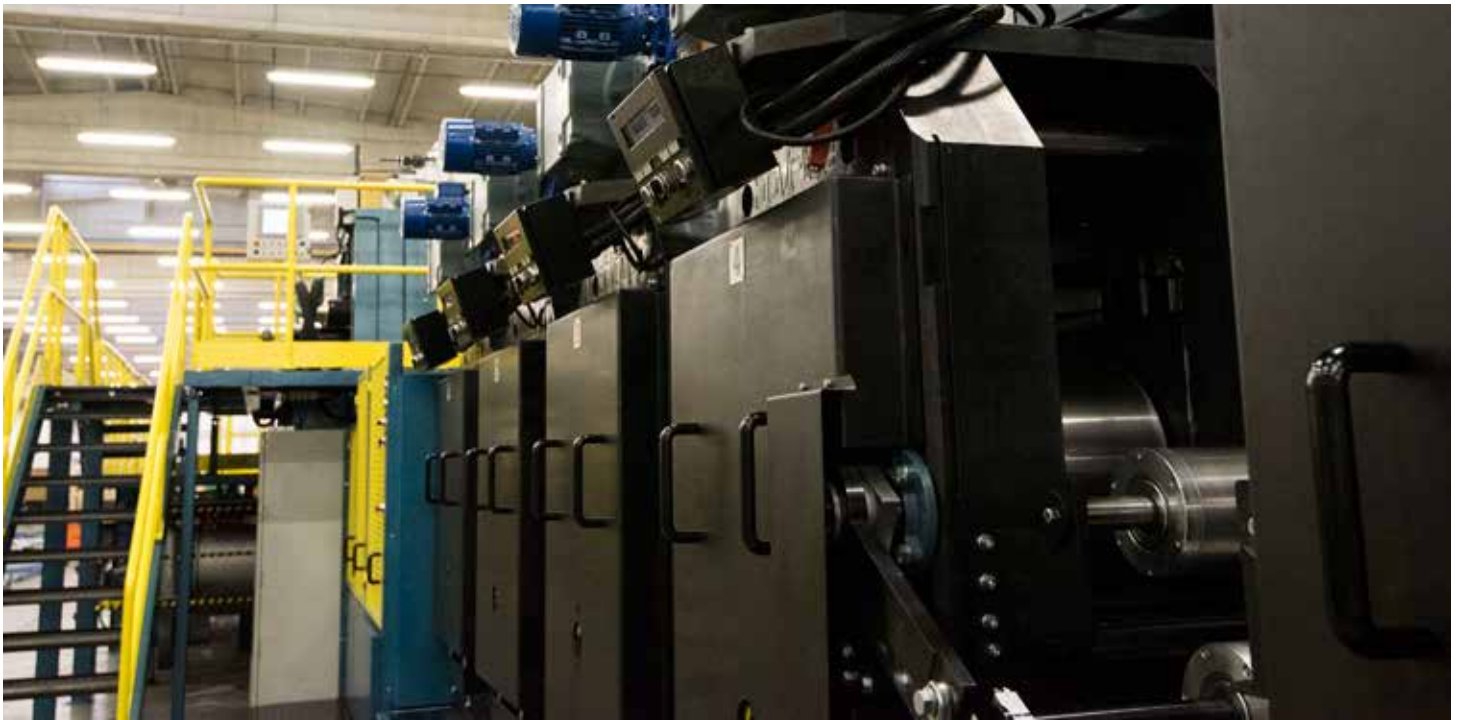




WIDE STRIP CASTING AND ROLLING LINES

A Range of Solutions to Meet Quality and Production Needs
of the Most Demanding Battery Manufacturers.



Thanks to its specific combination of experience and innovation, Sovema can now offer a range of solutions to better meet the different production needs of battery manufacturers.

TR 320/14 PLUS



- HIGHER PRODUCTIVITY (7.5 T/H)
- EXTENDED LIFETIME
- IMPROVEMENTS IN MAINTENANCE

TR 320/14



- PROVEN TECHNOLOGY WITH OPTIMIZED COST
- LONG TRACK RECORD OF INSTALLATIONS WORLDWIDE



4+1 ROLLING MILLS

This group consists of 4 rolling stands + 1 finishing rolling stand to roll the strip down to the final thickness (from 0.7 to 1.5 mm as a standard).

Main features:

- Independent motorization on each rolling mill.
- Same size for all cylinders.
- Increased interspace between each rolling mill, and open and accessible water bath for easy access and maintenance.
- New frame for the rolling system.
- Weighing cells to control the strip between each rolling mill.
- Gear group introduction for each rolling mill.

STRIP THICKNESS ADJUSTMENT

- On-the-fly manual system with electronic control on #1 to #4 rolling mills, for fast start-up, cambering control, and fast thickness set-up.
- Automatic adjustment on the 5th finishing rolling stand, through a hydraulic power pack which operates on the upper roller. The accuracy is ± 0.01 mm and the thickness can be modified without stopping the production line.



MORE THAN 30 UNITS INSTALLED WORLDWIDE

6+1 ROLLING MILLS

This group consists of 6 rolling stands + 1 finishing rolling stand to roll the strip down to the final thickness (from 0.7 to 1.5 mm as a standard).

Main features:

- Two motors, one for #1 to #6 rolling stands, and one for the 7th finishing rolling stand.
- Increased interspace between each rolling mill.
- New frame for the rolling system for easy access and maintenance.



OPTIONAL

LASER SYSTEM FOR THICKNESS MEASUREMENT

The laser system can work in loop with the finishing rolling mill on both models for continuous strip thickness control, with a precision of 1.5 μ m. This option can be installed as a retrofit on all existing machines.



UPGRADE AVAILABLE

WSC TR320/14 PLUS is available also with increased production capacity of 12 T/h of raw strip.

UPGRADE AVAILABLE

WSC TR320/14 is available also in line with Sovema PunchPlus[®], for continuous production of punched strip. The combined system allows the reduction of the overall footprint of the grid production line.



LEAD POTS

WSC TR320/14 PLUS cap. 7.5 t/h

- 2 rectangular pots with 30T capacity.
- 1 round pot with 20T capacity for lead feeding to casting unit.

WSC TR320/14 cap. 6.5 t/h

- 3 round pots with 20T capacity.

TWIN ROLL CASTING UNIT

- Couple of water cooled rolls driven by VFD.
- Inductive heating system for twin roll side plates.
- Special ladle to feed the lead with accurate level control.
- Automatic system to control the volume of cooling water according to the temperature of the raw strip.
- Insert system for easy maintenance of the twin rolls.
- Water pump for disposing the used cooling water.



SIDE TRIMMING UNIT

After the rolled strip has been cleaned and dried, the strip is trimmed on both sides to the required final width up to 300 mm. The same unit provides the cutting of the scraps into small pieces to be easily returned to the furnace. This station can also cut the whole strip, returning the resulting scraps to the furnace, if any alarm is triggered.

COILING SYSTEM

This unit rotates by 180° on a horizontal axis and supports two coiling reels: when the coil is completed, the strip is cut and a new strip coiling is automatically started in the second coiling station.

In the meantime, the full coil is disengaged from the spindle by a shuttle and unloaded by a hoist or forklift.



OPTIONAL ITEMS

- ▶ **ELECTRICAL HEATING** for lead pots.
- ▶ **THREE ADDITIONAL LEAD POTS** to handle different alloys separately.
- ▶ **LASER MEASUREMENT SYSTEM** to work in loop with the finishing rolling stand for automatic thickness adjustment.
- ▶ **SLITTING DEVICE** to divide the wide strip in three narrow strips that can be used in expanded metal lines.
- ▶ **AUTOMATIC TAPE APPLICATION** on the coiled strip at the end of the process.
- ▶ **LEAD SCRAP RECOVERY SYSTEM** from punching machine to the lead pot.

TECHNICAL DATA

PRODUCTION SPECIFICATIONS:

Throughput:

WSC TR 320/14 PLUS: 7.5 T/H of raw strip

WSC TR 320/14: 6.5 T/H of raw strip

Raw Strip Casting Speed:

2.5 m/min

FINAL STRIP SPECIFICATIONS:

Width: from 185 to 300 mm, with tolerance of ± 0.1 mm

Thickness: from 0.7 to 1.5 mm, with tolerance of ± 0.01 mm

Model	WSC TR 320/14 PLUS	WSC TR 320/14
AVERAGE GAS CONSUMPTION	75 m ³ /h (natural gas)	50 m ³ /h (natural gas)
COMPRESSED AIR REQUIREMENTS	1 m ³ /h (6 bar)	1 m ³ /h (6 bar)
EXHAUST SUCTION REQUIREMENTS	4500 m ³ /h	4500 m ³ /h
CHILLED WATER REQUIREMENTS	44 m ³ /h (at 10°C)	44 m ³ /h (at 10°C)
INSTALLED POWER	500 kW	448 kW
OVERALL DIMENSIONS (LxWxH)	32 x 9 x 4.5 m	30 x 8.8 x 4 m

KEY FEATURES AND BENEFITS

- ▶ Lead strip thickness reduction rate of 90-95% assuring material microstructure smaller than 50µm:
HIGH PRODUCT QUALITY THANKS TO CORROSION RESISTANCE, PASTE ADHESION, MATERIAL STRENGTH
- ▶ Long track records of installations among global top battery manufacturers:
PROVEN TECHNOLOGY ABLE TO FULFILL OEM REQUIREMENTS
- ▶ Rolling stands independently driven by dedicated motors (*PLUS version only*):
SIMPLIFIED MAINTENANCE WITH SINGLE SIZE ROLLERS AND EASY SPARE PARTS MANAGEMENT
- ▶ On-the-fly strip thickness adjustment from control panel:
TIME SAVINGS AND TRACEABILITY OF WORKING PARAMETERS
- ▶ Compliant with EU safety regulations:
GUARANTEE OF OPERATOR'S SAFETY STANDARDS

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ENGINEERING & EQUIPMENT FOR BATTERY MANUFACTURING

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