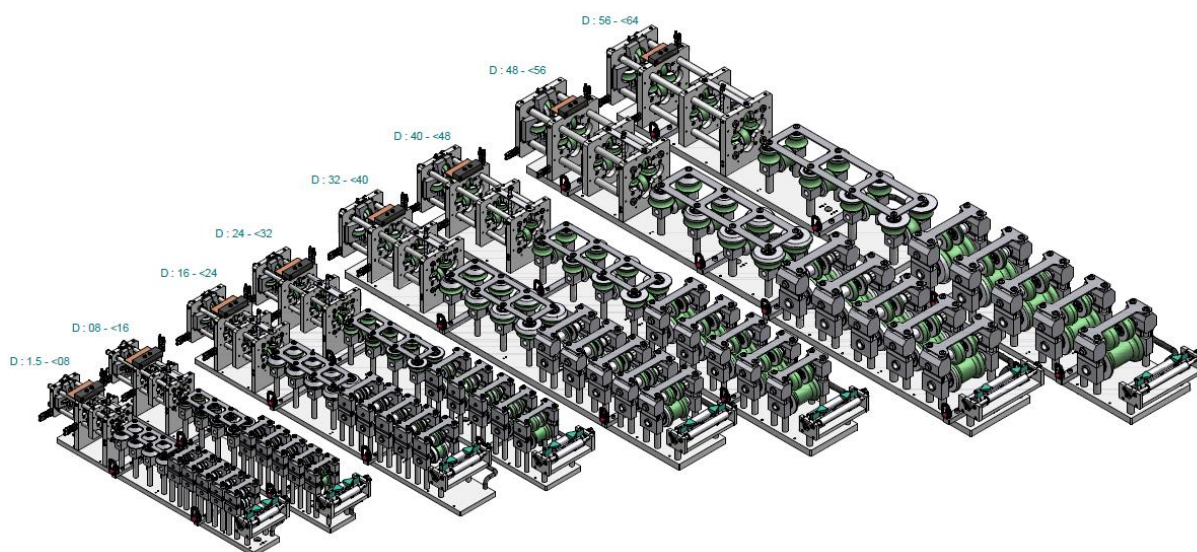


Communication – May 2021

New generation Roll Forming Benches

THE Machines – Switzerland present its new series of Roll Forming Tools for a wide range of metals and alloys to form and longitudinally weld tubes in the diameter range \varnothing 1.5mm to \varnothing 63mm.

Longitudinal Roll Forming Benches - Series



THE have applied 25 years of experience in the field of longitudinal forming and welding to achieve this next generation of forming bench.

Whether it is a laser or TIG welding source, whether it is material, aluminium, carbon steel, stainless steel, titanium, Inconel or copper, THE provide turnkey customer solutions.

In order to increase the performance of these products, a global design was compiled by integrating proprietary know-how and simulation software. This new concept has enabled THE to standardize the visual identity whatever the type and size of the forming bench and to give an uniform product image:

Reliable, robust, repeatable, high performance, aesthetic, no adjustment necessary, easy to use for operators and maintenance service.

Several improvements have been made for this new concept:

Weight reduction makes it easier for operators to handle when placing the tooling in the machine and off-line storage. A weight reduction has been achieved for the new DN Ø 16 by 58% compared to previous generations and by 75% for the DN Ø 63. This also contributes to reducing our carbon footprint. The addition of aluminium elements has contributed significantly to the weight reduction, but has in no way affected the robustness and rigidity of this product.

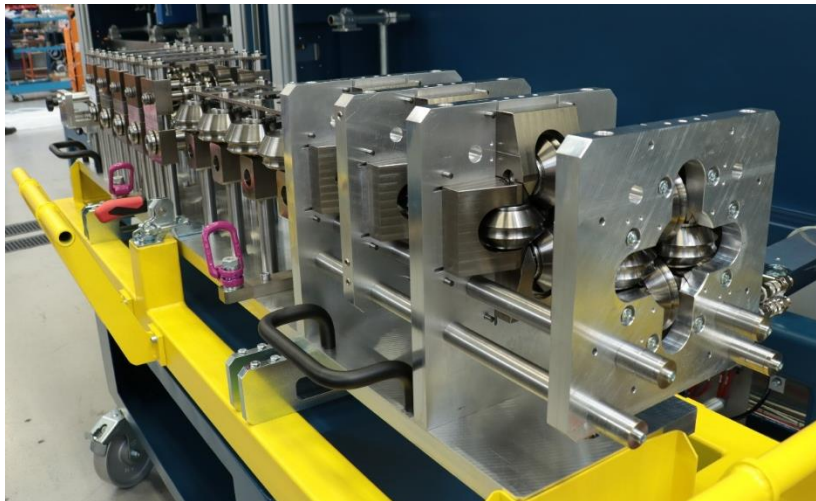


Fig. 1: DN Ø16 for Forming and Laser Welding Aluminium thickness 0.2 mm

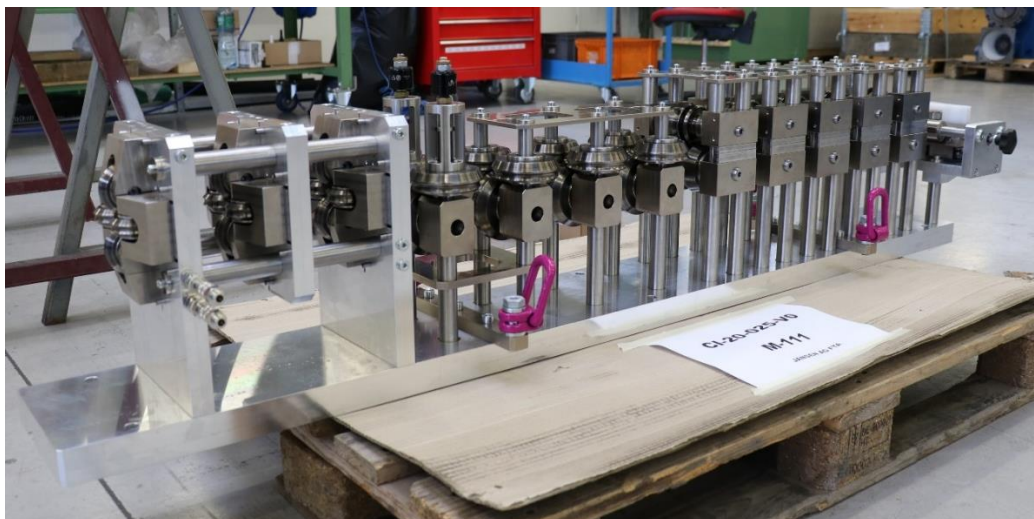


Fig. 2: DN Ø16 for Forming and TIG Welding Aluminium thickness 0.15 mm

Anticipating future increases in production speeds and by taking into account the increase in power of the various welding sources necessitated, each welding head support plate is equipped with an internal hydraulic cooling system.

The new concept of the V-stations (stations 6, 7, 8 and 9 after entry of the tape) consisting of three rollers, reduces friction on the outer surface of the metal tape as it passes through in order to obtain a product free of scratches or marks that could generate a reduction in adhesion strength when applying a coating layer, but also from a visual point of view when the product is used with the metal outside as the external layer.

The newly designed welding head and closed vertical station provides greater safety during the production process and saves time for maintenance.

Maintenance

The new high-precision components prevent time losses during maintenance work such as changing ball bearings or replacing a broken roller. The fully repeatable accurate positioning of the rollers in the X-axis does not require adjustment. Assembly is ensured by the combination of high-precision tolerance and design of the rollers, forks and roller support plate. The exact position of the Z-axis is guaranteed by a position indicator.

Production

With standard welding heads, it is possible that the geometric position of the rollers may change due to heat, knots or operator error. The new system uses the inclined plane principle, the contact between the fork and the roller support plate, once tightened, can be moved further.

In case a big pipe knot (extreme situation) or tube deformation has to pass through the welding head, the fixing screws will act as a fuse. Effectively they are designed to shear under extreme duress absorbing the shock and avoiding critical damage to other parts.



Fig. 3: Welding head and station VF

Under certain conditions, the forming bench can be transformed to accommodate another strip thickness by solely modifying the shim gap between the horizontal forming rollers, thanks to "quick change" shims or wedges.

The replacement of these shims does not require dismantling the entire bench but simply loosen the clamping screws, change the shim and tighten the screws again.

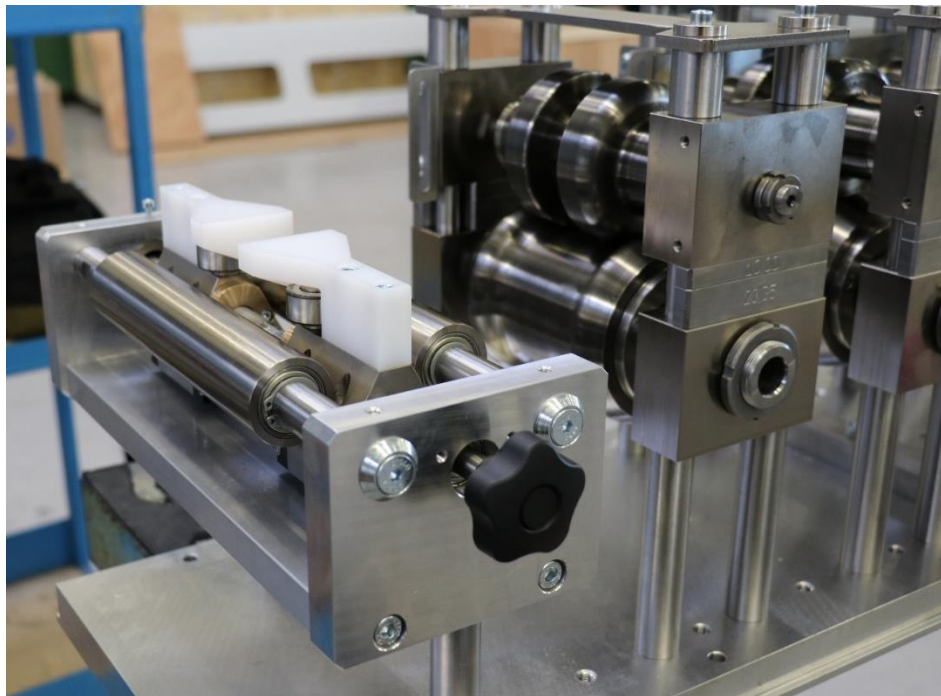


Fig 4: Quick change shims and new station 0

The "0" station (infeed guide) has also been improved by adding an additional guide arranged above the two side guide rollers to facilitate the introduction of the strip into the forming machine.

The opening and closing system has been fully re-engineered to improve and optimize tape strip positioning. The opening/closing function has been separated from the fine adjustment system of the strip centering. This process handling optimization eliminates the risk of losing the centering of the strip when opening or closing the guides.

From the very first forming bench to the present day, particular care has been taken in choosing superior material qualities or surface treatment in order to guarantee the longevity and reliability of THE's tools.

New generation roll forming benches are available for all THE forming and welding lines:

Model Types	LSL	TCSL	OPGW / FIST	FWM	MFWL
LSL 012 to 063	√	√	√		
TCSL 012 to 063	√	√			
OPGW / FIST 012			√		
FWM / MFWL 012 to 063				√	√

For further more detailed information, please don't hesitate to contact us.