



HD-01 Flame Detector Cooling Jacket System Guide

Publication #372001-26 - Rev. A



INTRODUCTION

HD flame detector is a state-of-the-art flame detector. It comprises multi-sensor technology, an on-board microprocessor, Bluetooth connectivity, and optional fiber-optics attachment. The HD is an integrated equipment housing all components and subsystems into a single housing, eliminating the need for a remote amplifier yet has a small form factor. The HD flame detector is suitable for ambient temperature from -22 F to 149 F.

If the ambient temperature is expected to exceed the high limit of the detector, it is advisable to use a cooling device with the HD flame detector to ensure safe operation of the detector. So, using the cooling jacket system, which consists of a jacket and a vortex tube, is the solution to enable the flame detector to work in hot ambient conditions.

The Vortex Tube offers a reliable, maintenance-free solution to a variety of industrial spot cooling problems. Using an ordinary supply of compressed air as a power source, vortex tubes create two streams of air, one hot and one cold, with no moving parts. They are constructed of wear-resistant stainless steel, which is ideal for corrosive and hygienic environments.

In this guide, a detailed description of the installation and operation of the cooling jacket system, see Figure 1 and Table 1, is presented.

REVISIONS

REVISIONS	DATE	COMMENTS
A	12/23/2021	Original Release

TABLE OF CONTENTS



TABLE OF CONTENTS

Section 1 Introduction	1
Section 2 Installation	5
Section 3 Operation	10

TABLE OF FIGURES

Figure 1	The cooling jacket system	4
Figure 2	HD is inside the jacket	6
Figure 3	LED can be seen through window	6
Figure 4	Cable connector is accessible	7
Figure 5	Closing on the jacket	7
Figure 6	Vortex tube	8
Figure 7	Brass hose inlet and outlet fittings, Nylon tubing (5/16"), and hose clamp	8
Figure 8	The assembled cooling jacket system	9

LIST OF TABLES

Table 1	Part list for the cooling jacket system.	5
----------------	--	---



Figure 1. The cooling jacket system.

Table 1. Part list for the cooling jacket system.

PN	Part Description	QTY
9194860	Cooling jacket	1
9261540	Vortex tube	1
9261563	Outlet hose fitting (1/4" barb X 1/4" MNPT)	1
9261564	Inlet hose fitting (1/4" barb X 1/8" FNPT)	1
9079601	Inlet and outlet hoses, Nylon tube (feet)	5
104055	Cable tie	1
8622601	Hose clamp	1

INSTALLATION

To use the cooling jacket system kit (PN 9194861) with the HD flame detector, insert the detector inside the jacket (PN 9194860) as shown in Figure 2. Make sure that status LEDs are visible through the jacket window, as shown in Figure 3. Also, the cable connection should be accessible, as shown in Figure 4. Once the detector is in the correct orientation inside the jacket, the latter can be closed, as shown in Figure 5.

To connect the vortex tube (PN 9261540), shown in Figure 6, to the jacket (PN 9194860), first install both the inlet hose fitting (PN 9261564) and cold outlet hose fitting (PN 9261563) on the vortex tube (PN 9261540). The inlet and outlet hose fittings, as well as the Nylon tube (PN 9079601) and hose clamp (PN 8622601) are shown in Figure 7. Then connect about 1 foot of the Nylon tube (PN 9079601) to the outlet hose fitting (PN 9261563) and connect a long piece of Nylon tube (PN 9079601) to inlet hose fitting (PN 9261564). Use the hose clamp (PN 8622601) to secure the tube on the inlet connection. Then Insert the free end of the short Nylon tube (PN 9079601) into the jacket (PN 9194860) and secure the vortex tube (PN 9261540) to the jacket (PN 9194860) using the cable tie (PN 104055), see Figure 8.



Figure 2. HD is inside the jacket.



Figure 3. LED can be seen through window.



Figure 4. Cable connector is accessible.



Figure 5. Closing on the jacket.



Figure 6. Vortex tube.



**Figure 7. Brass hose inlet and outlet fittings,
Nylon tubing (5/16\"**

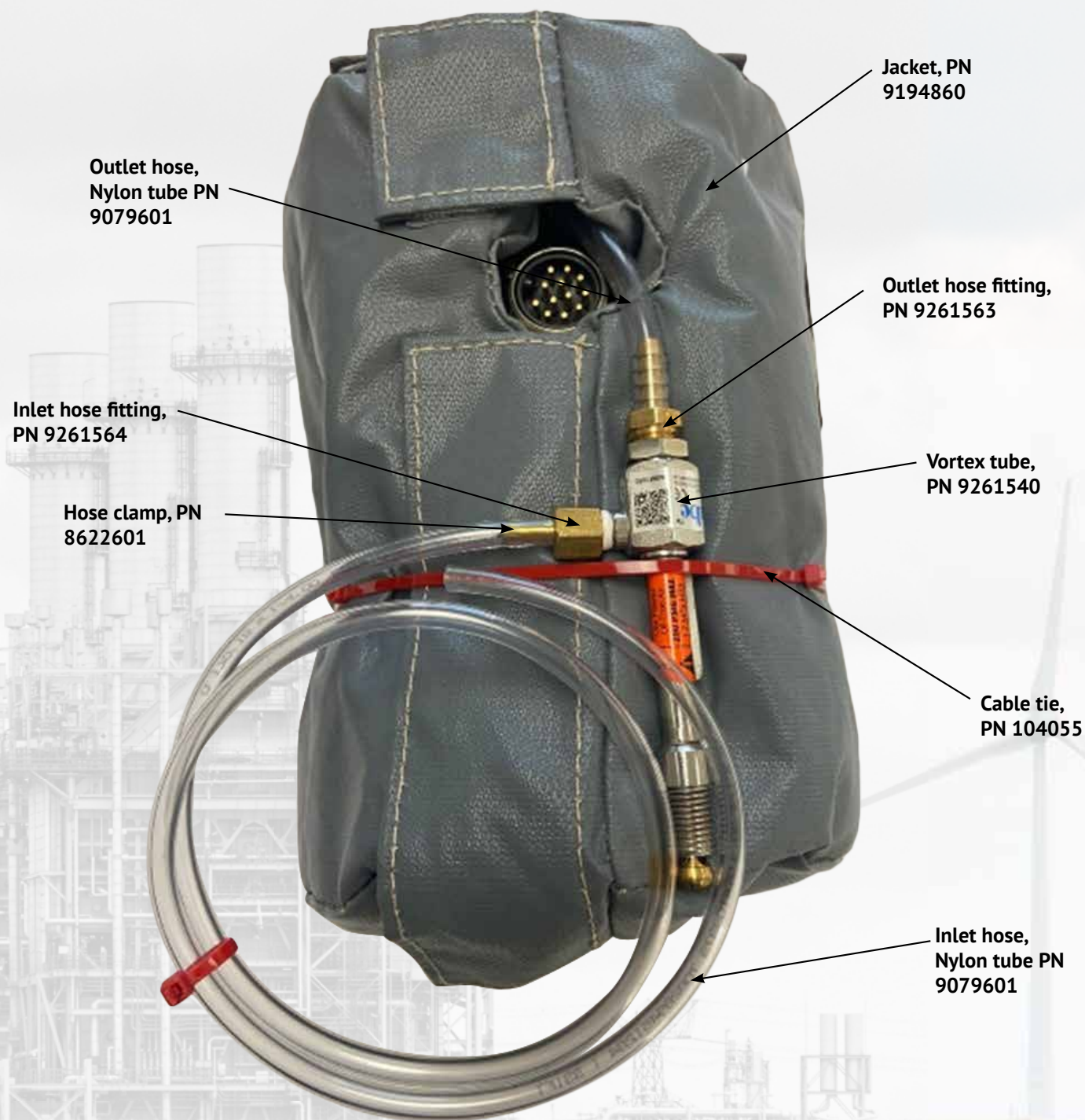


Figure 8. The assembled cooling jacket system.

OPERATION

To start cooling the HD flame detector, connect the inlet hose (Nylon tube PN 9079601) to the shop air (60 to 100 psig, Max pressure 250 psig). An adapter with 1/4" barb connection and hose clamp will be needed to connect the hose to the air supply. Once the air is flowing through the vortex tube (PN 9261540), cold air starts to flow within the jacket (PN 9194860) and cools the flame detector. Flow rate should be adjusted/optimized to what's required to prevent HD detector from going into temperature alarm. HD detector internal temperature can be monitored using Forney mobile App.

