

Hydromechanical Grease Interceptor Test Report

MIFAB, Inc. - Big - 750

As Per Standard ASME A112.14.3-2018 (Type D)

Tested by: Innovative Plumbing Creations

Test Engineer: Kyle Augun

Prepared on: June 12th, 2024

Requested by:

Liviu Iftinca

MIFAB

1321 W 119th Street

Chicago, IL 60643

Report Summary

Report Number	MI.2024.002.001
Unit Tested	Big 750
Manufacture	MIFAB, Inc.
Test Procedure	ASME A112.14.3-2018 (Type D)
Date of Test	May 30 th , 2024 – June 7 th , 2024

Table of Contents

Section	Page Number
Revision Table.....	3
Introduction	4
Test.....	4
Test Unit.....	5
Measurements Taken of Lard and Water	6
Test Sink Calibration	7
Conclusion.....	8
Attachments.....	8
List of Tables	
Table 1 – Test Equipment	4
Table 2 – Lard and Water Measurements	7
Table 3 – Test Sink Calibration Results.....	7
List of Figures	
Figure 1 - Big - 750 Vent Stack	5
Figure 2 - Big - 750 Overall Set-up.....	6
List of Attachments	
Appendix 2 – Grease Interceptor Rating Test Data	9

Abbreviation/Term Definition

ASME - American Society of Mechanical Engineers

N/A - Not applicable

Revision Table

Revision	Reason for Revision
001	Initial document revision

Approvals

Author(s) Review: I confirm that the information in this technical report is complete, accurate, properly referenced and is scientifically sound.



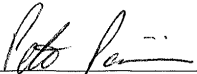
Kyle Augun

Test Engineer, IPC

JUNE 12, 2024

Date

Technical Review: I confirm that sufficient information and detail have been reported in this technical report, that it is scientifically sound, and that appropriate conclusions have been included.



Peter Pacini

Lead Engineer, IPC

JUNE 12, 2024

Date

Introduction

Innovative Plumbing Creations LLC (IPC) received and accepted an order to conduct performance testing on MIFAB's Big – 750. Testing was conducted to standard ASME A112.14.3-2018 (Type D) at 75 GPM. This report outlines the test equipment used, procedures used to conduct said test, the test results, and how the test adheres to the standard ASME A112.14.3-2018 (Type D). Testing was conducted at the IPC facility in Chicago, Illinois. Lab # IH44.

Test

The test for the Big-750 to standard ASME A112.14.3-2018 (Type D) at 75 GPM, was conducted with the following technical lab equipment in table 1.

Equipment	Manufacturer	Serial Number	Model Number	Use	Equipment	Calibration Date	Next Calibration
Thermometer	Control Company	23011239	4371.90205-05	Temperature Measurement	Thermometer	2/17/2023	2/17/2025
Scale	Mettler Toledo	67273366CY	BC	Weight Measurement	Scale	N/A	N/A
Scale	Ohaus	C048611859	V31XW6	Weight Measurement	Scale	11/10/2023	2/17/2025
Zahn Cup	Baoshishan	N/A	Zahn Cup #3	Measuring Viscosity	Zahn Cup	N/A	6/25/2026
Hydrometer	Chase	N/A	N/A	Measuring Density	Hydrometer	N/A	6/25/2026
Stopwatch	Control Company	230278669	1042-94460-55	Time Measurement	Stopwatch	4/20/2023	4/20/2025
pH Checker	Hanna Instruments	H06410200	HI98103	pH Measurement	pH Checker	4/22/2024	7/22/2024

Table 1 - Test Equipment

Tested Unit

The Big 750 was ordered and received by Innovative Plumbing Creations from MIFAB, Inc. on May, 28th 2024. Upon receiving said unit, the unit was inspected to ensure that it met the dimensions listed by MIFAB, Inc. to ensure proper testing. The installation did not include an internal flow control. The floor sink and connections are shown in (Figure 2). Overall set-up is pictured in (Figure 1). The set-up procedures not listed here adhered strictly to ASME A112.14.3-2018 (Type D) and did not deviate from said standard.



Figure 1 - Big - 750 Vent Stack



Figure 2 - Big - 750 Overall Set-up

Measurements Taken of Lard and Water

Measurements were taken of lard and water prior to testing, adhering to ASME A112.14.3-2018 (Type D) section 3.3.1. The lard manufacture was “Kitchen Essentials”, 50 Lbs. boxes, batch number 49. Measurements for viscosity and specific gravity of lard used, and water PH levels, were taken by IPC prior to test and are described in Table 2 and were accepted.

Measurement Taken	Result	Standard
Water PH Level	7.6	6.0 – 8.0
Lard Specific Gravity	0.875 @ 150°F	0.875±0.005 @ 150°F
Lard Viscosity	8.4s @ 150°F	N/A

Table 2 - Lard and Water Measurements

Test Sink Calibration

Sink calibration was done prior to testing and adhere to standard ASME A112.14.3-2018 (Type D) section 3.3.4.1 and is described in table 3 and were accepted.

Run Number	Compartment 1 Individual	Compartment 2 Individual	Compartment 1 + Compartment 2	Compartment 2 + Compartment 1
1	90.50 seconds	85.78 seconds	110.29 seconds	110.34 seconds
2	91.33 seconds	86.90 seconds	109.88 seconds	111.09 seconds
3	90.44 seconds	86.21 seconds	109.59 seconds	110.35 seconds
Average	90.757 seconds	86.297 seconds	109.92 seconds	110.59 seconds
Average GPM	94.21 GPM	99.08 GPM	77.78 GPM	77.31 GPM

Table 3 – Test Sink Calibration Results

Test Procedure

Testing was completed in accordance with ASME A112.14.3-2018 (Type D) Testing occurred continuously over several normal workdays. During stand-by periods, efforts were made to maintain the temperature within the grease interceptor to prevent the lard from solidifying. Insulation was used to maintain the temperature.

During testing for unit Big – 750, material structural failure occurred. On run 24 the outlet pipe that extends vertically to the bottom of the interceptor from the body of the outlet began to leak leading to the outlet pipe being replaced and testing continued.

Results

Grease Interceptor Rating

The Big – 750 grease interceptor testing continued until run 60 (Including 2 failed runs), when the breakdown point was achieved due to the incremental run removal efficiency dropping below 80%. The accumulative removal efficiency remained above 90%. The ASME A112.14.3-2018 (Type D) performance results are presented in Appendix 1.

Conclusions

The Big 750 met the certification requirements of the 75 GPM rating as defined in the ASME A112.14.3-2018 (Type D) with a total grease capacity of 838.235 Lbs. at the test breakdown point, test increment 58.

Attachments

Appendix 1 - Grease Interceptor Rating Test Report

Appendix 1

F-008: ASME A112.14.3-2018 - HYDROMECHANICAL GREASE INTERCEPTOR TEST REPORT FORM v3.1 Authored and Approved PAP 4/14/2023 Sheet 1 of 1														
Interceptor Manufacturer: MIFAB, Inc					Model Number: BIG-750		Flow Rate: 75		Report No.: MI.2024.002.001					
Sink Capacity and Flow			Test Media Data			Flow Control Data			Test Lab Information					
Capacity No. 1	75	gallons	Spec. Gravity:	0.875	Orifice Size:	N/A	Type:	N/A	Test Lab: IPC				Test Date: 5/30/2024	
Capacity No. 2	75	gallons							Notes:					
Separate No. 1	94.21	GPM	Viscosity:	8.3s	Test Technician: Kyle Augun				1. Drainage gauged on clear compartment					
Separate No. 2	99.08	GPM							2. The "amount retained" is a calculation of "Added" minus "Skimmed"					
Simultaneous No. 1	77.78	GPM												
Simultaneous No. 2	77.31	GPM												
					Incremental				Accumulated					
					[(Added - Skim) / Added] * 100 = Efficiency				[(Added - Skim) / Added] * 100 = Efficiency					
No.	Test	Clear	Seconds	Rate (GPM)	lb. Added	lb. Skimmed	lb Retained	Efficiency	lb. Added	lb. Skimmed	lb. Retained	Efficiency	3. All skimmed weights taken after dewatering by separatory funnel and chilling Summary and Adjusted Results based on the totals at the increment when grease retained equals 2 lb per gpm rated flow	
1	1	2	111.84	76.45	15.00	0.145	14.855	99.03%	15.00	0.145	14.855	99.03%		
2	2	1	110.88	77.11	15.00	0.290	14.710	98.07%	30.00	0.435	29.565	98.55%		
3	1	2	111.41	76.74	15.00	0.280	14.720	98.13%	45.00	0.715	44.285	98.41%		
4	2	1	110.88	77.11	15.00	0.315	14.685	97.90%	60.00	1.030	58.970	98.28%		
5	1	2	111.28	76.83	15.00	0.270	14.730	98.20%	75.00	1.300	73.700	98.27%		
6	2	1	111.16	76.92	15.00	0.335	14.665	97.77%	90.00	1.635	88.365	98.18%		
7	1	2	112.00	76.34	15.00	0.275	14.725	98.17%	105.00	1.910	103.090	98.18%		
8	2	1	110.09	77.66	15.00	0.310	14.690	97.93%	120.00	2.220	117.780	98.15%		
9	1	2	112.06	76.30	15.00	0.265	14.735	98.23%	135.00	2.485	132.515	98.16%		
10	2	1	110.06	77.68	15.00	0.250	14.750	98.33%	150.00	2.735	147.265	98.18%		
												Req. Retention	150	
11	1	2	111.76	76.50	15.00	0.270	14.730	98.20%	165.00	3.005	161.995	98.18%	(1) Total Skimmed:	3.005

12	2	1	110.53	77.35	15.00	0.290	14.710	98.07%	180.00	3.295	176.705	98.17%	(2) Total Retained:	161.995
13	1	2	111.97	76.36	15.00	0.285	14.715	98.10%	195.00	3.580	191.420	98.16%	(3) Total Added:	165
14	2	1	111.06	76.99	15.00	0.345	14.655	97.70%	210.00	3.925	206.075	98.13%	Efficiency = (Line 3 - Line 1) / Line 3	
15	1	2	111.56	76.64	15.00	0.280	14.720	98.13%	225.00	4.205	220.795	98.13%	Efficiency % =	98.18%
16	2	1	110.10	77.66	15.00	0.310	14.690	97.93%	240.00	4.515	235.485	98.12%	Summary and Results based on the testing to "maximum grease capacity"	
17	1	2	111.32	76.81	15.00	0.285	14.715	98.10%	255.00	4.800	250.200	98.12%		
18	2	1	111.18	76.90	15.00	0.285	14.715	98.10%	270.00	5.085	264.915	98.12%		
19	1	2	111.38	76.76	15.00	0.315	14.685	97.90%	285.00	5.400	279.600	98.11%		
20	2	1	110.21	77.58	15.00	0.290	14.710	98.07%	300.00	5.690	294.310	98.10%		
21	1	2	111.00	77.03	15.00	0.280	14.720	98.13%	315.00	5.970	309.030	98.10%		
22	2	1	110.72	77.22	15.00	0.310	14.690	97.93%	330.00	6.280	323.720	98.10%		
23	1	2	110.09	77.66	15.00	0.380	14.620	97.47%	345.00	6.660	338.340	98.07%	Breakdown Increment No.	58
24	2	1	110.53	77.35	15.00	0.510	14.490	96.60%	360.00	7.170	352.830	98.01%		
25	1	2	112.12	76.26	15.00	0.585	14.415	96.10%	375.00	7.755	367.245	97.93%	(1) Total Skimmed:	31.765
26	2	1	111.56	76.64	15.00	0.505	14.495	96.63%	390.00	8.260	381.740	97.88%	(2) Total Retained:	838.235
27	1	2	110.13	77.64	15.00	0.645	14.355	95.70%	405.00	8.905	396.095	97.80%	(3) Total Added:	870
28	2	1	109.93	77.78	15.00	0.585	14.415	96.10%	420.00	9.490	410.510	97.74%	Efficiency = (Line 3 - Line 1) / Line 3	
29	1	2	111.44	76.72	15.00	0.610	14.390	95.93%	435.00	10.100	424.900	97.68%	Efficiency % =	96.35%
30	2	1	111.43	76.73	15.00	0.505	14.495	96.63%	450.00	10.605	439.395	97.64%		
31	1	2	111.97	76.36	15.00	0.430	14.570	97.13%	465.00	11.035	453.965	97.63%		
32	2	1	111.03	77.01	15.00	0.435	14.565	97.10%	480.00	11.470	468.530	97.61%		
33	1	2	111.34	76.79	15.00	0.385	14.615	97.43%	495.00	11.855	483.145	97.61%		
34	2	1	110.53	77.35	15.00	0.335	14.665	97.77%	510.00	12.190	497.810	97.61%		
35	1	2	111.32	76.81	15.00	0.355	14.645	97.63%	525.00	12.545	512.455	97.61%		
36	2	1	111.49	76.69	15.00	0.390	14.610	97.40%	540.00	12.935	527.065	97.60%		
37	1	2	111.84	76.45	15.00	0.550	14.450	96.33%	555.00	13.485	541.515	97.57%		
38	2	1	110.18	77.60	15.00	0.535	14.465	96.43%	570.00	14.020	555.980	97.54%		

39	1	2	111.75	76.51	15.00	0.585	14.415	96.10%	585.00	14.605	570.395	97.50%
40	2	1	112.00	76.34	15.00	0.470	14.530	96.87%	600.00	15.075	584.925	97.49%
41	1	2	111.41	76.74	15.00	0.570	14.430	96.20%	615.00	15.645	599.355	97.46%
42	2	1	110.91	77.09	15.00	0.560	14.440	96.27%	630.00	16.205	613.795	97.43%
43	1	2	111.87	76.43	15.00	0.430	14.570	97.13%	645.00	16.635	628.365	97.42%
44	2	1	110.10	77.66	15.00	0.625	14.375	95.83%	660.00	17.260	642.740	97.38%
45	1	2	112.53	75.98	15.00	0.435	14.565	97.10%	675.00	17.695	657.305	97.38%
46	2	1	109.50	78.08	15.00	0.670	14.330	95.53%	690.00	18.365	671.635	97.34%
47	1	2	111.60	76.61	15.00	0.655	14.345	95.63%	705.00	19.020	685.980	97.30%
48	2	1	111.62	76.60	15.00	0.780	14.220	94.80%	720.00	19.800	700.200	97.25%
49	1	2	111.94	76.38	15.00	0.745	14.255	95.03%	735.00	20.545	714.455	97.20%
50	2	1	110.37	77.47	15.00	0.900	14.100	94.00%	750.00	21.445	728.555	97.14%
51	1	2	111.32	76.81	15.00	0.850	14.150	94.33%	765.00	22.295	742.705	97.09%
52	2	1	110.81	77.16	15.00	1.080	13.920	92.80%	780.00	23.375	756.625	97.00%
53	1	2	111.87	76.43	15.00	1.090	13.910	92.73%	795.00	24.465	770.535	96.92%
54	2	1	111.57	76.63	15.00	1.075	13.925	92.83%	810.00	25.540	784.460	96.85%
55	1	2	111.56	76.64	15.00	1.220	13.780	91.87%	825.00	26.760	798.240	96.76%
56	2	1	110.41	77.44	15.00	1.310	13.690	91.27%	840.00	28.070	811.930	96.66%
57	1	2	111.50	76.68	15.00	1.700	13.300	88.67%	855.00	29.770	825.230	96.52%
58	2	1	110.25	77.55	15.00	1.995	13.005	86.70%	870.00	31.765	838.235	96.35%
59	1	2	111.34	76.79	15.00	3.105	11.895	79.30%	885.00	34.870	850.130	96.06%
60	2	1	111.67	76.56	15.00	3.850	11.150	74.33%	900.00	38.720	861.280	95.70%