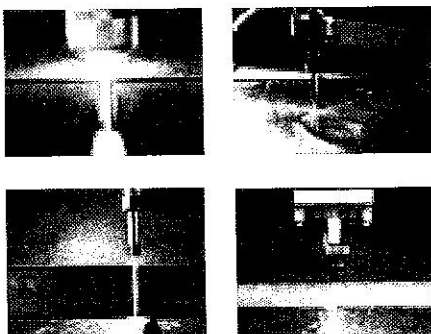


ESAB CUTTING SYSTEMS



# ***EAGLE***

## ***Assembly Instructions***



Machine No.:

20302862

0.401.065-GB

21.03.2003

# Assembly instructions

This manual is intended to enable safe installation of the EAGLE blow torch cutting machine in accordance with its intended purpose. Reading and observing the instruction manual will help to avoid hazards, reduce down times and increase the reliability and useful life of the machine.

For more in-depth information, ESAB CUTTING SYSTEMS GmbH after-sales service personnel will be pleased to advise you at all times.

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Karben,

05	01	2004
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# General

The EAGLE blow torch cutting machine is manufactured in accordance with the applicable technical regulations and the state of the art. Nevertheless, machines pose risks that cannot be prevented by design measures. Additional safety notes are given here to ensure the operator's adequate safety. Sufficient safety when handling the machine is guaranteed only when observing these notes.

From time to time it is necessary to highlight certain parts of the text. Highlighted text has different meanings depending on its importance:

**Note:**

Represents a note which, if observed, will facilitate working with the machine.

**Caution:**

Represents a note drawing attention to the fact that material and the machine could become damaged.

**Warning:**

Represents a note drawing attention to a risk of personal injury or mortal danger.

All figures and sketches in this instruction manual consist of non-binding depictions.



# For your safety

## Overview

General	6
Safety rules	7
Hoisting loads	7
Regulations for electrical connection work	8
Regulations for work on the gas supply	8
Regulations for operation of the machine	8
Personnel permitted to carry out assembly	9
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## General

You will find general notes on safety and accident prevention in the national accident prevention regulations.<sup>1</sup>

A whole further series of safety regulations applies. These are listed below. It is imperative to obey all regulations listed.

All specified regulations must be observed under any condition.

---

<sup>1</sup> Please refer to Annex V for further information.

## Safety rules

### Hoisting loads

Single items and larger assemblies must be secured and safeguarded cautiously on hoisting gear to make sure that they will not pose any risks.



#### Caution:

**Make sure that before lifting and transporting the machine, both the transversal drive carriage and the drag carriage are secured by means of an equivalent transport securing device to avoid uncontrolled moving. In the case of several carriages make sure that they are evenly divided and pushed together at the left and at the right end of the gantry.**

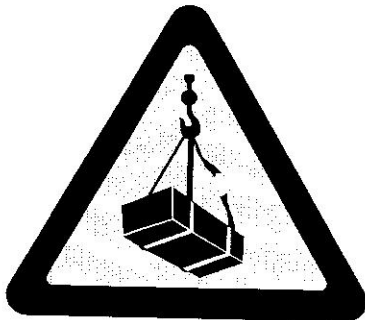


Fig. 1: Warning against suspended loads

Use only suitable hoisting gear and load handling devices of adequate load carrying capacity that are in a technically perfect condition.

Make sure that nobody enters the area underneath suspended loads.

Entrust only experienced persons with the task of securing loads and marshalling crane drivers. The marshalling person must stay within the crane driver's visible range or must be in voice contact with him.

The safety notes given in the hoisting gear's instruction manual must be obeyed.



#### Caution:

**Work on the gas supply and on the electrical system must only be carried out by specialists trained for the purpose.**

## **Regulations for electrical connection work**

The national regulations, specifications and laws applicable to electrical connection work must be observed.<sup>2</sup>

## **Regulations for work on the gas supply**

The national regulations, specifications and laws applicable to work on the gas supply must be observed.<sup>2</sup>

## **Regulations for operation of the machine**

The national regulations, specifications and laws applicable to this machine work must be observed when working on this blow torch cutting machine.<sup>2</sup>

Please refer to the instruction manual, chapter entitled 'For your safety', for further details.

---

<sup>2</sup> Please refer to Annex V for further information.

## Personnel permitted to carry out assembly

The EAGLE blow torch cutting machine must only be set up by specialised personnel who have been trained or instructed by the manufacturer.



**Caution:**

**Make sure that the transport security devices are removed before operating the transversal drive carriage and the tow carriage.**

## Safety measures

When carrying out assembly work above body height, use climbing aids intended for the purpose or other climbing aids that do justice to safety requirements.



### Caution:

**Ensure safe, environmentally friendly disposal of fuels and consumables.**

When commencing assembly, clean oil and care or preservation agents off the machine, and quite particularly ports and screw glands. Before cleaning the machine, seal all openings into which cleaning agent might penetrate. Electric motors, control cabinets and control consoles are particularly at risk. After cleaning,

completely remove all covers.

examine all hose and pipe lines for leaks, loosened connections, fraying and damage. Remedy discovered defects immediately.

Check all safety facilities directly after completing assembly work.

# Preparations

## Overview

General	12
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Media supply	15
Tapping Point Back-Flow Preventer	16

## General

To assemble the EAGLE plasma cutting system preparatory measures must be taken.



**Note:**

**You will find the technical data in Annex D.**

**You will find the affiliated diagrams in Annex P.**



**Caution:**

**Observe the notes on working on the foundation and machine layout diagrams.**



**Caution:**

**Depending on the condition of the floor, it may be necessary to have the foundation checked and, if applicable, redesigned by a construction engineer.**

Produce a steel-reinforced concrete slab. The layout diagram contains a corresponding recommendation regarding design of the foundation.

To achieve good cutting results, the foundation must be free of floor vibrations. A vibration isolating foundation must be produced by a specialised firm if there are vibration-exciting machines (e.g. punches and presses etc.) in the close proximity.



**Caution:**

**Lay or suspend all supply lines so that running of the machine is not obstructed. no stumbling blocks are created for the operator. the necessary minimum clearances are obeyed.**

The media supply and the electrical connection must be prepared (see section entitled 'Establishing media connections' on page 31).

All supply lines including the fuses, main switches and main shut-off devices must be produced. Lay the connections up to the intended machine location.

**Caution:**

**All points needed for operation, maintenance and repair must always be freely accessible.**

If necessary, place the cutting table nearby. Make suitable hoisting gear available. The load carrying capacity of hoisting gear must suffice to safely carry the weights stated in the technical data.

A minimum clearance of 700 mm from all permanently installed objects, walls and pillars must be guaranteed.

In the absolute end positions, a minimum clearance of 500 mm from all moving parts of the machine must be guaranteed to avoid hazardous crushing.

Make sure that the installation location is freely accessible and clean on the day when assembly begins.

## Electrical connection

Prepare electrical connection as detailed on the connection diagram (see Annex P).



### Caution:

Work on electrical systems must only be carried out by specialists trained for the purpose.

The national accident prevention regulations applicable to electrical connection work must be observed.

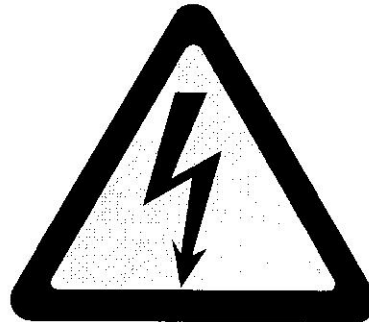
Please refer to Annex V for further information.



### Warning:

Plasma cutting systems carry high voltages in order to ignite the plasma arc.

Risk of mortally dangerous electric shocks!



## Media supply



**Caution:**

Work on the gas supply must only be carried out by specialists trained for the purpose.

The respectively applicable national accident prevention regulations and technical guidelines must be observed with regard to work on the gas supply.

The gas supply must be prepared in conformity with the media supply diagram (see Annex ). The locations of gas supply tapping points are indicated in the layout diagram.

The gas quality stipulated in the media supply diagram must be ensured.



**Caution:**

A tapping point is absolutely indispensable.



**Caution:**

A tapping point is absolutely necessary. Regulations, specifications and laws govern which further items of safety equipment have to be available.

Please refer to Annex V for further information.



**Caution:**  
**Tapping points for**  
**methane gas**  
**nitrogen**  
**oxygen**

Must be equipped with reducing valves and single bottle safeguards.

The single body safeguards must ensure that gas flashback and flame flashback are prevented.<sup>1</sup>



**The type of additional safety regulations is determined by regulations and laws. For further information refer to annex V.**

### **Tapping Point Back-Flow Preventer**

Tapping points from ring lines for methane, hydrogen and oxygen must be protected by means of a type-oriented back-flow preventer against gas flashback and flame flashback.<sup>1</sup>

**Warning:**

**For single-shift operation, the operability of all safety and supply facilities of the machine must be checked annually.**

**In the event of defects, have them repaired or replaced immediately by specialised personnel.**



**Note:**  
**For additional information please refer to the Instruction Manual of the safety devices and to annex V.**

<sup>1</sup> This requirement is fulfilled by ESAB tapping points

# Setting up the machine

## Overview

Mounting the track	18
Mounting the track on single columns	19
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Fitting and adjusting the machine's gantry	24
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Cable hose energy chain	32
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## Mounting the track on single columns

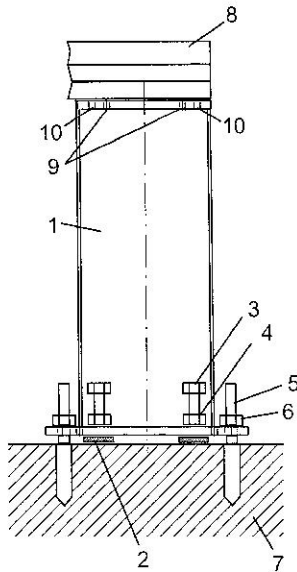


### Note:

Follow the special instructions given in the diagrams in Annex P.

Fit two sheet metal strips (2, approximately 5 mm thick), as supports for the thrust bolts (3) on the column foot plates, onto the prepared foundation (7).

Place the single columns (1) of the guiding side on the two sheet metal strips (2). Place the guide rail (8) on the single columns (1). Screw down the guide rail (8) firmly.



Place the single columns (1) of the running side on the two sheet metal strips (2). Place the track (8) on the single columns (1). Screw down the track (8) firmly. Support the single columns (1) with wooden wedges and planks so that all specified dimensions are kept to roughly.

Fig. 2



### Caution:

Pay particular attention to rectilinearity and parallelism of the track.

Drill the dowel holes for the adhesion anchors. Conscientiously blow compressed air through all drill holes. Secure the single columns (1) with the adhesion anchors (5) in the foundation (7).

Align the track in the prescribed horizontal plane by turning the thrust bolts (3).

**Note:**

**Standardised measuring instructions for checking the positions of tracks are available. Please refer to Annex V for further information.**

Cast the anchor bolts in concrete.

Wait for the necessary hardening time.

Remove all wood supports.

Adjust the track rails

with respect to each other at the prescribed distances,

straight,

parallel and

in one horizontal plane.

Use the thrust bolts (3) to do this.

Secure the thrust bolts (3) with the nuts (4).

Additionally you can adjust the horizontal plane of the guide rack resp. track rails by using the pressure screws (10).

Fix the rails (8) with the fastening screws (9).

Tighten all screws.

Check the rail joints of the guiding side for discrepancies. Compensate for any discrepancies with a finishing file.


**Note:**

Use a piece of rack (1) to adjust the right distance between two successive racks (2).

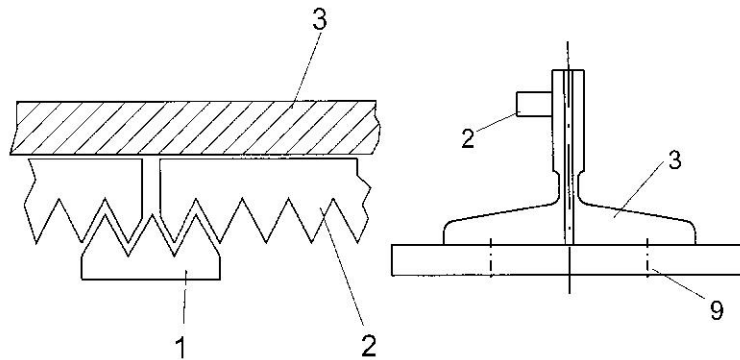


Fig. 3

Loosely screw the racks (2) onto the outer side of the guide rail (3).

Align the racks according to the rail head.

Fix the racks in position with vises.

Tighten the racks from the middle to the outside.

Remove all vises. Do the same (laterally reversed) with the toothed rack (running side).

Secure the mechanical stops (screws, 1) on the guide rail (3) as shown in the assembly drawing (see Annex P).



As detailed in the assembly drawing (see Annex P), fit the limit switch cams on the inner side of the guide rails.

The track has now been mounted. Continue assembly of the machine by fitting the machine gantry.

## Fitting the machine's gantry

### Preparations

Make suitable hoisting gear available. Make sure that the hoisting gear has the load carrying capacity needed to safely raise the machine's gantry (for weight details, refer to the technical data in Annex D).

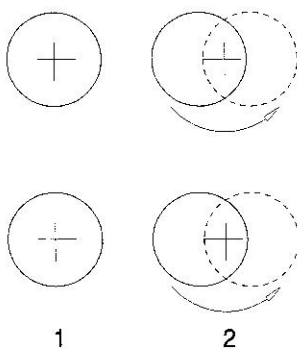
All parts of the EAGLE plasma cutting system which are not lacquered are coated with protective grease. Remove this grease using materials which will not damage the lacquer. Suitable materials are:

- lint-free cloths,
- machine cleaner, cold cleansing agent or petroleum.

After cleaning, check all hose and pipe lines for

- leaks,
- loosened connections,
- fraying,
- damage.

Remedy discovered defects immediately.



Undo the lock of the eccentric rollers on the side carriage of the main side and on the auxiliary side.

Make sure that the maximum possible distance is set between the fixed rollers (1) and the eccentric rollers (2).

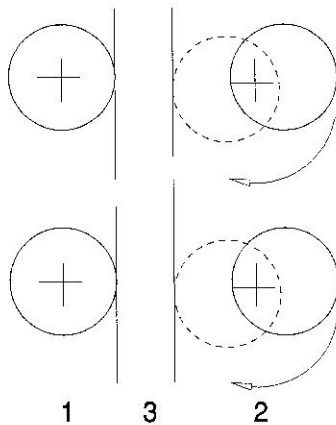
## Fitting and adjusting the machine's gantry



### Caution:

Pay attention to the safety precautions specified in the instruction manual of the hoisting gear. Secure the hoisting gear only at the intended load securing points.

Hoist the machine's gantry with the hoisting gear attached to the load securing points. Lower the gantry onto the track carefully.



- 1 fixed roller
- 2 eccentric roller
- 3 guide rail

Turn in the eccentric rollers (2).

Check the backlash of all lateral guidance rollers. It should still be possible to turn them by hand when the roller on the opposite side is in position. Lock the eccentric rollers in this position.

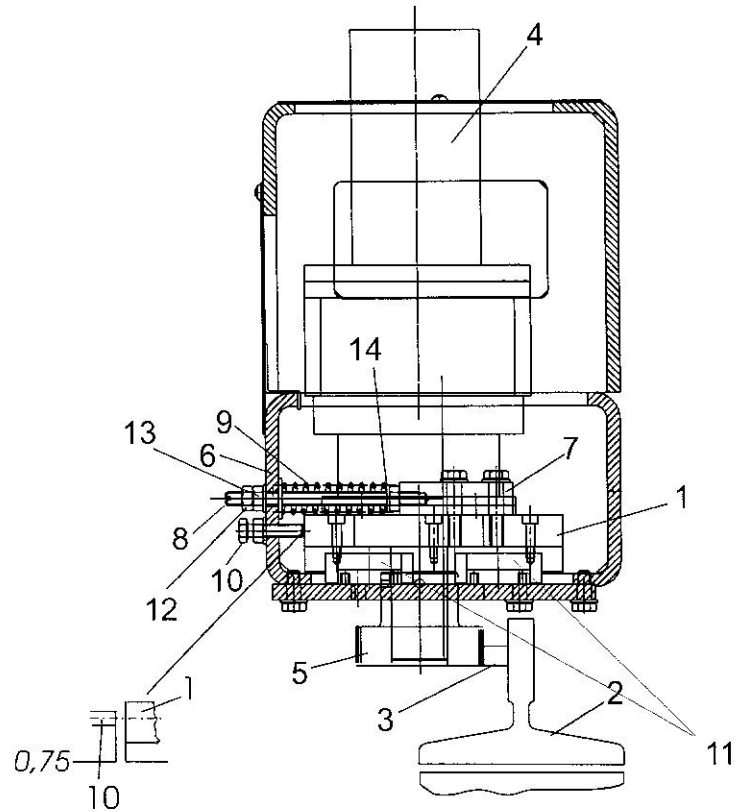
The machine's gantry has now been adjusted. Continue the assembly by mounting and setting up the drives x-axis and by mounting the transverse carriage.

## Carriage the drives (x axis)

Version spur gear drive 30m/min.

Fig. 4

- 1 Motor drive console
- 2 Track
- 3 Rack
- 4 Drive, motor with spur gear drive
- 5 Drive pinion
- 6 Side cheek with drilling for threaded bolt
- 7 Adjustable seat of swivel plate
- 8 tensioning threaded bolt
- 9 Compressing spring
- 10 Set screw for set track
- 11 2x2 Linear guide carriages
- 12 Counter nut
- 13 Set nut
- 14 Tension nut



Setting when pinion is engaged

Both of the longitudinal drive units (x-axis) are mounted onto a motor-driven console (1). These consoles are placed onto four linear guide rails which are guided in four linear guide carriages (11).

The threaded bolt (8) for the retention of the compressing spring (9) is on one side screwed tightly into the adjustable seat of the swivel plate (7). The other side is guided in a hole in the side cheek (6). The impact which the compressing spring (9) needs for a secure engaging of the pinion (5) with the rack (3) is adjusted by loosening or tightening of the tension nut (14).

The loosening or tightening of the set nut (13) causes the adjustable seat of the swivel plate (7) and with it the motor-driven console (1) to move inward or outward. The counter nut (12) locks the setting. The set screw (10) fixes the set track (see settings).

A readjustment becomes necessary when the drive pinion (5) no longer engages properly in rack (3).

# Assembly of transversal carriage (y-axis)

Version spur gear drive 30m/min.

Fig. 5: Spur gear drive y-axis

- 1 Transversal carriage
- 2 Machine's gantry
- 3 Assembly flange for tool plate
- 4 Drive motor
- 5 Spur gear drive
- 6 Gear flange
- 7 Linear guide rail for motor drive adjustment (2x)
- 8 Linear guide cages for motor drive adjustment (4x)
- 9 Draw spindle
- 10 Compressing spring for pre-tightening
- 11 Drive pinion
- 12 Rack (y-axis)
- 13 Linear guidance y-axis
- 14 Linear guide cages y-axis
- 15 Eccentric rollers lower guidance
- 16 Flat guidance y-axis
- 17 Set screw for engaging of pinion in rack

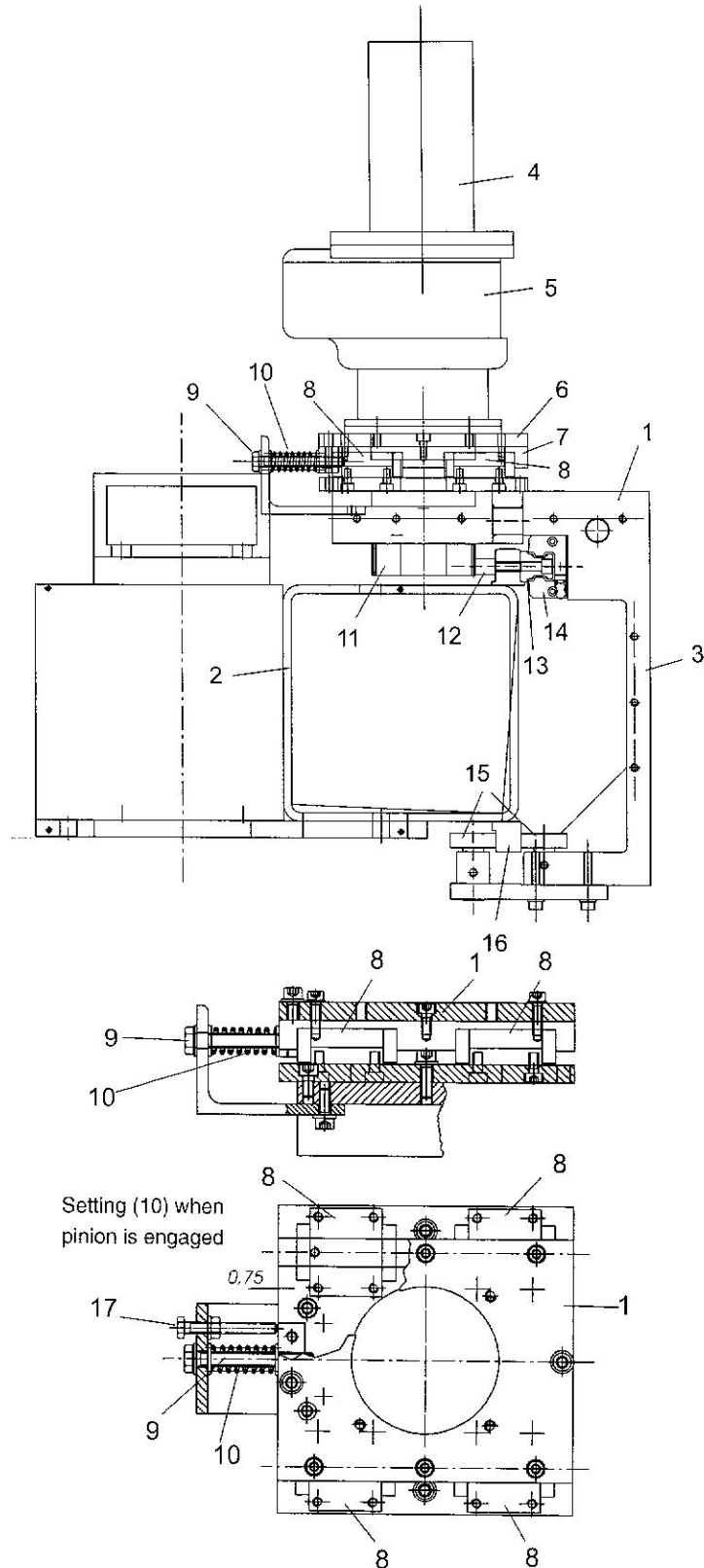


Fig. 6: Adjustment of drives

Push the transversal drive carriage (1) together with the complete drive (4/5) onto the linear guidance (13) and the flat guidance (16) of the gantry (2).

With the help of the eccentric rollers (15) fix the transversal drive carriage (1) to the guide bar (16) and thus to the machine's gantry (2).

The rollers (15) should be just barely manageable by hand.

This play must be checked along the entire track of the machine's gantry.

The drive flange (6) is fitted with a linear guide system (8/7).

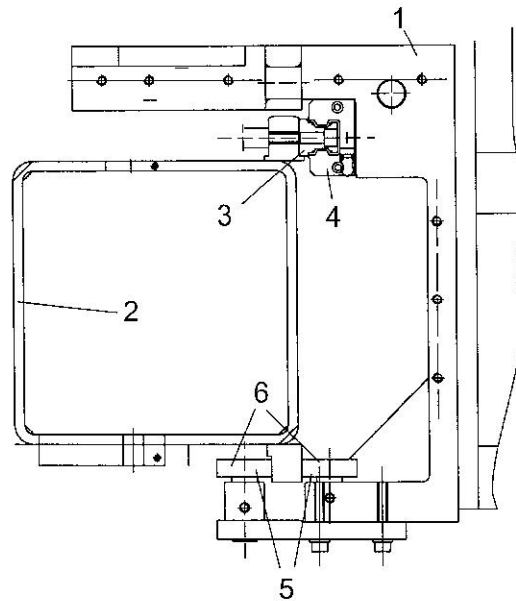
A compression spring (10) pushes the drive unit (4/5) frontwards and makes sure that the drive pinion (11) engages correctly in rack (12).

The draw spindle (9) sets the play of the best possible engaging. The set screw (17) fixes the set track (see settings).

## Assembly trailing carriage

Fig. 7

- 1 Trailing carriage
- 2 Machine's gantry
- 3 Linear guide rail y-axis
- 4 Linear guide cage y-axis
- 5 Flat guidance y-axis
- 6 Eccentric rollers y-axis



Fit the trailing carriage (1) onto the linear guide rail (3) and onto the flat guide rail (5).

The linear guide cages (4) fix the trailing carriage (1) to the upper linear guide rail (3). The eccentric rollers (6) fix the carriage to the lower flat guidance (5).

The rollers (6) should be just barely manageable by hand.

This play must be checked along the entire track of the machine's gantry.

The mechanical connection between the trailing carriage and the drive carriage consists of a bus-hanging-bolt-connection.



## Energy supply lines

For the cable and hose connections we use: the cable energy chain.

cable hose energy chain

## Establishing media connections



**Caution:**

**Lay or suspend all supply lines so that running of the machine is not obstructed.  
no stumbling blocks are created for the operator.  
the necessary minimum clearances are obeyed.**

Establish all media connections after fitting the hose suspensions or the cable chain (see Annex P).

## Setting up the cutting table

**Note:**

**When using a cutting table from ESAB CUTTING SYSTEMS, please follow the instructions given in the separate instruction manual.**

Set up the cutting table so that

the cutting range is kept to.

the ratio between table height and track height corresponds to the layout diagram.

the table is parallel with the track.

the contact surface is horizontal.

The machine has now been set up completely.

Carry out an acceptance test on the track as described in the measuring instructions.<sup>1</sup>

Finally check the safety facilities.

<sup>1</sup> Please refer to Annex V for further information.

# Annex D: Technical data

## Overview

Name plate and CE plate	D-2
Dimensions, weight, energy supply	D-3

### Name plate and CE plate

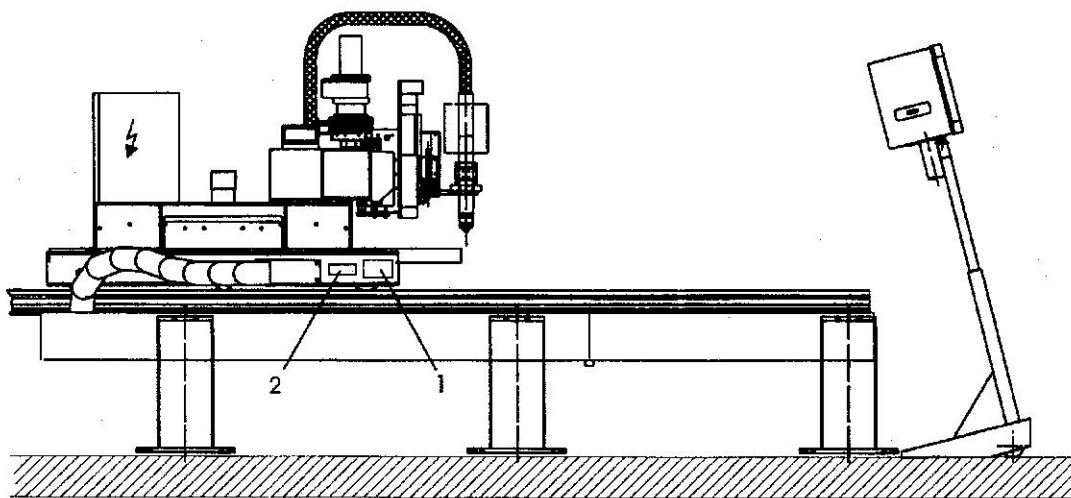


Fig. D-1: Position of nameplate (1) and CE plate (2).  
(the plates always are located on the guiding side)

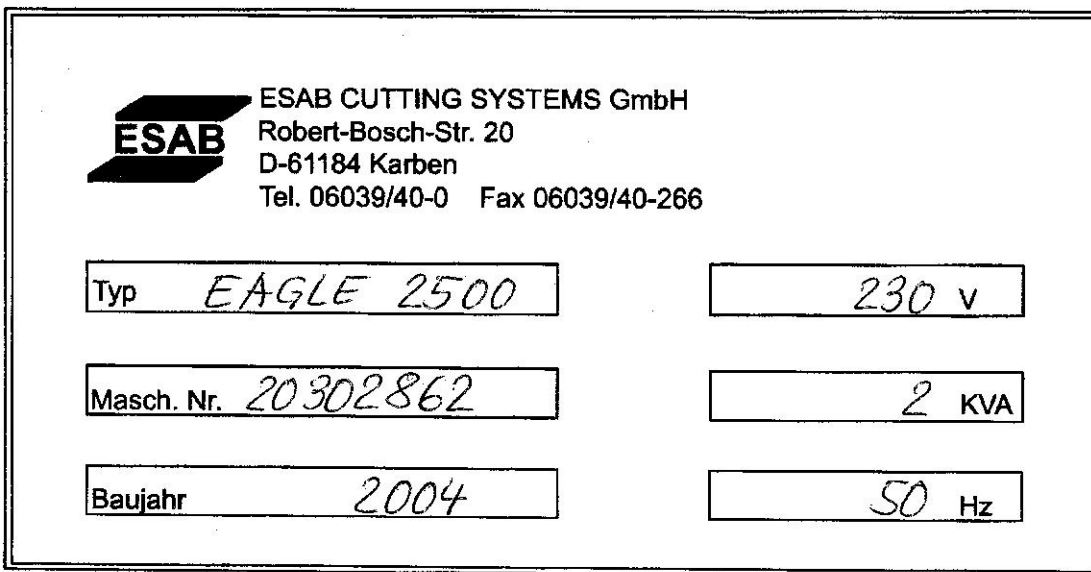


Fig. D-3: Nameplate of EAGLE plasma cutting system

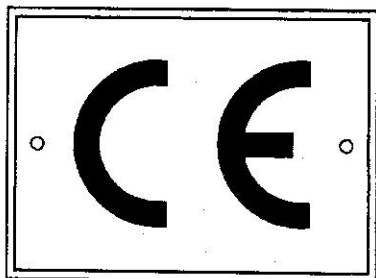


Fig. D- 2: CE plate  
(for EU states only)

## Dimensions, weight, energy supply

Track height	600 mm
Track length	3000 mm
Cutting length	1000 mm
Cutting thickness	ref. to Plasma mm
Machine height	1700 mm
Machine length	1600 mm
Height of cutting table	700 mm
Machine width	3350 mm
Cutting width	2000 mm
Maximum machine speed	30 000 mm/min
Machine weight	700 kg
Maximum number of single burners	1
Fuel gas	ref. to Plasma
Voltage	230 V 50 Hz
Power consumption	2 kVA

# Annex M: Overview of the machine

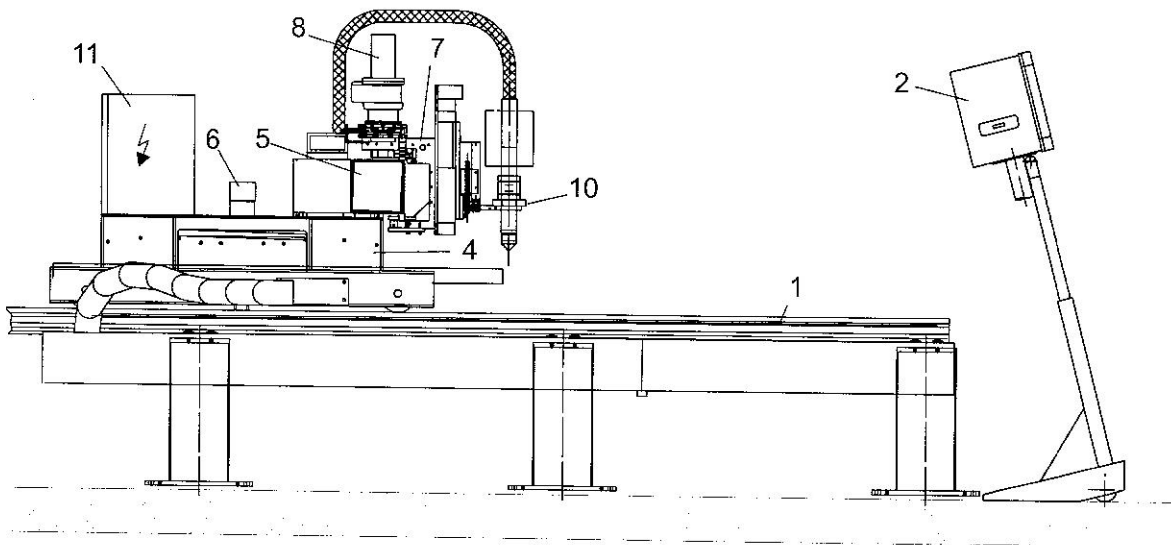
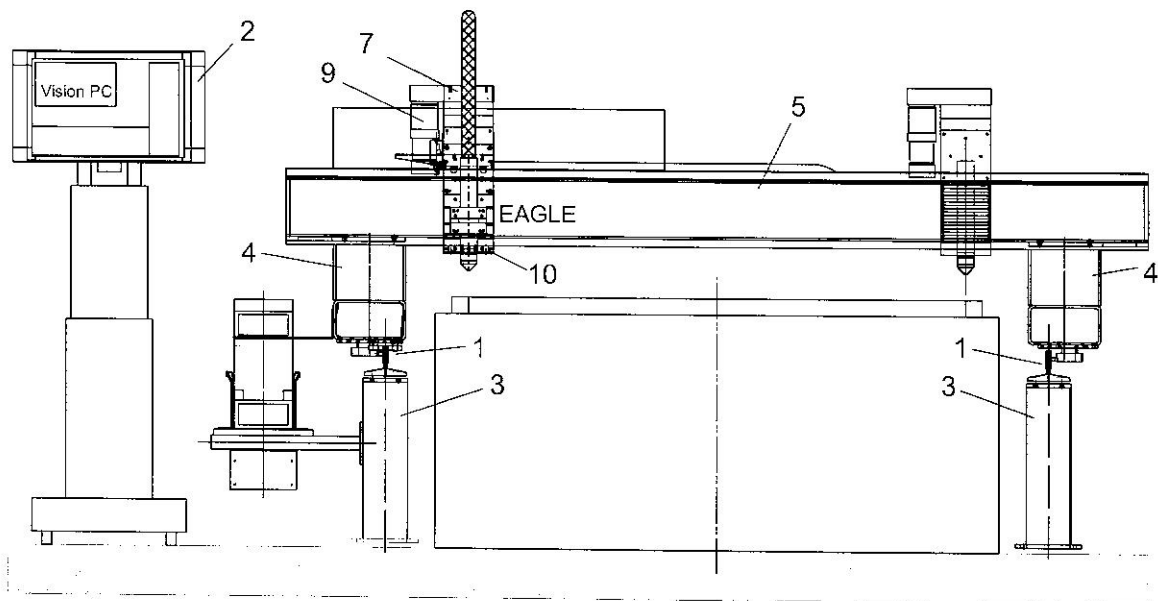


Fig. M-1: General view of the machine (left-hand version)

- |                    |                             |
|--------------------|-----------------------------|
| 1 Track            | 7 Transverse drive carriage |
| 2 CNC controller   | 8 Drive y-axis              |
| 3 Single post      | 9 Height adjustment         |
| 4 Side carriage    | 10 Support with burner      |
| 5 Machine's gantry | 11 Electric control         |
| 6 Drive x-axis     |                             |

# Annex P: Assembly diagrams

## Overview

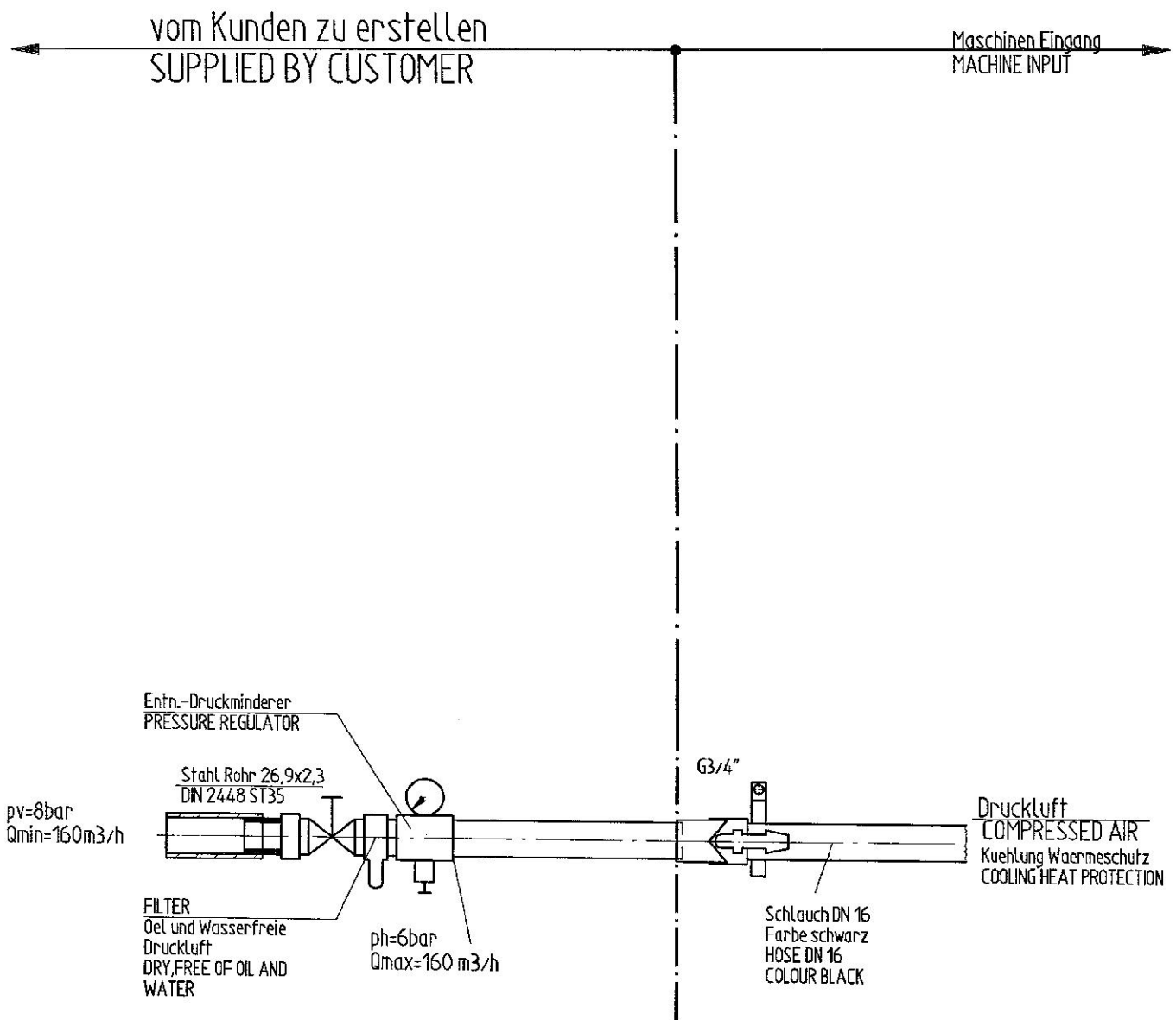
### Common diagrams

Machine layout diagram Stop  
dimensions for the track  
Electrical connection diagram Media  
supply diagram







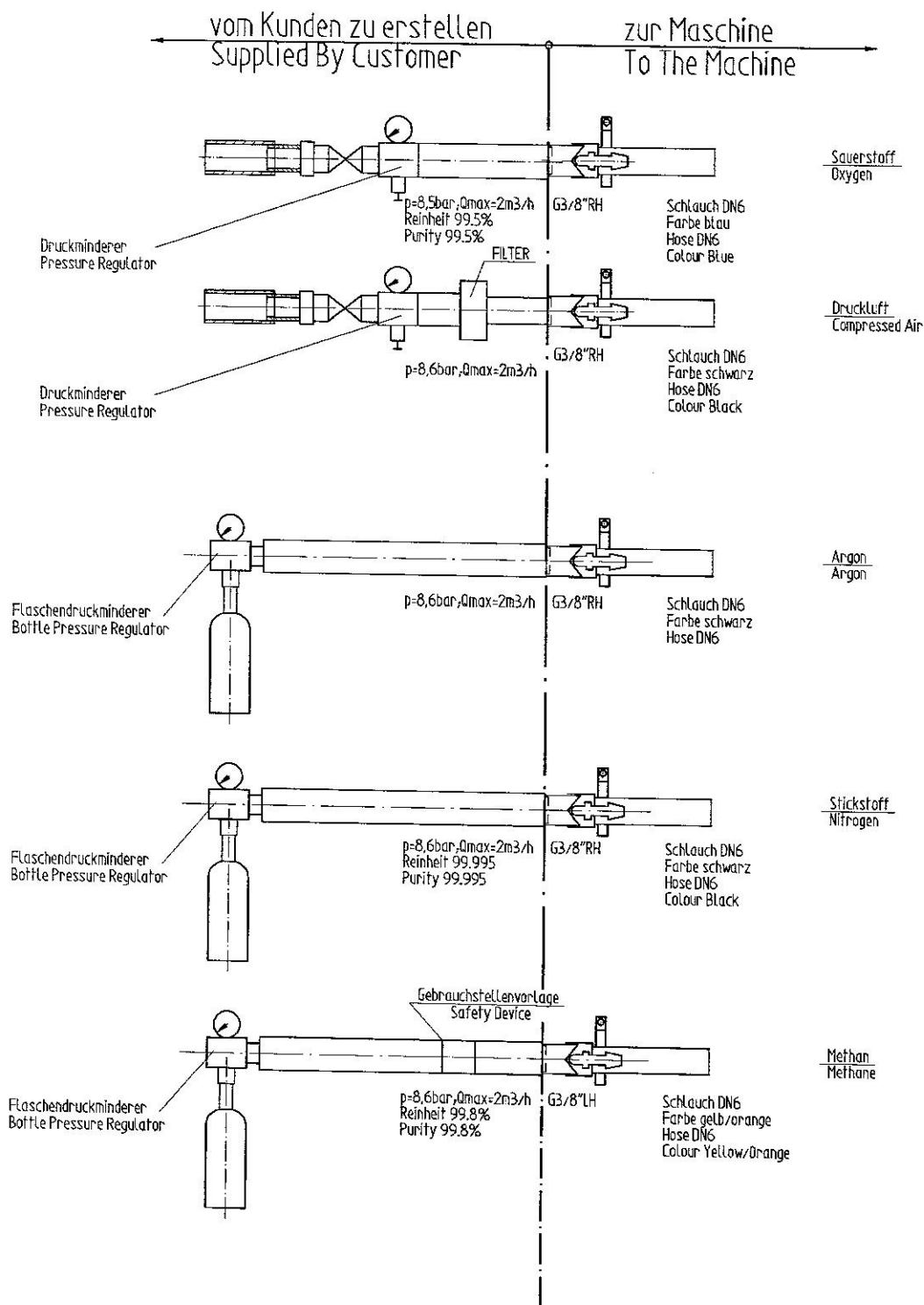


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
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# Annex V: Specifications, standards, guidelines and laws



## Anhang V      Vorschriften, Normen, Richtlinien und Gesetze Annex V      Regulations, standards, guidelines and laws

### **BGV-Unfallverhütungsvorschriften**

BGV A1	Allgemeine Unfallverhütungsvorschriften
BGV A2	Elektrische Anlagen
BGV D1	Schweißen und Schneiden und verwandte Verfahren
BGV D26	Strahlarbeiten
BGV B 6	Gase
BGV B7	Sauerstoff
BGV D15	Arbeiten mit Flüssigkeitsstrahlern
BGV B2	Laserstrahlung, Unfallverhütungsvorschriften für Feinmechanik und Elektrotechnik
BGV B3	Lärm

### **BGV Accident prevention regulations**

BGV A1	General provisions
BGV A2	Electrical equipment's and operating equipment's
BGV D1	Welding, cutting and related working methods
BGV D26	Shot blasting-works
BGV B 6	Gases
BGV B7	Oxygen
BGV D15	Operating liquid jet cutting machines
BGV B2	Laser beams, accident prevention regulations for precision mechanics and Electro-technology
BGV B3	Noise

### **VDE-Vorschriften**

VDE 0100	Bestimmungen für das Errichten von Starkstromanlagen mit Nennspannungen bis 1000 Volt
VDE 0113	Elektrische Ausrüstung von Industriemaschinen
VDE 0837	Strahlungssicherheit von Lasereinrichtungen und Benutzungsrichtlinien (DIN EN 60825)
VDE 0837-50	Anforderung an Laserschutzwänden

### **VDE Regulations**

VDE 0100	Erection of power installations with nominal voltages up to 1000 Volts
VDE 0113	Electrical equipment of industrial machines
VDE 0837	Radiation safety of laser products; users guide (DIN EN 60825)
VDE 0837-50	Specification for Laser guards

### **TRAC - Technische Regeln für Azetylenanlagen und Calciumcarbidlager**

TRAC-204	Azetylenleitungen
TRAC-206	Azetylenflaschenbatterieanlagen
TRAC-207	Sicherheitseinrichtungen

### **TRAC Technical Rules for acetylene and carbide stores**

TRAC-204	Acetylene lines
TRAC-206	Acetylene cylinder battery systems
TRAC-207	Safety devices

### **TRG - Technische Regeln für Druckgase**

TRG 100	Allgemeine Bestimmungen für Druckgase
TRG 101	Druckgase
TRG 102	Technische Gasgemische
TRG 104	Druckgase, wahlweise Verwendung von Druckgasbehältern

### **TRG Technical Rules for pressure gases**

TRG 100	General regulations for pressure gases
TRG 101	Pressure gases
TRG 102	Technical gas mixtures
TRG 104	Pressure gases; alternative use of compressed gas tanks

**TRGS - Technische Richtlinien für  
Gefahrstoffe**

TRGS-102	Techn. Richtkonzentration (TRK) für gefährliche Stoffe
TRGS-402	Ermittlung u. Beurteilung der Konzentration gefährlicher Stoffe in der Luft im Arbeitsbereich
TRGS-900	Grenzwerte in der Luft am Arbeitsplatz (Luftgrenzwerte)
TA	TA-Luft und TA-Lärm (BLm SchV)

**DIN-Normen**

DIN 2310 Teil 1	Thermisches Schneiden, Allgemeine Begriffe und Benennungen
DIN 2310 Teil 2	Thermisches Schneiden, Ermitteln der Güte von Schnittflächen
DIN 2310 Teil 4	Thermisches Schneiden, Plasmaschneiden, Verfahrensgrundlagen, Güte, Maßtoleranzen
DIN 2310 Teil 5	Laserstrahlschneiden von metallischen Werkstoffen, Verfahrensgrundlagen, Güte, Maßtoleranzen
DIN 2310 Teil 6	Einführung, Verfahren
DIN 4844 Teil 1	Sicherheitskennzeichen (Siehe EN 7287)

**DIN Standards**

DIN 2310 Part 1	Thermal cutting; terminology and nomenclature
DIN 2310 Part 2	Thermal cutting; determination of quality of cut faces
DIN 2310 Part 4	Thermal cutting; arc plasma cutting; process principles, quality, dimension tolerances
DIN 2310 Part 5	Thermal cutting; laser beam cutting of metallic materials; process principles, quality, dimension tolerances
DIN 2310 Part 6	Thermal cutting; classification, processes
DIN 4844 Part 1	Safety markings (see DIN EN 7287)

**DIN EN ISO-Harmonisierte Normen**

DIN EN 292/1 und DIN EN 292/2	Sicherheit von Maschinen, Geräten und Anlagen
DIN EN 559	Schläuche für Schweißen, Schneiden und verwandte Verfahren
DIN EN 560	Schlauchanschlüsse und Schlauchverbindungen für Geräte zum Schweißen, Schneiden und verwandte Verfahren
DIN EN 561	Gasweißgeräte, Kupplungen
DIN EN 626-1	Sicherheit von Maschinen, Reduzierung des Gesundheitsrisikos
DIN EN 848-1	Fräsmaschine für einseitige Bearbeitung mit drehendem Werkzeug
DIN EN 1829	Hochdruckwasserstrahlschneidmaschine
EN ISO 9013	Thermisches Schneiden, Autogenes Brennschneiden, Verfahrensgrundlagen, Güte, Maßtoleranzen
DIN EN 12584	Unregelmäßigkeiten an Brennschnitten, Laserstrahl- und Plasmaschnitten
DIN EN 12626	Laserbearbeitungsmaschinen

**DIN EN ISO Harmonised standards**

DIN EN 292/1 and DIN EN 292/2	Safety of machinery
DIN EN 559	Hoses for welding, cutting and allied processes
DIN EN 560	Hose connections and hose couplings for equipment for welding, cutting and allied processes
DIN EN 561	Gaswelding equipment's, hose couplings
DIN EN 626-1	Safety of machines, reduction of risks to health
DIN EN 848-1	Single spindle vertical milling machines
DIN EN 1829	High pressure water jet machines
EN ISO 9013	Thermal cutting, oxygen cutting, process principles, quality, dimension tolerances
DIN EN 12584	Imperfections in oxyfuel flame cuts, laser beam cuts and plasma
DIN EN 12626	Laser processing machines



DIN EN 28206	Abnahmeprüfung für Brennschneidmaschinen	DIN EN 28206	Acceptance testing for oxygen cutting machines
DIN EN 31252	Lasergeräte	DIN EN 31252	Laser equipment's
DIN EN 31553	Laser und Laseranlagen	DIN EN 31553	Laser and Laser related equipment
DIN EN 60204-1	Elektrische Ausrüstung von Maschinen	DIN EN 60204-1	Electrical equipment of machines
DIN EN 60825	Strahlensicherheit von Laseranlagen	DIN EN 60825	Radiation safety of laser products
DIN EN 999	Anordnung von Schutzeinrichtungen	DIN EN 999	(Not available at the moment)

#### VDI-Richtlinien

VDI 2906	Schnittflächenqualität beim Schneiden von Werkstücken aus Metall, Abrasiv-Wasserstrahlschneiden und Plasmastrahlschneiden
VDI 2084	Raumluft techn. Anlagen für Schweißwerkstätten

#### VDI Guidelines

VDI 2906	Quality of cut faces on metallic workpieces; abrasive water jet cutting and arc plasma cutting
VDI 2084	(Not available at the moment)



# Annex Z: List of valid pages

This instruction manual contains 41 pages.

## Date of issue of the basic edition and of changes:

Edition	Version number	Date of issue
Basic edition	0	

## List of pages

Amended pages of this instruction manual are identified by the following symbols:  
Asterisk, bar or pointing hand.

The asterisk (★) identifies pages that have been affected by the last change.

Page	Change index
1 to 33	0
D-1 to D-3	0
M-1	0
P-1	0
V-1	0
Z-1 to Z-2	0