



Pressure Testing  
Girard DOT407 Pressure Relief Vents

**GIRARD EQUIPMENT, INC.**

Specialty Valve Manufacturers for Tank Trailers since 1952

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## **Girard Equipment, Inc. General Information**

The following information is for information only. It is not designed to replace technical bulletins from **TTMA, NTTC, DOT**, association or other regulatory commission.

It is intended for use as a **guide** to vent testing in HM-183. It does not replace the requirements of the Federal Register, Section 49 CFR Part 107 et al, entitled "Requirements for Cargo Tanks". The suggestions contained here are our interpretation of the requirements and, as such, are open to other interpretations. Girard Equipment, Inc. will take no responsibility for deletions or misinterpretations.

The **NTTC** (National Tank Truck Carriers) offers an exceptional guideline to the care and maintenance of tank trailers. The address and phone number is as follows:

### **National Tank Truck Carriers, Inc.**

2200 Mill Road

Alexandria, VA 22314-4677

(703) 838-1960

Fax (703) 684-5753

[www.tanktruck.org](http://www.tanktruck.org)

Before testing please check the specification data plate to ensure which code applies to that tank trailer.

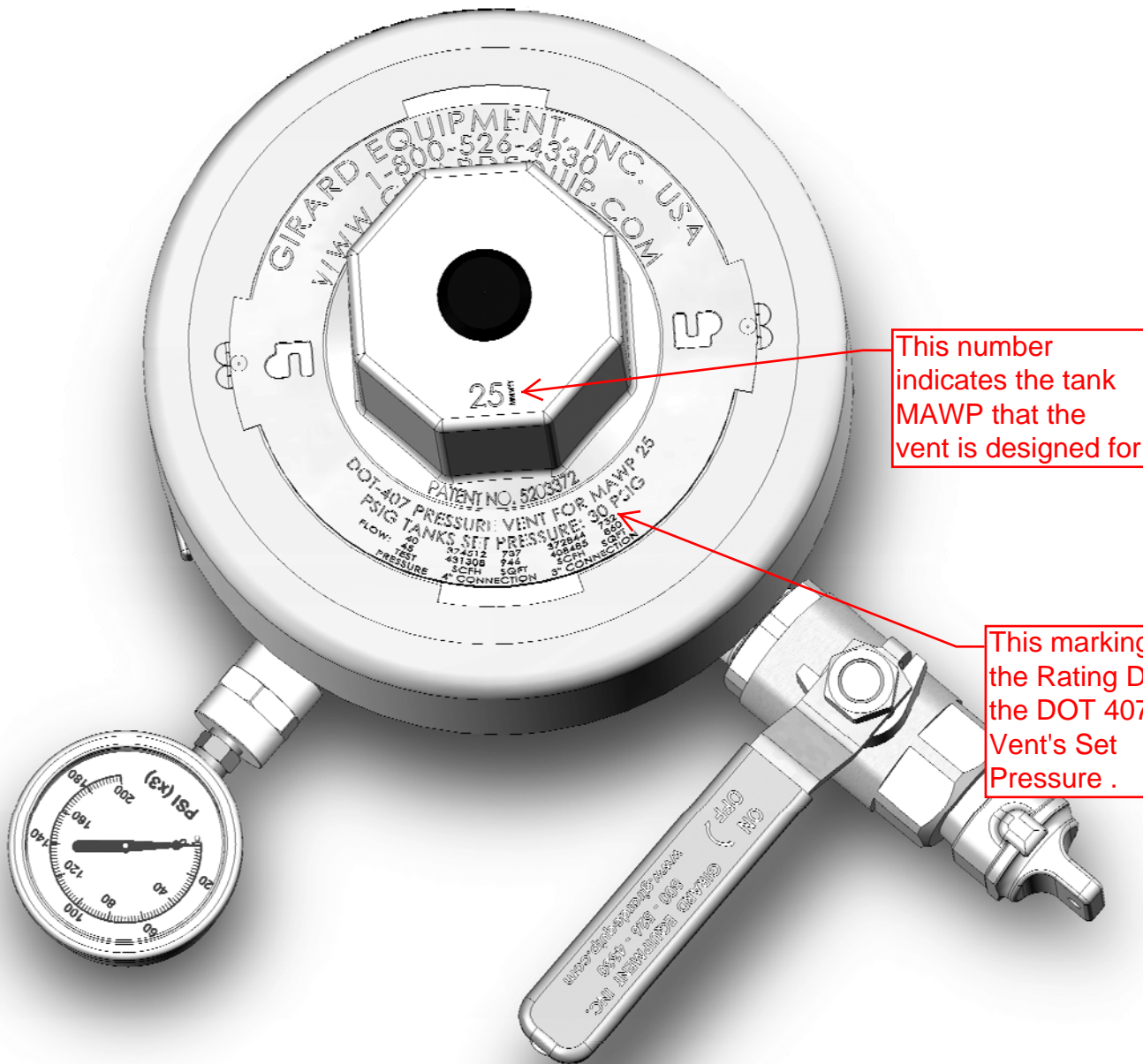
Record the Tank and Vent MAWP and Set Pressure before performing a bench test .

We strongly recommend that you thoroughly clean the valve and replace the O-ring seat prior to testing . This may save you time .

See illustration #1 for MAWP and settings information before attempting a bench test .

Always use Safe shop practice and wear eye protection when performing bench testing of DOT 407 Vents .

Illustration #1



This number indicates the tank MAWP that the vent is designed for

This marking on the Rating Disc is the DOT 407 Vent's Set Pressure .

## DOT407 VENT BENCH TESTING

As prescribed by 180.407(d)(3) of the External Visual Inspection



- Remove the vent from the tank.
- Make sure the vent is free from any foreign matter.
- Place Vent on the tester and proceed to testing procedures:

### Testing Procedures

1. Close the blow down valve.
2. Slowly open air input valve until needle on the pressure gauge at the rate of the second hand on your watch (approx. 1 pound per second).
3. Place hand around vent seat area to feel any escaping air. Listen for any air escaping and watch air gauge to see when the upward movement stops. When the gauge stops record the pressure, this is the **SET PRESSURE**.
4. Close the inlet air valve and watch gauge. The gauge needle will back down slowly and will stop this will be **RESET PRESSURE**.

M.A.W.P	SET PRESSURE (MARKED ON VENT)	SET PRESSURE (VENT MUST OPEN BETWEEN 120% and 132% of MAWP) <sup>1</sup>	RESET PRESSURE (VENT MUST RESET AT 90% OF START TO DISCHARGE) <sup>2</sup>
25	30	30 – 33	≥ 27 <sup>3</sup>
30	36	36 - 39.6	≥ 32.4 <sup>4</sup>
35	42	42 – 46.2	≥ 37.8 <sup>5</sup>
40	48	48 – 52.8	≥ 43.2 <sup>6</sup>

<sup>1</sup> Per 178.345-10

<sup>2</sup> Per 180.407(d)(3)

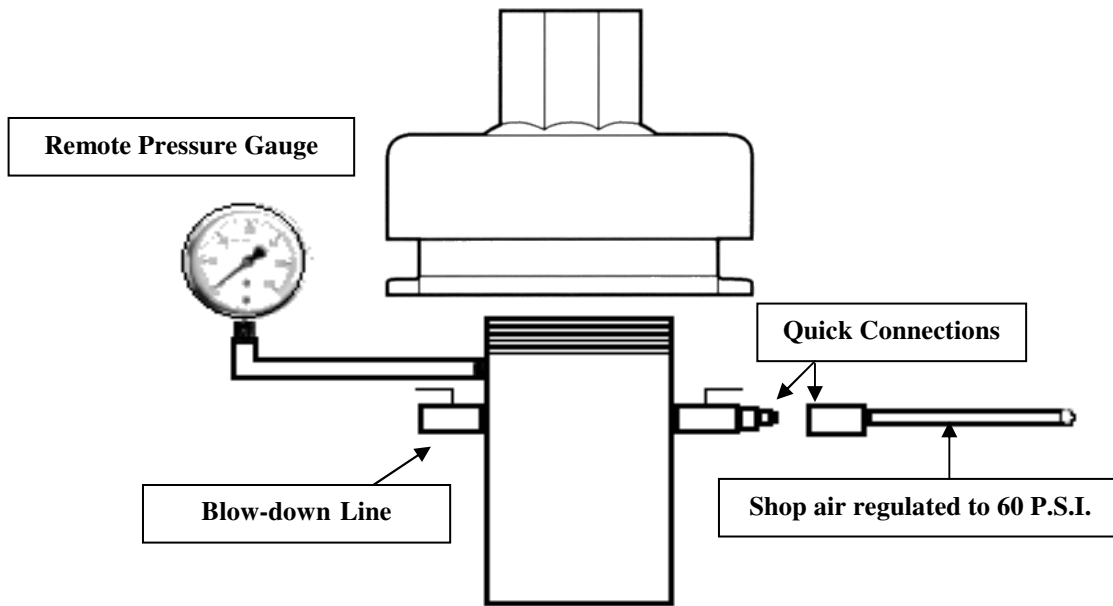
<sup>3</sup> Cannot be less than 27

<sup>4</sup> Cannot be less than 32.4

<sup>5</sup> Cannot be less than 37.8

<sup>6</sup> Cannot be less than 43.2

- M.A.W.P. –** DOT407 Designation for tank working pressure stamped on the data plate and stamped on vents.
- Set Pressure (Start to Discharge)** The pressure in which the vent will open to relieve pressure.  
(DOT407 = 120%-132% of **M.A.W.P**)
- Reset Pressure (Reseat to Leak Tight Condition)** The pressure in which the vent will close.  
(DOT407=90% of **Set Pressure**)



**Section 180 (on Tank Test) for MC 307 DOT407 Venting**

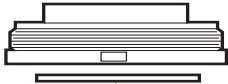
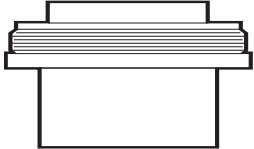

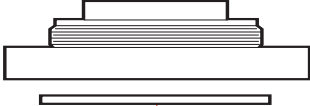
All venting must not leak at 80% of design pressure (MC307 Tanks) or 80% of M.A.W.P. (DOT407 Tanks) when tank is pressurized with vent in place.

Tank Design Pressure (M.A.W.P.)	Not to leak below (p.s.i.g.) (5 Minutes)
25.....	20
30 .....	24
35.....	28
40 .....	32

**Function**

Girard Equipment, Inc.'s Low Profile DOT 407 Vents combine a low profile, light weight design with increased flow rates to meet the most demanding needs of virtually any DOT 407, DOT 412, MC 307 and MC 312 tank. See the table below for specific flow rates.

The stainless steel valve seat seals on a Teflon® encapsulated silicone "O" Ring. This "O" Ring provides complete chemical resistance and a bubbletight seal to meet the latest DOT requirements. The unit also meets the surge requirements of 178.345-10 (b) (3).

STYLES	DESCRIPTION
<p>402011L</p>  <p>Gasket 4TR</p>	<p><b>DOT407LT</b> Vent with a 4" N.P.S. female pipe thread. Attaches to a 4" pipe nipple and seals against a solid Teflon® ring gasket.</p>
<p>402012L</p> 	<p><b>DOT 407LS</b> Stub end vent. Lower housing terminates in a straight stub end. Designed to be welded to the tank shell.</p>
<p>402014L</p>  <p>Gasket 4CFE</p>	<p><b>DOT407LF</b> Vent to mount on a 4" TTMA flange. Supplied with a 3/8"-16 removable thread inserts and a Teflon® envelope flange gasket.</p>
<p>402015L</p>  <p>Gasket 402016</p>	<p><b>DOT407LAF</b> Vent to mount on a 4" ANSI flange. Supplied with a Teflon® envelope flange gasket and a 1/4" NPT "Tell-Tale" indicator tap.</p>

**PERFORMANCE SPECIFICATIONS**

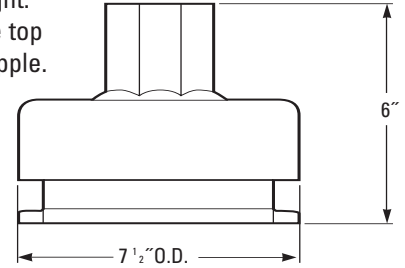
MAWP	Test Pressure	Flow (SCFH)	Exposed Surface
25	40	374,512	737
25	45	431,308	946
30	45	431,308	946
35	52.5	484,718	1156

**MATERIALS OF CONSTRUCTION**

All metallic parts	Stainless Steel
"O" Ring	Teflon® encapsulated silicone
Gasket	Teflon®

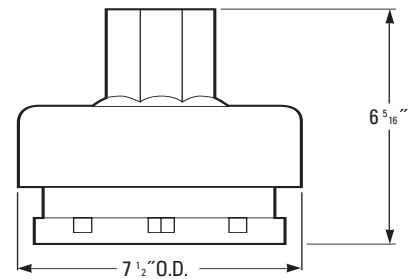
**DOT 407 LT:**

Weight: 10 lbs.  
Installed Height: 5 1/2" over the top of the pipe nipple.



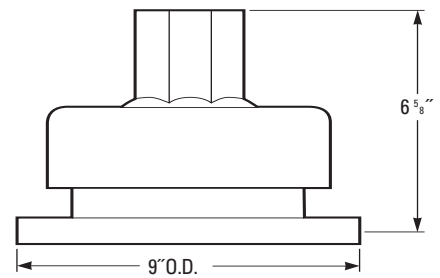
**DOT 407 LF:**

Weight: 13 lbs.



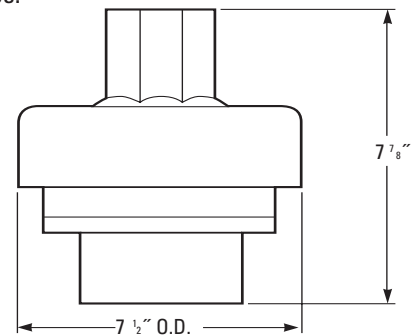
**DOT407 LAF:**

Weight: 19 lbs.

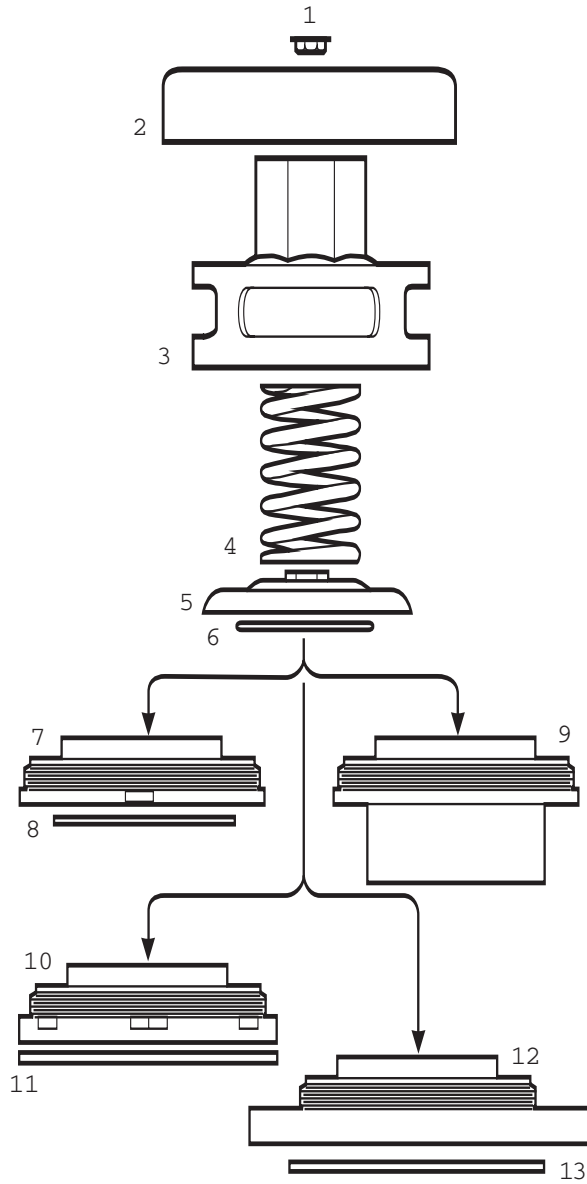


**DOT407 LS:**

Weight: 14 lbs.



ITEMS	PART NUMBER	DESCRIPTION
1	402019	Plug
2	402003L	Rain Cover
3	402004L	Low Profile Upper Housing Specify MAWP
4	402005 402005HP	Spring (for MAWP < 45 only) Spring (for MAWP > 45 only)
5	402006LN	Low Profile Poppet with Nut
6	402007	Teflon® Silicone "O" Ring
7	402011L	4" LT Model Lower Housing
8	4TR	Solid Teflon® Gasket
9	402012L	LS Model Lower Housing
10	402014L	4" LF Model Lower Housing
11	4CFE	Teflon® Encapsulated Flange Gasket (TTMA)
12	402015L	4" LAF Model Lower Housing
13	402016	Teflon® Envelope Flange Gasket (ANSI)



**Repair And Disassembly:** The disassembly feature was designed to allow users to easily disassemble the vent in one minute.



1). Remove the Plug.



2). Insert the T-Wrench into the nut of the Poppet.

3). Tighten the Lifting Nut.



4). Remove the Upper Housing.

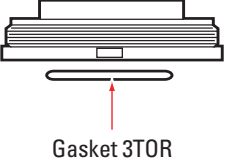
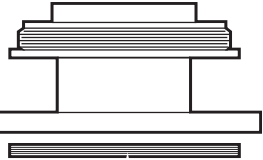
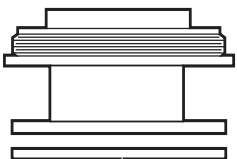


5). Remove and replace the "O" Ring

**FUNCTION**

Girard Equipment, Inc.'s Three Inch DOT 407 Vents allows you to upgrade virtually any MC 307 or MC 312 tank to DOT 407 or DOT 412 venting. All the benefits of the 400 Series Vents without expensive hot-work. Flow rates are slightly less than our standard DOT 407 Vents, but are more than sufficient for most tanks. *See the table below for specific flow rates.*

The stainless steel valve seat seals on a Teflon® encapsulated silicone "O" Ring. This "O" Ring provides complete chemical resistance and a bubble-tight seal to meet the latest DOT requirements. The unit also meets the surge requirements of 178.345-10 (b) (3).

STYLES	DESCRIPTION
<p>402018</p>  <p>Gasket 3TOR</p>	<p><b>DOT3X407T</b> Vent with a 3" N.P.S. female pipe thread. Attaches to a 3" pipe nipple and seals against a solid Teflon® "O" Ring Gasket.</p>
<p>402020</p>  <p>Gasket 3-CFE</p>	<p><b>DOT3X407F</b> Vent to mount on a 3" TTMA flange. Supplied with a Teflon® envelope flange gasket.</p>
<p>402021</p>  <p>Gasket 402022</p>	<p><b>DOT3X407AF</b> Vent to mount on a 3" ANSI flange. Supplied with a Teflon® envelope flange gasket and a 1/4" NPT "Tell-Tale" indicator tap.</p>

**PERFORMANCE SPECIFICATIONS**

MAWP	Test Pressure	Flow (SCFH)	Exposed Surface
25	40	372,844	732
25	45	408,485	860
30	45	408,485	860
35	52.5	460,443	1061

**MATERIALS OF CONSTRUCTION**

All metallic parts	Stainless Steel
"O" Ring	Teflon® encapsulated silicone
Gasket	Teflon®



**REPLACEMENT PARTS**

The 3" T, F and AF Models are similar in every detail with the only exception being the connection on the lower housing.

When ordering replacement parts, please refer to the exploded view of the vent and order by: quantity, part number, and description (i.e., 6 each of part number 402006L Low Profile Poppet ).

**ORDERING INFORMATION**

All Vents are designated by the connection style and the Maximum Allowable Working Pressure (MAWP) of the tank that it will be attached to. Order Vents by style-pressure code.

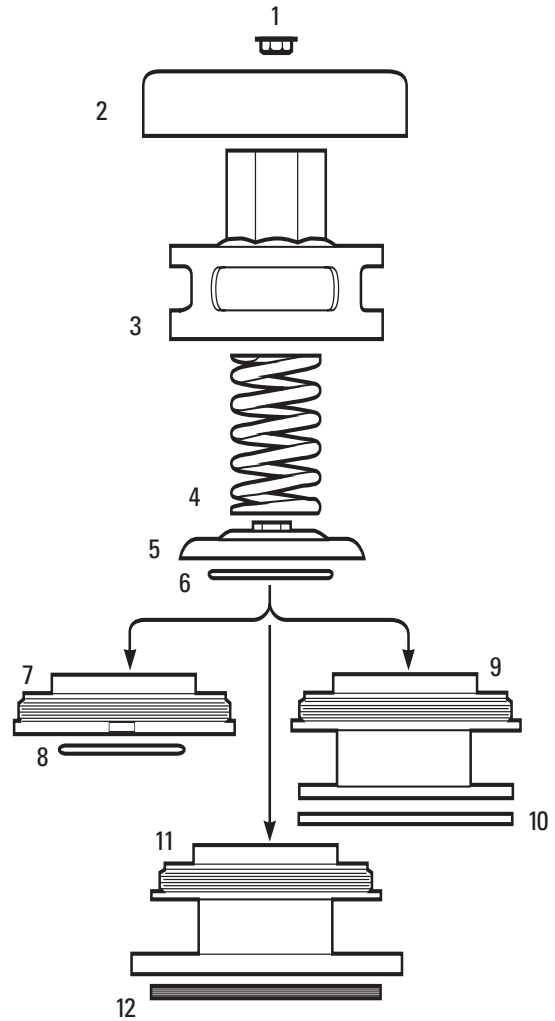
PRESSURE CODE:	MAWP	CODE
	25	(none)
	30	1
	35	2
	Other (Specify)	3

**MAINTENANCE INFORMATION**

Repair manuals, as well as special tools, are available upon request.

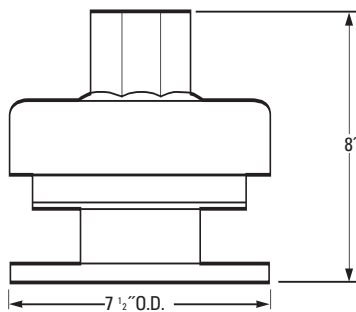


ITEMS	PART NUMBER	DESCRIPTION
1	402019	Plug
2	402003L	Rain Cover
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4	402005 402005HP	Spring (for MAWP < 45 only) Spring (for MAWP > 45 only)
5	402006LN	Low Profile Poppet With Nut
6	402007	Teflon® Silicone "O" Ring
7	402018	3" T Model Lower Housing
8	3TOR	Solid Teflon® "O" Ring Gasket
9	402020	3" F Model Lower Housing (TTMA)
10	3CFE	Teflon® Envelope Flange Gasket (TTMA)
11	402021	3" AF Model Lower Housing
12	402022	Teflon® Envelope Flange Gasket (ANSI)



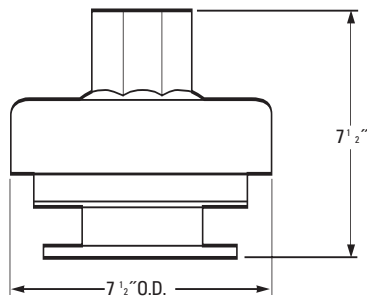
### DOT 3X407AF

(3" Ansi)  
Weight:  
19 lbs.



### DOT 3X407F

(3" TTMA Flange)  
Weight:  
15 lbs.



### DOT 3X407T

Weight: 11 lbs.  
Installed  
Height:  
5 1/4" over the  
top of the  
pipe nipple

