

We produce  
satisfaction.

# 1

## **Developing ideas**

Are you looking to build the best machine possible and already have some initial ideas? Then let's get these down on paper, starting with small innovative details and stretching all the way to completely new machines. Working together, we will develop an intelligent and sustainable concept that is perfectly aligned with your specific requirements.

# 2

## **Drafting concepts**

We welcome the challenges of your machine tasks. We will support you with our comprehensive expertise and provide you with valuable concepts to make your machine innovations a reality. We take a holistic view of each motion and control function and develop consistent, end-to-end drive and automation solutions for you - keeping everything as easy as possible and as extensive as necessary.

# Lenze makes many things easy for you.

With our motivated and committed approach, we work together with you to create the best possible solution and set your ideas in motion - whether you are looking to optimize an existing machine or develop a new one. We always strive to make things easy and seek perfection therein. This is anchored in our thinking, in our services and in every detail of our products. It's as easy as that!

3

## Implementing solutions

Our easy formula for satisfied customers is to establish an active partnership with fast decision-making processes and an individually tailored proposal. It's as easy as that. We have been applying this principle for many years to meet the ever more specialized customer requirements in the field of machine engineering.

4

## Manufacturing machines

Functional diversity in perfect harmony: as one of the few full-range providers in the market, we can provide you with precisely those products that you actually need for any machine task – no more and no less. Our L-force product portfolio, a consistent platform for implementing drive and automation tasks, is invaluable in this regard.

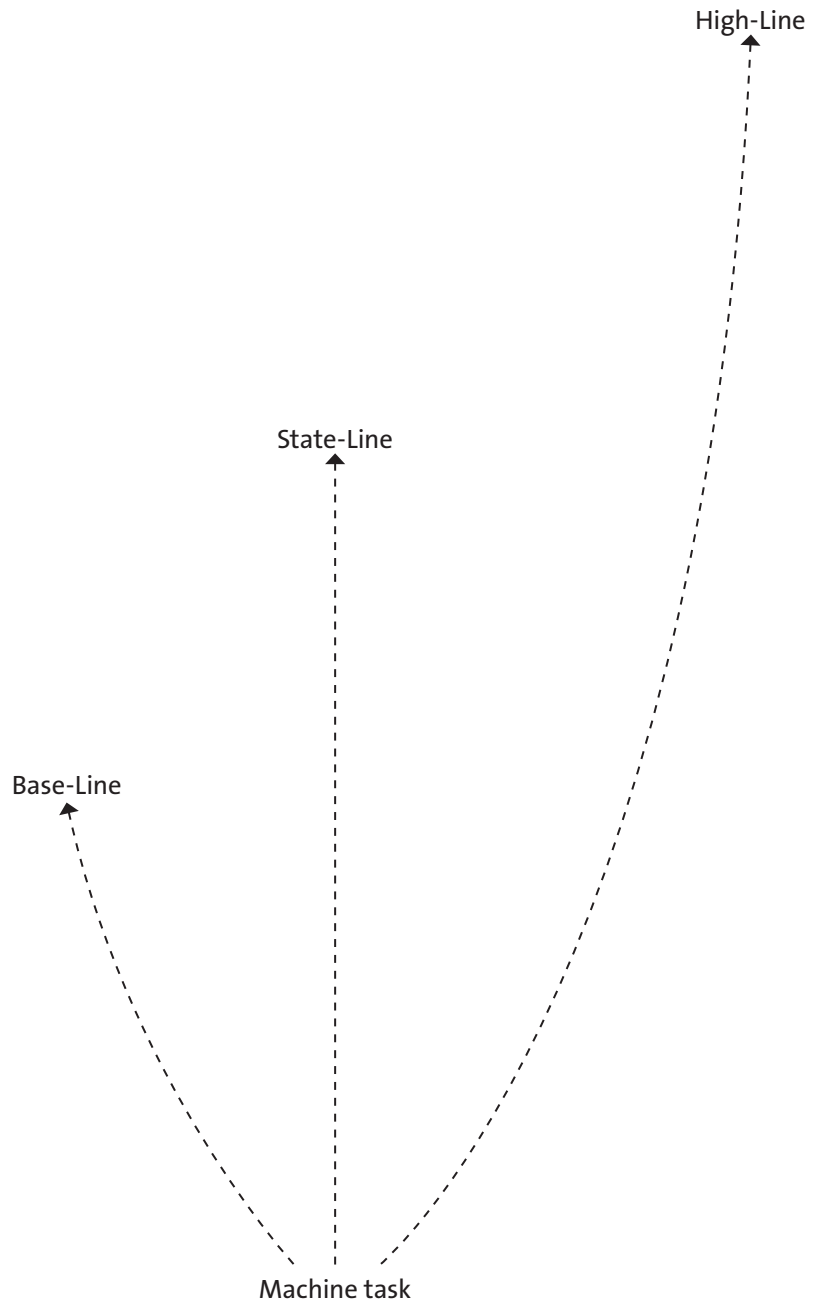
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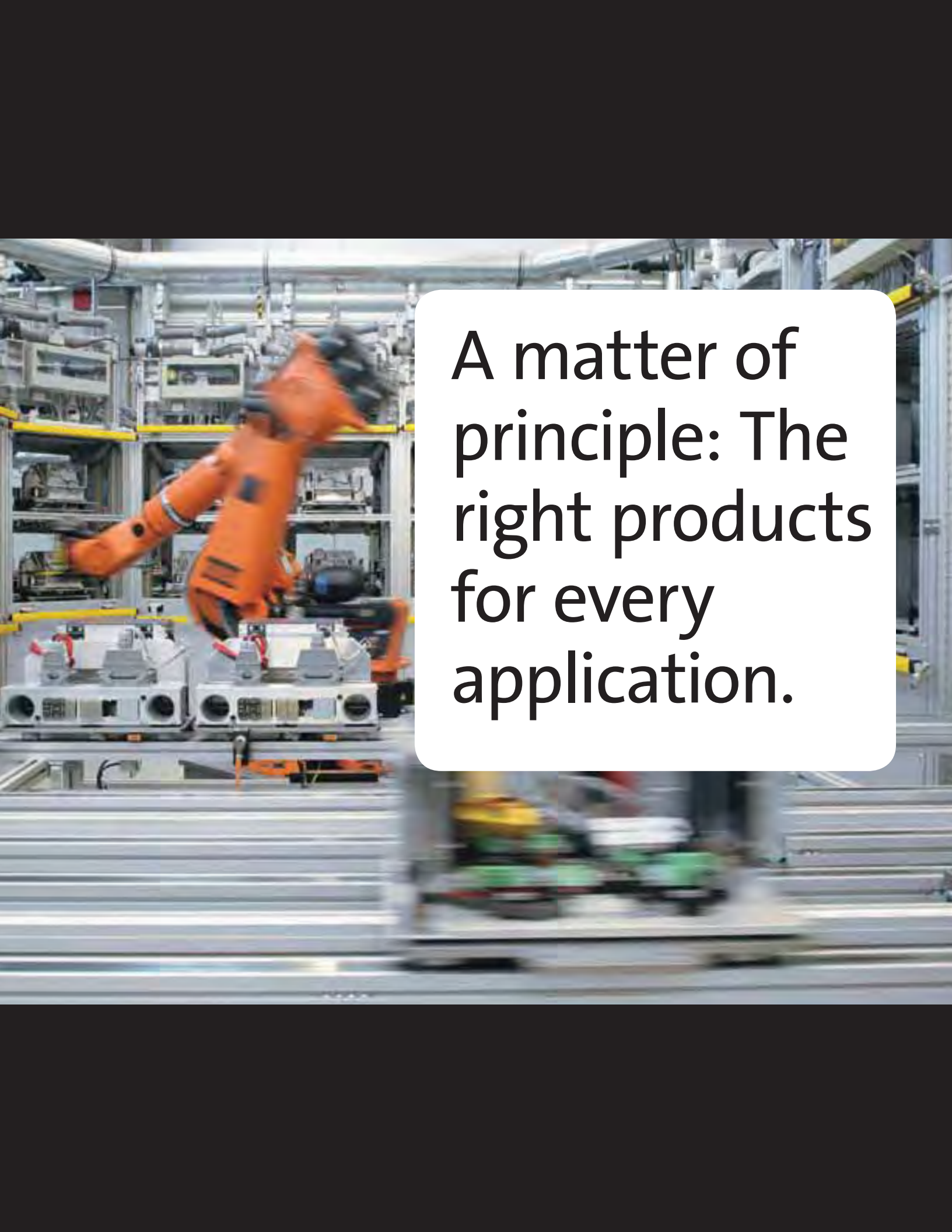
## Ensuring productivity

Productivity, reliability and new peak performance on a daily basis – these are our key success factors for your machine. After delivery, we offer you proactive service concepts to ensure continued safe operation. The primary focus here is on technical support, based on the excellent application expertise of our highly skilled and knowledgeable aftersales team.

Three lines  
for greater  
freedom.

As easy as can be: you can select the right products to meet your requirements based on our three lines. Base-Line is the ideal solution for basic tasks, State-Line is perfectly suited to more comprehensive duties and High-Line is the ideal solution for complex and demanding machine tasks. This greatly simplifies your product selection process, allowing you to focus your full attention on your key tasks – while we take care of everything else. After all, we are only satisfied once we have exceeded your expectations.



A photograph of an industrial robotic arm in a factory. The arm is orange and is positioned in the center-left of the frame. It is surrounded by various mechanical components, pipes, and structural elements of the factory. The background is slightly blurred, showing more of the industrial environment. The lighting is bright, typical of a factory setting. The overall scene conveys a sense of precision and automation in manufacturing.

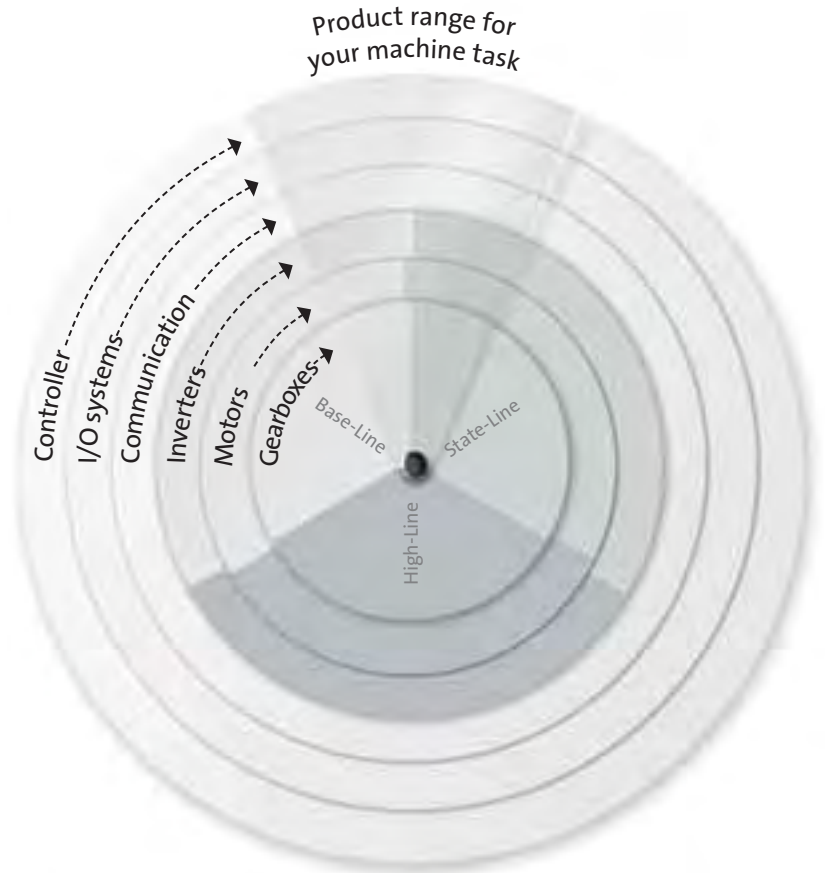
A matter of principle: The right products for every application.

Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three Base-Line, State-Line and High-Line ranges. But what does this mean for you? It allows you to quickly recognize which products represent the best solution for your own specific requirements.

**Powerful products with a major impact:**

- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

Lenze products are subjected to strict and thorough tests in our dedicated test laboratory. This allows us to guarantee you consistent quality and a long service life. In addition to this, our five logistics centers ensure global availability and fast delivery of the Lenze products you select. It's that easy!



# Controls: Faster switching, better response.

The full benefit of the Lenze L-force product portfolio can be exploited using our controls, providing you with powerful automation products. From modern motion controllers for use in control panels, through a compact decentralized I/O system, all the way up to high-performance visualization - you are sure to find the right solution for your application here.





Panel controller



**p300:**  
with logic and visualization



**p500:**  
with motion, logic and visualization

Cabinet controller



**c300:**  
with motion and logic



**3200 C:**  
with motion and logic





**I/O System 1000**





**EL 100 human machine interface:**  
with VisiWinNet visualization software

## Panel controllers

	p300			p500		
						
<b>Screen sizes</b>	10.9 cm (4.3")	17.8 cm (7")	26.4 cm (10.4")	17.8 cm (7")	26.4 cm (10.4")	38.1 cm (15")
<b>Processor type</b>	ARM Cortex A8 800 MHz			Intel® Atom™ 1.6 GHz		
<b>Application Credit</b>	Licence to use Lenze FAST					
<b>Memory</b>	≥128 MB			≥128 MB		
SD card	≥128 MB			≥128 MB		
RAM	256 MB			1 GB		
Flash memory	2 GB			2 GB		
<b>Interfaces</b>	1			2		
Ethernet	1			2		
EtherCAT	1*			1		
CAN	1					
USB	1			2		
Resolution	480 x 272	800 x 480	800 x 600	800 x 480	800 x 600	1024 x 768
Option	PROFIBUS Slave* PROFINET Device*			CANopen PROFIBUS Slave PROFINET Device		
<b>Operating system</b>	Windows® Embedded Compact 7			Windows® CE 6.0		
<b>Touchscreen</b>	resistive			resistive		
<b>Retain memory size</b>	128 kB			1,024 kB		
<b>Runtime software</b>	Logic			Logic Motion		
	VisiWinNET® Compact CE 500 Power Tags			VisiWinNET® Compact CE 1000 Power Tags		

\* in preparation

# Cabinet controllers

	c300	3200C		
				
Design		Base-Line	State-Line	High-Line
Processor type				
Fanless	ARM Cortex A8 800 MHz	Intel® Atom™ 1.1 GHz	Intel® Atom™ 1.6 GHz	
Application Credit	Licence to use Lenze FAST			
Memory				
SD card	≥128 MB	≥128 MB		
RAM	256 MB	1 GB		
Flash memory	2 GB	2 GB		
Interfaces				
Ethernet	1	2		
EtherCAT	1*	1		
CAN	1			
USB	1	2	3	
DVI-D			1	
ACU (external energy storage)				1
Option				
Option	PROFIBUS Slave* PROFINET Device*		CANopen PROFIBUS Slave PROFINET Device	
Operating system				
Operating system	Windows® Embedded Compact 7	Windows® CE 6.0		
Retain memory size				
Retain memory size	128 kB	60 kB	1,024 kB	
Runtime software				
Runtime software		Logic		
Runtime software		Motion		
Runtime software		VisiWinNET® Compact CE 500 Power Tags		

\* in preparation

# Inverters: Simply indispensable.



In many applications, modern inverters are the key component of a cleverly designed solution. They are true masters when it comes to control and regulation of motors. Lenze's inverters are scalable and always offer you the right solution for Base-Line, State-Line and High-Line applications, perfectly tailored to your own specific requirements.

High-Line



**Servo Inverters i700:**  
Bring dynamic performance to multi-axis applications.



**Servo Drives ECS:**  
Make it easy to achieve highly dynamic performance in multi-axis applications.



**Inverter Drives 8400 TopLine:**  
Make it easy to achieve highly dynamic performance and accuracy.



**Servo Drives 9400 HighLine:**  
Extremely versatile to handle even the most sophisticated tasks.



**Inverter Drives 8400 HighLine:**  
Help you stay on top of the situation.



**Inverter Drives 8400 Stateline:**  
Provide motion in complex applications.



Decentralized

**Inverter Drives 8400 motec:**  
Inject new life into horizontal and vertical materials handling applications.



Decentralized

**Inverter Drives 8400 motec:**  
Driving has never been so easy.



Decentralized

**Inverter Drives SMV IP65:**  
Offer exemplary performance even in humid environments.



**Inverter Drives SMV IP31:**  
Variable functions for complex applications.

State-Line








**Inverter Drives smd:**  
Make it easy to control many applications.







**Inverter Drives 8400 BaseLine:**  
Bring controlled movements to basic applications.




Base-Line

## Control cabinet inverters

	Inverter Drives SMD	Inverter Drives 8400 BaseLine	Inverter Drives SMV IP31	Inverter Drives 8400 StateLine	Inverter Drives 8400 HighLine
					
<b>Power range</b>					
single phase	0.33 to 3 Hp	0.33 to 3 Hp	0.33 to 3 Hp	0.33 to 3 Hp	0.33 to 3 Hp
3-phase	0.5 to 30 Hp	0.5 to 4 Hp	0.5 to 60 Hp	0.5 to 60 Hp	0.5 to 60 Hp
<b>Rated current</b>					
single phase	1.7 to 9.5 A	1.7 to 9.5 A	1.7 to 9.6 A	1.7 to 9.5 A	1.7 to 9.5 A
3-phase	1.3 to 46 A	1.3 to 7.3 A	1.1 to 88 A	1.3 to 89 A	1.3 to 89 A
<b>Voltage range</b>					
single phase	180 to 264 V	180 to 264 V	90 to 264 V	180 to 264 V	180 to 264 V
3-phase	320 to 528 V	320 to 550 V	170 to 660 V	320 to 550 V	320 to 550 V
<b>Approvals</b>	CE, cUL	CE, UL, GOST, RoHS	CE, cUL, GOST, C-Tick, RoHS	CE, UL, cUL, GOST RoHS	CE, UL, cUL, GOST RoHS
<b>Enclosure</b>	IP20	IP20	IP31	IP20	IP20
<b>Types of motor control</b>					
V/f control	●	●	●	●	●
Vector control (encoderless)		●	●	●	●
Vector control (with encoder)				●	●
VFC eco				●	●
<b>Inputs/outputs</b>					
Analog input/output	● (1/1)	● (1/0)	● (2/1)	● (1/1)	● (2/2)
Digital input/output	● (4/1)	● (5/1)	● (4/1)	● (5/1)	● (8/4)
Relay output	● (1)	●	● (1)	●	●
Speed feedback				●	●
Encoder output	●				
PTC and/or KTY				● (PTC)	● (PTC)
<b>Fieldbuses</b>					
AS-Interface					
CAN bus	▲	▲ BaseLine C	□	●	●
DeviceNet			□		
EtherCAT				□	□
Ethernet POWERLINK				□	□
Ethernet TCP/IP			□	□	□
INTERBUS					
LECOM	□		□		
Modbus	□		● (≥15 Hp)		
PROFIBUS			□	□	□
PROFINET				□	□
<b>Safety engineering</b>					
Safe torque off (STO)				□	□
Scalable safety functions					
<b>Ideally suited to</b>	Conveyor drives in the field of intralogistics. Pumps and fans in the fluid handling and air-conditioning sectors.	Conveyor drives, pumps or fans.	Rotary tables in the field of intralogistics, production lines in the food industry and industrial manufacturing.	Transverse loaders or palletizers in the field of intralogistics, extruders in the plastics industry, filling systems in the packaging industry.	Rotary indexing tables or warehouse systems in the field of intralogistics, bag form, fill, and seal machines in the packaging sector, rolling and sliding door drives.

Decentralized inverters

Servo-Inverter i700	Servo Drives ECS	Inverter Drives 8400 TopLine	Servo Drives 9400 HighLine
			
		0.75 to 3 Hp	
1 to 20 Hp	2 to 23.8 Hp	0.5 to 60 Hp	0.5 to 640 Hp
		3.0 to 9.5 A	
2.5 to 32 A	2 to 20 A	1.3 to 89 A	1.9 to 695 A
		180 to 264 V	
230 to 480 V	180 to 528 V	320 to 550 V	180 to 550 V
CE, UL, cUL, RoHS	CE, cUL, RoHS	CE, UL, cUL, GOST, RoHS	CE, cUL, RoHS
IP20	IP20	IP20	IP20
●		●	●
	●	●	●
●	●	●	●
		●	
	● (1/0)	● (2/2)	● (2/2)
● (2/0)	● (4/1)	● (8/4)	● (8/4)
		●	● (1)
● (1)	● (3)	●	● (3)
	● (1)	●	□
●	●	●	●
	●	●	●
	□		□
●	□	□	□
		□	□
	□		□
	□		□
	□	□	□
	□	□	□
●	□	□	
▲(in preparation)			□
Coordinated multi-axis applications such as loading drives or gantry systems in the field of robotics, filling systems in the packaging industry.	Applications such as loading drives or gantry systems in the field of robotics, filling systems in the packaging industry.	Flying saws and cam discs in the packaging sector, synchronized drives in the printing sector.	Processing continuous material in the packaging industry, perforating paper webs in the printing industry, winding in the textile industry, warehouse technology in the field of intralogistics.

Inverter Drives SMV IP65	Inverter Drives 8400 motec	Inverter Drives 8400 protec
		
0.5 to 3 Hp		
0.5 to 30 Hp	0.5 to 10 Hp	1 to 10 Hp
1.7 to 9.6 A		
1.3 to 47 A	1.3 to 16.5 A	2.4 to 16 A
170 to 660 V	320 to 550 V	320 to 550 V
CE, cUL, RoHS	CE, UL, RoHS	CE, UL, RoHS
IP65	IP65	IP65
●	●	●
●	●	●
	●	●
		●
● (2/1)	□ (1/0)	● (1/0)
● (4/1)	● (5/1)	● (4/2 or 6/0)
● (1)	□ (1)	
●	●	● (PTC)
	□	
□	□	▲
□		
	□	
□	□	□
□		
□	□	▲
	□	▲
	□	
		□
Production equipment used for thawing in the food industry, outdoor drives, as well as in the air-conditioning sector and water treatment.	Traveling drives in the field of intralogistics, fan drives in the air-conditioning sector, pumps in the field of sewage technology.	Scissor-type lift tables in the field of intralogistics and in the automotive industry.

# Motors: The heart of your machine.

One thing is certain: you need to be able to rely on your motors. They convert electrical energy into mechanical energy and, therefore, are the central drive component in your machine. Since they play such an important part, we offer you motors with optimum drive behavior and application-oriented options. A fast and reliable solution.







**MQA asynchronous servo motors:**  
Amazing performance thanks to high levels of torque and impressive dynamics.



**SDSGS synchronous servo motors:**  
Perfect for sensitive environments.

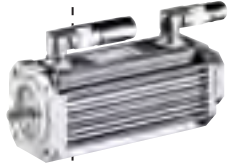


**MDxKS synchronous servo motors:**  
Keep a cool head even in high torque ranges.



**MCS synchronous servo motors:**  
Ensure top performance in even the tightest of spaces.

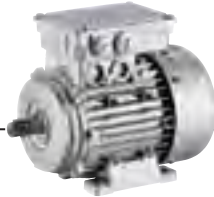
High-Line



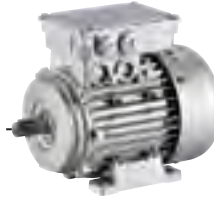
**MCA asynchronous servo motors:**  
The ideal solution for dynamic applications.



**SDSGA asynchronous servo motors:**  
Provide the necessary drive in sensitive environments.

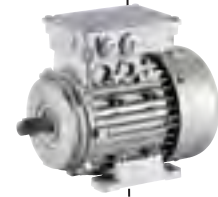


**MF three-phase AC motors:**  
More compact and efficient drive applications.



**MH three-phase AC motors:**  
Highly efficient motors.

State-Line



**MD three-phase AC motors:**  
Standard motors with modular options.





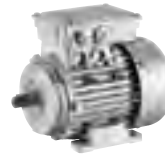
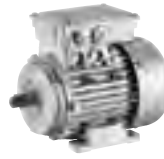
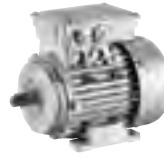
**Lenze Smart Motor m300:**  
A single motor for many applications.






**Basic MD/MH three-phase AC motors:**  
Ideally suited to basic industrial applications.

Base-Line

# Motors

	Basic MD/MH three-phase AC motors	Lenze Smart Motor m300	MD three-phase AC motors	MH three-phase AC motors	MF three-phase AC motors
					
<b>Power range</b>	0.08 to 60 Hp		0.16 to 30 Hp	1 to 60 Hp	0.75 to 30 Hp
<b>Rated torque</b>	3.8 to 2566.7 lbs.-in.	15.5 to 44.2 lbs.-in.	7.08 to 435.44 lbs.-in.	44.96 to 2566.7 lbs.-in.	13.5 to 524.3 lbs.-in.
<b>Setting range</b>	Mains operation	Mains operation	1 : 17.5	1 : 17.5	1 : 24
<b>Axis height</b>	56, 63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225	63, 80	63, 71, 80, 90, 100, 112, 132, 160, 180	80, 90, 100, 112, 132, 160, 180, 200, 225	63, 71, 80, 90, 100, 112, 132
<b>Number of different frame sizes available</b>	12	2	10	9	7
<b>Enclosure</b>	IP54 / IP55	IP54 / IP55	IP54 / IP55	IP54 / IP55	IP54 / IP55
<b>Mass inertia</b>	Medium	Medium	Medium	Medium	Medium
<b>Overload capacity</b>	Medium	High	Medium	Medium	Medium
<b>Power density</b>	Medium	Medium	Medium	Medium	High
<b>Cooling</b>					
Forced-ventilated			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Naturally ventilated					
Integrated cooling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Feedback</b>					
Resolver			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incremental encoder			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SinCos encoder			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Brake</b>					
Spring-applied brake		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permanent magnetic brake					
<b>Electronic nameplate</b>					
<b>Ideally suited to</b>	Mains operation and applications that do not require typical options such as blowers or brakes.	Applications in the field of horizontal materials handling that are operated at constant speed but require high starting torque. Selecting the speed directly allows the number of different versions to be reduced.	Mains and inverter operation, for universal use in the field of machine building and systems engineering.	Mains and inverter operation, for universal use in the field of machine building and systems engineering.	Inverter operation, for systems that require large setting ranges in tight installation spaces.

● = standard   □ = option   ▲ = version

SDSGA asynchronous servo motors	MCA asynchronous servo motors	MQA asynchronous servo motors	SDSGS synchronous servo motors	MDxKS synchronous servo motors	MCS synchronous servo motors
					
0.1 to 0.89 Hp	1.38 to 93.07 Hp	16.6 to 164.3 Hp	0.19 to 1 Hp	1.5 to 10.2 Hp	0.44 to 27.3 Hp
2.38 to 16.8 lbs.-in.	297.6 to 663.8 lbs.-in.	663.8 to 4248.3 lbs.-in.	3.98 to 19.4 lbs.-in.	5.31 to 143.38 lbs.-in.	4.42 to 637.25 lbs.-in.
Ø 75, 85, 95 mm	56, 71, 80, 90, 100, 112, 132	100, 112, 132, 160	Ø 65, 75, 85, 95 mm	56, 71, 80, 90, 100	60, 90, 120, 140, 190
3	7	4	4	5	5
IP54 / IP55	IP23 / IP54 / IP65	IP23	IP54 / IP55	IP54 / IP65	IP54 / IP65
High	Low	Very low	Low	Very low	Very low
High	Very high	Very high	Very high	Very high	Very high
Medium	High	Very high	High	Very high	Very high
	□	●		□	□
	●		●	●	●
□	□	□	□	□	□
□	□	□	□	□	□
	□	□	□	□	□
□		□	□		
	□			□	□
					●
Processes that must comply with hygiene requirements.	Environments which require compact units and a high degree of intrinsic operational reliability.	Applications with high motor loads.	Processes that must comply with hygiene requirements.	Applications that require the best possible dynamic performance.	Applications that require high dynamic performance, precision and compact dimensions.

# Gearboxes: Robust power packages.

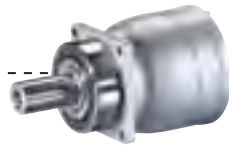
One single motor alone is not a universal solution to all applications. After all, many applications require low speed and high torque, and your machine may need a right-angle drive. The robust, efficient industrial gearboxes from Lenze can handle even the toughest of machine tasks. If you require couplings, locking bushes or other drive elements for your machine, you are sure to find precisely the right products for your requirements in our scalable product portfolio.



High-Line



**g700 planetary gearboxes:**  
Low backlash for the highest power density.



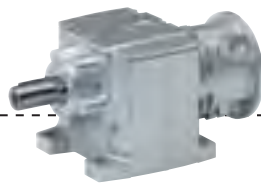
**MPR/MPG planetary gearboxes:**  
Very low backlash for the highest power density.



**Shaft-mounted helical gearboxes:**  
Space-saving and efficient.



**Helical-bevel gearboxes:**  
Powerful.



**Helical gearboxes:**  
Robust design with high efficiency.

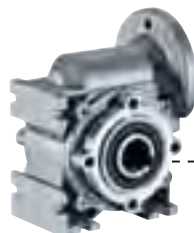


**Bevel gearboxes:**  
For maximum efficiency.

State-Line



**Helical-worm gearboxes:**  
Low noise combined with high performance.







**Worm gearboxes:**  
Quiet and powerful.

Base-Line




## Gearboxes and geared motors

## Axial gearboxes

	Helical gearbox		Shaft-mounted helical gearbox	
				
	<b>g500-H</b>	<b>GST</b>	<b>g-500-S</b>	<b>GFL</b>
<b>Power range</b>	0.08 to 12.3 (60) Hp	0.00 to 60 Hp	0.16 to 12.3 (60) Hp	0.16 to 60 Hp
<b>Ratios</b>	3,3...396 (435)	1,6...435	3,3...496 (856)	3,5...856
<b>Rated torque</b>	26.55 to 3982.81 (115,059) lbs.-in.	398.28 to 52.39 lbs.-in.	10 to 481 (115,059) lbs.-in.	1681.63... 102,668.12 lbs.-in.
<b>Torque densities</b>	Medium	Medium	Medium	Medium
<b>Efficiency</b>	High	High	High	High
<b>Backlash</b>	Low	Low	Low	Low
<b>Number of different frame sizes available</b>	6 (12)	8	4 (10)	7
<b>Shaft designs</b>				
Solid shaft	●	●	●	●
Hollow shaft			●	●
Shrink disc			●	●
Flange shaft				
<b>Designs</b>				
Foot mounting	●	●	●	●
Flange mounting	●	●	●	●

● = standard □ = option ▲ = version

Right-angle gearboxes

Worm gearboxes	Bevel and helical-worm gearboxes				Planetary gearboxes	
						
	<b>g500-B</b>	<b>GKR</b>	<b>GKS</b>	<b>GSS</b>	<b>g700</b>	<b>MPR/MPG</b>
0.04 to 0.4 Hp	0.08 to 12.3 (60) Hp	0.08 to 10 Hp	0.16 to 60 Hp	0.16 to 20 Hp	0.33...35.1 Hp	0.33...35.1 Hp
5...80	3,5...360 (1.510)	3,4...76	5...1.510	5,6...1.847	3...512	3...70
61.95 to 318.85 lbs.-in.	26.55 to 3982.81 (115,059) lbs.-in.	398.28 to 3982.81 lbs.-in.	1681.63 to 104,349.75 lbs.-in.	1593.12 to 1107.25 lbs.-in.	177.01 to 7080.56 lbs.-in.	442.53 to 1770.14 lbs.-in.
Medium	Medium	Medium	Medium	Medium	High	High
Low	High	High	High	Medium	High	High
Medium	Low	Low	Low	Medium	Low	Very Low
3	4 (11)	4	7	4	5	4 each
●	●	●	●	●	●	●
●	●	●	●	●		●
	●	●	●	●		
						●
●	●	●	●	●		
●	●	●	●	●	●	●

We are excited to help get your ideas moving forward! Learn more about our approach, our way of thinking, our vision and how we can make things easier for you in future. Please feel free to contact us directly or visit us at:

**www.  
Lenze.  
com**

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