

API 607 Rev. 4 Fire Test Report

Performed for

ValvTechnologies

www.valv.com



1 Inch Class 600 Ball Valve

Product Code: 8481.80.30.90

Project Number: 212265

Test Date: February 21, 2013



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY

434 Walnut Hill Road
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Yarmouth Research and Technology

Customer: ValvTechnologies

Date: 2/21/2013

Specification: API 607, Fourth Edition, May 1993

Product Description: 1 Inch Class 600 Ball Valve

Project Number: PN212265

Product Code: 8481.80.30.90

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:	13:37:00	
Average Pressure During Burn:	31	psig
Seat Leak Rate During Burn:	3.8	ml/min
Allowable Seat Leak Rate:	100	ml/min
External Leak Rate During Burn/Cool Down:	0.0	ml/min
Allowable External Leak Rate:	25	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

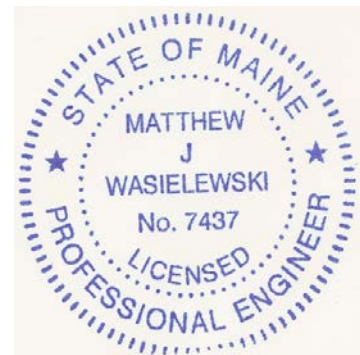
Operational Test

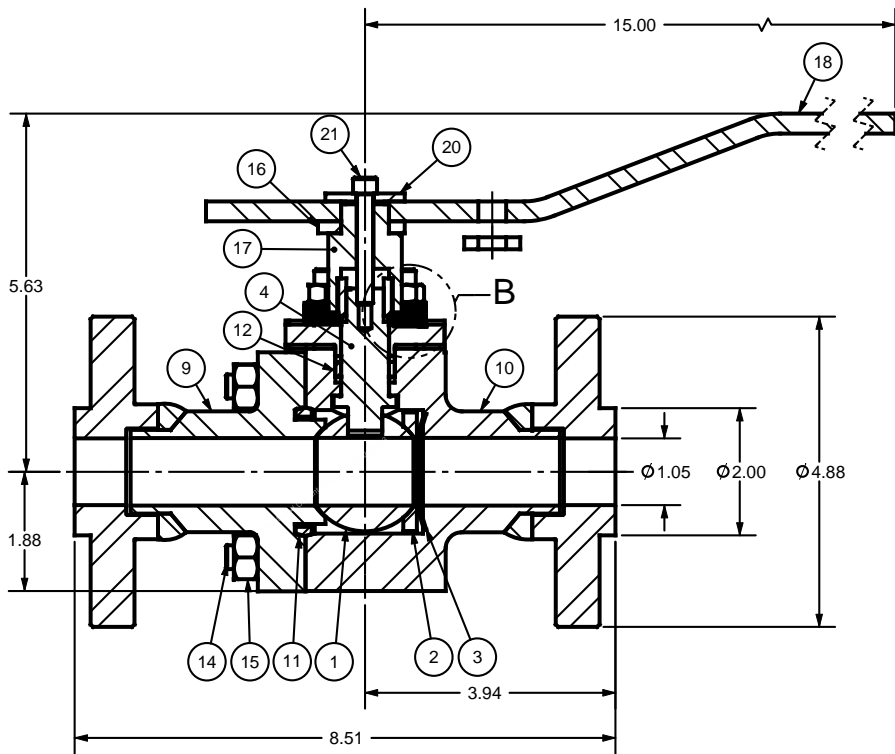
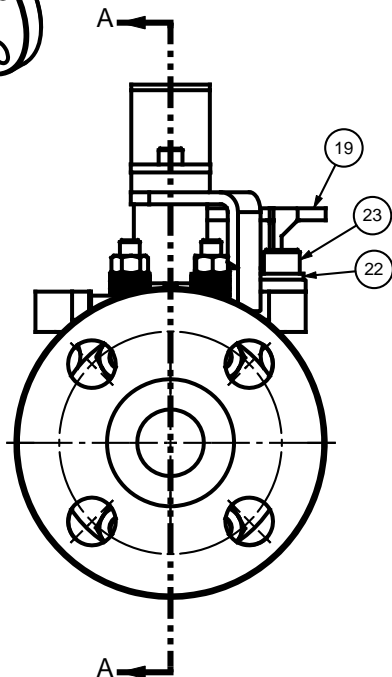
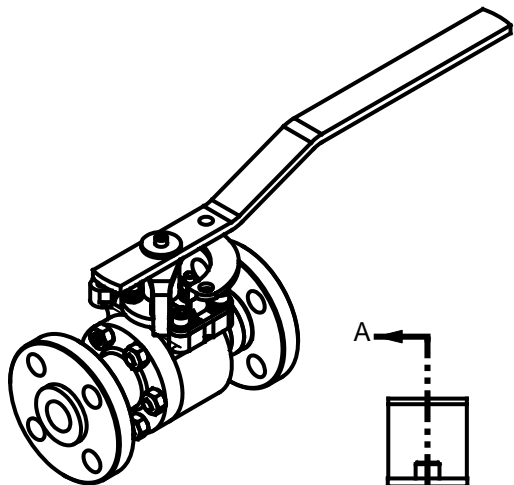
Average Pressure During Test:	31	psig
Seat Leak Rate After Operating:	0.0	ml/min
Allowable Seat Leak Rate:	20	ml/min
External Leak Rate After Operating:	0.0	ml/min
Allowable External Leak Rate:	25	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

Does Valve Pass or Fail the Test Standard?	PASS
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Witnesses

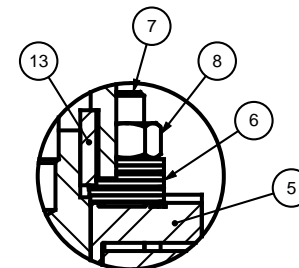
Matthew J. Wasielewski





SECTION A-A

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
16	STOP PLATE	1
17	DRIVE SLEEVE	1
18	HANDLE	1
19	LOCKOUT DEVICE	1
20	FLAT WASHER	1
21	CAP SCREW	1
22	LOCK WASHER	2
23	CAP SCREW	2



DETAIL B
SCALE 1 : 1

TOTAL APPROX. WEIGHT: 22 LBS

<p>THIRD ANGLE PROJECTION</p> <p>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 VERTICALLY OR OTHERWISE OUTSIDE THE HOLDERS OFFICE WITHOUT THE WRITTEN APPROVAL OF VALVTECHNOLOGIES.</p>	-	-	-	-	-	-	-	-	-	<p>DIMENSIONS ARE IN INCHES REMOVE BURRS AND BREAK EDGES UNLESS OTHERWISE SPECIFIED</p> <p>CORNER RADII .03 MAX .X= ±.030 .XX= ±.015 .XXX= ±.005 CONCENTRICITY .010 T.I.R. ANGULAR= ±1/2° SURFACE TEXTURE 125 RMS MIN. INTERNAL FILLETS .015</p>	SCALE 1:2	MODEL FILE VBCF-XX-FP-L010-001	SIZE B	<p>5904 BINGLE ROAD, HOUSTON TEXAS 77082 PH: (713) 860-0400 FAX: (713) 860-0499</p>
	REV	DATE	DESCRIPTION	ECN	BY	CHK	APR	APPROVED BY	DATE		<p>DRAWN BY SC DATE 11/19/20</p> <p>CHECKED BY CR DATE 11/20/12</p> <p>ENGINEER SS DATE 11/20/12</p> <p>APPROVED BY SS DATE 11/20/12</p>	<p>TITLE V622-XX-FP-L010-006FT-001 1" 600# LG MALE 1.06" BORE W/ LEVER OPERATOR & LOCKING DEVICE</p>		

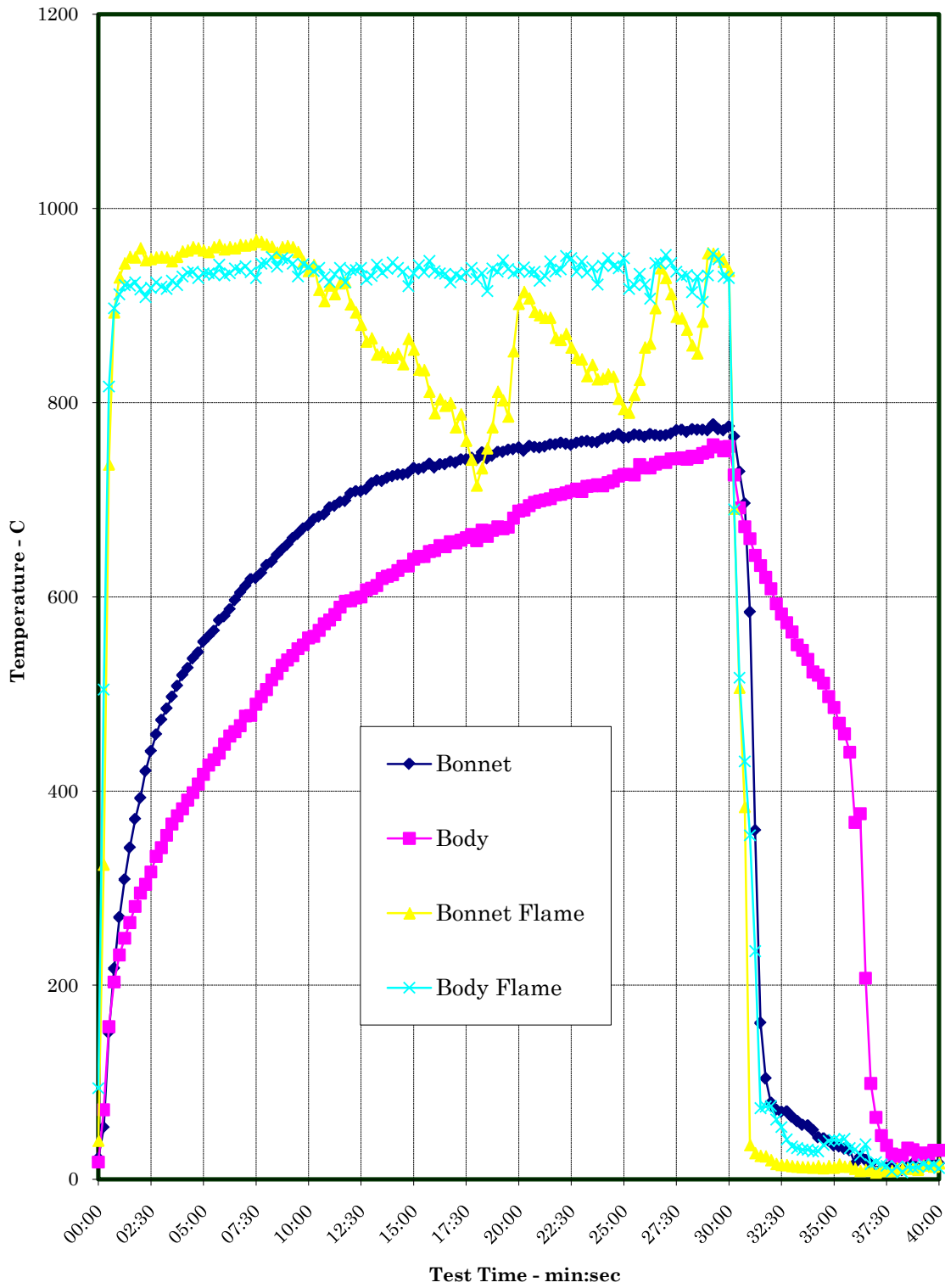
121983-003 SH. OF 1 1

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Fire Test Information Sheet

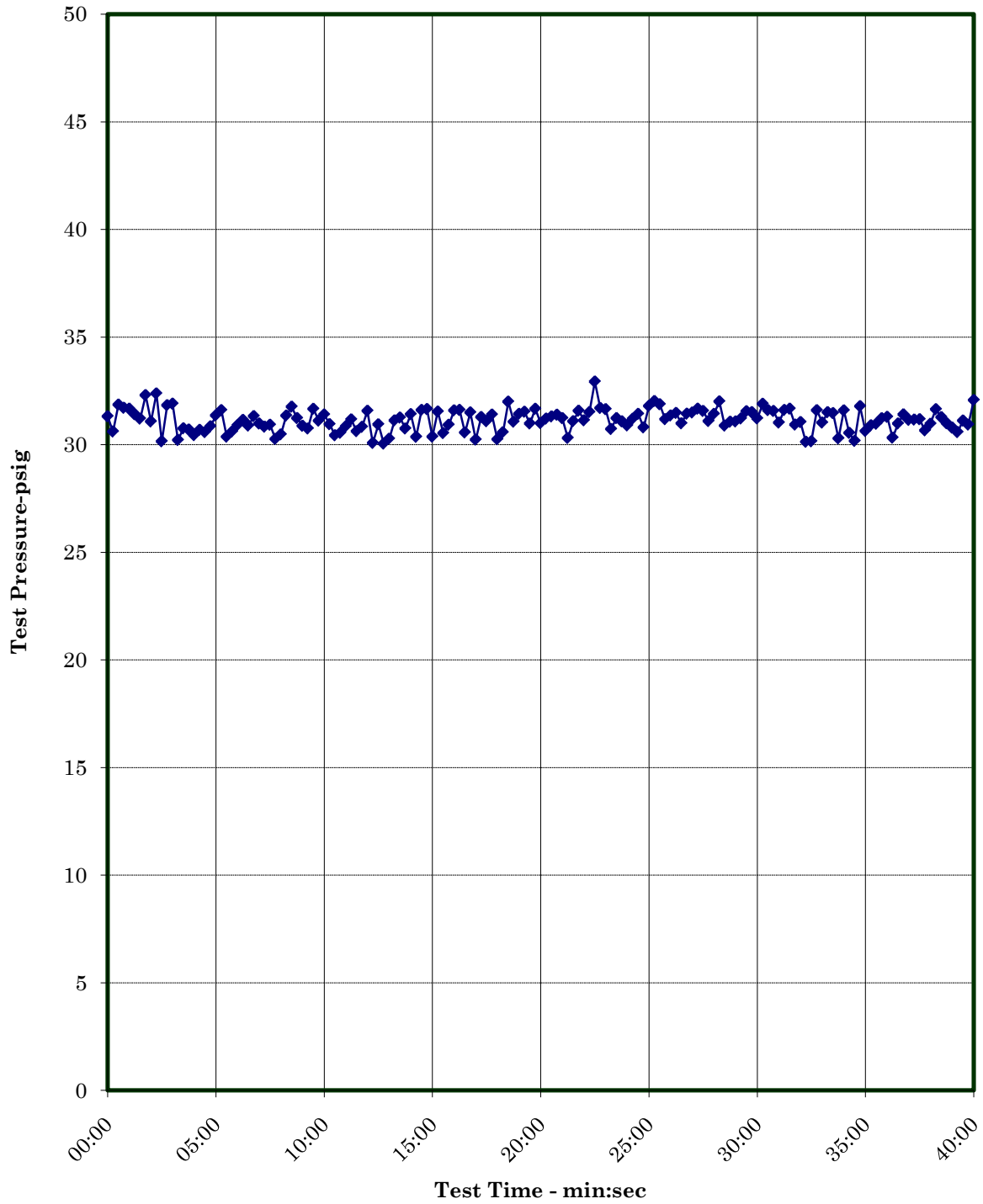
Valve Manufacturer's Name:	Valvtechnologies , Inc.
Valve Manufacturer's Address:	5904 Bingle Rd. Houston TX. 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes.
Valve Product Code:	8481.80.3090
Valve Description	Size: 1" Pressure Rating: 600# Pressure Rating at 100F: 1440 psig Type: Ball Weight: Approx. 25lbs Reduced or Full Bore: Full Port Body/Bonnet Material: CF8M Trim Material: Stainless Steel Seat Material: 316 SS Stem / Body Seal Material: 316 SS/Inc718 Bolting Material: B8M Is valve considered "Soft-Seated"? NO
Valve Markings	V622-XX-FP-L010-006FT-001
Nameplate Information: Casting Markings:	
Assembly Drawing Number / Revision / Date of Issue:	121983-003/ 11-20-2012
Assembly Drawing sent to Yarmouth:	02/20/2013
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	N/A (Lever Operated)
If valve is non-symmetric, state direction of flow for test:	Unidirectional/ Valve labeled upstream.
For double-seated valves, state maximum allowable cavity pressure:	Equivalent to MAWP per ASME B16.34 (1440 psig)
Manufacturer's Contact Name /Date:	German/Angela ; 02/20/2013

Temperature verses Time Chart



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Pressure verses Time Chart



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Test Setup Prior to Burn

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Test Valve During Burn

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Fire Test Information

Customer: ValvTechnologies

Date: 2/21/2013

Product Code: 1 Inch Class 600 Ball Valve

Project Number: PN212265

Fire Test Raw Data

Time	Pressure (psig)	Water Volume (mls)	Bonnet Temp-C	Body Temp-C	Bonnet Flame Temp-C	Body Flame Temp-C	Average Flame Temp-C
13:37:00	31	40279	15	19	40	94	67
13:37:15	31	40268	21	40	324	504	414
13:37:30	32	40258	51	101	737	817	777
13:37:45	32	40269	102	112	893	897	895
13:38:00	32	40228	158	141	929	912	921
13:38:15	31	40234	208	189	944	921	933
13:38:30	31	40291	254	244	951	921	936
13:38:45	32	40290	297	292	950	924	937
13:39:00	31	40296	333	339	959	917	938
13:39:15	32	40347	369	371	947	909	928
13:39:30	30	40398	401	403	948	918	933
13:39:45	32	40397	429	423	950	924	937
13:40:00	32	40470	457	449	951	919	935
13:40:15	30	40600	484	468	950	917	934
13:40:30	31	40575	506	491	946	926	936
13:40:45	31	40548	527	506	951	921	936
13:41:00	30	40627	549	522	956	930	943
13:41:15	31	40619	567	538	957	934	946
13:41:30	31	40648	585	551	961	935	948
13:41:45	31	40564	599	566	959	928	944
13:42:00	31	40594	613	576	957	933	945
13:42:15	32	40622	628	591	956	933	944
13:42:30	30	40621	639	599	961	932	946
13:42:45	31	40611	652	609	963	942	953
13:43:00	31	40622	661	619	958	931	945
13:43:15	31	40633	674	622	961	933	947
13:43:30	31	40629	682	630	959	938	949
13:43:45	31	40638	691	641	963	937	950
13:44:00	31	40623	698	646	962	941	951
13:44:15	31	40604	704	655	963	934	949
13:44:30	31	40624	714	657	968	928	948
13:44:45	30	40636	721	665	966	943	955
13:45:00	30	40601	726	667	963	944	954

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Fire Test Data - continued

13:45:15	31	40601	732	672	961	950	956
13:45:30	32	40619	736	677	955	940	948
13:45:45	31	40664	740	684	961	949	955
13:46:00	31	40623	744	687	962	947	954
13:46:15	31	40620	748	691	961	943	952
13:46:30	32	40616	752	692	956	930	943
13:46:45	31	40628	753	700	946	943	944
13:47:00	31	40641	756	704	936	940	938
13:47:15	31	40641	754	709	942	936	939
13:47:30	30	40623	758	709	917	939	928
13:47:45	31	40595	759	714	905	929	917
13:48:00	31	40620	759	714	921	924	923
13:48:15	31	40658	759	722	912	932	922
13:48:30	31	40612	762	722	923	939	931
13:48:45	31	40602	761	720	924	924	924
13:49:00	32	40643	766	726	902	937	919
13:49:15	30	40626	769	723	893	937	915
13:49:30	31	40619	771	728	881	939	910
13:49:45	30	40633	767	733	863	927	895
13:50:00	30	40637	772	729	867	931	899
13:50:15	31	40630	771	737	850	942	896
13:50:30	31	40676	771	739	852	934	893
13:50:45	31	40608	774	737	847	938	893
13:51:00	31	40674	773	743	847	944	896
13:51:15	30	40612	773	743	851	939	895
13:51:30	32	40638	770	742	840	935	888
13:51:45	32	40674	773	744	866	920	893
13:52:00	30	40597	773	744	855	933	894
13:52:15	32	40630	773	747	834	942	888
13:52:30	31	40668	772	751	834	934	884
13:52:45	31	40643	771	748	812	946	879
13:53:00	32	40604	770	749	789	936	863
13:53:15	32	40625	773	749	804	933	869
13:53:30	31	40618	768	751	797	933	865
13:53:45	31	40696	766	752	800	924	862
13:54:00	30	40657	767	752	775	932	854
13:54:15	31	40570	768	753	788	929	859
13:54:30	31	40653	768	756	761	934	848
13:54:45	31	40623	761	756	742	939	840
13:55:00	30	40621	757	754	715	927	821
13:55:15	31	40620	756	759	733	933	833
13:55:30	32	40646	756	757	753	915	834
13:55:45	31	40649	752	757	775	938	857

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Fire Test Data - continued

13:56:00	31	40664	754	761	812	935	873
13:56:15	32	40647	753	761	803	947	875
13:56:30	31	40605	750	760	786	938	862
13:56:45	32	40666	752	762	853	933	893
13:57:00	31	40614	752	764	902	936	919
13:57:15	31	40639	759	762	914	939	927
13:57:30	31	40694	763	761	908	934	921
13:57:45	31	40621	767	759	894	935	914
13:58:00	31	40603	769	764	891	926	908
13:58:15	30	40647	773	763	888	931	909
13:58:30	31	40630	773	766	888	946	917
13:58:45	32	40665	779	768	867	935	901
13:59:00	31	40645	779	766	865	937	901
13:59:15	32	40640	781	765	871	951	911
13:59:30	33	40631	779	769	857	949	903
13:59:45	32	40627	782	770	847	935	891
14:00:00	32	40689	781	769	845	946	895
14:00:15	31	40700	782	769	828	934	881
14:00:30	31	40666	779	772	839	939	889
14:00:45	31	40617	781	771	824	922	873
14:01:00	31	40609	779	773	825	941	883
14:01:15	31	40596	783	771	829	949	889
14:01:30	31	40692	778	773	827	941	884
14:01:45	31	40628	779	777	804	938	871
14:02:00	32	40648	775	776	794	949	871
14:02:15	32	40603	776	776	790	917	854
14:02:30	32	40649	774	777	808	921	865
14:02:45	31	40644	773	777	824	933	878
14:03:00	31	40671	774	778	857	922	889
14:03:15	31	40708	775	777	861	907	884
14:03:30	31	40660	777	777	898	944	921
14:03:45	31	40692	776	774	939	943	941
14:04:00	31	40637	782	779	929	952	941
14:04:15	32	40618	785	777	912	944	928
14:04:30	32	40677	784	778	889	935	912
14:04:45	31	40649	788	778	887	930	909
14:05:00	31	40678	787	778	876	932	904
14:05:15	32	40644	789	779	859	914	887
14:05:30	31	40638	789	779	851	930	891
14:05:45	31	40670	791	782	884	904	894
14:06:00	31	40663	790	779	954	931	943
14:06:15	31	40635	794	782	954	953	954
14:06:30	32	40629	798	779	951	948	949

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Fire Test Data - continued

14:06:45	32	40636	799	779	946	930	938
14:07:00	31	40656	804	779	936	928	932
14:07:15	32	40643	804	780	691	690	691
14:07:30	32	40635	790	772	507	517	512
14:07:45	32	40607	768	754	384	431	407
14:08:00	31	40432	717	638	36	354	195
14:08:15	32	40468	579	419	27	235	131
14:08:30	32	40595	473	312	24	73	49
14:08:45	31	40176	397	249	24	75	49
14:09:00	31	40543	317	193	20	76	48
14:09:15	30	39933	219	138	16	62	39
14:09:30	30	40223	137	101	15	54	34
14:09:45	32	40499	88	75	15	41	28
14:10:00	31	40247	56	53	14	34	24
14:10:15	32	40130	38	43	13	32	23
14:10:30	31	40317	29	39	13	31	22
14:10:45	30	40236	23	33	13	31	22
14:11:00	32	40194	22	27	12	29	21
14:11:15	31	40257	19	24	14	29	21
14:11:30	30	40129	16	26	12	36	24
14:11:45	32	40169	18	20	14	39	27
14:12:00	31	40118	13	18	12	41	26
14:12:15	31	40298	17	21	16	40	28
14:12:30	31	40310	17	20	13	42	28
14:12:45	31	40214	18	24	13	32	23
14:13:00	31	40242	17	24	11	31	21
14:13:15	30	40213	19	19	9	25	17
14:13:30	31	40193	16	22	10	36	23
14:13:45	31	40197	14	27	9	16	13
14:14:00	31	40207	14	27	7	18	13
14:14:15	31	40233	14	27	11	16	13
14:14:30	31	40230	13	24	9	14	11
14:14:45	31	40213	15	20	9	8	9
14:15:00	31	40155	14	16	12	13	13
14:15:15	32	40214	12	19	11	7	9
14:15:30	31	40195	13	18	11	13	12
14:15:45	31	40203	14	12	12	12	12
14:16:00	31	40199	11	11	10	13	11
14:16:15	31	40188	16	11	14	16	15
14:16:30	31	40240	17	17	15	13	14
14:16:45	31	40181	16	14	13	15	14
14:17:00	32	40193	13	13	17	12	14

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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:	115	mls
Average Leak Rate Over 30 Minute Duration:	3.8	ml/min
Allowable Leak Rate:	100	ml/min

Total Through Seat Leakage Collected Over 10 Minute Cool Down:	2.0	mls
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Total Water Volume Lost Over 40 Minute Burn and Cool Down:	86	mls
Water Collected in System Relief Valve:	0	mls
Calculated External Leakage During 40 Minute Duration:	-31	mls
Average Leak Rate Over 40 Minute Duration:	0.0	ml/min
Allowable Leak Rate:	25	ml/min

Were the Valve Leakages Below the Allowables?	Yes
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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:	32.9	psig
Average Pressure During Burn/Cool Down:	31.1	psig
Minimum Pressure During Burn/Cool Down:	30.0	psig

Maximum Body Flame Temperature During Burn:	953	deg. C
Average Body Flame Temperature During Burn:	923	deg. C

Maximum Bonnet Flame Temperature During Burn:	968	deg. C
Average Bonnet Flame Temperature During Burn:	877	deg. C

Average of Both Flame Temperatures During Burn:	900	deg. C
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Note

Were Test Conditions Within Compliance?	Yes
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Post-Burn Seat Test Information

Customer: ValvTechnologies

Date: 2/21/2013

Product Code: 1 Inch Class 600 Ball Valve

Project Number: PN212265

Test Data

After operating valve.

Time	Pressure (psig)	Cal Block Temp - C
14:28:51	31	19
14:29:06	31	18
14:29:21	31	18
14:29:36	31	18
14:29:51	31	20
14:30:06	31	19
14:30:21	30	21
14:30:36	31	20
14:30:51	30	19
14:31:06	31	19
14:31:21	30	20
14:31:36	30	19
14:31:51	31	19
14:32:06	30	19
14:32:21	30	19
14:32:36	31	17
14:32:51	31	22
14:33:06	31	16
14:33:21	32	19
14:33:36	31	19
14:33:51	31	19

Leakages were collected manually.

Total Seat Leakage Collected Over 5 Minute Duration:	0.0	mls
Average Leak Rate Over 5 Minute Duration:	0.0	ml/min
Allowable Leak Rate:	20	ml/min

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

Name of Manufacturer:	ValvTechnologies, Inc.	Test Date:	21 February 2013
Designation of Valve:	Ball Valve V622-XX-FP-L010-006FT-001	Report/Certificate Number:	2122265-A
Size:	1 inch	Pressure Rating:	ANSI Class 600
Body Material:	CF8M	Seat Material:	316 SS
Trim Material:	Stainless Steel	Stem Seal / Body Seal:	316 SS/Inc718

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:	¾ - 1 ½ inch	Pressure Ranges Qualified:	600#, 800# & 900#
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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