

ANSI/API Standard 607 Sixth Edition – 2010 ISO 10497: 2010 Fire Test Certificate

Name of Manufacturer:	ValvTechnologies, Inc.	Test Date:	09/22/2011
Designation of Valve:	Ball Valve – V1 Series V7C1-RF-RP-B080-024EMB01	Report/Certificate Number:	211088-8900
Size:	8 inch	Pressure Rating:	ANSI Class 900
Body Material:	Carbon Steel– SA-105	Seat Material:	SA-105 with RAM 31 coating
Trim Material:	410SS	Stem Seal / Body Seal:	Graphite

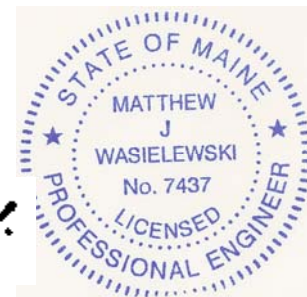
The above valve was tested in accordance with the above stated fire test procedure. All of the applicable test parameters were met and external and through leakage measurements were below the allowable limits. Other valves of the same construction may also be qualified according to the requirements of the test specification, Section 7.

This certificate refers to the above mentioned product. This is to certify that the test specimen provided is in conformity with the standard mentioned above. This certificate does not imply assessment of the production of the product.

Sizes Qualified:	8 inch and larger	Pressure Ranges Qualified:	900#, 1500# & PN 150, 260
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Laboratory Information

Name:	Yarmouth Research and Technology, LLC
Address:	434 Walnut Hill Road North Yarmouth, ME 04097 USA
Tester:	Matthew Wasielewski, PE info@yarmouthresearch.com www.yarmouthresearch.com (207) 829-5359

Fire Test Report

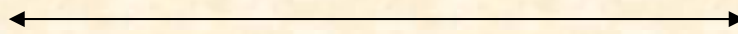
ANSI/API Standard 607, Sixth Edition, 2010

ISO 10497:2010

Performed for

ValvTechnologies, Inc.

www.valv.com



8 inch Class 900 Metal-Seated Ball Valve
Product Code: V7C1-RF-RP-B080-024EM-B01

Project Number: 211088

Test Date: September 21, 2011

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5359

info@yarmouthresearch.com

www.yarmouthresearch.com

Yarmouth Research and Technology, LLC

Customer: ValvTechnologies

Date: 9/21/2011

Specification: ANSI/API Standard 607, Sixth Edition, 2010

ISO 10497: 2010

Product Description: 8 inch Class 900 Metal-seated Ball Valve

Project Number: PN211088

Comments: Product Code: V7C1-RF-RP-B080-024EM-B01

Yarmouth Engineer: Matthew J. Wasielewski, P.E.

Equipment Confirmed to be in Calibration to NIST Standards: Yes

Burn and Cool Down Test

Burn Start Time:	13:07:00	
Average Pressure During Burn:	1684	psig
Seat Leak Rate During Burn:	0	ml/min
Allowable Seat Leak Rate:	3200	ml/min
External Leak Rate During Burn/Cool Down:	1	ml/min
Allowable External Leak Rate:	800	ml/min
Amount of Time of Avg. Cal. Blocks > 650 deg. C:	22.3	minutes
Were Test Conditions Within Compliance?	Yes	
Were the Valve Leakages Below the Allowables?	Yes	

Post-burn Seat Test Not Required for Pressure Class 900

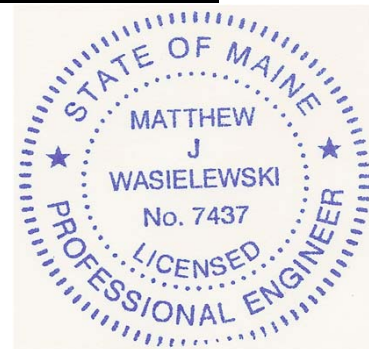
Operational Test

Did Valve Unseat and Open Fully?:	Yes	
Average Pressure During Test:	1671	psig
External Leak Rate After Operating:	0	ml/min
Allowable External Leak Rate:	200	ml/min
Was the Leakage Below the Allowable?	Yes	

Valve Pass or Fail the Test Standard?	PASS
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Witnesses

Matthew J. Wasielewski

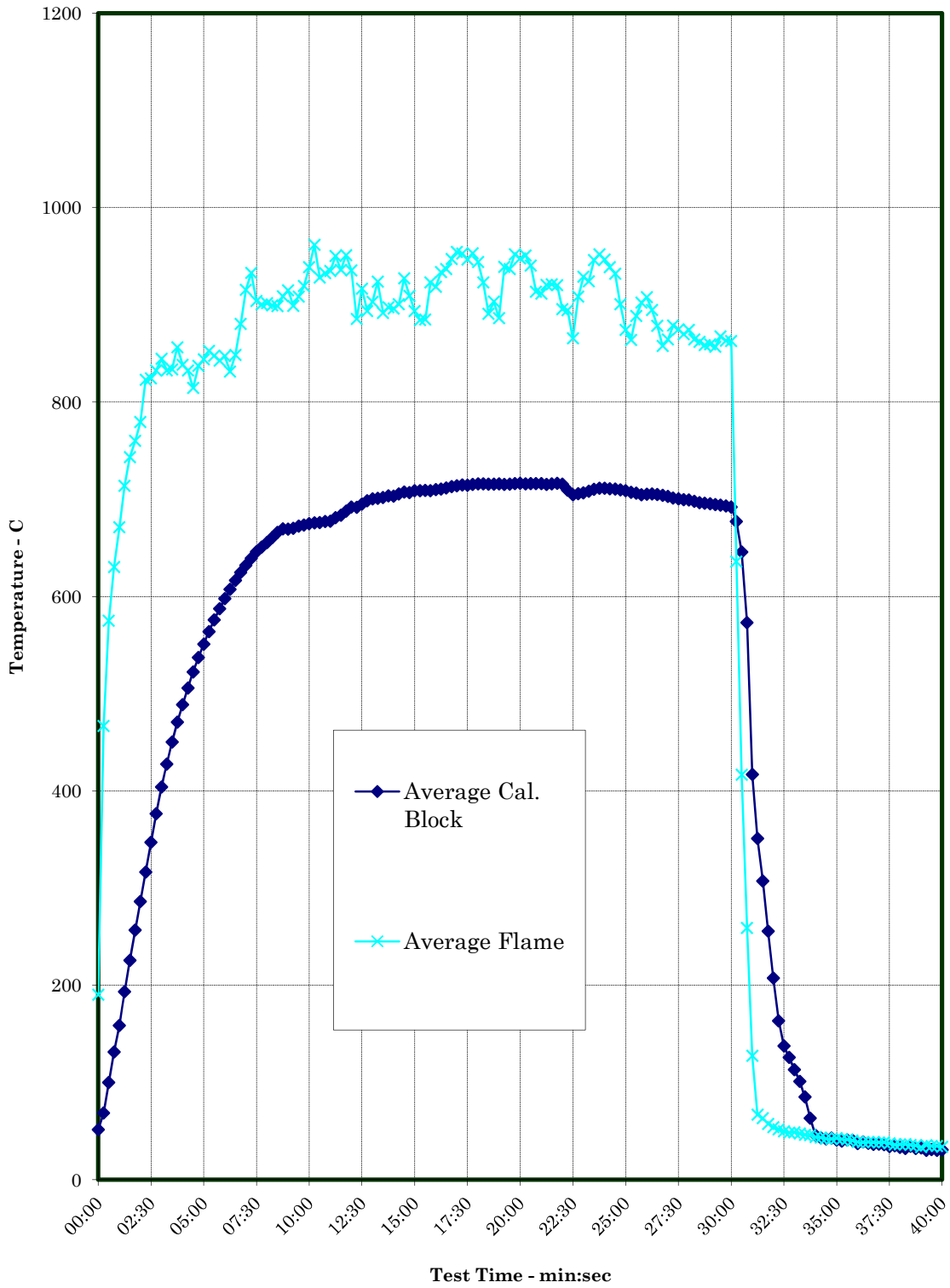


YARMOUTH RESEARCH AND TECHNOLOGY, LLC

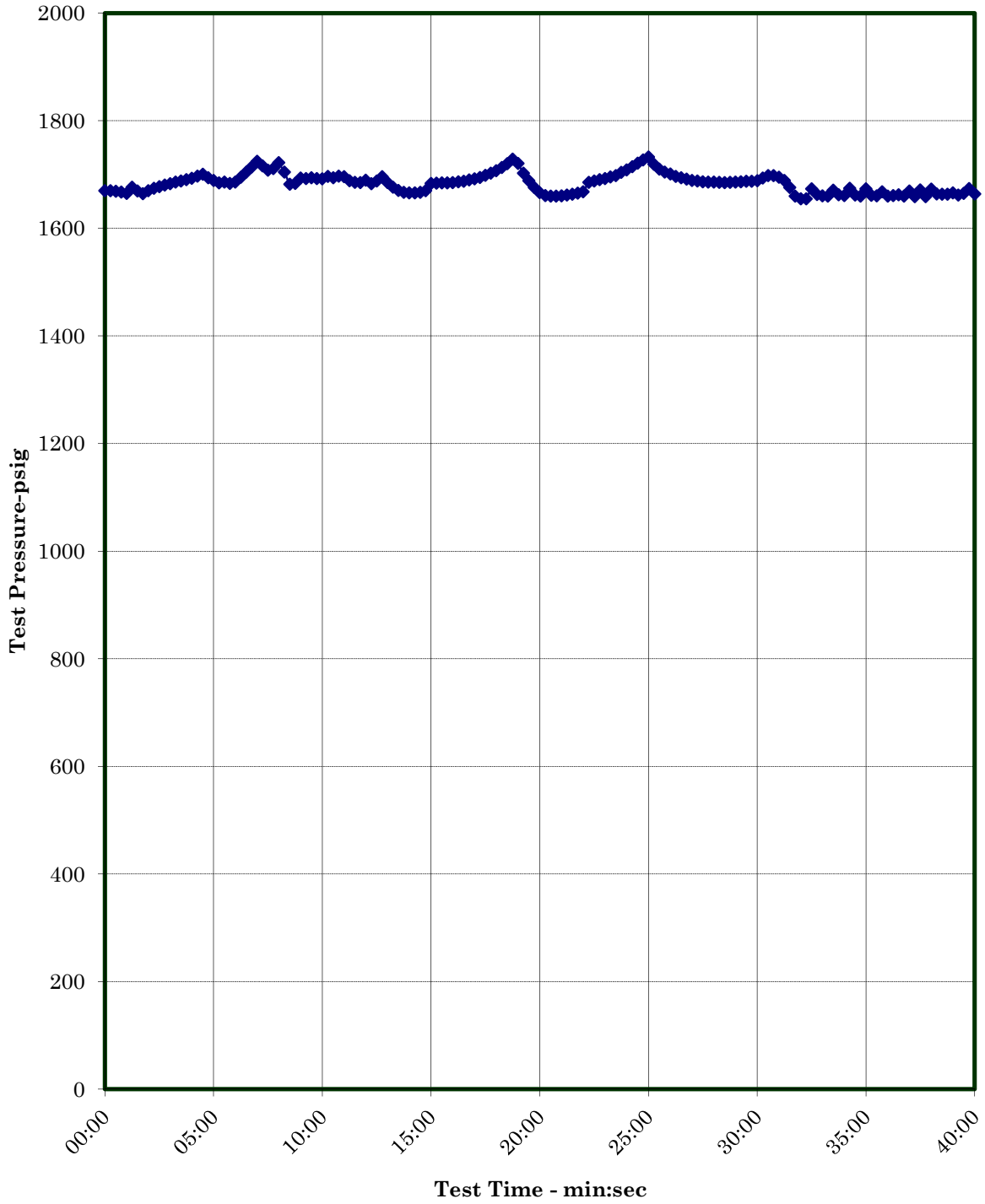
Fire Test Information Sheet

Valve Manufacturer's Name:	ValvTechnologies
Valve Manufacturer's Address:	5904 Bingle Road Houston, TX 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes
Valve Product Code:	V7C1-RF-RP-B080-024EM-B01
Valve Description	Size: 8" Pressure Rating: 900# Pressure Rating at 100F: 2220 psig Type: Seat-Supported Ball Valve Weight: 1,200 lbs Reduced or Full Bore: Reduced Body/Bonnet Material: SA-105 Trim Material: 410SS Seat Material: SA-105 with RAM 31 coating Stem / Body Seal Material: A286/17-4 Bolting Material: B7 Studs/2H Nuts Is valve considered "Soft-Seated"? No
Valve Markings	Nameplate Information: Size, Pressure Class Casting Markings: N/A
Assembly Drawing Number / Revision / Date of Issue:	111160-2/ Rev. 1/ 08/5/11
Assembly Drawing sent to Yarmouth:	Yes
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	Exeeco IW-6/420, mech. Advantage of 132.
If valve is non-symmetric, state direction of flow for test:	See flow direction as indicated on drawing.
For double-seated valves, state maximum allowable cavity pressure:	2220 psig
Manufacturer's Contact Name /Date:	Becky Kowen / 9/2/11

Temperature verses Time Chart



Pressure verses Time Chart





Valve During Burn



Valve During Burn

Yarmouth Research and Technology, LLC

Fire Test Information

Customer: ValvTechnologies

Date: 9/21/2011

Product Code: 8 inch Class 900 Metal-seated Ball Valve

Project Number: PN211088

Fire Test Raw Data

Time (EST)	Pressure (psig)	Water Volume (mls)	Cal. Block 1 Temp-C	Cal. Block 2 Temp-C	Cal. Block 3 Temp-C	Avg. Cal Block Temp-C	Bonnet Flame Temp-C	Body Flame Temp-C	Average Flame Temp-C
13:07:00	1670	39939	50	44	60	52	92	289	190
13:07:15	1670	39955	51	51	104	69	332	602	467
13:07:30	1669	39953	61	81	158	100	334	816	575
13:07:45	1667	39940	75	109	210	131	395	866	630
13:08:00	1665	39933	89	136	251	159	471	872	671
13:08:15	1676	39941	103	184	293	193	561	867	714
13:08:30	1669	39946	113	237	327	226	693	794	743
13:08:45	1664	39924	123	286	362	257	716	804	760
13:09:00	1670	39937	139	331	390	286	788	771	779
13:09:15	1674	39918	168	368	414	317	863	783	823
13:09:30	1678	39921	205	399	437	347	872	777	824
13:09:45	1681	39906	247	428	455	377	867	798	833
13:10:00	1683	39924	283	453	476	404	907	782	844
13:10:15	1686	39923	315	477	491	428	892	773	833
13:10:30	1688	39962	343	499	508	450	876	791	834
13:10:45	1690	39949	368	521	523	471	923	789	856
13:11:00	1693	39937	390	541	536	489	893	784	838
13:11:15	1697	39919	411	558	548	506	913	752	833
13:11:30	1700	39910	432	575	561	522	874	754	814
13:11:45	1694	39935	450	591	571	537	897	778	837
13:12:00	1689	39952	466	606	581	551	919	768	844
13:12:15	1684	39924	481	619	592	564	948	757	853
13:12:30	1686	39907	496	632	600	576	944	751	848
13:12:45	1683	39919	510	643	609	588	933	752	843
13:13:00	1686	39924	522	654	617	598	923	772	847
13:13:15	1695	39907	534	664	623	607	892	771	831
13:13:30	1704	39911	546	673	631	617	914	783	848
13:13:45	1714	39903	555	682	638	625	892	869	881
13:14:00	1725	39932	562	690	644	632	893	938	916
13:14:15	1716	39927	568	698	651	639	909	957	933
13:14:30	1708	39929	574	706	658	646	845	963	904
13:14:45	1711	39925	579	713	661	651	837	963	900
13:15:00	1722	39920	583	719	664	655	838	965	902

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Fire Test Data - continued

13:15:15	1705	39914	588	724	669	661	835	964	899
13:15:30	1682	39914	593	729	675	666	832	966	899
13:15:45	1683	39932	598	734	677	670	853	964	909
13:16:00	1694	39922	602	737	669	669	866	964	915
13:16:15	1693	39912	606	737	667	670	833	964	899
13:16:30	1694	39909	609	737	671	672	854	963	908
13:16:45	1692	39926	613	737	671	674	876	963	919
13:17:00	1692	39925	617	737	671	675	917	960	939
13:17:15	1697	39913	621	738	669	676	963	960	962
13:17:30	1694	39920	624	738	667	676	894	962	928
13:17:45	1697	39903	626	738	667	677	909	956	933
13:18:00	1696	39898	629	739	665	678	914	956	935
13:18:15	1688	39918	631	739	673	681	943	958	950
13:18:30	1685	39904	634	739	678	684	918	954	936
13:18:45	1685	39916	637	742	684	688	945	957	951
13:19:00	1690	39917	638	746	691	692	915	956	935
13:19:15	1683	39917	639	750	686	692	817	954	886
13:19:30	1688	39903	640	753	692	695	881	953	917
13:19:45	1696	39904	642	757	697	699	830	957	894
13:20:00	1685	39910	643	759	699	700	846	961	903
13:20:15	1676	39910	644	762	696	701	893	954	924
13:20:30	1670	39900	646	763	696	702	830	953	892
13:20:45	1667	39920	646	764	701	704	838	957	898
13:21:00	1666	39904	647	764	698	703	834	958	896
13:21:15	1666	39904	649	764	703	705	848	953	901
13:21:30	1667	39888	650	764	709	708	901	954	927
13:21:45	1670	39924	651	763	707	707	868	951	909
13:22:00	1683	39907	652	763	712	709	837	951	894
13:22:15	1684	39895	652	762	713	709	814	954	884
13:22:30	1684	39915	652	761	714	709	819	951	885
13:22:45	1684	39892	653	760	714	709	897	949	923
13:23:00	1685	39894	654	760	716	710	889	948	919
13:23:15	1687	39900	654	761	716	711	912	955	934
13:23:30	1687	39895	656	762	716	712	921	953	937
13:23:45	1690	39885	657	763	719	713	947	947	947
13:24:00	1692	39902	658	763	721	714	957	952	954
13:24:15	1695	39880	659	763	723	715	953	953	953
13:24:30	1698	39902	659	763	721	714	942	951	947
13:24:45	1702	39891	659	763	724	715	951	956	953
13:25:00	1707	39891	659	763	725	716	939	949	944
13:25:15	1713	39889	659	761	728	716	901	946	923
13:25:30	1720	39902	659	761	727	716	840	942	891
13:25:45	1728	39905	659	760	728	716	852	955	903

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Fire Test Data - continued

13:26:00	1720	39897	659	760	728	716	818	954	886
13:26:15	1702	39899	659	759	727	715	926	953	939
13:26:30	1688	39892	660	758	729	716	916	957	937
13:26:45	1676	39887	661	758	730	716	944	959	952
13:27:00	1667	39895	661	758	730	716	936	960	948
13:27:15	1661	39893	661	757	729	716	944	958	951
13:27:30	1660	39888	661	757	731	716	926	955	941
13:27:45	1660	39902	660	757	731	716	882	946	914
13:28:00	1660	39885	661	757	731	716	883	941	912
13:28:15	1662	39887	660	757	729	715	895	946	921
13:28:30	1663	39891	661	757	730	716	901	941	921
13:28:45	1665	39881	661	757	732	717	901	940	920
13:29:00	1668	39893	660	757	730	715	847	944	896
13:29:15	1685	39865	659	756	713	709	841	948	894
13:29:30	1688	39876	659	752	703	705	794	937	866
13:29:45	1690	39882	658	749	709	706	876	941	908
13:30:00	1693	39881	658	750	711	707	908	950	929
13:30:15	1695	39874	658	752	715	708	903	945	924
13:30:30	1698	39910	659	752	720	710	939	953	946
13:30:45	1704	39880	659	751	724	711	950	954	952
13:31:00	1709	39858	659	748	728	711	938	955	947
13:31:15	1715	39876	659	744	729	711	922	956	939
13:31:30	1721	39872	658	741	732	710	918	946	932
13:31:45	1727	39873	658	737	734	710	859	942	901
13:32:00	1733	39879	657	734	735	709	810	938	874
13:32:15	1719	39890	656	730	736	707	797	931	864
13:32:30	1710	39871	655	726	738	706	843	934	889
13:32:45	1705	39883	655	723	736	705	872	933	902
13:33:00	1701	39855	654	722	739	705	872	943	908
13:33:15	1696	39875	655	719	742	705	848	942	895
13:33:30	1694	39872	655	717	743	705	827	929	878
13:33:45	1691	39874	654	713	745	704	785	931	858
13:34:00	1689	39866	654	709	746	703	793	936	864
13:34:15	1688	39872	653	704	747	701	837	921	879
13:34:30	1687	39868	653	699	748	700	824	925	875
13:34:45	1686	39869	652	697	750	700	795	944	870
13:35:00	1686	39880	652	696	750	699	799	949	874
13:35:15	1685	39873	651	693	750	698	778	951	864
13:35:30	1685	39860	651	689	750	696	782	942	862
13:35:45	1686	39849	651	688	750	696	781	936	859
13:36:00	1686	39874	649	687	750	695	793	926	859
13:36:15	1686	39870	648	686	750	695	801	913	857
13:36:30	1687	39858	647	685	750	694	797	938	868

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Fire Test Data - continued

13:36:45	1687	39881	646	682	751	693	790	936	863
13:37:00	1688	39862	646	680	750	692	791	935	863
13:37:15	1694	39859	643	676	713	677	582	690	636
13:37:30	1698	39803	614	665	659	646	423	410	417
13:37:45	1698	39826	535	617	567	573	323	196	259
13:38:00	1695	39908	263	490	498	417	192	63	128
13:38:15	1689	39847	211	399	443	351	68	66	67
13:38:30	1676	39851	186	329	407	307	66	61	63
13:38:45	1660	39882	148	257	362	256	61	54	58
13:39:00	1655	39925	112	187	324	208	60	48	54
13:39:15	1655	39827	81	127	283	164	59	44	52
13:39:30	1673	39830	57	88	268	138	58	42	50
13:39:45	1663	39862	49	68	260	126	57	41	49
13:40:00	1660	39820	39	58	243	113	58	39	49
13:40:15	1660	39848	38	51	215	101	58	37	48
13:40:30	1671	39806	38	47	170	85	56	37	46
13:40:45	1662	39885	33	43	114	63	54	37	46
13:41:00	1661	39887	31	45	61	46	52	36	44
13:41:15	1674	39776	31	49	50	43	51	36	43
13:41:30	1662	39839	37	49	40	42	49	35	42
13:41:45	1660	39783	36	44	48	43	49	35	42
13:42:00	1673	39788	33	41	50	41	51	34	43
13:42:15	1661	39787	29	37	53	40	49	34	42
13:42:30	1660	39752	33	34	55	41	48	35	41
13:42:45	1668	39828	35	33	54	41	46	34	40
13:43:00	1660	39814	28	32	53	37	45	33	39
13:43:15	1661	39802	36	31	50	39	44	33	39
13:43:30	1662	39764	33	29	50	37	45	33	39
13:43:45	1660	39787	30	29	50	36	45	32	39
13:44:00	1669	39811	31	28	51	37	44	33	38
13:44:15	1659	39799	30	27	51	36	44	33	39
13:44:30	1671	39747	27	27	49	34	43	32	38
13:44:45	1659	39748	31	27	47	35	41	32	36
13:45:00	1673	39717	25	27	49	33	41	32	36
13:45:15	1664	39795	24	26	46	32	41	32	37
13:45:30	1663	39736	33	26	45	34	40	32	36
13:45:45	1663	39748	27	26	44	32	39	31	35
13:46:00	1666	39718	29	25	44	33	37	31	34
13:46:15	1662	39767	24	25	42	30	39	32	36
13:46:30	1665	39671	27	25	42	31	38	31	35
13:46:45	1674	39687	26	25	39	30	38	32	35
13:47:00	1664	39684	28	25	39	31	38	30	34

Yarmouth Research and Technology, LLC

Leakage Summary for Burn and Cool Down Periods

All pressure transducers and thermocouples are in calibration per YRT's QA program.
Seat leakages were collected manually. External leakage was collected electronically.

Total Through Seat Leakage Collected Over 30 Minute Duration:	0	mls
Average Leak Rate Over 30 Minute Duration:	0	ml/min
Allowable Leak Rate:	3200	ml/min

Total Through Seat Leakage Collected Over 10 Minute Cool Down:	0	mls
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Total Water Volume Lost Over 40 Minute Burn and Cool Down:	255	mls
Water Collected in System Relief Valve:	220	mls
Calculated External Leakage During 40 Minute Duration:	35	mls
Average Leak Rate Over 40 Minute Duration:	1	ml/min
Allowable Leak Rate:	800	ml/min

Were the Valve Leakages Below the Allowables?	Yes
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Yarmouth Research and Technology, LLC

Summary of Test Parameters During Burn and Cool Down Periods

Amount of Time Pressure Dropped Below 50%:	0.0	minutes
Maximum Allowable Low Pressure Time:	2.0	minutes
Maximum Pressure During Burn/Cool Down:	1733	psig
Average Pressure During Burn/Cool Down:	1684	psig
Minimum Pressure During Burn/Cool Down:	1655	psig
<hr/>		
Amount of Time of Avg. Cal Block > 650 deg.C:	22.3	minutes
Minimum Allowable Time at Temperature:	15.0	minutes
Maximum Avg Cal Block Temperature:	717	deg. C
Average Cal Block Temperature:	504	deg. C
Lowest Avg Cal. Block Temperature:	30	deg. C
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Maximum Body Flame Temperature During Burn:	966	deg. C
Average Body Flame Temperature During Burn:	906	deg. C
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Maximum Bonnet Flame Temperature During Burn:	963	deg. C
Average Bonnet Flame Temperature During Burn:	847	deg. C
<hr/>		
Average of Both Flame Temperatures During Burn:	877	deg. C

Note

Were Test Conditions Within Compliance?	Yes
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Yarmouth Research and Technology, LLC

Post-Burn Seat Test Information

Customer: ValvTechnologies

Date: 9/21/2011

Product Code: 8 inch Class 900 Metal-seated Ball Valve

Project Number: PN211088

Test Not Required for Pressure Class 900

Yarmouth Research and Technology, LLC

Operational Test Information

Customer: ValvTechnologies

Date: 9/21/2011

Product Code: 8 inch Class 900 Metal-seated Ball Valve

Project Number: PN211088

Test Data

Time	Pressure (psig)	Cal Block Temp - C
13:53:52	1675	28
13:54:07	1668	28
13:54:22	1665	28
13:54:37	1665	28
13:54:52	1665	28
13:55:07	1668	28
13:55:22	1671	29
13:55:37	1673	28
13:55:52	1674	28
13:56:07	1676	28
13:56:22	1679	29
13:56:37	1679	29
13:56:52	1679	28
13:57:07	1679	29
13:57:22	1679	28
13:57:37	1675	29
13:57:52	1672	29
13:58:07	1672	29
13:58:22	1666	29
13:58:37	1663	29
13:58:52	1658	29

Leakages were collected manually.

Total External Leakage Collected Over 5 Minute Duration:	0.0	mls
Average Leak Rate Over 5 Minute Duration:	0.0	ml/min
Allowable Leak Rate:	200	ml/min

Was the Valve Leakage Below the Allowable?	Yes
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