

TEST REPORT



Dong-A University
Technical Center for
High-Performance Valves

840 Hadan2-dong, Saha-gu, Busan-city, Korea
(Tel: +82 51-200-6546 Fax: +82 51 200-6598)

Certificate No.:
TCHPV-14-12-001

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1. Client

- Name : HSME Corporation
- Address : 8, Hwajeonsandan 5-ro, GANGSEO-GU, BUSAN, SOUTH KOREA.
- Person in charge : Seok-Tae, Hwang / QA Dept. (Manager)

2. Use of Report : Test & Analysis

3. Test Sample : Double Block and Bleed Valve (CLASS 1500 - 2")

4. Date of Test : 2014. 11. 25

5. Test Meathod Used

- API STANDARD 607:2010
- KS B ISO 10497 : 2005

6. Testing Environment

- Temperature : (17.9 ± 3.0) °C
- Relative Humidity : (59 ± 5) % R.H.

7. Test Result : Refer to the test result. (Page 2/3, 3/3)

Affirmation	Tested by Researcher	Approved by Technical Manager
	Name : S.J. OH. (Signature)	Name : J.H.LEE (Signature)

The above test certificate is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.

2014. 12. 02.

Director of Dong-A University
Research Foundation for Industry-Academy Cooperation



Decide arbitrarily : Technical Center for High Performance Valves

* The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This Test Report cannot be reproduced, except in full.



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◆ **Test Result**

1) Test : Double Block & Bleed Valve – Fire Safety Test

2) Test Method Used

2-1) API STANDARD 607:2010

Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats

2-2) KS B ISO 10497 : 2005

Testing of valves–Fire type testing requirement

3) Test Sample

3-1) Name : Double Block and Bleed Valve (CLASS 1500 – 2")

3-2) Material : STAINLESS STEEL 316

3-3) Detail : Refer to the Attached DWG. (1of1)

DWG. NO. VD82-24-SS-SS-1R32E-F8N-E (2014.03.24.)

Block – Bleed – Block (Ball – Needle – Ball)

4) Result

① Fire Burn Test Record

Time Min:Sec	Upstream Pressure MPa	Flame Temp °C		Body & Connector Temp °C		Calorimeter Temp °C	
		T1	T2	Bonnet	Body	T3	T4
05:00	7.6	109	226	237	96	114	142
35:00	7.5	876	915	992	992	915	850
Average	7.6	816	800	820	1073	784	741

Time Min:Sec	Sight Gauge In Vessel 192.4 mL/mm		Reading in Container 76.7 mL/mm	
	mm	mL	mm	mL
07:00	529	101 779.6	0	0
42:00			1	76.7



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② Cool Down Test Record

Time Min:Sec	Upstream Pressure MPa	Flame Temp °C		Body & Connector Temp °C		Calorimeter Temp °C	
		T1	T2	Bonnet	Body	T3	T4
42:30	7.6	712	649	761	910	817	750
52:00	7.6	30	47	17.1	19.6	36	39

Time Min:Sec	Sight Gauge In Vessel 192.4 mL/mm		Reading in Container 76.7 mL/mm	
	mm	mL	mm	mL
42:30	/	/	1	76.7
52:00	527	101 394.8	1	76.7

③ High Pressure Test Record (After operational test)

Time Min:Sec	Upstream Pressure MPa	Flame Temp °C		Body & Connector Temp °C		Calorimeter Temp °C	
		T1	T2	Bonnet	Body	T3	T4
55:00	7.6	17	25	17	19	23	21
60:00	7.6	19	20	18	18	24	23

Time Min:Sec	Sight Gauge In Vessel 192.4 mL/mm		Reading in Container 76.7 mL/mm	
	mm	mL	mm	mL
48:00	/	/	/	/
53:00	/	/	/	/



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④ Fire Safe Test Result

Through-seat leakage ml/mim		External leakage ml/mim			
During the burn period		During burn and cool-down period		After operational test	
Permissible Leakage	Actual Leakage	Permissible Leakage	Actual Leakage	Permissible Leakage	Actual Leakage
800	2.56	200	7.71	50	19.24

-END-