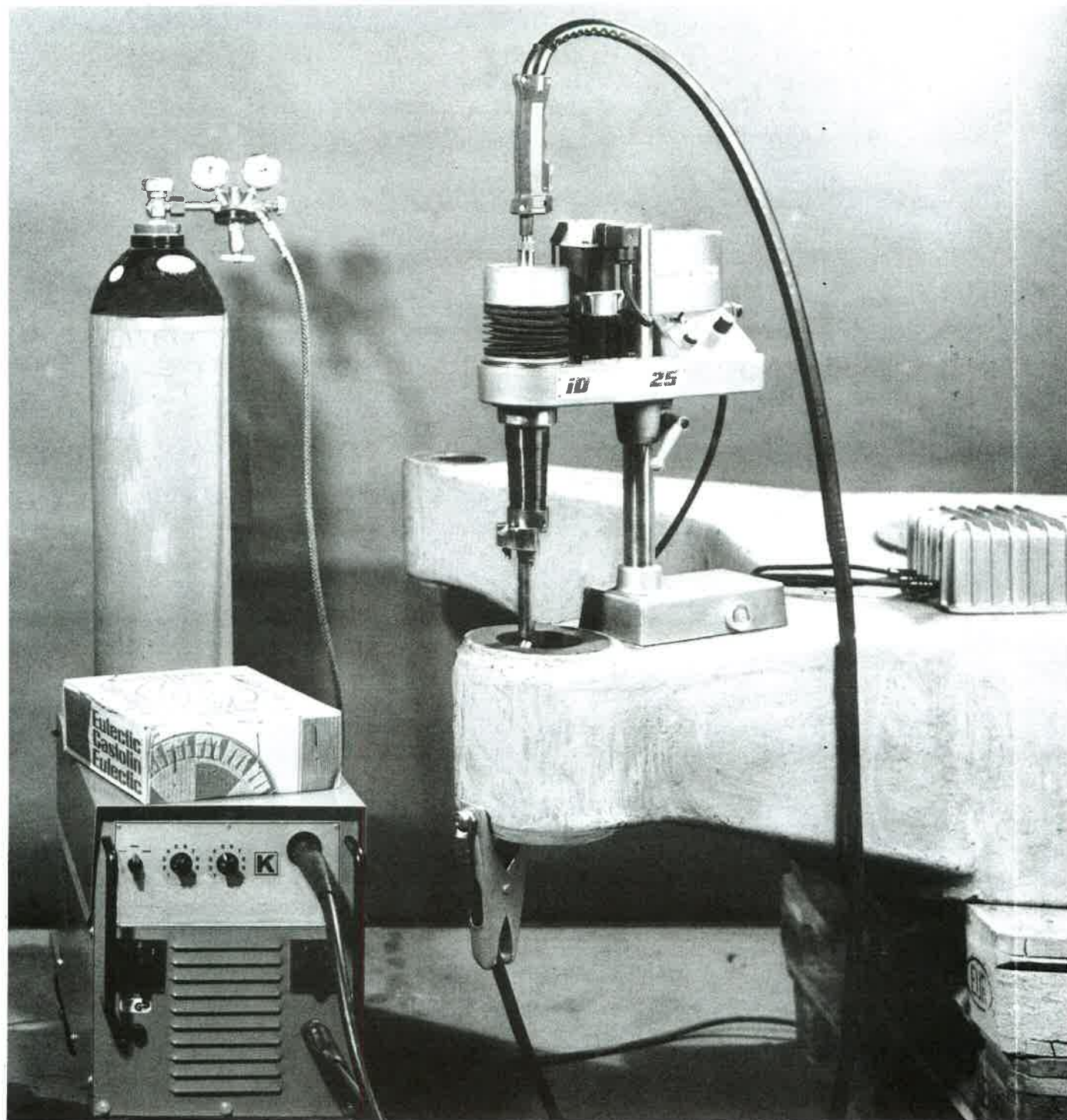


**iD WEL 25<sup>®</sup>**



**MANUEL D'UTILISATION  
BETRIEBSANLEITUNG  
OPERATING MANUAL**

**Seven key features distinguishing the new  
improved**

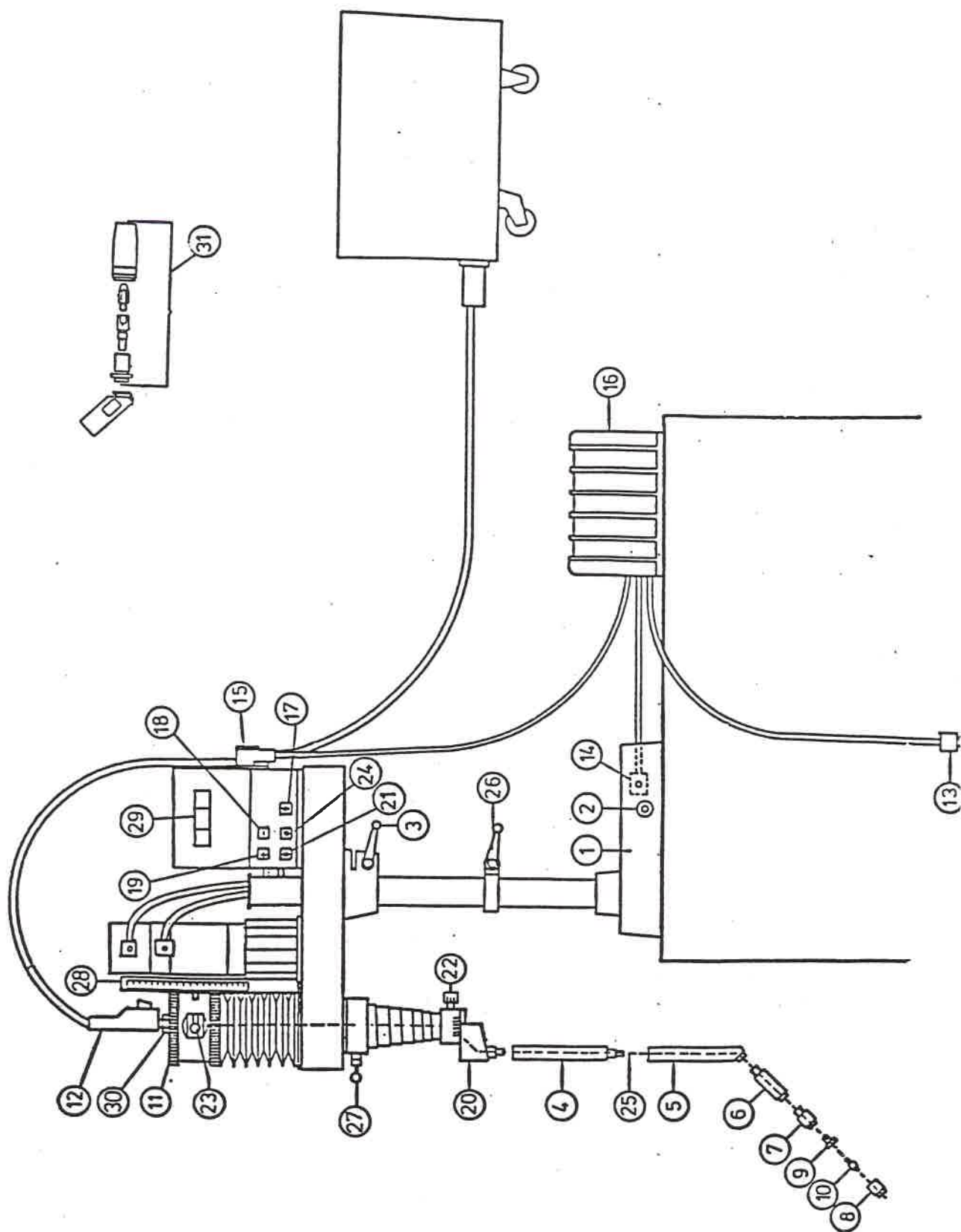
**ID WELD 25**

(Code No 41000 N 1)

(Starting with serial numero 630)

1. The maximum depth of penetration by the welding head inside the bore has increased from 100 mm to 125 mm.
2. A measuring plate (mm) has been added, indicating the welding head depth inside the bore.
3. Tools are no longer required for connecting up the cable assembly.
4. The 3 mm per revolution vertical feed of the welding head can be connected/disconnected at will.
5. A new heavy-duty 200-amp welding head assembly, larger and longer, is provided for use with bores above  $\varnothing$  70mm--with the shielding gas nozzle electrically insulated from the wire.
6. The slip carriage travel has increased by 30 mm, and an adjustment screw with a metric scale (0.1 mm intervals) allows adjustment of the radius of rotation without any tools.
7. A new drive motor (1/313 ratio) with tachogenerator and electronic controls with digital display can handle bores varying from 30-450 mm  $\varnothing$  (no need to change motors). The feed speed is perfectly regular and reproducible.

We reserve the right to make technical improvements as and when the need arises.



## 1. Securing the ID WELD 25

The equipment must be securely positioned, on a suitable spot which is free from swarf, grease and other contaminants. It is held in place by a permanent magnet plus a powerful electromagnet, incorporated in the base, and is intended to be mounted only on ferromagnetic base materials. To guard against the machine being destabilised, in the event of a power failure or accidental unplugging, it should also be secured mechanically.

To demagnetise the base, simply press the button (2). The height of the rotation-and-feed unit is adjusted by means of the column clamp (3). The entire section, including the drive unit, moves easily both up and down the supporting column. After adjusting for height, the column clamp should be firmly retightened. The ring clamp (26) makes it possible to return always to the same position or

## 2. Connecting the transformer

The transformer (16) has a plug which takes electricity from any normal 110/220/240 volt single phase supply socket. A 1 amp slow fuse is located at the front of the transformer.

### Important:

All units are delivered with a 220 V terminal board. Check local supply and adapt the board accordingly (remove transformer housing).

Both of the other plugs, (14) and (15), are to provide a 36V DC supply, respectively to the electromagnet in the base and to the drive unit. The two plugs are fitted with 3.5 amp fuses, and are completely interposition, on the base or the motor, by means of the screws with plastic heads.

When all connections have been correctly made the 2-digit display (29) on the upper casing lights up.

## 3. Setting up

### 3.1 Use of angled extension

When coating inside bores up to a depth of max. 125 mm, measured from the slip carriage (20), the angled extension (5) can be screwed direct onto the slip carriage (20), and secured in line with the slip carriage using the lock-nut. Beyond this depth, the vertical extension (4) should be screwed in place before adding the angled extension (5), allowing one vertical extension (4) for every 100 mm additional depth.

### 3.2 Adjusting for application diameter

See guidelines on page 10.

Diameters between Ø 30 - 62mm

When coating inside bores Ø 30-62 mm the diffuser (9) can be screwed directly onto the angled extension (5). A contact tip (10) should be screwed into the diffuser (9), choosing a diameter (0.8/1.0/1.2 mm) which corresponds to the wire used for welding. Preferred diameter for internal welding : 0.8 - 1.0 mm wire for aircooled torches. Next is added the shielding gas nozzle (8). Attention : small shielding gas nozzle (8) is not electrically insulated. Danger of short-circuit ! Final adjustment is made by means of the adjusting screw (22) which has a metric scale with intervals of



0.1 mm, so that at each interval the welding diameter is varied by 0.2 mm. At the side of the slip carriage (20) there is a 0-60 milli-metre scale, corresponding to twice the radius of rotation of the welding head. These two devices, the adjusting screw and the millimetre scale, make possible very precise adjustment of the radius of rotation of the angled extension, without the assistance of any other tools. Recommended lateral displacement maximum 15 mm, i.e. diameter increase of 30 mm in order to avoid excessive bending of the wire. Beyond a lateral displacement of 15 mm use extension tubes (41603 or 41604) as indicated on page 10, to avoid increase of wire friction.

#### Diameters larger than Ø 62 mm

An additional welding head assembly (31), included in the kit, rated 200 amps, should be used for diameters of 62 mm or greater. Due to its greater size, this head's shielding gas nozzle has been electrically insulated from the wire.

For bores larger than Ø 142 mm the shorter (7) or longer (6) radial extensions are available for fitting to the angled extension (5). Fine adjustment is again by means of the adjusting screw (22).

### **3.3 Stopping vertical feed**

Displacement in the vertical axis can be stopped to maintain the overlay at a given, uniform height--e.g. for coating of a bottom plate, joining two pipes. To disconnect vertical feed, simply pull out the indexing bolt and turn it 90°. To re-establish vertical feed, turn the bolt another 90°. The bolt automatically returns to position after a maximum shaft revolution of 180°.

### **4. Inserting Teflon liner and welding wire**

The welding wire passes through the unit inside a Teflon tube. This white tube or liner is inserted from the top, with the slip carriage (20) centered, and passed right through to exit at the diffuser (9). Projecting from the torch adaptor (30) is a plastic liner with a brass sleeve end, into which the white Teflon tube should be inserted. The torch (12) must now be connected to the head cap (11). This requires first releasing the locking bolt (23) from its slot thus freeing the head cap (11). The torch adaptor may now be connected through the threaded hole in the head cap (11), simply by turning the head cap itself. This pushes the white Teflon liner further through the nozzle opening (9). It should be drawn flush to the nozzle opening, exposing about 8-10 mm of tube which should be cut off, before pushing it back through.

To ensure correct current conduction it is essential to thoroughly tighten the M 12 locking nut (30). The welding wire may now be guided through exits at the angled extension (5). Next the diffuser (9), and the contact tip (10) which matches the diameter of the welding wire, can be slid over the wire and screwed to the angled extension. Finally, the shielding gas nozzle (8) is added, and the protruding wire is cut short.

### **5. Electronic control of speed and direction**

The electronic control panel includes digital display (29) which gives the shaft rotation speed, located above the keys for programming this speed. Key (18) is for reducing the rotation speed and key (19) for increasing it, either of which can be done in the course of operation, with the new speed immediately displayed. Key (24) serves to stop rotation, and key (21) programs the shaft to revolve up

wards, key (17) to revolve down wards. The up-or-down direction of rotation is immediately indicated by an arrow in the digital display (29). Keys (17) and (21) also serve to temporarily increase the speed of rotation in the choosen direction, simply by keeping the finger pressed down on one or the other. On release, the normal programmed speed is resumed. The digitally displayed value is not a standard unit, such as  $\text{min}^{-1}$ . It is a precisely calibrated interval, and serves to ensure reproducibility of welding parameters. See speed conversion nommogram page 14. The tachometer generator ensures constant speed, which is a prerequisite for consistent, high quality results. The cable-and-plug assembly which is to connect the electronic control unit to the motor has been purposefully made shorter than the one which is to connect up the tachometer generator.

## 6. Centering in the bore

Proceed in two stages, as follows:

### 1. Approximate centering before mounting torch extensions:

- \* Put the slip carriage in neutral (zero) position
- \* Centre the head tube (5) approximately in relation to the bore circumference, using a suitable calibrated ruler
- \* Make sure the electro-magnet is connected up, it becomes then possible to free the base by pressing the button

### 2. Final precision centering:

- \* Lift the welding head from the bore by means of the automatic torch feed
- \* Mount the torch extensions required (see accompanying table on page 12.)

- \* Avance nozzle to top of bore by means of the automatic torch feed
- \* Disengage the vertical feed (27)
- \* Check and correct centering on all points, using keys (17) and (21) with just a light touch for each correction
- \* Using the slip carriage adjusting screw (22) bring the shielding gas nozzle to within 1-2 mm of the workpiece internal diameter.

Two conical clamp discs (Order nos. 41505 and 41507) are available as an option as an aid to centering. These can be mounted on the welding head in neutral (zero) position, so as to make the first stage of centering quicker and more precise.

## 7. Using ID WELD 25 in combination with machine-tools

ID WELD 25 can be used in combination with other machine-tools. This requires first separating the support column from the upper assembly, and then from the magnetic base. The setscrew at the front of the magnetic base can be removed using a 5 mm Allen key. Using the spanner provided, it is then easy to separate the support column from the base. The Morse taper provided is next screwed to the support column, where this was formerly attached to the base, and secured with a setscrew to make sure it cannot work loose. It is then inserted into the spindle nose of the machine tool. The upper assembly (rotation-and-feed unit) is then reassembled on the column and secured with the column clamp (3). The morse taper is locked in place by unscrewing the setscrew incorporated in its tapered end until it protrudes slightly. This is especially important when operating the ID WELD 25 in a suspended position.

### **Important:**

Care must be taken to avoid current being conducted over any bearing or sliding surfaces of the machine tool. The **workpiece** must be securely fixed to an earthing cable.

### **8. Ready for welding**

When all requirements have been fulfilled as per 1-7 above, and the torch cable has been connected up to the power source, the welding head is positioned at the bottom of the workpiece bore, using the fast mode. Check again the concentricity of the angled extension in relation to the bore, and make any necessary adjustments. Welding begins more or less simultaneously with rotation. Note that welding parameters preset on both the ID Weld 25 and the power source may be modified as required, when welding.

### **9. Water-cooled option**

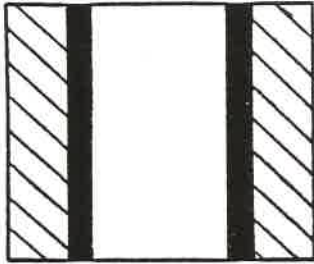
When welding with  $\varnothing$  1.2 mm wire, or workpieces that require considerable preheating, we recommend using a special water-cooled welding head, which is available as an option.

The water-cooled unit consists of a rotation device, a welding head, three pairs of water tubes of different sizes, the tube holders and a strap

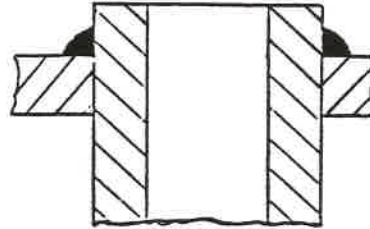
For quick assembly, the water tubes, rotation device and welding head are fitted with rapid couplings, which also make it impossible to assemble the parts incorrectly, and make leakage impossible even under high water pressure. The welding head is rated 200 amps at 100% duty cycle. Internal diameters as small as 50 mm can be welded. The temperature inside the bore should never be allowed to exceed a maximum of 400°C.



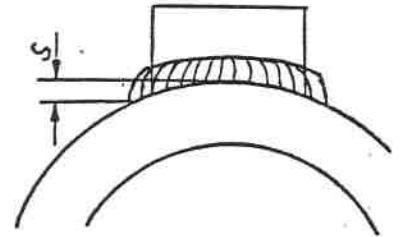
## Various coating and joining applications



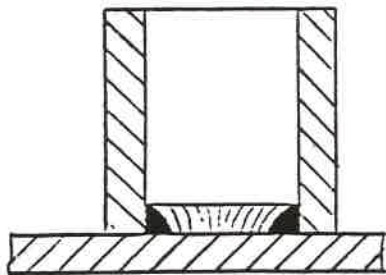
Internal coating  
+ rebuilding of bores



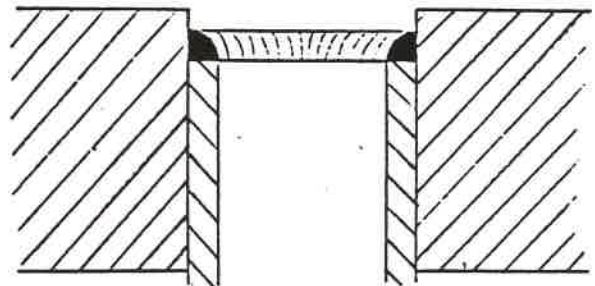
Joining, External  
Diameter coating in  
flat position



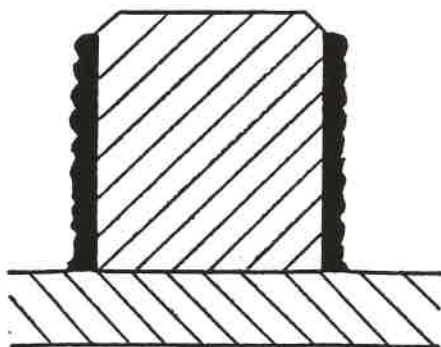
Joining, External  
diameter coating of  
pipe inlets



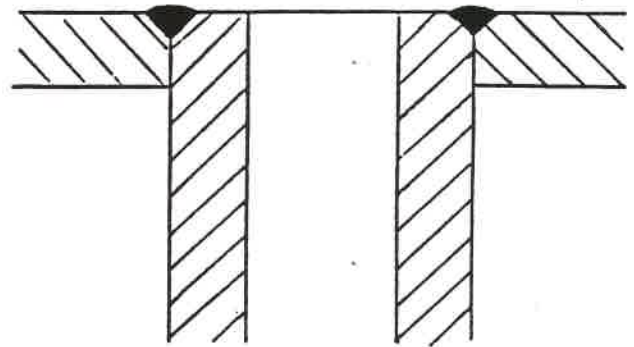
Joining in blind  
holes



Joining, internal fillet in flat position



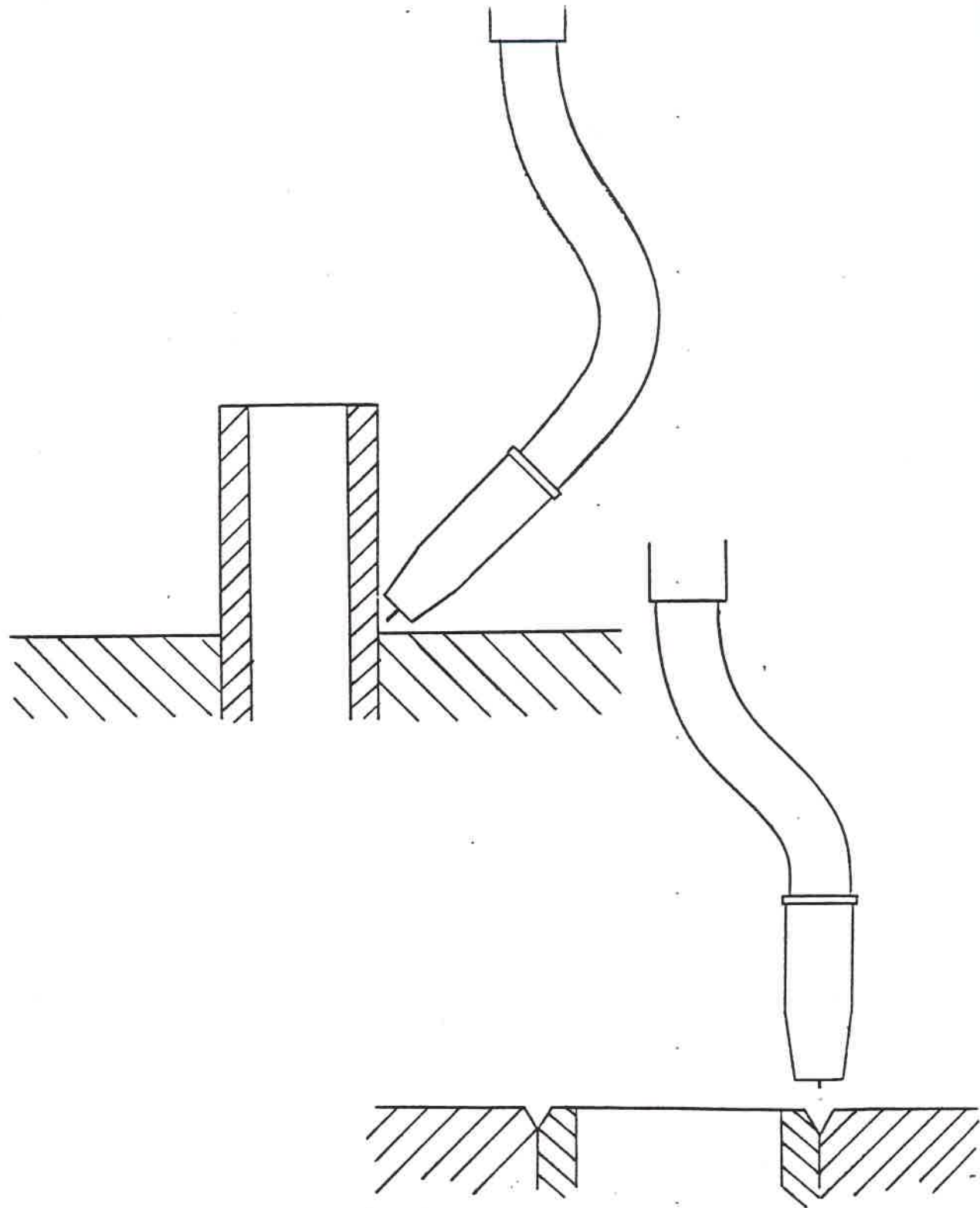
External diameter  
coating of bolt on  
non-rotating parts



Joining for boilermaking, pipe flush  
with plate, with single V groove

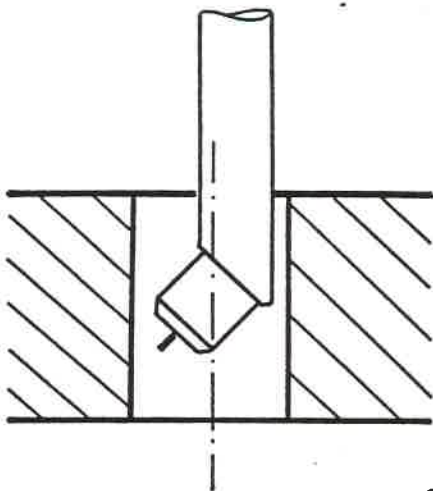


# Welding heads for external diameter coating or joining



## A range of welding heads for varying requirements

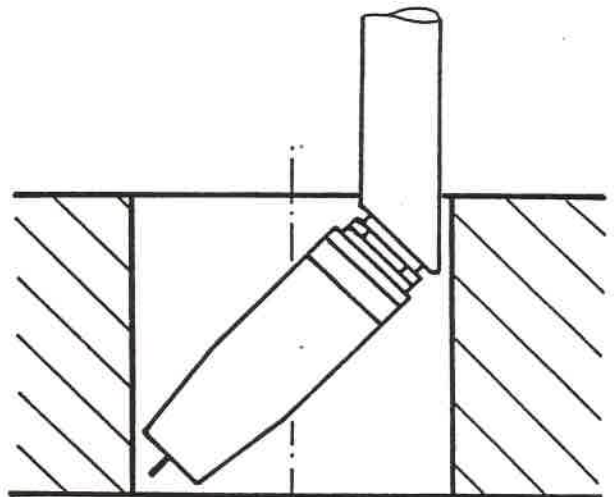
160 A - 100%



Ø 30 - 70 mm

gas-cooled

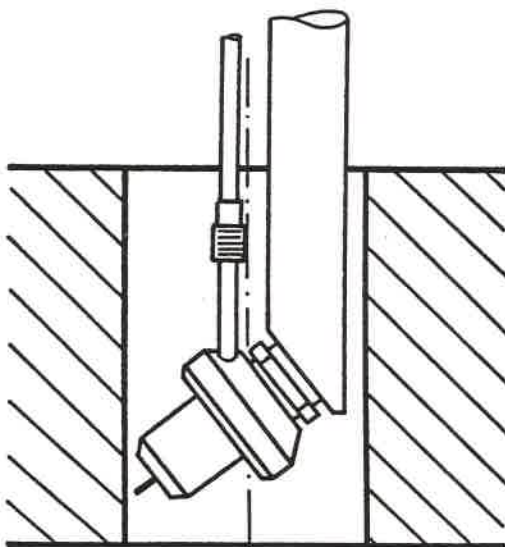
200 A - 100%



from Ø 70 mm, insulated gas nozzle

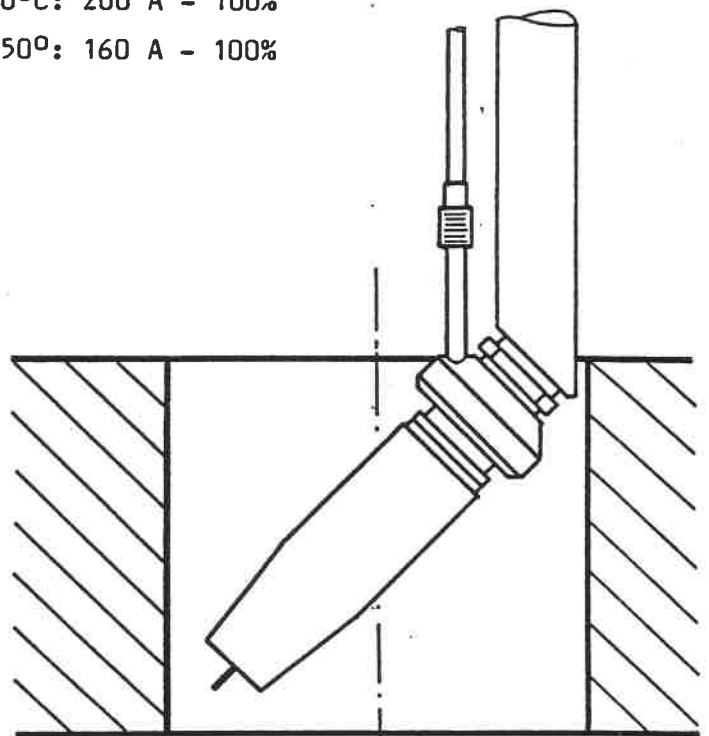
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up to 450°C: 200 A - 100%  
from 450° to 650°: 160 A - 100%









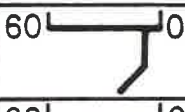
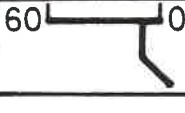




from Ø 50 mm

water-cooled



from Ø 90 mm

Ø mm		 41 610	 41 609	 41 650	 41 604	 41 603	avec mit with  41 663
25							
30		1					46
40			1				73
62			1				79
102				1			135
142				1	1		172
172				1		1	205
205				1		1	232
232				1	1	1	265
265				1		2	292
292				1	1	2	325
325				1		3	352
352				1	1	3	385
385				1		4	412
412				1	1	4	445
445				1		5	472
472				1	1	5	505
505				1		6	532



**PARAMETERS FOR STANDARD PROCEDURE WELDING WITH ID WELD 25  
WITH TRANSMODUL 500 AND CONTROL BOX IM 17**

Alloy	Wire Ø	Arc voltage (V)	Welding current (Amperage)	Wire feed rate m/min.	Dynamic setting (* *)	Type	Shielding gas Content	Flowrate (l/min)
45250	0.8	21.0	130	11.2	3.9	Corgon 18	82% Ar/18% CO2	14
45251	0.8	20.0	120	6.5	4.5	Corgon 18	82% Ar/18% CO2	14
45351*	0.8	26.0	150	14.0	2.9	Corgon 18	82% Ar/18% CO2	14
45515	0.8	22.0	130	11.0	4.5	Argon	99.9%	14
45552	0.8	20.0	125	11.0	7.5	S 1	99% Ar/1% O2	14
45553	0.8	20.0	125	11.0	7.5	S 1	99% Ar/1% O2	14
45554	0.8	20.0	125	11.0	7.5	S 1	99% Ar/1% O2	14
45703*	0.8	20.0	140	11.0	10.0	Argon	99.9%	14
45751*	0.8	20.0	140	11.0	10.0	Argon	99.9%	14
45802	1.0	13.5	115	8.2	10.0	Argon	99.9%	14

\* Workpiece must be preheated to 350°C

\*\* Adjustments required only with TransModul 500

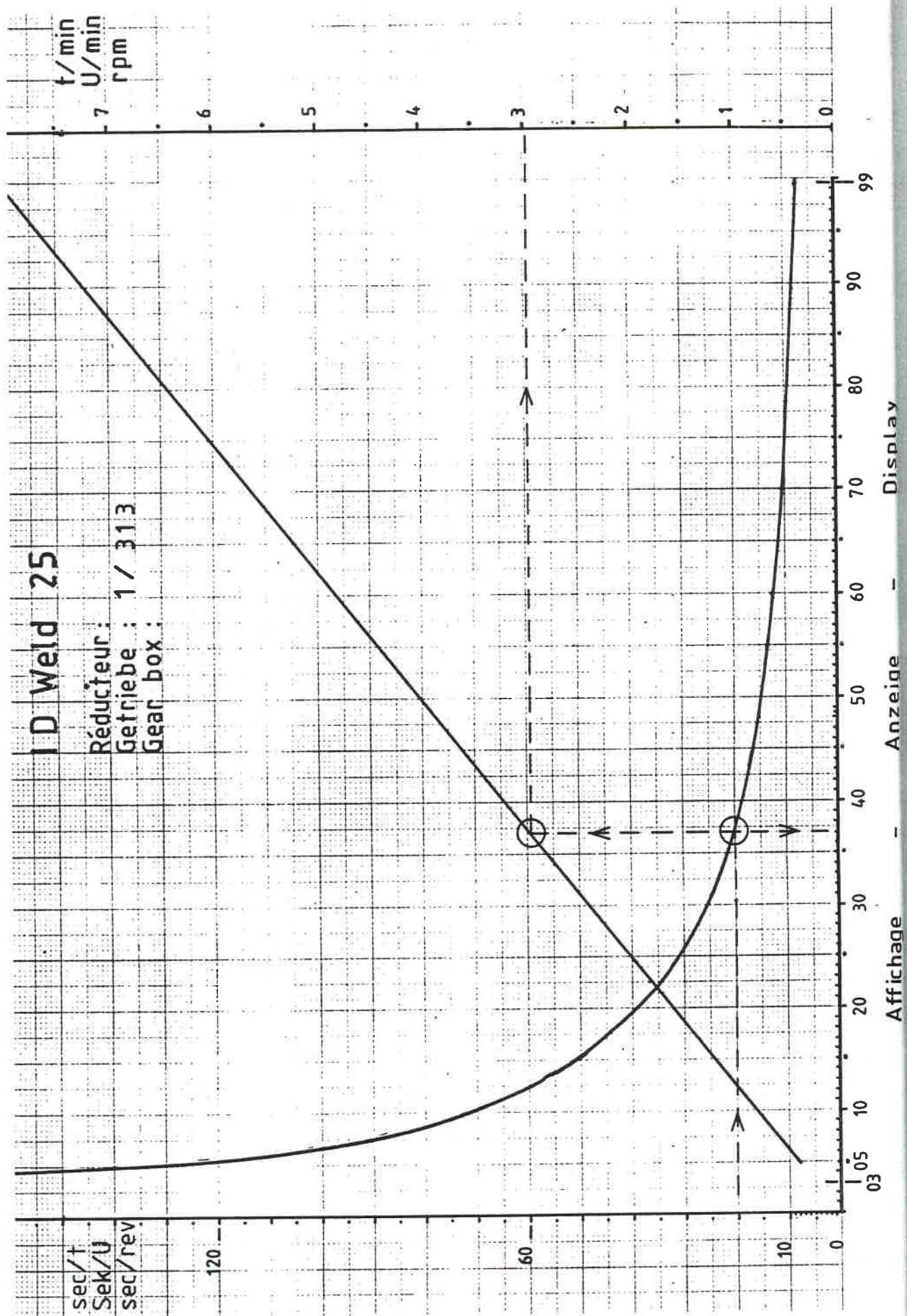


Schéma de câblage - Verdrahtungsschema - Wiring diagram

1/2

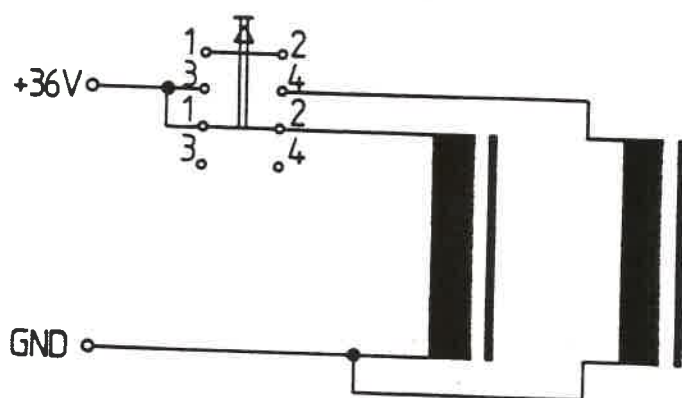
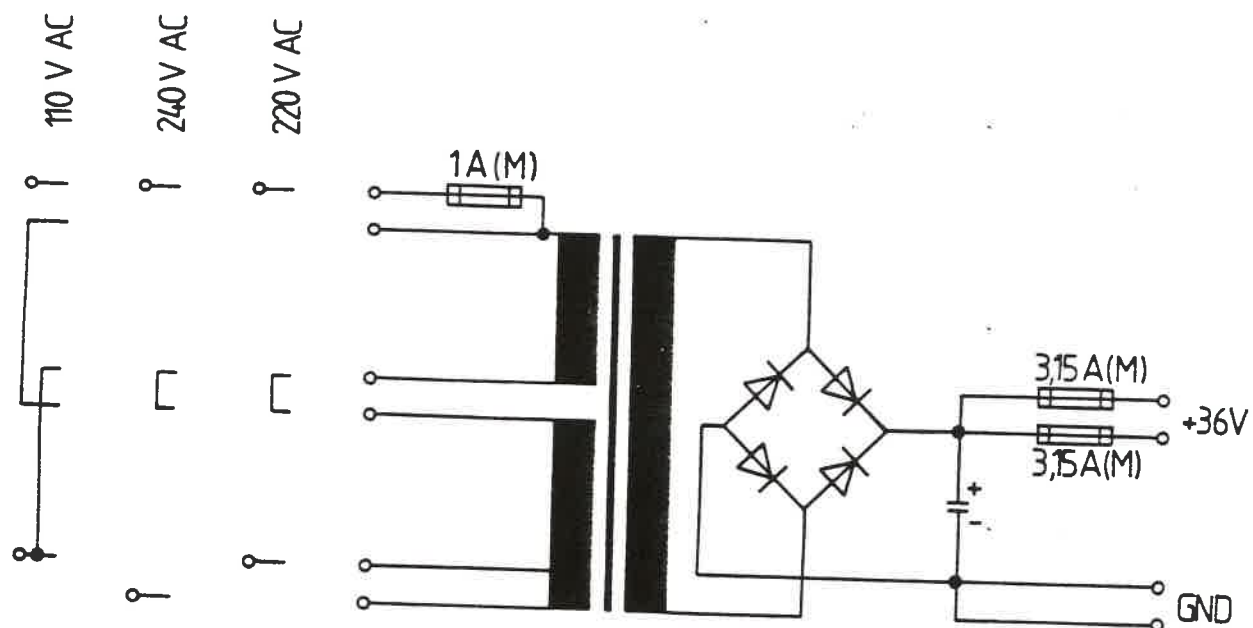




Schéma de câblage - Verdrahtungsschema - Wiring diagram

2/2

