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

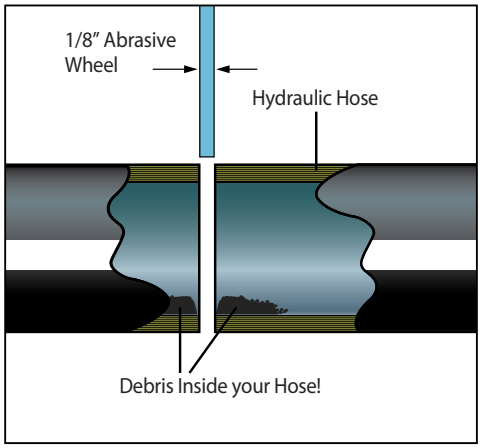
Proper hand protection should be worn at all times when working with sharp cutting tools.

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.

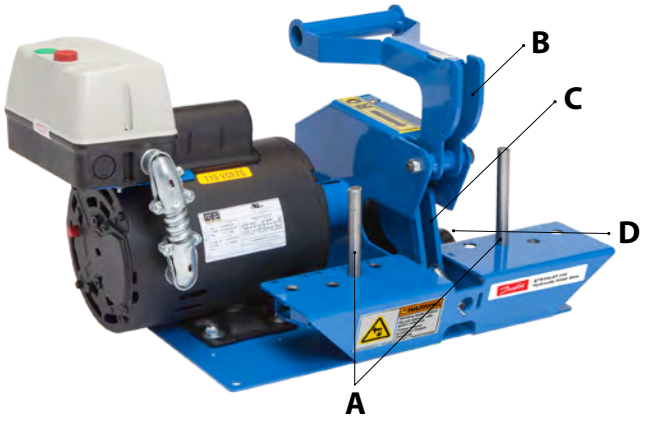


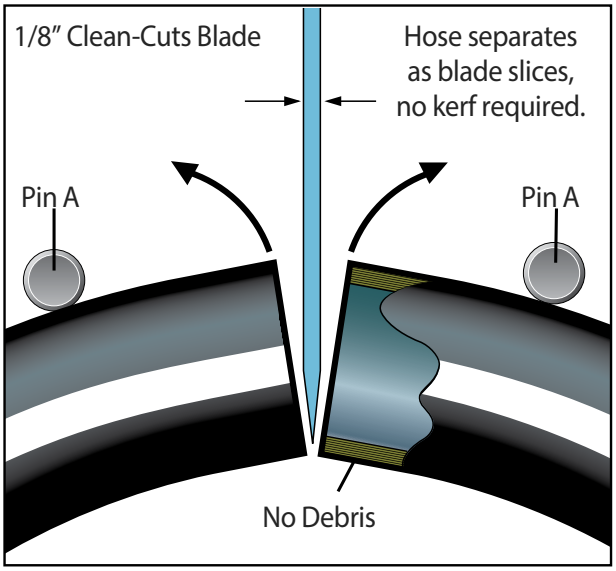
Old Method

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.

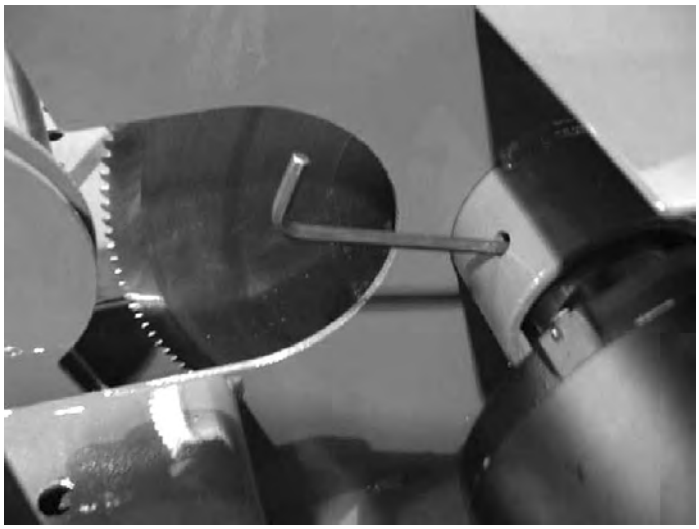
After the hose is cut, be careful as the blade spins down to a stop.

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.

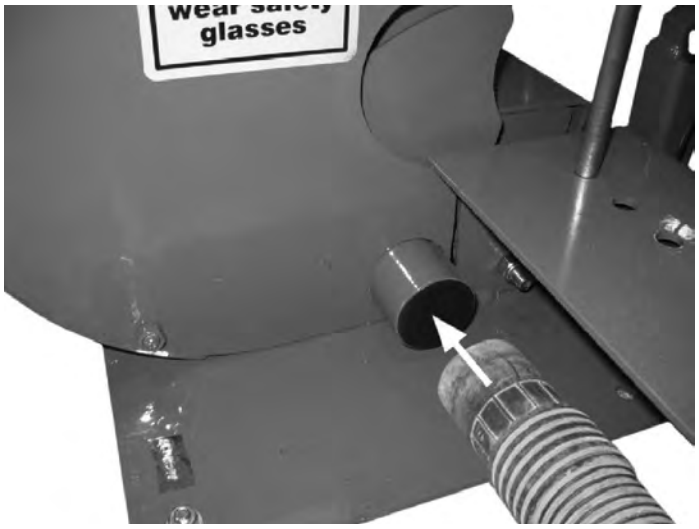
Changing the blade

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**

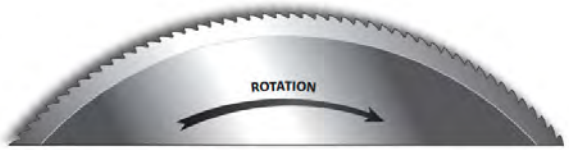
MODEL	MOTOR	BLADE	CUTTING CAPACITY
ET9100-07-110	1.5 HP, 110 VAC, 1 Phase, 60 Cycle, 3,450 RPM	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose
ET9100-07-22060	1.5 HP, 220 VAC (single phase), 60 Cycle, 3,450 RPM	7" OD x .093 THK X 3/4" arbor	1-1/4" ID x 4 Wire Hydraulic Hose

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

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Hydraulic Hose Saw

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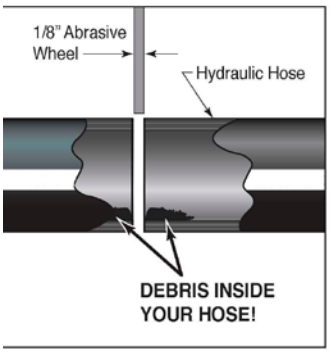
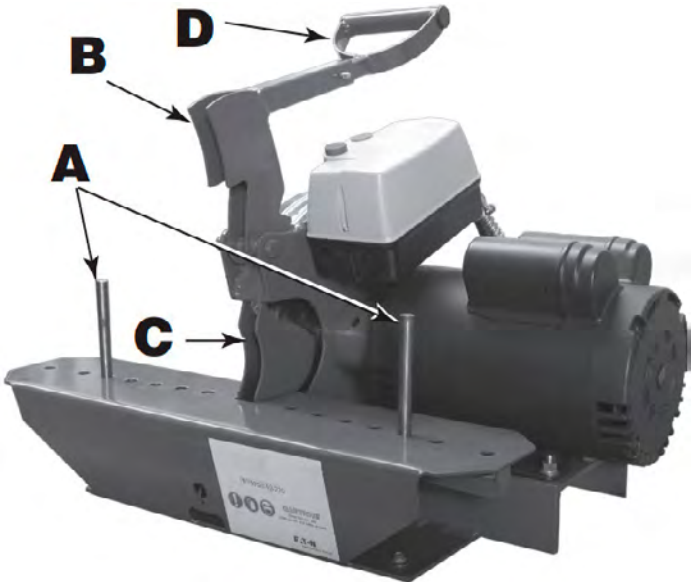


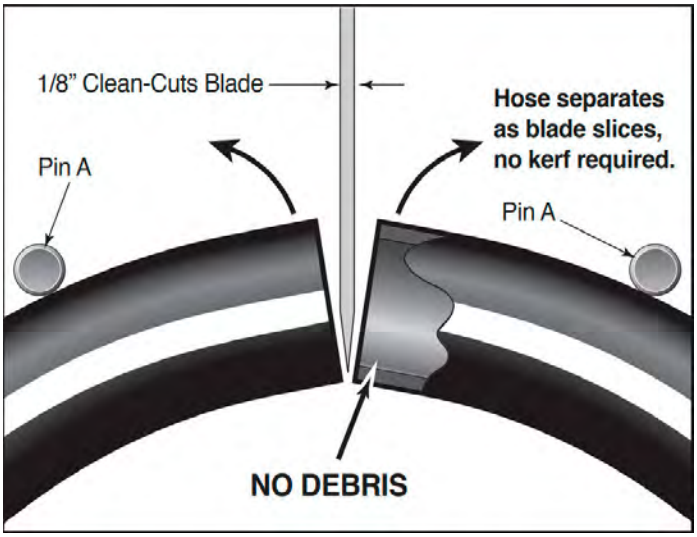
Old Method

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 hosed 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 extendable handle (D) for better leverage on extremely 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 at below). This separation allows the hose to pass clear of the saw blade with NO friction, NO heating and NO DEBRIS! A vacuum hose (not shown) is attached to a vacuum port to remove any tiny amount of debris or smoke during cutting.





Operation

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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")	2
-8 (1/2")	2
-12 (3/4")	3
-16 (1")	3-4
-20 (1 1/4")	4-5
-24 (1 1/2")	5-6
-32 (2")	7

*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!

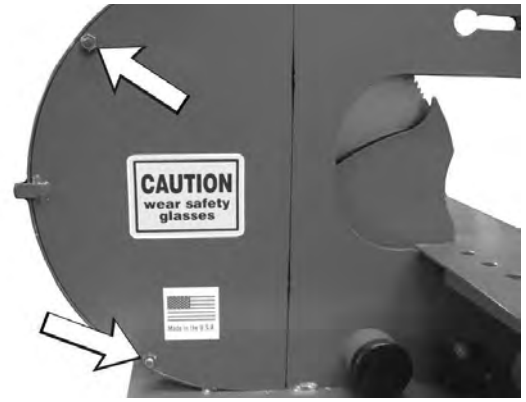
4. Examine the hose. Look at the squareness and how clean the cut is. A good cut goes a long way toward making a strong hose assembly.

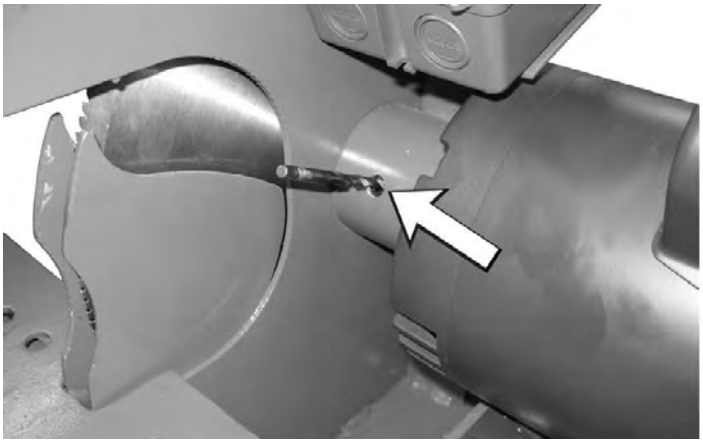
Changing the blade

1. Disconnect Power Plug & logout tagout.

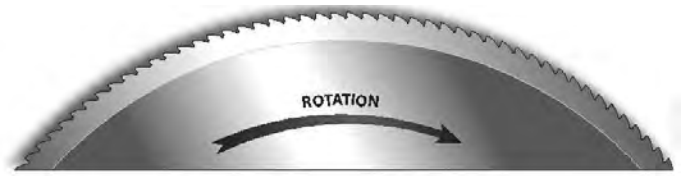
2. Remove hex nuts (right) holding blade cover and remove cover.

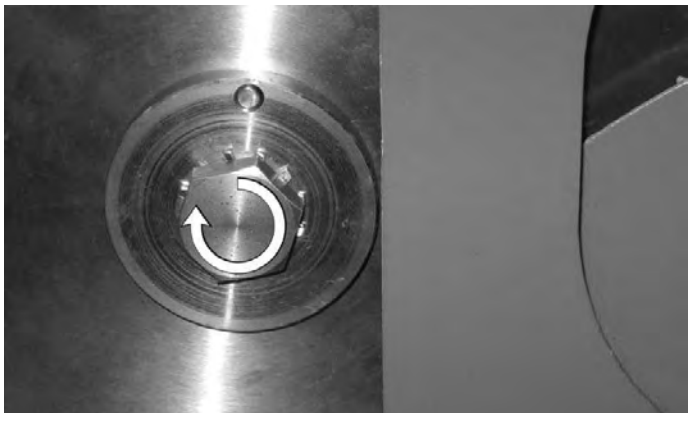
3. Place 1/4 rod/pin through arbor shaft to lock saw blade arbor shaft and drive pin at 12 o'clock (below left). This will lock the arbor while the bolt is removed. Please note that the bolt (below right) to remove the blade is left hand threaded. To remove it, turn counter-clockwise.





4. Remove old blade and put new one on over the drive pin (below left) and arbor shaft. Be sure to follow the blade rotation arrow (below right).



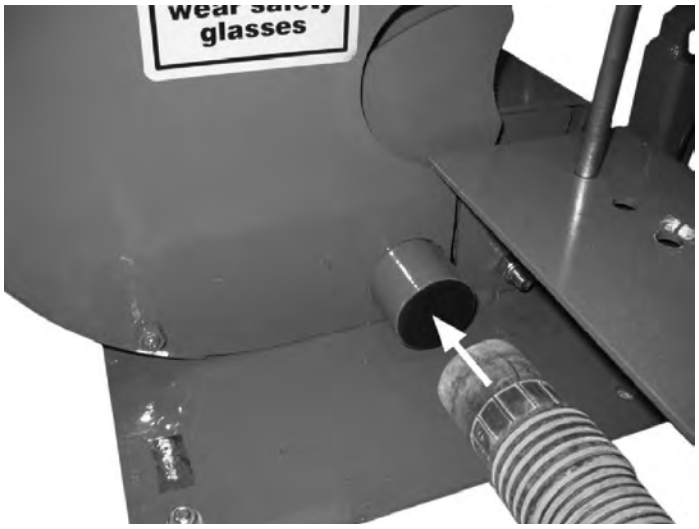


5. Placed clamping flange through drive pin and bolt blade onto the shaft. Tighten bolt to 20-25 foot/lbs. Do not over-tighten. Then remove 1/4 rod/pin which locks shaft.

6. Replace blade cover and tighten hex bolts.

Vacuum Port

Some saw models have a vacuum port in the cover. You can attach a 2" shop vac hose to this port. The saw "on-off" switch is a double pole switch that you can direct wire the shop vac to. This will allow the operator to start the saw and the vacuum at the same time. A shop vac attached to the vacuum port will remove most of the dust, smoke and smell portant 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, especially the DC saws that flex the wiring from the handle mounted switch. The motors require little maintenance (wipe or blow the accumulated dirt off) as the bearings are sealed.

Keep the area around the saw uncluttered. The DC van saws have high amp connectors with rubber boot protectors. If those protectors wear over time and grounded metal comes in contact, it will spark and be a fire hazard!

Speaking of grounding. For proper performance from the DC saws, always have a good, clean ground connection.

Benefits

- **Cleaner Cuts**
- **Safer Cuts**
- **No Smoke**

Model ET9200-10-220

MODEL	MOTOR	BLADE	CUTTING CAPACITY
ET9200-10-220	5 HP, 220 VAC, 1 Phase, 60 Cycle, 3,600 RPM	one 10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200-10-220-3	3 HP, 220 VAC, 3 Phase, 60 Cycle, 3,600 RPM	one 10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200-10-440-3	3 HP, 440 VAC, 3 Phase, 60 Cycle, 3,600 RPM	one 10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose

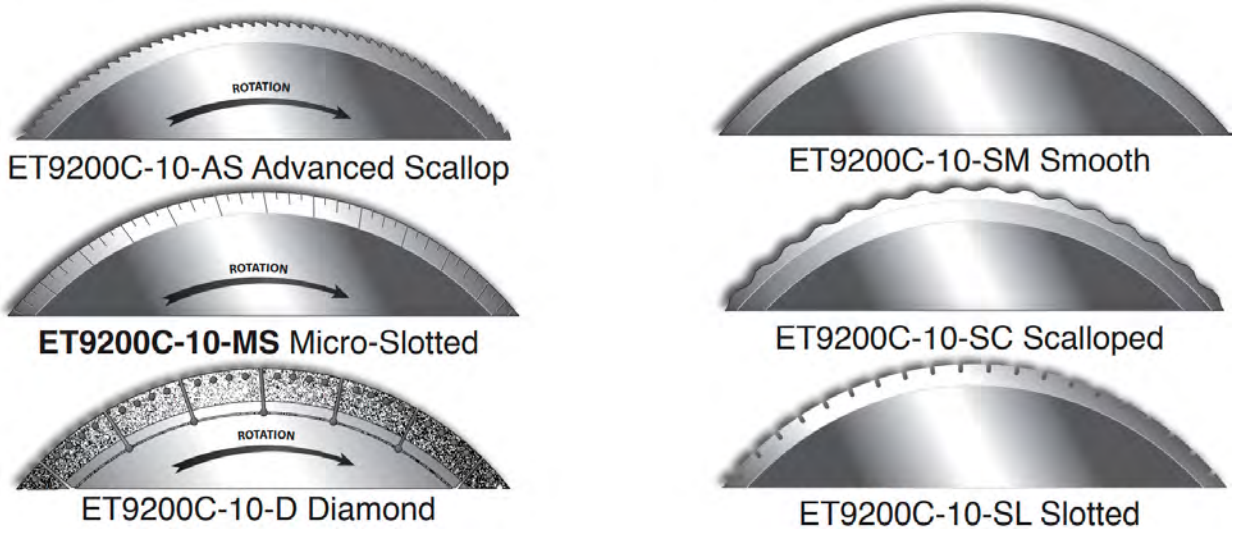
Model ET9200-10-12v

MODEL	MOTOR	BLADE	CUTTING CAPACITY
ET9200-10-12v	4 HP, 12 VDC, 4,000 RPM	one 10" OD x .125 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose
ET9200-10-24v	4 HP, 24 VDC, 4,000 RPM	one 10" OD x .125 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose

Hose Cutting Blades

The following 6 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.



MODEL	TYPE	BLADE SIZE	CUTTING CAPACITY
ET9200C-10-AS	Advanced Scallop	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200C-10-MS	Micro-Slotted	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200C-10-D	Diamond	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200C-10-SM	Smooth	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200C-10-SC	Scalloped	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose
ET9200C-10-SL	Slotted	10" OD x .125 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose

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Hydraulic Hose Saw

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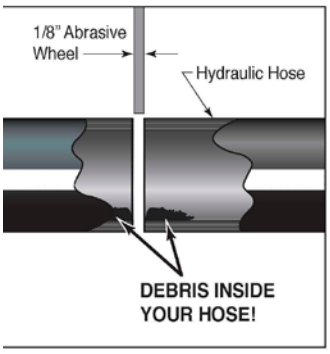

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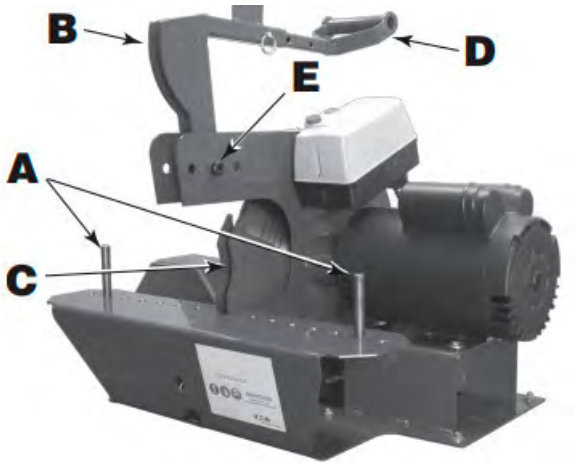
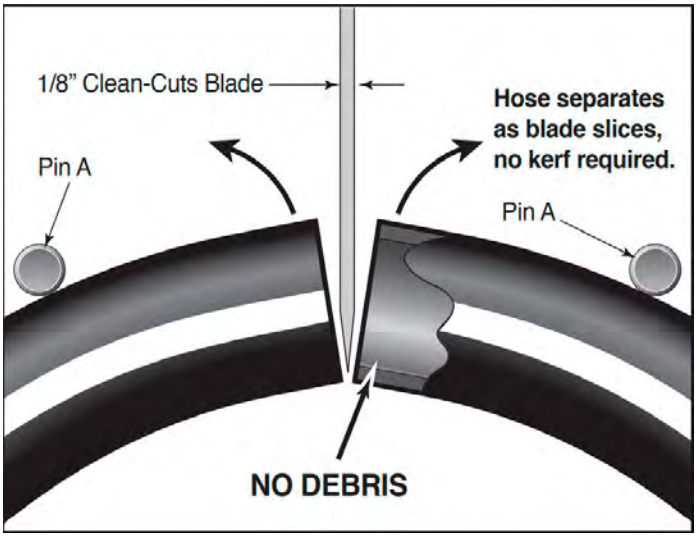
New Improved Danfoss Method

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 extendable handle (D) and adjustable pivot point (E) for cutting larger industrial 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 at below). This separation allows the hose to pass clear of the saw blade with NO friction, NO heating and NO DEBRIS! A vacuum hose (not shown) is attached to a vacuum port to remove any tiny amount of debris or smoke during cutting.





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*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!

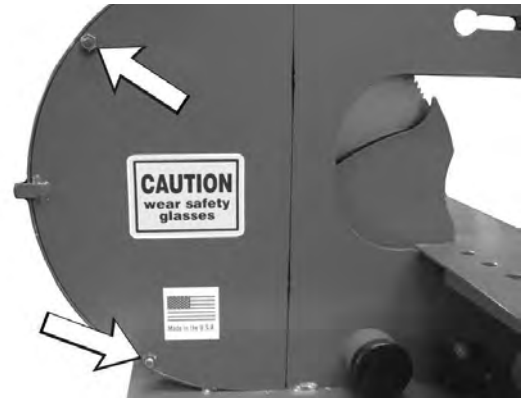
4. Examine the hose. Look at the squareness and how clean the cut is. A good cut goes a long way toward making a strong hose assembly.

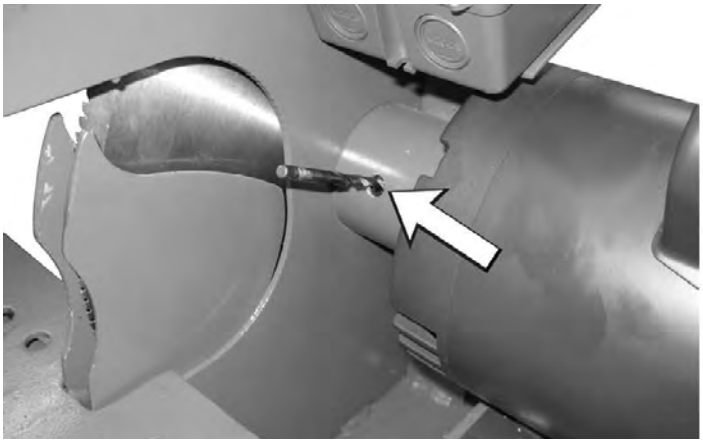
Changing the blade

1. Disconnect Power Plug & logout tagout.

2. Remove hex nuts (right) holding blade cover and remove cover.

3. Place 1/4 rod/pin through arbor shaft to lock saw blade arbor shaft and drive pin at 12 o'clock (below left). This will lock the arbor while the bolt is removed. Please note that the bolt (below right) to remove the blade is left hand threaded. To remove it, turn counter-clockwise.





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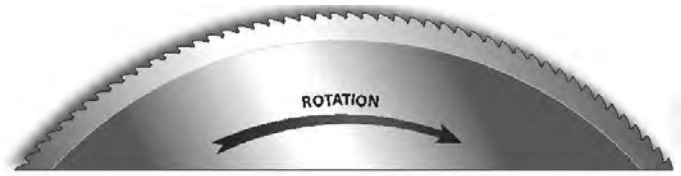

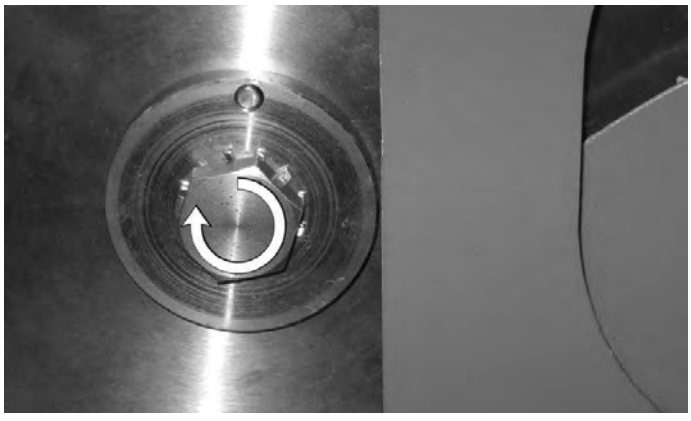

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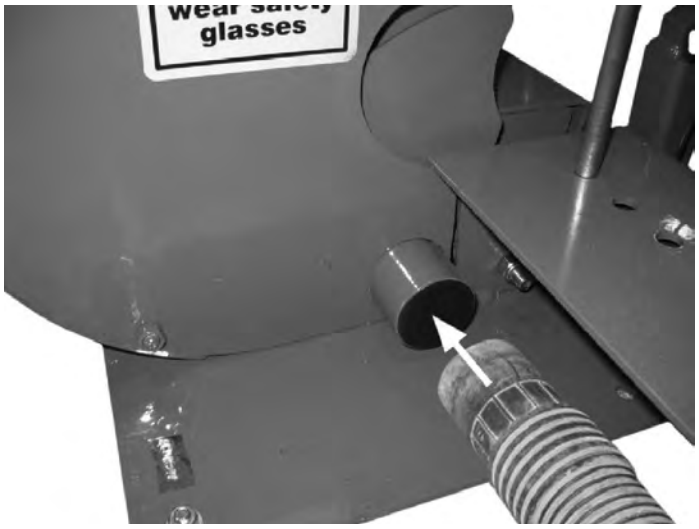
6. Replace blade cover and tighten hex bolts.

Vacuum Port

Some saw models have a vacuum port in the cover. You can attach a 2" shop vac hose to this port. The saw "on-off" switch is a double pole switch that you can direct wire the shop vac to. This will allow the operator to start the saw and the vacuum at the same time. A shop vac attached to the vacuum port will remove most of the dust, smoke and smell portant 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, especially the DC saws that flex the wiring from the handle mounted switch. The motors require little maintenance (wipe or blow the accumulated dirt off) as the bearings are sealed.

Keep the area around the saw uncluttered. The DC van saws have high amp connectors with rubber boot protectors. If those protectors wear over time and grounded metal comes in contact, it will spark and be a fire hazard!

Speaking of grounding. For proper performance from the DC saws, always have a good, clean ground connection.

Benefits

- **Cleaner Cuts**
- **Safer Cuts**
- **No Smoke**

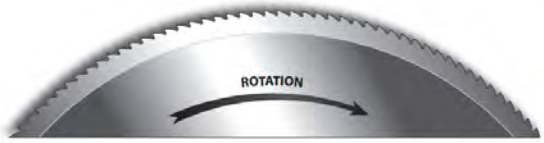
MODEL	MOTOR	BLADE	CUTTING CAPACITY
ET9300-14-220	5 HP, 220 VAC, 1 Phase, 60 Cycle, 3,600 RPM	one 14" OD x .160 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose - 5" OD Industrial Hose
ET9300-14-220-3	3 HP, 220 VAC, 3 Phase, 60 Cycle, 3,600 RPM	one 14" OD x .160 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose - 5" OD Industrial Hose
ET9300-14-440-3	3 HP, 440 VAC, 3 Phase, 60 Cycle, 3,600 RPM	one 14" OD x .160 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose - 5" OD Industrial Hose

Hose Cutting Blades

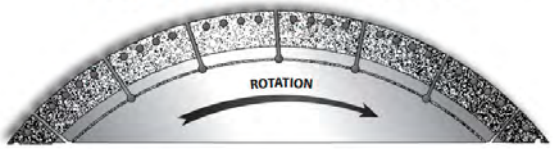
The following 5 types of blades are designed to cut hydraulic hose. If you're not sure which is best suited to your application please call for our recommendation.

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

ET9300C-14-SM Smooth



ET9300C-14-AS Advanced Scallop



ET9300C-14-D Diamond

ET9300C-14-MS Micro-Slotted

ET9300C-14-SL Slotted

MODEL	TYPE	BLADE SIZE	CUTTING CAPACITY
ET9300C-14-AS	Advanced Scallop	14" OD x .160 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose — 5" OD Industrial Hose
ET9300C-14-MS	Micro-Slotted	14" OD x .160 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose — 5" OD Industrial Hose
ET9300C-14-D	Diamond	14" OD x .160 THK X 40 mm arbor	2" ID x 6 Wire Hydraulic Hose — 5" OD Industrial Hose
ET9300C-14-SM	Smooth Blade	14" OD x .160 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose — 5" OD Industrial Hose
ET9300C-14-SL	Slotted Blade	14" OD x .160 THK X 40 mm arbor	2" ID x 4 Wire Hydraulic Hose — 5" OD Industrial Hose

ENGINEERING
TOMORROW

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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.

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