User Guide

KSO

BRUNNER®

made in germany.

CONTENTS

Please read the entire User Guide before lighting the fire for the first time. In particular, please note the safety precautions in this manual.

The intended use is provided if the operation specified in these instructions is observed.

The non-observance of installation and operating instructions will void the warranty. Any constructional modifications made by the system operator are not allowed!

Installation must be carried out by an authorized stove-fitter, because safety and efficiency of the system depend mostly on proper installation of the product. All valid stove fitting rules and regulations of building law must be observed and followed.

This fireplace is subject to the provisions of BImSchV (Federal Emission Protection regulation).

Necessary national and European standards and local regulations must be observed.

Please follow the relevant regulations of your country. In case of doubt, check the valid conditions for the operation of fireplaces in your local area.

Subject to technical changes!

Please keep the User Guide for future reference!

For an extended product waranty and a good processing of spare parts deliveries, we recommend carrying out the BRUNNER product registration on (www.produktregistrierung.brunner.de).

1 NOTE TO THE CERAMIC GLASS PANE

BRUNNER uses only high quality glass ceramic.

In a special manufacturing process, the glass panes become cerammed and acquire their unique features.

During this process, it is technically not possible to exclude all optical impairments (fine scratches, solid in-clusions, tiny air bubbles)*) .These must be accepted as results of current technology status, and cannot be considered as reasons for complaint.

*) - max. 3 air inclusions or solid inclusions < 4mm are accepted, however, no air inclusions protruding to the glass surface with opening larger than 1mm.
- décor defects smaller than 1mm are allowed as manufacturing tolerances.

2 SAFETY PRECAUTIONS

First start-up

The paint coat of the stove is not completely hardened before reaching normal operating temperature for the first time. Smoke emissions and unpleasant odours cannot be excluded. Therefore, provide sufficient ventilation of the room when lighting the fire. Open all doors and windows, use an electric fan if necessary, to ensure faster air exchange within the room. During first operation try to avoid staying in this room for too long, if possible.

Fireplace/stove door

The fireplace door should be opened only for loading firewood or cleaning. When the fireplace door is opened, other fireplaces connected to the same chimney might be affected. Under certain circumstances this can lead to risk of flue gas poisoning. The fireplace door must stay closed even if the fire is not burning.

Combustion air supply

Structural installations for combustion air supply must not be changed. Regular checks must be carried out to ensure that they are functioning properly.

Permitted fuels

Only use the fuels named in the instructions, in the quality and size specified there. Other fuels are not permitted.

Risk of burns

External surfaces of the fireplace, in particular the glass door, may get very hot. Do not touch - risk of burns! Remember to warn your children about this. Basically, children should stay away from a burning stove.

Always use the supplied operating tool/protective glove for operation!

Fire hazard

Distance to the cladding

Objects made of flammable materials may not be placed on available surfaces of the fireplace.

Flammable textile fabrics must have a minimum distance of **5 cm** from the vertical surfaces of the fireplace.

Air gratings

Do not close or cover up the warm air vents of your fireplace. Risk of fire or overheating!

Prohibited fuels

Never use substances as petrol or alcohol to light a fire!

Unsuitable type, qualitiy or quantity of fuel can lead to damage.

Remove cold ashes

Remember to remove only cold ashes from the fireplace. For your own security, store the ashes in a fire-resistant container for at least 24 hours before you dispose of them.

Chimney fire

In case of fire call the fire brigade immediately!

In the case of chimney fire move all flammable parts and elements away from the chimney.

Cleaning and maintenace

The functionality and safe operation of the fireplace depend on regular cleaning and professional maintenance.

Fireplaces with electronic control units

After closing the fireplace door a message must be displayed, informing that the combustion has been started (see User Guide of the control system)! If this is not the case, the door contact switches are defective! Risk of deflagration! Consult your stove fitter and follow the instructions in chapter “Manual adjusting of combustion air in the case of emergency” of the User Guide for the control system.

Heat radiation range

Flammable objects of any kind must be kept outside the heat radiation range of 80 cm in front of the glass door! Fire hazard! Do not leave any flammable objects in front of the fireplace door. Inside the heat radiation range no objects with flammable parts are allowed.

3 DEVICE DESCRIPTION

The KSO is a storage stove designed for wood fuel for heating residential units. The heat generated during combustion is absorbed by the ceramic components and given off to the room mainly as radiant heat via the stove shell. The period of heat emission is significantly longer than the heating process, referred to below as “storage tank loading”.

The stove consists of a combustion chamber with a top-mount accumulator, which is encased by cladding elements. Combustion chamber and top-mount accumulator are made up of two shelled molded parts made of high-quality materials.

The cladding can be designed in different shapes and made of different materials.

High-quality cast iron and special glass ceramic are used for the combustion door.

The KSO is available with manual combustion air adjustment and - optionally - the electronic combustion control EAS. If the device is operated with EAS, the instructions for EAS must also be observed.

4 BASIC RULES FOR OPERATION

The service life and functionality of the heating insert depend on correct assembly, proper operation and regular care and maintenance.

The fireplace doors should be opened only for loading firewood or cleaning. BRUNNER heaters are designed and optimized for closed operation. When the fireplace door is open, other fireplaces connected to the same chimney might be impaired. Under certain circumstances this could lead to a risk of flue gas poisoning. The fireplace door must always stay closed, even if the fire is not burning.

Avoid overheating the device! The oven will overheat if it is loaded with more than the specified maximum amount or if sufficient heating pauses are not observed.

Stoves and fireplaces from Ulrich Brunner GmbH are designed for periodic burning. It means that always a minimal amount of firewood has to be loaded and the combustion air must be adjusted according to the following instructions. Insufficient volumes of combustion air will lead to higher emissions and increased staining of the glass door.

Avoid risk of overheating! If the stove temperature is often too high, this can cause discolorations, especially in the case of stainless steel frames. Such defects do not constitute a reason for a claim.

Stoking wood

For stoking up we recommend to use a protective glove or the “cold hand” (delivered with some models), because the door handle gets very hot after several hours of burning. Open the door slowly. This will avoid turbulences, which could draw the smoke into the room. The right time for stoking up is when the wood turned almost completely into glowing embers.

Heating with accumulation stoves

When using your accumulation stove with ceramic storage mass, please keep the following heating intervals.

First put the maximal load of wood inside the stove, then light up from above and let it burn. After combustion ends, wait for approx. one hour, then put half the load of wood. After another hour has passed from combustion end, put half the load of wood again, if required. These steps can be repeated after a heating pause of eight hours. If more wood is loaded over a short time, this can result in overheating and storage mass damage.

Please ask your stove setter for the allowed loads and heating intervals. Different heating intervals will apply, when the stove is operated for the first time!

Heating between seasons

The fireplace needs a chimney draught for combustion air suction and flue gas exhaust. This chimney draught is reduced, when outdoor temperatures begin to rise. When outdoor temperature exceeds 10°C (50°F), please check the chimney draught before lighting fire.

Im. 1:
Chimney draught test

Damper flap adjustment

If an optional damper flap* has been installed, it has to be opened completely when the fire is lit. For normal operation with closed door, the damper flap can be closed up to 2/3, depending on chimney draught.

* The damper flap is installed in the flue pipe connecting piece between the heating insert and the chimney and regulates the chimney draft.

Combustion air supply

Proper functioning of a fireplace depends on the volume of combustion air streaming into the room. Sufficient air supply must be ensured before fire is lit. If an outside air flap is installed, it has to be opened and must be left open as long fire is burning. Installed combustion air supply devices cannot be modified.

Structural changes to the building

If changes are planned and made in or on the building, the conditions for safe and proper operation of the fireplace can be significantly disrupted. The prerequisites for safe operation of the fireplace must therefore be checked by a specialist in the event of changes.

Such changes can be:

- Installation of an additional fireplace
- structural changes to the chimney
- Installation or modification of ventilation devices, e.g. extractor hood, toilet or bathroom ventilator, controlled ventilation
- Installation or modification of corresponding household appliances, e.g. exhaust air tumble dryer, central vacuum cleaner system
- Changes to the building's tightness, e.g. through the installation of new windows or doors, insulation of roof surfaces, full thermal insulation

Combustion chamber linings

Important note: Single cracks on fire-resistant combustion chamber linings are no reason for concern.

These exactly dimensioned fireclay plates are manufactured specially for our fireplaces. They are baked at 1100°C and serve as fire-resistant protection of steel or cast-iron fireboxes, which significantly extends their service life. Most different temperature strains, as well as mechanical impacts can (or actually will) cause small cracks on these plates. This is absolutely normal and safe, and does not constitute a reason for a claim.

What is not normal, are chips of stone falling off, or noticeable, star-shaped cracks on several levels.

Black / anthracite combustion chamber linings may show color changes during use. This is a normal, unavoidable process and does not constitute a reason for reclamation.

If the following points are taken into account, the black colour of the fsurface will remain intact for a long time:

- Operation as intended with the recommended filling quantities (surface temperature of fireclay < 700°C).
- No treated or coated wood, coal or liquid fuels; only natural wood with residual moisture <20%.
- Do not clean the surfaces with steel/wire brushes or cleaning agents.

Viewing glass

When loading wood into the stove, make sure to avoid the falling of wood onto the viewing glass, where it could burn in contact with the glass. The resulting thermal stress could lead to permanent discolorations (grey stains) on the viewing glass.

Door sealing ropes

BRUNNER is using only high-quality door sealing ropes, which are exactly adapted to the requirements of our heating devices.

Yet the door sealings are wear parts, and therefore are not covered by our product warranty.

If the stove is operated as intended, the normal lifetime will be significantly longer.

Overheating, due to loading more wood as described in the operating instructions, direct contact with burning particles (charcoal), as well as use of unsuitable and aggressive cleansing agents may reduce the product lifetime considerably.

* The damper flap is installed in the flue pipe connecting piece between the heating insert and the chimney and regulates the chimney draft.

5 FIREWOOD AND HEATING POWER

The combustion process in our devices has been optimized to enhance their performance and reduce emissions. You can support our efforts to protect our environment by respecting the following recommendations for low-emission heating: Use only dry, natural wood with a residual humidity factor below 20%, or wood briquettes according to DIN EN 17225-3.

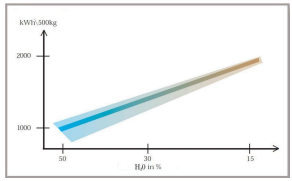
Damp, freshly cut or improperly stored wood has a high water content, therefore does not want to burn, makes a lot of smoke and gives not much of heat. Use only firewood which has been stored for at least two years in a dry place with sufficient air circulation. Because dry wood is much more calorific, you can save on fuel costs.

For example: Dry wood has a calorific value of approx. 4 kWh/kg, freshly cut wood only 2 kWh/kg. You will need twice the amount of wood to achieve the same heating power.

	Water content g/kg wood	**Calorific value kWh/kg**	**Consumption raised by %**
very dry	100	4,5	0
stored for 2 years	200	4	15
stored for 1 year	350	3	71
freshly cut wood	500	2,1	153

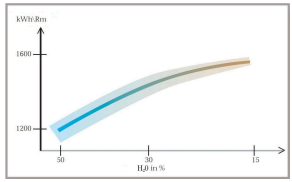
Natural firewood (left) is the best fuel for fireplaces, but you can use also wood briquettes according to DIN 17225-3, Class A1, length >14 cm (5.51 in), diameter >8 cm (3.15 in) (right).

What amount of heat will I get when buying wood per weight?



1 cubic meter freshly cut wood	Water content 50%	500 kg x 2,0 kWh/kg = 1000 kWh
1 cubic meter dried wood	Water content 30%	500 kg x 3,3 kWh/kg = 1650 kWh
1 cubic meter dry wood	Water content 15%	500 kg x 4,1 kWh/kg = 2050 kWh

What amount of heat will I get when buying wood per volume (1 cubic meter = 1 m3)?



1 cubic meter freshly cut wood	Water content 50%	1286 kWh
1 cubic meter dried wood	Water content 30%	1518 kWh
1 cubic meter dry wood	Water content 15%	1550 kWh

Most suitable for use in open fireplaces are all types of hardwood, like beech or birch. Softwood species (conifers) have a closed-cell structure which is bursting during combustion, causing glowing embers to be thrown out of the fireplace. Hardwood is burning more calm and evenly.

You can control the heat radiation intensity by volume of wood and the intervals for stoking up.

Adjusting the heat by reducing the volume of combustion air is wrong! If there is not enough combustion air available, the energy contained in firewood cannot be completely released. At the same time, the emissions are rising due to unburned particles.

Too much of firewood or inappropriate fuel types can cause overheating and damage.

No kind of waste shall be burned in a fireplace!

Waste on fire = Toxins in your garden!

Never use combustible fluids, like petrol or alcohol to light a fire!

Mind the waste incineration ban!

Remember to use only the recommended fuels described in this User Guide. Unsuitable, not recommended fuels are not allowed to be burned in a fireplace.

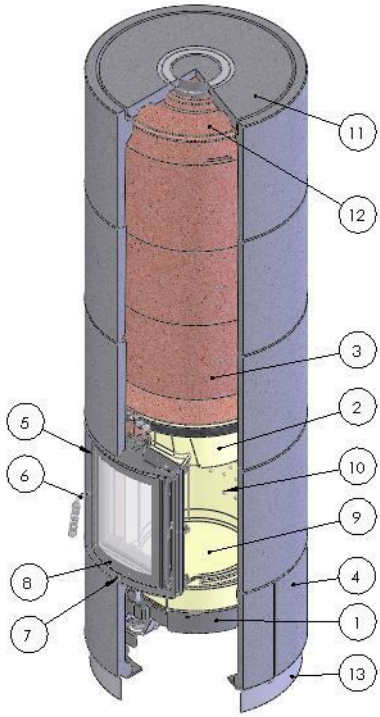
Loads of firewood KSO

KSO	Load weight per each burning min. max.	Log length	Feed quantity for storage tank loading	Heating pause after loading
KSO 33 r	2,0 kg - 4,0 kg	33 cm	4,0 kg + 4,0 kg	8 h
KSO 33 q	2,0 kg - 4,0 kg	33 cm	4,0 kg + 4,0 kg	8 h

Loading too much wood into a KSO stove or using improper fuel may cause overheating and risk of fire!

6 DESCRIPTION OF PARTS

Pos.	Components
1	Base frame
2	Combustion chamber
3	Top-mount accumulator
4	Cladding
5	Firing door
6	Door handle
7	Combustion air adjuster (only with manual control variant)
8	Air setting icons
9	Bottom plate combustion chamber
10	Rear wall with air vents
11	Cladding cover
12	Cover top-mount accumulator
13	Base plate



7 ADJUSTING OF COMBUSTION AIR

Combustion air is supplied directly into the fireplace through a separate air connection. The combustion air flap is integrated in the front assembly, and for manually operated fireplaces it can be controlled by hand using a control element.

For fireplaces with electronic control unit (EAS / EOS), please follow the instructions of the user guide provided with the fireplace insert.

Lighting up:

Air control element in left position.
Lighting fire in a cold fireplace or maximum burning power.

Rated power:

Air control element in middle position.
Air supply set to normal burning with rated power.

Glow position:

Air control element in right position.
Air supply setting for keeping embers. All air supply openings are closed.

CAUTION: Risk of deflagration! The 'Glow' position cannot be chosen until flames are visible.

Respect the ventilation requirements for simultaneous operation with other fireplaces.

Pay particular attention to the requirements for operation together with ventilation systems.

The simultaneous operation of ventilation or exhaust air systems (extractor hood) and the fireplace can negatively affect the combustion air supply to the fireplace. This must be reliably prevented by suitable technical equipment.

8 LIGHTING THE FIRE IN A COLD FIRE-PLACE

1 Make sure that the level of ashes is not too high. Maximum level: 3 -5 cm below door frame. If the level of ashes is too high, glowing embers can fall out of the fireplace when stoking up wood.
2 Set the control element into position for lighting up. Combustion air can now stream intensively on the firewood for faster flaming up.
3 Load some chopped firewood loosely into the fireplace. Put a good fire-starter, such as Fidibus between the logs and light the fire. Fire-starters are practical fire starting aids, which should be placed under or in front of the wood. Please note: big logs are not easy to light and heavy to burn in a cold fireplace. Never use petrol or alcohol as aids for lighting fire!
4 Close the fireplace door and watch the burning flames for some time before you go. If the fire goes out, open the door slowly, put a new fire-starter between the logs and light up again.
5 When the fire was lit successfully, the combustion air control element can be set to rated power position.
6 If the lightning process was successful, the combustion air control element can be set to the nominal heat output position, if desired.
7 If you do not wish to stoke up more wood, move the control element into Glow position as soon as no flames are visible, to avoid temperature loss through unnecessary streaming of air into the fireplace. You cannot choose this control element position during combustion and degassing of wood, because this will cut off air completely and the fire goes out. In case of rapid air streaming from the room (when fireplace door is opened) it is possible that the gases “trapped” inside the combustion chamber and downstream radiators/accumulators will suddenly react with oxygen and explode (deflagration).

9 STOKING UP IN A WARM FIREPLACE

1 Move the combustion air control element into position for lighting up and put a desired amount of logs on the glowing embers. After wood is laid on the embers it gets warm, moisture is driven out and evaporates. This will reduce temperature of the combustion chamber. At the same time, the volatile particles driven out of wood will need a lot of air to pass through this critical phase and flame up fast to reach high temperature required for clean combustion.
2 When the fire is burning bright, the combustion air control element can be set to rated power position.
3 If you do not wish to stoke up more wood, move the control element into Glow position as soon as no flames are visible, to avoid temperature loss through unnecessary streaming of air into the fireplace. You cannot choose this control element position during combustion and degassing of wood, because this will cut off air completely and the fire goes out. In case of rapid air streaming from the room (when fireplace door is opened) it is possible that the gases “trapped” inside the combustion chamber and downstream radiators/accumulators will suddenly react with oxygen and explode (deflagration).

Another hint: Use always smaller pieces of wood for lighting up. These will flame up faster and cause temperature in the combustion chamber to increase. The bigger and thicker logs are better for stoking fire. Some sorts of wood briquettes can swell during combustion, i.e. they expand under heat and their volume increases. That kind of fuel must be placed always close to the back wall of combustion chamber, to prevent contact with glass door.

Some types of wood briquettes swell in the firebox, i. H. they expand under the effect of heat and increase in volume. Always place the wood logs close to the rear wall so that no parts of the fuel touch the pane even if it slips off.

10 CLEANING

Notes on cleaning and maintenance

All cleaning operations must be carried out while the fireplace is cold – Risk of burns!

Asche nur in nichtbrennbare und verschließbare Behälter füllen -> Brandgefahr durch Restglut in der Asche!When cleaning the glass panes: Use cleaning agents sparingly and prevent soaking of the seals!Do not brush off sealing cords or clean them mechanically in any other way!Under no circumstances should you use abrasive or aggressive cleaning agents!Hardened seals can lead to glass breakage!

When cleaning the glass panes: Use cleaning agents sparingly and prevent soaking of the seals!

Do not use brushes or any other mechanical means to clean sealing ropes!

Never use abrasive or aggressive cleaners!

Curing of the sealing rope can lead to glass breakage! Replace it when necessary!

Damage of sealing ropes arising from inappropriate operation or cleaning are excluded from warranty.

Remove the ash from the combustion chamber

Work steps	when	Note	who
Controll the ash height	if necessary	The ash height must not rise to the lower edge of the door, otherwise there is a risk that embers will fall out when the door is opened and the door seal will be damaged by pieces of embers lying against it. Ash must not get into the combustion air nozzles in the rear wall of the combustion chamber.	Operator
Remove the “excess” of ash	if necessary	The stove should always have a minimum of ash bed to keep the embers longer. Therefore, do not empty the stove completely, but only remove the “excess” of ash when it is cold with an ash vacuum cleaner (available from your stove fitter). operator	Operator
Store ashes safely		Observe safety instructions	Operator

Cleaning the ceramic glass pane

Work steps	when	Note	who
Removal of a light deposit	if necessary	Cleaning glass from dirty residues can be done easy with a piece of wet paper towel.	Operator

Work steps	when	Note	who
Remove stubborn dirt	if necessary	Take a kitchen paper, moisten it with clear water and dab it into the pure wood ash in the stove. This will loosen the dirt, which can be wiped off first with a damp paper towel, then with a dry one. **During cleaning of glass, please protect the sealing ropes against getting wet.** Lifetime of sealing ropes will be significantly shorter, if they are soaked by fluids or cleaning agents.	Operator

Control of the combustion air supply

Work steps	when	Note	who
Air vents in the rear wall	if necessary	If ash clogs the air vents in the rear wall, they can be cleaned with a vacuum cleaner. Ash residues that fall backwards are accessible from above after removing the floor stone and the floor cover.	Specialist
Combustion air adjuster	if necessary	The combustion air adjuster is accessible from above after removing the base stone. Clean if necessary. Ease of movement can be improved with heat-resistant dry lubricant.	Specialist
Supply air line (if available)	once a year	Check and - if necessary - clean the devices for the combustion air supply.	Specialist

Cleaning of the top-mounted accumulator

Work steps	when	Note	who
Remove the cladding cover	once a year	If the exhaust flue pipe is connected upwards, first remove the pipe, then remove the cover. Lid is loosely applied.	Specialist
Remove the cover of the top-mounted accumulator		The top-mounted accumulator is covered with two cover plates. Lift both up. Vacuum off adhering soot.	
REmove deposits and bottom soot		You have to vacuum deposits and bottom soot of the top-mounted accumulator, from above.	
Put on the cover of the top-mounted accumulator		Put on the cover of the top-mounted accumulator. Make sure the seals are seated correctly - replace seals if necessary.	
Set on the cladding cover		Put the cover on loosely and, if necessary, connect and seal the exhaust flue pipe.	

Flue pipe

Work steps	when	Note	who
Clean the flue pipe	yearly	Clean the pipe, vacuum the fly ash. Fit the flue pipe tightly.	Specialist

Check the chimney for blockages after long periods of non-use.

11 DISPOSAL

Old equipment contains valuable materials that must be recycled. Observe the applicable national legal regulations for disposal.

Danger of electrocution.

Electrical connections of the furnace system are under mains voltage. This can lead to electric shock.

Switch off the power supply

Secure power supply against restart.

Old metal parts can be disposed of as metal recycling.

Electrical and electronic components must be disposed of as electronic waste. Fireclay linings can be disposed of as rubble.

Fireclay linings can be disposed of as rubble.

Dispose of insulating and insulating materials of the heating or fireplace insert in a closed container on a suitable waste disposal site.

Do not put the glass ceramic discs in the waste glass collection container! The glass panes can be disposed of as normal household waste.

12 TROUBLESHOOTING

Problem	Cause	Solution
Smoke is coming out into the room	The combustion air adjuster is set to ‘Keeping embers’.	Set the combustion air adjuster in ‘fire starting’ position.
	Unfavorable weather conditions; insufficient chimney draft.	Call your chimney sweep.
	A room ventilator (e.g. extractor hood) or mechanical ventilation system is causing negative pressure in the room, which is stronger than the chimney draft.	Turn off the room ventilator or mechanical ventilation system. Install a negative pressure monitoring device (e.g. Brunner USA).
	Combustion air supply is blocked.	Call your fireplace contractor.
	The smoke pipe connecting piece between fireplace insert and chimney is blocked.	Please clean the smoke pipe connecting piece (this is usually not a chimney sweep’s job).
	The chimney is blocked.	Call your chimney sweep.
	Unsuitable fuel	Wood is damp or too big pieces of firewood are used. Please use the recommended fuel as indicated in these instructions.
Unusual smell	Deposits of dust	Heat up the stove strongly. Provide for ventilation.

Problem	Cause	Solution
Glass panes are often dirty	Unsuitable fuel	Wood is damp or too big pieces of firewood are used. Please use the recommended fuel as indicated in these instructions.
	Insufficient combustion air supply	Put the combustion air adjuster into ‘fire starting’ or rated power position. Check the combustion air supply and smoke outlet. Call your fireplace contractor, if possible.
	Insufficient chimney draft	Call your chimney sweep.
Condensate build-up	Too damp wood is being used.	Please use the recommended fuel as indicated in these instructions.
	Insufficient combustion air supply	Put the combustion air adjuster into ‘fire starting’ or rated power position. Check the combustion air supply and smoke outlet. Call your fireplace contractor, if possible.

13 NOTE

In case of damage to the fireplace or other parts of the system, please contact your stove fitter immediately. In case of severe damage of door sealing ropes - do not use the fireplace.

To ensure safe operation of the system, remember to use only genuine replacement parts.

Modifications on devices can be made only by persons with manufacturer's authorization.

The warranty expires if the device has not been used as intended. Intended use includes reading and following the instructions of this User Guide.

It is necessary to follow any other relevant instructions, like the “Operating instructions for tiled stove water boilers”!

My stove fitting company:

Ulrich Brunner GmbH
Zellhuber Ring 17-18
D-84307 Eggenfelden
Tel.: +49 (0) 8721/771-0 / Fax: +49 (0) 8721/771-100
Email: info@brunner.de

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