

Fire Test Report

ANSI/API Standard 607, 6th Edition, 2010

ISO 10497: 2010

Performed for

Valvtechnologies, Inc.

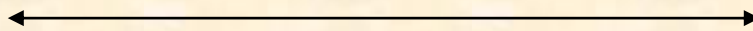
www.valv.com



1 inch Class 900 Ball Valve
V72D-JJ-FP-B010-006EM-001

Project Number: 213199

Test Date: July 12, 2013



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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

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Yarmouth Research and Technology, LLC

Customer: Valvtechnologies, Inc.

Date: 7/12/2013

Specification: ANSI/API Standard 607, Sixth Edition, 2010
ISO 10497:2010

Product Description: 1 inch Class 900 Ball Valve

Project Number: PN213199

Comments: V72D-JJ-FP-B010-006EM-001

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:	14:10:00	
Average Pressure During Burn:	1629	psig
Seat Leak Rate During Burn:	0	ml/min
Allowable Seat Leak Rate:	400	ml/min
External Leak Rate During Burn/Cool Down:	9.2	ml/min
Allowable External Leak Rate:	100	ml/min
Amount of Time of Avg. Cal. Blocks > 650 deg. C:	22.5	minutes
Were Test Conditions Within Compliance?	Yes	
Were the Valve Leakages Below the Allowables?	Yes	

Operational Test

Did Valve Unseat and Open Fully?:	Yes	
Average Pressure During Test:	1604	psig
External Leak Rate After Operating:	0	ml/min
Allowable External Leak Rate:	25	ml/min
Was the Leakage Below the Allowable?	Yes	
Does Valve Pass or Fail the Test Standard?	PASS	

Witnesses

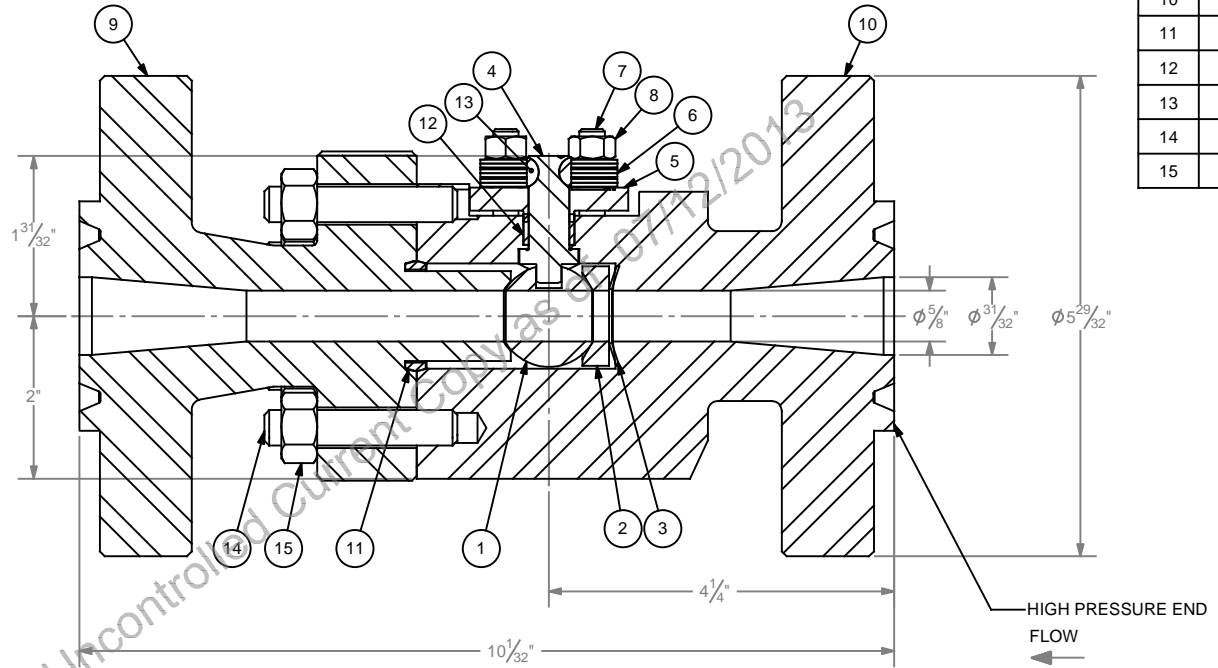
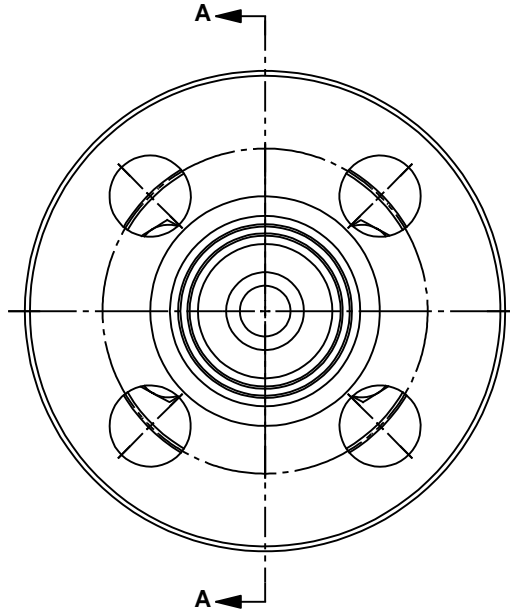
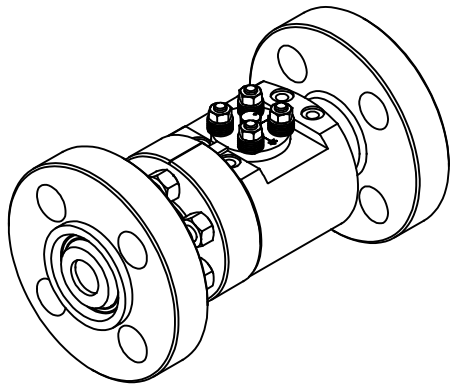
Matthew J. Wasielewski



YARMOUTH RESEARCH AND TECHNOLOGY

Fire Test Information Sheet

Valve Manufacturer's Name:	VALVTECHNOLOGIES INC.
Valve Manufacturer's Address:	5904 BINGLE RD HOUSTON TX 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	yes
Valve Product Code:	
Valve Description Size: Pressure Rating: Pressure Rating at 100F: Type: Weight: Reduced or Full Bore: Body/Bonnet Material: Trim Material: Seat Material: Stem / Body Seal Material: Bolting Material: Is valve considered "Soft-Seated"?	1" 900# 0.63" Bore, 900# 2160psig Metal seated ball valve 34 lbs Full Bore SA182-316H Spring/ SB-637 N07718 SA182-316H SA-638 660/ SB-637 N07718 SA-453 660 NO
Valve Markings Nameplate Information: Casting Markings:	Serial #: 13102559
Assembly Drawing Number / Revision / Date of Issue:	07/10/13 Rev 1
Assembly Drawing sent to Yarmouth:	yes
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	n/a
If valve is non-symmetric, state direction of flow for test:	
For double-seated valves, state maximum allowable cavity pressure:	
Manufacturer's Contact Name /Date:	Quintin Archie, 713-715-5630

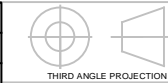


BILL OF MATERIALS		
ITEM	DESCRIPTION	QTY.
1	BALL	1
2	UPSTREAM SEAT	1
3	BELLEVILLE SPRING	1
4	STEM	1
5	GLAND	1
6	GLAND SPRING	24
7	GLAND STUD	4
8	GLAND NUT	4
9	END CAP	1
10	BODY	1
11	BODY SEAL	1
12	GLAND PACKING	1
13	KEY	2
14	BODY STUD	6
15	BODY NUT	6

SECTION A-A

CUSTOMER NAME: VALVTECHNOLOGIES INC.
 CUSTOMER REF.: R&D FOR SO#122097
 PROJECT NAME: FIRE SAFE CERT. FOR VTI SO#122097

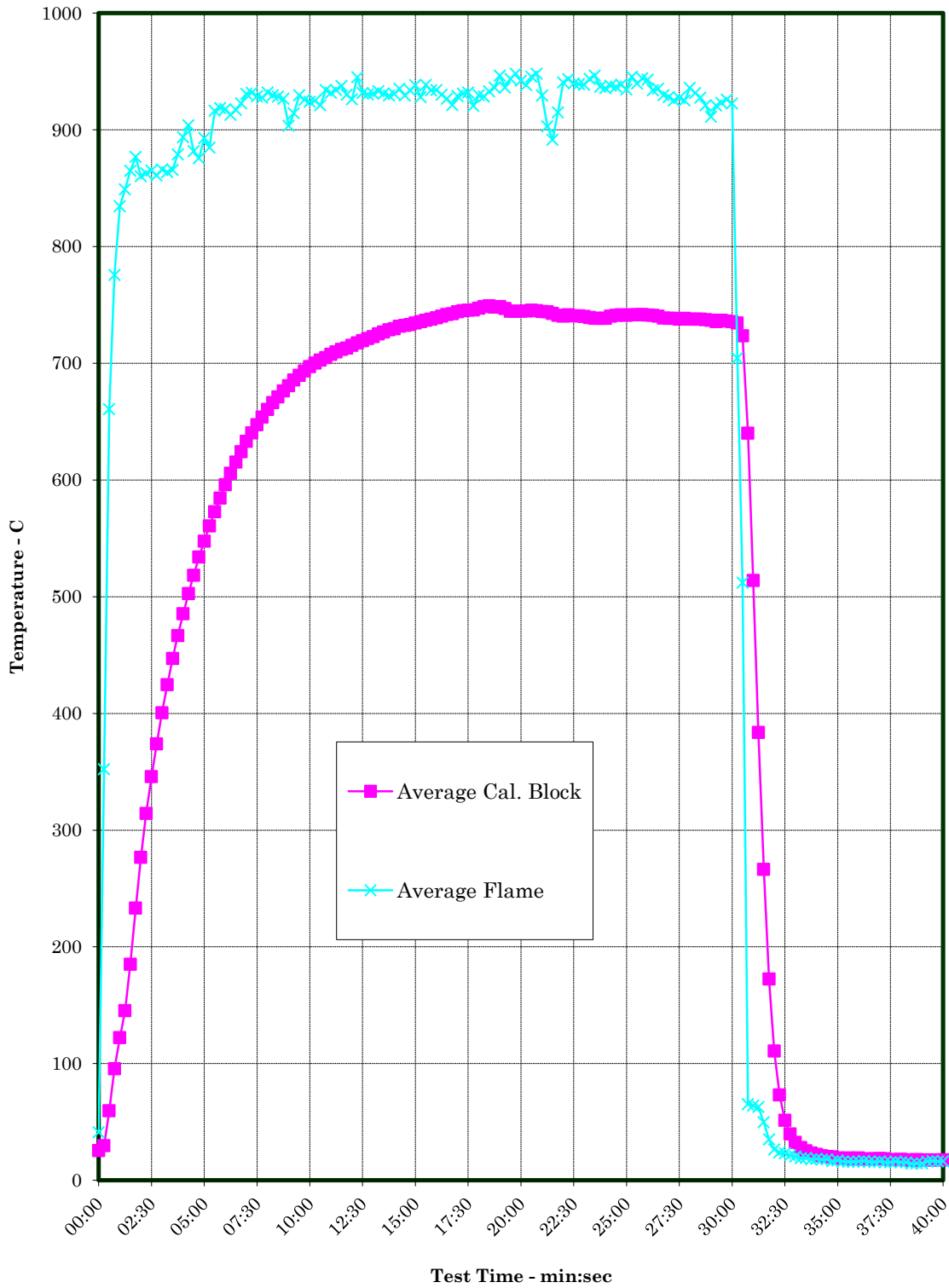
REV.	DATE	DESCRIPTION	ECN	BY	APR



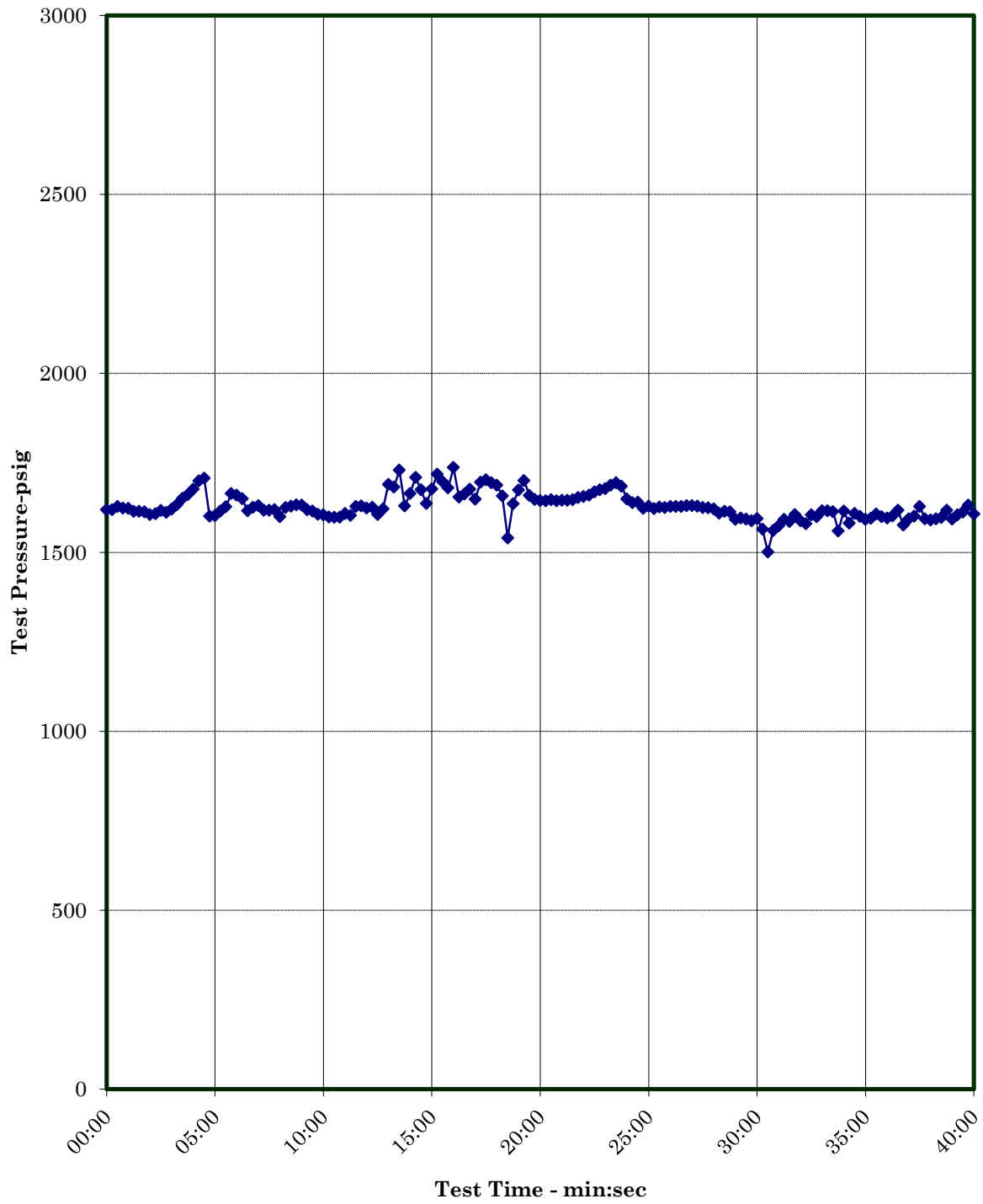
THIRD ANGLE PROJECTION
 THIS DRAWING AND THE INFORMATION CONTAINED WITHIN IS CONSIDERED TO BE CONFIDENTIAL AND THE SOLE PROPERTY OF VALVTECHNOLOGIES. THE CONTENTS OF THIS DRAWING MAY NOT BE REPRODUCED OR DISCLOSED VERBALLY OR OTHERWISE OUTSIDE THE HOLDERS OFFICE WITHOUT THE WRITTEN APPROVAL OF VALVTECHNOLOGIES.

DIMENSIONS ARE IN INCHES		MODEL FILE		VALVTECHNOLOGIES	
OVERALL DIMENSIONS (L) x (W) x (H)	SCALE	WEIGHT	SHEET SIZE	5904 SINGLE ROAD, HOUSTON TEXAS 77092 WWW.VALV.COM	
10 1/32" x 4 1/4" x 1 31/32"	1:1.5	33 LBS	1 OF 1 B	TITLE	
GENERAL ASSEMBLY	DRAWN BY	DATE	ENGINEER	V72D-JJ-FP-B010-006EM-001 0.63" BORE JJ 1" 900# WITH BARE STEM	
ACTUATOR ORIENTATION IS FOR ILLUSTRATION PURPOSES ONLY. ACCESSORIES MAY NOT BE INCLUDED IN DRAWING.	SC	06/13/13	QA	07/10/13	130141-001
					REV. 1

Temperature verses Time Chart



Pressure verses Time Chart



Yarmouth Research and Technology, LLC



Test Valve Prior to Burn



Test Valve During Burn

Yarmouth Research and Technology, LLC

Fire Test Information

Customer: Valvtechnologies, Inc.

Date: 7/12/2013

Product Code: 1 inch Class 900 Ball Valve

Project Number: PN213199

Fire Test Raw Data

Time (EST)	Pressure (psig)	Water Volume (mls)	Cal. Block 1 Temp-C	Cal. Block 2 Temp-C	Avg. Cal Block Temp-C	Bonnet Flame Temp-C	Body Flame Temp-C	Average Flame Temp-C
14:10:00	1619	27428	25	26	26	36	46	41
14:10:15	1619	27462	27	32	30	472	233	352
14:10:30	1628	27366	52	67	59	832	489	661
14:10:45	1623	27433	93	98	96	917	634	776
14:11:00	1623	27410	141	103	122	917	752	834
14:11:15	1615	27490	188	103	145	936	762	849
14:11:30	1614	27458	232	138	185	964	765	865
14:11:45	1613	27514	276	191	233	975	778	877
14:12:00	1605	27456	314	239	277	959	761	860
14:12:15	1608	27437	351	277	314	954	771	863
14:12:30	1617	27445	385	307	346	949	781	865
14:12:45	1611	27422	413	334	374	954	767	861
14:13:00	1621	27416	442	359	401	962	770	866
14:13:15	1634	27444	467	382	424	956	772	864
14:13:30	1651	27408	489	404	447	958	773	866
14:13:45	1661	27454	510	423	467	968	789	879
14:14:00	1676	27385	528	442	485	984	803	894
14:14:15	1699	27483	545	460	503	978	829	904
14:14:30	1707	27460	560	477	518	986	778	882
14:14:45	1601	27449	575	493	534	981	770	876
14:15:00	1602	27441	589	506	548	984	801	893
14:15:15	1615	27442	601	520	561	988	781	885
14:15:30	1627	27398	612	533	573	1003	829	916
14:15:45	1664	27503	624	545	584	1003	834	919
14:16:00	1660	27423	634	557	596	999	836	918
14:16:15	1650	27432	643	568	606	995	831	913
14:16:30	1616	27440	652	578	615	992	842	917
14:16:45	1626	27482	660	588	624	989	856	923
14:17:00	1630	27496	667	599	633	1001	860	931
14:17:15	1617	27380	674	607	640	1006	857	932
14:17:30	1617	27413	680	614	647	1005	852	929
14:17:45	1619	27413	686	622	654	1001	854	928
14:18:00	1600	27486	691	629	660	996	868	932

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Fire Test Data - continued

14:18:15	1625	27413	696	637	666	1002	857	929
14:18:30	1628	27480	699	643	671	1000	857	928
14:18:45	1632	27477	704	648	676	1006	847	926
14:19:00	1631	27452	708	653	681	996	811	903
14:19:15	1619	27462	713	658	686	1001	827	914
14:19:30	1615	27447	716	663	689	1005	854	929
14:19:45	1606	27415	720	667	693	1004	847	926
14:20:00	1605	27393	723	671	697	998	850	924
14:20:15	1599	27401	727	673	700	1002	848	925
14:20:30	1598	27426	728	677	703	994	848	921
14:20:45	1598	27456	729	680	705	1006	862	934
14:21:00	1608	27490	732	683	708	1004	859	932
14:21:15	1603	27445	733	686	710	1014	854	934
14:21:30	1628	27423	734	689	712	1012	863	938
14:21:45	1630	27415	735	691	713	1008	852	930
14:22:00	1623	27437	737	693	715	1015	837	926
14:22:15	1626	27401	739	696	717	1013	877	945
14:22:30	1605	27391	741	697	719	1008	854	931
14:22:45	1622	27433	742	700	721	1017	843	930
14:23:00	1690	27399	744	701	723	1014	848	931
14:23:15	1682	27362	746	704	725	1013	853	933
14:23:30	1729	27367	748	706	727	1016	846	931
14:23:45	1629	27342	751	706	729	1013	845	929
14:24:00	1664	27390	753	706	729	1013	848	931
14:24:15	1710	27414	754	709	732	1017	853	935
14:24:30	1675	27384	756	709	732	1009	849	929
14:24:45	1636	27418	755	711	733	1013	854	934
14:25:00	1677	27379	757	712	734	1015	861	938
14:25:15	1718	27383	758	713	736	1006	850	928
14:25:30	1697	27368	759	714	737	1014	863	938
14:25:45	1680	27448	761	714	738	1014	853	934
14:26:00	1737	27370	762	716	739	1014	853	934
14:26:15	1655	27358	763	717	740	1018	842	930
14:26:30	1662	27374	766	718	742	1017	836	926
14:26:45	1676	27392	766	719	742	1013	829	921
14:27:00	1648	27461	768	719	744	1016	842	929
14:27:15	1696	27454	770	720	745	1020	842	931
14:27:30	1703	27468	771	720	745	1021	843	932
14:27:45	1694	27419	771	720	746	1015	826	920
14:28:00	1687	27387	774	720	747	1019	839	929
14:28:15	1658	27412	775	722	748	1020	837	928
14:28:30	1540	27441	777	722	749	1014	852	933
14:28:45	1636	27315	774	722	748	989	883	936

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Fire Test Data - continued

14:29:00	1674	27369	774	723	748	992	901	946
14:29:15	1700	27327	770	723	747	1004	868	936
14:29:30	1659	27339	766	723	744	1006	881	944
14:29:45	1647	27307	764	724	744	1010	886	948
14:30:00	1645	27369	764	725	744	1006	878	942
14:30:15	1644	27371	764	726	745	1008	868	938
14:30:30	1647	27356	764	727	745	1009	882	945
14:30:45	1644	27353	763	727	745	998	898	948
14:31:00	1646	27344	761	727	744	989	869	929
14:31:15	1646	27389	759	728	744	976	829	903
14:31:30	1647	27337	756	729	743	953	829	891
14:31:45	1653	27319	752	730	741	986	843	915
14:32:00	1656	27332	752	728	740	999	882	941
14:32:15	1660	27272	753	729	741	1001	886	943
14:32:30	1669	27393	752	729	741	995	884	939
14:32:45	1675	27416	752	729	741	997	881	939
14:33:00	1678	27344	751	729	740	989	887	938
14:33:15	1687	27425	749	729	739	994	893	944
14:33:30	1694	27329	746	731	738	999	893	946
14:33:45	1685	27348	746	731	738	1004	869	937
14:34:00	1649	27304	746	731	738	1008	863	936
14:34:15	1639	27321	748	732	740	1011	865	938
14:34:30	1640	27383	749	732	741	1003	870	937
14:34:45	1623	27356	750	733	741	1004	873	939
14:35:00	1629	27306	749	732	741	1008	861	934
14:35:15	1622	27344	751	732	741	1006	885	945
14:35:30	1626	27364	751	732	741	1006	873	939
14:35:45	1625	27370	751	732	742	1001	887	944
14:36:00	1628	27446	750	732	741	998	887	943
14:36:15	1628	27409	749	732	741	998	869	934
14:36:30	1628	27353	748	733	740	985	885	935
14:36:45	1630	27355	744	733	739	983	876	929
14:37:00	1630	27348	743	733	738	978	878	928
14:37:15	1628	27292	743	734	738	972	878	925
14:37:30	1625	27297	742	734	738	987	867	927
14:37:45	1624	27357	742	734	738	992	858	925
14:38:00	1621	27374	741	734	738	994	878	936
14:38:15	1609	27351	741	734	738	1003	859	931
14:38:30	1614	27378	741	734	738	988	867	928
14:38:45	1613	27346	740	734	737	967	874	921
14:39:00	1592	27318	738	735	737	978	844	911
14:39:15	1595	27402	737	734	736	982	859	921
14:39:30	1593	27334	738	736	737	990	856	923

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Fire Test Data - continued

14:39:45	1588	27362	737	735	736	988	863	926
14:40:00	1594	27321	736	735	736	976	869	923
14:40:15	1565	27390	734	735	734	742	667	704
14:40:30	1501	27105	722	725	723	519	505	512
14:40:45	1561	25872	622	658	640	52	79	65
14:41:00	1574	26999	483	545	514	47	81	64
14:41:15	1592	27073	364	403	384	41	84	63
14:41:30	1586	26955	255	278	266	29	70	50
14:41:45	1605	27044	163	182	173	23	47	35
14:42:00	1588	27027	102	120	111	20	33	26
14:42:15	1580	26958	66	80	73	18	29	24
14:42:30	1605	26983	46	57	51	19	27	23
14:42:45	1599	26987	35	44	40	18	24	21
14:43:00	1616	27004	29	36	33	17	23	20
14:43:15	1616	26970	26	30	28	17	21	19
14:43:30	1614	26931	24	27	25	17	21	19
14:43:45	1560	26893	22	25	23	17	19	18
14:44:00	1615	26848	22	23	22	16	21	18
14:44:15	1581	26908	21	22	21	16	19	18
14:44:30	1609	26818	19	21	20	16	21	18
14:44:45	1600	26839	19	21	20	16	17	16
14:45:00	1592	26865	19	19	19	14	20	17
14:45:15	1595	26829	19	19	19	16	16	16
14:45:30	1607	26875	19	19	19	16	16	16
14:45:45	1600	26857	18	19	18	14	17	16
14:46:00	1595	26781	19	19	19	14	18	16
14:46:15	1602	26864	17	19	18	14	19	17
14:46:30	1617	26768	18	19	18	14	17	16
14:46:45	1576	26722	18	18	18	15	16	16
14:47:00	1594	26862	19	18	19	14	18	16
14:47:15	1601	26786	19	18	18	14	17	15
14:47:30	1628	26828	18	18	18	14	17	15
14:47:45	1594	26821	17	18	18	13	19	16
14:48:00	1590	26778	18	18	18	13	17	15
14:48:15	1593	26808	17	18	18	14	16	15
14:48:30	1597	26902	17	17	17	11	17	14
14:48:45	1617	26768	18	18	18	13	16	14
14:49:00	1593	26822	17	17	17	12	17	14
14:49:15	1604	26821	18	17	18	14	18	16
14:49:30	1612	26786	17	18	17	13	20	17
14:49:45	1632	26789	17	18	18	16	17	16
14:50:00	1607	26749	18	17	18	16	17	16

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:	400	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:	679	mls
Water Collected in System Relief Valve:	310	mls
Calculated External Leakage During 40 Minute Duration:	369	mls
Average Leak Rate Over 40 Minute Duration:	9.2	ml/min
Allowable Leak Rate:	100	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:	1737	psig
Average Pressure During Burn/Cool Down:	1629	psig
Minimum Pressure During Burn/Cool Down:	1501	psig
Amount of Time of Avg. Cal Block > 650 deg.C:	22.5	minutes
Minimum Allowable Time at Temperature:	15.0	minutes
Maximum Avg Cal Block Temperature:	749	deg. C
Average Cal Block Temperature:	513	deg. C
Lowest Avg Cal. Block Temperature:	17	deg. C
Maximum Body Flame Temperature During Burn:	901	deg. C
Average Body Flame Temperature During Burn:	833	deg. C
Maximum Bonnet Flame Temperature During Burn:	1021	deg. C
Average Bonnet Flame Temperature During Burn:	984	deg. C
Average of Both Flame Temperatures During Burn:	908	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, Inc.

Date: 7/12/2013

Product Code: 1 inch Class 900 Ball Valve

Project Number: PN213199

This test not required for this pressure class valve.

Yarmouth Research and Technology, LLC

Operational Test Information

Customer: Valvtechnologies, Inc.

Date: 7/12/2013

Product Code: 1 inch Class 900 Ball Valve

Project Number: PN213199

Test Data

Time	Pressure (psig)	Cal Block Temp - C
15:03:30	1602	21
15:03:45	1631	21
15:04:00	1621	21
15:04:15	1598	23
15:04:30	1602	22
15:04:45	1601	21
15:05:00	1589	22
15:05:15	1587	22
15:05:30	1595	22
15:05:45	1601	22
15:06:00	1603	22
15:06:15	1600	21
15:06:30	1596	22
15:06:45	1599	22
15:07:00	1601	22
15:07:15	1604	21
15:07:30	1601	22
15:07:45	1594	22
15:08:00	1624	22
15:08:15	1620	22
15:08:30	1609	22

Leakages were collected manually.

Total External Leakage Collected Over 5 Minute Duration:	0	mls
Average Leak Rate Over 5 Minute Duration:	0	ml/min
Allowable Leak Rate:	25	ml/min

Was the Valve Leakage Below the Allowable?	Yes
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