Flash Butt Welding Machines

Types AS 15 - AS 320
A reliable and economic process to join components of any kind out of steel, stainless steel and aluminium.

**Important Advantages of Flash Butt Welding Compared with Other Joining Methods:**

- Superior weld quality owing to sound structure of metal. Resistance of weld joints above 90% of parent material.
- Welds to be processed like basic material.
- Extremely short welding times of few seconds only.
- No or low requirements for preparing of material ends.
- High repeatability of weld parameters achieved by well-proven drive systems - effective control of weld parameters possible - auto-regulating system for weld process possible in case of hydraulic machines.
- High precision of welded parts by low tolerances in length.
- Total or partial deburring of weld joints possible in many cases.

**Automatic Controlled Weld Cycle Including:**

**Preheating...**
For machines with hydraulic drive system welding large, solid sections.
Preheating of ends produced by several strokes of moveable carriage.
Equal distribution of heat through complete section.
Reduction of flashing time.

**Flashing...**
Introduction of welding heat into ends of work piece.
Progressive driving of movable jaw to obtain high current density with fusion of metal.
Eliminates projections and impurities at the butting ends.
Heats complete section in localised area.
Small sections or thin walled material can be welded in cold state.

**Forging...**
Work pieces brought together under high pressure to ensure a "pure" weld.
Automatic current switch-off.
Superior weld quality via adjustable weld force.
- Bicycle rims
- Try squares
- Table knives
- Tubular frames
- Sheet metal rings
- High carbon wire upto 14 mm dia.
- Alloy steel wire upto 16 mm dia.
- and many other pieces

**Type AS 15 – versatile butt welding machine**

- Welding section: mild steel 15 - 400 mm²
- Welding carriage slides precisely in precision ball aring guides
- Flashing produced by gear motor and cam disc
- Forging produced by pneumatic cylinder
- Weld parameters adjustable for flashing way, current switch off and welding force
- Clamping devices in pneumatic or hydraulic form dependent upon the product being manufactured.

Type AS double installation for mitre welding of window frames for cars

For small section work pieces, produced in large volume or small numbers, particularly used for the welding of:

Type AS V/D in vertical design for coil joining of wire
As well as for frequently changing jobs

Type AS 25 AL/S

- Door and window frames from steel profiles
- Motor cycle rims
- Tubular frames for shop fittings etc.
- Tools, try squares etc.
- Steel strip in coil joining operation

HEAVY-DUTY AND UNIVERSAL WELDING MACHINE FOR THE MASS PRODUCTION OF BIG VOLUME PARTS IN PARTICULAR:

- Welding section: mild steel 40 - 800 mm²
- Welding carriage slides precisely in adjustable precision roller guiding system
- Flashing produced by gear motor and cam disc
- Forging produced by pneumatic cylinder
- Weld parameters adjustable: flashing way, current switch off point and forging effort
- Clamping devices pneumatic or hydraulic according to the product to be made
Type AS 40 DA for frames of switch cabinets

- Stair frames from rectangular steel tubes
- Foot rings for gas bottles
- Tubular / profiled frames for switch cabinets
- Steel door frames
- Steel strip in coil joining operation
- Concrete reinforcing bars up to 28 mm dia.
- Further work pieces from tubes, profiles, strip and solid material

**Universal Butt Welding Machine for Medium Sized Sections**

- Welding section: mild steel 50 - 1300 mm²
- Welding carriage slides precisely in adjustable precision roller guiding system
- Flashing produced by gear motor and cam disc
- Forging produced by hydraulic cylinder
- Welding parameters adjustable: flashing way, current switch off point and upsetting force
- Hydraulic clamping devices made according to the product being welded

Used in high volume production as well as for small series manufacture, e.g.:

Type AS 40 for T-welding of rectangle tube
Reduction of your welding costs

Welding of bicycle rims made out of aluminium profile

Welding of aluminium profiles (rims, mitre welding of cover frames for cars and facades)

Tools, spattles and knives

Tubular frames: butt, mitre or T-welding
Rings made of steel strip or profiled steel in non-alloyed or stainless qualities

Chain links and load rings

Wheel rims for cars, trucks and tractors

Drag chain link

Concrete reinforcing/stainless bars

Mitre welding of aluminium frames
Deburring devices

For eliminating or reducing flash at the weld joint

Deburring devices

The forging process of the flash welding cycle produces a small brittle weld burr. The importance of the burr depends on the sections being welded. The weld burr can easily be removed by grinding, milling or similar processes.

Deburring within the welding machine is particularly economic. For this purpose the machines can be fitted with hydraulic deburring tools or shear-type deburring devices.

Deburring is made after an adjustable cooling-down time in the red-hot material condition. The deburring cycle is automatic. It will take 1 to 4 seconds only according to the length of the weld seam.

The deburring knives are made for a high life time. They are easily interchangeable and adjustable to the material thickness.

Steel strip and parts from flat steel having flat, horizontal surfaces can be deburred by a hydraulic deburring tool type „HE“. These tools produce a linear deburring stroke to remove the burr with the knives adjusted to the material thickness.

Separate deburring machines are manufactured for deburring of car wheel rims, starter gear rings and similar products. There are deburring units for chain links and load rings. Round bars can be deburred by shear-type deburring systems.

The tools are made from special steel and have to be machined according to the diameter of the round bars.
Frames from heavy steel profiles
Frames from aluminium profiles
Sheet metal and foot rings for gas bottles, containers etc.
Stair frames from rectangular steel tubes
Chain links and load rings
Tools, shafts, pull-rods
Concrete reinforcing bars upto 32 mm dia.
Steel strip in coil joining operation in tube mills
and many others

HYDRAULIC FLASH BUTT WELDING MACHINE, VERSATILE OPERATION WITH HYDRAULIC IDEAL DRIVE SYSTEM

- Welding sections: mild steel 50 - 1600 mm²
- Welding carriage slides precisely in adjustable precision roller bearing guides
- Carriage movement controlled by hydraulic cylinder
- Planishing bum off for butting ends if required
- Preheating in case of heavy solid sections, thus reducing flashing way
- Flashing with progressive carriage speed and acceleration
- Forging produced by hydraulic cylinder
- Welding parameters adjustable: flashing way, current switch off point, forging force and clamping force
- Hydraulic clamping devices made according to the product
Equipped with well-proven hydraulic drive system to produce a consistent weld quality in:

- Chain links, load rings
- Rims for passenger cars
- Shafts, bars, heavy tubing
- Foot rings for heavy steel bottles
- Beer barrel rings
- Concrete reinforcing bars upto 50 mm dia
- Steel strip in continuous processing lines and many other parts

HEAVY-DUTY FLASH WELDING MACHINE FOR PRODUCING WORK PIECES IN SAME OR VARYING RANGE

- Welding section: mild steel 100 - 3000 mm²
- Welding carriage slides precisely in adjustable guiding rollers on hardened and ground steel rails
- Carriage movement produced by hydraulic cylinder
- Planishing burn off of butting ends if required
- Preheating in case of big solid sections, thus reduction of flashing way
- Flashing with progressive carriage speed and acceleration
- Forging produced by hydraulic cylinder
- Welding parameters adjustable: flashing way, current switch off point, upsetting force and clamping force
- Hydraulic clamping devices made according to the product
Rims for trucks and tractors
Chain links and load rings
Flanges and profiled steel rings
Forgings and heavy bars
High speed steel tools
Ripped platens for railway switches
Steel strip of important widths and thicknesses

THE HEAVY SERIES OF FLASH WELDING MACHINES
HAVING A WELL-PROVEN HYDRAULIC DRIVE SYSTEM

- Welding section: mild steel 300 - 7000 mm² resp. 400 - 10 000 mm²
- Welding carriage slides precisely in adjustable guiding rollers on hardened and ground steel rails
- Carriage movement produced by hydraulic cylinder
- Planishing burn off of butting ends if required
- Preheating in case of big solid sections, reduction of flashing way
- Flashing with progressive carriage speed and acceleration
- Forging produced by hydraulic cylinder
- Welding parameters adjustable: flashing way, current switch off point, upsetting force and clamping force
- Hydraulic clamping devices made according to the product being manufactured
All welding areas are calculated on a specific upset force of 30 N/mm² which has proven best for superior non-porous welds in steel qualities up to St 37 grade.

Both alloy and stainless steels require a higher upsetting force and hence the maximum welding area is proportionally reduced.

Examples of these different forces are:

- 60 N/mm² for concrete reinforcing steel
- 30 - 60 N/mm² for carbon steel - according to C-content
- 80 - 120 N/mm² for stainless steel
- 150 N/mm² for aluminium