TC Inspection Systems

Ultrasonic Testing

100 % testing of Aluminium Extrusion Billets

DATASHEET

100-2016

Technical Data:

Range diameter:	***300 mm***
Range length:	***4000—9500 mm***
Cycle time:	***60—180 sec.***
Defection size:	***1.2—3.2 mm***

TC Engineering AS has recently upgraded its product range with a new system for 100 % ultrasonic testing of extrusion billets. Systems for submerged or non-submerged testing have been in the marked for quite some time . Non submerged testing gives a lot of possibilities for false indications while the submerged testing is a pretty complicated and time consuming process. TC has combined the two methods taking care of the advantages for both systems.

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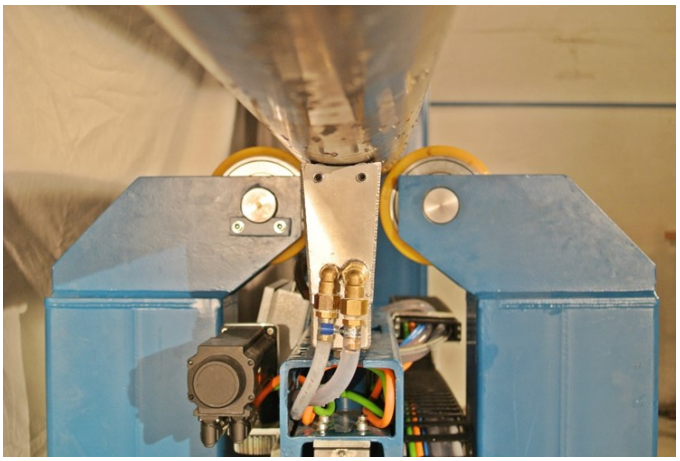
TC Inspection Systems

Advantages:

- *Stability with constant water contact*
- *High speed—numerous sensor heads*
- *Closed water loop*
- *No water spill*
- *Simplified calibration (automatic)*

The new TC system offers a semi-submerged system where part of the surface is submerged. This gives excellent stability during testing excluding most common problems in connection with non-submerged testing. In addition this system gives several technical advantages.

TC has almost excluded water spill as the system has a closed water loop. Water is pumped into the inner water tray where multiple ultrasonic sensor heads are placed. Water will then flow to the outer chamber where it is collected directly and returned to the water tank.



In traditional non submerged systems the ultrasonic sensor head will have to be placed very close to the billet surface. The surface and the outer part of the billet volume will then have to be excluded from testing and tested separately. For the TC system the ultrasonic sensor heads are placed in a specific distance from the billet surface. Scanning can then be done of full billet volume. Only the surface will have to be excluded as this can include damages from casting or handling. This method also allows us to use sensor heads with larger scanning surface which will cover a higher volume of the billet during scanning.

100 % scanning of billets is a pretty time consuming operation. A TC system with 2 x 16 ultrasonic probes can scan a billet in 95 sec., still being within the demands given in the standard for this operation. Scanning speed may be increased by using additional sensor units.

Calibration of this system is also very simplified compared with other systems. Calibration can be performed automatic by start of new scanning cycle.

The system can also be supplied for centre crack testing – then with only two probes and a much higher scanning speed. Or it can be supplied as combined system performing centre crack test or 100 % test according to requirements.