



CERTIFICATE

(Certificate of conformity with technical requirements in:)
API SPEC 6FA FIFTH EDITION, MAY 2020

Certificate No.: 317573

Ref. Test report No.: 317572

Name and address of manufacturer:

PT MAXI TIGA INDONESIA.

Jin Millenium Blok KI No 3,Kawasan Industri Millennium
Tigaraksa-Tangerang, Banten Indonesia

We hereby certify that the fire test on below valves have been conducted at the laboratory designated by manufacturer and witnessed by TÜV inspector according to requirements of API SPEC 6FA FIFTH Edition, MAY 2020 manufacturer' s special requirements. The testing results of valves meet the requirements of API SPEC 6FA FIFTH Edition, MAY 2020.

1. Description of Test Valve :

Type of Test Valve	NPS6 Class600 Swing Check Valve
Description of Valve	NPS6 Class600 Swing Check Valve
Valve Size (NPS)	6
Pressure Rating (Class)	Class 600
Valve Body Material	ASTM A216 WCB

2. Qualified Range of Valves :

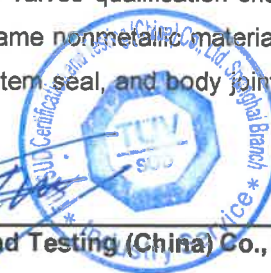
Type	Swing Check Valve
Description of Valves	Swing Check Valves
Qualified Sizes (NPS) (according to API 6FA Table 4)	6"; 8";10";12"
Qualified Pressure Ratings (Class) (according to API 6FA Table 6)	Class 600; Class 900
Qualified Marking (according to API 6FA Para.4.5)	The Manufacturer shall make sure the valves are fabricated, qualified and marked as per API 6FA
Remark: the technical data of test valve see back of this certificate appendix 1.	

This certificate is issued according to API SPEC 6FA FIFTH EDITION, MAY 2020, based upon the result of testing report on above mentioned test valve. The additional valves qualification shall be limited on similar valves of same basic design as the test valve and same nonmetallic materials as the test valve in the seat-to-closure member seal, seat-to-body seal, stem seal, and body joint and seal according to API SPEC 6FA FIFTH EDITION, MAY 2020, Para.5.

Shanghai, Jan. 16, 2025
(Place, date)

Xie Zhenrong
TÜV SÜD Certification and Testing (China) Co., Ltd

No.151, Hengtong Road
200070 Shanghai P.R.China





Appendix 1:

Certificate No.: 317573

Ref. Test report No.: 317572

Name and address of manufacturer:

PT MAXI TIGA INDONESIA.
Jin Millenium Blok KI No 3,Kawasan Industri Millennium Tigaraksa-
Tangerang, Banten Indonesia

Technical Data of Valve

1. Type of Test Valve: NPS6 Class600 Swing Check Valve

2. Description of Test Valve: NPS6 Class600 Swing Check Valve

3. Details of Valve:

Valves Size (NPS) Material Part Name	6"
Body	ASTM A216 GR WCB
Seat	ASTM A105+STL
Disc	ASTM A216 WCB+13Cr
Screw	ASTM A193 B7
Disc Gland	ASTM A105
Gasket	SS316+Graphite
Bonnet	ASTM A216 GR WCB
Bolt	ASTM A193 B7
Nut	ASTM A194 2H
Design Drawing No.:	6"CL600LB-RF

Shanghai, Jan. 16, 2025

(Place, date)

Xie Zhenrong

TÜV SÜD Certification and Testing (China) Co., Ltd



TÜV SÜD Certification and Testing (China) Co., Ltd
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Test Report

(Fire test for valves according to API SPEC 6FA, FIFTH EDITION, MAY 2020)

Certificate No.:317573
Test Report No.:317572

Applicant / Manufacturer: PT MAXI TIGA INDONESIA
Jin Millenium Blok KI No 3,Kawasan Industri Millennium Tigaraksa-
Tangerang, Banten Indonesia

Inspection body: TÜV SÜD Certification and Testing (China) Co., Ltd
Floor 3-13, No.151, Heng Tong Road, Shanghai, P. R. China

Lab of Test: Lishui Valve Lab Technical Co., Ltd.

Test Date: Jan.09.2025

Description of valves: Swing Check Valve
Size:NPS6
Pressure Rating: Class600
Drawing No.:6"CL600LB-RF

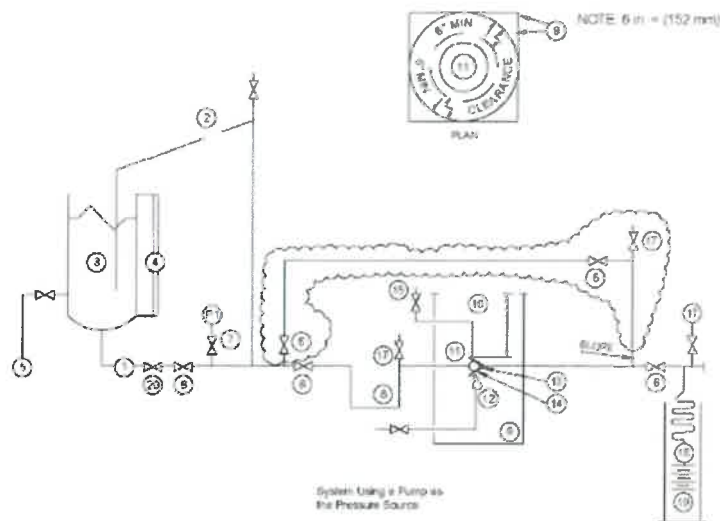
Test Witnessed By: Wang Zhongxiang / TÜV SÜD Inspector

Inspection and Tests

1. Conformity of Equipment

The test equipment was verified by TÜV SÜD inspector according to requirements of API SPEC 6FA FIFTH EDITION, MAY 2020, Para 4.3 and found satisfactory. The detail arrangement of the fire-test equipment is shown below:

Figure 1 Typical Fire-Test System Using a Pump as the Pressure Source



Legend

- | | |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1. Pressure source | 11. Test valve mounted horizontally with stem in horizontal position |
| 2. Pressure regulator and relief | 12. Fuel gas supply to burners |
| 3. Vessel for water | 13. Calorimeter-1½" in. cubes |
| 4. Calibrated sight gauge | 14. Flame temperature thermocouples |
| 5. Water supply | 15. Pressure gauge and relief valve connected to center cavity of valve |
| 6. Shutoff Valve | 16. Shutoff valve |
| 7. Pressure gauge | 17. Vent valve |
| 8. Piping arranged to provide vapor trap | 18. Condenser |
| 9. Enclosure for test –horizontal clearance between any part of the valve and the closure shell shall be 6 in. (152mm) above | 19. Calibrated container. |
| 10. Minimum height of enclosure shall be 6 in.(152mm) above the top of the valve | 20. Check valve |
| | 21. Bypass line (items within shaded area) |



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2. Calibration of measurement and test instrument

The measurement and test instrument have been properly calibrated such as pressure gauge, thermocouples, etc.

3. Technical Data of Test Valve: Description of test valve

a) Description of test valve

Type of Test Valves	NPS6 Class600 Swing Check Valve
Description of Valves	NPS6 Class600 Swing Check Valve
Pressure Rating, Class	Class600
Valve Size, NPS	NPS6
Face to Face	ASME B16.10
Designed Standard	API 6D

b) Details of technical data on test valve

Part Name	Materials
Body	ASTM A216 GR WCB
Seat	ASTM A105+STL
Disc	ASTM A216 WCB+13Cr
Screw	ASTM A193 B7
Disc Gland	ASTM A105
Gasket	SS316+Graphite
Bonnet	ASTM A216 GR WCB
Bolt	ASTM A193 B7
Nut	ASTM A194 2H
Design Drawing No.:	6"CL600LB-RF



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4. Visual and dimensional Check on Valve Specimen:

The specimen valve was chosen at random by the manufacturer in its workshop and submitted to the laboratory. The visual and dimensional check was performed according to drawing No.6"CL600LB-RF and results found satisfactory. The mark was verified on valve as following:

---	<u>NPS6</u>	<u>CL600</u>	<u>WCB</u>
Manufacturer` Brand	Size	Class	Material

5. Document Review:

The chemical and mechanical test report of castings was reviewed and found satisfactory. Also the inspection report of shell test, seat test and pneumatic test was reviewed and found satisfactory.

6. Preparation before testing:

6.1 The thermocouples and calorimeters were installed properly according to Figure 1,2,3,4 in API 6FA.

Two thermocouples (part 14) are installed to measure flame temperature, one is located under valve body, another is located under valve stem, both within 1". Two calorimeters (part 13) are positioned to the same place as the thermocouples do, and a third one is positioned nearby the bottom cover.

6.2 The test system including test valve (part 11) was cleaned through by water before testing. All air was purged from test valve and testing system by water.

6.3 The test system was pressurized to 7.5MPa (test pressure) after the test valve and system upstream of valve have been completely full of water and system downstream of the test valve have been completely empty of water. The system and test valve were carefully checked for leakage when the test pressure was held at 7.5MPa. No leakage was found on system and test valve.

7. Fire Test:

7.1. Fire test with high pressure

The fire test was conducted according to API 6FA Section 4.4. The flame temperature reached 761°C within 2 minutes after ignition. The test pressure and temperature were maintained during the fire test. The temperature and pressure were recorded continuously by the operators. The system and test valve was cooled down to below 100°C within 8 minutes by natural after 30 minutes fire test. The loss of water weight in vessel was measured by weighing scale and water in calibrated container (part 19) were read and recorded.



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Test result of fire test with high pressure

Item	API 6FA Required Value	Actual Value
Test Pressure (MPa)	7.50MPa	7.60~8.10 MPa
Test Temperature	761 - 980°C	891- 930°C
Through-valve leakage according to API 6FA Para.4.4.2.2	$\leq 400 \text{ ml / in. / min}$	89 ml / in. / min
Total weight of water through valve seat during cooling down period	0 ml	
Total time from fire test to cooling down	38minutes	
External Leakage	$\leq 100 \text{ ml / in. / min}$	0 ml / in. / min
Conclusion: the test result is satisfactory according to API 6FA.		

7.2. Fire test with low pressure

Decrease the test pressure to 0.72 MPa and maintain this pressure for 5 minutes, measure the through valve and external leakage for this period of 5 minutes.

Increase pressure on the test valve to the high test pressure 7.50 MPa and maintain this pressure for 5minutes, measure the through valve and external leakage for this period of 5 minutes.

The test result of the above both is shown as below:

Test result of low pressure test

Item	API 6FA Required Value	Actual Value
Test Pressure (MPa)	0.72 MPa	0.72 MPa
Test Duration	5 Minutes	
Through-valve leakage according to API 6FA Para.4.3	$\leq 40 \text{ ml / in. / min}$	20 ml / in. / min
External Leakage	$\leq 20 \text{ ml / in. / min}$	0 ml / in. / min
Item	API 6FA Required Value	Actual Value
Test Pressure (MPa)	7.50 MPa	7.50 MPa
Test Duration	5 Minutes	
Through-valve leakage according to API 6FA Para.4.3	$\leq 40 \text{ ml / in. / min}$	35 ml / in. / min
External Leakage	$\leq 20 \text{ ml / in. / min}$	0 ml / in. / min
Conclusion: the test result is satisfactory according to API 6FA.		



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8. Operational Test:

The test valve was cooled to below 100 °C with in 8 minutes after complete the fire test. The operational test was conducted according to API 6FA Para. 4.4.4. Open the test valve against the high test pressure differential. The test valve was moved to a partly open position close to the shutoff valve. Vent the piping and test valve body cavity to remove air or steam.

Then measured and recorded external leakage for a period of five minutes after valve was in the open position at high test pressure. The test result was recorded on below:

Test result of operational test

Item	API 6FA Required Value	Actual Value
Test Pressure (MPa)	7.50 MPa	7.50 MPa
Test Time	5 minutes	
External Leakage	≤ 200 ml / in. / min	0 ml / in. / min
Conclusion: the test result is satisfactory according to API 6FA.		

The undersigned, hereby declare that I have checked test valve and witnessed the fire test on the test valve according to API SPEC 6FA FIFTH EDITION, MAY 2020. The test result is satisfactory.

TÜV SÜD Certification and Testing (China) Co., Ltd

Wang Zhongxiang

Wang Zhongxiang

Date: Jan. 16. 2025

Annexes:

- 1) Copy of Drawing No.: 6"CL600LB-RF
- 2) Copy of Test Record No.: LSV2025FB08012-3

