Hydromechanical Grease Interceptor Test Report

MIFAB, Inc. - Big - 1150

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

Tested by: Innovative Pluming Creations

Test Engineer: Kyle Augun

Prepared on: May 17th, 2024

Requested by:

Liviu Iftinca

MIFAB

1321 W 119th Street

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Report Summary

Report Number	MI.2024.001.001
Unit Tested	Big 1150
Manufacture	MIFAB, Inc.
Test Procedure	ASME A112.14.3-2018 (Type C)
Date of Test	April 22nd, 2024 – May 9th, 2024

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Abbreviation/Term Definition

ASME - American Society of Mechanical Engineers

N/A - Not applicable

Data References

IPC Laboratory Notebook, Book No. A-1, pg. 01 - ##.

Introduction

Innovative Plumbing Creations LLC (IPC) received and accepted an order to conduct performance testing on MIFAB's Big – 1150. Testing was conducted to standard ASME A112.14.3-2018 (Type C) at 100 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 C). Testing was conducted at the IPC facility in Chicago, Illinois. Lab # IH44.

Test

The test for the Big-1150 to standard ASME A112.14.3-2018 (Type C) at 100 GPM, was conducted with the following technical lab equipment in table 1.

Test Equipment (Table 1)

Equipment	Manufacturer	Serial Number	Model Number	Use
Thermometer	Control Company	23011239	4371.90205-05	Temperature Measurement
Scale	Mettler Toledo	67273366CY	BC	Weight Measurement
Scale	Ohaus	C048611859	V31XW6	Weight Measurement
Zahn Cup	Baoshishan	N/A	Zahn Cup #3	Measuring Viscosity
Hydrometer	Chase	N/A	N/A	Measuring Density
Stopwatch	Control Company	230278669	1042-94460-55	Time Measurement
pH Checker	Hanna Instruments	H06410200	HI98103	pH Measurement

Tested Unit

The Big 1150 was received by Innovative Pluming Creations from MIFAB, Inc. on _____. Upon receiving said unit, the unit was inspected to ensure that it met the dimensions listed by MIFAB, Inc. (Figure 1) to ensure proper testing. The installation included a 2-1/8" internal flow control, a 2" vent that was installed 1 foot before the inlet that extended 11'8" to the mezzanine (Figure 2). Overall set-up is pictured in figure 3. The set-up procedures not listed here adhered strictly to ASME A112.14.3-2018 (Type C) and did not deviate from said standard.

Figure 1 - Big - 1150 Dimensions

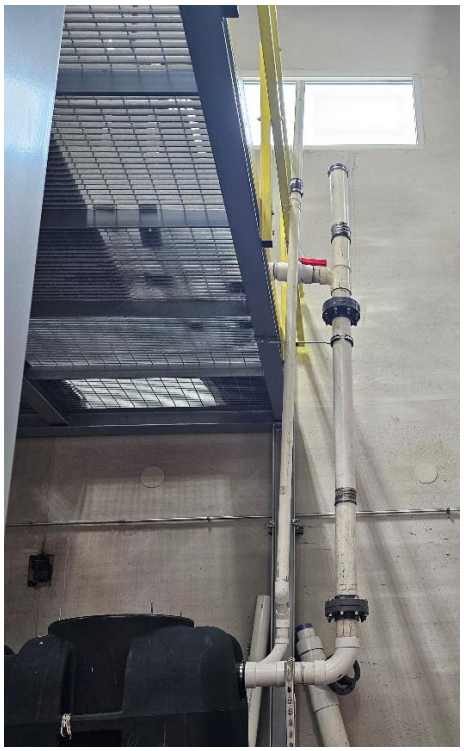

Figure 2 - Big - 1150 Vent Stack

Figure 3 - Big - 1150 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 C) 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.

Table 2 - Lard and Water Measurements

Measurement Taken	**Result**	**Standard**
Water PH Level	7.7	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

Test Sink Calibration

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

Table 3 – Test Sink Calibration Results

Run Number	Compartment 1 Individual	Compartment 2 Individual	Compartment 1 + Compartment 2	Compartment 2 + Compartment 1
1	103 seconds	91 seconds	110.44 seconds	112.78 seconds
2	102 seconds	92 seconds	109.91 seconds	109.97 seconds
3	102 seconds	95 seconds	111.47 seconds	109.66 seconds
Average	102.33 seconds	92.6 seconds	110.6 seconds	110.8 seconds
Average GPM	55.7 GPM	61.5 GPM	103.1 GPM	102.9 GPM

Test Procedure

Testing was completed in accordance with ASME A112.14.3-2018 (Type C) 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.

During testing for unit Big – 1150, two instances of material structural failure occurred. On run 12 a bulkhead fitting began to leak resulting in the fitting being replaced. On run 55 the inlet pipe that extends vertically to the bottom of the interceptor from the body of the inlet began to leak leading to the inlet pipe being replaced and testing continued.

Results

Grease Interceptor Rating

The Big – 1150 grease interceptor testing continued until run 90, when the breakdown

point was achieved due to the incremental run removal efficiency dropping below 75%. The cumulative removal efficiency remained above 90%. The ASME A112.14.3-2018 (Type C) rating criteria are presented in Table 4, the performance results are presented in Appendix 1.

Conclusions

The Big 1150 met the certification requirements of the 100 GPM rating as defined in the ASME A112.14.3-2018 (Type C) with a total grease capacity of 1756.57 Lbs. at the test breakdown point, test increment 89.

Attachments

Appendix 1 - Grease Interceptor Rating Test Report

Appendix 1

F-008: ASME A112.14.3-2018 - HYDROMECHANICAL GREASE INTERCEPTOR TEST REPORT FORM v. 2.0 Authored PAP Approved DO 5/13/2022														
Interceptor Manufacturer:			MIFAB, Inc			**Model Number:**	Big 1150		**GPM Size:**	100		**Report No.:**		
Sink Capacity and Flow				**Test Media Data**		**Flow Control Data**			**Test Lab Information**					
Capacity No. 1	100	gallons		**Spec. Gravity:**	0.875	**Orifice Size:**	2-1/8 Inch		**Test Lab: IPC**			**Test Date:**	4/22/2024	
Capacity No. 2	100	gallons				**Type:**	Internal					Notes:		
Separate No. 1	55.7	GPM		**Viscosity:**	8.4s				**Test Technician:** Kyle Augun			1. Drainage gauged on clear compartment		
Separate No. 2	61.5	GPM												
Simultaneous No. 1	103.1	GPM												
Simultaneous No. 2	102.9	GPM										2. The "amount retained" is a calculation of "Added" minus "Skimmed"		
				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**		
1	1	2	113	101.0	20	0.02	19.99	99.9%	20.00	0.015	19.99	99.95%	3. All skimmed weights taken after dewatering	

2	2	1	110	104.1	20	0.33	19.68	98.4%	40.00	0.340	39.67	99.16%	by separatory funnel and chilling	
3	1	2	111	103.1	20	0.25	19.75	98.8%	60.00	0.590	59.42	99.03%		
4	2	1	109	104.5	20	0.24	19.77	98.8%	80.00	0.825	79.18	98.98%		
5	1	2	110	104.0	20	0.43	19.58	97.9%	100.00	1.250	98.76	98.76%	Summary and Adjusted Results based on the totals at the increment when grease retained equals 2 lb per gpm rated flow	
6	2	1	110	103.7	-	-	-	-	-	-	-	-		
7	1	2	109	104.5	40	0.54	39.46	98.7%	140.00	1.790	138.22	98.73%		
8	2	1	109	104.2	-	-	-	-	-	-	-	-		
9	1	2	110	103.5	40	0.48	39.52	98.8%	180.00	2.270	177.74	98.74%		
10	2	1	110	104.1	-	-	-	-	-	-	-	-	Req. Retention	200 Lbs.
11	1	2	110	104.1	40	0.53	39.48	98.7%	220.00	2.795	217.21	98.73%	(1) Total Skimmed:	3.015 Lbs.
12	2	1	110	104.0	20	0.22	19.78	98.9%	240.00	3.015	236.99	98.75%	(2) Total Retained:	236.9 Lbs.
13	1	2	112	101.6	20	0.20	19.81	99.0%	260.00	3.210	256.80	98.77%	(3) Total Added:	240 Lbs.
14	2	1	113	100.8	-	-	-	-	-	-	-	-	Efficiency = (Line 3 - Line 1) / Line 3	
15	1	2	114	100.2	40	1.13	38.88	97.2%	300.00	4.335	295.67	98.56%	Efficiency % =	98.75 Lbs
16	2	1	110	103.8	20	0.50	19.51	97.5%	320.00	4.830	315.18	98.49%		

17	1	2	114	100.1	20	0.45	19.56	97.8%	340.00	5.275	334.73	98.45%		
18	2	1	109	104.3	20	0.59	19.42	97.1%	360.00	5.860	354.15	98.37%		
19	1	2	112	102.0	20	0.47	19.53	97.7%	380.00	6.330	373.68	98.34%	Summary and Results based on the testing to "maximum grease capacity"	
20	2	1	112	101.4	20	0.53	19.48	97.4%	400.00	6.86	393.15	98.29%		
21	1	2	113	100.7	-	-	-	-	-	-	-	-		
22	2	1	110	103.4	40	1.28	38.72	96.8%	440.00	8.14	431.87	98.15%		
23	1	2	113	100.6	-	-	-	-	-	-	-	-	Breakdown Increment No.	89
24	2	1	112	102.0	40	1.03	38.98	97.4%	480.00	9.16	470.85	98.09%		
25	1	2	112	101.4	-	-	-	-	-	-	-	-	(1) Total Skimmed:	53.55 Lbs.
26	2	1	113	100.7	40	1.01	38.99	97.5%	520.00	10.17	509.84	98.05%	(2) Total Retained:	1726.46 Lbs.
27	1	2	112	102.2	-	-	-	-	-	-	-	-	(3) Total Added:	1780 Lbs.
28	2	1	113	100.5	40	1.06	38.94	97.4%	560.00	11.23	548.78	98.00%	Efficiency = (Line 3 - Line 1) / Line 3	
29	1	2	113	100.5	-	-	-	-	-	-	-	-	Efficiency % =	96.99%
30	2	1	114	100.3	40	1.04	38.96	97.4%	600.00	12.27	587.74	97.96%		
31	1	2	112	101.8	-	-	-	-	-	-	-	-		
32	2	1	112	101.8	40	0.98	39.02	97.6%	640.00	13.25	626.76	97.93%		

33	1	2	113	100.9	-	-	-	-	-	-	-	-				
34	2	1	111	102.7	40	0.93	39.07	97.7%	680.00	14.18	665.83	97.92%				
35	1	2	112	101.8	-	-	-	-	-	-	-	-				
36	2	1	111	102.7	40	0.985	39.02	97.5%	720.00	15.17	704.84	97.89%				
37	1	2	111	102.7	-	-	-	-	-	-	-	-				
38	2	1	113	100.9	40	0.98	39.02	97.6%	760.00	16.15	743.86	97.88%				
39	1	2	113	100.9	-	-	-	-	-	-	-	-				
40	2	1	112	101.8	40	0.925	39.08	97.7%	800.00	17.07	782.94	97.87%				
41	1	2	112	101.8	-	-	-	-	-	-	-	-				
42	2	1	113	100.9	40	1.04	38.96	97.4%	840.00	18.11	821.90	97.84%				
43	1	2	111	102.7	-	-	-	-	-	-	-	-				
44	2	1	110	103.6	40	1.2	38.80	97.0%	880.00	19.31	860.70	97.81%				
45	1	2	113	100.9	-	-	-	-	-	-	-	-				
46	2	1	112	101.8	40	1.035	38.97	97.4%	920.00	20.35	899.66	97.79%				
47	1	2	113	100.9	-	-	-	-	-	-	-	-				
48	2	1	112	101.8	40	1.05	38.95	97.4%	960.00	21.40	938.61	97.77%				
49	1	2	113	100.9	-	-	-	-	-	-	-	-				
50	2	1	113	100.9	40	0.955	39.05	97.6%	1000.00	22.35	977.66	97.77%				
51	1	2	113	100.9	-	-	-	-	-	-	-	-				
52	2	1	111	102.7	40	1.2	38.80	97.0%	1040.00	23.55	1016.46	97.74%				
53	1	2	113	100.9	-	-	-	-	-	-	-	-				

54	2	1	111	102.7	40	0.905	39.10	97.7%	1080.00	24.46	1055.55	97.74%				
55	1	2	113	100.9	20	1.105	18.90	94.5%	1100.00	25.56	1074.45	97.68%				
56	2	1	111	102.7	-	-	-	-	-	-	-	-				
57	1	2	110	103.6	40	0.75	39.25	98.1%	1140.00	26.31	1113.70	97.69%				
58	2	1	109	104.6	-	-	-	-	-	-	-	-				
59	1	2	111	102.7	40	1.405	38.60	96.5%	1180.00	27.72	1152.29	97.65%				
60	2	1	109	104.6	-	-	-	-	-	-	-	-				
61	1	2	112	101.8	40	1.155	38.85	97.1%	1220.00	28.87	1191.14	97.63%				
62	2	1	112	101.8	-	-	-	-	-	-	-	-				
63	1	2	111	102.7	40	1.1	38.90	97.3%	1260.00	29.97	1230.04	97.62%				
64	2	1	111	102.7	-	-	-	-	-	-	-	-				
65	1	2	112	101.8	40	1.645	38.36	95.9%	1300.00	31.62	1268.39	97.57%				
66	2	1	112	101.8	-	-	-	-	-	-	-	-				
67	1	2	112	101.8	40	1.105	38.90	97.2%	1340.00	32.72	1307.29	97.56%				
68	2	1	113	100.9	-	-	-	-	-	-	-	-				
69	1	2	111	102.7	40	1.34	38.66	96.7%	1380.00	34.06	1345.95	97.53%				
70	2	1	113	100.9	-	-	-	-	-	-	-	-				
71	1	2	113	100.9	40	1.285	38.72	96.8%	1420.00	35.35	1384.66	97.51%				
72	2	1	113	100.9	-	-	-	-	-	-	-	-				
73	1	2	113	100.9	40	1.22	38.78	97.0%	1460.00	36.57	1423.44	97.50%				

74	2	1	112	101.8	-	-	-	-	-	-	-	-				
75	1	2	110	103.6	40	2	38.00	95.0%	1500.00	38.57	1461.44	97.43%				
76	2	1	111	102.7	-	-	-	-	-	-	-	-				
77	1	2	113	100.9	40	1.455	38.55	96.4%	1540.00	40.02	1499.99	97.40%				
78	2	1	113	100.9	-	-	-	-	-	-	-	-				
79	1	2	113	100.9	40	1.43	38.57	96.4%	1580.00	41.45	1538.56	97.38%				
80	2	1	111	102.7	-	-	-	-	-	-	-	-				
81	1	2	111	102.7	40	2.77	37.23	93.1%	1620.00	44.22	1575.79	97.27%				
82	2	1	110	103.6	20	0.84	19.16	95.8%	1640.00	45.06	1594.95	97.25%				
83	1	2	113	100.9	20	0.585	19.42	97.1%	1660.00	45.65	1614.36	97.25%				
84	2	1	112	101.8	20	0.945	19.06	95.3%	1680.00	46.59	1633.42	97.23%				
85	1	2	111	102.7	20	0.885	19.12	95.6%	1700.00	47.48	1652.53	97.21%				
86	2	1	112	101.8	20	1.365	18.64	93.2%	1720.00	48.84	1671.17	97.16%				
87	1	2	113	100.9	20	2.11	17.89	89.5%	1740.00	50.95	1689.06	97.07%				
88	2	1	111	102.7	20	1.695	18.31	91.5%	1760.00	52.65	1707.36	97.01%				
89	1	2	113	100.9	20	0.905	19.10	95.5%	1780.00	53.55	1726.46	96.99%				
90	2	1	111	102.7	20	5.72	14.28	71.4%	1800.00	59.27	1740.74	96.71%				
91	1	2	113	100.9	20	4.165	15.84	79.2%	1820.00	63.44	1756.57	96.51%				

Average / Total	113	102.1	1820	63.44	1756.57											