



Engineering Bulletin

Trane Rental Services

Standard and High Temperature Flexible Duct



⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Revision History

Updated standard flex duct friction loss values.



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General Information

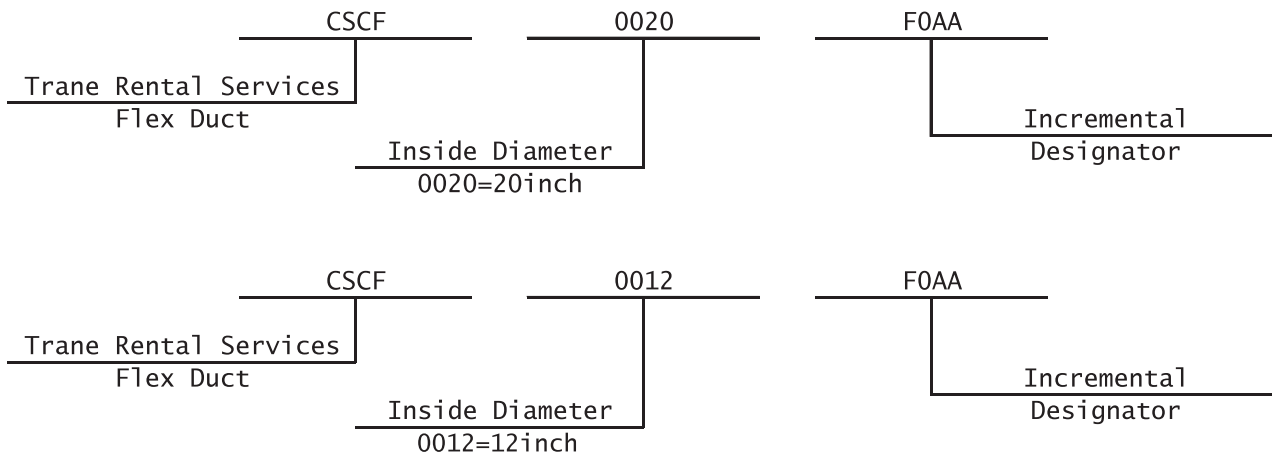
This document covers the specification sheets for both standard temperature and high temperature flex duct available to rent from Trane Rental Services HVAC units.

Flex duct is offered to support Trane Rental Services HVAC units. This engineering bulletin is provided to ensure the safety of the equipment and its surroundings as well as supply all of the technical data that may be needed.

Important:

- Positive and negative duct pressure recommendations for the duct must not exceed the maximum values.
- Utilize 12 in. flex duct on standard cooling equipment.
- 20 in. standard temperature duct can be used to transition from 20 in. high temperature duct in heating applications.
- 24 in. high temperature flex duct must be used with Trane Indirect Fired Heaters.

Contact Trane Rental Services for availability of all equipment prior to obtaining a Purchase Order.



Standard Temperature Flexible Duct

Figure 1. Duct attached to unit

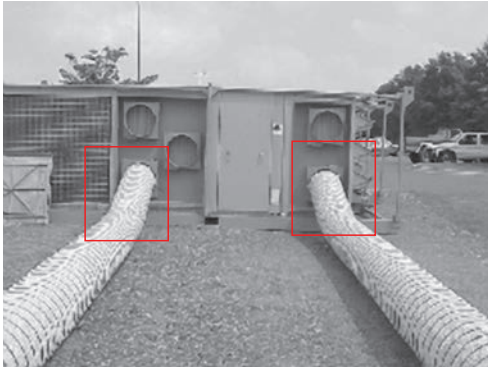
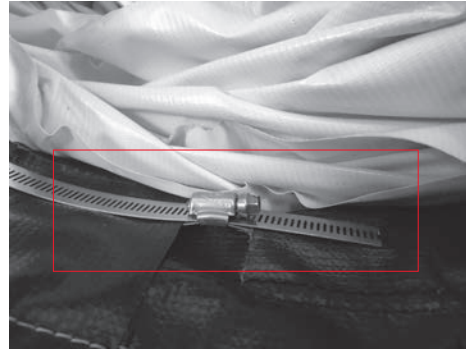


Figure 3. Band clamp connection



Use a screwdriver or drill driver to secure the connection.

Table 1. Technical data - standard temperature duct

Technical Data	20 in. standard temperature duct	12 in. standard temperature duct
Inside Diameter	20 in	12 in
Centerline Bend Radius	11 in	11.5 in
Weight of duct	1.3 lb/ft.	1.4 lb/ft
Temperature Range	-20°F to 160°F	-20°F to 160°F
Max Working Pressure	3 psi	13.88 in SP
Weight of Duct Box	320 lbs	300 lbs
Color	Black and yellow	Black and white

Note: Composition: Single-ply, PVC/fabric bonded for integral strength, supported by a wide pitch spring steel wire helix allowing the duct to retract into a fraction of the fully extended length. The helix is protected by an external contrasting wearstrip

Figure 4. Flex duct box



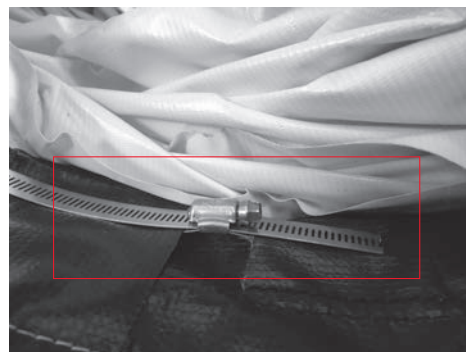
The flex duct is in a lightweight, plastic box. The box is approximately four feet long and four feet wide. The box contains (4) 25 ft. sections of 12 in. or 20 in. flex duct and two connector sleeves. The connector sleeve (shown below), is used for any run longer than 25 ft. In order for the duct to fit securely on the sleeve, slide the duct over the lip of the connector.

Figure 2. Collapsed duct



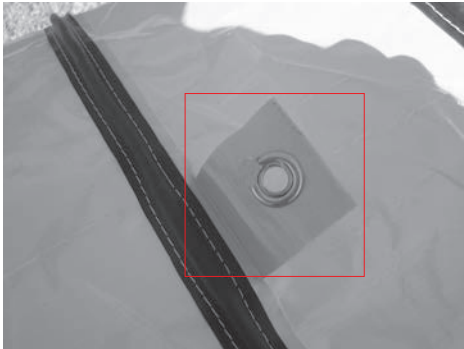
- Convenient storage in a fraction of its fully extended length
- Easily transported in its retracted state
- Low friction loss
- Recognized flame retardant to UL 94V-O with Underwriters Laboratories or NFPA-701
- External wearstrip resists abrasion

Figure 5. Connector sleeve



In some cases, there is a separation issue when joining two sections of the flex duct. The lip on the connector sleeve is not always adequate for securing the duct. Sheet metal screws may be used to secure duct to units and/or connectors.

Figure 6. Grommet tab



Grommet tabs are available on the flex duct, allowing the duct to be suspended.

Figure 7. Duct pressure drop graph (12-in)

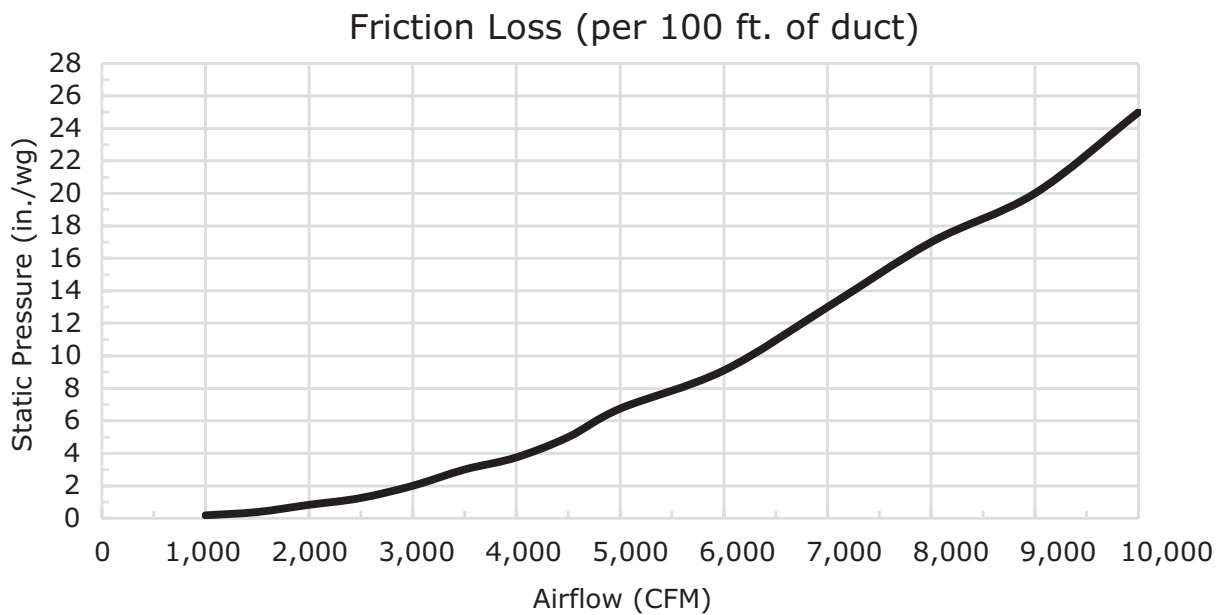


Table 2. Duct pressure drop (12-in)

Airflow (CFM)	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000	7,000	8,000	9,000	10,000	15,000	20,000
12" Static Pressure Drop (per 100 ft.)	0.18	0.38	0.83	1.25	2	3	3.75	5	6.75	9.1	13	17	20	25	n/a	n/a



Standard Temperature Flexible Duct

Figure 8. Duct pressure drop graph (20-in)

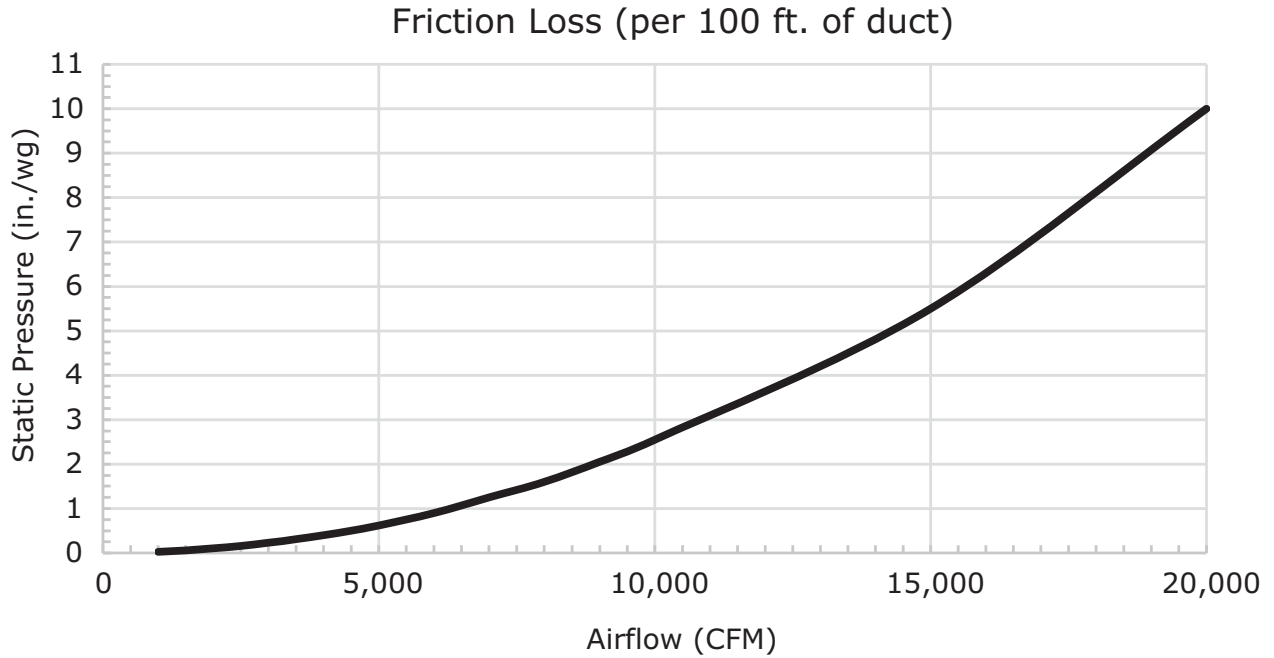


Table 3. Duct pressure drop graph (20-in)

Airflow (CFM)	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000	7,000	8,000	9,000	10,000	15,000	20,000
20" Static Pressure Drop (per 100 ft.)	0.026	0.06	0.11	0.16	0.23	0.31	0.4	0.5	0.62	0.9	1.25	1.6	2.05	2.55	5.5	10

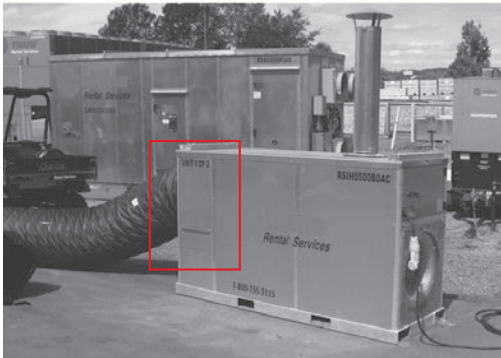
High Temperature Flexible Duct

Table 4. Technical data - standard temperature duct

Technical Data	24 in. high temperature duct for Indirect Fired Heaters	20 in. high temperature duct for Electric Heaters
Weight of duct	~12-13 oz/yd ²	1.2 lb/ft
Temperature Range	40°F to 350°F	-20°F to 325°F
Mullen Burst	350 psi	-
Working Pressure (psi)	-	7 psi
Cold Crack	-40°F	-
Compression Ratio	5:1	10:1
Wearstrip	HD PVC/ABS (high durability)	HD PVC/ABS (high durability)
Wire Type	Spring Steel	Spring Steel

Note: Composition: Single-ply acrylic coated polyester fabric hose reinforced with a spring steel wire helix & external PVC wearstrip.

Figure 9. Duct attached to heater unit



- Tough polyester base textile for increased durability and strength
- Sewn for high temp resistance

Figure 10. Collapsed 20 in. duct



- Heavy duty, spring steel wire resists collapse of duct and provides high flexibility
- Unique extrusion coating method resists delamination
- Easily compressible into self-storage bag for convenient handling and easy transportation

Figure 11. Flexible duct connection



- More flexible than traditional coated fabrics
- Heavy duty wearstrip for increased durability

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.