SEW EURODRIVE

PRODUCTS AND SOLUTIONS 2025

INTERNATIONAL

Who are we? The reliable partner at your side!

For over 90 years, the owner-operated family business SEW-EURODRIVE has stood for a diverse range of values, including a personal and partnership-based approach, solutions and services, responsibility and quality, tradition and innovation, and a whole lot more besides.

As a market leader in drive and automation technology, we don't just power countless applications in virtually every industry. With over 22 000 employees, we're also playing a key role in shaping the future of drive technology, ensuring you and your systems and machines are always at the cutting edge – not just now, but in the future, too. We want you to achieve shared success with us.

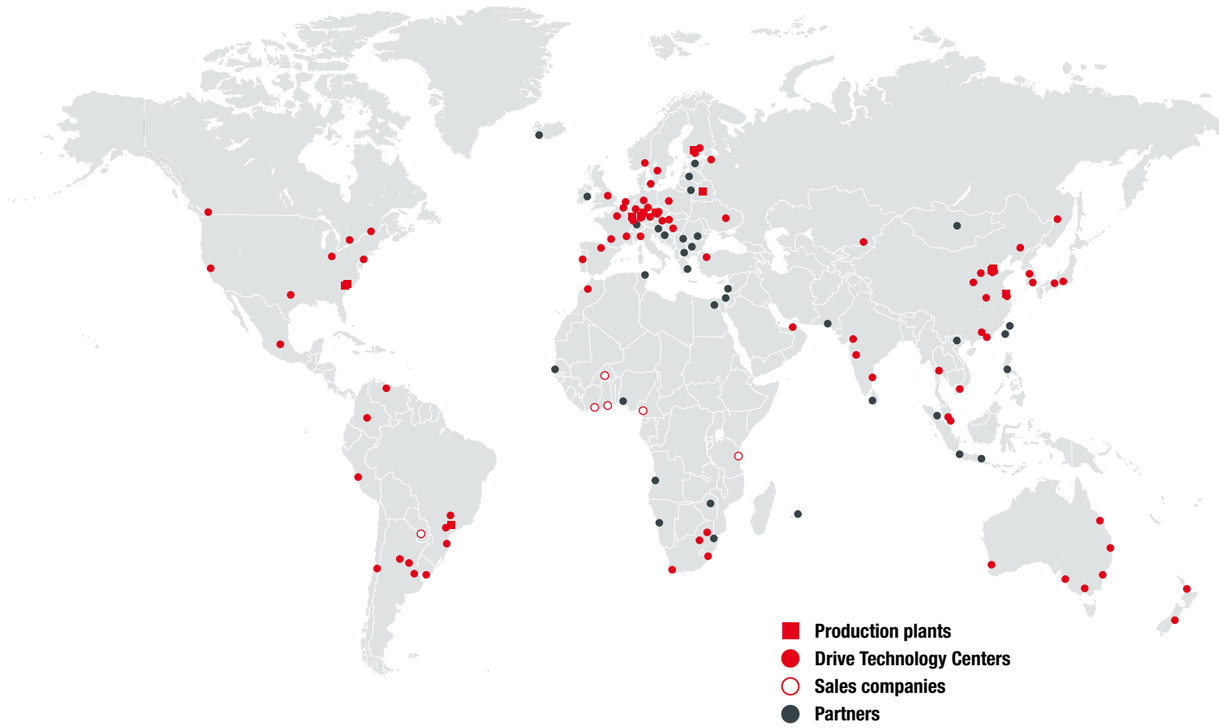
Headquarters
Bruchsal, Germany

57
sites worldwide

17
production plants

More than 200
sales companies

24/7
service –
365 days a year



Where can you find us? We are never far away!

Our network currently comprises 17 production plants and 92 Drive Technology Centers in 57 countries all round the globe, and we're still growing. That puts us in an excellent position and means we are never far away from our customers, offering them a personal, committed, reliable, and partnership-based service – in Germany, in Europe, and worldwide.

What makes us truly stand out from other manufacturers? Thanks to our unique, comprehensive network of service sites and service experts throughout the world, you never have to wait long for spare parts, repairs, or professional advice.

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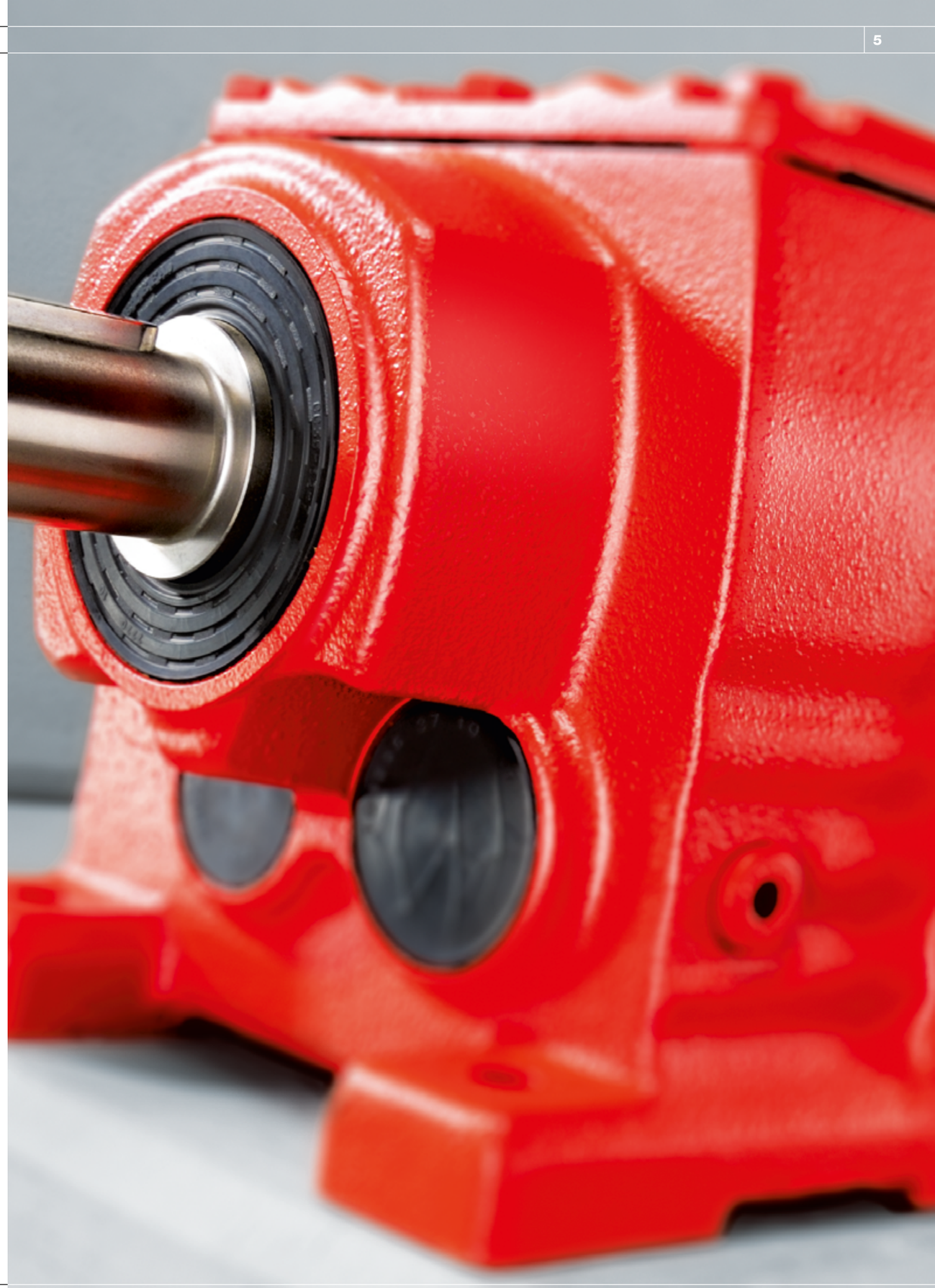
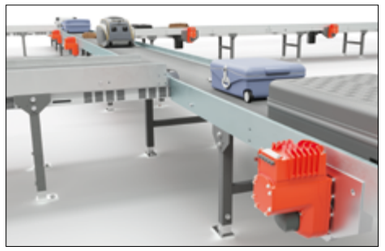


1 Modular automation system

MOVI-C® modular automation system

POSSIBLE USES / TYPICAL APPLICATIONS



MOVI-C® decentralized:
e.g. transport and logistics
- Rotary tables
- Scissor lift tables
- Conveyor units
- Belt conveyors

MOVI-C® modular:
e.g. warehouse technology
- Storage/retrieval systems
- Indoor cranes
- Conveyor vehicles

MOVI-C® automation components:
e.g. food and packaging technology
- Cartoning machines
- FFS machines
- Winders
- Filling systems

THE ADVANTAGES AT A GLANCE

A true all-rounder!
MOVISUITE® is a program for planning, startup, operation, and diagnostics that saves users time and money thanks to its optimized user-friendliness.

Simple, standardized, or customized!
To help ensure a quick startup, MOVIKIT® offers you a large number of parameterizable software modules for the controller. These can be expanded to include your custom logic in the convenient programming environment.

One inverter system for all needs!
MOVI-C® is the all-in-one automation toolkit from SEW-EURODRIVE, offering flexible components for everything from single-axis automation right through to module automation applications – one manufacturer, one end-to-end solution.

Modular!
MOVI-C® offers a complete, all-in-one modular automation system. The individual components can be used to create solutions tailored to your requirements and bus topology.

OVERVIEW OF THE TECHNOLOGY

Modular automation system
MOVI-C® is the all-in-one solution for automation tasks. Whether you want to implement single-axis or multi-axis applications based on standards, or custom and/or highly complex motion control applications – MOVI-C® can help you do all that and gives you the scope to achieve optimum automation for new projects.

Designed for industrial use
The devices and software have been designed with special attention to the requirements for efficient startup, maintenance, and troubleshooting. The components meet all requirements and standards regarding industrial use.

New control modes
Newly developed and optimized control modes to support asynchronous and synchronous motors both with and without encoders on all devices ensure excellent performance, while also maintaining a high level of flexibility.

State-of-the-art fieldbus systems
Having a variety of fieldbus protocols available is essential when it comes to flexibly integrating solutions into existing infrastructures. MOVI-C® supports all the latest standard fieldbus protocols.

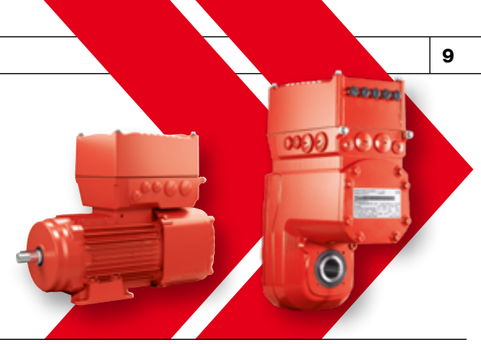
Integrated, digital motor interface
The integrated, digital motor interface allows for extremely robust and high-performance data transmission – well equipped for both current and future motor functions.
It opens up a whole host of new possibilities when used in conjunction with electronic nameplates or integrated and expandable diagnostic units on the motor.

Energy efficiency
In addition to the inverters, which have been streamlined for efficient energy conversion, the devices in the Power and Energy Solutions series offer a wide range of options for storing energy and releasing it again when required. This helps reduce energy spikes and increase availability, for example.

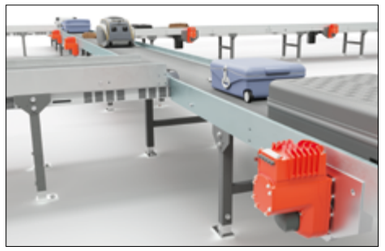
Integrated safety technology
The MOVI-C® inverters offer various safety functions – from integrated STO safety function to higher-quality safety functions and safe communication.

2 Decentralized drives and mechatronics

MOVI-C® decentralized drive technology



POSSIBLE USES / TYPICAL APPLICATIONS



Conveyor technology

Logistics / warehouse technology

Materials handling

THE ADVANTAGES AT A GLANCE

Scalability/consistency!
Whether you require control cabinet installation or inverter installations in the field, our new inverter platform offers you consistency and scalability for your entire system.

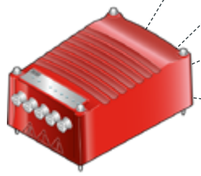
Lower costs!
Increase your overall equipment effectiveness thanks to condition monitoring and predictive maintenance. An integrated standby mode and flux optimization boost energy efficiency.

Open solution!
A wide range of integrated communication interfaces enables easy integration into modern installation topologies.

Flexibility!
Whether a gearmotor with integrated frequency inverter or a decentralized inverter for installation close to the motor, our decentralized drive solutions offer you flexibility in your application, save energy, and cut costs.

OVERVIEW OF THE TECHNOLOGY

- One decentralized inverter for four product families
- Available in two sizes
  BG1/1E: 2.0 A – 5.5 A
  BG2/2E: 7.0 A – 16.0 A
- High overload capacity (up to 300%)
- Can be operated on various communication systems



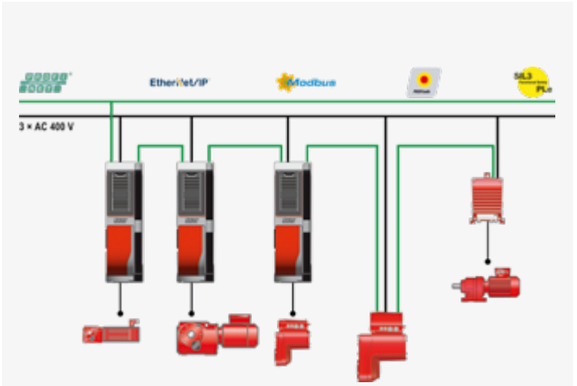
MOVIMOT® flexible
- Decentralized inverter for installation close to the motor
- Different drive types can be connected

MOVIMOT® advanced
- Asynchronous motor (IE3) or synchronous motor (IE5) with integrated inverter

MOVIMOT® performance
- Synchronous motor (IE5) with integrated inverter

MOVIGEAR® performance
- Gearmotor with integrated inverter
- Highly efficient (exceeds IE5 and IES2)

TOPOLOGY



MOVI-C® DECENTRALIZED ELECTRONICS / TECHNICAL DATA

Communication variants
DBC – Direct Binary Communication
DAC – Direct AS-Interface Communication
DFC – Direct Fieldbus Communication (PROFINET IO, EtherNet/IP™, Modbus TCP, POWERLINK CiA® 402)
DSI – Direct System Bus (EtherCAT®/ SBus^{PLUS})

Assigned motor power range
– ASM: 0.37 kW – 7.5 kW

Line voltage and frequency
– 3 × AC 380 V – 500 V
– 50/60 Hz

Safe communication
– CSB51A (STO, SS1)
– CSS51A (STO, SS1, SLS, SSM, SDI, SLI)

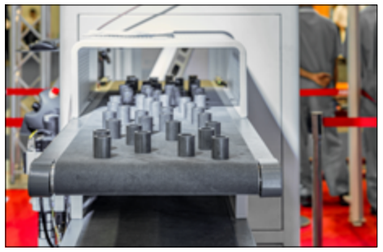
Degree of protection
IP65 standard

Type of cooling
Convection cooling from size 2E with integrated fan

Ambient temperature
-30 °C to 40 °C without derating
40 °C to 60 °C with derating

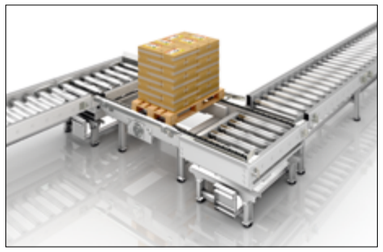
MOVIFIT® compact frequency inverter and starter with IO-Link

POTENTIAL USES / TYPICAL APPLICATIONS



Horizontal conveying applications

Speed-controlled conveyor belt



Corner transfer units and pallet conveyors with soft starter

THE ADVANTAGES AT A GLANCE

Compact
Very compact design in two sizes, perfect for intralogistics applications.

Installation
Quick, reliable installation via FieldPower® contact block from Weidmüller Interface GmbH & Co KG.

Connectivity
Binary control of the devices is possible, with AS-Interface via gateways from SEW-EURODRIVE or – NEW – with IO-Link.

Flexible
Two product variants – soft starters and frequency inverters open up great flexibility in terms of applications.

OVERVIEW OF THE TECHNOLOGY

Get maximum benefit for minimal outlay, with the decentralized MOVIFIT® compact motor starter. It provides as a frequency inverter or soft starter for robust and simple drive technology in intralogistics.

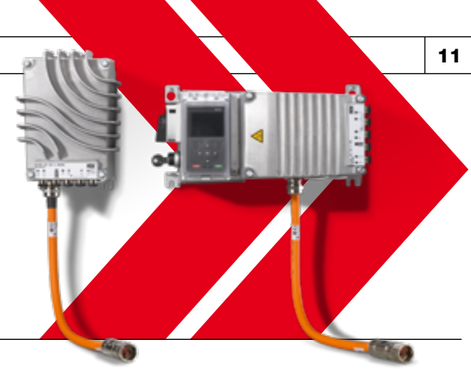
MOVIFIT® compact with IP55 degree of protection is ready for field use. It is ideal for tasks in modular conveyor lines, corner transfer units, or stretches with an incline – all without the need for a control cabinet!

Technical data

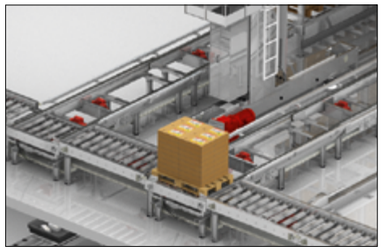
- Overload capacity of 150% for 60 s and 175% for 2 s
- IP55 housing variant with or without maintenance switch
- For operating asynchronous motors
- Optional: Control plate, EMC filter for frequency inverters
- With binary control, AS-Interface, or IO-Link

Line voltage	3 x 400 V
Frequency inverter	One motor with up to 0.75 kW, 1.1 kW, or 1.5 kW.
Soft starter for reversing operation	One motor with up to 2.2 kW or up to 4 kW.
Soft starter for duo operation	Two motors with up to 2.2 kW

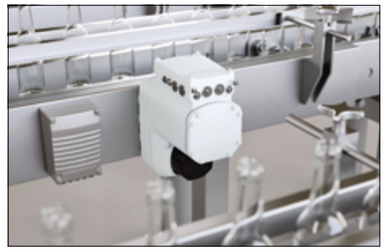
MOVIMOT® flexible decentralized inverter



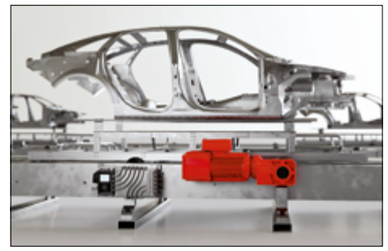
POSSIBLE USES / TYPICAL APPLICATIONS



Conveyor systems / intralogistics
- Horizontal conveyor units
- Lifting modules
- Rotary tables



Food and beverage production
- Bottle transportation
- Container conveyors
- Stacking units



Automotive industry / production technology
- Skid conveyors
- Lifting/lowering conveyors
- Rotary modules

THE ADVANTAGES AT A GLANCE

Versatile!
All types of synchronous and asynchronous motors can be controlled. Optional motor encoders or mechanical brakes can be adapted.

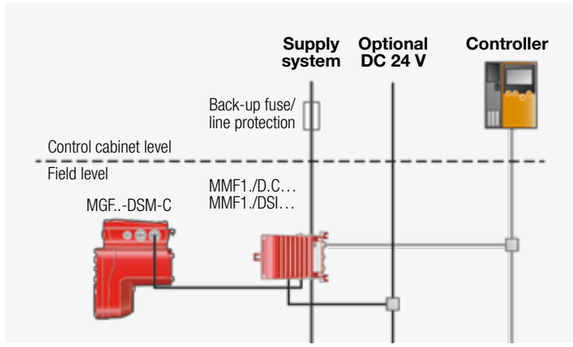
Intelligent!
Information from the electronic nameplate, braking data, and diagnostic data are transmitted directly to the inverter.

Simple!
The intelligent, digital connection using a standardized hybrid cable makes it possible to supply power and also transmit data between the decentralized inverter and motor.

Safe!
Integrated STO (Safe Torque Off) safety function to PL e. Binary control or option of control via PROFINET®/PROFIsafe.

OVERVIEW OF THE TECHNOLOGY

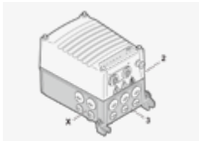
MOVIMOT® flexible is available in two versions. As an extension to MMF11, the MMF31/ MMF32 version can be fitted with additional options. These include a load disconnector (with or without integrated line protection), an M12 engineering interface, and preparation for mounting an operator panel. A key switch with feedback contact can also be integrated.



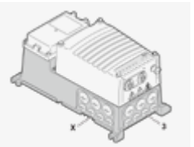
EtherNet/IP Modbus POWERLINK EtherCAT. ASi

Binary control

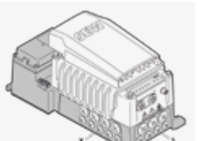
MMF11:
Position
X + 2 + 3



MMF31:
Position
X + 3



MMF32:
Position
X + 3

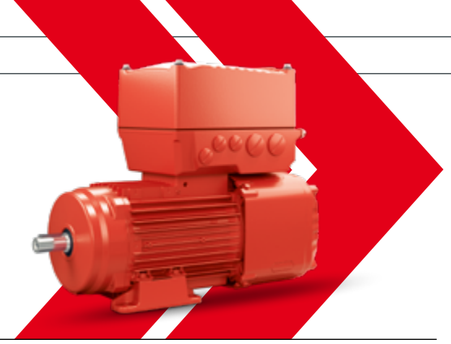


SIZE AND NOMINAL OUTPUT CURRENT

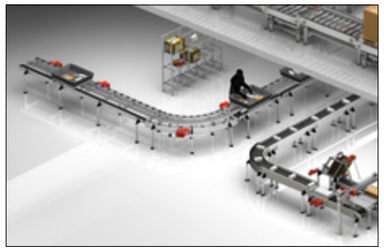
Nominal output current	Type designation	Size	
2.0 A	D.C/DSI..-0020..	Size 1 without cooling fins	
2.5 A	D.C/DSI..-0025..		
3.2 A	D.C/DSI..-0032..		
4.0 A	D.C/DSI..-0040..	Size 1 with cooling fins	
5.5 A	D.C/DSI..-0055..		
7.0 A	D.C/DSI..-0070..	Size 2 without fan*	
9.5 A	D.C/DSI..-0095..		
12.5 A	D.C/DSI..-0125..	Size 2 with fan*	
16.0 A	D.C/DSI..-0160..		

* Size 2 is only possible in combination with MMF32.

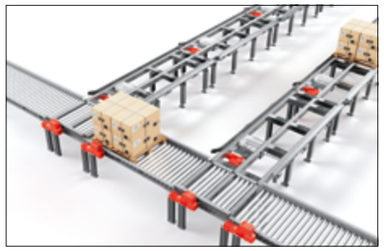
MOVIMOT® advanced drive unit



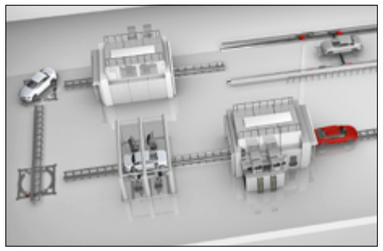
POSSIBLE USES / TYPICAL APPLICATIONS



Conveyor technology / logistics
- Roller conveyors
- Chain conveyors
- Belt conveyors



Materials handling
- Conveyor units
- Lifting modules
- Rotary tables



Production technology
- Skid conveyors
- Rotary units
- Lifting/lowering conveyors

THE ADVANTAGES AT A GLANCE

Scalable!
Drives with nominal power values in a range of 0.37 kW to 7.5 kW are available. Mechanical brakes and/or an adapted maintenance switch are optionally available.

Flexible!
Can be combined with all standard gear units in SEW-EURODRIVE's modular system. The ability to withstand even harsh ambient conditions enables universal use in different sectors of industry.

Versatile!
Advanced sensorless open-loop control and an optional single-turn encoder pave the way for reliable solutions in numerous applications.

Cost-effective!
Optional industrial plug connector for easy, time-saving installation. The innovative Premium Sine Seal oil seal reduces wear in the drive unit and increases its expected service life.

OVERVIEW OF THE TECHNOLOGY

Supported motor sizes		DRN 71M	DRN 80MK	DRN 80M	DRN 90S	DRN 90L	DRN 100LS	DRN 100L	DRN 112M	DRN 132S	DRN 132M
Nominal power kW	Star connection	0.37	0.55	0.75	1.1	1.5	2.2	3.0	4.0	5.5	7.5
	Delta connection	0.55	0.75	1.1	1.5	2.2	3.0	4.0	5.5	7.5	–
Nominal torque Nm	Star connection	2.5	3.7	5.1	7.5	10.2	15.0	19.7	26.3	36.2	49.4
	Delta connection	1.8	2.5	3.6	4.9	7.2	9.9	13.2	18.1	24.7	–
Speed setting range	Star connection	1:10 (without encoder) I 1:1400 (with EI8Z encoder; from size 2: EK8Z, AK8Z)									
	Delta connection	1:20 (without encoder) I 1:2900 (with EI8Z encoder; from size 2: EK8Z, AK8Z)									

Supported motor sizes		DR2C 71MS	DR2C 71M	DR2C 80MK	DR2C 80M	DR2C 90S	DR2C 90L	DR2C 100LS	DR2C 100L
Nominal power kW	Speed class 2000 / 3000	0.69 / 1.1	1.0 / 1.7	1.5 / 1.7	2.3 / –	3.6 / 5.8	4.7 / 7.1	5.7 / –	7.2 / –
Nominal torque Nm	Speed class 2000 / 3000	4.3 / 4.3	6.7 / 6.7	9.0 / 7.2	11.6 / –	19.5 / 19.5	25.0 / 23.5	30.0 / ––	32.5 / –
Speed setting range	Speed class 2000 / 3000	1:40 (without encoder) I 1:2000 (with encoder from size 2: AK8Z) / 1:40 (without encoder) I 1:3000 (with encoder from size 2: AK8Z)							

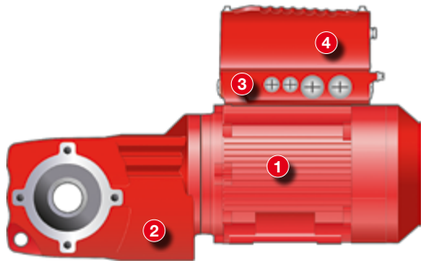
MOVIMOT® advanced enables an overload of up to 210% for a short time.

1 Motor
Asynchronous motor of the DRN.. series or energy-efficient synchronous motor of the DR2C.. series

2 Optional gear unit
Can be combined with gear unit series 7 or 9

3 Connection unit
For cable glands and optional plug connector

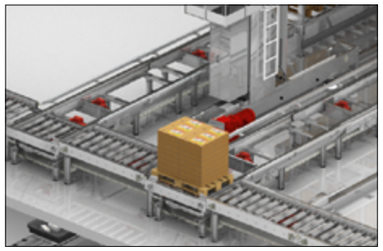
4 Drive inverter
Decentralized inverter with communication interface



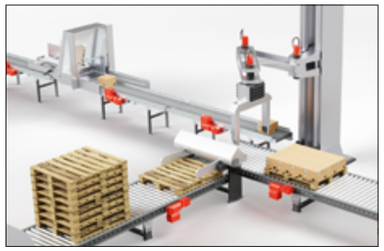
EtherNet/IP Modbus POWERLINK EtherCAT

MOVIMOT® performance drive unit

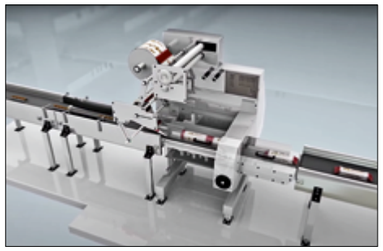
POSSIBLE USES / TYPICAL APPLICATIONS



Conveying/sorting
- Corner transfer units
- Sorter belts
- Positioning units



Materials handling
- Conveyor units
- Lifting modules
- Rotary tables



Packaging technology
- Winders
- Clock synchronizers
- Positioners

THE ADVANTAGES AT A GLANCE

High overload capacity!
An overload capacity of up to 300% optimizes the drive's capacity utilization and reduces the nominal connected load.

Environmentally friendly!
Low-noise operation without fan plus a motor energy efficiency class ≥ IE4 to IEC TS 60034-30-2.

Precise!
Highly dynamic, with a large speed range and optional positioning using a multi-turn absolute encoder.

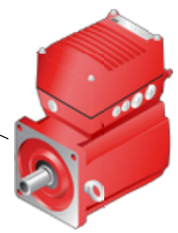
Cost-effective!
Direct wiring via terminals or quick and easy installation using optional plug connectors and the MOVILINK® DDI digital interface.

OVERVIEW OF THE TECHNOLOGY

MOVIMOT® performance	CM3C80S 0020	CM3C80S 0025	CM3C80S 0032	CM3C80S 0040	CM3C80M 0040	CM3C80M 0055	CM3C100M 0070	CM3C100M 0095
Inverter assignment A	2.0	2.5	3.2	4.0	4.0	5.5	7.0	9.5
Nominal torque Nm	3.6	4.5	5.7	7.2	8.0	9.0	15	20
Nominal speed min^{-1}	2000	2000	2000	2000	2000	2000	2000	2000
Nominal power kW	0.75	0.94	1.19	1.51	1.68	1.88	3	4
Overload capacity %	300	300	300	300	300	300	300	300
Speed setting range	1:40 (without encoder) I 1:2000 (with EZ2Z/AZ2Z)							
Motor efficiency	≙ IE5							

MOVIMOT® performance	
Motor power range	0.75 kW to 4 kW
Line voltage	3 × AC 380 V – 500 V
Line frequency	50/60 Hz
Continuous output current	100% at f = 0 Hz
Degree of protection	IP65 without fan
Ambient temperature	-30 °C to 40 °C without derating 40 °C to 60 °C with derating

Permanent magnet motor
Robust and energy-efficient synchronous motor from the CM3C.. series



Drive inverter

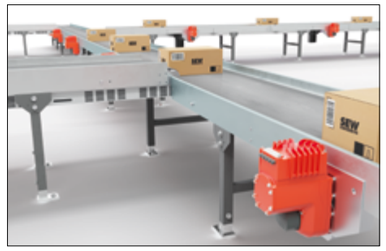
EtherNet/IP Modbus ETHERNET POWERLINK EtherCAT Technology Group ASi

Binary control

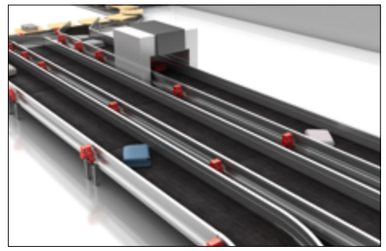
Connection unit

MOVIGEAR® performance drive unit

POSSIBLE USES / TYPICAL APPLICATIONS



Parcel logistics / conveying
- Transporting and identifying
- Sorting and distributing
- Loading and unloading



Airports / baggage handling
- Transporting baggage
- Sorting and distributing
- Accumulating and buffering

Bottling / food processing
- Bottle transportation
- Secondary packaging
- Raw materials feed

THE ADVANTAGES AT A GLANCE

Compact!
Nominal power of 0.8 – 2.1 kW and peak power of up to 6.3 kW, fully integrated, and up to 50% lighter than conventional drive solutions.

Universal!
The number of variants is reduced thanks to optimal dimensioning based on a large speed range and an impressive overload capacity of up to 300% for the nominal torque.

Efficient!
Motor energy efficiency class IE5 to IEC TS 60034-30-2 and system power loss up to 50% lower than IES2 according to IEC 61800-9-2.

Low noise!
Some 75% quieter than typical AC motors and hygienic convection cooling without fan.

OVERVIEW OF THE TECHNOLOGY

	Series/design		
	MGF..2-C	MGF..4-C	MGF..4-C/XT
Weight kg	16	26	28
Torque class Nm	200	400	400
Nominal power kW	0.8	1.5	2.1
Output speed range min^{-1}	0.9 – 593	0.9 – 566	0.9 – 566
Connection voltage V	380 – 500 V at 50/60 Hz	380 – 500 V at 50/60 Hz	400 – 500 V at 50/60 Hz
Diameter of hollow shafts mm	20 / 25 / 30 / 35 / 40	30 / 35 / 40	30 / 35 / 40

MOVIGEAR® performance Sizes

Communication variants:
PROFINET, EtherNet/IP™, Modbus TCP, POWERLINK, EtherCAT®/SBus^{PLUS}, AS-Interface, binary control

Shaft design:
TorqLOC® hollow shaft with key

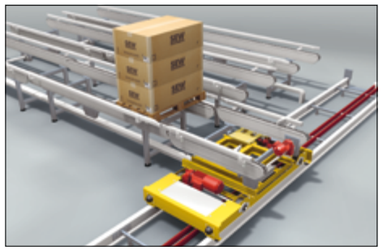
Degree of protection:
IP65 standard

Wet-area designs for different environments

New surface protection:
Surface protection HCP200/200F

MOVIPRO® technology decentralized inverter

POSSIBLE USES / TYPICAL APPLICATIONS



Pallet transfer shuttles
- Intralogistics
- Sorting
- Distributing

Scissor lift tables
- Chassis lifting units
- Tool lifting units
- Lifting units for loading

Lifting devices and vertical lifts
- Automotive lifters
- EMS solutions
- Warehouse systems

THE ADVANTAGES AT A GLANCE

Powerful!
- Nominal power of up to 30 kW
- Handles tasks efficiently

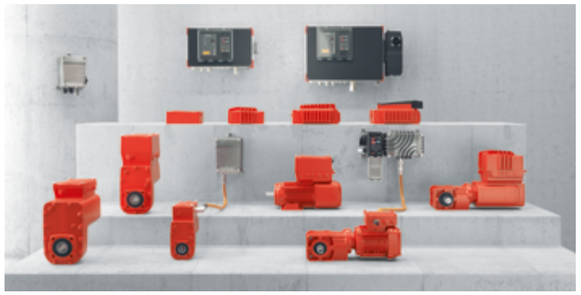
Scalable and safe!
- Customized solutions for safe stop, motion, and positioning functions
- Optional safe brake control

Consistent!
- Platform identical to control cabinet technology for seamless integration

Flexible!
- A variety of motor technologies and encoders can be connected
- Wide range of potential applications

OVERVIEW OF THE TECHNOLOGY

- Available in four sizes and nine power classes
- Operating synchronous and asynchronous motors, 200% overload capacity
- MOVILINK® DDI motor interface or evaluation of standard motor encoders (sin/cos, TTL/HTL, HIPERFACE®, RS422)
- Distance encoder evaluation for all standard external encoder systems (EnDat 2.1, SSI, sin/cos, TTL/HTL, HIPERFACE®, RS422, CANopen)
- Integrated STO (Safe Torque Off), PL e to EN ISO 13849-1:2015
- Safety options (/S..) for secure communication, secure digital inputs/outputs, safe motion functions, safe positioning, and safe brake control
- Communication interfaces:
  DFC: PROFINET, EtherNet/IP™, Modbus TCP
  DSI: Direct System Bus Installation (EtherCAT®/SBus^{PLUS}, EtherCAT®/CiA 402)

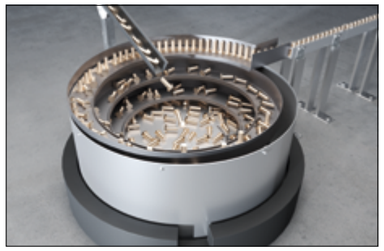


	MPX22A..		MPX23A..	
Size	**Size 2**	**Size 2E**	**Size 3**	**Size 3E**
Nominal output current A	5.5 / 7 / 9.5	12.5 / 16	24 / 32	46 / 62
Performance class kW	2.2 / 3 / 4	5.5 / 7.5	11 / 15	22 / 30
Dimensions W × H × D (mm) without interface box	480 × 300 × 162	480 × 300 × 201	570 × 420 × 201	570 × 420 × 207
Dimensions W × H × D (mm) with interface box	620 × 364 × 180	620 × 364 × 220	720 × 420 × 220	736 × 420 × 228

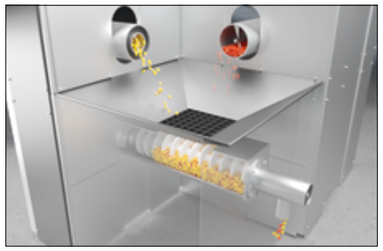
MOVIMOT® performance ELV compact extra-low voltage drive

POSSIBLE USES / TYPICAL APPLICATIONS

Transporting lightweight packaged goods
- Stationary conveyor systems
- Shuttles running on rails
- Mobile logistics vehicles



Handling small parts
- Aligning and positioning
- Separating and grouping
- Distributing and sorting



Automating processes
- Adjusting (hatches, doors, cabinets)
- Metering (fillers, mixers)
- Setting (formats, level control)

THE ADVANTAGES AT A GLANCE

High-performance!
- Industrial Ethernet interface
- Data exchange using standard profiles
- Full functional connectivity

Efficient!
- High efficiency
- Energy exchange in the DC network
- Control with minimal system vibrations, wear, etc.

Compact!
- Sustainable design
- Small installed size
- Low weight

Simple!
- Minimal installation work
- Fast startup (MOVILINK®)
- Complete engineering solution (MOVISUITE®)

OVERVIEW OF THE TECHNOLOGY

Rated data
- Power rating 180 – 356 W at 4000 min^{-1}
- DC 48 V voltage supply (DC 22 V – 59 V)

Functions
- Signal/power electronics, brake control, DDI position encoder, digital I/O interface, Ethernet fieldbus, CFC closed loop system
- Operating modes: torque, speed, positioning

Options
- Holding brake, absolute encoder, Safe Torque Off HW (STO, PL d), MOVIKIT® software modules

Other features
- High short-term overload capacity for optimized dimensioning of gearmotors with very compact mounting positions
- MOVISUITE® engineering software for comprehensive planning, startup, and analysis
- Wide range of automation applications:
  - Available in various supply topologies – traditionally with stationary DC 48 V current supplies, or also with battery and energy modules
  - In networks with central or distributed controllers via Ethernet or wireless communication

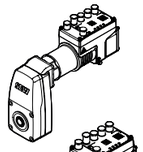
SBus^{PLUS}

EtherCAT. Technology Group

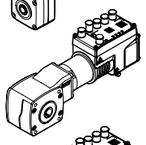
EtherNet/IP

DCA63S-4LP	DCA63M-4LP	DCA63L-4LP	DCA80M-4LP
180 W	272 W	356 W	503 W
0.43 Nm	0.65 Nm	0.85 Nm	1.2 Nm
4000 min^{-1}	4000 min^{-1}	4000 min^{-1}	4000 min^{-1}
2.05 kg*	2.35 kg*	2.65 kg*	3.2 kg*

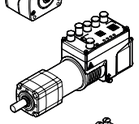
*) without brake



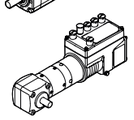
F.02/F.03 parallel-shaft helical gear unit
- 2 sizes, 3-stage, solid shaft or hollow shaft
- 5 reduction ratios, i = 6 – 48



SPIROPLAN® W.02/W.03 right-angle gear unit
- 2 sizes, 1-stage, solid shaft or hollow shaft
- 5 reduction ratios, i = 6 – 48

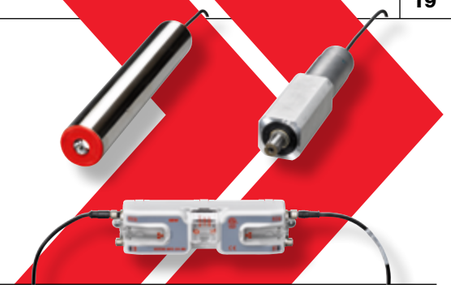


PNZ63A planetary gear unit
- 1- or 2-stage
- 3 reduction ratios, i = 5 / 15 / 45



KNZ63A right-angle gear unit
- 2- or 3-stage
- 3 reduction ratios, i = 17 / 54 / 84.8

ECDriveS – scalable extra-low voltage system for roller conveyors



POTENTIAL USES / TYPICAL APPLICATIONS

Zero back pressure conveying
of boxes or packages in intralogistics and e-Commerce

Conveyor belts for machinery and equipment
in mobile or stationary applications

Rotary tables and corner transfer units
Use of gearmotors in complementary applications in the area around conveyor belts

THE ADVANTAGES AT A GLANCE

High power density
Power rating up to 65 W and 200% overload capacity, higher torque than comparable solutions with up to 8 Nm dynamic limit torque.

Advanced controller
You still have a free choice: Central control via PLC or decentralized, intelligent conveyor logic for zero pressure accumulation; automatic startup (electr. nameplate); integrated encoders reduce sensors/limit switches.

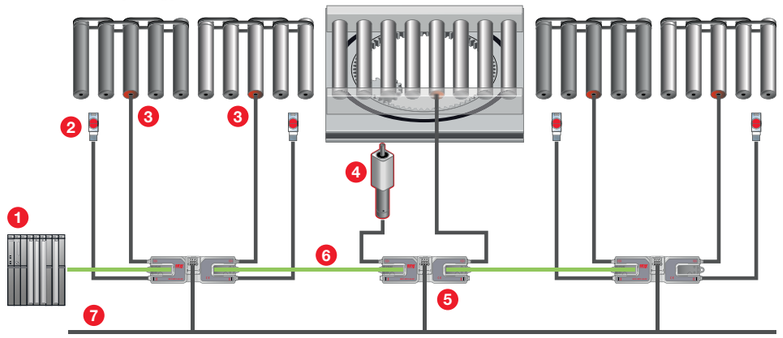
Optimum system availability
Thanks to diagnostics and visualization for every space, digital motor interface consistently connects all drives, continuous monitoring and preventive maintenance, simple handling in case of failures.

Long service life
Brushless permanent magnet motor, full-metal planetary gear unit with bearings on both ends of the planetary gears ensures high stiffness, optimum tooth engagement, and minimum wear – even at high loads.

OVERVIEW OF THE TECHNOLOGY

ECR roller drive ECG gearmotor			
Type	IA2M	A2M	A4M
Nominal voltage	24 V	24 V	48 V
Power rating / current	40 W / 2.5 A	40 W / 2.5 A	65 W / 1.9 A
Overload	150%	200%	200%
Description	Integrated commutation electronics – Operating modes: analog (0 - 10 V), IO-Link – Connection to third-party motor control modules, especially ASi motor modules	External commutation electronics – High overload capacity and thermal reserves for high cycle rates – Optionally with integrated brake at 24 V – Connection to ECC-DFC fieldbus module or ECC-DBC binary module	

Installation topology with ECC DFC-..



EtherCAT. Technology Group

EtherNet/IP

Modbus

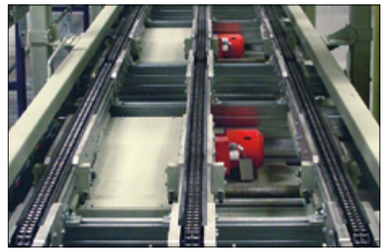
1. PLC
2. Sensors
3. ECR roller motors
4. ECG gearmotors
5. ECC-DFC fieldbus controller
6. Fieldbus
7. 24 V supply or 48 V supply

3 Control cabinet inverters

MOVITRAC® basic inverter

POSSIBLE USES / TYPICAL APPLICATIONS

Chain conveyors and roller conveyors


Conveyor belts


Agitators

THE ADVANTAGES AT A GLANCE

Compact!
Exceptionally compact size and dimensions (just 56 mm wide), saving space in the control cabinet.

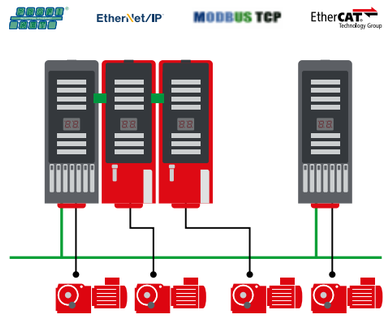
Easy to use!
Straightforward startup without an engineering tool thanks to MOVIKIT® Drive software modules.

Simple product selection!
Minimal number of variants and straightforward.

Cost-optimized!
An optimized price-performance ratio for the simplest of materials handling applications.

OVERVIEW OF THE TECHNOLOGY

MOVITRAC® basic control cabinet inverter		
Technical data	**Nominal line voltage V**	1 × AC 200 – 240 3 × AC 200 – 500
	Nominal power kW	0.25 – 1.5
	Overload capacity	150%
Motor guidance	**Control and monitoring of** – Asynchronous AC motors without encoder	
Communication interface	– Plug-in gateway – optionally PROFINET, EtherNet/IP™, Modbus TCP, EtherCAT®/ SBUS^{PLUS}	
Functional safety	None	
Other features and equipment	– Startup via plug-in and scalable operator panels or MOVISUITE® engineering software – Simple startup and diagnostics thanks to MOVIKIT® software modules – Plug-in line and motor connection terminal	

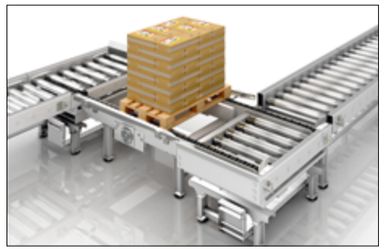


MOVITRAC® classic control cabinet inverter

POTENTIAL USES / TYPICAL APPLICATIONS

Agitators

Vertical drives



Corner transfer units

THE ADVANTAGES AT A GLANCE

Openness!
Plug-in gateway supports various fieldbus protocols, enabling connection to standard control systems.

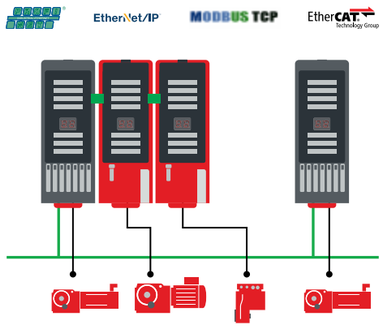
Saves time!
Fast, straightforward startup without an engineering tool, thanks to MOVIKIT® Drive software modules.

Simple product selection!
Minimal number of variants and straightforward handling.

Cost-optimized!
An optimized price-performance ratio, even for simple applications.

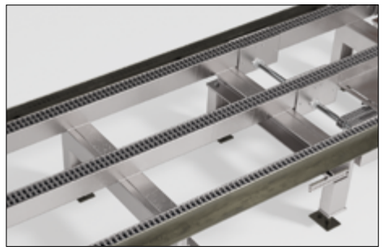
OVERVIEW OF THE TECHNOLOGY

MOVITRAC® classic control cabinet inverter		
Technical data	**Nominal voltage V**	1 × AC 200 – 240 3 × AC 200 – 500
	Nominal power kW	0.25 – 11
	Overload capacity	150%
Motor control	**Controlling and monitoring of:** – Synchronous and asynchronous AC motors without encoder – Asynchronous motors with LSPM technology	
Communication interface	– Plug-in gateway – choose from PROFINET, EtherNet/IP™, Modbus TCP, EtherCAT®/SBUS^{PLUS}	
Functional safety	– STO (safe torque off) to PL d integrated into the basic unit	
Additional features and equipment	– State-of-the-art control modes: U/f, VFC^{PLUS}, ELSM®, CFC – Torque and speed control – Startup via plug-in and scalable keypads or MOVISUITE® engineering software – Simple startup using MOVIKIT® software modules	



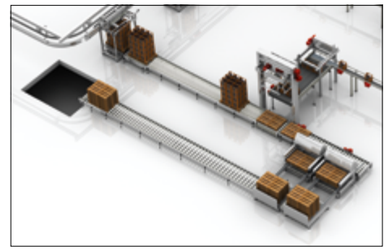
MOVITRAC® advanced standard inverter

POSSIBLE USES / TYPICAL APPLICATIONS



Materials handling technology

Vertical drives



Palletizers

THE ADVANTAGES AT A GLANCE

Saves time!
Quick and easy startup thanks to the electronic nameplate and the use of pre-configured MOVIKIT® software modules.

Simple!
Quick and easy unit replacement during servicing, without an engineering PC, thanks to a portable memory module for storing all device data.

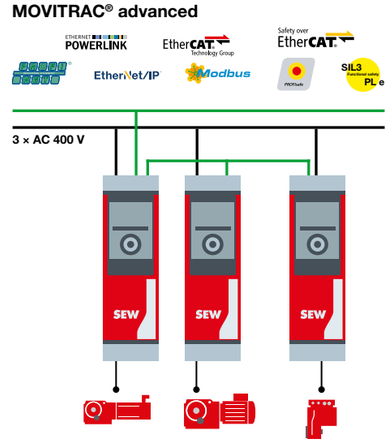
Open solution!
Connection to standard control systems thanks to various fieldbus protocols and the CiA® 402 drive profile being supported.

Flexible!
Configurable functional safety – from integrated STO safety function to higher-level safety functions and safe communication.

OVERVIEW OF THE TECHNOLOGY

MOVITRAC® advanced control cabinet inverter		
Technical data	**Nominal voltage V**	1 × AC 200 – 240 3 × AC 200 – 240 3 × AC 380 – 500
	Nominal power kW	0.25 – 315
	Overload capacity	150%
Control mode	**Controlling and monitoring of:** – Synchronous and asynchronous AC motors with/without an HTL encoder, with evaluation possible via digital inputs – Asynchronous motors with LSPM technology – Synchronous and asynchronous linear motors	
Communication interface	– Integrated communication interface – choose from PROFINET, EtherNet/IP™, Modbus TCP, EtherCAT®/SBUS^{PLUS}, EtherCAT® CiA® 402, and POWERLINK CiA® 402	
Functional safety	– STO (safe torque off) to PL d integrated into the basic unit – Other safety functions configurable – such as SBC, SDI, or SLS – Safe communication configurable via PROFIsafe/PROFINET, Safety over EtherCAT®, and CIP Safety™	
Additional features and equipment	– Configurable MOVILINK® DDI digital data interface – State-of-the-art control modes: U/f, VFC^{PLUS}, ELSM®, and CFC – Control of torque, rotational speed, and position – Startup via plug-in and scalable keypads or MOVISUITE® engineering software – Simple startup using MOVIKIT® software modules – Portable memory module for easy unit replacement without engineering software	

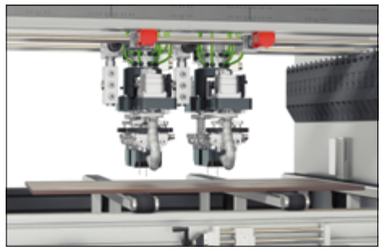
MOVITRAC® advanced



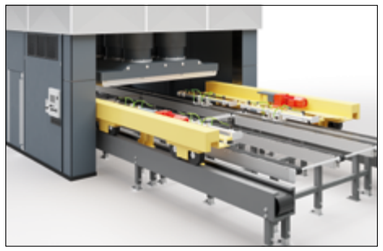
MOVIDRIVE® technology application inverter

POSSIBLE USES / TYPICAL APPLICATIONS

Vertical drives



Saw applications



Presses

THE ADVANTAGES AT A GLANCE

Saves time!
Quick and easy startup thanks to the electronic nameplate and the use of preconfigured MOVIKIT® software modules.

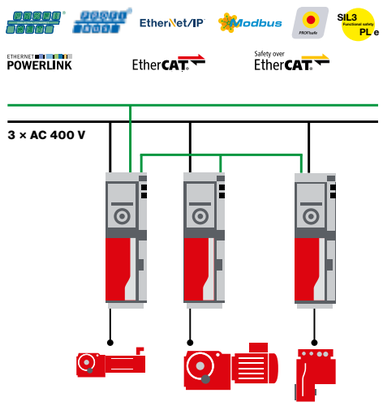
Cuts costs!
Saves on operating costs thanks to regenerative power supply units and energy-saving functions available as standard for partial-load operation and standby mode.

Open solution!
Supports various fieldbus protocols, enabling connection to standard control systems.

Flexible safety!
Scalable functional safety, from the STO function integrated as standard right through to option cards that can be inserted retrospectively for additional safety functions and safe communication.

OVERVIEW OF THE TECHNOLOGY

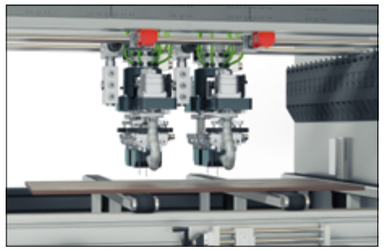
MOVIDRIVE® technology cabinet control inverter		
Technical data	**Nominal line voltage V**	3 × AC 200 – 240 3 × AC 380 – 500
	Nominal power kW	0.55 – 315
	Overload capacity	200%
Control mode	Controlling and monitoring of: – Synchronous and asynchronous AC motors with/without encoder – Asynchronous motors with LSPM technology – Synchronous and asynchronous linear motors	
Communication interface	– Flexible fieldbus connection via plug-in option cards – choose from PROFINET, EtherNet/IP™, Modbus TCP, PROFIBUS, and POWERLINK CiA® 402 – EtherCAT®/SBus^{PLUS} integrated into the basic unit	
Functional safety	– STO (safe torque off) to PL e integrated into the basic unit – Higher-level safety functions available as options, e.g. SBC, SLS, or SLP – Safe communication via PROFIsafe/PROFINET and Safety over EtherCAT®	
Additional features and equipment	– Multi-encoder input integrated into the basic unit – MOVILINK® DDI digital data interface integrated into the basic unit – Control of torque, rotational speed, and position – DC link connection for connecting to DC or regenerative power supply – Startup via plug-in keypads or MOVISUITE® engineering software – Simple startup using MOVIKIT® software modules	



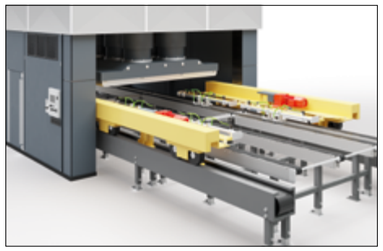
MOVIDRIVE® system control cabinet inverter

POTENTIAL USES / TYPICAL APPLICATIONS

Vertical drives



Saw applications



Presses

THE ADVANTAGES AT A GLANCE

Saves time!
Quick and easy startup thanks to the electronic nameplate and the use of preconfigured MOVIKIT® software modules.

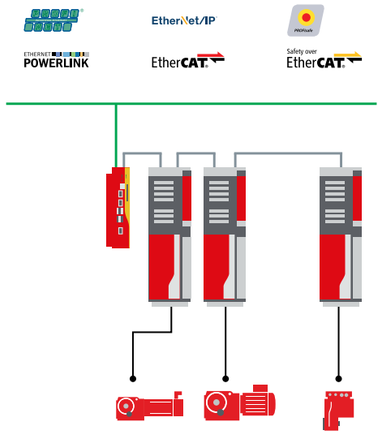
Lower costs!
Saves on operating costs thanks to regenerative power supply units and energy-saving functions available as standard for partial-load operation and standby mode.

Energy reduction!
Save energy by using regenerative power supply units, DC supply, or energy storage units.

Flexibility!
Scalable functional safety, from the STO function integrated as standard right through to option cards that can be inserted retrospectively for additional safety functions and secure communication.

OVERVIEW OF THE TECHNOLOGY

MOVIDRIVE® system control cabinet inverter		
Technical data	**Nominal voltage V**	3 × AC 200 – 240 3 × AC 380 – 500
	Nominal power kW	0.55 – 315
	Overload capacity	200%
Motor control	Controlling and monitoring of: – Synchronous and asynchronous AC motors with/without encoder – Asynchronous motors with LSPM technology – Synchronous and asynchronous linear motors	
System concept	– Addition to the MOVIDRIVE® modular multi-axis system – High power ratings 315 kW / 588 A – Long motor cables (up to 1200 m)	
Functional safety	– STO (safe torque off) to PL e integrated into the basic unit – Higher-quality safety functions available as options, e.g. SBC, SLS or SLP – Secure communication via PROFIsafe/PROFINET and Safety over EtherCAT®	
Additional features and equipment	– Multi-encoder input integrated into the basic unit – MOVILINK® DDI digital data interface integrated into the basic unit – Control of torque, rotational speed, and position – DC link connection for connecting to DC or regenerative power supply – Startup via plug-in keypads or MOVISUITE® engineering software – Simple startup using MOVIKIT® software modules	



MOVIDRIVE® modular control cabinet inverter

POTENTIAL USES / TYPICAL APPLICATIONS

High-bay warehouse

Pick and place

Machine automation

THE ADVANTAGES AT A GLANCE

Saves time!
Quick and easy startup thanks to the electronic nameplate and the use of preconfigured MOVIKIT® software modules.

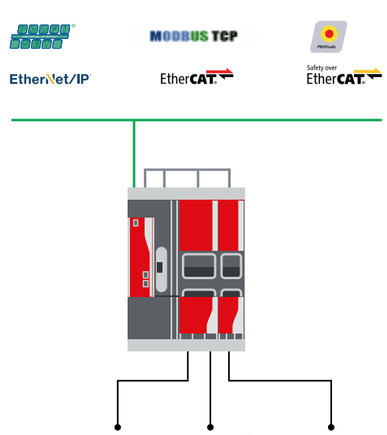
Lower costs!
Saves on operating costs thanks to regenerative power supply units and energy-saving functions available as standard for partial-load operation and standby mode.

Energy reduction!
Save energy by using regenerative power supply units, DC supply, or energy storage units.

Flexibility!
Scalable functional safety, from the STO function integrated as standard right through to option cards that can be inserted retrospectively for additional safety functions and secure communication.

OVERVIEW OF THE TECHNOLOGY

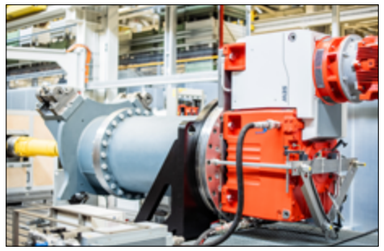
MOVIDRIVE® modular control cabinet inverter		
Technical data	**Nominal voltage V**	3 × AC 200 – 240 (in preparation) 3 × AC 380 – 500
	Rated output – power supply module kW	10 – 110
	Rated output – single-axis modules kW	0.6 – 90
	Rated output – double-axis modules kW	0.55 – 6
	Overload capacity	250%
Motor control	Controlling and monitoring of: – Synchronous and asynchronous AC motors with/without encoder – Asynchronous motors with LSPM technology – Linear motors	
Adjustable	– Regenerative power supply modules usable for power ratings up to 150 kW – Energy storage unit can be used through Power and Energy Solutions – Combination with MOVIDRIVE® system for power ratings over 90 kW	
Functional safety	– STO (safe torque off) to PL e integrated into the basic unit – Higher-quality safety functions available as options, e.g. SBC, SLS or SLP – Secure communication via PROFIsafe/PROFINET and Safety over EtherCAT®	
Additional features and equipment	– Multi-encoder input integrated into the basic unit – MOVILINK® DDI digital data interface integrated into the basic unit – Control of torque, rotational speed, and position – DC link connection for connecting to DC or regenerative power supply – Startup via plug-in keypads or MOVISUITE® engineering software – Simple startup using MOVIKIT® software modules	



MDR90/91B regenerative power supply

POSSIBLE USES / TYPICAL APPLICATIONS

High amounts of regenerative energy
For example, in crane systems with a long lowering distance. The reduction and recovery of braking energy cuts energy costs and CO_2 emissions.



Test stands with loading machines
Elimination of braking resistance in critical applications, resulting in less waste heat and potentially making control cabinet air conditioning superfluous.

Energy consumption of storage/retrieval systems
Approximately 25% lower energy consumption. No waste heat caused by braking resistance. No additional costs resulting from heat dissipation in cold stores.

THE ADVANTAGES AT A GLANCE

Support at all stages!
Full support from project planning to the finished system. Benefit from our expertise and experience.

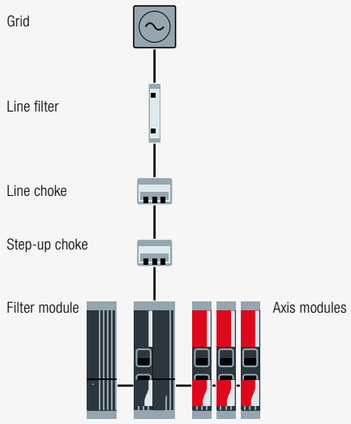
Fast installation!
Modular design and small number of components. Easy mechanical and electrical integration into the application.

Easy startup!
Ready-made MOVIKIT® software modules ensure your application is up and running in just a few minutes.

Holistic concept!
Sinusoidal and block-type energy recovery with various power ratings. Adapted filters and chokes for a minimal grid load.

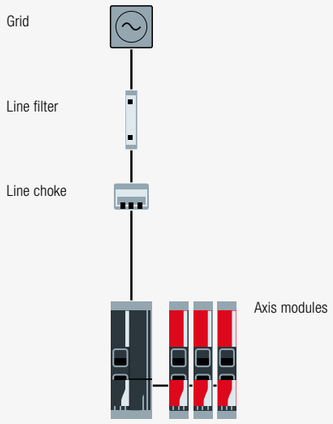
OVERVIEW OF THE TECHNOLOGY

MDR90B sinusoidal regenerative power supply



Benefits MDR90B:
- High DC link voltage of DC 750 – 800 V, resulting in higher motor speeds and greater motor utilization
- Low THD (total harmonic distortion), which rules out any interference with sensitive equipment

MDR91B block-shaped regenerative power supply



Benefits MDR91B:
- Small number of components (compact)
- High overload, even in the case of long power cables
- Inexpensive

The MOVIDRIVE® MDR regenerative power supply serves as a centralized supply and regenerative module for the connected inverters.

General technical features:
- Sinusoidal and block-type energy recovery available
- Full line voltage range of 3 × AC 380 – 500 V
- Available with a nominal power of 50 kW or 75 kW; 100 – 150 kW in parallel operation
- Components benefit from long-term availability
- Available in partially painted design
- New DC link tuning – very long power cables possible
- EtherCAT®/SBus^{PLUS} connections in the basic unit
- Potential savings of 20 to 25%

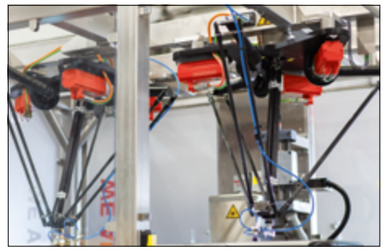
MOVIKIT® software modules for the PLC
- Control via ready-made MOVIKIT® software modules
- Automatic incorporation into the IEC code
- Predefined fieldbus interface if necessary
- Diagnostics and control monitor
- Data storage on the PLC
- Can be integrated into the EtherCAT® fieldbus

Comprehensive energy flow and device status diagnostics
- Active power display
- Energy meter for motoring operation
- Energy meter for regenerative operation
- Integrated scope
- Internal fault memory

Power and Energy Solutions

POTENTIAL USES / TYPICAL APPLICATIONS

Plant automation
- Storage and retrieval systems
- Vertical drives
- Gantry cranes



Machine automation
- Injection molding machines
- Handling machines
- Highly dynamic robots

Mobile applications
- "Short-distance" shuttles (SRS)
- Floor conveyor vehicles
- Small electrically powered vehicles

THE ADVANTAGES AT A GLANCE

Reduction of the connected load
- Energy storage unit provides up to 90 % of the required peak loads
- Reduction of the system's grid connected load by up to a factor of 10
- Smaller cable cross sections, transformers, contactors, fuses

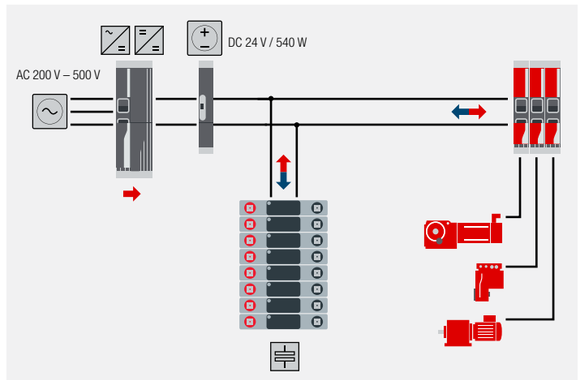
Maximum availability
- Bridge power failures using the residual energy in the energy storage unit
- Perform controlled system stops, end movement cycles, or completely bridge power failures
- Rapid restart when grid is available again

Cost reduction
- Prevention of expensive repairs and cleaning after power failures
- Energy savings of around 20-30%
- Smaller line connection components
- Option to omit a braking resistor

High efficiency
- Local energy management: Energy does not leave the system
- Reduction of EMC load thanks to continuous, low supply system consumption
- Possible to connect several systems to the same transformer

OVERVIEW OF THE TECHNOLOGY

The "PowerMode" topology is designed for direct connection of an energy storage unit in the DC link. This is possible thanks to the MDP92 power supply module, which enables precise control of the DC link voltage. During motor operation, the energy storage unit delivers almost any peak load the inverters need. In regenerative operation, the DC link voltage increases and the energy storage unit is charged. The stored energy is then available for the next movement cycle. Electrolytic capacitors or supercapacitors with energy contents of 4 kWs to 6600 kWs are used as energy storage units.



General technical features:
- Connection to 3 × AC 200 – 500 V with MDP92 power supply module
- Connection to DC 48 – 800 V with MDE90 DC/DC converter module
- Precise control of the DC link or storage voltage from 0 – 800 V DC
- 10 – 25 kW rated power (MDP92), 20 – 75 A nominal current (MDE90), overload capacity of up to 160% for 60 s
- Parallel connection of up to four units possible

Energy storage units using electrolytic capacitor and supercapacitor technology
- MDC90 capacitor modules with electrolytic capacitors for particularly dynamic applications with extremely high cycle rates, energy content 4 – 16 kWs
- EKV energy modules with supercapacitors for decentralized, modular installation in IP54 protective housing, energy content 8 – 1100 kWs
- ESS energy storage system with supercapacitors in control cabinet housing for applications with high power and energy requirements, energy content 1200 – 6600 kWs

MOVIKIT® Power and Energy Solutions software modules
- MOVIKIT® software modules enable particularly fast and smooth startup: The interaction with the energy storage unit and its monitoring are completely automatic.

Inverter function: Combined encoder evaluation

POTENTIAL USES / TYPICAL APPLICATIONS

Non-linear load conditions

Load-dependent cable length

Slip-affected positioning

THE ADVANTAGES AT A GLANCE

Fast!
Fast startup, directly on the inverter – using just a few parameters and the intuitive MOVISUITE® engineering software.

Flexible!
Executable with various encoder systems in diverse applications, either on the controller or directly in the inverter.

Integrated!
Function integrated into the basic firmware of all devices with positioning options.

Efficient!
Optimizes the positioning performance and travel dynamics when using several encoder systems with different position resolution.

OVERVIEW OF THE TECHNOLOGY

Precision is vital in drive technology. One of the challenges is the delay on the distance encoder at low resolutions, which can impact positioning. Instead of immediately reaching the target position, a plateau effect can occur that reduces efficiency and accuracy.

Our solution is to combine the signals from both encoders to prevent this effect. The result is significantly increased dynamics and precision in positioning, especially for applications where the travel parameters can change. This combination is ideal for situations where precise positioning information is needed from the motor encoder while at the same time taking account of potential delays in the distance encoder.

In addition to the previous solution via MOVIKIT® on the controller, the MOVISUITE® V2.50 engineering software places this function directly on the inverter.
The free "combined encoder evaluation" inverter function is available with MOVISUITE® V2.50 and inverter firmware version 11 for the MOVIDRIVE® control cabinet inverter and MOVIPRO® technology decentralized inverter.

If the combined encoder evaluation is conducted on the inverter, the encoders connected to the interfaces on the inverter can be evaluated. If MOVIKIT® is used on a controller, then encoders that are connected via the IO system or integrated directly into the EtherCAT® motion control bus can also be incorporated into the evaluation, in addition to the usual encoders connected to the subordinate inverters.

Scan the QR code to find out more about combined encoder evaluation

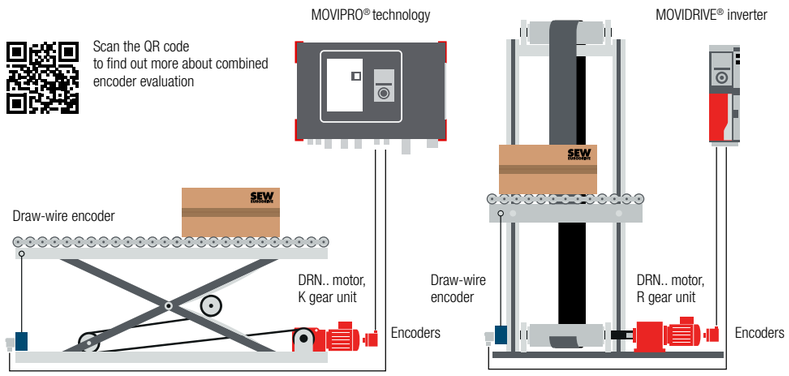


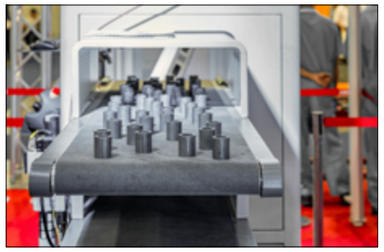
Illustration on left:
Example of an application with non-linear load conditions

Illustration on right:
Example of an application with load-dependent cable length

MOVITRAC® LTE-B+ frequency inverter with a high degree of protection

POSSIBLE USES / TYPICAL APPLICATIONS

Pumps and fans



Horizontal conveying applications

Speed-controlled applications

THE ADVANTAGES AT A GLANCE

Compact!
All sizes have a highly compact design. The IP20 and IP66 variants work in exactly the same way.

Easy to use!
Simple startup with or without software using the motor nameplate. No previous knowledge is required for parameterization or operation.

Sustainable!
A cost-effective, robust, and versatile end-to-end solution.

Integrated!
SEW gateway for connection to standard fieldbus systems.

OVERVIEW OF THE TECHNOLOGY

A robust and simple frequency inverter, our MOVITRAC® LTE-B+ with either IP20 or IP66 degree of protection is ready for field use. It is ideal for tasks in small, modular conveyor lines, in fans, and in pumps – all without the need for a control cabinet!

Technical data

- Overload capacity of 150% for 60 s and 175% for 2 s
- IP66 housing variant with or without switch
- IT network adapted by the customer
- Speed-controlled operation of standard motor technologies
- Display, control plate, EMC filter, and engineering access always integrated

Line voltage	IP20	IP66
1 × AC 110 – 115 V	0.37 – 1.1 kW	0.37 – 1.1 kW
1 × AC 200 – 240 V	0.37 – 4.0 kW	0.37 – 4.0 kW
3 × AC 200 – 240 V	1.50 – 18.5 kW	1.50 – 11 kW
3 × AC 380 – 480 V	0.75 – 37 kW	0.75 – 22 kW

MOVITRAC® LTP-B frequency inverter

POSSIBLE USES / TYPICAL APPLICATIONS

Pumps and fans

Conveying applications and hoists

Highly dynamic speed-controlled and torque-controlled applications

THE ADVANTAGES AT A GLANCE

Installation!
An easy process that requires less effort, with a budget-friendly IP55 housing and no control cabinet.

Flexibility!
SEW gateway or plug-in module for connection to standard fieldbus systems.

Startup!
Quick and easy, saving time thanks to an integrated control plate and automatic measurement of motor parameters.

Safety!
Integrated STO PL d functional safety via a terminal.

OVERVIEW OF THE TECHNOLOGY

MOVITRAC® LTP-B is the all-rounder for specialist field applications. Thanks to a housing with a high degree of protection, dusty and damp ambient conditions are no problem for our frequency inverters.
Easy startup of MOVITRAC® LTP-B, with or without software, is also ensured using the motor nameplate. Additional advantages include:

- Speed-controlled and torque-controlled operation of standard motor technologies
- Full-text display, control plate, EMC filter, and engineering access – always integrated
- HTL and TTL encoder evaluation for enhanced speed control
- Integrated master-slave speed control and load distribution

Technical data

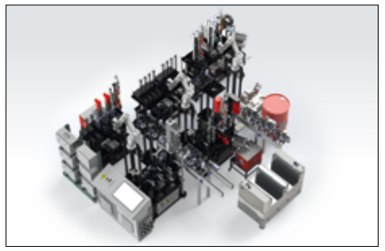
- Overload capacity of 150% for 60 s and 175% for 2 s
- All sizes have a compact design
- IP66 housing variant with or without switch
- IT network adapted by the customer

Line voltage	IP20	IP66	IP55
1 × AC 200 – 240 V	0.75 – 2.2 kW	0.75 – 2.2 kW	–
3 × AC 200 – 240 V	1.50 – 11 kW	1.50 – 11 kW	5.5 – 75 kW
3 × AC 380 – 480 V	0.75 – 22 kW	0.75 – 22 kW	11 – 250 kW
3 × AC 480 – 600 V	0.75 – 15 kW	0.75 – 30 kW	15 – 110 kW
3 × AC 480 – 525 V	–	–	132 – 200 kW

4 Controller technology

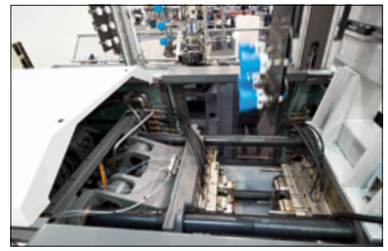
MOVI-C® CONTROLLER UHX65A-M-0x control technology

POSSIBLE USES / TYPICAL APPLICATIONS



Higher-level controller for complex systems
Systems with a large variety of sensors and actuators, e.g. for gear unit assembly.

Higher-level controller and controller
for motion control tasks combines process and motion control for complex machines – up to 16 interpolated axes from SEW-EURODRIVE.



Controller for motion control tasks
of high-performance motion controllers for machine modules with axes from SEW-EURODRIVE (modularization of complex systems).

THE ADVANTAGES AT A GLANCE

Multimaster-capable and flexible!
Implementation of mixed topologies – EtherCAT® with PROFINET IO or EtherNet/IP™ – in one device.

Scalable and accomplished!
Available in 1-, 2-, and 4-core variants for sophisticated applications. Higher-level controller and controller for motion control tasks combined in one device.

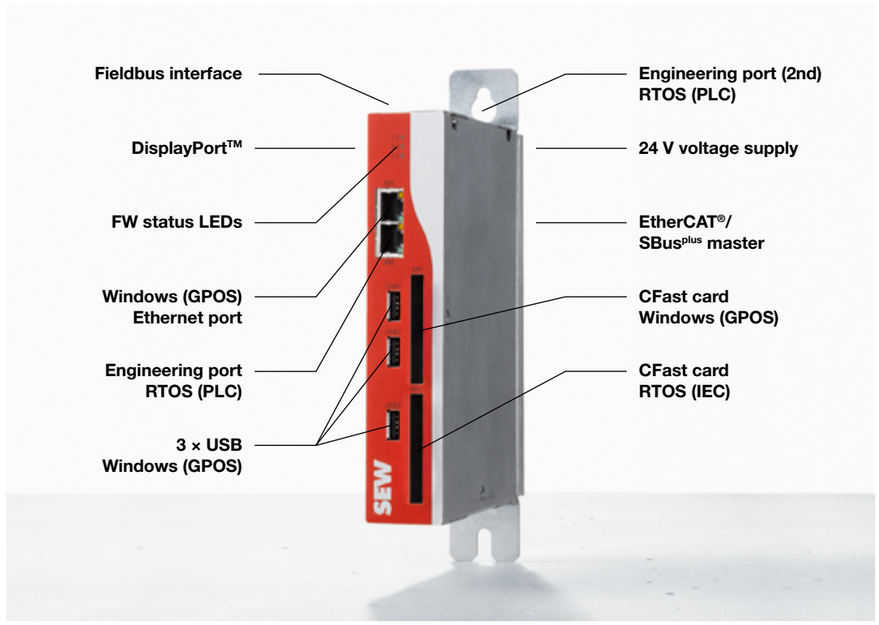
Open!
Windows/high-level language environment and high-performance controller for motion control tasks in one (4-core variant). EtherCAT® and PROFINET IO/EtherNet/IP™ sensors in parallel.

Customized!
Perfectly coordinated with the extensive portfolio for decentralized and control cabinet drive technology, making it possible to implement any specific customer requests.

OVERVIEW OF THE TECHNOLOGY

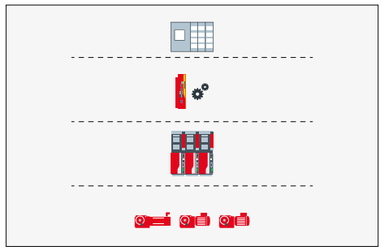
With the MOVI-C® CONTROLLER UHX65A-M, SEW-EURODRIVE has enhanced its versatile "progressive" performance class controller by integrating PROFINET IO controller or EtherNet/IP™ scanner functionality. Sophisticated mixed topologies can be implemented from MOVISUITE® Version 2.20 onward – use the high-performance EtherCAT® fieldbus for the most challenging motion control tasks and, at the same time, read corresponding sensors and control actuators as a PROFINET IO or EtherNet/IP™ master. Benefit from greater flexibility and more choice when it comes to the hardware you can use for complex applications, without losing the existing advantages of the UHX65A platform, such as user-friendly, fast startup via MOVISUITE®.

MOVI-C® CONTROLLER UHX65A (PROGRESSIVE)

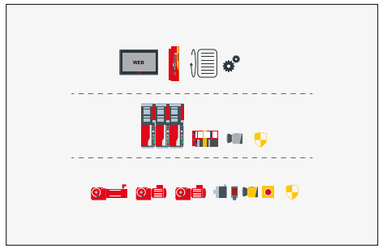


MOVI-C® CONTROLLER type UHX86A

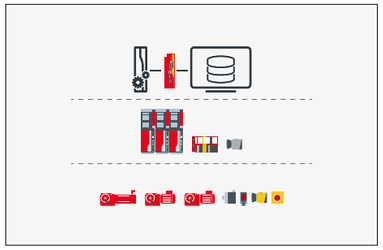
POSSIBLE USES / TYPICAL APPLICATIONS



1. Suitable for motion control tasks



2. Suitable for automation control tasks



3. Suitable for cyber-physical control tasks

THE ADVANTAGES AT A GLANCE

Networked!
High-grade, application-specific networking, both at fieldbus level and through the multi-purpose operating system.

User-friendly!
An end-to-end engineering environment for programming the process sequence via transparent PROFIsafe routing. CFast™ card for rapid replacement of devices without a PC.

Robust and high-performance!
Less hardware means less potential for failure – one top-quality device made by SEW-EURODRIVE that combines IPC and PLC.

Scalable!
Processor and hard disk scalable for IoT applications. Prepared for future integrated function modules.

OVERVIEW OF THE TECHNOLOGY

MOVI-C® CONTROLLER type UHX86A units expand the MOVI-C® modular automation system's controller portfolio at the top end of the performance range. They have a large number of multi-purpose interfaces and support all standard fieldbus protocols for both upstream and downstream bus stations. What's more, this type of controller takes a hybrid approach, meaning it can run a real-time and a multi-purpose operating system independently of each other and in parallel using hypervisor technology.

As a result, besides being ideal for use as a motion controller or for machine control, it can also be used as a cyber-physical controller (CPC) or for Industry 4.0 applications. A wide range of applications can now be reliably covered by a single device, without making any compromises in terms of security, industrial capability, or user-friendliness.

- Hypervisor environment – multi-purpose and real-time operating system on a single processor
- EtherCAT® (SBus^{PLUS}) for rapid motion control
- High-performance processor technology – Intel® Celeron®/Core™ i3/i7 processors
- Several fieldbus variants – PROFINET IO, EtherNet/IP™, Modbus TCP
- NVRAM for persistent data storage
- Transparent PROFIsafe routing to inverters from the MOVI-C® modular automation system
- Variants with passive and active cooling
- Interchangeable storage media for rapid device replacement
- Numerous interfaces (USB, Ethernet, fieldbus)
- Robust design for stationary and mobile applications

1. **Motion control:** In this case, the controller is used for high-performance motion control based on the principle "parameterization instead of programming" – ideal for complex machines with multiple (32+) synchronized axes.
2. **Automation control:** The controller is used for controlling real-time process sequences such as those in machines, in trial automations, or in intralogistics systems.
3. **Cyber-physical control:** In this scenario, the controller is used for data-driven high-end applications requiring high-quality, application-specific networking.

Security options for MOVI-C® CONTROLLER

POTENTIAL USES / TYPICAL APPLICATIONS

Access rights management
Controller-based role and rights management and user authentication for protection against unauthorized or inadvertent access.

Certificate-based encryption
Encrypted communication to make MOVI-C® CONTROLLER, MOVI-C® FIELD CONTROLLER, and the system, more resistant to "man-in-the middle" attacks, plus project encryption to protect knowledge.

Secure, web-based HMI
Secure access to graphic system operation and machine operation via HTTPS.

THE ADVANTAGES AT A GLANCE

Private line!
Certificate-based secure communication with other systems via OPC UA – established Industry 4.0 standard.

Secure operation!
Web visualization via HTTPS, user management for diagnosis and operation of modules, machines, and systems

Access protection!
User and access management as a protective measure against inadvertent and malicious access.

User-friendly!
The security options are configured and activated easily and conveniently via the IEC Editor integrated into MOVISUITE®.

OVERVIEW OF THE TECHNOLOGY

Security options for MOVI-C® CONTROLLER and MOVI-C® FIELD CONTROLLER
from MOVISUITE® V2.40, MOVI-C® CONTROLLER and MOVI-C® FIELD CONTROLLER with firmware V08.00 and IEC-Editor 3.5.18.20

Access rights management
- User management with rights and role management
- Configurable access protection for data and critical functions

Accompanying material
- Documentation of new functions and best practices

Security by Design
- Signed libraries and packages from SEW-EURODRIVE
- Warning when unsigned third-party libraries and packages are installed or used

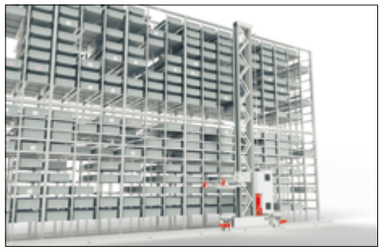
Know-how protection
- Certificate-based project encryption on engineering PC and MOVI-C® CONTROLLER

Secure communication
- Engineering access for control via TLS-based channel
- Web visualization via HTTPS
- OPC UA via secure channel
- Support of TLS-based communication via TCP/IP and UDP

Product Security Management
- Product Security Incident Response process for rapid analysis of potential weak points
- Fastest possible provision of security advisories and security updates

SBM
safe brake module

POSSIBLE USES / TYPICAL APPLICATIONS



Storage/retrieval systems
Multi-level shuttles (especially systems with safety-related lifting axes)

Hoists
Vertical drives, scissor lift tables, lift tables

Materials handling technology with changes of direction
Rotary table, carriage

THE ADVANTAGES AT A GLANCE

Flexible!
The SBM can be used with both three-wire and two-wire brakes. Group drives can also be controlled.

Unique and universal!
Thanks to its unique concept, the SBM can be connected directly to the inverter's DC link and can therefore be used worldwide, regardless of voltage.

Consistent!
The SBM is a universal solution for sizes 1 and 2 across the entire brake portfolio for synchronous and asynchronous motors. It benefits from being functionally fully integrated into the MOVI-C® modular automation system.

Easy maintenance!
Status feedback and integrated evaluation in the inverter helps service technicians locate and rectify SBM malfunctions very quickly.

OVERVIEW OF THE TECHNOLOGY

– Extended power range for sizes 1 and 2 – brake switching is possible with an output of up to 250 W. This covers the entire brake portfolio of the (E)DR.. modular motor system up to BE122.

– Optimized mechanical connection technology for mounting on the drive inverter's motor output, with spring clamp terminals making a daisy chain configuration possible for the U_z voltage supply.

– Extended DC nominal voltage range of up to 850 V possible, and up to DC 970 V for a short period. This means the SBM can be combined with all SEW-EURODRIVE's Power and Energy Solutions, and its block-type/sinusoidal energy recovery products.

– Bookshelf mounting is possible with the help of a mounting base. This enables cables to be routed underneath the SBM to the inverter.

– Feedback on whether the brake is released can be provided with the help of a status bit, and evaluation in the inverter is possible. Energy measurement in the inverter limits the SBM's jog mode, which provides enhanced protection against overheating.

– The SBM is certified to PL d for the "safe disconnection of the power supply" safety function.

– The SBM is also suitable for IT networks.

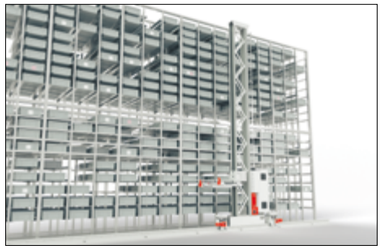
– The SBM is a universal solution for the MOVI-C® modular automation system's entire brake and inverter portfolio. SEW-EURODRIVE offers custom drive solutions for all safety-related applications – from small to very large axes/brakes.

MOVITRAC® size 0L and 3 – 6		**MOVIDRIVE® size 1 – 6**	
Part number	Designation Size 1	Part number	Designation Size 2
2827 7201	SBM S-460-120-00	2827 7864	SBM S-460-250-00
2827 7198	SBM S-400-120-00	2827 7848	SBM S-400-250-00
2827 7171	SBM S-230-120-00	2827 7732	SBM S-230-500-00
2827 0835	Mounting base (optionally available with S variant)		
2823 2518	DIN rail adapter (optionally available with S variant)		

Motors	**CMPZ71 CMPZ100 CMP112**	**CM3C62 CM3C100**	**(E)DR..56 to (E)DR..315**	**DR..112 to DR..180**
Brakes	BY2..14	BZ05..5	BE02..11 BE20 BE30/32 BE60/62 BE120/122	BF11 BF20 BF30

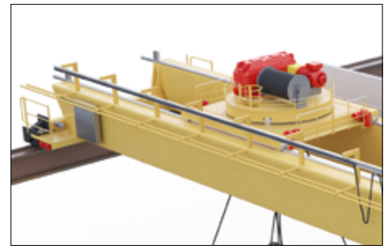
MOVISAFE® CSA31A
safety card
for MOVIDRIVE®

POSSIBLE USES / TYPICAL APPLICATIONS



Storage/retrieval systems
Pallet transfer shuttles and multi-level shuttles (especially systems with safety-related slip compensation)

Vertical drives
Scissor lift tables, rotary drums



Indoor, port, and construction cranes
From a single gantry to a five-axis gantry involving a tool change

THE ADVANTAGES AT A GLANCE

Flexible!
Supports all kinds of encoder concepts – from the simplest sin/cos encoder and in combination with a huge variety of distance encoders.

User-friendly!
Simple startup and parameterization using the startup wizard.
The parameters can be taken over from the inverter in the safety section.

Consistent!
Parameterization is identical for all safety cards, with all parameters working in the same way and having the same meaning.

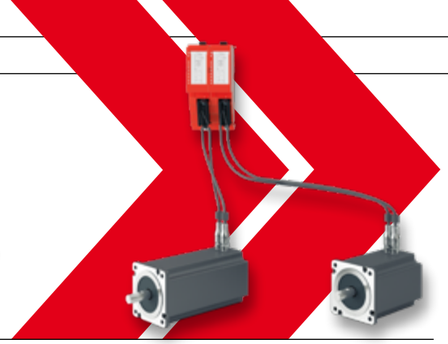
Easy maintenance!
The safety key helps ensure quick and easy replacement of the safety card without a PC.

OVERVIEW OF THE TECHNOLOGY (NEW)

Hardware	**CSB21A**	**CSB31A**	**CSS21A**	**CSS31A**	**CSA31A (NEW)**
Safe inputs	4	4	4	4	4
Safe outputs	–	2	2	2	2
Safe stop functions	STO, SS1-t	STO, SS1-t, SBC	STO, SS1-t, SBC	STO, SS1-t, SBC	STO, SS1-t, SBC
Safe motion functions	–	–	SOS, SS1-r, SS2, SLS, SSR, SLA, SSM,SDI	SOS, SS1-r, SS2, SLS, SSR, SLA, SSM,SDI	SOS, SS1-r, SS2, SLS, SSR, SLA, SSM,SDI
Safe position functions	–	–	SLI	SLI	SLI, SLP, SCA
Safe communication	PROFIsafe, Safety over EtherCAT®, CIP Safety™	PROFIsafe, Safety over EtherCAT®, CIP Safety™	PROFIsafe, Safety over EtherCAT®, CIP Safety™	PROFIsafe, Safety over EtherCAT®, CIP Safety™	PROFIsafe, Safety over EtherCAT®, CIP Safety™
Process value via safe communication	–	–	Speed	Speed	Speed, position, SCA status
Additional multi-encoder input	–	Yes (not for safety)	–	Yes (not for safety)	Yes (including for safety)
Encoder for functional safety	–	–	FS motor encoder	FS motor encoder	FS motor encoder, sin/cos, SSI

The new MOVISAFE® CSA31A safety card, which is available starting from MOVISUITE® Version 2.20, significantly increases the number of functions and thus the flexibility of the MOVI-C® safety portfolio. It makes it possible to achieve more complex functions, such as safe speed and safe position from all kinds of encoder combinations (e.g. motor and distance encoders), while maintaining the same level of user-friendliness. Based on the principle of parameterization instead of programming, even the most complex safety function can be started up quickly and easily, thanks to straightforward parameterization in MOVISUITE®. Safe communication profiles such as PROFIsafe, CIP Safety™, or Safety over EtherCAT® can be used to easily activate/implement safety functions, including STO, SS1, SLS, and SLP up to PL e.
Even in the case of systems subject to slip, mechanical engineers will find fast and simple solutions to challenging safety problems and be able to ensure rapid on-site startup for the end customer. The CSA31A complements the existing safety card portfolio for inverters from the MOVI-C® modular automation system. SEW-EURODRIVE offers a customized solution for every application, whether the safety technology involved is straightforward or highly complex.

Format-changing drive system for simple format changes



POSSIBLE USES / TYPICAL APPLICATIONS

Form, fill, and seal machines
Particularly suitable for applications such as control tasks, film handling, dispensing technology, and winding technology

Multipackers
Particularly suitable for applications such as control tasks and belt drives

Gantry palletizers and palletizing robots
Particularly suitable for applications such as control tasks with or without load fluctuation

THE ADVANTAGES AT A GLANCE

Simple!
System consisting of preselected hardware components for easy ordering

Fast!
Can be incorporated using function blocks based on IEC 61131-3 that are included in the scope of supply, for quick and easy integration and startup on customer premises

Flexible!
A variety of control functions, enabling both simple format adjustments and torque-controlled applications

Consistent!
System from a single source with coordinated hardware and software

OVERVIEW OF THE TECHNOLOGY

The increasingly dynamic and customized market environment calls for ever more frequent changes of formats and products in machinery. Our new electromechanical format-changing drive system makes format and product changes of this kind particularly quick, easy, and resource-friendly.

Overview of the system
The format-changing drive system consists of a stepper motor terminal, an actuator and encoder cable, and a stepper motor. All these components are available from SEW-EURODRIVE.

Motors
The five different stepper motors cover a torque range of 1.2 – 8.5 Nm and come in the standard sizes NEMA 23 and NEMA 34, in two and three lengths respectively. All motors are coordinated with the stepper motor terminal and have an incremental encoder.

Terminal
Available with a power rating of 5 A and a voltage range of 24 – 48 V, the terminal is perfect for incorporating into the existing MOVI-PLC® I/O system C. It can also be added to other I/Os and/or the bus coupler using profile rail assembly. Three DIs and one DO are provided, too, enabling easy incorporation of components such as limit switches for referencing purposes. Integration into your system is quick and easy thanks to a preconfigured function block.

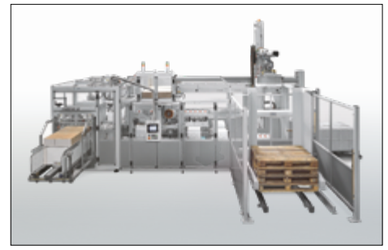
Besides extremely straightforward format adjustments, the other control modes implemented in the stepper motor terminal also offer you a cost-efficient solution for further applications. In addition to the typical open-loop control mode (with or without encoder correction), closed-loop control modes are also possible, as is a microstep mode.

MOVI-PLC® I/O system C modules

POSSIBLE USES / TYPICAL APPLICATIONS

Robotics applications
e.g. pick and place

Machine automation
e.g. FFS machines, H/V FFS machines



Palletizing systems
e.g. palletizers, pallet unloaders

THE ADVANTAGES AT A GLANCE

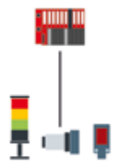
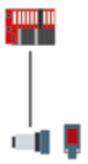
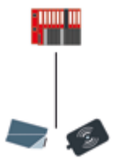
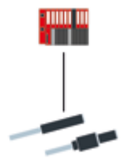
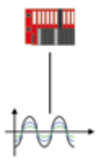
Consistent!
Adding safe I/O terminals and further non-safe function modules operated using the same coupler to the portfolio.

Easy maintenance!
Easy to install and service thanks to a safe sliding mechanism for quick and extremely simple assembly.

Space-saving!
Space-saving, stepped wiring level with spring-clamp terminal technology.

Scalable!
With additional power supply modules – up to 64 modules possible on the backplane bus.

OVERVIEW OF THE TECHNOLOGY

Presence monitoring / reference initiators (binary signals)	Height monitoring / distance measuring (analog signals)	Evaluating encoder signals (counter modules, SSI module)	Load cell, strain gage	Serial interfaces	Temperature measurement	Energy measurement	Hazardous point protection with hand and presence detection
ODIxxC ODOxxC	OAIxxC OAOxxC	OSM12C OSM13C OSM14C	OSM11C	ORS11C	OAI45C	OEM12C	OFI41C OFO41C
							
Optoelectronic sensors, ultrasound sensors, inductive/ capacitive sensors, laser light sensors, print mark sensors, light columns, and fluid sensors	Optoelectronic distance measuring devices, ultrasound sensors, and inertial sensors	Rotary encoders and encoders	Strain gages	Laser light sensors, optoelectronic distance measuring devices, optical identification sensors, and RFID	Pt100, Pt1000, NI100, and NI1000 temperature sensors	Three-phase grids	Safety light grid, safety scanner, safety switch, safety locking device, and emergency stop

The MOVI-PLC® I/O system C combines high performance levels and state-of-the-art functions with a sophisticated mechanical concept in one compact design. The new function modules can be used to implement a wide variety of tasks that go beyond reading in and reading out binary and analog signals. Function modules for reading SSI encoders, energy measurement modules, HTL/TTL counter modules, and modules for connecting strain gages are available, among others. To ensure all functional safety requirements are also met, the SEW-EURODRIVE portfolio includes two Safety over EtherCAT® I/O modules, each with four safe inputs and outputs. These can be integrated into your automation solution with a third-party safety controller.

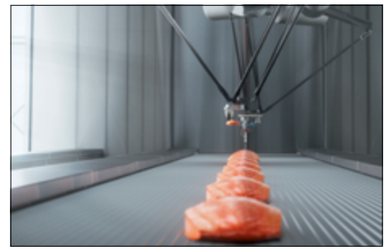
5 Software and visualization

MOVISUITE® V2.50 engineering software

POTENTIAL USES / TYPICAL APPLICATIONS

Planning
efficient workflows for drive components thanks to offline startup.

Startup and programming
of all SEW-EURODRIVE drive components, including control technology devices and products.



Operation and diagnostics
The intuitive display of devices gives you control over the system.

THE ADVANTAGES AT A GLANCE

Quick startup!
Preparing the startup of an application in offline mode saves a great deal of time during the actual on-site startup. Alternatively, the project can also be created by scanning the devices.

Seamless and complete!
MOVISUITE® standard is the engineering software for the entire MOVI-C® modular automation system, from gear unit to control technology.

Compact!
MOVISUITE® compact includes all the functions you need to start up inverters. Eliminating the need to program MOVI-C® CONTROLLER and visualizations saves on hard disk space and reduces installation time to a few minutes.

Free of charge!
Both versions of MOVISUITE® are freely available on the website. There are no charges for using them.

OVERVIEW OF THE TECHNOLOGY

Standardized data management

The new project data management system makes it possible to save the entire MOVISUITE® project on the MOVI-C® CONTROLLER, in addition to the program code.

This means the entire system configuration, along with the parameter sets for the subordinate devices, can be saved and reused.

The MOVI-C® CONTROLLER can be used to restore the complete system configuration across all devices, enabling startup without the original project file. Besides simplified archiving, this also makes it easier for several people to perform a startup.

User interface

Startup assistant

The new startup assistant now makes it even easier to start up axis modules.

The assistant now enables convenient startup of the connected motors and theMOVIKIT® software module being used.

Language support

German, English, French, Spanish, Italian, Hungarian, Portuguese, Russian, Mandarin,
and NOW ALSO Korean

Scan the QR code to find out more about MOVI-C® and MOVISUITE® engineering software.

Supported products

– MOVI-C® CONTROLLER type UHX86A
– AL3H/AL3Y encoder for linear drives
– Functionally safe encoders: AK8./EK8.
– MOVIDRIVE® system and MOVIDRIVE® technology size 8
– CES12A encoder emulation card
– Synchronous motors in sizes DR2C112MA6 and DR2C132SA6

As usual, all other innovations in this version are set out in the detailed release notes in the download section for this MOVISUITE® version.

Videos

Explanatory videos have once again been created for the highlights. As usual, these can be viewed on the SEWeurodriveTV YouTube channel.

MOVIRUN® flexible

POTENTIAL USES / TYPICAL APPLICATIONS

Positioning

Conveying

Aligning

THE ADVANTAGES AT A GLANCE

Your way in!
- Simple introduction to MOVISUITE®
- Integrated basic functions

Saves time!
- Reuse of modules that have already been configured
- Efficient diagnosis tools

Flexible!
- Flexible choice of automation concept
- Simple parameterization and programming

Cost-saving!
- Predefined, documented, and tested software modules

OVERVIEW OF THE TECHNOLOGY

The basis for efficient automation

MOVIRUN® is the software platform for the MOVI-C® CONTROLLER and the basis for using MOVIKIT® software modules. The software platform determines how the MOVIKIT® software modules can be used – either as purely parameterizable functions with a fieldbus interface or with a programming interface.

MOVIRUN flexible® is the software platform that puts the focus on the parameterizable use of MOVIKIT® software modules. A multitude of motion control functions are available via a fieldbus interface, without any further programming of the MOVI-C® CONTROLLER. A cutting-edge programming system based on IEC 61131-3 makes it easy to incorporate customized add-ons and extensions.

MOVIKIT® EncoderInterface
is used to take data from an external source and convert it from system units to user units.

MOVIKIT® EnergyRecovery
provides functions that can be used to deliver energy supply solutions with the new block-type or sinusoidal energy recovery.

MOVIKIT® MultiMotion
provides universal motion functionalities for interpolating axes.

MOVIKIT® MultiMotion Auxiliary Velocity
speed setpoints and torque specifications for **non**-interpolating axes.

MOVIKIT® ProcessData
forwards fieldbus data from a higher-level controller directly, and without modifying it, through the MOVI-C® CONTROLLER to the inverter.

MOVIKIT® MultiMotion Auxiliary Positioning
speed setpoints, torque specifications, and positioning for **non**-interpolating axes.

MOVIKIT® Positioning
makes it possible to implement positioning applications with a predefined fieldbus interface.

MOVIKIT® Velocity
makes it possible to implement applications with velocity control and a predefined fieldbus interface.

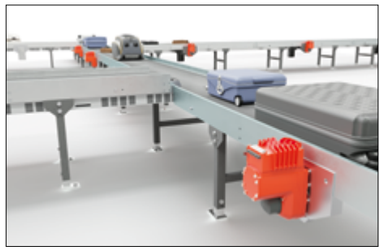
MOVIKIT® Power and Energy Solutions DirectMode
a simple, programmable energy supply for inverters – together with a power supply module or energy converter.

MOVIKIT® DeviceIdentity
makes it possible to record and monitor parameters for the identification of components from the MOVI-C® modular automation system.

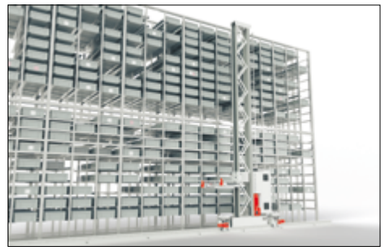
These software modules can be combined or extended with numerous additional software modules. From simple drive functions such as speed control and positioning to complex motion control functions such as electronic cams and robot controllers – there is a solution for every requirement.

MOVIKIT®
software modules

POSSIBLE USES / TYPICAL APPLICATIONS



Decentralized solutions,
e.g. transport and logistics
- Conveyor units
- Belt conveyors
- Rotary tables
- Scissor lift tables



Modular solutions,
e.g. warehouse technology
- Conveyor vehicles
- Indoor cranes
- Storage/retrieval systems
- Load handling devices

Automation solutions,
e.g. food and packaging technology
- Filling systems
- Cartoning machines
- FFS machines
- Winders

THE ADVANTAGES AT A GLANCE

Flexible!
Flexible browser-based access using web visualization and a web panel.

Intuitive!
A universal engineering tool for visualization and motion applications with direct access to the controller variables.

User-friendly!
The integration of ready-made user interface templates saves time during preparation.

Comprehensive!
The possibilities of the modular software system range from the creation of user interfaces to the creation of complex machine visualizations.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® software modules are preconfigured software elements for implementing motion and drive tasks. Our range includes everything from simple drive functions such as speed control and positioning through to complex motion control functions such as electronic cam and robot control. To ensure the MOVIKIT® software modules can be used in both control cabinet and decentralized installations, they are available for both controller scenarios.

Automation-Framework
- AutomationFramework: software modules with PackML compatibility

Communication
- Communication: software modules offering a variety of communication services

Drive
- Drive: Software modules for positioning applications without controllers from SEW-EURODRIVE

Motion
- Motion: software modules for standardized closed-loop and open-loop motion control with MOVI-C® CONTROLLER / MOVI-C® FIELD CONTROLLER

MultiAxisController
- MultiAxisController: software modules for centrally controlling up to four axes

MultiMotion
- MultiMotion: software modules for universal closed-loop and open-loop motion control of interpolating axes

Robotics
- Robotics: software modules for robot control

Power and Energy Solutions
- Power and Energy Solutions: software modules for energy management

SingleAxis
- SingleAxis: software modules for speed/positioning mode

StackerCrane
- StackerCrane: software modules for storage/retrieval systems

Visualization
- Visualization: software modules for the graphical depiction of controller data

MOVIKIT®
AutomationFramework

POSSIBLE USES / TYPICAL APPLICATIONS

PackML-compatible
PackML-compatible state and mode manager for use across machines

Versatile
Can be used as a modular system with a wide range of machine types

Custom extensions possible
2D simulation of a robot line for algorithm development and maximization of production capacity

THE ADVANTAGES AT A GLANCE

Compatible!
OMAC-defined industry standard thanks to PackML (Packaging Machine Language) compatibility

Saves time!
Time-saving pre-engineering thanks to 2D simulation of the application

Modular!
Reduced programming thanks to use of prefabricated software modules

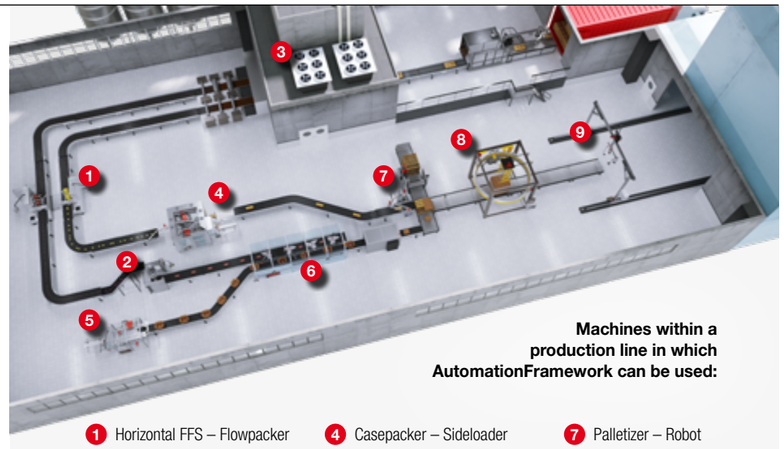
Added value for you!
Thanks to additional features such as preprogrammed visualization modules

OVERVIEW OF THE TECHNOLOGY

Practical relevance
In packaging technology, there are some processing steps that are basically the same. One FFS machine essentially has the same functions as any other – even if they are from different manufacturers.

The vertical or horizontal packaging process and the resulting motion tasks for the drive and automation technology remain unaffected, in principle.

MOVIKIT® software modules
This is where we come in. The core element of our MAXOLUTION® solutions for machine automation is the software. With our MOVIKIT® software modules, we have found a solution for movement patterns that requires only minimal parameterization/programming work. AutomationFramework enhances these very modules, ensuring synchronicity in your solution.



Machines within a production line in which AutomationFramework can be used:

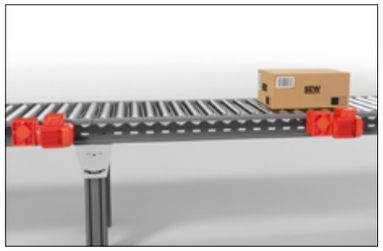
1. Horizontal FFS – Flowpacker
2. Vertical Form Fill and Seal
3. Liquid Fill and Seal
4. Casepacker – Sideloader
5. Cartoner – Erector
6. Casepacker – Toploader
7. Palletizer – Robot
8. Palletizer – Wrapper
9. Palletizer – Portal

Functions
AutomationFramework provides an environment where you can combine the MOVIKIT® modules and create dependencies. It is compatible with the defined OMAC (Organization for Machine Automation and Control) industry standard. With the new MOVIKIT® AutomationFramework software module, a standardized state and mode manager for implementation on all MOVI-C® CONTROLLERs has been added to our predefined software solutions. It offers defined interfaces for PackML such as PackTags and uses the defined modes and states.

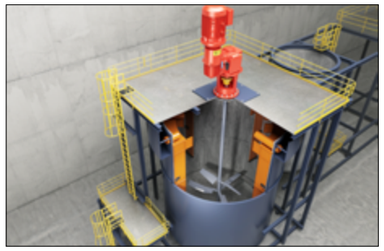
A master and a sample slave are included in the basic program. More software modules can easily be added to the program from a basic project. MOVIKIT® AutomationFramework also offers a range of additional functions on top of this. Examples include fault elimination, recipe management, and a simulation environment for all incoming software modules and prepared HMI modules.

MOVIKIT® Drive

POSSIBLE USES / TYPICAL APPLICATIONS



Rapid/creep speed positioning
Applications with the rapid/creep speed positioning operating mode include roller conveyors, rotary tables, and pallet transfer shuttles.



Velocity and torque control
Possibilities with the "Velocity control" and "Torque control" operating modes include agitators, conveyor belts, and linear sorter applications.

Positioning
Applications with the "Positioning" operating mode include vertical drives, storage systems, and supply systems.

THE ADVANTAGES AT A GLANCE

Simple!
- Application-specific configuration without programming knowledge, with worldwide support
- Standardized user interface with higher-level controller

Universal!
- Hardware-independent software modules with guided startup via the MOVISUITE® engineering software
- Available for centralized and decentralized inverter technology

Fast!
- Startup and diagnostics via the engineering PC even before fieldbus connection
- Easy unit replacement, as the entire set of device parameters is stored on a portable memory module

Flexible!
- Direct connection to higher-level control systems
- Various options for controlling via terminal, AS-Interface, or fieldbus

OVERVIEW OF THE TECHNOLOGY

Solutions for single-axis automation

MOVIKIT® software modules in the "Drive" category are operated directly on the inverter from the MOVI-C® modular automation system. They are connected directly to the higher-level controller and are controlled individually via the respective interface. Various applications can thus be implemented via convenient and rapid configuration – all without the user needing any programming knowledge. A wide range of additional functions such as sensor-based positioning are available, depending on the requirements.

MOVI-C® – inverters for single-axis automation

Decentralized inverter
Electronics unit for installation close to the motor or integrated in the motor.

MOVITRAC® advanced
Compact standard inverter for control cabinet installation with a scalable range of functions.

MOVIDRIVE® technology
High-performance application inverter for control cabinet installation with a comprehensive range of options.

MOVI-C® – MOVIKIT® software modules in the "Drive" category

MOVIKIT®	Available operating modes – depending on the inverter selected								Interface		
	Velocity control	Torque control	Jog mode	Positioning mode (relative, absolute, modulo)	Sensor-based positioning mode	Rapid/creep speed conveyor modes	Referencing mode	Teach mode	Terminal	AS-Interface	Fieldbus
Velocity Drive	×										×
Positioning Drive	×		×	×	×		×				×
RapidCreepPositioning Drive			×			×	×				×
BinaryTablePositioning Drive	×		×	×	×		×	×	×	×	
Torque Drive	×	×	×				×				×

Additional functions – dependent on the respective MOVIKIT® software module
Jerk time variable via process data / parameter channel via process data / torque limiting / distance measuring function / etc.

MOVIKIT® MultiAxisController

POSSIBLE USES / TYPICAL APPLICATIONS

Storage/retrieval systems
The software module can prevent the vertical drive of storage/retrieval systems from skewing.

Mechanical engineering
The software module can balance torques between mechanically coupled drives.

Bridge cranes
Cascading the software modules makes it possible to balance torques on each side of the crane and correct skewing on both sides.

THE ADVANTAGES AT A GLANCE

Easy!
Simple startup and quick adjustment thanks to preconfigured software modules.

Durable!
Synchronized drives and balanced torques mean wear is reduced.

Dynamic!
The module breaks with conventional master/slave setups and treats all drives as equal.

Modular!
Extensions can be used to flexibly combine several software modules with each other.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® MultiAxisController

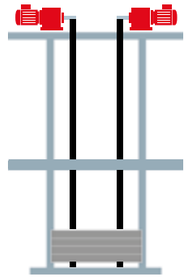
MOVIKIT® software modules are preconfigured software elements for implementing drive functions.

Basic functions:
- Central control of referencing, limit switch evaluation, and error handling for one axis group
- Central position control
- Virtual master in various operating modes
- Combined encoder evaluation (distance and motor encoder)

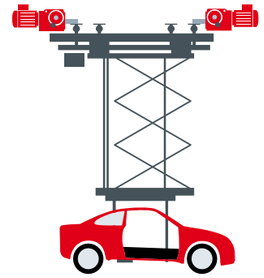
These basic functions are supplemented with additional functions according to the operating mode selected. It is possible to switch between "Skewing", "Torque", and both during operation.

MOVIKIT® MultiAxisController Skewing
- Phase-synchronous operation
- Alignment function can be used continuously
- Overload monitor prevents asynchronicity in the event of an accident
- Solution for loosely coupled drives or dual-spindle drives

MOVIKIT® MultiAxisController Torque
- Synchronization with torque distribution
- Load balancing / load distribution possible
- Desired drive tensions can be configured
- Solution for rigidly coupled drives



MOVIKIT® MultiAxisController Skewing prevents skewing in this dual-column hoist by ensuring the positions of the two drives are synchronized during operation.



MOVIKIT® MultiAxisController Torque eliminates any torque stresses between the two drives in this electrified monorail system.

Software extensions

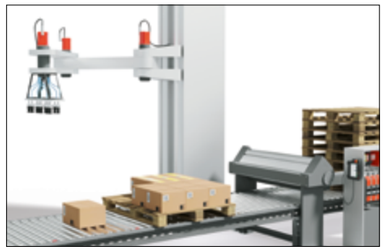
For some operating modes, optional extensions (add-ons) are available that expand the functionality of the relevant MOVIKIT® software module.

MOVIKIT® MultiAxisController addon FourAxes
Control of up to four drives simultaneously. Any number of drives can be controlled together by combining several modules.

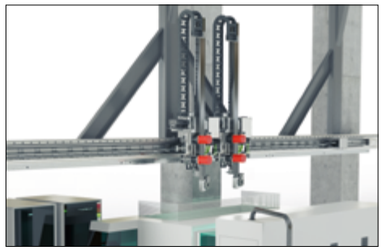
MOVIKIT® MultiAxisController addon Cascading
Drives in several axis groups are operated in a cascade. This means, for example, that drives can be run individually in "Torque" operating mode and at a higher level in "Skewing" operating mode.

MOVIKIT® Robotics

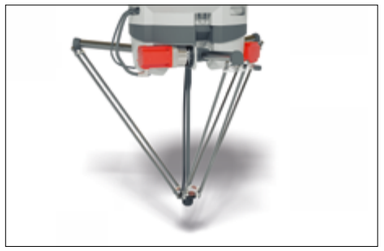
POSSIBLE USES / TYPICAL APPLICATIONS



Single-column palletizers



Machine tool gantries



Robots for handling tasks

THE ADVANTAGES AT A GLANCE

Simple!
Enormous time saving thanks to the software module's rapid integration into the project by means of automatic IEC code generation and the adaptability of the robot program directly on the machine.

Customized!
All kinds of different kinematic models can be selected from a catalog. Customer-specific kinematic models can be integrated. The software offers a great deal of scope for custom solutions.

Long life!
SEW-EURODRIVE keeps components and software available on the market for about 20 years. This avoids the costs associated with software changeovers and the need for redesigns due to the supplier discontinuing products.

Powerful!
MOVIKIT® Robotics supports the entire portfolio of controllable drive technology. This means that even large loads can be moved in a coordinated way.

OVERVIEW OF THE TECHNOLOGY

Quick startup
MOVIKIT® Robotics is particularly easy to start up. It supports a variety of kinematic models with different types, numbers, and arrangements of joint axes. The kinematic models are quick and easy to put into operation through parameterization alone.

Integration
Full integration into the MOVISUITE® engineering software with automatic IEC code generation enables you to start with a fully functional program. Avoid wasting time on library selection and get started with your actual automation task right away.

Add-ons available
There are several add-ons, meaning you can extend the functionality of your kinematic models, e.g. with Touchprobe or CollisionDetection. MOVIKIT® Robotics can also be used with other MOVIKIT® modules. You can combine a kinematic model with MOVIKIT® Camming or MultiAxisController, for example.

Scalable
MOVIKIT® Robotics can be run on all devices in the MOVI-C® CONTROLLER portfolio. This allows you to adapt the hardware to your application.

3D simulation
The motion paths can be simulated in MOVISUITE® RobotMonitor using the integrated, automatically generated 3D simulation of the robot.

Customizable program code
The MOVIKIT® Robotics program code can be flexibly expanded. The module provides both function-oriented and object-oriented programming interfaces. This enables you to integrate the program module into a complete machine automation solution or implement customer-specific kinematic models with special functions.

Modular automation system ensures compatibility
MOVI-C® is the all-in-one solution for automation tasks. Regardless of whether you are implementing standardized single-axis/multi-axis applications or customized and particularly complex motion control or automation applications – MOVI-C® makes all of this possible and gives you the scope to optimize automation for new projects.

Easy to use
Once started up, the kinematic model can be operated using MOVISUITE® RobotMonitor or directly from the IEC program.

RobotMonitor can be run on both a PC and a separate control plate, meaning you always have the same user interface available for operation. The movement can be conveniently defined using SRL (the "SEW Robot Language" interpreter language) and teach-in mode.

Standardized fieldbus data interfaces
Standardized fieldbus interfaces with different data widths offer you the correct interface to a higher-level controller, depending on the range of functions you require. The data interfaces do not depend on the protocol used. This means you do not have to make any changes to the software if you want to switch to a different fieldbus protocol.

MOVIKIT® StackerCrane

POSSIBLE USES / TYPICAL APPLICATIONS

Storage/retrieval systems
MOVIKIT® StackerCrane effiDRIVE® can be used for all storage/retrieval systems with up to four travel axes and four lifting axes.

Drive variants
- Single and double vertical drive
- TopDrive for vibration suppression
- Multi-drives with dynamic load distribution

Further options
- Various load handling devices (MOVIKIT® CombiTelescope)
- Satellite storage/retrieval systems
- Safe bufferless end of the aisle

THE ADVANTAGES AT A GLANCE

Optimized for SEW drive technology!
Coordinated with SEW-EURODRIVE hardware – from gear unit and motor to drive technology, energy management, and control technology.

Quick startup!
Preconfigured software modules ensure easy startup and monitoring via a graphical user interface.

Straightforward operation and diagnostics!
The integrated process data monitor makes the standardized process data profile easy to operate.

Intelligent power supply!
Regenerative power supply modules or storage solutions can be incorporated in project planning and used as required, depending on the application.

OVERVIEW OF THE TECHNOLOGY

Software
- Optimizing the travel cycles of lifting and travel drives achieves energy savings of up to 25%
- Further drive axes can easily be added with the MOVIKIT® StackerCrane, MultiMotion, and MultiAxisController **software modules**
- The range of functions can be extended with MOVIKIT® add-ons (e.g. AntiSway) to add special functions for vibration damping
- Always the same PD interface, regardless of the subordinate MOVIKIT® functions

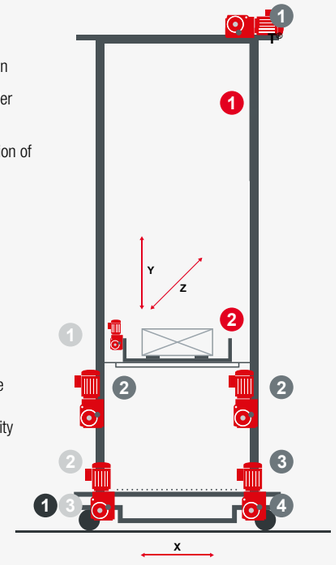
Power and Energy Solutions
- Up to 40% lower energy consumption thanks to storage solutions
- Using storage capacitors in the DC link reduces power peaks from the supply system by a factor of between 7 and 10
- Intelligent power failure management
- Block-type or sinusoidal energy recovery using the latest technology

Safety technology
- Meets tougher safety technology requirements (e.g. SLP, SLS, SBC) thanks to integrated safety technology

Scope of functions of MOVIKIT® StackerCrane effiDRIVE® in combination with:

MultiMotion
1. Energy-optimized xy operation
2. Electrical braking if an encoder fault occurs
3. Emergency mode / deactivation of external encoder

MOVIKIT® Custom CurveDrive
1. SRS units with cornering ability



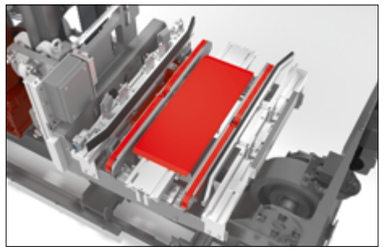
MultiAxisController
1. TopDrive for vibration damping on the mast
2. Rope elongation compensation, including the load transfer scenario

   Auto leveling – anti-skew adjustment, including in the event of a fault
3. Anti-slip control
4. Combined encoder evaluation with increased position control loop

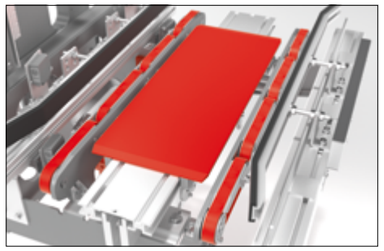
Motion addon AntiSway
1. TowerSway anti-sway control thanks to intelligent travel profiles
2. BellySway anti-sway control for LHDs

MOVIKIT®
CombiTelescope

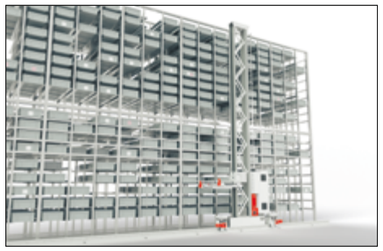
POSSIBLE USES / TYPICAL APPLICATIONS



Storage and retrieval
MOVIKIT® CombiTelescope simplifies the control of a combi telescope (load handling device) for storage/retrieval systems.



Up to four belt conveyors possible
The combi telescope implemented using this software consists of a telescope that can be equipped with up to four belts.



Storage/retrieval systems
Load handling devices of this type are primarily used for storage and retrieval in automated small parts warehouses.

THE ADVANTAGES AT A GLANCE

Quick startup!
MOVIKIT® CombiTelescope shortens startup times (no programming required).

Simple parameterization!
Parameters are based on the lengths and spacings of the load handling device to be implemented. These can easily be determined on site during startup.

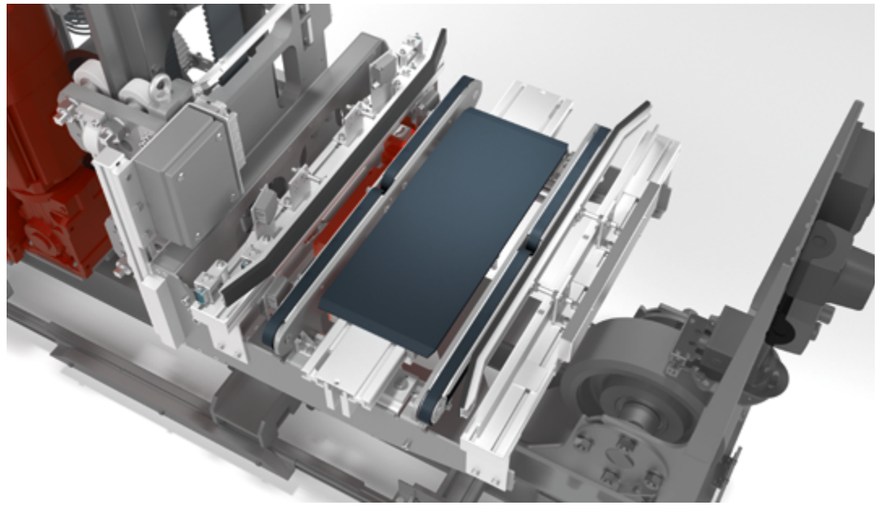
Standardized fieldbus interface!
No matter what the design of the combi telescope (number of belt conveyors), the same fieldbus interface is always used.

Easy to use!
After initial startup, only a small amount of process data is needed for executing storage and retrieval procedures.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® CombiTelescope
MOVIKIT® CombiTelescope is an addition to the software portfolio for storage/retrieval systems. This software module makes it very easy to incorporate a combi telescope load handling device with a telescope and up to four belt conveyors for loading and unloading crates, containers, and boxes. It is generally used in automated small parts storage systems.

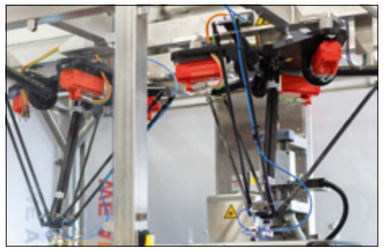
Functions
- Load handling device with one telescope and up to four belts
- Measured variables primarily mechanically predetermined (lengths and spacings)
- Timing-optimized synchronization of telescope and belt conveyors with maximum dynamics



MOVIKIT®
Power and Energy Solutions
PowerMode

POSSIBLE USES / TYPICAL APPLICATIONS

Plant automation
- Storage and retrieval systems
- Vertical drives
- Gantry cranes



Machine automation
- Injection molding machines
- Handling machines
- Highly dynamic robots

Mobile applications
- "Short-distance" shuttles (SRS)
- Floor conveyor vehicles
- Small electrically powered vehicles

THE ADVANTAGES AT A GLANCE

Power and Energy Solution!
- Reduces peak load at the line connection
- Detects and deals with power failures
- Provides notification of fuse and storage status
- Synchronized activation and deactivation of the energy storage unit

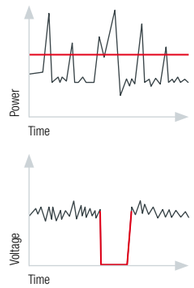
Optimized!
- Stores braking energy, thus saving energy
- Braking resistor no longer required
- Bridges brief power failures
- Stops the application in a controlled manner when longer power failures occur

Energy management data!
- Provides storage unit diagnostic data (voltage, temperature)
- Performance and energy data available on the MOVI-C® CONTROLLER
- Data transmitted to the customer PLC via fieldbus
- Supports DriveRadar®

Quick startup!
- Ready-to-use software module that can be put into operation quickly and easily with MOVISUITE®
- Easy installation and reduced installation costs

OVERVIEW OF THE TECHNOLOGY

Software modules in the "Power and Energy Solutions" category include energy supply solutions for inverters in the MOVIDRIVE® modular family. Combined with MDP92A power supply modules, MDE90A energy converters, and MDC90A capacitor energy storage units, MOVIKIT® Power and Energy Solutions PowerMode in this category enables highly efficient power supply solutions for the MOVIDRIVE® modular inverter series. This software module is designed for applications with energy storage units that are switched directly to the DC link.



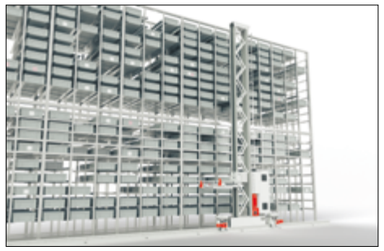
Device portfolio and energy module (left)
Peak load limitation and bridging during power failures with residual energy (right)

MOVIKIT® Power and Energy Solutions PowerMode offers the following functionality:
- Communication between the MOVI-C® CONTROLLER and the Power and Energy Solutions components (power supply modules, energy storage units, fuses, isolation devices, and axis inverters)
- Statically and dynamically adjustable maximum grid supply power rating and current limitation
- Provision of status information (phase failure or power failure, outer conductor voltages, and phase current) for the AC grid (MDP92A only)
- Acquisition of the power ratings for the grid supply and axis module
- Acquisition of the power rating of 24 V consumers (via MDS90A) and external AC consumers

Other functions:
- Dynamically adjustable state of charge on the energy storage unit, including definition of the work envelope (up to 800 V)
- Recuperation detection for optimized storage utilization
- Power-regulated discharge of the DC link (MDP92A only)
- Automatic synchronization and activation/deactivation of the energy storage unit
- Integrated energy storage unit protection
- Acquisition of monitoring data for the energy storage unit (temperature, overvoltage detection) by querying via the diagnostic interface
- Automatic operating modes for easy connection to the application
- Determination of the remaining runtime after a power failure
- Fieldbus interface for communication with higher-level customer controllers

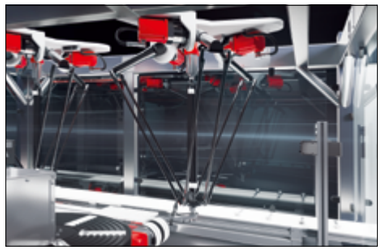
MOVIKIT® PowerAndEnergy-Solution addon PredictiveChargeControl

POTENTIAL USES / TYPICAL APPLICATIONS



Storage/retrieval systems
Applications where the use of braking resistors should be avoided, such as cold-storage facilities.

Vertical drives and other drive systems
Applications generating both motor and regenerative energy.



Robotics applications
Applications involving heavy loads or highly dynamic movement processes.

THE ADVANTAGES AT A GLANCE

Energy-efficient!
Predictive energy management results in energy savings of up to 26% – even as high as 40% in the case of highly dynamic applications.

Simple!
The intuitive MOVISUITE® engineering software ensures quick startup.

Cost-efficient!
The reduced power usage makes it possible to have supply lines with smaller cable cross sections.

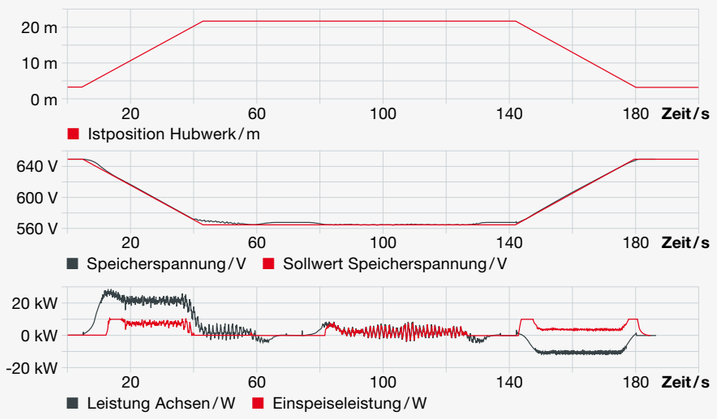
Integrated!
Optimized for implementation on MOVI-C® CONTROLLER and MOVI-C® drive components.

OVERVIEW OF THE TECHNOLOGY

The MOVIKIT® PredictiveChargeControl software module is used especially for drive systems in which both motor and regenerative energy are generated. By predictively setting the energy storage unit's state of charge, this module prevents overcharging of the DC link during the recovery phase.

The graphs from the mapped simulation show a simple travel movement of a vertical drive. This vertical drive starts by lifting the load. The power on the axes increases, which reduces the energy storage unit's state of charge and thus lowers the storage voltage. The potential energy is at its highest when the vertical drive has reached its uppermost point.

A conventional system would then immediately recharge the energy storage unit in order to have the full power reserve available. MOVIKIT®, on the other hand, determines the potential energy / height of the vertical drive and only supplies a minimum amount of energy. This is indicated on the graph by the fact that the target storage voltage remains low. A large amount of energy is recovered during lowering, and the potential energy is converted into regenerative energy and stored by the storage system. This is indicated on the graph by the fact that the storage voltage increases again. Throughout the entire movement process, the power being supplied is clearly much lower than the power on the axes. The advantage of this MOVIKIT® add-on over conventional solutions is that standard components such as braking resistors can be eliminated altogether and energy storage units can have a more compact design. This is a key sales argument, as energy storage units in particular still tend to be expensive, bulky, and heavy.



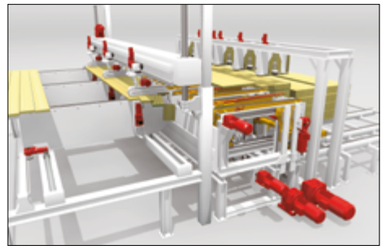
INDUSTRIAL Production Produkt des Jahres 2023 Gewinner

MOVIKIT® MultiMotion, MultiMotion Gearing, MultiMotion Camming

POSSIBLE USES / TYPICAL APPLICATIONS

Packaging technology
In packaging technology, MOVIKIT® MultiMotion Camming is frequently used in carton erectors.

Transport and logistics
Load handling devices on storage/retrieval systems with synchronized drives can be configured using MOVIKIT® MultiMotion.



Wood processing
On processing machines, equipment such as flying saws can be configured using MOVIKIT® MultiMotion Gearing.

THE ADVANTAGES AT A GLANCE

Flexible!
The modules and extensions make it possible to realize a wide variety of applications.

Clear!
Control and diagnostics using a monitoring tool that is integrated in MOVISUITE®.

Fast!
Integration into the application program through automatic code generation.

Straightforward!
Simple control of functions via global variable interfaces.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® MultiMotion
This software module provides **universal motion functionalities** for interpolating axes.

Various time-based or master-based motion profiles can be activated conveniently via a defined IEC interface.

- Time-based interpolating operating modes: jog, speed specification, relative/absolute positioning, referencing
- Master-based interpolating operating mode: direct coupling

It is also possible to overlap these motion profiles.

Expanded software modules
These modules include the basic functions of MOVIKIT® MultiMotion, but they go even further.

MOVIKIT® MultiMotion Gearing
Expanded to include position-related synchronous operation between two or more axes.

MOVIKIT® MultiMotion Camming
Expanded to include electronic cam as a master-based motion profile.

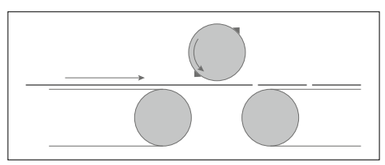
Extension software modules
Depending on requirements, the MOVIKIT® MultiMotion modules can be expanded to include additional functions.

MOVIKIT® MultiMotion addon PositionController
Adds centralized positioning control and conventional encoder evaluation to any MOVIKIT® MultiMotion module.

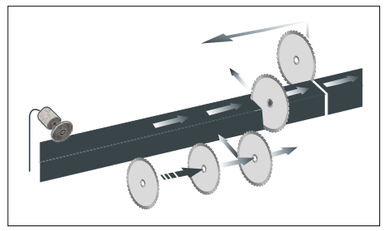
MOVIKIT® MultiMotion addon CombinedEncoderEvaluation
Adds combined encoder evaluation to any MOVIKIT® MultiMotion module.

MOVIKIT® MultiMotion Camming addon AntiSlosh
Adds a function to MOVIKIT® MultiMotion Camming for generating travel profiles that reduce vibrations in liquids.

MOVIKIT® MultiMotion Camming addon Interpolation
Adds a function to MOVIKIT® MultiMotion Camming for generating travel profiles based on the interpolation of curve point tables. This is particularly helpful for motion profiles that cannot be defined using mathematical functions.



MOVIKIT® MultiMotion Camming is also used in processing machines with rotating knives. A defined tool path is calculated using programmed curve points.

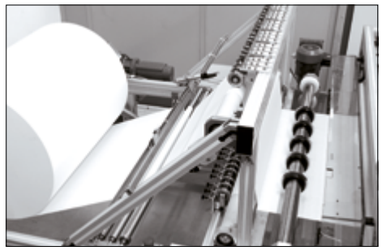


In the case of flying saws, MOVIKIT® MultiMotion Gearing is used for synchronous operation between several axes. The interpolation add-on is used for customized travel profiles, while the CombinedEncoderInterface add-on is used for combined encoder evaluation.

MOVIKIT® MultiMotion AuxiliaryAxes

POSSIBLE USES / TYPICAL APPLICATIONS

Conveyor belts
Makes it possible to configure speed specifications for non-interpolating axes.



Roller conveyors
Makes it possible to configure torque specifications for non-interpolating axes.

Drives for format adjustments
Makes it possible to configure positioning.

THE ADVANTAGES AT A GLANCE

Flexible!
The modules can be used for a wide variety of applications.

Clear!
Control and diagnostics using a monitoring tool that is integrated in MOVISUITE®.

Fast!
Integration into the application program through automatic code generation.

Straightforward!
Simple control of functions via global variable interfaces.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® MultiMotion Auxiliary
MOVIKIT® software modules are preconfigured building blocks for implementing everything from straightforward drive functions to complex motion control functions. The MOVIKIT® MultiMotion Auxiliary Velocity and MOVIKIT® MultiMotion Auxiliary Positioning software modules serve to control simple, non-synchronized motion sequences in auxiliary axes.

This illustration shows an application in which two non-synchronized and non-interpolating axes are controlled using the MOVIKIT® MultiMotion Auxiliary software modules.

Operating mode	MOVIKIT® MultiMotion Auxiliary Velocity	MOVIKIT® MultiMotion Auxiliary Positioning
Features	Makes it possible to configure speed and torque specifications for non-interpolating axes. The software module is particularly suited for controlling auxiliary axes in simple applications such as conveyor belts and roller conveyors.	Includes all the functions of MOVIKIT® MultiMotion Auxiliary Velocity, while additionally making it possible to configure positioning. The software is particularly suited for controlling auxiliary axes in simple applications such as variable-speed drives.
Speed control	Specification of speed, acceleration, and deceleration	
Torque control	Specification of torque and maximum/minimum speed	
Reference travel	–	Reference travel can be configured
Position control	–	Specification of position, speed, acceleration, deceleration, and jerk time
Jog	–	Specification of speed, acceleration, deceleration, and jerk time

MOVIKIT® MultiMotion Camming addon AntiSlosh

POSSIBLE USES / TYPICAL APPLICATIONS

Conveying and filling
The AntiSlosh function is used on machines that convey and fill containers with liquids.

THE ADVANTAGES AT A GLANCE

Reliable!
Reliably reduces sloshing of the liquid, regardless of speed and acceleration specifications.

Efficient!
Reduced sloshing makes it possible to achieve higher cycle times.

Modular!
The function can be used with all components of inverters from the MOVI-C® modular automation system that support interpolated positioning.

User-friendly!
Can be parameterized with a small number of parameters. We would be happy to offer you advice, and even help you with the project planning and implementation of the software in your project.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® MultiMotion Camming addon AntiSlosh expands the functionality of MOVIKIT® MultiMotion Camming by adding a function for generating travel profiles that reduce vibrations when liquids are being moved in intermittent cycles. The motion profile is generated online and can therefore be quickly adapted to any changes.

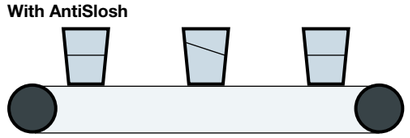
Due to reduced stimulation, the liquid requires much less time to come to a standstill again after acceleration and deceleration phases.

Shorter settling times
Modifying the motion profile makes it possible to directly influence the displacement of the water level.

Sloshing prevented
The modification prevents sloshing when movement takes place in intermittent cycles.

Reduced liquid displacement
Without AntiSlosh

With AntiSlosh



MOVIKIT® ANTISLOSH

MOVIKIT® Velocity
MOVIKIT® Positioning
MOVIKIT® Gearing

POSSIBLE USES / TYPICAL APPLICATIONS

Materials handling technology
For vertical drives, speed and position must be precisely set to take the goods safely to the correct level.

Logistics
The axes in package conveyor belts must run synchronously to ensure smooth operation.

Turntables
Turntable drives must be coordinated so that the goods are in the correct position and moving at the correct speed.

THE ADVANTAGES AT A GLANCE

Simple!
Absolutely no programming knowledge is required for startup.

Standardized!
All the module's functions have a defined process data interface.

Saves time!
Simple parameterization reduces the effort involved in startup, thus saving time and money.

Intuitive!
The module is intuitive to use on any hardware, making it particularly user-friendly.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® software modules are preconfigured software elements for implementing anything from simple drive functions such as speed control and positioning to complex motion control functions such as camming.

Basic functions
The "SingleAxis" category includes all MOVIKIT® software modules with parameterizable functions and with a standardized process data interface.

MOVIKIT® Velocity
This software module is used for applications where velocity control is required.

MOVIKIT® Positioning
This software module offers the functionality of MOVIKIT® Velocity and can also be used for positioning applications.

MOVIKIT® Gearing
With the MOVIKIT® Gearing software module, the inverter is interpolated in all operating modes.

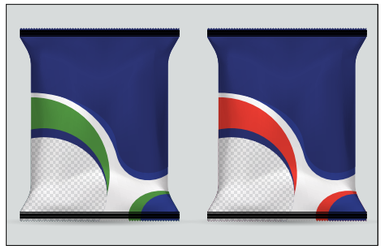
This software module offers the same functions as MOVIKIT® Positioning, but can also be used for synchronous operation applications with a permanently defined fieldbus interface.

	MOVIKIT® Velocity	MOVIKIT® Positioning	MOVIKIT® Gearing
Functions	– Startup via a graphical user interface – Dedicated parameter tree with all the parameters that are required for operation – Diagnostic monitor for monitoring and controlling the axis – Standardized process data interface		
Operating modes	1. Velocity control	1. Velocity control 2. Referencing mode 3. Jog mode 4. Positioning mode	1. Velocity control 2. Referencing mode 3. Jog mode 4. Positioning mode 5. Synchronous operation
Additional functions	1. Variable jerk time via process data 2. Torque limiting via process data	1. Variable jerk time via process data 2. Torque limiting via process data 3. Touchprobe function	1. Variable jerk time via process data 2. Torque limiting via process data 3. Touchprobe function 4. Advanced synchronous operation functions such as an alignment function, offset correction, and synchronous operation status

MOVIKIT® RotaryKnife

POSSIBLE USES / TYPICAL APPLICATIONS

Cross cutting
The rotary knife cuts through laminate in flexibly adjustable lengths.



Cross sealing
The rotary knife seals the film before and after product filling, and the film is cut afterward.

Perforation
The rotary knife perforates paper, e.g. to create tickets.

THE ADVANTAGES AT A GLANCE

Simple!
Absolutely no programming knowledge is required for startup.

Automated!
Curve profiles are generated automatically for the cutting process and adapted to any changes in the parameters.

Flexible!
The knife can be configured for a whole range of material thicknesses and product lengths in the module.

Customized!
Thanks to a wide variety of parameterizing options, the software module can be adapted to any application.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® RotaryKnife

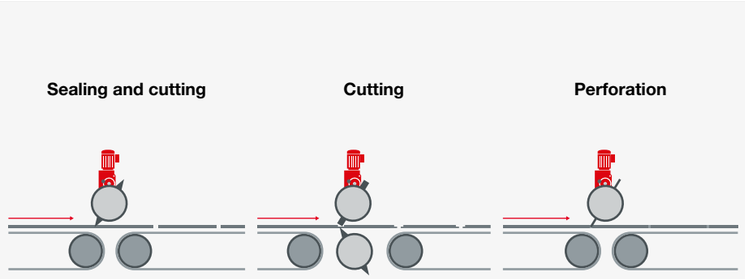
This software module is used for applications that include a cutting, sealing, or perforation process.

Synchronous movement of material and tool is achieved during cutting. A fixed fieldbus interface is also defined.

Cutting a whole range of materials
The "Rotary knife" function enables the cutting of any material – such as paper, film, or metal – in different thicknesses.

Cutting flexible product lengths
The software module automatically generates a curve profile to control the cut length when the runtime starts. If the parameters are changed, the curve profile is recalculated while in motion.

Operating modes
– Jog mode
– Velocity control
– Referencing mode
– Positioning mode (relative/absolute)
– Velocity control
– Automatic



In this example, two rotary knives are used for **sealing and cutting** in a horizontal form, fill, and seal machine.

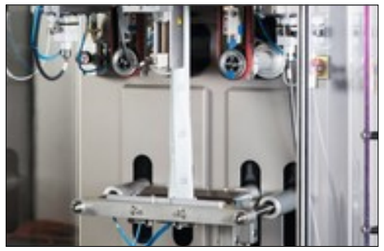
A rotary knife **cuts** material into individual parts.

A rotary knife **perforates** holes into the material. Generally, the material can be embossed or punched.

Curve profiles
With large cut lengths, curve profiles with a long rest phase between the cutting zones are produced. In such cases, the "Instant cut" function can be used to perform an instant cut from the rest position. The machine then automatically returns to the rest position.

MOVIKIT® FilmFeeder

POSSIBLE USES / TYPICAL APPLICATIONS



FFS machines
A film is first formed into a tube, then filled, and finally sealed.

Print mark recognition
Print marks, such as the black ones on this film, are used to ensure clear-cut, error-free further processing.

Labeling machines
Films are often used in the food industry, e.g. to label bottles.

THE ADVANTAGES AT A GLANCE

Simple!
Absolutely no programming knowledge is required for startup.

Reliable!
The continuous correction of errors produces an error-free print image.

Universal!
The software module can be used wherever films are being processed.

Precise!
Setting observation windows prevents incorrect print mark detection.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® software modules
The software modules are preconfigured software elements for implementing anything from simple drive functions to complex motion control functions.

MOVIKIT® FilmFeeder
This software module is used for film transport in equipment such as horizontal and vertical form, fill, and seal machines (HFFS/VFFS), with a fixed fieldbus interface being defined.

Operating modes
With the MOVIKIT® FilmFeeder software module, the inverter is operated interpolated in all modes.

- Jog
- Velocity control
- Referencing
- Positioning (linear and modulo)
- Automatic

Endless feed
In "Automatic" mode, the "film feed" function provides a master-based endless feed (synchronous operation).

Consistent print image
In conjunction with a print mark sensor, the "print mark recognition" function ensures a consistent print image, even if the film is stretched or compressed. This is made possible by the process or through the adjustment of a film feed that is subject to slippage.

Continuous error correction
With the MOVIKIT® software module, the phase and feed are corrected during operation. Additionally defining print mark windows avoids incorrect detection – in the case of printed products, for instance – as only print marks within the window are evaluated.

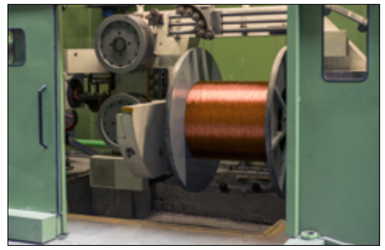
This FFS machine packages a product in film. To ensure error-free packaging, a sensor detects the print marks on the film and passes on this position information to the controller so that any necessary corrections can be made.

MOVIKIT® Winder

POSSIBLE USES / TYPICAL APPLICATIONS

Winder in clocked machines, e.g. for stamping sheet metal

Machine with web material running through it, and with winding units and tension shafts



Winder in cable, rope, or wire applications

THE ADVANTAGES AT A GLANCE

Dependable startup!
Thanks to prefabricated, tried-and-tested function blocks

Rapid startup, optimization, and diagnostics!
Thanks to animated startup interfaces (in combination with MOVIKIT® Automation-Framework)

Compatible, end-to-end fieldbus interface!
Ready for use with other MOVIKIT® modules in smart applications (in combination with MOVIKIT® Automation-Framework)

Flexible and open!
With basic modules that deliver adaptability for more complex applications

OVERVIEW OF THE TECHNOLOGY

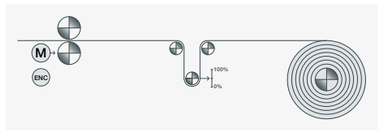
MOVIKIT® Winder features a program library full of functions for implementing winding applications that enable users to wind or unwind materials with consistent tension or web speed. In winding applications, different materials and mechanical conditions require different winding technologies.

This means the following applications can be achieved, for example:

- **Winders** that wind or unwind material with consistent tension or web speed (tension control available as an option)
- **Rewinders** that rewind material onto another coil, whereby one winder sets the consistent web speed and the other winder sets the consistent tension
- **Winders with a dancer** that implement the tension-determining winding or unwinding of material, whereby the tension in the case of dancer position control is generated by the dancer weight.

MOVIKIT® Winder supports the following standard processes:

- Tension-determining winders with torque control (tension control available as an option), dancer position control, and tension control via control of setpoint speed through tension measurement
- Speed-determining winder with open-loop speed control (closed-loop speed control available as an option)



Overview of functions:

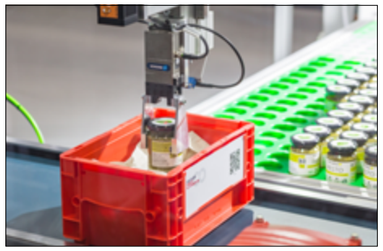
- Torque control (tension control available as an option)
- Friction coefficient determination for torque control
- Dancer position control
- Tension control via control of setpoint speed through tension measurement
- Open-loop speed control (closed-loop speed control available as an option)
- Diameter identification (computer, position counter, distance sensor)

MOVIKIT® FlyingSaw

POSSIBLE USES / TYPICAL APPLICATIONS

On-the-fly machining
Cutting continuous material to a defined length while it is in motion.

Packaging
The tool seals and cuts tubular packaging into individual products.



Synchronizing
Synchronizes with a continuous motion.

THE ADVANTAGES AT A GLANCE

Adaptable!
Two different application types possible – parallel saw and diagonal saw

Fast!
Simple startup via a graphical user interface in the MOVISUITE® engineering tool

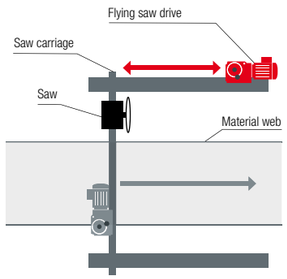
Standardized!
All the module's functions have a defined process data interface.

Flexible!
Cut length can be adapted for each cut, plus option of making instant cuts independent of the material

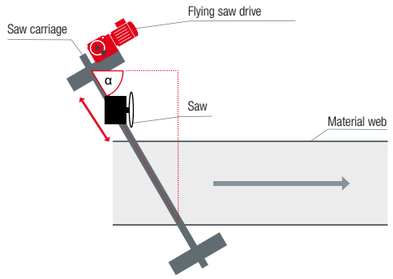
OVERVIEW OF THE TECHNOLOGY

MOVIKIT® FlyingSaw is a software module for implementing applications with machining processes in which a tool synchronizes in a linear motion with the product being machined. In addition to the "Automatic" operating mode, the software module offers all the familiar basic operating modes from the MOVIKIT® Positioning software module (jog mode, velocity control, positioning mode, referencing mode). With the MOVIKIT® FlyingSaw software module, the inverter is interpolated in all operating modes. Based on the example of a flying saw, the following application types can be implemented:

Parallel tool
In the case of the "parallel tool" application type, the saw carriage moves parallel to the material. One drive is required to move the saw carriage in tandem with the material and another drive for the saw feed (see diagram).



Diagonal tool
In the case of the "diagonal tool" application type, the saw carriage is arranged at a fixed angle to the product. Since the drive of the flying saw simultaneously takes care of the saw feed and synchronization with the product, only one drive is needed (see diagram).



Overview of functions
- Startup via a graphical user interface
- Dedicated parameter tree with all parameters that are required for operation
- Operating modes: jog mode, velocity control, referencing mode, positioning mode (relative/absolute), automatic
- Diagnostic monitor for monitoring and controlling the axis
- Standardized process data interface
- Cut length control to adapt the cut length for each cut
- Cut mark control for detecting cutting marks on the material
- Instant cut to perform a cut regardless of the material that has already passed through

Requirements
To use MOVIKIT® FlyingSaw, the following licenses are required:

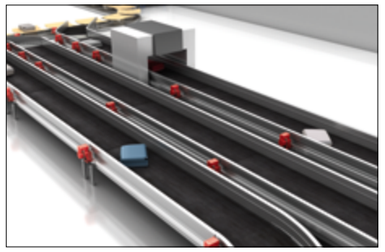
MOVIRUN® flexible

MOVIKIT® MultiMotion Camming

MOVIKIT® DeviceIdentity
MOVIKIT® DeviceVitality

POSSIBLE USES / TYPICAL APPLICATIONS

Asset management
- Automation of the inventory process
- Monitoring of changes to hardware, software, and configuration
- Simple and consistent process optimization



Condition monitoring
- Monitoring of relevant data relating to parameters such as capacity utilization, temperatures, electrical power, and energy consumption
- Analysis and evaluation of the system status

Predictive maintenance
- Reduction of maintenance work through targeted maintenance and prioritized maintenance tasks
- Increased productivity thanks to reduced downtimes and longer maintenance intervals

THE ADVANTAGES AT A GLANCE

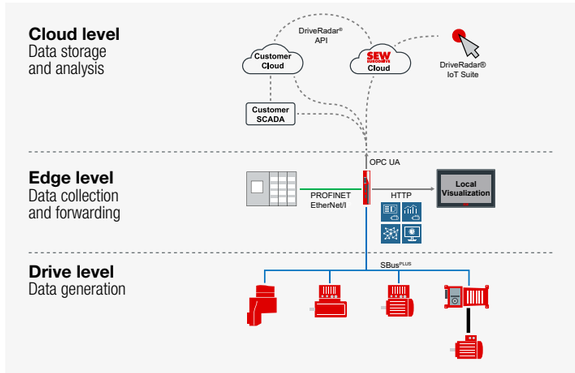
Networked!
Data is provided using a standardized OPC UA information model for consistent, seamless traceability of system-related data in real time.

Interoperable!
Prepared data is used for direct transfer and easy integration into customer IT systems (asset management and IoT systems).

Simple!
Efficient and straightforward startup without the need for any programming skills thanks to the MOVISUITE® engineering software.

Visualized!
Visualization of data directly on the system as well as via an optional cloud connection.

OVERVIEW OF THE TECHNOLOGY



MOVIKIT® DeviceIdentity and MOVIKIT® DeviceVitality are used as software-based smart services at edge level to create the connection between automation and IoT for asset management, condition monitoring, and predictive maintenance purposes.

More details on additional functions and information about the license terms are available at www.sew-eurodrive.de

MOVIKIT®	DeviceIdentity	DeviceVitality
Functions	– Collection, processing, and monitoring of product-specific data from components from the MOVI-C® modular automation system – Use of data directly in the code in accordance with IEC 61131-3 – Provision of data via a standardized information model in combination with MOVIKIT® OPC UA – Visualization of data directly on the system in combination with MOVIKIT® WebVisualization	
Added value	– Product-specific data such as serial number and type code for identifying components from the MOVI-C® modular automation system – Mapping of the system infrastructure – Basis for further software modules from SEW-EURODRIVE	– Product-specific data such as temperature and electrical power for evaluating the condition of components from the MOVI-C® modular automation system – Preprocessing of data such as average, minimum, and maximum values as well as device-specific capacity utilization – Preconfigured, parameterizable monitoring functions for components, including notifications via OPC UA

MOVIKIT®
ModelBasedMonitoring

POSSIBLE USES / TYPICAL APPLICATIONS

Versatility
Easily integrated into existing machinery/applications and fast, straightforward operation thanks to a visual user interface.

Variability
Selection of different dynamic models and various configuration options for the mathematical model.

Visualization
Up to four different curves can be depicted simultaneously from the available curve recordings, with custom curve and color selection.

THE ADVANTAGES AT A GLANCE

Clear!
The clear, compact user interface offers excellent customization and adjustment options.

Interoperable!
Calculated data can be exported and made available for other analysis tools.

Format-independent!
Thanks to a mathematical model, there is no need to teach-in reference curves that rely on a specific product format.

Simple!
Integrated parameter descriptions simplify and speed up use of the tool.

OVERVIEW OF THE TECHNOLOGY

The MOVIKIT® ModelBasedMonitoring software module is a diagnosis and analysis tool based on mathematical calculation models from a huge range of applications. The calculated data is compared with the application's actual values, and statistical evaluations are performed. Deviations that breach a configured threshold can trigger warnings or alarms. The recorded data may also be exported as a CSV or JSON file and processed for further diagnostics.

In contrast to conventional condition monitoring, no reference curves need to be recorded to use the software module. This makes the software module suitable for changing curve profiles such as those that occur during a format change. In combination with conventional condition monitoring, pre-existing reference curves can be transformed into new curve profiles. There is no need to teach-in a reference curve again, as no wear is taught-in and judged to be the normal condition.

Calculated data can be exported and then imported into SEW-Workbench for project planning purposes. This means customer-specific project planning can also be carried out for complex curve profiles that can be mapped by SEW-Workbench.

Overview of functions
- Selection of various dynamic models in different variants
- Startup via a graphical user interface
- Output of warnings or alarms if configured threshold values are breached
- Export of the recorded data as a CSV or JSON file for diagnostic purposes
- Export of the recorded data for importing into SEW-Workbench
- Statistical evaluation of deviations (residuals) such as minimum, maximum, range of values, mean value, standard deviation, and variance

MOVIKIT® ModelBasedMonitoring requires the software platform MOVIRUN® flexible and the included MOVIKIT® MultiMotion module. MOVIKIT® Visualization is necessary for visualizing the graphical interface.

MOVIRUN® flexible	MOVIKIT® MultiMotion	MOVIKIT® Visualization

MOVIKIT®
Motion addon AntiSway

POTENTIAL USES / TYPICAL APPLICATIONS

Storage/retrieval systems (SRSs)

Load handling device

Crane applications

THE ADVANTAGES AT A GLANCE

Cost-effective!
Reduction in the time spent conveying and handling goods

Safe!
Low risk potential, because damage or loss of goods is prevented

Fast!
Simple and time-saving implementation thanks to the parameterizable software solution

Straightforward!
Purely a software solution – no additional sensor technology or external devices

OVERVIEW OF THE TECHNOLOGY

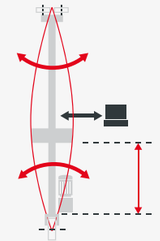
The cost-effectiveness of logistics tasks is directly dependent on safe and precise handling of goods and optimized throughput times. For crane applications and storage/retrieval systems, it is therefore important to factor in the vibrations that occur as a result of the physical conditions. Pendulum and tower vibrations are traditionally decreased by reducing the motion dynamics to the permitted levels. However, this also reduces throughput, making operations less cost-effective. Our solution is software that handles these challenges with ease. The MOVIKIT® Motion addon AntiSway software module extends the functional scope of all interpolating axis types by adding in a function to suppress vibrations in the drive train that exhibit a dominant, modifiable resonant frequency. The software module uses mechanical parameters to generate correction signals – without evaluation by a sensor. These correction signals prevent vibrations from developing.

MOVIKIT® Motion addon AntiSway suppresses vibrations for the following types of application:

TowerSway

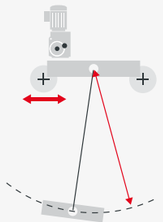
Swinging occurs in the direction of travel of the tower (x direction) of an SRS – suppressing the swinging means storage/retrieval can start straight away.

BellySway



Swinging occurs in the direction of travel of the load handling device (z direction) of an SRS – suppressing the swinging during storage/retrieval prevents collisions with the rack upon direct onward travel.

PendulumSway

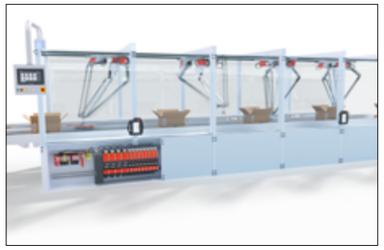


Pendulum motion of the load occurs at the rope due to the acceleration and braking of the trolley (y direction) or the crane bridge (x direction) – suppressing this movement prevents collisions in the environment and creates a stationary pendulum at the end of the travel order.

MOVIKIT® Bundle

POSSIBLE USES / TYPICAL APPLICATIONS

Form, fill, and seal machines
MOVIKIT® Bundle FormFillSeal for vertical and horizontal FFS machines



Multipackers
MOVIKIT® Bundle CasePacker with cam control or MOVIKIT® Bundle CasePacker Robotics with integrated kinematic model

Palletizers
MOVIKIT® EndOfLine for gantry robots and MOVIKIT® EndOfLine Robotics for palletizing robots

THE ADVANTAGES AT A GLANCE

Saves time!
Thanks to integrated templates for programming and visualization

Flexible!
Supports parameterization, can be modified, and is freely programmable – anything is possible.

User-friendly!
Selecting a bundle is easy based on the type of machine.

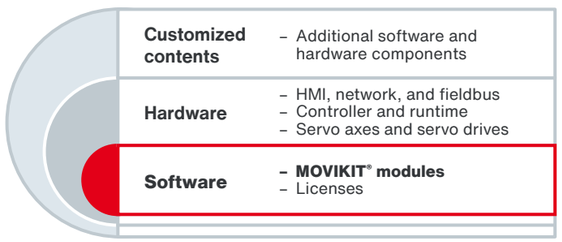
Comprehensive!
From PackML and cam switch to UPC UA – everything is included.

OVERVIEW OF THE TECHNOLOGY

MOVIKIT® software modules are used to create automation and drive solutions. Various MOVIKIT® software modules are available, for everything from simple drive functions to complex automation tasks.

MOVIKIT® Bundle solutions consist of several MOVIKIT® software modules that are specially coordinated for the application-specific implementation of particular target applications and machine types. Combining several software modules significantly reduces the amount of configuration work required. The resulting bundle offers greater flexibility when it comes to application-specific implementation, which saves both time and money.

MOVIKIT® bundles are available separately, but can be purchased as part of a complete solution, too, including all hardware components required for the target application. Further customized contents can also be flexibly added.



MOVIKIT® Bundle FormFillSeal on CFast memory card, SMB0001-060

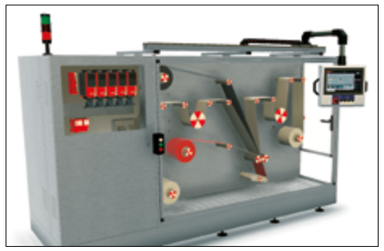
The following **MOVIKIT® Bundle** options are available:

- MOVIKIT® Bundle FormFillSeal
- MOVIKIT® Bundle FillSeal
- MOVIKIT® Bundle CasePacker
- MOVIKIT® Bundle CasePacker Robotics
- MOVIKIT® Bundle EndOfLine
- MOVIKIT® Bundle EndOfLine Robotics

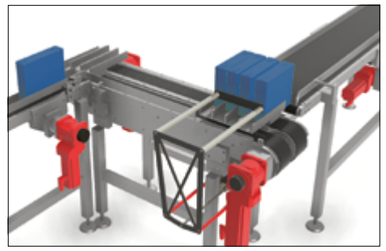
The key components are comprehensive software licenses, the MOVIKIT® Automation-Framework programming template for an easy introduction to SEW-EURODRIVE's world of automation, MOVIKIT® MultiMotion Camming for cam-based, synchronized movements, and MOVIKIT® Web Visualization for web-based machine operation.

MotionGateway

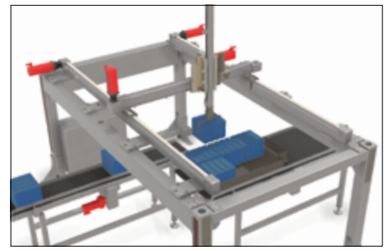
POSSIBLE USES / TYPICAL APPLICATIONS



Battery production



Product grouping



Gantry system

THE ADVANTAGES AT A GLANCE

Easy entry
The boot project offers an attractive no-code solution for implementing simple motion control applications outside the PLC.

No programming
Intuitive and fast startup thanks to predefined motion blocks that do not require programming via IEC Editor.

Synchronized
MotionGateway supports synchronized applications via the local SBus^{PLUS} of the inverters from the MOVI-C® modular automation system.

Browser-based diagnostics
Web-based diagnostic tools enable hardware-independent diagnostics of the drive train and communication interface.

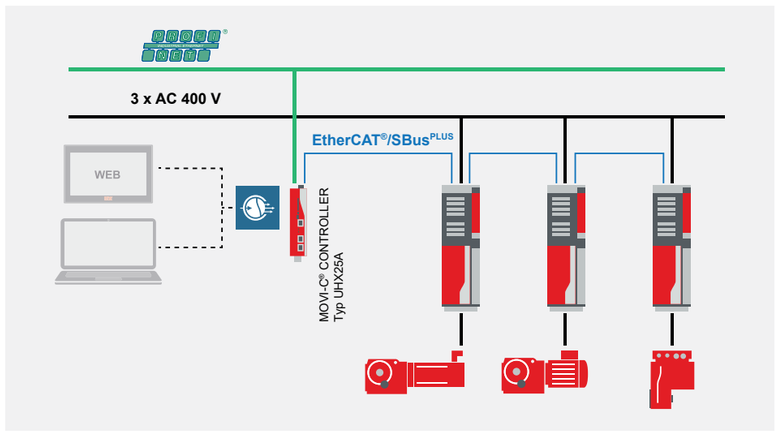
OVERVIEW OF THE TECHNOLOGY

The MotionGateway application for the UHX25A MOVI-C® CONTROLLER can be used to implement cost-efficient solutions for controlling inverters of the MOVI-C® modular automation system via PROFINET.

You do not have to use the MOVIRUN® IEC Editor, so the system can be started up more intuitively and quickly. In addition, a web server facilitates diagnostics without having to install MOVISUITE®.

MotionGateway supports the software modules MOVIKIT® Positioning and MOVIKIT® Gearing in the following inverters:

- MOVIDRIVE® modular (single-axis)
- MOVIDRIVE® system
- MOVIDRIVE® technology
- MOVITRAC® advanced



Device installation with MOVI-C® CONTROLLER, type UHX25A with MotionGateway

MotionGateway is characterized by the following special features:

- MotionGateway operates as a PROFINET device on the PROFINET network and transfers the fieldbus setpoints and fieldbus actual values to the inverter via the integrated EtherCAT®/SBus^{PLUS} interface.
- As the inverters communicate via the integrated EtherCAT®/SBus^{PLUS} interface,only a fieldbus control is required.
- Configuration is performed in the MOVISUITE® standard engineering software without having to open the IEC Editor – meaning that no programming knowledge is required.
- Up to 8 axes can be configured in one MotionGateway. This gives you the following options:
  - Up to 8 MOVIDRIVE® axes with the software module MOVIKIT® Positioning or MOVIKIT® Gearing.
  - Up to 2 virtual axes with MOVIKIT® Gearing and 6 or 7 MOVIDRIVE® or MOVITRAC® axes.
  - In addition, up to 2 encoders can be read with the software module MOVIKIT® EncoderInterface.
- The axes are addressed using the EtherCAT® ID and optional slaves. Switches S1 and S2 on the axis are used for this purpose.
- Functional safety can be used via the hardware wiring at X6.

Modular visualization system

POSSIBLE USES / TYPICAL APPLICATIONS

Development
Ready-made templates for time-saving integration during the development phase.

Simulation and startup
In conjunction with MOVIKIT® AutomationFramework for visualization of machines and systems.

Application
Handheld device for controlling a kinematic model with the RobotMonitor for MOVIKIT® Robotics.

THE ADVANTAGES AT A GLANCE

Flexible!
Flexible browser-based access using web visualization and a web panel.

Intuitive!
A universal engineering tool for visualization and motion applications with direct access to the controller variables.

User-friendly!
Integration of ready-made user interface templates saves time at the creation stage.

Comprehensive!
The possibilities of the modular software system range from the creation of user interfaces to the creation of complex machine visualizations.

OVERVIEW OF THE TECHNOLOGY

Modular visualization system, from hardware to software, based on the MOVI-C® CONTROLLER portfolio.

It is important to maintain an overview of sophisticated drive tasks involving a large number of axes. The more extensive the functionality of systems and drive technology becomes, the more the requirements for operation, visualization, and diagnostics increase. SEW-EURODRIVE visualization hardware has been specifically developed for use in harsh industrial environments immediately next to the machine.

Capacitive touch displays can even be used when wearing gloves. Safety functions such as key switches, emergency stops, and immobility alarms are already integrated.

In addition to an extensive portfolio of visualization solutions, SEW-EURODRIVE naturally also supplies the corresponding accessories, such as prefabricated cables, assembly parts, and the voltage supply – all from a single source.

SEW-EURODRIVE offers a comprehensive portfolio of visualization solutions for various applications.

Based on the MOVI-C® CONTROLLERs UHX25A, UHX45A, and UHX65A, users first select an appropriate industrial display unit (e.g. a web operator panel, operator terminal, or handheld terminal), depending on the application. The MOVIKIT® Visualization software module (Web Visualization, Visualization basic, Visualization flexible, or Visualization multi) then makes it possible to create a graphical interface. Users can freely design this interface or take advantage of ready-made templates (frameworks), ranging from simple options (free of charge) to complex solutions (subject to a charge). One example is MOVIKIT® Visualization addon ParameterMonitor.

The CODESYS user interface you use for this is also utilized for IEC programming. This creates a seamless transition between the two worlds. Depending on the visualization task, visualization can take place on the MOVI-C® CONTROLLER or on a separate Windows PC.

Drive Operator Panel and Handheld Panel

POTENTIAL USES / TYPICAL APPLICATIONS

Storage/retrieval system

Tripod

AGV and AMR systems

THE ADVANTAGES AT A GLANCE

Easy to use!
Easy text entry, even with smaller panels, thanks to optimized on-screen keyboard; standardized appearance in Windows-based and panel-based systems.

Flexible!
Large RAM and fast, high-performance processors offer plenty of scope to carry out even the most sophisticated visualization projects.

Wide-ranging!
Broad product portfolio, suitable for any application: Flexible communication connections thanks to comprehensive range of interfaces and driver protocols.

Robust!
Resistive touchscreen with high-resolution color display and a wide viewing angle, resistant to chemicals, and operable while wearing gloves.

OVERVIEW OF THE TECHNOLOGY

Drive Operator Panel	DOP11C-XX3	DOP11C-XX2
Housing	Plastic	Powder-coated aluminum housing
Color depth display	16.7 million colors	64 to 262 thousand colors
Display technology	LED touchscreen display	LED touchscreen display
Display size	5" / 7" / 10.1"	4.3" / 7" / 10.1" / 12.1" / 15.4"
Pixels (W × H)	800 × 480 to 1024 × 600	480 × 272 to 1280 × 800
Processor	– i.MX6 Dual Lite, Dual Cortex-A9, 1.0 GHz, 512 kB L2 cache memory	– i.MX6 Solo, Single Cortex-A9 (4.3" / 7" display) / i.MX6 Dual Lite, Dual Cortex-A9 (10.1" / 12.1" / 15.4" display), 1.0 GHz, 512 kB L2 cache memory
Memory	– 1 GB (DDR3) main memory – 2 GB application memory	– 1 GB (DDR3) main memory – 1.5 GB application memory
Interfaces	– 1 × serial, 9-pole (1 × RS-232/ 1 × RS-422 or 2 × RS-485) – 1 x serial, 3-pole (1 × RS-485)	– 1 × serial, 9-pole (1 × RS-232/ 1 × RS-422 or 2 × RS-485)
Communication	1 × Ethernet 10/100 Mbit	1 × Ethernet 10/100 Mbit (4.3" / 7" display) 2 × Ethernet 10/100 Mbit (10.1" / 12.1" / 15.4" display)
Voltage supply	24 V (DC 18 – 32 V), type 4.8 to 6.9 W	24 V, type 12 to 31.2 W

SEW Handheld Panel	DOP21C-T70-0 / DOP21C-T70-1
Display	WSVGA display, 600 × 1024 pixels
Processor	– Intel Celeron N2807 2 x 1.58 GHz 32 GB SSD flash, 8 GB eMMC flash, 4 GB DDR3 RAM
Interfaces	1 × USB-Host 2.0, type A
Communication	1 × Ethernet 10/100/1000 Mbit
Other characteristics and features	– Intel 7 Gen HD graphics – Robotics membrane keypad with 21 keys, 4 x status LEDs and 1 x power LED – Key switch – Emergency off button/ stop switch – Rear enabling switch
Operating system	Windows 10 IoT
Compatible software	– SEW robot monitor – MOVIKIT® Visualization flexible – HMI-Builder.PRO with USB dongle, also as replacement for DOP11B-M70

HMI-Builder.PRO software

POTENTIAL USES / TYPICAL APPLICATIONS

Storage/retrieval system

Tripod

AGV and AMR systems

THE ADVANTAGES AT A GLANCE

Perfectly coordinated!
Optimal interaction between visualization and SEW-EURODRIVE control technology

Open!
Open to the entire series of DOP11C devices, SEW-EURODRIVE controllers, and third-party controllers, thanks to import function and standardized development environment.

Straightforward!
Integrated simulation mode allows you to configure and test visualization tasks in advance – even without hardware.

Efficient!
Numerous integrated HMI functions increase operational reliability and cut development costs.

OVERVIEW OF THE TECHNOLOGY

HMI-Builder.PRO, in connection with the DOP11C panels, has formed the basis for small to medium-sized visualizations for many years. It is easy to operate. A whole range of preconfigured controls and functions make programming expertise virtually unnecessary. In addition, more complex visualization tasks can be solved in the C# programming language.

When using a DOP11C-XXX, the visualization is computed on the panel hardware itself, while the data and values to be visualized are exchanged using various communications drivers, e.g. a controller. When using an older frequency inverter, the DOP11C panel can be connected to this directly, while inverters from the MOVI-C® modular automation system must communicate via PLC.

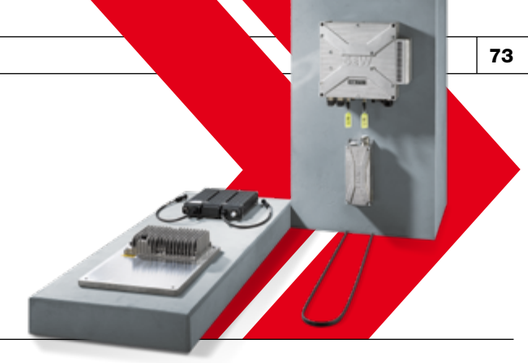
Alternatively, if the visualization project has a large scope, the visualization can be computed on an external Windows operating system, (e.g., Runtime on DOP21C-T70 or MOVI-C CONTROLLER® Type UHX65 with Windows option and additional OPT11D-150 touch monitor). Licensing in this case is handled via a USB dongle.

Projects that have been created using an older version of HMI-Builder.PRO are automatically converted to the latest version. There is also an import function for DOP11B-series HMI-Builder projects.

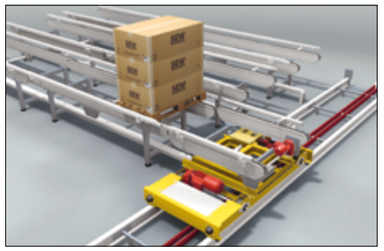
A large number of communication drivers are available to connect third-party controllers.

6 Contactless energy transfer system

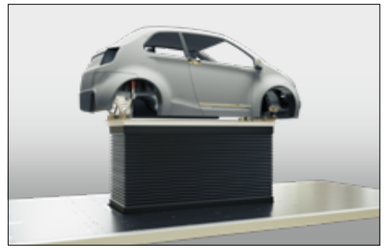
MOVITRANS® line – contactless energy transfer system



POSSIBLE USES / TYPICAL APPLICATIONS



Pallet transfer shuttles
– Transport systems in logistics centers



Skillets with a lift table
– Hoists or shuttles

Floor transport systems
– Automated guided vehicle systems
– Autonomous mobile robots

THE ADVANTAGES AT A GLANCE

Scalability!
Thanks to its system modules, MOVITRANS® is easy to configure, and also to adapt to modifications and changing system tasks.

Cost reduction!
MOVITRANS® reduces operating costs because it is easy to use, increases system availability, and minimizes maintenance outlay on a long-term basis.

Efficiency!
Increase energy efficiency thanks to state-of-the-art component technologies and short power distribution distances in linear and point-based charging.

Simplicity!
Make installation easier. No control cabinet is required to house the supply unit, and all inputs/outputs are designed with plug-in connections.

OVERVIEW OF THE TECHNOLOGY

Stationary components (system frequency 25 kHz or 50 kHz):

1 TES31A decentralized supply unit

System frequency: 25 kHz:
Power: 8 kW – 16 kW
(up to 45 kW in parallel connection)

System frequency: 50 kHz:
Power: 8 kW – 14 kW
(up to 28 kW in parallel connection)

Line voltage U: 380 V – 500 V ± 10%
SAFS (Safe AC Field Stop) function via binary inputs

New: The SAFS functional safety feature can be combined with safety-related controllers and sensors.

2 TCS31A compensation box
Compensates for a distance of 25 m to 30 m

3 TLS wedge-shaped cable
Can be installed in or on the ground. The line cable has a specific wedge shape with a cross section of 3 × 3 mm² up to 60 A. This wedge-shaped cable is pressed into the sawn recesses along the route.

4 TLS circular conductor
A medium-frequency cable with double cable jacket for floor routing. Cross section:
– 2 × 8 mm² up to 60 A
– 25 mm² up to 60 A or up to 85 A
– 41 mm² for 85 A

Mobile components:

5 MOVI-DPS® (Drive Power Solution) energy storage bundle
Energy storage or peak load buffering through double-layer capacitors. Fast and direct energy intake and energy release. High number of charging cycles possible.

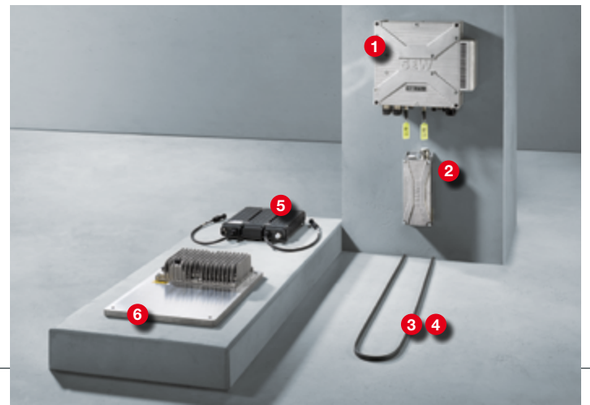
6 TDM90E pick-up
With a direct voltage output and energy storage unit, 1.4 kW / DC 350 V series and parallel connection possible

THM10E flat pick-up
Power: 1.5 kW

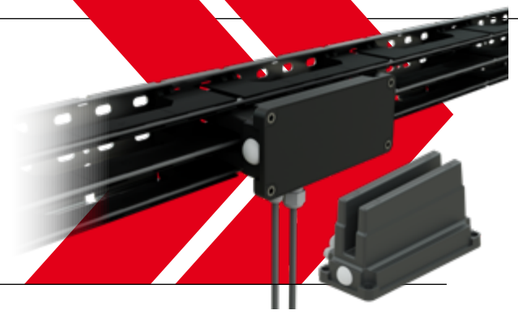
THM10C U-shaped pick-up
Nominal power: 0.8 kW
Peak power: 0.9 kW

TPM12B mobile converter
Nominal output power:
– When 4 × THM10C connected: max. 3.6 kW
– When 2 × THM10E connected: max. 3.0 kW

MOVITRANS® technology works on the principle of inductive energy transfer and ensures the perfect power supply – contactless, quiet, low-maintenance, and wear-free.

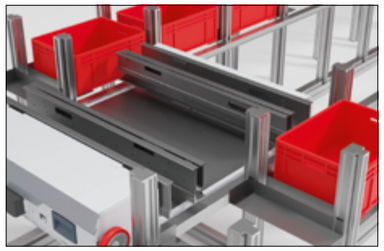


MOVITRANS® line with TDM90C pick-up



POTENTIAL USES / TYPICAL APPLICATIONS

Sorters



Compact shuttle solutions

Handling gantry

THE ADVANTAGES AT A GLANCE

Powerful!
- Higher power density
- Compact design
- Space-saving
- Safe AC Field Stop (SAFS)

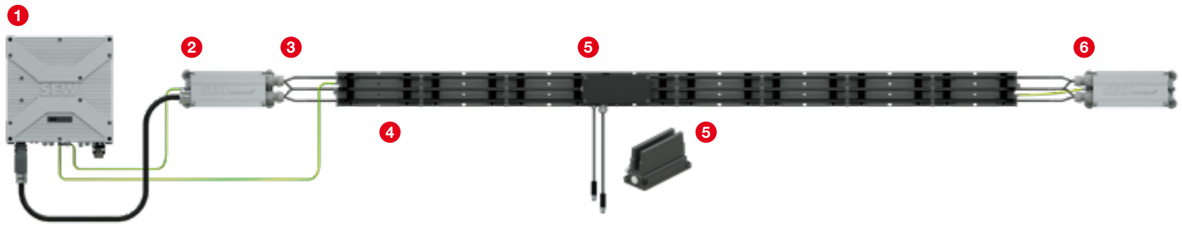
Simple!
- Plug-in connections
- Error-free, fast installation
- Easy to use

Reduced costs!
- No control cabinet required
- Lasting reduction in operating costs
- Minimum maintenance costs

Efficient!
- High system availability
- Low-maintenance
- Wear-free
- Easy maintenance

OVERVIEW OF THE TECHNOLOGY

TDM90C U-shaped pick-up / TIS90 installation system



1 TES31A decentralized supply unit
- System frequency: 50 kHz
- Output power: 3.2 kW / 8 kW / 14 kW
- Line voltage U: 380 V – 500 V ± 10%
- Output current: 30 A
- SAFS safety function (**S**afe **A**C **F**ield **S**top)

2 TCS11A compensation box
- Capacitive impedance values: 1.7 ohms – 15.2 ohms
- Inductive impedance value: 1.6 ohms
- Spring terminals for installation

3 TLS10E line cable
- Cross section: 1 × 3 mm²

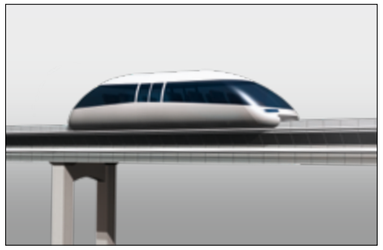
4 TIS90C installation components
- TIS90C-HS01 holding rail
- TIS90C-KH01 cable holder for fast click-in installation
- TIS90C-MB01 mounting panel with shielding function

5 TDM90C pick-up
- Output power: 500 W
- Output voltage: DC 48 V / DC 55 V / DC 352 V
- Switchable in parallel
- Peak load adjustment via external capacitors

6 TVS11A connection distributor
- Connection: line cable or supply cable
- Spring terminals for installation

MOVITRANS® spot – contactless energy transfer system

POSSIBLE USES / TYPICAL APPLICATIONS



People movers
- Public passenger transportation

Floor transport systems
- Automated guided vehicle systems (AGVs)
- Autonomous mobile assistants

Pallet transfer shuttles
- Transport systems in logistics centers

THE ADVANTAGES AT A GLANCE

Flexibility!
Thanks to the innovative SAFS (Safe AC Field Stop) function, use in public spaces does not pose a problem.

Scalability!
For charging during load transfer, different charging strategies and charging powers are possible depending on the application and requirements.

Ground clearance!
High ground clearance for automated guided vehicles and autonomous mobile assistants thanks to the air gap between line cable and pick-up.

Cost reduction!
MOVITRANS® reduces operating costs because it is easy to use, increases system availability, and minimizes maintenance outlay on a long-term basis.

OVERVIEW OF THE TECHNOLOGY

Stationary components (system frequency 50 kHz):

1 TES30 decentralized supply unit
Power: 8 kW
Line voltage U: 380 V – 500 V ± 10%
SAFS (Safe AC Field Stop) function via binary inputs

New: With the SAFS function, a charging point, for example, can be safely switched off if there is no vehicle above the point. The charging point is thus safely free of a magnetic field.

2 TCS50 compensation box
Compensates the field plate inductance and supply cable.

3 TFS10A and TFS50A field plates
Inductive point-based charging with a high charging power of up to 11 kW. Can be installed in the ground (TFS10A) or with installation plates (TFS50A).

4 TIS30A installation plate
MOVITRANS® spot with TFS50A does not have to be installed in the ground. The surfaces can be assembled and disassembled quickly using a jigsaw system based on groove-and-tongue connection of the installation plates. This increases the flexibility and adaptability of your factory.

Mobile components:

5 TDM80E pick-up

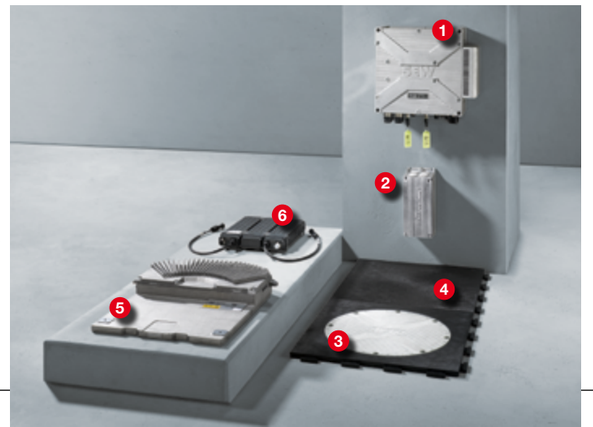
Nominal power: up to 11 kW for 4 minutes
Engineering via EtherCAT®/SBus^{PLUS}

Nominal voltage: up to DC 60 V
Suitable for use from +5 °C to +40 °C.

Nominal voltage: up to DC 360 V
Suitable for outdoor use from -25 °C to +55 °C.

6 Energy storage bundle
Energy storage or peak load buffering through double-layer capacitors. Fast and direct energy intake and energy release. High number of charging cycles possible.

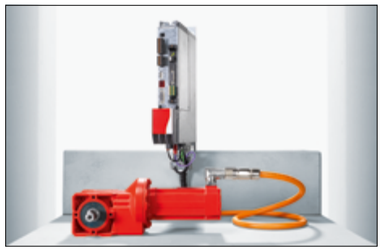
MOVITRANS® spot is made up of both stationary and mobile system components that can be quickly and easily integrated into existing automation systems. The nominal air gap between the point-based charging plate and the pick-up is 20 mm. This makes it possible to achieve high transmission power even with a high ground clearance.



7 Digital motor integration

Digital motor integration in single-cable technology with MOVILINK® DDI

POSSIBLE USES / TYPICAL APPLICATIONS



Startup
An electronic nameplate means motor and gear unit startup procedures are completed in seconds.

After purchasing
All details relating to assembly, disassembly, and wear parts/spare parts are available online.

Condition monitoring
- Brakes: Switch on/off, monitor wear, global wide voltage supply with one brake
- Gear units: Oil age and temperature (in preparation)
- Motor: Motor protection, utilization and operating hours

THE ADVANTAGES AT A GLANCE

Far less time required during startup!
Identification and auto startup of a gear-motor on an inverter from the MOVI-C® modular automation system, without the need for an engineering tool.

Condition monitoring and error avoidance in the event of fault!
Automatic starting after motor replacement without an engineering tool and comprehensive self-diagnostics.

Standardized connection technology!
Identical hybrid cable covers the data connection and power supply of all SEW-EURODRIVE synchronous and asynchronous motors with/without brake.

50% space saving!
Just one cable for power, encoders, temperature, brake, and transmitting further data for condition monitoring: Wear, utilization, aging.

OVERVIEW OF THE TECHNOLOGY

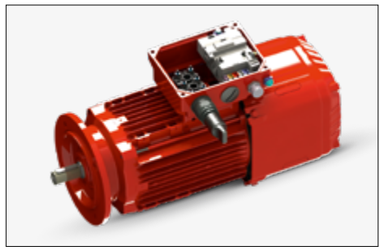
Installation in control cabinet	MOVIDRIVE® technology	MOVITRAC® advanced
Inverter type	Application inverter	Standard inverter
Data interface	Integrated	Configurable
Features	– Intelligent digital data cable, turning the electric motor into an indirect, transparent station in the network – Uniform interface on all inverters from the MOVI-C® modular automation system thanks to a standardized hybrid connector with coaxial technology – Extremely robust, high-performance design for data transmission with coaxial data cable – Suitable for very long cables measuring up to 200 m between motor and inverter	

Cables	DDI cables
Cable types	Hybrid sheathed cable, inner shielding
Application	Fixed installation and cable carrier installation
Cross sections	– 4 × 1.5 – 10 mm² – 4 × 1.0 mm² – 1 × coax
Motor connection	Terminals, M23 or M40
Inverter connection	Terminals, M23 or M40

Motors	Servomotors	AC motors
Motor types	Synchronous	Asynchronous and synchronous
Series	CM3.. / CMP	DRN.., DR2.., DRU..
Sizes	63 – 100 / 50 – 100	71 – 225M4
Torques	2.5 – 35 Nm	–
Power ratings	–	0.09 – 45 kW
Options		
Encoders	EZ2Z, AZ2Z EZ4Z, AZ4Z	Ei8Z, EK8Z, AK8Z
Brakes	BZ, BZ..Z, BK	BE
Brake controls	BS1Z, BG1Z	BG1Z

Digital motor integration Single-cable technology with MOVILINK® DDI

POSSIBLE USES / TYPICAL APPLICATIONS



Design for the motor
The end of the cable is standardized with an M23 or M40 plug connector, with optional wiring via a cable gland.

Cable design
Five cable cross sections (3 × 1.5, 2.5, 4, 6, or 10 mm²) two brake supply cross sections (4 × 1 mm² / 4 × 1,5 mm²) and purple coax cable; fixed or in cable carrier installation.

Designed for the control cabinet inverter
End of the supply cable optimized for connection of power, coax and control; cable shielding fixed over a large area for EMC safety; can be assembled in the field.

THE ADVANTAGES AT A GLANCE

One cable rather than lots of them!
Having just one MOVILINK® DDI connection cable cuts down on design and assembly work and saves time and money during installation. A single cable also takes up less space, making cable routes and cable carriers smaller and less expensive.

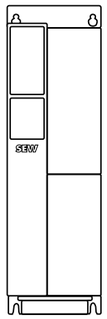
Replacement made easy!
In the event of a failure, plug connectors reduce the machine/system downtime. The auto startup function detects that a component has been replaced and reduces the time required for recommissioning and release.

Tested and reliable quality!
Products prefabricated to the required length by the manufacturer provide a quality pledge, with state-of-the-art, fault-free, and tested cables. Non-prefabricated cables in container format, with a 30 m, 50 m, or 100 m cable ring, can optionally be purchased for fabrication by the customer.

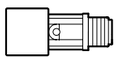
Long distances!
Technically innovative with hybrid stranding, the integrated digital duct with the coax cable ensures the connection of supply cables up to 200 m long between drive and inverter.

OVERVIEW OF THE TECHNOLOGY

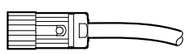
Connection	Design	Hybrid cable	Power	Brake	MOVILINK® DDI
Directly on the motor: SD1 Terminal box: KD1	M23	yes	3 × 1.5 mm² + PE	4 × 1.0 mm²	coax
			3 × 2.5 mm² + PE	4 × 1.0 mm²	
			3 × 4.0 mm² + PE	4 × 1.0 mm²	
Directly on the motor: SDB Terminal box: KDB	M40		3 × 6.0 mm² + PE	4 × 1.5 mm²	
			3 × 10.0 mm² + PE	4 × 1.5 mm²	
Terminal box: KD	Cable gland		3 × 1.5 mm² + PE	4 × 1.0 mm²	
			3 × 2.5 mm² + PE	4 × 1.0 mm²	
			3 × 4.0 mm² + PE	4 × 1.0 mm²	
			3 × 6.0 mm² + PE	4 × 1.5 mm²	
			3 × 10.0 mm² + PE	4 × 1.5 mm²	
Terminal box: KDD	Cable gland for power and brake and M23 connector for MOVILINK® DDI	Power/signal disconnected	For power cross sections > 10 mm² and cables in their own assembly by the customer		coax



SDB: M40 – male without code ring

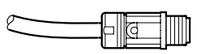


M23 – female without code ring

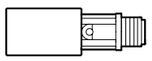


KD: M25 cable gland or M32 cable gland

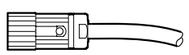
M40 – male without code ring



KDB: M40 – male without code ring



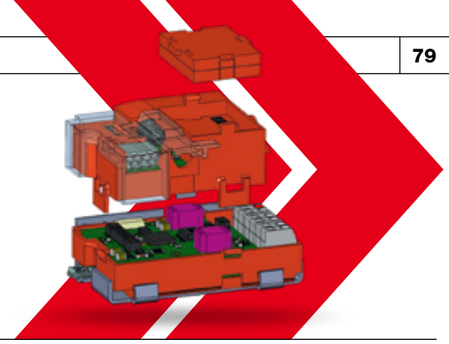
M40 – female without code ring



KDD: M23 plug connector with M40 cable gland or M50 cable gland

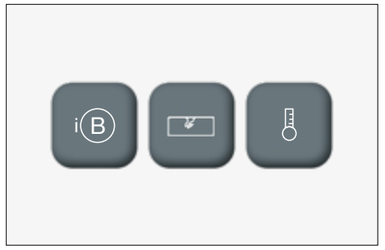
Cores and coax with connector

Digital motor integration DRN../DR2.. motors



POSSIBLE USES / TYPICAL APPLICATIONS

Basic functions
- Auto startup
- Motor identification data
- Encoder data
- Thermal motor protection



Brake function group
- Control
- Wear
- Temperature
- Brake capacity utilization

Operation function group
- Vibration of the motor and/or gear unit
- Oil change display (in preparation)
- Functional safety
- Motor operating hours

THE ADVANTAGES AT A GLANCE

Automatic identification!
The motor with MOVILINK® DDI transmits its data to the inverter, which sets its parameters accordingly. In the event of a replacement, the change of motor is detected and a release is requested.

Protective function!
The thermal motor protection status is permanently monitored. Any changes or the reaching of threshold values triggers the safety functions programmed in the inverter.

Brake monitoring!
Switch brake voltage on and off; integrated brake controls measure thermal utilization and wear and operate in a global supply voltage range – with only one brake and one brake control!

Operation!
Sensor technology on the motor and/or gear unit records operating data for digitalized transfer. A timestamp makes it possible to work out operating times and forward this information for monitoring purposes.

OVERVIEW OF THE TECHNOLOGY

Designation	DRN../DR2..	71MS4 – 132S4	132M4 – 132L4	160M4 – 160L4	180M4 – 225M4
KD1	M23 plug connector (hybrid 3 × 1.5, 3 × 2.5, 3 × 4 mm² + PE)	Standard	Standard, based on the nominal current (I_N < 22 A)*		–
KDB	M40 plug connector (hybrid 3 × 6 or 3 × 10 mm² + PE)	–	Alternative, based on the nominal current (23 A ≤ I_N < 49 A)*		
KD	Cable gland (hybrid 3 × 1.5 up to 10 mm² + PE)	–	If no plug connector is required (I_N < 49 A)*		
KDD	Cable gland > 3 × 10 mm² + PE, 3 × 1.5 mm² + PE)) M23 plug connector (coax)	–	If, based on the nominal current (I_N ≥ 49 A)*, a core cross section > 10 mm² is necessary (single-cable technology not possible)		
Function (basic)	– Motor ID (electronic nameplate) – Auto startup	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Function (brake)	– Brake voltage – Switching on/off digitally – Recording wear and temperature	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Assembly options	– Built-in encoder (EI8Z) – Add-on encoder (EK8Z or AK8Z) – Brake (BE*) – Thermal motor protection (TF or PI)	Yes Yes Yes Yes	– Yes Yes Yes	– Yes Yes Yes	– Yes Yes Yes

* The length of the supply cable must be taken into account.

DRN../DR2.. 71MS4 – 225M4 asynchronous motor – an insight into digital connection technology

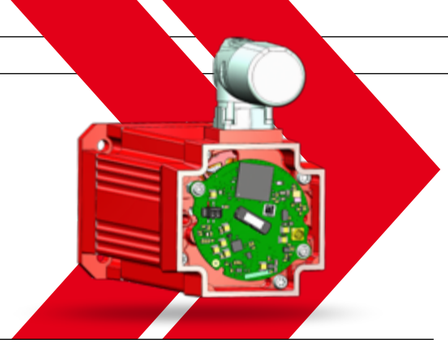
KD1:
M23 max. 4 mm²

KDB:
M40 max. 10 mm²

KD:
KV hybrid max. 10 mm²

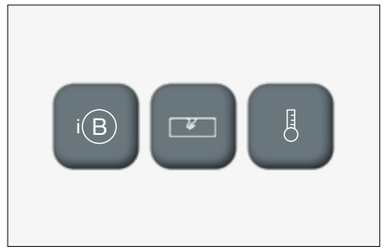
KDD:
> 10 mm² single + coax

Digital motor integration CMP../CM3C.. motors



POSSIBLE USES / TYPICAL APPLICATIONS

Basic functions
- Auto startup
- Motor identification data
- Encoder data
- Thermal motor protection



Brake function group
- Control
- Wear
- Temperature
- Brake capacity utilization

Operation function group
- Vibration of the motor and/or gear unit
- Oil change display (in preparation)
- Functional safety
- Motor operating hours

THE ADVANTAGES AT A GLANCE

Automatic identification!
The motor transmits its data to the inverter, which sets its parameters accordingly. In the event of a replacement, the change of motor is detected and a release is requested.

Protective function!
The thermal motor protection status is permanently monitored. Any changes or the reaching of threshold values triggers the safety functions programmed in the inverter.

Brake monitoring!
Switch brake voltage on and off; integrated brake controls measure thermal utilization and wear and operate in a global supply voltage range – with only one brake and one brake control!

Operation!
Sensor technology on the motor and/or gear unit records operating data for digitalized transfer. A timestamp makes it possible to work out operating times and forward this information for monitoring purposes.

OVERVIEW OF THE TECHNOLOGY (NEW)

Type	Description	CMP		CM3C	
		50S – 71L	80S – 100L	63S – 71L	80S – 100L
SD1	M23 plug connector (hybrid, 3 × 1.5 mm², 3 × 2.5 mm² or 3 × 4 mm² + PE)	×		×	
SDB	M40 plug connector (hybrid, 3 × 6 mm² or 3 ×10 mm² + PE)	–	×	–	×
KD	Cable gland (hybrid, 3 × 1.5 mm², 3 × 2.5 mm², 3 × 4 mm², 3 × 6 mm² or 3 ×10 mm² + PE)	×		×	
KDD	Two cable glands (3 × 16 mm² or 3 x 25 mm² + PE) + (3 × 1 mm² + PE) M23 plug connector (coax)	–	×	–	×
Function (basic)	– Motor ID (electronic nameplate) – Auto startup	Yes Yes			
Function (brake)	– Brake voltage – Switching on/off digitally – Recording temperature – Recording wear and temperature	Yes Yes Yes –		Yes Yes – Yes	
Assembly options	– Encoder: EZ2Z (12 Bit single turn) / AZ2Z (12 Bit single turn and 16 Bit multi turn) – Encoder: EZ4Z (18 Bit single turn) / AZ4Z (18 Bit single turn and 16 Bit multi turn) – Brake (BZ, BZ.D, BK, BZ.Z) – Thermal motor protection (PK)	Yes Yes (CMP50 – 63) Yes Yes		Yes Yes Yes Yes	

New: CMP/CM3C80S – 100L synchronous motor – an insight into digital connection technology

KD:
KV hybrid
max.10 mm²

KDD:
KV > 10 mm²
single + coax

Digital motor integration MOVIGEAR® classic

POSSIBLE USES / TYPICAL APPLICATIONS

Basic functions
- Auto startup
- Thermal motor protection

Function group (encoder)
- Motor identification data
- Encoder connection data

Operation function group
- Vibration of mechatronics
- Functional safety
- Operating hours of mechatronics

THE ADVANTAGES AT A GLANCE

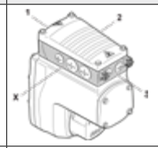
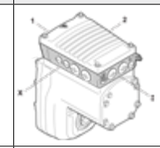
Automatic identification!
The motor with MOVILINK® DDI transmits its data to the inverter, which sets its parameters accordingly. In the event of a replacement, the change of motor is detected and a release is requested.

Protective function!
The thermal motor sensor status is permanently monitored. Any changes or the reaching of threshold values triggers the safety functions programmed in the inverter.

Speed!
The application dictates which option to choose – encoder-free speed control or with absolute position information comprising the position within a revolution and the number of revolutions.

Operation!
Sensor technology on the motor and/or gear unit records operating data for digitalized transfer. A timestamp makes it possible to work out operating times and forward this information for monitoring purposes.

OVERVIEW OF THE TECHNOLOGY

Type	Description	MGF	…1-DSM-C/DI..	…2-DSM-C/DI.. …4-DSM-C/DI.. …4-DSM-C/XT/DI..
		3D image with position designations		
	M16 or M25 cable gland + 2 × outer ground terminals + 2 × inner PE terminals	Position X	2 × M25 × 1.5 + 1 × M16 × 1.5	2 × M25 × 1.5 + 2 × M16 × 1.5
		Position 1	1 × M16 × 1.5	1 × M16 × 1.5
		Position 2	2 × M25 × 1.5 + 1 × M16 × 1.5	2 × M25 × 1.5 + 2 × M16 × 1.5
		Position 3	2 × M16 × 1.5	2 × M25 × 1.5 + 2 × M16 × 1.5
		Power – terminal no.:	X2_A	X2_A
		MOVILINK® DDI – terminal no.:	X16_A	X16_A
/KD1	M23 plug connector (male) (hybrid, power + PE), straight or angled	Permitted positions (male) (hybrid, power + PE), straight or angled	X or 2	X, 2, or 3
Function (basic)		Motor ID (electronic nameplate) Auto startup	Yes Yes	Yes Yes
Function (encoder)		– Encoder-free – AZ1Z (12 Bit single turn and 16 Bit multi turn)	Yes Yes Yes	Yes Yes Yes
Assembly standard		Thermal motor protection (PK)	Yes	Yes

8 Gearmotors and gear units

Gearmotors

POSSIBLE USES / TYPICAL APPLICATIONS

Horizontal materials handling technology
Roller conveyor, chain conveyor, belt conveyor

Vertical materials handling technology
Vertical drive

Materials handling technology with changes of direction
Rotary table, carriage

THE ADVANTAGES AT A GLANCE

Flexible!
Can be adapted to your requirements and needs

Scalable!
- Speed and force
- Torque
- Power rating as required, factoring in overload
- Safety features

Durable!
Thanks to high-quality wear components and intelligent/innovative designs

Available!
Worldwide – taking into account laws and regulations at an early stage, making it possible for you to plan

OVERVIEW OF THE TECHNOLOGY (NEW)



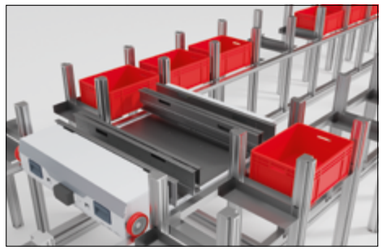


Gear units	Parallel-shaft helical gear units (F..)	Helical-bevel gear units (K..)	Helical-worm gear units (S..)	SPIROPLAN® gear units (W..)	3-phase motors	
Flow of force	Axial	Angular			Number of poles	2, 4, 6, 8, 4/2, 8/2, 8/4
Type	–	K..9 (2-stage) 4 sizes 19 – 49	S..7 (2-stage) 7 sizes 37 – 97	W..0 (1-stage) 3 sizes 10 – 30	Type	Single-speed: DRN.., DRU.., DR2C.., DR2S.., DR2L.., DR2M.. 31 sizes: 56 – 315
	F..7 (2-/3-stage) 11 sizes 27 – 157	K..7 (3-stage) 12 sizes 37 – 187	S..7p (2-stage) 7 sizes 37p – 97p	W..9 (2-/3-stage) 5 sizes 19 – 59		Pole-changing: DR2S.. sizes: 63 – 200
Maximum output torque Nm	–	K..9: 80 – 500	S..7: 92 – 4000	W..0: 30 – 70	Power kW	DR2S..: 0.09 – 96 DRN..: 0.09 – 375
	F..7: 120 – 20 000	K..7: 200 – 53 000	S..7p: 105 – 4300	W..9: 80 – 600		DRU..: 0.75 – 375 DR2C..: 0.69 – 20
Reduced backlash	F..7: Yes	K..7: Yes	–	–	Frequency Hz	50, 60, 50/60
Gear unit ratio i	–	K..9: 2.81 – 75.20	–	W..0: 6.57 – 75.00	IE class	DRN..: IE3 Premium Efficiency
	F..7: 3.77 – 281.71	K..7: 3.98 – 197.37	S..7/S..7p: 3.97 – 288.00	W..9/W..9HG: 4.68 – 2426.20		DRU..: IE4 Super Premium Efficiency
Double gear unit ratio i	–	K..9 R..7: 75 – 7137	–	–		DR2C..: IE5
	F..7 R..7: 87 – 31 434	K..7 R..7: 94 – 32 625	S..7/S..7p R..7: 110 – 33 818	W..9 R..7: 72 – 4815		DR2S: IE1 (S1 – S3, S9)
					Details	See the page for the relevant motor type.

SPIROPLAN® gear units W..19 – W..59

POSSIBLE USES / TYPICAL APPLICATIONS

Horizontal materials handling technology
- Roller conveyor
- Chain conveyor
- Belt conveyor



Mobile logistics applications
- Travel drives
- Load handling devices
- Pallet transfer shuttles

Vertical conveyors
- Lifting stations
- Transfer units

THE ADVANTAGES AT A GLANCE

Lightweight!
Particularly beneficial for lightweight machine designs and mobile applications.

Efficient!
Low energy costs thanks to energy-efficient gear units with a high level of efficiency across the entire gear ratio range.

Quiet!
Low noise development and quiet operation at any speed, for reduced noise levels at nearby workstations.

Future-proof!
Using the latest technologies in both the gear unit and motor ensures long-term availability and functionality.

OVERVIEW OF THE TECHNOLOGY

Solid shaft with key and flange

Hollow shaft with keyway

Hollow shaft with key and flange

Hollow shaft with shrink disk and flange

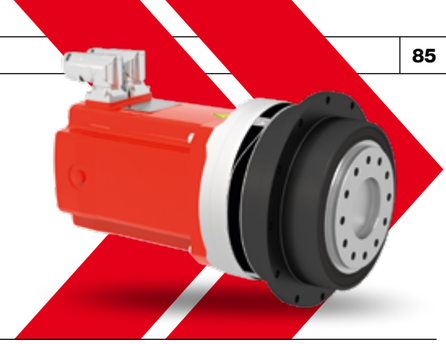
Hollow shaft with shrink disc

Hollow shaft with shrink disk in TorqLOC® design

Hollow shaft with keyway and torque arm

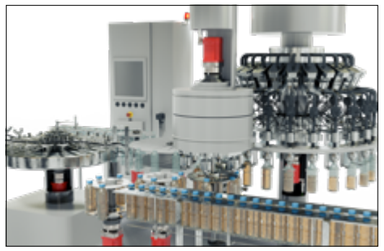
Gear unit size	W..19 (NEW)	W..29	W..39	W..49 (NEW)	W..59 (NEW)
M_{amax} Nm	80	130	200	400	600
Gear ratio i (W..9)	5.90 – 167.59	4.68 – 188.47	4.72 – 210.49	7.22 – 200.76	6.76 – 213.21
Gear ratio i (W..9HG)	–	203.19 – 2100.14	233.35 – 2355.20	224.25 – 2426.20	262.28 – 2123.38
Motor power range kW	0.09 – 0.75	0.12 – 1.1	0.12 – 1.5	0.12 – 3.0	0.18 – 4.0
Hollow output shaft diameter mm	18 / 20	20 / 25 / 30	25 / 30	30 / 35	35 / 40
Flange diameter mm	110 / 120	120 / 160	160 / 200	160	200

PxG® CM3C.. planetary servo gearmotors with compact mounting

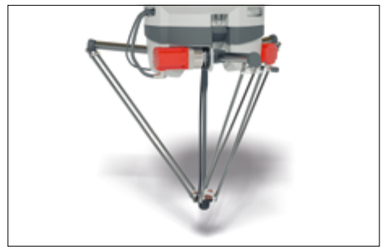


POSSIBLE USES / TYPICAL APPLICATIONS

P5.G.. MD.. CM3C..
- Machine tool gantries
- Mounting presses
- Drilling and pegging machines



P6.G.. MD.. CM3C..
- Filling and transfer starwheels
- Printing machines
- Diaper machines



P7.G.. MD.. CM3C..
- Delta kinematics
- Laser cutting machines
- Chain magazines and tool changers

THE ADVANTAGES AT A GLANCE

Space-saving!
Up to 20% more power density thanks to a short design.

Reliable!
A continuous positive connection ensures reliable torque and speed transmission.

Simple assembly/disassembly!
The gear unit and motor are simple to replace, thanks to an innovative interface between them.

Durable!
Having fewer bearing and sealing points reduces thermal losses in the gearmotor and extends the service life.

OVERVIEW OF THE TECHNOLOGY

PxG® planetary servo gear units		P5.G.. MD..	P6.G.. MD..	P7.G.. MD..
Sizes		21, 31, 32, 41, 42, 43, 51, 52, 62, 72		
Gear ratio	1-stage	3 – 10		4 – 5.5
	2-stage	12 – 100		16 – 55
	3-stage	64 – 1000	On request	64 – 550
Acceleration torque		66 – 4200 Nm	40 – 2000 Nm	80 – 6150 Nm
Rotational clearance		4 – 5 arcmin		
Service life		20 000 hours (cdf 60%)	30 000 hours (cdf 100%)	20 000 hours (cdf 60%)
Output variants		Solid shaft (smooth, key, or splining), flange block shaft with or without index bore		Flange block shaft without index bore
Lubrication for life		GearOil Poly E1 by SEW-EURODRIVE or Grease HL 2 E1 by SEW-EURODRIVE, also in H1 (food grade)		
Seal		Premium Sine Seal or labyrinth seal (in the case of grease lubrication)		

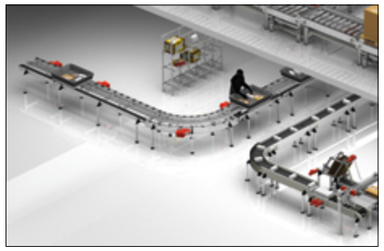
CM3C.. synchronous servomotors	Size 63*	Size 71*	Size 80*	Size 100*
Standstill torque M_0 Nm	2.7 – 6.4	6.5 – 14	10.5 – 22.8	19 – 40
Dynamic limit torque M_{pk} Nm	8.1 – 19.2	19.5 – 42	31.5 – 68.4	57 – 120
Flange edge dimension mm	88	116	138	163
Speed class min^{-1}	3000 / 4500 / 6000	2000 / 3000 / 4500 / 6000	2000 / 3000 / 4500 / 6000	2000 / 3000 / 4500

* Each size is available in three lengths – S, M, and L.

Motor adapters – AMS.. for asynchronous servomotors and AQS.. for servomotors

POSSIBLE USES / TYPICAL APPLICATIONS

Conveyor belt / cycled operation
– Helical-bevel gear unit with AQS.. adapter



Roller conveyor, traditional materials handling technology
– SPIROPLAN® right-angle gear unit with AMS.. adapter

Vertical shaft, e.g. shuttle drive
– Parallel-shaft helical gear unit with AMS.. adapter

THE ADVANTAGES AT A GLANCE

AMS.. adapters for mounting on asynchronous motors (IEC and NEMA)

Lightweight!
The short design of AMS.. adapters reduces the drive's total weight.

Wide variety of options!
The two-part construction makes it possible to use a backstop /RS and a condensation drainhole/DH in all sizes.

AQS.. adapters for mounting on servomotors

Space-saving!
A very short length means the adapters can even be used in compact machines and applications with limited space.

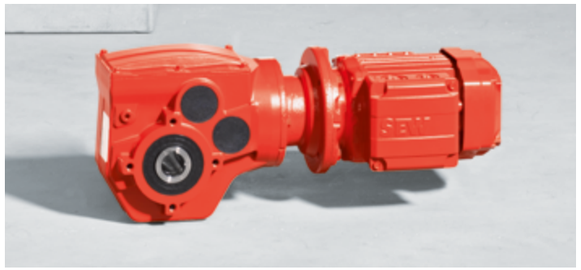
Fast and safe installation!
The smooth motor shaft can be assembled or disassembled without the coupling element getting warm. The clamping ring's spreading function simplifies this process.

OVERVIEW OF THE TECHNOLOGY

AMS.. adapters for asynchronous motors (IEC and NEMA)
– 14 sizes for IEC motor installation, AMS63 to AMS280
– 10 sizes for NEMA motor installation, AMS56 to AMS364/365

Available options:
– Backstop /RS
– **NEW:** Condensation drainhole /DH for mounting position M4, for indoor and outdoor use
– **NEW:** Reinforced bearings for a big increase in bearing service life

Motor adapter for mounting on:
– Helical gear units from the RX..7 series (size 57 – 107) and the R..7 series (size 07 – 167)
– Parallel-shaft helical gear units from the F..7 series (size 27 – 157)
– Helical-bevel gear units from the K..7 series (size 37 – 187) and the K..9 series (size 19 – 49)
– Helical-worm gear units from the S..7 series (size 37 – 97) and the S7..p series (size 37 – 97)
– SPIROPLAN® W..9 right-angle gear units (size 19 – 59)

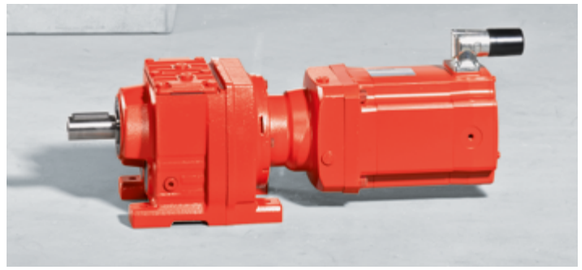


AQS.. adapters for synchronous motors
– 29 adapter variants, including 11 new designs for connecting market-standard synchronous servomotors – AQS.50 to AQS.190

AQSA..
– For mounting servomotors with a shaft with keyway and key

AQSH..
– For mounting servomotors with a smooth motor shaft

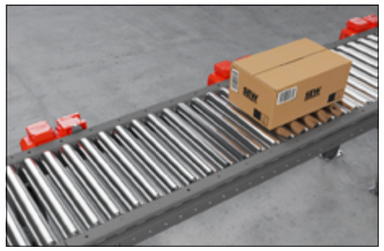
Motor adapter for mounting on:
– Helical gear units from the RX..7 series (size 57 – 107) and the R..7 series (size 07 – 147)
– Parallel-shaft helical gear units from the F..7 series (size 27 – 127)
– Helical-bevel gear units from the K..7 series (size 37 – 127) and the K..9 series (size 19 – 49)
– Helical-worm gear units from the S..7 series (size 37 – 67) and the S7..p series (size 37 – 67)
– SPIROPLAN® right-angle gear units (size 19 – 59)



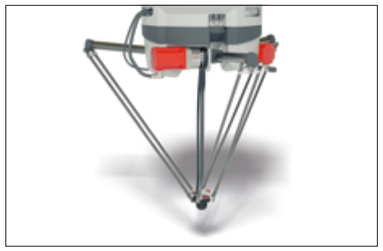
GearOil and GearFluid by SEW-EURODRIVE

POSSIBLE USES / TYPICAL APPLICATIONS

Industrial gear unit applications
- Conveyor belt drives
- Crushers
- Cranes



Right-angle gear unit applications
- Roller conveyors
- Load handling devices



Planetary servo gear unit applications
- Tripod
- Filling and transport starwheels
- Machine interlinking

THE ADVANTAGES AT A GLANCE

Efficient!
Our GearOil and GearFluid lubricants achieve a higher level of efficiency than mineral oils, reduce energy consumption, and cut operating costs.

Durable!
Compared to conventional polyglycol oils, our GearOil and GearFluid products can extend the service life of the lubricant and the interval between oil changes for the gear units by as much as 50%.

Sustainable!
The base oil for our GearFluid is made from sustainable biomass and does not use any fossil raw materials.

Environmentally friendly!
Manufacturing the base oil for our GearFluid emits 84% less CO_2 compared with conventional polyglycol base oils.

OVERVIEW OF THE TECHNOLOGY

GearOil

Sustainability
- Up to 50% longer service life than conventional lubricants
- High level of resistance to aging reduces wear, resulting in a longer life
- The premium lubricant's low friction coefficients mean it saves energy and reduces operating costs
- Less waste than conventional lubricants thanks to a long shelf life of up to six years

Features
- Maximum protection against gearing wear prevents the risk of fretting and pitting damage
- Self-cleaning properties that bind water and dirt particles prevent deposits
- High level of protection against wear reduces the risk of early rolling bearing failure

GearFluid

Sustainability
- No use of fossil raw materials
- Premium lubricant made from sustainable biomass
- Biomass is sourced without any use of additional agricultural-grade land being involved
- An 84% reduction in Product Carbon Footprint (rPCF) during manufacturing
- Rapidly biodegradable in accordance with OECD 301B
- Can be used in environmentally sensitive areas
- Canister material contains a proportion of recycled plastic

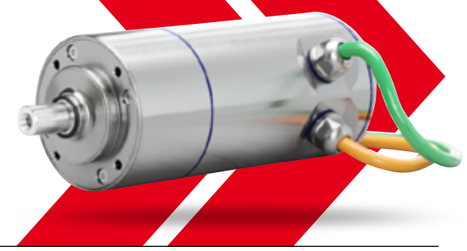
Features
- Up to 50% longer lubricant service life than conventional polyglycol lubricants
- Longer operation phases = fewer oil changes
- Few energy losses = low energy and operating costs thanks to high efficiency
- All in all, maximum performance and optimum efficiency

Viscosities	Mineral GearOil	Synthetic GearOil	
		Polyglycol	Polyalphaolefin
150	CLP	CLP PG CLP PG NSF H1 *	CLP HC
220	CLP	CLP PG CLP PG NSF H1 *	CLP HC CLP HC NSF H1 *
320	CLP	–	CLP HC
460	CLP	CLP PG CLP PG NSF H1 *	CLP HC CLP HC NSF H1 *
680	CLP	–	CLP HC

* Suitable for use in the food and feed industries.

Viscosity	Natural GearFluid
220	CLP PG rPCF

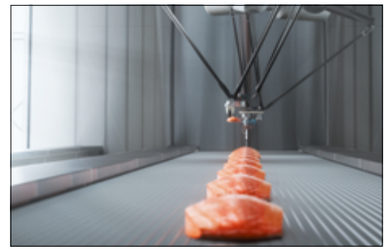
Hygiene portfolio PSH..CM2H.. stainless steel servo gearmotor



POSSIBLE USES / TYPICAL APPLICATIONS

Aseptic filling systems
For the toughest cleaning and disinfection requirements

Cutting machine for cheese, sausages, etc.
Tried and tested for food contact and daily cleaning intervals



Filleting machines for fish, meat, etc.
Suitable for wet areas and all areas of the food processing industry

THE ADVANTAGES AT A GLANCE

Fast cleaning!
Rapid product changeover and faster cleaning processes, with simple cleaning and corrosion-resistant surfaces thanks to a hygienic design and the use of stainless steel.

Compact design!
Thanks to a preinstalled gear unit on the motor unit, with optimized servo gearmotors for particularly precise and dynamic applications in the food industry.

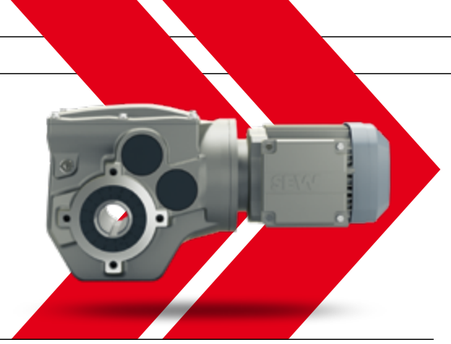
Easy startup!
Short machine development time thanks to quick delivery of components and faster installation thanks to the electronic nameplate.

Quality!
Top "Made in Germany" quality for maximum machine design flexibility, durability, short delivery routes, and long-lasting product availability.

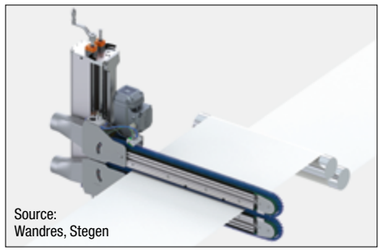
OVERVIEW OF THE TECHNOLOGY

- Resistant to aggressive and strong cleaning agents as well as hot steam, and suitable for CIP/SIP (Cleaning in Place / Sterilization in Place)
- Hygienic and ergonomic design with no corners, edges, or cavities (radii > 3 mm, roughness < 0.8 µm)
- Entire portfolio comprising five sizes, each in different lengths
- Maintenance-free
- Hygiene risk minimization for the machine
- Robust, degree of protection up to IP69K, and therefore suitable for high-pressure and steam-jet cleaning
- Available with optional brake
- Optimized operation on MOVIDRIVE® inverters from the MOVI-C® modular automation system
- Feedback systems (HIPERFACE® and resolvers) for dynamic and safe positioning
- Compact size thanks to integrated planetary gear unit in various gear ratios
- Higher productivity thanks to shorter cleaning time
- Simple, flexible, and modular, with open communication interfaces
- Designed according to the guidelines of the EHEDG (European Hygienic Engineering Design Group)
- Drives comply with FDA (Food and Drug Administration) requirements
- Nominal torque of 1.0 Nm to 103.6 Nm
- Short delivery times

ECO2 design – coating-free gearmotors

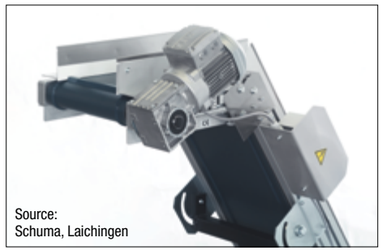


POTENTIAL USES / TYPICAL APPLICATIONS



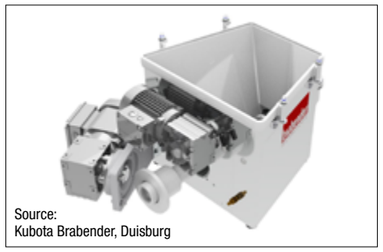
Source:
Wandres, Stegen

Cleaning
Continuous use of one or more circulating brushes for cleaning smooth surfaces



Source:
Schuma, Laichingen

Transport
Simple conveyor belts with horizontal or inclined conveying direction



Source:
Kubota Brabender, Duisburg

Dosing
Precise dosing of powders and granules, with an exchangeable screw conveyor for versatility

THE ADVANTAGES AT A GLANCE

Sustainable!
Deciding not to paint the gearmotor enhances the sustainability of the production process. It also ensures the products can be returned to the material cycle more easily at the end of their service life.

Environmentally friendly!
The assembly process incorporates an active drying process after painting. Avoiding such coatings reduces the CO_2 emissions associated with production by around 3% (+/-1%).

Integrated!
The ECO2 design is an option for gear units with aluminum housings combined with 3-phase motors in sizes 56 to 90. It can be selected during the ordering process.

Economical!
Reduced outlay in the assembly process forms the basis for cost alterations. The lowering of costs results in a reduced price for the gearmotor.

OVERVIEW OF THE REQUIREMENTS FOR ECO2 DESIGN

Regarding the application:
- Dry environment
- Humidity < 60%, non-condensing
- Ambient temperatures -20 °C < $T_{amb.}$ < +60 °C

- Corrosivity category C1 to ISO 12944-2
- Indoor installation

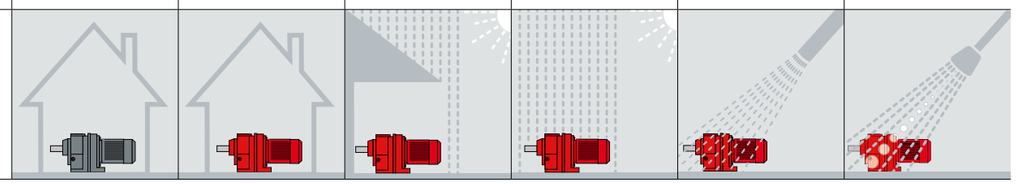
- Required degree of protection max. IPx5 (usually IP54, potentially IP55, IP65)

Gear unit design
- Helical gear units in sizes 07, 17, and 27
- Parallel-shaft helical gear units in size 27
- Helical-bevel gear units in sizes 19 and 29
- SPIROPLAN® right-angle gear units in sizes 10, 20, and 30 plus 19, 29, 39, 49, and 59

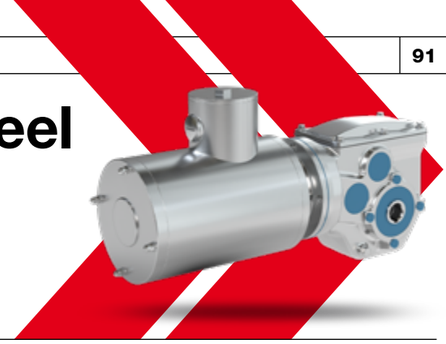
All
- Housing and shaft designs
- Mounting positions
- Lubricants and viscosities, food grade oils, preferably use of GearOil by SEW-EURODRIVE

Motor design
With AC connection from
- DR2S.. and DRN.. series motors
- Motor sizes 56 and 63, 71, 80 and 90
- No mechanical add-on components other than brakes

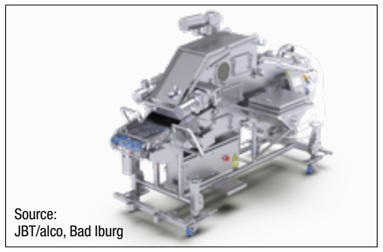
All
- Electrical additional features and options
- Numbers of poles
- Performance variants (S1, S3/xx%, S9)
- Voltages and frequencies
- Approvals and certificates (with exception of explosion protection)

Design	ECO2 design	Standard	OS1	OS2	OS3	OS4
Use	Indoor spaces	Indoor spaces	Outdoor exposure/ roofed	Outdoor exposure	Outdoor exposure/ wet operation	Chemical wet operation
Corrosivity category to ISO 12944-2	C1 (very low)	C1 (very low)	C2 (low)	C3 (medium)	C4 (high)	C5 (very high)
Illustration						

Asynchronous stainless steel gearmotors, 3-phase – sizes and combinations



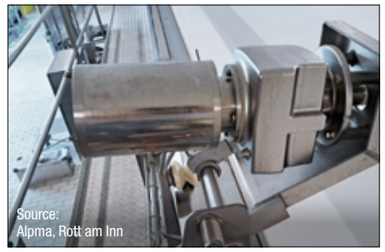
POTENTIAL USES / TYPICAL APPLICATIONS



Source:
JBT/alco, Bad Iburg

Food processing
Applying fine coating materials such as flour, powder, powdered spices and sugar to products

Food packaging
High-precision portioning and filling of yogurt or pudding



Source:
Alpma, Rott am Inn

Food stirrer
Stirring milk and similar primary products in cheese production

THE ADVANTAGES AT A GLANCE

Smooth!
The smooth surface is easy to keep clean and can also be cleaned with conventional high-pressure washers.
Resistance to specific cleaning agents can be requested.

High quality!
The use of 1.4301 stainless steel for the housing, terminal box, and flanges ensures the motor is well protected.
The stainless steel of the gear unit housing is V2A SS304 and the output shafts are made from X5 and X17 steels.

Efficient!
The motors keep losses low and are highly efficient in line with energy efficiency classes IE3 and IE4 (to IEC 60034-30-1 for line-operated motors) and also exhibit excellent efficiency in the partial load range.

Simple!
Using a simple tool, attached motors can be easily removed for inspection and maintenance purposes.

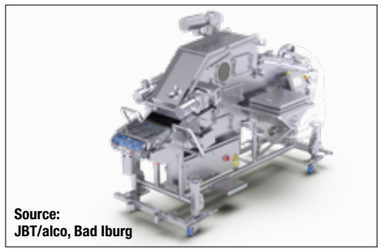
OVERVIEW OF THE COMBINATIONS

AC stainless steel motors						
Size		63	71		80	90
Designation		TENV 63-4	TENV 71-4B		TENV 80-4B	TENV 90S-4
Power rating P_N kW		0.18	0.37		0.75	1.1
Voltage D/Y V		230 / 400	230 / 400		230 / 400	230 / 400
Frequency Hz		50	50		50	50
Nominal speed (50 Hz) min^{-1}		1385	1440		1450	1460
IE class (IEC 60034-30-1)		IE3	IE3		IE4	IE3
η (100% P_n; 75% P_n; 50% P_n)		71.0%; 67.9%; 63.3%	80.0%; 82.2%; 79.2%		85.7%; 82.0%; 78.4%	85.8%; 83.5%; 79.2%
Operation on an inverter		Permitted; maximum dU/dt = 1.6 kV / 0.6 µs at the terminals; IEC TS 60034-17				

Combination options with stainless steel gear units							
Motor designation		TENV 63-4	TENV 71-4B		TENV 80-4B		TENV 90S-4
Pinion shaft end diameter		10 mm	10 mm		12 mm		12 mm
Hole circle / diameter		FG85 D105	FG85 D105	FG100 D120	FG100 D120	FG130 D160	FG130 D160
Gear unit type and size	RESF27	–	–	×	×	–	–
	RESF37	–	–	×	×	–	–
	KES..37	–	–	×	×	–	–
	KES..47	–	–	–	–	×	×
	KES..57	–	–	–	–	×	×
	KES..67	–	–	–	–	×	×
	WES..19	×	×	–	–	–	–
	WES..29	–	–	×	×	–	–

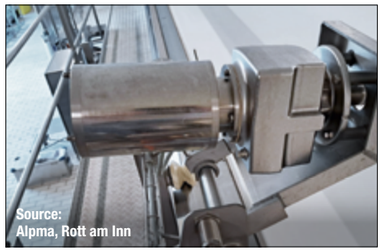
Stainless steel gear units – designs and sizes

POTENTIAL USES / TYPICAL APPLICATIONS



Food processing
Applying fine coating materials such as flour, powder, powdered spices and sugar to products

Food packaging
High-precision portioning and filling of yogurt or pudding



Food stirrer
Stirring milk and similar primary products in cheese production

THE ADVANTAGES AT A GLANCE

Scalable!
New sizes in the relevant torque classes make it easier to select the right design for an application.

High quality!
The stainless steel (V2A, SS304) used for the housing is robust, ideal for casting, and can have centering features, bores, and threads machined into it without great difficulty.

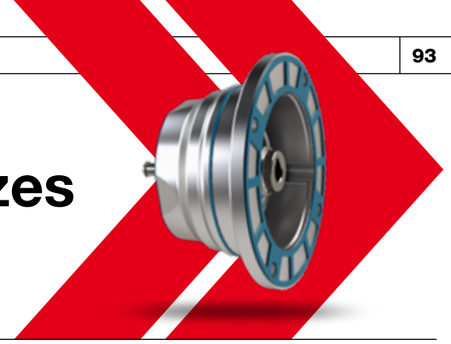
Integrated!
The stainless steel gear units are part of the modular portfolio of SEW-EURODRIVE and use the same parts wherever possible.

Clean!
Thanks to the hygienic design and a surface that is resistant to acids and alkalis, these stainless steel gear units practically clean themselves.

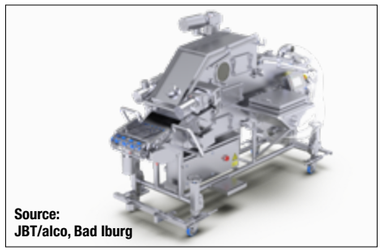
OVERVIEW OF THE SIZES

Type		Helical gear units		Helical-bevel gear units				SPIROPLAN® right-angle gear units	
Designation		**RES..**		**KES..**				**WES..**	
Illustration of product									
With solid shaft	and B5 flange	RES**F..**		KES**F..**				WES**F..**	
With hollow shaft (key)		–		KES**A..**				WES**A..**	
With hollow shaft (key)	and B5 flange	–		KES**AF..**				WES**AF..**	
With hollow shaft (shrink disk)		–		KES**H..**				–	WES**H..**
With hollow shaft (shrink disk)	and B5 flange	–		KES**HF..**				–	WES**HF..**
With hollow shaft (TorqLOC®)		–		KES**T..**				–	WES**T..**
		Sizes							
Maximum output torque	80 Nm	–	–	–	–	–	–	19	–
	130 Nm	27	–	–	–	–	–	–	29
	230 Nm	–	37	37	–	–	–	–	–
	450 Nm	–	–	–	47	–	–	–	–
	630 Nm	–	–	–	–	57	–	–	–
	870 Nm	–	–	–	–	–	67	–	–
Number of stages possible in gear unit		2 and 3-stage		3-stage				2 and 3-stage	
Sales release		Since October 2023	–	–	Since July 2023	Since February 2024	From February 2025	Since November 2023	Since November 2023

AES.. stainless steel adapters – designs and sizes

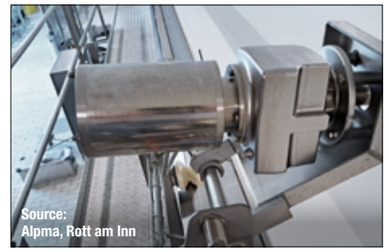


POTENTIAL USES / TYPICAL APPLICATIONS



Food processing
Applying fine coating materials such as flour, powder, powdered spices and sugar to products

Food packaging
High-precision portioning and filling of yogurt or pudding



Food stirrer
Stirring milk and similar primary products in cheese production

THE ADVANTAGES AT A GLANCE

Smooth and clean!
The smooth surface is easy to keep clean and can also be cleaned with conventional high-pressure washers.

High quality!
The stainless steel (V2A, SS304) used for the housing is robust, ideal for casting, and can have centering features, bores, and threads machined into it without great difficulty.

Versatile!
Whether synchronous servomotors or asynchronous motors in IEC or NEMA sizes, the AES.. adapters are extremely versatile and can be used to attach third-party motors to RESF.., KES.., and WES.. stainless steel gear units.

Simple!
Using a simple tool, attached motors can be easily removed for inspection and maintenance purposes.

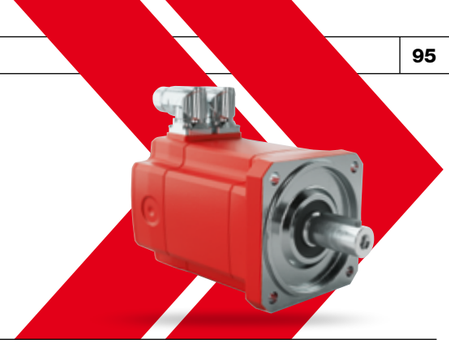
OVERVIEW OF THE TECHNOLOGY

Adapter made of stainless steel	For attaching		
Motor type	**IEC motor sizes**	**NEMA motor sizes**	**Servomotor sizes**
Adapter designation	AESMS..	AESMS..	AESQS..
Size of adapter (motor side)	63, 71, 80, 90, 100, 112	56, 143, 145, 182, 184	80/1, 100/4, 115/3, 115/5, 140/3
Combination (gear unit side)	FG85 D105, FG100 D120, FG130 D160		

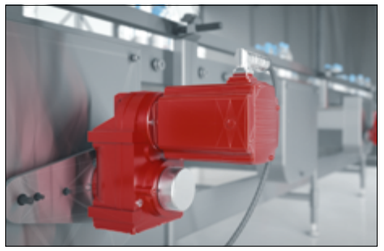
Stainless steel gear unit	Flange		AESMS..						AESMS..					AESQS..				
	FG	**D**	63	71	80	90	100	112	56	143	145	182	184	80/1	100/4	115/3	115/5	140/3
Helical gear units																		
RESF27	100	120	×	×	×	×	–	–	×	×	×	–	–	×	×	×	×	–
RESF37	100	120	×	×	×	×	–	–	×	×	×	–	–	×	×	×	×	–
Helical-bevel gear units																		
KES..37	100	120	×	×	×	×	–	–	×	×	×	–	–	×	×	×	×	–
KES..47	130	160	–	–	×	×	×	×	×	×	×	×	×	–	×	×	×	×
KES..57	130	160	–	–	×	×	×	×	×	×	×	×	×	–	×	×	×	×
KES..67	130	160	–	–	×	×	×	×	×	×	×	×	×	–	×	×	×	×
SPIROPLAN® right-angle gear units																		
WES..19	85	105	×	×	×	–	–	–	×	–	–	–	–	×	×	–	–	–
WES..29	100	120	×	×	×	–	–	–	×	×	–	–	–	×	×	×	×	–

9 Motors

CM3C.. servomotor



POSSIBLE USES / TYPICAL APPLICATIONS



– Heavy-duty gantries
– Cartesian robots
– Palletizers

– Deep drawing and forming machines
– Dynamic removal and loading units
– Machine tools

– Vertical drive applications
– Materials handling technology with heavy external loads

THE ADVANTAGES AT A GLANCE

Saving on installation outlay and costs
… by using single-cable technology in a modular system with MOVILINK® DDI.

Also suitable for use in the food industry
… thanks to a hygiene-friendly design.

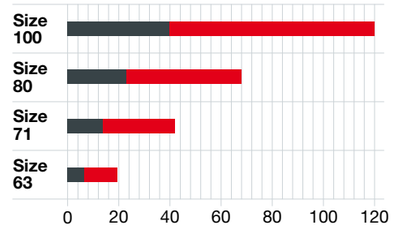
Fast, reliable startup with autotuning
… using the electronic nameplate.

For global markets
… thanks to international certificates and approvals (UL, CSA, EAC, ATEX, etc.).

OVERVIEW OF THE TECHNOLOGY

	Size 63*	Size 71*	Size 80*	Size 100*
M_0 Nm	2.7 – 6.4	6.5 – 14	10.5 – 22.8	19 – 40
M_{pk} Nm	8.1 – 19.2	19.5 – 42	31.5 – 68.4	57 – 120
Edge dimension mm	88	116	138	163
Speed min^{-1}	3 k / 4.5 k / 6 k	2 k / 3 k / 4.5 k / 6 k	2 k / 3 k / 4.5 k / 6 k	2 k / 3 k / 4.5 k

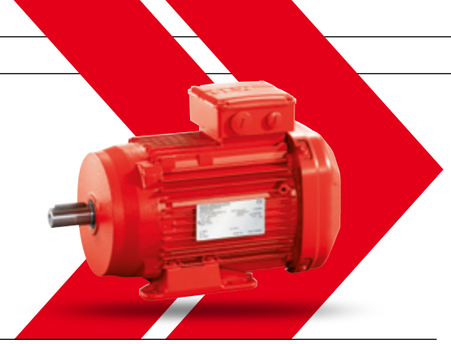
* Each size is available in three lengths – S, M, and L.



Supported third-party encoders

EnDat 2.2 HIPERFACE® DSL DRIVE-CLiQ by Siements AG

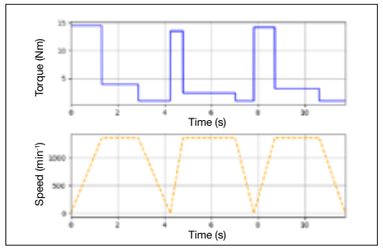
Solutions in IE5: DR2C.. series synchronous motors



POTENTIAL USES / TYPICAL APPLICATIONS

Fine-tune your materials handling
Materials are moved fast and without any collisions. Saving energy – which used to be a secondary issue – is now of equal importance in the production process.

Use speed to your advantage
Optimize motor speed and, therefore, overall speed. To make your conveying system energy efficient, only run motors as fast as you actually need to.



Customize load profiles
Put an end to the oversizing of drives and make better use of overload capacity. Stretch out drive tasks in terms of time/energy, reduce idle periods, and put productivity and energy saving on an equal footing.

THE ADVANTAGES AT A GLANCE

Maximum overall efficiency!
Efficient solutions utilize high-quality components and unlock further energy-saving potential in relation to system time management by making use of the range of speeds.

Standard-based efficiency!
IE5 energy efficiency is measured to IEC 60034-2-3 and certified in the standard-based classification of the highest IE class with the maximum speeds from IEC TS 60034-30-2.

Strength is optional!
Many possible uses, thanks to two speed classes, the IE5 efficiency class, and the option of making greater use of the thermal capacity.

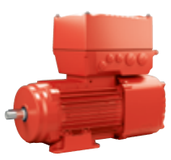
Part of a modular system!
Five installation lengths in the 4-pole design and six installation lengths in the 6-pole design are part of the DR.. modular motor system – as DR2C..A – with all relevant options (connectors, encoders, brakes, forced cooling fans, etc.).

OVERVIEW OF THE TECHNOLOGY

MOVIDRIVE® modular and MOVI-C® CONTROLLER UHX45 performance class
- Nominal line voltage: 3 × AC 380 – 500 V
- Nominal power of power supply module: 10 – 110 kW
- Axes: 2 – 180 A, 2 × 2 A – 2 × 8 A
- Overload capacity: 250%

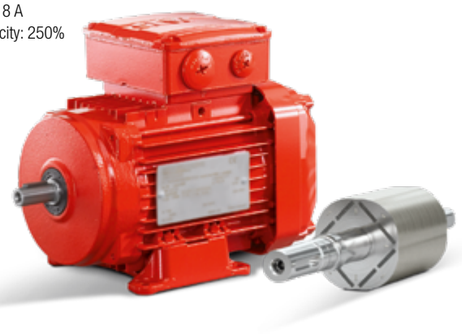
MOVIDRIVE® technology/ system and CBG21A keypad
- Nominal line voltage: 3 × AC 380 – 500 V
- Nominal power: 0.55 – 315 kW
- Overload capacity: 200%

MOVITRAC® advanced
- Nominal line voltage: 3 × AC 380 – 500 V
- Nominal power: 0.25 – 315 kW
- Overload capacity: 150%



MOVIMOT® advanced
- Nominal line voltage: 3 × AC 380 – 500 V
- Nominal power: 0.37 – 2.2 kW
- Overload capacity: 210%

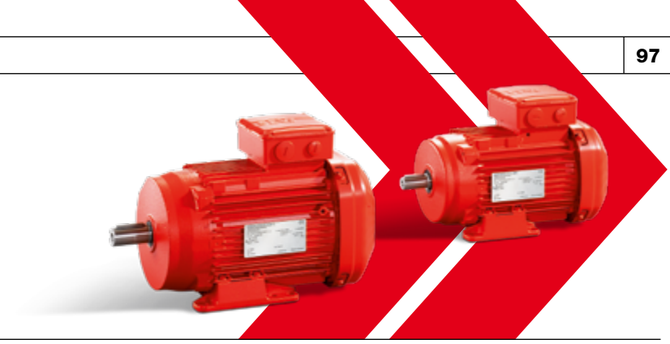
MOVIMOT® flexible
- Nominal line voltage: 3 × AC 380 – 500 V
- Nominal power: 0.55 – 7.5 kW
- Overload capacity: 300%



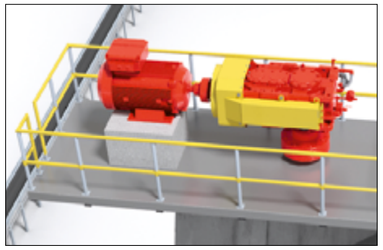
DR2C..A series synchronous motors – sizes
- Speed classes: 2000 and 3000 min^{-1}
- Overload capacity: 200 – 250%
- With or without speed feedback
- With or without MOVILINK® DDI digital interface
- As gearmotor or IEC foot-mounted and/or flange-mounted motor

Series	Availability
DR2C 71MKA4	In preparation
DR2C 71MSA4 – 80MA4	Since February 2023
DR2C 90SA6 – 100LA6	Since November 2023
DR2C 112MA6 – 132SA6	Since June 2024

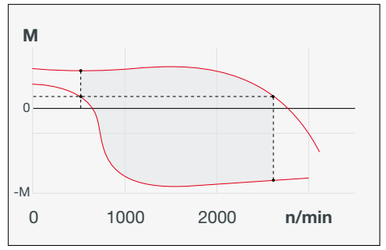
AC motors DR2S.. series with two speeds



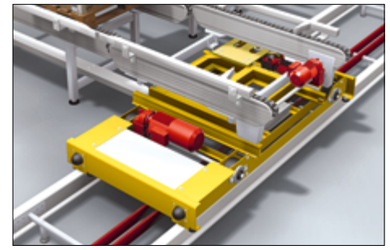
POTENTIAL USES / TYPICAL APPLICATIONS



Continuous duty (S1)
Motors in line operation with a high continuous load, for crushing, pulverizing, and grinding



Two speeds
Pole-changing motors for exclusive line operation – motions with two different speed ratios of 1:2 or 1:4



Cycle mode (S3/xx%)
Motors with/without brakes in line operation with high, varying on and off times, for turning and positioning

THE ADVANTAGES AT A GLANCE

Tailored to your needs!
For continuous duty (S1) or cycle mode (S3/xx%). Velocity/speed and force/torque/power rating as required, also taking account of overload/ safety factors

Long life and reliable operation!
Thanks to high-quality wear parts and intelligent, innovative designs, you benefit from long maintenance and inspection cycles.

Available and legally compliant!
Our closely knit global network of sites ensures the same parts are available all over the world, taking into account laws and regulations at an early stage and making it possible for you to plan.

Dynamic and robust!
High continuous and peak torques in the standard AC motor make it easier for you to select the right elements in the drive train – braking and holding, position and speed sensors, thermal and mechanical protection, etc.

OVERVIEW OF THE TECHNOLOGY

DR2S 4/2-pole	Duty type	Frequency	Power ratings	DR2S 63MR4/2 – 80M4/2	DR2S 90S4/2 – 132S4/2	DR2S 132M4/2 – 180M4/2
approx. 1450 min^{-1} / approx. 2900 min^{-1}	S1	50 Hz	kW/kW	0.15/0.20 – 0.55/0.88	1.2/1.8 – 4.4/5.5	6.0/7.5 – 18.5/20.0
approx. 1750 min^{-1} / approx. 3500 min^{-1}	S1	60 Hz	kW/kW	0.15/0.20 – 0.55/0.88	1.2/1.8 – 4.4/5.5	6.0/7.5 – 18.5/20.0
			Wiring diagram	Δ / YY	Δ / YY	Y – Δ / YY

DR2S 8/4-pole	Duty type	Frequency	Power ratings	DR2S 71MS8/4 – 80MS8/4	DR2S 90S8/4 – 132S8/4	DR2S 132M8/4 – 200L8/4
approx. 700 min^{-1} / approx. 1450 min^{-1}	S1	50 Hz	kW/kW	0.10/0.18 – 0.22/0.40	0.30/0.60 – 2.0/4.2	2.7/5.5 – 12/24
approx. 850 min^{-1} / approx. 1750 min^{-1}	S1	60 Hz	kW/kW	0.10/0.18 – 0.22/0.40	0.30/0.60 – 2.0/4.2	2.7/5.5 – 12/24
			Wiring diagram	Δ / YY	Δ / YY	Y – Δ / YY

DR2S 8/2-pole	Duty type	Frequency	Power ratings	DR2S 71MS8/2 – 80M8/2	DR2S 90L8/2 – 132S8/2	–
approx. 700 min^{-1} / approx. 2850 min^{-1}	S1	50 Hz	kW/kW	0.044/0.20 – 0.22/0.90	0.30/1.30 – 1.10/4.6	–
approx. 700 min^{-1} / approx. 2850 min^{-1}	S3/40/60%	50 Hz	kW/kW	0.06/0.25 – 0.30/1.10	0.45/1.80 – 1.35/5.2	–
approx. 850 min^{-1} / approx. 3400 min^{-1}	S1	60 Hz	kW/kW	0.044/0.20 – 0.22/0.90	0.30/1.30 – 1.10/4.6	–
approx. 850 min^{-1} / approx. 3400 min^{-1}	S3/40/60%	60 Hz	kW/kW	0.06/0.25 – 0.30/1.10	0.45/1.80 – 1.35/5.2	–
			Wiring diagram	Y / Y	Y / Y	–

AC servomotors – DR2L.. series

POSSIBLE USES / TYPICAL APPLICATIONS

Cranes
Speed-based start-stop operation on the girth gear, and rope hoist drive with a wide range of lifting and lowering speeds

Winders
Winding/unwinding with constantly changing speeds and loads

Intralogistics
Travel unit and lifting drive in the form of a position-based, dynamic brakemotor with a low-backlash helical-bevel gear unit

THE ADVANTAGES AT A GLANCE

Choice of dynamic levels and speeds!
Two alternative dynamic peak torques (D1 or D2) for force/torque and four different speeds to suit your requirements, also taking into account overload, safety factors, and hazards.

Standard-compliant and legally compliant!
DR2L.. motors are designed in accordance with the internationally applicable IEC 60034 standard. As inverter-only motors, they are not subject to any legislation on minimum efficiency anywhere in the world.

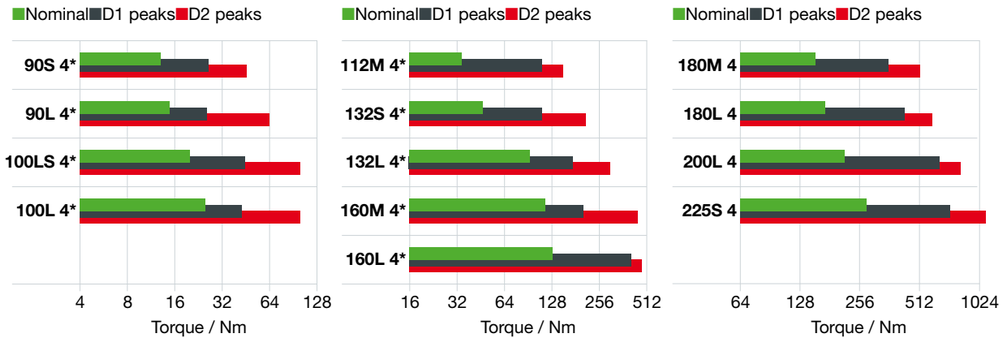
Information whenever you need it, including ideal combinations!
Scan the QR code below to obtain online details of DR2L.. motors with an SEW-EURODRIVE frequency inverter in just a few clicks.

Dynamic and robust!
Extremely high continuous and peak torques in the standard AC motor design make it easier for you to select the right elements in the drive train – braking and holding, position and speed sensors, thermal and mechanical protection, etc.

OVERVIEW OF THE TECHNOLOGY

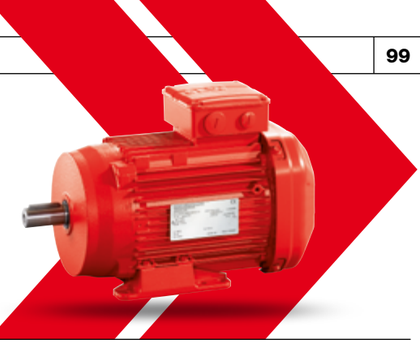
Technology	4-pole DR2L 90S4 to 100L4				4-pole DR2L 112M4 to 160L4				4-pole DR2L 180M4 to 225S4			
System voltage V	400				400				400			
Connection type	Star	Star	Delta	Delta	Star	Star	Delta	Delta	Star	Star	Delta	Delta
Frequency Hz	43 – 42	60 – 59	73 – 72	103 – 102	42 – 41	58	72 – 71	101	41	58 – 57	71	101
Speed class min^{-1}	1200	1700	2100	3000	1200	1700	2100	3000	1200	1700	2100	3000
Nominal torque Nm	12 – 26	12 – 26	12 – 25	11.5 – 21	36 – 140	36 – 140	35 – 135	31 – 115	165 – 300	165 – 300	165 – 300	130 – 220

Scan the QR code to find out more about motor/inverter characteristic curves!

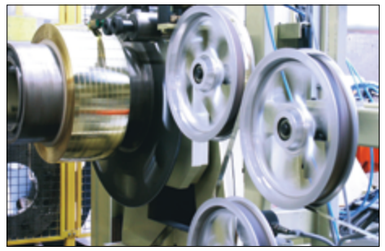


* New sizes in the DR2L.. series.

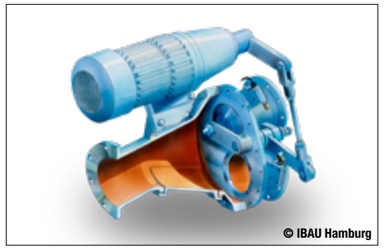
DR2M.. series 8-pole torque motors



POSSIBLE USES / TYPICAL APPLICATIONS



Winding
Unwinding wound materials in a controlled manner, keeping tensions within the permissible range.



Holding
Counteracting external forces to keep valves and switches closed or hold them in position.

Moving
Enabling load-based reduction of the motor speed down to zero without thermal self-destruction.

THE ADVANTAGES AT A GLANCE

Short-circuit-proof design!
Designed to allow load-side braking to standstill and operation when the rotor is blocked.

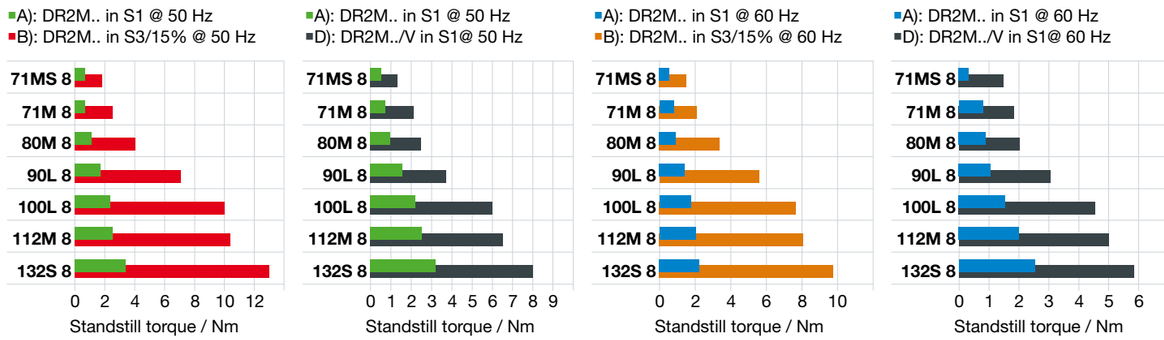
Opposite directions!
Also designed to allow a stator rotating field and rotor rotation in opposite directions, which ensures controlled braking while in motion. The limit for the counter-rotating torque is minus 1.8 times the nominal speed.

Strength is optional!
Four different operating modes make correct selection easier.
A) Star connection (in S1)
B) Delta connection (in S3/15%)
C) Also combined, with two data sets
D) Delta connection with forced air cooling (in S1) for 50 Hz or 60 Hz

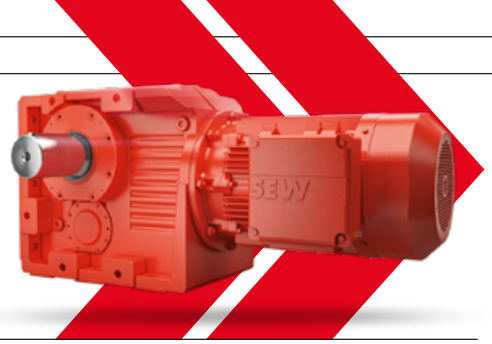
Part of a modular system!
Seven torque motor sizes in an 8-pole design complement the current 12-pole designs. They also form part of the modular system of gear units and motors with all its options (connectors, encoders, brakes, forced cooling fans, etc.).

OVERVIEW OF THE TECHNOLOGY

Operating mode	A)	B)	C)	D)
Data sets	1	1	2	1
Type of ventilation	Not ventilated (IC 410)	Not ventilated (IC 410)	Not ventilated (IC 410)	Forced air cooling (IC 416)
Connection type	1: Star	1: Delta	1: Star 2: Delta	1: Delta
Cyclic duration factor %	1: S1/100	1: S3/15	1: S1/100 2: S3/15	1: S1/100



IE4 (gear)motors and IEC AC motors



POSSIBLE USES / TYPICAL APPLICATIONS

Sewage
Pumps, filters, and aerators are run continuously, making them ideal applications for IE4 motors.

Image source: AMF-Bruns

Bulk material
Continuously transporting sugar, for example, puts drives under unrelenting strain. IE4 motors cope better.

Cement
Distributing, conveying, milling, and packing limestone and clinker – all these jobs can be done more energy efficiently with IE4 motors.

THE ADVANTAGES AT A GLANCE

IE4 line-operated motor efficiency classes – scalable from 0.75 kW to 375 kW!
Velocity/speed and force/torque/power rating as required, with overload/safety factors also taken into account.

Replace something worse or start off efficiently!
Reduce energy consumption with a retrofit or new design, and replicate something more cost-effectively – with public funding under certain circumstances.

Available and legally compliant!
IE4, as required by European regulation (EU) 2019/1781, thanks to motors with smaller power ratings from 0.75 kW and larger power ratings of up to 355 kW (50 Hz).

Dynamic and robust!
High continuous and peak torques in the standard AC motor make it easier for you to select the right elements in the drive train – braking and holding, position and speed sensors, thermal and mechanical protection, etc.

OVERVIEW OF THE TECHNOLOGY

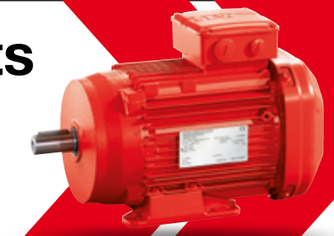
IE4 motors can also be combined with various gear units to save energy – helical, parallel-shaft helical, helical-bevel, and SPIROPLAN® gear units offer corresponding reduction ratios.

	Helical gear units	Parallel-shaft helical gear units	Helical-bevel gear units	SPIROPLAN® right-angle gear units
Types	RX..7 (1-stage) 6 sizes, 57 – 107	–	K..9 (2-stage) 3 sizes, 29 – 49	W..9 (2-/3-stage) 4 sizes, 29 – 59
	R..7 (2-/3-stage) 13 sizes, 27 – 167	F..7 (2-/3-stage) 11 sizes, 27 – 157	K..7 (3-stage) 12 sizes, 37 – 187	–
Output torques Nm	RX..7: 69 – 830 R..7: 130 – 20 000	– F..7: 130 – 20 000	K..9: 130 – 500 K..7: 200 – 53 000	W..9: 130 – 600 –
Gear unit ratios i	RX..7: 1.30 – 8.65 R..7: 3.37 – 289.74	– F..7: 3.77 – 276.77	K..9: 2.81 – 60.27 K..7: 3.98 – 197.37	W..9: 4.68 – 213.21 –

	Energy-efficient motors (IE4)		IEC energy-efficient motors (IE4)	
Types	DRU90S4	DRU315H4	DRU355MQ4	DRU355ML4
Number of poles	4-pole		4-pole	
Output power kW	0.75 – 200		250 – 355	260 – 375
Conformity	CE, UKCA, CEL, UA.TR	ABNT, UR, CSA (available soon)	CE, UKCA, CEL	ABNT, UR, CSA
Voltages V	230/400 or 400/690	380/660 266/460 440/– or 460/–	230/400 or 400/690	380/660 440/– or 460/–
Frequency Hz	50	60	50	60

Energy-saving requirements AC motors

Europe (27), Northern Ireland, Great Britain



NEW REGULATIONS

EU 27 + Northern Ireland
Third stage as at July 1, 2023, specifications:
- IE2*: 0.12 – < 0.75 kW
- IE3: 0.75 – < 75 kW / > 200 – 1000 kW
- IE4: 75 – 200 kW

Great Britain (England, Scotland, Wales)
Third stage as at July 1, 2023, specifications:
- IE2*: 0.12 – < 0.75 kW
- IE3: 0.75 – < 75 kW / > 200 – 1000 kW
- IE4: 75 – 200 kW

International regulations:
Which ones? When? Where?
https://www.sew-eurodrive.de/international-regulations/?language=en_US

THE ADVANTAGES AT A GLANCE

Up to date!
- All approvals and certificates are kept up to date by SEW-EURODRIVE
- Cooperation in standardization and design (national, European, international)
- Political activities always ensure everything is up to date

Simple!
- Just specify where you want to deliver to
- SEW-EURODRIVE provides up-to-date certificates and approvals
- Option to check online always available

Combinable!
- Standardized combinations of individual country versions also available
- Decades of experience with global solutions

Dependable!
- Even if something has been forgotten, we are prepared for retrofitting and upgrading
- After all, we are present in more than 80 countries worldwide

OVERVIEW OF THE LEGAL SITUATION

Country	EU 27 and Northern Ireland	Great Britain (England, Scotland, Wales)
Marking / requirement	CE: July 1, 2021	CE: Up to December 31, 2024 The requirement for UKCA has been suspended indefinitely since January 24, 2024
Energy efficiency classes	IE2*, IE3, IE4	IE2*, IE3, IE4
Power ratings kW	0.12 – 1000	0.12 – 1000
Marking	CE	CE
Number of poles	2, 4, 6, or 8-pole	2, 4, 6, or 8-pole
Frequency Hz	50, 60, 50/60	50, 60, 50/60
Exception	– Pole-changing motors (more than one speed) – Non-ventilated motors (TENV) – Below -30 °C; above +60 °C	– Pole-changing motors (more than one speed) – Non-ventilated motors (TENV) – Below -30 °C; above +60 °C
Exception IE4	75 – 200 kW no IE4, only IE2 < 0.75 kW, IE3 ≥ 0.75 kW – 8-pole design – Brakemotors – Explosion-protected motors (Ex db, Ex ec, Ex tb, Ex tc)	75 – 200 kW no IE4, only IE2 < 0.75 kW, IE3 ≥ 0.75 kW – 8-pole design – Brakemotors – Explosion-protected motors (Ex db, Ex ec, Ex tb, Ex tc)
Exception IE2	0.12 – 1000 kW only in IE2 – Single-phase motors – Explosion-protected motors (Ex eb)	0.12 – 1000 kW only in IE2 – Single-phase motors – Explosion-protected motors (Ex eb)
No exception	– Brakemotors – Gearmotors – Forced-ventilated motors – Motors with integrated inverter (separate test possible) – Explosion-protected motors (Ex db, Ex ec, Ex tb, Ex tc) – -30 °C to +60 °C – S1, S3 ≥ 80%, S6 ≥ 80%	– Brakemotors – Gearmotors – Forced-ventilated motors – Motors with integrated inverter (separate test possible) – Explosion-protected motors (Ex db, Ex ec, Ex tb, Ex tc) – -30 °C to +60 °C – S1, S3 ≥ 80%, S6 ≥ 80%

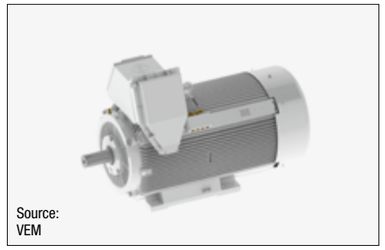
* No longer available from SEW-EURODRIVE.

Energy efficiency classes under IEC 60034

POTENTIAL USES / TYPICAL APPLICATIONS

IEC 60034-30-1: 2014
Definition: Four energy efficiency classes (IE1 to IE4) for 50 Hz and 60 Hz low-voltage line-operated motors. Classification also applies to line-operated motors that can also be operated with an inverter.

IEC TS 60034-30-2: 2016
Definition: Five energy efficiency classes (IE1 to IE5) for low-voltage motors, exclusively being operated with an inverter; exception: Motors for servo applications are not allocated to an IE class from this standard.



IEC 60034-30-3: 2024
Definition: Three energy efficiency classes (IE1 to IE3) for high-voltage line-operated motors up to 11 kV and up to 2000 kW; efficiency values from a potential future IE4 class are also being determined.

THE ADVANTAGES AT A GLANCE

Defined!
Standards-based agreement for manufacturers and users: Four IE classes for line-operated motors, five for inverter motors. Higher classes have no basis in technical standards and are simply marketing statements by individual manufacturers.

International!
IEC standards are used internationally, with individual countries using different designations, such as:
- IE3: Premium Efficiency (USA), Grade 2 (China)
- IE4: Super Premium Efficiency (USA), Grade 1 (China)

Complete!
The IE tables show the minimum efficiency values of the power ratings from 0.12 to 2000 kW. Intermediate values are determined using interpolation algorithms. This ensures the minimum requirements are seamless.

Guaranteed!
The efficiency values of the IE classes are guaranteed data. Different tolerance bands and measures are anchored in local laws for the event that checks find the nominal values for efficiency are not being achieved.

OVERVIEW OF THE TECHNOLOGY

Description and unit	IEC 60034-30-1*	IEC 60034-30-2*	IEC 60034-30-3*
Terminal voltage at motor V	≥ 50 and ≤ 1000	≥ 50 and ≤ 1000	≥ 1000 and ≤ 11 000
Line frequency Hz	50 and/or 60	(Inverter operation)	50 and/or 60
Number of IE classes	4	5	3 (+1)
Power ratings kW	≥ 0.12 and ≤ 1000	≥ 0.12 and ≤ 1000	≥ 200 and ≤ 2000
Number of poles	2, 4, 6, 8	–	2, 4, 6
Speed ranges min^{-1}	–	600 – 900, 901 – 1200, 1201 – 1800, 1801 – 6000	–
Cooling (from IEC 60034-6) IC	Non-ventilated (410), fan-cooled (411), air-over (418)	Non-ventilated (410), fan-cooled (411), forced air cooling (416), air-over (418)	Fan-cooled (411, 01), heat exchanger (511, 611, 81W)
Installation altitude m: Above sea level / for efficiency measurement	≤ 4000 / ≤ 1000	≤ 4000 / ≤ 1000	≤ 2000 / ≤ 1000
Method for efficiency measurement	IEC 60034-2-1	IEC 60034-2-3	IEC 60034-2-1
Included	– Foot-mounted and/or flange-mounted motors, contrary to IEC 60072-1 – Explosion-protected motors to IEC 60079-0 – Gearmotors where the motor can be detached – Soft start then line operation	– Foot-mounted and/or flange-mounted motors, contrary to IEC 60072-1 – Explosion-protected motors to IEC 60079-0 – Gearmotors where the motor can be detached	– Direct startup – Startup with reduced voltage and/or frequency
Exceptions (among others) for all IE classes: – Integrated into product on non-detachable basis – Submersible motors – Motors for fire gases	– Brakemotors – ≥ 10-pole and multi-pole motors	– Brakemotors – Servo applications – Soft start then line operation	– Explosion-protected motors – ≥ 8-pole and multi-pole motors – Varying load profile – Motors for nuclear power plants

* All IP degrees of protection (from IEC 60034-5) and in a temperature range of ≥ -20 °C and ≤ +60 °C.

10 Industrial gear units

PPK series planetary gear units

POSSIBLE USES / TYPICAL APPLICATIONS

Shredders

Rotary scrapers

Cranes

THE ADVANTAGES AT A GLANCE

Compact!
A space-saving solution, thanks to a more compact design than other gear unit types with the same power rating.

Reliable!
The gearing's infinite fatigue strength based on DIN 3990 ensures its reliability (a design with finite fatigue strength is also possible).

Flexible!
The ability to freely combine the gear units with the SEW DR.. modular motor system, 7-series helical and bevel-helical gear units, and the corresponding frequency inverters makes for a versatile solution.

Available fast!
Short delivery time thanks to local assembly and optimized processes.

OVERVIEW OF THE TECHNOLOGY

Output shafts

Solid shaft with key

Splined solid shaft

Splined hollow shaft

Hollow shaft with shrink disk

PT100 temperature sensor

Input end of the gear unit

Input shaft assembly
Motor adapter

DR.. motor

Primary gearmotor

Gear unit mounting

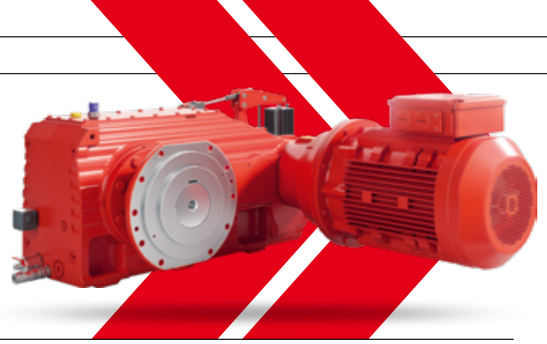
Foot mounting

Flange mounting

Torque arm

Size	Gear ratio i – without primary gear unit	Gear ratio i – with primary gear unit	Nominal torque M_{N2} kNm
PPK.010	65 – 390	625 – 10 700	10.7
PPK.017	65 – 268	560 – 10 700	17.7

Generation X.e industrial gear units – hoist unit design



POSSIBLE USES / TYPICAL APPLICATIONS

Bridge cranes

Gantry cranes

Slewing tower cranes

THE ADVANTAGES AT A GLANCE

Optimized!
Ideal for hoist units – the large center distance provides sufficient space to arrange the motor and cable drum on the same side of the gear unit. What's more, the brake console makes it easy to mount drum brakes.

Cost-effective!
The large center distance makes oversizing due to space issues unnecessary.

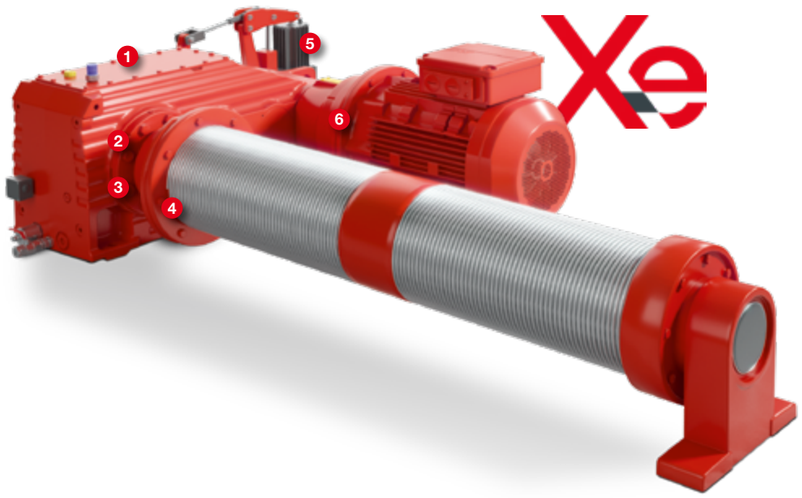
Robust!
The optimized gearing topology of Generation X.e is now also available for the hoist unit design. As a result, tooth engagement is unaffected by meshing faults caused by misalignments due to external loads.

OVERVIEW OF THE TECHNOLOGY

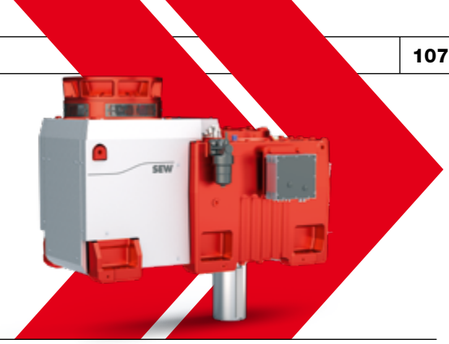
Gear unit design	Stages	Gear ratio i	Nominal torque M_{N2} kNm
X..e/HC helical gear unit	3- or 4-stage	14 – 250	12.8 – 175

GENERATION X.e – HOIST UNIT DESIGN

1. U-construction – the motor and cable drum are on the same side of the gear unit
2. Optimized gearing topology of Generation X.e
3. Various sealing systems, such as a radial labyrinth seal
4. The bearings and solid shaft are among the reinforced components
5. Optional brake and brake console for a drum brake complying with DIN 15435
6. Optional motor adapter, including elastic coupling for IEC sizes 132 – 355



Industrial gear units X.e series Agitator design



POTENTIAL USES / TYPICAL APPLICATIONS

Chemicals

Plastics industry

Underground and opencast mining

THE ADVANTAGES AT A GLANCE

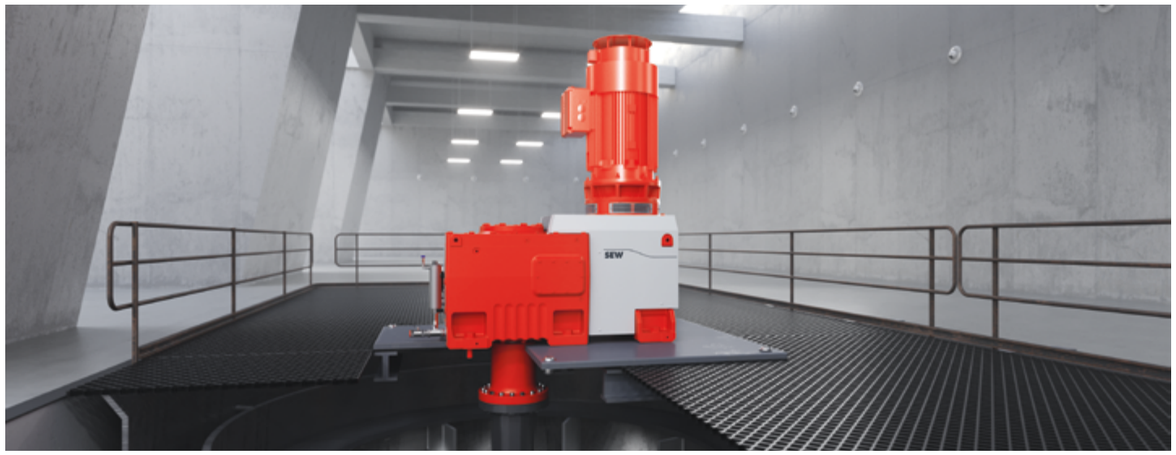
Powerful
An optimized housing and enlarged output shafts ensure that the drives can withstand even the most extreme loads.

Customized!
Shaft diameters and rolling bearings can be selected to suit the respective loads.

Safe operation
The fail-safe design ensures with 100% certainty that no oil leaks out.

Easy maintenance
A service-friendly design (including pop-up valves and symmetrically arranged gear unit feet) makes installation and servicing work both simple and safe.

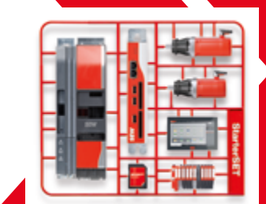
OVERVIEW OF THE TECHNOLOGY



Gear unit	Gear ratio i	Nominal torque M_{N2} kNm
X..150e/HM	25 – 112	29.2
X..170e/HM	25 – 112	47.5
X..190e/HM	22.5 – 100	69
X..210e/HM	22.5 – 100	96
X..220e/HM	20 – 400	117
X..240e/HM	20 – 400	165
X..260e/HM	20 – 400	217

11 Automation solutions

StarterSET – the basic package for packaging machines



POSSIBLE USES / TYPICAL APPLICATIONS

Form, fill, and seal machines
in horizontal and vertical configurations

Multipackers
in sideloader and toploader configurations

Gantry palletizer and palletizing robot
with simple or complex kinematic models

THE ADVANTAGES AT A GLANCE

Fast selection!
Each StarterSET consists of preselected basic hardware and software components for specific machine types.

Custom extendability!
No matter how customized and unique the machine may be, every StarterSET can also be adapted and extended accordingly.

Rapid programming!
A comprehensive, machine-specific software bundle with functions and templates cuts the application time and effort by up to 80%.

Full connectivity!
Smart products and software offer local and external diagnostic options with early detection, thanks to direct access to product and process data.

OVERVIEW OF THE TECHNOLOGY

Build your best machine yet! Easier with our proven hardware, more unique with our customizable software and even faster with our StarterSET.

Quick switchovers and frequent product changes call for a modular and flexible machine design. However, many application and motion sequences are the same. They may not be absolutely identical, but there is still an opportunity to simplify things with standardization. SEW-EURODRIVE developed the StarterSET for this very purpose. The StarterSET consists of preselected basic hardware and software components for specific machine types.

Our MOVI-C® modular automation system offers a whole host of options for automating a wide variety of machine types quickly, extending them endlessly, and thus implementing automation projects speedily. Fully in line with our tried-and-tested solutions-based approach, our

StarterSET offers complete, precisely harmonized automation packages for all sorts of machines – in a straightforward approach similar to building a model kit.

This not only makes life easier, but also cuts the time spent on configuration and the project as a whole, thereby ultimately driving down overall costs (OEE).

Scalable automation solution for multipackers

POTENTIAL USES / TYPICAL APPLICATIONS

Complex robot-assisted multipacker
Top-loader design with robot kinematic model

Cam-operated multipacker
Side-loader design with synchronized cams and coordinated motion

Multipacker with erector/sealer
For precise glue application during erection and sealing

THE ADVANTAGES AT A GLANCE

Fast and precise!
Multipackers and erector functions use gluing nozzles that are controlled with absolute precision and ensure the stability of the production process.

Automation from a single source!
From engineering software for your planning and startup, through control technology and inverter technology, all the way to drive engineering.

Flexible!
End-to-end operating concept for running machines from a smartphone and tablet

Integrated robot kinematic models!
Automation system with fully integrated robot kinematic models

AN OVERVIEW OF THE TECHNOLOGY

Decentralized drive technology
Our energy-efficient, modular and flexible drive packages based on synchronous and asynchronous motors ensure reliable product infeed in the secondary packaging area. Our MOVI-C® modular automation system monitors and records the automated process.

Robot kinematic model
Several delta kinematic models from the MOVIKIT® Robotics kinematics software module can be integrated and used via parameterization. All common kinematic models of the robot are supported. Multipackers with or without robotics can be fully controlled with both precision and flexibility when using our MOVI-C® CONTROLLER.

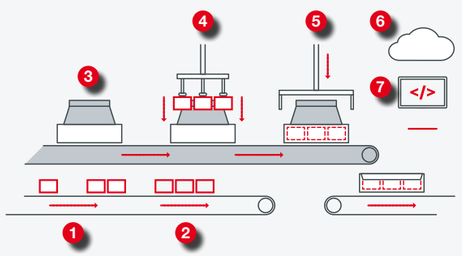
Standardized templates (PackML)
The MOVIKIT® AutomationFramework is an ideal software platform based on PackML that programmers can use to structure their machine software clearly and manage machine modes and states. This international standard makes line integration easier and has been well received all round the world, particularly in the food sector.

Cam switch
The technology components in the MOVI-C® automation platform ensure that gluing valves are controlled with precision and the glue bead is applied in the perfect shape to seal the packaging. This is where movements that the MOVI-C® CONTROLLER has synchronized perfectly with the pneumatic system really shine. Ultra-precise gluing ensures stable assembly of the erected and sealed boxes.

Electronic cam functionality
Thanks to MOVIKIT® MultiMotion Camming, our software modules offer the ideal range of functions for the carton erector. The integrated cam functions and the associated engagement and disengagement functions ensure the cardboard blank can be quickly extracted by suction in a perfectly coordinated procedure and moved synchronously with the erector punch.

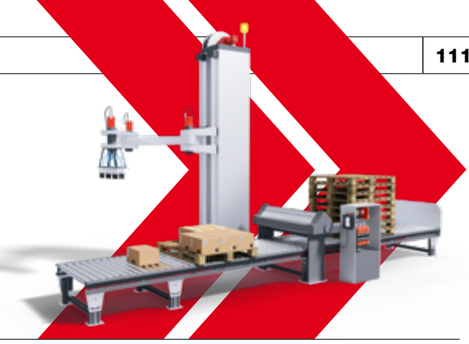
Extensive library of functions
The signals for product grouping on the top loader need to be identified quickly and processed in real time. The MOVIKIT® AutomationFramework offers machine programmers numerous highly functional software modules for rapidly automating multipackers via parameterization and pre-programmed elements for a human-machine interface (HMI).

Simulation and testing
Thanks to the use of ready-to-use simulation functions in our MOVIKIT® software modules, there are unpleasant surprises when starting up the multipacker. This provides planning certainty when automating the erector, side loader, top loader, picker and sealer, reduces startup time by up to 45 percent and minimizes the waste and material costs generated when carrying out functional tests on the machine.



1 Infeed and identification
2 Pre-grouping and inputting into the cycle
3 Robot kinematic
4 Carton erection
5 Sealing
6 Simulation
7 Visualization (PackML)

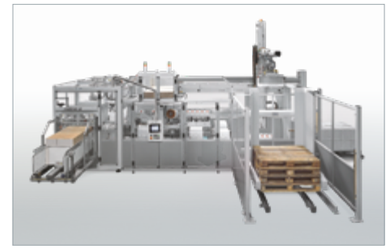
Scalable automation solution for palletizers



USE CASES / TYPICAL APPLICATIONS

High-level palletizer
Palletizer without synchronized motion (drive control)

Horizontal palletizer
Palletizer with synchronized motion (motion control)



Palletizing robot
Palletizer using robot kinematic models (Cartesian control)

THE ADVANTAGES AT A GLANCE

Safe!
Safe palletizing. Fully integrated functional safety. Motion controls up to SIL 3 / EN 62061 / EC 61800-5-2 or PL e as per EN ISO 13849-1

Predictive!
Keep an eye on machine status. Maximum system availability thanks to predictive maintenance solutions and full networking capability.

Efficient!
Don't waste any energy and guard against line interruptions. Up to 70% energy savings thanks to the power and energy modules.

Fast!
Fully automated SEW production plants send customer-specific automation packages out for delivery in just a few days, for the fastest of response times.

AN OVERVIEW OF THE TECHNOLOGY

Perfect transportation
Anything is possible when using the scalable automation solutions from SEW-EURODRIVE. Various perfectly coordinated technologies – all available from the same place – can be used to develop a customized transport solution. Whether you are then looking for a positioning, synchronizing or parallel solution, SEW-EURODRIVE always has the right control system with a fully integrated drive train and the matching MOVIKIT® software module for your requirements.

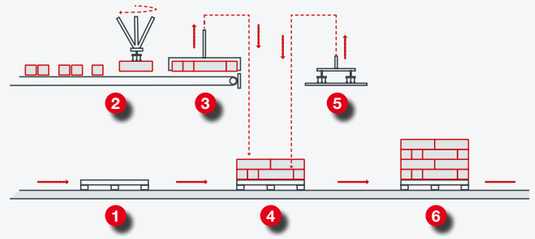
Align packages perfectly
Flexible pre-grouping requires considerable grouping performance, but very little space is available for this complex part of the line. Delta robots/tripods can, for example, be adapted quickly to a new layer pattern and changing package sizes. Flexible custom changeovers – and thus prompt product changes – can be quickly implemented on the line thanks to simple parameterization. The relevant settings are input using a robot operating and programming interface on a handheld terminal.

Robust and durable
The best "Made in Germany" quality for maximum machine design flexibility and performance. Both robust product design from SEW-EURODRIVE and surface finishes that are highly resistant to external influences maximize service life and machine availability. The comprehensive SEW product configurator guides users quickly to the right product for their specific application.

Precise layer formation
We offer you the flexibility you need for perfect layer formation with our MOVI-C® modular automation system and with the relevant MOVIKIT® software modules integrated into the motion system. MOVIKIT® AutomationFramework and MOVIKIT® Visualization offer additional, optional simulation options for process optimization and layer control purposes. This enables you to thoroughly test all functions and even the grouping performance from as early as the planning phase.

Form intermediate layers correctly
The MOVIKIT® Robotics software modules for 2, 3 to 4, or more axes can be used on a modular basis from the MOVI-C® modular automation system even for additional handling tasks. If the stacking height is not known, the MOVIKIT® Robotics addon Touchprobe enables the robot arm to pick up intermediate layers precisely and then place them in the perfect position. MOVISUITE® RobotMonitor engineering software features an integrated and automatically generated 3D robotics simulation for depicting the paths and significantly reduces startup times.

Stack layers safely
The MOVIKIT® Robotics software module offers the ideal solution for every kinematic model imaginable. The MOVIKIT® Robotics addon CollisionDetection reliably monitors the motion path to detect potential collisions and guards against downtimes caused by malfunctions. Fully integrated functional safety supports all key motion monitoring functions such as Safely Limited Speed (SLS), Safe Direction (SDI) and Safe Operational Stop (SOS) along with position-dependent functions such as Safely Limited Increment (SLI) and Safely Limited Position (SLP).



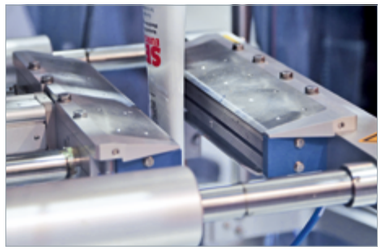
1 Pallet infeed
2 Pre-grouping of packages
3 Layer formation/simulation
4 Stacking/palletizing
5 Intermediate layer
6 Transportation

Automation solution for vertical FFS machines

POSSIBLE USES / TYPICAL APPLICATIONS

Flexible automation solutions
Complete solutions for intermittently and continuously running FFS machines.

Flawless look
The right dimensions and a perfect image printed on the product thanks to print mark identification and monitored film transport.



Optimum seal quality
Product-dependent and format-dependent seal parameters ensure the correct temperature and optimum printing for a solid and safe closure.

THE ADVANTAGES AT A GLANCE

Parameterizable!
Using MOVIKIT® software modules, typical FFS functions can be implemented in the shortest space of time via parameterization.

100% automation!
Everything from a single source: Engineering software for planning, startup, all control technology, inverter technology and drive engineering.

Flexible!
Simple and self-explanatory hardware-independent machine operation.

Modular!
Modular application modules for greater flexibility.

AN OVERVIEW OF THE TECHNOLOGY

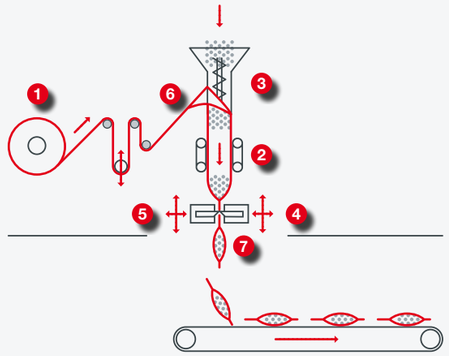
Flexible synchronization
When it comes to machines that are being run on a continuous basis, the sealing bar needs to be synchronized with the sealing tongs on the continuous film transport. It also needs to run in sync with the printed image on the film. It is only after the desired sealing time has passed and the sealing tongs are open that the bar can return to its starting position. That doesn't present any problems for our solution from the MOVI-C® modular automation system, thanks to the MOVIKIT® MultiMotion Camming software module and the easily parameterizable engagement/dis-engagement functions it makes possible.

Stable temperature control
The right temperature is crucial to the quality of the seal on the bag. This is where the material and speed of the FFS machine have a direct influence on control. The software modules in the MOVIKIT® AutomationFramework can be used for the high-precision adjustment and monitoring of such control processes with major disturbance variables. This is another area where parameterization without programming delivers rapid and simple automation.

Perfect print image
The print mark correction functions developed as part of the MOVI-C® automation system process the print mark identified on the film drive and monitor the synchronized movement of the sealing bar. This closed-loop control ensures the print image is perfectly positioned on the bag and demonstrates the precise interplay of our servo drives. There's no faster or more straightforward way to automate a machine.

Precise dispensing
Automation made easy: The MOVIKIT® MultiMotion Camming software module delivers synchronized volumetric filling in real time – for example by using a worm. This is made possible by the simple parameterization of filling variants and the simultaneous clock-synchronous control of the relevant actuators.

Ultimate seal quality
Our MOVIKIT® MultiMotion software module works without any complicated programming and can be very easily parameterized in a short space of time. Not only does it control the opening and closing of the sealing tongs, it can also monitor the pressure when sealing the bags. Custom setting options for sealing offer users maximum flexibility and quality.



1 Film unrolling
2 Film transportation
3 Dispensing
4 Sealing bar
5 Sealing tongs or jaws
6 Monitoring of print mark
7 Sealing

Monitored web tension
Web tension can be controlled either directly and without sensors based on torque or via the position of a dancer. Instead of complex programming, rapid and simple parametrization is all that is needed for unwinding the film and achieving excellent dancer control.

The MOVIKIT® Winder software module is used for this purpose. Together with the MOVIKIT® AutomationFramework software module, it is ready for use immediately and is very easy to integrate into the sequential program of your FFS machine.

Automation solution for filling and sealing machines

POTENTIAL USES / TYPICAL APPLICATIONS

Filling and packaging foods
Scalable and modular automation for simple to highly complex processing work in food filling and food packaging.

Aseptic food filling
Filling and sealing machines that satisfy the strictest hygiene requirements.

Slosh-free positioning of liquids
Award-winning functions for clean and slosh-free positioning of liquids.

THE ADVANTAGES AT A GLANCE

Rapid implementation!
Standardized software and interfaces for rapid and efficient programming that deliver time savings of up to 65%.

Best quality!
Everything from a single, reliable source for a 100% automation solution with comprehensive drive engineering.

Faster cleaning!
Huge time savings on cleaning cycles due to exceptionally hygienic product design and food-safe materials.

Greater flexibility!
Modular application components with machine-typical functions offer maximum flexibility for development.

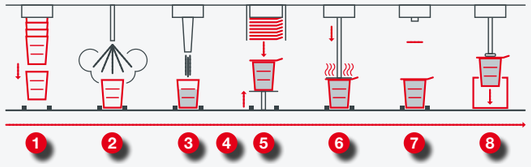
AN OVERVIEW OF THE TECHNOLOGY

Standardized functions
Our MOVIKIT® MultiMotion Camming software modules with their electronic cam function offer ready-to-use engagement and disengagement functions that users can start working with straight away. This means, for example, that lifting tools can be switched on and off synchronously and on a position-dependent basis.
When using MOVIKIT® MultiMotion Camming, there is no need for the complex and time-consuming programming work that usually goes into curve transition functions. Instead, easy parameterization helps users implement even complex processes quickly and easily.

End-to-end safety
The FSoE (Fail Safe over EtherCAT®) safety technology that is integrated in all MOVI-C® controllers and MOVI-C® drives can be used to implement every necessary safety function. That covers everything from simply stopping a single motor to safe motion monitoring systems in line with the safety functions of EN 61800-5-2, such as STO, SS1, SS2, SBC, SLS, SDI, SOS, SLI, SLP, etc. This ensures machine areas stay accessible and can be cleaned faster and more easily.

Perfectly positioned and sealed
The MOVIKIT® MultiMotion Camming software module synchronizes curve-based machine motions and ensures synchronous, automated cup infeed. The steps of sequencing the cups, filling them to a specific level, controlling the metering valves and lifting the cups into the sealing station all take place synchronously in real time and can be implemented using parameterizable software modules. When it comes to airtight, clean and aseptic sealing operations, we offer components for temperature and pressure regulation to ensure the seal is of the highest quality.

Cleanliness thanks to slosh-free movement
The MOVIKIT® AntiSlosh software module helps greatly reduce sloshing in liquids, enabling higher travel speeds without sloshing. The AntiSlosh module has been proven to increase output by up to 25% in cup filling machines. The award-winning MOVIKIT® AntiSlosh software module doesn't require any programming and can be quickly integrated into the control system via simple parameterization.

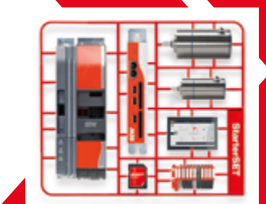


1 Cup infeed
2 Cleaning
3 Filling (dispensing)
4 Transportation
5 Cup lift
6 Sealing
7 Inspection
8 Secondary packaging

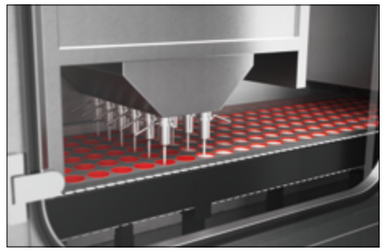
Hybrid architecture
Our MOVI-C® modular automation system can be used to develop machines on a modular basis with regard to both software and hardware. The broad SEW-EURODRIVE portfolio of cabinet and decentralized inverters for synchronous and asynchronous motors always offers the right drive. This means you can integrate machine options such as an agitator into the overall solution on a modular and decentralized basis with minimal effort, and remove them just as easily.

Simply networked
We offer special software modules such as MOVIKIT® OPC-UA as a simple means of creating connections and exchanging data with the upper level PLC. This enables data acquisition and quality assurance (testing and logging) to be implemented quickly, independent of the control platform. All SEW-EURODRIVE MOVI-C® CONTROLLER support the standardized OPC UA communication protocol and can therefore be rapidly integrated into the company infrastructure and networked worldwide.

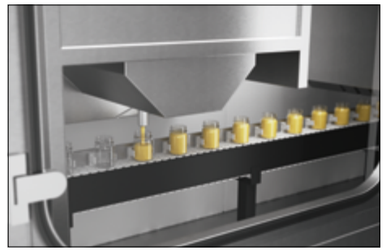
StarterSET 637 for aseptic fill and seal machines



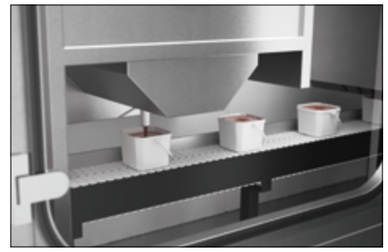
POSSIBLE USES / TYPICAL APPLICATIONS



Cup-filling machines



Glass-filling machines



Bucket-filling machines

THE ADVANTAGES AT A GLANCE

Standardized!
The basic package comprises standardized, preselected software and hardware components for specific machine types, meaning the right product can be found fast and therefore project planning times can be reduced dramatically.

Hygienic!
The stainless steel servo gearmotors from the PSH..CM2H.. series satisfy the most stringent hygiene requirements imposed by the EHEDG and the FDA for use in aseptic and sterile zones (CIP/SIP).

Quick to clean!
Spillage protection ensures liquids are transported hygienically and reduces the cleaning required in the machine environment by up to 20%.

Efficient!
Motion profiles that have been optimized to suit the viscosity and fluidity of products reduce the settling time and speed up the machine cycle by up to 25%.

OVERVIEW OF THE TECHNOLOGY

Fill and seal machines are typical machines for filling liquids into containers such as cups, glass containers, and buckets.

When it comes to processing food, it is essential for machinery to meet the most stringent hygiene standards, and there are specific aseptic zones.

Cleaning and sterilizing this type of machinery involves intensive, multi-stage cleaning intervals and highly aggressive chemicals and cleaning agents. All machine parts, surfaces, and open products therefore need to be able to cope with these harsh demands and comply with hygienic design requirements.

Featuring stainless steel servo gearmotors in protection class IP69K and an EHEDG-compliant design, motors are resistant to both acid and alkaline cleaning agents. High-pressure and hot-steam methods can therefore be used to clean the CM2H motors and PSH gear units.

Lower levels of spillage also mean less cleaning is required. The software bundle included in the StarterSET features special functions and analysis tools for generating motion profiles that are splash-free and, therefore, cleaner. What's more, the integrated MOVIKIT® AntiSlosh software module generates vibration-free movement, thereby reducing the settling time and shortening the machine cycle. These products, which have been specifically developed for aseptic zones, are driven in a controlled manner with other components from the MOVI-C® modular automation system. The basic package therefore includes other fundamental elements, such as visualization and a controller suitable for the machine in question.

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