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

Name of Manufacturer:	**ValvTechnologies, Inc.**	Test Date:	10/26/2010
Designation of Valve:	Ball Valve – NexTech Series	Report/Certificate Number:	210175A
Size:	6 inch	Pressure Rating:	ANSI Class 900
Body Material:	Carbon Steel– A105N	Seat Material:	Metal Seat A182-F51 / Ram 21
Trim Material:	Duplex A182-F51	Stem Seal / Body Seal:	Graphite

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 in the Pressure Classes and Sizes listed below may also be qualified according to the requirements of the test specification, Section 7.

Sizes Qualified:	6 inch, 8 inch, 10 inch, 12 inch	Pressure Ranges Qualified:	900#, 1500# & PN 150, 260

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.

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

Fire Test Report

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

Performed for

Valvtechnologies, Inc.

www.valv.com

6 inch Class 900
Ball Valve
N7C1-RF-RP-B060-003AA-001

Project Number: 210175
October 2010

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:**	10/26/2010
Specification:	ANSI/API Standard 607, Sixth Edition, 2010		
	ISO 10497-5:2010		
Product Description:	6 inch Class 900 Ball Valve		
Project Number:	PN210175		
Comments:	N7C1-RF-RP-B060-003AA-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:	**15:40:00**	
Average Pressure During Burn:	**1671**	psig
Seat Leak Rate During Burn:	**0**	ml/min
Allowable Seat Leak Rate:	**2400**	ml/min
External Leak Rate During Burn/Cool Down:	**2.6**	ml/min
Allowable External Leak Rate:	**600**	ml/min
Amount of Time of Avg. Cal. Blocks > 650 deg. C:	**21.5**	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:	**1640**	psig
External Leak Rate After Operating:	**0**	ml/min
Allowable External Leak Rate:	**150**	ml/min
Was the Leakage Below the Allowable?	**Yes**	

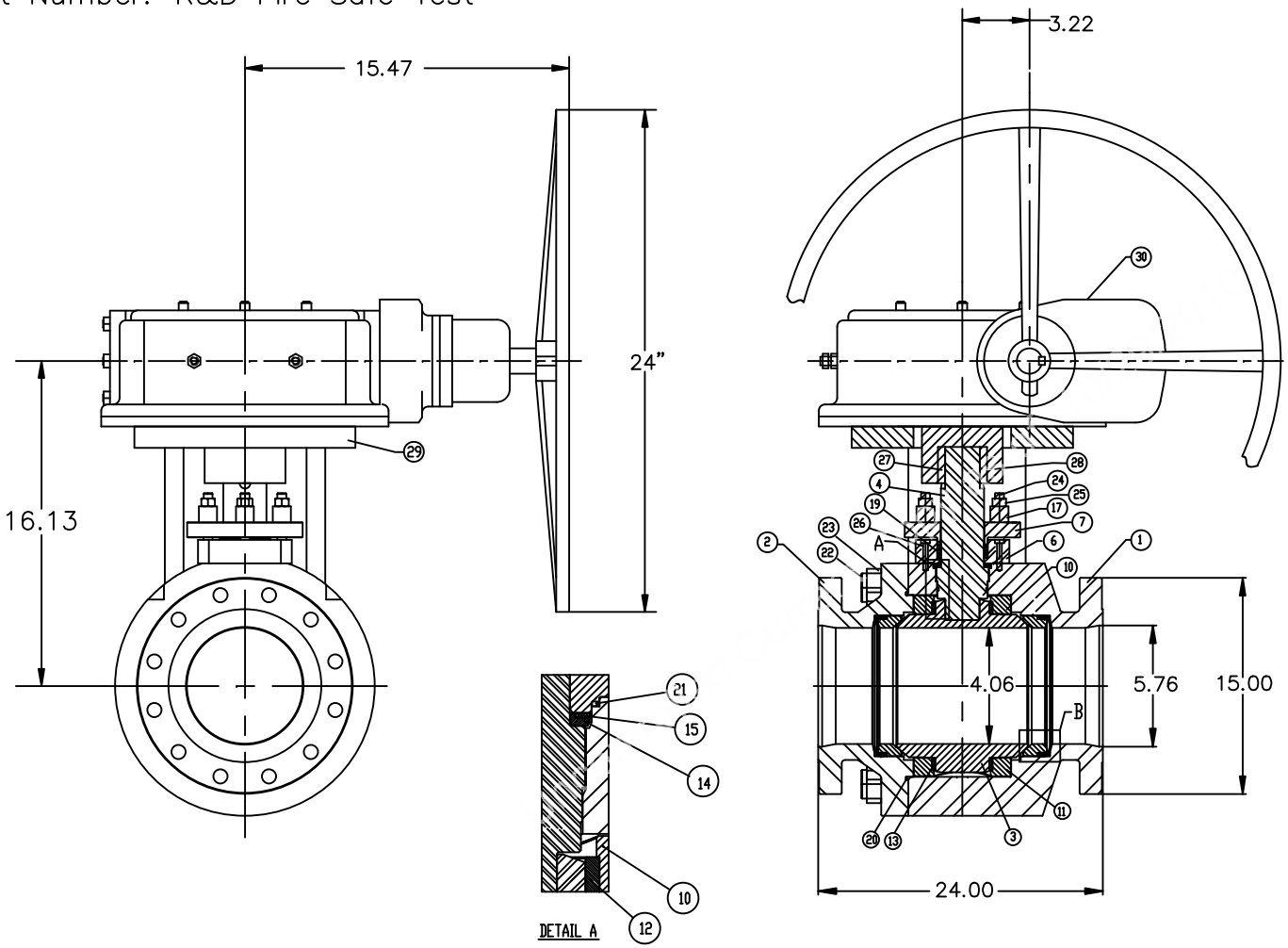
Valve Pass or Fail the Test Standard?	**PASS**

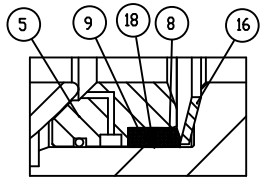
Witnesses

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:	ASME B16.34
Valve Description Size:	6"
Pressure Rating:	ANSI 900#
Pressure Rating at 100F:	2,220 psi
Type:	Side Entry Trunnion Ball Valve
Weight:	550 lb
Reduced or Full Bore:	Reduced Bore: 4"
Body/Bonnet Material:	SA105N/SA29 Gr. 4130
Trim Material:	SA182 Gr. F51
Seat Material:	SA182 Gr. F51/RAM 21
Stem / Body Seal Material:	SA182 Gr. F51/Boronized
Bolting Material:	SA193 Gr. B7M/SA194 Gr. 2H
Is valve considered "Soft-Seated"?	NO
Valve Markings Nameplate Information: Casting Markings:	Model # N7C1-RF-RP-B060-003AA-001
Assembly Drawing Number / Revision / Date of Issue:	102491-1 Revision 0
Assembly Drawing sent to Yarmouth:	YES
If valve is fitted with gearbox, state gearbox manufacturer, model number and mechanical advantage:	Rotork Gear box, Exeeco IW-6R/420 W/ 24" Hand wheel MA: 132
If valve is non-symmetric, state direction of flow for test:	Symmetric
For double-seated valves, state maximum allowable cavity pressure:	
Manufacturer's Contact Name /Date:	Jonathan Jones/10-28-10

Customer: Valv Technologies
Project Name: R&D Fire Safe Test
Project Number: R&D Fire Safe Test





BILL OF MATERIALS			
ITEM NO.	DESCRIPTION	MATERIAL	QTY
1	BODY	A105	1
2	ENDCAP	A105	1
3	BALL	A182 F51/RAM21	1
4	STEM	A182 F51/BORONIZED	1
5	SEAT	A182 F51/RAM21	2
6	BONNET	4130	1
7	GLAND	4130/QPQ	1
8	PUSHER	A182 F51	2
9	BACK-UP RING	A182 F51	2
10	TRUNNION BEARING, UPPER	A105/QPQ	1
11	TRUNNION BEARING, LOWER	A105/QPQ	1
12	BEARING SLEEVE, UPPER	NITRONIC 60	1
13	BEARING SLEEVE, LOWER	NITRONIC 60	1
14	THRUST BEARING	NITRONIC 60	1
15	THRUST WASHER	316/DURITEX	1
16	BELLEVILLE SPRING	INCONEL 718	2
17	GLAND SPRING STACK	INCONEL 718	4
18	SEAT SEAL ASSY	GRAFOIL	2
19	STEM PACKING ASSY	INC718/GRAFOIL	1
20	BODY GASKET	GRAFOIL	1
21	BONNET GASKET	GRAFOIL	1
22	BODY STUD	A193 GR B7M	12
23	BODY NUT	A194 GR 2HM	12
24	GLAND STUD	A193 GR B8M	4
25	GLAND NUT	A194 GR 8M	4
26	BONNET CAP SCREW	A193 GR B7M	4
27	KEY	1018	2
28	DRIVE SLEEVE	4130	2
29	MOUNTING PLATE	STEEL	1
30	ACTUATOR	EXEECO IW-6/420	1

** Release For Customer Approval

REV	DATE	DESCRIPTION	ECN	BY	CHK	APR
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
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THIRD ANGLE PROJECTION

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: – –

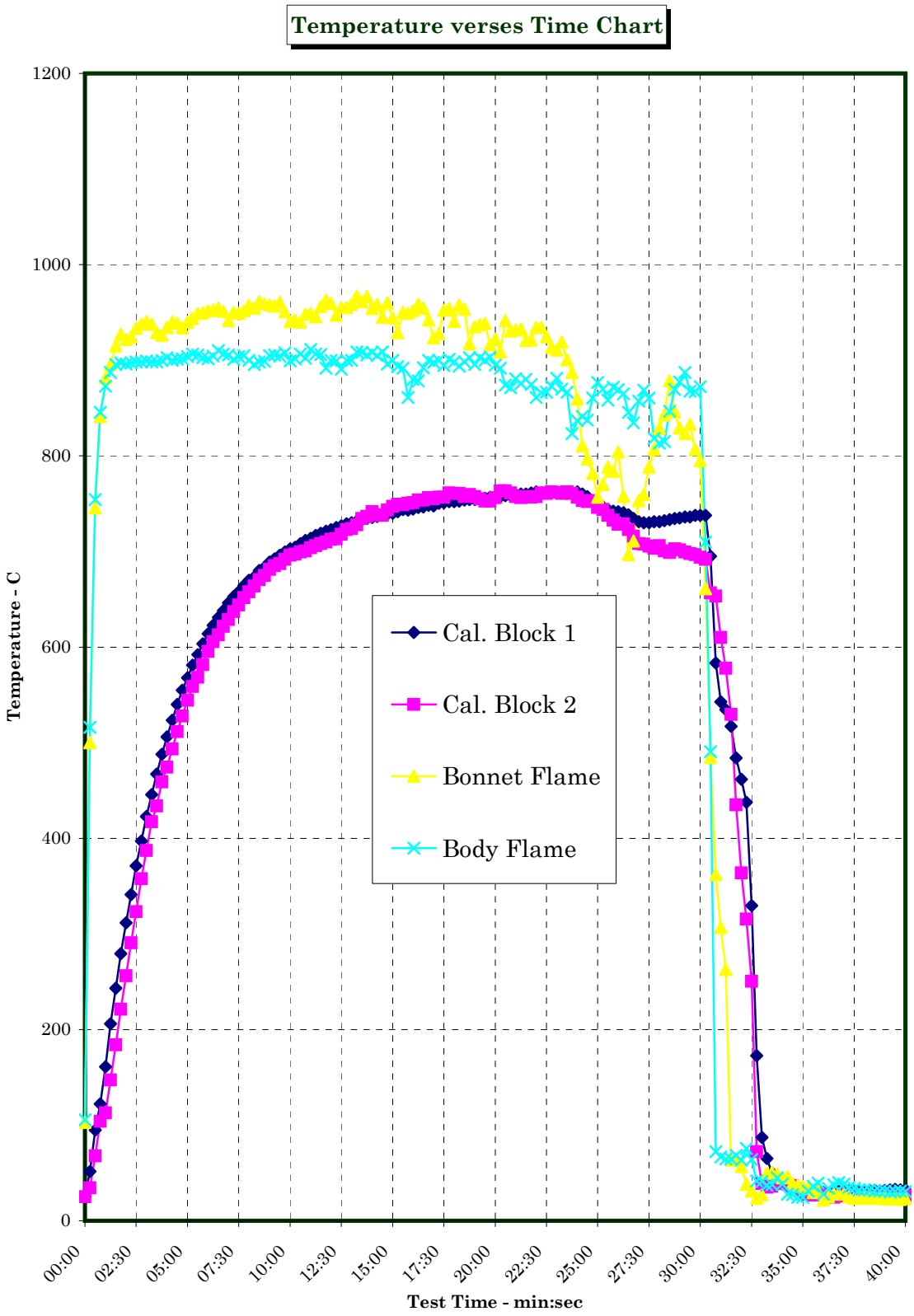
DRAWN BY	SC	DATE 10/28/10
CHECKED BY	RSL	DATE 10/28/10
ENGINEER	CHL	DATE 10/28/10
APPROVED BY	CHL	DATE 10/28/10

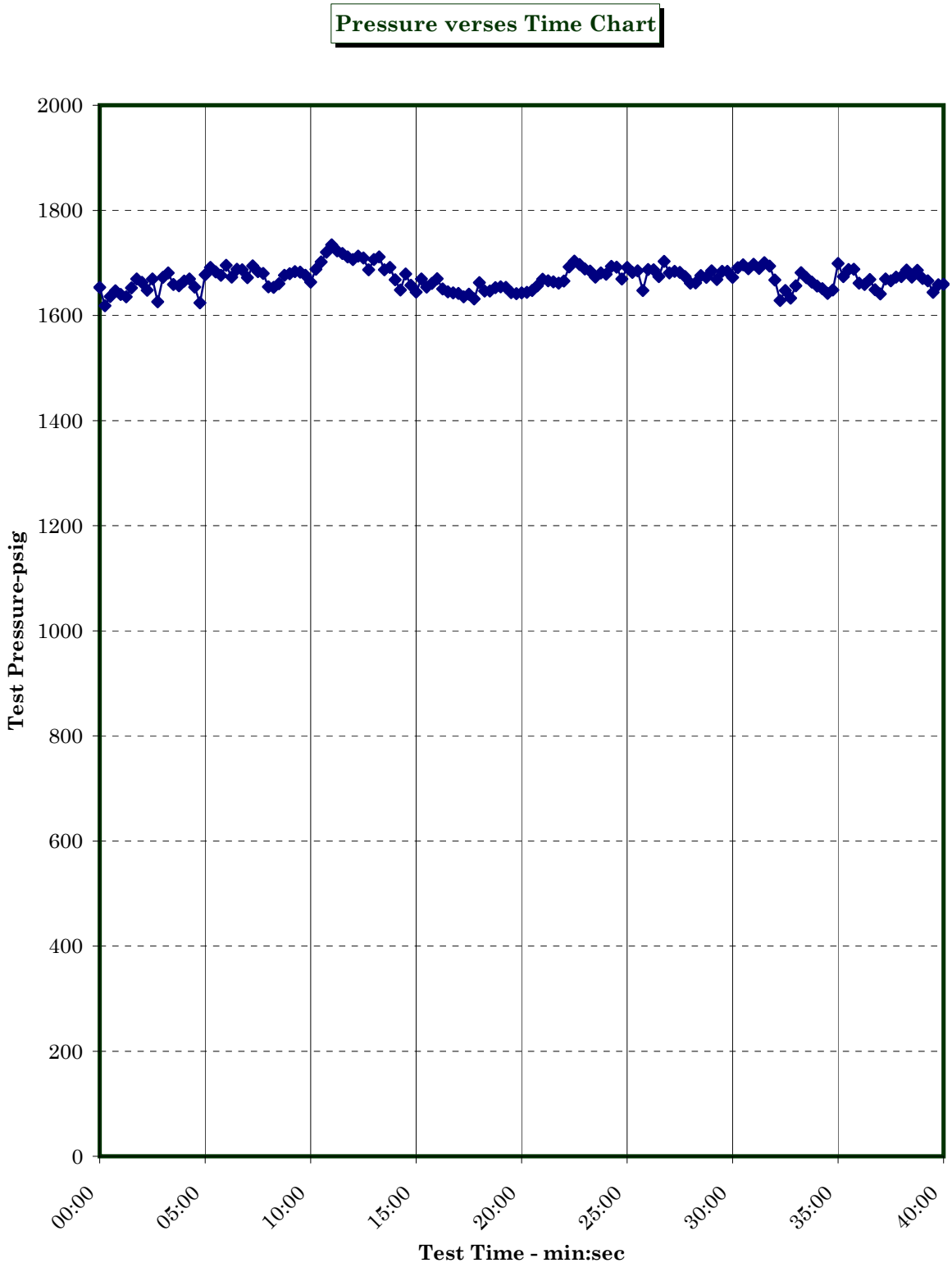
VALVTECHNOLOGIES
5904 BINGLE ROAD, HOUSTON TEXAS 77092
PH: (713) 860-0400 FAX: (713) 860-0499

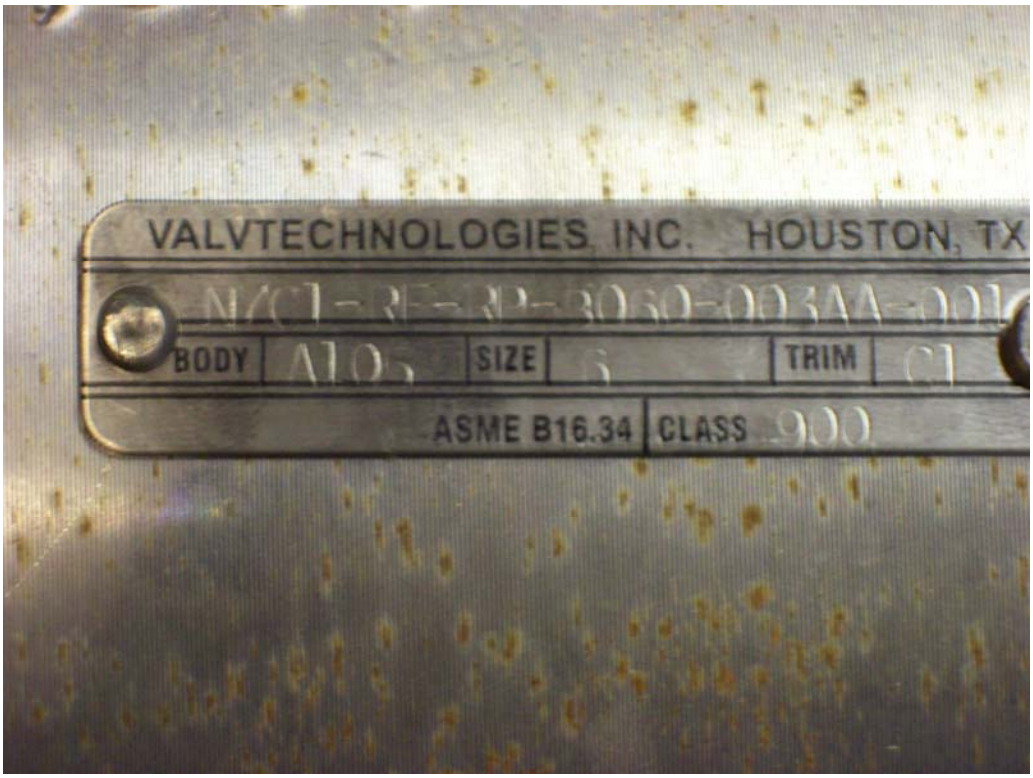
TITLE: N7C1-RF-RP-B060-003AA-001, ANSI 900# WITH EXEECO IW-6/420 W/ 24" HW SCH XS

102491 | REV. 0

SH 1 OF 1


Temperature verses Time Chart
1200
1000
800
600
400
200
0
Temperature - C
Cal. Block 1
Cal. Block 2
Bonnet Flame
Body Flame
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


Pressure verses Time Chart
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Test Pressure-psig
00:00
05:00
10:00
15:00
20:00
25:00
30:00
35:00
40:00
Test Time - min:sec



Valve Prior to Test

Valve During Burn.

Fire Test Information

Customer: Valvtechnologies, Inc. **Date:** 10/26/2010

Product Code: 6 inch Class 900 Ball Valve

Project Number: PN210175

Fire Test Raw Data

Time	Pressure (psig)	Water Volume (mls)	Cal. Block 1 Temp-C	Cal. Block 2 Temp-C	Cal. Block 3 Temp-C	Avg. Cal Block Temp-C	Bonnet Flame Temp-C	Body Flame Temp-C	Average Flame Temp-C
15:40:00	1653	39028	26	25	18	23	103	106	104
15:40:15	1619	39041	52	34	22	36	500	516	508
15:40:30	1636	39041	95	68	58	74	746	754	750
15:40:45	1647	39023	122	104	102	109	841	846	843
15:41:00	1640	39011	161	113	105	126	882	873	877
15:41:15	1635	39013	206	147	135	163	896	887	891
15:41:30	1653	39028	243	184	176	201	915	896	905
15:41:45	1670	38999	279	221	218	239	927	897	912
15:42:00	1663	38997	312	256	256	274	922	896	909
15:42:15	1648	38989	341	291	287	306	924	897	911
15:42:30	1670	38993	371	323	314	336	933	898	916
15:42:45	1626	38994	397	358	341	365	938	898	918
15:43:00	1673	38992	423	387	364	391	941	899	920
15:43:15	1681	39026	446	417	386	416	938	898	918
15:43:30	1659	38999	467	434	407	436	929	898	914
15:43:45	1656	38978	488	459	425	457	926	900	913
15:44:00	1666	38974	506	474	442	474	934	903	919
15:44:15	1669	38972	523	493	459	492	940	900	920
15:44:30	1654	38976	540	512	476	509	939	901	920
15:44:45	1624	38977	555	528	489	524	934	902	918
15:45:00	1677	38980	568	544	500	537	940	904	922
15:45:15	1691	38990	581	559	511	550	944	907	925
15:45:30	1683	38983	592	568	523	561	949	906	927
15:45:45	1677	38976	603	582	534	573	949	903	926
15:46:00	1695	38983	614	596	544	585	952	902	927
15:46:15	1673	38957	623	606	556	595	952	904	928
15:46:30	1688	38975	631	613	566	603	954	910	932
15:46:45	1687	38957	638	622	574	611	951	907	929
15:47:00	1672	38955	646	629	578	618	942	906	924
15:47:15	1694	38976	653	637	582	624	950	901	926
15:47:30	1683	38969	658	644	585	629	949	904	926
15:47:45	1680	38961	664	652	590	635	952	905	928
15:48:00	1654	39006	670	658	596	641	957	900	929

Fire Test Data - continued

15:48:15	1653	38991	673	664	598	645	954	896	925
15:48:30	1660	38986	680	671	602	651	961	898	930
15:48:45	1676	38990	683	675	607	655	959	899	929
15:49:00	1679	39009	689	681	611	660	958	905	931
15:49:15	1683	38994	692	685	613	664	957	906	931
15:49:30	1683	38990	696	687	616	666	961	904	933
15:49:45	1676	38999	699	692	618	670	951	908	929
15:50:00	1664	38994	703	696	617	672	941	899	920
15:50:15	1688	39015	704	697	615	672	942	902	922
15:50:30	1702	39016	708	699	614	674	940	907	923
15:50:45	1721	39008	712	701	613	675	948	902	925
15:51:00	1734	39007	714	704	612	676	949	911	930
15:51:15	1723	38989	717	706	611	678	946	907	926
15:51:30	1718	39001	719	708	611	679	956	906	931
15:51:45	1711	39002	721	710	612	681	963	892	927
15:52:00	1707	39013	723	713	615	684	959	900	930
15:52:15	1713	38995	725	713	616	685	947	899	923
15:52:30	1709	38999	727	718	614	686	955	891	923
15:52:45	1687	38995	729	723	616	689	955	900	928
15:53:00	1706	39003	730	724	616	690	958	900	929
15:53:15	1712	38982	732	728	616	692	967	909	938
15:53:30	1687	38986	733	734	614	694	961	908	935
15:53:45	1691	38977	734	737	614	695	967	906	936
15:54:00	1668	38980	736	742	614	697	954	908	931
15:54:15	1649	38978	737	738	613	696	958	905	932
15:54:30	1679	38988	738	738	612	696	945	909	927
15:54:45	1657	38987	739	743	611	698	960	896	928
15:55:00	1644	38999	740	747	612	700	944	900	922
15:55:15	1669	39003	742	749	613	701	929	893	911
15:55:30	1654	39000	744	749	614	702	950	892	921
15:55:45	1661	38958	743	751	614	703	949	861	905
15:56:00	1670	38984	744	751	617	704	952	880	916
15:56:15	1650	38976	746	754	618	706	958	878	918
15:56:30	1645	39005	747	754	618	706	954	892	923
15:56:45	1643	38995	748	756	617	707	942	900	921
15:57:00	1642	38994	748	755	614	706	923	898	911
15:57:15	1635	38968	751	757	612	706	928	900	914
15:57:30	1640	38972	751	757	609	706	952	894	923
15:57:45	1631	38991	752	761	608	707	954	901	928
15:58:00	1662	38968	752	761	606	706	941	898	919
15:58:15	1646	38967	753	761	605	706	958	894	926
15:58:30	1647	38966	754	757	604	705	953	898	926
15:58:45	1653	38966	754	759	602	705	917	903	910

Fire Test Data - continued

15:59:00	1654	38961	754	757	600	704	935	896	915
15:59:15	1653	38962	755	755	599	703	937	903	920
15:59:30	1644	38952	756	753	597	702	939	900	919
15:59:45	1641	38959	757	753	596	702	916	903	910
16:00:00	1643	38947	757	756	594	702	922	895	909
16:00:15	1644	38968	757	763	593	704	909	892	900
16:00:30	1647	38963	758	763	592	705	942	874	908
16:00:45	1656	38970	758	761	593	704	931	871	901
16:01:00	1669	38967	759	757	592	703	932	881	906
16:01:15	1666	38963	760	756	590	702	933	876	904
16:01:30	1664	38964	760	757	589	702	921	880	900
16:01:45	1661	38957	761	757	588	702	921	874	898
16:02:00	1665	38955	762	757	588	703	934	861	898
16:02:15	1692	38961	761	761	588	703	934	866	900
16:02:30	1703	38944	762	761	587	703	924	867	896
16:02:45	1697	38968	762	762	586	703	913	873	893
16:03:00	1688	38963	762	762	584	702	911	881	896
16:03:15	1684	38956	762	761	582	702	919	870	894
16:03:30	1673	38942	762	762	582	702	901	867	884
16:03:45	1681	38939	762	761	583	702	887	823	855
16:04:00	1678	38915	762	757	584	701	859	837	848
16:04:15	1694	38924	760	753	585	699	811	841	826
16:04:30	1692	38933	757	752	585	698	797	837	817
16:04:45	1669	38904	753	753	584	697	782	861	821
16:05:00	1691	38896	750	746	583	693	757	877	817
16:05:15	1682	38908	747	744	583	691	770	870	820
16:05:30	1685	38874	744	738	584	689	788	858	823
16:05:45	1647	38900	742	733	585	687	784	872	828
16:06:00	1687	38883	742	728	586	685	804	869	837
16:06:15	1687	38865	741	729	588	686	758	865	811
16:06:30	1674	38869	738	723	588	683	697	846	771
16:06:45	1703	38671	734	716	588	680	711	834	773
16:07:00	1681	38857	731	708	589	676	753	857	805
16:07:15	1684	38841	730	708	591	676	759	869	814
16:07:30	1682	38838	730	706	592	676	788	861	824
16:07:45	1674	38840	731	703	593	676	807	818	813
16:08:00	1661	38848	731	706	594	677	829	813	821
16:08:15	1662	38814	732	701	597	677	843	815	829
16:08:30	1676	38813	733	699	599	677	878	847	863
16:08:45	1672	38823	734	703	601	679	846	869	858
16:09:00	1685	38798	735	702	600	679	829	877	853
16:09:15	1668	38804	736	699	598	678	823	887	855
16:09:30	1684	38817	736	698	597	677	833	868	850

Fire Test Data - continued

16:09:45	1684	38776	738	697	597	677	807	867	837
16:10:00	1672	38790	738	694	596	676	795	872	834
16:10:15	1691	38785	738	692	594	674	661	710	686
16:10:30	1696	38755	695	657	584	645	484	491	488
16:10:45	1689	38782	583	653	568	601	362	72	217
16:11:00	1697	38762	543	610	551	568	307	67	187
16:11:15	1689	38760	534	578	536	549	263	64	164
16:11:30	1700	38761	517	529	522	523	63	64	64
16:11:45	1694	38724	484	435	488	469	63	68	66
16:12:00	1668	38722	462	364	453	426	57	63	60
16:12:15	1629	38737	438	316	418	390	38	76	57
16:12:30	1647	38708	329	251	385	322	31	64	48
16:12:45	1633	38704	173	72	349	198	23	42	33
16:13:00	1656	38684	87	39	310	145	27	41	34
16:13:15	1682	38706	65	35	274	125	50	37	44
16:13:30	1672	38677	50	36	240	109	51	38	44
16:13:45	1664	38667	43	39	208	97	49	45	47
16:14:00	1656	38648	42	41	175	86	45	38	42
16:14:15	1651	38657	37	38	143	73	46	28	37
16:14:30	1642	38665	33	37	108	59	39	27	33
16:14:45	1648	38634	30	33	69	44	37	24	31
16:15:00	1699	38638	28	31	59	40	36	24	30
16:15:15	1674	38607	28	28	49	35	34	31	33
16:15:30	1688	38613	28	27	43	32	29	36	33
16:15:45	1688	38600	29	29	39	32	31	39	35
16:16:00	1661	38598	29	28	37	31	22	28	25
16:16:15	1659	36957	28	26	35	29	25	34	29
16:16:30	1669	38585	30	24	33	29	28	38	33
16:16:45	1649	36968	31	28	31	30	28	40	34
16:17:00	1641	38556	32	26	29	29	28	38	33
16:17:15	1669	36287	31	27	27	29	25	35	30
16:17:30	1666	38520	31	27	26	28	23	34	29
16:17:45	1673	38510	31	27	26	28	23	32	28
16:18:00	1674	38513	31	27	28	28	24	32	28
16:18:15	1686	38506	32	27	30	29	23	32	28
16:18:30	1673	38496	32	24	32	29	23	31	27
16:18:45	1686	38515	31	27	35	31	23	31	27
16:19:00	1670	38485	32	27	38	32	23	31	27
16:19:15	1666	38491	32	27	40	33	23	30	26
16:19:30	1644	38469	33	26	43	34	23	31	27
16:19:45	1659	38487	32	27	46	35	22	31	27
16:20:00	1660	38475	32	27	49	36	23	31	27

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:	2400	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:	553	mls
Water Collected in System Relief Valve:	450	mls
Calculated External Leakage During 40 Minute Duration:	103	mls
Average Leak Rate Over 40 Minute Duration:	2.6	ml/min
Allowable Leak Rate:	600	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:	1734.2	psig
Average Pressure During Burn/Cool Down:	1670.7	psig
Minimum Pressure During Burn/Cool Down:	1618.6	psig
Amount of Time of Avg. Cal Block > 650 deg.C:	21.5	minutes
Minimum Allowable Time at Temperature:	15.0	minutes
Maximum Avg Cal Block Temperature:	707.0	deg. C
Average Cal Block Temperature:	504.5	deg. C
Lowest Avg Cal. Block Temperature:	22.8	deg. C
Maximum Body Flame Temperature During Burn:	911.1	deg. C
Average Body Flame Temperature During Burn:	877.2	deg. C
Maximum Bonnet Flame Temperature During Burn:	967.2	deg. C
Average Bonnet Flame Temperature During Burn:	898.7	deg. C
Average of Both Flame Temperatures During Burn:	887.9	deg. C

Note

Were Test Conditions Within Compliance?	**Yes**

Post-Burn Seat Test Information

Customer: Valvtechnologies, Inc.	**Date:** 10/26/2010
Product Code: 6 inch Class 900 Ball Valve	
Project Number: PN210175	

This test not required for this pressure class valve.

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Operational Test Information

Customer: Valvtechnologies, Inc. **Date:** 10/26/2010

Product Code: 6 inch Class 900 Ball Valve

Project Number: PN210175

Test Data

Time	Pressure (psig)	Cal Block Temp - C
16:29:37	1769	33
16:29:52	1760	33
16:30:07	1718	32
16:30:22	1700	33
16:30:37	1701	32
16:30:52	1683	32
16:31:07	1625	32
16:31:22	1608	32
16:31:37	1592	32
16:31:52	1623	32
16:32:07	1626	32
16:32:22	1604	31
16:32:37	1613	31
16:32:52	1599	32
16:33:07	1603	31
16:33:22	1605	31
16:33:37	1584	31
16:33:52	1602	31
16:34:07	1612	31
16:34:22	1610	31
16:34:37	1599	31

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:	150	ml/min

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