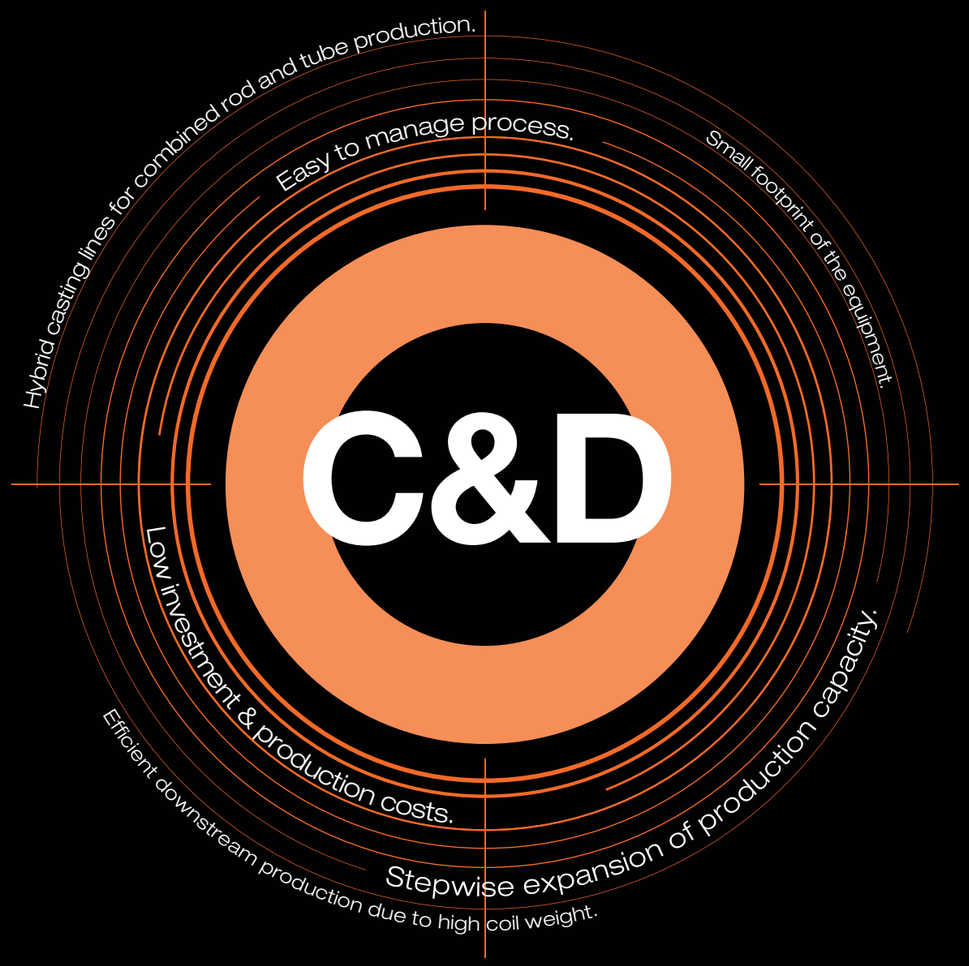
Upward **CASTING** – Breakdown **DRAWING** – Intermediate **ANNEALING**

Cast&Draw

UPCAST OY / ASMAG GMBH

asmag group



The perfect match where **1 + 1** results in more than **2**

Cast&Draw takes cost-efficiency to new heights

UPCAST OY is the exclusive supplier of the original UPCAST® technology well-known within the global wire & cable industry for high conductivity copper rod production. Now with the introduction of UPCAST®-SGTube – a new extension of this innovative technology – the process has been applied to the casting of thin-walled copper tube.

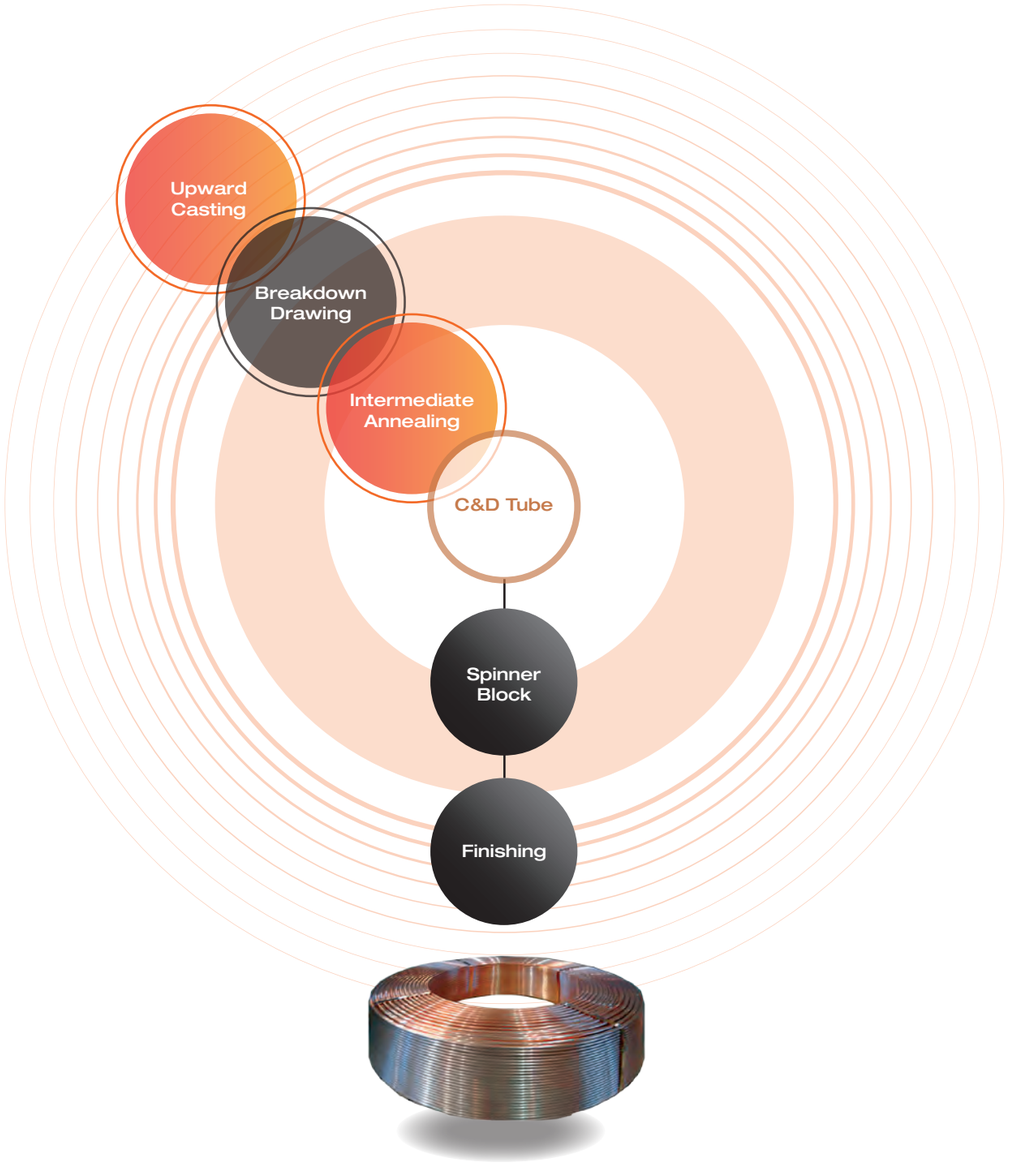
All inbuilt characteristics of the baseline UPCAST® technology - low investment & lifetime costs, flexibility in operation, unique upgradability and small environmental footprint – are now at the disposal of copper tube manufacturers.

ASMAG GmbH has for decades been serving both the steel and non-ferrous industry. The company is known for its diverse capabilities ranging from the planning of complete plants to the design and manufacture of individual machinery. In the area of copper tube production ASMAG GmbH covers the total downstream process starting from straight drawing machines down to level winders.

Whether it is planning of plants or building machinery, ASMAG GmbH emphasizes on smooth material flow, high automation and economical operation.

Now UPCAST OY and ASMAG GmbH have joined forces to supply Cast&Draw – a new process delivering semi-finished C&D copper tubes. By combining their respective know-how and expertise the two partners can offer proven cost savings for copper tube producers.

Cast&Draw Process



C&D tube is produced in three distinct phases:

1) **Continuous upward casting of thin-walled copper tube**
2) **Breakdown drawing of the cast tube in continuous straight drawing machine**
3) **Intermediate annealing of the drawn tube with in-line inductive annealer**

The first phase is performed with the UPCAST®-SGTube technology which represents a heavily modified version of the baseline UPCAST® system meant for casting copper rod. UPCAST®-SGTube is a flexible and energy-efficient technology allowing casting of different sizes of copper tube - even simultaneously. Each casting line is tailor-made to suit the customer's specific needs. The product coming from the UPCAST®-SGTube line is a thin-walled cast tube with a ductile grain structure withstanding high area reductions.

While showing high ductility the tube is still an as-cast product. Thus it is recommended to perform the breakdown drawing (phase 2) in a continuous straight drawing machine. ASMAG has come up with an innovative design for its straight drawing machines offering low wear in the drawing carriages and enabling quick change of rolls in the swivel-mounted bending unit.

Two drawing passes with an overall area reduction of ≥50% is sufficient for perfect recrystallization during intermediate annealing (phase 3) giving the semi-finished C&D tube a fine and uniform grain structure which is a pre-requisite for successful follow-on drawing on high-speed spinner blocks. ASMAG's annealer design is characterized by precise tube guidance and an induction coil optimized for high energy-efficiency.

Low life-cycle costs

Compared to conventional copper tube production methods the Cast&Draw concept offers proven cost savings for small or medium size tube mills. All-round savings arise from both acquisition and production costs. Cast&Draw is a compact process having low energy consumption and requiring just a small workforce and a small floor area. Exceptionally high coil weights mean less process scrap throughout the whole tube production process. Overall yield is in the range of 90-95%, a value unheard of in other tube production methods.

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