

Drive Systems for Protective Machine Doors

Tried and proven



SERVAX

Always in motion

Swiss Quality for Demanding Customers. Our industrial products are in use all over the world. The formula for success is the unique combination of Swiss innovative capacity together with an international value chain. We are fond of our highly skilled employees that work at innovation and research projects at our Zurich development facilities. Our production site in Switzerland allows us to react flexibly to requirements of our customers. We deliver solutions for a broad market segment and highly demanding applications.

Challenges inspire us. One can always improve. This is why we are constantly on the lookout for new ways to optimise our performance. One example of this is that we are continuously making our well-designed platform even more efficient for individual customer solutions in the drive segment. Our most recent projects strengthen us in our strategy to offer our customers unique, high-quality solutions within the shortest time possible. True to our guiding principles: **together, clear, focussed.**



Intelligent



Individual



Environmentally friendly



Dependable

Esteem and trust. Pleasure in finding the right solution is what drives us forward. When we collaborate with our employees, partners and customers, we use the power of working constructively with each other. **Openness, trust, partnership, customer orientation** and **effectiveness** are values we believe in. This is how we learn from each other, grow together and continue to develop our strengths. This inspires customers, partners and employees while establishing the foundation for creating the perfect point of departure for drive solutions with added value.

Our contribution to the environment. Your decision to work with us is also a decision for responsible environmental management. Thanks to the high quality and effectiveness of our drives and components, our products are characterised by a very high level of efficiency (up to 98%). This is an important contribution to the sustainable use of resources. Because we use modern materials, our products have a long life cycle – this means we are able to keep spare parts deliveries to an absolute minimum. Further, our module system guarantees that individual components can be targeted for replacement. We properly dispose of worn-out parts in an environmentally friendly manner. We also apply the principles of sustainability to transport; for example, we keep CO₂ emissions to a minimum by grouping deliveries to our end customers. And finally, **SERVAX** products are up to 98% recyclable.

Safe Drives for Protective Machine Doors

Type SMDA-200 and SMDA-400 / SMDA-400-iB

The use of automatic door drives in modern machines has increased in recent years. The trend towards automating every possible machine function also includes opening and closing the doors of protective machine hoods. Loading and unloading machines represents a particular source of danger for both the operating personnel and expensive loading robots.

Thanks to functionality based on many years of experience, machine door actuators from SERVAX offer application-specific software and the latest generation of drive elements for the ideal solution both technically and economically.

New generation and yet tried and proven. The basis for the new generation is the tried and proven TÜV certified (EN-13849-1 PLd) iMotion® technology for personal access supplied by the TORMAX Division of Landert Motoren AG.

Protective machine door drives from SERVAX include the technology for implementing a safe force and speed limit for horizontal doors with door weights up to 750 kg. This enables safe compliance with the approved forces without requiring additional safety elements such as light barriers or two-handed operation. The drive is fitted with a protective function which triggers an immediate change of direction to prevent irreversible damage if an obstacle is encountered.

The intelligent operating software – **SMDTuner** – ensures efficient commissioning of the drive. Thanks to the integrated AutoTuning, there is virtually no need to perform settings during commissioning. The system works in the low voltage range and includes a galvanically isolated mains power supply as well as an opto-isolated interface for the superordinate PLC. With the new **SMDA** drives, SERVAX continues to offer mechanical engineers valuable support for implementing safe and reliable automated protective doors.



The System at a glance



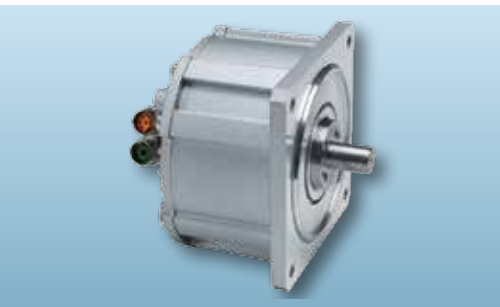
Tested safety

Compliant with EU Machine Directive 2006/42/EC

The new generation of machine door actuators from SERVAX unites reliable components, integrated safety, self-optimisation, and our many years of practical application experience on the market. The result: a complete end-to-end solution. The system includes the technology for implementing safe force and speed limits compliant with EN 13849 for horizontal doors. The permissible forces compliant with EN 12453 are maintained.

Functionality

- SS1 – Safe Stop 1
- SLS – Safe Limited Speed
- SLT – Safe Limited Torque
- Integrated obstacle detection with reverse mode
- AutoTuning with door weight detection and automatic setting of the regulation parameters
- Additional external sensors can be connected and configured if necessary



Motor with free shaft end



Motor with spur wheel



Motor with toothed belt wheel

Motor

- Compact, maintenance-free and gearless direct drive with integrated position sensor
- Three variants available: with free shaft end, spur wheel or with attached toothed belt wheel
- Easy connect power and transmitter connections, turnable 270°
- Protection class IP54

Interface

- Actuation via digital I/O
- Parametrising via RS-232 interface
- USB to RS-232 converter optionally available

Control system

- Compact control system with integrated power supply unit, mains filter, motion controller, power driver, and galvanically isolated I/O
- No external components such as sensors or brake resistors necessary
- 12 LEDs for I/O state indication
- Plug-in connections

“In the Box” version

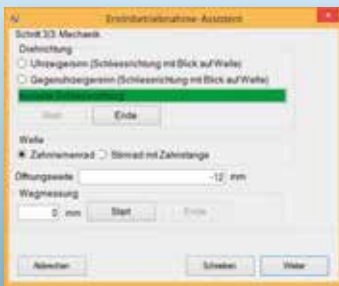
- Motor and Controller as a compact complete unit in IP54 protection degree for direct mounting



SMDTuner

Quick and easy. With the user-friendly **SMDTuner** operating software, commissioning the protective door the first time is quick and easy. This PC program is used to parametrise the machine door actuator, start up the machine door actuator, query status values, and save the data so that data records already created can be archived and reused for documentation purposes.

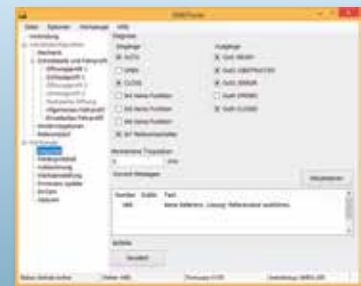
The software is easy to use and requires no special training. A wizard guides you through the submenus in just a few steps. The software lets you individually optimise all **SMDA** drive types for various door configurations. This reduces costs during commissioning and maintenance.



Wizard



Driving profile



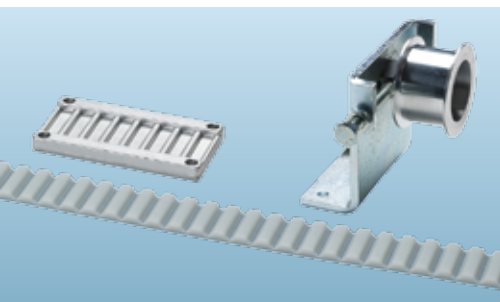
Status query

Optimisation

Optimisation tools are available to users in order to achieve the maximum dynamics and elegance of the motion sequence for each specific system and to record movement profiles in real time.

Accessories

- The right toothed belt in the required length
- Toothed belt clamp
- Idler pulley
- Pre-dimensioned cables for motor and encoder in various lengths, up to 35 m
- RS-232 to USB interface converter



Toothed belt & idler pulley



RS-232 to USB converter

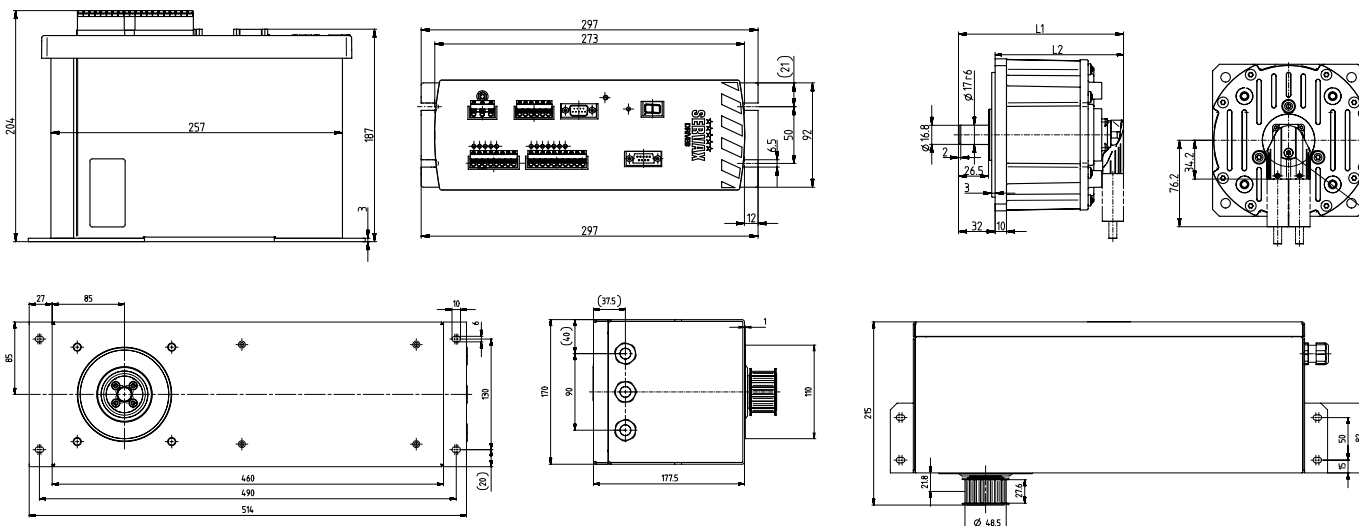


Pre-dimensioned cables

SMDA-200 and SMDA-400 / SMDA-400-iB

Technical Data

Type	SMDA-200	SMDA-400 / SMDA-400-iB	
DOOR WEIGHT	kg	260	200 – 750
TENSILE FORCE	N	230	400
TRAVERSE PATH	m	≤ 8.0	≤ 8.0
MAX. TRAVERSING SPEED	m/s	1.0	1.0
Motor Data			
MOTOR TECHNOLOGY	16-pole permanent magnet direct drive	16-pole permanent magnet direct drive	
NOMINAL MOTOR TORQUE	Nm	3.1	5.4
MOTOR PULSE TORQUE	Nm	6.0	9.8
NOMINAL SPEED AT NOMINAL TORQUE	min ⁻¹	335	270
LENGTH OVER ALL L1	mm	145.5	169
INSTALLATION DEPTH L2	mm	113.5	137
MOTOR WEIGHT	kg	3.9	5.3
MOUNTING POSITION	any	any	
MOTOR VOLTAGE	VAC	17	22
PROTECTION	IP54	IP54	
Control Data			
CONTINUOUS CURRENT	A	8.5	10.0
MAX. POWER CONSUMPTION	W	190	310
MAINS VOLTAGE	VAC	115/230/400	115/230/400
MAINS FREQUENCY	Hz	50/60	50/60
OPERATION AMBIENT TEMPERATURE	°C	+10...+40	+10...+40
RELATIVE HUMIDITY	%	15...85	15...85
PROTECTION	IP20	IP20 (IP54)	
DIGITAL I/O	VDC	24	24
CONNECTORS	<ul style="list-style-type: none"> – 7 galvanically isolated control inputs – 5 galvanically isolated control outputs – 1 RS-232 configuration interface – 1 motor power connection – 1 motor encoder connection – 1 115/230 VAC mains connection 		
PRECONFIGURED INPUT FUNCTIONS	AUTO mode, Open, Close		
FREELY SELECTABLE INPUT FUNCTIONS	2nd travel profile, reduced open, reference switch, external sensors		
OUTPUT FUNCTIONS	door referenced, door closed, door open, error, obstacle detected		
HOUSING DIMENSIONS (H × W × D)	mm	297 × 92 × 187, SMDA-400-iB: 514 × 170 × 178	



Tried and proven thanks to many years of experience

Key advantages at a glance

- Commissioning in less than 15 minutes
- Automatic adjustment of controller parameters to mechanical change
- No additional protection elements are required (e.g. safety switchboard, light curtain)
- Efficient, low noise direct drive
- Efficient engineering through available PLC function blocks and CAD macro
- “In the Box” version for easy retrofitting
- Ordered today – delivered tomorrow!

Typical areas of application

- Machine tools and machining centre
- Die casting machines
- General production machines



Multi-spindle machine



Lathing machine



Machining centre

Quality as commitment

We are committed to quality. Since 1994 we have maintained a quality management system that is ISO 9001 compliant and shapes our day-to-day work.

Motors in top form. We test the theoretical calculations against practical application on state-of-the-art test benches in our own testing laboratory. Our customers profit from continuous optimisation.

Needs-based service. Spare parts and service are provided by the machine manufacturer. We guarantee rapid delivery of spare parts and give you the support you need should you have any questions.

SERVAX – custom electric drives

- Air-cooled electric drives
- Liquid-cooled electric drives
- Asynchronous drives
- Permanent magnet synchronous drives
- Drives with hybrid technology
- Drive systems for protective machine doors



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