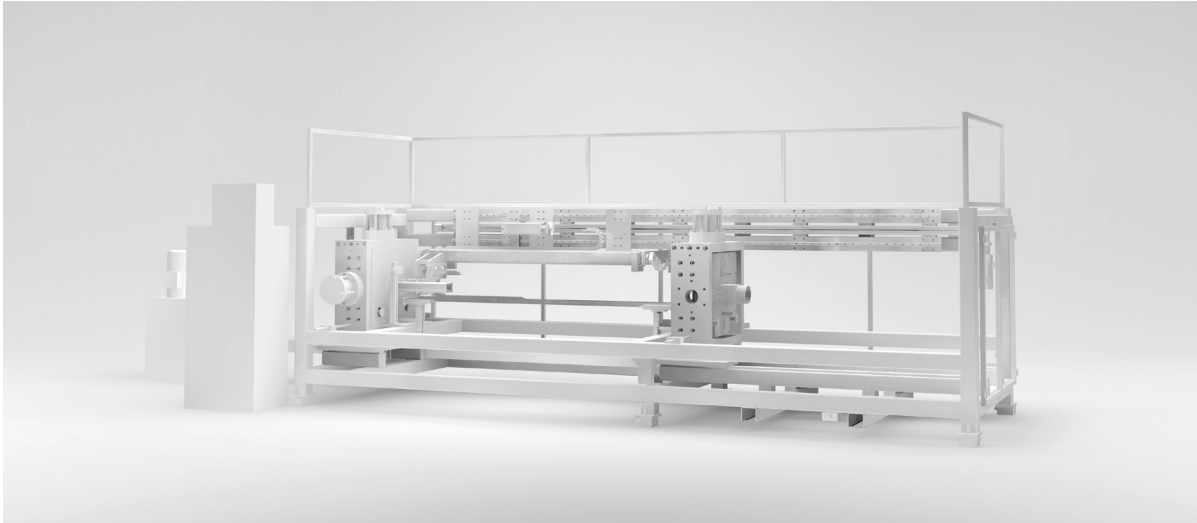


Punching machine for aluminium profiles



Task

For punch processing aluminium profiles on both sides, a unit with handling devices and tools is supposed to be built. The profile lengths ranging from 300 to 3,500 mm are supposed to be punched automatically. The maximum press power will be 24,000 kN. The operating personnel, in a first step, supply the profiles, by hand. The unit must, however, be designed in a way that later automatic placement from above by means of an XYZ room portal is made possible. The path accuracy of the X-axis during punching must lie at ± 0.1 mm. Up to four different punch patterns per profile end must be produced.

Solution

Two punching tools and a swivel handling device with an X-axis are mounted onto a sturdy welded frame. One of the punching tools can be moved 1,500 mm in X-direction, in order to reduce the traversing time for small profiles. The swivel module on the X-handling device is put into 90° position for manual loading and for later loading moved into 0° position by the room portal. The profile is clamped with two parallel grippers and vulcanised gripper fingers and supplied to the hydraulic punching tools. The parallel grippers can be adjusted in X-direction according to the profile lengths that need to be processed. A U-shaped protective fence and an operator-side safety light grid protect the operating personnel from dangerous areas.

Result

By employing a guide carriage with a servo driven X-axis, the required accuracy of ± 0.1 mm was successfully realised. With the sturdy base frame of the punching tool further tools can be included, in order to adjust to future variations in profile forms and punching processes.

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