Standard PDI- G 102

Testing and Certification for Grease Interceptors with FOG Sensing and Alarm Devices *2009*

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FORWARD

The Plumbing & Drainage Institute is comprised of a group of member companies, each of which is engaged in the manufacture of products for the plumbing industry. The basic aim of PDI is to contribute its combined talents and resources to the further advancement of plumbing engineering and the plumbing industry. This standard is dedicated to those goals.

For nearly 50 years, grease interceptors conforming to the Plumbing & Drainage Institutes standard PDI-G101 have been used in plumbing waste water systems to permit free flow of drainage from sinks and similar equipment by preventing grease accumulations from clogging connecting piping and sewer lines. Since its publication, Standard PDI-G101 has been widely recognized; it is referenced in most plumbing codes and it is included as the basic testing and rating requirement of Military Specification MIL-T-18361.

A key component of the proper operation of the PDI-G101, Hydro Mechanical Interceptor, is timely cleaning, removal of the separated and stored fats, oils and greases (FOG). Visual inspection has been the most common method relied on to determine the need for cleaning a grease interceptor. With advancements in technology it is now practical to replace visual inspection with electronic sensing.

This standard PDI-G102 allows for the evaluation and verification of this new generation of FOG sensing/ alarm devices in combination with PDI-G101 Hydro Mechanical Grease Interceptors.

The Plumbing and Drainage Institute currently maintains a grease interceptor testing, rating and certification facility and manufacturers interested in having interceptors tested, rated, and certified in conformance with Standard PDI-G101 and G102 may obtain the details by contacting the Plumbing & Drainage Institute.

This Standard is not intended to be limiting in any way, but rather is intended to provide a uniform measure of performance by Grease Interceptor Sensing and Alarm devices. The use of this Standard is voluntary and the issuance or existence of this Standard does not in any respect prevent or restrict any member or non-member of The Plumbing and Drainage Institute from manufacturing or supplying products that do not meet the performance criteria contained in the Standard. The data in this publication are based on information believed to be reliable and are offered in good faith but without guarantee. The Plumbing and Drainage Institute and its member companies assume no responsibility or liability for the use of this Standard. No warranty, express or implied, is made of the information contained in this Standard by The Plumbing and Drainage Institute or by any of its member companies.

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SCOPE

1.0 To provide requirements for FOG sensing and alarm devices used in grease interceptors that meet the requirements of PDI-G101

FOG sensing and alarm devices are meant to notify personnel at the installation site that the grease level within the grease interceptor is approaching its rated capacity.

A grease interceptor certified to PDI-G102 must meet the requirements of PDI-G101and the requirements in this standard

PURPOSE

2.0 The Plumbing and Drainage Institute (PDI) has long recognized and emphasized the need for regular maintenance of interceptors that meet the PDI-G101 standard. Without regular maintenance, it is possible for these interceptors to reach their maximum rated capacity and allow FOG (fats, oils, and greases) to flow through, thus not properly maintaining the efficiency levels as indicated in PDI G101. Grease interceptors that meet the requirements of PDI-G101 are effective up to their rated capacity. PDI-G102 sets requirements for how sensing and alarm devices perform to signal that the interceptor is approaching said rated capacity. This allows the installation site personnel the opportunity to properly maintain/clean the grease interceptor before reaching its said rated capacity.

Sensing and Alarm Devices

3.0 Requirements

Referencing the PDI-G101 grease interceptor test requirements, PDI- G102 requires an audible as well as a visible alarm be activated automatically when the monitored (sensing and alarm equipped) grease interceptor reaches 60% - 100% of either its rated capacity or actual capacity.

3.1 The alarm must be activated automatically with input from the sensor. The alarms shall activate by sensing the grease level in the interceptor at some time after the 6^{th} test increment (drop) and no later than 3 hours after the 10^{th} test increment (drop) in a standard PDI-G101 test or grease retained is between 60% to 100% of the breakdown point (actual capacity) when tested per PDI-G101 section7.7.

3.2 The alarm must be visible by a person standing at an angle of 45 degrees and a length of 15 ft in any direction from the front face of the alarm.

3.3 Once the visible alarm is activated it may only be deactivated automatically if within 3 hours grease from the unit is removed to a level less than that of the alarm activation level. After 3 hours a manual re-set is required.

3.4 The audible alarm must be rated between *60* and *80* decibels, measured with a hand held meter conforming to ANSI 1.4 / IEC 651 Type 2 at a distance of 15 feet from the alarm.

3.5 When initially activated, the audible alarm shall sound at a rate no less frequent than once every 5 seconds or shall be constant.

3.6 The audible alarm shall be permitted to be manually disabled temporarily, but shall automatically resume signaling no more than 2 hours after disabling.

3.7 The sensing device installed in an interceptor, qualifying under section 4.2, shall have no greater than a 1% effect on that interceptor's static water level volume.

3.8 Any battery powering the sensing and alarm device shall have a minimum operating battery life of 1 year.

3.9 All electrical components shall conform to the appropriate section of UL Standards 499,917,1004 and 15

Test Method

4.0 Performance testing of a FOG sensing and alarm device per this Standard shall be executed concurrently during an interceptor's PDI-G101 testing or conducted subsequently, as an additional test, on interceptors previously certified to PDI-G101

4.1 Concurrent Testing with PDI-G101

4.1.1 The sensing and alarm device shall be installed and operational before concurrent performance testing begins.

4.1.2 The test increment (drop) in the PDI-G101 test protocol at which the audible and visual alarms are activated shall be recorded

4.1.3 If the alarms have not activated before the 10^{th} test increment (drop of grease) in the PDI-G101 protocol, the allotted 3 hours (reference Section 3.1) after the 10th drop shall be allowed for the alarms to activate.

4.1.4 The laboratory test report shall state at what percentage of the interceptors rated capacity the alarms were activated and if it meets the requirement in Section 3 of this standard, activating automatically after test increment 6, 7, 8, 9 or 10.

4.2 Non -Concurrent testing

4.2.1 In the case of an interceptor previously certified to PDI-G101, the interceptor shall be pre-loaded to 50% of its minimum rated capacity and test increments shall be conducted in accordance with PDI-G101. This first test increment is now the 6^{th}.

4.2.2 The test increments shall continue as prescribed in Section 4.1

INSTALLATION

5.0 Installation Requirements

5.1 Grease interceptors shipped with a sensing and alarm device shall have the sensor located in the correct operational position. Complete operating instruction shall also be included.

5.2 Aftermarket sensing and alarm devices shall include complete installation/mounting instructions that use the static water level as the reference point for correct operational positioning of the sensing device. Complete operating instruction shall also be included.

Test Certificate of Approval

6.0 A certificate shall be issued from the authorized testing laboratory to The Plumbing and Drainage Institute (PDI) upon the successful completion of the testing requirements of this standard. The certificate shall specify the Model number of the Sensing and alarm device and the interceptor Model that was tested or a single Model number for the complete Interceptor and sensing and alarm assembly. The laboratory shall complete PDI G102 Grease Interceptor Sensing & Alarm Device Test Form #1

6.0.1 Test Form # 1

STANDARD PDI-G102 GREASE INTERCEPTOR SENSING & ALARM DEVICE TEST FORM #1

Interceptor ID:		**Alarm Device ID:**				**Report No.:**	
Capacity No. 1	**Test Vehicle:**		********** Flow Control Data **********			**Test Date:**	
Capacity No. 2	**Spec. Gravity:**		**Observers:**		Notes:		
Separate No. 1	**Viscosity:**				Drainage gauged on clear compartment		
Separate No. 2	**Test Temperature:**	**150-160 º F**					
Simultaneous 1	**Water :**		**Orifice Size:**				
Simultaneous 2	**Test Temperature:**	**150-160 º F**	**Air Intake:**	**1.25" Max: Height 26.0"**			

No.	**Test**	**Clear**	**Min/Sec**	**Rate GPM**	**LB. Added**	**Alarm Off**	**Alarm On**	******RESULTS******			
								Section:	Pass	Fail	NA
								Section 3.1			
								Section 3.2			
								Section 3.3			
								Section 3.4			
								Section 3.5			
								Section 3.6			
								Section 3.7			
								Section 3.8			
								Section 3.9			

6.1 A PDI Seal with PDI-G102 can only be affixed to an interceptor with sensing and alarm assembly where that specific combination of interceptor and sensing and alarm device has been certified to this standard.