

Fire Test Report

ANSI/API Standard 607, 7th Edition, 2016

ISO 10497: 2010

Performed for

ValvTechnologies

www.valv.com



4 inch Class 1500 Ball Valve
Valve Code: V8L7-RF-FP-B040-022ZZ-001

Project Number: 221157

Test Date: May 7, 2021

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5359

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www.yarmouthresearch.com

Yarmouth Research and Technology, LLC

Customer: ValvTechnologies

Date: 5/7/2021

Specification: ANSI/API Standard 607, Seventh Edition, June 2016

ISO 10497: 2010

Product Description: 4 inch Class 1500 Ball Valve

Valve Code: V8L7-RF-FP-B040-022ZZ-001

Project Number: 221157

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:	9:19:00	
Average Pressure During Burn:	2803	psig
Seat Leak Rate During Burn:	0	ml/min
Allowable Seat Leak Rate:	1600	ml/min
External Leak Rate During Burn/Cool Down:	0.5	ml/min
Allowable External Leak Rate:	400	ml/min
Amount of Time of Avg. Cal. Blocks > 650 deg. C:	22.5	minutes
Were Test Conditions Within Compliance?	Yes	

Were the Valve Leakages Below the Allowables?	Yes
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Operational Test

Average Pressure During Test:	2818	psig
External Leak Rate After Operating:	0	ml/min
Allowable External Leak Rate:	100	ml/min

Was the Leakage Below the Allowable?	Yes
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Does Valve Pass or Fail the Test Standard?	PASS
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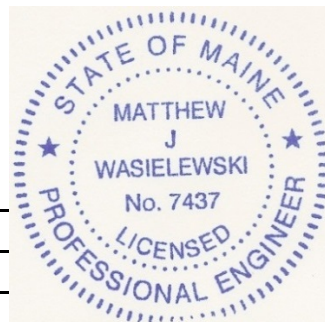
Certified by



Matthew J. Wasielewski, PE

President and Manager

Yarmouth Research & Technology, LLC

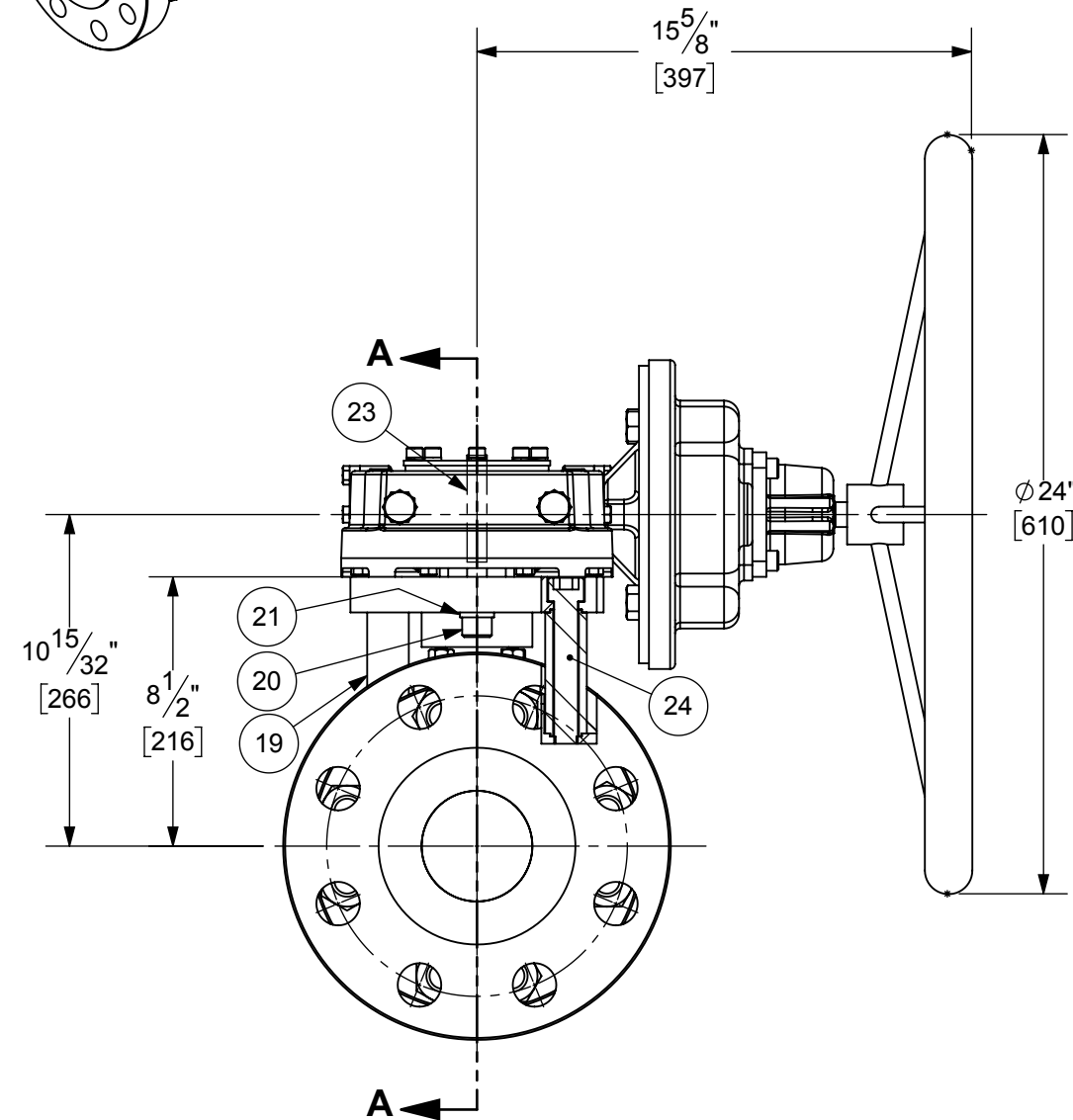


YARMOUTH RESEARCH AND TECHNOLOGY, LLC

Fire Test Information Sheet

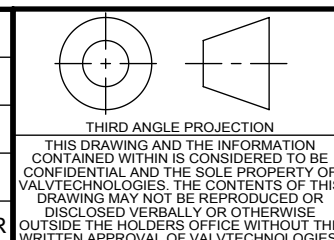
Fire Test Specification and Revision: (ie. API 607 7th, API 6FA 5th, etc)	API 607 7th Edition
Yarmouth Proposal Number:	221157A
Customer Purchase Order Number:	119620
Customer's Contact Name:	Jonathan Jones / 713-860-0463
Customer's Name (used in test report as specified):	ValvTechnologies
Company Web Address to be listed on report cover:	www.valv.com
Valve Manufacturer's Address:	6600 Deihl Rd, Houston, TX 77092
Did valve meet all required hydrostatic, leakage and other production pressure tests?	Yes
Valve Description for Report Cover:	4 inch Class 1500 Ball Valve
Valve Product Code:	V8L7-RF-FP-B040-022ZZ-001
Valve Description	
Size:	4"
Pressure Rating/Class:	1500
Pressure Rating at 100F:	3750 psig
Type:	Ball Valve
Weight:	459 lbs
Reduced or Full Bore:	Full Port
Body/Bonnet Material:	SA-182 Gr. F22 Cl. 3
Trim Material:	B637 UNS N07718
Seat Material:	SA-182- GR. F22 CL 3/QPQ
Stem Seal Material:	SA-638 GR. 660 / QPQ
Body Seal Material:	B637 UNS N07718
Bolting Material:	M8M/8M
Is valve considered "Soft-Seated"?	NO
If valve is fitted with gearbox, state gearbox manufacturer, model # and mech. advantage:	Exeeco IW-4 240/1 Mech. Adv. 86
State if valve is symmetric or non-symmetric: If non, state direction of flow for test:	See flow direction as indicated on drawing
IMPORTANT - Cavity pressure tap is required for ALL dual-seated valves. Please refer to quote	
For double-seated valves, state maximum allowable cavity pressure:	N/A
Is there a reason that test should not measure and record through (seat) leakage?	
Pre-Test Adjustments, if any:	
Valve Markings	
Nameplate Information:	Size, Pressure Class
Casting Markings:	N/A
Assembly Drawing Number / Revision / Date:	170020 / Rev. 1 06/14/2017
Emailed (PDF) to Yarmouth: Date:	4/27/2021
Form Submission Date:	

PLEASE RETURN AS AN EXCEL DOCUMENT



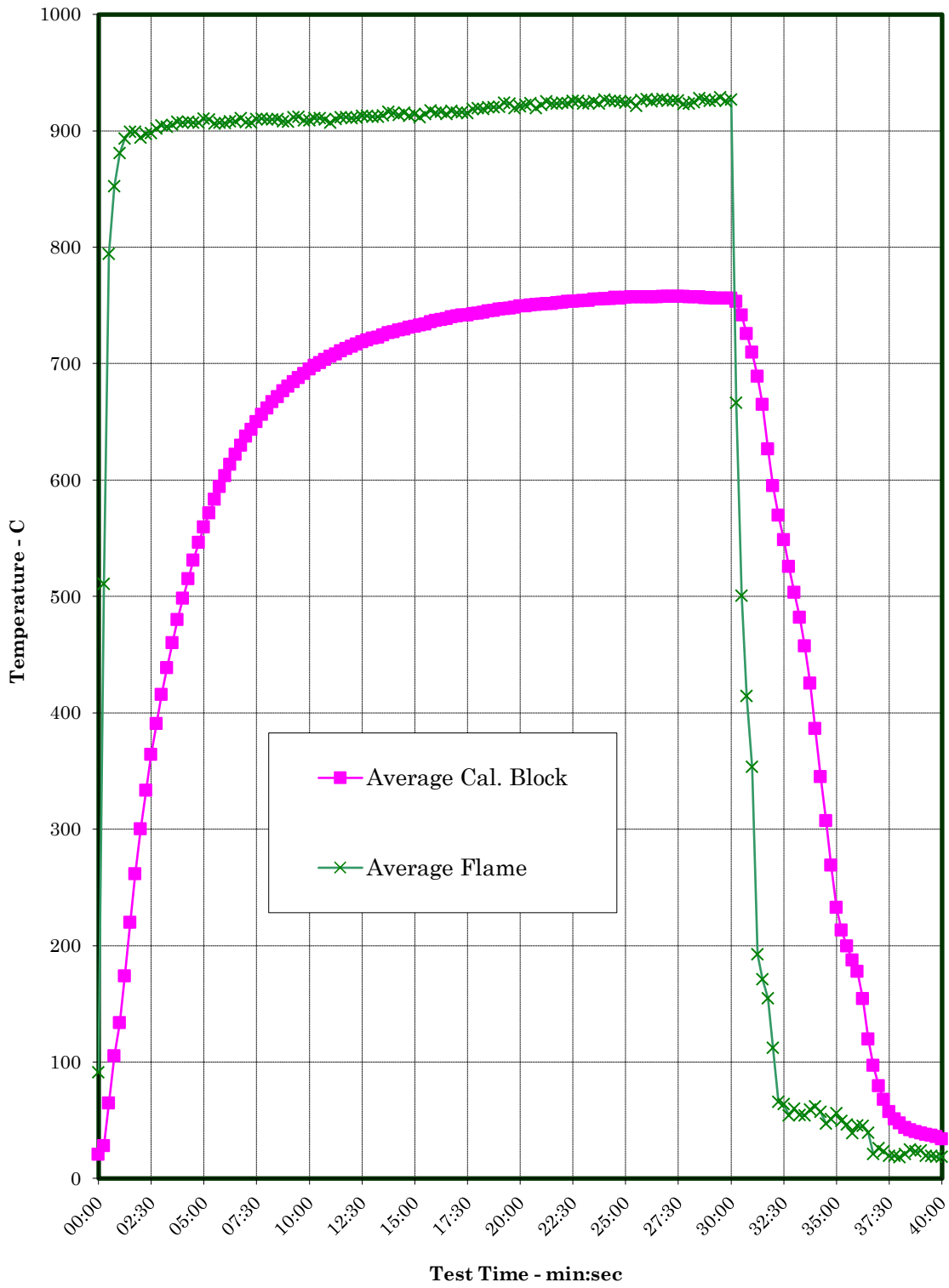
ITEM	DESCRIPTION	MATERIAL	QTY .
1	BALL	SB-637 N07718/R31	1
2	UPSTREAM SEAT	SA-182 F22/QPQ	1
3	BELLEVILLE SPRING	SB-637 N07718	1
4	STEM	SA-638 660/QPQ	1
5	GLAND	SA-182 F316/QPQ	1
6	GLAND SPRING	SB-637 N07718	24
7	GLAND STUD	SA-193 Gr. B8M	4
8	GLAND NUT	SA-194 Gr. 8M	4
9	END CAP	SA-182 F22/R31	1
10	BODY	SA-182 F22	1
11	BODY SEAL	SB-637 N07718	1
12	GLAND PACKING	5300/1622 CHESTERTON	1
13	KEY	SA-29 Gr. 1018	2
14	BODY STUD	SA-193 Gr. B8M	12
15	BODY NUT	SA-194 Gr. 8M	12
16	SECONDARY GASKET	GRAFOIL	1
17	MOUNTING PLATE	SA-36	1
18	DRIVE SLEEVE	SA-29 Gr.4130	1
19	YOKE POST	SA-106 Gr. B	4
20	CAP SCREW	SA-574	4
21	LOCK WASHER	SAE Gr. CS	4
22	OPERATOR EXEECO	IW-4/240 W/24" HW	1
23	KEY	SA-29 Gr. 1018	1
24	CAP SCREW	SA-574	4

1	06/14/17	ADDED MATERIALS IN B.O.M.		PN	CWF	
0		INITIAL RELEASE				
REV.	DATE	DESCRIPTION	ECN	BY	CHK	APP

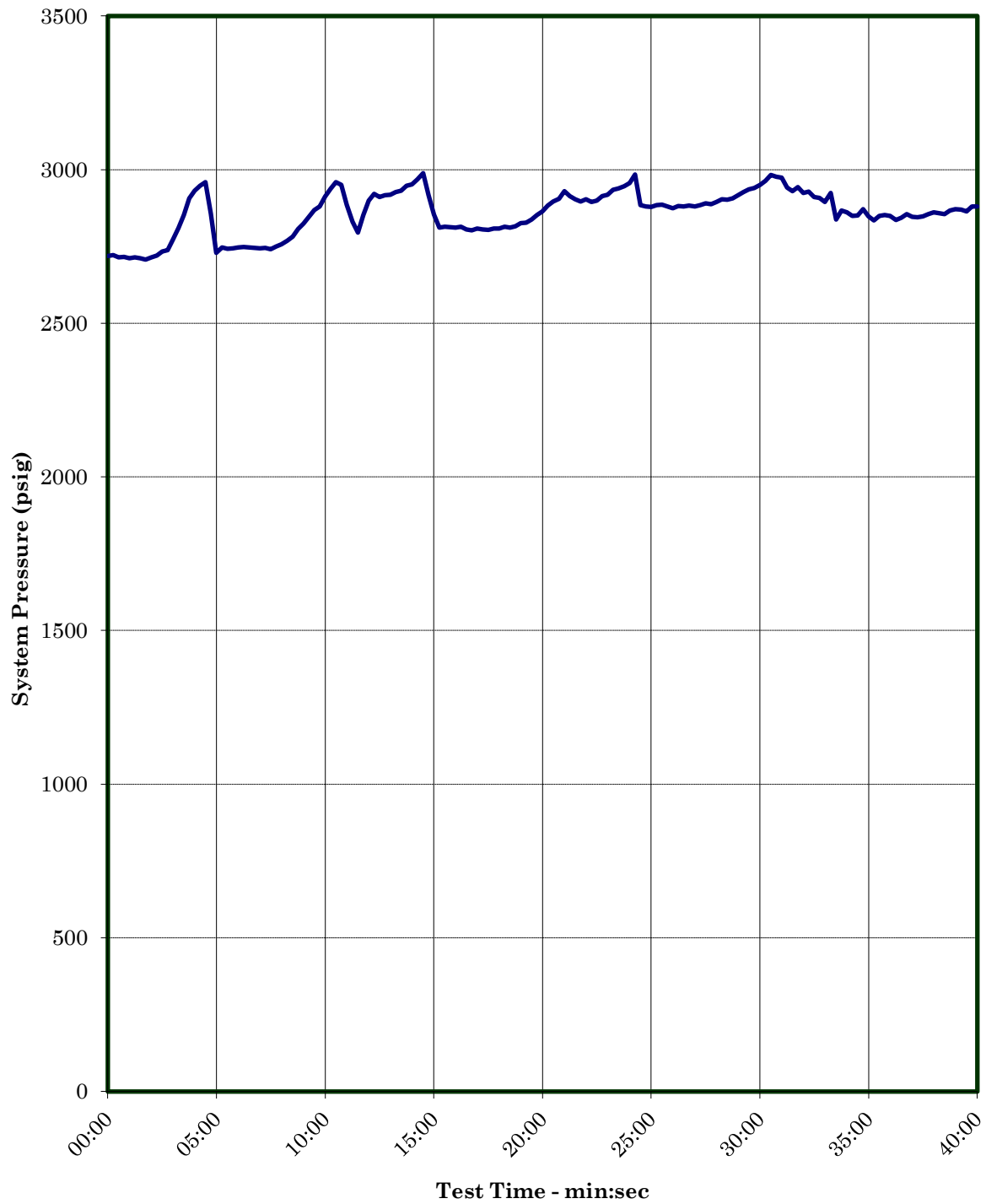


DIMENSIONS ARE IN INCHES [MILLIMETERS]		MODEL FILE 170020-007		VALVTECHNOLOGIES	
OVERALL DIMENSIONS (L) x (W) x (H)		SCALE 1:6	WEIGHT 500 LBS		
FOR SALES ORDER ACTUATOR ORIENTATION IS FOR ILLUSTRATION PURPOSES ONLY. ACCESSORIES MAY NOT BE INCLUDED IN		DRAWN BY NN		DATE 03/16/17	
		ENGINEER CWF		DATE 03/16/17	
		APR BY -		DATE -	
				TITLE V8L7-RF-FP-B040-022ZZ-001 4" 1500# RF, 3.50" BORE WITH EXEECO IW-4/240	
				170020-007	
				REV 1	

Temperature verses Time Chart



Pressure verses Time Chart





Valve Markings



Test Setup Prior to Burn

Yarmouth Research and Technology, LLC



Test Valve During Burn

Yarmouth Research and Technology, LLC

Fire Test Information

Customer: ValvTechnologies

Date: 5/7/2021

Product Code: 4 inch Class 1500 Ball Valve

Project Number: 221157

Fire Test Raw Data

Time	Pressure (psig)	Water Volume (mls)	Cal. Block 1 Temp-C	Cal. Block 2 Temp-C	Avg. Cal Block Temp-C	Bonnet Flame Temp-C	Body Flame Temp-C	Average Flame Temp-C
9:19:00	2720	30859	21	20	21	115	67	91
9:19:15	2721	30839	30	26	28	542	479	511
9:19:30	2714	30874	68	61	64	807	781	794
9:19:45	2716	30830	110	100	105	852	852	852
9:20:00	2711	30874	152	115	134	873	889	881
9:20:15	2714	30877	193	155	174	891	895	893
9:20:30	2711	30852	232	207	220	903	895	899
9:20:45	2707	30875	268	255	261	902	896	899
9:21:00	2714	30852	302	298	300	892	896	894
9:21:15	2720	30845	333	334	333	897	897	897
9:21:30	2734	30853	363	365	364	900	896	898
9:21:45	2738	30863	390	391	391	905	899	902
9:22:00	2773	30874	416	415	416	909	900	904
9:22:15	2809	30857	440	437	439	903	904	903
9:22:30	2852	30864	462	458	460	905	905	905
9:22:45	2907	30844	483	477	480	905	910	908
9:23:00	2932	30842	502	494	498	906	907	907
9:23:15	2948	30881	520	510	515	904	911	908
9:23:30	2959	30897	536	526	531	901	912	907
9:23:45	2856	30891	552	540	546	900	914	907
9:24:00	2730	30885	566	553	559	903	918	910
9:24:15	2747	30859	579	564	571	903	916	909
9:24:30	2743	30896	591	575	583	895	917	906
9:24:45	2744	30858	602	586	594	895	919	907
9:25:00	2747	30886	612	595	604	893	920	906
9:25:15	2748	30854	622	604	613	892	924	908
9:25:30	2747	30880	631	612	622	894	922	908
9:25:45	2745	30883	639	620	629	898	924	911
9:26:00	2744	30872	647	627	637	892	922	907
9:26:15	2746	30879	654	633	643	895	919	907
9:26:30	2741	30892	661	639	650	898	922	910
9:26:45	2750	30864	667	645	656	898	923	910
9:27:00	2757	30867	673	650	661	896	923	909

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Fire Test Data - continued

9:27:15	2769	30869	679	655	667	893	926	909
9:27:30	2782	30866	684	659	671	895	925	910
9:27:45	2807	30882	689	664	676	894	922	908
9:28:00	2825	30868	693	668	680	893	923	908
9:28:15	2846	30860	697	671	684	894	929	911
9:28:30	2868	30906	701	674	688	896	928	912
9:28:45	2880	30900	705	678	691	890	927	909
9:29:00	2913	30897	709	681	695	890	927	909
9:29:15	2937	30871	712	684	698	894	928	911
9:29:30	2959	30867	715	686	701	890	931	911
9:29:45	2950	30890	718	689	703	891	928	909
9:30:00	2887	30858	721	691	706	888	926	907
9:30:15	2830	30898	723	693	708	893	927	910
9:30:30	2795	30887	726	695	711	892	931	912
9:30:45	2852	30864	728	697	713	893	930	911
9:31:00	2899	30910	730	699	714	890	931	911
9:31:15	2922	30886	732	701	717	892	930	911
9:31:30	2912	30865	734	703	718	893	932	913
9:31:45	2916	30902	735	705	720	893	933	913
9:32:00	2917	30891	736	707	722	891	933	912
9:32:15	2927	30895	737	708	723	891	933	912
9:32:30	2931	30908	739	710	724	894	932	913
9:32:45	2947	30906	740	712	726	900	932	916
9:33:00	2952	30910	741	713	727	900	930	915
9:33:15	2968	30887	742	715	729	897	930	914
9:33:30	2989	30917	743	716	729	900	931	916
9:33:45	2916	30885	745	717	731	894	931	913
9:34:00	2853	30885	746	718	732	898	931	914
9:34:15	2811	30909	747	719	733	898	925	911
9:34:30	2814	30874	748	720	734	899	930	914
9:34:45	2813	30906	750	721	736	901	934	918
9:35:00	2811	30930	751	722	737	900	931	916
9:35:15	2815	30903	752	723	738	902	930	916
9:35:30	2806	30881	753	724	738	900	929	914
9:35:45	2802	30910	755	725	740	905	929	917
9:36:00	2808	30878	756	725	741	903	928	915
9:36:15	2805	30875	757	726	742	903	929	916
9:36:30	2804	30892	757	726	742	903	927	915
9:36:45	2808	30902	758	727	743	907	930	919
9:37:00	2808	30908	759	727	743	911	928	919
9:37:15	2815	30879	760	728	744	907	930	919
9:37:30	2811	30886	761	729	745	909	931	920
9:37:45	2815	30903	762	729	746	911	929	920

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Fire Test Data - continued

9:38:00	2826	30883	763	730	746	911	930	921
9:38:15	2827	30886	764	730	747	915	933	924
9:38:30	2838	30886	764	731	748	914	932	923
9:38:45	2852	30883	765	731	748	914	925	919
9:39:00	2864	30896	766	732	749	914	928	921
9:39:15	2883	30910	766	732	749	914	930	922
9:39:30	2896	30918	767	733	750	916	931	924
9:39:45	2905	30910	768	733	750	912	926	919
9:40:00	2930	30901	768	734	751	914	930	922
9:40:15	2914	30888	769	734	751	917	933	925
9:40:30	2904	30892	769	734	751	917	929	923
9:40:45	2897	30876	769	735	752	919	927	923
9:41:00	2903	30868	770	735	753	919	929	924
9:41:15	2894	30907	770	736	753	916	931	924
9:41:30	2899	30916	770	736	753	919	932	926
9:41:45	2914	30880	770	737	754	921	930	926
9:42:00	2918	30935	770	738	754	917	929	923
9:42:15	2934	30894	770	738	754	916	931	924
9:42:30	2939	30888	771	739	755	918	933	925
9:42:45	2947	30864	771	739	755	918	929	923
9:43:00	2956	30870	771	740	756	922	931	927
9:43:15	2984	30906	771	740	756	920	931	926
9:43:30	2885	30882	772	741	757	920	931	926
9:43:45	2881	30896	771	741	756	923	928	925
9:44:00	2879	30892	772	741	757	920	928	924
9:44:15	2885	30884	772	742	757	922	928	925
9:44:30	2886	30874	772	742	757	921	921	921
9:44:45	2880	30888	772	742	757	924	929	926
9:45:00	2874	30862	772	742	757	924	930	927
9:45:15	2881	30865	772	742	757	923	928	925
9:45:30	2881	30895	772	742	757	923	930	926
9:45:45	2884	30875	772	743	758	927	927	927
9:46:00	2880	30875	772	743	758	927	924	926
9:46:15	2885	30882	772	743	758	923	929	926
9:46:30	2890	30882	772	743	758	926	926	926
9:46:45	2888	30883	772	743	758	923	923	923
9:47:00	2895	30870	771	743	757	922	924	923
9:47:15	2903	30878	771	743	757	923	926	924
9:47:30	2902	30869	771	743	757	926	930	928
9:47:45	2907	30876	770	743	756	927	926	927
9:48:00	2917	30861	770	743	756	924	927	926
9:48:15	2927	30867	769	743	756	925	927	926
9:48:30	2936	30860	769	743	756	930	927	929

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Fire Test Data - continued

9:48:45	2941	30892	769	743	756	929	922	926
9:49:00	2951	30865	769	743	756	926	927	927
9:49:15	2964	30877	766	740	753	655	678	666
9:49:30	2982	30892	755	728	741	496	505	501
9:49:45	2977	30848	740	711	726	406	422	414
9:50:00	2974	30884	724	695	709	340	367	354
9:50:15	2942	30861	705	673	689	78	307	193
9:50:30	2929	30877	677	652	665	68	274	171
9:50:45	2943	30843	650	603	626	64	245	154
9:51:00	2925	30873	627	563	595	66	158	112
9:51:15	2929	30858	605	534	569	60	71	66
9:51:30	2912	30820	580	517	549	60	68	64
9:51:45	2908	30827	554	497	526	43	65	54
9:52:00	2894	30806	527	479	503	53	67	60
9:52:15	2924	30833	496	467	482	43	66	54
9:52:30	2838	30786	462	452	457	45	63	54
9:52:45	2867	30798	413	438	425	56	62	59
9:53:00	2860	30724	347	425	386	63	61	62
9:53:15	2849	30692	279	411	345	53	61	57
9:53:30	2851	30733	217	397	307	38	56	47
9:53:45	2872	30676	160	378	269	38	64	51
9:54:00	2849	30635	108	358	233	33	79	56
9:54:15	2834	30608	87	339	213	31	68	49
9:54:30	2850	30596	75	324	199	24	69	46
9:54:45	2853	30591	70	305	188	25	53	39
9:55:00	2850	30543	67	288	178	26	65	46
9:55:15	2836	30528	66	242	154	34	56	45
9:55:30	2844	30519	66	173	119	27	51	39
9:55:45	2855	30468	65	129	97	23	19	21
9:56:00	2846	30468	61	98	79	20	32	26
9:56:15	2844	30437	57	78	68	29	18	23
9:56:30	2847	30365	52	62	57	20	19	19
9:56:45	2856	30396	49	53	51	18	21	19
9:57:00	2861	30375	47	47	47	20	16	18
9:57:15	2858	30318	45	42	44	19	23	21
9:57:30	2855	30261	43	40	41	17	32	25
9:57:45	2867	30267	41	39	40	17	29	23
9:58:00	2871	30283	40	38	39	17	31	24
9:58:15	2870	30227	38	38	38	15	24	19
9:58:30	2865	30219	37	36	37	16	22	19
9:58:45	2880	30186	36	35	36	15	22	19
9:59:00	2880	30163	35	33	34	15	22	19

Yarmouth Research and Technology, LLC

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:	1600	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:	696	mls
Water Collected in System Relief Valve:	675	mls
Calculated External Leakage During 40 Minute Duration:	21	mls
Average Leak Rate Over 40 Minute Duration:	0.5	ml/min
Allowable Leak Rate:	400	ml/min
Were the Valve Leakages Below the Allowables?	Yes	

Yarmouth Research and Technology, LLC

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:	2989	psig
Average Pressure During Burn/Cool Down:	2858	psig
Minimum Pressure During Burn/Cool Down:	2707	psig
Amount of Time of Avg. Cal Block > 650 deg.C:	22.5	minutes
Minimum Allowable Time at Temperature:	15.0	minutes
Maximum Avg Cal Block Temperature:	758	deg. C
Average Cal Block Temperature:	568	deg. C
Lowest Avg Cal. Block Temperature:	20.6	deg. C
Maximum Body Flame Temperature During Burn:	934	deg. C
Average Body Flame Temperature During Burn:	913	deg. C
Maximum Bonnet Flame Temperature During Burn:	930	deg. C
Average Bonnet Flame Temperature During Burn:	897	deg. C
Average of Both Flame Temperatures During Burn:	905	deg. C

Notes

Were Test Conditions Within Compliance?	Yes
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Yarmouth Research and Technology, LLC

Post-Burn Seat Test Information

Customer: ValvTechnologies

Date: 5/7/2021

Product Code: 4 inch Class 1500 Ball Valve

Project Number: 221157

This test is not required for this pressure class.

Yarmouth Research and Technology, LLC

Operational Test Information

Customer: ValvTechnologies

Date: 5/7/2021

Product Code: 4 inch Class 1500 Ball Valve

Project Number: 221157

Test Data

Time	Pressure (psig)	Cal Block Temp - C
10:06:38	2905	31
10:06:53	2776	31
10:07:08	2810	32
10:07:23	2823	32
10:07:38	2837	32
10:07:53	2839	32
10:08:08	2837	32
10:08:23	2836	32
10:08:38	2834	32
10:08:53	2836	33
10:09:08	2829	33
10:09:23	2817	33
10:09:38	2812	33
10:09:53	2806	33
10:10:08	2810	33
10:10:23	2802	33
10:10:38	2801	34
10:10:53	2798	34
10:11:08	2792	34
10:11:23	2792	34
10:11:38	2792	34

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:	100	ml/min
Was the Valve Leakage Below the Allowable?	Yes	

Yarmouth Research and Technology, LLC

ANSI/API Standard 607 Seventh Edition - 2016

ISO 10497:2010

Fire Test Certificate

Certificate Number: 221157A

Test Start Date: 5/7/2021

Customer Information

Customer: ValvTechnologies

Web Address: www.valv.com

Valve Information

Valve Description: 4 inch Class 1500 Ball Valve

Product Code: V8L7-RF-FP-B040-022ZZ-001

Body/Bonnet Material: SA-182 Gr. F22 Cl. 3

Seat Material: SA-182- GR. F22 CL 3/QPQ

Stem Seal Material: SA-638 GR. 660 / QPQ

Valve Size: 4"

Body Seal Material: B637 UNS N07718

ANSI Pressure Class: 1500

The above valve was tested in accordance with the above stated fire test procedure in one flow direction. 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 Section 7 of the test specification.

Test Results

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.

Certified By



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