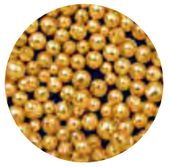
CC/VCC SERIES CONTINUOUS CASTING MACHINES – OUR 5 IN 1 MULTITOOLS

5in1

CHANGE FUNCTIONS WITHIN 5 MINUTES!

(VACUUM) CONTINUOUS CASTING OF WIRES, SHEET AND TUBES

with numerous options for cutting or sawing into sections during casting, for bending or coiling. VCC series with inert gas/vacuum system for the melting chamber

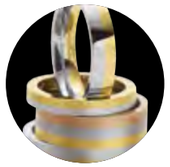


PRODUCTION OF GRANULES

with the easy to install granulation tank

PRODUCTION OF FLAKES

for sintering/diffusion bonding or refining applications



PRODUCTION OF MULTI-LAYER RINGS AND BRACELETS

with the optional sintering/diffusion bonding kit

CASTING INTO INGOT MOLDS

or any other molds

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**
- **Granules and flakes**

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, e.g. the unique vacuum system or the QUATTRO DRIVE drawing system. For details see next page.

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

Maximum versatility

Granulation tank and flake kit
The easy to install granulation tank and the flake kit make each CC machine even more versatile. For details about granulation/flake production and about available tank sizes see page 42.

Sintering kit
Sintering/diffusion bonding is the optimum process for producing multi-coloured rings, mostly sold as wedding rings, or bracelets. Metals are processed under pressure and at temperatures below the solidification point. The pressure is generated pneumatically and not mechanically via a threaded spindle. This means that there is no risk of graphite parts breaking as a result of heat expansion. The fusion between layers has the same durability as the metal itself.
The sintering kit is ideal for the occasional diffusion bonding job and for smaller series production.

Bar casting kit
The bar casting kit is developed for casting defined quantities of your alloy into ingot molds or into any other molds. The program control recognizes the applicated equipment and provides the suited parameter settings on the display.

VCC VACUUM CONTINUOUS CASTING MACHINES – THE ONLY ONES WITH VACUUM AND QUATTRO DRIVE

Feeding system for re-charging with constant vacuum in the melting chamber

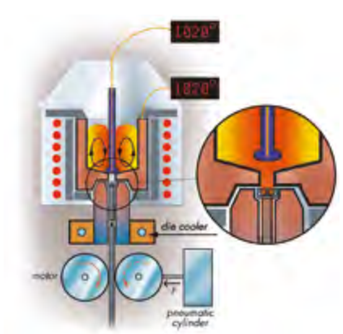
Vacuum melting chamber

Flexible inert gas outlet

Flexible LED spotlight

Quattro drive system

Flying saw



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

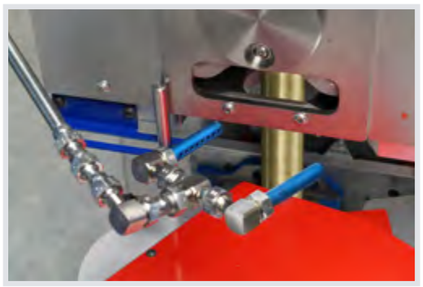
On each of our continuous casting machines, the material is drawn off by motor driven and pneumatically pressed-on feed rolls.
A bar end control sensor stops automatically when the molten material is spent.

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.

Numerous options for targeted production of semi-finished parts

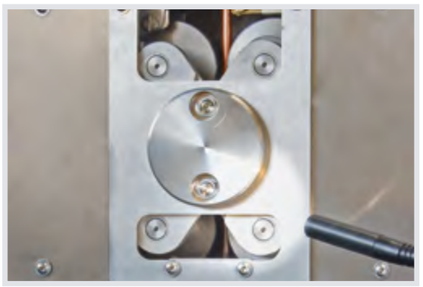
Bending unit
Using the bending unit attached to the bottom drawer, the material can be bent without mechanical force on the die.

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



Flexible inert gas flushing at the die

Feeding system for re-charging with constant vacuum in the melting chamber

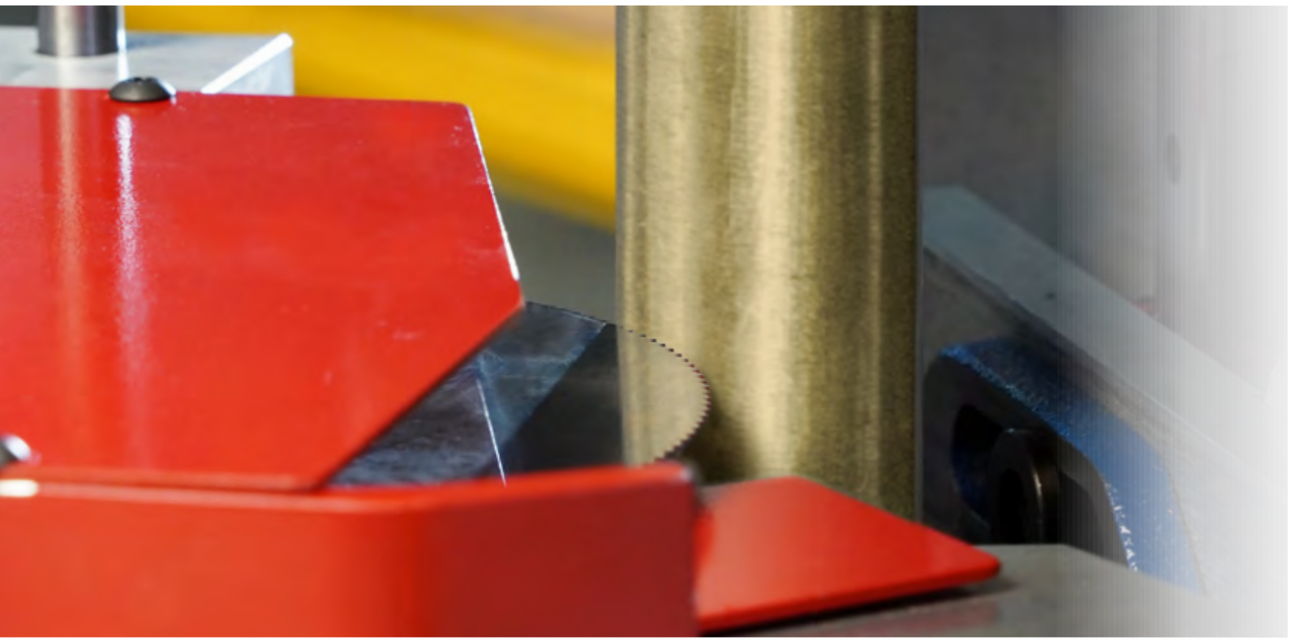


The Quattro Drive System with four feeding rolls. On left side in the foreground the additional secondary cooling system, on the right side the movable LED spotlight for easier feeding control.

Bending unit

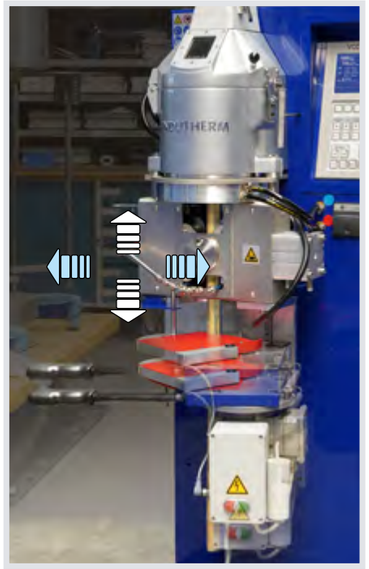
Hydraulic cutter

THE CONTINUOUS CASTING MACHINES



Continuous casting and cutting to size in one operation!

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.



picture: VCC 400 with optional Quattro Drive

picture: VCC 1000 with Dual Drive

picture: CC 3000 with feeding device, Quattro Drive and flying saw

	CC 400 / VCC 400	CC 1000 / VCC 1000	CC 3000 / VCC 3000	CC 12000 / VCC 12000
performance				
power max. / electrical connection	15 kW 3x400 V / 3x208 V	20 kW 3x400 V	30 kW 3x400 V	40-60 kW 3x400 V
temperature max.	1500° C	1500° C	1500° C	1500° C
capacity				
crucible volume	■ 245 ccm = 3.6 kg Au 18 ct / 2 kg Cu*	■ 1.5 l = 4 kg Al / 12 kg Cu *	■ 3.4 l = 8.5 kg Al / 25 kg Cu *	■ 12 l = 30 kg Al / 90 kg Cu *
	○ 386 ccm = 5.8 kg Au 18 ct / 3.3 kg Cu*			
	○ 700 ccm =10.5 kg Au 18 ct / 6 kg Cu*			
wire / tube production up to	■ ø 20 mm** / ■ ø 45 mm**	■ ø 40 mm** / ■ ø 65 mm**	■ ø 70 mm** / ■ ø 90 mm**	■ ø 70 mm** / ■ ø 90 mm**
sheet production	■ 50 x 8 mm / ○ 60 x 8 mm	■ 100 x 10 mm	■ 130 x 40 mm	■ 130 x 40 mm
handling+control				
100 programs	by LCD-display, full text readout	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	– CC 12000 / ■ VCC 12000
neutral inert gas atmosphere	■	■	■	■
optical die temperature measurement	■	■	■	■
die cooler with protective gas flushing	■	■	■	■
secondary cooler / water collection system	■ / ○	■ / ○	■ / ○	■ / ○
end bar sensor	■	■	■	■
DMS, InduthermCloud, iThermControl	○	○	○	○
quality management				
RS 232, Ethernet, USB interface, diagnostic system	■	■	■	■
data printer	■	■	■	■
GSM-modem for remote service	■	■	■	■
DMS / InduthermCloud / iThermControl	■ / ○ / ○	■ / ○ / ○	■ / ○ / ○	■ / ○ / ○
accessories/peripheral equipment				
Quattro drive drawing unit	○	○	○	○
sintering / diffusion bonding kit	○	–	–	–
granulation tank / flake option	○ / ○	○ / ○	○ / ○	○ / ○
bending-unit / coiling equipment	○ / –	○ / ○	○ / ○	○ / ○
simultaneous casting of several wires	–	○ 3 wires***	○ 5 wires***	○ 5 wires***
flying saw / hydraulic cutter	○ / ○	○ / ○	○ / ○	○ / ○
water chiller, vacuum pump ...	○	○	○	○

* Liquid metal up to top level of the crucible – other volumes on request.

** Special dimensions or profiles on demand

*** not in combination with Quattro Drive