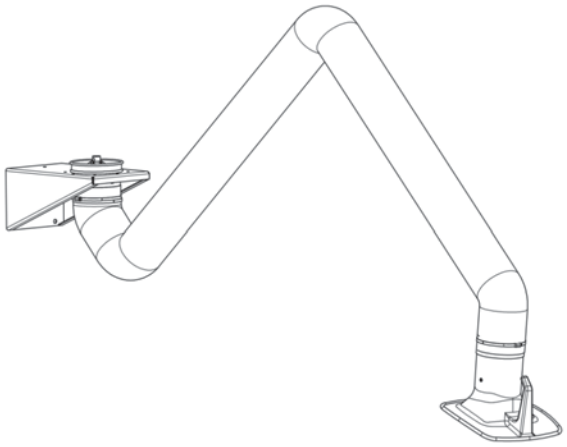
KEMPER®

EN Operating Manual

Extraction Arm



Similar Figure

Table of Contents

KEMPER

Table of Contents

1 General

1.1 Introduction

This manual is an essential aid for the proper and safe operation of the extraction arm.

The operating instructions contain important information for the safe, proper and efficient operation of the extraction arm. Compliance with this user manual contributes to avoiding risks, reducing repair costs and downtime and increasing the reliability and lifetime of the extraction arm.

The operating manual must always be available and should be read and applied by any person who is authorized to work on or with the extraction arm. This includes, among other things:

- Operation and troubleshooting during operation,
- Maintenance (care, maintenance, repair) and/or,
- Transport.

1.2 References to Copyright and Industrial Property Rights

This operating manual must be kept confidential. It should be only accessible to authorized persons.

It can only be disclosed to third parties with written consent of KEMPER GmbH.

1.3 Information for the Operator

The instruction manual is an integral part of the dust extraction arm. The operator shall ensure that the operating staff take note of this manual.

Apart from the instruction manual and the legally binding accident prevention provisions applicable in the country and place of use, the recognized technical regulations for safe and proper work must also be observed.

The operator may not make any additions and modifications to the extraction arm that might affect safety, without the authorization of KEMPER GmbH!

The spare parts to be used must meet the technical requirements specified by KEMPER GmbH. This is always ensured with original spare parts!

Only trained or instructed personnel may operate, maintain, repair and transport the extraction arm. Clearly define the personnel's responsibilities that pertain to the operation, maintenance, repair and transport.

2 Safety

2.1 General

The extraction arm is designed and built according to the state-of-the-art technology and the recognized safety rules and regulations.

During operation of the extraction arm, hazards for the operator or damages to the extraction arm can occur if it is:

- operated by untrained or uninformed personnel,
- not used as intended and/or
- maintained improperly.

2.2 Information on Signs and Symbols

In this operating manual, the following labels or signs and symbols are used for particularly important information:

DANGER

This is a warning of directly imminent danger that would lead to severe injury or death, if the specific instructions are not followed precisely.

WARNING

This indicates a potentially hazardous situation that could lead to severe bodily injury or death, if the specific instructions are not followed precisely.

CAUTION

This is a warning of a potentially hazardous situation, with the result of minor or moderate injury or property damage, if the specific instructions are not followed precisely.

Note

This is a reference to useful information for safe and proper use.

- The working and/or operating steps are indicated with a bullet point. The steps must be performed in order from top to bottom.

– The dash indicates an itemization.

Information, symbols, warning signs, operations signs and component markings that are attached directly to the extraction arm must be observed. It is not permitted to remove them and they must remain clearly legible!

2.3 Labels and Signs to be posted by the Operator

The operator is obliged, where appropriate, to post additional labels and signs on the extraction arm and the surrounding area.

Such labels and signs can, for example, pertain to the requirement of wearing personal protective equipment.

2.4 Safety Instructions for the Operating Personnel

The extraction arm shall be only used in technically perfect condition and for the intended purpose in accordance with these instructions! All errors and especially those that can impair safety must be rectified immediately!

Each person who is charged with the commissioning, operation or maintenance, must have fully read and understood this operating manual - in particular Chapter 2 *Safety.* It would be too late to read it during operation. This is applies particularly for personnel who works on the extraction arm only occasionally.

The operating manual must be always at hand and close to the extraction arm.

We do not accept responsibility for damages and accidents that are caused by noncompliance with this operation manual.

The relevant accident prevention regulations and other generally recognized safety and health rules and regulations must be observed.

The responsibilities for different activities that pertain to servicing and maintenance must be clearly specified and followed. This is the only way that improper handling - especially in dangerous situations - can be avoided.

The operator ensures that the operating and maintenance personnel wears personal protective equipment. These include in particular safety shoes, safety glasses and gloves.

Tie back long hair and do not wear loose clothing or jewelry! There is always the danger of getting caught somewhere or being pulled in or dragged along by moving parts!

Should safety-related changes on the extraction arm occur, it must be immediately stopped and secured and the incidence should be reported to the responsible person/authority!

Work on the extraction arm must be performed only by trained and reliable personnel. Observe the minimum age!

The personnel to be trained, taught, instructed or as part of a general education may only operate on the extraction arm under the supervision of an experienced person!

2.5 Safety Instructions for Maintenance and Troubleshooting Extraction Arm

Setup, maintenance, repair work and troubleshooting must be performed only when the system is switched off.

For maintenance and repair work, always tighten loose screws! If required, tighten the screws provided with a torque wrench.

In particular, clean dirt and care products off connections and fittings before performing maintenance/repair/care work.

3 Product Description

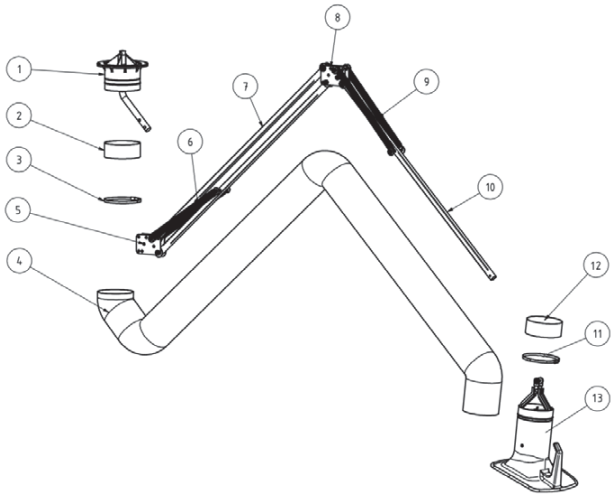


Fig. 3-1: Extraction Arm Description

Item	Description
1	Slewing ring
2	Rubber sleeve
3	Hose clamp
4	Suction tube
5	Hinge sheet
6	Springs
7	Rectangular tube
8	Hinge sheet
9	Springs
10	Rectangular pipe
11	Hose clamp
12	Rubber sleeve
13	Exhaust hood

3.1 Intended Use

The extraction arm is designed and built to extract welding fumes locally.

– The extraction arm must not be used in an explosive atmosphere, and not for the extraction of explosive atmosphere.
– The arm is not suitable for the extraction of acid and alkali vapors.

Note

Observe the information under Chapter 9.3, Section *Technical Specifications*. The instructions must be strictly observed.

Instructions regarding the intended use also include:
– Safety
– Operation and control,
– Maintenance and servicing

that are described in this manual.

Any other use is not intended for this use. The operator of the extraction arm is solely responsible for damages that result from an improper use. This also applies to unauthorized modifications to the extraction arm.

3.2 Reasonably Foreseeable Misuse

If the extraction arm is used as intended, no reasonably foreseeable misuse that could lead to dangerous situations involving personal injury should be possible.

3.3 Residual Risk

Even if all safety regulations are observed, the following residual risk remains when operating the extraction arm. All persons working on and with the extraction arm need to be aware of this residual risk and follow the instructions that will prevent these residual risks that lead to accidents or damage.

During set-up and preparation work, it may be necessary to dismantle on-site safety equipment. This creates different residual risks and potential hazards that the operator must be aware of:

WARNING

Inhaling welding fumes can cause severe damage to health!

Perform welding work only when the arm is set correctly for the extraction of welding fumes.

3.4 Lighting (Optional)

The arm can be equipped with lighting.

Note

Use the lighting of the extraction arm only in conjunction with existing workplace illumination. The extraction arm lighting alone is not sufficient for workplace illumination.

4 Transport and Storage

KEMPER GmbH delivers the extraction arm in pre-assembled component groups packed in boxes.

WARNING

Life-threatening crushing during lifting and transport of the extraction arm

With improper lifting and transporting the extraction arm may tip and fall down.

- **Do not stand or walk under suspended loads!**

4.1 Storage

- Store the extraction arm in its original packaging in a dry, frost-free and clean place.
- No objects should be placed on individual components of the extraction arm.

5 Assembly

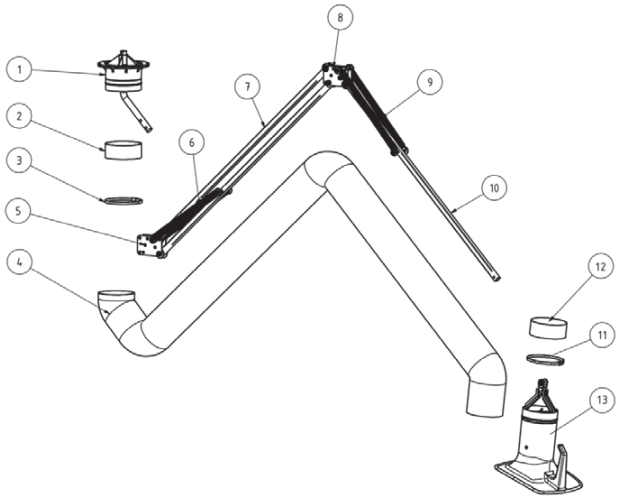


Fig. 5-1: Extraction Arm Description

Item	Description
1	Slewing ring
2	Rubber sleeve
3	Hose clamp
4	Suction tube
5	Hinge sheet
6	Springs
7	Rectangular tube
8	Hinge sheet
9	Springs
10	Rectangular pipe
11	Hose clamp
12	Rubber sleeve
13	Exhaust hood

5.1 Assembly of the Extraction Arm onto a Wall or a Hinged Cantilever (Extraction Arm Length 2.0m, 3.0 m, 4.0 m)

WARNING

Falls and falling components can cause serious injuries.

The extraction arm is mounted at a height of approximately 2,300 mm. By improper handling you and/or the components may fall.

- **Use appropriate ascending aids or working platforms.**
- **Do not stand or walk under suspended loads.**

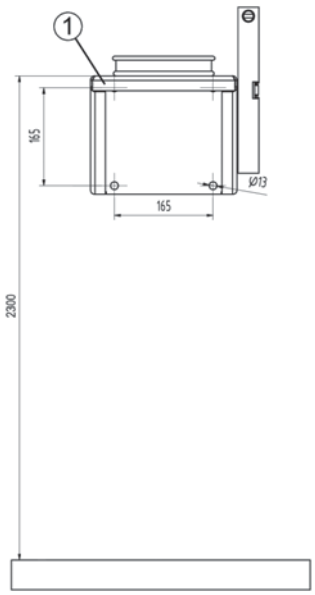


Fig. 5-2

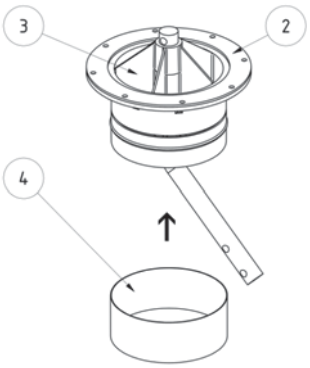
Extraction arm length [m]	Torque at the wall console [Nm]
2	450
3	700
4	1,000

- Check or ensure that the wall or column have sufficient load bearing capacity before starting the assembly.

Note

On the upper mounting screws, tensile forces with up to 2,800 N (ca. 280 kg) act on each mounting screw.

- Align the wall console (1) with a spirit level.
- Attach the wall console (1) according to the adjacent drilling figure onto a load-bearing surface. Use suitable screws (Ø10) and dowels.



- Place the seal (2) onto the slewing ring (3)
- Screw the slewing ring below the wall console
- Pull the rubber ring (4) over both halves of the slewing ring

Fig. 5-3

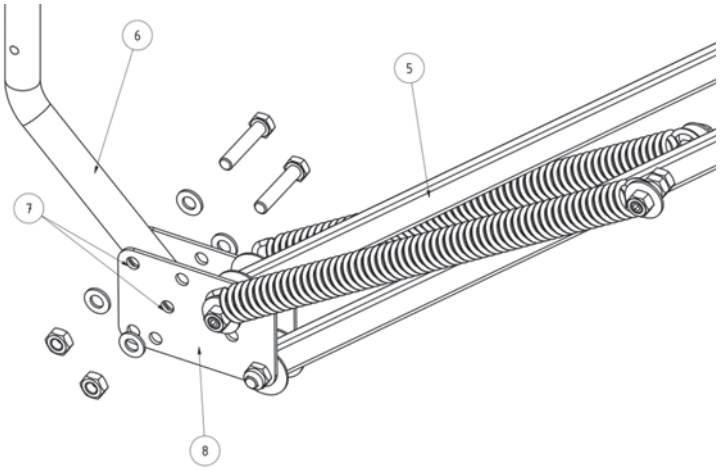


Fig. 5-4

- Mount the support frame (5) in folded position onto the round steel bar (6) of the rotatable sockets.
- Always use the bore holes (7) of the joint plate (8).
- Read on under Section "Continuation of all Mounting Methods".

Note

Only for extraction arms in tube version:
Shorten the rear part of the tube to 900 mm.

5.2 Assembly on a Mobile Filter Unit

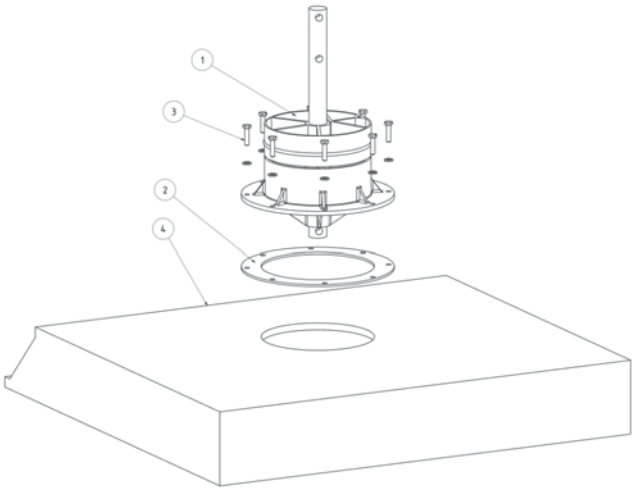


Fig. 5-5

- Place the rubber seal (2) onto the flange of the suction opening in the cover plate of the filter unit (4).
- Place the slewing ring (1) onto the rubber seal (2). Make sure that the holes in the cover plate of the filter unit (4), the rubber seal (2) and the slewing ring (1) match.
- Screw the slewing ring (1) with
  - the round rubber seal (2) and
  - the eight screws M6 x 25 (3)

  onto the suction opening in the cover plate of the filter unit (4).

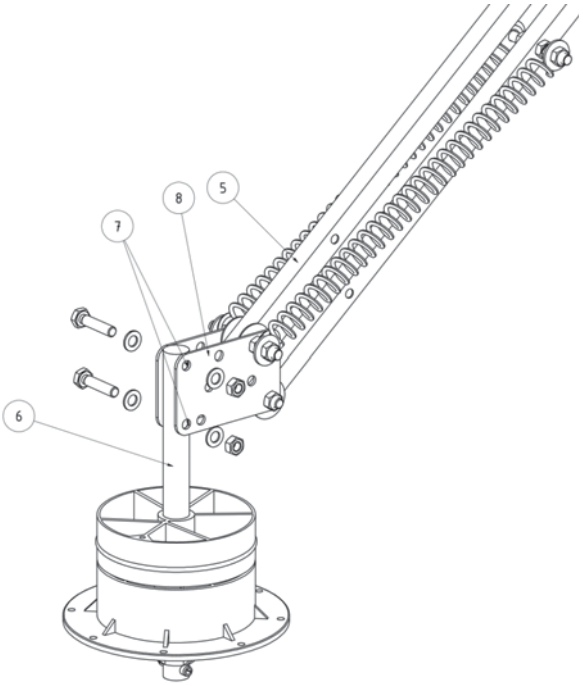


Fig. 5-6

- Mount the support frame (5) in folded position onto the round steel bar (6) of the slewing ring.
- Position the round steel bar (6) between the joint plates (8)
- Insert two screws - M10 x 50 - 8.8 into the bore holes (7) of the joint plates (8).
- Fix the mounting screws with nuts M 10
- Read on under Section "Continuation of all Mounting Methods".

Note

Only for extraction arms in tube version:
Shorten the rear part of the tube to 650 mm.

5.3 Assembly below a Stationary Filter Unit

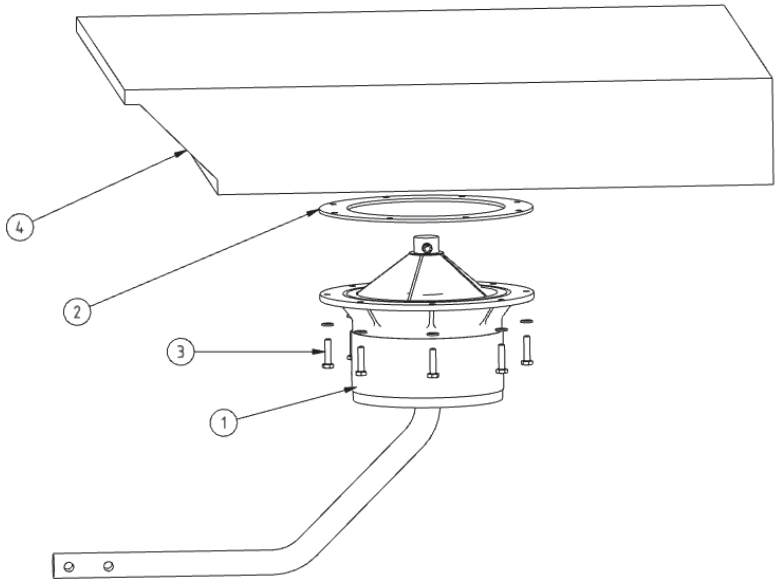


Fig. 5-7

- Place the rubber seal (2) onto the slewing ring (1) in such a way that the eight bore holes of the rubber seal (2) lie on top of the eight holes of the slewing ring (1).
- Screw the slewing ring (1) with
  - the flat rubber seal (2),
  - eight screws M6 x 25 - 8.8 (3)

  below the suction opening of the filter unit (4).

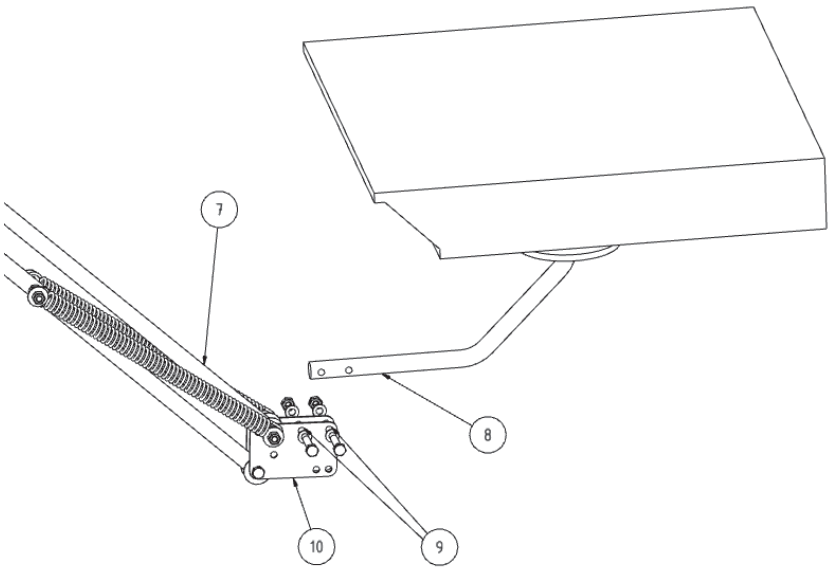


Fig. 5-8

- Mount the support frame (7) in folded position onto the round steel bar (8) of the slewing ring.
- Use the bore holes (9) of the joint plate (10).
- Insert two screws - M10 x 50 - 8.8 into the bore holes (9) of the joint plates (10).
- Fix the mounting screws with nuts M 10
- Read on under Section "Continuation of all Mounting Methods".

5.4 Continuation of all Mounting Methods

CAUTION

Risk of injury due to tensioned springs!

Unfold the support frame carefully

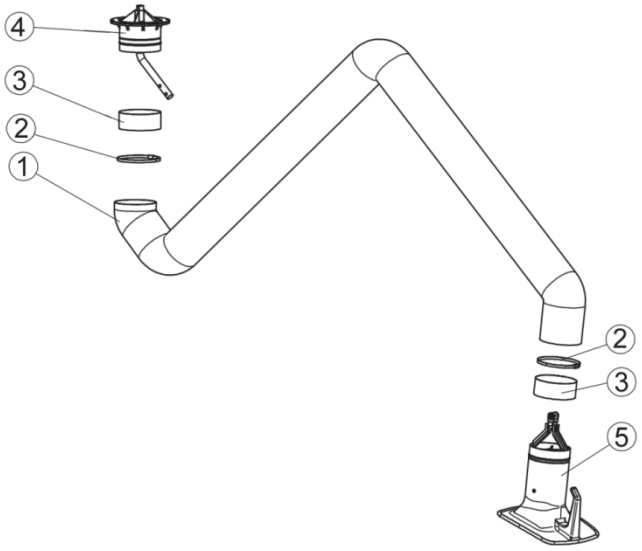


Fig. 5-9

- Slide a rubber ring (3) over each socket of the slewing ring (4), the exhaust hood (5), and the tube clamps (2) over the tube ends of the tube (1).

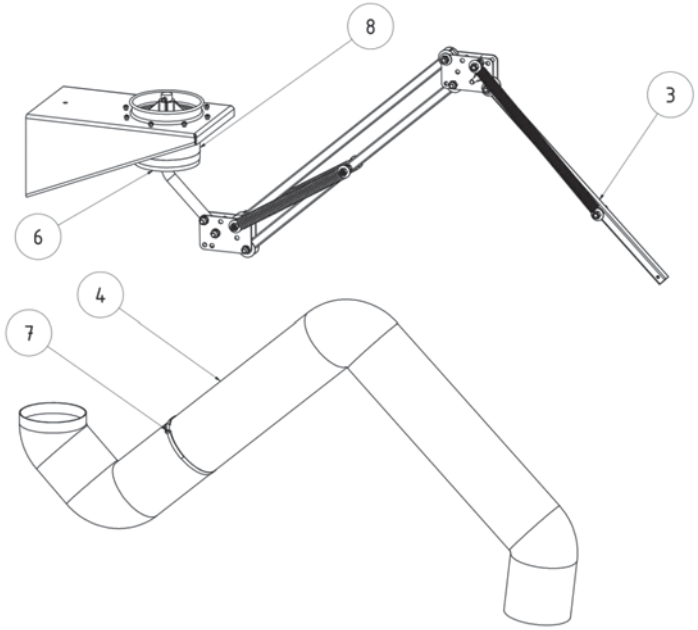


Fig. 5-10

- Remove the yellow sticker and the backup tape on the support frame (3).
- Unfold the support frame (3) carefully and pull the tube (4) over the rod assembly.
- Slide the rear end of the tube up to the slewing ring (6) and secure with the tube clamp (7).
- Cover the tube clamp with the rubber ring (8), the tube end and the gap between the fixed and rotating pipe socket.

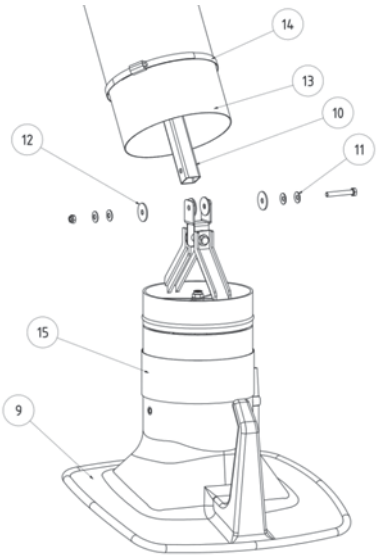


Fig. 5-11

- Install the exhaust hood (9) onto the free end of the extraction arm (10). Position the plate springs (11) and brake disc (12) as shown in Figure 5-11.
- Tighten the screws only so much that the exhaust hood remains self-supporting in any position.
- Pull the tube end (13) over the sockets and tighten the tube clamp (14).
- Cover the tube clamp, tube end and the gap between the socket and rotary exhaust hood with the wide rubber ring (15).

Note

The ease of the joint is preset at the factory. If a readjustment should be required, use only the screws in the hinge points with plate springs. When properly adjusted, the position of the extraction arm is held almost exclusively by the force of the spiral springs.

6 Extraction Arm Use

Any person who deals with the use, maintenance and repair of the extraction arm must have read and understood these operating instructions thoroughly.

6.1 Qualification of the operating personnel

For an independent use, the operator of the extraction arm can only instruct persons who are familiar with this task.

Being familiar with this work includes that the persons have been trained according to the task and understand the operating manual and the operating instructions in question.

The extraction arm can only be used by trained personnel.

Only this way it can be ensured that all personnel work in a safety conscious and risk-aware manner.

6.2 Positioning the Exhaust Hood

WARNING

Inhaling welding fumes can cause severe damage to health!

Perform welding work only when the arm is set correctly for the extraction of welding fumes.

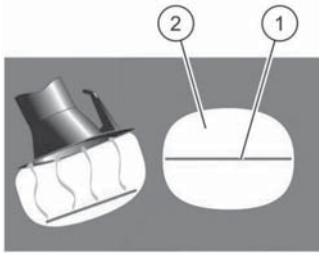


Fig. 6-1: Welding fumes absorption

Through the elongated shape and the 360° rotation of the exhaust hood, it remains continuously adjusted to the welding seam (1). It is adjustable to any position with one hand. The flange-type cover to the sides increases the extraction range. The exhaust hood should be positioned at a distance of about 30 cm above the weld. For adequate detection of welding fumes, a suction flow rate of more than 700 m^3/h is required. Also note the information under Section Technical Data.

Due to the shape of the vacuum field (2), the exhaust hood must not be tracked as often.

Extraction Arm Use

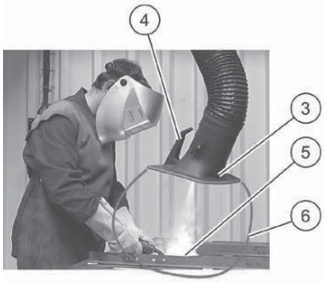


Figure 6-2 Position exhaust hood

- Position the suction hood (3) over the weld by using the handle (4) in such a way that:

– you have an unobstructed view of the weld (5),
– the welding fumes are extracted completely, i.e. the occurring welding fume is in the vacuum field (6).

7 Maintenance

The instructions described in this chapter are meant for reference purposes only. Depending on the operating conditions, further instructions may be required to keep the extraction arm in an optimal condition. The time intervals indicated refer to a **single-shift** operation.

The maintenance and repair work described in this chapter, may only be performed by specially trained maintenance personnel of the operator.

The spare parts to be used must meet the technical requirements specified by KEMPER GmbH.

This is always ensured with original spare parts!

Ensure a safe and environmentally sound disposal of materials and replacement parts!

- Observe the safety instructions on the following pages!

7.1 Care

The care of the extraction arm is essentially limited to periodic cleaning of all surfaces for dust and other debris. Clean the extraction arm only by wiping or sweeping.

CAUTION

Improper cleaning of the suction arm can cause malfunction and damage!
Do not select an aggressive cleaning agent that damages metal and plastic surfaces and tube connections.

Never clean sensitive components with coarse brushes and high mechanical pressure. Use lint-free cloths.

Never clean the extraction arm with a water jet, high pressure cleaner or by blowing with compressed air, harmful dust can get into the breathing zone of the user and other people.

All aqueous industrial cleaner can be used without any restrictions.

Appropriate care helps to permanently keep the extraction arm in a safe operational condition.

- Clean the extraction arm frequently, it is recommended to do so on a monthly basis.

7.2 Maintenance

General Maintenance Instructions

- Inspect the extraction arm frequently.
- If repair and maintenance work is necessary, contact the person who is responsible for the extraction arm.

WARNING

Warning of serious bodily injuries.

Improper use can result in severe injuries, such as crushing, dismemberment of fingers or hands due to uncontrolled movements of individual machine elements.

Repair and maintenance work on the extraction arm must only be performed by trained and authorized personnel in accordance with the applicable safety and accident prevention regulations!

Setup, maintenance, repair work and troubleshooting must only be performed when the system is switched off.

Prior to repair and maintenance work

- Only use the proper tools for all work.
- Accurately label the components and pipelines before dismantling.
- Only use original spare parts.
- If necessary, wear protective clothing..

Ensure that no dust is released into the air.

7.3 Servicing

Repair work on the extraction arm may only be performed by personnel that were trained and authorized by the operator. The instructions in this chapter are limited to important general information and instructions that must be followed during the repair work.

The repair works relate mainly to the replacement of the support frame, the exhaust hood, the slewing ring and the tube. Further repair work may only be carried out by the KEMPER Service.

Note

The following shall apply for all assembly and disassembly work:

- Mark parts that belong together.
- Mark or record the mounting position and place.

After reassembly, the loosened mechanical connection must be tightened again.

8 Disposal

8.1 Plastics

The used/processed plastics must be sorted as much as possible. Plastics must be disposed of in compliance with the legal requirements.

8.2 Metals

Separate different metals and dispose. Disposal must be carried out by an authorized company.

8.3 Final Decommissioning

Ensure which material can be recycled and then recycle accordingly.

9 Appendix

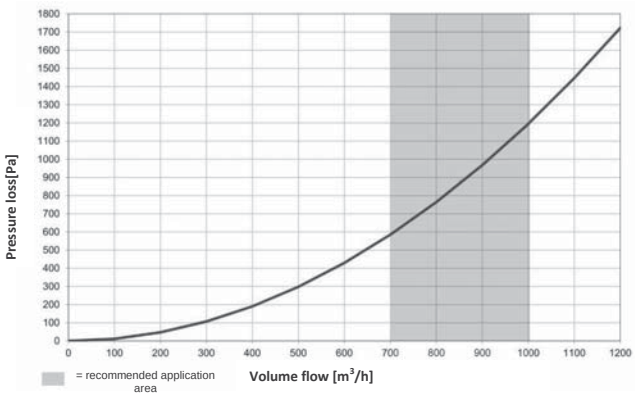
- Technical Data
- Spare part list

9.1 Technical Data

Extraction Arm 2.0 - 4.0 m

Length	Diameter	Approx. weight	Approx. noise level at 1000 m³/h
2.0 m	Ø 150 mm	17 kg	64 dB(A)
3.0 m	Ø 150 mm	19 kg	64 dB(A)
4.0 m	Ø 150 mm	22 kg	64 dB(A)

Pressure Loss Diagram



The pressure loss diagram shows approximate values in a normal working position of the extraction arm, which deviate from the diagram values in practice depending on the positioning of the extraction arm.

Manufacturer's Contact:

Company name	KEMPER GmbH
Street:	Von-Siemens-Str. 20
Place:	48691 Vreden
Phone:	02564 - 680
Fax:	02564 - 68120
E-mail	mail@kemper.de
Homepage	www.kemper.de

Document data

Version: 4.0

Creation date: 4/8/2013

9.2 Spare Parts List

	Item No.	Specification
Spare tubes for extraction arms in tube version	114 0348	Replacement tube for extraction arm 2.0 m, Ø 150 mm
	114 0349	Replacement tube for extraction arm 3.0 m, Ø 150 mm
	114 0350	Replacement tube for extraction arm 4.0 m, Ø 150 mm
Spare tubes for extraction arms in pipe version	79 103 40	Set- replacement tubes (3 pieces) incl. rubber cover band
	79 103 10	Set- HT tubes (3 pieces) incl. rubber cover band, high-temperature version up to + 310 °C
Exhaust hood	Replacement exhaust hood for extraction arm and telescope arms including swivel joint and mounting material.	
	Item No.:	Specification
	79 103 00	Exhaust hood without workplace illuminator
	79 103 010	Exhaust hood incl. workplace illuminator
Protective grid	127 0091	Protective grid for exhaust hood
Slewing ring	79 103 02	Slewing ring for mobile devices
	79 003 02	Slewing ring for wall console
	79 053 01	Slewing ring for wall devices
Supporting frame	79 102 01	2m supporting frame, tube version
	79 103 01	3m supporting frame, tube version
	79 104 01	2m supporting frame, tube version
	79 602 01	2m supporting frame, pipe version
	79 603 01	3m supporting frame, pipe version
	79 604 01	4m supporting frame, pipe version

KEMPER®