



South Asia

FIRE SAFE TEST CERTIFICATE

1) TESTING STANDARD :	API – 607, VIth Edition, September 2010 – Testing Of Valves - Fire Type – Testing ISO 10497: 2010 Requirements - Testing Of Valves - Fire Type – Testing Requirements
2) TEST VALVE :	50 mm Full Bore Class 150# Ball Valve with ASTM A216 Gr WCB Body, Bonnet, SS304 Ball, SS304 Stem, PTFE seats
3) RANGE OF VALVE QUALIFIED :	15mm - 100 Class 150# & Class 300#
4) VALVE SERIAL NO. :	15196
5) VALVE DRAWING NO. :	KV_2WFEFS_GEN150_00
6) WEIGHT (Approx.):	8 Kg
7) TEST DATE :	30/01/2013
8) MARKING :	KAVAATA 50mm 150# WCB on Flange OD
9) MFG. STD. :	ISO 17292/ API 6D
Fire safe test conducted at :	RAJEEV & COMPANY, 103/3 Devarwadi Village, Tal: Chandgad, Dist: Kolhapur, MAHARASTRA

Valve passed Hydrostatic & Pneumatic Test before fire safe test.

TABULATION

TIME	TEMPERATURE (° C)								INLET PRESSURE (BarG)	REMARKS
	THERMO COUPLE T1	THERMO COUPLE T 2	THERMO COUPLE T3	THERMO COUPLE T4	AVERAGE TA	THERMO COUPLE T5	THERMO COUPLE T6	AVERAGE TB		
HOURS	BODY	BONNET	ENVIRONMENT 1	ENVIRONMENT 2	(T3+T4) /2	CALORIMETER 1	CALORIMETER 2	(T5+T6) /2		
10:05:00	674	359	804	782	793	675	560	617.5	2.8	All are within limit
10:05:30	688	400	830	811	820.5	701	590	645.5	2.8	All are within limit
10:06:00	678	525	870	814	842	720	610	665	2.8	All are within limit
10:06:30	710	545	840	833	836.5	744	618	681	2.8	All are within limit
10:07:00	705	577	866	838	852	733	640	626.5	2.8	All are within limit
10:07:30	746	588	871	805	838	718	654	686	2.8	All are within limit
10:08:00	792	610	851	811	831	704	659	681.5	2.8	All are within limit
10:08:30	790	629	872	847	859.5	690	673	681.5	2.8	All are within limit
10:09:00	758	632	874	861	867.5	684	698	691	2.8	All are within limit
10:09:30	769	667	866	866	866	709	701	705	2.8	All are within limit
10:10:00	780	706	900	855	877.5	711	708	709.5	2.8	All are within limit
10:10:30	774	717	889	857	873	719	718	718.5	2.8	All are within limit
10:11:00	795	707	873	867	870	738	722	730	2.8	All are within limit
10:11:30	802	719	861	850	855.5	740	739	739.5	2.8	All are within limit
10:12:00	785	726	870	830	850	722	741	731.5	2.8	All are within limit
10:12:30	755	722	883	900	891.5	707	749	728	2.8	All are within limit
10:13:00	723	724	885	870	877.5	718	752	735	2.8	All are within limit
10:13:30	730	718	873	845	859	729	754	741.5	2.8	All are within limit
10:14:00	739	731	877	830	853.5	748	760	754	2.8	All are within limit
10:14:30	742	734	848	810	829	751	766	758.5	2.8	All are within limit
10:15:00	731	729	889	799	844	739	758	748.5	2.8	All are within limit
10:15:30	698	728	888	760	824	733	752	742.5	2.8	All are within limit
10:16:00	697	724	900	772	836	729	760	744.5	2.8	All are within limit
10:16:30	685	713	907	778	842.5	710	720	715	2.8	All are within limit
10:17:00	681	710	890	792	841	699	719	709	2.8	All are within limit
10:17:30	689	704	887	794	840.5	689	714	701.5	2.8	All are within limit

Ameneggo

Bhajanuragar
Assistant Manager



South Asia

10:18:00	674	698	877	798	837.5	690	709	699.5	2.8	All are within limit
10:18:30	671	697	869	805	837	685	700	692.5	2.8	All are within limit
10:19:00	667	688	879	810	844.5	686	684	685	2.8	All are within limit
10:19:30	662	687	878	806	842	682	672	677	2.8	All are within limit
10:20:00	665	694	836	804	820	670	667	668.5	2.8	All are within limit
10:20:30	688	697	849	840	844.5	690	670	680	2.8	All are within limit
10:21:00	697	699	830	833	831.5	715	672	693.5	2.8	All are within limit
10:21:30	683	700	833	839	836	722	669	655.5	2.8	All are within limit
10:22:00	684	698	812	824	818	733	663	698	2.8	All are within limit
10:22:30	683	704	822	792	807	739	658	698.5	2.8	All are within limit
10:23:00	681	711	828	799	813.5	752	690	721	2.8	All are within limit
10:23:30	680	714	813	795	804	784	692	738	2.8	All are within limit
10:24:00	666	723	809	782	795.5	792	708	750	2.8	All are within limit
10:24:30	650	733	826	789	807.5	799	729	764	2.8	All are within limit
10:25:00	655	739	860	819	839.5	803	765	784	2.8	All are within limit
10:25:30	649	731	867	832	849.5	817	790	803.5	2.8	All are within limit
10:26:00	638	736	820	831	825.5	819	806	812.5	2.8	All are within limit
10:26:30	637	719	832	829	830.5	801	810	805.5	2.8	All are within limit
10:27:00	648	712	847	836	841.5	796	842	819	2.8	All are within limit
10:27:30	650	695	856	840	848	772	854	813	2.8	All are within limit
10:28:00	652	670	877	859	868	762	866	814	2.8	All are within limit
10:28:30	655	685	874	864	869	784	870	827	2.8	All are within limit
10:29:00	659	701	900	848	874	792	884	838	2.8	All are within limit
10:29:30	661	724	902	839	870.5	807	900	853.5	2.8	All are within limit
10:30:00	679	729	874	829	851.5	799	890	844.5	2.8	All are within limit
10:30:30	678	720	882	844	863	788	830	809	2.8	All are within limit
10:31:00	674	724	899	859	879	781	797	789	2.8	All are within limit
10:31:30	677	750	906	879	892.5	784	769	776.5	2.8	All are within limit
10:32:00	679	765	904	879	891.5	783	751	767	2.8	All are within limit
10:32:30	671	766	915	880	897.5	800	668	734	2.8	All are within limit
10:33:00	667	769	894	841	867.5	806	689	747.5	2.8	All are within limit
10:33:30	674	761	892	800	846	815	672	743.5	2.8	All are within limit
10:34:00	676	755	901	870	885.5	790	674	732	2.8	All are within limit
10:34:30	673	752	908	884	896	775	675	725	2.8	All are within limit
10:35:00	681	758	912	900	906	779	661	720	2.8	All are within limit
10:35:30										
10:36:00										

FIRE SAFE TEST CERTIFICATE

OBSERVATION NOTE: ON CALIBRATED SIGHT GAUGE 12.4mm EQUALS 1 LITRE OF WATER.

- a) Test pressure during burn and cool down period = 2.8 bar
- b) Water level reading of water reservoir, before firing = marked zero
- c) Through valve seat leakage during burning period (ie, 31 minutes) = 300 ml
- d) Time required for cooling below 100 degree centigrade = 30 sec
- e) Water level reading of water reservoir, at the end of cooling = 7.2 mm 580.6 ml

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 Balamurugan
 Assistant Manager

f) Through valve seat leakage during burn and cooling period (ie, 35 minutes) =	340	ml
g) Low test pressure =	2.8	bar
h) Through valve seat leakage at low test pressure (2BarG) for 5 minutes after cool down =	40	ml
i) External leakage at low test pressure for 5minutes =	240.6	ml
j) External leakage for 5minutes when the valve in full – open position at high test pressure (15BarG) =	30	ml
k) Time taken for burn period =	30	min
l) Total water consumption from the reservoir until the end of cooling =	580.6	ml

Test valve operation against high test pressure (15BarG) to fully open position - OK

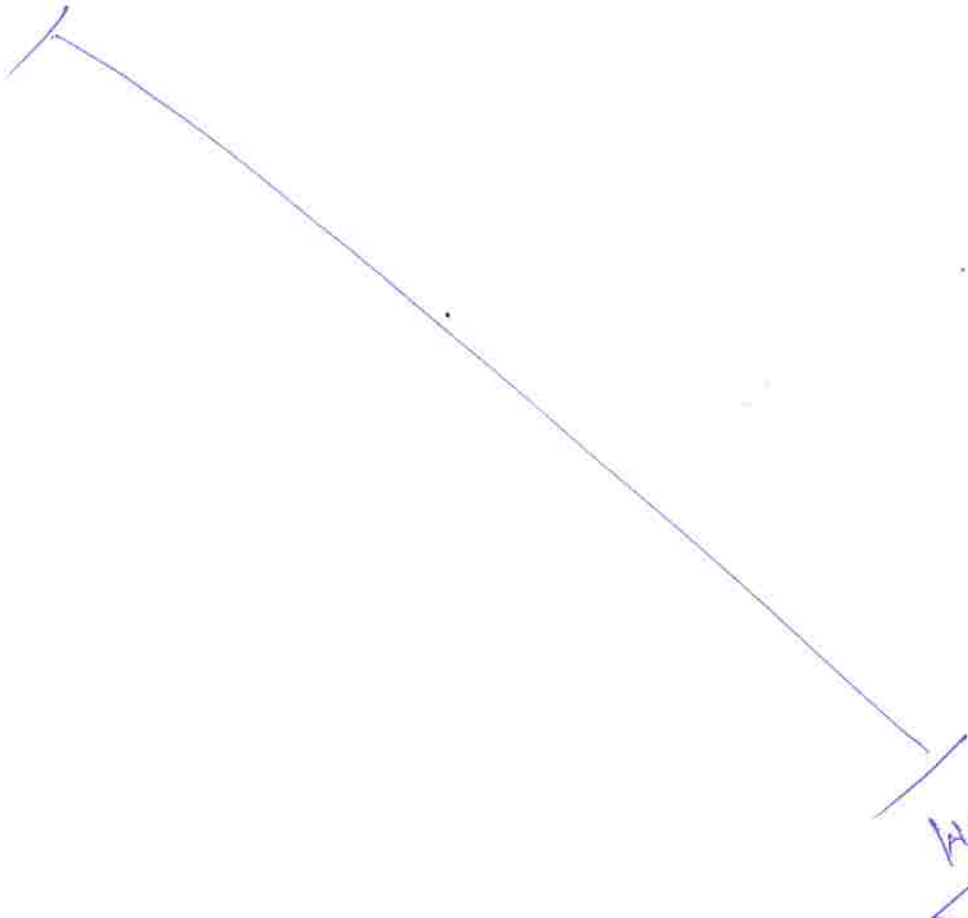
CALCULATIONS

DESCRIPTION	AS PER STANDARD	ACTUAL (ml/min)
1.Through valve seat leakage during the burn period (low test pressure) C/31	200	9.68
2. Through valve seat leakage after cool down (low test pressure) h/5	80	8.00
3.External leakage during burn & cool down (low test pressure) (l – f) / 35	50	6.87
4.External leakage after operational test in full open position (high test pressure) j /5	50	6.00

Remarks : Both Through Valve Leakage Rates and External Valve Leakage Rates are within allowable limits.
 Hence the Test Valve and the corresponding range of valves mentioned above are qualified as per following standards.
 API – 607, Vith Edition , September 2010 Testing Of Valves - Fire Type – Testing Requirements
 ISO 10497: 2010

Fire Type

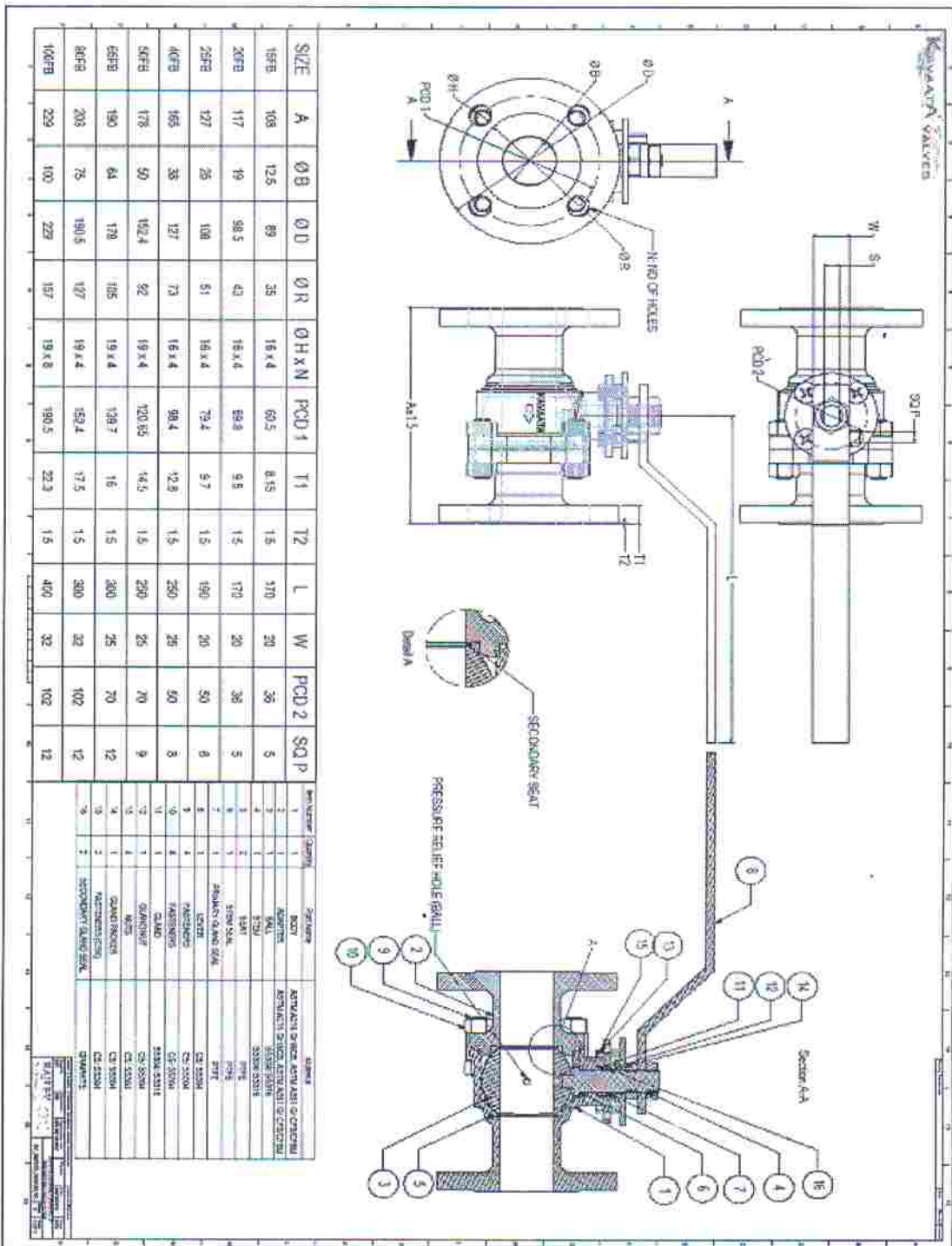
- List of Enclosures : 1) Valve Test Report
- 2) Calibration Report of Thermo couple & Pressure Gauges
- 3) Material Test Certificate



Approved by




Balamurugan
 Assistant Manager



APPROVED BY

 Balakrishnan
 Assistant Manager





South Asia

FIRE SAFE TEST CERTIFICATE

1) TESTING STANDARD :	API – 607, Vith Edition, September 2010 – Testing Of Valves - Fire Type – Testing ISO 10497: 2010 Requirements - Testing Of Valves - Fire Type – Testing Requirements
2) TEST VALVE :	50 mm Full Bore Class 150# Ball Valve with ASTM A351 Gr CF8 Body, Bonnet, SS304 Ball, SS304 Stem, PTFE seats
3) RANGE OF VALVE QUALIFIED :	15mm - 10C Class 150# & Class 300#
4) VALVE SERIAL NO. :	15200
5) VALVE DRAWING NO. :	KV_2WFEFS_GEN150_00
6) WEIGHT (Approx.) :	8 Kg
7) TEST DATE :	30/01/2013
8) MARKING :	KAVAATA 50mm 150# CF8 ori Flange OD
9) MFG. STD. :	ISO 17292/ API 6D
Fire safe test conducted at :	RAJEEV & COMPANY, 103/3 Devarwadi Village, Tal: Chandgad, Dist: Kolhapur, MAHARASTRA
Valve passed Hydrostatic & Pneumatic Test before fire safe test.	

TABULATION

TIME	TEMPERATURE (° C)								INLET PRESSURE (BarG)	REMARKS
	THERMO COUPLE T1	THERMO COUPLE T 2	THERMO COUPLE T3	THERMO COUPLE T4	AVERAGE TA	THERMO COUPLE T5	THERMO COUPLE T6	AVERAGE TB		
HOURS	BODY	BONNET	ENVIRON- MENT 1	ENVIRON- MENT 2	(T3+T4) /2	CALORI- METER 1	CALORI- METER 2	(T5+T6) /2		
14:45:00	672	582	805	780	792.5	673	575	624	2.8	All are within limit
14:45:30	690	712	840	810	825	700	585	642.5	2.8	All are within limit
14:46:00	686	740	880	815	847.5	726	620	673	2.8	All are within limit
14:46:30	705	745	845	835	840	748	628	688	2.8	All are within limit
14:47:00	707	746	856	840	848	736	634	685	2.8	All are within limit
14:47:30	786	738	875	808	841.5	713	661	687	2.8	All are within limit
14:48:00	792	712	861	812	836.5	700	663	681.5	2.8	All are within limit
14:48:30	790	715	881	843	862	691	681	686	2.8	All are within limit
14:49:00	763	720	874	862	868	698	695	696.5	2.8	All are within limit
14:49:30	770	723	892	870	881	705	700	702.5	2.8	All are within limit
14:50:00	780	728	900	845	872.5	718	715	716.5	2.8	All are within limit
14:50:30	774	737	880	856	868	725	717	721	2.8	All are within limit
14:51:00	800	739	872	861	866.5	735	726	730.5	2.8	All are within limit
14:51:30	802	750	862	882	872	738	732	735	2.8	All are within limit
14:52:00	780	752	879	900	889.5	721	741	731	2.8	All are within limit
14:52:30	750	756	893	917	905	703	745	724	2.8	All are within limit
14:53:00	720	758	888	906	897	719	752	735.5	2.8	All are within limit
14:53:30	733	751	874	898	886	731	758	744.5	2.8	All are within limit
14:54:00	741	753	878	890	884	747	763	755	2.8	All are within limit
14:54:30	748	733	850	873	861.5	755	762	758.5	2.8	All are within limit
14:55:00	724	728	890	867	878.5	740	758	749	2.8	All are within limit
14:55:30	700	726	896	886	891	734	752	743	2.8	All are within limit
14:56:00	690	722	910	890	900	729	759	744	2.8	All are within limit


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14:56:30	683	713	905	910	907.5	709	742	725.5	2.8	All are within limit
14:57:00	681	710	897	918	907.5	680	703	691.5	2.8	All are within limit
14:57:30	689	703	888	925	906.5	671	699	685	2.8	All are within limit
14:58:00	674	697	876	935	905.5	660	663	661.5	2.8	All are within limit
14:58:30	671	690	868	910	889	673	662	667.5	2.8	All are within limit
14:59:00	668	686	886	901	893.5	697	647	672	2.8	All are within limit
14:59:30	669	680	873	897	885	709	647	678	2.8	All are within limit
15:00:00	666	690	840	880	860	739	656	697.5	2.8	All are within limit
15:00:30	690	695	848	874	861	751	671	711	2.8	All are within limit
15:01:00	698	699	835	862	848.5	758	670	714	2.8	All are within limit
15:01:30	685	700	839	830	834.5	762	666	714	2.8	All are within limit
15:02:00	692	698	810	815	812.5	774	668	721	2.8	All are within limit
15:02:30	683	705	825	798	811.5	767	670	718.5	2.8	All are within limit
15:03:00	681	710	829	806	817.5	780	675	727.5	2.8	All are within limit
15:03:30	680	713	816	796	806	787	680	733.5	2.8	All are within limit
15:04:00	670	725	803	782	792.5	792	700	746	2.8	All are within limit
15:04:30	650	740	830	789	809.5	799	729	764	2.8	All are within limit
15:05:00	655	750	859	819	839	805	748	776.5	2.8	All are within limit
15:05:30	645	730	862	835	848.5	824	716	770	2.8	All are within limit
15:06:00	633	755	827	837	832	815	700	757.5	2.8	All are within limit
15:06:30	635	711	838	862	850	800	694	747	2.8	All are within limit
15:07:00	648	700	849	870	859.5	780	698	739	2.8	All are within limit
15:07:30	650	685	866	855	860.5	776	713	744.5	2.8	All are within limit
15:08:00	652	660	878	858	868	761	716	738.5	2.8	All are within limit
15:08:30	657	695	871	864	867.5	782	729	755.5	2.8	All are within limit
15:09:00	658	700	898	848	873	794	727	760.5	2.8	All are within limit
15:09:30	660	729	874	839	856.5	804	756	780	2.8	All are within limit
15:10:00	672	738	861	826	843.5	799	719	759	2.8	All are within limit
15:10:30	670	750	883	847	865	772	700	736	2.8	All are within limit
15:11:00	672	760	893	859	876	784	689	736.5	2.8	All are within limit
15:11:30	674	780	900	870	885	784	674	729	2.8	All are within limit
15:12:00	678	788	905	878	891.5	790	666	728	2.8	All are within limit
15:12:30	670	790	920	888	904	798	660	729	2.8	All are within limit
15:13:00	668	767	898	869	883.5	806	683	744.5	2.8	All are within limit
15:13:30	670	755	897	890	893.5	815	679	747	2.8	All are within limit
15:14:00	675	740	900	905	902.5	780	674	727	2.8	All are within limit
15:14:30	676	732	906	925	915.5	761	673	717	2.8	All are within limit
15:15:00	680	758	915	899	907	748	662	705	2.8	All are within limit
15:15:30										
15:16:00										

FIRE SAFE TEST CERTIFICATE

OBSERVATION

NOTE: ON CALIBRATED SIGHT GAUGE 12.4mm EQUALS 1 LITRE OF WATER.

- a) Test pressure during burn and cool down period = 2.8 bar
- b) Water level reading of water reservoir, before firing = marked zero
- c) Through valve seat leakage during burning period (ie, 31 minutes) = 1410ml
- d) Time required for cooling below 100 degree centigrade = 44sec
- e) Water level reading of water reservoir, at the end of cooling = 21mm=1690 ml
- f) Through valve seat leakage during burn and cooling period (ie, 35 minutes) = 1575 ml
- g) Low test pressure = 2.8 bar

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L. Belamiragan
Assistant Manager



South Asia

- h) Through valve seat leakage at low test pressure (2BarG) for 5 minutes after cool down = 165ml
- i) External leakage at low test pressure for 5minutes = 115 ml
- j) External leakage for 5minutes when the valve in full – open position at high test pressure (15BarG) = 45ml
- k) Time taken for burn period = 30min
- l) Total water consumption from the reservoir until the end of cooling = 1.690 ltr
- Test valve operation against high test pressure (15BarG) to fully open position = Ok

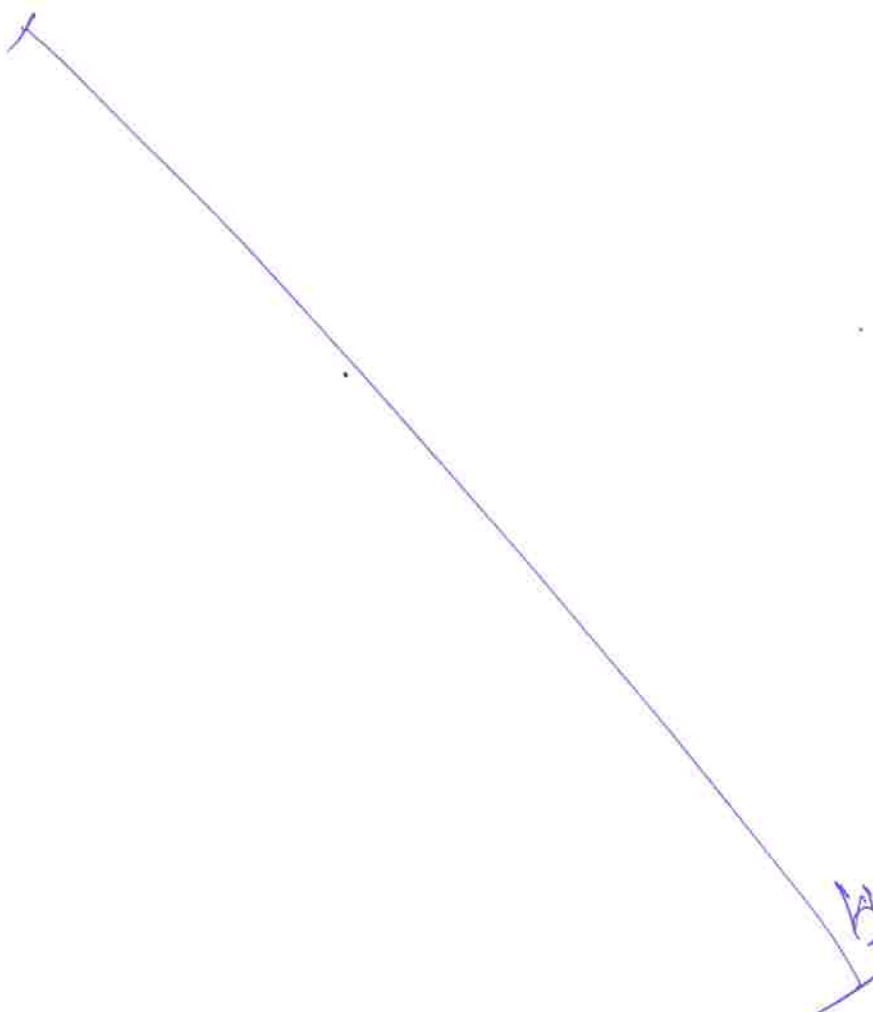
CALCULATIONS

DESCRIPTION	AS PER STANDARD	ACTUAL (ml/min)
1.Through valve seat leakage during the burn period (low test p	200	45.48
2. Through valve seat leakage after cool down (low test pressur	80	33
3.External leakage during burn & cool down (low test pressure	50	3.28
4.External leakage after operational test in full open position (h	50	9

Remarks : Both Through Valve Leakage Rates and External Valve Leakage Rates are within allowable limits. Hence the Test Valve and the corresponding range of valves mentioned above are qualified as per following standards. API – 607, Vith Edition , September 2010 Testing Of Valves - Fire Type – Testing Requirements ISO 10497: 2010

Fire Type

- List of Enclosures : 1) Valve Test Report
- 2) Calibration Report of Thermo couple & Pressure Gauges
- 3) Material Test Certificate

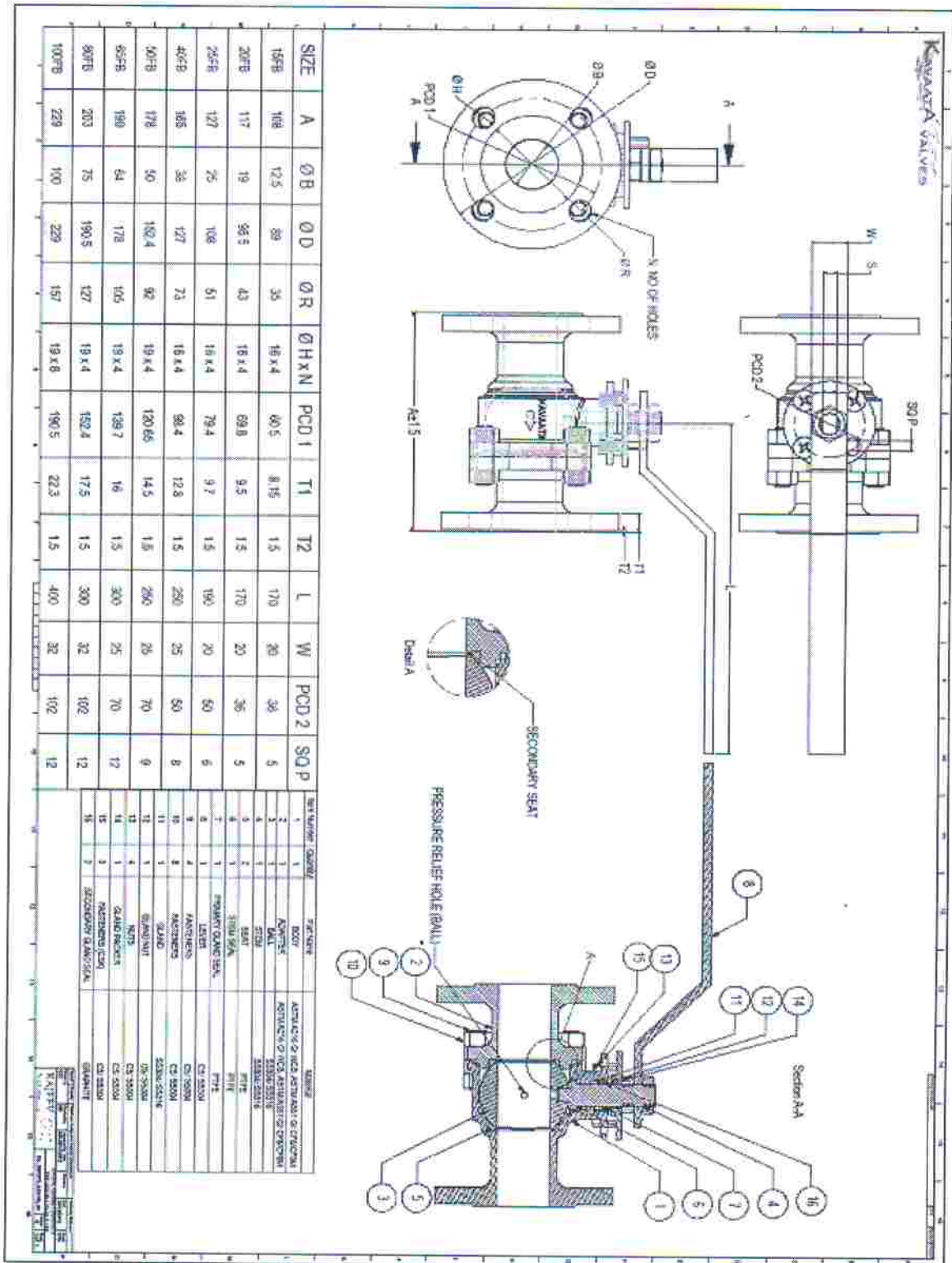


APPROVED BY

L. Balaji Pragasam
Assistant Manager



South Asia



ANNEXED

L. Balamurugan
Assistant Manager