

Fire Test Report

API Standard 607, Fourth Edition

Performed for

Valvtechnologies, Inc.

5904 Bingle Road

Houston, Texas 77092

www.valv.com



2 inch Class 600

Ball Valve

Model: V6C6-RF-FP-B020-003AA-002

Project Number: 209143

December 2009



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY

434 Walnut Hill Road
North Yarmouth, ME 04097 USA

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Yarmouth Research and Technology

Customer: Valvtechnologies

Date: 12/19/2009

Specification: API 607, Fourth Edition, May 1993

Product Description: 2 inch Class 600 Ball Valve

Project Number: PN209143

Comments: Product Code: V6C6-RF-FP-B020-003AA-002

WCB Body, 4130A/QPQ Trim

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:	12:58:00	
Average Pressure During Burn:	31	psig
Seat Leak Rate During Burn:	0.0	ml/min
Allowable Seat Leak Rate:	200	ml/min
External Leak Rate During Burn/Cool Down:	0.0	ml/min
Allowable External Leak Rate:	50	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

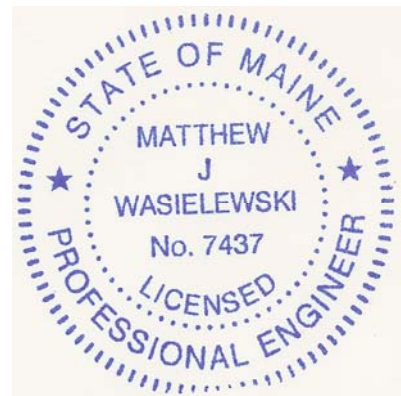
Operational Test

Average Pressure During Test:	29	psig
Seat Leak Rate After Operating:	0.0	ml/min
Allowable Seat Leak Rate:	40	ml/min
External Leak Rate After Operating:	0.0	ml/min
Allowable External Leak Rate:	50	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



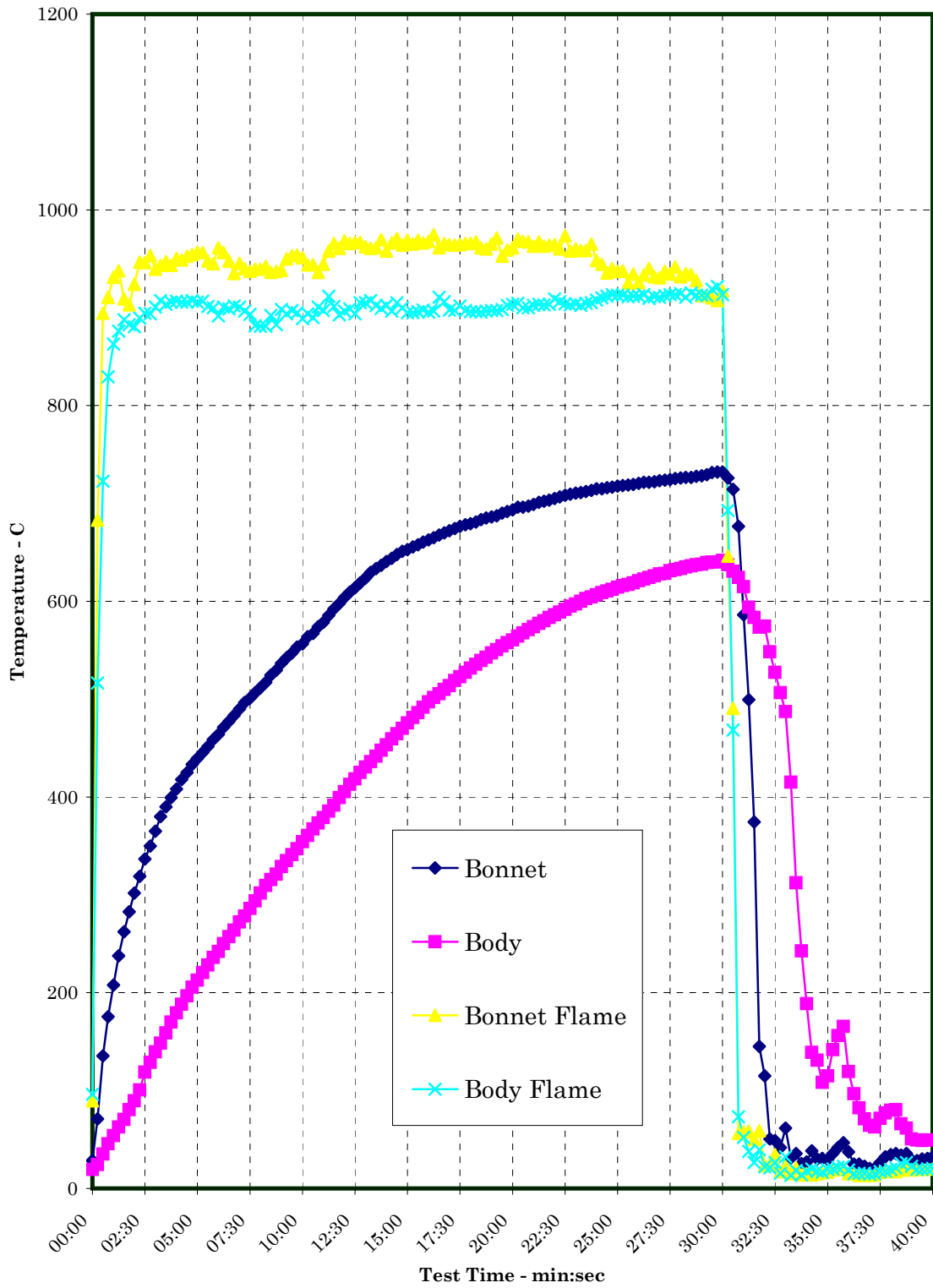
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Fire Test Information Sheet

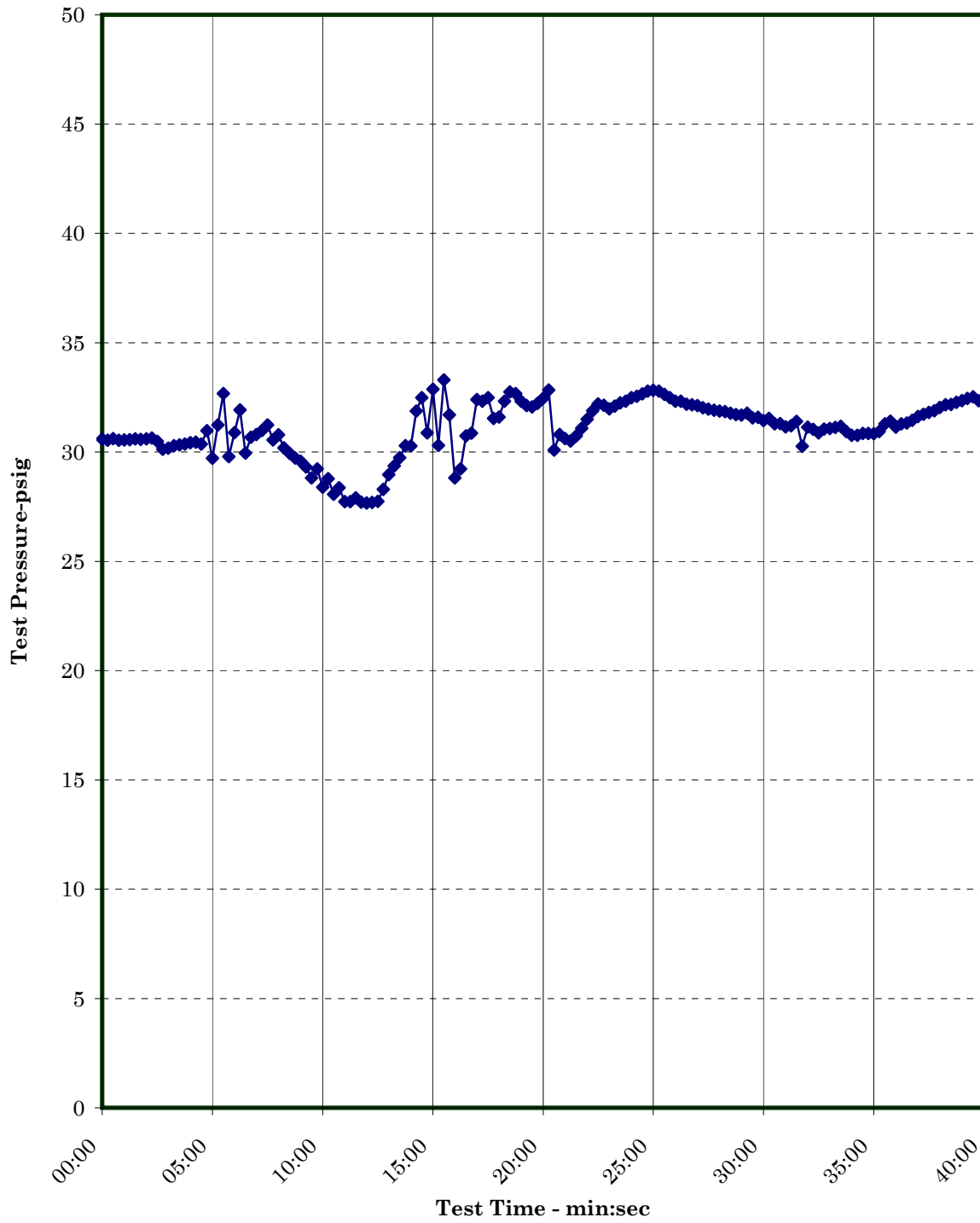
Valve Manufacturer's Name:	ValvTechnologies
Valve Manufacturer's Address:	5904 Bingle Road Houston , TX, 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes
Valve Product Code:	V6C6-RF-FP-B020-003AA-002
Valve Description Size: Pressure Rating: Pressure Rating 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"?	2" 600# 1500psi 1500psi Ball Valve 40 lbs (approx) Full Bore WCB 4130A/QPQ 4130A/QPQ 4130A QPQ / Inc 718 INC 718 NO
Valve Markings Nameplate Information: Casting Markings:	Size, Pressure Class Size, Pressure Class, Heat#
Assembly Drawing Number / Revision / Date of Issue:	092285-1 / 1 / 12-17-09
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:	High Pressure End to Low Pressure End
For double-seated valves, state maximum allowable cavity pressure:	N/A
Manufacturer's Contact Name /Date:	ValvTechnologies / 12-17-09

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Temperature verses Time Chart



Pressure verses Time Chart



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Test Valve Before Test

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Test Valve Before Test

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Valve During Burn

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Fire Test Information

Customer: Valvtechnologies

Date: 12/19/2009

Product Code: 2 inch Class 600 Ball Valve

Project Number: PN209143

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
12:58:00	31	46843	28	19	89	96	93
12:58:15	31	46861	71	24	683	517	600
12:58:30	31	46855	136	35	894	723	809
12:58:45	31	46882	176	46	911	829	870
12:59:00	31	46886	208	54	931	863	897
12:59:15	31	46897	238	63	938	876	907
12:59:30	31	46904	262	71	909	888	898
12:59:45	31	46919	283	81	903	883	893
13:00:00	31	46938	302	89	924	881	902
13:00:15	31	46972	319	101	947	889	918
13:00:30	30	46771	337	119	946	894	920
13:00:45	30	46613	350	129	953	894	924
13:01:00	30	46766	365	139	939	901	920
13:01:15	30	46842	380	148	943	907	925
13:01:30	30	46991	390	159	947	903	925
13:01:45	30	47112	399	170	943	906	924
13:02:00	30	47240	408	179	951	907	929
13:02:15	30	47329	418	188	949	906	927
13:02:30	30	47448	425	197	953	906	929
13:02:45	31	48009	433	206	954	907	931
13:03:00	30	47032	439	213	957	906	931
13:03:15	31	48464	446	221	956	907	931
13:03:30	33	48295	452	228	948	901	924
13:03:45	30	47462	459	236	945	900	923
13:04:00	31	48172	464	242	961	892	926
13:04:15	32	48396	471	250	956	901	928
13:04:30	30	47171	477	257	948	899	923
13:04:45	31	47456	483	264	935	902	918
13:05:00	31	47731	490	272	946	901	923
13:05:15	31	47513	497	278	940	897	918
13:05:30	31	48072	501	286	937	893	915
13:05:45	31	47105	507	294	939	882	911
13:06:00	31	47689	512	302	939	881	910

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Fire Test Data - continued

13:06:15	30	47110	517	309	942	881	912
13:06:30	30	46864	524	316	936	892	914
13:06:45	30	46681	529	321	937	883	910
13:07:00	30	46442	537	329	938	898	918
13:07:15	29	46306	542	335	950	894	922
13:07:30	29	45882	547	341	953	897	925
13:07:45	29	46094	553	347	954	895	924
13:08:00	28	45507	557	354	951	889	920
13:08:15	29	45692	564	361	944	894	919
13:08:30	28	45094	567	367	944	890	917
13:08:45	28	45199	574	373	936	901	918
13:09:00	28	44782	578	379	944	897	921
13:09:15	28	44562	586	386	958	912	935
13:09:30	28	44829	592	392	966	901	933
13:09:45	28	44687	598	399	961	893	927
13:10:00	28	44681	604	406	968	897	933
13:10:15	28	44753	609	413	966	899	932
13:10:30	28	44759	614	418	967	894	930
13:10:45	28	45467	619	425	967	905	936
13:11:00	29	46065	624	431	962	905	934
13:11:15	29	46525	629	436	961	907	934
13:11:30	30	46801	633	442	961	902	932
13:11:45	30	46995	637	448	969	899	934
13:12:00	30	47037	641	453	958	902	930
13:12:15	32	47394	644	459	966	897	931
13:12:30	32	47852	648	464	971	905	938
13:12:45	31	48132	651	470	964	900	932
13:13:00	33	47862	653	476	969	895	932
13:13:15	30	47579	656	481	965	895	930
13:13:30	33	48315	658	486	969	896	933
13:13:45	32	48726	661	492	966	898	932
13:14:00	29	46032	663	497	968	896	932
13:14:15	29	46284	665	502	974	897	936
13:14:30	31	47859	668	506	961	911	936
13:14:45	31	47120	670	510	966	906	936
13:15:00	32	48189	672	514	964	898	931
13:15:15	32	48584	674	519	964	897	931
13:15:30	32	48479	677	523	964	902	933
13:15:45	32	48064	678	527	966	897	931
13:16:00	32	48339	679	532	966	896	931
13:16:15	32	48757	681	536	967	896	932
13:16:30	33	48868	683	539	961	896	928
13:16:45	33	48683	685	543	960	897	928

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Fire Test Data - continued

13:17:00	32	48524	686	547	965	897	931
13:17:15	32	48511	687	551	971	897	934
13:17:30	32	48611	690	554	953	898	926
13:17:45	32	48752	692	558	959	902	931
13:18:00	32	48947	693	561	961	903	932
13:18:15	33	48939	696	564	970	904	937
13:18:30	30	47000	696	568	968	900	934
13:18:45	31	47231	697	571	967	900	934
13:19:00	31	47146	699	574	963	902	933
13:19:15	30	47294	701	577	967	903	935
13:19:30	31	47541	702	580	963	903	933
13:19:45	31	47870	703	583	964	903	934
13:20:00	31	48130	705	586	964	909	937
13:20:15	32	48356	707	589	960	906	933
13:20:30	32	48405	708	592	973	904	939
13:20:45	32	48387	709	595	958	903	930
13:21:00	32	48372	711	597	960	904	932
13:21:15	32	48521	711	600	958	902	930
13:21:30	32	48599	712	603	958	904	931
13:21:45	32	48682	713	604	965	905	935
13:22:00	32	48750	715	607	948	908	928
13:22:15	33	48808	715	609	944	910	927
13:22:30	33	48864	716	611	936	912	924
13:22:45	33	48913	717	612	940	913	927
13:23:00	33	48940	718	614	937	913	925
13:23:15	33	48899	718	616	938	913	925
13:23:30	33	48786	719	617	925	911	918
13:23:45	32	48667	719	619	934	912	923
13:24:00	32	48589	721	621	926	912	919
13:24:15	32	48527	722	623	933	913	923
13:24:30	32	48455	722	624	940	909	925
13:24:45	32	48395	722	626	932	911	921
13:25:00	32	48324	723	628	931	911	921
13:25:15	32	48267	724	628	937	912	925
13:25:30	32	48228	724	631	934	913	924
13:25:45	32	48147	726	632	942	913	928
13:26:00	32	48120	726	633	932	914	923
13:26:15	32	48053	727	635	935	911	923
13:26:30	32	47994	727	636	934	915	924
13:26:45	32	47941	728	637	928	913	920
13:27:00	32	47925	728	638	912	913	913
13:27:15	32	47942	729	639	912	912	912
13:27:30	32	47794	732	640	910	919	914

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Fire Test Data - continued

13:27:45	32	47851	732	640	907	922	914
13:28:00	31	47709	732	642	917	913	915
13:28:15	32	47754	726	637	646	693	669
13:28:30	31	47596	714	631	491	468	479
13:28:45	31	47549	677	624	56	73	65
13:29:00	31	47471	586	615	58	52	55
13:29:15	31	47352	499	594	58	38	48
13:29:30	31	47458	374	583	50	27	38
13:29:45	30	46750	145	573	59	39	49
13:30:00	31	47495	115	574	23	22	23
13:30:15	31	47396	51	548	24	21	23
13:30:30	31	47226	49	527	34	27	31
13:30:45	31	47246	42	507	17	16	16
13:31:00	31	47205	62	487	22	32	27
13:31:15	31	47036	31	415	15	13	14
13:31:30	31	47323	36	312	21	18	20
13:31:45	31	47122	26	243	14	14	14
13:32:00	31	46997	27	189	15	18	16
13:32:15	31	46904	38	139	14	20	17
13:32:30	31	46791	30	131	15	18	16
13:32:45	31	46753	31	108	16	17	16
13:33:00	31	46748	29	115	17	19	18
13:33:15	31	46721	36	142	19	20	19
13:33:30	31	46816	42	156	19	22	21
13:33:45	31	46928	47	166	19	23	21
13:34:00	31	46917	37	119	15	19	17
13:34:15	31	47011	25	97	15	15	15
13:34:30	31	46954	25	82	13	16	14
13:34:45	31	46944	23	71	13	16	14
13:35:00	32	46941	21	64	13	14	14
13:35:15	32	46956	21	63	14	15	14
13:35:30	32	46954	27	72	17	17	17
13:35:45	32	47002	32	77	17	18	18
13:36:00	32	47018	34	80	18	19	19
13:36:15	32	46959	36	81	17	21	19
13:36:30	32	47056	34	66	19	26	22
13:36:45	32	47081	36	62	20	27	23
13:37:00	32	47106	29	51	19	23	21
13:37:15	32	47126	28	49	19	19	19
13:37:30	33	47146	30	49	19	19	19
13:37:45	32	46937	31	49	20	20	20
13:38:00	32	46846	32	49	20	21	20

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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:	0.0	ml/min
Allowable Leak Rate:	200	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:	-3	mls
Water Collected in System Relief Valve:	-3	mls
Calculated External Leakage During 40 Minute Duration:	0	mls
Average Leak Rate Over 40 Minute Duration:	0.0	ml/min
Allowable Leak Rate:	50	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:	33	psig
Average Pressure During Burn/Cool Down:	31	psig
Minimum Pressure During Burn/Cool Down:	28	psig

Maximum Body Flame Temperature During Burn:	922	deg. C
Average Body Flame Temperature During Burn:	891	deg. C

Maximum Bonnet Flame Temperature During Burn:	974	deg. C
Average Bonnet Flame Temperature During Burn:	940	deg. C

Average of Both Flame Temperatures During Burn:	916	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: 12/19/2009

Product Code: 2 inch Class 600 Ball Valve

Project Number: PN209143

Test Data

Time	Pressure (psig)	Cal Block Temp - C
13:43:07	30	48
13:43:22	30	47
13:43:37	30	47
13:43:52	30	47
13:44:07	29	47
13:44:22	29	47
13:44:37	29	47
13:44:52	29	46
13:45:07	29	46
13:45:22	29	46
13:45:37	29	46
13:45:52	29	46
13:46:07	29	46
13:46:22	29	45
13:46:37	29	44
13:46:52	29	44
13:47:07	30	44
13:47:22	29	44
13:47:37	29	44
13:47:52	29	44
13:48:07	29	44

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:	40	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:	50	ml/min

Was the Valve Leakage Below the Allowable?	Yes
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