

FOR HEAVY-DUTY AND/OR HIGH SPEED APPLICATIONS, THE ROLLERS ARE NOT INCLUDED IN THE SCOPE OF SUPPLY OF THIS VIS.  
 POUR CHÉVILLE DE 250000 G/MS, LES ROLLERS NE SONT PAS PARTIE DE LA VIS (PROJETION) OU VIS D'INDIQUE 110.

ANSZU: Stückliste 1: 145.110  
 OF PARTS LIST  
 A CE PLAN CORRESPOND LA LISTE DE PIÉCES DÉTAIÉES

Vorn  
 FRONT  
 AVANT

Part No.	Part Name	QTY	Unit	Material	Remarks
1	Leitbahnen (oben PROJEKTION)	1	Stück	St 304	
2	Leitbahnen (mit Spak LAMPELON DE ROULEMENT)	2	Stück	St 304	
3	Leitbahnen (unter PROJEKTION)	1	Stück	St 304	
4	Schneide WÄHNER RONDILLE	1	Stück	St 304	

15	Leitbahnen (mit Spak LAMPELON DE ROULEMENT)	1	Stück	St 304	
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15	Leitbahnen (mit Spak LAMPELON DE ROULEMENT)	1	Stück	St 304	
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Laufbahnanlage 3m/15  
 MONTAGE ASSSEMBLY  
 ROLLER ELEMENT  
 0.9.21.31.8.7



(Attention! Observe Fig. 6)

- Fit drive motors and bolt into place, set Bowden cables
- Fit control on the optics carriage
- Fit optics carriage
- Place transverse carriage into position from above
- Fit travelling rail and cable carriage
- Fit stand for hose suspension device } 0.921.315-4
- Bolt on the front runway stop
- still be able to be turned by hand)
- rocker bearing and bolt them into place (rollers must
- Fit the eccentric rollers onto the side cheek and the
- Carefully slide on the cross carriage
- Remove the front runway stop
- cheek and on the base of the rocker bearing
- Release the eccentric rollers on the inside of the side
- Clean all parts to which rustproofing has been applied.

3. Fitting the machine carriage

The runway is then set up and aligned as a complete unit. The dimension  $1457 \pm 1$  and the horizontal plane  $\pm 0.5$ , as well as the height approx. 906 must be adhered to in accordance with 0.921.313. After the runway stands have been bolted and grouted into position, the aforementioned dimensions must be checked again and, if necessary, corrected.

3.287.001-2 or 0.921.314-1. means of crossbars for the runway. For this, see assembled and set up without any problems whatsoever by Even under most unfavourable conditions, the machine can be

must be provided in the foundations. - cutouts for anchor screws (Fig. 4)

or

(Fig. 3)

- holes for heavy-duty anchors or bonding anchor dowels  
 In accordance with the location plan and depending on the quality of the hall floor,

Lautbahn-Montage  
Track Assembly

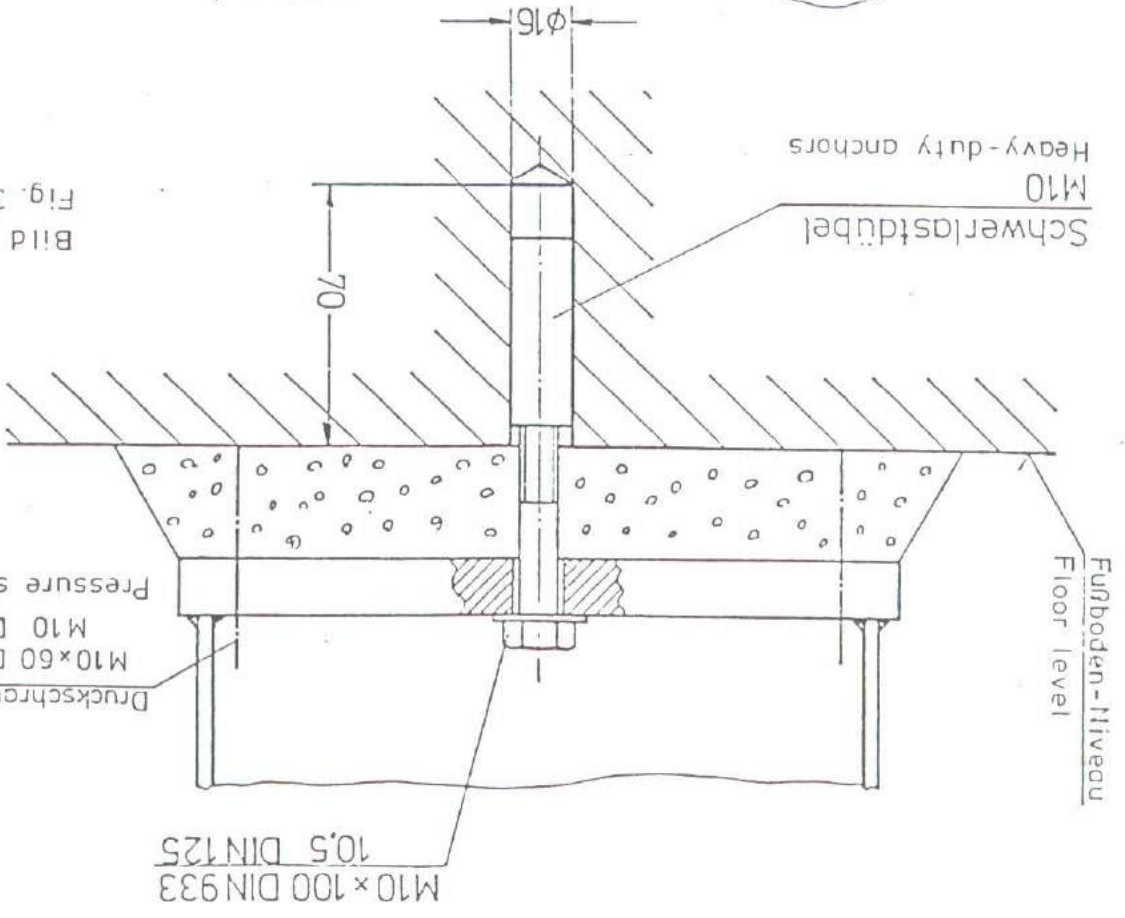


Bild 3  
Fig. 3

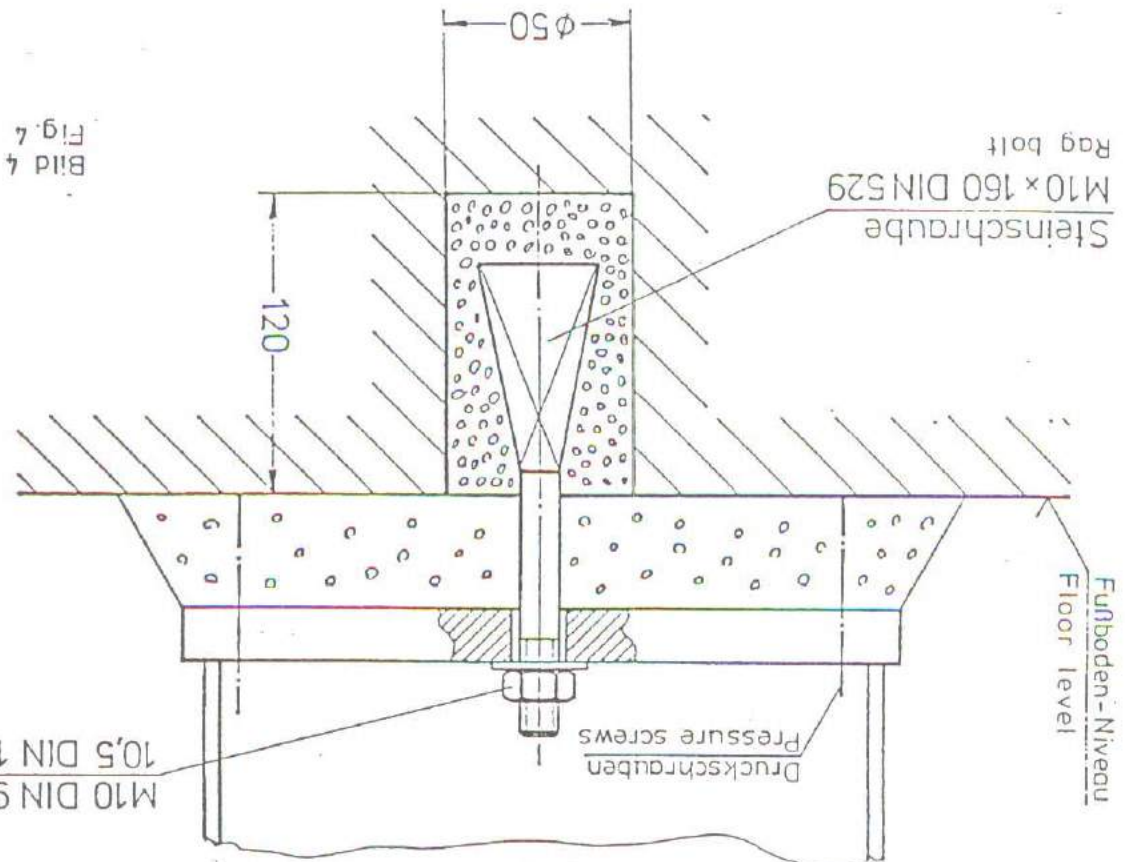
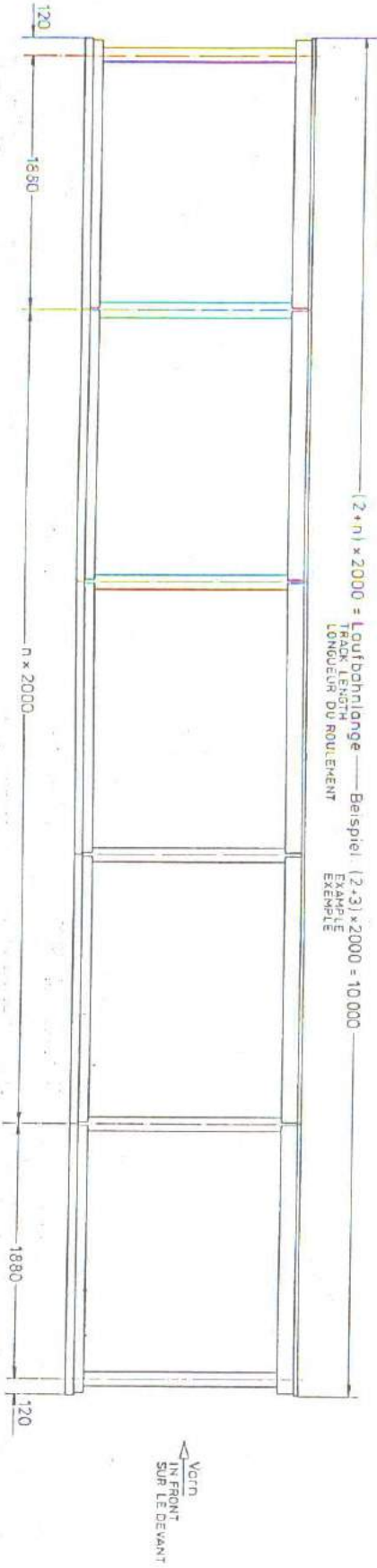


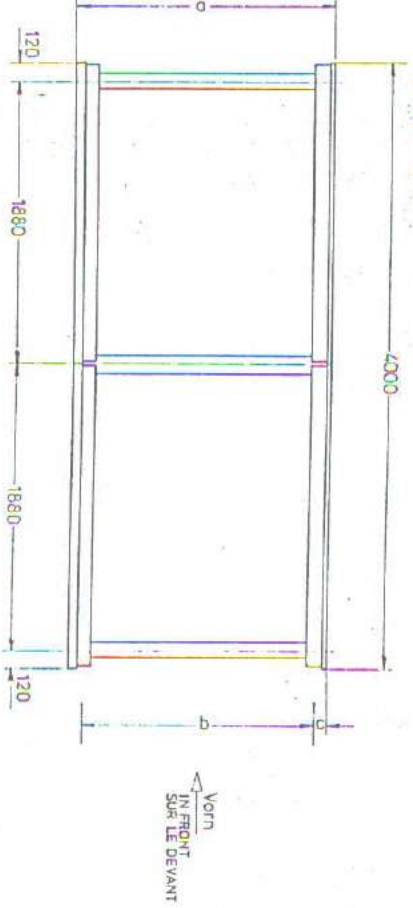
Bild 4  
Fig. 4

**Laufbahn mit Verlängerung**  
 TRACK WITH EXTENSION  
 ROULEMENT AVEC PROLONGATION



$(2+n) \times 2000 = \text{Laufbahnlänge}$  — Beispiel:  $(2+3) \times 2000 = 10\,000$   
 TRACK LENGTH — EXAMPLE  
 LONGUEUR DU ROULEMENT — EXEMPLE

**Grundlaufbahn 4 m** .101/.111  
 BASIC TRACK  
 ROULEMENT DE BASE



n = Anzahl der Verlängerungen (=2000 lang) .102/.112  
 NUMBER OF EXTENSION  
 NOMBRES DES EXTENSIONS

a	b	c	Dübelabstand DISTANCE BETWEEN THE NOZZLES DISTANCE ENTRE LES		
			Einzelständer SINGLE STAND SUPPORT INDÉPENDANT	Doppelständer DOUBLE STAND SUPPORT DOUBLE	
12,5	15	12,5	12,5	15	12,5
14,57	17,07	13,35	15,85	14,25	16,75
		60	60	15	15

Palmbel-Toleranz		Stück	Datum	Name	Bemerkung	Teil	Zeichn. Nr.	Werkstoff	Bemerkung
Freimessdistanz DIN 7169 mittel									
Nennmaß mm	Zul. Abweich. mm	Gegenteil Normmaß							
0-6 ± 0,1	0-30 ± 0,2								
> 30 ± 0,3	> 100 ± 0,5								
> 100 ± 0,8	> 250 ± 1,0								
> 250 ± 1,5									

Laufbahn mit Verlängerung  
 TRACK WITH EXTENSION  
 ROULEMENT AVEC PROLONGATION

ESAB-HANCOCK  
 GmbH  
 6367 Karben 1

Erstellt für  
 Erteilt durch

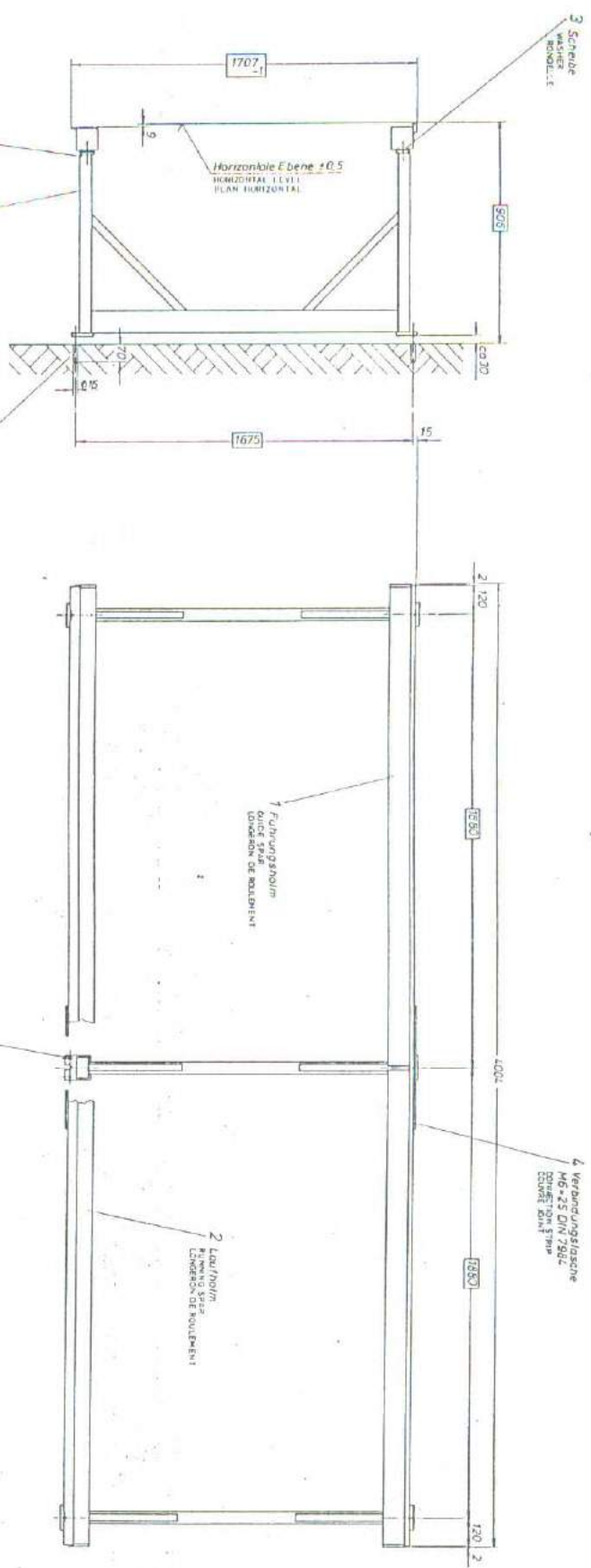
U O 7 1 2 2 5-2











Auf Schwerlastrollen M10  
 1 Schraube und Mutter M10 bereit  
 stellen. Schweißrolle M10  
 für Heavy-Duty-Anchor M10  
 als Notmaßlösung in der Größe  
 oder Supert.  
 Or Ask roll: M4

POUR DÉVIEUR DE GRANDE CHARGE  
 ROLLER ET CHEVILLE M10 MONTÉ  
 OU VIS D'ACCROCHE M10

Bitte zu Stückliste 1.145.101  
 CE REMPLIT LA LISTE DE PIÈCES DÉTACHÉES  
 A CERTAIN COMPRESSION LA LISTE DE PIÈCES DÉTACHÉES

Part No.	Part Name	QTY	Unit	ESAB Part No.	ESAB Part Name
1	1707	1	mm	1707	1707
2	805	1	mm	805	805
3	1675	1	mm	1675	1675
4	15	1	mm	15	15
5	70	1	mm	70	70
6	15	1	mm	15	15
7	1680	1	mm	1680	1680
8	1000	1	mm	1000	1000
9	1680	1	mm	1680	1680
10	120	1	mm	120	120
11	2	1	mm	2	2
12	120	1	mm	120	120
13	2	1	mm	2	2

**Laufbahnmontage 4 m / 15**

ESAB  
 ESAB GmbH  
 Kostkanten 1

ESAB  
 ESAB GmbH  
 Kostkanten 1

- Insert machine cutting torch and align in vertical plane
- Connect gas distributor and cutting torch to the hose package
- Fit the hose package to the cable carriage (travelling rail)

#### 4. Positioning the cutting table

- Insert the cutting table from the front
- Adjust the height of the optics system

Distance between cutting table and marking 38 mm on optics system

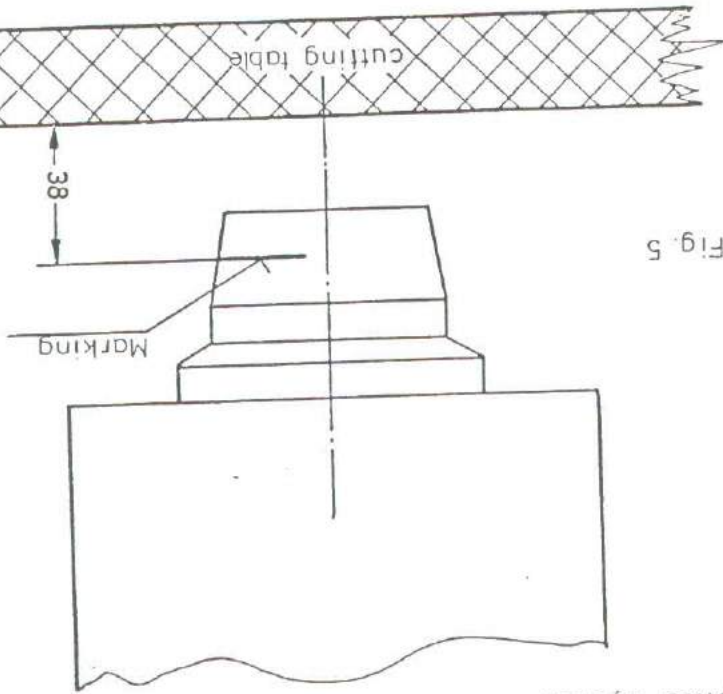


Fig. 5

#### 5. Mains connection

Due to the fact that the control unit operates with 110 - 115 V, a series transformer for the mains voltage is also supplied.

Connection should be effected in accordance with Fig. 7.

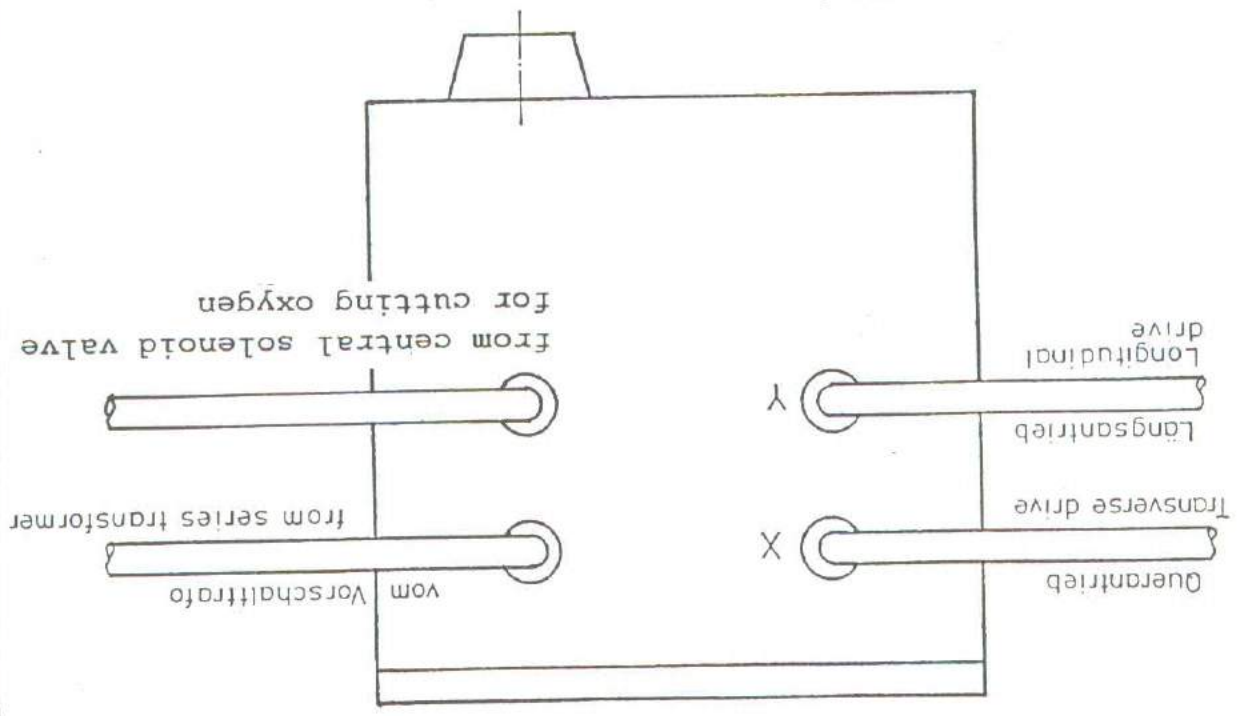
Pinion speed for  
 Ritzeldrehzahl für  $v = 1000 \text{ mm/min}$   
 $n = 20 \text{ Umdr./min}$

Longitudinal drive  
 Längsantrieb = Ritzellänge 20 mm

Transverse drive  
 Querantrieb = Ritzellänge 28 mm

pinion length

Bild 6  
Fig. 6



Association of cables - HL 90 optical control  
 Kabelzuordnung Steuerung HL 90  
 Ansicht von oben  
 Top view

The materials table must be provided by the customer. When setting this table up, it must be ensured that the table top is horizontal and that it is parallel to the runway. The gas supply and the electrical connection must be provided by the customer. The supply lines must be suspended or laid in such a manner that the machine is not hindered when running.

=====  
7. General remarks

The torch cutting system must be connected in accordance with the enclosed gas supply diagram. The arrangement of the tapping point for fuel gas must be safeguarded against backstreaming of gas and backflashing by means of a consumer point safety device of approved design when acetylene is used, or against backstreaming of gas by means of a type-tested consumer point safety device when liquid gas (propane, butane) or natural gas is employed.

The supply lines must be suspended or laid in such a manner that the machine is not hindered when running (cf. 2.1). For this reason, the hoses for energy supply should be suspended in a guide rail.

Accident Prevention Regulations VBG 15

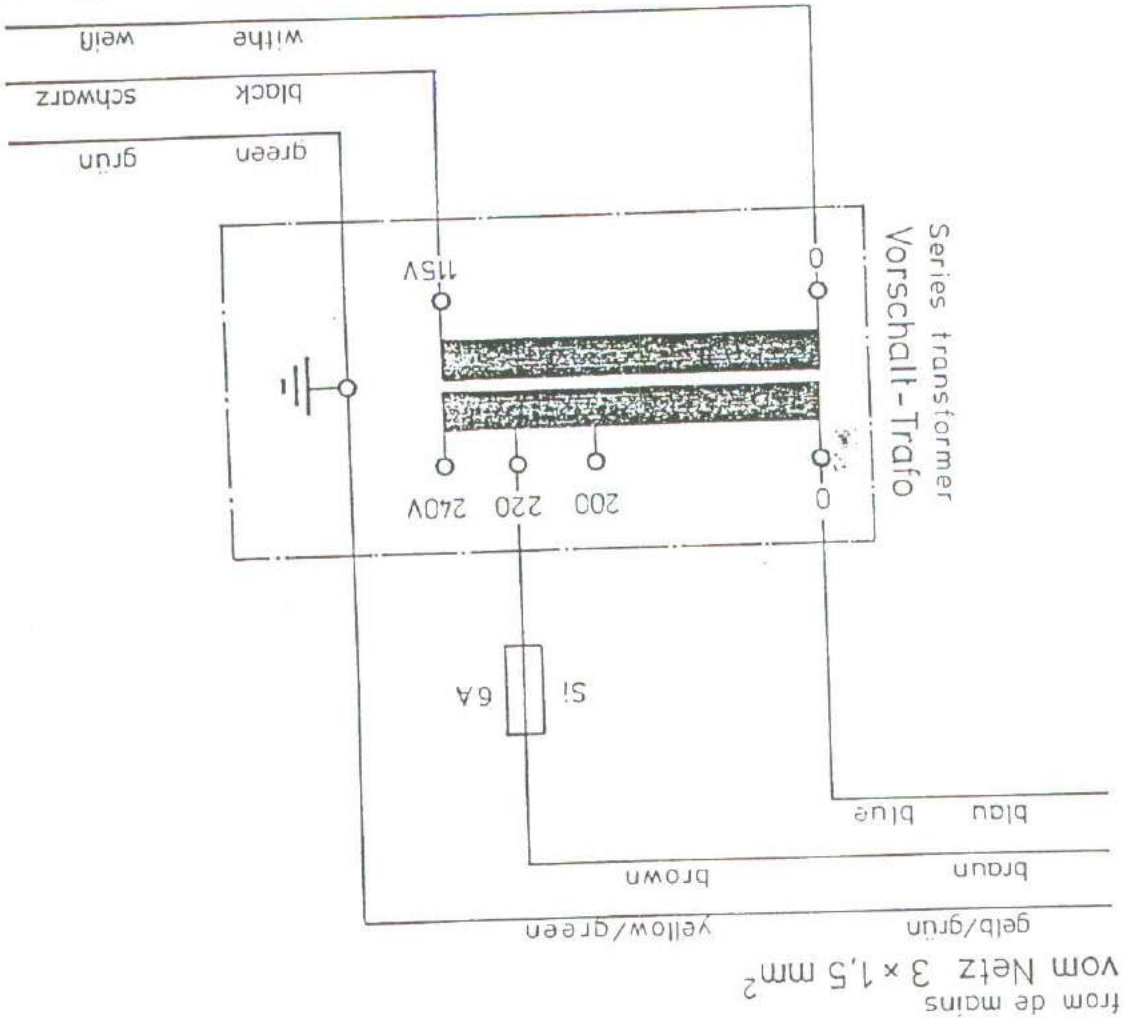
TRAC 204, 207

Connection to the supply system must be provided by the customer. This work may only be carried out by a trained filter. The following guidelines must always be observed when connecting and operating the machine:

The supply hoses for the gas supply must be selected in accordance with gas supply plan 0.416.041-4 and the type of fuel gas.

=====  
6. Gas connection

zur Steuerung  
to the control



Series transformer  
Vorschalt-Trafo

from de mains  
vom Netz 3 x 1,5 mm<sup>2</sup>

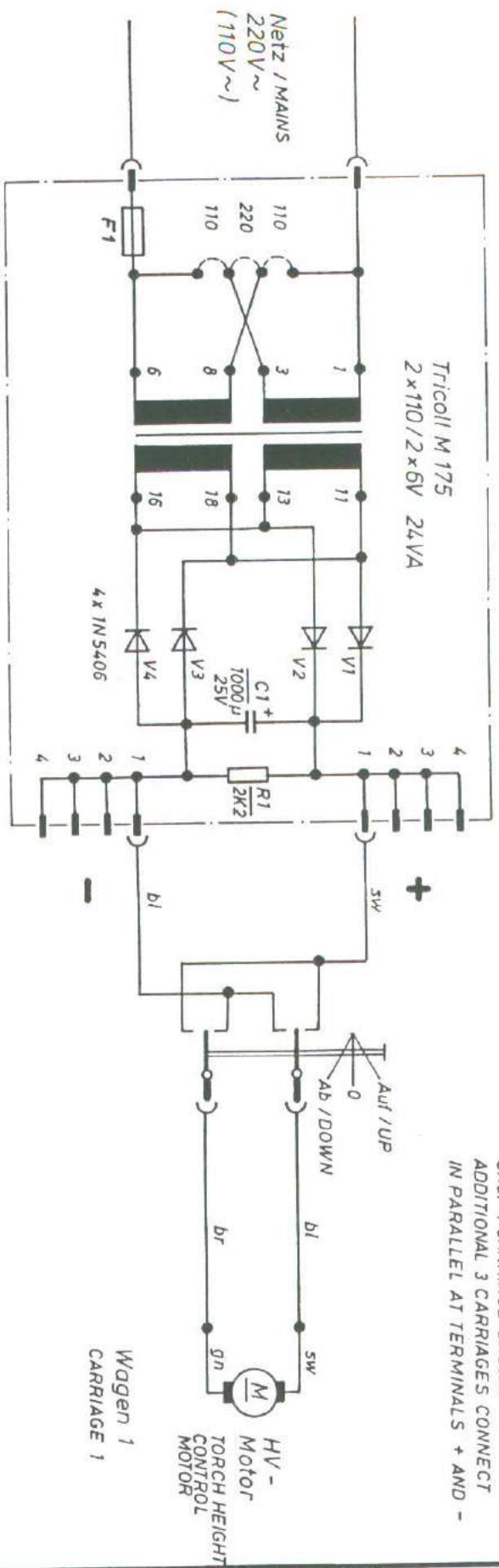
gelb/grün  
braun  
blau  
blue

SI  
6A

240V  
220  
200  
115V

green  
black  
white  
grün  
schwarz  
weiß

Hierzu gehört Bestückungsplan 2.256.208-4  
SEE ALSO PART LOCATION DRAWING 2.256.208-4 -19.1-



Nur 1 Wagen dargestellt  
weitere 3 Wagen parallel  
an + und - anschließen

ONLY 1 CARRIAGE SHOWN  
ADDITIONAL 3 CARRIAGES CONNECT  
IN PARALLEL AT TERMINALS + AND -

Wagen 1  
CARRIAGE 1

Gesamt Schaltplan  
Motorische Höhenverstellung UXB  
CIRCUIT DIAGRAM MOTORIZED TORCH HEIGHT CONTROL UXB

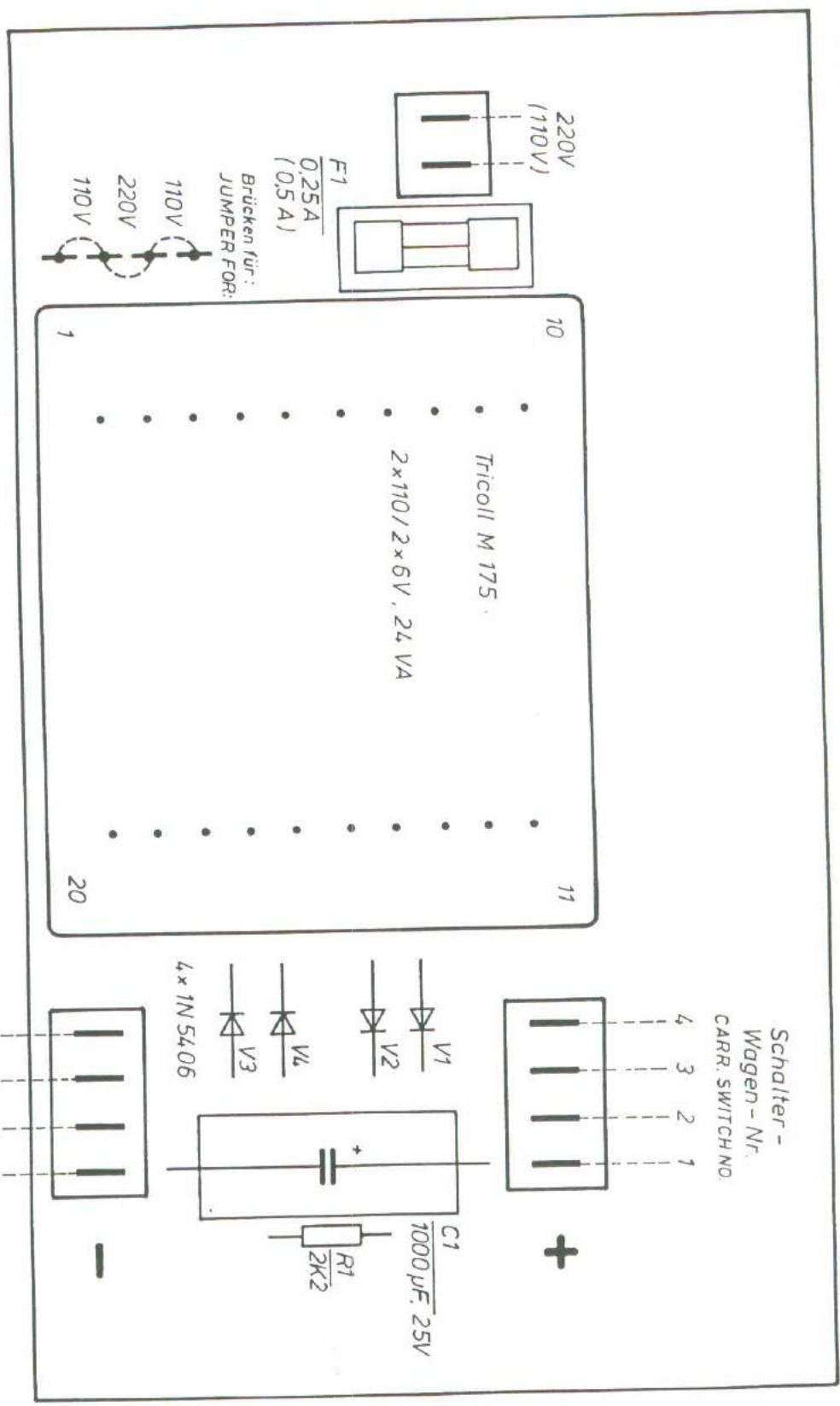




ESAB-HANCOCK  
D-6367 Karben 1

# Bestückungsplan Netzteil motor. Höhenverstellung UXB

PART LOCATION DRAWING / POWER SUPPLY MOTOR. TORCH HEIGHT CONTROL UXB



Hierzu gehört Schaltplan 0.505.102-4  
SEE ALSO CIRCUIT DIAGRAM 0.505.102-4

1710.83 *Ma*

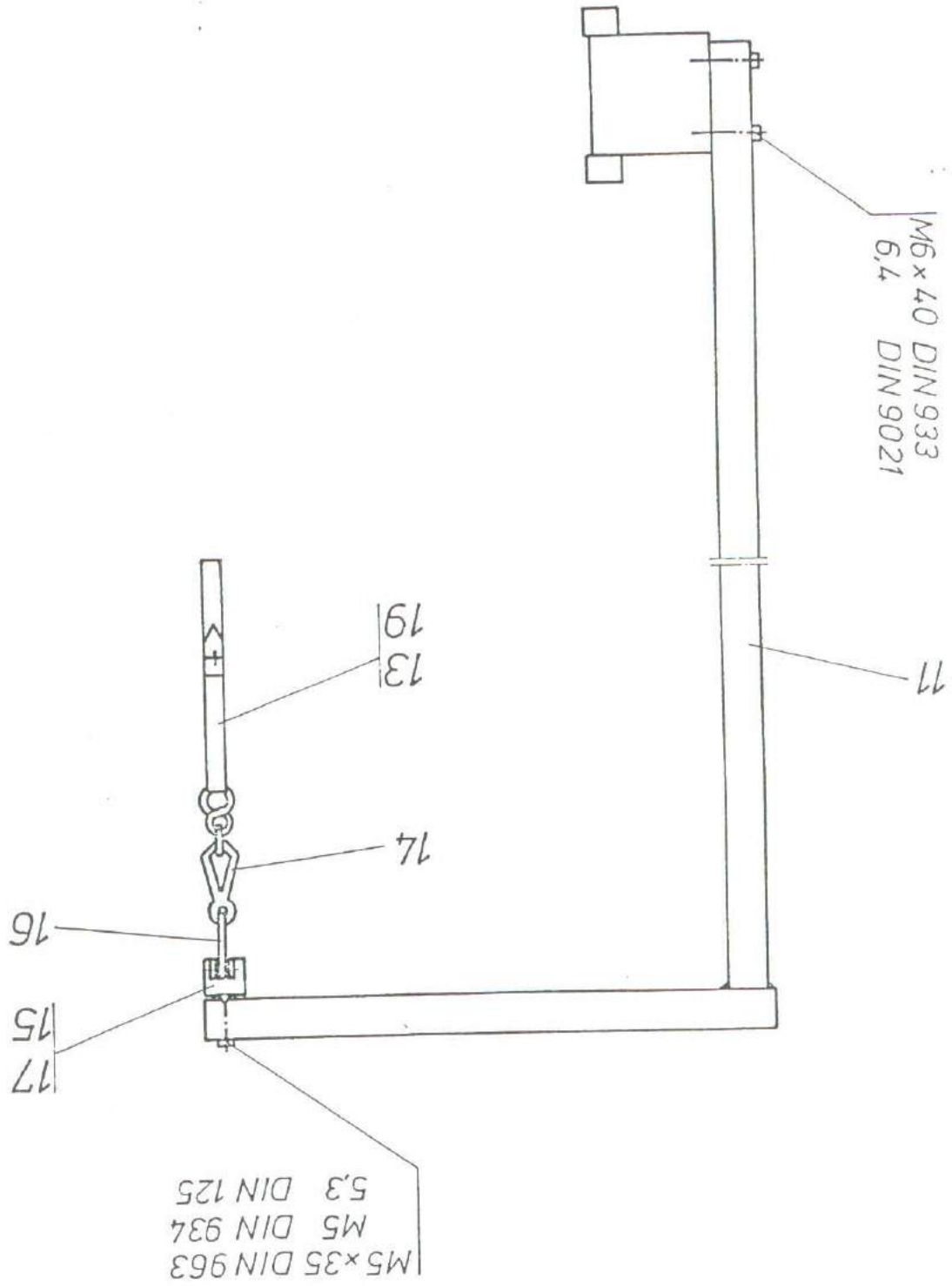
2.256.208-4

-19.2-



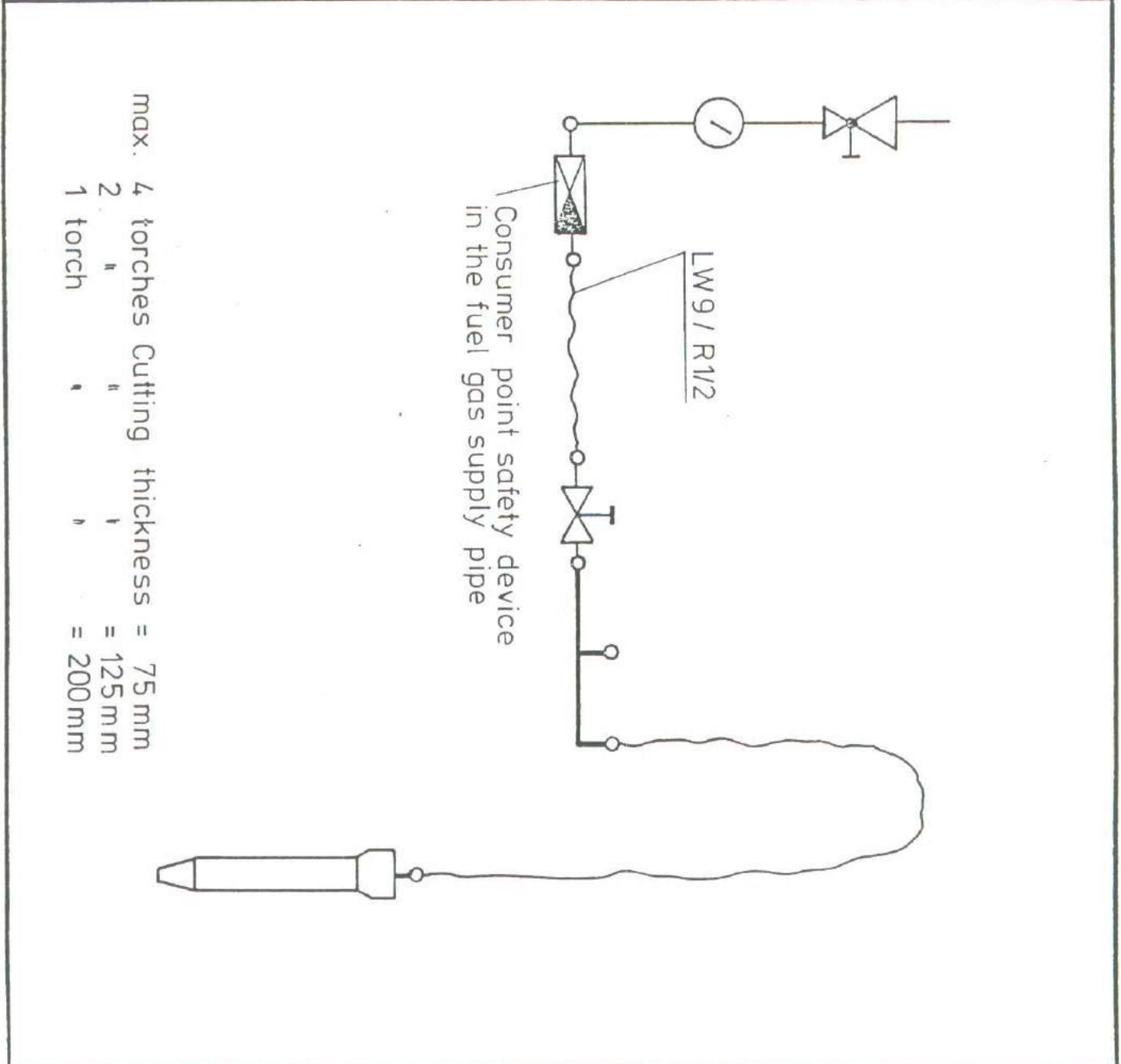
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Assembly of Hose Suspension Device





Consumption, standard condition		Operating overpressure
$Q_{max}$ [m <sup>3</sup> /h]		$P_{max}$ [bar]
cutting oxygen	4,0	8
A	3,2	0,4
P	1,2	0,4
M	3,8	0,4
Heating oxygen	6	5



max. 4 torches Cutting thickness = 75 mm  
 2 " " " = 125 mm  
 1 torch " " " = 200 mm

Gas Supply Diagram

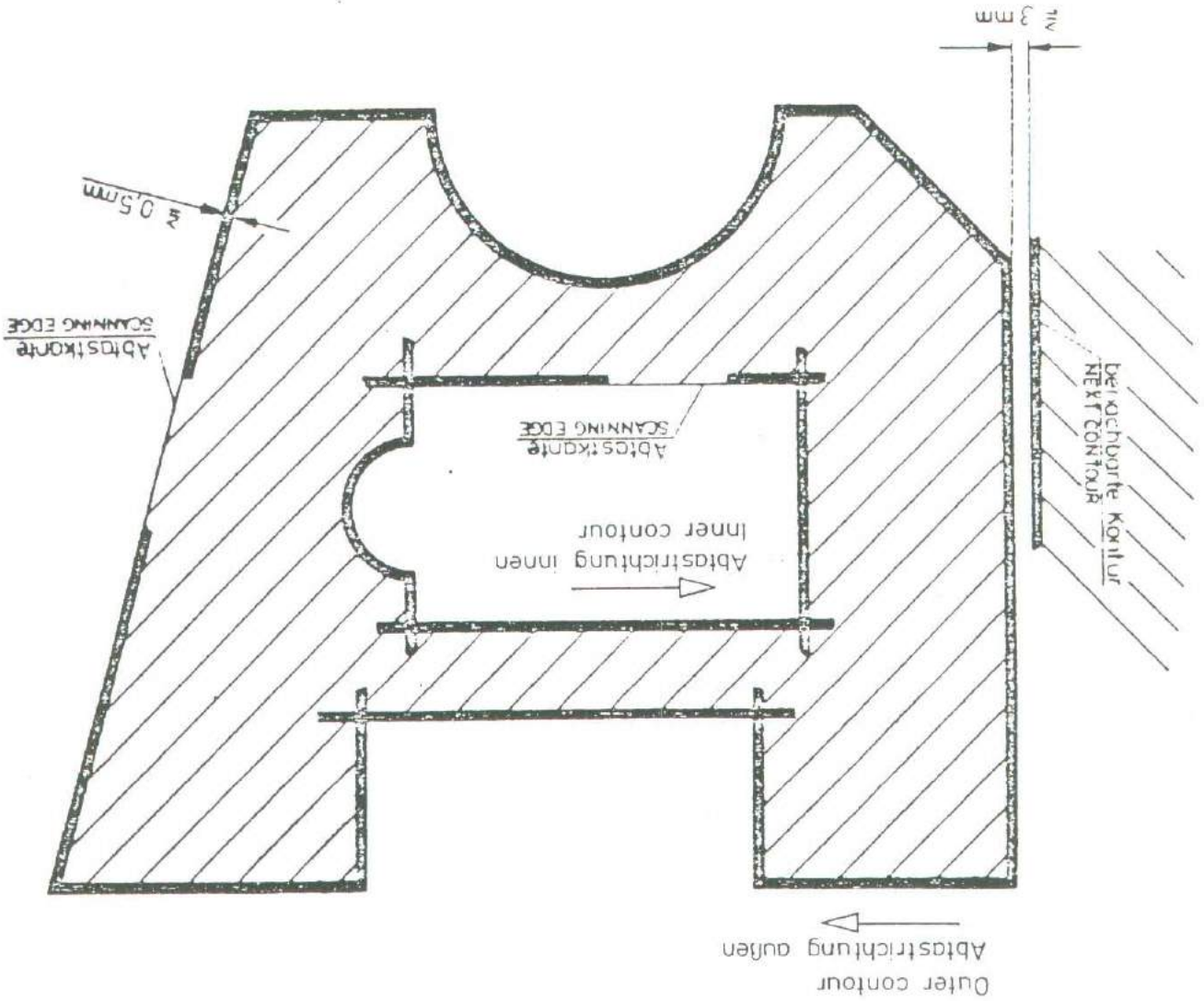
ESAB-HANCOCK  
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- 3.1 Drafting material
  - 3.2 Handling of the drafting material
  - 3.3 Preparing drawings for edge tracing
  - 3.4 Examples for chain cutting
3. Preparing tracer drawings



Bild 8



1. Drafting material

Copying patterns which are to be kept for extended periods of time must be of materials which are least sensitive to variations in humidity and temperature. The following materials have proved to be extremely well-suited for this purpose:

Aluminium foil paper

The foil paper has a matt and a shiny surface; a thin layer of aluminium foil has been placed between these surfaces to maintain the stability of the material. The paper is available in rolls with a width of 1000 mm.

KFN foil

The foil can be used for both drawings and silhouettes by simply cutting with scissors. The foil is available in rolls with a width of 1400 mm.

2. Handling of the drafting material when drawing with Indian ink

Aluminium foil paper

The smooth, shiny side should only be used when drawing with Indian ink. Pelikan TT or TN ink can be employed. Graphos or Rapidographs are recommended as drafting instruments. If the ink takes badly, the grease should be removed from the surface of the paper by applying a coating of talcum and distributing it evenly using a cloth.

KFN foil

The foil has a smooth and a rough side. Only the smooth side is suitable for producing drawings with Indian ink. The surface must always be coated with talcum or Spanish white to enable the ink to take well. Pelikan TT or TN Indian ink can be employed.

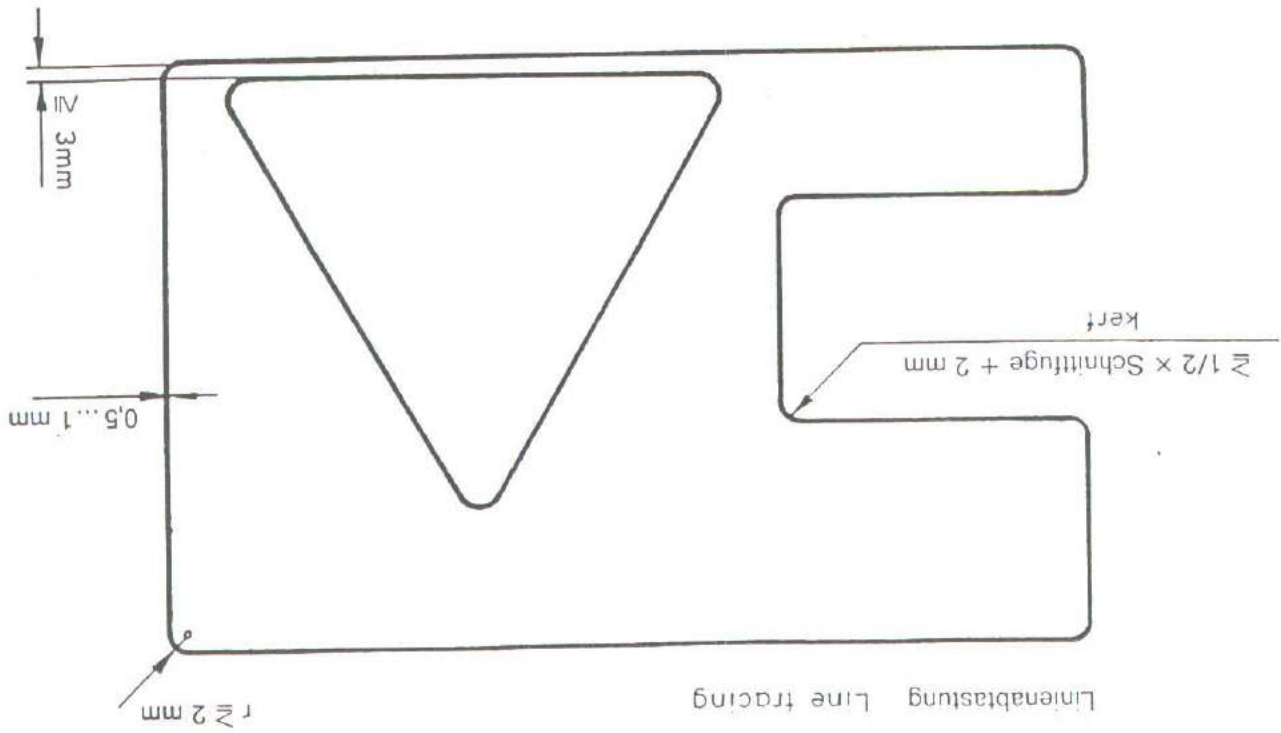


Abb. 9 Zeichnungsherstellung für 1:1-Abtastung  
Fig. 9 Preparing a Drawing for 1:1 Tracing

3. Preparing drawings for edge tracing

The copying patterns for edge tracing can always be produced with sharp corners.

It should be ensured that the line width is a minimum of 0.5 mm. When preparing the pattern, either as a drawing with lines with a thickness of 0.8 mm or as a silhouette, it is advisable to allow for the kerf width in the drawing, depending on the thickness of the material to be cut (the cutting radius is sharper at the corners). This means that half the kerf width should be added on all sides when the outer contour is cut. If the kerf width is set on the machine, it should be ensured that the inner corners are drawn with a minimum radius of  $r = 1/2$  kerf width when preparing the drawings. If a contour for edge tracing is made up of straight lines, it is advisable to use matt black adhesive tape with a width of 5 mm which is stuck on to the white base onto which the contour has been previously marked in pencil.

Sharp curves are produced using compasses and Indian ink. Patterns can also be produced successfully by cutting out the shape of the workpiece to be cut using white plastic foil and scissors and placing this on the black cutting table. The drawing patterns or silhouettes can be held flatly and firmly in position on the table by covering them with a sheet of plexiglass.

If several parts are to be cut out one after the other, the silhouettes are placed together in such a manner that as little waste as possible is produced.

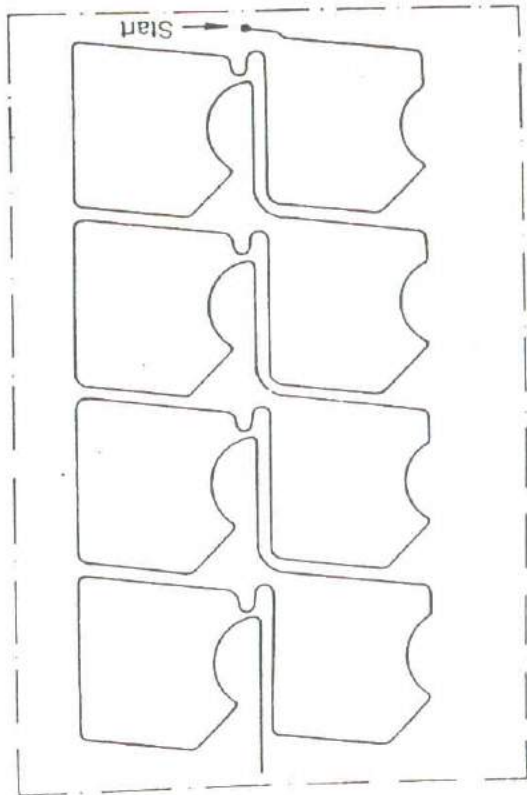
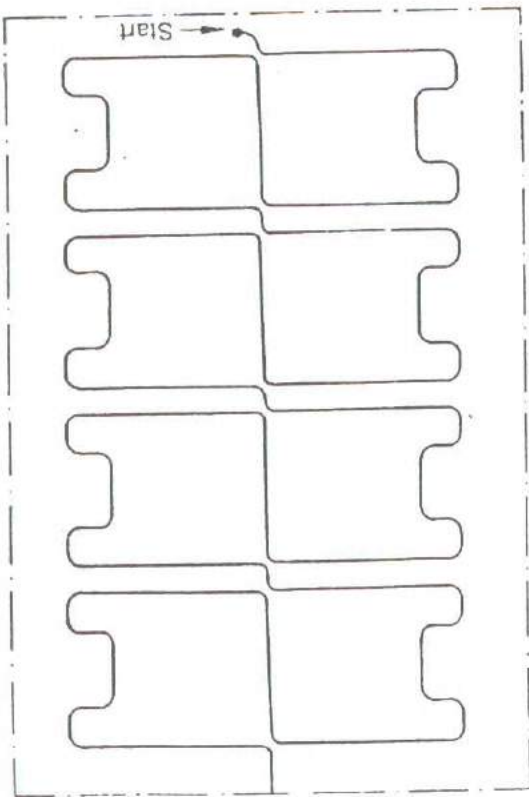
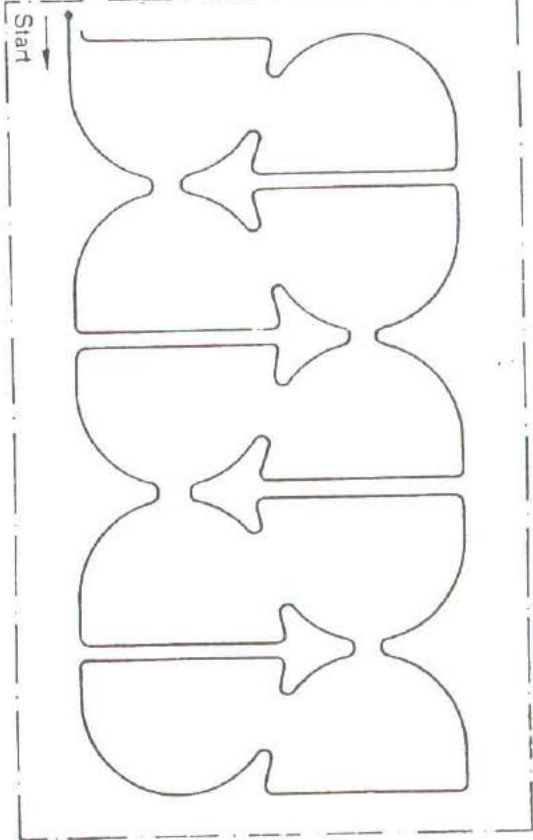
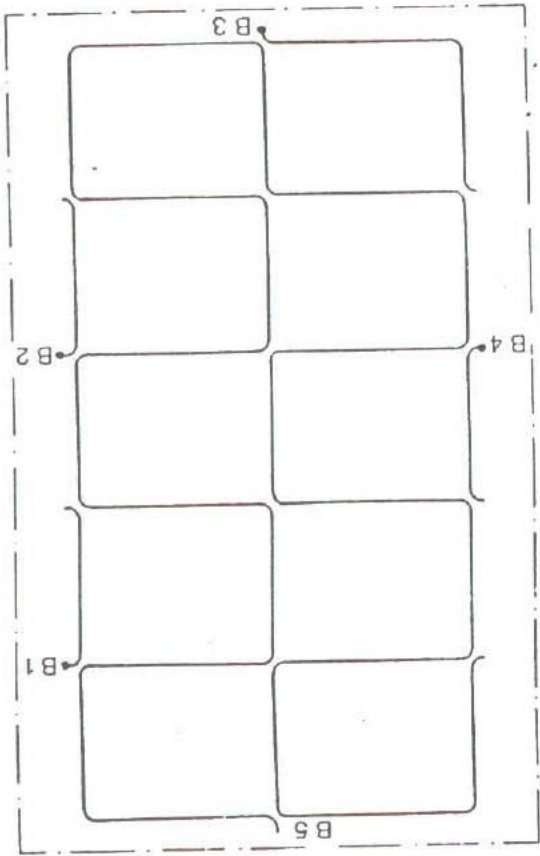


Abb. 10 Beispiele für Kettenschnitte  
Fig. 10 Examples for chain cutting

4. Examples for chain cutting (Fig. 10)

Parts which have been cut out should fall out one after the other. When this method is employed, it is advisable to take the kerf into consideration in the cutting drawing to enable the "corner radius" to be kept to the minimum, i.e. to keep the "cutting drip" which forms on the workpiece as small as possible. In addition, the cutting path should be determined such that the workpieces fall out in succession. In the case of parts of different sizes, the small parts should be cut first so that the plate placed on the cutting machine does not slip and to keep deflection as a result of heat to the minimum. Holes must always be cut first. Parts which have been cut out are held by means of "cutting bridges". It is not always possible to determine the cutting path in such a way that the workpieces fall out. In this case, "cutting bridges" are left intact and separated with a hand-held torch after chain cutting (economical for large parts only).



Operating instructions for machine cutting torches

GAS CUTTING	4.
Introduction	4.1
Operating pressure - Operating tables	4.2
Torch and nozzle selection	4.3
Cutting speed	4.4
Adjusting the heating flame	4.5
Adjusting the cutting flame	4.6
Nozzle distance	4.7
Preheating time	4.8
Switching off the torches	4.9
Torch treatment	4.10
Gas cutting faults	4.11
Hazards and emissions	4.12
Unpermissible procedures	4.13



1. Introduction into the gas cutting procedure

For gas cutting, the metal is burnt at the cutting line by means of a jet of high-purity oxygen (at least 99.5%). The heating flame initiates the process at the starting point by heating up the metal to ignition temperature. Combustion starts when the cutting oxygen flows, and it is propagated at high speed in the adjoining metal due to the heat produced. A kerf is generated by moving the torch from which the combustion products are blown out as a result of the kinetic energy of the cutting oxygen jet.

Gas cutting is based on the following conditions:

- The ignition temperature must be lower than the melting point of the steel concerned.
- The melting point of the metal oxide produced must be lower than the melting point of the steel concerned to permit its removal.

- The ignition temperature must be maintained all the time at the cutting face. Heat losses are compensated for by the heating flame.

- Unalloyed steels with low carbon content of up to 0.3% and some low-alloy steels with a carbon equivalent above 0.4% can be gas-cut after preheating.

$$\text{Carbon equivalent} = C + \frac{Mn}{6} + \frac{Ni}{15} + \frac{Cr}{5} + \frac{Mo}{4} + \frac{V}{5}$$

2.1. Operating pressure

Pressure reducing valves and pressure gauges have to be provided at the ring mains. They are used for adjustment and monitoring of the required operating pressure of the oxygen and cutting gas. The required specifications can be taken from the applicable cutting and consumption tables in the annex. - Adjustment is carried out when the torch valves are open.

The pressures given in the gas supply plan are necessary to permit full utilization. At lower pressures, the cutting capacity is reduced.

2.2. Operating tables

Cutting and consumption tables for all commercially available nozzles and fuel gas types are given in the annex.

Operating tables are intended to help the operator select the cutting nozzles in accordance with the sheet gauge, adjust the required gas pressures for the heating flame, and cutting oxygen and preselect the correct feed rate.

3. Applying the correct torches and gas cutting nozzles

The cutting and heating nozzles are selected in accordance with the

- fuel gas: e.g. acetylene, propane, natural gas, etc.
- torch type: e.g. injector torch or torch for gas-mixing nozzles
- cutting depth: corresponds to the sheet gauge in the case of vertical cuts and is accordingly greater in the case of diagonal cuts.

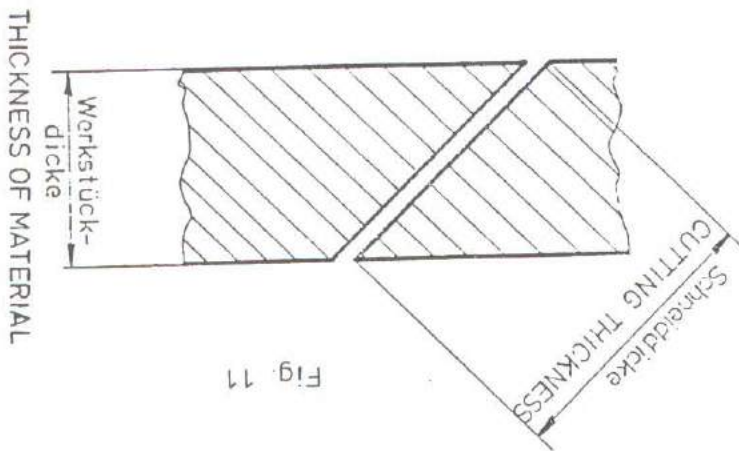


Fig. 11

Note: In the case of the injector torch, the heating gas is mixed in the torch; so-called slotted nozzles are used for this type of torch.

In the case of the torch for gas-mixing nozzles, the heating gas is mixed in the cutting nozzles. This torch is also of identical design for all fuel gases; only the nozzles have to be selected for the respective type of fuel gas.

Rust, dirt and protective coatings result in a reduced cutting speed. Incorrect flame settings also lead to differing cutting speeds.

The values given in the operating tables for cutting speed, gas consumption, kerf, etc. are average figures which may be exceeded or undercut. The latter is partly a result of locally differing gas properties, the available oxygen purity (which should at least be 99.5 %) and the metal to be cut.

The cutting speed can be taken from the operating table; the figures given in column "Profile cuts" are applicable. Higher speeds are given for simple separating cuts; in this case, slight trailing-off of the cutting jet and stronger grooving can be put up with. Due to melting of the grooves, smoother cutting faces are obtained when the values given for profile cutting speeds are slightly undercut. The gas and oxygen pressures given in the operating tables and instructions for the machine cutting torches must be adhered to, as the torches and associated nozzles are matched to them. - The operating pressures are set with open torch valves. Close the torch valves again after having set the pressure!

4. Adjusting the cutting speed and gas pressure  
=====

Clogged or dirty nozzles are carefully cleaned using the appropriate nozzle cleaning pin or powder; damaged nozzles must be replaced.

When screwing the nozzles into the torch, this must be done without applying force.

The cutting nozzles must always be used for the respective type of fuel gas which is indicated by a symbol.

For cleaning the cutting jet bore, only nozzle cleaning pins or powder recommended by the nozzle manufacturer may be used. When unsuitable cleaning devices, such as wire, twist drills and similar implements, are used, this results in unnecessary wear of the nozzles. Usually, the cutting jet bore, a high precision component, is damaged, thereby preventing a clean cut from being obtained.

The quality of the cutting jet is of decisive importance for obtaining a perfect cut. The cutting jet is correct if it appears directly in the middle of the heating flame and its almost precise cylindrical shape is clearly visible. If the cutting jet widens like a broom immediately after its leaving the torch, or if it is not visible at all, this indicates that the cutting nozzle is blocked.

6. Setting the cutting jet  
=====

Set the heating flame, starting with fuel gas excess. Small-gauge sheet metal should be cut with a weak heating flame, and heavy-gauge metal with a stronger flame. The heating flame is too strong if the edges of the cut start melting, project or reveal chains of blowpipe beads. Too weak a heating flame will pop during cutting which may result in the cut tearing away and even backflashing of the flame; moreover, it results in an irregular cutting groove, depth and erosion. When the heating flame is set correctly, the cutting oxygen jet is distinct and sharply defined when switched on.

5. Adjusting the heating flame  
=====

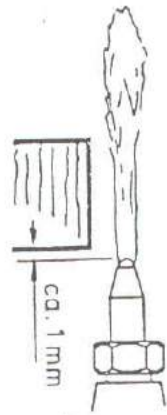
Open the heating oxygen and fuel gas valves and ignite the gas mixture delivered. To open the valve, almost one turn is sufficient in the case of the manually operated valves. Set the heating flame, starting with fuel gas excess.

Small-gauge sheet metal should be cut with a weak heating flame, and heavy-gauge metal with a stronger flame.

The heating flame is too strong if the edges of the cut start melting, project or reveal chains of blowpipe beads. Too weak a heating flame will pop during cutting which may result in the cut tearing away and even backflashing of the flame; moreover, it results in an irregular cutting groove, depth and erosion. When the heating flame is set correctly, the cutting oxygen jet is distinct and sharply defined when switched on.

If, after opening of the cutting oxygen valve, a bright "tongue" appears in the heating flame, the fuel gas valve must be throttled until the tongue disappears.

Heating flame with fuel gas excess for igniting



Neutral flame



Cutting flame

Fig. 12

7. Distance between nozzle and workpiece

The correct distance between the cutting nozzle and the workpiece is also important for obtaining a satisfactory cut.

The optimum nozzle distance has been attained when the tip of the primary flame (= flame cone) is approx. 1 mm above the workpiece. Depending on the nozzle size, this results in a nozzle distance of 3 - 10 mm for acetylene and 6 - 12 mm for other cutting gases.

Approx. nozzle distance for acetylene:

Cutting depth	Nozzle distance
up to 10 mm	3 mm
10 to 25 mm	5 mm
25 to 50 mm	6 mm
50 to 100 mm	8 mm
above 100 mm	10 mm

If propane is used as the fuel gas, twice the distance should be selected for cutting depths of up to 50 mm. The correct nozzle distance must be monitored during cutting and readjusted if necessary.

8. Preheating times  
=====

The preheating time required for the starting cut at the edge of a metal plate or for hole piercing in a plate is a function of the gas type, the surface of the plate and the setting of the heating flame.  
The table below gives an overview over the average preheating times required. The figures are based on the operating tables issued by us.

Average preheating times for starting cuts at a plate edge (in seconds)

Cutting depth	Acetylene	Propane	Natural gas
up to 20 mm	5 (30)	8 (34)	10 (40)
up to 50 mm	8 (50)	10 (53)	13 (60)
up to 100 mm	10 (78)	14 (80)	18 (85)

The figures in brackets apply for hole piercing in a plate. The times given above may be reduced by approx. 40 % if a high-pressure preheating system (e.g. ROTH valve) is installed.

9. Switching off the machine cutting torches  
=====

The shutoff valves must be closed in the following sequence:

- Cutting oxygen
- Fuel gas
- Heating oxygen.

- Torch
- Nozzles
- Material
- Cutting speed, etc.

Faults at a gas cut may have several causes. The most frequent sources of faults are:

11. Gas cutting faults  
=====

cutting torches.

For further notes, see operating instructions, machine

since special knowledge is required for this. fitted. Such a torch should be returned to us for repair,

during cutting and pops although perfect nozzles were the fact that the heating flame frequently extinguishes lost and become ineffective. This can be recognized by very short period, and the backflash protection will be occurs, its mixing chamber will become charred within a torch is not immediately switched off when such flashback the heating oxygen valve has first been opened. If the ing flame can again be ignited after a few seconds after and then the heating and cutting oxygen valve. The heat- In such instances, immediately close the fuel gas valve

pipng and hissing in the torch head.

sudden disappearance of the heating flame, as well as back into the torch head. This can be recognized by the employed for cutting. In this case, the flame may flash forfeited if heavily contaminated or damaged nozzles are proof against backflash. This backflash protection is checked carefully by us to ensure that it is absolutely is thereby bent. Prior to being dispatched, each torch is against anything when the machine is being positioned and Care must always be taken that the torch does not knock

10. Treatment of the machine cutting torches  
=====



For safety reasons, the operator shall always wear protective clothing when working at the machine.

Combustible materials must be removed from the area of the cutting jet.

Care must be taken that no gas egresses without a heating flame burning.

Under all circumstances attention must be paid that nozzles and torches which are not suitable for the same fuel gases are not combined.

13. Unpermissible procedures  
=====

As the development of dust has to be expected during operation of gas cutting machines, we recommend that an efficient exhausting system be installed near the dusting point.

In the event of serious operator's faults, it cannot be excluded that inflammable gases may egress, resulting in explosion hazards.

For this reason, satisfactory ventilation of the working area and suitable protection for the operating personnel must be provided:

Gloves, body protection, cover-all welding goggles with welding filters, ear protection; protective booths are also recommended.

- Sparks
- Slag spatter
- Heat radiation
- Smoke
- Noise
- Light radiation

When the gas cutting machine is operative, the following emissions must be expected:

12. Hazards and emissions  
=====



The machine cutting torches Type BIB 320 A can be employed with acetylene as the fuel gas.

To ensure dependable operation, the following points must be observed:

1. Cutting tables Slotted nozzles (short) 0.300.038

2. Adjusting the heating flame

When the torch valves are open, the following operating pressures must be set:

Cutting depth	Heating oxygen	Acetylene
2 - 10 mm	2.0 bar	0.2 bar
10 - 125 mm	3.0 bar	0.2 bar
125 - 250 mm	5.0 bar	0.2 bar

The pressures given above are overpressures and apply for a hose length of 5 m.

Completely open the torch valves for heating oxygen and fuel gas and ignite the gas mixture. When the pressure is set correctly, an approx. 70 mm long excess fuel gas flame is produced. The heating flame is adjusted for the respective cutting job by means of the torch valves.

3. Adjusting the cutting flame

The values for cutting oxygen pressure adjustment are given in the cutting table for the respective nozzle type.

4. Switching off the machine cutting torch

Close the torch valves in the following sequence:

1. Cutting oxygen
2. Fuel gas
3. Heating oxygen.

5. Instructions in the event of backflashing

Backflashing may be the result of placing the nozzles on the material, of splashing oxides or incorrect operating pressures. This can be noticed from a piping noise. Immediately close the torch valves in such an event. Restart the machine cutting torch only after it has cooled down.

6. General remarks

Only use original EASB-KEBE cutting nozzles for acetylene. Disassembly and repair of the torch shall only be carried out by trained personnel in accordance with UVV (Accident Prevention Regulations), 15, Sec. 20. Spare parts shall be ESAB-KEBE parts only.

For loosening and tightening the nozzle nut, a wrench must be placed on the torch surfaces.

#### 5. Changing the nozzles

1. Cutting oxygen
2. Fuel gas
3. Heating oxygen.

Close the torch valves in the following sequence:

#### 4. Switching off the machine cutting torch

The values for cutting oxygen pressure adjustment are given in the cutting table for the respective nozzle type.

#### 3. Adjusting the cutting flame

Completely open the torch valves for heating oxygen and fuel gas and ignite the gas mixture. When the pressure is set correctly, an excess fuel gas flame is produced. The heating flame is adjusted for the respective cutting job by means of the torch valves.

When the torch valves are open, the operating pressures must be set in accordance with the cutting table. The minimum inlet pressure must be 300 mm Wg.

#### 2. Adjusting the heating flame

1. Cutting tables V slotted nozzles (short) 0.300.039/040; V slotted nozzles (long) 0.300.035

observed:

To ensure dependable operation, the following points must be

The machine cutting torches Type BIB 320 PM are suitable for propane, natural gas, mapp, tetrene and HPG as the fuel gases. Employ the appropriate nozzle for the different fuel gases.

6. General remarks

Only use original ESAB-KEBE cutting nozzles for the respective fuel gas.

Disassembly and repair of the torch shall only be carried out by trained personnel in accordance with UVV (Accident Prevention Regulations), 15, Sec. 20.

Spare parts shall be ESAB-KEBE parts only.



The machine cutting torches Type BGG 320 are suitable for all fuel gases. Employ the appropriate nozzle for the different fuel gases.

To ensure dependable operation, the following points must be observed:

- 1. Cutting tables Gas mixing nozzles for acetylene 0.300.031 Gas mixing nozzles for propane/ natural gas 0.300.036

2. Adjusting the heating flame

When the torch valves are open, the operating pressures must be set in accordance with the respective cutting table.

Completely open the torch valves for heating oxygen and fuel gas and ignite the gas mixture. When the pressure is set correctly, an excess fuel gas flame is produced.

The heating flame is adjusted for the respective cutting job by means of the torch valves.

3. Adjusting the cutting flame

The values for cutting oxygen pressure adjustment are given in the cutting table for the respective nozzle type.

4. Switching off the machine cutting torch

- Close the torch valves in the following sequence:
- 1. Cutting oxygen
  - 2. Fuel gas
  - 3. Heating oxygen.

5. Changing the nozzles

For loosening and tightening the nozzle nut, a wrench must be placed on the torch surfaces.

The cutting nozzles have conical seats which seal the gases admitted - heating oxygen, cutting oxygen and fuel gas - against one another. The nozzles shall only be changed by pulling the nozzle out of the torch head. Avoid knocks on the side of the nozzles, since this may result in oval expansion of the torch head, thereby no longer ensuring tightness.

Should leaks occur at the torch head after extended periods of operation of the torch, it may be machined using a special milling cutter.

6. General remarks

These torches shall only be operated with gas flashback protection connected in front.

Only use original ESAB-KEBE cutting nozzles for the respective fuel gas.

Disassembly and repair of the torch shall only be carried out by trained personnel in accordance with UVV (Accident Prevention Regulations) 15, Sec. 20.

- 5. MACHINE OPERATION
- 5.1 Coordinate control
- 5.2 Work with the machine
- 5.3 Job safety





Optical tracing control, introduction

The cutting torches are moved by the coordinate drives: The photo-electric tracing control automatically follows the edge of an outline drawing or silhouette and controls the drives electronically and, thus, also the movement of the cutting torches along the contours of the tracing pattern.

Function of the photo-electric tracing unit

A lens system in the tracing head projects the contour of the tracing pattern which is illuminated by lamps onto a photo-electric cell. This cell continuously transmits signals to a servo motor which moves the tracing head tangentially to the pattern contour during a feed motion. This permits the tracing head to follow the tracing pattern in a continuously readjusting manner.

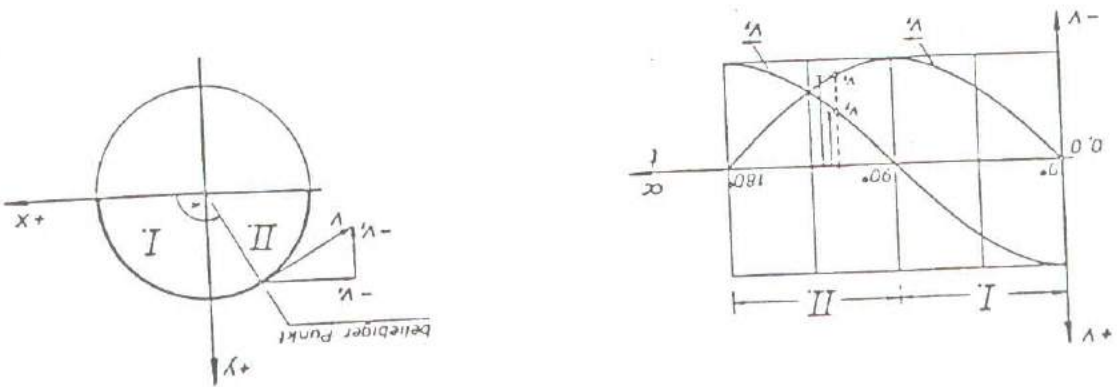
The track curve results from the total of movements of the longitudinal and transverse drives.

To be able to move along the track described at a constant feed rate, the speed in longitudinal and transverse direction must continuously change in accordance with the change in direction. For this purpose, a resolver transmitter records all control motions of the tracing head. The mathematical relationship between the speed components in longitudinal and transverse direction and the resultant speed vector at any point on the track curve is defined by the following equation:

$$\sin^2 \alpha + \cos^2 \alpha = 1.$$

The size of the resultant speed vector  $v$  is set by means of the potentiometer at the control panel.

Fig. 13



Example for the speed curve when a semi-circular track is described:

Toggle switch POWER at the left side of the tracing head  
OFF  
ON

Potentiometer SPEED for cutting speed infinitely variable up to 1000 mm/min (10)

Selector switch DIRECTION for preselection of the starting direction

Toggle switch DRIVE for the drives

OFF = feed off  
ON = feed on

Signal lamp ON PATT (on tracing edge)

Lamp lights as soon as the tracing head has detected the tracing edge.

Toggle switch TRACE

STRIP = strip cutting  
The tracing head moves in the direction preset at the DIRECTION switch at the preselected speed.

START = Tracing head moves to the tracing edge.

Hold the switch until green symbol ON PATT lights.

The switch returns to TRACE.

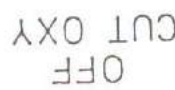
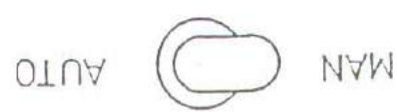
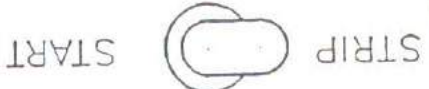
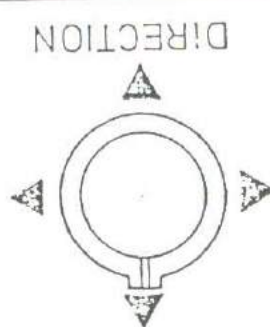
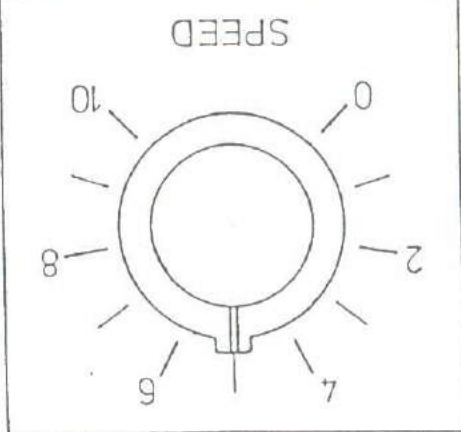
Toggle switch CUT OXY for cutting oxygen valve (only effective if a solenoid valve is installed).

MAN = Cutting oxygen off during tracing

OFF = Cutting oxygen off

AUTO = Cutting oxygen ON as long as starting is made using the TRACE switch, or the tracing head has detected the tracing edge.

When the tracing head leaves the tracing edge, the cutting oxygen supply is cut off.



Also refer to LINATROL SERVICE MANUAL HL 90

Before the machine is started, the operator must be thoroughly instructed on the operation and the safety and accident prevention regulations.

The machine can be employed for the following operations:

- Strip cutting
- Profile cutting - from the metal edge
- Profile cutting - from the center of the metal plate (e.g. cutting of internal profiles)

Strip cutting

It must be ensured that the correct nozzles are inserted and the oxygen and fuel gas pressures set in accordance with the cutting tables.

Put the metal plate in position; disengage the drives. Adjust one torch with nozzle on top of the metal edge and move the machine up and down along its path. During this, check the metal plate for correct angle and flatness.

Set the distance between torches according to the strip width and place the torches above the front edge of the metal plate by means of the handwheels for setting the longitudinal and vertical movement.

Shift the machine until the nozzles are outside the metal plate; open central valves; ignite the heating flames and adjust them individually by means of the adjusting valves. Check the cutting flames by switching on the cutting oxygen on the adjusting valves. If necessary, readjust the flames and close the central cutting oxygen valve.

Set the speed in accordance with the cutting specifications in the tables. It must be ensured that the DIRECTION switch is turned to cutting direction, the DRIVE switch is OFF and the copying switch turned into STRIP position.

Preheat the metal plate until the cutting temperature is attained.

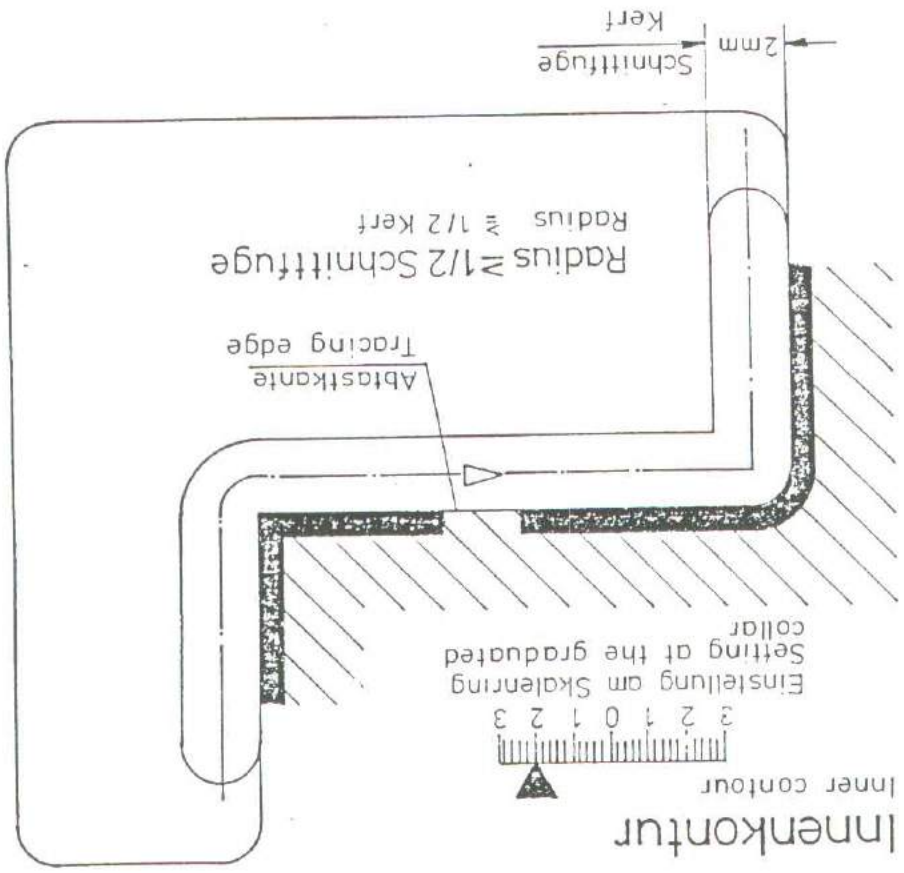
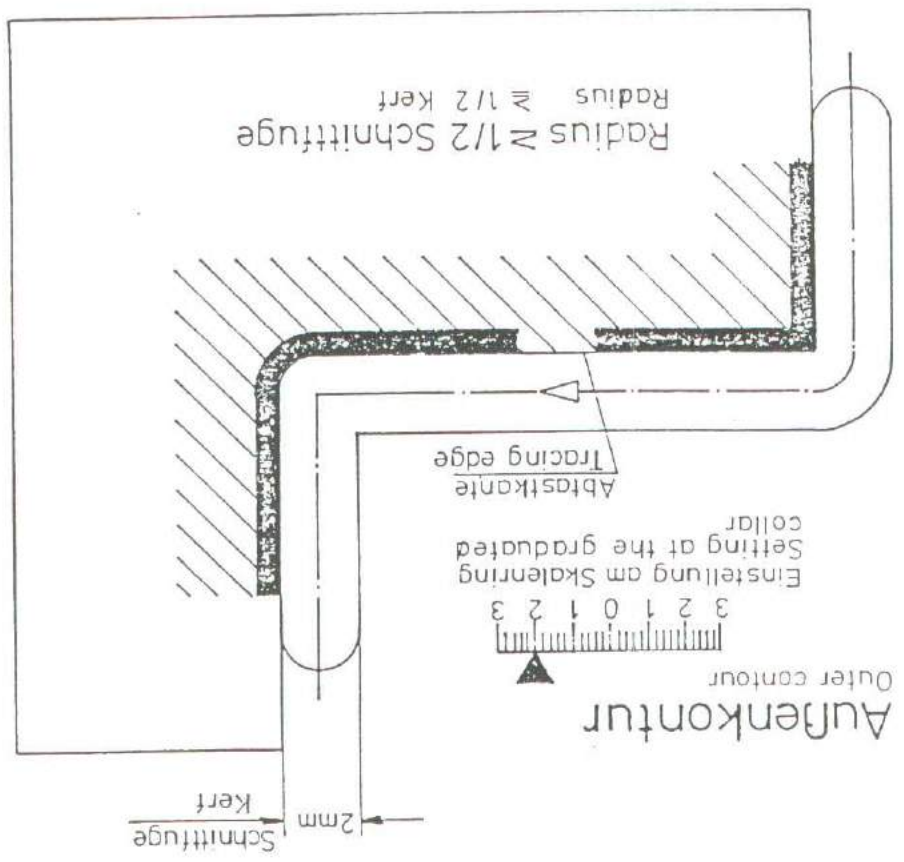


Bild 17  
Fig. 14

Schnittfugen-Kompensation  
Kerf compensation

Switch on the cutting oxygen supply by opening the central valve.

Switch on DRIVE and cut the desired strips.  
After completion of the cutting process, switch off DRIVE and close the cutting oxygen and fuel gas central valves. Observe the correct sequence!  
Disengage the drives and move the machine away from the metal plate.

#### Profile cutting - from the edge of the metal plate

Adjust the tracing head and tracing pattern in such a manner that the head can move along the entire profile without running the risk of bumping, with all torches remaining above the metal plate.

In the case of more complex profiles, the machine must be moved over the metal plate by hand (with the drives disengaged) and the position of the nozzles observed at several important points of the profile. (The precise position of the tracing head above the tracing pattern can be easily determined by switching to STRIP and observing the small light spot on the tracing pattern.)

Shift the machine until the nozzles are outside the metal plate; open central valves; ignite the heating flames and adjust them individually by means of the adjusting valves. Check the cutting flames by switching on the cutting oxygen supply at the adjusting valves. If necessary, readjust the flames and close the central cutting oxygen valve.

Set the speed in accordance with the cutting specifications in the tables. It must be ensured that the DIRECTION switch is turned to cutting direction, the DRIVE switch is OFF and the copying switch switched to STRIP position.

Turn the DIRECTION switch into a direction which enables the tracing head to approach the tracing contour, and turn the DRIVE switch ON.  
Preheat the metal plate until the cutting temperature is attained.

Switch on the cutting oxygen supply by opening the central valve.

Push the TRACE switch to START and hold it until the green symbol ON PAT (on the tracing contour) appears on the tracing head. Release the switch. The machine now cuts the desired profile.

After the desired profile has been cut, rapidly close the central cutting oxygen valve in order to prevent the profile edge from being damaged.

Close the central valves for heating gas and then for heating oxygen. Switch off the DRIVE switch, disengage the drives and move the machine away from the metal plate.

If several parts are to be cut with the same profile, proceed as follows:

Switch off the DRIVE switch; disengage the drives and move the machine away from the profiles; then adjust the nozzles on the edge of the remaining plate.

Advance the tracing table by slightly more than the length of a profile.

Now start cutting again.

Profile cutting - from the center of the plate

The procedure is similar as for profile cutting from the edge of the metal plate, however a hole must first be pierced into the metal. In particular with gauges exceeding 25 mm, hole piercing requires some experience and knowledge. It is therefore advisable to practise hole piercing at a piece of scrap metal first. Hole piercing is performed as follows:

Position the nozzles above that part of the metal plate which is to be cut out. The distance to the profile edge must be at least half the gauge.

Preheat the plate until the cutting temperature is attained.

Slowly open the central valve for cutting oxygen.

and hoses.

Open flames shall also be kept away from gas cylinders

flame in the vicinity of the torches.

When blowing out the torches and hoses, or when presetting the pressures or flow rates, there shall be no open flame in the vicinity of the torches. During gas cutting, several inflammable gases may be used, all of which involve potential explosion hazards.

Gases

The fumes produced during gas cutting are not considered dangerous if satisfactory ventilation is provided.

Smudge

During gas cutting, safety regulations must be complied with just as with other industrial procedures in order to prevent the personnel from suffering injuries.

General remarks

5.3 Job safety

After the metal has been pierced, fully open the central valve for cutting oxygen and set the speed to the figure given in the cutting table. Release the TRACE switch as soon as the green symbol ON PATI appears.

ing.)

is thereby blown away from the operator during hole piercing. The iron oxide machine must be moved towards the operator. The iron oxide of the standard cutting speed. (Wherever possible, the

START and hold it so that the machine runs at approx. 60 % oxygen has reached the metal), push the TRACE switch to As soon as a white spot appears on the metal surface (the



Acetylene gas lines and cylinders shall never be exposed to temperatures exceeding 54 °C.

Oxygen itself is not inflammable, but in its presence combustible substances burn more easily.

Careful attention must therefore be paid to the fact that the ambient air is not enriched with oxygen, above all in narrow spaces.

If oxygen comes into contact with oil, grease or other hydrocarbons, this may lead to spontaneous ignition and explosions.

Never use oxygen for blowing out hoses to remove dust and oil. All new hoses must however be blown out before being used for the first time. This can be done using

AIR

NITROGEN

CARBON DIOXIDE,

attention being paid to the absence of oil.

### Torch

A lighter with flint or a pilot flame must be used for igniting. Never ignite the torches with a match or red hot metal. Always maintain the correct sequence for igniting and extinguishing.

ON

1. Fuel gas on

2. Heating oxygen on

3. Cutting oxygen on

OFF

1. Cutting oxygen off

2. Fuel gas off

3. Heating oxygen off

Only use approved torches and nozzles for working.

Controllers and pressure gauges

All gas sources must be equipped with controllers for controlling the gas supply pressure to the value indicated in the cutting specifications for the respective unit.

Never use a controller for a gas for which it is unsuitable. When the system is shut down, discharge the control pressure after the pressure in the hose has been discharged. Always treat controllers and pressure gauges as precision instruments. Never expose them to rapid pressure surges by opening the supply valves too rapidly. Controllers must be replaced which let gas pass (when the pressure control spindle is released) or which do not prevent a pressure increase on the low-pressure side when the torch adjusting valve is closed. Pressure gauges which do not return to zero when the pressure is discharged are defective, and the pressure indicated is not reliable. Such gauges must therefore be replaced. Controllers, valves and pipelines must be kept clean and free of oil and grease.

Protective clothing

Optimum protection during gas cutting is provided by cotton overalls; the feet should be protected against dropping slag and scrap. Always wear protective leather gloves during work. Protect the eyes during gas cutting by protective goggles with suitable filter glasses which allow good observation of the flame. The goggles and filter glasses shall comply with applicable standards.

Electrical safety

The electrical system must be installed and serviced in accordance with the applicable construction regulations and standards. Repair and servicing work must always be carried out with the power switched off or the mains plug pulled.

Further notes

Details can be taken from the applicable construction regulations and standards. Attention must be paid to the fact that these regulations are reviewed from time to time and that the system has to be adapted to the status of the most recent issues.

Backflashes can result in serious consequences and damage the hoses. In serious cases, even the operating personnel can be exposed to danger.

Never remove check valves.

Check valves are automatic devices for flashback protection, as they prevent oxygen and fuel gas from mixing in the hoses.

Check valves

Never bend or squeeze the hoses for brief interruptions of the gas supply.

When acetylene is used as the fuel gas, hose connections shall not be made by means of copper pipes.

NEVER USE WIRE TO FASTEN HOSES! ALWAYS EMPLOY APPROVED HOSE CLAMPS FOR THIS PURPOSE!

Defective hoses must be replaced or repaired by cutting out defective sections and fitting a hose coupling.

Hoses must be protected from heat, hot slag, sparks, oil and grease.

Hoses

Special care must be exercised when replacing nozzles. So as to ensure gas-tight connections, special attention must be paid to clean seat faces.

NEVER SEARCH FOR LEAKS USING AN OPEN FLAME!

Gas leaks at valve sockets, connections and hoses can be detected by applying soap water and remedied by tightening retaining nuts and screw unions.

Leaks at oxygen and gas lines should not be neglected.

Leaks

CAUTION! THE HOSES MUST ALWAYS BE BLOWN OUT BEFORE OPERATIONS COMMENCE!

Backflashes can easily be prevented if the operating manual is adhered to.

As soon as a backflash occurs, the power must be switched off or the gas supply immediately cut off.

The system must then be subjected to thorough examination as soon as this is possible without danger, and the source of the fault must be remedied. The most frequent causes are loose connections, incorrect seating in the torch block, dirty or defective nozzles, incorrectly set pressures, or ignition before the fuel gas flow has attained its correct value.

In addition, all parts must be checked, from the nozzle to the gas source, e.g. nozzles, nozzle block hoses, pipes and valves.

During routine checks, the check valves at the torch must be removed and replaced by new ones. The removed check valves must be discarded.

Check valves must be treated as consumer articles and scrapped every time a malfunction has occurred.

Prior to igniting the torches, always blow out the hoses. For this, take care that there is no open flame in the vicinity. Set the pressures as indicated and ignite the torches again.

Table 2: Maintenance schedule

- 6.1 Cleaning
  - 6.2 Lubrication
  - 6.3 Readjustment
  - 6.4 Nozzle cleaning
6. MAINTENANCE



MAINTENANCE SCHEDULE

Place Fig. 1 Item Work

Intervals (h)  
10 | 50 | 200

1 Runway  
16 Remove oxide dust  
15 from guide rails and  
1 wipe with tightly  
5 oiled cloth

2 Side cheek  
Rocker bearing  
3 Counter roller  
2 Clean running sur-  
faces of the guide  
rollers

3 Pinion  
8 Rack  
9 Gear rim  
8 Clean and tightly  
grease teeth

4 Torches and  
13 nozzles  
Valves  
Backlash prot.  
Check continuously  
immediately replace  
defective parts

5 Rollers at  
7 torch and  
10 tracing carr.  
Cleaning

6 Hoses and hose  
13 hose connec-  
11 tions  
12 Check for tightness  
and damaged parts and  
repair them

7 Torch bearing  
10 and shaft  
13 Keep bore and shaft  
clean

+) Backlash and explosion protection devices must be replaced by new ones in the event of gas flow  
Discard removed parts!

Table 2

1. Cleaning  
=====

From time to time, the machine must be thoroughly cleaned. Frequently wipe all travelling and guide rails at the machine carriage with a clean cloth and then apply a thin coat of oil to permit the machine to run smoothly at all times and provide neat cuts. All supporting and guide rollers should also be cleaned at regular intervals. Otherwise, the surface of these parts will wear prematurely within a relatively short time, due to the oxide dust produced during cutting, and this will lead to jerky operation of the machine and, thus, unsatisfactory cuts. The rack at the guide machine into which the pinion of the transverse drive engages must be kept absolutely clean. This is done in the most simple manner by lubricating the rack regularly with oil and blowing it out by means of compressed air.

The runways and wheels should be cleaned at least once a day.

2. Lubrication  
=====

All supporting and guide rollers are fitted with ball bearings with life-time lubrication. The sliding and guide tracks should be lightly oiled - as already mentioned; it is easier to apply a Molykote film (GN paste) on the care-fully cleaned guide tracks.

Close all torch valves and the central valves for heating oxygen and fuel gas for nozzle cleaning. Introduce the cleaning pin into the nozzle and move it up and down in the bore; slowly open the torch valve for cutting oxygen during this so that the dirt is blown out.

4. Cleaning the nozzles  
=====

All major guide and supporting rollers at the guide machine are supported on pins which can be adjusted by eccentrics. Should these rollers show signs of wear after several years of operation, they can be readjusted, thereby obtaining smooth running of the machine without play again. The guide machine is guided on the travelling rails by means of the lateral guide bearings. The two outer lateral guide rollers are not eccentric, so that only the inner rollers must be adjusted. This is to avoid that the carriage no longer retains its 90° position to the runway. It must also be checked whether the roller and counter roller at the rocker bearing of the guide machine are correctly set. The rollers should have a play of approx. 0.1 mm to the travelling rail, so that only one roller will be running while the other stands still.

3. Readjusting the machine  
=====



9. ANNEX

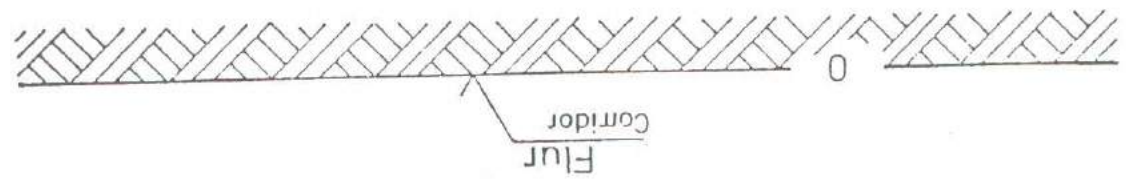
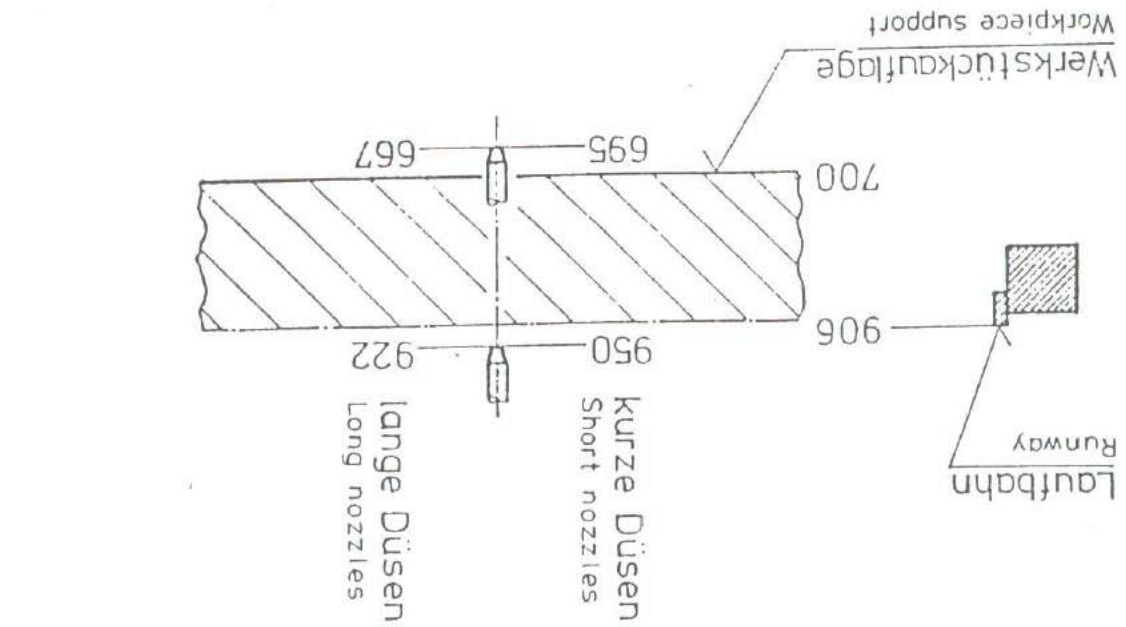


9. Anhang

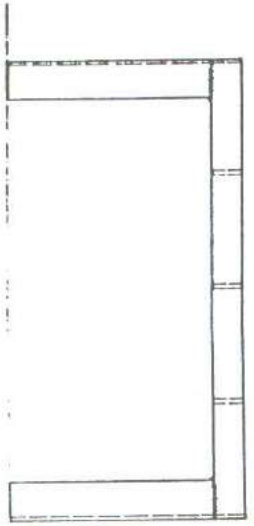
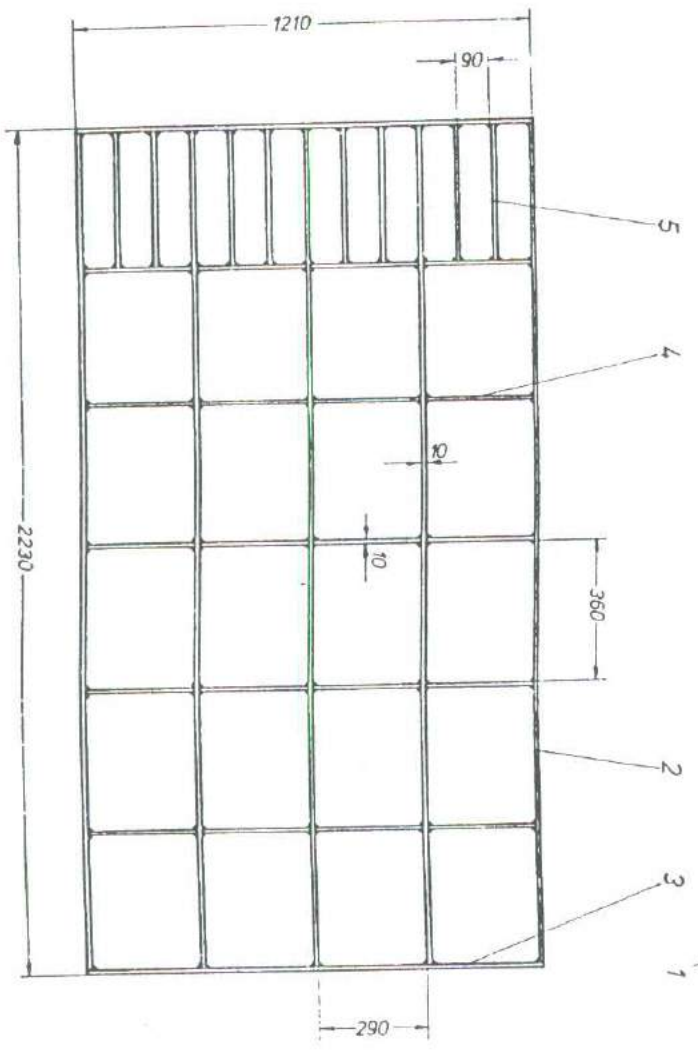
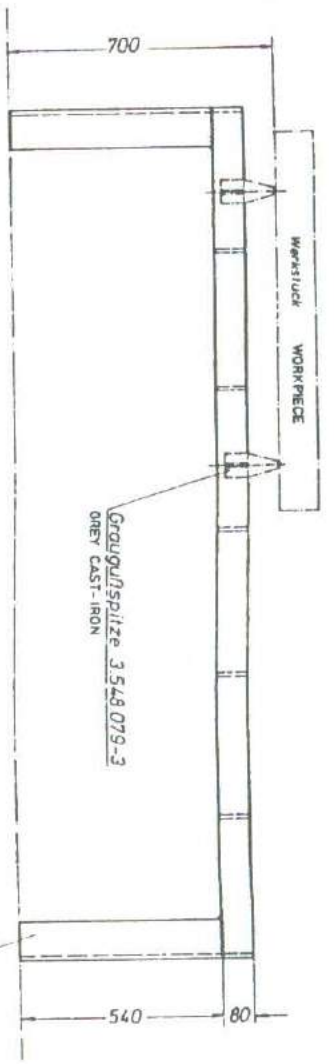


Düsen - Höhenverstellung  
Vertical adjustment of nozzles

ESAB-HANCOCK  
D-6367 Karben 1



Brenner-Schaftlänge = 320  
Torch shaft length  
Düsen - Höhenverstellung = 255  
Vertical nozzle adjustment



Schweißnaht  $\nabla$  4  
WEILD

Stück	Gezeichnet	Datum	Wfms	Benennung	Teil	Zeichn. Nr.	Werkstoff	Bemerkung
8	F1,80 * 10 * 360				5	6 414 155	USt 37-2	
10	F1,85 * 10 * 290				4	6 414 159	USt 37-2	
2	F1,80 * 10 * 1210				3	6 414 159	USt 37-2	
3	F1,80 * 10 * 210				2	6 414 159	USt 37-2	
4	L100 * 12 * 540				1	6 415 200	USt 37-2	

Profilname	DIN 786	Material	Stk	Maße

Normal	Maße	Stk	Maße

1:10

Werkstück Auflagetisch  
für Auflagenhöhe 700mm über Boden  
Werkzeuge SUPPORTING TABLE FOR  
SUPPORTING HEIGHT 700mm ABOVE FLOOR

ESAB  
ESAB-HANCOCK  
GmbH  
6367 Karben 1

Erstellt für  
Erneuert durch  
3.069.024



ESAB-HANCOCK  
D-6367 Karben 1

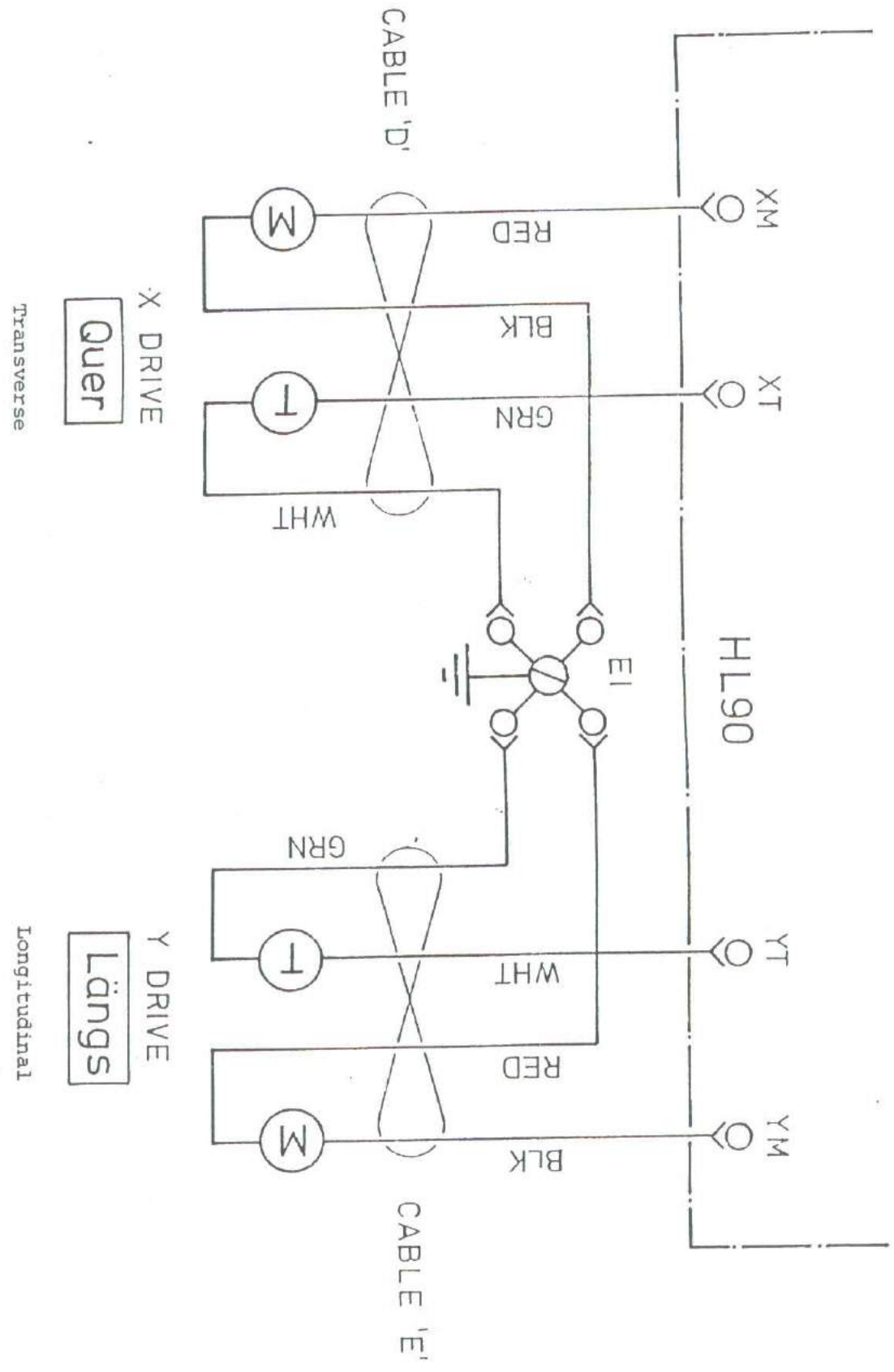
HL 90

Anschluss der Antriebe  
Connection of drives

-A4-

22.M.92

hierzu: LINATROL SERVICE MANUAL HL 90  
Also see:



Maschinenschneidbrenner BGR 320  
 mit gasemischende Düsen GPR 300 L  
 Gasart: Propan / Erdgas

Pos. Item. Rep.	Sach-Nr. Part No. No. Ref.	Benennung Designation	Stück Quant.	Bemerkungen Remarks Remarques
-----------------------	----------------------------------	--------------------------	-----------------	-------------------------------------

		Machine Cutting Torch BGR 320 for gas mixing nozzles GPR 300 L for Propane / Natural gas		
		Chalumeau Coupeur Machine BGR 320 pour buses à mélange gazeux GPR 300 L pour Propane / gaz naturel		

1	2.221.008	Maschinenschneidbrenner BGR 320 Machine Cutting Torch BGR 320 Chalumeau Coupeur Machine BGR 320	1	
2	4.414.002	Rückdrucksicherung S-02 Non-return safety device Non-retour sûreté	1	
3	4.414.048	Gebräuchsstellenvorlage f. Heiz-02 Safety devices Obturation à l'eau	1	
4	4.414.047	Gebräuchsstellenvorlage f. Gas Safety devices Obturation à l'eau	1	
5	3.551.506-4	Düsenmutter Nozzle nut Ecrin de gicleur	1	
6	4.450.040	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.041	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.042	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.043	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.044	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	

Maschinenschneidbrenner BCB 320  
 mit gasemischende Düsen GAA 300 L  
 Gasart: Acetylen

Pos. Item. Rep.	Sach Nr. Part No. No. Ref.	Benennung Designation	Stück Quant.	Bemerkungen Remarks Remarques
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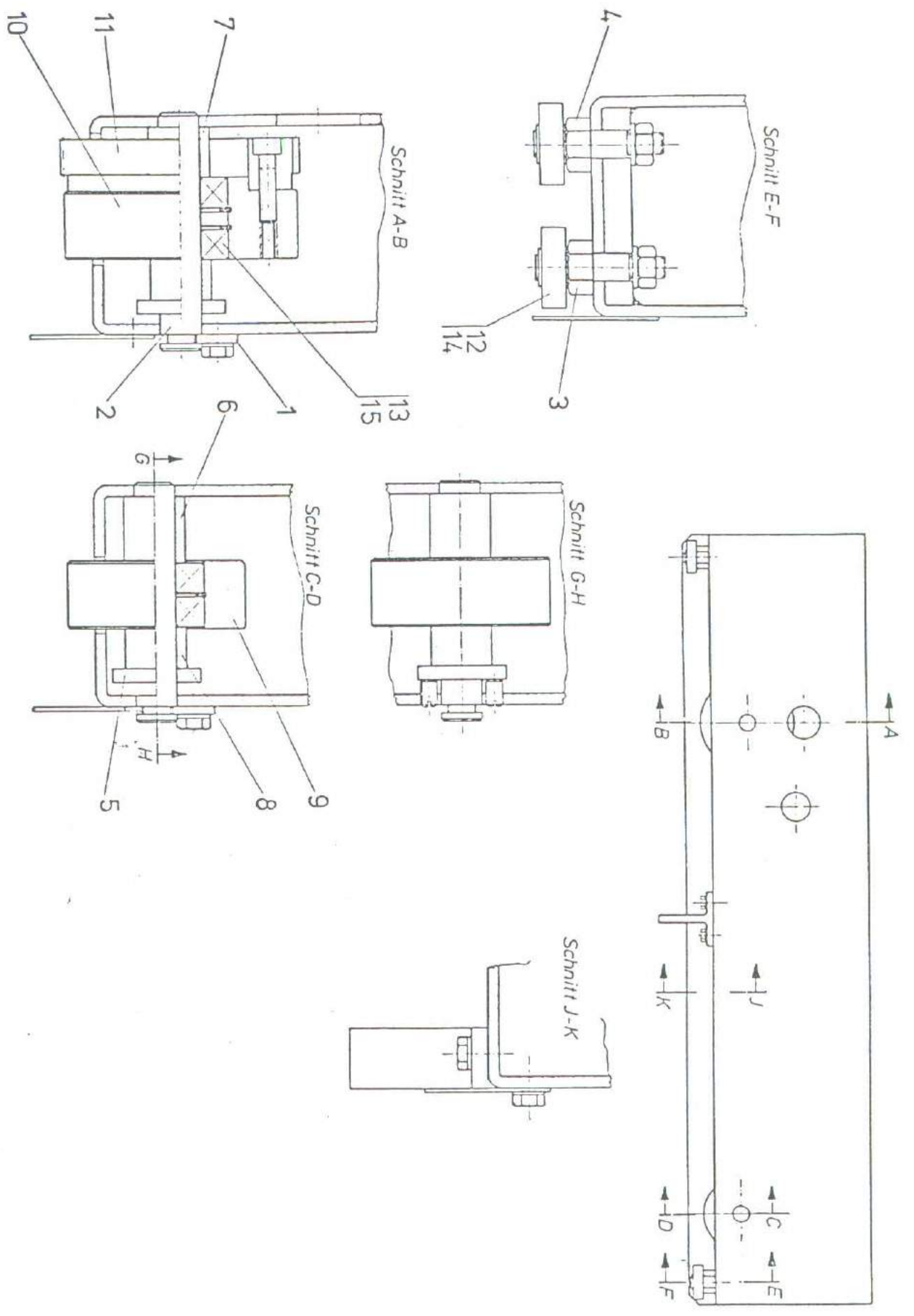
		Machine Cutting Torch BCG 320 for gas mixing nozzles GAA 300 L for Acetylene		
		Chalumeau Coupeur Machine BCB 320 pour buses à mélange gazeux GAA 300 L pour Acetylene		

	4.450.075	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux 75 - 125 mm	1	
	4.450.076	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux 125 - 200 mm	1	

E 61

0.720.842

Bl. 2/2



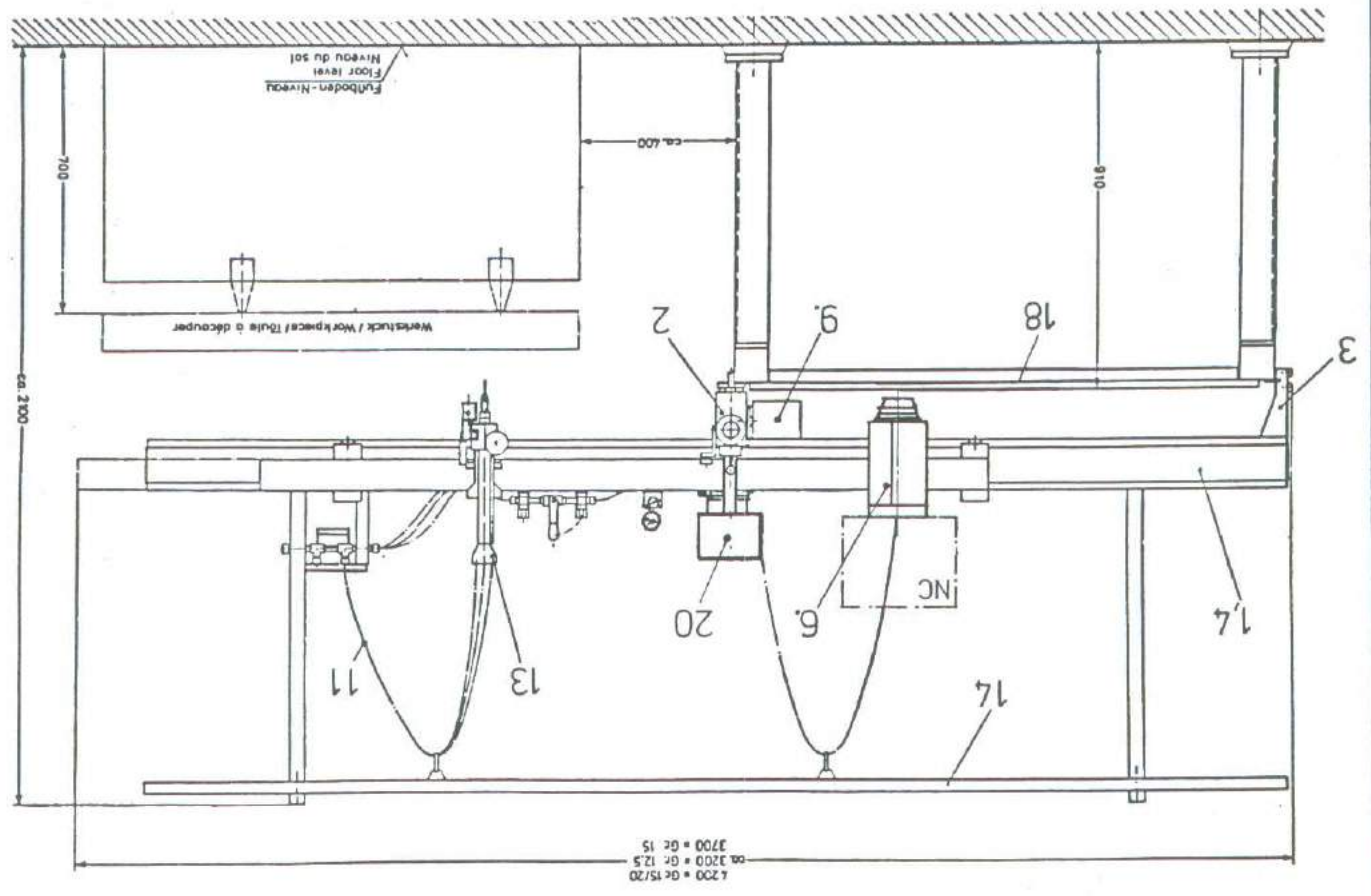




ESAB-HANCOCK  
D-6367 Karben 1

Gesamtansicht-UXB  
General View  
VUE D'ENSEMBLE

Fig. 1  
Bild 1

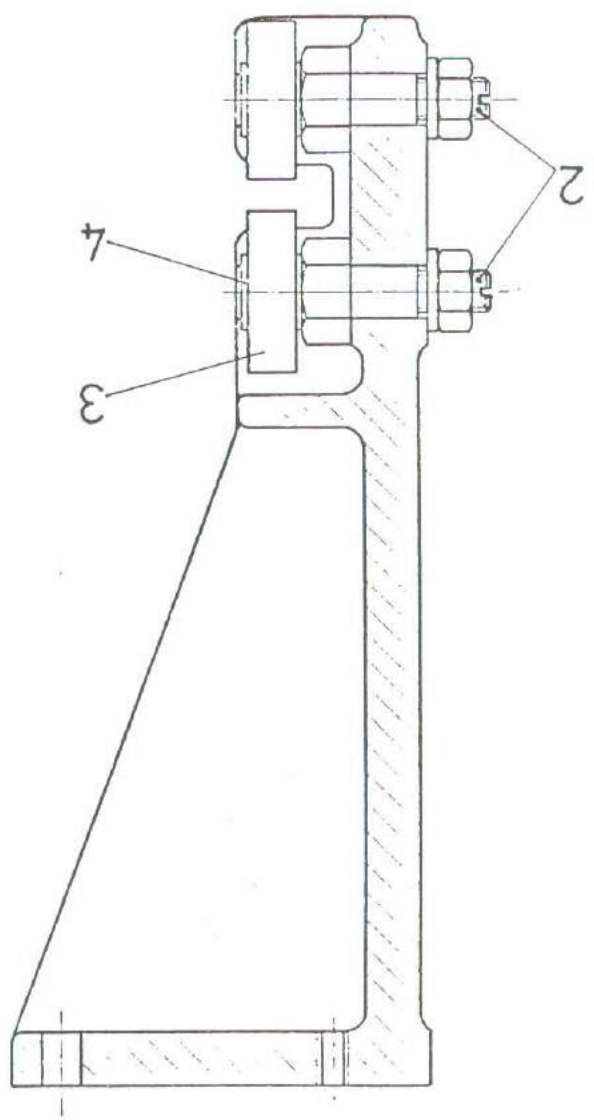


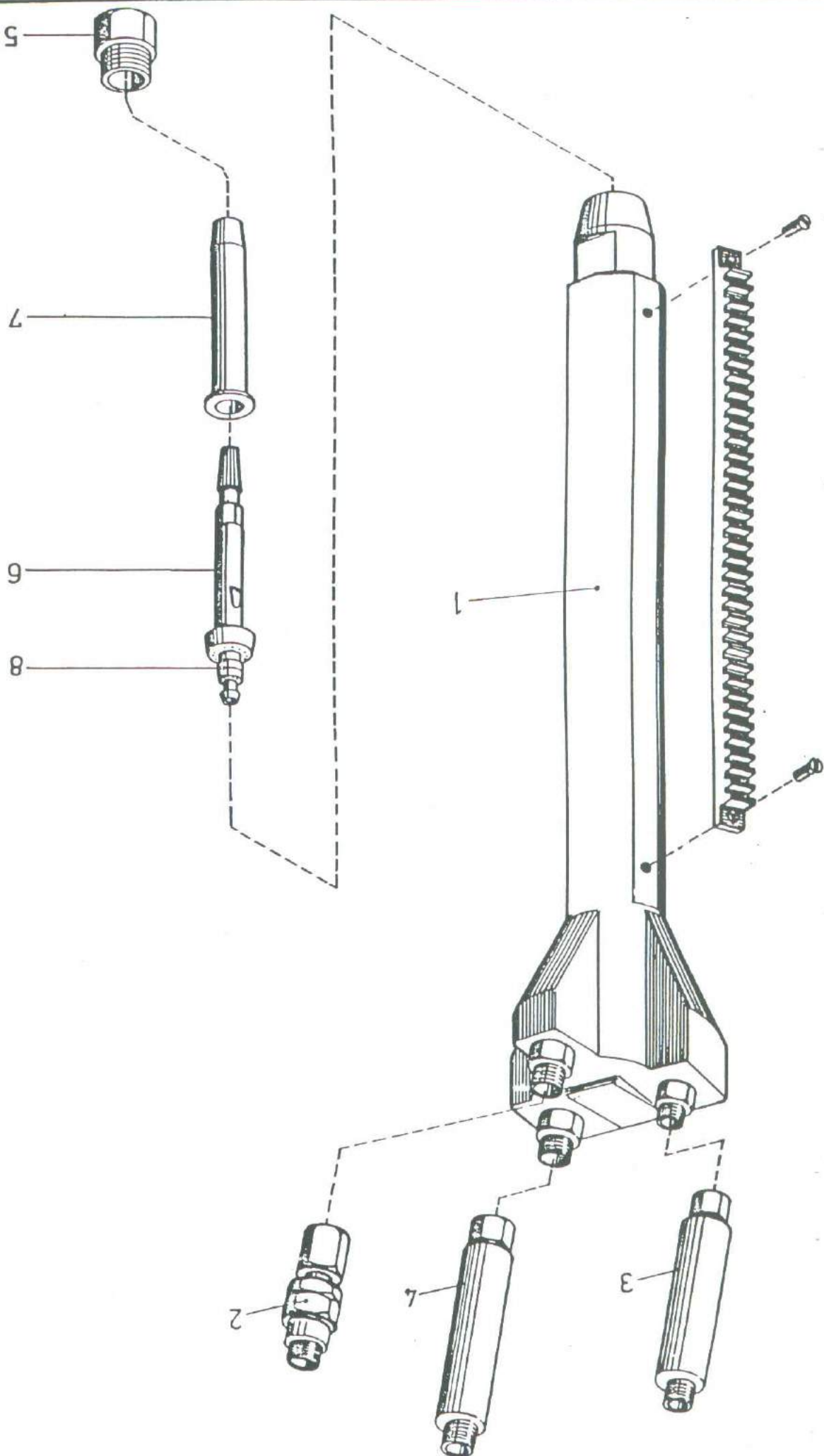
L200 • G6/15/20  
ca. 3200 • G6/12,5  
3700 • G6/15

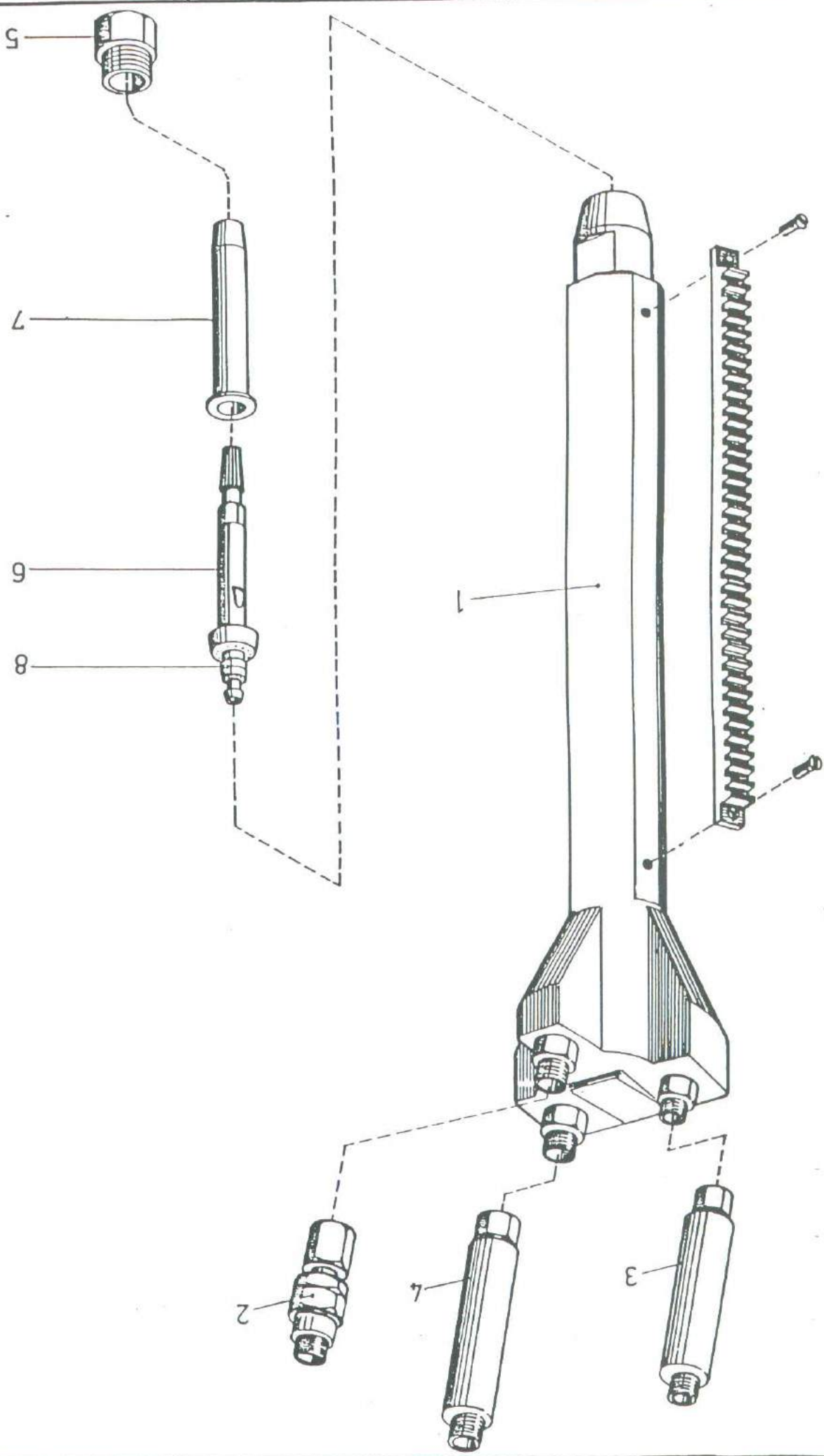
max 2750  
[2350 • x 2000]

G6/1520 • 1500 (2000)  
G6/12,5 • 1250  
G6/15 • 1500

3000  
[1000 • x 2000]







Pos. Rep.	Sach-Nr. Part No. No. Réf.	Benennung Designation	Stück Quant.	Bemerkungen Remarks
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		Machine Cutting Torch BCB 320 for gas mixing nozzles GYB 300 L for Mapp / Tétrène / HPG		
		Chalumeau Coupeur Machine BCB 320 pour buses à mélange gazeux GYB 300 L pour Mapp / Tétrène / HPG		

1	2.221.008	Maschinenschneidbrenner BCB 320 Machine Cutting Torch BCB 320 Chalumeau Coupeur Machine BCB 320	1	
2	4.414.002	Rückdrucksicherung S-02 Non-return safety device Non-retour sûreté	1	
3	4.414.048	Gebräuchsstellenvorlage f. Heiz-02 Safety devices Obturation à l'eau	1	
4	4.414.047	Gebräuchsstellenvorlage f. Gas Safety devices Obturation à l'eau	1	
5	3.551.506-4	Düsenmutter Nozle nut Écrou de gicleur	1	
6	4.450.040	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	3 - 6 mm
	4.450.041	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	6 - 15 mm
	4.450.042	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	15 - 25 mm
	4.450.043	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	25 - 40 mm
	4.450.044	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	40 - 60 mm

Maschinenschneidbrenner BGG 320  
 mit gasmischende Düsen GAA 300 L  
 Gasart: Acetylen

Pos. Item. Rep.	Sach Nr. Part No. No. Ref.	Benennung Designation Designation	Stück Quant. Quant.	Bemerkungen Remarks Remarks
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		Machine Cutting Torch BGG 320 for gas mixing nozzles GAA 300 L pour Acetylene Chalumeau Coupeur Machine BGG 320 pour buses à mélange gazeux GAA 300 L pour Acetylene		
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	4.450.075	Kompaktdüse Gas mixing nozzle 75 - 125 mm Buse à mélange gazeux	1	
	4.450.076	Kompaktdüse Gas mixing nozzle 125 - 200 mm Buse à mélange gazeux	1	

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Bl. 2/2

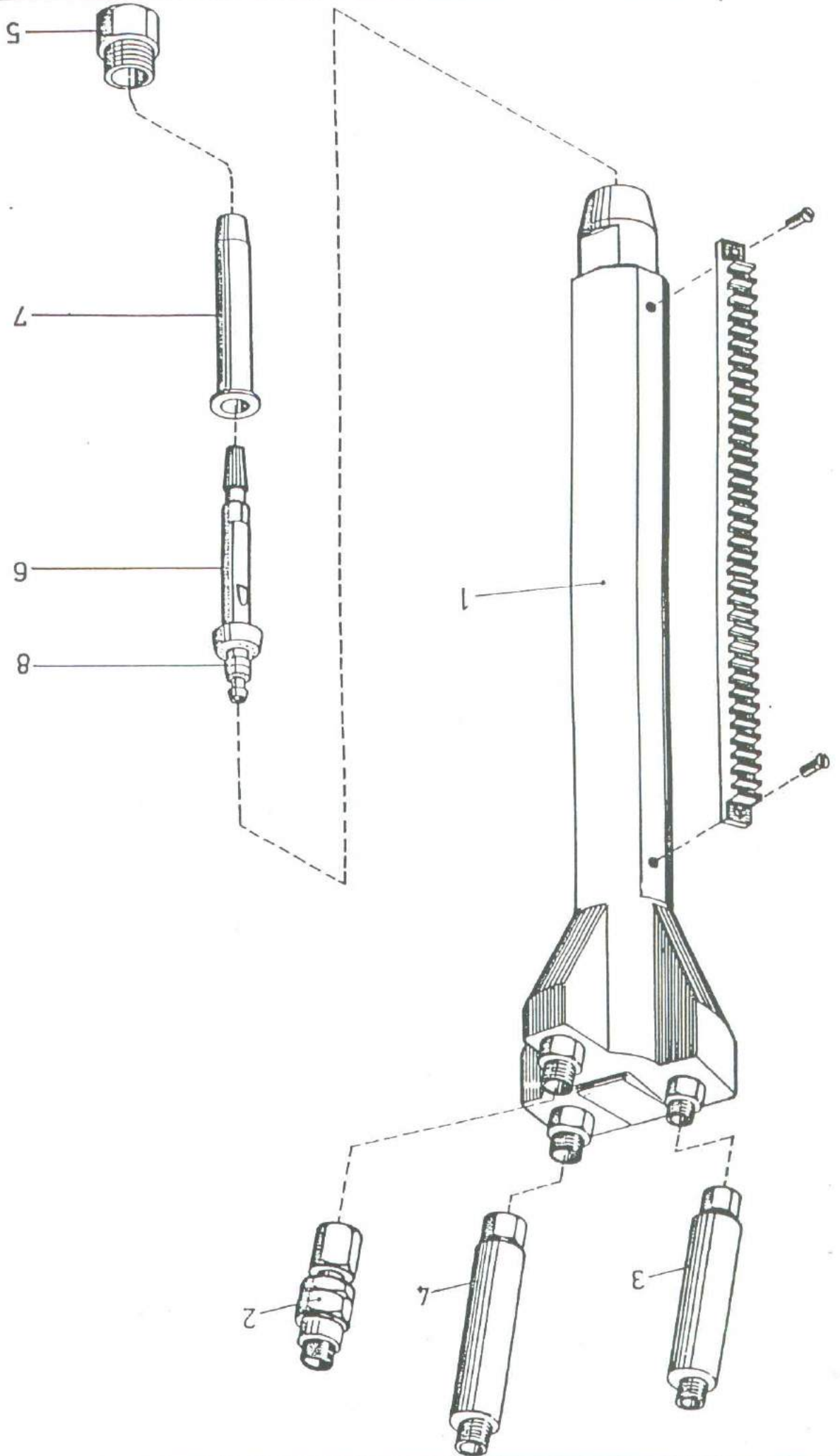
Maschinenschneidbrenner BGD 320  
 mit gasmischende Düsen GFB 300 L  
 Gasart: Propan / Erdgas

Pos. Item. Rep.	Sach-Nr. Part No. No. Rel.	Benennung Designation Designation	Stück Quant. Quant.	Bemerkungen Remarks Remarques
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Machine Cutting Torch BGD 320  
 for gas mixing nozzles GFB 300 L  
 for Propane / Natural Gas

Chalumeau Coupeur Machine BGD 320  
 pour buses à mélange gazeux GFB 300 L  
 pour Propane / gaz naturel

8	4.454.041	Düsenstock Nozzle body Corps de buse	1	
7	4.450.584	Heizdüse Heating nozzle Buse de chauffage	1	3 - 200 mm
	4.450.046	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	100 - 200 mm
	4.450.045	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	60 - 100 mm





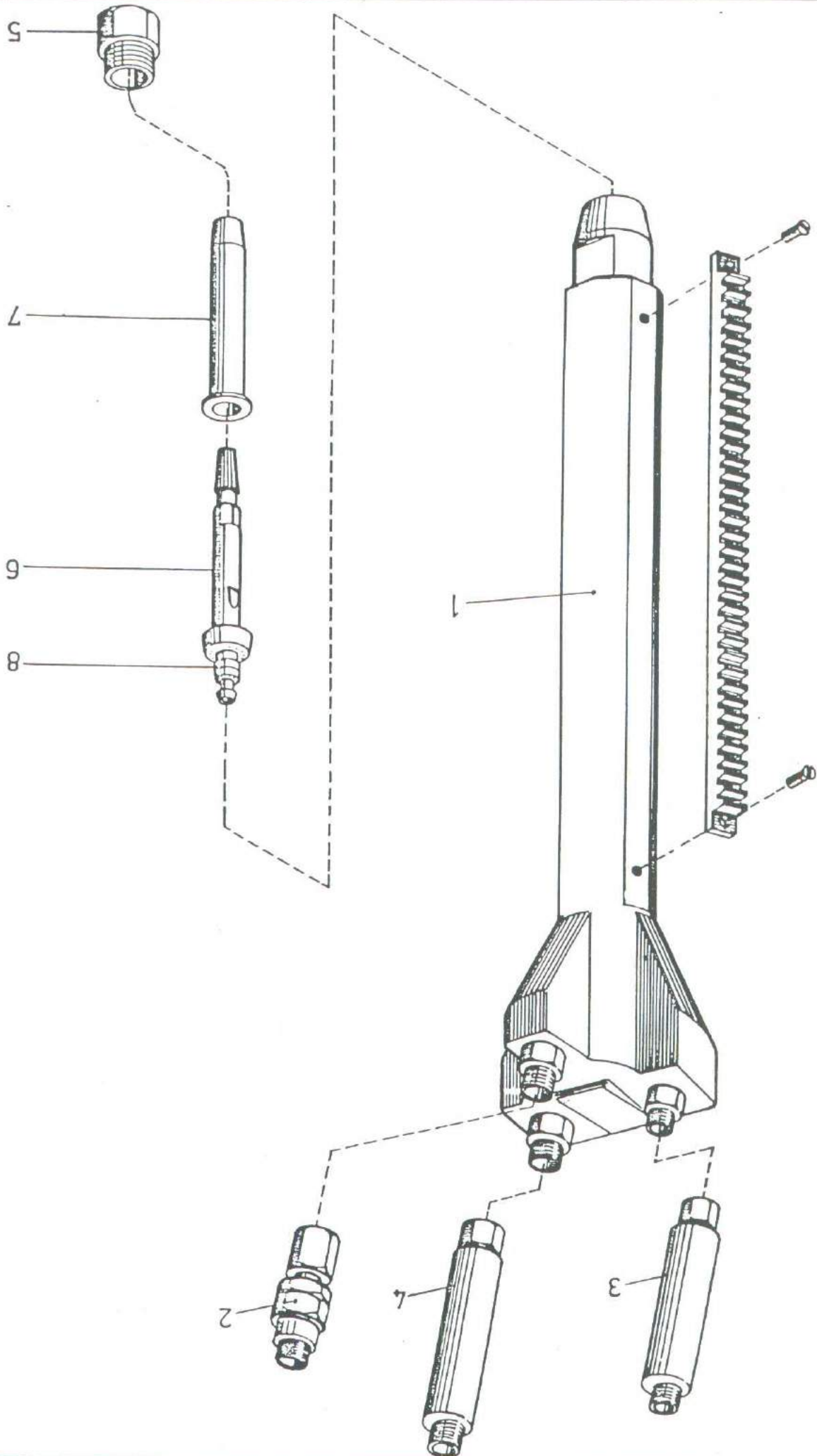
Pos. Item. Rep.	Sach-Nr. Part No. No. Ref.	Benennung Designation	Stück Quant. Quant.	Bemerkungen Remarks Remarques
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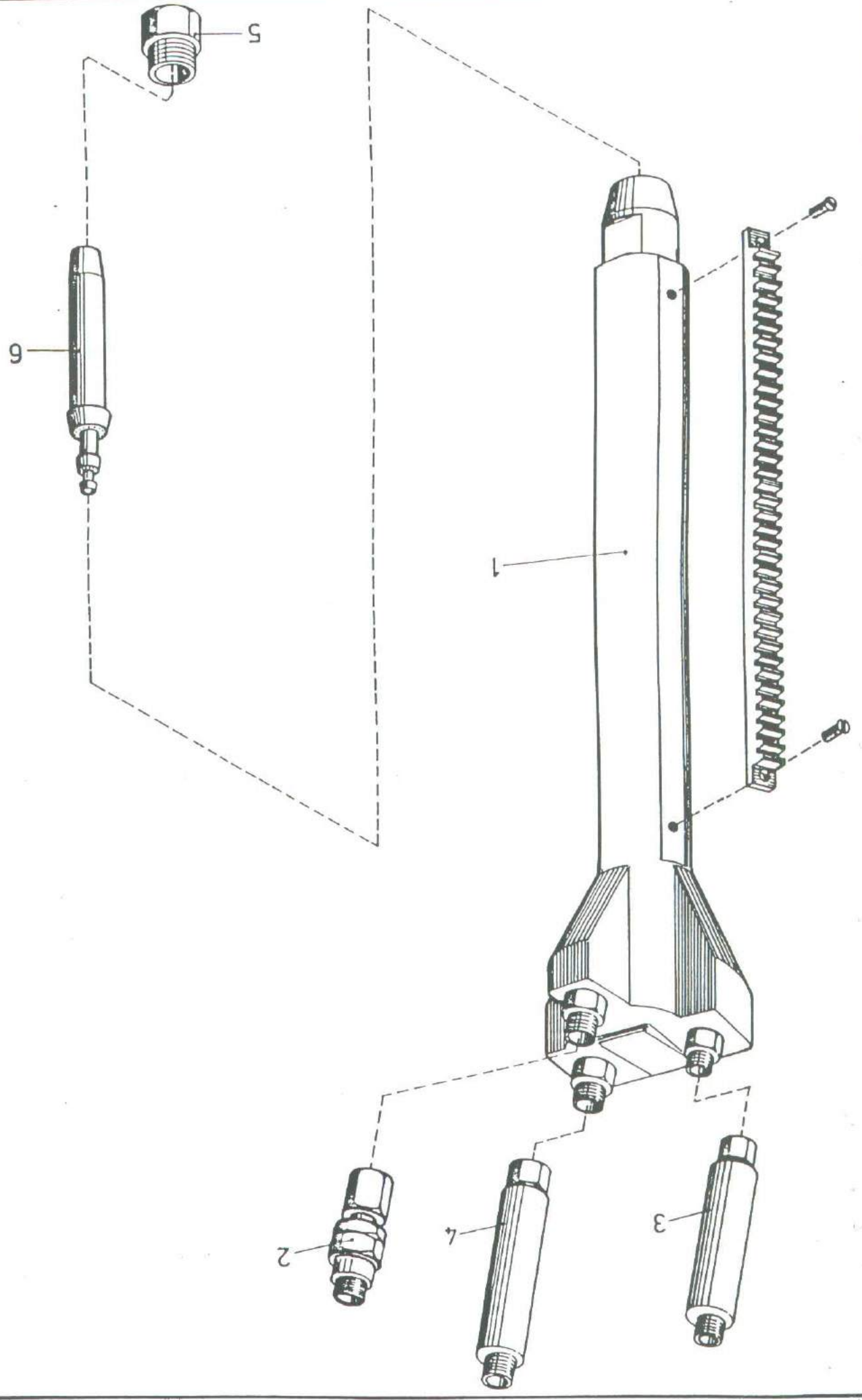
Machine Cutting Torch BCB 320  
 for gas mixing nozzles GYB 300 L  
 for Mapp / Tetrene / HPG

Chalumeau Coupeur Machine BCB 320  
 pour buses à mélange gazeux GYB 300 L  
 pour Mapp / Tetrene / HPG

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8	4.454.041	Düsenstock Nozzle body Corps de buse	1	
7	4.450.586	Heizdüse Heating nozzle Buse de chauffage	1	
	4.450.046	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	100 - 200 mm
	4.450.045	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	60 - 100 mm





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6367 Karben 1

Maschinenschneidbrenner BGD 320  
mit gasemischende Düsen GPD 300 L  
Gasart: Propan / Erdgas

Pos.  
Nrn.

Sach-Nr.  
Part No.  
No. Réf.

Benennung  
Designation  
Designation

Stück  
Quant.  
Quant.

Bemerkungen  
Remarques  
Remarques

Machine Cutting Torch BGD 320  
for gas mixing nozzles GPD 300 L  
for Propane / Natural Gas

Chalumeau Coupeur Machine BGD 320  
pour buses à mélange gazeux GPD 300 L  
pour Propane / gaz naturel

4.450.045

Kompaktdüse  
Gas mixing nozzle  
Buse à mélange gazeux

1 60 - 100 mm

4.450.046

Kompaktdüse  
Gas mixing nozzle  
Buse à mélange gazeux

1 100 - 200 mm

4.450.584

Heizdüse  
Heating nozzle  
Buse de chauffage

1 3 - 200 mm

4.454.041

Düsenstock  
Nozzle body  
Corps de buse

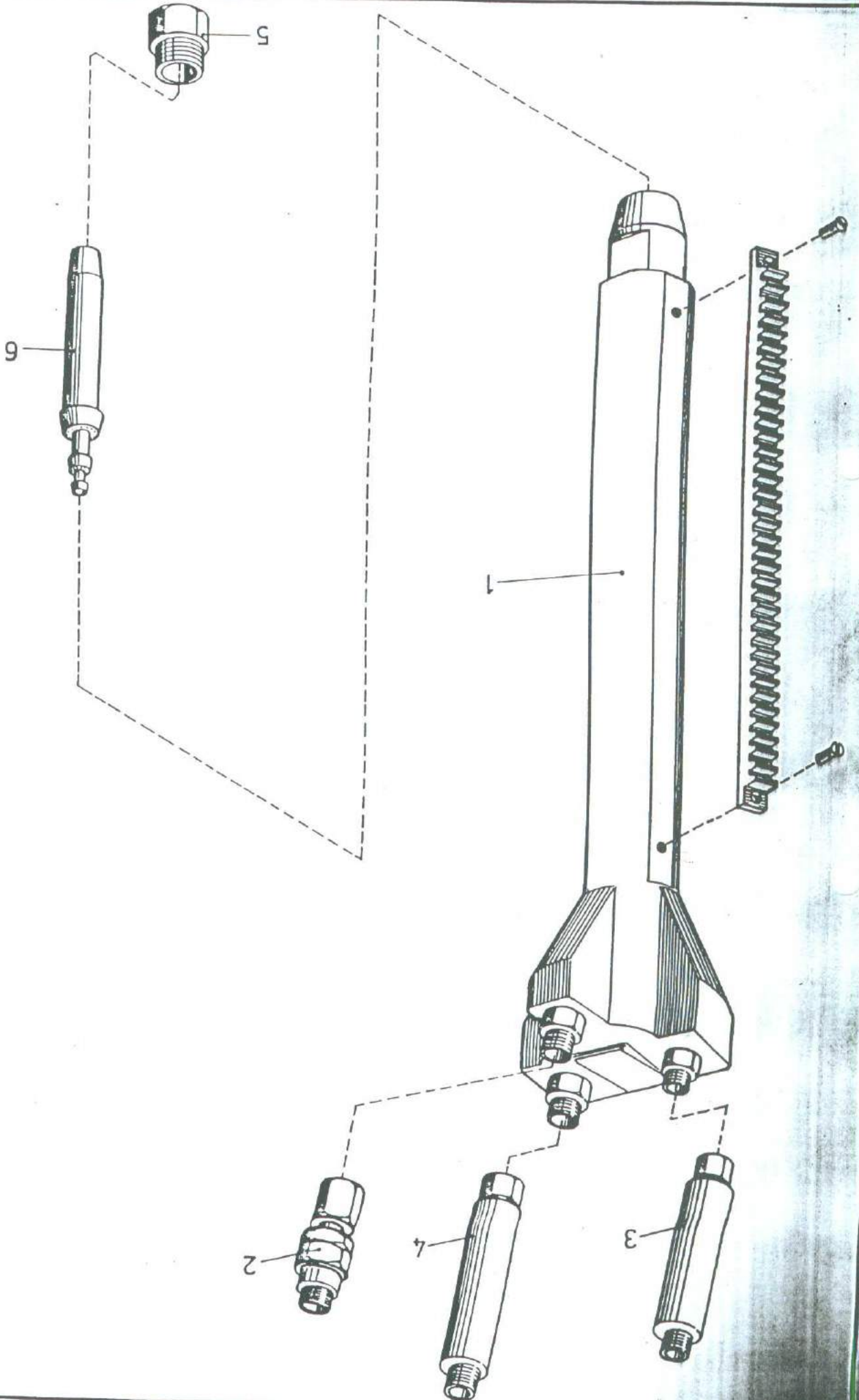
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Maschinenschneidbrenner BCB 320  
 mit gasmischende Düsen GYB 300 L  
 Gasart: Mapp / Tetrane / HPG

Pos. Item. Sach-Nr.	Part No. No. Réf.	Benennung Designation	Stück Quant.	Stück Quant.	Bemerkungen Remarques
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		Machine Cutting Torch BCB 320 for gas mixing nozzles GYB 300 L for Mapp / Tetrane / HPG			
		Chalumeau Coupeur Machine BCB 320 pour buses à mélange gazeux GYB 300 L pour Mapp / Tetrane / HPG			

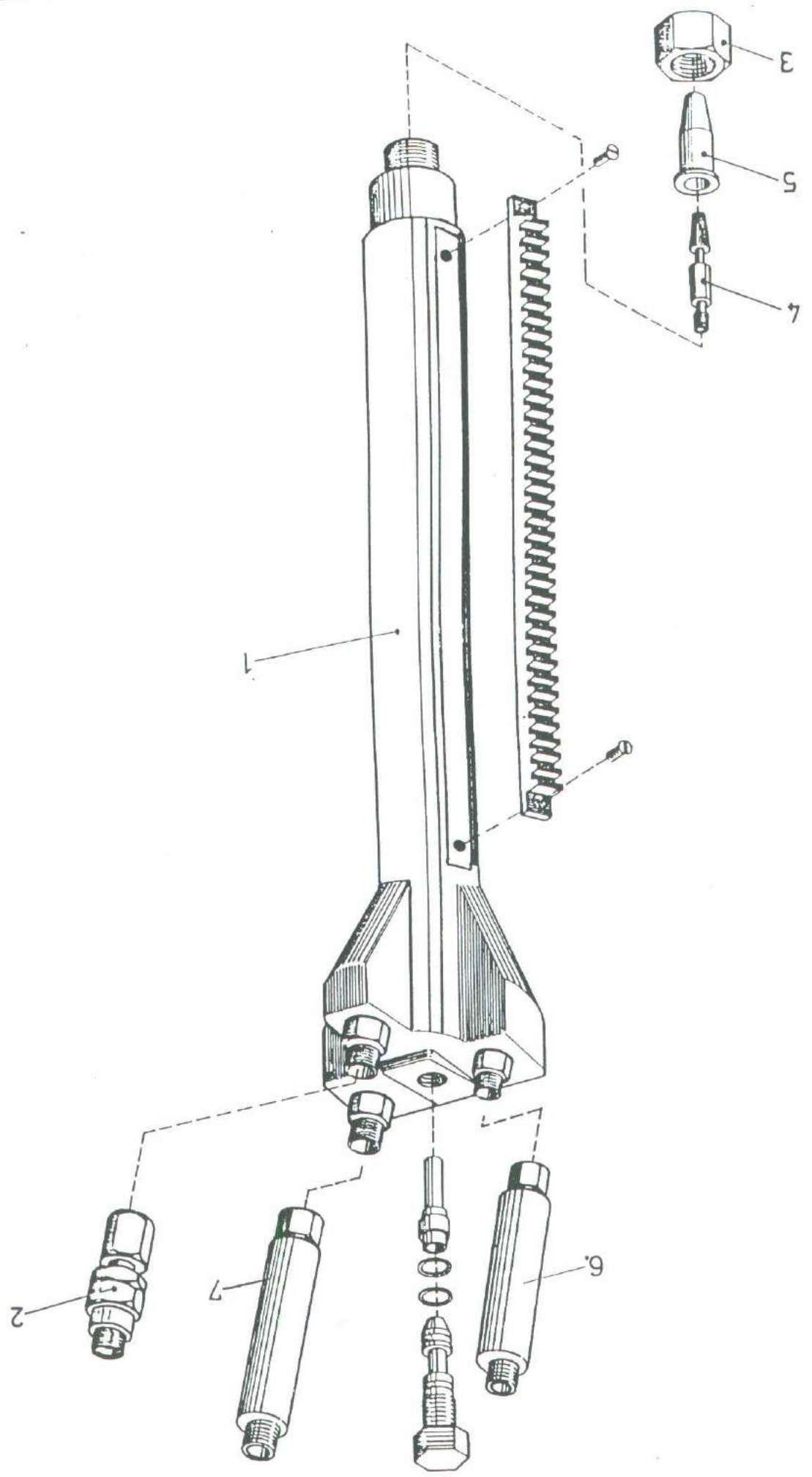
8	4.454.041	Düsenstock Nozzle body Corps de buse	1		
7	4.450.586	Heizdüse Heating nozzle Buse de chauffage	1	3 - 200 mm	
	4.450.046	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	100 - 200 mm	
	4.450.045	Kompaktdüse Gas mixing nozzle Buse à mélange gazeux	1	60 - 100 mm	



Pos. Item.	Sach-Nr.	Benennung	Stück	Bemerkungen
Rep. Item.	Part No.	Designation	Quant.	Remarks
	No. Ref.	Designation	Quant.	Remarks

		Machine Cutting Torch BCB 320 for gas mixing nozzles GAA 300 L for Acetylene		
		Chalumeau Coupeur Machine BCB 320 pour buses à mélange gazeux GAA 300 L pour Acetylene		

1	2.221.008	Maschinenschneidbrenner BCB 320 Machine Cutting Torch BCB 320 Chalumeau Coupeur Machine BCB 320	1	
2	4.414.002	Rückdrucksicherung S-02 Non-return safety device Non-retour sûreté	1	
3	4.414.048	Gebräuchsstellenvorlage f. Heiz-02 Safety devices Obturation à l'eau	1	
4	4.414.047	Gebräuchsstellenvorlage f. Gas Safety devices Obturation à l'eau	1	
5	3.551.506-4	Düsenmutter Nozzle nut Écrou de gicleur	1	
6	4.450.201	Kompaktdüse 3 - 10 mm Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.202	Kompaktdüse 10 - 30 mm Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.203	Kompaktdüse 30 - 60 mm Gas mixing nozzle Buse à mélange gazeux	1	
	4.450.204	Kompaktdüse 60 - 100mm Gas mixing nozzle Buse à mélange gazeux	1	



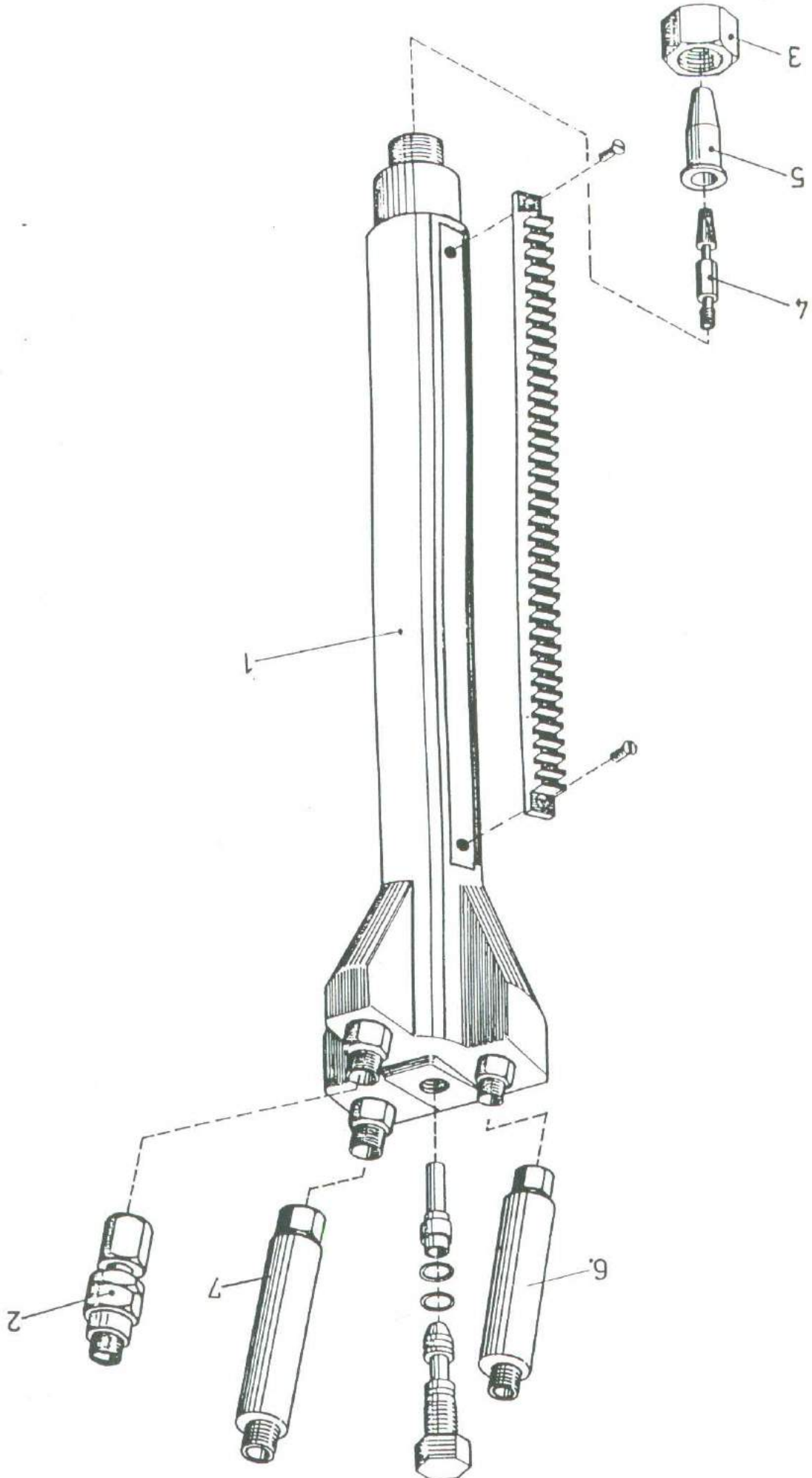


Maschinenschneidbrenner (Injektor) B18 320 mit Schnell-Schneid-Düsen Typ IAC 300 L Gasart: Acetylen (10 bar)

Pos. Item.	Sach-Nr.	Benennung	Stück	Bemerkungen
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		Machine Cutting Torch (Injector) B18 320 with speed-cutting-nozzles Type IAC 300 L for Acetylene (10 bar)		
		Chalumeau Coupeur Machine (Injecteur) B18 320 pour Acetylene (10 bar) Type IAC 300 L		

1	2.221.006	Maschinenschneidbrenner B18 320 Machine Cutting Torch B18 320 Chalumeau Coupeur Machine B18 320	1	
2	4.414.002	Rückdrucksicherung S-02 Non-return safety device Non-retour sûreté	1	
3	4.400.110-4	Düsenmutter Nozzle nut Écrou de gicleur	1	
4	4.450.221	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.222	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.223	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.224	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.225	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.226	Schneiddüse Cutting nozzle Jeu de buses	1	
	4.450.227	Schneiddüse Cutting nozzle Jeu de buses	1	



Maschinenschneidbrenner (Injektor) B18 320 mit Schnell-Schneid-Düsen Typ IAC 300 I Gasart: Azetylen (10 bar)

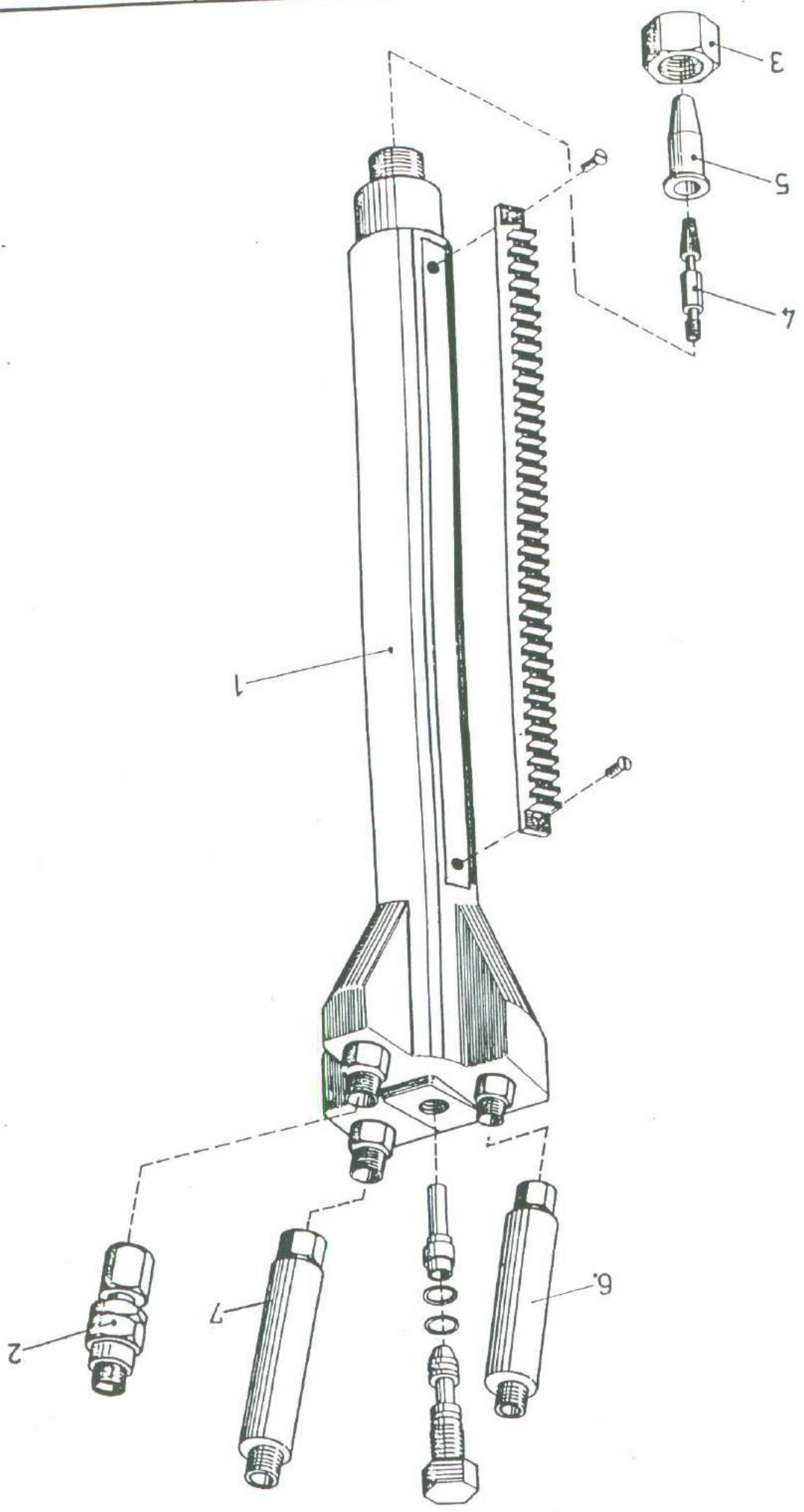
Pos. Item. Rep.	Sach-Nr. Part No. No. Réf.	Benennung Designation	Stück Quant.	Bemerkungen Remarks
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Machine Cutting Torch (Injector) B18 320 with speed-cutting-nozzles Type IAC 300 I for Acetylene (10 bar)

Chalumeau Coupeur Machine (Injecteur) B18 320 Type IAC 300 I pour Acetylene (10 bar)

5	4.450.526	Heizdüse Heating nozzle 3 - 100 mm Buse de chauffage	1	
	4.450.527	Heizdüse Heating nozzle 100 - 300 mm Buse de chauffage	1	
6	4.414.037	Gebruchsstellenvorlage f. Heiz-02 Safety devices Obturation à l'eau		
7	4.414.039	Gebruchsstellenvorlage f. Gas Safety devices Obturation à l'eau		

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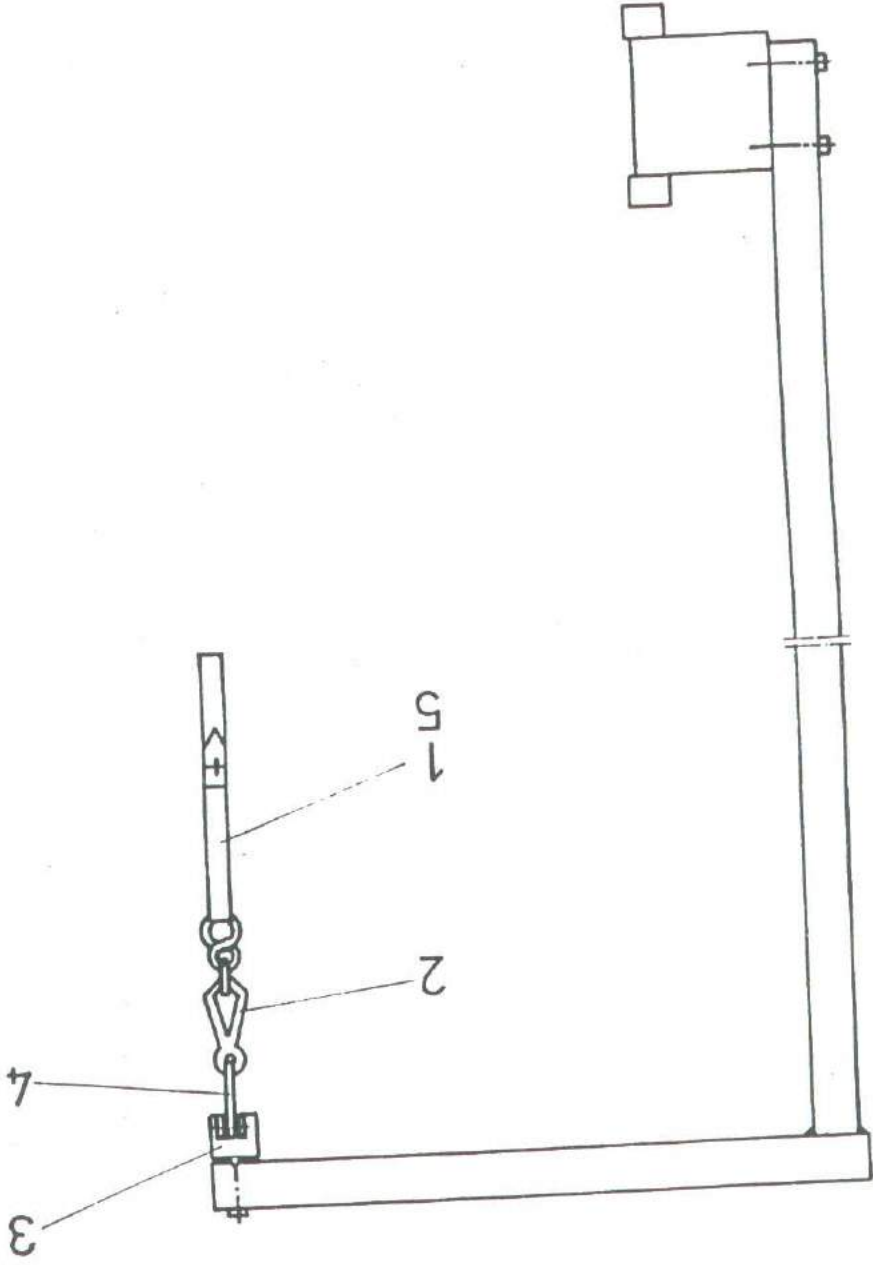
Maschinenschneidbrenner (Injektor) B18 320  
mit Keilschlitzdüsen Typ IPC  
Gasart: Propan, Tetrene, Mapp (10 bar)

Pos. Item. Rep.	Sach-Nr.	Part No.	No. Ref.	Benennung	Designation	Stück	Quant.	Bemerkungen	Remarks
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Machine Cutting Torch (Injector) B18 320  
for two piece nozzles with converging slots  
type IPC  
for Propane, Tetrene, Mapp (10 bar)

Chalumeau Coupeur Machine (Injecteur) B18 320  
pour buses a cannelures convergentes type IPC  
pour Propane, Tetrene, Mapp (10 bar)

1	2.221.007			Maschinenschneidbrenner B18 20 Machine Cutting Torch B18 20 Chalumeau Coupeur Machine B18 20		1			
2	4.414.002			Rückdrucksicherung 5-0z Non-return safety device Non-retour sûreté		1			
3	4.400.110-4			Düsenmutter Nozle nut Écrou de gicleur		1			
4	4.450.210			Schneiddüse Cutting nozzle Jeu de buses		1	4 - 8 mm		
	4.450.211			Schneiddüse Cutting nozzle Jeu de buses		1	8 - 15 mm		
	4.450.212			Schneiddüse Cutting nozzle Jeu de buses		1	15 - 25 mm		
	4.450.213			Schneiddüse Cutting nozzle Jeu de buses		1	25 - 50 mm		
	4.450.214			Schneiddüse Cutting nozzle Jeu de buses		1	50 - 75 mm		
	4.450.215			Schneiddüse Cutting nozzle Jeu de buses		1	75 - 100 mm		
5	4.450.525			Heizdüse Heating nozzle Buse de chauffage		1	4 - 100 mm		



Schlauchaufhängung  
Hose suspension unit  
Suspension de tuyau

**ESAB-HANCOCK**  
GmbH  
6367 Karben 1



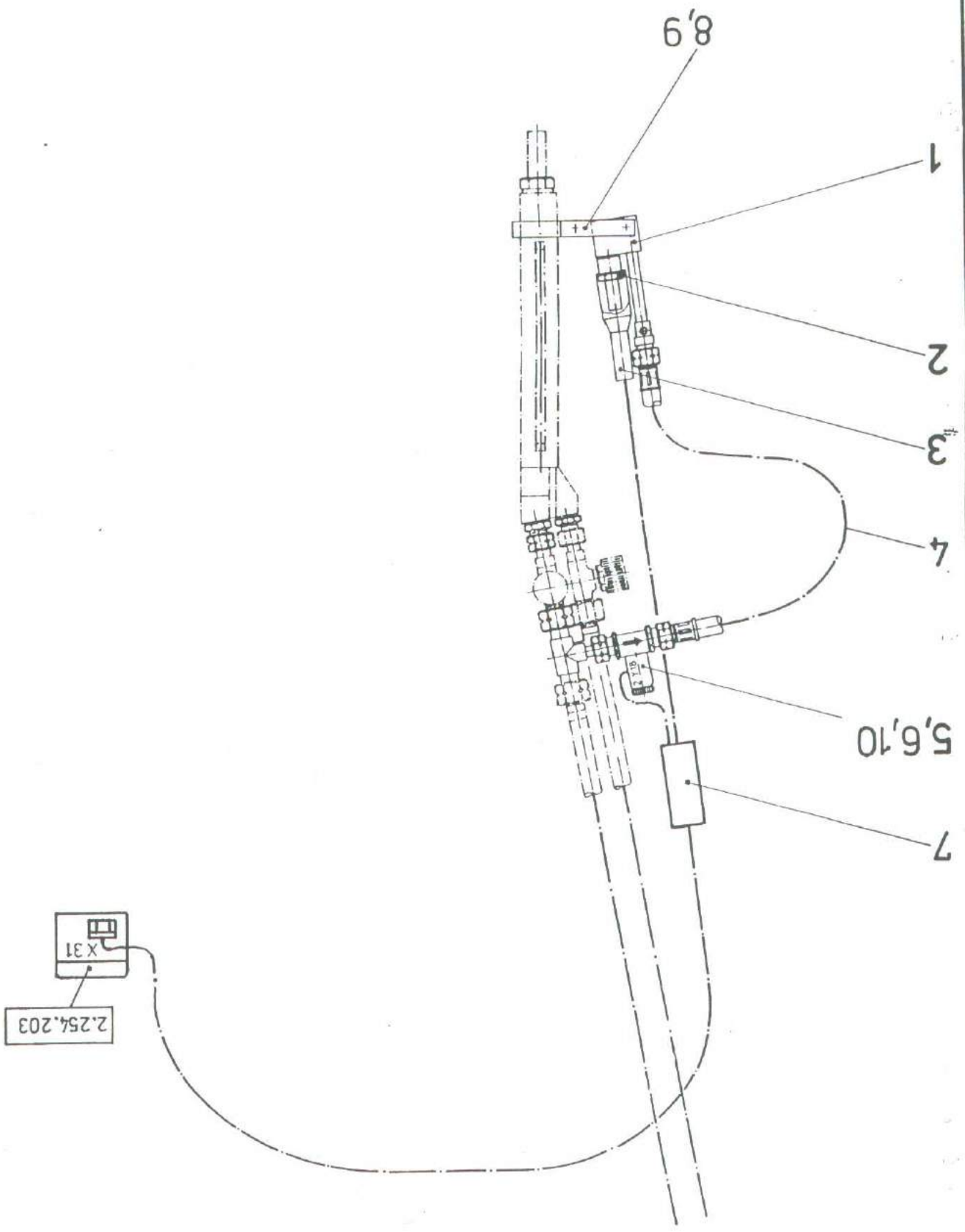
Pos. Item	Sach-Nr. Part No.	Benennung Designation	Stück Quant.	Bemerkungen Remarks
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1	3.715.001	Lederriemen Leather strap Courde en cuir	1	
2	3.715.002	Karabinerhaken Spring safety hook Porte-mousqueton	1	
3	3.715.006	Schienenstopper Track stopper Arrêt-oir de rail	2	
4	3.715.003	Kabelwagen Cable carriage Chariot à câble	1	
5	4.800.609	Kabelbinder Cable ties Bandle de câble	6	

Schlauchaufhängung

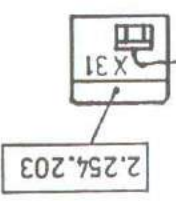
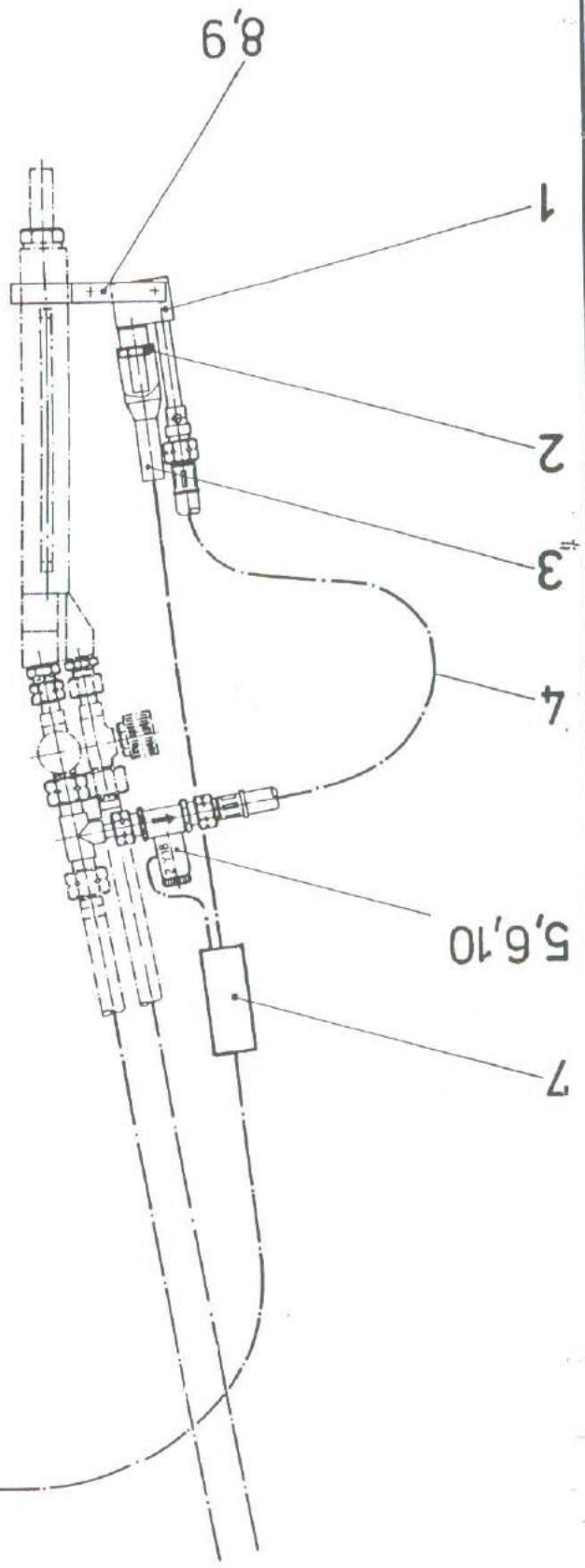
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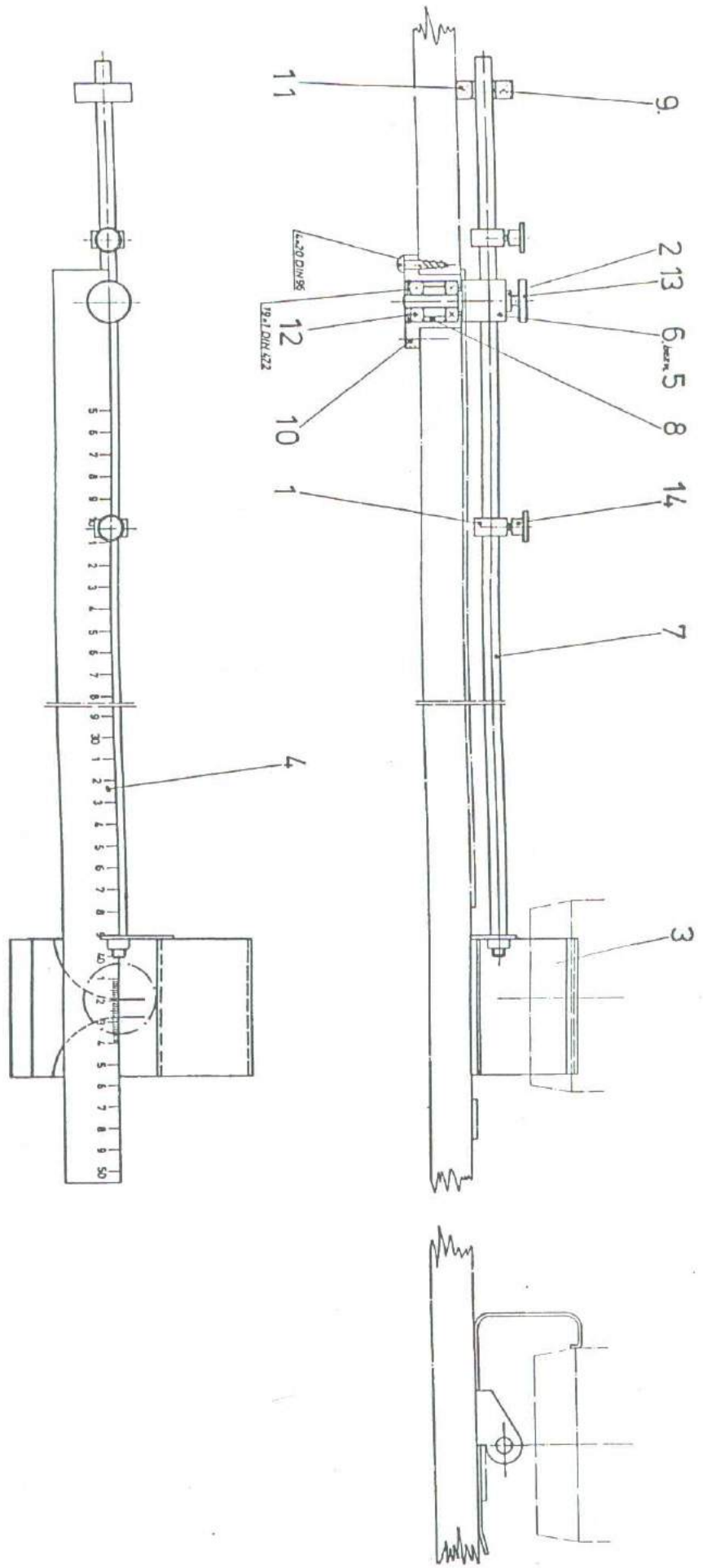


SACH-NR. PART NO. NO. PAIL.	Benennung Designation Designation		Stück Quant. Quant.	Bemerkungen Remarks Remarques
2.803.152-3	Elektrischer Zündlammenbrenner Azetylen Electric ignition burner Azetylene Chalumeau à allumage électrique Azetylene		1	
2.803.153-3	Elektrischer Zündlammenbrenner Propan Erdgas Mapp Tétrène Electric ignition burner Propane Natural gas Mapp Tétrène Chalumeau à allumage électrique Propane Methane Mapp Tétrène		1	
4.647.001-4	Zündkerze Spark plug Bougie		1	
4.647.010	Zündkerzenstecker Spark plug socket Fiche de bougie		1	
4.430.615	Siberschlauch Azetylen Erdgas Mapp Tétrène Azetylen Natural gas Mapp Tétrène Metal clad hose Tuyau flexible métallisé Azetylene Methane Mapp Tétrène		1	
4.800.408	Siberschlauch Propan Metal clad hose Propane Tuyau flexible métallisé Propane		1	
4.462.635	Magnetventil Solenoid valve Valve magnétique		1	
4.462.636	Stecker Plug Connecteur		1	
2.254.204	Zündspule, kpl. Coil-ignition, cpl. Câble d'allumage		1	
3.036.292-4	Brennerhalter ø 32 Burner holder Support de chalumeau d'allumage		1	



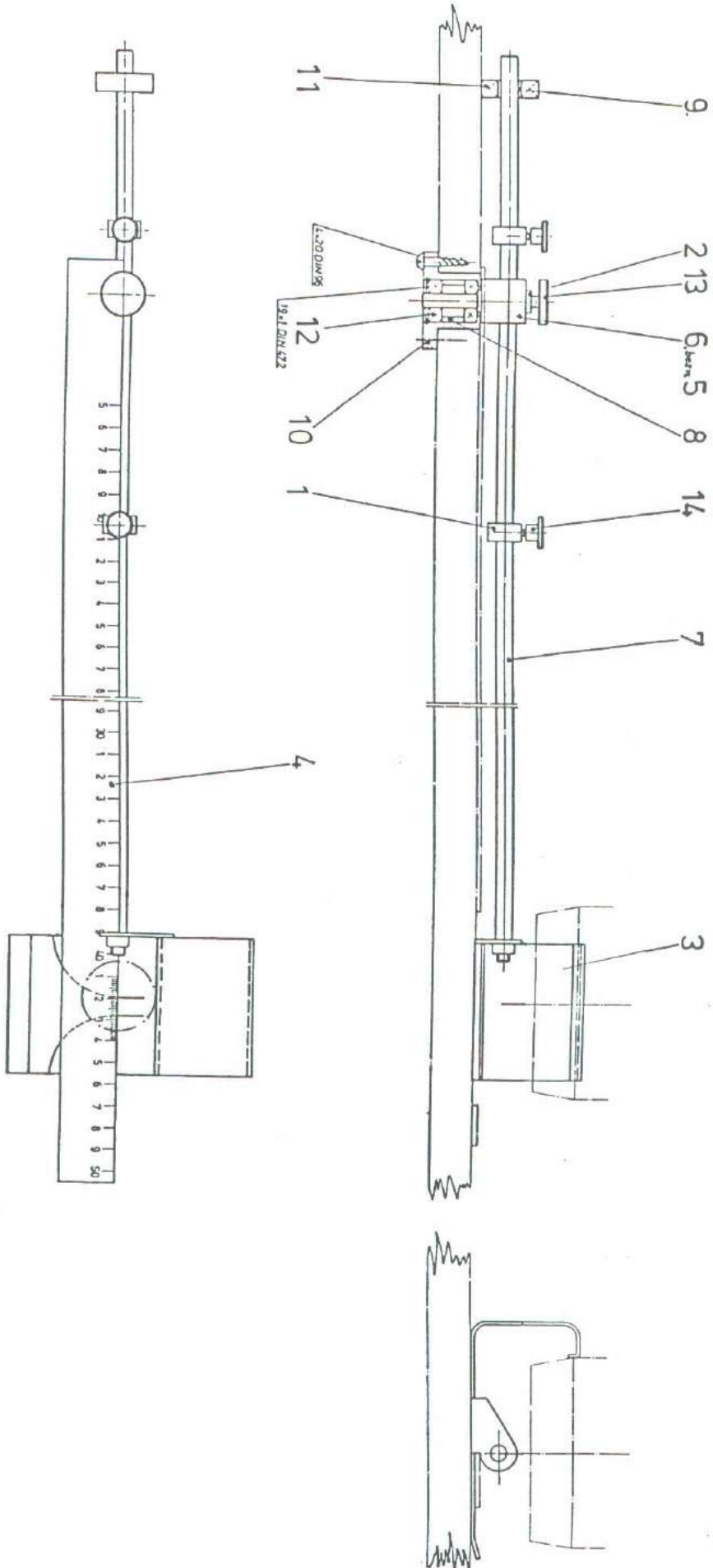
Pos. Item.	Sach-Nr. Part No.	Benennung Designation	Stück Quant.	Bemerkungen Remarks
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9	3.184.330-4	Winkel Angle	1	
10	4.679.011	Entstörglied RC Unit Filter antiparasite	1	



Radius min = 75 mm  
max = 500 mm

Stück Quant.	Benennung Designation	No. Ref. Part No.
2	Stellring Ring	3.500.208-4
1	Anneau de serrage Rührungsstück Guide piece Guide piece	3.561.014-4
1	Mitnehmer Drive rod	3.190.248-3
1	Barre d'entraînement Mablineal 50-500 mm RULE	3.329.019-4
1	Abschlussstück Cover piece Bout	3.418.001-4
1	Kugellager Ball cage Cage à billes	3.456.010-4
1	Zirkelstange 500 mm Circular bar Rallonge de compas	3.458.020-4
1	Distanzstück Distance piece Pièce d'écartement	3.528.023-4
1	Buchse BUSHING Boîte	3.528.073-4
1	Buchse Bushing Boîte	3.540.002-4
1	Rollenkugellager 6000-2RS DIN 625 Ball Bearing Roulement à billes	3.200.115
2	Rollenkugellager 626-22 DIN 625 Ball Bearing Roulement à billes	3.200.311
	Rändelschraube M5x10 Knurled-head screw Vis moulée	3.109.004



Radius min = 75 mm  
max = 500 mm

ESAB-HANCOCK  
GmbH  
6367 Karben 1

Kreisschneideinrichtung  $\varnothing$  1000 (HL90)  
Circular cutting device  
Compas à couper installation

Sach-Nr.  
Part No.  
No. Réf.

6.109.202

Benennung  
Designation

Händelschraube M 3x6  
Knurled-head screw

Vis mouléée

DIN 464

2

Stück  
Quant.

Bemerkungen  
Remarks

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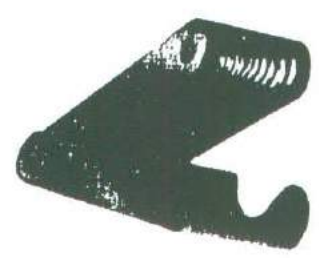
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Kreisschneideinrichtung  $\varnothing$  1000 (HL90)

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E88





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ESAB-HANCOCK GmbH 6367 Karben 1		Düsen-Reinigungsmittel Nozzle-cleaning Nettoyage des buses	
Pos. Item.	Sach-Nr. Part No.	Benennung Designation	Stück Quant.
Rep.	No. Réf.	Designation	Quant. Remarques
1	3.770.016	Reinigungsnadel Nozzle cleaning needles Déboûche - buses	1
2	3.770.013	Heizdüsenreinigungsbürste Heating nozzle cleaning brush Brosse à buses	1
3	3.770.030	Reinigungspulver (500 g Packung) Nozzle cleaning powder Poudre pour nettoyage des buses	1
4	3.714.008	Gasanzünder Gas lighter Gaz allumeur	1
Bemerkungen Remarks Remarques			

Bl.1/1

0.740.015

E89