Fire Test Report

API Standard 607, 4th Edition

Performed for

ValvTechnologies, Inc.

www.valv.com

1/2 inch Class 600 Ball Valve
Product Code:V628-RF-FP-L005-001DT-001

Project Number: 211088
Test Date: September 20, 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

Customer:	ValvTechnologies, Inc.	**Date:**	9/20/2011
Specification:	API 607, Fourth Edition, May 1993		
Product Description:	1/2 inch Class 600 Ball Valve		
Project Number:	PN211088		
Comments:	Product Code: V628-RF-FP-L005-001DT-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:	**16:03:00**	
Average Pressure During Burn:	**30**	psig
Seat Leak Rate During Burn:	**0.0**	ml/min
Allowable Seat Leak Rate:	**50**	ml/min
External Leak Rate During Burn/Cool Down:	**9.0**	ml/min
Allowable External Leak Rate:	**12.5**	ml/min
Were the Valve Leakages Below the Allowables?	**Yes**	

Operational Test

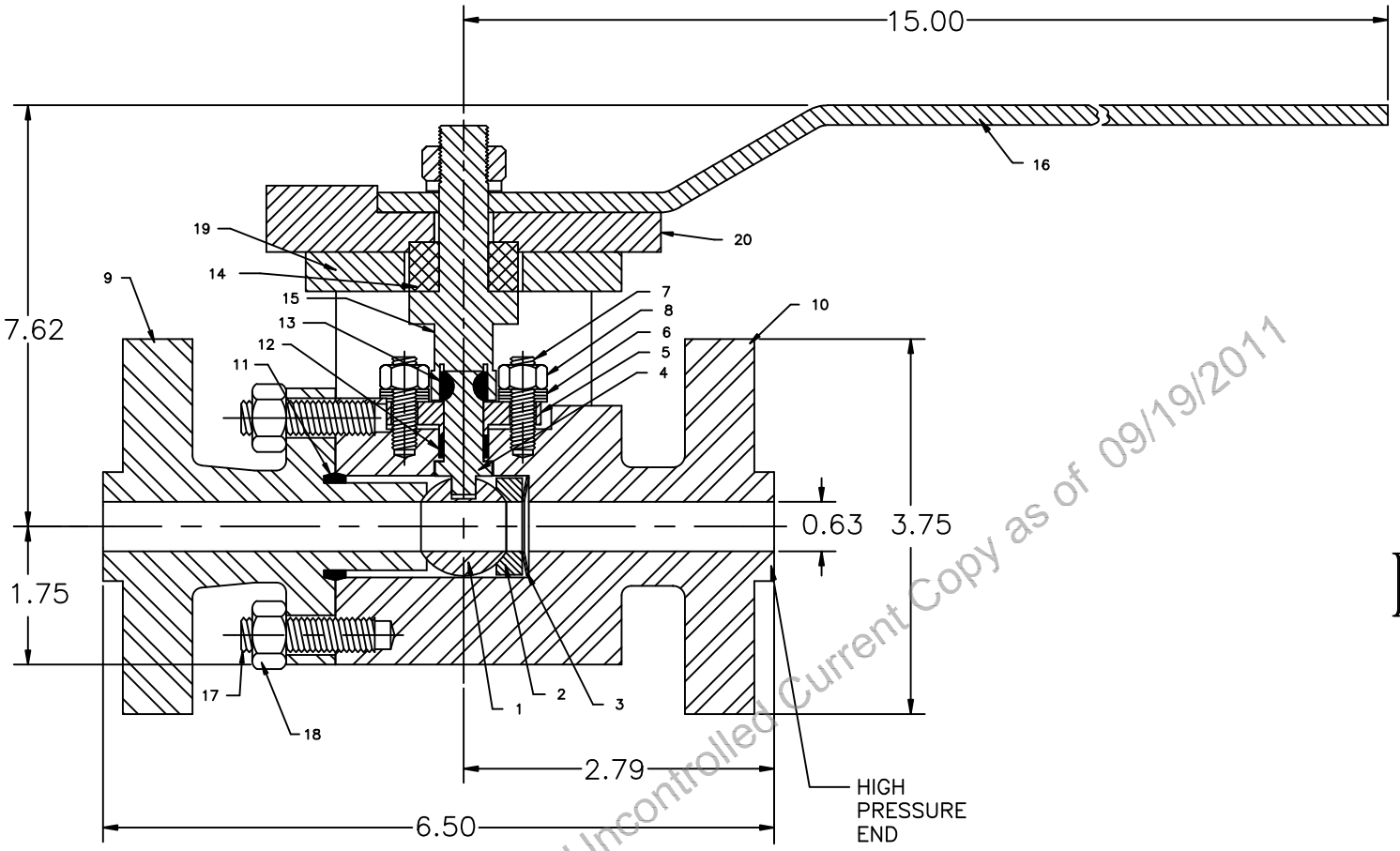
Average Pressure During Test:	**30**	psig
Seat Leak Rate After Operating:	**0**	ml/min
Allowable Seat Leak Rate:	**10**	ml/min
External Leak Rate After Operating:	**0**	ml/min
Allowable External Leak Rate:	**12.5**	ml/min
Were the Valve Leakages Below the Allowables?	**Yes**	

Valve Pass or Fail the Test Standard?	**PASS**

Witnesses

Customer: valvtechnologies

Project Name: Fire Safe Certification For 110455



BILL OF MATERIAL

ITEM	DESCRIPTION	MATERIAL	QTY.
1	BALL	316H/RAM21	1*
2	UPSTREAM SEAT	316H/QPQ	1*
3	BELLEVILLE SPRING	Inc 718	1*
4	STEM	316H/QPQ	1
5	GLAND	316H/QPQ	1
6	GLAND LOAD SPRING	Inc 718	24
7	GLAND STUD	A193 Gr. B8M	4
8	GLAND NUT	A194 Gr. 8M	4
9	END CAP	316H/RAM21	1*
10	BODY	316H	1
11	BODY GASKET	A286	1*
12	GLAND PACKING	316 S.S/GRAFOIL	1*
13	KEY	1018	2
14	THRUST BEARING	1020/QPQ	1
15	DRIVE SLEEVE	4130	1
16	HANDLE	1018	1
17	BODY STUD	SA-453 Grade 660	4
18	BODY NUT	SA-453 Grade 660	4
19	MOUNTING PLATE	A36	1
20	STOP PLATE	1020	1

* Recommended Spare Parts

FOR PROPOSAL ONLY

Approx. Weight: 17 lbs

THIRD ANGLE PROJECTION

REV	DATE	DESCRIPTION	ECN	BY	CHK	APR
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
1	08/15/11	REVISED 316 S.S TO A182-F316H	–	PN	RSL	SS

DIMENSIONS ARE IN INCHES
REMOVE BURRS AND BREAK EDGES
UNLESS OTHERWISE SPECIFIED

CORNER RADII –
.X= ±–
.XX= ±–
.XXX= ±–
CONCENTRICITY –
ANGULAR= ±–
SURFACE TEXTURE –
MIN. INTERNAL FILLETS –

SCALE NTS | MODEL FILE | SIZE B

MATERIAL –
–

COATING –
–

DRAWN BY PN DATE 05/20/11
CHECKED BY RSL DATE 05/20/11
ENGINEER SS DATE 05/21/11
APPROVED BY SS DATE 05/21/11

VALVTECHNOLOGIES
5904 BINGLE ROAD, HOUSTON TEXAS 77092
PH: (713) 860-0400 FAX: (713) 860-0499

TITLE
V628-RF-FP-L005-001DT-001
WITH LEVER OPERATOR
SCH. 40 STD, ANSI 600#

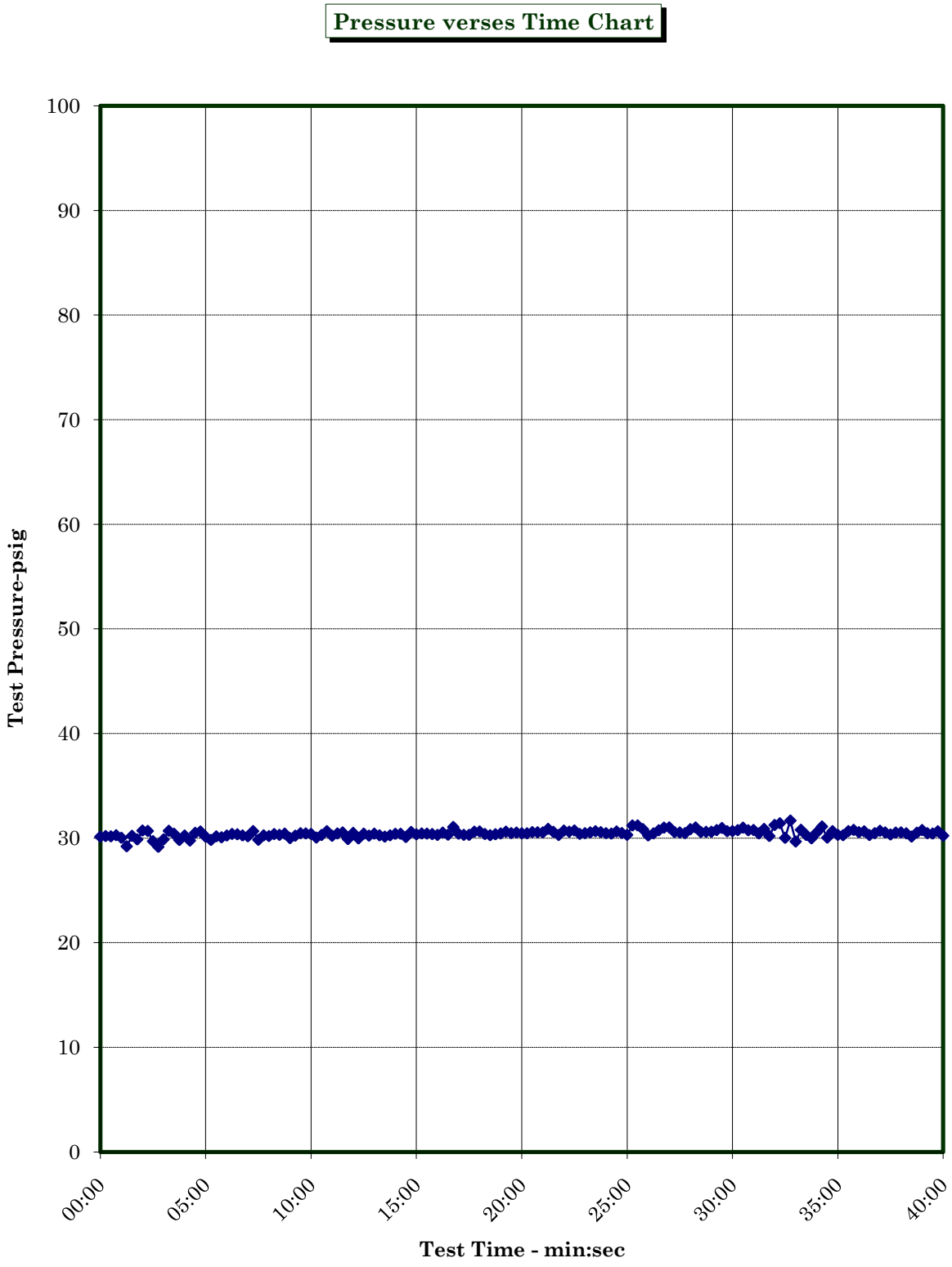
110615-1

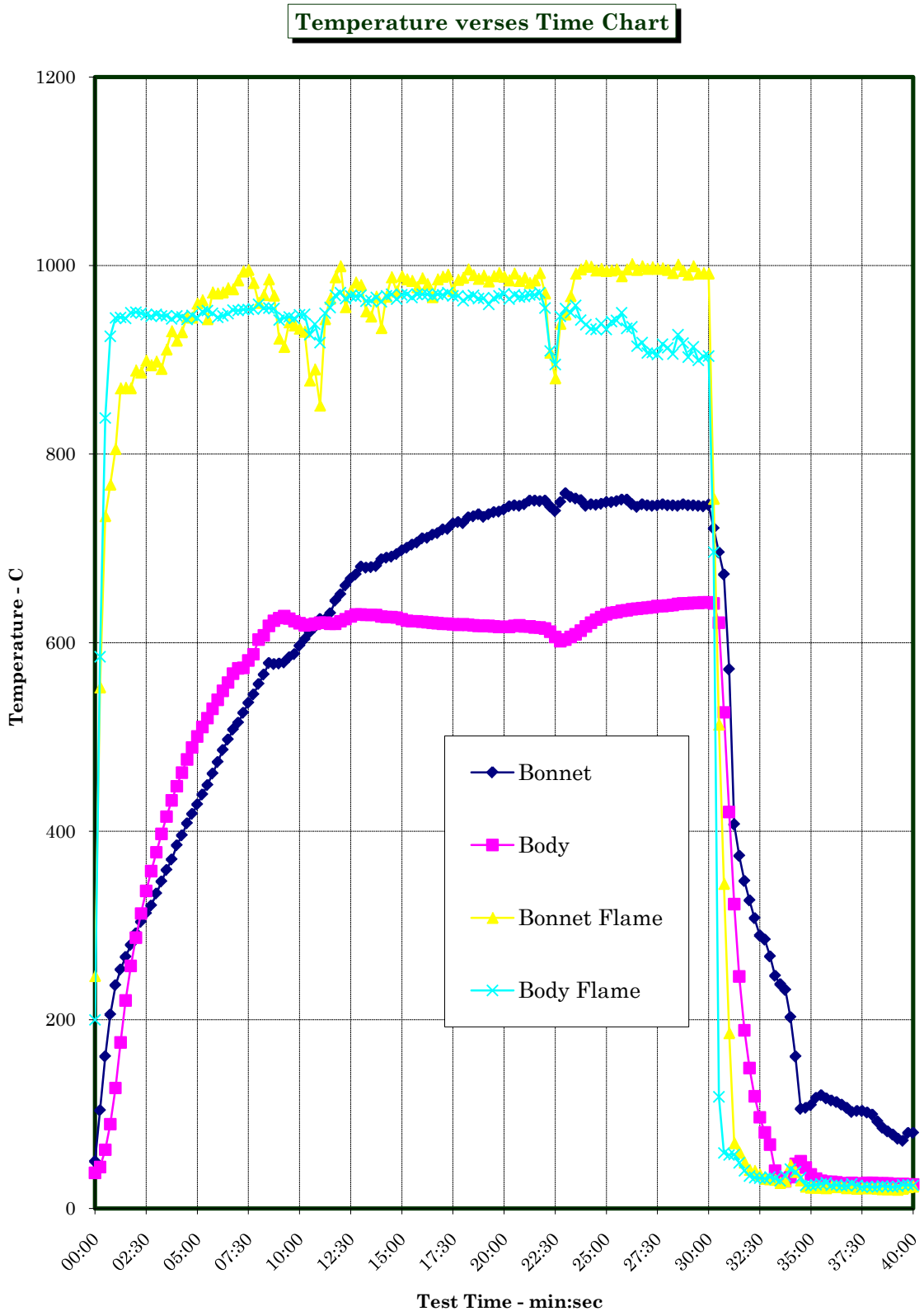
REV. 1

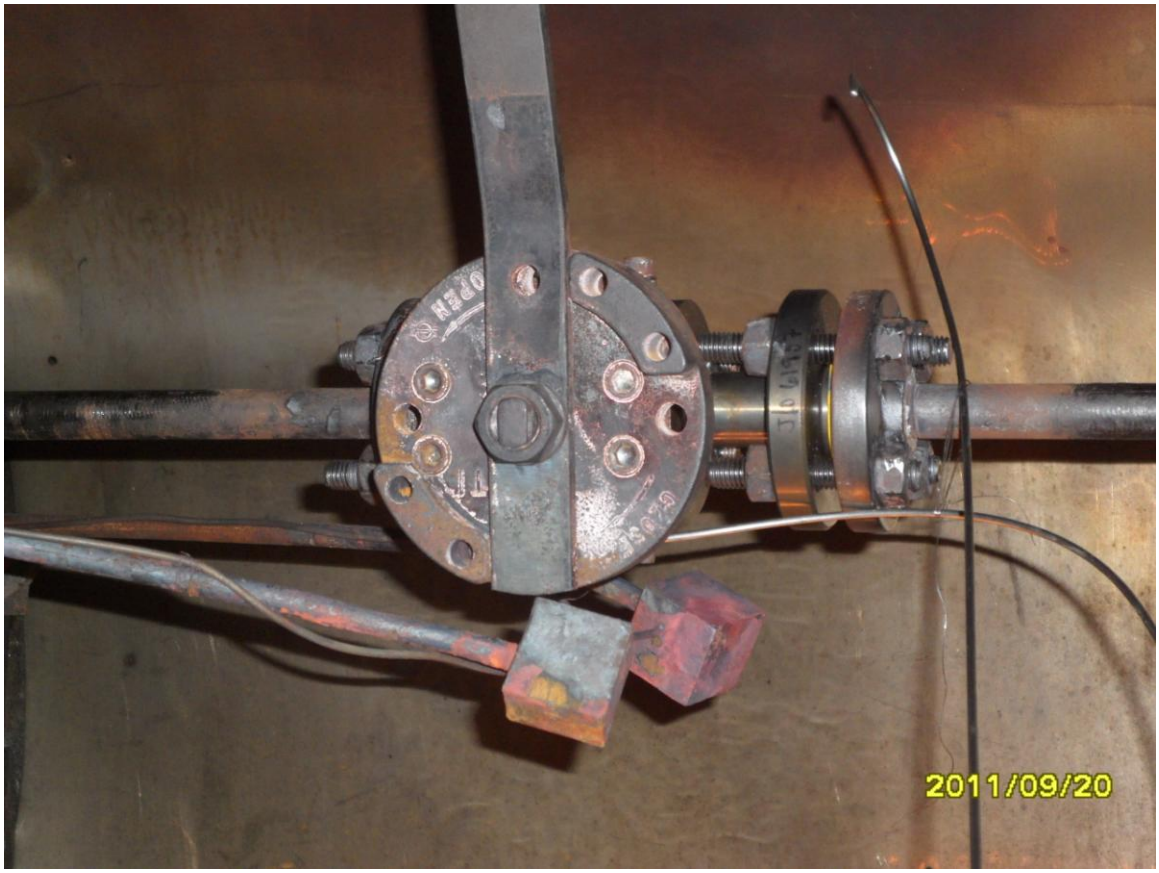
SH 1 OF 1

Fire Test Information Sheet

Valve Manufacturer's Name:	Valvtechnologies
Valve Manufacturer's Address:	5904 Bingle Road Houston, Texas 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes
Valve Product Code:	V628-RF-FP-L005-001DT-001
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"?	1/2" ANSI 600# 1,440 psi Ball Valve 17 lb Full Bore SA-182 Grade F316H SA-182 Grade F316H SA-182 Grade F316H SA-182 Grade F316H SA-453 Grade 660 No
Valve Markings Nameplate Information: Casting Markings:	Model# V628-RF-FP-L005-001DT-001
Assembly Drawing Number / Revision / Date of Issue:	110615-1 Rev. 1, 05/21/11
Assembly Drawing sent to Yarmouth:	Yes
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	NA
If valve is non-symmetric, state direction of flow for test:	Inlet from High pressure end tag
For double-seated valves, state maximum allowable cavity pressure:	NA
Manufacturer's Contact Name /Date:	Jonathan Jones/ 09/15/11


Pressure verses Time Chart
Test Pressure-psig
100
90
80
70
60
50
40
30
20
10
0
00:00
05:00
10:00
15:00
20:00
25:00
30:00
35:00
40:00
Test Time - min:sec


Temperature verses Time Chart
1200
1000
800
600
400
200
0
Temperature - C
00:00
02:30
05:00
07:30
10:00
12:30
15:00
17:30
20:00
22:30
25:00
27:30
30:00
32:30
35:00
37:30
40:00
Test Time - min:sec
Bonnet
Body
Bonnet Flame
Body Flame



Valve Prior to Test

Valve During Burn

Fire Test Information

Customer: ValvTechnologies, Inc. **Date:** 9/20/2011

Product Code: 1/2 inch Class 600 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
16:03:00	30	27461	50	38	247	200	223
16:03:15	30	27474	104	44	553	585	569
16:03:30	30	27477	161	62	734	838	786
16:03:45	30	27458	206	89	768	925	846
16:04:00	30	27438	237	128	806	944	875
16:04:15	29	27120	253	176	870	945	908
16:04:30	30	27303	267	221	871	944	907
16:04:45	30	27265	279	257	870	950	910
16:05:00	31	28215	292	287	889	951	920
16:05:15	31	27447	304	313	887	949	918
16:05:30	30	27597	313	337	899	948	924
16:05:45	29	26814	321	358	894	946	920
16:06:00	30	27653	334	378	898	948	923
16:06:15	31	27187	347	397	891	947	919
16:06:30	30	27957	359	416	911	947	929
16:06:45	30	26989	370	433	931	943	937
16:07:00	30	27096	385	448	921	947	934
16:07:15	30	27198	396	462	929	946	938
16:07:30	30	28074	408	476	946	943	944
16:07:45	31	27824	418	489	945	947	946
16:08:00	30	26967	428	501	960	944	952
16:08:15	30	27124	439	511	963	951	957
16:08:30	30	27356	449	520	943	952	948
16:08:45	30	27503	461	530	972	949	961
16:09:00	30	27568	473	539	971	945	958
16:09:15	30	27609	486	549	972	947	959
16:09:30	30	27582	497	558	976	949	963
16:09:45	30	27597	508	567	975	953	964
16:10:00	30	27611	515	573	984	952	968
16:10:15	31	27564	526	573	994	953	974
16:10:30	30	27609	536	581	996	953	974
16:10:45	30	27586	545	588	982	954	968
16:11:00	30	27579	556	603	961	959	960

Fire Test Data - continued

16:11:15	30	27596	566	608	969	955	962
16:11:30	30	27604	578	618	986	955	970
16:11:45	30	27600	577	623	968	954	961
16:12:00	30	27582	578	626	923	942	933
16:12:15	30	27608	579	628	914	944	929
16:12:30	30	27579	584	626	940	946	943
16:12:45	30	27574	588	623	937	944	940
16:13:00	30	27585	597	621	933	948	941
16:13:15	30	27555	603	618	930	948	939
16:13:30	30	27572	611	619	878	927	903
16:13:45	31	27659	616	620	890	938	914
16:14:00	30	27668	625	621	852	918	885
16:14:15	30	27903	624	621	943	949	946
16:14:30	31	27419	631	620	965	956	960
16:14:45	30	27506	644	620	988	968	978
16:15:00	30	27834	651	623	999	971	985
16:15:15	30	27629	661	625	956	965	961
16:15:30	30	27623	668	628	973	968	971
16:15:45	30	27609	672	630	982	967	975
16:16:00	30	27609	681	630	979	968	974
16:16:15	30	27594	679	629	952	962	957
16:16:30	30	27603	680	629	946	963	954
16:16:45	30	27597	681	629	967	966	967
16:17:00	30	27581	688	628	934	962	948
16:17:15	30	27594	690	627	967	968	968
16:17:30	30	27574	691	627	988	969	979
16:17:45	31	27606	694	627	973	964	969
16:18:00	30	27563	698	625	989	969	979
16:18:15	30	27592	701	623	986	969	978
16:18:30	30	27575	704	623	984	966	975
16:18:45	30	27587	706	623	977	969	973
16:19:00	30	27606	711	622	987	969	978
16:19:15	31	27572	711	622	981	969	975
16:19:30	30	27517	714	621	967	968	967
16:19:45	31	27640	716	621	986	969	978
16:20:00	30	27553	720	620	988	969	979
16:20:15	30	27609	721	620	991	971	981
16:20:30	30	27605	726	619	973	968	971
16:20:45	31	27572	728	619	985	968	976
16:21:00	31	27564	727	619	987	963	975
16:21:15	30	27555	733	619	996	967	981
16:21:30	30	27592	734	618	990	968	979
16:21:45	30	27579	736	618	986	965	976

Fire Test Data - continued

16:22:00	30	27551	733	618	989	966	978
16:22:15	31	27595	736	618	983	959	971
16:22:30	30	27569	738	617	989	966	977
16:22:45	31	27603	739	617	992	968	980
16:23:00	30	27580	741	617	988	970	979
16:23:15	30	27575	744	617	984	964	974
16:23:30	31	27558	746	618	992	969	980
16:23:45	31	27568	745	618	984	967	975
16:24:00	31	27543	747	617	987	967	977
16:24:15	31	27606	751	617	982	969	975
16:24:30	31	27547	751	616	984	969	977
16:24:45	30	27569	750	616	992	971	982
16:25:00	31	27583	751	615	971	955	963
16:25:15	31	27597	744	612	908	909	909
16:25:30	31	27553	739	606	881	895	888
16:25:45	30	27575	749	602	938	946	942
16:26:00	30	27548	758	603	948	954	951
16:26:15	31	27542	754	606	968	950	959
16:26:30	31	27532	753	609	992	958	975
16:26:45	31	27561	751	613	996	942	969
16:27:00	30	27579	745	617	1000	937	969
16:27:15	30	27554	747	621	999	933	966
16:27:30	31	27522	746	624	995	932	964
16:27:45	30	27445	747	627	997	938	968
16:28:00	30	27545	749	630	994	932	963
16:28:15	31	27713	749	632	995	941	968
16:28:30	31	28051	750	632	996	942	969
16:28:45	31	27422	752	634	989	950	969
16:29:00	30	27456	752	634	996	933	965
16:29:15	30	27430	747	636	1002	935	968
16:29:30	31	27765	744	636	996	914	955
16:29:45	31	27778	747	637	999	918	959
16:30:00	31	27665	746	637	997	907	952
16:30:15	31	27585	745	638	998	908	953
16:30:30	31	27528	746	639	997	906	951
16:30:45	30	27546	747	639	997	917	957
16:31:00	31	27550	746	639	996	913	954
16:31:15	31	27564	746	640	992	906	949
16:31:30	31	27538	745	641	1001	927	964
16:31:45	31	27581	747	642	994	918	956
16:32:00	31	27568	746	642	991	903	947
16:32:15	31	27592	746	642	999	914	957
16:32:30	31	27564	745	642	992	899	946

Fire Test Data - continued

16:32:45	31	27574	744	643	992	903	948
16:33:00	31	27541	746	643	992	904	948
16:33:15	31	27569	721	642	753	696	724
16:33:30	31	27515	696	621	513	118	316
16:33:45	31	27494	672	526	344	59	202
16:34:00	31	27574	572	421	186	57	121
16:34:15	30	27453	407	323	69	57	63
16:34:30	31	27216	374	246	59	48	54
16:34:45	30	27166	347	189	49	40	44
16:35:00	31	27594	327	149	41	34	38
16:35:15	31	28275	308	119	40	33	36
16:35:30	30	27399	289	97	36	32	34
16:35:45	32	28440	285	81	32	32	32
16:36:00	30	26914	267	68	31	33	32
16:36:15	31	27088	247	40	31	32	31
16:36:30	30	27470	238	32	27	29	28
16:36:45	30	26629	232	29	29	34	32
16:37:00	31	27460	203	33	46	42	44
16:37:15	31	27478	161	47	39	39	39
16:37:30	30	27158	106	50	30	33	31
16:37:45	31	27259	107	43	23	24	24
16:38:00	30	27290	109	36	22	24	23
16:38:15	30	27225	117	32	22	25	24
16:38:30	31	27143	120	29	22	26	24
16:38:45	31	27167	117	28	22	27	24
16:39:00	31	27196	114	28	23	24	24
16:39:15	31	27185	113	28	23	25	24
16:39:30	30	27159	110	27	23	24	24
16:39:45	30	27098	107	27	22	24	23
16:40:00	31	27088	102	27	23	26	24
16:40:15	31	27147	103	27	21	24	23
16:40:30	30	27122	103	26	22	23	22
16:40:45	31	27188	102	27	22	23	23
16:41:00	31	27123	99	27	22	23	22
16:41:15	30	27087	92	27	21	23	22
16:41:30	30	27197	86	27	21	24	22
16:41:45	31	27093	82	27	21	23	22
16:42:00	31	27062	78	26	21	23	22
16:42:15	30	27066	74	26	20	23	22
16:42:30	30	27103	72	26	21	25	23
16:42:45	31	27117	80	26	23	25	24
16:43:00	30	27101	80	26	23	24	24

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:	50	ml/min

Total Through Seat Leakage Collected Over 10 Minute Cool Down:	0	mls

Total Water Volume Lost Over 40 Minute Burn and Cool Down:	360	mls
Water Collected in System Relief Valve:	0	mls
Calculated External Leakage During 40 Minute Duration:	360	mls
Average Leak Rate Over 40 Minute Duration:	9.0	ml/min
Allowable Leak Rate:	13	ml/min

Were the Valve Leakages Below the Allowables?	**Yes**

Yarmouth Research and Technology

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:	31.7	psig
Average Pressure During Burn/Cool Down:	30.4	psig
Minimum Pressure During Burn/Cool Down:	29.2	psig
Maximum Body Flame Temperature During Burn:	971.1	deg. C
Average Body Flame Temperature During Burn:	935.2	deg. C
Maximum Bonnet Flame Temperature During Burn:	1001.7	deg. C
Average Bonnet Flame Temperature During Burn:	951.3	deg. C
Average of Both Flame Temperatures During Burn:	943.2	deg. C

Note

Were Test Conditions Within Compliance?	**Yes**

Yarmouth Research and Technology

Post-Burn Seat Test Information

Customer: ValvTechnologies, Inc. **Date:** 9/20/2011

Product Code: 1/2 inch Class 600 Ball Valve

Project Number: PN211088

Test Data

Time	Pressure (psig)	Cal Block Temp - C
16:44:18	30	27
16:44:33	30	26
16:44:48	30	26
16:45:03	30	26
16:45:18	30	27
16:45:33	30	27
16:45:48	30	27
16:46:03	30	27
16:46:18	30	27
16:46:33	30	27
16:46:48	30	27
16:47:03	30	27
16:47:18	30	27
16:47:33	30	27
16:47:48	30	27
16:48:03	30	27
16:48:18	30	27
16:48:33	30	27
16:48:48	30	27
16:49:03	30	27
16:49:18	30	27

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:	10.0	ml/min

Total External Leakage Collected Over 5 Minute Duration:	0	mls
Average Leak Rate Over 5 Minute Duration:	0	ml/min
Allowable Leak Rate:	12.5	ml/min

Was the Valve Leakage Below the Allowable?	**Yes**