ENGINEERING
TOMORROW

Operators' Manual

Danfoss ET9100
Hydraulic Hose Saw

Table of Contents

⚠ CAUTION

Use extreme caution. Please read all instructions before starting machine. Follow all safety guidelines, do not remove safety guards. Unplug machine prior to servicing.

GLOVES

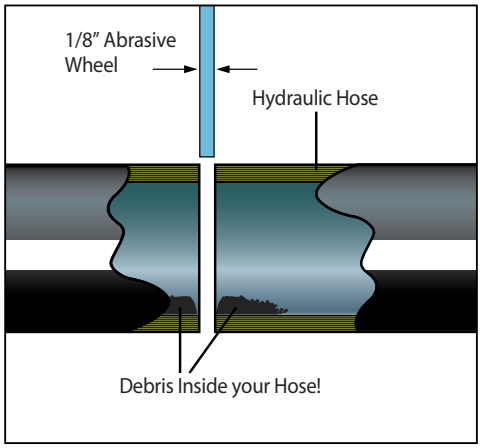
Proper hand protection should be worn at all times when working with sharp cutting tools.

SAFETY EYE WEAR

Proper eye protection should be worn at all times when working with high RPM cutting blades.

Introduction

Danfoss hydraulic hose cutting system is break-through technology using a toothed blade, cutting with the backs of each tooth, so the blade does not take a kerf. The saw bends the hose into the blade spreading the cut edges to avoid burning and smoking.

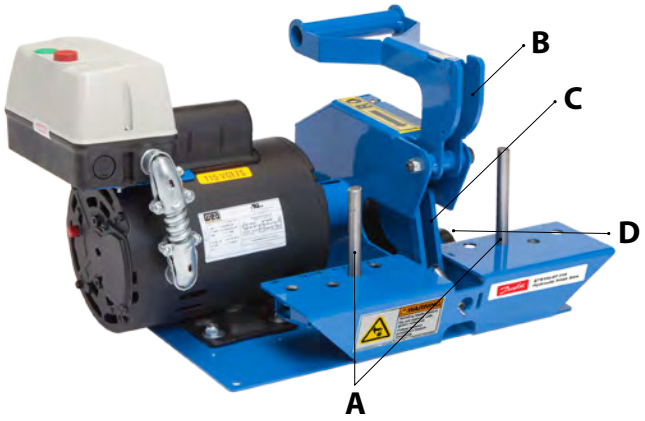


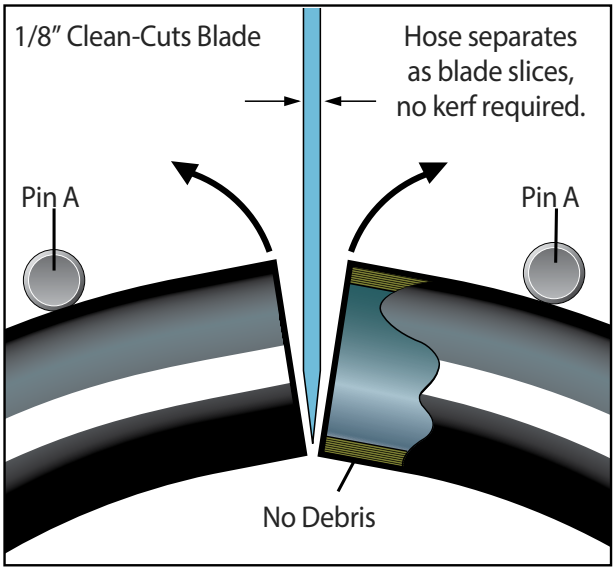
Old Method

The normal sawing method of lowering an abrasive saw blade onto the hose causes the hose to compress and deform. As the blade cuts the compressed hose expands against the blade causing friction, heating and burning and much of the debris from the kerf of the blade is deposited into your hose.

New Improved Danfoss Method

With the Danfoss hydraulic hose saws the hose is positioned across two pins (A) and moved into the blade (C) by a feed foot (B) using a pulldown handle for better leverage on heavy hose. The feed motion causes the hose to stretch at the point of contact with the blade, allowing it to separate as it is cut (see image below). This separation allows the hose to pass clear of the saw blade with LESS friction, LESS heating and LESS DEBRIS! A vacuum hose (not shown) is attached to a vacuum port (D) to remove any tiny amount of debris or smoke during cutting. Improved safety using 110V on/off switch with a magnetic contactor. When power is lost, the saw will not turn back on independently.





Operation

This saw is a rugged and dependable tool when used and maintained properly. Many of these saws have been in daily service for years and are still in good working order. As with any tool, good operating procedure is important for tool life and operator safety.

Operating Procedure

1. Set pin placement for the size hose you are cutting using the following guide:

Hose Size	Pin Location*
-4 (1/4")	1
-6 (3/8") -8 (1/2")	2
-12 (3/4") -16 (1")	3
-20 (1 1/4")	4

*This guide only "suggests" the best possible pin placement, as there are variables such as new or used hose, brands of hose, braided or spiral wire reinforcement (4 or 6 wire multi-spiral). As an operator you will learn the best pin placement for the hose you are cutting. Remember that the cut hose should be square and clean.

2. Start the saw and let the motor come up to full speed. This is most important with the DC saws as they take a moment to "ramp up". Cutting before they're at full speed can cause very high amperage draw and shorten the life of the motor.

3. Push the hose into the saw with steady, even pressure. Let the blade do its' job by cutting the hose not ripping it. This becomes more important as the hose size becomes larger, especially with the 6 wire multi-spiral hose. If there is a lot of smoke and sparks you may be forcing the hose too fast or the blade may be excessively dull.

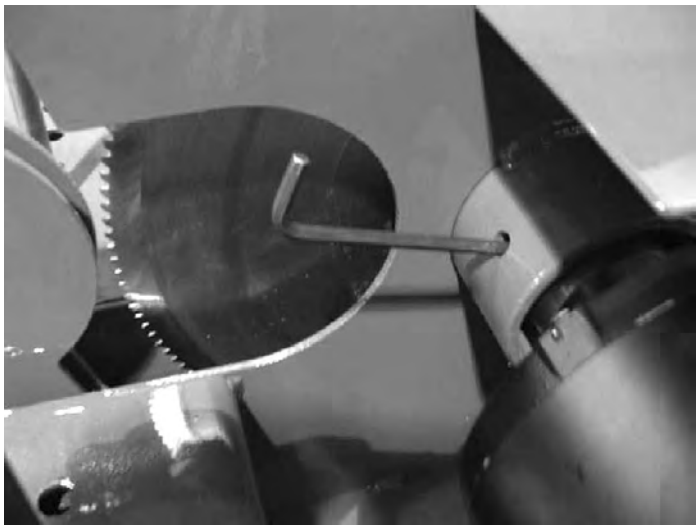
After the hose is cut, be careful as the blade spins down to a stop.

A coasting blade is still dangerous!

4. Examine the hose. Look at the squareness and how clean the cut is. A good cut goes a long way toward making a strong hose assembly.

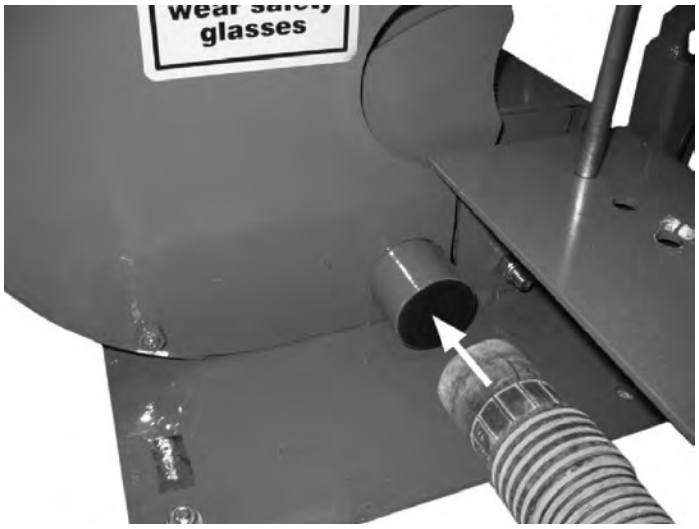
Changing the blade

1. Disconnect the saw from the power source.
2. Remove the Allen screws from the cover.
3. Remove the cover.
4. Place a 1/4" rod through the arbor guard into the hole in the arbor. This will lock the arbor in place while the bolt is removed. To remove it, turn counterclock-wise while facing it.
5. Remove the old blade and replace with a fresh one. Be sure the blade direction is correct. "Danfoss Blades" have a directional arrow on them. The saw turns counter clockwise when viewed from the motor shaft end.
6. Tighten the arbor bolt with the 1/4" locking rod in the arbor to about 13 to 15 ft/lbs. It should be snug but do not over tighten it as it stresses the motor assembly and is unnecessary.
7. Remove the 1/4" locking rod.
8. Replace the cover being sure to put the blade guard behind it. Tighten all the nuts firmly but do not over tighten.



Vacuum Port

All saw models have a vacuum port in the cover. You can attach a 2" shop vac hose to this port. A shop vac attached to the vacuum port will remove most of the dust, smoke and smell while cutting hose. It is important to check the vacuum filter regularly as it will plug up with the fine rubber dust that is associated with hose cutting.



Maintenance

Examine the blade periodically (blade cover in place) for tooth condition and sharpness. A sharp blade cuts the best but as the teeth wear they will still cut well.

Occasionally pull the blade cover off and perform a closer inspection of the blade paying attention to any cracks that may have occurred. If cracks are observed, the blade should be thrown away as it could break while spinning. Cracks are very rare as these blades are high quality steel and are tempered to the correct hardness for this application. With the cover off, clean the hose dust that has accumulated inside.

Lubricate the pivot points of the blade guard and pusher with oil on a regular basis (once a month). Whenever the blade cover is removed, use that opportunity to grease the pivot points.

Check the condition of the wiring as it may wear over time. The motors require little maintenance (wipe or blow the accumulated dirt off) as the bearings are sealed.

Keep the area around the saw uncluttered.

Benefits

- **Cleaner Cuts**
- **Safer Cuts**
- **Less Smoke**

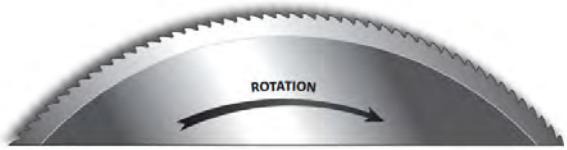
MODEL	MOTOR	BLADE	CUTTING CAPACITY
ET9100-07-110	1.5 HP, 110 VAC, 1 Phase, 60 Cycle, 3,450 RPM	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100-07-22060	1.5 HP, 220 VAC (single phase), 60 Cycle, 3,450 RPM	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose

Hose Cutting Blades

The following 5 types of blades are designed to cut hydraulic hose. If you're not sure which is best suited to your application please call for our recommendation.

Danfoss blades are manufactured in: M-2, D-2, M-35, & High Speed Steels.

ET9100C-07-SM Smooth Blade



ET9100C-07-AS Advanced Scallop Blade

ET9100C-07-SC Scalloped Blade

ET9100C-07-MS Micro-Slotted Blade

ET9100C-07-SL Slotted Blade

MODEL	TYPE	BLADE SIZE	CUTTING CAPACITY
ET9100C-07-AS	Advanced Scallop	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100C-07-MS	Micro-Slotted	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100C-07-SM	Smooth	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100C-07-SC	Scalloped	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100C-07-SL	Slotted	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose

ENGINEERING
TOMORROW

About Danfoss Power Solutions FC

Danfoss hoses, fittings, and tooling provide the ultimate fluid conveyance solutions for a variety of equipment and applications around the world. We proudly engineer to support a sustainable future for tomorrow.

To learn more please visit: http://www.danfoss.com/en/about-danfoss/our-businesses/power-solutions

Danfoss Power Solutions
14615 Lone Oak Road
Eden Prairie, MN 55344, USA
Phone: 952-937-9800

Danfoss Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515-239-6000

Danfoss Power Solutions GmbH & Co.OHG
Krokamp 35
D-2439 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss Power Solutions ApS
Nordborgveg 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss Power Solutions Trade (Shanghai) Co. Ltd.
Building #22, No 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200w