



# MODEL:HF5(CA) CARBON SEAT BALL VALVE

■ HF5(CAM)

■ HF5(CAM)-TD

■ HF5(CAM)-TS

■ HF5(CAH)

■ HF5(CAH)-TD

■ HF5(CAH)-TS

HISAKA WORKS, LTD.

Cat No CA-1206E

# SUITABLE FOR HIGH TEMPERATURE FLUID・STEAM SERVICE

## MODEL: HF5(CA), CARBON SEAT BALL VALVE

(PRODUCTION SPEC. THICKNESS: ASME B16.34 FACE TO FACE: ASME B16.10)

General ball valve has been used PTFE ball seat suitable for anti-erosion and anti-corrosion, but PTFE seat is fixed maximum operation temperature 200°C due to protect creeping with operation load, softening and expanding with high temperature service. Carbon seat ball valve can be suited on maxi. temp. 400°C, because it is used special carbon seat developed for ball valve. It is suitable for hight temperature service with steam, heating medium and so on. It is selectable 2 items, one is MODEL: HF5(CAM) / max. temp. 350°C, and another one is model: HF5(CAH) / max. temp. 400°C.

### FEATURE

1. Carbon seat has self-lubricity. So it's suitable to the seal material for rotating and sliding of ball and seat.
2. It's excellent in heat resistance. It is different with soft seal material and can be used for high temp. service without softening problem.
3. Gland packing and gasket also selected material suitable for high temperature.
4. Carbon material has strength enoughly, but it got a higher strength with shrinkage fitted retainer and safety also.
5. Superior chemical resistance.
6. Flow direction is not fixed. (2 WAY).
7. Ball is polished for finishing.
8. Carbon is a good conductor of electricity. So it is unnecessary to attach the anti-static device.
9. In case of conflagration, carbon seat not burned out. So basic deisgn of this valve is fire safe design.
10. Please note that can be changed. seal performance depends on fluid conditons.

### MODEL & OPERATION TEMP.

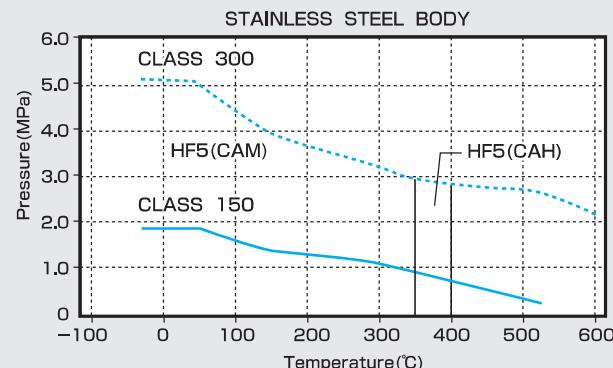
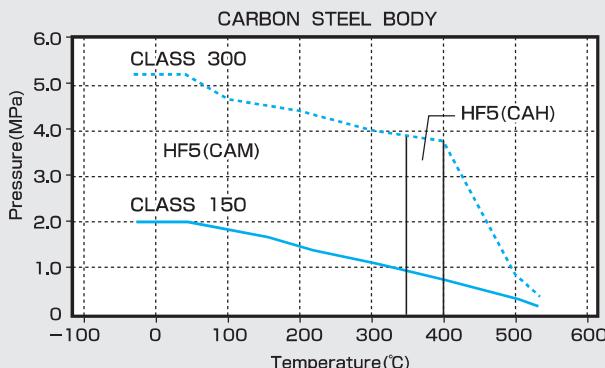
| MODEL    | TEMP. RANGE  |
|----------|--------------|
| HF5(CAM) | -50°C~+350°C |
| HF5(CAH) | -50°C~+400°C |

※Jacket ball valve (model: HJ5) also can be manufactured CARBON seat version. Please contact us for details.

### INDICATOR(Tag Plate)

TYPE HF5(CAM)  TYPE HF5(CAH)

### RATING (Body & Flange rating are as followings.)



### JIS FLANGE TEMP./PRESS. LIST SCPH2

MPa

| CLASS  | W 120°C&less | G <sub>1</sub> 220°C&less | G <sub>2</sub> 300°C | G <sub>3</sub> 350°C | H <sub>1</sub> 400°C | H <sub>2</sub> 425°C |
|--------|--------------|---------------------------|----------------------|----------------------|----------------------|----------------------|
| JIS10K | 1.4          | 1.2                       | 1.0                  | —                    | —                    | —                    |
| JIS20K | 3.4          | 3.1                       | 2.9                  | 2.6                  | 2.3                  | 2.0                  |
| JIS30K | 5.1          | 4.6                       | 4.3                  | 3.9                  | 3.8                  | 3.6                  |

### ASME FLANGE TEMP./PRESS. LIST

MPa

| MATERIAL | CLASS °C | 38   | 93   | 149  | 204  | 260  | 316  | 343  | 371  | 399  | 427  | 454  | 482  | 510  | 538  |
|----------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|          |          | 150  | 1.97 | 1.79 | 1.59 | 1.38 | 1.17 | 0.97 | 0.86 | 0.76 | 0.66 | 0.55 | 0.45 | 0.34 | 0.24 |
| WCB      | 300      | 5.10 | 4.69 | 4.52 | 4.38 | 4.17 | 3.93 | 3.79 | 3.65 | 3.48 | 2.83 | 2.21 | 1.59 | 0.93 | 0.59 |
|          | 150      | 1.90 | 1.59 | 1.41 | 1.31 | 1.17 | 0.97 | 0.86 | 0.76 | 0.66 | 0.55 | 0.45 | 0.34 | 0.24 | 0.14 |
| CF8      | 300      | 4.96 | 4.14 | 3.72 | 3.41 | 3.21 | 3.03 | 2.96 | 2.90 | 2.86 | 2.79 | 2.72 | 2.69 | 2.62 | 2.45 |
|          | 150      | 1.90 | 1.59 | 1.41 | 1.31 | 1.17 | 0.97 | 0.86 | 0.76 | 0.66 | 0.55 | 0.45 | 0.34 | 0.24 | 0.14 |

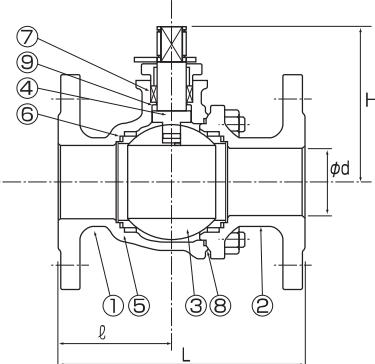
★There is a case of that dimension will be changed without notice by improvement of production and others.

# MANUAL OPERATED

## MAIN MATERIAL LIST(BODY CF8/SCS13A)

|                 |                   |
|-----------------|-------------------|
| ①BODY           | CF8/SCS13A        |
| ②BODY CAP       | CF8/SCS13A        |
| ③BALL           | SUS304            |
| ④STEM           | SUS304            |
| ⑤BALL SEAT      | CARBON+SUS304     |
| ⑥SEAT GASKET    | EXPANDED GRAPHITE |
| ※⑦GLAND PACKING | EXPANDED GRAPHITE |
| ⑧GASKET         | EXPANDED GRAPHITE |
| ⑨THRUST BEARING | CARBON            |

※⑦ GLAND PACKING are different maximum operation temperature for model HF5(CAM) and HF5(CAH).

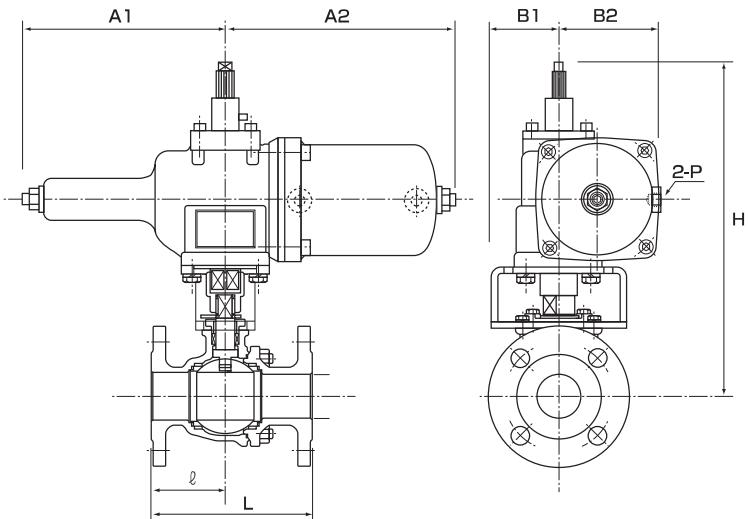


## MANUAL ASME 150 (JIS 10K)

| SIZE        | d   | L   | H   | l   | ☆    |
|-------------|-----|-----|-----|-----|------|
| 1/2"(15A)   | 13  | 108 | 59  | 42  | 120  |
| 3/4"(20A)   | 19  | 117 | 62  | 47  | 120  |
| 1"(25A)     | 25  | 127 | 77  | 51  | 150  |
| 1·1/2"(40A) | 38  | 165 | 100 | 75  | 200  |
| 2"(50A)     | 51  | 178 | 112 | 82  | 250  |
| 2·1/2"(65A) | 64  | 190 | 135 | 84  | 300  |
| 3"(80A)     | 76  | 203 | 154 | 90  | 350  |
| 4"(100A)    | 102 | 229 | 175 | 110 | 400  |
| 5"(125A)    | 127 | 320 | 290 | 160 | 1000 |
| 6"(150A)    | 152 | 394 | 310 | 197 | 1500 |

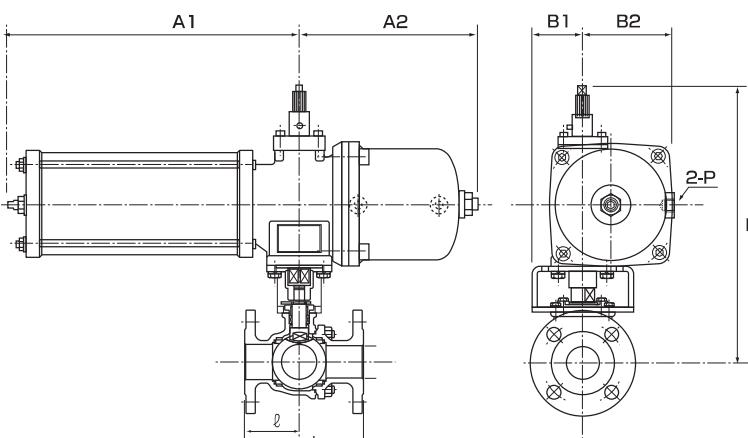
☆LENGTH OF LEVER

# PNEUMATIC OPERATED



## MODEL "TD"(DOUBLE ACTING) ASME 150 (JIS 10K)

| SIZE        | L   | H   | A1  | A2  | B1  | B2  | P           | l   | ACTUATOR MODEL |
|-------------|-----|-----|-----|-----|-----|-----|-------------|-----|----------------|
| 1/2"(15A)   | 108 | 257 | 134 | 151 | 52  | 70  |             | 42  | TD 2           |
| 3/4"(20A)   | 117 | 260 | 134 | 151 | 52  | 70  |             | 47  |                |
| 1"(25A)     | 127 | 269 | 134 | 151 | 52  | 70  | RC (PT) 1/4 | 51  |                |
| 1·1/2"(40A) | 165 | 319 | 171 | 200 | 70  | 87  |             | 75  |                |
| 2"(50A)     | 178 | 368 | 224 | 257 | 75  | 112 |             | 82  | TD 4           |
| 2·1/2"(65A) | 190 | 393 | 224 | 257 | 78  | 112 |             | 84  |                |
| 3"(80A)     | 203 | 481 | 272 | 315 | 90  | 149 |             | 90  | TD 5           |
| 4"(100A)    | 229 | 500 | 272 | 315 | 90  | 149 | RC (PT) 3/8 | 110 |                |
| 5"(125A)    | 320 | 623 | 338 | 372 | 125 | 188 |             | 160 |                |
| 6"(150A)    | 394 | 643 | 338 | 372 | 125 | 188 |             | 197 | TD 6           |



## MODEL "TS"(SINGLE ACTING) ASME 150 (JIS 10K)

| SIZE        | L   | H   | A1  | A2  | B1  | B2  | P           | l   | ACTUATOR MODEL |
|-------------|-----|-----|-----|-----|-----|-----|-------------|-----|----------------|
| 1/2"(15A)   | 108 | 274 | 231 | 154 | 52  | 82  |             | 42  | TS 2           |
| 3/4"(20A)   | 117 | 277 | 231 | 154 | 52  | 82  |             | 47  |                |
| 1"(25A)     | 127 | 286 | 231 | 154 | 52  | 82  | RC (PT) 1/4 | 51  |                |
| 1·1/2"(40A) | 165 | 345 | 320 | 197 | 70  | 102 |             | 75  |                |
| 2"(50A)     | 178 | 411 | 436 | 265 | 75  | 135 |             | 82  | TS 4           |
| 2·1/2"(65A) | 190 | 436 | 436 | 265 | 78  | 135 |             | 84  |                |
| 3"(80A)     | 203 | 535 | 567 | 329 | 90  | 184 |             | 90  | TS 5           |
| 4"(100A)    | 229 | 554 | 567 | 329 | 90  | 184 | RC (PT) 3/8 | 110 |                |
| 5"(125A)    | 320 | 711 | 657 | 393 | 125 | 233 |             | 160 |                |
| 6"(150A)    | 394 | 731 | 657 | 393 | 125 | 233 |             | 197 | TS 6           |

# FEATURE OF ACTUATOR

- Adopted weather proof structure, there is no invasion of rainwater.
- Output torque characteristics are suitable for the torque characteristics of ball valve.
- Non-lubrication type, and not need to install lubricator.
- Standard operation pressure is 0.39MPa, but available to 0.69MPa(7kg/cm<sup>2</sup>G) maximum for special order.
- Other instrument items can be mounted easily.

## FOR PROPER USE OF HISAKA BALL VALVE

**Following points must be considered in order to use HISAKA ball valves in a proper way.**

- 1.Do not allow the slurry(dirts in the pipe, welding slag, rust,etc.)to enter into the standard valve. If the slurry thrust into the ball seat or causes damage on it, the leakage or defective function may result.  
Install the valve only after the through cleaning is made inside the pipe .  
If the liquid containing the slurry is to be supplied, exchange the standard valve with the valve for slurry use.
- 2.Do not use the standard valve to the liquid which shows a large temperature fluctuation.  
If the high temperature liquid is supplied to the low temperature condition, the liquid inside the valve body shows the heat expansion, forming the high pressure. In such a case, the leakage or defective function may be caused.  
Either reduce the temperature fluctuation or exchange with the valve having the relief port in the above case.
- 3.Do not apply undue force(as caused by one-side tightening of bolts, the tightening against a large gap, etc.)or vibration to the valve. Otherwise, the leakage or faulty function may happen. Observe the piping dimentions as instructed and arrange the support for a heavy valve.
- 4.Bolts and nuts are loosened in some cases due to the vibration during the transport.  
Therefore, check the tightening condition before use. If found Loose, retighten the bolts.
- 5.Special treatment is necessary, if the valve is used for oxygen or hydrogen. service.  
Please clarify the detail of operation condition and fluid.
- 6.The flow direction of fluid is designated in certain valves. The reverse flow may cause the leakage. Install the valves as instruction, if the flow direction is designated.
- 7.At the time of disassembling the automatic valve, do not disassemble the pneumatic cylinder if the pressure still remains inside.Otherwise, the parts pop out. disassemble it only after the air is purged.
- 8.Do not disassemble the pneumatic cylinder of spring back type.  
If it is to be disassembled under unavoidable circumstances, exchange the end cap set bolt with the long bolt before disassembling. Otherwise, the spring may jump out what is dangerous.
- 9.Make the working test once a month or so, automatic valve is kept out of operation over a long period.
- 10.In case of using the teflon seat valve only for ON-OFF operation, the interim opening position deforms the seat and the leakage is caused.
- 11.If you have any question or requirement about our product, please contact us or our local sales agent.

- ISO 14001 CERTIFIED FACTORY
- ISO 9001 CERTIFIED FACTORY
- HIGH PRESSURE GAS AUTHORISED FACTORY

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