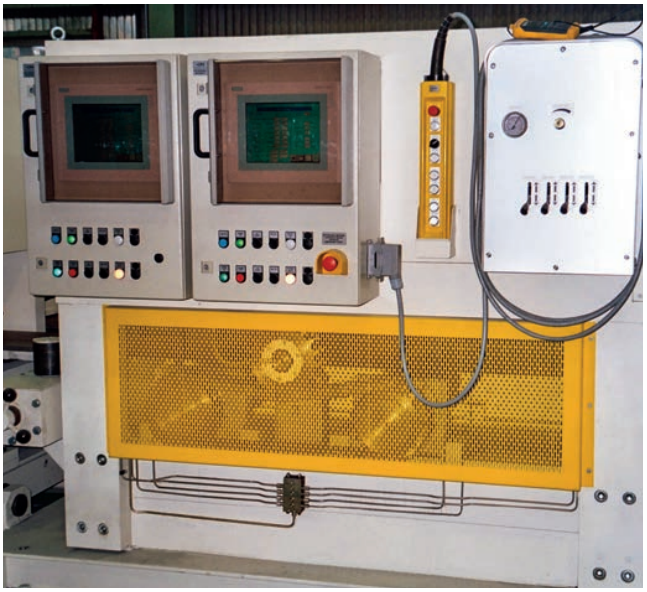
Withdrawal machine

The precise operation of the withdrawal machine is crucial in the manufacture of a top-quality continuous cast product. The requirements for precision in this case relate not only to the accurate maintenance of a particular working rhythm but also to the ability to adapt the cycle to the solidification characteristics of each material being cast.

In all cases, the working rhythm is based on a series of movements and pauses, with "go-stop" generally being the standard rhythm. With this programme, the stroke length, stroke speed and pause time are three characteristic parameters which are determined by the dimensions of the strand and alloy to be cast. However, it is necessary in most cases to add additional movements to the basic programme.

A small return stroke before and after the actual drawing process results in a noticeable reduction in friction inside the die and helps prevent any surface defects, especially in the case of heat-sensitive alloys.

A change in the average casting speed at exact preset time intervals is used, especially with copper-based materials with a high zinc content. These changes to the rhythm



mainly create a short-term displacement of the solidification front in the die and after resetting help to remove any metal residues and oxide adhering to the surface of the graphite.

Displacements of the solidification front in the die are often used to extend the service life of the die.

To optimise this special process, all withdrawal machines are fitted with precision drive units and the individual cast strands are transported by drive and pinch rollers.

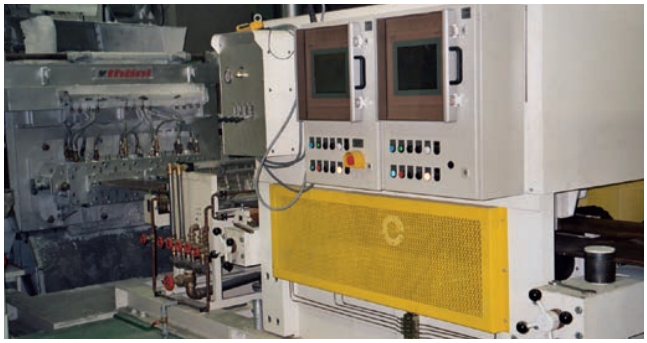
A drive unit consists of:

- highly dynamic servomotor
- gears
- power unit to supply the motor
- electronic controller with feedback control over the touch panel
- the power and control units are housed in an air-conditioned cabinet.

The sturdy steel structure guarantees a distortion-free and long service life of the unit.

The withdrawal machine has a central lubrication system, and all controls are ergonomically located.

MACHINE CHARACTERISTICS	
Cast material	Cu alloys
Machine clearance	50 x 1,100 mm
Format, 1-strand	up to 1,070 x 12-20 mm
Format, 2-strand	up to 500 x 12-20 mm
Format, multi strand	as per design
Cast material transport	drive and pinch rollers
Drive roller operation	1-2 servomotors
Pinch roller operation	pneumatic/hydraulic
Machine control	CNC
Preset values	freely selectable
Programme A/Programme B	0 - 9,999 cycles
Forward stroke	0.99 - 99.99 mm
Back stroke 1/ back stroke 2	0 or 0.99 - 99.99 mm
Forward/ back speed	1.5 - 70 mm/sec., selected separately
Stop times	0 or 0.02 - 60.00 sec.
Stop times correction	0 or 0.02 - 1 sec.
Weight of cast product	1 - 1,200 kg/m
Production rate	in mm/sec.
Average production rate	in kg/h
Cut length	50 - 500,000 mm
Programme setting	via CPU
Programme display	Touch-panel



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