

ENGINEERING
TOMORROW



Selection Guide | VACON® NXP System Drive

Save costs and **improve reliability** – the **easy** way

Reduce the design
cost of a project-
based enclosure to
only

5%

drives.danfoss.com | **VACON®**

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The best partner for reliability and performance

Customers in heavy industries, such as Marine, Metals and Pulp and Paper, need drive systems that excel in terms of reliable performance. If you can rely on your system, it leaves you with more time and money to spend on optimizing the rest of the application.

You can now be sure to receive a drive system that is unmatched in terms of quality and ready in a shorter space of time than ever before. That's because we have changed our production approach to bring it into line with what customers are after. VACON® NXP System Drive ensures that you receive an excellent level of quality and service, each and every time.

In the system drives business, communication between partners is the key to successful end result. Large-scale projects often feature many different components which are reliant upon communication on both sides to avoid technical problems anywhere down the line.

Driven by drives

Our ability to work around the challenges our customers face everyday, regarding efficiency and cost savings, is the reason why we have reached where we are. By choosing Danfoss Drives, you can be sure to receive a top-class drive system – nothing else will do. We also won't compete with system integrators for projects, unlike many other drive suppliers. This enables an atmosphere of mutual trust with our network of system integrators and end-users.

Complex solutions made simple

It's essential that you receive a solution with a level of quality that's as consistent as it is excellent. VACON NXP System Drive provides complex solutions which are simplified through standardization, resulting in a product that will easily integrate into the process. This doesn't prevent you from getting the exact solution you need – we can tailor some elements of the system in order to meet your requirements.

Why choose VACON® NXP System Drive?



Cost savings

- Traditionally, the design of a project-based enclosure accounts for up to 35% of the total cost.
- With VACON® NXP System Drive, this is reduced to around 5%.



Focus on drives

- We concentrate on drives so you can concentrate on the rest of the application.
- Danfoss Drives is always a non-competing partner for system integrators on projects.



Quality as standard

- Standardized and pre-tested solutions.
- We support our customers by supplying them with complete drive systems.



Proven track record

- VACON® NXP Common DC Bus technology has been the ideal choice for drive systems for a number of years.

VACON® NXP System Drive – quality as standard

Reliability is key

VACON® NXP System Drive brings what customers need above all else – consistent and reliable quality guaranteed. We excel in delivering verified and tested solutions that combine VACON® AC drives, DC bus components and options. No need to worry about waiting for technical data, documentation or piloting – we've done all that before it reaches your premises.

Quick installation

Aside from the quality delivered, VACON® NXP System Drive is also easy to adapt. Engineered sections slot in alongside each other, allowing you to arrange integrated transport splits to save space. Alternatively, you can add extra transport sections to speed up installation. All larger modules have slide-out mechanics that facilitate setup and maintenance. This also enables late module delivery, which

can be helpful if the system is to be installed in a harsh environment. All sections are grouped depending on their functionality, making it possible to plan each installation phase exactly how you wish.

Cost efficiency

Besides the peace of mind that comes with stress-free installation and setup, you'll also save a lot of time and money.

Key benefits

Complete drive solutions

- Standardized products which fit all your application needs
- Modules can be delivered closer to start of the operation
- Minimized lifetime cost

Premium quality

- Industry-leading VACON® NXP and VACON® Common DC bus solutions
- Safe, tested and verified design
- Comprehensive documentation available with each delivery

Save on time and cost

- Modular design equipped with pull out feature for quick setup and maintenance
- Short setup time
- Easy to train onsite engineers



This is because the setup is essentially formulated when you order it, meaning system integrators can get on with designing the rest of the application. The fact that the drive system's setup is uniform also means that it's far easier to provide spare parts.

Safety and service means a longer lifecycle

A complex and wide-ranging solution is not one you want to have to replace, which is why VACON® NXP System Drive is built to last. One of the cornerstones of the relationship with our partners is a commitment to drives performance that goes far beyond the point of purchase.

Items such as busbar systems and high/low power devices are separated into individual compartments, away from each other. This means that, if things go wrong, the problem is compartmentalized and doesn't cause widespread failure. The fact that VACON® NXP System Drive is easy to maintain also makes it safer. Service engineers are immediately familiar with

the way the system is set up, meaning they can get straight to the focal point.

Proven AC drive technology for heavy industry

Still need a reason to choose us? How about the fact that VACON® NXP drives have been leading the way in the industry for the past decade. Aside from frequency converter units, we can also deliver software and common DC bus components, which combine to make your personal solution. VACON® NXP Common DC bus technology has been the choice for our drive system customers for many years already – VACON NXP® System Drive simply ensures an optimal version of this solution, consistently and quickly.



Typical applications



Marine and Offshore

- Cranes and Hoists
- Thrusters
- Deck machinery



Metals

- Metal plane lines
- Melting and casting
- Rolling mill applications



Pulp and Paper

- Conveyors
- Sectional drives
- Debarking drums



VACON® NXP System Drive configurator

Setting up VACON® NXP System Drive couldn't be easier – our online configuration tool guides you through the whole design process while providing you with the necessary documentation.

This is all achieved in a number of simple steps:

1

You enter all the standard process data you will need for the drive system to work as you want it to e.g. main network type, frequency, voltage, ambient temperature etc. Once you have selected all these, configuration will start automatically.

2

Now you can play around with the parts to ensure that they meet your needs. The dimensions (height x length x depth) are all listed so that you can ensure the setup fits into the space you have set aside for the system.

3

When everything is setup and is ready to go, VACON® Configurator will automatically provide you with the documentation you need for the initial system setup, including a technical description listing all the specifications.

As a user of VACON® NXP System Drive configuration tool, you will have your own profile page which lists all your configurations, drafts and technical history. This allows you to easily keep track of your settings so that you don't have to spend time looking around for mislaid papers.



1

1 Base options 2 Cabinets 3 Summary

Select base options for the project:

Main network type*)	3-Ø-C	Cabinet type)	PM4 (150)
Main voltage*)	400V AC	Height)	230mm
Frequency)	50Hz	Depth)	500mm
Main max. current)	1000	Cabinet material)	Fluorocarbon steel
Busbar system)	DC+, DC-, PE	Sheet steel parts inside enclosure*)	Without coating
Busbar system voltage)	400V AC	Color)	RAL 7035
Busbar system max. current)	630 A	Color (if chosen 'other')	
Short time current low, 1 sek.)	33.6A	Ingress protection of enclosure*)	IP 21
PE design)	25 %	Protection barriers and covers)	IP 00
Busbars and Busbars)	(Flat) copper	Ambient temperature*)	35 °C
		Halogen free wire and ducts)	NO
		Wiring diagram)	NO
		Type of packing)	Wooden pallet
		Application)	Industry

2

1 Base options 2 Cabinets 3 Summary

DEMO (1-1)

Control

System diagram: Height: 230 mm, 500, 200 mm, 500, 800 mm

3

1 Base options 2 Cabinets 3 Summary

Project saved
Project saved successfully

DEMO (1-1)

Project base options (7) DEMO001

Main network type)	3-Ø-C
Main voltage)	400V AC
Frequency)	50Hz
Main max. current)	1000
Busbar system)	DC+, DC-, PE
Busbar system voltage)	400 VAC
Busbar system max. current)	630 A
Short time current low, 1 sek.)	33.6A
PE design)	25 %
Busbars and Busbars)	(Flat) copper
Cabinet type)	PM4 (150)
Height)	230mm
Depth)	500mm
Cabinet material)	Fluorocarbon coated steel
Sheet steel parts inside enclosure)	Without coating
Color)	RAL 7035
Ingress protection of enclosure)	IP 21
Protection barriers and covers)	IP 00
Ambient temperature)	35 °C
Halogen free wire and ducts)	NO
Wiring diagram)	NO
Type of packing)	Wooden pallet
Application)	Industry

Technical offer Price offer

Total option price: **0.00 EUR**

Make an error

Order status: Opened

Change status: Choose

Key benefits

- Engineering process is cut to a minimum
- Prevents human mistakes from occurring during configuration
- Preferred configurations can be saved in customer profiles
- Easy and efficient way to try out implementation options

Available sections

Auxiliary Device Section (ADS)

The auxiliary device section includes the common line-up controls. This section can be customized for all application and segment needs. There is one ADS size available.

As standard the ADS section has the following equipment:

- Indication of the mains status (fault, pre-charging and ON)
- Auxiliary power supply 24 V, 5 A
- Auxiliary transformer, 2500 VA 1-phase supply (in bottom of cabinet)
- Terminals for control and monitoring

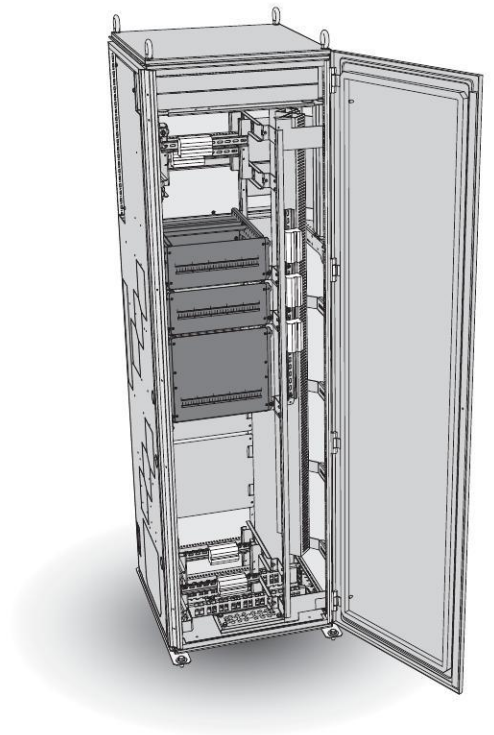
As pre-engineered standard options, we can provide the following:

- Emergency stop CAT0 (+PES)
- Emergency stop CAT1 (+PED)
- Insulation fault sensor (+PIF)
- Arc protection (+PAP)*
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

- Auxiliary voltage transformer 4000 VA (+AT4)
- Auxiliary voltage 110 VAC (+AT1)
- Auxiliary power supply 24 V, 10 A (+ADC)
- Cabling from the top (+CIT)
- UL approved design and components (+NAR)
- Customer specific option (+CSO)

* +PAP will have sub units in selected sections if needed, please refer to the circuit diagrams.

ADS type	Dimensions, W x H x D [mm]
ADS_400	400 x 2000 x 605
ADS_600	600 x 2000 x 605
ADS_800	800 x 2000 x 605



Main Incoming Section (MIS)

The main incoming section includes the main incoming device. The main incoming device and size is dependent on the required current of the complete line-up.

As standard the MIS section has the following equipment:

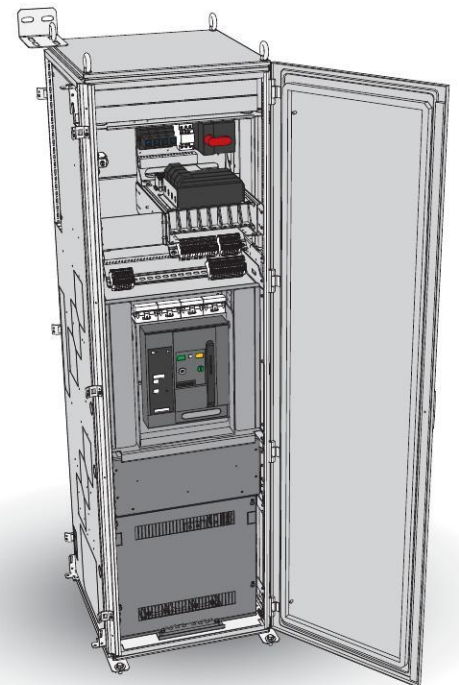
- Main incoming device, load switch
- Mains connections
- Emergency disconnect push button
- Digital multi instrument with field bus connection

As pre-engineered standard options we can provide the following:

- Cabling from the top (+CIT)
- Earth switch (+ILE)*
- Current transducers (+ITR)
- UL approved design and components (+NAR)
- Arc protection (+PAP)
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

* +ILE requires an additional section.

MIS type	Input current	Dimensions, W x H x D [mm]
MIS_630	630 A	400 x 2000 x 605
MIS_1000	1000 A	600 x 2000 x 605
MIS_1250	1250 A	600 x 2000 x 605
MIS_1600	1600 A	600 x 2000 x 605
MIS_2500	2500 A	600 x 2000 x 605
MIS_3200	3200 A	800 x 2000 x 605
MIS_4000	4000 A	800 x 2000 x 605
MIS_5000	5000 A	800 x 2000 x 605



Non-regenerative Front-end Section (NFS)

The non-regenerative front-end section (NFS) includes one or multiple NXN units from the VACON® product family. The NXN is a non-regenerative supply unit that can be utilized in 6-pulse, 12-pulse, 18-pulse and 24-pulse systems.

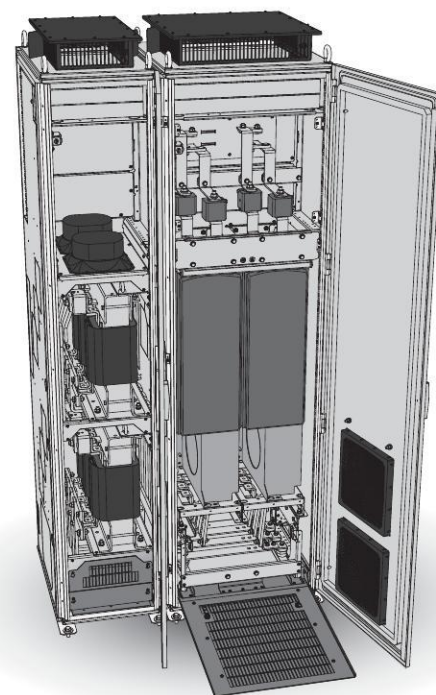
As pre-engineered standard options, we can provide the following:

- UL approved design and components (+NAR)
- Arc protection (+ADU)
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

As standard the NFS section includes the following:

- The NXN unit(s)
- Chokes
- Terminals for control and indication signals
- DC fuses for the supply unit
- AC fuses for the filter

NFS type	Number of NXN units	Dimensions, W x H x D [mm]
NFS_1x	1	600 x 2100 x 605
NFS_2x	2	1000 x 2100 x 605



Active Front-end Section (AFS)

The active front-end section includes an LCL-filter and an NXA unit from the VACON product family. The active front-end provides low THD(I) and several units can be connected in parallel providing full or reduced redundancy.

As pre-engineered standard options we can provide the following

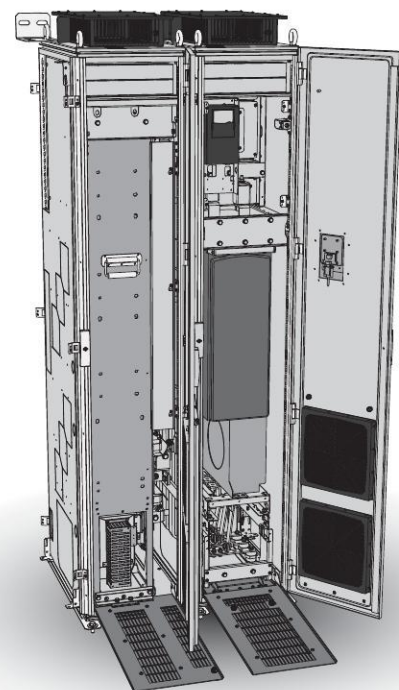
- UL approved design and components (+NAR)
- Arc detection (+ADU)
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

As standard the AFS sections include the following:

- LCL-filter
- The NXA unit
- Control unit
- Pre-charging components
- Terminals for control and indication signals
- DC fuses for the supply unit
- AC fuses for the filter

AFS type	Frame size	Dimensions, W x H x D [mm]
AFS_9	F19	800 x 2100 x 605*
AFS_10	F110	800 x 2100 x 605*
AFS_13	F113	1400 x 2100 x 605*

* Dimensions including LCL



Available sections

Inverter Unit Section (IUS) drive sizes FR4-FR8

The inverter unit section (IUS) includes one or several smaller NXI drives from the VACON® product family. The inverter units are all VACON® NXP drives.

As standard the IUS section includes the following:

- Input fuses (DC fuses)
- The NXI drive(s)
- Control box (integrated into the module)
- Terminals for control and indication signals

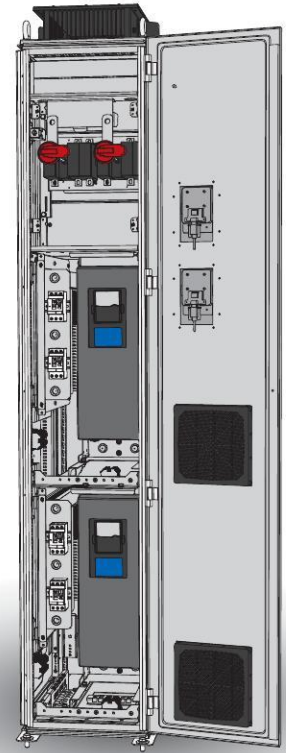
As pre-engineered standard options we can provide the following:

- dU/dt (+ODU)
- Common mode filter (+OCM)
- Input switch, DC-disconnect (+ISD)
- Arc detection (+ADU)
- Motor fan control (+AMF)
- Motor heater feeder (+AMH)
- Mechanical break control (+AMB)
- Top cabling (+COT)
- UL approved design and components (+NAR)
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

IUS type	Frame size	Maximum amount of units per section	Dimensions, W x H x D [mm]
IUS_4	FR4	3*	400 x 2100 x 605**
IUS_4/6	FR4/FR6	2	400 x 2100 x 605**
IUS_7	FR7	1	400 x 2100 x 605**
IUS_8	FR8	1	400 x 2100 x 605**

* Only option board and fieldbus options

** Top exit +400 mm can be shared between two sections



Inverter Unit Section (IUS) drive sizes FI9-FI14

The inverter unit section (IUS) includes the largest NXI drives from the VACON® product family. The inverter units are all VACON® NXP drives.

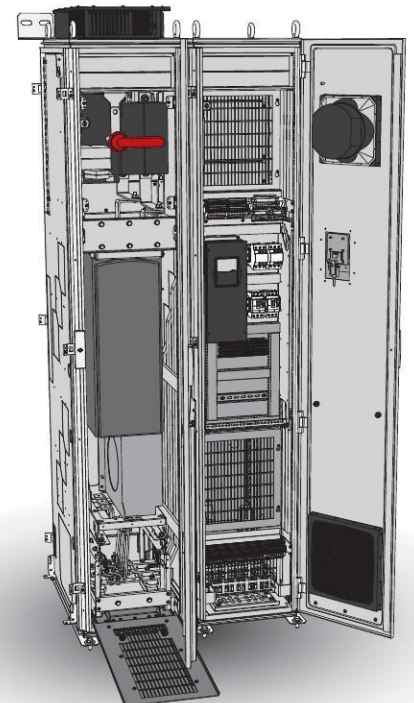
As standard the IUS section includes the following:

- Input fuses (DC fuses)
- The NXI drive
- Service platform/module removal
- Outlet for power (for PC etc.)
- Control section and fixed external terminals, 70 pcs

As pre-engineered standard options we can provide the following:

- dU/dt (+ODU)
- Common mode filter (+OCM)
- Input switch with charging (+ISC)
- Arc detection (+ADU)
- Motor fan control (+AMF)
- Motor heater feeder (+AMH)
- Mechanical break control (+AMB)
- Top cabling (+COT)
- UL approved design and components (+NAR)
- Cabinet heater (+ACH)
- Cabinet light (+ACL)

MIS type	Frame size	Dimensions, W x H x D (mm)	Dimensions, W x H x D [mm] with space optimization
IUS_9	FI9	800 x 2100 x 605	600 x 2100 x 605
IUS_10	FI10	800 x 2100 x 605	600 x 2100 x 605
IUS_12	FI12	1000 x 2100 x 605	
IUS_13	FI13	1400 x 2100 x 605	Not available
IUS_14	FI14	2400 x 2100 x 605	





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Danfoss Drives

Danfoss Drives is a world leader in variable speed control of electric motors. We aim to prove to you that a better tomorrow is driven by drives. It is as simple and as ambitious as that.

We offer you unparalleled competitive edge through quality, application-optimized products targeting your needs – and a comprehensive range of product lifecycle services.

You can rely on us to share your goals. Striving for the best possible performance in your applications is our focus. We achieve this by providing the innovative products and application know-how required to optimize efficiency, enhance usability, and reduce complexity.

From supplying individual drive components to planning and delivering complete drive systems; our experts are ready to support you all the way.

We draw on decades of experience within industries that include:

- Chemical
- Cranes and Hoists
- Food and Beverage
- HVAC
- Lifts and Escalators
- Marine and Offshore
- Material Handling
- Mining and Minerals
- Oil and Gas
- Packaging
- Pulp and Paper
- Refrigeration
- Water and Wastewater
- Wind

You will find it easy to do business with us. Online, and locally in more than 50 countries, our experts are never far away, reacting fast when you need them.

Since 1968, we have been pioneers in the drives business. In 2014, Vacon and Danfoss merged, forming one of the largest companies in the industry. Our AC drives can adapt to any motor technology and we supply products in a power range from 0.18 kW to 5.3 MW.

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