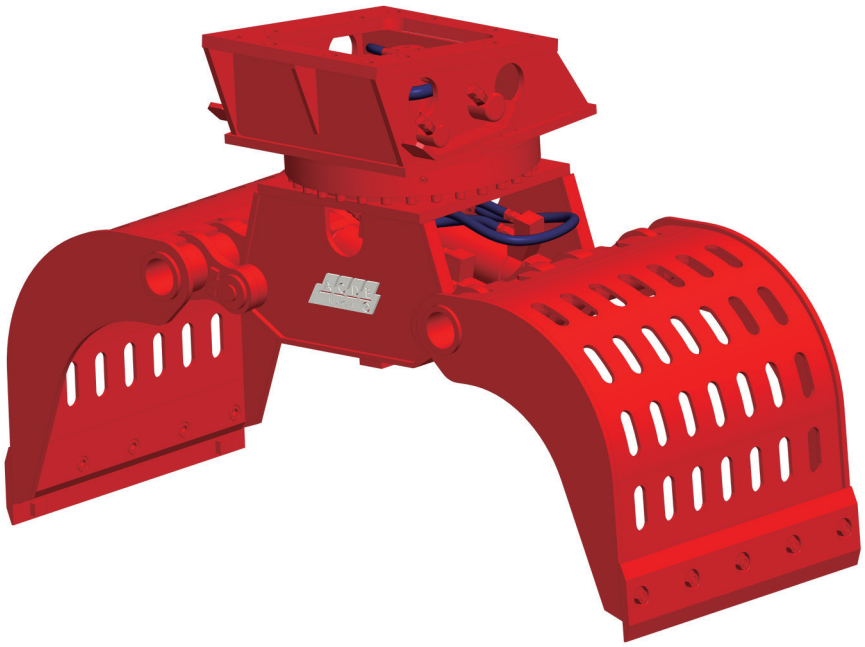
ASG SERIES

OPERATION MANUAL
Demolition & Sorting Grapple

- Translation of the original operating instructions -



More information can be found on the following website:
www.acde-europe.com

Version ASG-M-GB-01-01-2026

FOREWORD

- First of all,we appreciate you for purchasing an ACDE Demolition & Sorting Grapple.
- The Demolition & Sorting Grapple, designed and built to provide durable operation under any working conditions, has been developed by ACDE's excellent engineering techniques with accumulated experiences for many years. Without proper handling, regular inspection and maintenance, however, the machine fails to display its full capacity, resulting in various troubles of machine parts.
- This publication should be carefully read prior to installation and operation in order to prevent any mishandling of Demolition & Sorting Grapple.
- Keep the manual in the place where you can read and use it at any time.
- The structure of the product may not be changed without the permission of the Company. It is not allowed to operate the product outside the specified range of purpose; otherwise, you will not enjoy the warranty of the Company.
- The Company will not be responsible for any damage caused by improper operation and use of other parts except the original parts of the Company.
- The operator must take personal safety protection measures and confirm the safety of the surrounding environment, people and objects to avoid accidents when using the product for operation.
- For the contents or the descriptions that are not detailed enough in this Manual, please consult the agent or the After-sales Service Department of the Company.

--------ACDE EUROPE AG

CE-Konformitätserklärung
EC Declaration of Conformity
Déclaration de conformité CE
EU-conformiteitsverklaring

Wir - We - Nous - Wij

ACDE EUROPE AG
Sitacherstrasse 11, CH-6062 Wilen (Sarnen), Switzerland

Wir erklären in eigener Verantwortung, dass das nachfolgend beschriebene Produkt:
We declare under our sole responsibility that the interchangeable equipment described below:
Nous déclarons sous notre propre responsabilité que l'équipement interchangeable décrit ci-dessous:
Wij verklaren onder onze eigen verantwoordelijkheid dat de hieronder beschreven uitwisselbare uitrusting:

Verantwortlicher für das technische Dossier
Issuer of the Technical Dossier- Responsable du dossier technique-Verantwoordelijke voor het technisch dossier

ACDE EUROPE AG
Sitacherstrasse 11, CH-6062 Wilen (Sarnen), Switzerland

Bezeichnung - Name - Dénomination - Naam

Artikelnummer – Reference Number – Numéro de code – Referentienummer

Fabrikationsnummer – Serial Number – Numéro de série – Seriennummer

Technische Daten – Technical Data – Caractéristiques techniques – Technische gegevens

Gewicht – Weight – Poids – Gewicht	(Kg)
Max. Betriebsdruck – Max. working pressure – Pression max. d'utilisation – Maximale werkdruk	(bar)
Max. Drehbetriebsdruck – Max. rotation pressure – Pression max. de rotation – Maximale rotatiedruk	(bar)
Max. Öldurchfluss – Max. oil flow – Débit d'huile max. – Maximale oliestroom	(ltr/min)
Max. Öl Rotationsdurchfluss – Max. rotation oil flow – Débit d'huile de rotation max – Max. olie rotatiestroom	(ltr/min)
Maximale Hubkraft – Max. lift load – Capacité maximale de soulèvement – Maximale hefkracht	(Nm)
Inhalt – Capacity – Capacité – Capaciteit	(SAE)(ltr)

Ort und Datum der Ausstellung
– Place and date of issue – Lieu et date d'émission – Plaats en datum van uitgifte

auf welches sich diese Erklärung bezieht, den grundlegenden Sicherheits- und Gesundheitsschutzanforderungen der Richtlinie 2006/42/EG entspricht.
to which this declaration relates, conforms to the Essential Health and Safety Requirements of Directive 2006/42/EC.
auquel cette déclaration se réfère, est conforme aux exigences essentielles de santé et de sécurité de la Directive 2006/42/CE.
waarop deze verklaring betrekking heeft, voldoet aan de essentiële veiligheids- en gezondheidsvereisten van Richtlijn 2006/42/EG.

Angewendete harmonisierte Normen
– Harmonized standards applied – Normes harmonisées appliquées – Toegepaste geharmoniseerde normen

EN474-1 ;EN474-5 ; EN ISO 12100:2010

Name und Position des Verantwortlichen
– Name and position of issuer – Nom et position du responsable – Naam en functie van de verantwoordelijke

Karel L. Glaaser
CEO

Unterschrift des Verantwortlichen
– Signature of issuer – Signature du responsable – Handtekening van de verantwoordelijke

ORIGINAL

Content

I. SAFETY SPECIFICATION

- ⚠ This Manual describes the correct use and basic safety knowledge of the grapple. When you see the important content indication symbol , you must be alert to possible personal injury or death and confirm the safety matters.
- The safety content in this Manual does not cover all the situations that may cause personal injury, death or product damage and it mainly provides basic safety operation and maintenance knowledge.

⚠ CAUTION	⚠ WARNING	⚠ IMPORTANT!
This symbol indicates that wrong operations may cause death or serious injury to the operator.	This symbol indicates that wrong operations may cause injury to the operator or damage to objects	This symbol indicates that wrong operations may shorten the service life of the equipment

1.1 Basic safety rules

⚠ CAUTION
• The grapple has been designed for grappling works,such as demolition,classification and loading,Do not use it for other purposes and operations exceeding its capacity.
• Prior to operation,perform a pre-operation inspection.
• Match the size of this grapple to a excavator according to the specification of the grapple.we are not respinsible for any injury ordamage caused by operating this grapple with an improper size.
• Never use the grapple to lift or transport loads with lifting gears (ropes, chains, shackles etc.).
• The grapple slipping or tipping over and falling from the loading area of a lorry may cause serious injury.
• When attaching and detaching hoses, make sure that there is no adhesion or mixing of dirt, mud, or other foreign bodies in the piping, couplers, and hydraulic hoses. Remove all oil stains in the piping. Otherwise, the attachment and the hydraulic equipment of the hydraulic excavator may be damaged.
• Install the grapple in the correct orientation on the excavator. If it is not installed correctly, the grapple and the arm of the excavator may contact and be damaged.
• When you install the grapple on the excavator, always check the following items. If these checks are not performed, the machinery may not run normally. Furthermore, an accident may result. 1. If the piping of the excavator is a manual switching style shared with the hydraulic hammer, switch the selector valve to the crusher circuit. 2. If the piping of the hydraulic excavator is an automatic switching type, use the operation panel or switch to switch to the attachment mode before use. 3. If an actuator is installed on the piping for the hydraulic hammer, always close the safety lock valve. (This is not necessary in the case of attachment-mode automatic-switching piping.) Be sure to set all shut-valves on the piping connected to the attachment to ON (fully open) before use.

WARNING

- Do not use the grapple for hammering on the structure to be demolished.
- Naver operate the grapple and excavator when someone is within the operating area.the steel frame may drop and debris may fly off.
- Do not jack up or rotate a excavator by pressing the frab onto ground.
- Naver operate the grapple and excavator when someone is within the operating area.the steel frame may drop and debris may fly off.
- Never use the grapple to lift or transport loads with lifting gears (ropes, chains, shackles etc.).
- Do not jack up or rotate a excavator by pressing the grapple onto ground.
- A excavator with the grapple is less stablethan one with a standard bucket. Be careful if you operate the grapple with large operating radius (with stick and boom extended) or if you maneuver the excavator with this grapple.
- Make sure you do not hit boom, boom cylinder or cabin with the grapple during operation. This will lead to damage to the grapple and excavator.
- Stop the engine of the excavator before attempting to perform any maintenances,inspections, or repairs to the grapple.
- The specified operating noise level is below 70 dB(A) in all operating conditions.

IMPORTANT!

- Do not operate the grapple for striking and pinching &twisting an object, or it could property damage.
- Do not use the grapple to strike laterally against an object for the purpose of demolition and movement, or it could cause property damage.
- Do not operate this grapple for sweeping work. It will result in property damage.
- Gripping an object at an uneven position will cause twisting, which will result in damage to the grapple. Try to grip the object as close to its center of gravity as possible.
- Do not use this grapple for excavating work with the shell fully opened. It will result in damage to the grapple.

1.2 Protective Measures and Personal Protective Equipment (PPE)

1.2.1. General Protective Measures

- The operator must take all necessary precautions to ensure the safe operation of the hydraulic attachment. Before each start-up, check that:
- All hydraulic connections are correctly installed and securely tightened.
- All protective covers, housings, and safety devices are present and fully functional.
- The working area is free of unauthorized persons.
- The excavator and attachment are in proper working condition.
- No persons are within the danger zone of the attachment.
- Failure to observe these instructions may result in serious injury or property damage.

1.2.2. Hazard Zones

- Keep all persons at a minimum distance of 10 meters from the working area; increase this distance in unstable or hazardous environments.
- Never stand between the excavator and the attachment.
- Do not allow persons under suspended loads or open grapple shells.
- Never place hands, feet, or other body parts in crushing, shearing, or rotating areas.

1.2.3. Protective Measures During Operation

- During operation, the operator must:
- Maintain a clear and unobstructed view of the attachment and the working area at all times.
- Operate the attachment exclusively from the designated operator's seat of the excavator.
- Avoid sudden or uncontrolled movements of the excavator.
- Never use the attachment to lift or transport persons.
- Never operate with damaged hoses, oil leaks, or defective components.
- Immediately stop operation if unusual noises, vibrations, or movements occur.

1.2.4. Hydraulic Safety Measures

- Hydraulic systems operate under high pressure. The operator must:
- Fully depressurize the hydraulic system before connecting or disconnecting hoses.
- Avoid any contact with escaping oil – high-pressure hydraulic oil can penetrate the skin.
- Never check for leaks by hand; use cardboard or wood.
- Collect leaking oil and dispose of it in an environmentally responsible manner.
- Wear oil-resistant, mechanically durable protective gloves.

1.2.5. Required Personal Protective Equipment (PPE)

- When operating, handling, or maintaining the attachment, the following PPE is mandatory:
- Safety helmet (EN 397)
- Eye/face protection (EN 166)
- Hearing protection depending on excavator noise level (EN 352)
- Cut-resistant and oil-resistant protective gloves (EN 388)
- Safety shoes with steel toe cap (EN ISO 20345)
- High-visibility protective clothing (EN ISO 20471)
- Respiratory protection in dusty or hazardous environments

1.2.6. Protective Measures During Maintenance and Inspection

- For maintenance, cleaning, or inspection work:
- Switch off the excavator and remove the ignition key.
- Place the attachment on stable ground or suitable supports.
- Fully depressurize the hydraulic system.
- Never work under suspended or unsecured attachments.
- Allow hot components (rotary motor, cylinders, bushings) to cool before contact.
- Wear protective gloves when handling sharp edges (teeth, blades, wear plates).

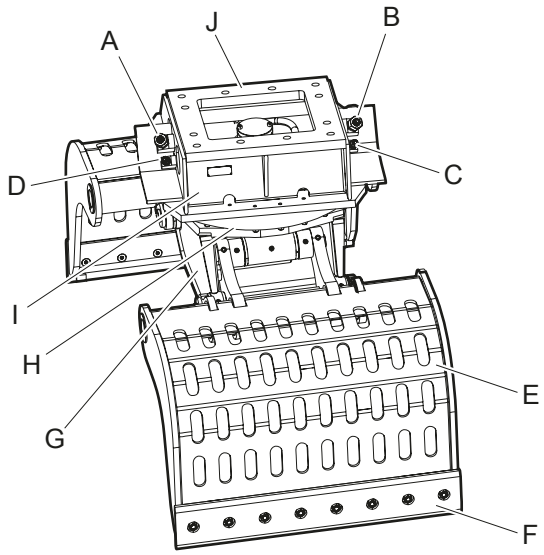
1.2.7. Additional Measures for Special Operating Conditions

- Work on slopes or unstable ground: Reduce load capacity; avoid side loads and torsional forces.
- Work near power lines: Maintain minimum safety distances in accordance with regulations; never use the attachment as a grounding or discharge device.
- Work in high-temperature environments (e.g. steelworks): Wear heat-resistant gloves and protective clothing; inspect hoses, seals, and cylinders more frequently.

II OVERVIEW

2.1 Equipment description

The illustration gives an overview of the main parts and components of the hydraulic attachment. Actual details may differ.



A. Connection “A” – Function “Open” (standard) – See page 18
B. Connection “B” – Function “Close” (standard) – See page 18
C. Connection “C” – Function “Rotate” (counterclockwise) – See page 18
D. Connection “D” – Function “Rotate” (clockwise) – See page 18
E. Shell
F. Replaceable blade
G. Frame
H. Slewing ring
I. Head construction
J. Plate with hole pattern for adapter plate

2.2 Function

The following section provides a simple explanation of the operation of the demolition and sorting grapple.

Closing

The demolition and sorting grapple can be closed by actuating a foot pedal or the joystick in the excavator cab that controls line “B” (closing function). The cylinders then retract the piston rods, causing the shells to close and grip the material. See page 18.

Opening

The demolition and sorting grapple can be opened by actuating a foot pedal or the joystick in the excavator cab. Hydraulic oil is supplied to the cylinders via line “A”, retracting the piston rods and opening the shells. See page 18.

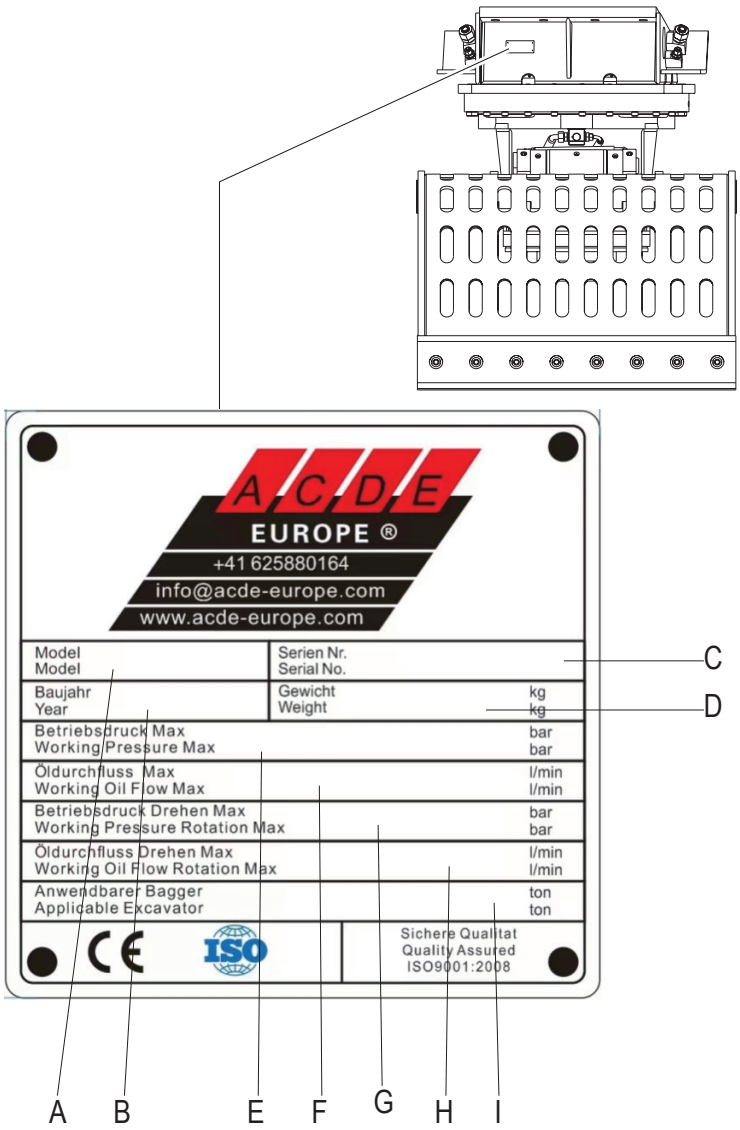
Rotating

Activate the “rotate grapple” function. Hydraulic oil is then directed to the motor of the demolition and sorting grapple, activating the rotation function. See page 18.

To enable continuous rotation of the demolition and sorting grapple, a slewing gearbox is installed. The oil flow for the “open” and “close” functions is routed through the slewing gearbox. See page 18.

2.3 Name plate

The name plate on the grapple contain important information about the grapple and for personal safety. A missing warning can lead to overlooking or misinterpretation of possible risks and cause personal hazards. The signs and labels must always be clearly legible.



A. Model
B. Year of manufacture
C. Serial number
D. Weight of hydraulic attachment
E.Max. operating pressure »Open /Close«
F. Max.oil flow»Open /Close«
G. Max. operating pressure »Rotation«
H. Max.oil flow»Rotation«
I.Applicable excavator

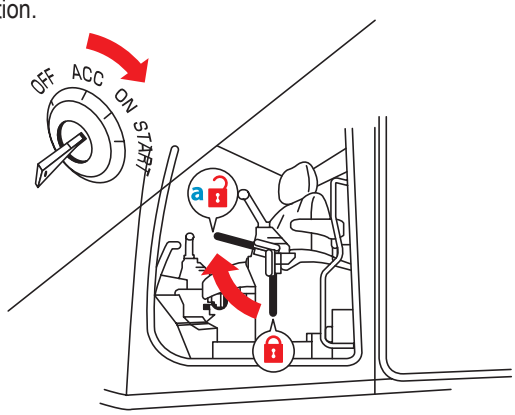
III MAINTENANCE

3.1 Depressurising the hydraulic system

⚠ WARNING

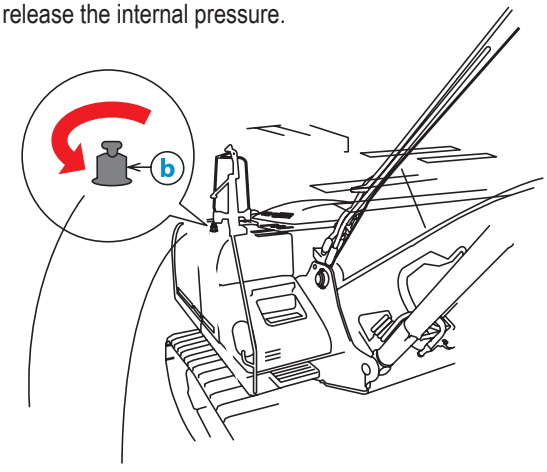
Because there is always internal pressure in the hydraulic system, always release the pressure in the circuit before inspecting or replacing piping and hoses or installing or removing the attachment from the hydraulic excavator (base machine). If the pressure is not released, high-temperature/highpressure hydraulic oil may spout and lead to a serious accident resulting in personal injury or death.

1. Always place the attachment on a stand, rectangular lumber, or other similar item on a solid flat surface, and then stop the engine.
2. Set the start switch to the ON position, and then set the lock lever to the free (a) position.



3. Perform a full stroke operation two or three times by moving the lever and pedals for each working equipment (boom and arm)/attachment operation front and back and left and right

4. Slowly loosen the cap of the fuel fi ller opening on top of the hydraulic oil tank (b) to release the internal pressure.



Notice:The procedure above is an example. The procedure may be slightly diff erent depending on the model of hydraulic excavator. For details, see the manual of the hydraulic excavator to be used.

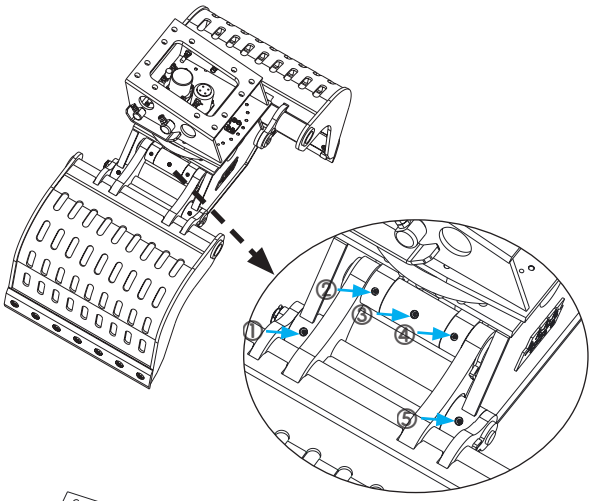
3.2 Greasing

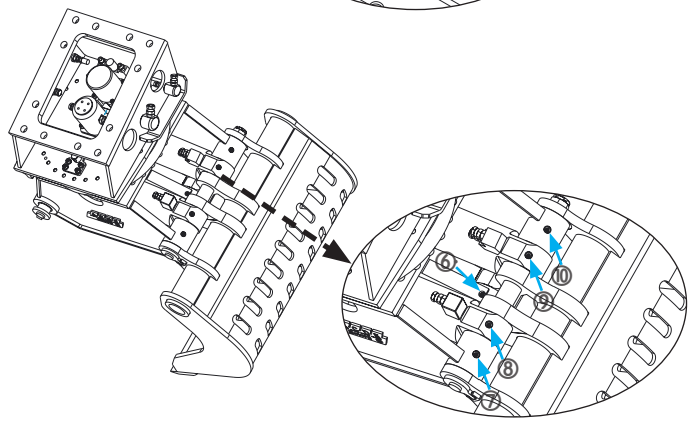
While greasing, open the shell of the grapple and rotate it several times so that the grease spreads suffi ciently.

1. Place the grapple on the ground, and then stop the engine.
2. Clean the grease nipples of the lubrication points, and then use a grease gun to add grease.
3. You can check whether grease has been filled suffi ciently by whether old grease has been pushed out from the pin, edges, matching surfaces, dust seal section, etc.
4. After greasing, use a cloth or similar item to wipe away the pushed-out old grease.

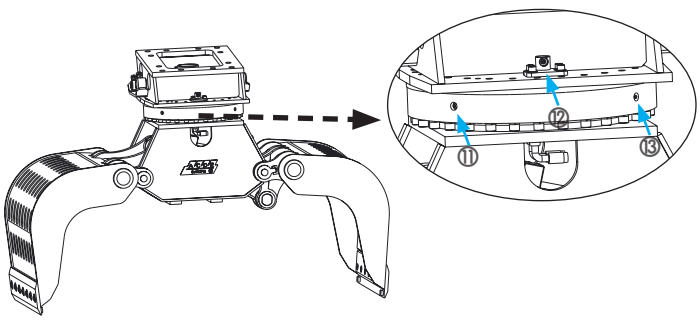
3.2.1 Lubrication points□Actual details may differ.□

Notice:In particular, carefully grease the attachment after it has been cleaned or become wet.





- Lubricate ⑥ with the shell closed
- If the shell is open,the lubrication opening can't be seen.



- Slewing ring is equipped with 4 grease fittings.
- Slewing ring should be lubricated at lease every one month.
- Equipment operating free quietly in extreme environments should be lubricated at least every eight hours. If old grease is noted to be in good. Condition and free of contamination, conversely, if the old grease is contaminated or deteriorated the interval will be shortened. The interval may be extended

3.3 Checking

3.3.1 Checking the grapple and adapter plate for cracks

- Secure the excavator so that it cannot move unexpectedly.
- Check all the grapple and adapter plate load-bearing parts and welds for cracks prior to every shift.
- Ensure repair or refinishing in good time to prevent greater damage.

3.3.2 Checking the grapple and adapter plate for cracks

- Ensure that there is nobody between the grapple shell.
- Prior to starting work, check the multi grapple and the wear blades for wear.
- Replace the wear blades in good time to prevent greater damage.

3.3.3 Checking hydraulic lines

- Perform a visual inspection of all lines (pipes and hoses) from the pump to the hydraulic attachment and back to the tank, before starting work.
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter Bolted connections / tightening torques).
- Replace damaged pipes and/or hoses.

3.3.4 Checking bolted connections

- Check all bolted connections regularly for tight fit (see Chapter Bolted connections / Tightening torques).
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter Bolted connections / Tightening torques).

3.3.5 Checking the adapter plate bolts for wear

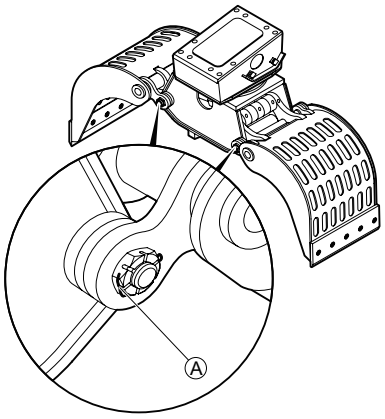
- Carry out this visual check whenever the hydraulic attachment has been removed from the excavator.
- Check the adapter plate bolts for excessive wear such as cracks, pitting or severe erosion.
- Rework or replace worn bolts.

3.3.6 Checking and cleaning the hydraulic oil filter of the excavator

- Change the oil filter cartridge after the first 50 operating hours.
- Check the oil filter every 500 operating hours and replace if it is necessary.

3.3.7 Checking the hinge pin locking facilities

- Check the hinge pin locking facilities (A) once a day
- Replace damaged castle nuts and splint pins.



3.3.8 Retightening the screws on welded rotator frame construction and slewing ring

- Weekly check for axial or radial clearance in the slewing ring.
- Unscrew and remove the screws from welded rotator frame construction.
- Remove the upper part from the grapple.
- Check all slewing ring screws to see if they are stretched or loosened.
- Replace stretched screws and retighten all screws on the slewing ring with the required tightening torque.
- Tightening torques (see chapter Bolt connections/Tightening torques).
- Check the condition of the slewing ring and replace it if defective.
- Fit the upper part on the grapple.
- Fix the screws of the welded rotator frame construction and tighten with the required tightening torque.
- Tightening torques (see chapter Bolt connections/Tightening torques).

3.4 Maintenance schedule

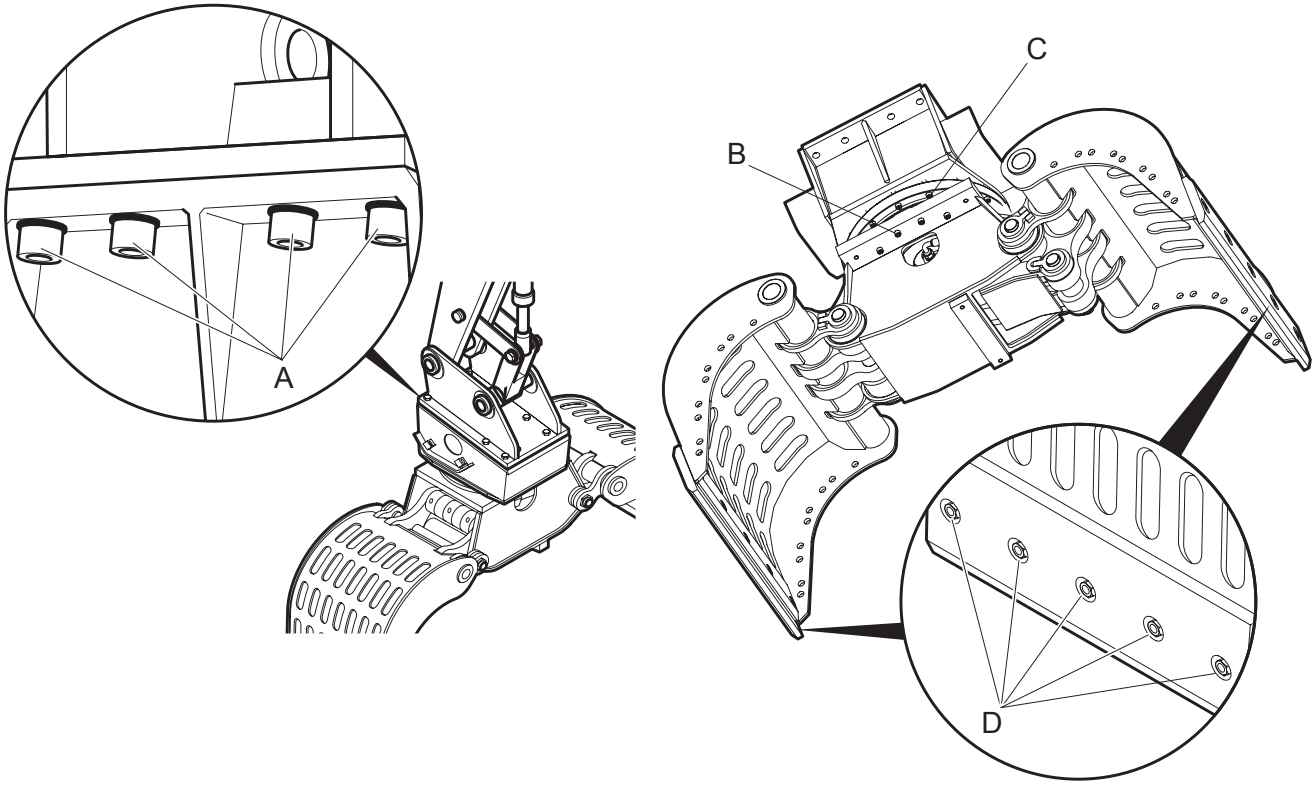
prior to shift	Check the grapple and adapter plate for cracks. Check hydraulic lines for leaks and damage. Check wear blades for wear; if necessary turn or replace wear blades. Check the bolted connections at the adapter plate and tighten as required. Check the bolted connections at the hydraulic lines and tighten as required. Check fixing bolts at the wear blades, if necessary tighten or replace. Check the hinge pin locking facilities. Lubricate all lubrication nipples of the multi grapple.
weekly	Retightening the screws on welded rotator frame construction and slewing ring
after the first 50 operating hours	Change hydraulic oil filter cartridge of the excavator.
every 500 operating hours	Check oil filter cartridge, replace if necessary
if necessary	Replace bent and damaged pipes. Replace damaged hoses.

3.5 Bolt connections / Tightening torques

The bolt connections of the grapple are subjected to very high loads.

Tighten any loose connections without exceeding the recommended tightening torques.

Actual details may differ.



*Apply anti-seize compound to the Allen screw threads before inserting them. The contact faces of the screw head and the lock washers must not be lubricated.

IV INSTALLATION

⚠ *WARNING Hot hydraulic oil squirting out*
The hydraulic system is under high pressure. If hydraulic connections are loosened or disconnected, hydraulic oil may spray out at high pressure. Spraying hydraulic oil can cause serious injuries.

*Depressurize the hydraulic system before connecting or disconnecting the hydraulic circuits of the attachment (see chapter “Depressurizing the Hydraulic System”).

CAUTION: Environmental damage caused by hydraulic oil

Hydraulic oil is harmful to the environment and must not enter the soil, groundwater, or water supply.

- Collect any hydraulic oil that escapes.
- Dispose of it in accordance with applicable environmental regulations.

4.1 Media/consumables

4.1.1 Mineral hydraulic oil

All hydraulic oil brands prescribed by the excavator manufacturer are also suitable for use when operating the grapple.

However, the oil should comply with viscosity class HLP 32 or higher.

In summer and in hot climates, oils of viscosity class HLP 68 or higher should be used.

In all other respects the regulations of the excavator manufacturer are to be taken into consideration.

NOTICE: Check the oil filter!
An oil filter must be integrated in the tank line of thehydraulic system. The maximum mesh width allowedfor the oil filter is 50 microns; it must have a magnetic separator.

4.1.2 Non-mineral hydraulic oil

- *NOTICE:Mixed hydraulic oil*
- *Never mix mineral and non-mineral hydraulic oils! Even small traces of mineral oil mixed in with non-mineral oil can result in damage to both the grapple and the excavator. Non-mineral oil loses its biodegradability.*
- *Only use one type of hydraulic oil.*
- *If you are using non-mineral oil it is imperative that the name of the oil in use be indicated when returning the grapple for repair.*
- *In order to protect the environment or on technical grounds, hydraulic oils are currently being used which are not classified as HLP mineral oils.*
- *Before using hydraulic oils of this kind it is imperative to ask the excavator manufacturer whether operations with such fluids are possible.*

4.1.3 Grease

NOTICE: When handling oils and greases observe the safety instructions that apply to these products.

4.2 Installing the adapter plate

NOTICE: The adapter plate can come loose.

The adapter plate can come loose if the fastening screws are not designed for local high loads.

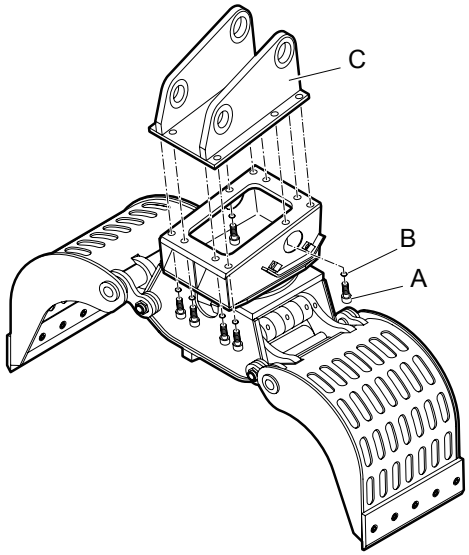
- Only use the Allen screws of strength category 8.8 and the pairs of lock washers included in the delivery to attach the adapter plate or the base plate.
- Place the hydraulic attachment within the range of the excavator.
- Apply anti-seize compound to the Allen screw threads (A) before inserting them.

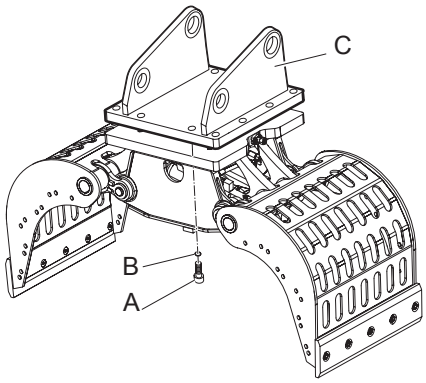
NOTICE:The contact faces of the screw head and the lock washers (B) must not be lubricated.

⚠ *WARNING* **Hands and fingers being cut off or hurt**

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

- Never use your fingers to check bores or fitting surfaces.
- Align the adapter plate (C) on the connecting plate of the multi grapple.





- Fit a pair of lock washers (B) onto every screw.
- Tighten the Allen screws (A) with an Allen key.
- Tighten the Allen screws (A) with the required tightening torque.

4.3 Attaching the grapple to the excavator

4.3.1 Mechanical mounting aspects

You need an assistant to attach the grapple to the excavator.

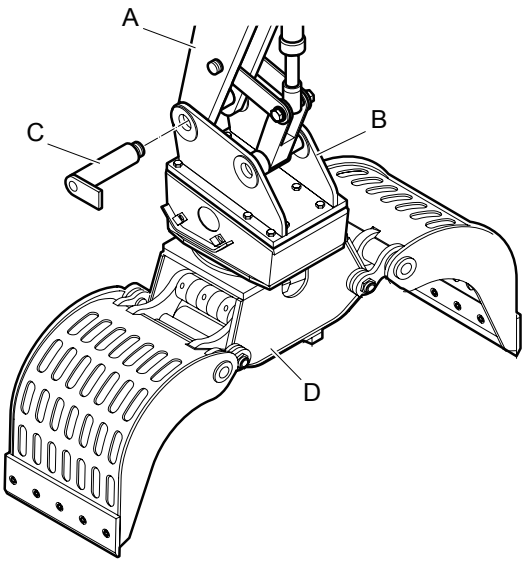
- Agree on hand signals with your assistant, to enable him to help you place the excavator in the proper position to attach the grapple.
- Lower the stick of the excavator into the holder provided on the adapter plate.

⚠ WARNING Injury by impacts

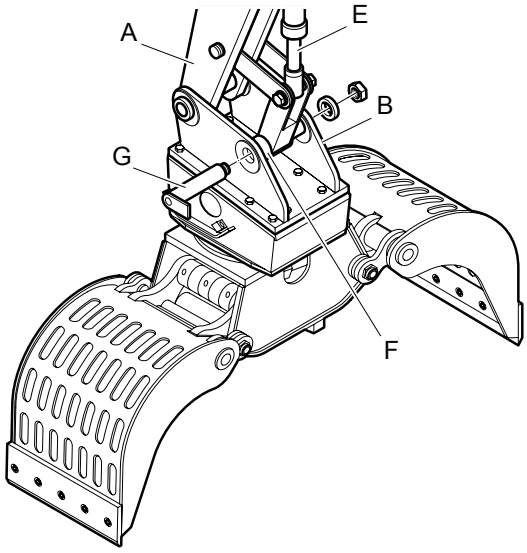
- sudden movement of the excavator may cause your assistant to be hit and injured by the boom or the grapple.
- Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.
- Always keep sight of your assistant.

⚠ WARNING Hands and fingers being cut off or hurt
Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

- Never use your fingers to check bores or fitting surfaces.
- Let your assistant instruct you until the bores in the adapter plate (B) and in the stick (A) are properly aligned.
- Install the stick bolt (C) and lock it.



- Lift the hydraulic attachment (D).



- Extend the bucket cylinder (E) until the bore in the linkage (F) aligns with the bore in the adapter plate (B).
- Install the linkage bolt (G) and lock it.
- Carefully move the bucket cylinder (E) into both end positions

4.3.2 Establishing the Hydraulic Connections

Note: The excavator must be equipped with a suitable hydraulic installation to operate the grapple. Improperly routed lines and incorrectly dimensioned cross-sections can lead to oil overheating and damage to the hydraulic attachment.

- Check the nominal diameter of the hydraulic lines on existing hydraulic installations.
- All supply and return lines for the hydraulic oil must have a sufficient internal diameter and adequate wall thickness.
- Route all hydraulic hoses without tension and without twisting.
- Switch off the excavator.
- Depressurize the hydraulic system in accordance with the safety and operating instructions of the excavator manufacturer.
- Close all shut-off valves in the boom installation if no quick couplers are used.
- To prevent unintended movement of the equipment in the event of a failure of pressurized lines, the hydraulic circuit must be equipped with blocking valves that stop all movements of the excavator in the event of a sudden pressure drop.
- See hydraulic diagram on page 34.

Note: Contaminated hydraulic lines and connections may allow sand, material residues, and dirt to enter the hydraulic attachment and damage hydraulic components.

- Thoroughly clean hydraulic lines and connections before connection.
- Have contaminated hydraulic lines flushed by a specialized service provider.
- Clean contaminated hydraulic connections using a suitable grease-dissolving universal cleaner.
- Observe the safety instructions and application guidelines of the cleaning agent manufacturer.
-

Connecting the hydraulic hoses for the function “Open / Close”

- Remove the caps / blind flanges from connections “A” and “B” and store them safely.
- Check whether the connections are damaged.
- Replace damaged connections.
- If both supply lines of the boom have the same operating pressure, connect them stress-free to connections “A” and “B”.
- If the two supply lines of the boom have different operating pressures:
- connect the hose with the higher operating pressure stress-free to connection “B”,
- connect the hose with the lower operating pressure stress-free to connection “A”.

****Connecting the hydraulic hoses for the function “Rotate counterclockwise / Rotate clockwise”****

- Remove the caps / blind flanges from connections “C” and “D” and store them safely.
- Check whether the connections are damaged.
- Replace damaged connections.
- Attach the hoses to the connections for the “Rotate” function.
- Connect both hoses for the “Rotate” function stress-free at the boom.

4.4 Warm-up operations

Notice:When the grapple is new or has just been overhauled, always apply grease and run warm-up operations to release the air in the hydraulic circuit and spread grease before starting work.
If warm-up operations are not run, there is a risk that the hydraulic equipment of the hydraulic excavator and attachment may be seriously damaged or the moving parts of the attachment may seize.

1. Add a suffi cient amount of grease to the lubrication points. For the lubrication points, see “Greasing” (P.11).
2. Set the rotation of the engine to low idling, and then slowly move the grapple between fully closed and fully opened about fi ve times at the front. The air of the hydraulic circuit is released.
3. Add grease one more time.
4. At half throttle, move the grapple slowly from fully closed to fully opened about five times.
5. At half stroke, rotate the attachment about five times.
6. Warm-up operations are complete.

4.5 Removing the grapple from the excavator

⚠ WARNING When you remove the grapple, always release the residual pressure of the hydraulic piping before removing the hydraulic hose. If there is residual pressure in the circuit, high-temperature oil may shoot out, which is very dangerous. For the procedure to relieve the internal pressure, see “Depressurising the hydraulic system” (P.10) of the Maintenance section.

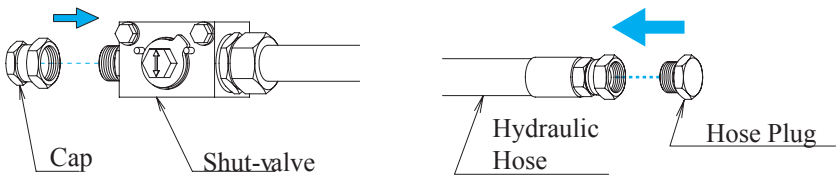
Notice: You need an assistant to remove the hydraulic attachment.*
**Agree on hand signals with your assistant, to enable him to help you move the boom.*

1. Choose a location with a flat solid surface, and place the grapple stably on the designated stand, rectangular lumber, etc. with the shell of the grapple fully open.

2. Stop the engine of the excavator, and then release the internal pressure inside the hydraulic circuit.

3. After making sure that the hydraulic oil has cooled,close all shut-off valves in the installation at the boom if no quick couplings are used.

4. Remove the connection hydraulic hose, and then install the hose plugs on both ends of the hydraulic hose and the caps on the piping port block of the grapple and the shut-valve of the excavator.



5. Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.

⚠ WARNING **Always keep sight of your assistant.**
6. Remove the bolt locks from the stick and linkage bolts.
7. Drive out the linkage bolt with a steel arbor and a hammer.
8. Switch on excavator.
9. Drive out the linkage bolt with a steel arbor and a hammer.
10. Retract the bucket cylinder.
11. Retract the bucket cylinder.
12. Drive out the stick bolt with a steel arbor and a hammer.
13. Move the excavator stick out of the adapter plate.

4.6 Removing the adapter plate

1. Loosen the fastening screws of the adapter plate.
2. Lift the adapter plate using suitable lifting equipment and place it on wooden blocks.
3. Keep the fastening screws and pairs of lock washers for future use.

4.7 Transport, Handling and Storage

4.7.1 Safe Transport

- Transport may only be carried out by trained personnel.
- Lift the attachment exclusively at the approved lifting points (e.g. lifting hooks, lashing points).
- Before lifting, all shells and movable parts must be closed and/or secured.
- Do not allow any persons in the danger zone under or next to the load.
- Use suitable and adequately dimensioned lifting and slinging equipment.

4.7.2 Handling

- Loading and unloading must only be carried out using suitable lifting equipment (crane, forklift).
- Move the load slowly and in a controlled manner; avoid jerky movements.
- Place the attachment only on stable, level ground.
- Depressurize the hydraulic system before disconnecting hydraulic lines.

4.7.3 Separate Transport of Assemblies

- If components are regularly transported separately (e.g. shells, cylinders, rotary motor):
- Secure components and transport them in crates or on pallets.
- Cover sharp edges.
- Specify individual weights in the manual (base body, shells, cylinders).

4.7.4 Storage

- Store the attachment in the closed position on stable ground.
- Store in a dry place, protected from weather conditions.
- Seal hydraulic connections with protective caps.
- Grease bearing points and pins regularly to prevent corrosion.

V OPERATION

5.1 Preparations before starting

⚠ WARNINGFalling carrier

Notice:A excavator falling or tipping over due to the surface not being level may cause serious injury and material damage.

- Always observe great care when moving the excavator.
- Do not use the grapple until the excavator is positioned stably.

⚠ WARNING Fragments flying around

Notice:Fragments of material which come loose while operating the grapple may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

During grapple operation the danger zone is considerably greater than during the excavation operation due to fragments of stone and pieces of steel flying around, and for this reason the danger zone must, depending on the type of material to be worked on, be enlarged correspondingly, or secured in a suitable manner through corresponding measures.

- Secure the danger zone.
- Stop the hydraulic attachment immediately if anyone enters the danger zone.
- Close the windscreen and the side windows of the operater's cab.

Notice:Before starting the multi grapple, ensure that

- The multi grapple is complete;
- the grapple and adapter plate do not have any cracks;
- none of the hydraulic line connections leak.

5.1.1 Starting the excavator

1. Make sure that there are no people in the danger zone.
2. Start the excavator as instructed by the excavator manufacturer.
3. Let the excavator warm up until the operating temperature prescribed by the excavator manufacturer has been reached.
4. Put the excavator in its working position.

5.1.2 Switching the grapple on and off

After properly attaching the grapple to the excavator, the grapple can be operated using the excavator's hydraulic system. All functions for normal excavator operation remain intact.

1. Switch the grapple on and off, as described in the excavator's operating instructions.
2. When leaving the driver's cab, set the safety switch/lever for the electrical/hydraulic attachment installation to the "OFF" position.

5.1.3 Functional test

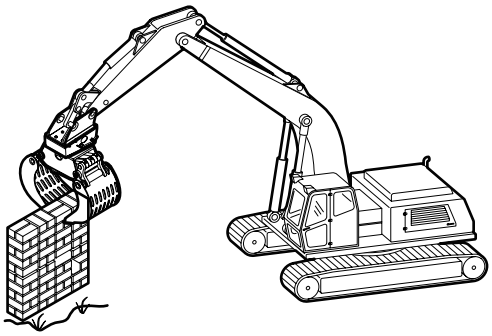
Always carry out a functional test before putting the grapple into use. Check that all hydraulic lines and connections are tight and that the grapple works without any problem.

- Prepare the grapple so that you can start using it (see chapter Preparations before to starting).
- Lift the grapple with the carrier boom function so that it hangs vertically.
- Close and open the grapple shell.
- Turn the grapple via the connected excavator function »Turn« left and right.
- Observe the hydraulic lines and whether the grapple works properly.
- Switch the grapple off immediately if oil leaks from the hydraulic lines or other malfunctions occur.
- Depressurise the hydraulic system (see chapter Depressurising the hydraulic system).
- Only take the grapple back into operation once all leaks or malfunctions have been remedied.

5.2 Correct operation

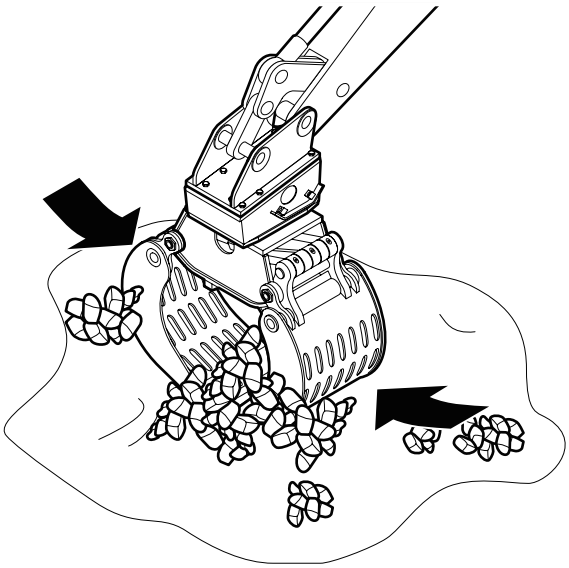
5.2.1 Demolishing masonry

- Encompass the masonry with the grapple shells.
- Break the masonry structure with the grapple shells.



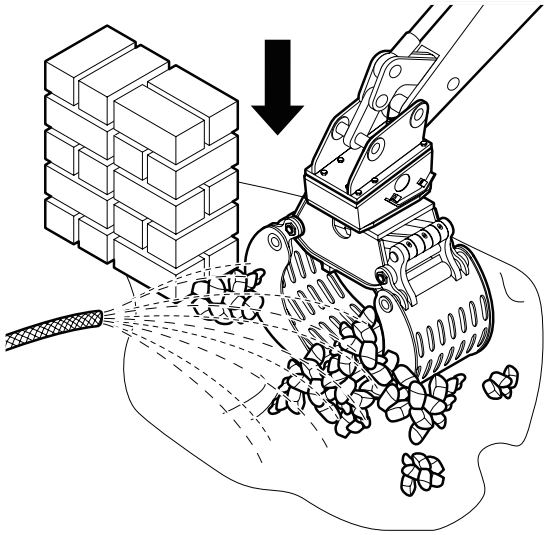
5.2.2 Sorting and loading

- Use the grapple leaves for sorting and loading.



5.2.3 Continuous water spraying

- Keep the work area moist by continuously spraying water to avoid excessive dust.



5.2.4 High ambient temperature

- Only use hydraulic oils of sufficient viscosity.

1. In summer and in tropical climates, the minimum requirement is a hydraulic oil of type HLP 68.

5.2.5 Low ambient temperature

Ambient temperature below -20 °C (-4 °F):

- You must heat up the grapple and the excavator when working in ambient temperatures of below -20 °C (-4 °F).
- Preferably park the excavator and the grapple in a heated, sheltered space while not using it.

NOTICE:Hydraulic oil too cold
Operating the grapple while hydraulic oil is still cold will damage the seals of the hydraulic parts.

- Do not operate the grapple until the temperature of the hydraulic oil it at least 0 °C(32 °F).
- Start the excavator as instructed by the excavator manufacturer.
- Let the excavator warm up until the operating temperature required by the manufacturer has been reached.
- Lift the grapple using the boom function so that it hangs vertically.
- Close, open and turn the grapple during the excavator warming-up phase.

NOTICE Damage to hydraulic parts
Hot hydraulic oil causes damage to subcooled grapple.

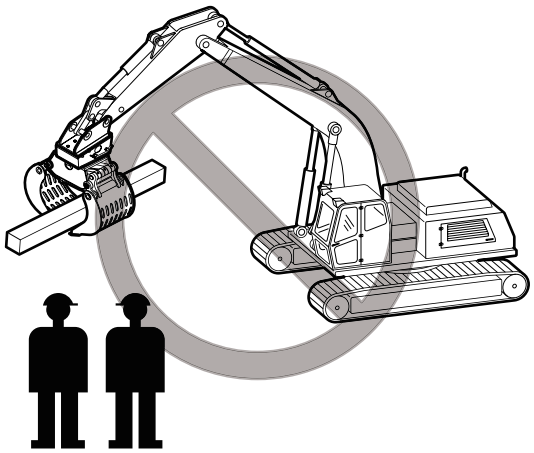
- Do not fill the hydraulic system with hot hydraulic oil.

5.3 Prohibited operation

5.3.1 Suspended load

⚠WARNING Danger of falling parts
Falling parts may cause serious injuries.

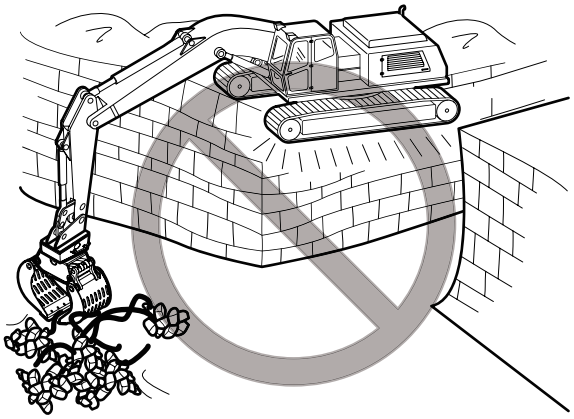
- Never operate the grapple over the cab.



5.3.2 Unsafe base

⚠ WARNING Danger of falling parts
The excavator can topple over and cause injuries and damage.

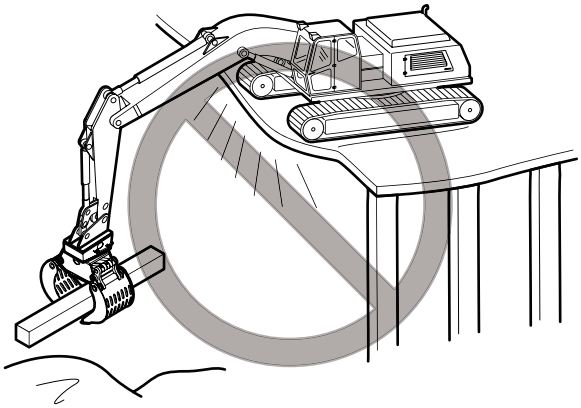
- Never operate the grapple over the cab.



5.3.3 Non-load bearing suspended ceilings

⚠WARNING Danger of collapse
The excavator can collapse and cause injuries and damage.

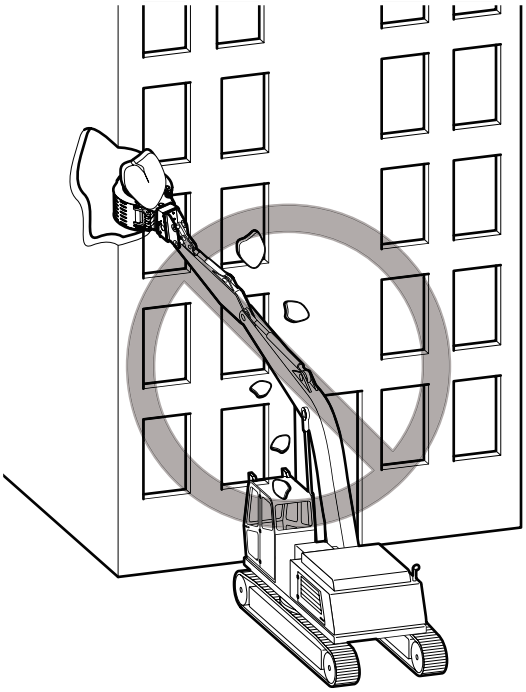
Only work with the grapple when the excavator is on a load-bearing suspended ceiling.



5.3.4 Working position

⚠ WARNING Falling debris
Large pieces of debris falling may cause injury and damage.

- Never start demolishing pillars, supports and walls from below or the middle.

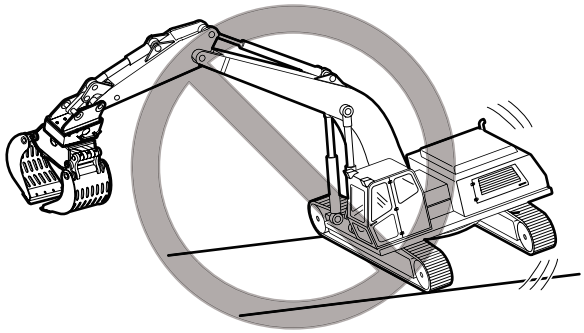


5.3.5 Use over the chain

⚠ **WARNING Danger of tipping**

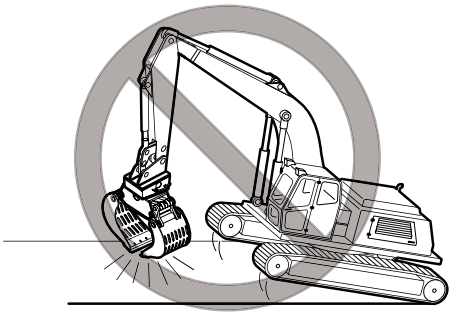
The excavator can topple over and cause injuries and damage.

- Never work with full delivery sideways in the direction of movement.



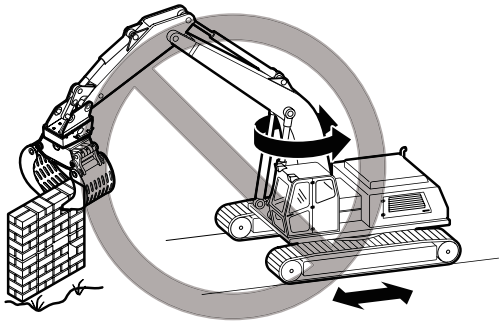
5.3.6 Moving the excavator

- Never relocate the excavator sideways by placing the grapple on the ground to lift the excavator.
- This would seriously damage the grapple.



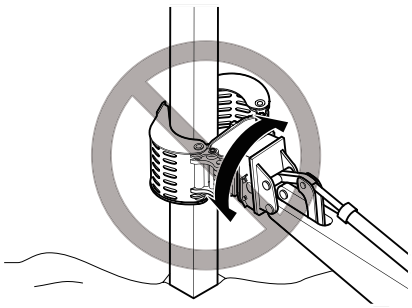
5.3.7 Moving the boom

- Never move the boom or the excavator while carrying out the gripping action.
- This would seriously damage the grapple..



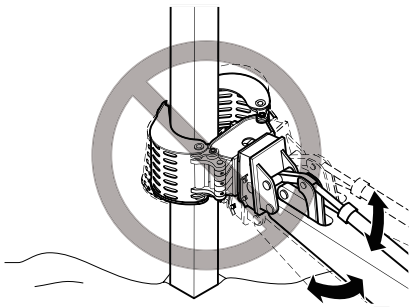
5.3.8 Rotating the grapple

- Never rotate the grapple while carrying out the gripping action.
- This would seriously damage the grapple.



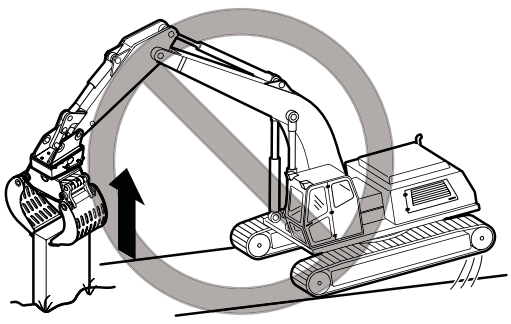
5.3.9 Extending the bucket cylindert

- Never extend the bucket cylinder while carrying out the gripping action.
- This bending action would destroy the grapple.



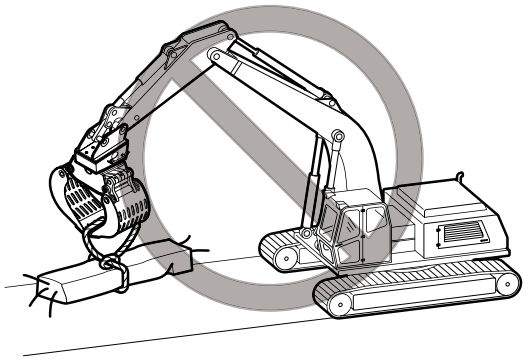
5.3.10 Pulling

- Never pull at girders, supports or walls with the grapple.
- This would damage the grapple and the adapter plate. The excavator may lose stability. It can topple over and cause injuries.



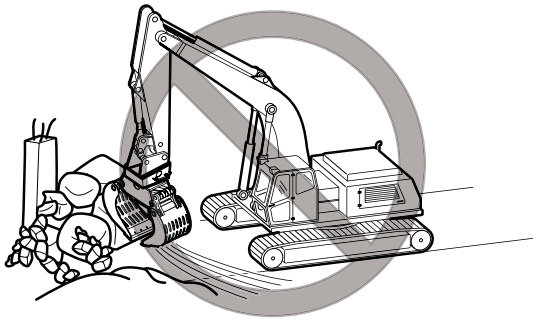
5.3.11 Lifting/Transporting with lifting gear

- Never use the grapple to lift or transport loads with lifting gears (ropes, chains, shackles etc.).
- The grapple was not constructed to lift or transport loads with lifting gears (ropes, chains,shackles etc.). This would damage the grapple.



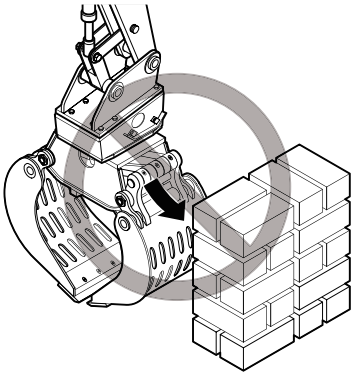
5.3.13 Moving objects

- Never use the grapple to move debris.This would damage the grapple.
- This would seriously damage the grapple.



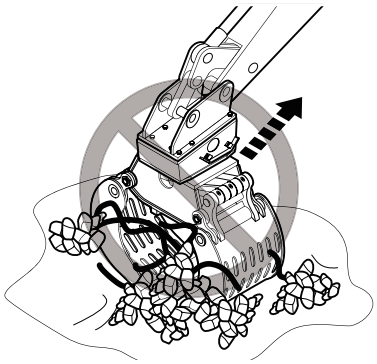
5.3.12 Hammering

- Do not use the grapple for hammering on the structure to be demolished.
- This would seriously damage the grapple



5.3.14 Abrupt movements

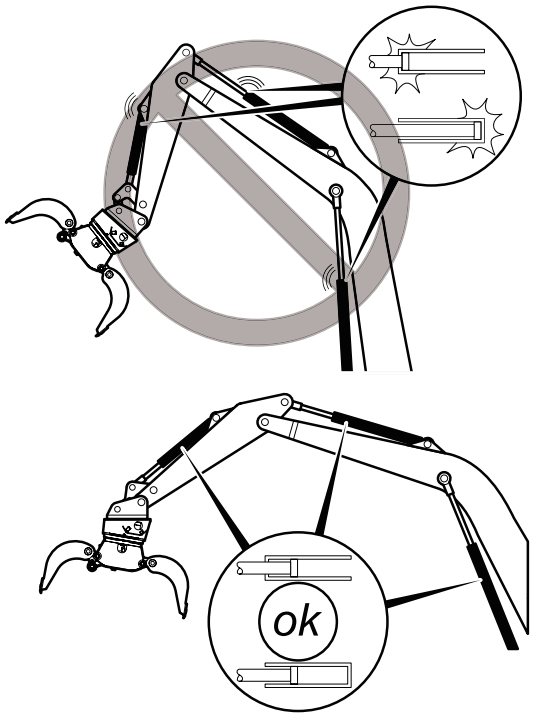
- Never make abrupt movements to free the grapple if it is jammed in the structure to be demolished.
- This would seriously damage the grapple.



- Ne faites jamais de mouvements brusques, cela endommagerait l'attachement hydraulique.

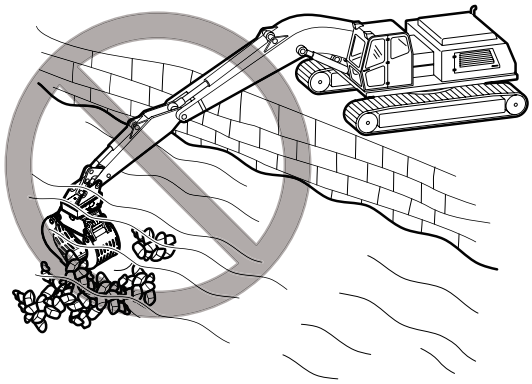
5.3.15 Cylinder end positions

- Reposition the excavator to avoid working with the cylinders attheir end positions.
- Avoid operating the grapple when the excavator stick and bucket cylinder are in one of their end positions. These end positions have damping facilities; the hydraulic cylinder may be damaged by prolonged use while in its end positions.



5.3.16 Use under water

- Never use the hydraulic attachment under water.
- This would seriously damage the grapple and may damage the whole hydraulic installation.



VI Troubleshooting

Many causes overlap when a malfunction of the attachment occurs.
In the event of a breakdown, check both the grapple manual and excavator manual to find the cause of each item and carry out its countermeasure.

○ **Request an inspection from a workshop specified by ACDE-EUROPE.**

◘ **Request an inspection from a workshop specified for the excavator's dealer.**

■ **The customer performs the inspection countermeasure..**

6.1 The multi grapple does not work

Condition	Cause	Countermeasure	By
Does not open or close or opens and closes slowly	The shut-valve is not completely open	■ Open the shut-valve	Excavator Operater
	The hydraulic cylinder is malfunctioning	○ Repair or replace the hydraulic cylinder	Workshop
	The pressure or oil flow of the excavator has dropped	◘ Inspect the excavator unit, and then adjust the pressure or flow rate	Workshop
The closing power of the multi grapple is insufficient	Opening and Closing lines have been mixed up	■ Properly connect the Opening and Closing lines.	Excavator Operater
The grapple cannot be rotated	Rotation motor / gear unit / rotary transmission defective	○ Check rotation motor / gear unit / rotary transmission and replace defective parts	Workshop
Operating temperature too high	Oil level in tank too low	■ Check oil level and top up oil	Excavator Operater
	excavator pump delivery too high; a constant volume of oil is squirted out of the pressure relief valve	◘ Check and correct motor speed of carrier	Workshop
	Pressure relief valve defective or valve with poor characteristics	◘ Fit new type-tested pressure relief cartridges or a more precise pressure-limiting valve	Workshop
Oil leaks from hydraulic ports	Cap nuts are loose	■ Check and tighten cap nuts (see chapter Bolt connections / Tightening torques)	Excavator Operater
Insufficient lubrication	There is not enough grease	■ Check lubrication and lubricate (see chapter Lubrication)	Excavator Operater
There is a lot of rattling	The pin or bushing is worn	○ Replace the pin or bushing	Workshop
	The boss edge is worn	■ Retighten the nuts	Excavator Operater
There is a strange noise during opening or closing	There is not enough grease	■ Check lubrication and lubricate (see chapter Lubrication)	Excavator Operater

- **If the problem is not solved by the chart above, there may be a breakdown of the excavator or grapple.**
- **Do not use machinery while the problem remains. Contact your ACDE-EUROPE dealer immediately.**
- **Regarding inspections and adjustments of the oil pressure, flow rate, and other items, consult with the dealer of the excavator.**

VII Standard Torque Table

7.1 Bolt connections / tightening torques

⚠ WARNING If the tightening torque is outside the specified range, the tightening section may become damaged or loose, which may lead to a mechanical breakdown, damage, or a serious accident. Take sufficient care when tightening.

Tightening torque [Nm]			
Thread	Strength class 8.8	Strength class 10.9	Strength class 12.9
M 8	25	35	42
M 10	50	70	85
M 12	85	120	145
M 14	135	190	230
M 16	210	295	355
M 18	290	410	490
M 20	410	575	690
M 24	710	995	1240
M 27	1050	1450	1750
M 30	1420	2000	2350

7.2 Hydraulic hose coupling tightening torque

⚠ WARNING If the tightening torque is outside the specified range, the hydraulic hose may become damaged or loose, which may lead to an oil leak, mechanical breakdown, or a serious accident. Take suffi cient care when tightening

Size	Tightening torque (N · m)	Tightening torque (kgf · m)
1/8	15	1.5
1/4	25	2.5
3/8	49	5
1/2	59	6
3/4	157	16
1	196	20
1-1/4	245	25

VIII Warranty

ACDE EUROPE AG (hereinafter called “Seller”) warrants the grapples sold in Europe to be free, under normal use and service, of any defects in manufacture or materials for the following time periods, commencing on the date on which such equipment is invoiced to the original purchaser or the date on which such equipment is fi rst put into service, whichever occurs first:

- WITH RESPECT TO STRUCTURAL ELEMENTS: — 1 (One) year
- WITH RESPECT TO HYDRAULICAL COMPONENTRY (except as provided below): — 1 (One) year

provided that

1. Seller receives written notice of the defect within fourteen (14) days of its discovery and Buyer establishes that the grapple has been maintained and operated within the limits of rated and normal usage; and the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees.

2. The new grapple registration certificate has been completed, signed and delivered to Seller within fourteen (14) days of the equipment’s “in-service” date. If requested by Seller, Buyer must return the defective equipment to manufacturing facility or other location designated by Seller.

⚠ WARNING The guarantee or product liability will be invalidated by the following:

- Use other than intended.
- Maintenance work not being carried out or being carried out incorrectly.
- if parts (including wear parts) other than genuine OEM parts are used in the equipment.
- The use of non-approved parts.
- Damage due to wear.
- Damage due to improper storage.
- Changes not carried out by or in consultation with the manufacturer.

Notice:

NORMAL OPERATIONAL MAINTENANCE SERVICES AND WEAR PARTS: Maintenance services and wear parts are excluded from warranty claims. Maintenance services and wear parts not covered include, but are not limited to, such items as: wear blade,seals, hoses, proper tightening of bolts, nuts and fittings, adding or replacing fluids, adjustment of any kind, services supplies such as hard cleaners, towels and lubricants, inspections, diagnostic time.

NO TRANSFERABILITY OF WARRANTY: This warranty is limited to the original purchaser or original end-user if sold to a dealer, and is not assignable or otherwise transferable without the written agreement of Seller.

INCIDENTAL OR CONSEQUENTIAL DAMAGE: seller shall not be liable for any incidential or consequential damages of any kind, including, but not limited to, lost profits, loss of production, increased overhead, loss of business opportunity, delays in production, costs of replacement components and increased costs of operation that may arise from the bewach of this warranty.

This warranty shall not apply to any of Seller’s equipment of any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of God or sabotage. No action by any party shall operate to extend or revive this limited warranty without the prior written consent of Seller. In the event that any provision of this warranty is held unenforceable for any reason, the remaining provisions shall remain in full force and eff ect.

IX Commissioning Card For Warranty

Model:
Serial No.:

END USER

Name:
Address:
Contact person:
Telephone:

DEALER

Company: _____
City:· _____
Delivery date: _____
Country: _____

SUPPLIER

Company: _____
City: _____
Delivery date: _____
Working hours on clock: _____

INSTALLATION

Installed by: _____
Excavator manufactuer: _____
Build: _____
Serial No.: _____

Conpany: _____
Model: _____
Totally weight: _____
Serial No.: _____

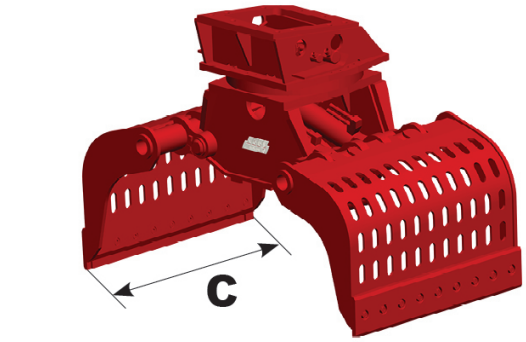
Measured max.oil flow to grapple: _____ l/min
Measured max.excavator presssure to grapple: _____ bar
Measured setting of reliefvalve pressure for grapple: _____ bar
Measured working pressure of grapple at max,engine rpm: _____ bar
Measured back pressure in return line from grapple: _____ l/min
Measured max.oil temperature at continues operation: _____ °C
Hydraulic oil maker,type,quality: _____

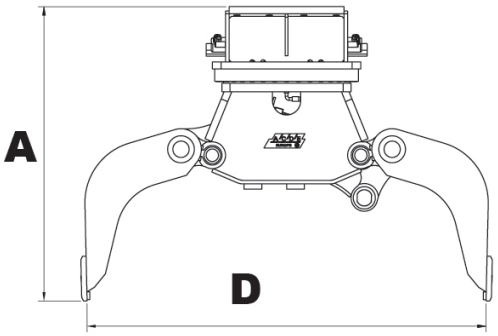
Operating pressure »Open /Close«: Setting: _____ bar
Oil flow»Open /Close«: Setting: _____ l/min
Operating pressure »Rotation«: Setting: _____ bar
Oil flow»Rotation«: Setting: _____ l/min

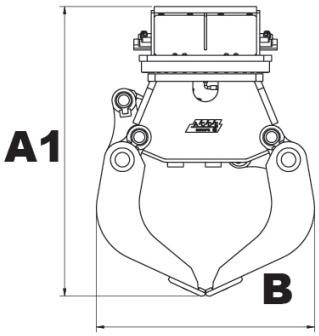
Installation approved No.: _____ By: _____
Warranty starts: ___/___/ 20___ Finished: ___/___/ 20___
Next scheduled service: ___/___/ 20___ At: _____ Working hours

Notice:

1. *A signed copy of this commissioning card has to be send or email directly after commissioning of the grapple to ACDE ERUOPE.Chaim can only be handled when the commissioning card is available.*
2. *Whenever the grapple is switched to a different excavator, you will have to commission this new excavator and provide ACDE EUROPE with a new commission card after measuring and administrating the required information.*







			A/A1	B	C	D	
	1*)	2*)	-	-	-	-	7*)
	Kg	t	mm	mm	mm	mm	kN
ASG-80	80	0.8 - 1.2	595 / 600	430	300	600	6
ASG-105	105	1-2	610 / 670	500	350	770	7
ASG-160	160	1.2-3	650 / 670	545	450	800	15
ASG-280	280	3-5	770 / 850	780	500	1160	20
ASG-460	400	4-6	880 / 1010	850	600	1400	23
ASG-500	435	5-8	910/1085	905	700	1520	24
ASG-600	500	7-11	990 / 1156	885	700	1550	24
ASG-700	600	9-12	1050 / 1220	1055	600	1700	30
ASG-800	832	10-16	1140 / 1315	1070	800	1750	35
ASG-1000	1070	12-20	1245 / 1456	1175	800	1950	46
ASG-1090	1110	13-20	1245 / 1456	1175	900	1950	46
ASG-1100	1145	16-20	1245 / 1456	1175	1000	1950	46
ASG-1200	1360	16-25	1485/1675	1300	900	2100	55
ASG-1500	1420	17-28	1485/1675	1340	1000	2100	55
ASG-1800	1480	20-28	1485/1675	1300	1200	2100	55
ASG-2100	1750	23-30	1430/1695	1340	1200	2250	68
ASG-2300	1880	25-38	1460/1690	1350	1200	2250	80
ASG-2700	2500	28-40	1635/1830	1370	1200	2250	90
ASG-2900	2700	30-50	1635/1830	1370	1360	2250	90
ASG-3100	2900	30-50	1654/1945	1385	1500	2450	90
ASG-4100	3910	40-65	1800/2050	1755	1500	2850	110
ASG-4900	4100	45-80	1800/2090	1755	1500	2850	110
ASG-5100	5000	45-100	1880/2200	1890	1500	3000	130

1*) GEWICHT ohne Kopfplatte / POIDS, sans support / WEIGHT, without bracket 2*) GEEIGNETER BAGGER / EXCAVATRICE COM
9*) Ölfluss Rotation / DÉBIT D'HUILE POUR LA ROTATION / Oil Flow Rotation 10*) ÖIDRUCK Rotation / PRESSION D'HUIL
EINSTELLDRUCK / PRESSION RÉGLÉE / SET PRESSURE 13*) INHALT / VOLUME / VOLUME 14*) LOCHBILD / MODÈLE DE TROU

8*)	9*)	10*)	11*)	12*)	13*)	14*)	15*)	
°	l/min/max	bar/ min-max	l/min/max	bar	ltr	AC		
360	5	170 - 210	15	300	30	AC02	M16	
360	5	170 - 210	20	300	40	AC02	M16	
360	10	170 - 210	25	300	70	AC03	M16	
360	10	170 - 210	35	300	100	AC03	M16	
360	12	190 - 210	40	300	150	AC05	M16	
360	12	190-210	50	300	200	AC05	M16	
360	15	190 - 210	70	320	200	AC08	M20	
360	15	190 - 210	90	350	300	AC08	M20	
360	25	190-210	100	350	400	AC09	M30	
360	25	190-210	120	350	500	AC09	M30	
360	25	190-210	120	350	600	AC09	M30	
360	25	190-210	120	350	700	AC09	M30	
360	35	190-210	160	350	750	AC09	M30	
360	25	190-210	160	350	800	AC09	M30	
360	35	190-210	160	350	850	AC09	M30	
360	35	190-210	170	350	900	AC09	M30	
360	35	190-210	170	350	950	AC10	M30	
360	35	190-210	200	350	1000	AC10	M30	
360	35	190-210	200	350	1100	AC10	M30	
360	35	190-210	200	350	1210	AC10	M30	
360	40	190-210	250	350	1500	AC14	M36	
360	50	190-210	250	350	1500	AC14	M36	
360	60	190-210	250	350	1600	AC14	M36	

MPATIBLE / APPLICABLE EXCAVATOR 7*) KNEIFKRAFT / FORCE DE PINCE / PINCHING FORCE 8*) ROTATION / ROTATION / ROTATION
E POUR LA ROTATION / Oil PRESSURE Rotation 11*) ÖLFLUSS / DÉBIT D'HUILE DE FONCTIONNEMENT / WORKING OIL FLOW 12*)
US / HOLE PATTERN 15*) SCHRAUBENGRÖSSE / TAILLE DES BOULONS / BOLT SIZE

Hydraulikschema – Hydraulic Schematic – Schéma hydraulique – Hydraulisch schema

für – for – pour – voor

AMG-Serie, ARG-Serie, ASB-Serie, ASG-Serie

Um unerwünschte Bewegungen der Ausrüstung bei einem Defekt der unter Druck stehenden Leitungen zu vermeiden, muss der Hydraulikkreis mit Sperrventilen versehen sein, die bei plötzlichem Druckabfall alle Bewegungen des Baggers sperren.