High Capacity Flanging Machine

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HAEUSLER AG was founded in Dornach, Switzerland, in 1936 and is mainly specialized in the production of plate and section bending machines. In close collaboration with our customers and partners worldwide, HAEUSLER has been offering optimized solutions in numerous industrial branches for decades. As an independent family business, we keep maximum flexibility to fulfill even most specific customer inquiries.

High capacity flanging machine – HBM

HAEUSLER HBM is designed to form all types of dished ends (heads) using a variety of specific form rollers, i.e. semi-elliptical, torispherical or flat heads. Our custom built machines allow cold and hot forming of various grades of steel, plate diameters of up to 8 m and thicknesses of up to 100 mm.

Dished ends of more than 45 - 50 mm wall thickness usually require hot forming. Optional equipment for hot forming will increase the machine's capacity substantially. Using hot forming, processable wall thicknesses will almost double compared to cold forming (approx. 100 mm at 900 degrees C). Another advantage of the hot forming is improved and quicker forming of special steels.



On custom order the machine can be equipped with the following additional devices:

- Tool changing device
- Loading carriage
- Measuring system
- Special attachments for small diameters
- etc.

Working process

The dished end (1) is clamped in between the sleeves (8 + 9) with the open end pointing downwards. The inner form roller (2) contacting the dished end and the outer pressure roller (3) which is doing the forming touching the outside. Both are driven by hydraulic motors at preselected speeds. The position of the outer pressure roller is preselectable and can be stepless adjusted.



This position regulator unit sits on a swivelling bridge construction (5) which is moved up and down by a hydraulic cylinder (6). The pressure of this cylinder (6) pushing the swivelling bridge against the dished end is the only parameter that needs to be controlled by the operator during the forming process. Even this pressure variation can be controlled electronically (if required) to allow fully automated forming. Ideal forming conditions are achieved thanks to continuous pressure roller displacement in axial direction and continuous pressure of the swivelling bridge (5) against the dished end.



Control System

One single operator controls the flanging machine as well as additional devices from one control panel. This control panel includes all necessary buttons, switches, preselectors and pressure gauges for all adjustments and regulations. All axes feature absolute position encoders (no reference runs necessary). On custom order the machine can be equipped with CNC Control. The CNC supports manual flanging as well as automatic operation. The data for programming the CNC can be retrieved from theoretical calculation of the control system, by teaching data from previous formed dish ends, operator know how data or a combination of both.



Advantages of the HAEUSLER HBM

• The heads are formed with the plate ends pointing downwards. For hot forming this is a necessity because forging scale will fall out and won't be rolled into the dished end, thus avoiding damage to the dished end's surface. Further advantages include smaller convective heat losses and less deformation through the dished end's own weight. Due to the open end pointing downwards there is an excellent chipclearance during bevel edge preparation. When cold forming thin materials, the bottom up orientation of the dished end guarantees a more stable positioning.

• Simple machine controls thanks to pressure roller follow automatically the shape of the forming roller plus dished end thickness. Only the pressure of the pressure roller needs to be monitored and controlled by the operator. Thus operator training requires little time. The described simple machine controls enable the use of the real CNC Control System.

• A powerful hydraulic drive ensures best possible forming conditions. Individually driven inner form roller and outer pressure roller reduce the possibility of plate separation and minimise plate thickness reduction due to pull action on both sides of the plate. Hydraulic speed compensation ensures optimal circumferential speed adaption with no splipping on either side of the dished end. There is virtually no loss of power as compared with mechanically driven machines.

Stepless speed variation allows selection of the correct operating speed for different metals and forming processes. Combined with the method of continuous pressure roller displacement in axial direction the result is a smooth, step free surface, which is especially important when producing stainless steel heads. Process quality is also improved by the fact that both rollers are independently driven by hydromotors, which guarantees for a perfect speed compensation. This advantage is especially obvious with flanged ends, where a grinding process is required. Very little grinding time is necessary.

• The cylindrical part of the head can be formed without any interruption of the forming process. Producing a very large cylindrical part is possible without difficulties. The excess length of the cylindrical part can be directly used for test pieces on heads requiring a material acceptance test.

• Heavy rigid welded steel frame construction ensures that no process forces are inducted into the machine foundation.

• An adjustable fulcrum of the swivelling bridge permits an optimal use of the installed power.

• Stepless adjustment of the inclination angle of form roller from 0 - 25 degrees allows the correction of the springback for any kind of metal and ensures easy mounting of the form roller.

Quotation required?

To work out a quotation we need the following essential data:



- Min. and max. head diameter "D"
- Min. and max. wall thickness "S"
- Type of head or min. and max. knuckle radius "r" and head height "H"
- Max. length of straight end "h"
- Material specifications including yield point and tensile strength
- Full production range and output.

Headquarters Switzerland HAEUSLER AG Duggingen Baselstrasse 21 CH-4202 Duggingen Tel.: +41 61 755 2222 Fax: +41 61 755 2200

Germany: Maschinenfabrik Chr. HAEUSLER GmbH Am Rhein 15 D-79618 Rheinfelden-Herten Tel.: +49 7623 909070 Fax: +49 7623 9090749

sales@haeusler.com http://www.haeusler.com



