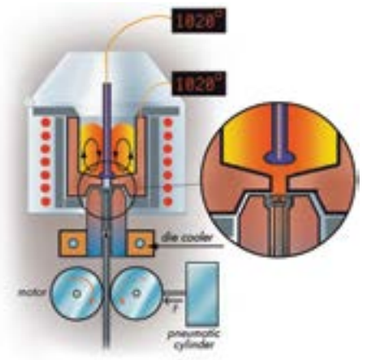
The Continuous Casting Machines – the only ones with vacuum and quattro drive



More flexibility, lower costs

With an Indutherm continuous casting machine, you can produce your own alloys or semi-finished products in different shapes and sizes in the shortest time:

- Wires or bars up to ø 90 mm
- Sheet and strips, e.g. ring production, for stamping and pressing
- Tubes, perfect as basic material for cutting in sections for wedding ring production
- Granulates

The use of a continuous casting machine can reduce your investment for material in storage considerably. Your processes will get faster, more flexible and more efficient.

Our continuous casting machines are equipped with a number of unique details which substantially improve the quality of the semi-finished material:

Unique vacuum system for highest quality of semi-finished material

To reduce the risk of oxidation during melting and during drawing, we focus on avoiding oxygen contact and on fast reduction of the temperature of the drawn material.

Features for fast temperature reduction:
- Cooling water temperature measurement and automatic flow control
- Optical temperature measurement in the center of the die
- Die cooler
- Additional secondary cooling system at the outlet

Features to avoid oxygen contact:
- Inert gas system for the melting chamber
- Vacuum system for the melting chamber – uniquely available for Indutherm continuous casting machines (VCC versions)
- Inert gas flushing at the die
- Optical die temperature measurement
- Additional secondary cooling system

All these measures are ideal especially for alloys containing copper such as red gold or for silver as these materials tend to oxidise easily.

Quattro Drive System

The material is drawn off by motor driven and pneumatically pressed-on feed rolls.
A bar end control sensor stops automatically when the molten material is spent.

The optional **Quattro Drive** drawing unit with four instead of two motor driven feed rolls produces smoother tubes and sheeting with reduced marks of transportation.

The Quattro Drive System with four feeding rolls. On left side in the foreground the additional secondary cooling system, on the right side the movable LED spotlight for easier feeding control.

Maximum versatility

With a wide range of optionally available equipment the versatility of these machines may be enhanced even more.

Granulation tank and sintering kit
The easy to install granulation tank makes each CC machine even more versatile. For details about granulation and about available tank sizes see page 39. CC 400 and VCC 400 are furthermore offering a third application possibility: with the sintering kit you can use this machine for diffusion bonding,e.g. for the production of multi-layer rings.

VCC 400 in continuous casting mode

The same machine as granulating unit...

...and here equipped with the sintering kit

The program control recognizes the applicated equipment and provides the suited parameter settings on the display.

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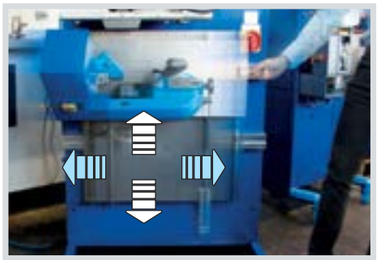
Numerous options for targeted production of semi-finished parts

Flying saw for shorting during drawing
The swiveling electric saw (large picture above) moves synchronously with the drawn bar or tube. This way you can cut your material into defined sections during drawing. You don't need to stop the continuous casting process when maximum length is reached.



Bending unit
Using the bending unit attached to the bottom drawer, the material can be bent without mechanical force on the die.

Hydraulic cutter
The hydraulic cutter is suited for cutting wires into pre-defined sections.

picture: VCC 400 with optional Quattro Drive

picture: VCC 1000 with Dual Drive

picture: CC 3000 with Quattro Drive

	CC 400 VCC 400	CC 1000 VCC 1000	CC 3000 VCC 3000
performance			
power max. / electrical connection	15 kW 3x400 V / 3x208 V	20 kW 3x400 V	30 kW 3x400 V
temperature max.	1500° C	1500° C	1500° C
capacity			
crucible volume	■ 285 ccm = 4.2 kg Au 18 ct*	■ 1,500 ccm = 22 kg Au 18 ct*	■ 3,400 ccm = 51 kg Au 18 ct*
	o 400 ccm = 6.0 kg Au 18 ct*		
	o 700 ccm =10.0 kg Au 18 ct*		
wire / tube production up to	■ ø 20 mm** / ■ ø 45 mm**	■ ø 40 mm** / ■ ø 65 mm**	■ ø 70 mm** / ■ ø 90 mm**
sheet production	■ 50 x 8 mm / o 60 x 8 mm	■ 100 x 10 mm	■ 130 x 12 mm
handling+control			
100 programs	by LCD-display, full text readout	by LCD-display, full text readout	by LCD-display, full text readout
vacuum/inert gas overpressure	– CC 400 / ■ VCC 400	– CC 1000 / ■ VCC 1000	– CC 3000 / ■ VCC 3000
neutral inert gas atmosphere	■	■	■
optical die temperature measurement	■	■	■
die cooler with protective gas flushing	■	■	■
secondary cooler	■	■	■
end bar sensor	■	■	■
quality management			
RS 232, Ethernet, USB interface, diagnostic system	■	■	■
data printer	■	■	■
GSM-modem for remote service	■	■	■
accessories			
Quattro drive drawing unit	o	o	o
sintering kit	o	–	–
granulation tank	o	o	o
bending-unit	o	o	o
simultaneous casting of several wires	–	o 3 wires (not in combination with Quattro Drive)	o 5 wires (not in combination with Quattro Drive)
coiling equipment	–	o	o
flying saw	o	o	o
hydraulic cutter	o	o	o

■ = *standard equipment* o = *optional* * *Liquid metal up to top level of the crucible – other volumes on request.* ** *Special dimensions or profiles on demand*