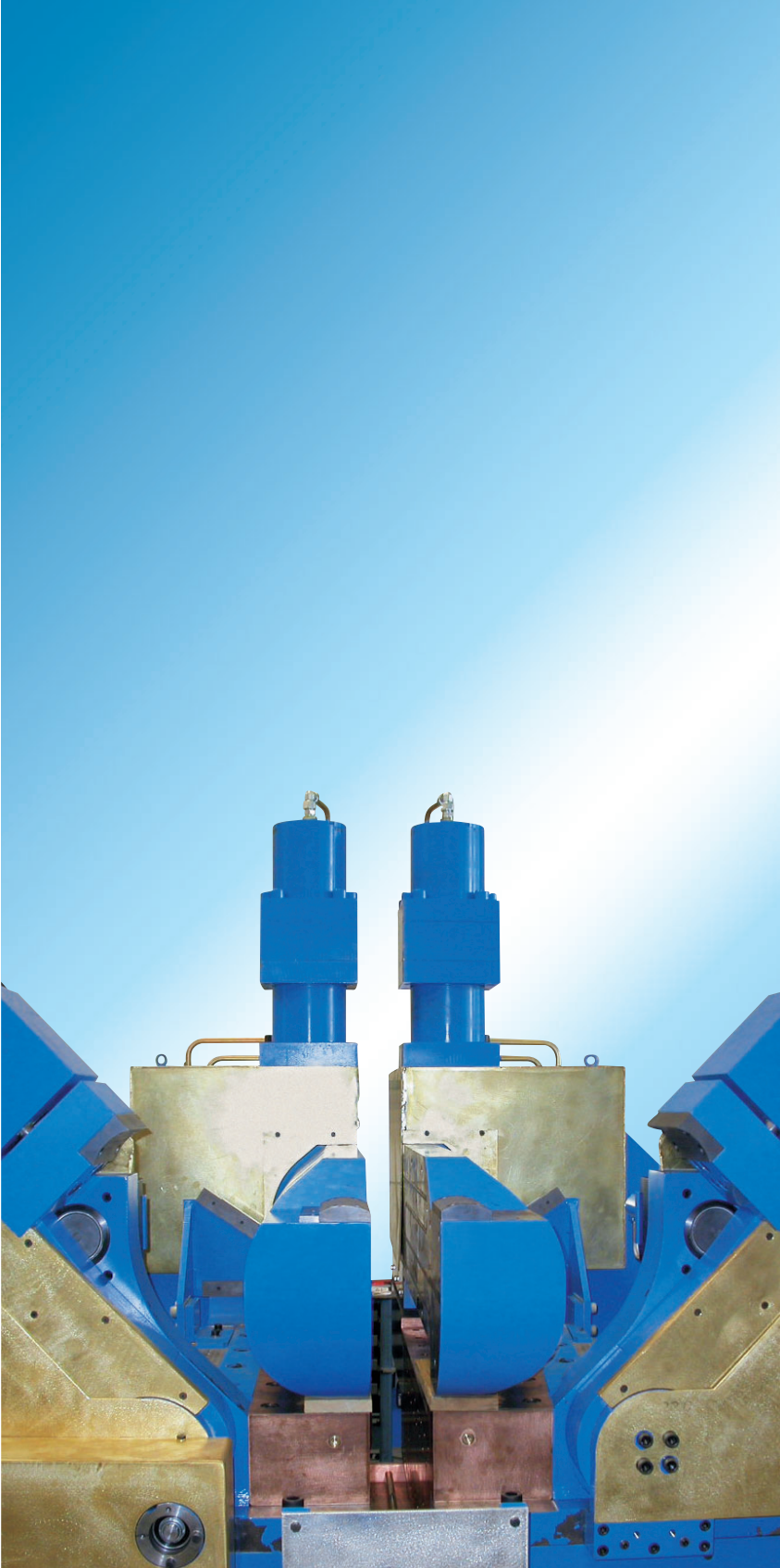


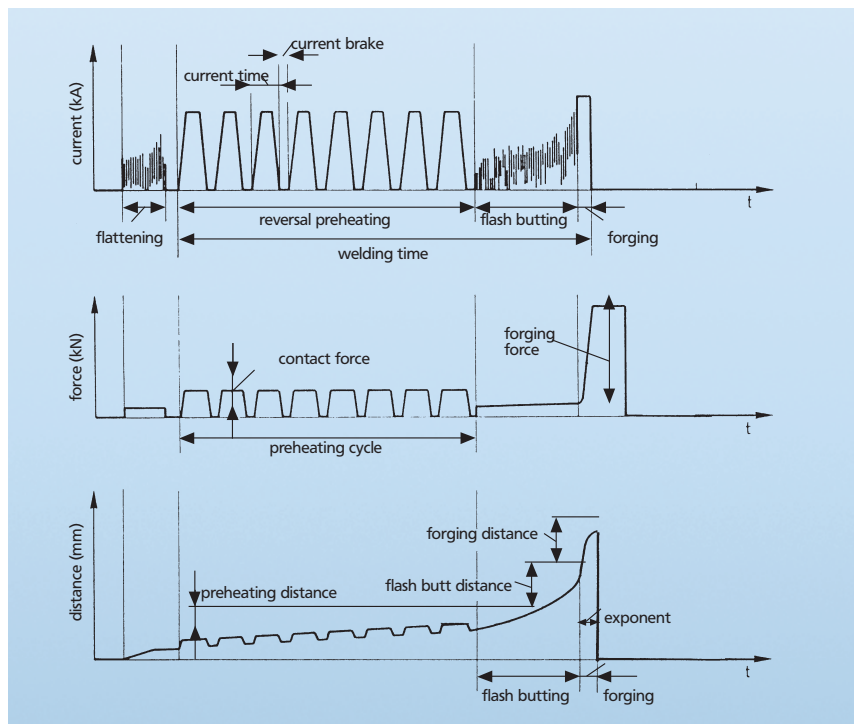
# FLASH BUTT WELDING MACHINES



**TYPES AS 15 - AS 320**



A reliable and economic process to join components of any kind out of steel, stainless steel and aluminium



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### 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.

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.

##### Flashing ...

Introduction of welding heat into ends of work piece.

Progressive driving of movable jaw to obtain high

##### Forging ...

Work pieces brought together under high pressure to ensure a „pure“ weld.

Automatic current switch-off.

Superior weld quality via adjustable weld force.



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

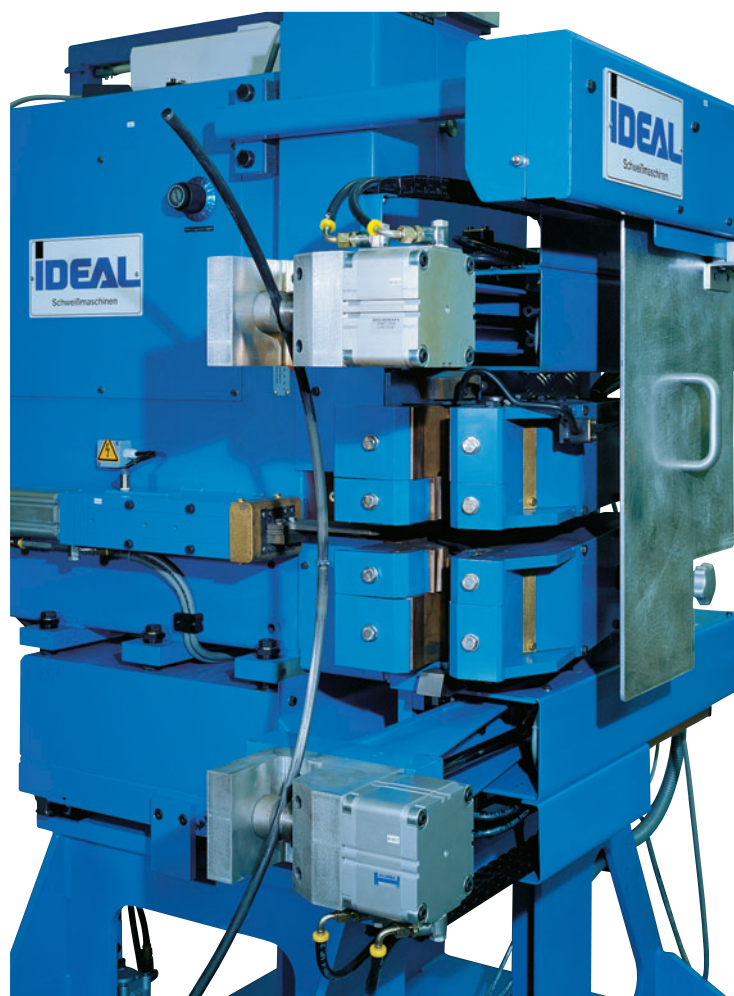
For small section work pieces, produced in large volume or small numbers, particularly used for the welding of:

- Bicycle rims
- Try squares
- Table knives
- Tubular frames
- Sheet metal rings
- High carbon wire up to 14 mm dia.
- Alloy steel wire up to 16 mm dia.
- and many other pieces

**TYPE AS 15 – VERSATILE BUTT WELDING MACHINE**

- Welding section: mild steel 15 - 400 mm<sup>2</sup>
- Welding carriage slides precisely in precision ball bearing 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.

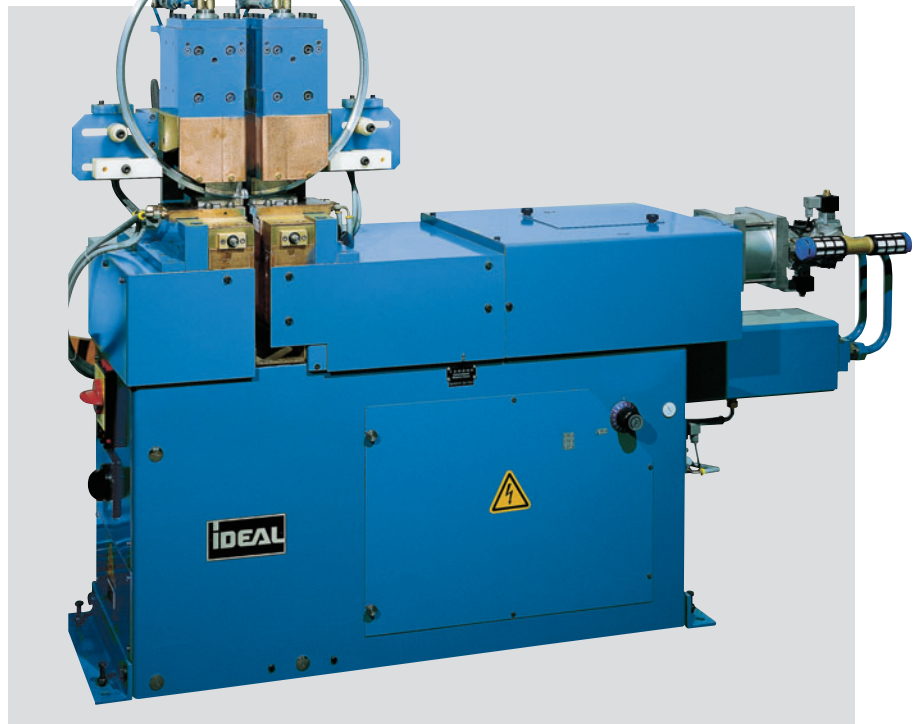
Type AS V/D in vertical design for coil joining of wire





As well as  
for frequently  
changing jobs

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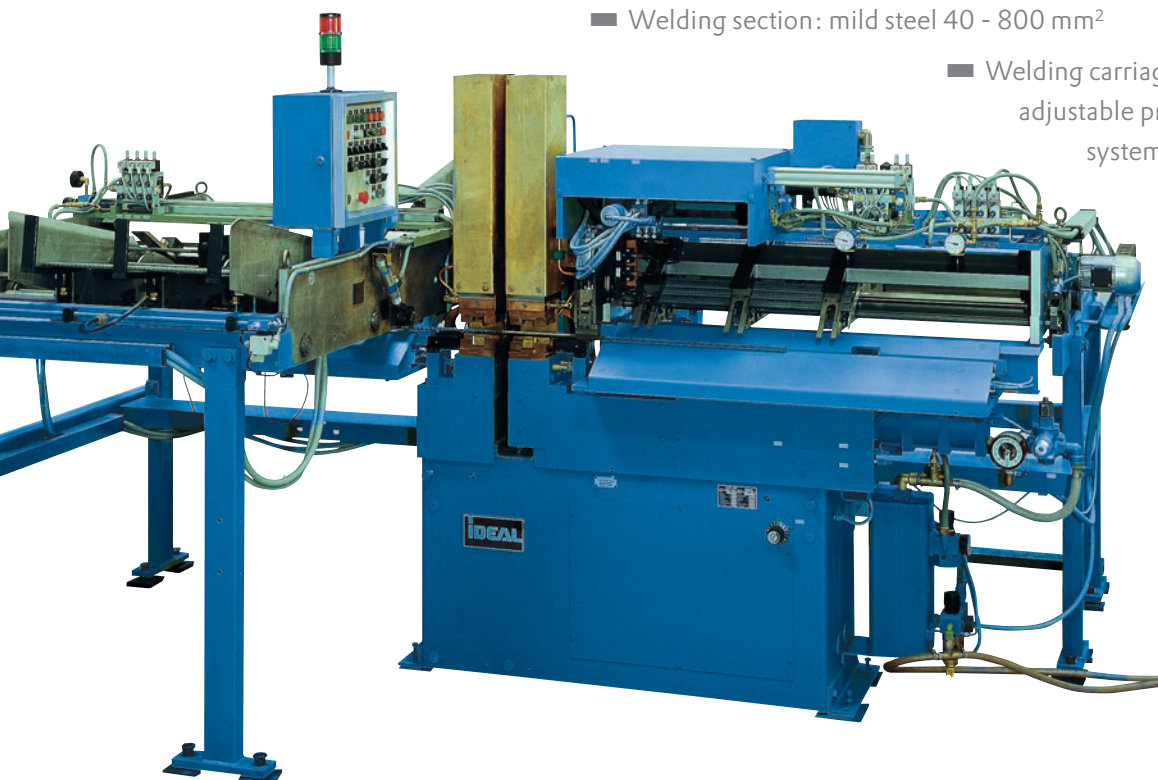
Type AS 25 AL/S

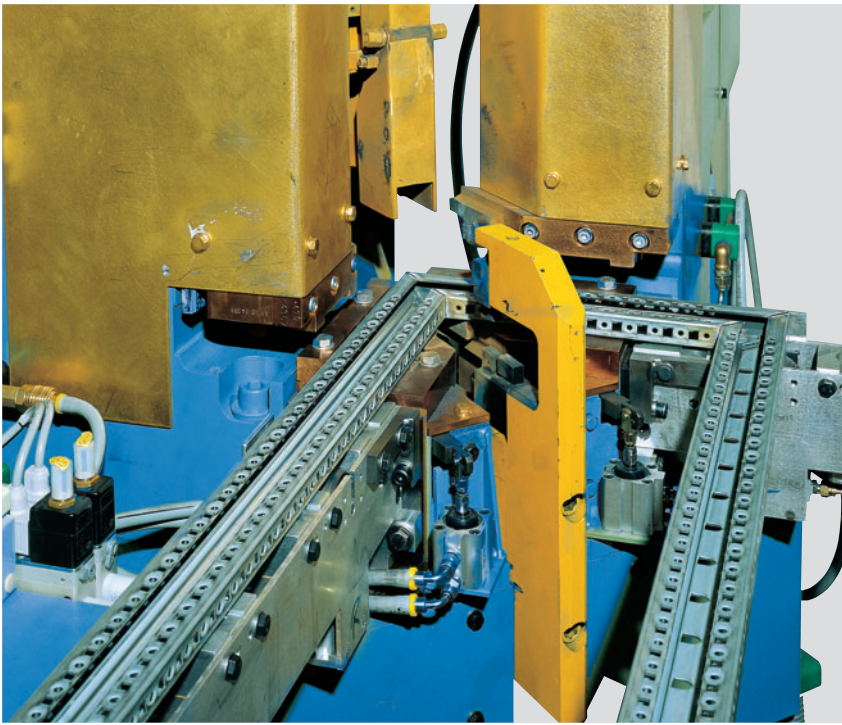
- Door and window frames from steel profiles
- Motor cycle rims
- Tubular frames for shop fittings etc.
- Tools, try squares etc.
- Steel strip in coil joining operation

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

- Welding section: mild steel 40 - 800 mm<sup>2</sup>
  - 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 25 S with hopper  
for concrete reinforcing bars





Type AS 40 DA for frames of switch cabinets



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

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- 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 upto 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 mm<sup>2</sup>
- 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

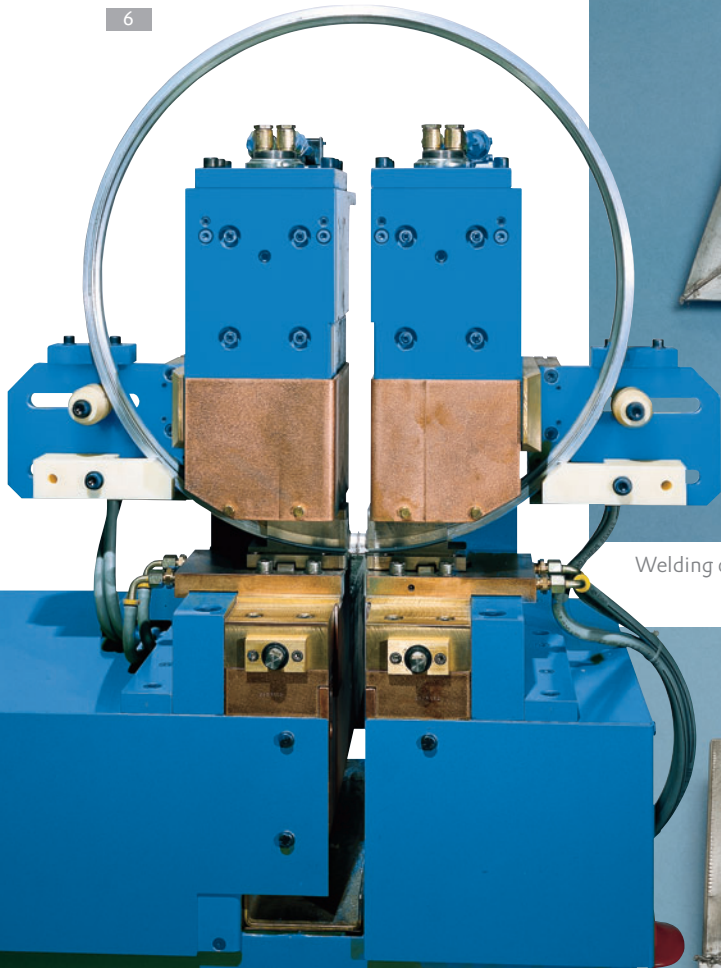
Type AS 40 for T-welding of rectangle tube



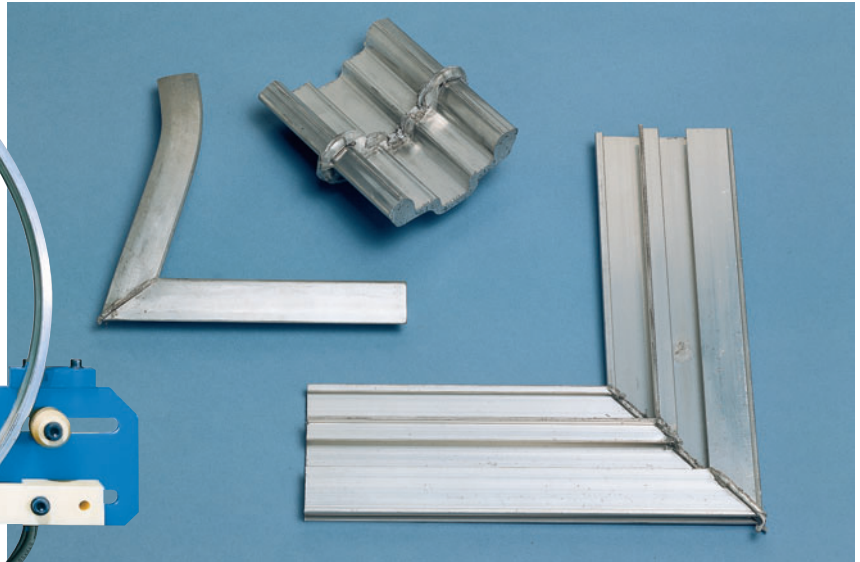


Tools, spattles and knives

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Welding of bicycle rims made out of aluminium profile



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



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



Mitre welding of aluminium frames



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Wheel rims for cars, trucks and tractors



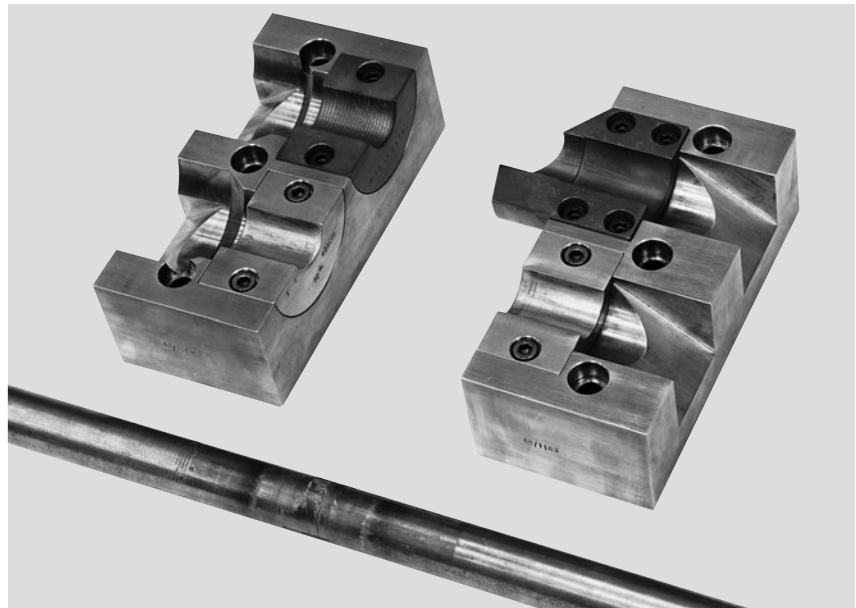
Drag chain link



Concrete reinforcing/  
stainless bars



For eliminating or reducing flash at the weld joint



Deburring tools

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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.

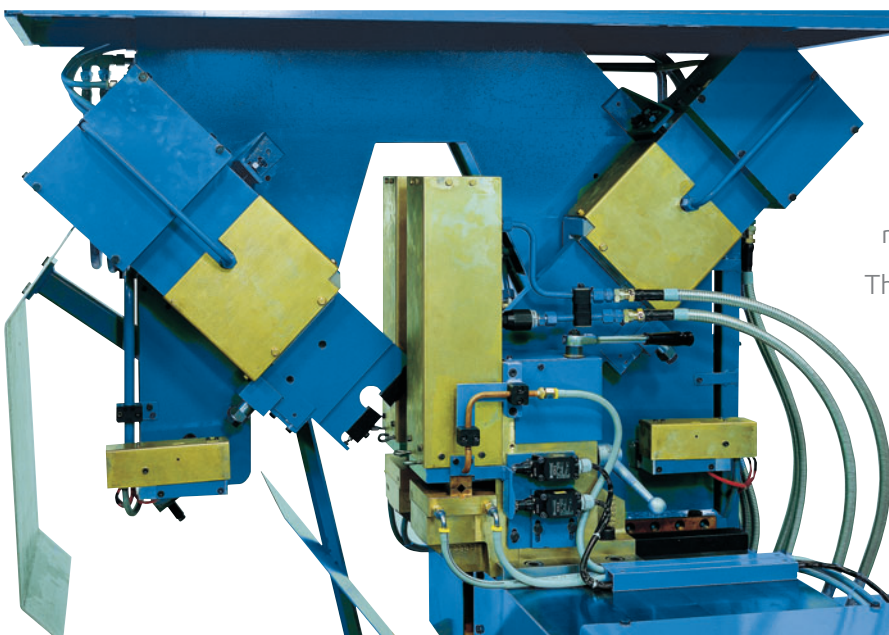
Deburring is made after an adjustable cooling-down time in the red-hot material condition. The deburring cycle is automatic. It will take 1 to 4 seconds only according to the length of the weld seam.

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.



Type AS 50 S with 2 deburring devices





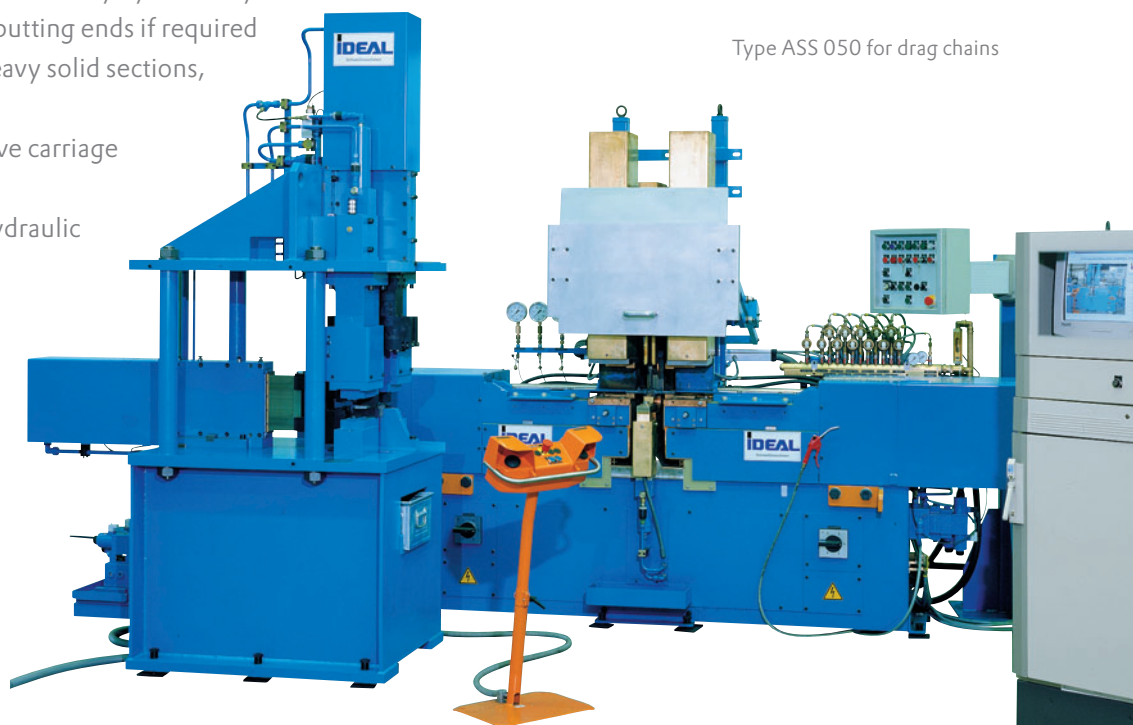
Type AS 50 S for stair frames

- 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**

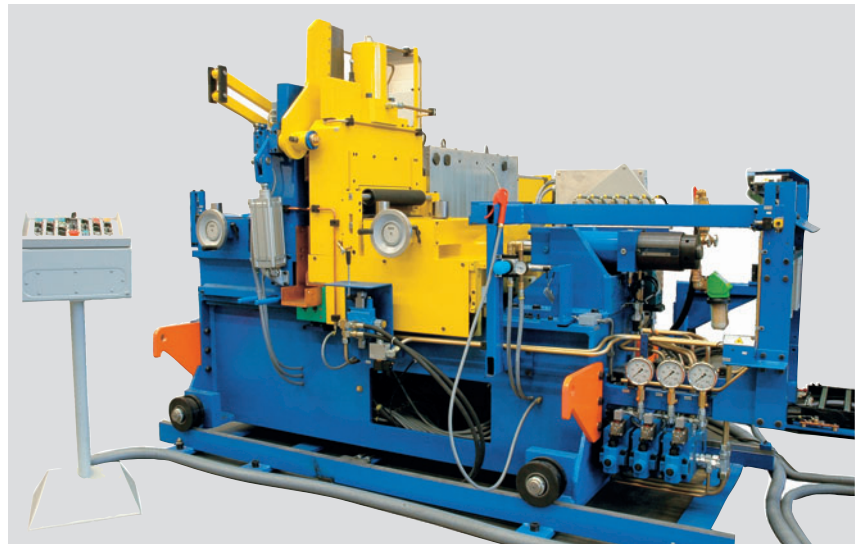
- Welding sections: mild steel 50 - 1600 mm<sup>2</sup>
- Welding carriage slides precisely in adjustable precision roller bearing guides
- Carriage movement controlled by hydraulic cylinder
- Planishing bum off for butting ends if required
- Preheating in case of heavy solid sections, thus reducing 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

Type ASS 050 for drag chains





Equipped with well-proven hydraulic drive system to produce a consistent weld quality in:



Type AS 100 B-P 400 for coil joining

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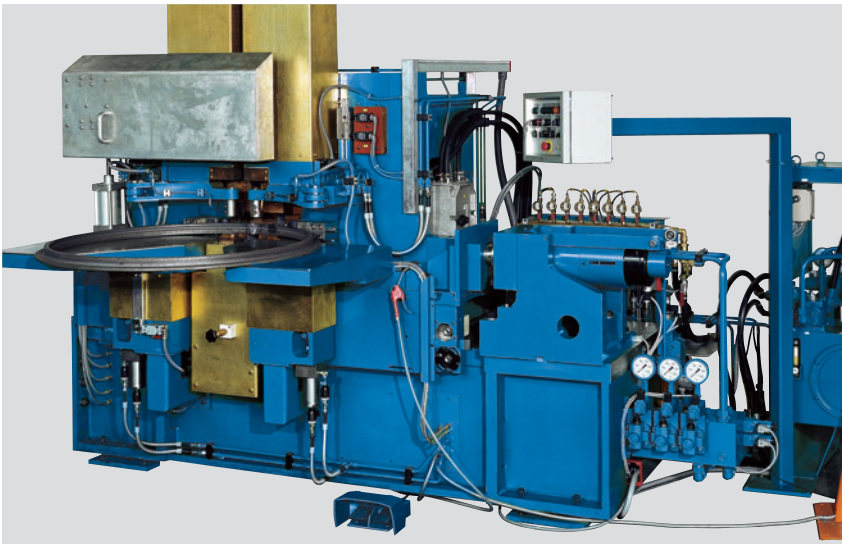
- Chain links, load rings
- Rims for passenger cars
- Shafts, bars, heavy tubing
- Foot rings for heavy steel bottles
- Beer barrel rings
- Concrete reinforcing bars upto 50 mm dia
- Steel strip in continuous processing lines and many other parts

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

Type AS 100 AF for car wheel rims



- Welding section: mild steel 100 - 3000 mm<sup>2</sup>
- 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



Type AS 220 S-K for profiled rings



Producing consistent  
weld joints in work pieces  
of heavy sections such as:

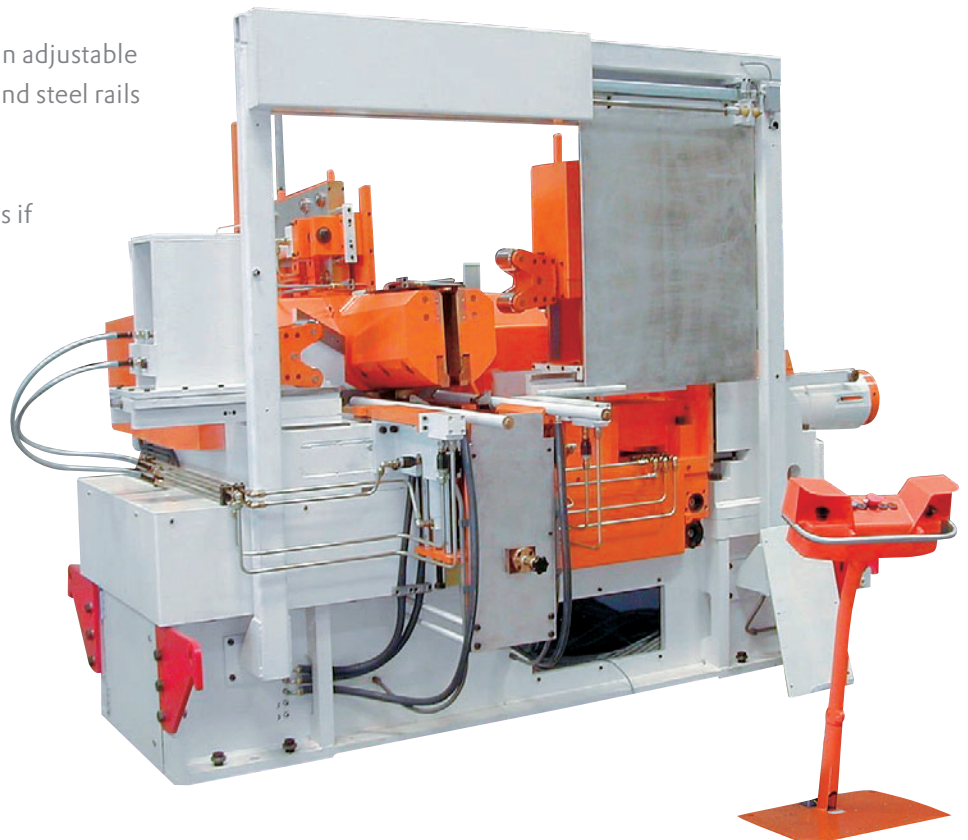
- Rims for trucks and tractors
- Chain links and load rings
- Flanges and profiled steel rings
- Forgings and heavy bars
- High speed steel tools
- Ripped platens for railway switches
- Steel strip of important widths and thicknesses

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

- Welding section: mild steel 300 - 7000 mm<sup>2</sup> resp. 400 - 10 000 mm<sup>2</sup>
- Welding carriage slides precisely in adjustable guiding rollers on hardened and ground steel rails
- Carriage movement produced by hydraulic cylinder
- Planishing bum 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

Type AS 320 AF for rims



TYPE	MAX. FORGING FORCE	CAPACITY OF TRANSFORMER (ALTERNATIVE RATING)	WEIGHT ACCORDING TO OPTIONS	CROSS SECTION MILD STEEL	CROSS SECTION ALLOYED STEEL	CROSS SECTION STAINLESS STEEL	CROSS SECTION ALUMINIUM	DIMENSIONS W X D X H (M)
	kN	kVA	KG	MM <sup>2</sup>	MAX. MM <sup>2</sup>	MAX. MM <sup>2</sup>	MAX. MM <sup>2</sup>	A) MACHINE B) HYDRAULICS
ASO 015	15 - 400	30 (60)	approx. 1200	15 - 400	15 - 250	15 - 120	100	1,5 x 1,5 x 1,8
ASO 025	40 - 800	40 (80)	approx. 1800	40 - 800	40 - 400	40 - 250	160	1,9 x 1,6 x 1,7
ASO 040	50 - 1300	80 (120)	approx. 2700	50 - 1300	50 - 650	50 - 330	-	2,0 x 1,6 x 1,8
ASO 050	50 - 1600	80 (120)	approx. 3600	50 - 1600	50 - 800	50 - 400	330	A) 2,0 x 1,4 x 2,2 B) 1,5 x 1,0 x 1,5
ASO 100	100 - 3000	200 (400)	approx. 6000	100 - 3000	100 - 1600	100 - 800	660	A) 2,7 x 1,8 x 2,4 B) 1,5 x 1,0 x 1,5
ASO 160	200 - 4000	500	approx. 7000	200 - 4000	200 - 2600	200 - 1300	200 - 800	A) 3,4 x 2,0 x 2,4 B) 1,5 x 1,0 x 1,5
ASO 220	300 - 7000	500 (630)	approx. 10000	300 - 7000	300 - 3500	700 - 1800	1500	A) 3,2 x 1,4 x 2,6 B) 1,5 x 1,0 x 1,5
ASO 320	400 - 10 000	630 (800) (1000)	approx. 14000	400 - 10 000	400 - 5000	400 - 2600	2000	A) 3,5 x 2,1 x 2,6 B) 1,5 x 1,0 x 1,5
ASO 500	500 - 10 000	1200	approx. 22000	500 - 10 000	500 - 8000	500 - 4000	500 - 2500	A) 4,0 x 2,5 x 2,8 B) 1,5 x 1,0 x 1,5

All welding areas are calculated on a specific upset force of 30 N/mm<sup>2</sup> which has proven best for superior non-porous welds in steel qualities upto 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/mm<sup>2</sup> for concrete reinforcing steel
- 30 - 60 N/mm<sup>2</sup> for carbon steel - according to C-content
- 80 - 120 N/mm<sup>2</sup> for stainless steel
- 150 N/mm<sup>2</sup> for aluminium

Aluminium can be welded but the machine must be ordered specifically for this purpose, as it must be designed with high upsetting speeds, necessitating a different drive.

In case of welding small diameter rings, there will be a shunt current consuming a part of the energy.

Thus the maximum section to be welded will be reduced according to the material section and ring diameter. Improved transformers are recommended for these cases.



**LEADER IN WELDING  
TECHNOLOGY SINCE 1923**

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