

Pre-Assembly Machine

Electro-Hydraulic

sf 590 UNI





Operation Manual and Technical Data



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Operation Manual

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<u>1 General Description</u>

In this chapter, you will find information concerning this Operation Manual as well as general safety instructions for handling the machine.

1.1 Operation Manual (OM) Information

This Operation Manual is part of the product:sf590 Uni (universal drive unit for pipe pre-assembly)

As the central part of the operator's reference material, this Operation Manual is of special importance. Heeding the instructions, data and regulations of the OM will help you to operate the machine safely and efficiently.

Contrary to the illustrations and details of this Operation Manual, the machine is subject to technical alterations, if these serve the purpose of improvement.

This Operation Manual may describe special equipment not included with your machine.

1.1.1 Presentation of the Operation Manual

Safety precautions are indicated by corresponding symbols and printed in bold *italics*.

1.1.2 Working with the Operation Manual

With this Operation Manual, we want to help you to become acquainted with the machine, and to be able to operate it according to its intended application possibilities.

The Operation Manual contains important information concerning safe, proper and economic use of the machine. Heeding it will help you to avoid danger, reduce repair costs and non-productive time and increase the reliability and service life of the machine.

In addition to the Operation Manual, the instructions according to the national accident prevention and environmental protection regulations must be observed.

The Operation Manual has to be permanently available and in legible condition at the working site of the machine.

Any person working with the machine or in its vicinity must read and follow the instructions of the Operation Manual. This applies to persons concerned with

- operation of the machine, including setting-up, clearing machine problems in process, disposal of waste matter occurring during production, machine care, disposal of fuel and process materials
- maintenance (service, inspection, maintenance) and/or
- transportation

In addition to the Operation Manual and the national regulations for accident prevention valid on the working site, the technical standard regulations for safe and proficient work demand observation.

1.2 Safety Precautions (in General)

It is essential to acknowledge all warnings, regulations and prohibitions.



Attention!

Heed all safety precaution and warning signs attached to the machine!

Avoid any dangerous operation that might be a risk for your safety!

Any safety precaution and warning signs attached to the machine should be completely retained in legible condition!

Keep this Operation Manual permanently handy at any working site of the machine!

Should any changes concerning the safety of the operator or the machine functions occur, switch off the machine instantly and report to the responsible authority / person!

Pay attention to the valid accident prevention regulations of the trade association!

General Description

1.2.1 Safety Symbols

Attention!



This is a warning symbol to attract attention to objects or situations that might involve danger.



Danger - High Voltage!

In case of current discharge caused by faulty structural components or cables, leave the danger area immediately and cut off the power supply. Only electricians may connect the machine, and only according to the electric circuit diagram.



Sharp Edges!

You run the risk of getting cut. When working with/near sharp edges, make sure to wear your personal protection outfit!



Danger of Getting Crushed!

Do not reach for mobile machine parts or facilities. Any existing protection covers and facilities must be mounted correctly. Do not remove protective covers or facilities during machine operation.

1.2.2 Obligations of the Owner

The operator is obliged to let only persons operate the machine:

- who are acquainted with the basic regulations concerning safety at work and accident prevention and have been instructed in the proper use of the machine.
- who have read the chapters concerning safety instruction and warning signs in this Operation Manual, understood them and confirmed this with their signature.
- have been trained and instructed; their area of responsibility for operation, setting-up, maintenance and repair must be clearly determined!

In addition to this Operation Manual, please heed the legal rules in general and other binding regulations concerning accident prevention and environmental protection and pass them on! For instance, these regulations may concern handling hazardous materials or making available and wearing personal protection outfits.

The safety-aware attitude of the staff must be checked out regularly.

The operating staff must be qualified, well instructed in their field of work and familiar with handling the machine.

1.2.3 Training Information

Appoint well instructed personnel only! Sharply define the responsibilities of the personnel concerning operation, setting-up, maintenance and repair!

Staff being schooled, trained or instructed, or persons serving their apprenticeship, may only handle the machine under constant strict supervision of an expert!

1.2.4 Qualifications of the Personnel

Before starting to work, all persons employed with using the machine are placed under the obligation of

- acknowledging the basic regulations concerning safety at work and accident prevention,
- reading the safety precautions and warning directions in this Operation Manual and confirming their comprehension by signature,
- wearing their personal protection outfit or the equipment belonging to a specific workplace and using necessary protection aids while working, if this is in the interest of safety.

The area of competence must be maintained.

As an example

• repair or maintenance of electric and hydraulic components of the machine should be carried out only by qualified personnel or a trained person under the supervision of a qualified person, according to the valid technical regulations.

1.2.5 Risks when Handling the Machine

The machine has been built according to state-of-the-art technology and the acknowledged safety-specific rules. Nevertheless its may represent a risk to the health and life of users or third parties, operating the machine could effect the machine itself or other valuables.

The machine should only be used

- as directed.
- in top condition, where safety technology is concerned.



Before starting the machine, make sure that all protective facilities and safety requirements, for instance removable protective facilities, emergency-off switches, are available and in working order!

Faults, which might have an adverse effect on security, must be eliminated immediately!

1.2.6 Operation According to Regulations

The basic device VARIOMAT has a universal reception for different attachments. With the cutting ring attachment, a variety of different cutting rings from 6 to 42 mm or 1/4 " to 2 " Ø may be assembled up to the maximum operation pressure.

The flaring head has been laid out for 37° flared edges from 6 to 42 mm or 1/4 " to 1 1//2 "Ø. Precision steel pipes according to DIN 2391/C Werkstoff St.37.4 NBK and stainless steel tubes 1.4571 /1.4541 within the diameter range from 6 to 42 mm can be processed.

Operation according to regulations also means

- acknowledging all rules and regulations of the Operation Manual and
- keeping the schedule for inspection and maintenance according to directions or within the period stipulated by the OM.

1.2.7 Guarantee and Legal Liability

Basically, our "General Conditions of Sale and Delivery" are valid. For the user, these are definite from the date of the contract on.

Guarantee and claims on liability for damage to persons or property are excluded, if they result from at least one of the following causes:

- misuse of the machine;
- improper setting-up, starting, operating and maintenance of the machine;
- working the machine in spite of faulty safety facilities or with safety and protection facilities, which are either not properly attached or not in working order;
- ignoring the directions of the Operation Manual concerning transportation, storage, setting-up, starting, operation, maintenance and assembly of the machine;
- unauthorised structural alterations of the machine;
- unauthorised alterations of the machine control;
- insufficient supervision of the machine parts exposed to wear;
- carelessly performed repair works;
- disasters caused by the influence of alien elements and superior force.

1.2.8 Disposal

When the service life of the unit / machine is over, the owner is bound to disposal at his own expense and according to legal regulations, he releases us from the obligation to take it back and also from any demands made by a third party in this connection.

Avoid harming the environment:

The disposal of grease and oils must be carried out separately, they may not remain in the machine.

Dispose of the packing material in a proper and eco-friendly manner.

Regard the currently valid regulations for proper disposal.

2. <u>Technical Data</u>

General Data	
Designation	VARIOMAT
Max. noise level at the	approx 60 db (A)
working place	
Hydraulics	
Tank capacity	approx. 3 litres
Flow rate	3,7 l/min
Electrics	
Type of drive	electric drive: 1.1 KW
Power supply	230 V / 50 Hz / 1 phase
Power reception	9,5 A
Electric standard	VDE
Protection type	IP 54
Dimensions	
Weight	66 kg
Height	285 mm
Width	535 mm
Depth	515 mm

Technical Data

3. Transportation/Erection of the Machine

3.1 Unpacking, Cleaning

- Check the machine and tools to rule out damage due to transportation.
- Make sure that machine and tools are complete by comparing with the delivery and order notes.

3.2 **Preparations for Erection**

3.2.1 Space Requirements

The Variomat occupies a space of approx.500mm width and 550mm depth. The required space depends on the dimensions of the work pieces.

3.2.2 Surface

A solid, level, horizontal and non-slip surface is required!

3.2.3 Supply Connections

Shock-proof plug (*home office plug*) 230V. Other voltages according to regulations.

3.2.4 Establishing the Required Connections

Connect the 5-terminal 16A-CEE plug to the power supply. Activate the control of the machine with the 0-1 switch. The digital display lights up to signalise that the machine is ready. If this does not happen, the emergency-off key might be activated. By turning the emergency-off switch to the right, it is deactivated.



Attention! Pull out the plug after finish the work!

Operation Manual

Operation

4. Operation

4.1 Putting into Action

Pressing operation is started by activating the		key.

4.1.1 Use

The machine may be used for its intended purpose only.

4.1.2 Safety Precautions



Never remove or change any safety facilities or signs attached to the machine! You run the risk of getting injured or even of losing your life!



Replace any damaged signs or safety facilities immediately!

The machine must stand on a level, steady and slip-proof surface!

The machine owner is obliged to lay down the tasks of the persons responsible for the correct operation of the machine!

The valid health, work and fire protection regulations must be heeded when operating the machine!

Before starting, the operation staff must check the machine, making sure that it is in operational and functional condition; any risks to persons or the machine must be ruled out!

In risky situations for persons or the machine, take the necessary steps to prevent injury or damage immediately!

Heed all safety precaution and warning signs attached to the machine!

Any staff members having been ordered to operate the machine, must read the Operation Manual, particularly the chapter "Safety Precautions", prior to starting. During operation, it might be too late! This is particularly important for persons who are not frequently employed with machine operation, e. g. maintenance personnel!

Only handle the machine, if its technical condition is faultless; use it only according to regulations, beware of danger, take no security risks and observe the OM! In case of trouble, the cause has to be sorted out straight away, particularly where security is concerned!

Special attention must be paid towards the risk of exceeding or falling below the capacity marks indicated in chapter "Technical Data"! A further potential source of danger to operational safety can be seen in the owner's omission to prevent misuse of the machine!

Unauthorised alterations are prohibited!

Do not open protective covers before pulling out the plug!

4.1.3 EMERGENCY-OFF Switch

In sudden dangerous situations for the operators or the machine, the **<u>EMERGENCY-OFF</u>** <u>**switch**</u>, marked in bright colours (red/yellow), must be activated immediately. This deactivates the drive, which can only be restarted after release of the mechanical lock.





Before releasing the EMERGENCY-OFF switch, make sure that all sources of danger have been eliminated!

4.1.4 Safety Precautions



If it is necessary to remove protection facilities for repair and setting-up works, this may only be performed with deactivated drives and secured machine! After having completed the setting-up and adjusting works, make sure to replace the protection facilities and check their proper condition and working function!

The authorised person responsible for initial operation is obliged to check the condition of the machine according to the Operation Manual!



The machine must always meet the demands on technical security before any operation may be started! This is the basic precondition for faultless machine operation! The machine must be in operational and functional condition, persons and machine must not be put at risk!

It is absolutely necessary for the operating staff to be acquainted with the function of the machine and the contents of the Operation Manual! The staff is obliged to read and understand the Operation Manual!

Any alterations of the control, switches and security devices are prohibited!

The cooling space for the electric engine must not be covered or blocked!

If they discover any faults, damage, accidents, disturbance or other irregularities, the operating staff is obliged to report to the shift leader immediately!

If persons or the machine are at risk, the necessary measures have to be taken at once!

4.2 Description of the Machine



Pos 1	On-off switch, fan, machine control	Pos 20	Hydraulic pump
Pos 2	Key start pressing operation	Pos 21	Magnetic valve
Pos 3	EMERGENCY-OFF switch	Pos 22	Tank aeration and oil filler neck
Pos 4	Fan	Pos 23	Oil level gauge, visible from the back
Pos 5	Type label	Pos 24	Oil draining screw
Pos 6	Pressure adjustment facility	Pos 30	Attachment for cutting ring presetting
Pos 7	Plug for power connection	Pos 31	Holding clip for presetting connection
Pos 8	Reception for presetting connection	Pos 32	Presetting connection
Pos 9	Reception for attachments	Pos 33	Counter-support plate
Pos 10	Carrying handle	Pos 35	Attachment with flaring cone
Pos 11	Capacity label	Pos 36	Flaring jaw set

4.3 Operation

The assembly process may be carried out with an inserted pipe only. For a working stroke without inserted pipe, the counter-support plate (pos. 33) or the flaring jaws (pos. 36) must be removed.

Ignoring these instructions can lead to tool damage.

Never come too close to the working area when the working piston is running forward or backward!

4.3.1 Cutting Ring Pre-Assembly

- The attachment for the cutting ring pre-assembly (pos. 30) is inserted in the universal seat (pos. 9).
- Adjust the assembly pressure to the digital manometer.
- Select pre-assembly connection piece and counter-support plate according to the pipe, ring and screw-fitting specifications. Check the pre-assembly connection piece with the taper gauge.
- Insert the pre-assembly connection piece in the piston rod (pos. 8) and secure it with the spring clasp (pos. 31).
- Push the counter-support plate in the reception in front of the front plate.
- Lubricate the cone in the presetting connection.
- Push the spigot nut and the cutting ring (larger diameter first) onto the pipe, which has been square cut and deburred beforehand.
- Lay the pipe with the spigot nut and the cutting ring between the counter-support plate and the pre-assembly connection piece. Make sure of the correct position of the cutting ring sealing head in direction of the presetting connection.
- Lay the pipe with the spigot nut and the cutting ring between the counter-support plate and the pre-assembly connection piece.
- Push the pipe against the stop in the pre-assembly connection piece. Hold the pipe in this position. In order to avoid jamming of the pipe, a support should be used for handling long pipes.
- Press the push-button (pos. 2) and hold it, until the assembly operation is switched off and the working piston drives back into its original position. The piston never drives back, before the set assembly pressure has been achieved.
- Take the pre-assembled pipe out of the counter-support plate.
- Use the EMERGENCY-OFF switch in risky situations or when the machine does not switch off.

• 4.3.2 Pipe Flaring

Please heed the following points when flaring a pipe:

- The quality of the used pipe must be suitable for flaring. Seamless precision steel pipe according to DIN 2391/C, Werkstoff St.35.4 NBK can be recommended, and stainless steel 1.4571 or 1.4541.
- 2. The pipe must be square cut. Face surfaces have to be deburred slightly on the in- and outside.
- 3. The pipe has to be free of chips and grease on the inner and outer surface within the area of the flaring jaws.
- 4. The expansion cone and the sliding surface of the flaring jaws need a bit of grease now and then.

Attention: The roughed-up area of the flaring jaw must remain absolutely free of grease or oil in order to avoid slipping of the pipe.

Sequence of the working processes when flaring:

- a. The attachment for pipe flaring (pos. 35) is inserted in the universal seat. When hanging in the head, please make sure, that the carrier tappet of the piston rod reaches into the internal groove of the flaring cone reception.
- b. Adjust the flaring pressure at the digital manometer (pos. 6).
- c. Spigot nut and sleeve are pushed onto the pipe before flaring. Make sure, that the thinner part of the sleeve is facing the spigot nut.
- d. Insert the flaring jaw set (pos. 36) corresponding with the pipe size into the device.
- e. Push the pipe forward in the flaring jaw bore hole, until it reaches the stop plate. Avoid canting of long pipes by using a pipe support.
- f. Press the push-button (pos. 2) and hold it, until the assembly process switches off automatically.
- g. Release the button the expansion cone is pushed back into its original position by means of spring force.

Use the EMERGENCY-OFF switch in risky situations or when the machine does not switch off.

Sequence of the working processes after flaring:

- a. Lift the pipe out of the device with the flaring jaws pointing upward.
- b. Release the flaring jaws by placing them into the milled-in groove of the flaring head and canting the pipe sideways.
- c. Check the flaring work. The flared collar must be in a rectangular and centric position to the sleeve. Check the outer diameter of the flaring work according to the demands of the manufacturer of the screw fittings.

4.4 Pressure Adjustment Table

Attention: The pressure adjustment has to be made prior to the assembly procedure. When the tools are inserted the pre assembly is to be made with tube only. Please absolutely pay attention to the correct pressure adjustment. Incorrect procedure may damage the tools.							
Stee DIN 16	el tube 530, tolere	e St 3 inces acc	7.4-NB	K Stain DIN 1745	l <mark>ess steel</mark> 8-m, tolerances a	tube 1.45/1 cc.to Din 2391 o. 24	/ 1.4541 462-D4/T4
Tube	cutting	Pre as	ssembly w	ith cutting ring	Assembly with Parker PSR	Assembly with E0-2 "FM"	flaring
Ø	steel	stainless steel	steel	stainless steel	steel and stainless steel	steel and stainless steel	steel and stainless steel
6	15	20	25	25	25	30	20
8	20	25	30	30	30	35	25
10	25	30	35	35	35	45	35
12	30	40	40	40	40	50	35
14	35	45	45	45	50	60	45
15	35	45	45	45	50	60	60
16	45	55	55	55	55	70	60
18	45	50	55	60	65	70	70
20	55	65	70	70	80	100	95
22	50	60	70	75	75	80	95
25	65	75	90	90	100	130	105
28	60	70	80	85	90	100	125
30	85	95	110	115	125	180	135
35	80	90	100	105	110	*150	155
38	105	115	135	140	170	200	165
42	95	105	125	130	140	*180	185
0	~9	90°	~	90°	~30°	* split counter support plates necessary 60°-90°	60°-90°
For the necession ubrication with cor Please	assem ary.The ed and ne gaug note th	nbly of pre as the pr ges for ne asse	thin-walle ssembly (e assemt trueness mbly ins	ed tubes s connectons oly connec s. tructions o	upport slees and flaring tions must f the fitting	ves are to t g cones hav be checked manufacture	be used if e to be regularly er.

Maintenance

5 Maintenance

The maintenance and inspection works listed below have to be carried out in the indicated time schedules. Any faults discovered have to be taken care of at once.

5.1 Safety Precautions



When carrying out any works concerning operation, production adjustment, reequipping or setting-up the machine and its safety facilities as well as inspection, maintenance and repair, please heed the instructions for switching the machine on or off found in the operation manual and the information for the upkeep of the machine!

If the machine is completely de-activated during maintenance and repair, it must be protected from accidental switching-on.

Make sure to tighten all screwed connections that have been unscrewed during maintenance and upkeep!

If it is necessary to disassemble parts of the panelling for equipping, maintaining or repairing the machine, take care to re-assemble them immediately after maintenance and repair!

The maintenance staff has to read all safety precautions of this Operation Manual carefully, before starting maintenance!

Maintenance may only be carried out by employees authorised by the owner!

5.2 Maintenance

Carry out an oil change after approx. 2000 operating hours. Please use trademarked oil according to ISOVG32 (HLP32).

Check the complete hydraulic installation and make sure it is not leaking. Leaks can only be detected and located, if the hydraulic system is cleaned frequently. The function and soiling conditions of the oil cooler have to be checked frequently.

Make sure the hydraulic hoses show no signs of damage. In reference to its functionality, according to DIN 20 066, the application continuity of a hose line must not exceed six years, including storing time. The storing period should be no longer than 2 years. Therefore, replacement of the lines must be carried out in intervals of four years.

Trouble Shooting

6 Trouble Shooting

If you have any questions concerning trouble shooting, please contact our service department.

2 ++49 (0)7424 / 9825-0

You should eliminate any occurring problems at once in order to avoid greater damage. Look for information on how to find and eliminate faults in the operation manuals of the various unit parts.

If you are having trouble with the control and the electric parts, please call an electrician; he can find the fault with the aid of the circuit diagrams and eliminate it.

The same goes for problems with the hydraulics; please call a specialist to find the error and rectify it.

6.1 Safety Precautions





All repair works bear an increased accident risk! Make sure to avoid accidental switching on by securing the main switch with a padlock!

When carrying out any works concerning operation, production adjustment, reequipping or setting-up the machine and its safety facilities as well as inspection, maintenance and repair, please heed the instructions for switching the machine on or off found in the operation manual and the information for the upkeep of the machine!

All security facilities have to be replaced and their functions checked after carrying out any of the works mentioned above!

Wipe away any oil, fuel or cleansing agents on the machine surface, particularly on the connections and screw fittings, before starting with maintenance/repair! Never use aggressive cleansing agents! Provide non-fraying cleansing cloths!

Make sure to tighten all screwed connections that have been unscrewed during maintenance and upkeep! Never leave tools or maintenance materials lying around in the working area!

6.2 First Reactions Following Malfunctions

Malfunction	Possible cause	Remedy
the engine is not	supply lines are not connected	check and connect, if
running	the socket is dead	necessary
	emergency-off switch is activated	call an electrician
	on-switch is not activated	 switch off after the
		emergency situation has
		been taken care of
		 activate on-switch

Appendix

7. Appendix

Guidelines and Standards

The following guidelines and standards were applied for the construction of the Variomat:

Guidelines:

- Machine guideline 98/37/EG
- Low voltage guideline 73/23/EWG
- Electro-magnetic tolerance 89/336/EWG, 92/31 EWG and 93/68/EWG

Standards:

For the machine guideline:

- DIN EN 294
 Machine safety, margins of safety against contacting dangerous points with the upper limbs
- DIN EN 418

Machine safety, emergency-OFF facilities, functional aspects, basic presentation principles

• DIN EN 563

Machine safety, temperature of surfaces within reach. Ergonomic data for the determination of temperature limit values for hot surfaces

• DIN EN 614:

Machine safety. Ergonomic presentation principles

• DIN EN 809

Machine safety, pumps and pump units for fluids, general safety-relevant requirements

• DIN EN 894 1 and 2

Machine safety. Ergonomic requirements for indicators and adjusting elements

• DIN EN 1050

Machine safety. Basic principles for risk valuation

• DIN EN ISI 12100 Part 1 and 2:

Safety of machinery - Basic concepts, general principles for design

Part 1: Basic terminology, methodology

Part 2: Technical principles

Concerning the low voltage guideline:

Appendix

• DIN EN 60204

Electric equipment of machines part 1: General requirements

For the EMV-guideline:

• DIN EN 50081

Machine safety: Electro-magnetic tolerance Basic technical standard: interference emission part 1: Living space, business and commercial areas and small businesses part 2: Industrial areas

• DIN EN 50082

Machine safety: Electro-magnetic tolerance Basic technical standard: Interference resistance part 1: Living space, business and commercial areas and small businesses part 2: Industrial areas

Hydraulic Circuit Diagram



SAFETY DATA SHEET



1. Identification of the substance/preparation and company/undertaking

Product name	₩itam DE 46
SDS no.	# 56354
Use of the substance/preparation	Hydraulic fluid For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Supplier	Deutsche BP Aktiengesellschaft Industrial Lubricants & Services Erkelenzer Straße 20, D-41179 Mönchengladbach Germany
	Telefon: +49 (0)2161 909-319 Telefax: +49 (0)2161 909-392
	Aral AG Geschäftsbereich Schmierstoffe Max-Born-Str. 2 D-22761 Hamburg
	Customer Service Center / Environmental Protection / Product Safety: +49 (0)40 3594-05
EMERGENCY TELEPHONE NUMBER	Carechem: +44 (0) 208 762 8322
E-mail address	MSDSadvice@bp.com

2. Hazards identification

Additional hazards

This preparation is not classified as dangerous according to Directive 1999/45/EC as amended and adapted.

Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

3. Composition/information on ingredients

Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives. This product does not contain any hazardous ingredients at or above regulated thresholds.

4. First-aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms appear.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately.
Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects.
	Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

Product name	<mark>∲</mark> ítam DE 46	Product code #5	6354-DE04	Page: 1/5
Version 4	Date of issue 19 May 2009	Format Germany	Languag	e ENGLISH
		(Germany)		(ENGLISH)

5. Fire-fighting measures

Extinguishing media	
Suitable	In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.
Not suitable	Do not use water jet.
Hazardous decomposition products	Composition products may include the following materials: carbon dioxide carbon monoxide
Unusual fire/explosion hazards	None identified.
Special fire-fighting procedures	None identified.
Protection of fire-fighters	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment (see section 8).	
Environmental precautions	woid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).	
Large spill	Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.	
Small spill	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.	
7. Handling and sto	rage	

HandlingWash thoroughly after handling. Avoid strong oxidisers.StorageKeep container tightly closed. Keep container in a cool, well-ventilated area.Not suitableProlonged exposure to elevated temperature.

8. Exposure controls/personal protection

Date of issue 19 May 2009

Version 4

Ingredient name	Occupational exposure limits			
ACGIH TLVs				
₿ase oil - unspecified	ACGIH (United States). STEL: 10 mg/m ³ 15 minute(s). Form: Mineral oil, mist TWA: 5 mg/m ³ 8 hour(s). Form: Mineral oil, mist			
For information and guidance, the A	CGIH values are included. For further information on these please consult your supplier.			
Whilst specific OELs for certain com produced. Therefore, the specific OE	ponents may be shown in this section, other components may be present in any mist, vapour or dust ELs may not be applicable to the product as a whole and are provided for guidance only.			
Exposure controls				
Occupational exposure controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.			
	All chemicals should be assessed for their risks to health and appropriate control measures put in place to prevent or adequately control exposure. A hierarchy of control measures exists (e.g. elimination, substitution, general ventilation, containment, systems of work, changing the process or activity) that must be considered before use of personal protective equipment. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained. Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.			
	The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.			
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.			
Personal protective equipment				
Respiratory protection	Respiratory protective equipment is not normally required where there is adequate natural or local exhaust ventilation to control exposure. In case of insufficient ventilation, wear suitable respiratory equipment. Respiratory protective equipment must be checked to ensure it fits correctly each time it is worn.			
	Air-filtering respirators, also called air-purifying respirators, will not be adequate under conditions of oxygen deficiency (i.e. low oxygen concentration), and would not be considered suitable where airborne concentrations of chemicals with a significant hazard are present. In these cases air-supplied breathing apparatus will be required.			
	Provided an air-filtering/air-purifying respirator is suitable, a filter for particulates can be used for mist or fume. Use filter type P or comparable standard. A combination filter for particles and organic gases and vapours (boiling point >65°C) may be required if vapour or abnormal odour is also present due to high			
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Hand protection	product temperature. Use filter type AP or comparable standard. Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves.		
	Recommended: nitrile gloves		
	Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis. The frequency of replacement will depend upon the circumstances of use.		
Eye protection	Safety glasses with side shields.		
Skin and body	Use of protective clothing is good industrial practice.		
	Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.		

9. Physical and chemical properties

General information			
Appearance			
Physical state	Liquid.		
Colour	Amber.		
Odour	Oily.		
Important health, safety and environmental information			
Flash point	Øpen cup: 225°C (437°F) [Cleveland.]		
Viscosity	Kinematic: 46 mm²/s (46 cSt) at 40°C Kinematic: 6.8 mm²/s (6.8 cSt) at 100°C		
Pour point	-15 °C		
Density	875 kg/m³ (0.875 g/cm³) at 15°C		
Partition coefficient (LogKow)	▶3		

10. Stability and reactivity

-	-
Stability The product is stable.	
Possibility of hazardous reactions	Moder normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Materials to avoid	Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	Combustion products may include the following: carbon oxides
	Vinder normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

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Acute toxicity	Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.	
	Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.	
	Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea.	
	At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of low volatility. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.	
Chronic toxicity		
Chronic effects	No known significant effects or critical hazards.	
Effects and symptoms		
Eyes	No significant health hazards identified.	
Skin	No significant health hazards identified.	
Inhalation	No significant health hazards identified.	
Ingestion	No significant health hazards identified.	

12. Ecological information

Persistence/degradability Mobility	Inherently biodegradable Spillages may penetrate the soil causing ground water contamination.
Bioaccumulative potential	This product is not expected to bioaccumulate through food chains in the environment.
Environmental hazards	Not classified as dangerous.
Other ecological information	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

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13. Disposal considerations

Disposal considerations / Waste information	The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
Unused product	
European waste catalogue (EWC)	13 01 10* mineral based non-chlorinated hydraulic oils However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

14. Transport information

Not classified as hazardous for transport (ADR/RID, ADNR, IMDG, ICAO/IATA)

15. Regulatory information

Classification and labelling have been performed according to EU directives 1999/45/EC and 67/548/EEC as amended and adapted. Label requirements

Risk phrases	This product is not classified according to EU legislation
Other regulations	
Europe inventory	M components are listed or exempted.
United States inventory (TSCA 8b)	M components are listed or exempted.
Australia inventory (AICS)	All components are listed or exempted.
Canada inventory	All components are listed or exempted.
China inventory (IECSC)	MI components are listed or exempted.
Japan inventory (ENCS)	MI components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
Hazard Class for water (WGK), according to VwVwS	Appendix No. 4

16. Other information

History	
Date of issue/ Date of revision	19/05/2009.
Date of previous issue	30/01/2007.
Prepared by	Product Stewardship
Notice to reader	

Indicates information that has changed from previously issued version.

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken.

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Schwer Fittings GmbH Hauptstrasse 150 D-78588 Denkingen Tel.: +49 (0) 74 24-98 25-0 Fax: +49 (0) 74 24-98 25-90 info@schwer.com



Schwer Fittings S. L. Poligono Malpica Gr. Gregorio Quejido, nave 31 E-50016 Zaragoza Tel.: ++34 976 46 56-60 Fax: ++34 976 46 56-63 info@schwer.es



Schwer Fittings Ges. m. b. H. Wiener Strasse 229 A-4020 Linz Tel.: +43 (0) 732-34 19 33-0 Fax: +43 (0) 732-34 19 33-20 info@schwer.at



Schwer Fittings BV Spegelt 5 NL-5674 CE Nuenen Tel.: +31 (0) 40-28 42-750 Fax: +31 (0) 40-28 42-960 info@schwer.nl



Titon AG · Letzistrasse 29 CH-9015 St. Gallen-Winkeln

Unsere Vertretung:

Schwer Fittings Oy Konttisentie 8 FIN-40800 Vaajakoski puh: ++358 (0)20-7479320

fax: ++358 (0)20-7479321 info@schwer.fi



Schwer Fittings Ltd. Unit 20, Wharf Employment Area Howley Warrington Cheshire WA1 2HT Tel.: +44 (0) 19 25 63 90-06 Fax: +44 (0) 19 25 63 90-07 info@schwer.co.uk



Schwer Fittings s. r. o. Líšťanská 499 CZ-330 33 Město Touškov Tel.: +420 37 79 230-30 Fax: +420 37 79 230-20 info@schwer.cz



Schwer Fittings SARL PAE de Pre-Mairy 86 route du Vieran F-74370 Pringy Tel.: +33 (0) 450-66 94-00 Fax: +33 (0) 450-66 94-50 info@schwer.fr



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Schwer Fittings s. r. o. Hodžova 6 prevádzka: Kollárova 90 SK-03601 Martin Tel.: +421 (0) 434 007 577 Fax: +421 (0) 434 007 500 info@schwer.sk



Schwer Fittings srl Via Fiume 8 I-37135 Verona Tel.: ++39 0 45-50 01 09 Fax: ++39 0 45-8 20 35 46 info@schwer.it



Schwer Fittings Sp. z o.o. ul. Oleska 34 PL-42-700 Lubliniec Tel.: +48 (0)34-351 33 30 Fax: +48 (0)34-351 00 11 info@schwer.pl



Schwer Fittings GmbH • Hauptstrasse 150 • D-78588 Denkingen • Tel.: +49 (0) 74 24 / 98 25-0 Fax: +49 (0) 74 24 / 98 25-90 • info@schwer.com • www.schwer.com