



# CASTER



Big River Steel's caster plays a vital role in the abilities of our Flex Mill™. Slab thicknesses ranging from 2.170 to 3.350 are one of the attributes that allow our mill to “flex” between heavy and light gauges and meet the reduction ratios required to produce the most demanding steel grades.

## MOLD TYPES

Providing dimensional advantages in width:

- **Narrow Mold** for 360 – 650 requirements.
- **Wide Mold** for 480 all the way up to 780 requirements (the widest thin slab caster to date in the world).

## CASTER THICKNESS

The caster's mold thickness upper limit is 87mm (3.420). Our liquid core reduction (LCR) can adjust the gap on the segments while casting to provide a slab as thin as 55 mm (2.170). This delivers the optimal thickness for the compact strip production (CSP) process specific to the grades of steel being produced at the width and thickness specified by our customers.

## MOLD MAPPING/BREAK OUT DETECTION

Thermocouples in the mold allows for precise detection of temperature changes that may produce quality issues if not addressed early in the production process. This is just one of the early quality detection systems built into our equipment. So in addition to improving the uptime of the caster, this mold mapping capability allows for earlier detection and correction of defects, including longitudinal cracks.

## RAM DRIVES

Minimal backlash from our ram drives allows CSP to perform both inward and outward ram moves. This allows greater flexibility in scheduling of grades that

may require width changes to both wider and narrower customer orders, generally 20 to as much as 40 wider or narrower adjustments. This enhancement, versus many other casters that are primarily limited to one-direction scheduling, gives our customers better sequencing and more efficient customer delivery.

## ELECTROMAGNETIC BRAKE (EMBR)

An electromagnetic braking system reduces the standing wave formed in the mold from the flow of steel out of the submerged entry nozzle (SEN). The flat meniscus helps prevent mold powder entrapment and reduces mold power consumption.

## CSP ALIGNMENT

Alignment on the CSP is kept to 0.015 of an inch with use of a Faro laser and stationary fixtures to adjust all alignment pads. Big River's caster runs at speeds upwards of 200 inches per minute and this precise alignment will help minimize defects.

## DESCALING

Our two stage descaling process improves surface quality, minimizes rolled-in scale and helps eliminate other surface inclusions. The first descaler (3500 psi) is located between the caster's withdrawal straightener and the shear. This is particularly important for high silicon steels which are difficult to descale. The second descaler (4500 psi) is prior to the first hot mill stand.