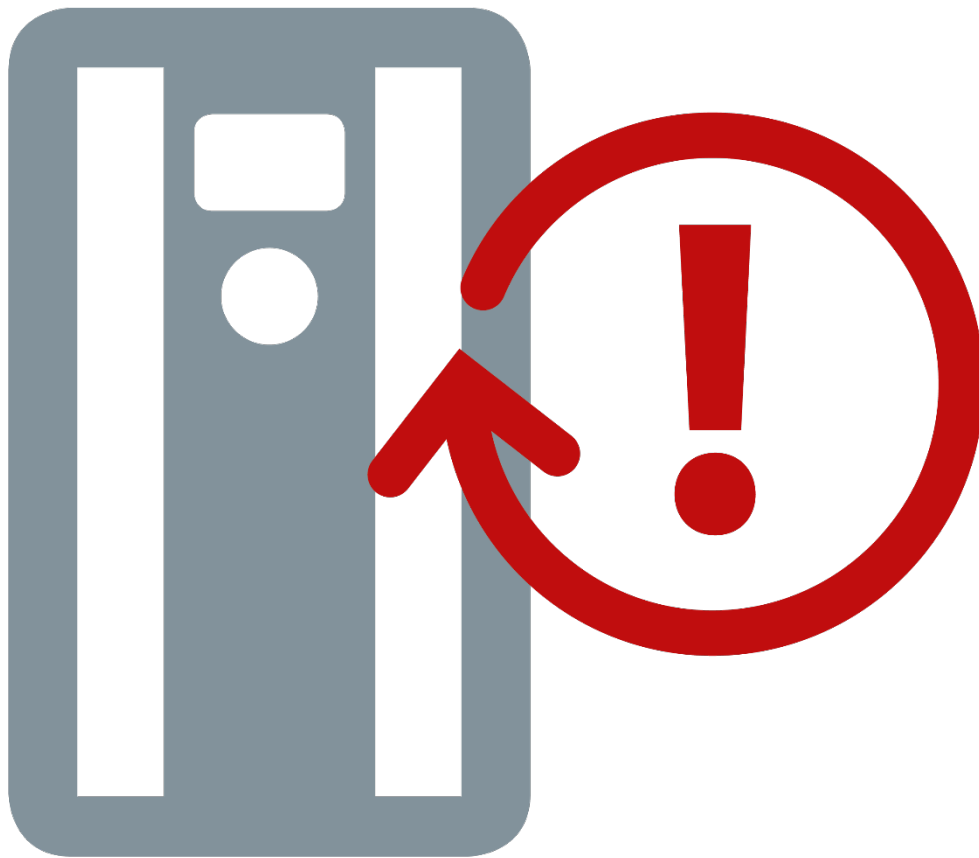


Service Delivery Manual



DrivePro[®] Exchange

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1 Introduction

1.1 Purpose

This document describes the service deliveries for the service product DrivePro® Exchange. It includes all internal and external requirements, tools, and solutions for internal service technicians and DrivePro® service partners.

NOTICE

This document must only be available for Danfoss internal personnel and DrivePro® service partners.

The latest version of this document is available on Danfoss Drives intranet. Alternatively, contact the responsible life cycle manager for further information.

1.2 Additional Resources

Other documents are available to understand advanced drive functions and programming and to get knowledge about drive repair and spare part replacement:

- Specific service guides for the VLT® products, for example VLT® AutomationDrive FC 302.
- Spare part-specific installation instructions.
- Specific operating instructions for the VLT® products, for example, VLT® AutomationDrive FC 302, provide information required to install and commission the drive.
- Specific design guides, provide information required for integration of the drive into a diversity of applications.
- Specific programming guide for how to program the unit, including complete parameter descriptions.
- Service delivery manuals and service product descriptions for the other DrivePro® service products.

These documents and more supplementary information are available. See <http://drives.danfoss.com/knowledge-center/technical-documentation/> for listings.

1.3 Definition of DrivePro® Exchange

DrivePro® Exchange offers fast exchange of a failed unit to a new or refurbished unit of the same type.



Illustration 1.1 DrivePro® Exchange Unit Cycle

To ensure high quality and reliability, the exchange unit has to fulfil the criteria defined in 3.2.1 *Matching Principles for Exchange units*. The unit has to be of 1 of these 3 types:

1. **Factory-new unit**, see 3.2.2 *Factory-new Unit* for details. Factory-new units are delivered directly from regional stock or stock with the latest software and hardware version.
2. **Unused unit from stock** (updated to latest hardware and software), see 3.1.3 *Unit from Stock* for details.
3. **Refurbished unit** (updated to latest hardware and software), see 3.1.3 *Refurbished Unit* for details. Refurbished units have to be compliant with the requirements as described in 3.1.3 *Refurbished Unit*. Without passing a refurbish test, as described in 3.1.4.2 *Mandatory Actions after Refurbishment*, the drive does not qualify as exchange unit.

Illustration 1.2 shows the point where the customer typically needs the exchange unit in the product lifecycle.

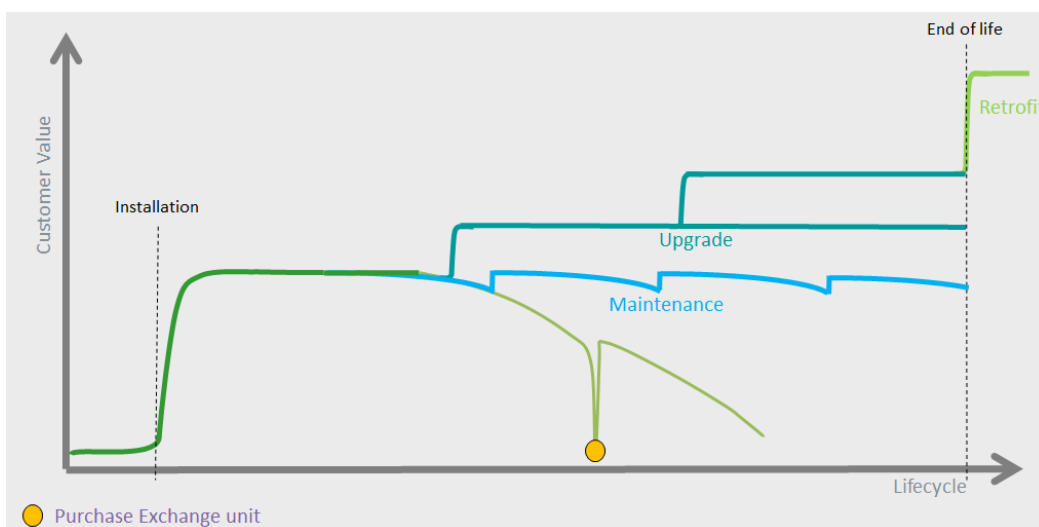


Illustration 1.2 DrivePro® Exchange in Product Lifecycle

Introduction

1.3.1 Benefits of DrivePro® Exchange

Benefits for customers by:

- **Improved process efficiency:** Prevent unexpected issues due to long stops on the production line.
- **Increased uptime** on the production line: Reduce the time of costly production stops caused by drive failures.
- **Save income** by reducing loss of income from production: Avoid costly production stops caused by drive failures.

1.3.2 Availability of DrivePro® Exchange Unit in Danfoss Regional Stock

The DrivePro® Exchange Unit in Danfoss Regional Stock is available for:

VLT®

- FC 51 (VLT® Micro Drive)
- FC 101 (HVAC Basic Drive)
- FC 102 (HVAC Drive)
- FC 103 (Refrigeration Drive)
- FC 202 (AQUA Drive)
- FC 280 (Midi Drive)
- FC 301/302 (AutomationDrive)

VACON®

- NXS
- NXP Air Cooled
- NXC Air Cooled Enclosed Drives
- NXC Low Harmonic
- NXP Common DC Bus
- NXP Liquid Cooled
- 100 INDUSTRIAL
- 100 FLOW
- 100 X

NOTICE

The DrivePro® Exchange program is introduced stepwise in 4 waves. Further information in 3. Product Overview.

2 Safety

This section describes requirements to personnel and safe practices to observe when performing service and maintenance procedures.

2.1 Safety Symbols

The following symbols are used in this manual:

▲WARNING

Indicates a potentially hazardous situation that could result in death or serious injury.

▲CAUTION

Indicates a potentially hazardous situation that could result in minor or moderate injury. It can also be used to alert against unsafe practices.

NOTICE

Indicates important information, including situations that can result in damage to equipment or property.

2.2 Qualified Personnel

Correct and reliable transport, storage, installation, operation, and maintenance are required for the trouble-free and safe operation of the drive. Only qualified personnel are allowed to install or operate this equipment.

Qualified personnel is defined as trained staff, that is authorized to install, commission, and maintain equipment, systems, and circuits in accordance with pertinent laws and regulations. Also, the qualified personnel must be familiar with the instructions and safety measures described in the operating instructions for the drives product.

2.2.1 Authorized Personnel

Authorized personnel are qualified personnel, trained by Danfoss to service Danfoss products.

2.3 Safety Precautions

▲WARNING

HIGH VOLTAGE

Drives contain high voltage when connected to AC mains input, DC supply, or load sharing. Failure to install, start-up, and maintenance by qualified personnel can result in death or serious injury.

- Only qualified personnel must install, start-up, and maintenance.

▲WARNING

UNINTENDED START

When the drive is connected to AC mains, DC supply, or load sharing, the motor may start at any time. Unintended start during programming, service, or repair work can result in death, serious injury, or property damage. The motor can start with an external switch, a fieldbus command, an input reference signal from the LCP or LOP, via remote operation using MCT 10 Set-up Software, or after a cleared fault condition.

To prevent unintended motor start:

- Disconnect the drive from the mains.
- Press [Off/Reset] on the LCP before programming parameters.
- The drive, motor, and any driven equipment must be fully wired and assembled when the drive is connected to AC mains, DC supply, or load sharing.

2.4 Electrostatic Discharge (ESD)

NOTICE

When performing service, use proper ESD procedures to prevent damage to sensitive components.

NOTICE

**Do not touch components on the circuit boards.
Hold circuit boards by the corners and edges only.**

Many electronic components within the drive are sensitive to static electricity. Voltages so low that they cannot be felt, seen, or heard can reduce the life, affect performance, or completely destroy sensitive electronic components.

3 Product Overview

3.1 DrivePro® Exchange program

The DrivePro® Exchange program is designed for the end user or OEM, who requires immediate actions on a failure in the drive. They demand high uptime on their processes and do not accept costly production stops because of time to repair the defect unit.

The program is offered to the end user either via the Danfoss service organization or via authorized VAR (value-added reseller/ service partners). It ensures immediate problem solving by exchange of a failed unit to a new or refurbished unit of the same or matching type (for power sizes 0.25–315 kW).

The DrivePro® Exchange program is introduced stepwise in 4 waves:

- I. Most common hardware and applications:
 - VACON® NXS
 - VLT® AutomationDrive FC 301/302

- II. Wider portfolio; wave I and also:
 - VACON® NXP
 - VLT® HVAC Drive FC 102
 - VLT® AQUA Drive FC 202

- III. Wider portfolio; waves I and II, and also:
 - VACON® NXP/NXC Liquid Cooled
 - VACON® 100
 - VLT® HVAC Basic Drive FC 101
 - VLT® HVAC Midi Drive FC 280

- IV. Wider portfolio; waves I and III, and also (After M5):
 - VLT® Refrigeration Drive FC103
 - VLT® Micro Drive FC 51
 - Exchange of competitive products by Danfoss exchange unit

Product Overview

3.1.1 Matching Principles for Exchange Units

Definitions and selections of exchange unit have to match the install base at the customer site, and fulfil the inventory strategy of Danfoss.

To ensure availability, high quality, and reliability after exchange, the exchange unit must at least be exactly fulfilling the customer applications performance or exceed it.

The inventory (stock) of exchange unit has to follow this strategy:

- **Power size:** Exact match or 1–2 steps higher power size than the defect unit to replace.
- **Voltage:** Exact match.
- **Software layer:** For VACON®/VLT® exchange unit, exactly matching the defect unit. Onsite assistance by Danfoss service technicians is sometimes required.
- **Physical size (enclosure size):** Exactly matching the unit to be replaced. If the mounting hole at the exchange unit does not fit to the exchange unit, it is acceptable to drill new mounting holes at the customer site (only after agreement with the customer).
- **Enclosure size:** If space is an issue, the exchange unit must have the same enclosure size as the defect unit, for example, if an IP54 does not fit in an IP20 cabinet. An NXP IP20 unit cannot be mounted side by side but the IP54 units can.
- **Units on stock:** To minimize the number of exchange units on stock, it contains premium drives with the highest demands and fully equipped version¹.

3.1.2 Factory-new Unit

Exchange units are ordered directly from the factory. Because the units must be produced before shipment, some additional time has to be added to the total delivery time to the customer. The exchange unit is produced and delivered according to the time plan mentioned below.

Production timeout of factories:

- Gråsten, Denmark: 1–2 days
- Loves Park, USA: 2–3 days
- Haiyan, China: 1–2 days
- Vaasa, Finland: 1–3 days
- Mirano, Italy: 2–3 days

NOTICE

- **Ensure that the exchange unit matches exactly to the defect unit.**
- **Production time is the time from when the customer places the order until the unit is shipped. The customer selects the shipping method.**

3.1.3 Unit from Stock

Units from stock are exchange units (new in original packaging) from stock, either from Global Service Stock GSS or any local stock.

They have to match the latest software and hardware version. If not, the unit must be updated and functionally tested before it can be used as an exchange unit.

Delivery timeout of stock. The stock is 24/7-operated, and the unit from this stock can be ready for shipment to the end user within hours.

3.1.4 Refurbished Unit

To ensure high quality and reliability on the exchange unit, refurbished units must have the latest software and hardware version. If not, the unit has to be updated and functionally tested before it can be used as an exchange unit.

¹ Including brake, PROFIBUS, filter, IP54, etc. May differ from area to area (for example, difference in bus system, voltage, IP class, filter).

3.1.4.1 Requirements for Refurbished Units

The DrivePro® program sets some standards for refurbished units, which have to be respected before the unit can be offered to the customer as a DrivePro® refurbished unit. These standards define requirements on quality, age, tests to be performed, visual appearance, and so forth. If the refurbished unit is not compliant with these requirements, it cannot be used as an exchange unit in the DrivePro® program.

- Units must be part of the series list in *1.3.2 Applicability to Drive Products*.
- Units must not be older than 18 months from production date (still in factory warranty period).
- Units must not exceed 6000 h of running time.
- Units with former defect in the control sector have to undergo a verification test, as described in *3.1.6 Verification test of functions and quality after refurbishing/repairing the drive*.
- Units with former minor defect in the power sector have to undergo a verification test, as described in *3.1.6 Verification test of functions and quality after refurbishing/repairing the drive*.
- The visual appearance of the unit must be acceptable:
 - The refurbished unit must look clean inside and like a new unit outside.
 - Some small signs of usage are acceptable, such as:
 - Marks from mountings and fasteners around the mounting holes.
 - Small scratches/marks on the front of the enclosure, not visible from a 2 m distance.
- Units must be updated to the latest software version (following the product notes).
- Units must be updated to the latest hardware version (following the product notes).
- For units which exceed 1000 running hours, the following parts have to be replaced and checked according to the requirements as defined in *3.1.6 Verification test of functions and quality after refurbishing/repairing the drive*:
 - Capacitors
 - Fans
 - Fan filters

3.1.4.2 Units not Qualified as Refurbished Units

The following units do not qualify as exchange units:

1. Refurbished units without any test after refurbishment (as defined in *3.1.6 Verification test of functions and quality after refurbishing/repairing the drive*).
2. Non-Danfoss products.
3. Units older than 3 years from production date (Factory warranty 1.5 years + max 1.5 year on stock).
4. Brand label Danfoss or VACON® products.

3.1.4.3 Mandatory Actions after Refurbishment

1. Remove all visible marks on the enclosure.
2. Clean heat-transfer components like heat sink, fan, and other polluted areas.
3. Perform the verification test as defined in *3.1.6 Verification test of functions and quality after refurbishing/repairing the drive*.
4. After exchange of any parts the refurbished unit has to be reported in the WIIS system for VLT® products and VSRT for VACON® product, alike a standard repair reporting. Report the unit as standard repair including the failure code *refurbishment*. VACON® failure code = 9700, Danfoss = 567. Further descriptions in *3.1.5 Quality Reporting in the WIIS and VSRT System*.
5. Deliver the unit in the original packaging.
6. For VACON® products, the type code nameplate has to be updated (use a standard refurbishment sticker).

Product Overview

3.1.5 Quality Reporting in the WIIS and VSRT System

For correct reporting of the service cases in the market failure system, follow the given instructions for VLT® or VACON® product.

VACON® Products

First failure – Create VSRT report with standard failure codes (Report 1).

If refurbished, then create a new VSRT report with exchanged parts using refurbished failure code (9700) (Report2).

Second failure is reported into VSRT with standard failure codes (Report 3).

VLT® Products

First failure – Create WIIS report with standard failure codes (Report 1).

If refurbished, then create a new WIIS report with exchanged parts using refurbished failure code (567) (Report2).

Second failure is reported into WIIS with standard failure codes (Report 3).

3.1.6 Verification Test of Functions and Quality after Refurbishing/Repairing the Drive

NOTICE

Investigations of 1971 warranty repairs testify that 70% of all failures are located in the power sector and 30% are in the control area of the drive (Source: PEC Gråsten).

After fulfilling any repair/refurbishment in the power sector, or exchange of 1 of the components listed below, the unit must pass a full-load test according to 130R0041 and a functional test according to 130R0015. Passing the tests verify that the functionality and quality level after refurbish/repair is achieved.

Full load test according to 130R0041 after exchange of:

- Power card
- Rectifier
- IGBT
- Inrush card
- Transducer card
- Busbar,
- Capacitor
- Wire
- SMPS
- Enclosure
- Terminal block
- DC-link card
- Main switch
- DC coil
- Fuse
- RFI
- Thermistor
- Filter
- Disconnecter

Functional test according to 130R0015 after exchange of:

- Control card
- Options
- Fan
- LCP
- Software update

3.2 Exchange of Competitor Drive to Danfoss Drive

Line of direction to convert non-Danfoss drives to Danfoss drives is shown in the converting list in illustration 3.1.

| | | | | | | |
|--|----------------------|---------|--|------------------------|----------------------|----------------------|
| | G120P | G120 | G120P, G120E, G150 | S120/G120 S150/G150 | G120, G120E, G150 | S120 S150 |
| | ACH-580 | ACS-580 | ACQ-810 ACQ-580 | ACS-880 ACS-880-M04 | ACS-580 | ACS-880 |
| | ATV6x0 | | ATV6x0 | ATV9x0 | ATV6x0 | ATV9x0 |
| | <u>PowerFlex 400</u> | | <u>PowerFlex 400</u> <u>PowerFlex 750</u> | <u>PowerFlex 750</u> | <u>PowerFlex 750</u> | <u>PowerFlex 750</u> |

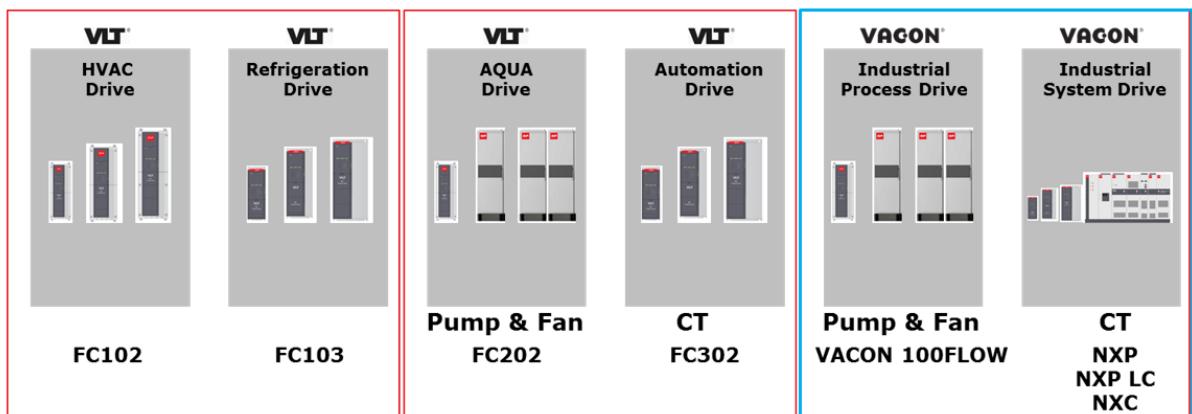


Illustration 3.1 Convert non-Danfoss to Danfoss

Further information and general information for Yaskawa, Mitsubishi, Fuji, WEG is available in the following excel list.



Danfoss_PE_competitor_View_Public_20:

Product Overview

3.3 Accessories to Support Exchange of Old Generations with New Generation Exchange Units

For easy exchange from old generations to new generations, some accessories like adapter plate and bus conversion are available to make the conversion trouble-free for the user.

3.3.1 Converting VLT® 3000 to FC 300



Illustration 3.2 PROFIBUS converter MCA113 = 130B1245 (VLT® 3000 = FC 300)

Exchanging an old generation unit to a new generation unit, where the unit is physically smaller, can be a challenging process. To ensure an easy exchange, use adapter plates allowing the customers to replace a VLT® 3000 with an FC 302 without the need for drilling new holes for the FC 302.

This makes it safe and quick to replace an old unit to a new, as there are no drilling-chips harming the electric components.

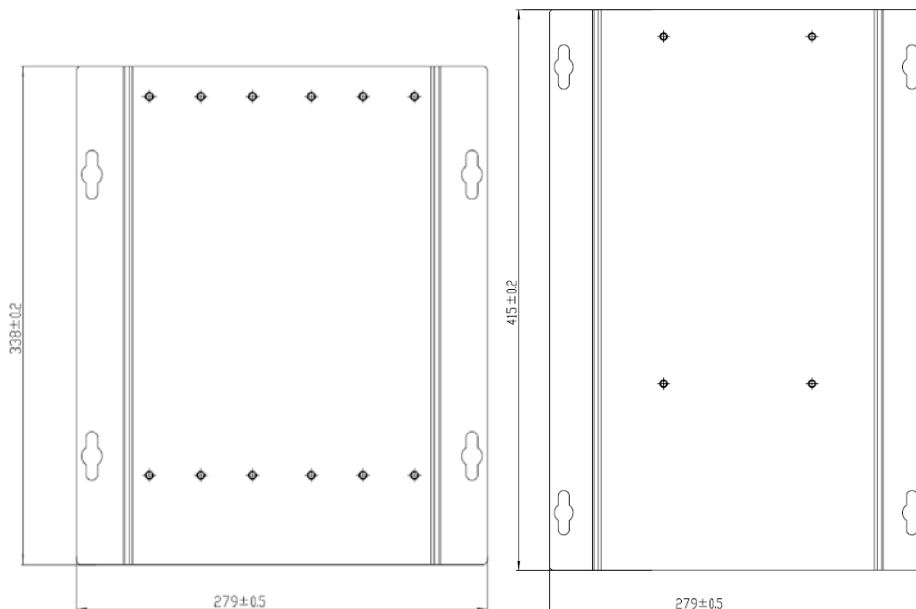


Illustration 3.3 The Adapter Plate 130B0056 & 130B0058

3.3.2 Converting VLT® 5000 to FC 301/302



Illustration 3.4 PROFIBUS Converter MCA 114 = 130B1246 (VLT® 5000 = FC 301/302)



Illustration 3.5 DeviceNet Converter MCA 194 = 130B5601 (VLT® 5000 = FC 301/302)

Adapter Plate 130B0183, 130B0184, and 130B0185 for Converting VLT® 5000 =>FC 301/302

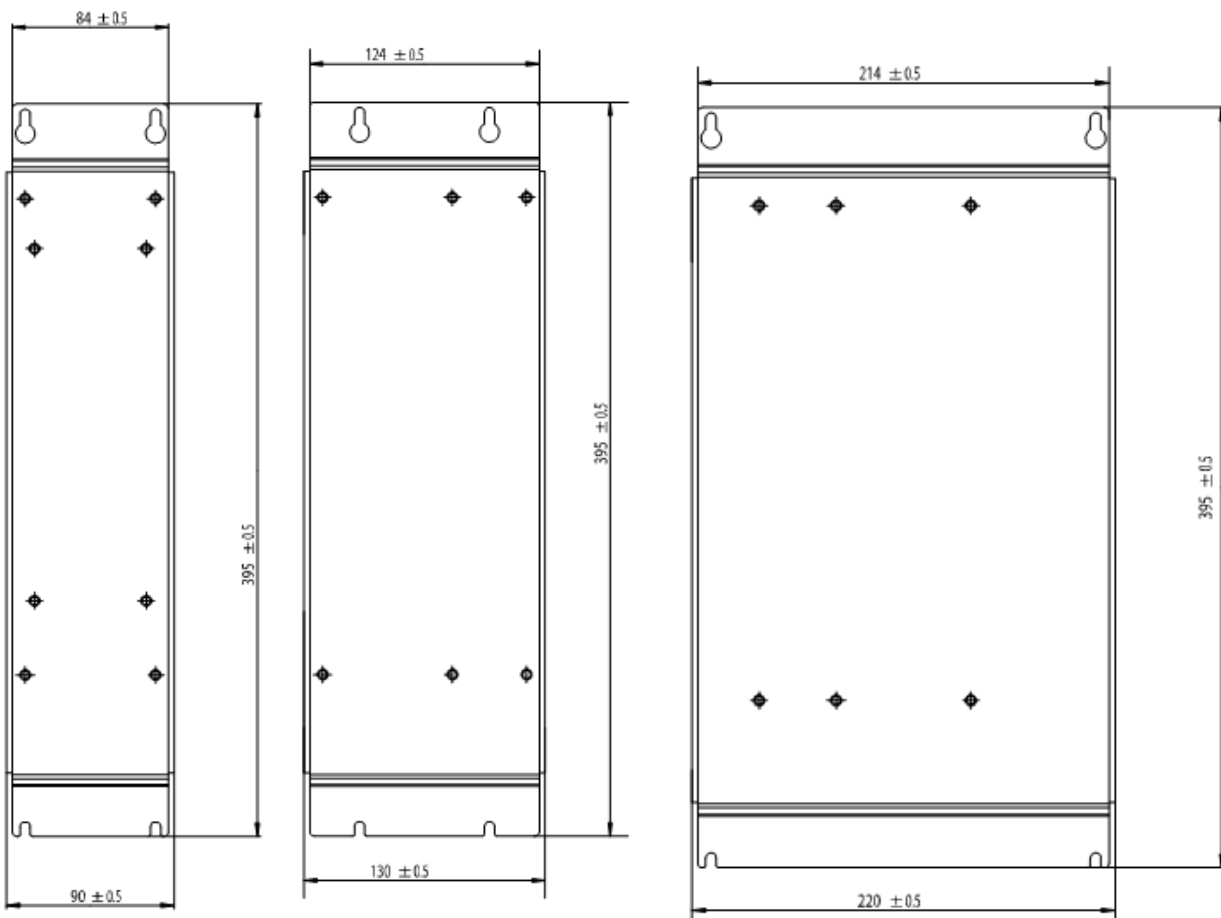


Illustration 3.6 Adapter Plate 130B0183, 130B0184, and 130B0185

Product Overview

Additional information for the mechanical adapter plate for VLT® 5/6/8000 to FC 301/302.

| Ordering | VLT® 5000 Style | Height mm | Width mm | VLT® |
|----------|------------------|-----------|----------|--|
| 130B0183 | Book style, IP20 | 395 | 90 | 5001–5003 200–240 V 5001–5005 380–500 V 6002–6003 200–240 V 6002–6005 380–460 V |

The following FC 102/FC 202/FC 301/FC 302 can be mounted:

- A1 IP20, Footprint 200*75 mm
- A2 IP20, Footprint 268*90 mm

| Ordering | VLT® 5000 Style | Height mm | Width mm | VLT® |
|----------|------------------|-----------|----------|---|
| 130B184 | Book style, IP20 | 395 | 130 | 5004–5006 200–240 V 5006–5011 380–500 V 200–240 V 6006–6011 380–460 V |

The following FC 102/FC 202/FC 301/FC 302 can be mounted:

- A2 IP20, Footprint 268*90 mm
- A2 IP20, With 1 C-option, Footprint 268*130 mm
- A2 IP21, Footprint 375*90 mm

| Ordering | VLT® 5000 Style | Height mm | Width mm | VLT® |
|----------|--------------------------------------|-----------|----------|---|
| 130B185 | Compact, IP20 IP20 and Nema 1 | 395 | 220 | 5001–5003 200–240 V 5001–5005 380–500 V 5004–5006 200–240 V 5006–5011 380–500 V 5001–5011 550–600 V 6002–6003 200–240 V 6004–6005 200–240 V 6002–6005 380–460 V 6006–6011 380–460 V 8006–8011 380–480 V 8002–8011 525–690 V |

The following FC 102/202/FC 301/FC 302 can be mounted:

- A2 IP20, Footprint 268*90 mm
- A2 IP20, With 1 C-option, Footprint 268*130 mm
- A2 IP21, Footprint 375*90 mm
- A3 IP20, Footprint 268*130 mm
- A3 IP21, Footprint 375*130 mm
- A3 IP20, With 1 C-option, Footprint 368*170 mm
- A3 IP20, With 2 C-options, Footprint 368*190 mm

3.3.3 Converting VLT® 2800 to FC 280

More components, which might be necessary to replace the existing VLT® 2800 installation.

| | |
|----------|--|
| 132B0254 | VLT® Control Panel LCP 21 (NLCP) |
| 132B0102 | NLCP Remote Mounting Kit, w/3 m cable |
| 130B1107 | VLT® Control Panel LCP 102 (GLCP) |
| 132B0281 | Adapter, Graphical LCP |
| 130B1117 | GLCP Remote Mounting Kit, w/ 3 m cable |
| 132B0262 | LCP blind cover, IP20/21 |
| 132B0335 | IP21/Type 1 conversion kit, K1 |
| 132B0336 | IP21/Type 1 conversion kit, K2 |
| 132B0337 | IP21/Type 1 conversion kit, K3 |
| 132B0338 | IP21/Type 1 conversion kit, K4 |
| 132B0339 | IP21/Type 1 conversion kit, K5 |
| 132B0363 | Adapter Plate, VLT® 2800 size A |
| 132B0364 | Adapter Plate, VLT® 2800 size B |
| 132B0365 | Adapter Plate, VLT® 2800 size C |
| 132B0366 | Adapter Plate, VLT® 2800 size D |
| 132B0368 | VLT® 24 V DC Supply MCB 106 |
| 132b0359 | VLT® Memory Module MCM 102 |

4 Service Sales Process

Targeted to sales personnel, sales operations.

4.1 Sales Process Overview

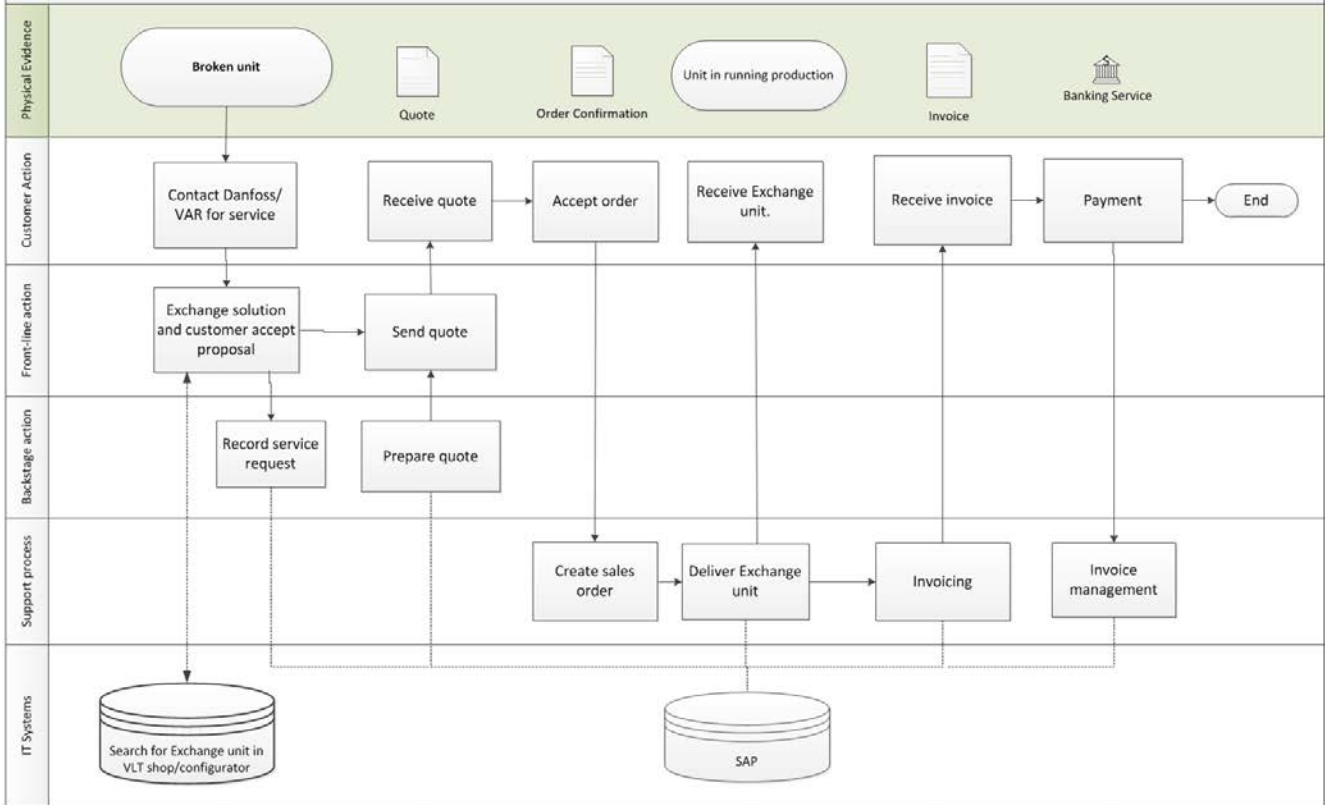


Illustration 4.1 Sales Process Overview

4.2 Pricing

In general, the pricing principles are built on the existing quoting system like the one the organizations use today. This chapter describes the specialties and pricing rules for the DrivePro® Exchange program.

The pricing structures are divided into the following groups:

- Direct channel (Danfoss to end user)
- Indirect channel I (Danfoss to OEM/system integrator)
- Indirect channel II (Danfoss via value-added reseller (VAR) to end user)

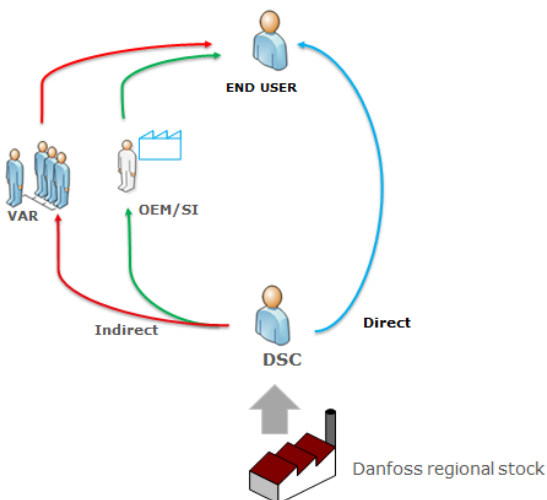


Illustration 4.2 DrivePro® Exchange Unit Direct and Indirect Channel to End User

The service VARs have to match their prices to make sure that the end user gets around the same market value at the end. In other words, the same price level has to be achieved, no matter whether the DrivePro® Exchange units are offered via the direct channel from Danfoss, or the indirect channel via VAR to the end user.

The pricing principle for the OEM/system integrator is not described further in this manual. It is up to the OEM/system integrator to set their own principles.

4.2.1 Price Setting, New² Exchange Unit, Direct Channel

DrivePro® Exchange pricing follows the local price on the drive to the customer, plus an extra premium charge (surcharge), to cover the additional cost for stocking the exchange unit in the regional stock.

- The DrivePro® Exchange surcharge is between 10–20% of the local drive list price.
- Each country sets a default percentage valid for all DrivePro® Exchange.
- Transport costs come on top and have to be ordered separately as for any other order line.

DrivePro® Exchange units are typically sent to the end user by express delivery. Invoice the additional shipping costs directly to the end user.

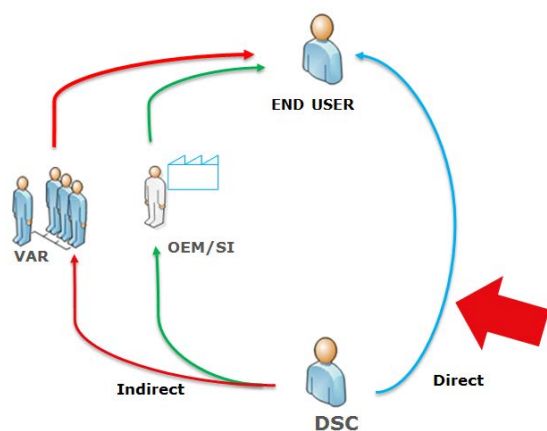


Illustration 4.3 DrivePro® Exchange Unit Direct Channel to End User

² Factory-new unit at regional or DSC/VAR stock

Service Sales Process

The following illustrations explain the transformation from global list price to local price to the market (end user).

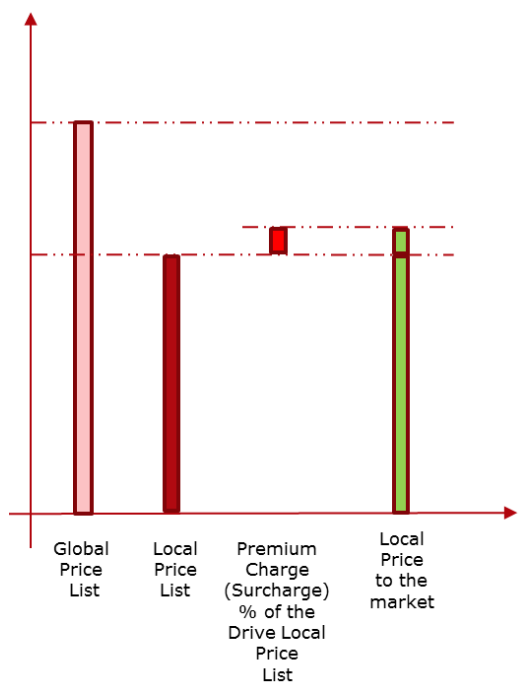


Illustration 4.4 DrivePro® Exchange Unit Premium Charge (Surcharge) Principles

Examples on surcharge values for DrivePro® new exchange units.

| DrivePro Exchange unit (Factory new) (Not Used) | | | | | |
|---|-----------------|-------|----------------------|--------|----------------------|
| Local Drive List Price | Surcharge Range | Min % | Min. Surcharge Value | Máx. % | Máx. Surcharge Value |
| 200,00 | 10% - 20% | 10% | 20,00 | 20% | 40,00 |
| 400,00 | 10% - 20% | 10% | 40,00 | 20% | 80,00 |
| 600,00 | 10% - 20% | 10% | 60,00 | 20% | 120,00 |
| 800,00 | 10% - 20% | 10% | 80,00 | 20% | 160,00 |
| 1.000,00 | 10% - 20% | 10% | 100,00 | 20% | 200,00 |
| 1.200,00 | 10% - 20% | 10% | 120,00 | 20% | 240,00 |
| 1.400,00 | 10% - 20% | 10% | 140,00 | 20% | 280,00 |
| 1.600,00 | 10% - 20% | 10% | 160,00 | 20% | 320,00 |
| 1.800,00 | 10% - 20% | 10% | 180,00 | 20% | 360,00 |
| 2.000,00 | 10% - 20% | 10% | 200,00 | 20% | 400,00 |
| 2.500,00 | 10% - 20% | 10% | 250,00 | 20% | 500,00 |
| 3.000,00 | 10% - 20% | 10% | 300,00 | 20% | 600,00 |
| 4.000,00 | 10% - 20% | 10% | 400,00 | 20% | 800,00 |
| 5.000,00 | 10% - 20% | 10% | 500,00 | 20% | 1.000,00 |
| 6.000,00 | 10% - 20% | 10% | 600,00 | 20% | 1.200,00 |
| 7.000,00 | 10% - 20% | 10% | 700,00 | 20% | 1.400,00 |
| 8.000,00 | 10% - 20% | 10% | 800,00 | 20% | 1.600,00 |
| 9.000,00 | 10% - 20% | 10% | 900,00 | 20% | 1.800,00 |
| 10.000,00 | 10% - 20% | 10% | 1.000,00 | 20% | 2.000,00 |
| 11.000,00 | 10% - 20% | 10% | 1.100,00 | 20% | 2.200,00 |

4.2.2 Price Setting, New Exchange Unit (from Danfoss Stock) via VAR to End User, Indirect Channel

In the indirect channel, where the VAR offers/invoices the DrivePro® Exchange unit coming from any Danfoss stock (regional or local), the price on the DrivePro® Exchange unit must match the direct channel price level as described in 4.2.1 Price setting for new exchange unit, direct channel.

To cover the VAR handling cost, Danfoss transfers a commissioning fee to the executing VAR who handles the exchange case. This commissioning fee to the VAR is a percentage of the local drive list price, between 15–20%. For further detail, refer to the following illustrations.

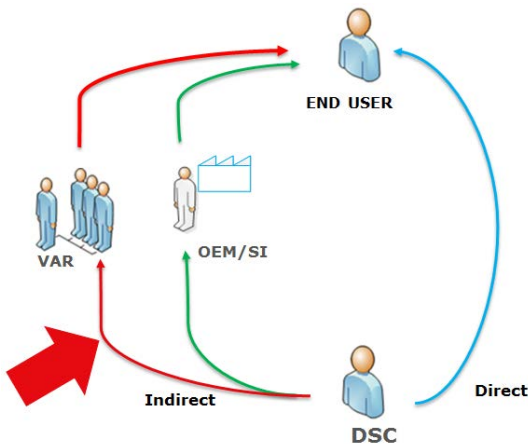


Illustration 4.5 DrivePro® Exchange Unit Indirect Channel via VAR to End User

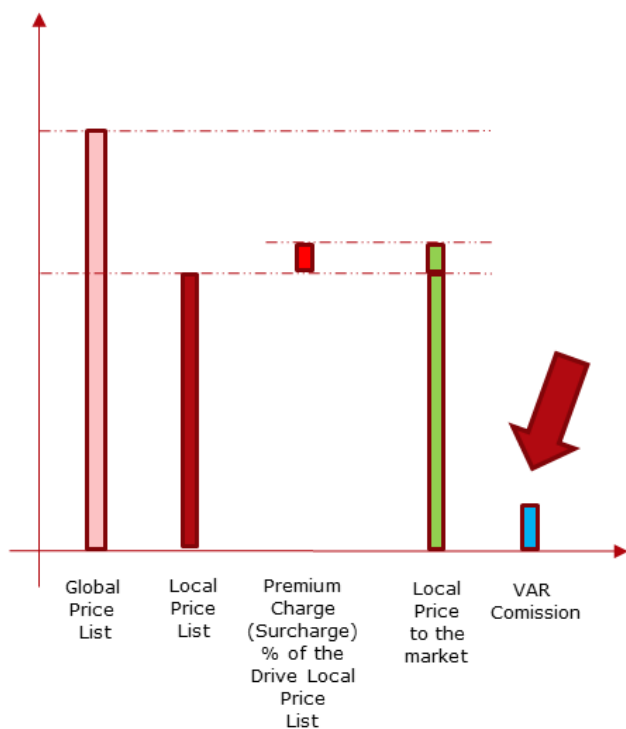


Illustration 4.6 DrivePro® Exchange Unit Commissioning Principles to the VAR

4.2.3 Price Setting, New Exchange Unit (from VAR Stock) via VAR to End User, Indirect Channel

In an indirect channel, where the VAR offers a DrivePro® Exchange unit from their own stock to the end user, the exchange unit price must match the price level as described in 4.2.1 *Price setting for new exchange unit, direct channel*. The matching price is to ensure that the end user gets around the same market value at the end, no matter whether the exchange unit is delivered directly from Danfoss or indirectly via VAR.

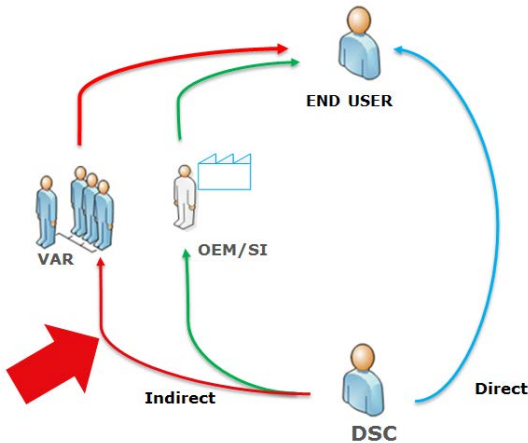


Illustration 4.7 DrivePro® Exchange Unit Indirect Channel via VAR to End User

The VAR uses the existing discount matrix to calculate the VAR drive price, and add the VAR markup and VAR surcharge to cover the costs for local stocking.

The following illustrations explain the transformations from the global list price to the local price to the market (end-user).

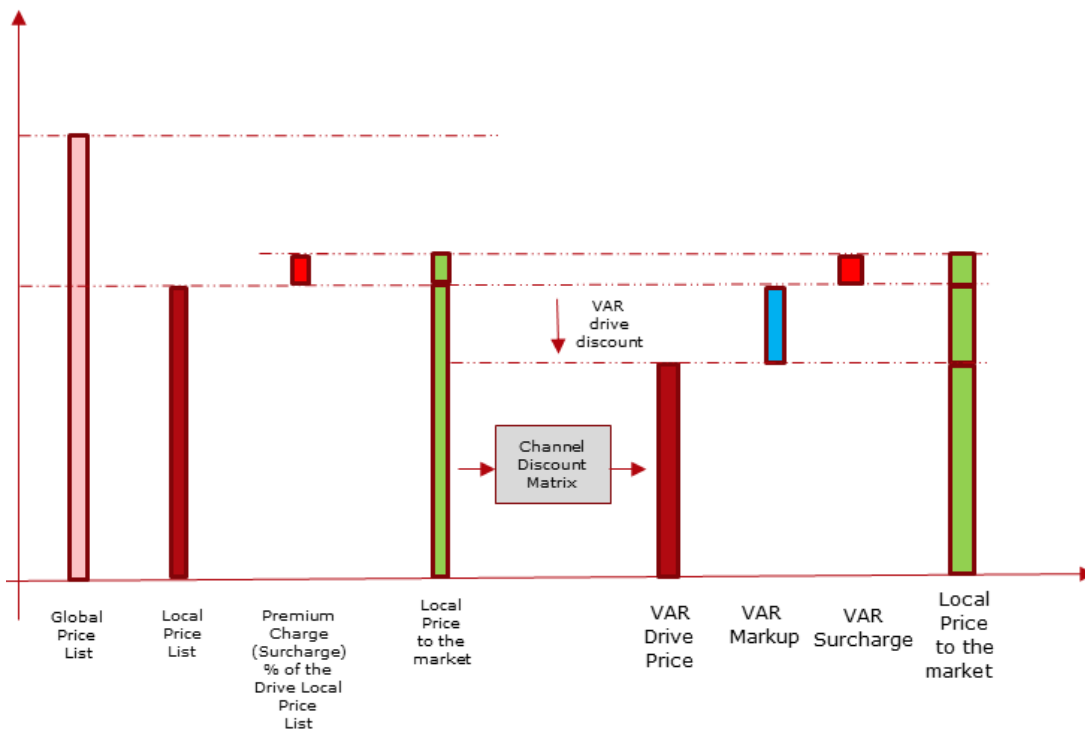


Illustration 4.8 DrivePro® Exchange Unit from VAR Local Stock, Price Transformation

4.2.4 Price Setting, Refurbished Exchange Unit

The pricing principle for DrivePro® Exchange refurbished units follow the local price to market on a new drive including surcharge. To compensate for refurbishing the (non-new) unit, 30% discount is given on the local price to the market as shown in the following illustration.

Typically, the DrivePro® Exchange unit is sent to the end user via express delivery, this additional shipping cost has to be invoiced directly to the end user.

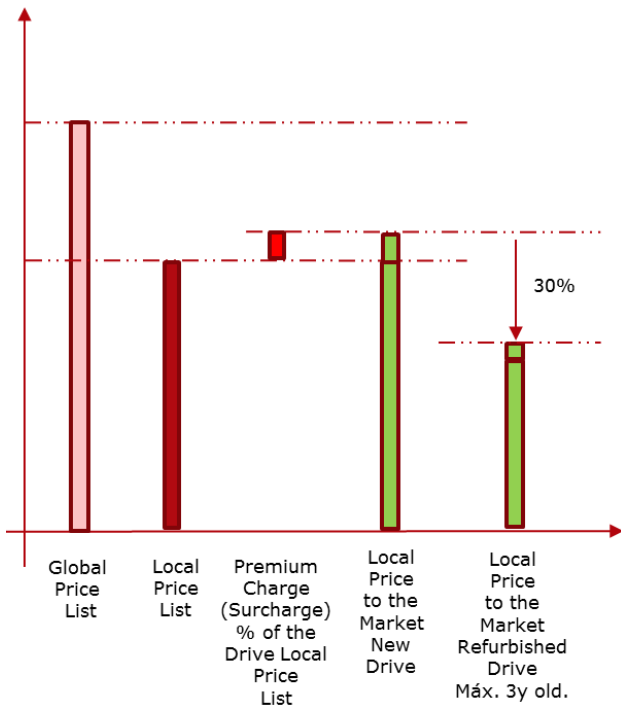


Illustration 4.9 DrivePro® Exchange Unit from VAR Local Stock, Price Transformation

| DrivePro Exchange unit (Refurbished) | | | | | | | | |
|--------------------------------------|-----------------|-------|----------------------|--------|----------------------|--|-------------------------------|----------------------------|
| Local Drive List Price | Surcharge Range | Min % | Min. Surcharge Value | Máx. % | Máx. Surcharge Value | DrivePro Exchange New choosing 10% for Surcharge | DrivePro Refurbished Discount | DrivePro Refurbished Price |
| 200,00 | 10% - 20% | 10% | 20,00 | 20% | 40 | 220 | 30% | 154,00 |
| 400,00 | 10% - 20% | 10% | 40,00 | 20% | 80 | 440 | 30% | 308,00 |
| 600,00 | 10% - 20% | 10% | 60,00 | 20% | 120 | 660 | 30% | 462,00 |
| 800,00 | 10% - 20% | 10% | 80,00 | 20% | 160 | 880 | 30% | 616,00 |
| 1.000,00 | 10% - 20% | 10% | 100,00 | 20% | 200 | 1100 | 30% | 770,00 |
| 1.200,00 | 10% - 20% | 10% | 120,00 | 20% | 240 | 1320 | 30% | 924,00 |
| 1.400,00 | 10% - 20% | 10% | 140,00 | 20% | 280 | 1540 | 30% | 1.078,00 |
| 1.600,00 | 10% - 20% | 10% | 160,00 | 20% | 320 | 1760 | 30% | 1.232,00 |
| 1.800,00 | 10% - 20% | 10% | 180,00 | 20% | 360 | 1980 | 30% | 1.386,00 |
| 2.000,00 | 10% - 20% | 10% | 200,00 | 20% | 400 | 2200 | 30% | 1.540,00 |
| 2.500,00 | 10% - 20% | 10% | 250,00 | 20% | 500 | 2750 | 30% | 1.925,00 |
| 3.000,00 | 10% - 20% | 10% | 300,00 | 20% | 600 | 3300 | 30% | 2.310,00 |
| 4.000,00 | 10% - 20% | 10% | 400,00 | 20% | 800 | 4400 | 30% | 3.080,00 |
| 5.000,00 | 10% - 20% | 10% | 500,00 | 20% | 1000 | 5500 | 30% | 3.850,00 |
| 6.000,00 | 10% - 20% | 10% | 600,00 | 20% | 1200 | 6600 | 30% | 4.620,00 |
| 7.000,00 | 10% - 20% | 10% | 700,00 | 20% | 1400 | 7700 | 30% | 5.390,00 |
| 8.000,00 | 10% - 20% | 10% | 800,00 | 20% | 1600 | 8800 | 30% | 6.160,00 |
| 9.000,00 | 10% - 20% | 10% | 900,00 | 20% | 1800 | 9900 | 30% | 6.930,00 |
| 10.000,00 | 10% - 20% | 10% | 1.000,00 | 20% | 2000 | 11000 | 30% | 7.700,00 |
| 11.000,00 | 10% - 20% | 10% | 1.100,00 | 20% | 2200 | 12100 | 30% | 8.470,00 |

NOTICE

- Drives are only returned to become refurbished until end of factory warranty (<18 months).
- Drives which are sold as refurbished have the maximum age of 3 years.
- Discount for refurbished drives should be 10–40% of the net price after surcharge for DrivePro® Exchange (see example with 30% above).
- The 30% discount also applies on the surcharge for the refurbished drive.
- Only 1 discount per country, independent of the age (<3 years).

4.3 Search, Quote, Order, and Invoice

For quote, order, and invoicing, use the modules in the existing system. Update the pricing principle locally to follow the specialties for DrivePro® Exchange program.

4.3.1 Search for VLT® Exchange Unit

Searching VLT® exchange unit:

A system (VLT® shop) to search for exchange units on the regional service stock is available for Danfoss employees and VAR who have access to the VLT® shop.

1. Open the VLT®-shop.
2. Select the Drive Configurator.
3. Follow illustrations 4.9 – 5.0.

Link to the VLT®-shop:

<http://vltshop.danfoss.net>

NOTICE

The fastest way to search matching exchange unit for a given drive is to:

1. Type the code number of the drive in the VLT®-Shop
2. Click *Display DrivePro® Services & Parts*
3. Follow the instructions in illustration 4.9

The screenshot shows the Danfoss VLT® shop interface. At the top, there is a navigation bar with 'HOME', 'PRODUCTS', 'SEARCH', 'SHOPPING CART', 'MY HISTORY', 'CONTACT SALES', and 'LOGOUT'. Below this is a 'QUICK SEARCH' box where the code '131b0047' has been entered. A callout box points to this search box with the instruction: '1. Type in the code number of the needed exchange unit and click search'. Below the search box, a dropdown menu is open, showing 'Exchange Unit' as the selected option. A second callout box points to this dropdown with the instruction: '2. Click on DrivePro® Services and Parts'. Below the dropdown, a table lists search results. The first row is highlighted, showing the code '131B0047' and the description 'FC-302P1K5T5E20H1BGXXXXXXXAXBXXXXX'. A third callout box points to this row with the instruction: '3. Select Exchange unit in the category, and only the matching DrivePro® Exchange unit shows up.' To the right of the table, there is a section titled 'DRIVEPRO® SERVICES & SPARE PARTS' with a list of options: 'Exchange Unit', 'Extended Warranty', 'Maintenance spare part', 'Recommended spare part', 'Self-service spare part', 'Spare Part', and 'Suitcase spare part'. Below this list is an 'EXTRAS' section with options like 'Display General Information', 'Display Configuration', 'DrivePro® Services & Parts', 'Display Power Options', 'Display Documents', and 'Display Accessories'. An 'EXPORT TO EXCEL' button is also visible.

Illustration 4.10 DrivePro® System to Search the Matching Exchange Unit

NOTICE

The exchange unit is shown as a part of the spare part list. To check the availability, see illustration 4.11

To check the stock availability for the given exchange unit, click *code no.* and again click *estimated availability* to look up the GSS stock.

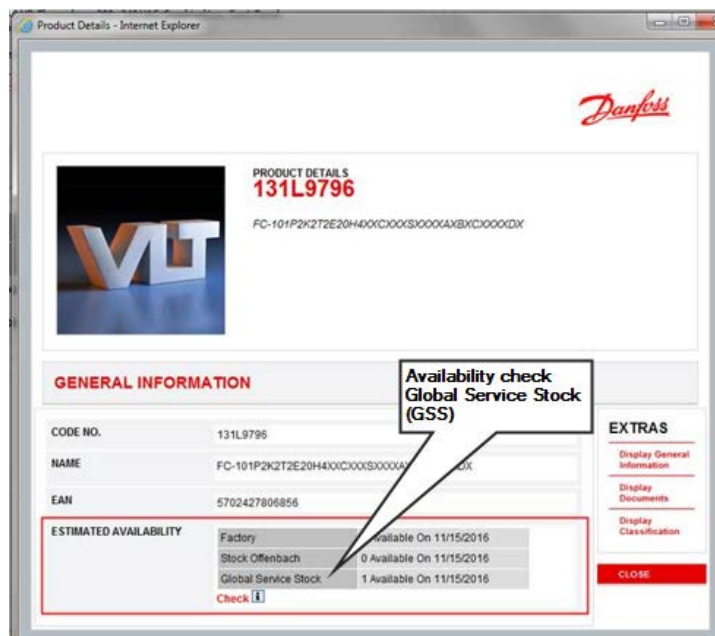


Illustration 4.11 DrivePro® System for Availability Check on GSS

Service Sales Process

4.3.2 Search for VACON® Exchange Unit

The VACON® exchange unit is available in the Vaasa factory in Finland.

An excel list to search for matching exchange units on the Vaasa service stock is available for Danfoss employees.

| Product code | Establish stock | Available | | Frame | Voltage | Amps | Control unit | IP class | Brake | DC connection | Chokes |
|-----------------------------|-----------------|-----------|-----------|-------|---------|-------|--------------|----------|------------------------------------|-------------------------|--------------------|
| | | New | Refurbish | | | | | | | | |
| MPNXP00125A5C1SSVA1A2000000 | Wave I | | 1 | FR4 | 500V | 12A | NXP | IP54 | included as standard | standard | standard |
| MPNXP00315A5C1SSVA1A2000000 | Wave I | | | FR5 | 500V | 31A | NXP | IP54 | included as standard | standard | standard |
| MPNXP00615A5C1SSVA1A2000000 | Wave I | | 2 | FR6 | 500V | 61A | NXP | IP54 | included as standard | standard | standard |
| MPNXP00346A5L1SSVA1A2000000 | Wave I | | 1 | FR6 | 630V | 34A | NXP | IP54 | included as standard | standard | standard |
| MPNXP01055A5H1SSVA1A2000000 | Wave I | | 1 | FR7 | 500V | 105A | NXP | IP54 | included as option | standard | standard |
| MPNXP00526A5L1SSVA1A2000000 | Wave I | | | FR7 | 630V | 52A | NXP | IP54 | included as option | standard | standard |
| MPNXP02055A5H1SSVA1A2000000 | Wave I | | | FR8 | 500V | 205A | NXP | IP54 | included as option | standard | standard |
| MPNXP01006A5L1SSVA1A2000000 | Wave I | | | FR8 | 630V | 100A | NXP | IP54 | included as option | standard | standard |
| MPNXP03005A5H1SSVA1A2000000 | Wave II | | 1 | FR9 | 500V | 300A | NXP | IP54 | included as option | Do connection as option | standard |
| MPNXP02086A5L1SSGA1A2000000 | Wave II | | 1 | FR9 | 630V | 208A | NXP | IP54 | included as option | Do connection as option | standard |
| MPNXP05205A0N0HSGA1A2000000 | Wave II | | 1 | FR10 | 500V | 520A | NXP | IP00 | included as option | Do connection as option | No chokes |
| MPNXP04166A0N0HSGA1A2000000 | Wave II | | 1 | FR10 | 630V | 416A | NXP | IP00 | included as option | Do connection as option | No chokes |
| MPNXP07305A0N0HSGA1A2000000 | Wave II | | 1 | FR11 | 500V | 730A | NXP | IP00 | included as option | Do connection as option | 6-pulse, No chokes |
| MPNXP05306A0N0HSGA1A2000000 | Wave II | | 1 | FR11 | 630V | 530A | NXP | IP00 | included as option | Do connection as option | 6-pulse, No chokes |
| MPNXP10305A0N0HSGA1A2000000 | Wave II | | 1 | FR12 | 500V | 1030A | NXP | IP00 | included as option | Do connection as option | 6-pulse, No chokes |
| MPNXI03005A0TOISGA1A2000000 | Wave II | | | FR9 | 500V | 300A | NXP | IP00 | Inverter unit, Can be used as brak | Inverter unit | No chokes |
| MPNXI02086A0TOISGA1A2000000 | Wave II | | | FR9 | 630V | 208A | NXP | IP00 | Inverter unit, Can be used as brak | Inverter unit | No chokes |
| MPNXI05205A0TOISGA1A2000000 | Wave II | | | FR10 | 500V | 520A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |
| MPNXI04166A0TOISGA1A2000000 | Wave II | | | FR10 | 630V | 416A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |
| MPNXI10305A0TOISGA1A2000000 | Wave II | | | FR12 | 500V | 1030A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |
| MPNXI14505A0TOISGA1A2000000 | Wave III | | 2 | FR13 | 500V | 1450A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |
| MPNXI11806A0TOISGA1A2000000 | Wave III | | 1 | FR13 | 630V | 1180A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |
| MPNXI06506A0T0MSV0000000000 | Wave III | | 1 | NFE | 630V | 650A | NXP | IP00 | Inverter unit | Inverter unit | No chokes |

| LC DRIVES | Establish stock | New | Refurbish | Frame | Voltage | Amps | Control unit | IP class | Brake | Dc connection | Chokes |
|-----------------------------|-----------------|-----|-----------|-------|---------|-------|--------------|----------|-----------------------------------|--------------------------------|--------------------|
| | | | | | | | | | | | |
| MPNXP02616A0N0NWGA1A2000000 | Wave III | | | CH61 | 630V | 261A | NXP | IP00 | Not available | Frequency converter | No chokes, 6-pulse |
| MPNXP07305A0TOIWGA1A2000000 | Wave III | | 2 | CH62 | 500V | 730A | NXP | IP00 | Inverter, Can be used as brake sh | Inverter, Can be used as brake | No chokes |
| MPNXP05026A0TOIWGA1A2000000 | Wave III | | | CH62 | 630V | 502A | NXP | IP00 | Inverter, Can be used as brake sh | Inverter, Can be used as brake | No chokes |
| MPNXP11505A0TOIWGA1A2000000 | Wave III | | 1 | CH63 | 500V | 1150A | NXP | IP00 | Not available | Inverter unit | No chokes |
| MPNXP07506A0TOIWGA1A2000000 | Wave III | | | CH63 | 630V | 750A | NXP | IP00 | Not available | Inverter unit | No chokes |
| MPNXP23005A0TOIWGA1A2000000 | Wave III | | | CH64 | 500V | 2300A | NXP | IP00 | Not available | Inverter unit | No chokes |
| MPNXP17006A0TOIWGA1A2000000 | Wave III | | | CH64 | 630V | 1700A | NXP | IP00 | Not available | Inverter unit | No chokes |
| MPNXP07305A0N1NWGA1A2000000 | Wave III | | | CH72 | 500V | 730A | NXP | IP00 | Not available | Frequency converter | No chokes, 6-pulse |
| MPNXP05026A0T1NWGA1A2000000 | Wave III | | | CH72 | 630V | 502A | NXP | IP00 | Not available | Frequency converter | No chokes, 6-pulse |
| MPNXP23005A0T1NWGA1A2000000 | Wave III | | | CH74 | 500V | 2300A | NXP | IP00 | Not available | Frequency converter | No chokes, 6-pulse |
| MPNXP17006A0T0NWGA1A2000000 | Wave III | | | CH74 | 630V | 1700A | NXP | IP00 | Not available | Frequency converter | No chokes, 6-pulse |
| NXNZ0006-A0T0UWV-A1A2BHB100 | Wave III | | | LCNFE | 630V | | | IP00 | Not available | Frequency converter | No chokes |

| VACON100 | Establish stock | New | Refurbish | Frame | Voltage | Amps | Segment | IP class | Option | Dc connection | Chokes |
|--|-----------------|-----|-----------|-------|---------|------|------------|----------|-------------------------------|---------------|----------|
| | | | | | | | | | | | |
| VACON100-3L-0031-5-SRBT-IP54-EMC4-FBIE | Wave I | | 1 | MP5 | 500V | 31A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | Standard | Standard |
| VACON100-3L-0061-5-SRBT-IP54-EMC4-FBIE | Wave I | | | MP6 | 500V | 61A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | Standard | Standard |
| VACON100-3L-0034-7-SRBT-IP54-EMC4-FBIE-GNUL | Wave I | | | MP6 | 630V | 34A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | Standard | Standard |
| VACON100-3L-0105-5-SRBT-IP54-EMC4-DBIN-FBIE | Wave I | | 1 | MR7 | 500V | 105A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0062-7-SRBT-IP54-EMC4-DBIN-FBIE-GNUL | Wave I | | 1 | MR7 | 630V | 62A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0205-5-SRBT-EMC4-DBIN-FBIE | Wave I | | | MP8 | 500V | 205A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0125-7-SRBT-EMC4-DBIN-FBIE-GNUL | Wave I | | 2 | MP8 | 630V | 125A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0310-5-SRBT-EMC4-DBIN-FBIE | Wave II | | 1 | MP9 | 500V | 310A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0208-7-SRBT-EMC4-DBIN-FBIE-GNUL | Wave II | | 1 | MP9 | 630V | 208A | Industrial | IP54 | +FBIE Profinet IO ethernet IP | ? | Standard |
| VACON100-3L-0590-5-SRBT-IP00-EMC4-DBIN-QEPO-FBIE | Wave II | | 1 | MR10 | 500V | 590A | Industrial | IP00 | +FBIE Profinet IO ethernet IP | ? | ? |
| VACON100-3L-0416-7-SRBT-IP00-EMC4-DBIN-QEPO-FBIE | Wave II | | 1 | MR10 | 630V | 416A | Industrial | IP00 | +FBIE Profinet IO ethernet IP | ? | ? |

Link to the share point:

<http://dddnet.danfoss.net/Commercial/index.aspx>

Shipping & Distribution

Commercial Department

Home Delivery Situation Stock GSS Info Product info General info Shipping Operations in DKDD Contact Emergency

Visitors : 5
Total: 37275

Decom
Exchange units
Service Kits for high power drives/filters
Spare part list coated
Info sheets for VLT4-5-6-7-8000 series

Click on Exchange units to open the Excel list

4.3.3 Quote

In general, the existing quote systems can be used if following the standard processes described for these systems.

The pricing principle described in chapter 4.2 *Pricing* has to be set up in the systems and respected to keep the overall price harmonizing between countries. This also complies if the DrivePro® product is offered directly from Danfoss or via a VAR (value-added reseller) to the end user.

4.3.4 How to Order Exchange Unit from the Vaasa Stock in Finland

Use the standard PO channel Summium for ordering the exchange unit.

It is important to add a comment on the order to ensure that the unit is ordered from the service stock and not from the productions.

NOTICE

When a standard PO is placed at the factory to order an exchange unit, it is important to add the desired drive type code and serial number to the *Comments* field in Summium or in *third-party texts* in SAP P08. The added comment ensures that the order stops at the factory order monitor, instead of going directly through for manufacturing.

See illustration 4.12 for an example in Summium:

| General | Customer | End customer | Products and pricing | Attachments | Additional info |
|---|---|--------------|----------------------|-------------|-----------------|
| Identification | | | | | |
| Order number | RUMSC-000001 | | | | |
| Our reference | <input type="text" value="Maiju Schrey"/> | | | | |
| Customer contact person | <input type="text"/> | | | | |
| Comments | | | | | |
| DrivePro Exchange: <u>AAASANXS00125A2H1SSSA1A30000C5</u> S/N: 13852325 Please send by courier (FCA Vaasa). | | | | | |

Notice:
Remember to insert the desired drive type code & serial number

Illustration 4.12 DrivePro®

Service Sales Process

See illustration 4.13 for an example in SAP P08:

(NB! This works currently only with third-party orders = drop shipments = orders that are delivered directly to the customer).

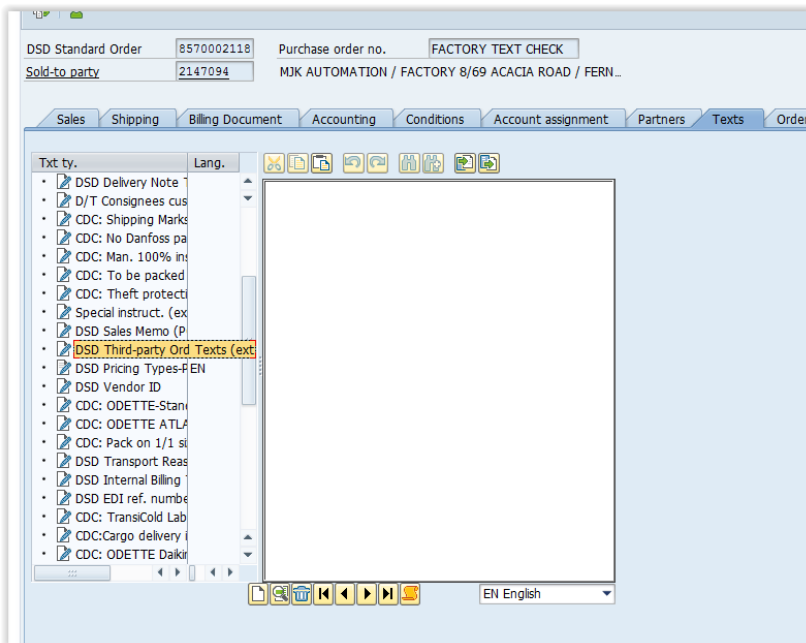


Illustration 4.13 DrivePro®

4.3.5 Service Revenue Recognition on VLT Exchange/Refurbish Unit in SAP

For correct revenue recognitions, the exchange or retrofit unit has to be selected as shown in illustrations 4.14

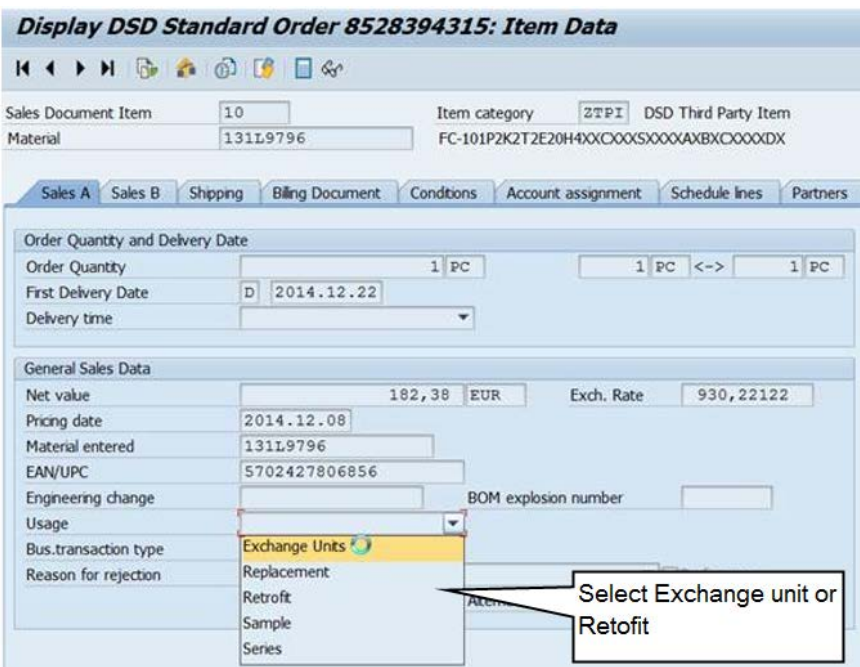


Illustration 4.14 DrivePro®

4.3.6 Service Revenue Recognition on VACON® Exchange/Refurbish Unit in Summium

For correct revenue recognitions, the exchange or retrofit unit has to be flagged as shown in illustrations 4.15 and 4.16.

Use the Service Option drop-down list to select the exchange or retrofit drive for revenue recognition purposes in BI. Note: The default value is *No selection*.

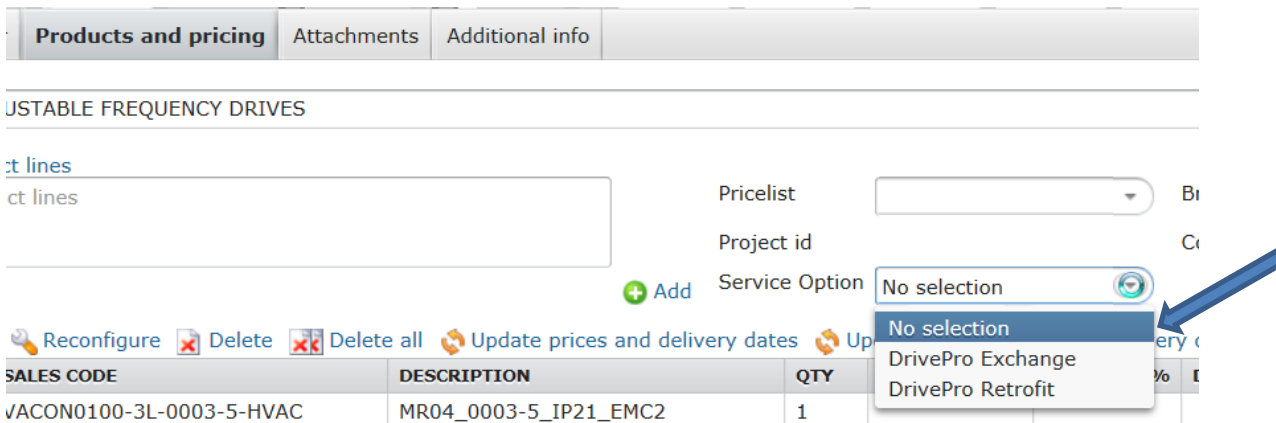


Illustration 4.15 DrivePro®

All the drives in the order can be marked as Exchange or Retrofit.

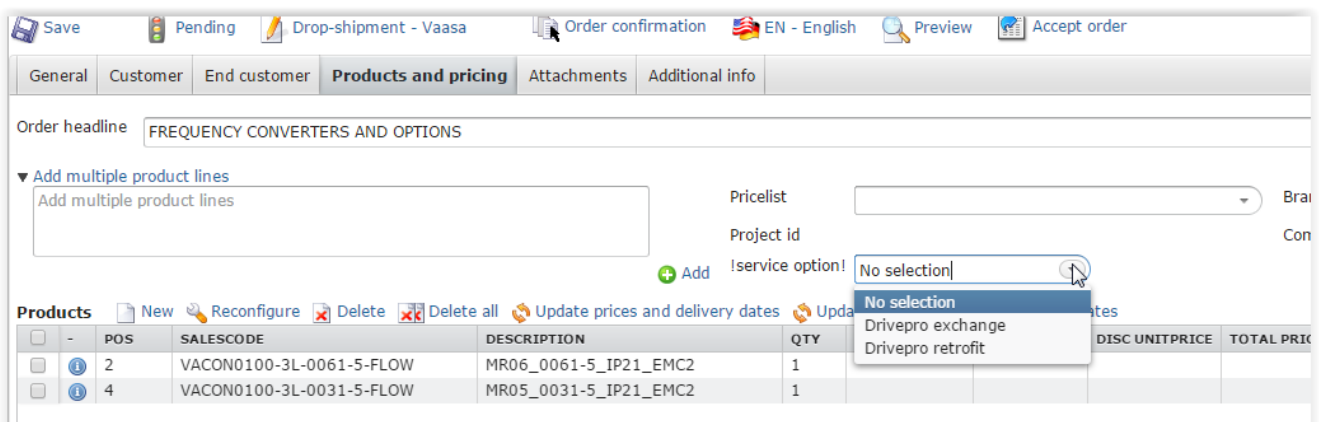


Illustration 4.16 DrivePro®

4.3.7 Order

4.3.7.1 Order Exchange Unit via VLT® shop

NOTICE

A Danfoss internal user in SAP P08 must change an order immediately after the order is placed via the VLT® Shop. If not, the order goes directly to the factory instead of Global Service Stock (GSS) for fast delivery.

Stop the order in SAP P08 and/or manually place the order in the system.

4.3.7.2 Cross-border Sales

If DrivePro® products are exported to other countries, the selling Danfoss Sales Center (DSC) must ensure that the importing country is DrivePro® certified, and also inform the servicing DSC about the export activities.

Service Sales Process

Beyond this DrivePro® service product, follow the Global Service standard 501G0019 and instructions 501G2022.

Copy of Global Service standard 501G0019 part 5.4

On request from the local customer, the servicing DSC is in charge of initiating the service activities, including the necessary orders for spare parts and exchange units, without a precedent service order from the *selling DSC*. Arrange the necessary service activities with the end user.

If service, reporting, and billing is according to the Global Service Standard and Instructions, the selling DSC must pay the services invoiced without delay and reductions.

Use the standard 'Service Order & Information Form' for initial and proper communication between the *selling DSC* and the *servicing DSC*.

Copy of instructions 501G2022Inside warranty and extended warranty handlings

The following scenarios may occur:

a) If the end user activates a service request directly to the local DSC/service partner, the local DSC/service partner must start service activities immediately, without waiting for a service order from the selling DSC (see 501G0019, section 5.3).

The local DSC/service partner must confirm to the selling DSC (in no later than 24 h) that they have received the service order, and inform about the service date and actions that they have agreed upon with the end user of the defective unit. If the selling DSC is not informed about the received service order, they may refuse expense coverage.

a) If additional action is needed to close the service case (missing spare part, and so on), the local DSC/service partner has to inform the exporting/selling DSC immediately.

b) If the exporting OEM activates a service request directly to the local DSC/service partner, the instructions from paragraph a) apply.

c) If the Global Service organization activates a service request directly to the local DSC/service partner, the instructions from paragraph a) apply.

d) If the service is activated by the exporting/selling DSC, they have to request the service action by filling in and sending a Service ordering form (991L1388) to the local DSC/service partner closest to the customer with the defective unit.

In all cases, the servicing DSC/partner has to carry out the service and keep the customer/selling DSC informed about the progress. The servicing DSC must close the service case by issuing a Global Service Report (501G2037) and fill in the repair data in the WIIS system.

Outside warranty handlings

Outside the warranty period, the service case is a matter between the customer and the local DSC/partner.

Invoicing and payment according to the standard 501G0019 and Instruction 501G2031.

4.3.8 Delivery Competence Requirements

4.3.8.1 Delivery Competence Requirements for Exchange unit

The customer's own service staff can install the unit by following the standard installation descriptions.

Sometimes, the exchange unit may be 1–2 steps higher in power size than the defect unit may, or there may be a need for updating the software to cover the applications. In these cases, there may be a need for a competent service technician to ensure full performance after the exchange.

Service Sales Process

4.4 Delivery

4.4.1 Access to Regional Service Stock (GSS and Vaasa)

VLT® products:

For VLT® products and countries that use the Global Service Stock (GSS stock) in DK, go to www.ordering.danfoss.com and follow the instructions.

For special delivery outside working hours: Call +45 29 49 51 07

VACON® Products:

For VACON® products located in Vaasa factory stock.

From exchange stock, the response time from order to shipping is same day if the order is received before 10:00 AM (GMT).

Urgent material delivery fee is not invoiced if the goods are not dispatched within the response time.

4.4.2 Access to Local Service Stock

Countries not covered by regional stock or GSS follow the access as described in standard 501G0019.

4.4.3 Managing the Delivery

4.4.3.1 VLT® products (GSS Graasten)

Within opening hours:

Danfoss spare parts delivery has different levels to reflect the urgency of a delivery. This is identified via different colors:

- Green delivery: The order is sent as confirmed, without urgency and without extra cost.
- Yellow delivery: Orders placed before 12:00 PM (GMT 11:00 AM) are shipped the same day from stock. Actual freight costs are added to the invoice.
- Red delivery: Shipment undergoes as fast as possible. Actual freight costs are added to the invoice.

Outside openings hours:

Outside opening hours:

Monday to Friday before 8:00 AM (GMT 7:00 AM) and after 4:00 PM (GMT 3:00 PM) and weekends.

For special delivery outside working hours

Call +45 29 49 51 07

Freight cost/Red transport + handling/administration cost:

DKK 1.500,- is added to the invoice

www.ordering.danfoss.com

4.4.3.2 VACON® Products

For urgent material delivery during office hours (8:00-16:00 GMT+2), make an urgent order and notify order handling about the order.

To be able to process the order fast and efficiently, the order must include all necessary information needed for the case.

- Delivery address
- Invoicing address
- Product sales code and price (for example, NXP-0140-5-...)
- Urgent material sales code (for example, SERVEDF-FR8)
- Information about urgent delivery in the comment field
- Also inform order handling about special freight or special requests for shipping documents, and so forth.
- Only one service case per order

For technical support, contact the technical support team (drives.techsupport.vdf@danfoss.com).

Outside office hours, contact 24/7 service support (+358 (0)40 8371150).

Urgent material delivery can be ordered in warranty and non-warranty service cases. Order codes are according to Table 1.

The price for urgent material delivery can be found in VACON® sales tool and table 4.17 The fastest freight is always used and charged according to actual cost + 10% handling fee, unless otherwise agreed. During the weekend, an extra fee of 300€ is applied. Urgent Material Delivery fee is the same for exchange units in stock and new units from production.

| Unit size (frame) | Order Code | DSC price |
|--------------------------|-------------------|------------------|
| NXW | SERVEDF-NXW | 2273 |
| MR4-7 | SERVEDF-MR4-7 | 364 |
| MR8-9 | SERVEDF-MR8-9 | 773 |
| Spare Parts | SERVEDF-SP2 | 273 |
| NXL, MF4 | SERVEDF-MF4 | 159 |
| NXL, MF5 | SERVEDF-MF5 | 250 |
| NXL, MF6 | SERVEDF-MF6 | 409 |
| NX, FR4 | SERVEDF-FR4 | 227 |
| NX, FR5 | SERVEDF-FR5 | 318 |
| NX, FR6 | SERVEDF-FR6 | 455 |
| NX, FR7 | SERVEDF-FR7 | 546 |
| NX, FR8 | SERVEDF-FR8 | 682 |
| NX, FR9 | SERVEDF-FR9 | 773 |
| NX, FR10 | SERVEDF-FR10 | 977 |
| NX, FR11 | SERVEDF-FR11 | 1296 |
| NX, FR12 | SERVEDF-FR12 | 2046 |
| NX, FR13 | SERVEDF-FR13 | 2728 |
| NX, FR14 | SERVEDF-FR14 | 2728 |
| NX, FI9 | SERVEDF-FI9 | 682 |
| NX, FI10 | SERVEDF-FI10 | 864 |
| NX, FI12 | SERVEDF-FI12 | 1818 |
| NX, FI13 | SERVEDF-FI13 | 2364 |
| NX, FI14 | SERVEDF-FI14 | 2364 |

Table 4.17. Express Delivery Service Prices

5 Service Product Support

5.1 Warranty

5.1.1 General Warranty Conditions for Exchange Unit

- New exchange unit:
 - Follow the general warranty conditions for new units.
- Refurbished exchange unit:
 - Follow the general warranty conditions for repair.
 - Between service shop and sales company/VAR = 6 months from delivery day
 - To customer = 6 months from day of delivery of the spare parts.

5.1.2 Warranty Compensation

For new exchange unit:

- Follow the general rules for new units.

For refurbished exchange unit:

- Follow the general rules for repairs.

6 Appendix

6.1 Symbols and Abbreviations

| | |
|------|--|
| GSS | Global Service Stock |
| HW | Hardware |
| KPI | Key performance indicator |
| LCP | Local control panel |
| SW | Software |
| VAR | Value-added reseller = Service partner |
| WIIS | Web-integrated information system |

Table 6.1 Symbols and Abbreviations

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