



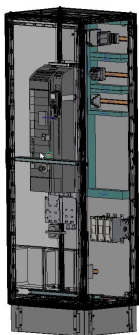
SINAMICS G120X – Cabinet units (75 – 560kW)

Siemens WKC

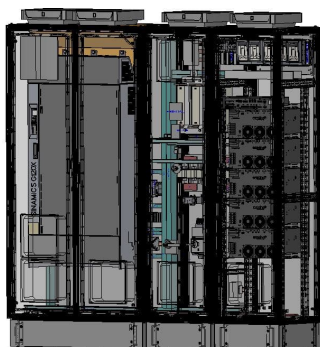
Unrestricted | © Siemens 2021

SIEMENS

SINAMICS G120X – Cabinet units can be integrated seamlessly into Pump & Fan applications for the Infrastructure market



Standard cabinet unit



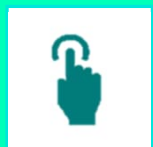
Standard cabinet unit w. AHF



The **SINAMICS G120X system** is developed with enhanced features for the **water industry** and **HVAC** applications in the **midrange segment**.

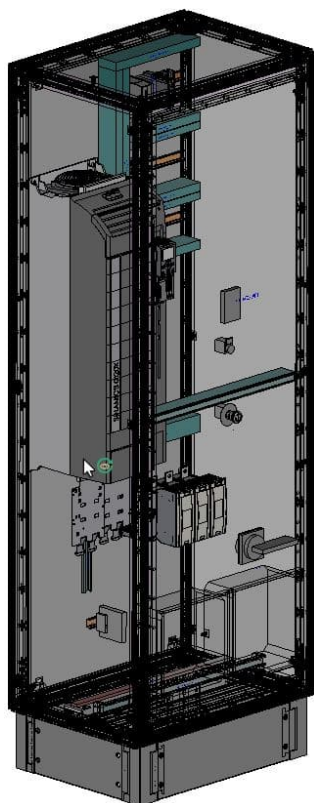


The **G120X cabinet unit** is a project specific Siemens cabinet and offers wide power range from **75 to 560 kW / 100 to 700HP** for **3AC 380 – 480V** voltage supply



The optimum solution due to its **tested design**, **fast setup time** and **extremely simple operation**

SINAMICS G120X – Cabinet units offers a comprehensive functionality and create added value



FSG cabinet without harmonic filter

Feature / function

▶ **“Standardized system solution”** - in a ready-to-use package from **75 to 560 kW**

▶ **EMC-compliant** (1st and 2nd environment) + optional **Schaffner Active-Harmonic-Filter (AHF)**

▶ **Optimized robust design:** IP54, 3C2 or 3C3¹ coating and operating temperature range 5°C to 40 (... 50°C with derating)

▶ Special user interface and P&F functions with **IOP-2** and **SAM Webserver**

▶ **Safe Torque Off SIL 2** Hardware as standard

▶ Communication via **PROFINET interface**

▶ **Customer-specific** expansion / adaptation as a flexible service from WKC

Benefit

▶ • **Reduction of costs and effort** for construction, delivery and commissioning

▶ • **Grid-friendly design** with reduced harmonics and low impact on the power quality

▶ • Ability to work in **harsh environments**

▶ • Faster commissioning with **user-friendly setup**

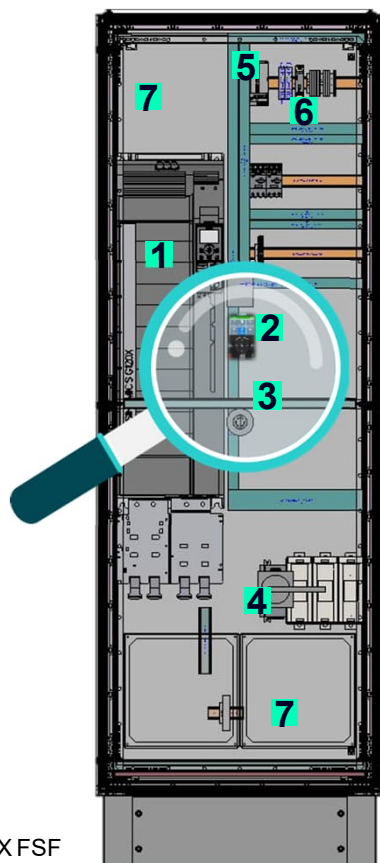
▶ • Reduced electromechanical components and compliant with **safety standards**

▶ • **Suitable for digitalization** and for cloud-based analytics

▶ • **PLC connection** as standard

▶ • **Individual adaptation** of the system solution to the application-specific requirements

The project specific G120X cabinet offering covers the main market needs in the Standard specification: with and without AHF



G120X FSF

Components Standard specification (with and without AHF):

1

**SINAMICS G120X
Filtered C2 / C3***



2

**Schaffner Active
Line Harmonics
Filter Ecosine (AHF)**



2



IOP-2 (door mounted)

3



**SIRIUS ACT controls
STO + STO reset**

4



≥ 315 kW: Line reactor

4



**Disconnect switch with
fuse and handle (door),
lockable**

5



**SITOP PSU300S 24 V/5 A
power supply**

6



**Safe torque Off
SIRIUS safety relay 3SK1**

7



**Rittal TopTherm
fan-and-filter units**

Other customized options based on application can be requested in addition to the Standard specification (with and without AHF):



G120X FSF

Additional components that are not part of the Standard spec.:

1 EMC-Filter FSH/FSJ for C2



2 Unfiltered version

3 Grid type: IT

4 Passive Harmonic Filter (PHF) till 250 kW

5 Output choke

6 dv/dt filter with VPL

7 Sinus filter

8 LED system light



9 Modbus RTU / BACnet MS/TP; DP

10 Cabinet fan temp. controlled



11 I/O Extension Module

12 3C3 coating up to 250KW

13 Smart Access Module (Wi-Fi)



14 Controlled cabinet heating and extended temperature range -20°C

15 FSG cable wiring adapter

16 Plinth design: with / without

17 1AC230V socket (w. transformer)

Note:

- These additional features are not part of the **Standard Specification**
- Additional design engineering measures are necessary

Note:

- In general, all MLFB encrypted G120X features are possible to be used, except voltage levels 3AC 200V and 690V

Service Protect

Unique in the market **SINAMICS G120X with 7 ½ ext. warranty (cabinet not included)**

Customer's drivers and goals

Ensure availability



Reduce costs



Optimize Asset Management

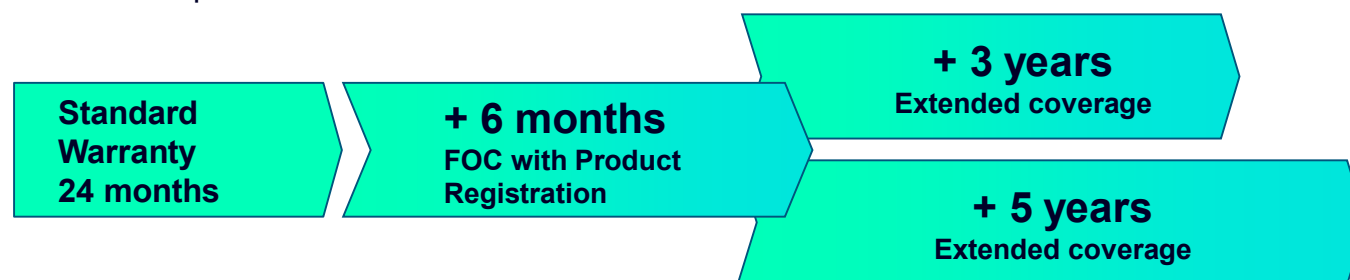


WKC Cabinet*



Siemens Service-Offering

With Service Protect you will receive a product exchange or repair in a service case within the contract period.



Register your drive and receives an initial 6 month free of charge (FOC) extended coverage via <https://myregistration.siemens.com/>

- **Cabinet warranty (18 month / ZRG)** – given by WKC Chemnitz covers the added value e.g. cabling, cabinet, etc.
- **Liability for Siemens catalogue products e.g. G120X:** needs to be handled by the responsible Siemens Service Center in coordination with regional sales
- **Third-party material,** a limited liability for defects is carried out by WKC by subsequent delivery of the defective devices. Other services will not be covered by WKC's liability.

SINAMICS G120X conquers TIA Portal Openness

What is it?

- API interface for WinCC and STEP 7 in TIA Portal.
- It can be used to create your own applications, e.g. a code generator for HMI images and PLC software blocks.

How can I get it?

- From STEP 7 professional or WinCC V13 SP1 onward, TIA Portal Openness is included in the delivery of STEP 7 or WinCC in TIA Portal.

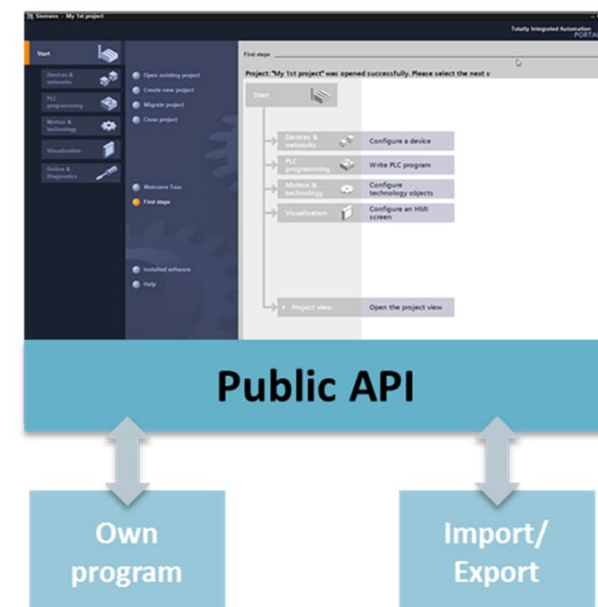
TIA Portal “Openness”

Benefits for G120X

- Remote parametrization/commissioning of multiple drives on the same network with SIMATIC PLC
- Creation, modification and general management of parameter lists

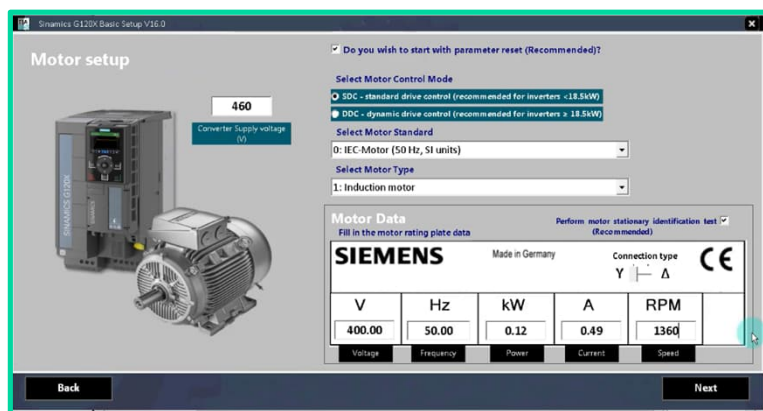
Related documents

- Intro + demo of TIA Openness: <https://support.industry.siemens.com/cs/de/en/view/108716692>
- Application description G120X: <https://support.industry.siemens.com/cs/ww/en/view/109777633>



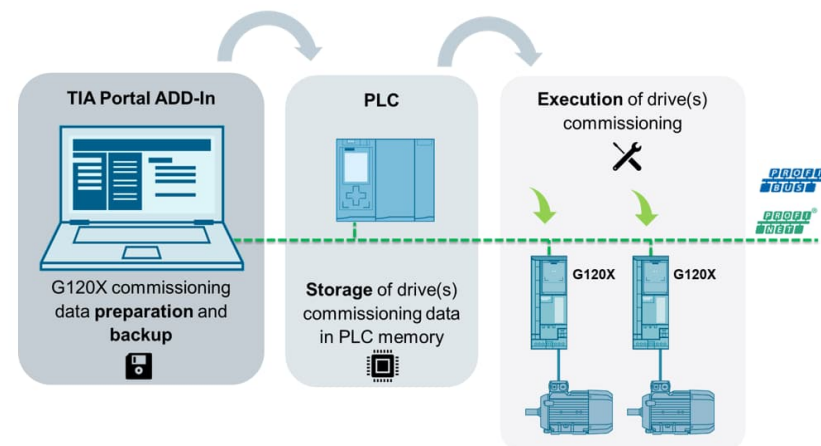
The G120X extension of the TIA Add-in V17 “SINAMICS G120X Basic Setup” enables setup via PLC

TIA Openness Add-in



- The extension of the TIA Add-in for the G120X **enables the setup of drives with the same characteristics** (same motor data) by copying a giving configuration to all selected drive objects

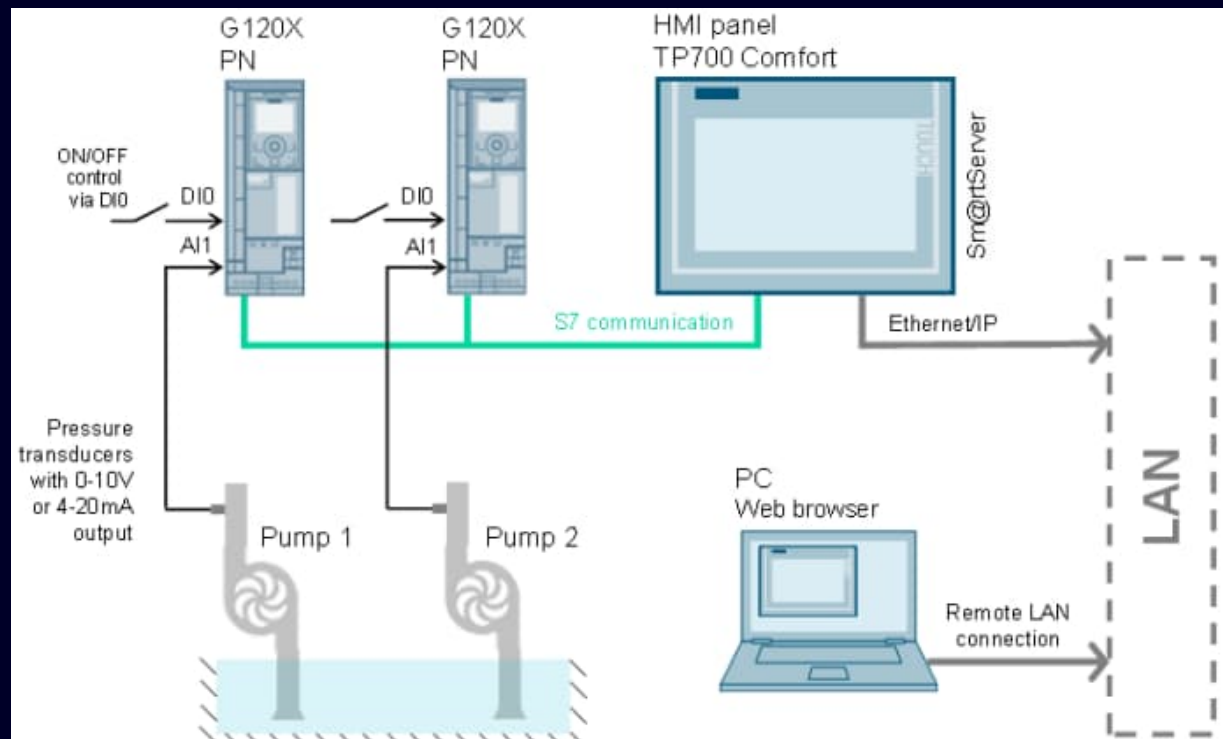
Benefits



- No need of manual configuration**
- Easy setup of one or several G120X frequency converters by using a **SIMATIC PLC** and **function blocks for acyclic communication**

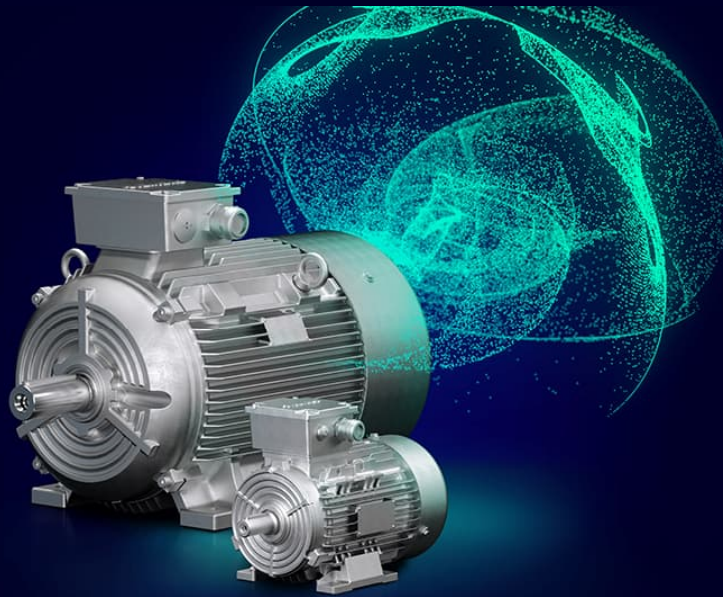
Easy solution for remote setup of your G120X using a PLC via TIA Openness

SINAMICS G120X: Direct HMI Comfort panel access to G120X Application example



Direct access of SINAMICS parameters in SIMATIC HMI Comfort using S7 protocol

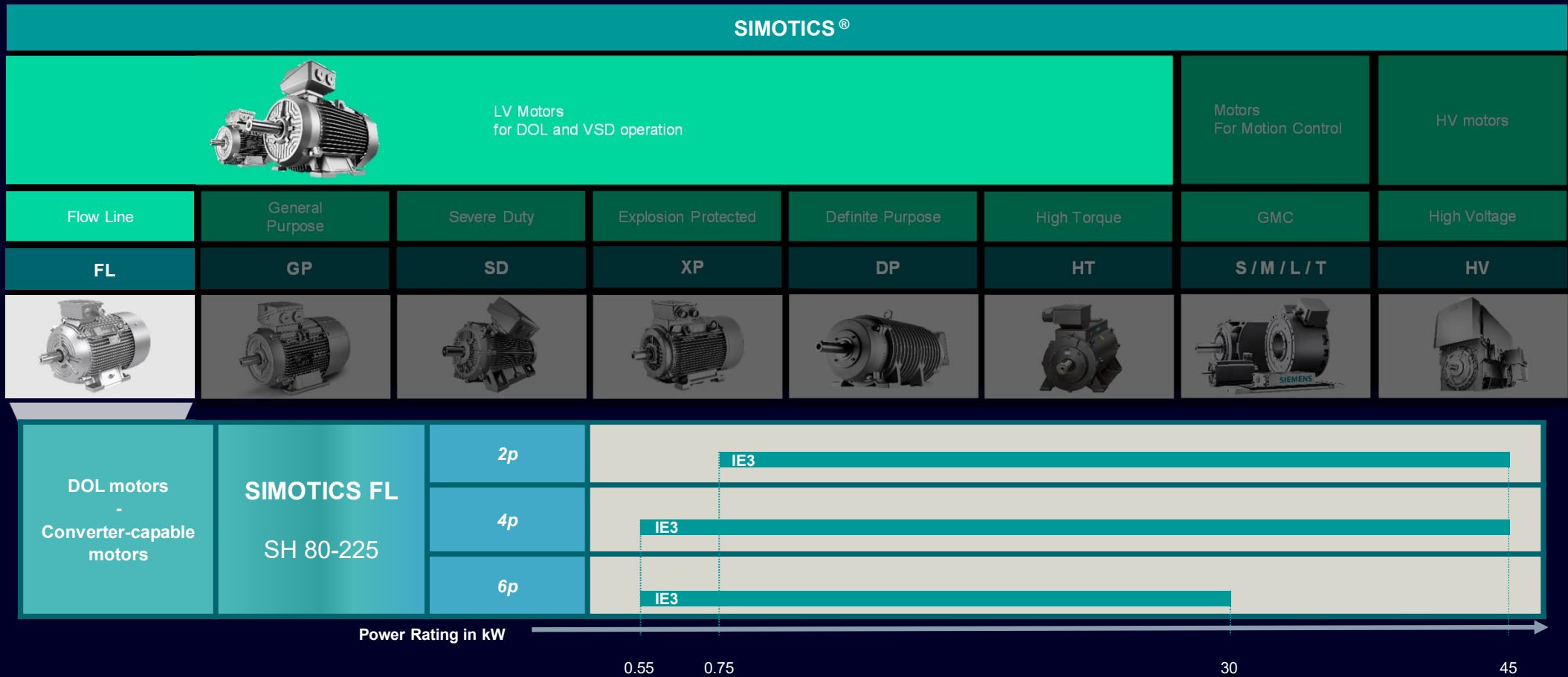
SIOS: [109813934](https://www.siemens.com/press/en/2019/09/109813934)



Simply fits SIMOTICS FL

Overview

Portfolio positioning



Technical data

SIMOTICS FL motor outlook



1LE0023
cast iron motor

1LE0323
aluminum motor

Housing material	Aluminum	Cast iron
Frame size	80 – 160	180 – 225
Rated power output	0.55 – 18.5 kW	15 – 45 kW
Poles	2, 4, 6	
Rated voltage/frequency	230 VΔ/400 VY, 400 VΔ/690 VY, 50 Hz	
Efficiency class	IE3	
Insulation	155(F)/130(B)	
Mounting type	B3, B5, V1, B35, B14, B34	
Protection degree	IP55	
Cooling method	IC411	
Art.No. (1 st 7 positions)	1LE0 323	1LE0 023

See the D81.6 catalog for more information including available options

Focus applications and industries



Focus applications



Pumps



Fans



Conveyors



Focus industries



HVAC



Water and
waste water



Food and
beverage



Infrastructure



Cement

SIMOTICS Flow Line (FL) from warehouse

10 clicks to your motor – configuration in LV Easy tool



Search for the required power and speed in LV Easy tool

Select your SIMOTICS FL motor

Apply filters to select variants and options

Check that it is available on stock

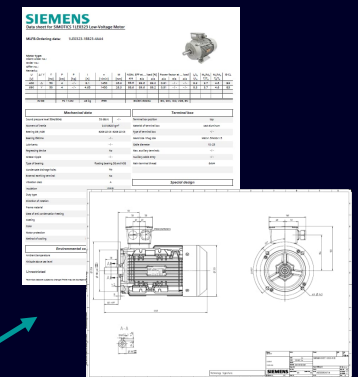
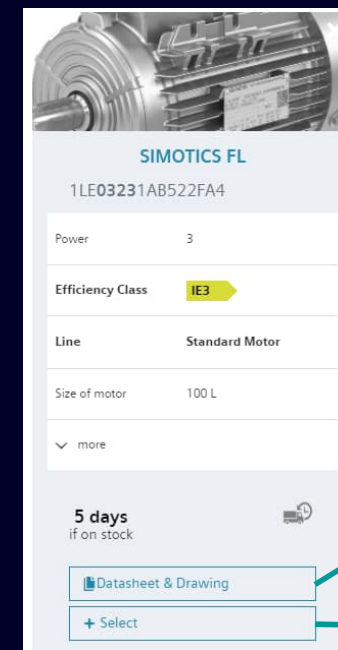
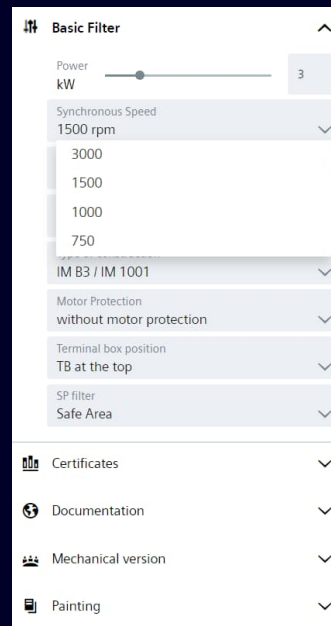
Proceed to purchase

SIMOTICS FL, when applicable, is displayed as the first option

Package of standard documents for download in one click

Configuration can be done then also in Industry Mall

<https://www.siemens.com/lv-easy>

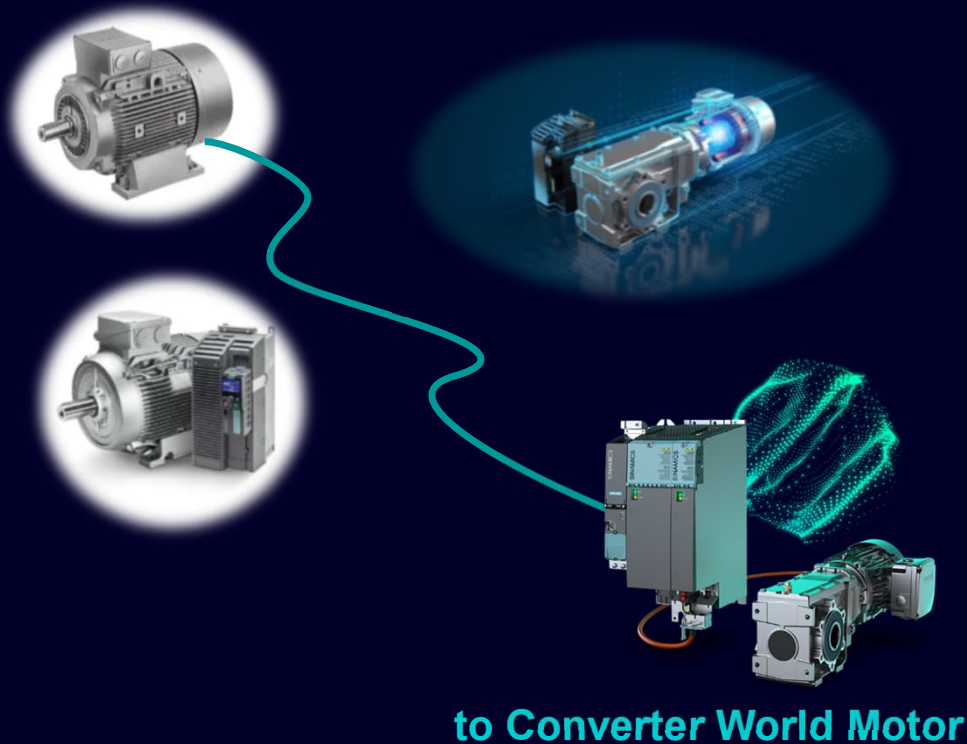


Converter World Motor

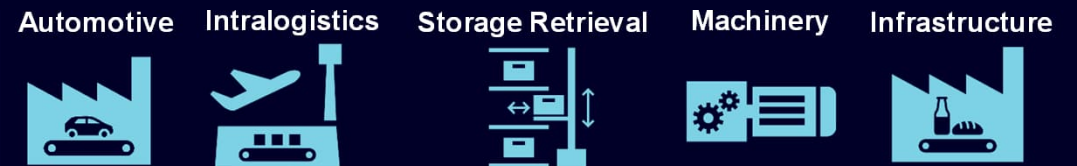
Efficient, Converter optimized and Usable Worldwide

The new Converter World Motor

From
Motors designed for Direct On Line operation



The new **Converter World Motor** is developed for all industries with focus on the following segments:



The optimized Motor for **most world grids** and **converter operation** to get **maximum performance**. The **Easy commissioning** is realized with **Motor code** or with **DRIVE-CLiQ encoder**. The different **certificates**, **PT1000** and **advanced insulation** are included.

The Converter World Motor offers wide power range from **0,37 to 55 kW** in efficiency class IE3

Converter World Motor is the perfect solution to get more performance on different voltage Grids

Converter World Motor is...

Efficient

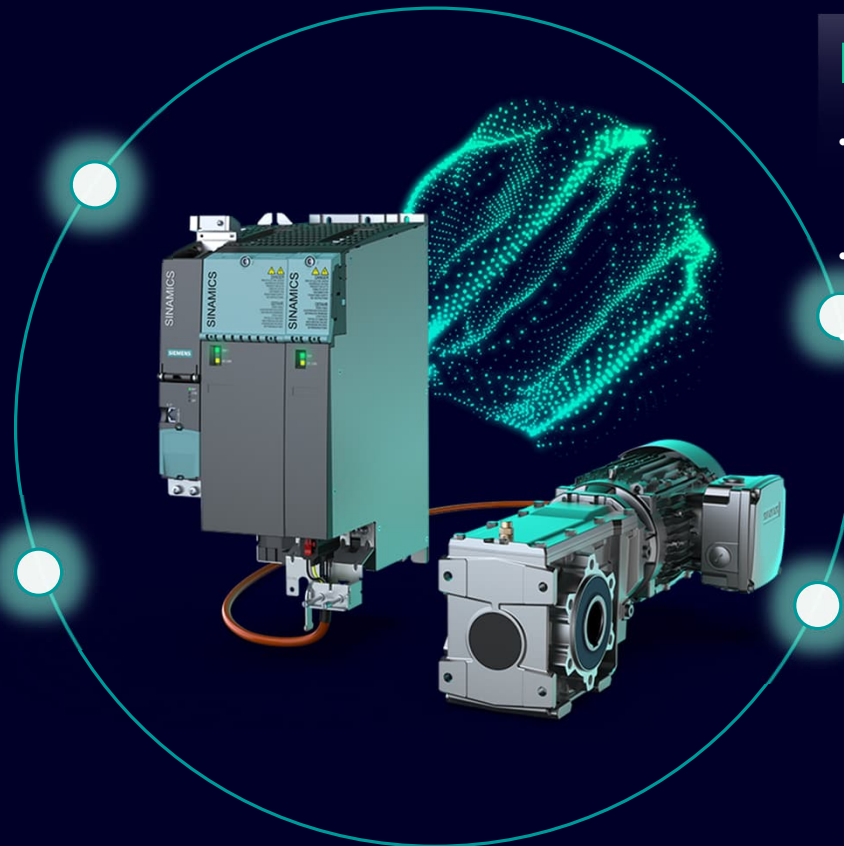


- **Efficiency Class IE3** reduce your energy consumption in power range from 0,37kW to 55kW.

Universal



- One motor winding with the main world certificates, advanced insulation and PT1000 as standard



Easy commissioning



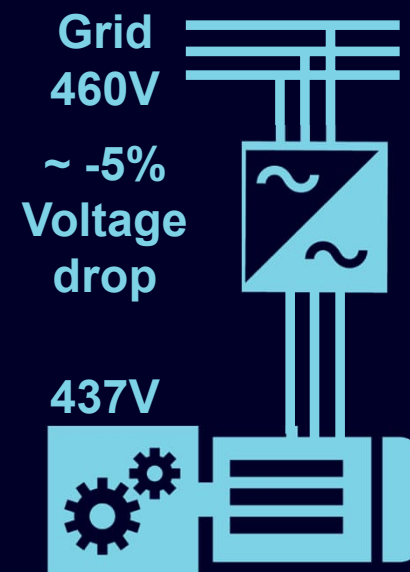
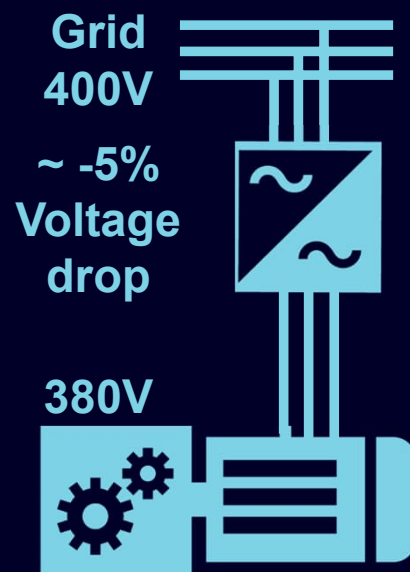
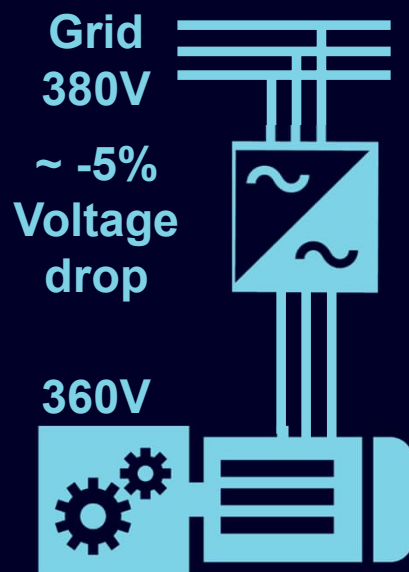
- Shorten commissioning times by using our **Motor code**, **Gearbox code** or **DRIVE-CLiQ** encoder with **electronical nameplate**
- Increase your productivity thanks to **integration in TIA Portal**.
- Ready for the new drive generation

Optimized performance

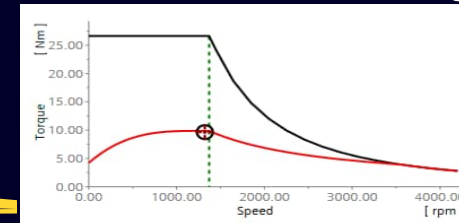
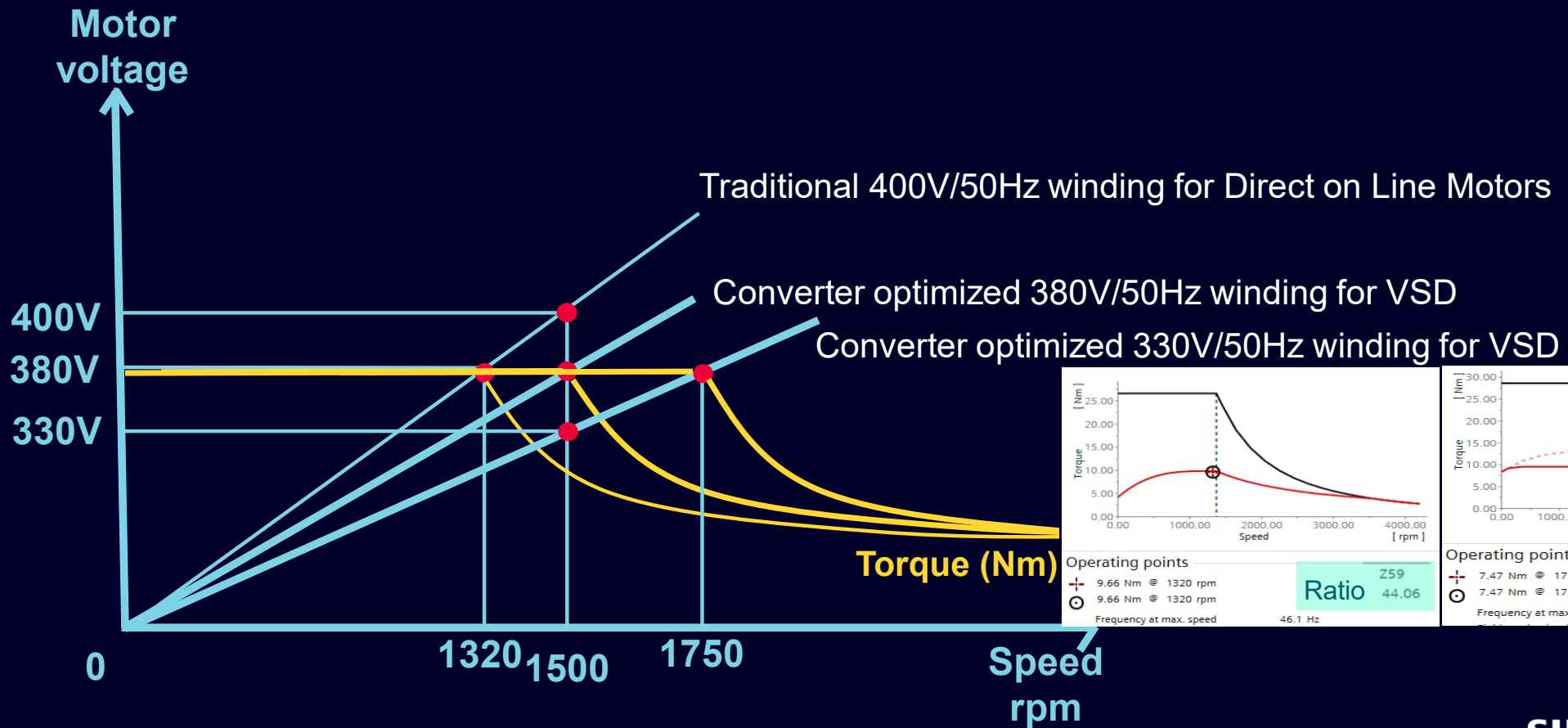
- Motor is **optimized for most world grids** and **converter operation** allows to get maximum performance ~~the same motor~~

The New Converter World Motor

Technical explanation and data available in TST



The New Converter World Motor Optimized winding in Y Connection

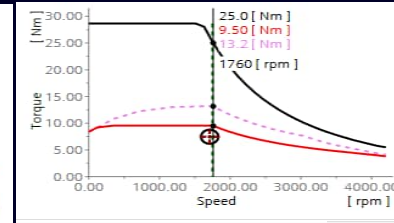


Operating points

+	9.66 Nm @ 1320 rpm
○	9.50 Nm @ 1320 rpm

Frequency at max. speed: 46.1 Hz

Ratio **Z59**
44.06



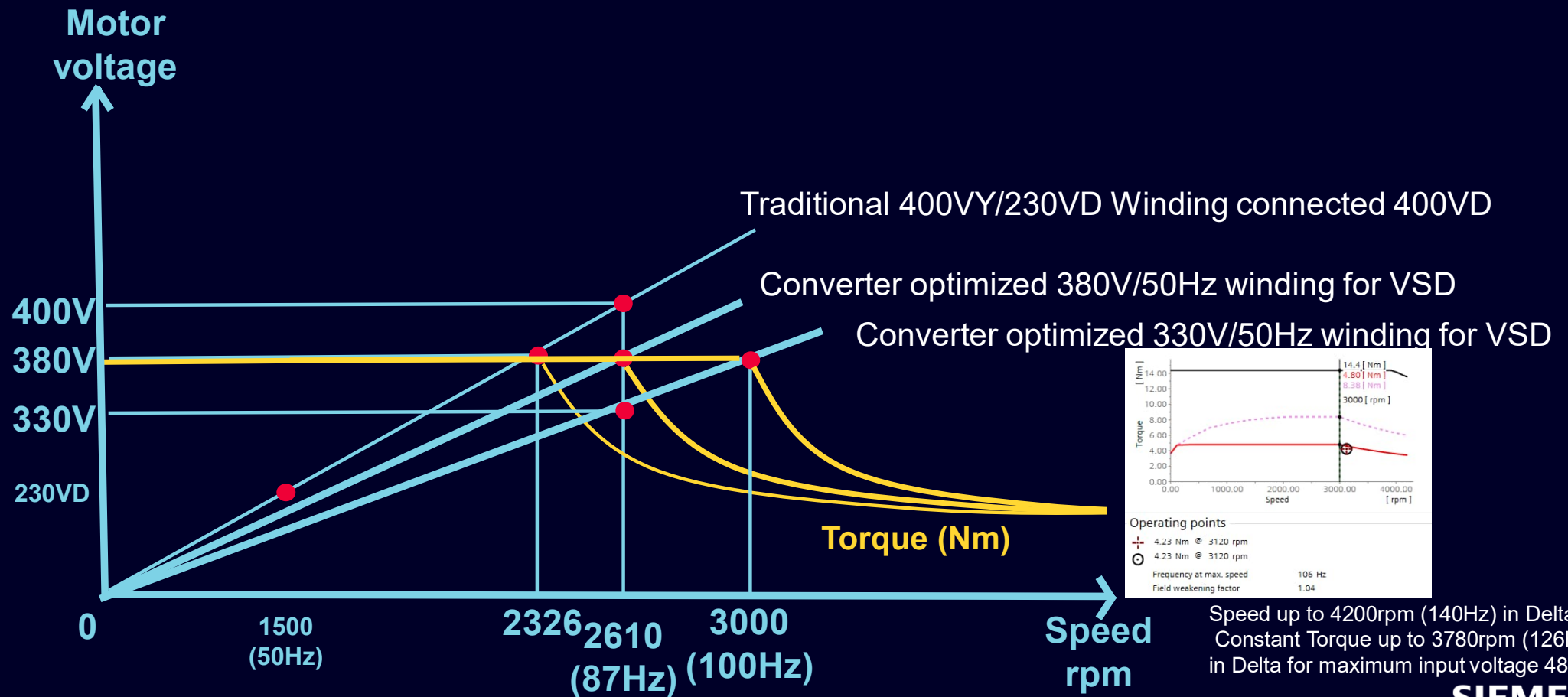
Operating points

+	7.47 Nm @ 1710 rpm
○	7.47 Nm @ 1710 rpm

Frequency at max. speed: 58.9 Hz

Ratio **Z59**
56.99

The New Converter World Motor Optimized winding in D Connection



The New Converter World Motor

Almost all SIMOGEAR options and power available



Benefits of the Converter World Motor - Speed-torque Curves

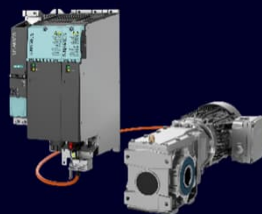
Constant torque up to higher speed range with higher available motor voltage (FS71 - FS160)

Example: motor power 0,75kW Star Connection

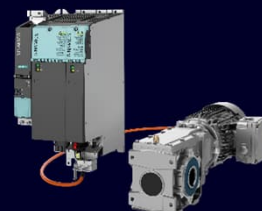
Converter in general
Grid 380V



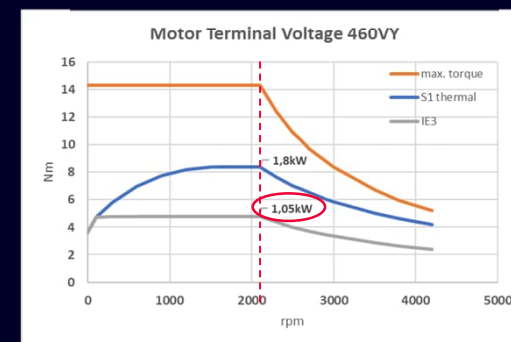
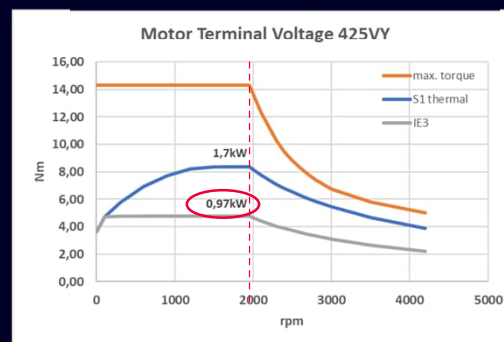
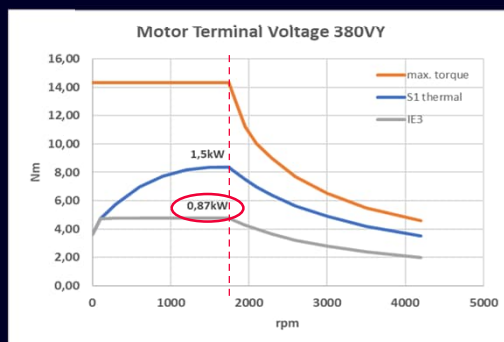
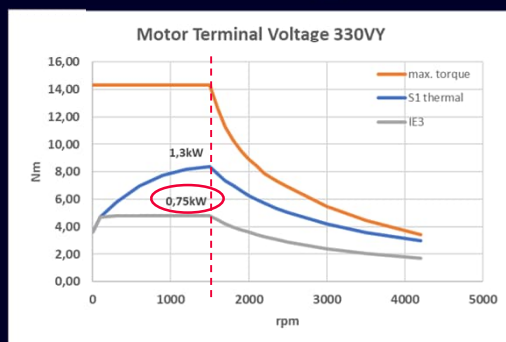
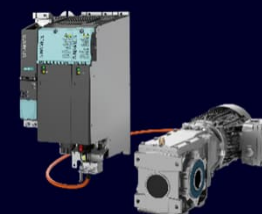
Converter S120 SLM
Grid 400V



Converter S120 ALM
Grid 400V



Converter S120 SLM
Grid 480V



The geared motors are optimized to guarantee the rated operating point for all world grids in voltage range 3AC 380-480V
The motor delivers constant torque until max converter output voltage, as long as $V/f=const$

Benefits of the Converter World Motor - Speed-torque Curves

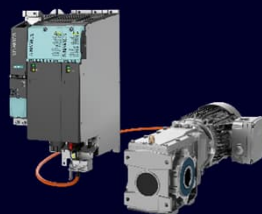
Constant torque up to higher speed range with higher available motor voltage (FS71 - FS160)

Example: motor power 0,75kW Delta Connection

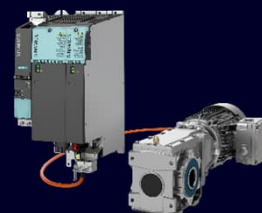
Converter in general
Grid 380V



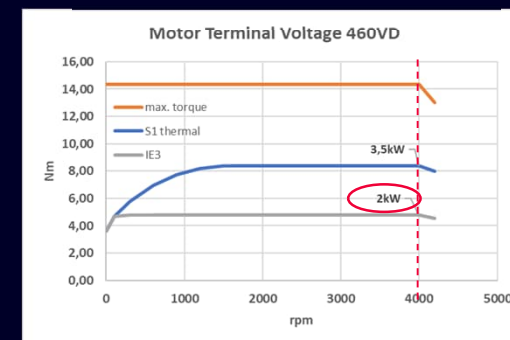
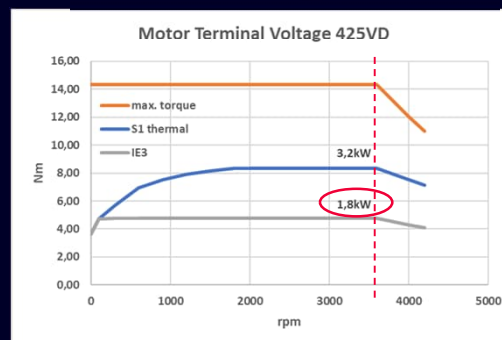
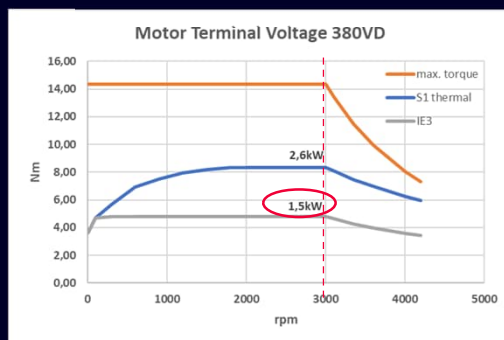
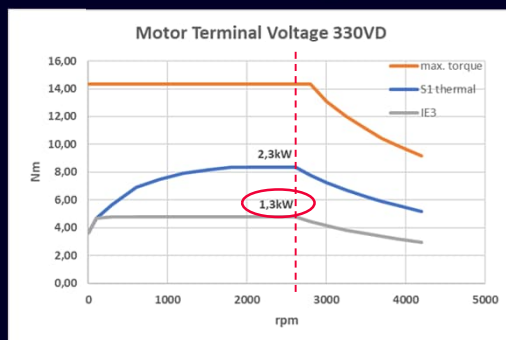
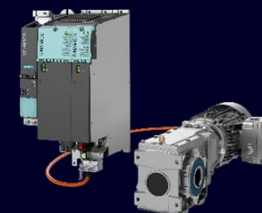
Converter S120 SLM
Grid 400V



Converter S120 ALM
Grid 400V



Converter S120 SLM
Grid 480V



The geared motors are optimized to guarantee the rated operating point for all world grids in voltage range 3AC 380-480V
The motor delivers constant torque until max converter output voltage, as long as $V/f=\text{const}$

DRIVE-CLiQ Encoder for Converter World Motor enable plug and play solution

Automatic configuration through electronic rating plates

- Convenient commissioning thanks to the electronic nameplate, which makes commissioning easier for the customer and saves time and therefore commissioning costs.
- Plug and play, Integrated in TIA (Startdrive).

Robust encoder with avoidance of EMC interference

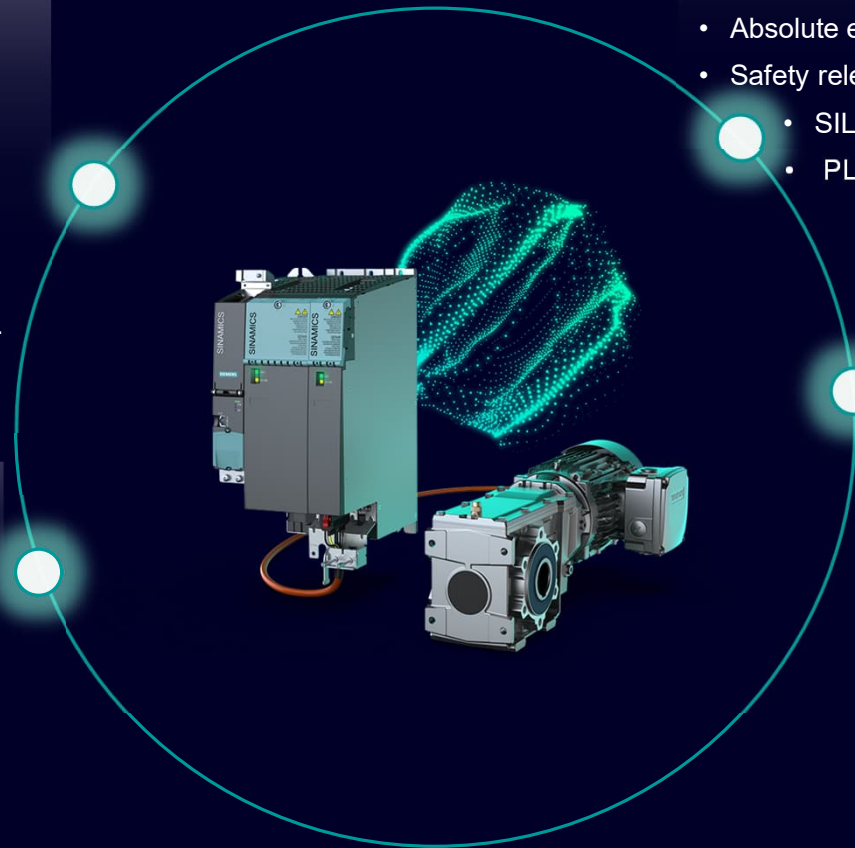
- With a more robust digital signal transmission, disturbances in the plant can be avoided and productivity can be increased.
- Cable lengths for the encoder up to 100m can be implemented
- Operating instruction for DRIVE-CLiQ encoder [BA 2331](#)

Integrated safety functions are supported (SINAMICS Safety Integrated)

- Absolute encoder, 22bit, single/multiturn
- Safety relevant systems up to:
 - SIL2/SIL3 acc. To EN 61800/5/2
 - PLd/Plc acc. To EN ISO 13849-1 and EN ISO 13849-2

Powerful DRIVE-CLiQ interface for the SINAMICS drives

- Space and cost savings are achieved by eliminating an SME or SMC in the control cabinet.
- A further saving arises with certain systems through the reduction of the cabling effort when using a DRIVE-CLiQ Hub. Several gear motors can be bundled and connected to the control cabinet / drive via one cable.

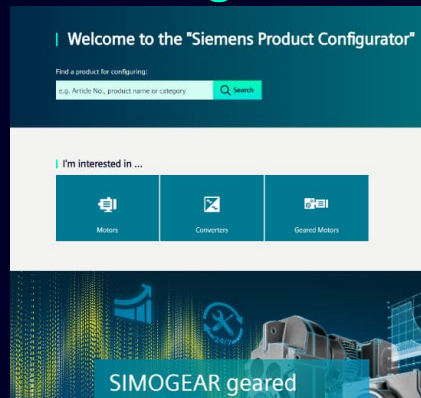


The New Converter World Motor is already available in all our tools

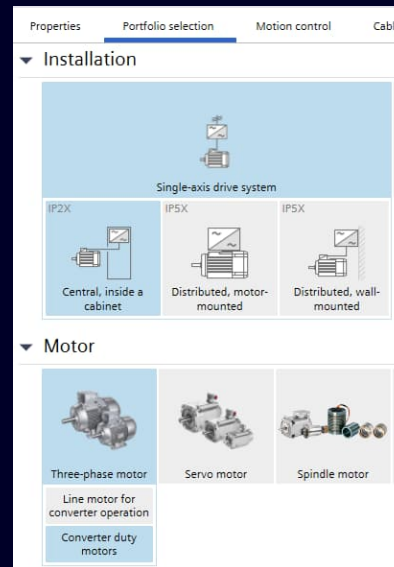
Catalog D50.1



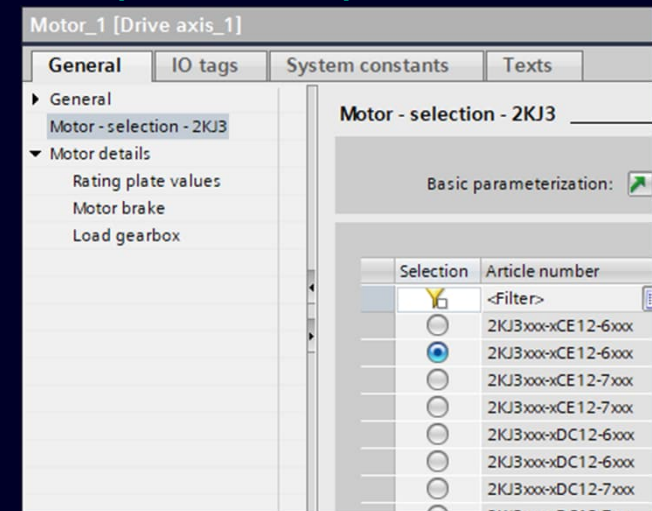
DTK / SPC Configurator



TIA Selection Tool



TIA Portal (Startdrive) V17 SP1



- 08/22 available in DE
- English version available October/November

- Already included in DTK/SPC Configurator
- Easy selection of Converter World Motor

New Catalog: [HERE](#)

- Since 14.09.2022 included in TST
- Quick and easy guided system configuration and ordering process

- 2KJ3 Geared Motors are included
- Gearboxes are included
- DRIVE-CLiQ Encoders for 2KJ3 included
- Implemented in SINAMICS S120 Firmware V5.2SP3HF12

Convenient, smart and simple sizing of entire system according to your application!

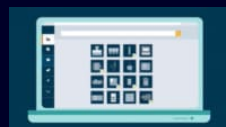


Masterdrives

Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool

Sales slides

Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool



Combination of SIMOTICS motors and SIMOGEAR gearboxes can be selected and configured in TIA Selection Tool.

user has the choice

components shall be delivered separately



Ordering of two components with two MLFBs.

components shall be delivered as a completely mounted and tested unit



T1A02040000023

Drive Train
prefix

Code for
motor type

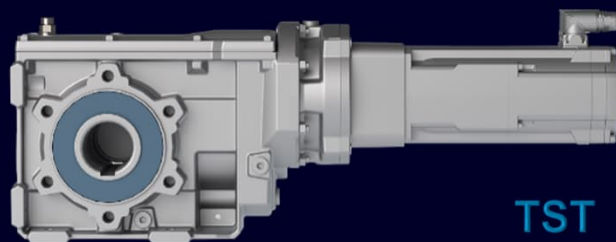
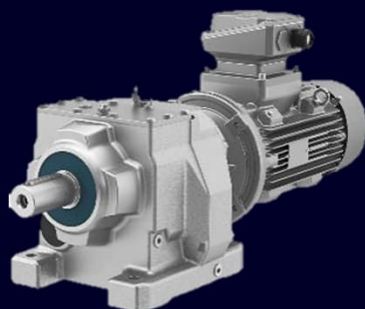
Code for
shaft height

Consecutive
number

Motor type	Code
1FK2	01
1FK7	02
1LE1	05
1MB1	06

Ordering of unit with “System-MLFB” (T1A... order number)

Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool



TST

Ideal tool



Feature / Function	Benefits
Extremely flexible	<ul style="list-style-type: none"> ▶ Combination of extremely large SIMOTICS motor portfolio with SIMOGEAR gearboxes
Integrated in TIA Selection Tool	<ul style="list-style-type: none"> ▶ Comfortable tool-based design and configuration in TIA Selection Tool
Automatical compatibility checks	<ul style="list-style-type: none"> ▶ All available combinations will be checked in regards to mechanical, geometrical and thermal (servo motors) compatibility in TIA selection tool
Easy to order	<ul style="list-style-type: none"> ▶ TST generates unique ordering number, price and delivery time and creates a complete commercial data set in PMD. Ordering via Industry Mall etc. possible.
Competitive delivery time	<ul style="list-style-type: none"> ▶ Competitive delivery times, no AGT request needed.
Ordered and delivered as one package	<ul style="list-style-type: none"> ▶ No separate deliveries. Motor mounted to the gearbox and functional test is performed in Siemens factory.

SIEMENS

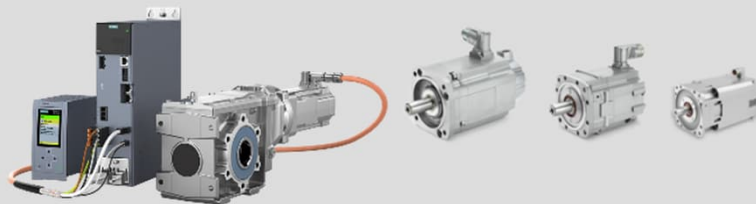
Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool

Wide SIMOTICS motor portfolio

Combination with SIMOTICS servomotors and
SIMOGEAR Gearboxes with KS adapter

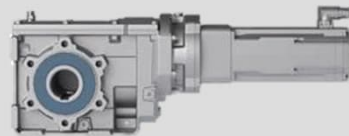
1FK2

1FK7



Assembly in Bad Neustadt (Germany) or BUZ
(Romania)

Final painting according to servomotors standard



Combination with SIMOTICS LVM motors and
SIMOGEAR Gearboxes with K2, K4 or KS adapter

1LE1

1MB1



Assembly in Tuebingen or Mohelnice (depending
on gearbox size)

Final painting according to Tuebingen standard



SIEMENS

Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool

TIA Selection Tool

Project Edit View Options

Search

Log on to Siemens Industry Mall

Project navigation

- Project
- New Device
- New Group
- Order list
- Plants and installation locations
- Networks
- 24 V DC consumer view
- Planning sketches
- Safety Evaluation
- Main circuit
- Drive views
- Group_1
 - New Device
 - AxIs
 - + Add load
 - (M) SIMOTICS XP 1MB1 - Ex ec I... ✓
 - + Add frequency converter

Properties Dimension **Configure**

Overall state ✓ [Reset configuration](#)

Z29-K4-(71)

Gearbox

Mounting of motor and gearbox

Motor mounted to gearbox (alternatively: separate de... ☒)

Mounting position (motor opposite gearbox)

Mounting type

Mounting gearbox

Output shaft design

Output shaft dimensions

Output shaft bearing

Foot-mounted design

Solid shaft with key

V25 x 50

Standard bearing

Chart

Torque [Nm]

Speed [rpm]

Operating points

- 1.60 Nm @ 1190 rpm
- 1.60 Nm @ 1190 rpm
- Frequency at max. speed 50.5 Hz
- Field weakening factor 1.00

Motor

Description	Actual	Limit...	Unit
SIMOTICS XP 1MB1 - Ex ec IIC T3, Standard asynchronous motor, Motor power 0.200 kW, 4 Poles, Shaft height 71.0 mm, Self-ventilation			
SIMOGEAR 2KJ3, Gearbox with adapter, Helical gearbox, Z29, Gearbox ratio 3.47, Adapter K4 Z29-K4-(71)			

Go to Drive overview > Next >

Flexible combination of SIMOGEAR gearbox and SIMOTICS motor portfolio in TIA Selection Tool

The screenshot displays the Siemens TIA Selection Tool interface. On the left, the 'Project navigation' pane shows a tree structure for 'Testprojekt Drive Train_20211117_2', including options for 'New Device', 'New Group', 'Order list', 'Plants and installation locations', 'Networks', '24 V DC consumer view', 'Planning sketches', 'Safety Evaluation', 'Main circuit', 'Drive views', and 'Group_1'. The 'Order list' is currently selected. The main area shows a list of selected components under the heading 'Device selection'. The first entry is a 'SIMOTICS Motor with SIMOGEAR Gearbox' (SIMOTICS XP 1MB1) with a power of 0.200 kW. The second entry is a 'SIMOGEAR 2KU3' gearbox with a ratio of 19.76. The total price is displayed as 'XXXXXX EUR'. At the bottom, there are three buttons: 'Export Information', 'Send as email', and 'Extended Exchange Option (EEO)'. Two red arrows point to the 'Export' and 'Order in Industry Mall' buttons, which are highlighted with red boxes. The text 'T1A number is generated as soon as on of the options "Export" or "Order in Industry Mall" is selected.' is overlaid on the right side of the image.

T1A number is generated as soon as on of the options "Export" or "Order in Industry Mall" is selected.

Total price: XXXXX EUR plus VAT

Export

Order in Industry Mall



Information based on

- SIDRIVE IQ Fleet Version 2.8
- SIDRIVE IQ Config Version 2.3.0
- SIMOTICS CONNECT Firmware Version 1.0.1.0

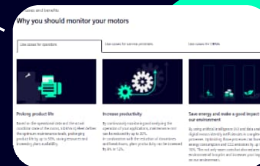
AI-based Condition monitoring for low voltage motors

based on the plug-and-play sensor module SIMOTICS CONNECT 400
and the powerful analytics app SIDRIVE IQ Fleet

Find detailed information
on www.siemens.com/digital-motor

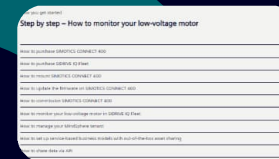
Use cases & Benefits

Find out more on value add
and unique selling points for
the different target groups



How you get started

Learn step-by-step how to
purchase, set up and use our
solution and its components



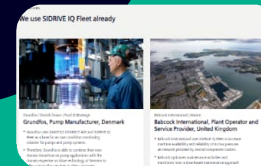
Quick Support

Access to documentation,
information and support
in regards to our solution



References

Success stories of customers
who are already using and
benefitting from our solution



Introduction



Cost-effective motor monitoring

SIDRIVE IQ Fleet offers a cost-effective motor monitoring solution, with low upfront hardware investment and pay-per-use model



Plug-and-play sensor module

You can mount and commission SIMOTICS CONNECT 400 in minutes. The sensor measures raw data and automatically transfers it to the cloud. No expertise or own software development needed.



Prevent motors from failing

By using in-depth analytics and anomaly detection, SIDRIVE IQ Fleet informs you about failures before they occur. You can pro-actively take actions and avoid costly downtimes of your equipment.



Flexibility in data handling

With our open, flexible and easy possibilities for data sharing inside and outside MindSphere you are able to create own business models



Highest level of data security

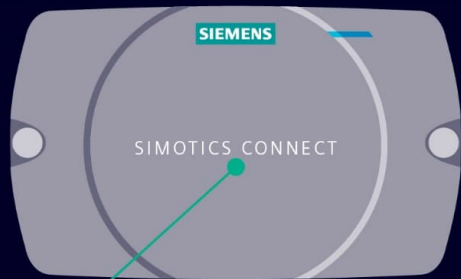
By providing an end-to-end data security with sophisticated measures on hardware, software and cloud level, SIDRIVE IQ Fleet is the Industry-proof solution for motor monitoring



Ongoing and agile development

To increase the quality, preciseness and accuracy of the complete system, our development team is constantly enlarging and improving the feature scope of SIDRIVE IQ Fleet

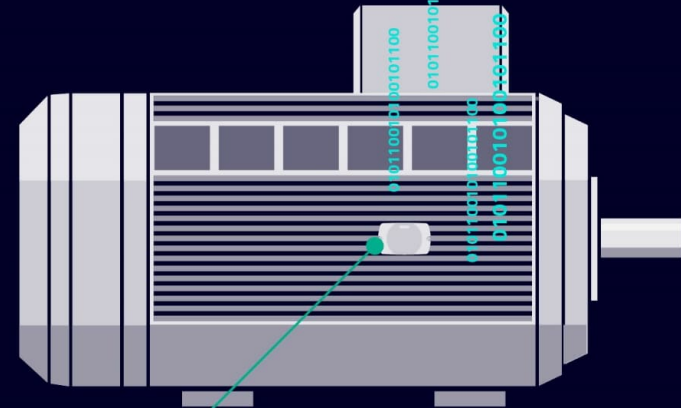
Condition monitoring to gain transparency on actual operational status of all motors and machines



Plug-and-Play
sensor module
SIMOTICS CONNECT

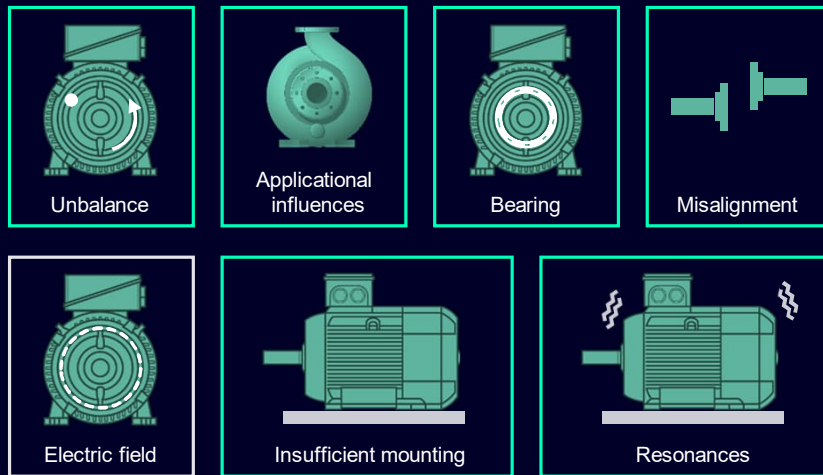


Powerful MindSphere
analytics app
SIDRIVE IQ Fleet



Simple and reliable
remote condition monitoring
for low-voltage motors

Why it makes sense to monitor a motor directly and the respective application indirectly with SIMOTICS CONNECT sensor modules

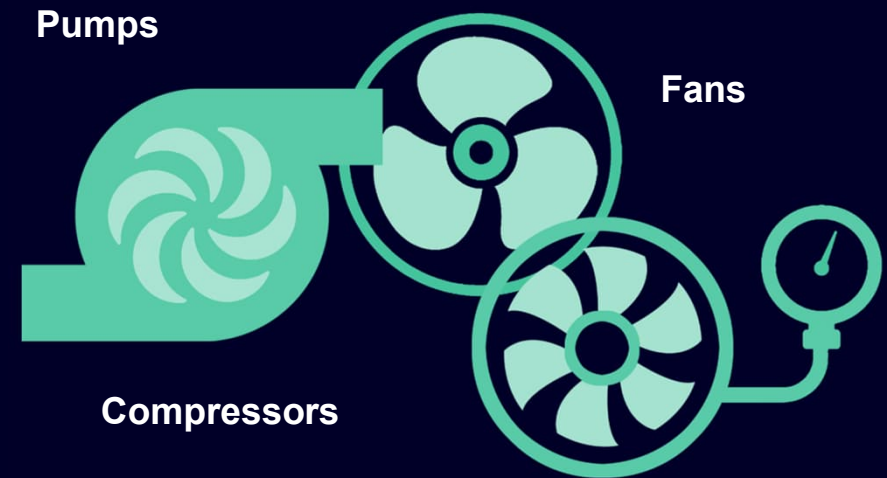


Mechanical stress on the different components
of the drive train as most common root cause for problems and outages

Causes for motor outages¹:

Bearing 55%	Rotor 10%	Winding 20%	Others 15%
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Source: 1) IEEE Transaction on Industry application, Vol.31, No.5, Vol. 35, No. 4 Siemens damage statistics
2) Insulation Failure Mechanisms of Power Generation / Aging and Degradation of Electrical Machines Insulation



Motors as key component in many applications
(financially and technically)

Data flow from measuring on field level to receiving status warning notifications via mail

MindSphere



SIMOTICS CONNECT 400 as Plug-and-Play sensor to monitor low-voltage motors and respective applications



- Housing: 125,4 mm x 77,5 mm x 29 mm, IP65
- Battery-powered, Wi-Fi data transfer (transmission interval 1 to 48 h)
- For induction motors: IEC FS 80-450 (NEMA FS 48-580), DOL and VSD, any brand, any application
- Certified in more than 50 countries worldwide
- Built-in sensors (measurement interval 1 to 60 minutes):



Temperature

- 40°C to + 85°C (resolution of 0.03°C)



Overall vibration

V_{RMS} in 3-axis, range 0.02 to 180 mm/s (10 Hz to 1.6 kHz)



Magnetic field (rotary stray field)

0.01 Hz to 300 Hz

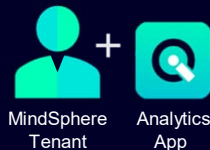
The SIDRIVE IQ Fleet offering

Modular, flexible and scalable to your needs

Software / Cloud level

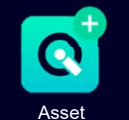
SIDRIVE IQ Fleet Package Basic¹

- ✓ provides complete cloud infrastructure (no IoT Value Plan needed)
- ✓ free-of-charge
- ✓ needed once per customer



SIDRIVE IQ Fleet Asset Packages¹

- ✓ one asset provides resources to connect and monitor one motor for one year
- ✓ multi-asset offerings (1, 10, 35, 200) available for price-efficient scaling



Optional Support Packages²

- ✓ upgrade packages to enhance the free Package Basic
- ✓ enabling business models and adding functionality



1:1 correlation between Asset packages (software) and SIMOTICS CONNECT sensor modules (hardware)

Hardware / Field level

Onsite prerequisite

Customer Wi-Fi network¹

- ✓ Wi-Fi infrastructure to connect motor to the cloud is in responsibility of operator
- ✓ recommendation: SCALANCE as industry-proof solution



SIMOTICS CONNECT Connectivity Kits

- ✓ one kit contains sensor module and mounting material to equip a motor
- ✓ multi-kit offerings (1, 10, 35, 200) available for price-efficient scaling



Spare battery pack²

- ✓ to prolong lifetime of SIMOTICS CONNECT
- ✓ Sensor directly starts operating without need re-commissioning



¹ mandatory for operation ² optional support packages

Monitoring of a low pressure compressor station

Babcock International, United Kingdom

Babcock International, UK

Monitoring of a low pressure compressor station

Customer profile

- Babcock International, operator of Devonport Royal Dockyard, UK
- provides through-life support for naval assets of the Royal Navy
- 30.000+ employees, with a leading naval business

Customer objectives

- Increase machine availability and reliability of low pressure air network provided by central compressor station
- Optimize maintenance activities and transform from a time-based maintenance approach to one driven by actual material condition

Find more details on [siemens.com/digital-motor](https://www.siemens.com/digital-motor)



Babcock International, UK

Monitoring of a low pressure compressor station

Customer value

- Operational transparency on the connected applications to further optimize maintenance activities
- High quality data and information as base for central asset management system

Why Siemens?

- Ease of use: Simple and fast setup of the complete solution
- Preciseness: High data quality of sampled and calculated data
- Scalability: Possibility to expand to other applications and use cases
- Openness: Simple integration in central asset management system
- Good support and consulting by local siemens team

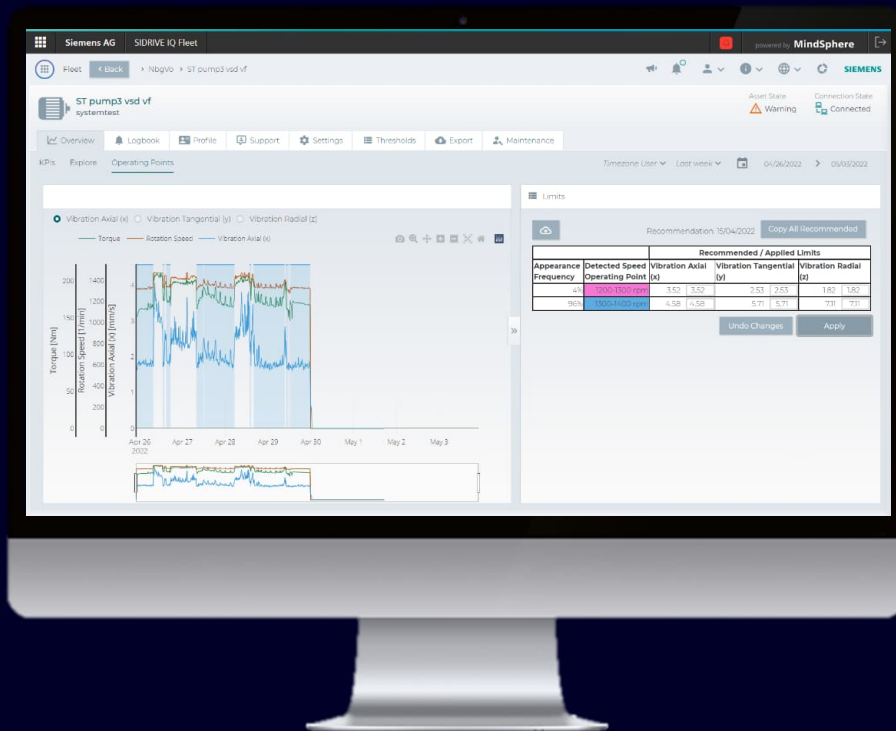
“We are very impressed by SIDRIVE IQ Fleet and the data that it provides.”

John Dunville, Deputy Head of Innovation at Devonport Royal Dockyard, Babcock International

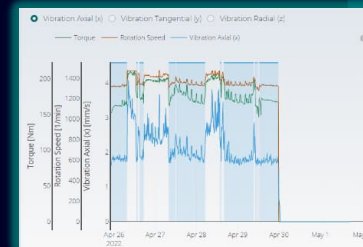
| Key features

incl. their functions and benefits for the user

Unique Selling Point: Anomaly and failure detection based on automatically detected machine operating points



Limits					
Recommendation: 15/04/2022					
Copy All Recommended					
Recommended / Applied Limits					
Appearance	Detected Speed Frequency	Operating Point [s]	Vibration Axial [g]	Vibration Tangential [g]	Vibration Radial [g]
40	1000-1500 rpm	3.52	3.52	2.53	2.53
50	1500-2000 rpm	4.58	4.58	3.71	3.71
Undo Changes Apply					



Limits					
Recommendation: 15/04/2022					
Copy All Recommended					
Recommended / Applied Limits					
Appearance	Detected Speed Frequency	Operating Point [s]	Vibration Axial [g]	Vibration Tangential [g]	Vibration Radial [g]
40	1000-1500 rpm	3.52	3.52	2.53	2.53
50	1500-2000 rpm	4.58	4.58	3.71	3.71
Undo Changes Apply					

KEY FEATURE:

Anomaly and failure detection based on automatically detected machine operating points

1 | Operating point detection

Automatic detection of machine operating points based on speed-load-vibration profiles

2 | Siemens expertise and AI support

App detects and recommends operation-specific thresholds based on captured and analyzed data

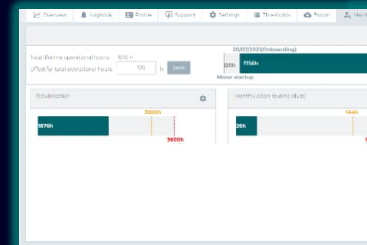
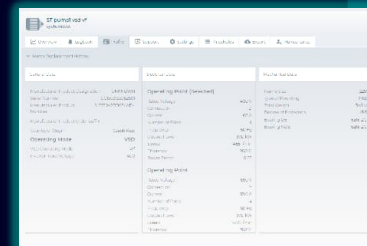
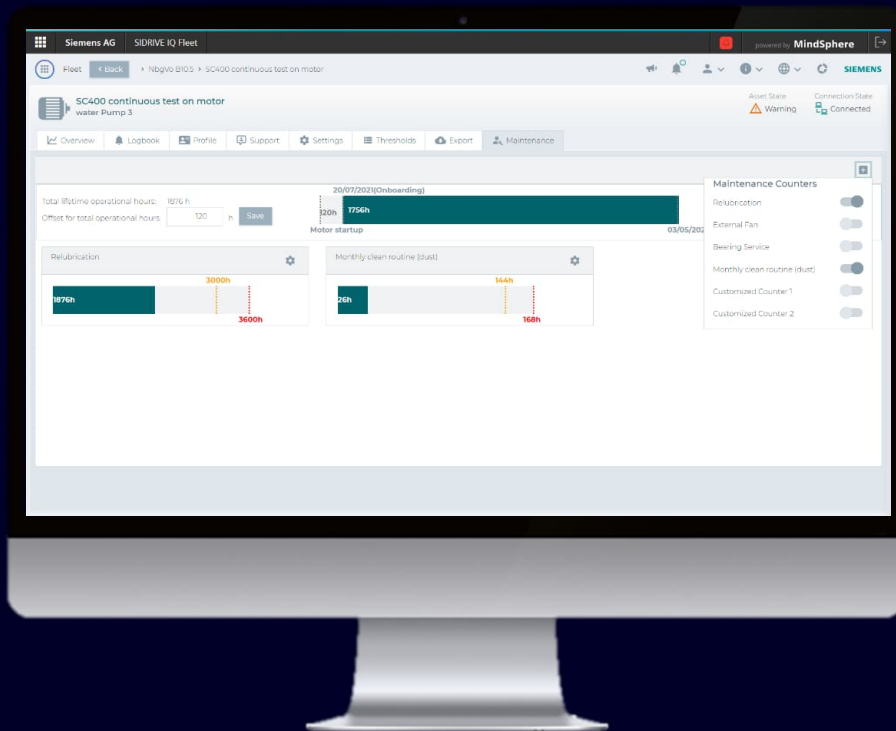
3 | Continuous monitoring AI

The app continuously monitors the asset: bearing condition, trend analysis, anomaly detection, fingerprinting, benchmark against ISO 10816¹

4 | Automatic warning system

Based on the different monitoring levels, the app automatically sends condition alarms in-app or via e-mail to inform about possible failures

Unique Selling Point: Digital twin-based analytics and maintenance support to increase performance and data preciseness



KEY FEATURE: Digital twin-based analytics and maintenance support to increase performance and data preciseness

1 | Generation of digital twin

By entering product article and serial number during the sensor commissioning¹

2 | Extended circuit diagrams

The digital twin used for precise analytics and predictions mainly consists of the extended circuit diagram incl. accurate iron core or thermal losses

3 | The Difference maker

The motor models are increasing the data preciseness (esp. for power-related KPIs) and analytics quality overall

4 | Maintenance recommendation

The motor model can be enhanced with service intervals to received maintenance notifications

Analytics features in SIDRIVE IQ Fleet to enhance the quality of the measured field data




Feature / Function		Benefit
• External noise cancelling for vibration data (peak shaving)	>	• Avoiding false alarms by filtering out unimportant external noise peaks
• (Multi) operating point detection based on speed and load of operated motor	>	• Base for analytics and threshold levels based on various actual operating points ¹
• Automatic threshold suggestions based on AI-driven algorithms and historical data	>	• Ensuring right level of thresholds to warn effectively, but yet avoid false alarms ²
• Fingerprinting: Definition of “good states” and benchmarking vs. actual condition	>	• Detection of anomalies to recognize problems and predict possible outages (incl. consideration of application & installation)
• Motor anomaly and damage detection based on standard ISO 10816-3	>	• Early detection of anomalies and critical operations as well as additional filter for possible false alarms

All features are available for direct-on-line (DOL) and converter-driven (VSD) motors.

¹ (Multi) operating point detection used as base for analytics feature like fingerprinting

² Visualization for VSD-driven motors to be released in SIDRIVE IQ Fleet V2.6

Analytics features in SIDRIVE IQ Fleet to enhance the quality of the measured field data

Feature / Function	Benefit	
<ul style="list-style-type: none">• AI-based bearing condition indicator (traffic light system) based on raw data measurement	<ul style="list-style-type: none">• Avoiding motor outages based on bearing problems by repairing the motor before the outage occurs	

All features are available for direct-on-line (DOL) and converter-driven (VSD) motors.

¹ (Multi) operating point detection used as base for analytics feature like fingerprinting

² Visualization for VSD-driven motors to be released in SIDRIVE IQ Fleet V2.6

Main characteristics and key features of SIDRIVE IQ Fleet as motor monitoring app

Feature / Function		Benefit
• Cloud-based / MindSphere app	>	• Global data access 24/7 • Access to MindSphere ecosystem
• Digital motor twin for analytics (incl. extended electric circuit diagrams)	>	• Higher data quality and preciseness • Quick commissioning for Siemens motors
• Threshold setting and alarms	>	• On-time notifications in case of possible failures to avoid downtimes
• Data exchange via API	>	• Free and powerful interface to export data to 3 rd party systems and clouds
• Asset sharing between two tenants via Cross-Tenancy functionality	>	• Establish digital / service business models



Main characteristics and key features of SIMOTICS CONNECT 400 as sensor module

Feature / Function		Benefit
• Plug-and-play design	>	• Quick and easy installation by anybody in less than 15min
• Universal connectivity module to monitor all types of low voltage motors ¹	>	• Optimized processes (stocking, training, implementation, service, etc.)
• Configurable measurement and synchronization intervals	>	• Customizable performance levels of sensor module fitting to requirements of application
• Exchangeable battery pack to extend lifetime (automatic reboot after battery exchange)	>	• Optimized serviceability and no loss of data • No waste, but reuse of same sensor module
• Direct communication via Wi-Fi using manufacturer-independent gateways	>	• Usage of existing Wi-Fi networks or standard gateways/routers



¹ within specification, for details see [data sheet](#)