

# Drive systems for protective machine doors

Delivering safe non-stop performance



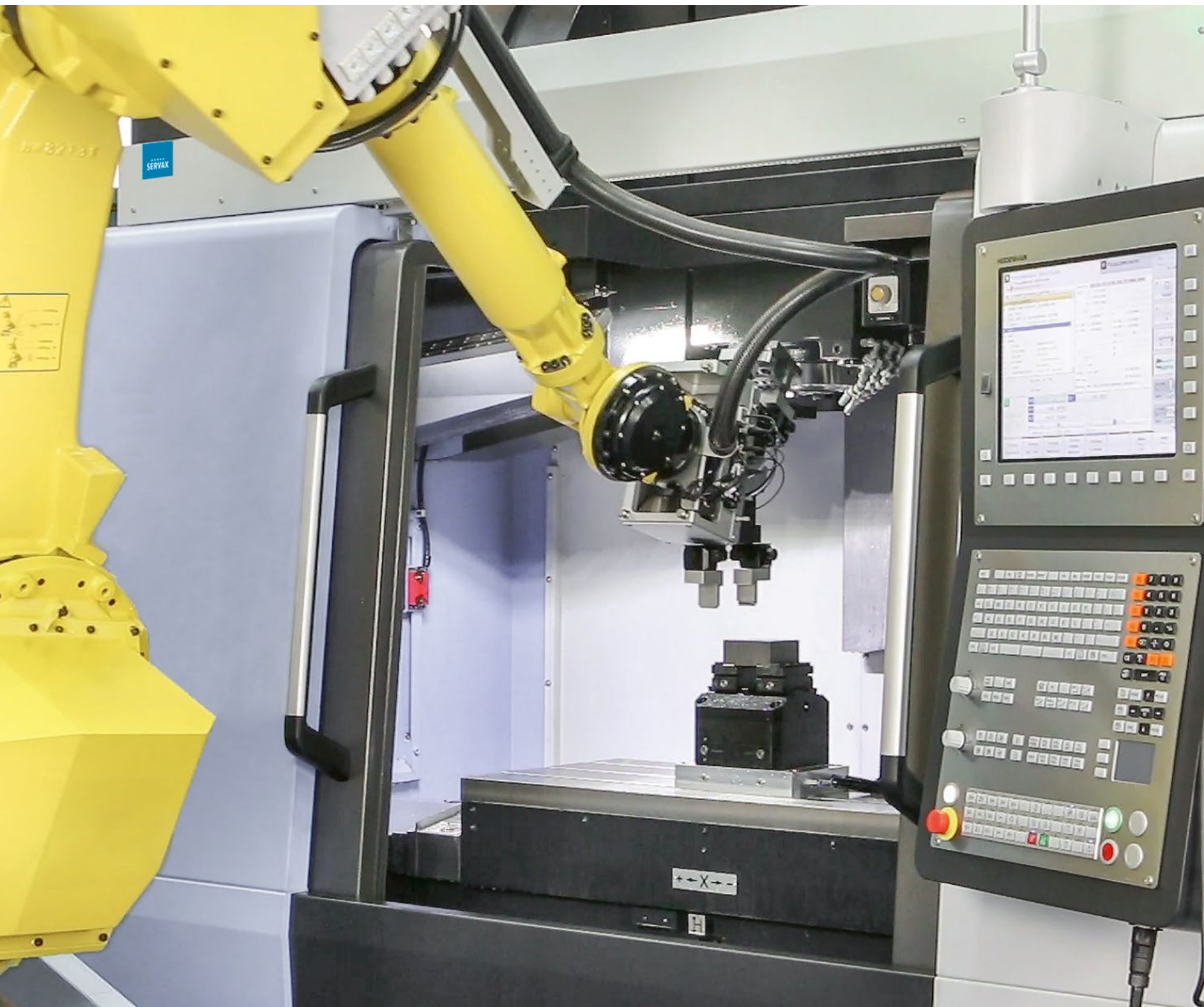
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**SERVAX**



## Technically and economically attractive protective machine doors

Automatic protective doors have become indispensable in many modern machines, as they optimise productivity and workplace ergonomics. Even so, the doors themselves must in no way pose a risk to operating staff and loading robots.

Electric protective door drive systems by SERVAX offer outstanding safety and ease of use thanks to their dedicated software and state-of-the-art, maintenance-free drive components. They feature high-torque, gearless direct drives and matching motor controls, combining flexibility with efficiency and thus offering the best solution for any protective machine door, both technically and economically. The turnkey retrofit system developed by SERVAX has proven particularly successful in robot applications.



# One product line, three design options

Our protective door drive systems are available as built-in components, as compact package units or as turnkey retrofit systems. They can be integrated quickly and easily in any situation.

## › SMDA-200/400

Separate drive and control units for integration into the machine

## › SMDA-400-iB

Drive and controls as a compact IP54 all-in-one unit, for use with confined space in the control cabinet or in processing systems

## › SMDS-S/M/L

Turnkey retrofit system in three standard lengths with complete mechanics



SMDA-200/400

SMDA-400-iB



SMDS-S/M/L



## The key advantages at a glance:

- › Safe automation of horizontally mobile machine and process doors and safety guards according to European safety standard EN ISO 14120
- › Safe force and speed limiter with no additional protective devices required (eg safety edge, light curtain)
- › TÜV-certified all-in systems according to EN13849-1 (PLd/Cat.2)
- › Flexible integration of compact, low-noise direct drives
- › Functionally optimised, proven control system
- › Efficient commissioning with SMDTuner operator software
- › “In-the-box” version for direct mounting and easy retrofitting of existing machines
- › The ideal supplement for robot-assisted loading and unloading systems





# Versatile, safe and high-performing system solution

With this drive series, SERVAX sets the standard for safe, reliable and efficient protective machine doors in compliance with the current safety directive (EU Machinery Directive 2006/42/EC). The drives link up compact versatility with integrated safety and intelligent controls to form a powerful and well-established all-in solution.

## Safe door automation

- › Three safety operating functions: safe stop 1, safe speed and torque limit
- › Learning mode with automatic setting of control parameters
- › Preset closing profiles according to EN ISO 14120, EN 12453 or EN 16005
- › Integrated obstacle detection with adjustable reversing movement
- › Second travel profile for dynamic operation with robot loading
- › Adjustable reduced door opening
- › Additional external sensors can be connected and configured as required

Verification measurement of force settings



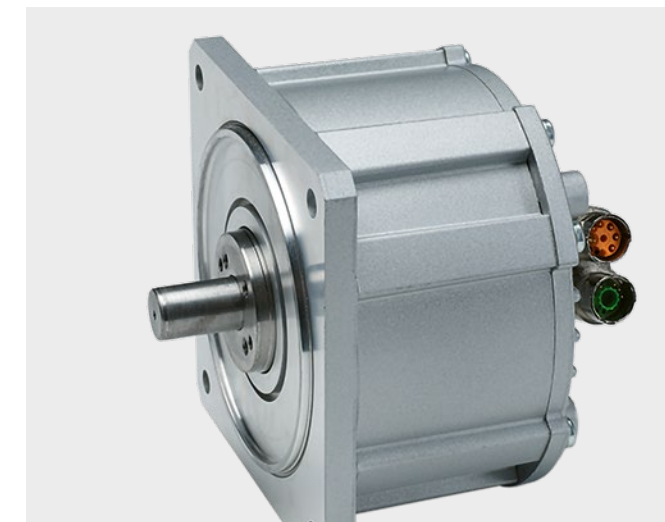
## Maintenance-free direct drive

- › Compact, maintenance-free and gearless direct drive with integrated position sensor
- › Three available versions: with free shaft end, with mounted toothed belt wheel or rack pinion
- › Variable power coupling to adjust maximum tangential velocity and torque
- › Easy Connect power and encoder connection, 270° rotatable
- › Full protection against accidental contact according to protection class IP54

## Compact control unit without external components

- › Compact control unit with integrated power supply unit, mains filter, motion controller and galvanically isolated inputs/outputs
- › No external components required (eg sensors or brake resistors)
- › Control via digital inputs/outputs
- › Pluggable connections

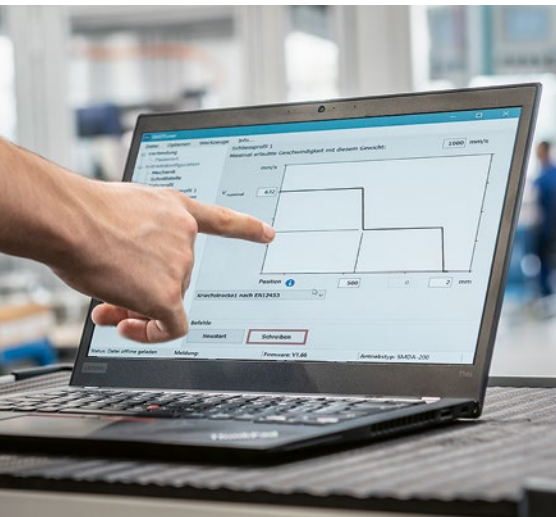
Gearless direct drive



Technical data

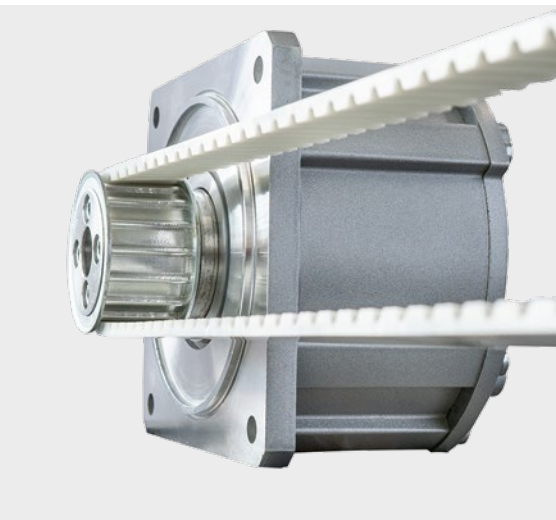
User-friendly configurator

- › Clearly structured SMDTuner configurator for swift installation of system settings
- › Choice of 7 languages
- › Access protection against unauthorised modification of security settings
- › List of documented parameter values for your machine records
- › Stored parameter sets can also be adjusted offline without connection to drive controls
- › Tuning tools to maximise the dynamics of the protective machine door’s trajectory and record detailed travel profile data



Accessories

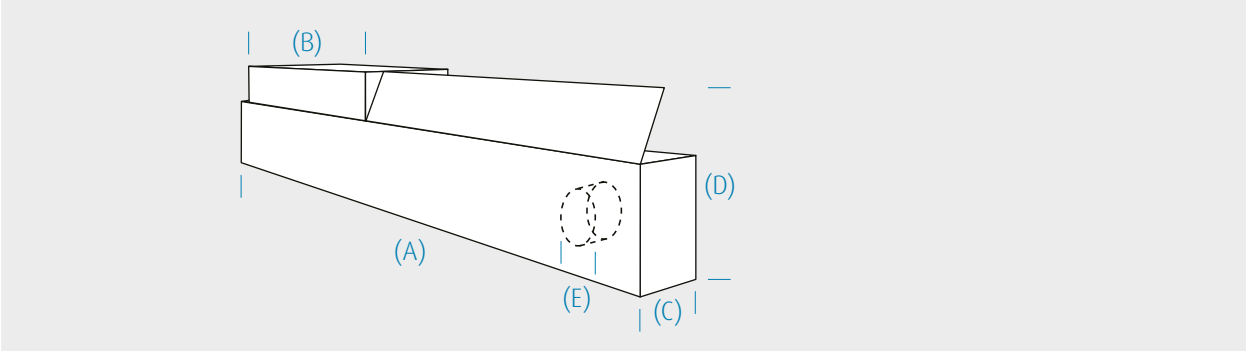
- › Matching toothed belt in required length
- › Toothed belt clamping piece
- › Return pulley
- › Pre-assembled cables for motor and encoder in various lengths, up to 35m
- › Mechanical mounting support for toothed belt operation for SMDA-400-iB



|                 | SMDA-200                      | SMDA-400/SMDA-400-iB   |
|-----------------|-------------------------------|--|
| Door parameters | Door weight                   | ≤ 250 kg   |
|                 | Tensile force max.            | 230 N  |
|                 | Travel distance               | ≤ 8.0 m  |
| Drive unit      | Travel speed max.             | 0.9 m/s  |
|                 | Technology                    | 16-pole permanent magnet direct drive  |
|                 | Weight                        | 3.9 kg   |
| Control unit    | Mounting position             | any position   |
|                 | Protection class              | IP54   |
|                 | Power consumption max.        | 190 W  |
|                 | Mains voltage                 | 115/230/400 V  |
|                 | Mains frequency               | 50/60 Hz   |
|                 | Ambient operating temperature | +5 to +40 °C   |
|                 | Protection class              | IP20   |
|                 | Control voltage               | 12–24 VDC  |
|                 | Inputs/Outputs                | – 7 galvanically isolated control inputs<br>– 5 galvanically isolated control outputs              |
|                 | Preconfigured input functions | AUTO mode, open, close   |
|                 | Selectable input functions    | 2nd travel profile, reduced opening, reference switch, external sensors                            |
|                 | Selectable output functions   | Door referenced, door closed, door open, malfunction, obstacle detected, 2nd travel profile active |
|                 | Housing dimensions (H×W×D)    | 297×92×187 mm, SMDA-400-iB: 514×170×178 mm   |

\*Depending on the effective diameter of the force coupling

|                 | SMDS-S                           | SMDS-M  | SMDS-L  |
|-----------------|----------------------------------|---------|---------|
| Retrofit system | Travel distance door max.        | 850 mm  | 1300 mm |
|                 | Panel width (A)                  | 1400 mm | 1860 mm |
|                 | Mounting width SMDA drive (B)    |         | 525 mm  |
|                 | Required depth SMDS min. (C)     |         | 175 mm  |
|                 | Required height SMDS min. (D)    |         | 450 mm  |
|                 | Required width return pulley (E) |         | 173 mm  |





## Our product portfolio

The SERVAX product portfolio extends beyond protective machine door systems to include customized electric drives. Working with our customers from around the world, we implement solutions for advanced machine drives in all areas of machine construction.

SERVAX electric drives stand out with their exceptionally high power density, their efficiency and resilience, safety and ease of maintenance. Each drive is strictly aligned to the specific requirements and as an integral part of the machine does exactly what it is set out to do. Standardised technology modules enable us to be particularly swift and flexible in responding to individual requests and to deliver convincing, advanced solutions.

We develop and manufacture all our drive systems at our headquarters in Switzerland. This gives us full control of their development and ensures that our pooled expertise feeds into existing and future customer projects.

We test prototypes, development and technology projects as well as serial motors in our own, well-equipped laboratory according to the current IEC standards. This allows our customers to benefit from ongoing further developments. By the way, the SERVAX laboratory is also available for you to test your drive or your complete drive system.



# customized drives, perfectly crafted

SERVAX drives have been at the core of sophisticated machines and systems for many decades. They offer clear advantages for all areas of mechanical engineering, especially for the textile, tool and plastics processing industries: They stand out with their efficiency, full system integration, flexible design, cost-effectiveness, low heat emission and ready availability.

Our product range includes certified, automatic protective machine door systems and the versatile VITAX grinding systems.

We will be happy to show you the added value you can achieve with perfectly integrated drives.

**Get in touch with us!**

[www.servax.com](http://www.servax.com)