M20 |
| 80 | 209.5 | 31.8 | 127 | 168.1 | 8 | 22.4 | M20 |
| 100 | 254 | 35.1 | 157.2 | 200.2 | 8 | 25.4 | M22 |
| 125 | 279.4 | 38.1 | 185.7 | 235 | 8 | 25.4 | M22 |
| 150 | 317.5 | 41.1 | 215.9 | 269.7 | 12 | 25.4 | M22 |
| 200 | 381 | 47.8 | 269.7 | 330.2 | 12 | 28.4 | M26 |
| 250 | 444.5 | 53.8 | 323.9 | 387.4 | 16 | 31.8 | M30 |
| 300 | 520.7 | 57.2 | 381 | 450.9 | 16 | 35.1 | M33 |

| d | ANSI CLASS 600 ANSI B16.5-1977 | | | | | | |
|-----|--------------------------------|------|-------|-------|----|------|-----|
| | D | t | g | c | n | h | & |
| 15 | 95.2 | 14.2 | 35.1 | 66.5 | 4 | 15.7 | M14 |
| 20 | 117.3 | 15.7 | 42.9 | 82.6 | 4 | 19.1 | M16 |
| 25 | 123.9 | 17.5 | 50.8 | 88.9 | 4 | 19.1 | M16 |
| 32 | 133.3 | 20.6 | 63.5 | 98.6 | 4 | 19.1 | M16 |
| 40 | 155.4 | 22.4 | 73.2 | 114.3 | 4 | 22.4 | M20 |
| 50 | 165.1 | 25.4 | 91.9 | 127 | 8 | 19.1 | M16 |
| 65 | 190.5 | 28.4 | 104.6 | 149.4 | 8 | 22.4 | M20 |
| 80 | 209.5 | 31.8 | 127 | 168.1 | 8 | 22.4 | M20 |
| 100 | 273 | 38.1 | 157.2 | 215.9 | 8 | 25.4 | M22 |
| 125 | 330.2 | 44.5 | 185.7 | 266.7 | 8 | 28.4 | M26 |
| 150 | 355.6 | 47.8 | 215.9 | 292.1 | 12 | 28.4 | M26 |
| 200 | 419.1 | 55.6 | 269.7 | 349.3 | 12 | 31.8 | M30 |
| 250 | 508 | 63.5 | 323.9 | 431.8 | 16 | 35.1 | M33 |
| 300 | 558.8 | 66.5 | 381 | 489 | 20 | 35.1 | M33 |

| d | ANSI CLASS 900 ANSI B16.5-1977 | | | | | | |
|-----|--------------------------------|------|-------|-------|----|------|-----|
| | D | t | g | c | n | h | & |
| 15 | 120.7 | 22.4 | 35.1 | 82.6 | 4 | 22.4 | M20 |
| 20 | 130 | 25.4 | 42.9 | 88.9 | 4 | 22.4 | M20 |
| 25 | 149.4 | 28.4 | 50.8 | 101.6 | 4 | 25.4 | M22 |
| 32 | 158.8 | 28.4 | 63.5 | 111.3 | 4 | 25.4 | M22 |
| 40 | 177.8 | 31.8 | 73.2 | 124 | 4 | 28.4 | M26 |
| 50 | 215.9 | 38.1 | 91.9 | 165.1 | 8 | 25.4 | M22 |
| 65 | 244.3 | 41.1 | 104.6 | 190.5 | 8 | 28.4 | M26 |
| 80 | 241.3 | 38.1 | 127 | 190.5 | 8 | 25.4 | M22 |
| 100 | 292.1 | 44.5 | 157.2 | 235 | 8 | 31.8 | M30 |
| 125 | 349.3 | 50.8 | 185.7 | 279.4 | 8 | 35.1 | M33 |
| 150 | 381 | 55.6 | 215.9 | 317.5 | 12 | 31.8 | M30 |
| 200 | 469.9 | 63.5 | 269.7 | 393.7 | 12 | 38.1 | M36 |
| 250 | 546.1 | 69.9 | 323.9 | 469.9 | 16 | 38.1 | M36 |
| 300 | 609.6 | 79.2 | 381 | 533.4 | 20 | 38.1 | M36 |





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