

98MPa

**Trunnion Mounted
High pressure Ball Valve
for Hydrogen Station Technology**

AKB98

Accomplished KITZ Ball Valve 98MPa



*for Hydrogen
Station Technology*



Hydrogen stations powered by AKB98

KITZ is aiming to enter the hydrogen supply market starting in 2015. In order for us to carry forth this mission, we will be offering a class 70MPa valve for practical application in hydrogen station technology. We have already received the official approval from NEDO to proceed with product development for high pressure ball valves for use in hydrogen stations. We have created a prototype 98MPa trunnion-mounted ball valve which is less susceptible to fluid temperature variations, higher performance, and has superior durability after analyzing performance in a secure testing environment. Furthermore, we are focusing on developing this technology in areas such as hydrogen production, transport, and storage systems.

98MPa

Trunnion Mounted High press for Hydrogen Station Technolo

- Japan's first ball valve for 70MPa class hydrogen station technology.
- Metal seat structure with DLC coating, the first of its kind.
- Metal seat application allows for minimal hydrogen temperature change.
- Shaft seal structure that does not allow any leak of high-pressure hydrogen gas to the outside.
- Low operating effort and superior operability.
- Unrestricted flow direction provides more freedom for pipe layout.
- Cv value neary 10x than conventional needle valve.
- Passed tests for 40,000 operations at Hydrogen Energy Test.

Product Coding

Valve operation None: Lever handle CSH: KITZ Type CSH Spring-Return actuator	Maximum service pressure 98: 98MPa	Inch tubing end 05: 9/16 ^{OD}
CSH - U TC 98 - C - 05		
Shell material U: STH [®] 2/SUS F316	Symbol for ball valves TC: Trunnion-mounted ball valves	Design and end connection C: Straight

Product Specifications

Maximum service pressure	98MPa: 85°C
Fluid temperature range	-40 ~ +85°C
Cv value	2.1
Body material	STH [®] 2/SUS F316
End connection	9/16 ^{OD} 40,000psi Cone & Thread
Actuator	Manual · Pneumatic: Spring-Return



Packing Sealing Structure and Seat Sealing Structure Research and Development



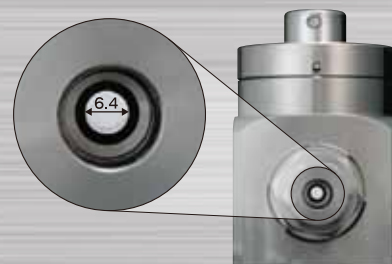
KITZ teamed up with the Research Center for Hydrogen Industrial Use and Storage (Hydrogenius) hydrogen tribology research team to subject the sealing mechanism and sliding mechanism of the packing sealing structure section and sliding mechanism of the seat sealing structure section. Those results have passed a durability test of 40,000 hydrogen open/close operations to the following verification testing.

1. Tests measuring permeation leakage with packing sealing structure section prototype
2. Packing sealing structure material hydrogen exposure testing
3. Packing sealing structure material friction testing
4. Seat sealing structure section friction testing

Full bore

Inside diameter
6.4mm

Cv value
2.1



Pressure Ball Valve Technology

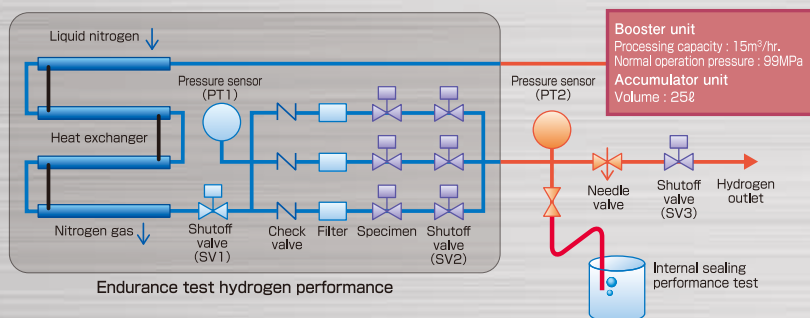


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AKB98

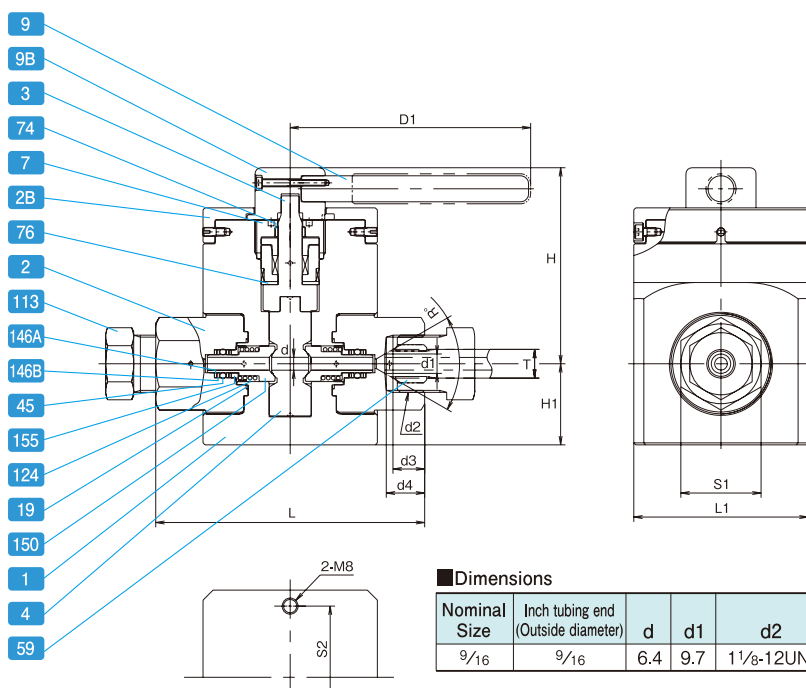
Accomplished **KITZ** Ball Valve **98MPa**

Flow of test equipment



Hydrogen endurance test (Hydrogen Energy Test and Research Center)

UTC98-C-05



■Dimensions

Nominal Size	Inch tubing end (Outside diameter)	d	d1	d2	d3	d4	R	D1	H	H1	L	L1	S1	S2
9/16	9/16	6.4	9.7	1 1/8-12UNF	15.8	19.1	60	120	97.8	40.5	134.3	87	40	71

unit:mm

■Construction and Materials

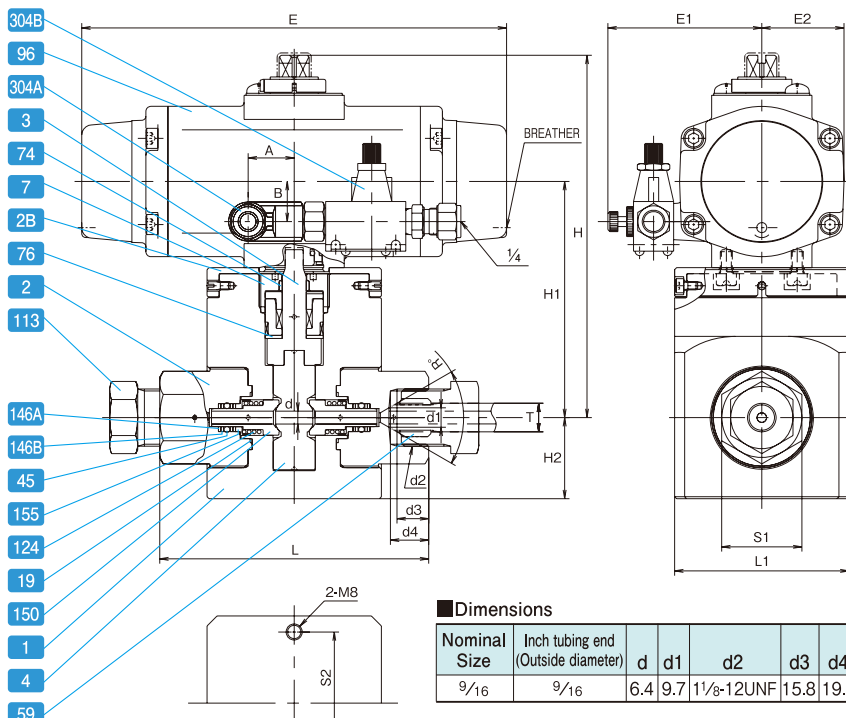
No.	Parts	Materials
1	Body	STH'2*1/SUS F316*2
2	Body cap	STH'2*1/SUS F316*2
2B	Cover for handle	SUS304
3	Stem	STH'2*1/SUS F316*2
4	Ball	STH'2*1/SUS F316*2+DLC
7	Gland	SUS304
9	Handle	SUS304+Covered plastic
9B	Handle Cap	SUS304
19	Gasket	C1100P
45	O-ring	EPDM
59	Collar	SUS316
74	Gland bush	PEEK
76	Thrust bearing	PEEK+30C
113	Gland nut	SUS316
124	Coiled spring	SUS316WPA
146A	Back-up ring	PEEK
146B	Back-up ring	PTFE+20G
150	Seat retainer	C1720-HT+DLC
155	Spacer	STH'2*1/SUS F316*2

*1: Nippon Steel & Sumikin Stainless Steel Corporation's trade name

*2: Nickel content is more than 12% below 14%



CSH-UTC98-C-05



■Dimensions

Nominal Size	Inch tubing end (Outside diameter)	d	d1	d2	d3	d4	R	H	H1	H2	Actuator					L	L1	S1	S2
											E	E1	E2	A	B				
9/16	9/16	6.4	9.7	1 1/8-12UNF	15.8	19.1	60	183.4	118.4	40.5	212	77	40	23	20	134.3	87	40	71

unit:mm

■Construction and Materials

No.	Parts	Materials
1	Body	STH'2*1/SUS F316*2
2	Body cap	STH'2*1/SUS F316*2
2B	Cover for actuator	SUS304
3	Stem	STH'2*1/SUS F316*2
4	Ball	STH'2*1/SUS F316*2+DLC
7	Gland	SUS304
19	Gasket	C1100P
45	O-ring	EPDM
59	Collar	SUS316
74	Gland bush	PEEK
76	Thrust bearing	PEEK+30C
96	Pneumatic actuator	
113	Gland nut	SUS316
124	Coiled spring	SUS316WPA
146A	Back-up ring	PEEK
146B	Back-up ring	PTFE+20G
150	Seat retainer	C1720-HT+DLC
155	Spacer	STH'2*1/SUS F316*2
304A	Speed controller	AS2200:SMC
304B	Speed controller	AS2200:SMC

*1: Nippon Steel & Sumikin Stainless Steel Corporation's trade name

*2: Nickel content is more than 12% below 14%

KITZ
KITZ CORPORATION

Market Development Dept.
Phone: +81-43-299-1708

Hydrogen Business Development Dept.
Phone: +81-551-20-4141

URL: <http://www.kitz.com>

perrin
Ball Valves

PERRIN GmbH
Phone: +49 (0) 6187/928-0

URL: <http://www.perrin.de>



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