

LOW VOLTAGE AC DRIVES

Maximize the productivity of your cast lines for rigid and flexible sheets with ABB drives, motors and PLCs

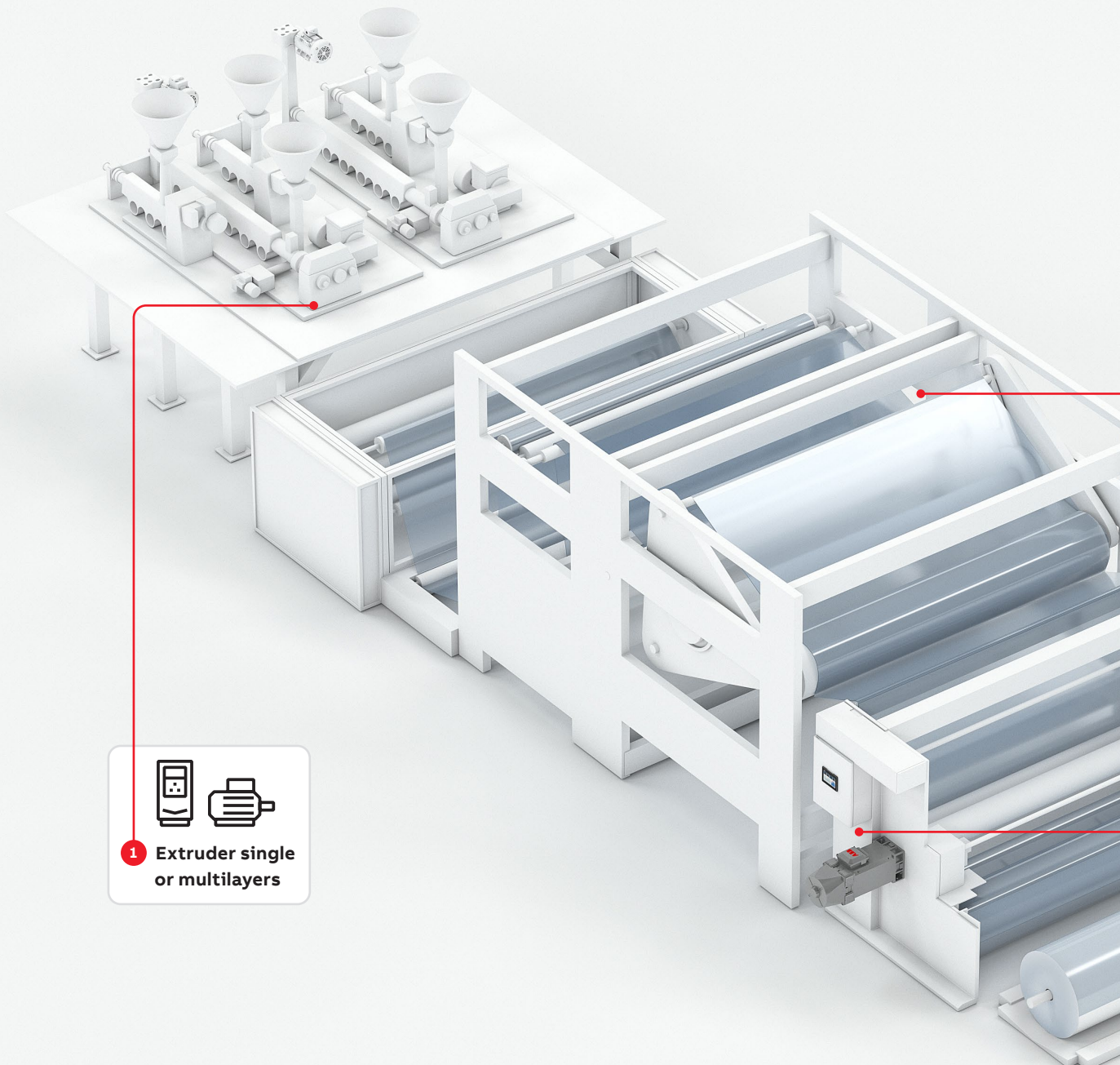


- In addition to drives, we offer PLCs, HMIs and different motor solutions, making it easy to get all your machine needs from one supplier.

Productivity. Output quality. Reliability.

Everything counts for your cast lines for rigid and flexible sheets

Whether you are extruding plastics or rubber materials for film, sheet, pipes or profiles, cables, gloves, tires or other products, you need drives and motors that maximize reliability and output quality. We supply a broad line-up of drives and motors that provide great productivity and best-in-class energy efficiency, enable fast machine setup and deliver high torque right down to zero speed.



1 Extruder single or multilayers



Reliable starting

To overcome the friction of the material, high torque from zero speed is needed during startup. SynRM motors can deliver full torque from zero speed thanks to our drives' DTC control technology.



Quality cast line

SynRM technology with encoderless open loop control provides highly accurate speed control. This ensures constant speed can be maintained under changing torque conditions.



Non-stop operation

You can depend on ABB drives and motors to keep your cast line running day after day. SynRM motors run with lower bearing and winding temperatures, which further increases reliability.



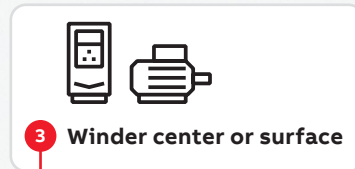
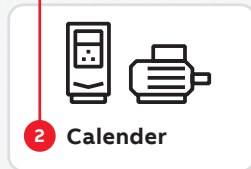
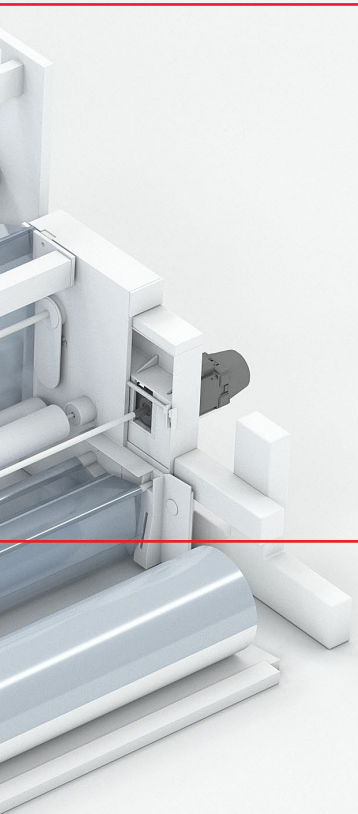
High efficiency

The combination of SynRM technology with variable speed drive control offers the best package efficiency across the speed range. Compared to a conventional AC motor and drive, you can achieve a 2–4 percent reduction in energy consumption. As a result, the payback time for the SynRM solution can be less than a year.

Cast sheet and foil line

Advantages that our drives and motors bring to your cast line:

- 1 Extruder zone**
 - Precise speed and torque
 - High starting torque
 - Drool/purge finishing mode
 - Accurate current to torque ratio
 - Load-sharing multi-motor co-cast-line mode
- 2 Calender and section control**
 - Draw/pull ratio
 - Torque limit
 - Speed trim
 - Load cell trim
 - Load cell (line shaft)
- 3 Exit phase**
 - Surface/center winding
 - Stable tension control for desired roll density
 - Superior speed/torque coordination
 - First-class roll quality to eliminate wrinkles, starring and curls
 - Position control for length measurement
 - Product evacuation and stacking

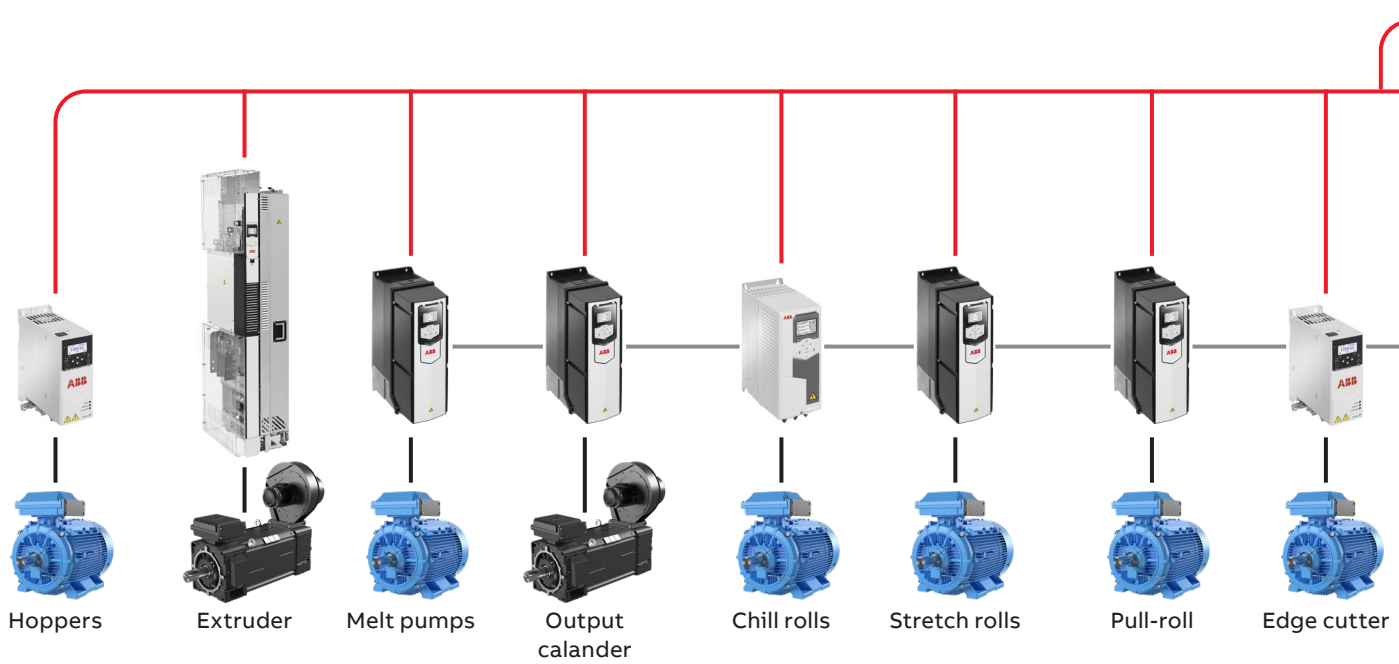
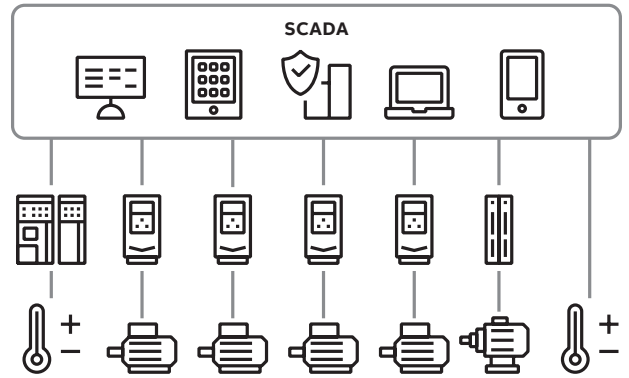


Networked cast lines

Getting things connected for cloud-based services

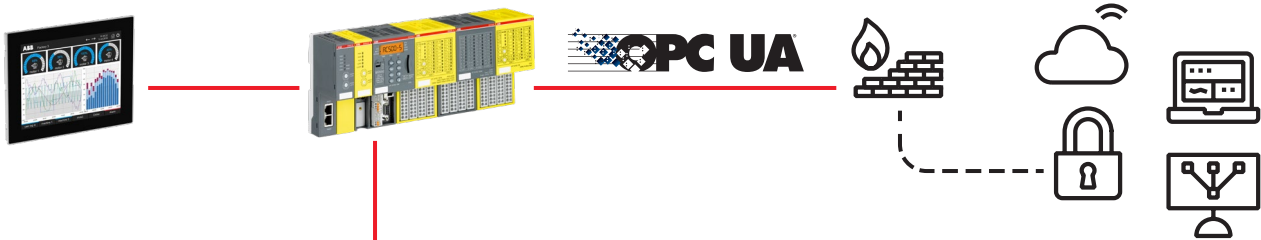
Every motor, drive and PLC in the cast lines for film and tapes can be securely connected to cloud-based services for easy access to the component-level data. This helps detect any component failures quickly and minimizes time spent on maintenance. All this maximizes your cast line productivity.

Cast lines for rigid and flexible sheets



Connecting the system to cloud-based services

All the ABB motors and drives included in the cast line can be securely connected to ABB Ability™ cloud services. The connection can be established from our AC500 range of PLCs, or by using third-party PLCs for the gateway to the cloud. The ABB all-compatible drives support all common fieldbus connections.



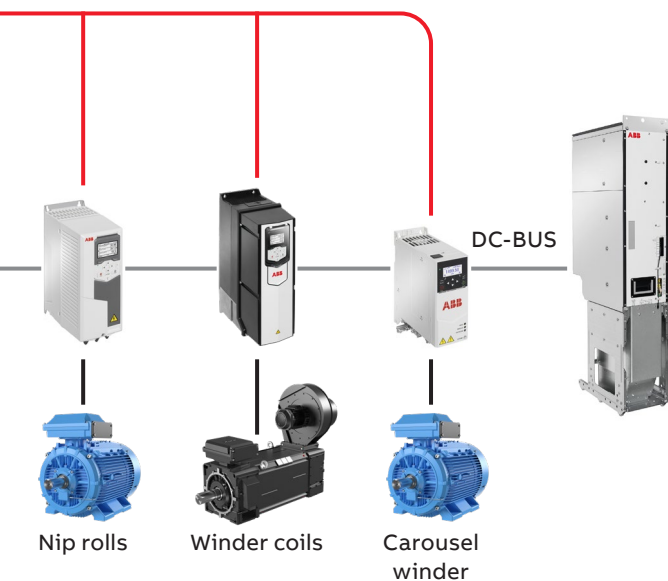
Automation Builder

ABB Automation Builder is an integrated software suite for machine builders and system integrators wanting to productively automate their machines and systems. It combines the tools required for configuring, programming, debugging and maintaining automation projects in a common, intuitive interface. ABB Automation Builder covers the engineering of ABB PLCs, safety PLCs, control panels, drives, motion and robots.



PLC library for temperature control

The extruder's temperature regulation library can be programmed in our AC500 series PLCs or created with traditional solid-state relays.



Nip rolls Winder coils Carousel winder

- Trusted network
- - - - - Untrusted network
- Connection between devices

The motors and drives shown in this diagram should be considered as product examples for each application. Alternatives can be selected case by case, based on the cast line's requirements.

Selecting the right components

for maximizing the productivity of your cast line



ABB all-compatible drives for cast line applications

- Our range of all-compatible drives shares the same user experience with similar software
- Motor control:
 - ACS880 drives with direct torque control (DTC) enable full motor torque across the speed range down to zero – no need for encoders or other feedback devices
 - ACS580 drives with the three phase output current measurement ensure the best-in-class open loop motor control
 - ACS580 and ACS380 drives include scalar and vector control modes
- Wide range of fieldbus adapters enables connectivity with all major automation networks
- A wide range of drive control panels, from an easy-to-use Basic panel to the Connectivity panel that offers plug-and-play installation with secure and reliable wireless connection to the ABB Ability™ Digital Powertrain, the cloud-based condition monitoring portal for ABB drives
- Commission and troubleshoot drives remotely using smartphone or other mobile device with the Drivetune mobile app or Drive Composer PC tool for more comprehensive commissioning and maintenance Safety:
 - SIL 3 integrated safety including safe torque off (STO) as standard
 - Optional plug-in module for ACS880 drives provides additional safety features
- Compact design for easy installation, commissioning and maintenance



AC500 PLCs

Our AC500 range of PLCs allows you to develop even complex custom cast line solutions with multiple inputs and outputs.



AC500-S safety PLCs

The AC500-S safety PLC offers a flexible platform for building cast line safety. In cast lines with several ABB drives, the AC500-S safety PLC can control the overall safety system, activating the drive-based safety functions over PROFINET/PROFIsafe.

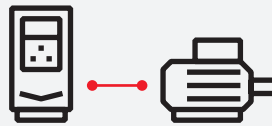
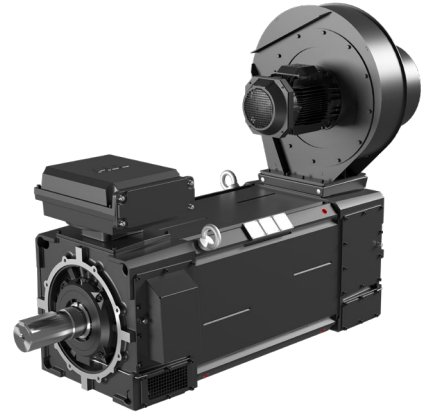


ABB drives and motors are even better together

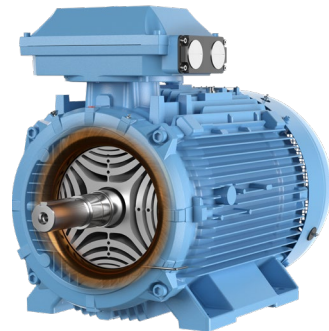
- Accurate motor and speed control while maintaining superior safety and reliability. No need to further test for certification of motor drive combination.
- One vendor standing behind its motor and drive package.
- Optimized performance. No need to oversize. Designed to eliminate overheating concerns.
- ABB software tools make selecting product combinations easy.

High dynamic performance motors

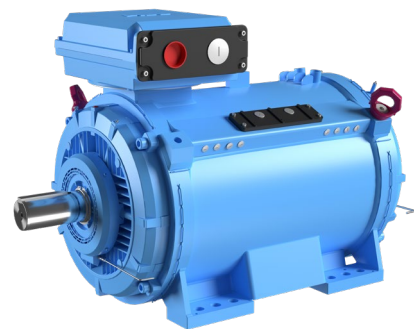
- Optimized for machine building
- Compact size with high power density
- Robust design for harsh environments
- Ideal for high-torque applications such as extruders
- Motors can be customized with a wide variety of options such as encoders, brakes and monitoring sensors
- Available in a power range from 2.2 to 2000 kW, IEC frame sizes from 80 to 400

**Synchronous reluctance motors (SynRM)**

- Very high efficiency – up to IE5 – reduces energy consumption and emissions
- Lower winding and bearing temperatures mean improved reliability and longer lifetimes
- Better controllability enables higher quality extruding through accurate speed and torque control
- Quiet operation reduces noise in the plant for a better working environment
- Available in a power range from 5.5 to 350 kW, IEC frame sizes from 132 to 315

**Water-cooled motors**

- Completely noise-free solution for a location where cooling water is readily available
- Cooling efficiency is maintained throughout the speed range
- Compact size with high power density
- Available in a power range from 90 to 2000 kW, IEC frame sizes from 280 to 500

**Process performance motors**

- High efficiency: IE class up to IE4
- Designed for durability in the most demanding environments and applications
- Can be individually designed to the exact demands of the application
- Available in a power range from 0.12 to 1300 kW, IEC frame sizes from 71 to 500 with cast iron body and IEC frame sizes from 56 to 250 with aluminum body





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For more information, please contact
your local ABB representative or visit

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