

Fire Test Report

API Standard 607, 4th Edition

Performed for

ValvTechnologies, Inc.

www.valv.com



8 inch Class 150 Ball Valve

Product Code: V3C6-RF-RP-B080-007AA-001

Project Number: 211088

Test Date: December 10, 2011

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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Yarmouth Research and Technology

Customer: ValvTechnologies, Inc.

Date: 12/10/2011

Specification: API 607, Fourth Edition, May 1993

Product Description: 8 inch Class 150 Ball Valve

Project Number: PN211088

Comments: V3C6-RF-RP-B080-007AA-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:	9:55:00	
Average Pressure During Burn:	31	psig
Seat Leak Rate During Burn:	0	ml/min
Allowable Seat Leak Rate:	800	ml/min
External Leak Rate During Burn/Cool Down:	0	ml/min
Allowable External Leak Rate:	200	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

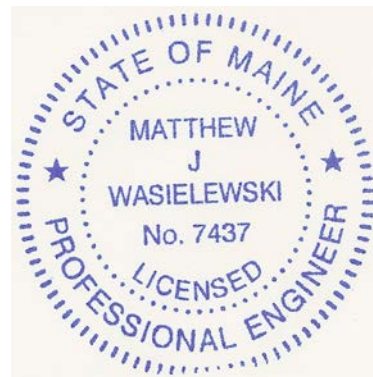
Operational Test

Average Pressure During Test:	30	psig
Seat Leak Rate After Operating:	0	ml/min
Allowable Seat Leak Rate:	160	ml/min
External Leak Rate After Operating:	0	ml/min
Allowable External Leak Rate:	200	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

Valve Pass or Fail the Test Standard?	PASS
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Witnesses

Matthew J. Wasielewski



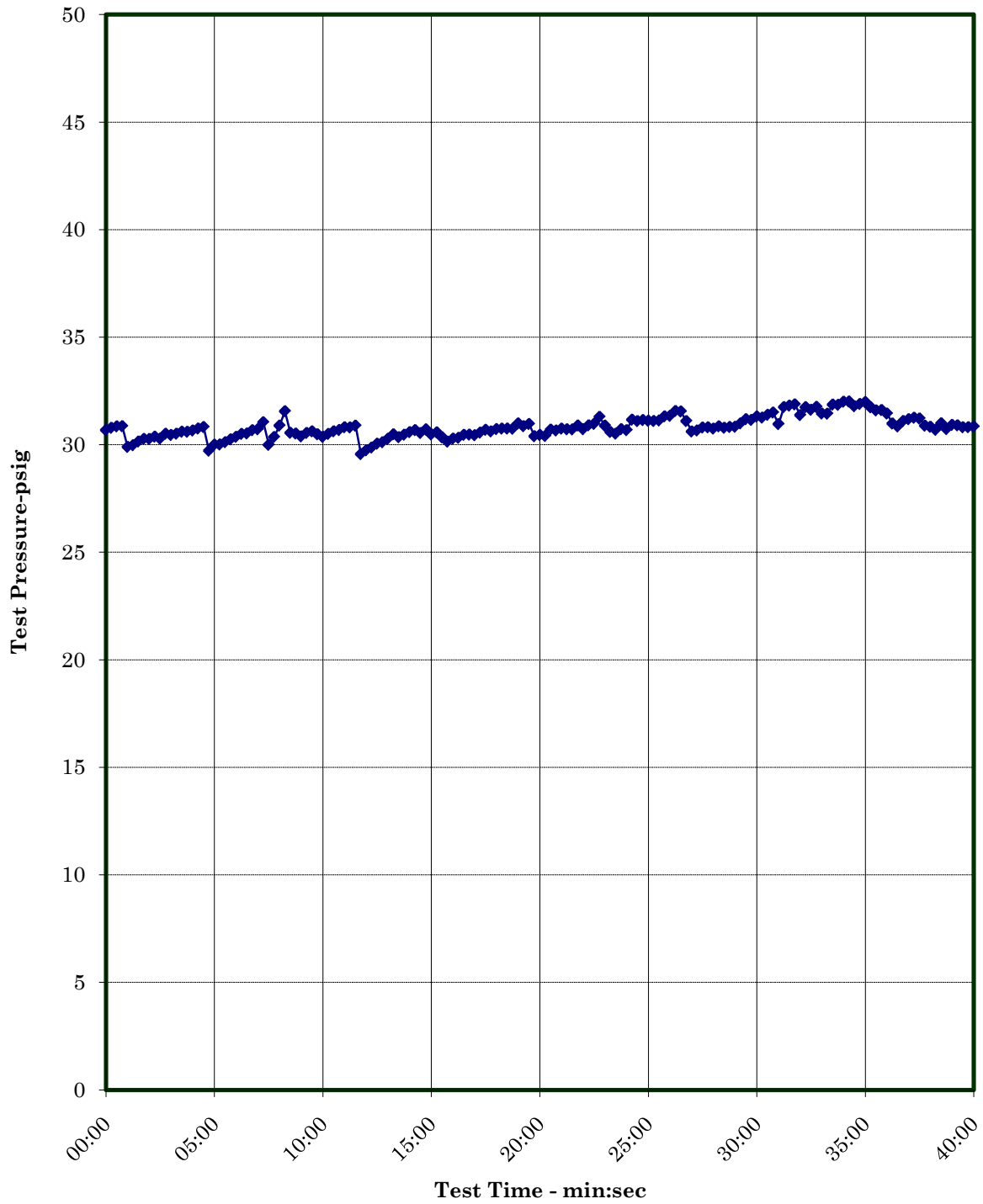
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Fire Test Information Sheet

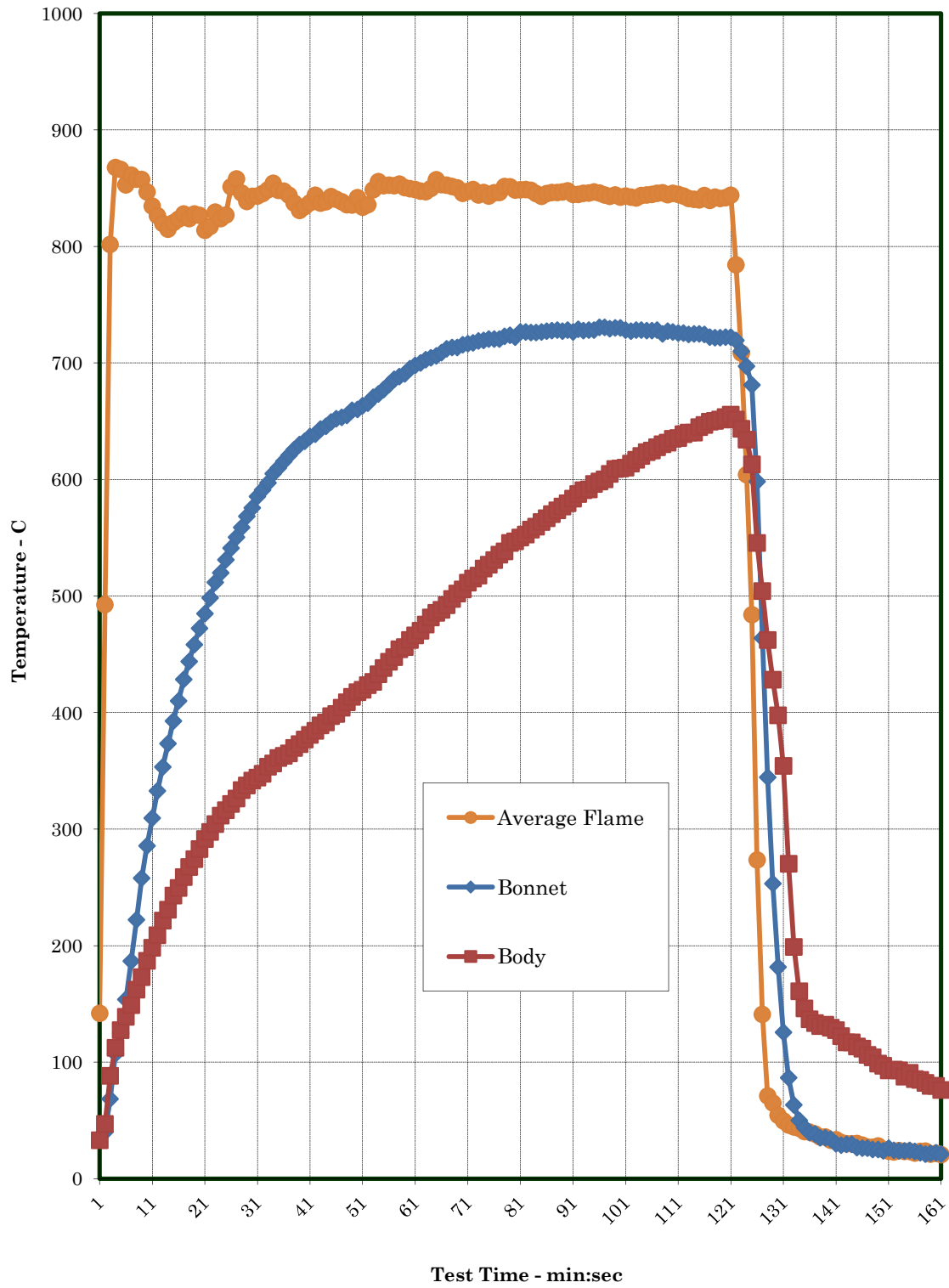
Valve Manufacturer's Name:	ValvTechnologies
Valve Manufacturer's Address:	5904 Bingle Road Houston, TX 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes
Valve Product Code:	V3C6-RF-RP-B080-007AA-001
Valve Description	Size: 8" Pressure Rating: 150# Pressure Rating at 100F: 285 psig Type: Seat-Supported Ball Valve Weight: Reduced or Full Bore: Full Bore Body/Bonnet Material: SA-216 WCB Trim Material: SA-29 4130 Seat Material: WCB w/ RAM 31 coating Stem / Body Seal Material: 4130/Grafoil Bolting Material: SA-193 B7 Is valve considered "Soft-Seated"? No
Valve Markings	Nameplate Information: Size, Pressure Class Casting Markings: N/A
Assembly Drawing Number / Revision / Date of Issue:	TBD
Assembly Drawing sent to Yarmouth:	TBD
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	Exeeco IW-5/70 Gearbox with mech. advantage of 23.
If valve is non-symmetric, state direction of flow for test:	Flow to enter High Pressure End as indicated by tag on valve
For double-seated valves, state maximum allowable cavity pressure:	N/A
Manufacturer's Contact Name /Date:	Patricia Jaimes/ 11/30/11

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Pressure verses Time Chart



Temperature verses Time Chart





Test Valve Prior to Burn

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Test Valve During Burn

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Fire Test Information

Customer: ValvTechnologies, Inc.

Date: 12/10/2011

Product Code: 8 inch Class 150 Ball Valve

Project Number: PN211088

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
9:55:00	31	34058	36	33	152	132	142
9:55:15	31	34027	40	47	413	572	493
9:55:30	31	34072	68	88	839	764	802
9:55:45	31	34066	107	112	923	812	868
9:56:00	30	34139	125	128	874	858	866
9:56:15	30	34116	154	139	841	865	853
9:56:30	30	34101	187	149	860	862	861
9:56:45	30	34115	222	162	855	861	858
9:57:00	30	34114	258	173	858	857	858
9:57:15	30	34098	286	187	834	859	847
9:57:30	30	34107	309	198	824	846	835
9:57:45	31	34117	333	209	813	839	826
9:58:00	30	34141	353	222	800	839	820
9:58:15	31	34154	373	231	786	844	815
9:58:30	31	34169	393	243	797	844	820
9:58:45	31	34163	410	250	804	842	823
9:59:00	31	34176	428	259	815	841	828
9:59:15	31	34197	444	268	806	842	824
9:59:30	31	34231	458	274	817	839	828
9:59:45	30	34324	472	283	814	839	827
10:00:00	30	34381	485	292	790	838	814
10:00:15	30	34438	498	298	798	836	817
10:00:30	30	34538	512	304	825	834	829
10:00:45	30	34634	520	312	816	832	824
10:01:00	30	34723	531	316	817	837	827
10:01:15	31	34837	541	322	868	834	851
10:01:30	31	35006	551	326	882	834	858
10:01:45	31	35233	559	334	856	836	846
10:02:00	31	35488	568	338	842	835	839
10:02:15	31	35722	576	342	851	835	843
10:02:30	30	36184	586	344	850	837	843
10:02:45	30	36510	591	348	852	838	845
10:03:00	31	36952	597	354	859	838	849

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Fire Test Data - continued

10:03:15	32	37376	605	356	871	838	854
10:03:30	31	38289	610	361	857	839	848
10:03:45	31	38210	616	363	856	839	848
10:04:00	30	38191	621	365	851	837	844
10:04:15	31	38309	626	370	837	838	837
10:04:30	31	38419	630	373	823	839	831
10:04:45	30	38085	633	377	830	838	834
10:05:00	30	38726	637	381	838	837	838
10:05:15	31	38536	639	384	852	836	844
10:05:30	31	38646	643	389	838	837	837
10:05:45	31	38676	646	392	840	837	838
10:06:00	31	38629	649	397	846	839	843
10:06:15	31	38634	652	399	842	839	841
10:06:30	31	38666	653	404	836	841	838
10:06:45	30	38758	655	409	831	841	836
10:07:00	30	38989	659	414	831	841	836
10:07:15	30	39125	660	418	843	841	842
10:07:30	30	38987	663	420	831	837	834
10:07:45	30	38676	666	424	841	831	836
10:08:00	30	38732	671	426	870	827	849
10:08:15	30	38723	673	433	884	827	856
10:08:30	30	38796	677	438	878	826	852
10:08:45	30	39364	682	444	878	827	853
10:09:00	31	39751	686	448	876	828	852
10:09:15	31	40016	688	454	879	828	854
10:09:30	31	38524	691	456	873	828	851
10:09:45	31	39946	695	462	872	827	849
10:10:00	30	37769	698	466	869	829	849
10:10:15	31	38638	700	470	866	829	848
10:10:30	30	39228	703	476	865	829	847
10:10:45	30	39148	704	482	870	829	850
10:11:00	30	39172	706	486	886	828	857
10:11:15	30	39149	709	488	877	829	853
10:11:30	30	39094	712	492	875	830	853
10:11:45	30	39032	713	498	872	831	851
10:12:00	30	39038	713	502	868	832	850
10:12:15	31	39231	716	506	858	833	846
10:12:30	31	39198	717	512	861	834	847
10:12:45	31	39263	717	515	864	834	849
10:13:00	31	39136	719	518	854	834	844
10:13:15	31	39221	719	524	859	834	846
10:13:30	31	39084	721	527	852	834	843
10:13:45	31	39091	721	531	857	836	846

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Fire Test Data - continued

10:14:00	31	39063	721	536	856	837	846
10:14:15	31	39017	723	538	866	837	851
10:14:30	31	38889	724	546	867	835	851
10:14:45	30	39198	722	547	862	835	848
10:15:00	30	39269	727	550	859	838	849
10:15:15	30	39079	727	553	859	839	849
10:15:30	31	39471	726	557	856	841	848
10:15:45	31	38792	726	560	850	841	845
10:16:00	31	39190	727	564	846	841	843
10:16:15	31	39293	727	567	849	841	845
10:16:30	31	38851	728	570	851	842	846
10:16:45	31	39499	728	574	849	843	846
10:17:00	31	38502	727	577	849	844	847
10:17:15	31	39139	728	580	850	846	848
10:17:30	31	39254	727	584	843	847	845
10:17:45	31	39525	729	588	844	846	845
10:18:00	31	39293	728	591	844	847	846
10:18:15	31	39394	728	592	849	843	846
10:18:30	31	38645	728	596	848	845	847
10:18:45	31	38965	731	598	843	849	846
10:19:00	31	39125	731	600	837	852	844
10:19:15	31	39480	729	605	834	852	843
10:19:30	31	39431	730	609	835	853	844
10:19:45	31	39437	730	610	831	853	842
10:20:00	31	38639	728	610	832	855	843
10:20:15	31	38653	727	614	831	853	842
10:20:30	31	39131	728	617	828	856	842
10:20:45	31	39276	728	620	829	858	844
10:21:00	31	39134	728	624	831	858	844
10:21:15	32	39058	728	625	832	858	845
10:21:30	32	38729	728	628	832	859	846
10:21:45	31	38334	725	630	831	861	846
10:22:00	31	39548	727	632	826	863	844
10:22:15	31	39503	727	635	827	864	846
10:22:30	31	39426	726	636	824	866	845
10:22:45	31	38732	726	639	822	865	843
10:23:00	31	39364	724	640	818	864	841
10:23:15	31	38980	725	640	817	864	841
10:23:30	31	38773	725	645	814	866	840
10:23:45	31	39140	724	647	822	866	844
10:24:00	31	38484	722	650	817	862	839
10:24:15	31	39187	722	650	819	865	842
10:24:30	31	39528	722	652	814	868	841

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Fire Test Data - continued

10:24:45	31	39509	722	654	815	869	842
10:25:00	31	38870	722	656	815	873	844
10:25:15	31	38532	719	652	656	913	784
10:25:30	31	38768	710	644	507	910	708
10:25:45	31	39392	697	634	434	774	604
10:26:00	31	38923	681	613	373	594	484
10:26:15	32	39294	598	546	143	404	274
10:26:30	32	37569	464	504	75	207	141
10:26:45	32	37478	344	462	72	71	71
10:27:00	31	37557	253	428	62	68	65
10:27:15	32	37564	182	398	43	66	54
10:27:30	32	37366	126	354	39	59	49
10:27:45	32	37314	87	270	38	54	46
10:28:00	31	37115	63	199	33	56	44
10:28:15	31	37075	50	161	32	55	43
10:28:30	32	36741	44	146	29	52	41
10:28:45	32	36844	39	137	28	52	40
10:29:00	32	36794	38	134	28	48	38
10:29:15	32	37053	35	131	27	45	36
10:29:30	32	37013	35	132	28	44	36
10:29:45	32	36853	34	130	26	41	33
10:30:00	32	36656	30	128	25	42	33
10:30:15	32	36580	29	122	24	38	31
10:30:30	32	36009	29	117	22	38	30
10:30:45	32	35655	29	117	23	37	30
10:31:00	31	35460	27	114	23	37	30
10:31:15	31	35348	26	112	23	35	29
10:31:30	31	35191	26	106	21	33	27
10:31:45	31	35215	25	104	21	33	27
10:32:00	31	35198	25	99	22	34	28
10:32:15	31	35086	24	97	21	29	25
10:32:30	31	35002	26	93	17	31	24
10:32:45	31	35053	24	94	19	27	23
10:33:00	31	34998	24	93	21	28	24
10:33:15	31	34882	24	88	20	27	23
10:33:30	31	34713	24	91	21	26	23
10:33:45	31	34726	23	86	17	27	22
10:34:00	31	34393	22	85	19	28	23
10:34:15	31	34328	21	82	20	27	24
10:34:30	31	34234	22	80	15	27	21
10:34:45	31	34138	22	80	18	25	22
10:35:00	31	34117	21	76	14	27	21

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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:	0	mls
Average Leak Rate Over 30 Minute Duration:	0	ml/min
Allowable Leak Rate:	800	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:	-59	mls
Water Collected in System Relief Valve:	0	mls
Calculated External Leakage During 40 Minute Duration:	-59	mls
Average Leak Rate Over 40 Minute Duration:	0	ml/min
Allowable Leak Rate:	200	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:	32.0	psig
Average Pressure During Burn/Cool Down:	30.8	psig
Minimum Pressure During Burn/Cool Down:	29.6	psig

Maximum Body Flame Temperature During Burn:	913	deg. C
Average Body Flame Temperature During Burn:	841	deg. C

Maximum Bonnet Flame Temperature During Burn:	923	deg. C
Average Bonnet Flame Temperature During Burn:	836	deg. C

Average of Both Flame Temperatures During Burn:	838	deg. C
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Note

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

Customer: ValvTechnologies, Inc.

Date: 12/10/2011

Product Code: 8 inch Class 150 Ball Valve

Project Number: PN211088

Test Data

Time	Pressure (psig)	Cal Block Temp - C
10:46:45	30	30
10:47:00	30	29
10:47:15	30	29
10:47:30	30	30
10:47:45	30	30
10:48:00	30	30
10:48:15	30	30
10:48:30	30	29
10:48:45	30	30
10:49:00	30	30
10:49:15	30	30
10:49:30	30	30
10:49:45	31	31
10:50:00	29	30
10:50:15	30	30
10:50:30	30	30
10:50:45	30	30
10:51:00	30	31
10:51:15	30	30
10:51:30	30	31
10:51:45	30	30

Leakages were collected manually.

Total Seat Leakage Collected Over 5 Minute Duration:	0	mls
Average Leak Rate Over 5 Minute Duration:	0	ml/min
Allowable Leak Rate:	160	ml/min

Total External Leakage Collected Over 5 Minute Duration:	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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