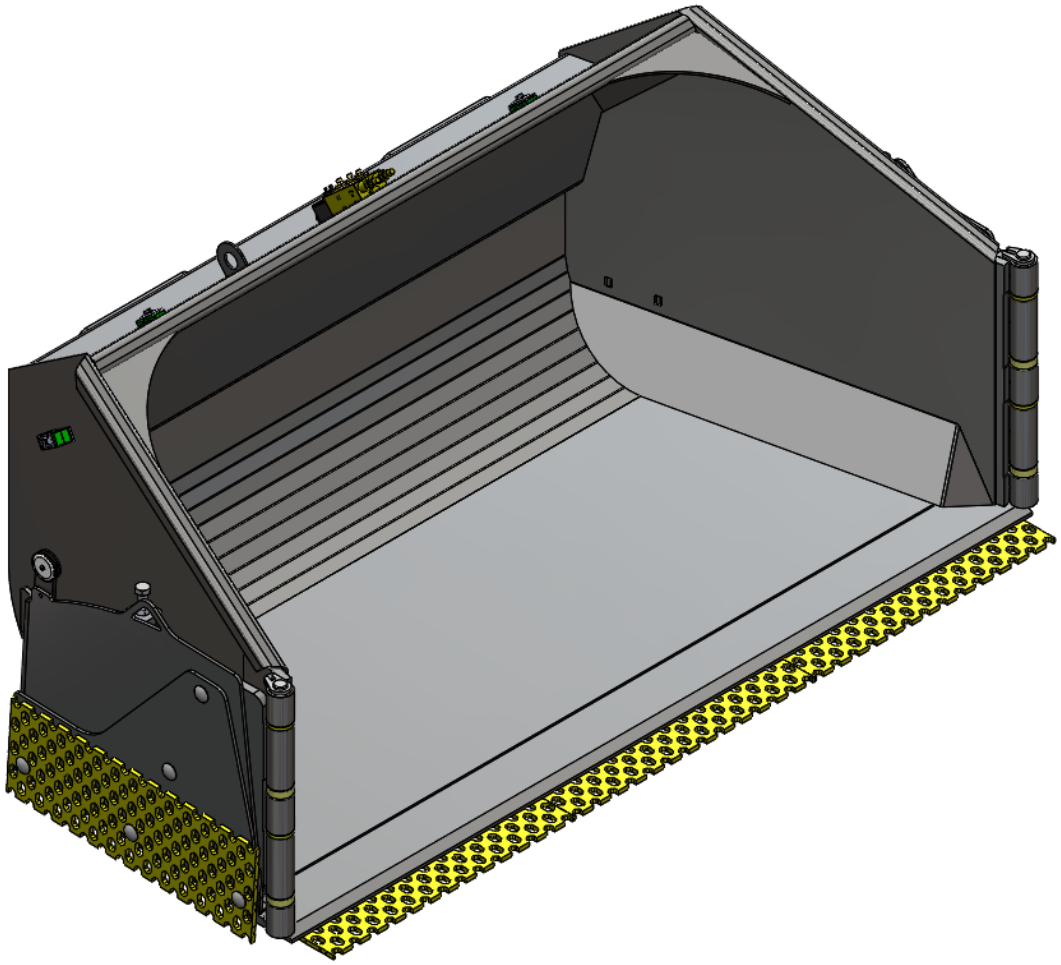
Original

Operating and maintenance manual

Multipurpose bucket



Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

General

Congratulations on the purchase of your STARK Multipurpose bucket!

For us, the long lifecycle and efficiency of your new equipment is a priority. To keep the multipurpose bucket in top working condition, read this manual carefully before using the equipment.
STARK products are engineered and manufactured in Finland, and each of them is equipped according to the needs of the customer.
Never let anyone operate or maintain the device without reading this manual carefully! Always make sure that safety precautions are observed in use and maintenance. Keep this manual for future reference and make sure to hand it over to a new owner.
The cornerstones of the product development of STARK attachments are quality, durability and economy. The products are engineered to be high-performing, safe and durable in professional use. Any feedback on our products is welcome and contributes to the further development of our products. If you have any questions about the use or maintenance of the bucket, please contact us by e-mail: info@stark.fi
Visit our webpage www.stark.fi for the complete product range, including new products.
The manufacturer reserves the right for structural and technical changes without prior notice. Therefore, some pieces of information given in the manual may have changed after printing this manual.

Read before use

Make sure you know your equipment before you start using it.
Equipment may be operated only by an individual who is thoroughly familiar with its use.
All operators must be properly instructed before use and maintenance of the equipment. Use by individuals with insufficient instructions may pose serious risks to the operators themselves, to the environment and the equipment.



When coupling the attachment to the base machine, make sure:

- that all locking cotters are intact and in order
- there is no pressure in the hydraulic system
- that hydraulic hoses are intact
- there is no skin contact to hydraulic oil when connecting hydraulic hoses
- not to pull by the hydraulic hoses, but only by the hydraulic fitting



During operation, pay attention to:

- safe, appropriate travel speed
- other traffic, people and animals
- danger zones and objects that block your view
- children

NEVER use the machine if there is someone in the danger zone.
NEVER go under unsecured the attachment.

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

Table of contents

General 2

Read before use 2

1. DECLARATION OF CONFORMITY 4

2. PURPOSE OF USE 5

3. SAFETY PRECAUTIONS 5

4. IDENTIFICATION INFORMATION AND SPAREPARTS 6

4.1. Identification plate 6
4.2. Maintenance services 6

5. MAIN PARTS OF THE MULTIPURPOSE BUCKET 7

6. USING THE MULTIPURPOSE BUCKET 8

6.1. Attaching the multipurpose bucket the base machine 8

7. OPERATING THE MULTIPURPOSE BUCKET 9

7.1. Operating instructions 9
7.2. Adjustment of the wing's height 11
7.3. Adjustment of the blades 11
7.4. Adjustment of the bucket blades 13
7.5. Detaching the bucket spreader 13
7.6. Transferring the bucket spreader 13
7.7. Accessories 13

8. MAINTENANCE OF THE MULTIPURPOSE BUCKET 14

8.1. General safety precautions for the use and maintenance 14
8.2. Tightening torque 14
8.3. Daily maintenance 14
8.4. Maintenance after first 10 hours of operation 14
8.5. Maintenance at 50-working hour intervals or on a weekly basis 15
8.6. Lubrication points 15

9. HYDRAULICS 16

9.1. 4- and 5-hose hydraulics 16
9.2. 3-hose hydraulics 17
9.3. Adjustment of the safety valves 18

10. WARRANTY POLICY 19

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

1. DECLARATION OF CONFORMITY

The original manufacturer's EC declaration of conformity:
Generic product name: Multipurpose bucket
Models: SL 2000/3200, SL 2200/3600, SL 2350/4150T, SL 2300/3700, SL 2500/3900, SL 2500/4300, SL 2600/4400, SL 2600/4800, SL 2800/5000, SL 3000/5200

Manufacturer:
Lametal Ltd
Kaskenviertäjäntie 2 73100 LAPINLAHTI, Finland
tel. +358 17 731 565

Declares that the above-mentioned equipment meets the provisions of Directive 2006/42/EC on machinery and, where applicable, comply with the standards

- SFS-EN ISO 12100-1,
- SFS-EN ISO 12100-2
- SFS-EN 1050

The person authorized to compile technical documentation:



Lassi Mehtonen
Managing director
Kaskenviertäjäntie 2
73100 Lapinlahti, FINLAND

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

2. PURPOSE OF USE

Multipurpose buckets are intended for removing snow from streets and yards of different size. It also can be use loading snow or other light material.

Using to plow or move heavier material than snow is prohibited and will terminate warranty.

3. SAFETY PRECAUTIONS

Make sure you know your equipment before you start using it. Equipment may be operated only by an individual who is thoroughly familiar with its use.



Before connecting hydraulics to the base machine, make sure that:

- there is no-one between the attachment and the base machine
- the base machine is turned off and the parking brake is on.

When coupling the attachment to the base machine, make sure that:

- all locking cotters are intact and in order
- hydraulic hoses are intact
- there is no skin contact to hydraulic oil when connecting hydraulic hoses
- you do not to pull by the hydraulic hoses, but only by the hydraulic fitting.

During operation, pay attention to:

- safe, appropriate travel speed
- other traffic, people and animals
- danger zones and objects that block your view
- children
- use of turn signal when driving



NEVER use the machine, if there is someone in the danger zone
NEVER go under the attachment



WARNING! Pressurized hydraulic hoses and components!

During maintenance, the hydraulics of the base machine MUST be turned off. The base machine MUST also be turned off and the parking brake MUST be applied. The equipment must be properly supported, if maintenance can only be performed by going under the equipment. Never go under the equipment if it is not properly supported.
Daily maintenance:

- check general condition of structures, make repairs if needed
- check the hydraulic hoses and fittings, and replace damaged parts

After every 50 hours of operation:

- lubricate points specified in later section of this manual
- check all bolts and nuts for tightness

Check all bolts, nuts and hydraulic fittings for tightness after the **first day** of operation!
If the equipment is not likely to be used for a longer period, clean it thoroughly after use and lubricate as instructed.

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

4. IDENTIFICATION INFORMATION AND SPAREPARTS

4.1. Identification plate

Identification plate is placed on the side of the equipment. The plate includes contact information, machine type, year of manufacture, serial number and weight. (See an example of an identification plate in picture 1 below).
The first four numbers in the serial number indicate the month and year of manufacture (month first). The remaining five numbers constitute the machine tracking number, which is stored in the manufacturer's database (13971 in the example below).



Picture 1. Identification plate

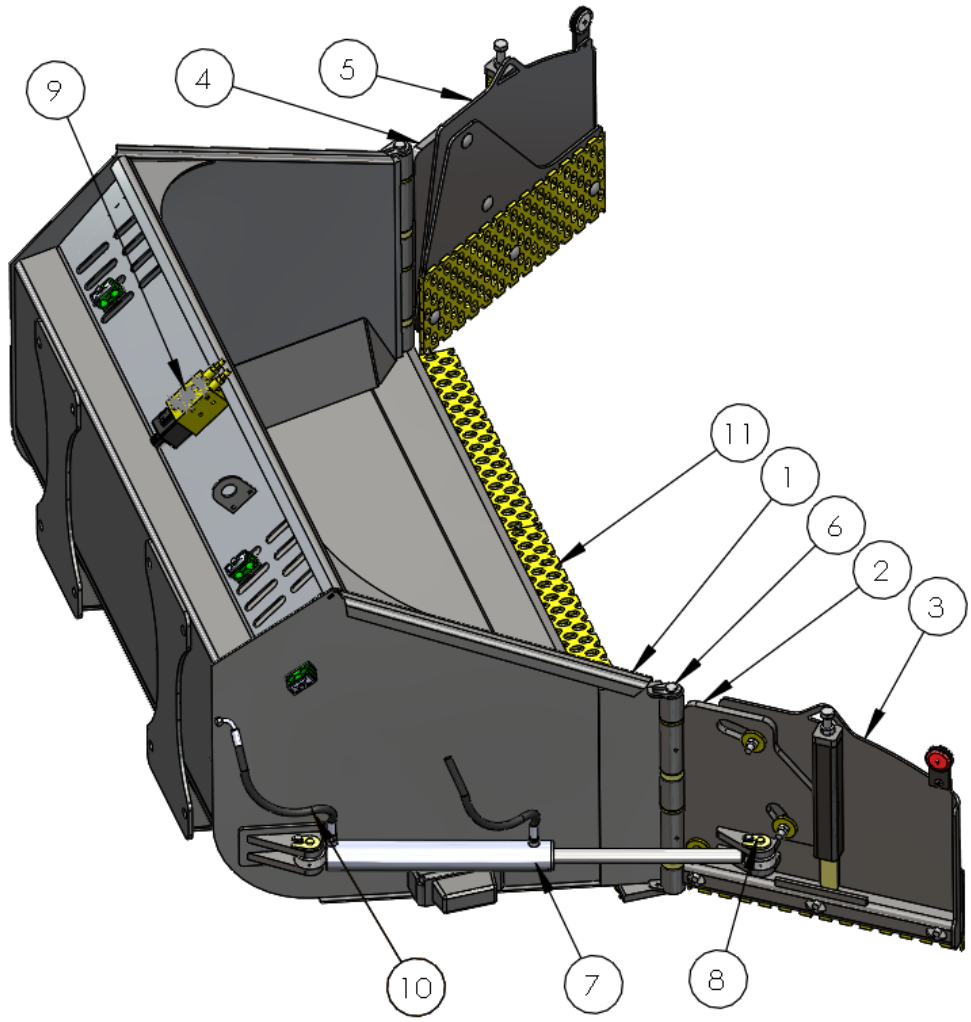
Take down the machine type and the serial number of your multipurpose bucket:

Product and model _____Serial number_____

4.2. Maintenance services

When replacing parts, use original, manufacturer spare parts only. By using original spare parts, you ensure dependable operation of the multipurpose bucket and comply with the warranty policy. To facilitate the supply of spare parts, always inform the manufacturer/retailer of the model and serial number of the multipurpose bucket (marked in the identification plate) when you order spare parts.
For more information on maintenance and spare parts, please contact the STARK maintenance and spare part services or your retailer.
Contact information for STARK maintenance services:
tel. +358 (0)17 731 565, e-mail info@stark.fi
tel. +358 (0)44 758 6221, e-mail parts@stark.fi

5. MAIN PARTS OF THE MULTIPURPOSE BUCKET



Picture 1. Main parts of the device

1) Multipurpose bucket frame
2) Wing fastener, right
3) Wing, right
4) Wing fastener, left
5) Wing, left
6) Wing fastening pin
7) Hydraulic cylinder
8) Cylinder fastener pin
9) Hydraulic valve
10) Hose set
11) Blade set

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

6. USING THE MULTIPURPOSE BUCKET

When attaching the bucket spreader for the first time, make sure it is compatible with the base machine by following the instructions below. Always check the compatibility when attaching the bucket spreader to a new base machine.

6.1. Attaching the multipurpose bucket to the base machine

The multipurpose bucket is attached to the base machine with welded or bolted STARK FIT quick hitches. The machine is connected to a hydraulic system. Hydraulic circuit diagrams can be found in a later section in this manual. Ask your retailer for available STARK FIT quick hitches.

Before using the multipurpose bucket, MAKE SURE all locking cotters and pins are secured and intact.

When coupling the multipurpose bucket to the base machine, please pay attention to the instructions on the use of the base machine.

1. Make sure that the attachment and the base machine are compatible in terms of mechanical solutions, hydraulics and electricity.

2. The multipurpose bucket is attached to the coupler on the base machine (e.g. a loader). Attach the multipurpose bucket to the base machine, and make sure the locking cotters and pins are secured. Apply parking brake.

3. Turn off the base machine and make sure the parking brake is applied.

4. Make sure there is no pressure in the base machine hydraulic system. When connecting, always make sure the hydraulic connectors are clean and the hoses are intact.

5. Check carefully all of the wing paths of the attachment, the base machine and the fitting for collision. Make sure that the hydraulic hoses and attachments have enough space. Check that the wings are operating in direction you wanted. If needed, change the positions of the hoses in the base machine.

6. During first hours of operating the attachment, bolts, nuts and connectors might loosen up. **Retighten them** after the first day of operating the attachment.

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

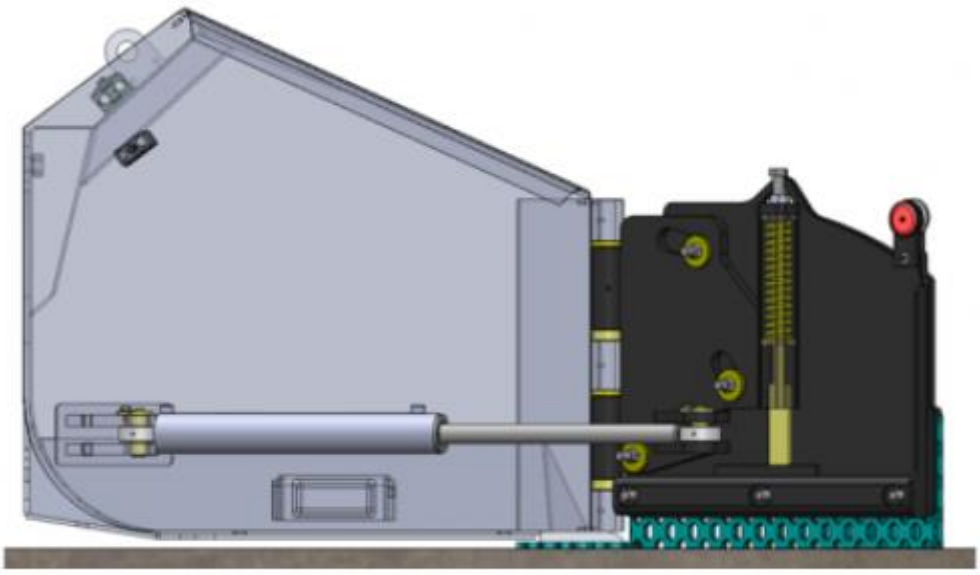
7. OPERATING THE MULTIPURPOSE BUCKET

Make sure before driving that:

- the equipment is properly attached to the base machine
- all locking cotters and pins are secured
- hydraulic hoses are properly connected
- the hoses are intact
- there are no oil leaks in the equipment
- all functions are working properly
- you have learnt to use the multipurpose bucket in a closed area before actual use
- While driving, stay alert for possible malfunctioning and oil leaks

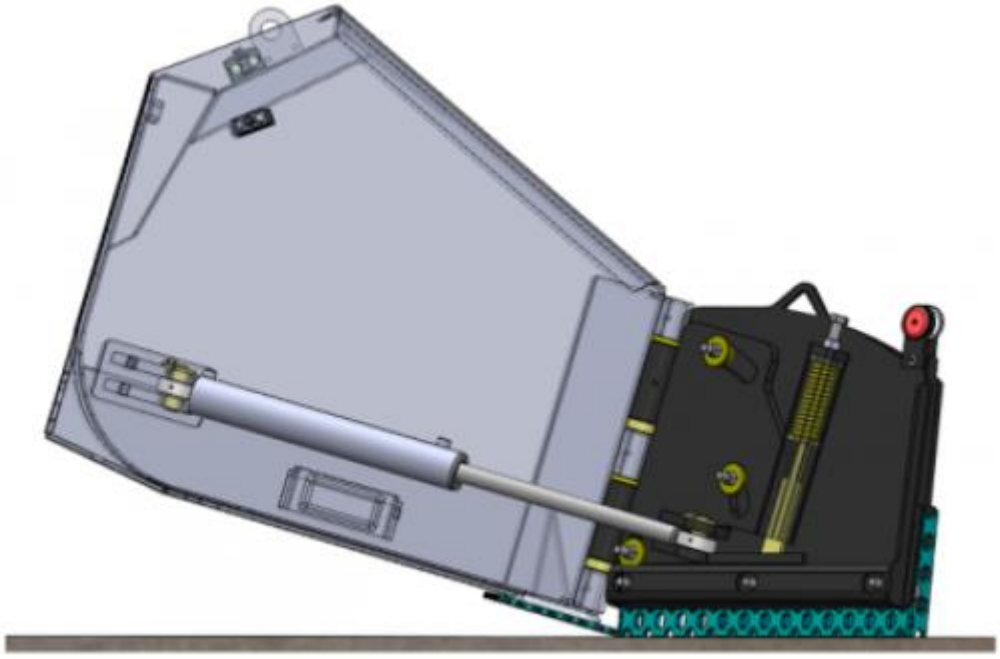
7.1. Operating instructions

1. Check that the attachment and the base machine are compatible in terms of mechanical solutions, hydraulics and electricity.
2. The multipurpose bucket is connected to the base machine's quick hitching (e.g. front loader). Apply the parking brake. Connect the bucket to the base machine and make sure the pins are properly locked.
3. Turn off the base machine and make sure the parking brake is applied.
4. Make sure there is no pressure in the base machine hydraulic system. When installing, always check that the hydraulic fittings are clean and hoses are intact.
5. Check carefully wings' movements between the attachment mechanism, the base machine and the attachment for collisions. Check also the space needed for hydraulic hoses and fittings.
6. Collection of snow: Keep the multipurpose bucket in a horizontal position. Spread or retract the wings as needed. The bucket has a fixed blade, which means that collisions may be abrupt and hard**, so make sure to adjust your speed accordingly** (picture 3).
7. Removing hard, packed snow: Tilt the multipurpose bucket within the limits of the wing's springs (picture 4). Watch out for collision; if the bucket's blade hits an obstacle, **collision may be abrupt and hard**.



Picture 3. Collecting snow

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

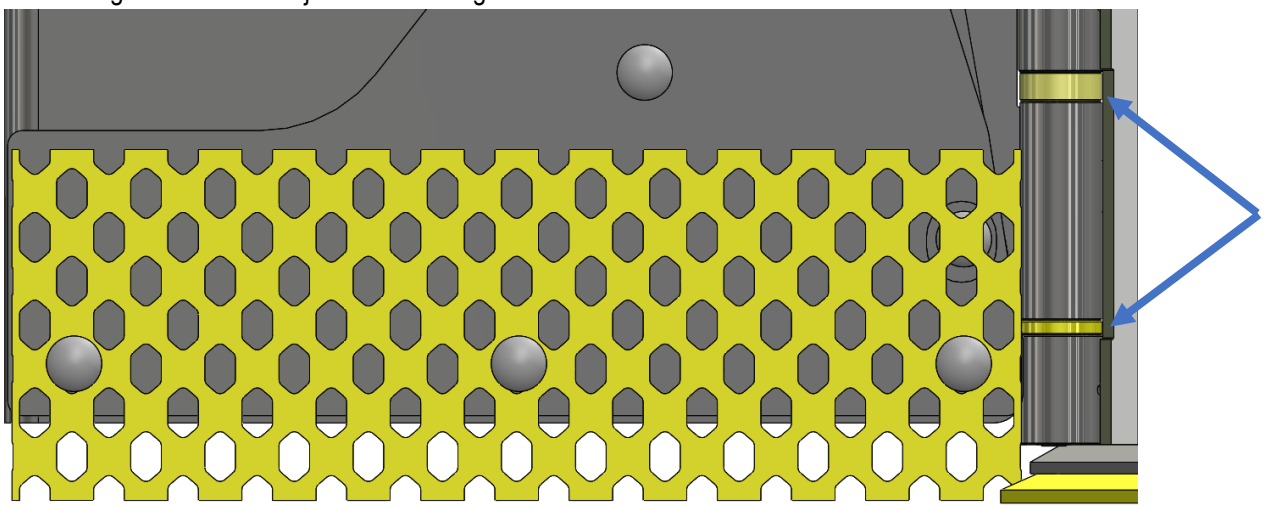


Picture 4. Removing packed snow

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

7.2. Adjustment of the wing's height

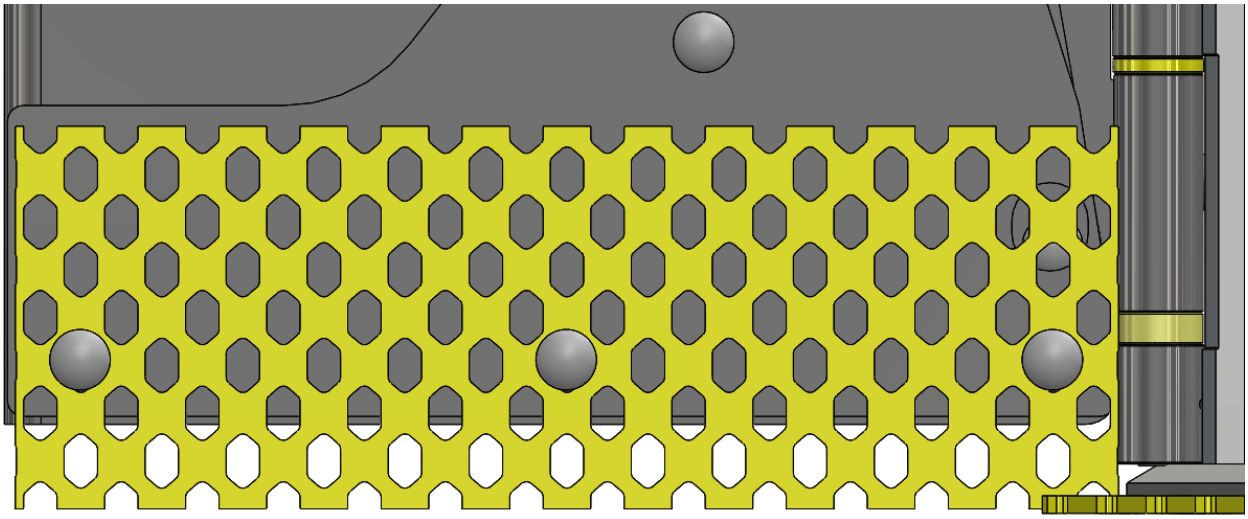
Blades of different thickness can be used in the bucket (Flat-, hole-, saving- and serrated blades). To ensure that the wing's and the bucket's blade are on the same level, the wing's height can be adjusted by changing the places of the adjustment bushings. In Picture 5 adjustment bushings are used with a thick wear blade.



Picture 5. The blade can be adjusted by changing the location of the bushings

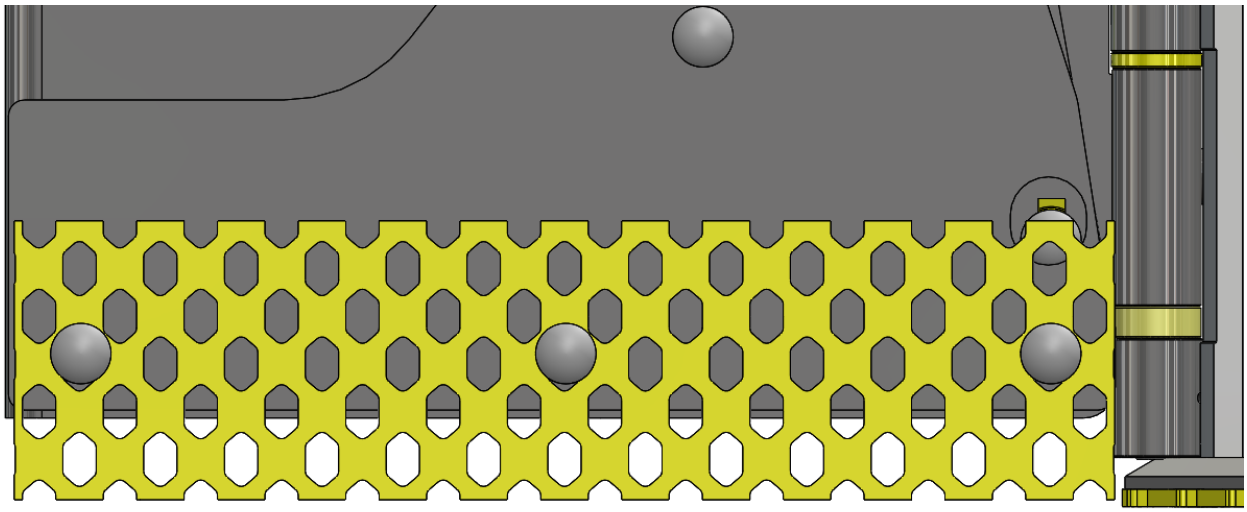
7.3. Adjustment of the blades

Wing's blades can be adjusted three times. After each adjustment, the blade wear allowance is 45 mm. In picture 6 the blade is in the initial position. Once the blade has worn, it will be turned over, moved lower and attached to the blade by upper holes. (Picture 7). After this the blade will be turned over and attached again by the lower holes in the blade (Picture 8). Once the blade has worn out in this position, it needs to be replaced by a new blade.

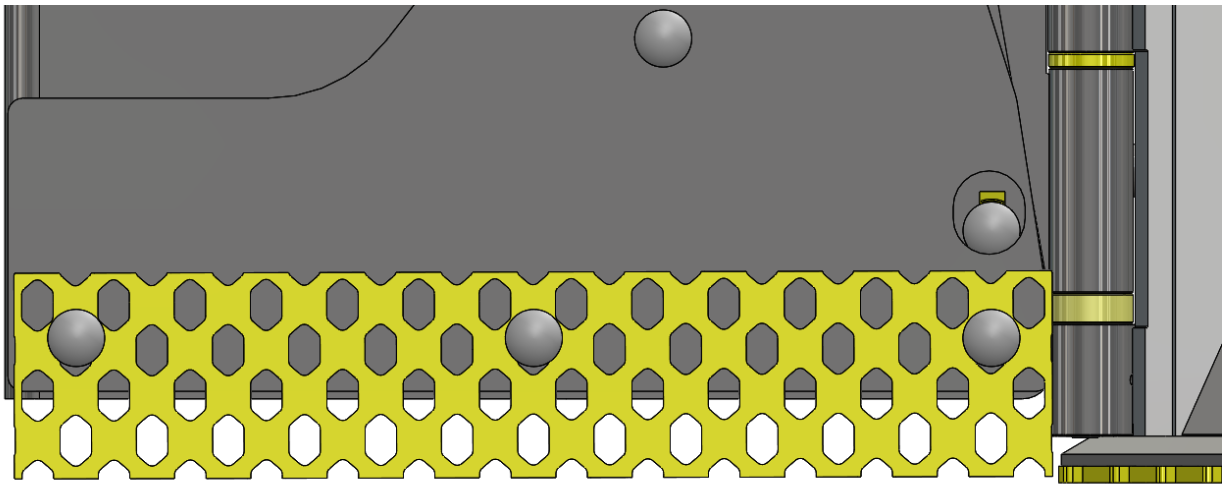


Picture 6. Blade in its initial position

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi



Picture 7. A worn blade has been turned over.

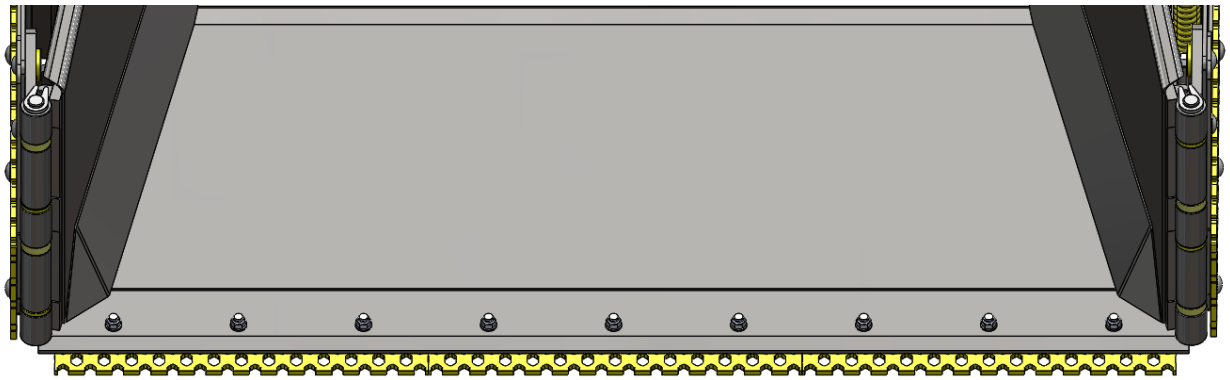


Picture 8. A worn blade with the final adjustment.

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

7.4. Adjustment of the bucket blades

The bucket blade can be adjusted by attaching it by the upper holes as it wears down. The blade can also be turned over (picture 9).



Picture 9. A bucket's blade at the initial position

7.5. Detaching the bucket spreader

1) Lower the bucket spreader to an even ground.
2) Turn off the base machine, put on the parking brake and release pressure from the system
3) Detach the hydraulic hoses and protect the couplings with plugs
4) Open the mechanical lock and loosen the bucket spreader
5) If the bucket spreader is left unused for a long period of time, it needs to be clean and lubricated properly before storage.

7.6. Transferring the bucket spreader

Lift the bucket spreader high enough and reduce speed if needed, especially on bumpy, uneven roads. The bucket spreader or the base machine can be damaged due to excessive speed.

7.7. Accessories

The following accessories are available for the multipurpose bucket:

- Double relief safety valve
- Hydraulic Accumulator
- Electric directional valve (12V or 24V)
- Wired controller
- Pin Float -fitting
- Flat-, perforated-, serrated- and thick wear blade sets for the bucket
- Flat- and perforated blade sets for the wings

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

8. MAINTENANCE OF THE MULTIPURPOSE BUCKET

8.1. General safety precautions for the use and maintenance

- Comply with existing laws and regulations and the instructions given in this manual.
- Never go under an unsecured device.
- Always apply the parking brake of the base machine before performing any actions on the device.
- Only use tools that are in proper working order.
- Be careful with the pressurized hydraulic hoses and components.
- Make sure there is no pressure in the hydraulic system. Take into account the pressure accumulator.
- Make sure hydraulic fluids or greases do not leak to the ground.
- Use all necessary personal protectors.

8.2. Tightening torque

	Nm (strength 8.8)
M4	3,3
M5	6,5
M6	11,3
M8	27,3
M10	54
M12	93
M14	148
M16	230
M18	329
M20	464
M22	634
M24	798
M27	1176
M30	1597
M33	2161
M36	2778
M39	3597

Table 1. Tightening torque

8.3. Daily maintenance

In order to prevent further damages, it is important to inspect the device visually for possible defects. Inspect at least the following daily:

- Hydraulic hoses and components for possible leaks
- General mechanical functioning

8.4. Maintenance after first 10 hours of operation

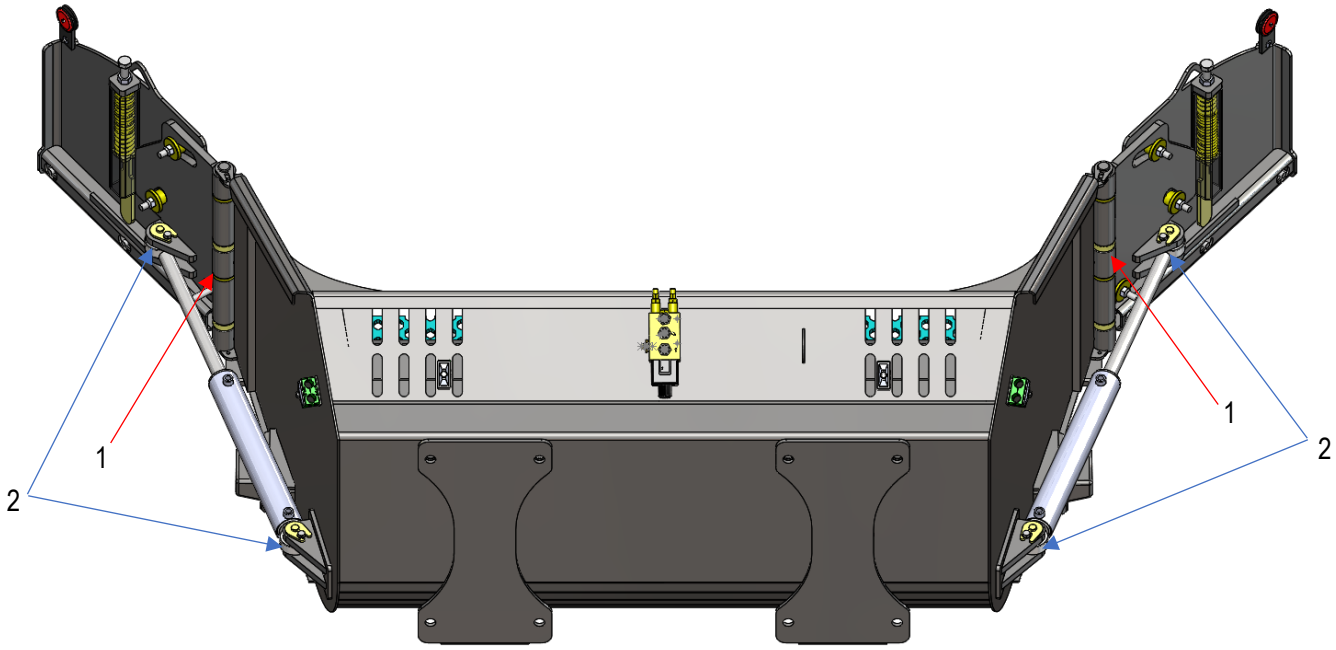
- Lubricate, recommended quality NLGI-2 grade grease or equivalent (shown in the later section)
- Check all bolts and nuts for tightness (table 1)

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

8.5. Maintenance at 50-working hour intervals or on a weekly basis

- Lubricate, preferably with a NLGI-2 grease or equivalent (see instructions in later section)
- Check the mechanical condition of the device for bends, cracks or breaches
- Check fastening bolts for tightness (table 1)

8.6. Lubrication points



Picture 10. Location of grease nipples

1) Grease nipples for the joints of the wings
2) Grease nipples for the hydraulic cylinders

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

9. HYDRAULICS

The multipurpose bucket can be connected to a 3-, 4- and 5-hose hydraulic system. The device is equipped with a complex closed hydraulic system, which has been tested and adjusted by the manufacturer. Any alterations or modifications to the hydraulic system are on the sole responsibility of the client.

Multipurpose bucket cannot be connected to system with no **pressure limitations!** Without limitation the attachment can be damaged. If necessary, install a separate pressure limiting valve.

9.1. 4- and 5-hose hydraulics

The hydraulic chart for the 5-hose system hydraulics is in figure 1. The 4-hose system is the same but the tank line (T) is replaced with a hydraulic accumulator (A).

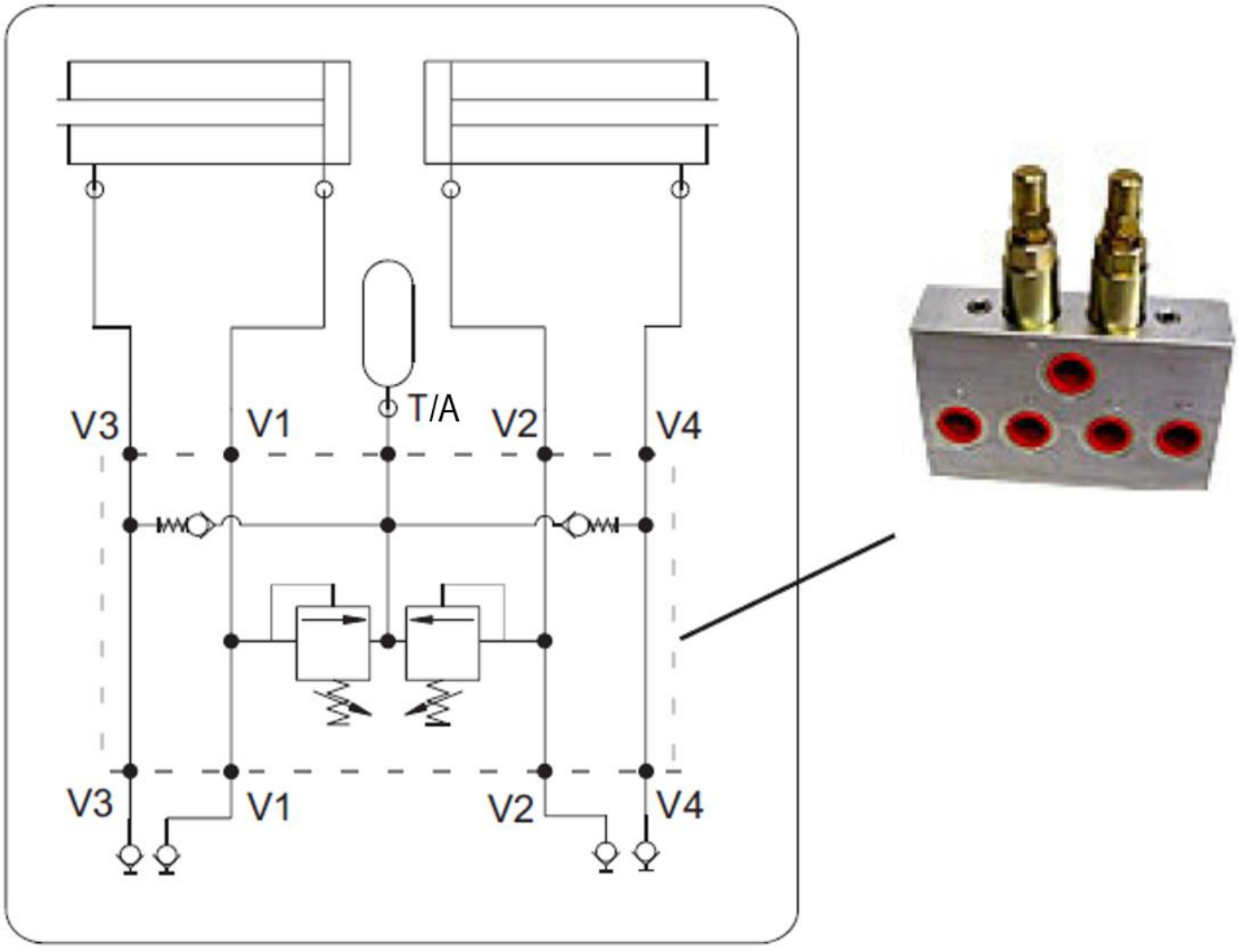


Figure 1. 5- and 4-hose system's hydraulic chart

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

9.2. 3-hose hydraulics

The 3-hose system requires 1 pc of 2-action hydraulic section from the base machine and a free tank line, for pressure limitation to operate. The free tank line can be replaced with a hydraulic accumulator.

The electric directional valve is controlled by either a wired controller or the base machine's own controller. A wired controller is available as an accessory.

The 3-hose system's hydraulic chart is shown in figure 2. The pressure limitation valve needs a tank line (T) or a hydraulic accumulator (A) to operate.

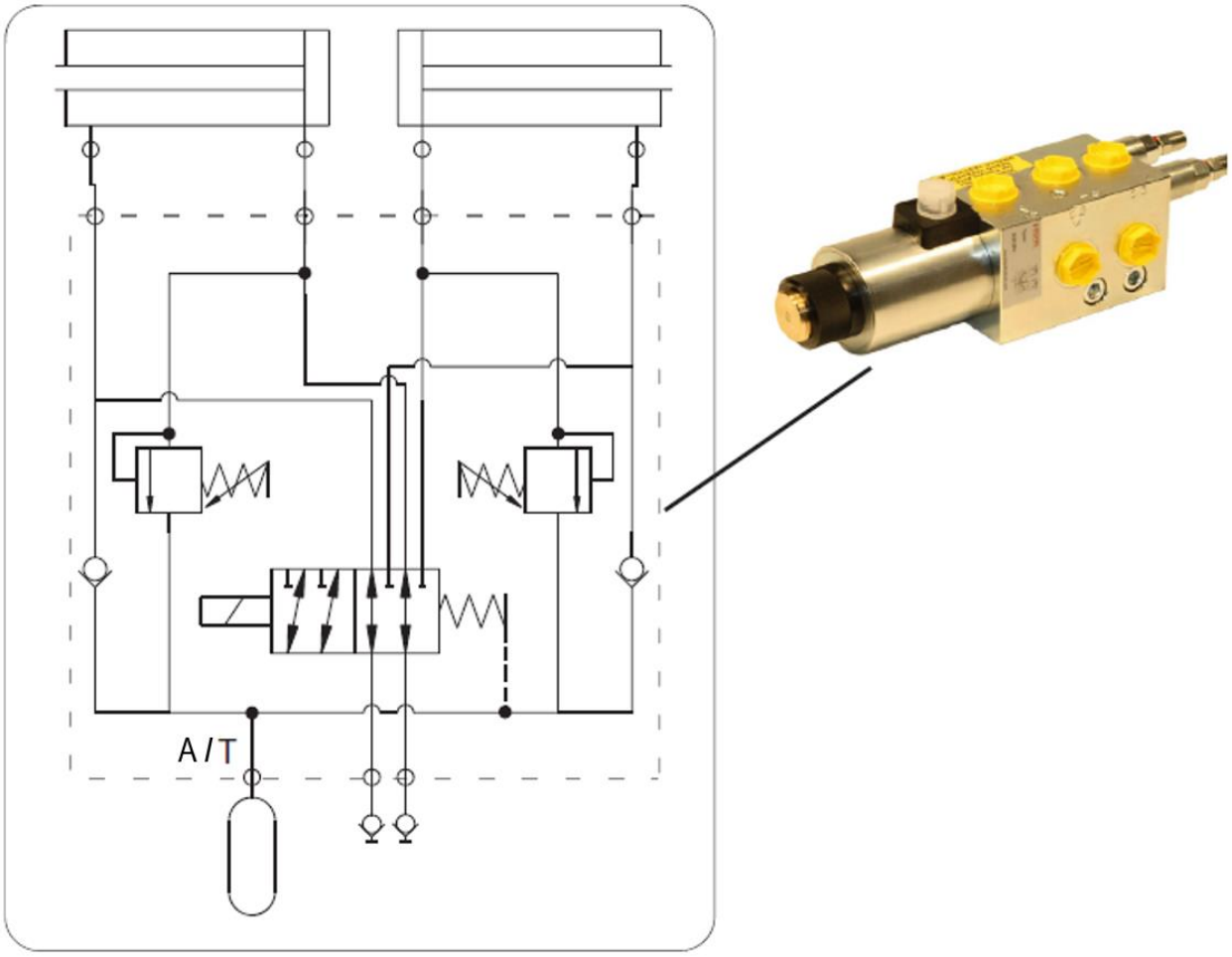


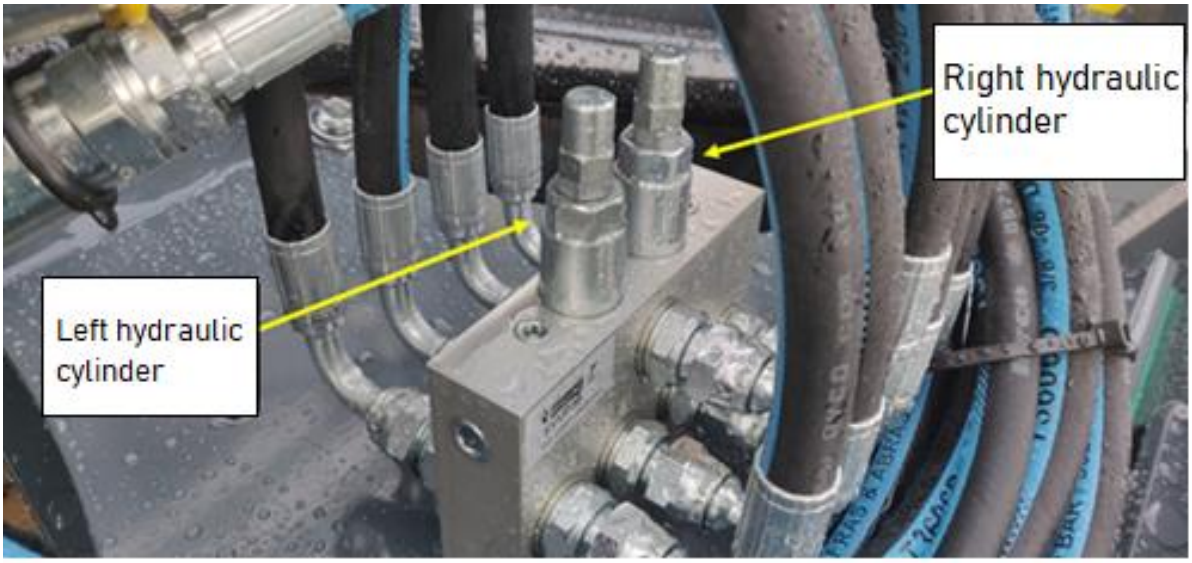
Figure 2. 3-hose system hydraulic chart

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

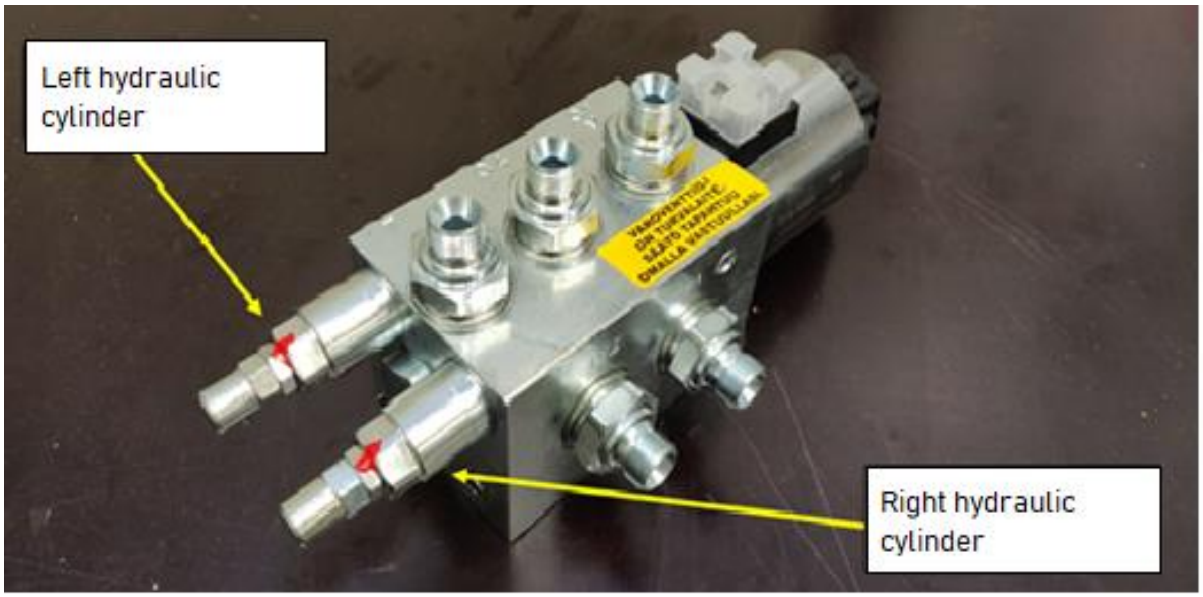
9.3. Adjustment of the safety valves

⚠	The safety valve is a safety mechanism, which is set in factory. Any alterations or modifications to the hydraulic system are on the sole responsibility of the client.

Different types of valves are used with different hydraulic systems (pictures 11 and 12 below). The hydraulic cylinder safety valve is adjusted by removing the protective cap, opening a locknut with a 13mm wrench and adjusting the safety valve with a 5mm hex key. **NOTE!** Adjust the safety valve gradually, by turning ¼ at a time and test the functionality.



Picture 11. 5-hose system safety valve



Picture 12. 3-hose system safety valve

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi

10. WARRANTY POLICY

1. **Warranty coverage**
   Lametal Oy, the manufacturer of STARK attachments, offers new devices a guarantee which covers material and manufacturing defects in accordance with the terms in this warranty policy. Limitations to the warranty are specified in point 7.
2. **Warranty starting date**
   The warranty starts on the agreed date of product delivery to the client, or on the date of approved instalment or on the date the equipment has been taken into operation. The equipment is taken into operation when it has been delivered to the client in accordance with the agreement and the client has acknowledged receipt of the equipment. The client is to check the equipment before use as instructed in this manual and to notify the manufacturer or the reseller of the equipment of any defects or flaws that are noticed during initial inspection. This notification is to be done in writing within eight (8) days after delivery. Hidden defects and defects that are otherwise difficult to detect must be reported immediately after detecting them, within one (1) year after receipt of the equipment at the latest.
3. **Warranty period**
   STARK warranty covers a period of one (1) year. If need be, the client and the manufacturer make separate agreements on warranty concerning repairs and spare parts used in repairs.
4. **Repairs during the warranty period**
   Repairs during the warranty period are carried out free of charge within the normal working hours by the manufacturer repair and maintenance services or by a repair service provider accredited by the manufacturer. If repairs are carried out by a repair service provider which has not been accredited by the manufacturer, the manufacturer does not compensate for costs that are not covered by the warranty, such as travel and waiting hours, daily allowances, travel expenses or costs arising from detaching and reinstalling the equipment. The manufacturer does not compensate for indirect costs caused by repairs during the warranty period, such as lost working hours. Original parts replaced during the warranty period shall remain with the manufacturer. The client must keep the damaged parts for six (6) months unless otherwise agreed, and have them delivered to the manufacturer without delay upon request.
5. **Conditions for repair under warranty**
   Manufacturer's instructions for operation, instalment and maintenance have been followed.
   The equipment was damaged when operated in conditions for which it has been engineered.
   In maintenance and repairs, only original, manufacturer parts have been used.
   The form for the notification of defects provided by the manufacturer or the retailer has been filled in according to the instructions and submitted for processing.
6. **Warranty after repair**
   Warranty holds until the end of the original warranty period. Repair under warranty does not prolong the warranty period.
7. **Limitation to the warranty**
   The warranty does not cover:
   - consequential expenses resulting from the damaged equipment
   - indirect costs, such as loss of working hours
   - damages caused to a third party
   - equipment or components that have been modified or repaired by the client themselves
   - damages caused by normal wear and tear, inappropriate maintenance operations, neglect, accident, connecting error, equipment overloading, user's inexperience or use of other than original parts

   The warranty offered by the manufacturer does not exceed the purchase price of the equipment.
8. **Warranty claim procedure**
   For a warranty claim to be processed, the form for the notification of defects provided by the manufacturer or the retailer must be filled in according to the instructions and submitted for processor. The warranty claim procedure is carried out either in Finnish or English.

Lametal Oy • Kaskenviertäjäntie 2, 73100 LAPINLAHTI, FINLAND
• info@stark.fi • parts@stark.fi • www.stark.fi