Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

INSTRUCTION MANUAL

WARRANTY

			
ROUND BALE GRAPPLE SMART	SQUARE BALE GRAPPLE	ROUND BALE GRAPPLE – 1 HYDRALIC CYLINDER	ROUND BALE GRAPPLE – 2 HYDRALIC CYLINDER
INDEX: UBGS	INDEX: USBG	INDEX: UBG	INDEX: UBG2C

Bytów 2020
ORIGINAL INSTRUCTIONS
Edition 01

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

NOTE!

Please read this Instruction Manual before you start operating the machine and observe all safety rules contained herein.

The Instruction Manual constitutes the basic equipment of the machine!

Please keep this Instruction Manual in a safe place within easy reach of the user and the operator during the whole period of machine use.

In case this manual is lost or damaged, you should purchase the new copy, by placing an order in the point of sale or at the machine's manufacturer.

In case the machine is resold or made accessible to a third party, you should enclose the Instruction Manual together with the Declaration of Conformity for the machine.

The information contained in the manual is valid as at the date of preparation. Due to product improvement, some informations and illustrations may not correspond to the actual condition of the machine delivered to the customer. The manufacturer reserves the right to introduce design changes improving the product, without making changes to this publication. If the information contained in the manual are not fully understood, please refer to the manufacturer or the point of sale.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

Table of Contents

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

1. Introduction

It is strongly recommended to read and understand this Instruction Manual before starting operation of the grapple and observe all recommendations contained herein.

NOTE !
Read this Instruction Manual
Before starting operation of the machine

This Instruction Manual contains descriptions of all risks which may occur when you do not observe safety rules during grapple work and operation. In this Instruction Manual safety precautions which should be undertaken in order to minimise or avoid the risks are listed.

This Instruction Manual also contains the rules of proper grapple use and explains what service procedures connected with it should be made.

If any information given in this Instruction Manual is incomprehensible, please ask directly the manufacturer for an explanation.

NOTE !
This symbol warns about the risk.
This warning symbol indicates an important information given in Instruction Manual concerning the risk. Please read this information carefully, comply with the instructions and act with due caution.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

2. Operating safety rules

2.1 User safety

The grapple may be operated exclusively by adults who have familiarized themselves with its operation and who have read this Instruction Manual and have suitable qualifications. When operating the grapple you should take all safety precautions, in particular:

- Observe general regulations relating to health and safety at work apart from keeping to the recommendations included in this Instruction Manual.
- Follow the safety instructions of the warning symbols attached to the machine.
- Never permit other persons than the operator to drive the vehicle which operates the grapple and do not allow other people to stay in the vehicle or on the machine during its operation.
- The grapple may be operated only by a person who is authorized to drive a vehicle with the grapple attached, in accordance with the manufacturer's recommendations.
- The work-stand of the operator during work with the grapple is the cabin of the vehicle to which the grapple is attached.
- Please remember that there are a lot of places which can cause personal injury (sharp edges, protruding construction elements etc.) on the grapple. When operating it you should be particularly careful when you move near the above critical places, and you absolutely must use personal protective equipment, such as:
  - protective clothing,
  - protective gloves,
  - protective shoes
  - protective helmet
- Transport of persons and objects other than fodder bales the grapple is intended for is strictly forbidden.
- It is forbidden to operate the grapple by unauthorised persons who have not read this Instruction Manual.
- An operator who operates the grapple must be equipped with first-aid-kit containing first aid measures together with instructions of their use.
- When working with loose materials it is necessary to wear protective clothing suitable for the material being transported, in particular: rubber boots, gloves, overall, cap and half-mask.
- In case of poisoning or infection you should immediately contact the physician.
- When you drive the vehicle with the grapple not operated you should keep safety transport clearance – min. 0.3 m.
- Transport speed should be adjusted to the condition of road surface. It should not exceed 8km/h.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

- When working on company's area you should use outline electric lighting of the vehicle and warning signalling device (yellow), and check their working order, cleanness and visibility. You should attach in a visible way a triangular plate distinguishing slow-moving vehicles on a machine or in the rear of the vehicle. Reflective light and warning signs placed on machine's construction elements should be kept clean and visible.
- In order to keep suitable control, the grapple should be adjusted to the vehicle in accordance with the recommendations of both the vehicle and the grapple manufacturers as well as the suspension used. Manufacturer's clamping rules are described in chapters . 4.4 Assessing stability of a tractor with the machine attached and 5.1. Grapple assembly.
- Please remember that during work with the grapple the load of vehicle steering axle cannot be lower than 20% and the load of driving axle cannot be lower than 45% of total weight.
- Never leave the vehicle with the grapple attached on slopes or other terrain inclinations without protecting it against self-rolling downwards. The grapple should be lowered on the ground. You should place wedges under the vehicle wheels.
- Before you start any activity connected with preparation, assembly, disassembly or adjustment you should stop the engine, switch off the drive, make the vehicle immobile and wait until all moving parts of the machine stop and pressures cease.
- After the first hour of operation you should check the condition of all temporary fastenings, e.g. bolted joints
- During grapple assembly and disassembly you should take special caution and be especially careful about construction elements responsible for fastening it with the vehicle.
- Before you start working with the grapple you should check its technical condition as well as of a vehicle working with it. The vehicle and the grapple unit must be in good technical condition. Worn and damaged parts should be immediately replaced with the new ones.
- The grapple must be equipped with all protective shields (if they are provided by the manufacturer) which protect against accessing to movable parts. The protective covers must be complete and in good working order.
- Weight of the grapple suspended on a vehicle may affect vehicle's manoeuvrability. In such a situation great caution should be exercised.
- Keep this Instruction Manual accessible near the grapple. When you loan the grapple you should hand it over in good working and technical condition along with the Instruction Manual.
- Before you start working you should prepare the grapple in accordance with the recommendations given in chapter: 5. Machine use, Grapple assembly.
- Lashing additional transport means to the grapple is strictly forbidden.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

- It is forbidden to overload the grapple and to keep it loaded (e.g. keep the bale raised) after finishing the work.
- Transport, moving with grapple attached on public roads is forbidden.
- When you start working with the grapple for the first time, you should check its functioning.
- Assembly protections of the grapple bolts should be only done with the use of typical protection means in the form of cotter pins. Work with other protective means is forbidden.
- On account of natural wear of materials you should obey recommendations described in chapter 6. Operation and maintenance procedures.
- Before you start to work, you should pay special attention to the condition of the grapple hydraulic system. The cylinder, hydraulic piping and connections must be tight. Worn and damaged parts should be immediately replaced with the new ones.
- In connection with ageing process – the lifetime of hydraulic lines should be not longer than 4 years.
- During operation, hydraulic pipes are under high pressure. Assembly and disassembly of the grapple hydraulic system with the vehicle should only be done with the vehicle engine turned off, with hydraulic pressure in the grapple and vehicle hydraulic systems released.
- Upon receiving and transport of the grapple check its technical condition, whether it is not damaged.
- Staying under the raised grapple is forbidden, there is a risk of being crushed by construction elements or transported materials.
- Operator of the vehicle which works with the grapple must pay attention that no one **approaches the grapple or stays close to it during vehicle in operation**.
- Don't put fingers and limbs between construction elements of the grapple while making adjustments or overhaul.
- During turning or reversing, manoeuvring with the grapple, you should ensure suitable visibility for yourself or look for help of a properly trained person.
- It is forbidden for operating personnel to stay between the vehicle and the grapple when the vehicle's engine is operating.
- Work on the slopes exceeding 8% is inadmissible.
- During working on slopes you should act with great caution.
- Pay special attention during vehicle turns and manoeuvres with suspended grapple, both during transport and while reversing, especially when people, animals or any objects are close to the vehicle.
- The vehicle operating with the grapple should have cabin certified against falling objects and additional safety cabin for the operator.

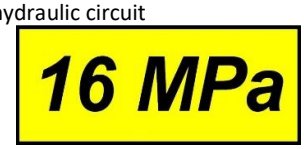
Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

- Never leave the vehicle when the engine is operating. Before you leave the driver's seat you should lower the grapple on the ground, turn off the vehicle engine, take out the ignition key, operate the hand parking brake.
- Do not wear unbuttoned or loose-hanging work clothes while working, assembling, disassembling or making adjustments. Keep them away from construction elements as they may be caught by them.
- The grapple should be disconnected from the vehicle not earlier than after turning the vehicle engine off and taking out the ignition key.
- After finishing work it is recommended to clean and wash the grapple in washing stand fitted with sewage treatment or sediment trap to neutralize waste water.
- The grapple should be stored on flat, paved surface under a roof, in places protected against unauthorised persons and animals, and in a way eliminating the risk of accidental injury.
- In case of failure you should immediately disconnect the drive transmitted from the vehicle.
- The grapple operation by people under an influence of alcohol, drugs or other narcotics is strictly forbidden.
- All service procedures, which need a servicing person to stay near the grapple should be done only with the grapple lowered on the ground and with the vehicle engine turned off.
- The grapple control may be done only from the vehicle cabin, to which the grapple is connected and after taking the seat by the operator.

Failure to follow the above instructions could cause a risk for the operator and unauthorized persons, as well as damage the grapple. The user bears responsibility for damages resulting from the lack of observing the above rules. The grapple is not intended to travel on public roads – transporting the grapple mounted on the tractor's suspension system during driving on public roads is strictly forbidden.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

2.2. Safety signs placed on the machine and their meaning

<table>
<tr>
<td> 
1.0 – Read this Instruction Manual before you start operating the machine</td>
<td>C.2.26
 
1.1 – Turn off the engine and take out the ignition key before starting service works or repairs</td>
<td>C.2.7
 
1.5.1 – Don't take a seat close to lift links during controlling the fork</td>
</tr>
<tr>
<td>C.2.1
 
1.2 – Keep safe distance from suspended boom or bucket</td>
<td>C.2.30
 
1.7 – Keep safe distance from the power lines</td>
<td>C.2.44
 
1.8 – Avoid action of fluid under high pressure. Read the Instruction Manual as regards service procedures</td>
</tr>
<tr>
<td rowspan="2">A.7.2 + B.2.6
 
1.2.2 – Keep safe distance from the machine. Body and foot injury</td>
<td>2.3 – Wear protective overall
  </td>
<td>2.6 – Wear safety shoes
  </td>
</tr>
<tr>
<td>2.4 – Wear protective gloves
  </td>
<td>3.1 – Warning about existing pressure in hydraulic circuit
 
</td>
</tr>
</table>

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

2.3. Risks occurring during grapple operation

No.	*Risk*	*Source of risk (cause)*	*Possible causes of the risk*	*Precautions*
1	Excessive strain of the motor system (physical strain)	Work in standing, forced bent over position, walking, sliding	Motor system diseases, backbone injuries, strained tendons	Familiarizing with Instruction Manual, training at the work station with a consideration of lifting standards during manual transport works, proper weight lifting techniques, using other person's help, devices which make moving easier e.g. hoist, hoisting winch
2	Falling down on the same level (stumbling, slipping etc.)	Uneven ground, mess – lying and standing objects, communication roads obstructed, slippery surfaces of the silos	Bruising, dislocations, joint sprains, bone fractures, injures	Suitable protective shoes, even ground, focused attention, keeping order, familiarizing with the Instruction Manual
3	Hitting on fixed, protruding and sharp machine parts	The machine and its environment	Body injures, bruising, bumps, bruises, cuts	Proper placing of the machine, safe space to move around, proper organization of work, focused attention, use personal protective equipment – protective helmet, gloves, familiarizing with the Instruction Manual
4	Hitting by moving objects	Loose materials, fodders, accidental turf parts, silage falling down from the machine during transportation.	Bruising, cuts	Focused attention, marking of dangerous zone, ban on moving nearby working machine, ban on staying under suspended weight - raised machine, wearing personal protective equipment – protective helmet, glasses, familiarizing with the Instruction Manual
5	Sharp, dangerous edges	Protruding machine construction parts, use of manual tools	Finger and hand injuries, scratches, catching loose clothes on protruding parts	Personal protective equipment – protective gloves, working uniform buttoned up, focused attention
6	Movable machine parts	Movable machine elements, sliding piston rods of hydraulic cylinders, lack of movable parts shielding	Dragging in, limb injures, crushing of fingers and palms	Ban on moving nearby working machine, focused attention, use of movable parts shields, familiarizing with the Instruction Manual and use it.
7	Suspended and standing machine weight, loaded machine weight, load weight	Improper assembly, aggregation, bad positioning of the machine, improper organization and operation, leaving the suspended machine on tractor, improper loading of transported fodder, the machine overloading	Bruising, feet and palms crushing, fractures	Focused attention, ban on staying under suspended weight - raised machine, using personal protective equipment - safety boots, safety gloves, helmet, safe placing of the machine, using other person's help, using jacks, cranes, familiarizing with the Instruction Manual. Proper, safe organization of work.
8	Micro-climate – changeable atmospheric conditions	Work done in differential weather conditions	Overheating (thermal shock), sun burnings	Suitable protective clothing, drinks, creams with filters, taking breaks, familiarizing with the Instruction Manual, vehicle cabin ventilation
9	Noise	Too high revolutions of the vehicle engine, damaged, loose vibrating parts of the machine	Irritation, lack of concentration, neurosis	Work with the vehicle and the machine in good working order, routine maintenance, proper vehicle engine revolutions, familiarizing with the Instruction Manual

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

3. Intended use of the machine

Grapples fitted on machine and vehicle holders are designed for loading, unloading, collection, storing of fodders, wastes, and transporting them on closed company's area. They are best suited for bales of the following diameters:

Grapple type- INDEX	*Range of bale diameters [m]*
UBGS	0.80 ÷ 1.60
USBG	0.80 ÷ 2.10
UBG	0.90 ÷ 1.80
UBG2C	0.90 ÷ 1.80

The grapple assembly to the vehicle is possible with the use of the following fastenings: TUZ I, TUZ II, TUZ III, EURO, SMS, ISO. The machine performs perfectly well after being fitted on all frontal loaders of TUR type. The clamping system should be chosen in accordance with User Manual of the vehicle and the grapple.

The working element is the grapple jaws, which due to their design, allow for easy gripping of material and its transport. All types of grapples have hydraulic control system which after connecting it enables smooth control of their operation from the vehicle operator's cabin.

Meeting the requirements concerning machine use, servicing and repairs in accordance with the manufacturer's recommendations and strict observance of them is the condition of intended use of the machine. The grapple should be used, operated and repaired exclusively by the persons who know its characteristics and are familiarized with health and safety at work rules.

The manufacturer has a wide choice of grapples and other equipment, which make transport easier. The manufacturer also offers specialist consultancy concerning the choice of suitable equipment for customer's needs.

All cases of lack of clarity concerning the machine intended use, should be cleared with the grapples manufacturer. Proper choice of the machine and awareness of its intended use will rise safety at work.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

4. Machine description

Fig.1 General view ROUND BALE GRAPPLE SMART

The hydraulic driven grapples are adapted to work with a vehicle which has power hydraulic system as a standard of the rear and front fastenings used in agricultural vehicles.

Basic tool fastening systems used in the case of grapples are as follows:

- TUZ I, TUZ II, TUZ III, TUZ IV hitch types
- EURO hitch
- SMS hitch
- ISO hitch

Each grapple is built of three articulated main construction elements. The first element – **frame** is made of steel sections and thick steel plate made by laser cut method, welded to form a stiff frame. The second and third element – **arms** are the movable parts of the grapple. They are made of steel elements joined by welding. Their construction is adapted to the shape and size of bales to be transported. It provides secure and safe grip. The hydraulic system which after being connected to the vehicle is controlled from the operator's cabin allows for smooth work of the arms in required range.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

4.1. Equipment and accessories

4.1.1. Basic

Basic equipment of the grapple includes:

- Hydraulic control system with power hydraulic system piping and hoses
- Instruction Manual
- Warranty card

Portable warning-lighting device and triangle marking plate for slow-moving vehicles do not belong to the basic equipment of the grapples. You can buy them at the manufacturer and in the agricultural machines depot for additional cost. Each user of the grapple should have a warning-lighting device in good working order and a triangle marking plate for slow-moving vehicles. Ignoring their use during transport and work can result in accident. The machine user is responsible for damages resulting from an accident.

4.1.2. Auxiliary

1. Linchpin, cotter pin, clip ø 10,5

Note:
ALL ELEMENTS OF AUXILIARY EQUIPMENT OF THE GRAPPLE MAY BE BOUGHT AT THE MANUFACTURER FOR ADDITIONAL COST.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

4.2. Technical specification

Table No. 1 TECHNICAL DATA of **BALE GRAPPLE**

No	*Specification*	*Unit of measure*	*Parameter*			
1.	Grapple type- INDEX	-	UBGS	USBG	UBG	UBG2C
2.	Machine type	-	Suspended of medium class			
3.	Overall dimensions Length Width Height	 [mm] [mm] [mm]	 1200 1300 700	 1100 1450 700	 1370 1300 800	 1370 1300 800
4.	Weight	[kg]	165	300	185	200
5.	Operating range - arms spread	[m]	0.80 – 1.60	0.80 – 2.10	0.90 – 1.80	0.90 – 1.80
6.	Arms setup control	-	Hydraulic control system			
7.	Grapple's load capacity - max.	[kg]	1000*			
8.	Hydraulic cylinder type	-	Two sided machining			
9.	Hydraulic system working pressure	[MPa]	10 ÷ 19			
10.	Transport clearance	[mm]	300			
11.	Transport speed	[km/h]	4 ÷ 8			
12.	Number of personnel	[pcs.]	1			
13.	Vehicle power demand	[HP]	from 48			

*) – *assuming permissible load capacity of vehicle lifting system*

4.3. Forces acting on the grapple

Extreme phenomena occurring during operation with the grapple are comparable with impact collision. To make the operation with the grapple easier the vehicle weight – carrier load capacity has great significance. You should be aware of the forces which act during operation of heavy vehicle with aggregated grapple. Reading and analysing Instruction Manual will guarantee safe use and reduce the results of operation errors – it will lower a risk for operators.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

Table No. 2 Theoretical force Fmax [tonnes], which may act on grapple clamped to the vehicle with the weight of 5000 kg with changeable speed and braking distances.

Breaking distance S [m]	Vehicle speed V [km/h]		
	5	10	20
0.1	2	11	30
0.2	1	6	15
0.5	0.5	2.5	6
1.0	0.3	1	2.5

The data concerning forces acting on the vehicle – grapple unit will require high level of qualifications from persons operating the machine and appeal to consciousness of hazards appearing during operation of grapples transporting bales with fodder.

It is essential to choose the safe vehicle driving speed in order to guarantee that the operation does not constitute the risk for environment and operating personnel – the vehicle's operator.

It is of great importance to take care of even distribution of forces by the user as well as of symmetrical pressure distribution of clamping arms. You should never operate the grapple with only one arm loaded.

To prolong operation life of the grapple you should remember that the forces acting during operation, both at gathering and clamping of grapple were evenly distributed.

4.4. Assessing stability of a tractor with the machine attached

In this paragraph the stability requirements of a tractor and the machine are presented as well as a method of calculating required ballasts. Maximum permissible operating weights of the machines are given in Table No. 1. The vehicle data may be found in its instruction manual.

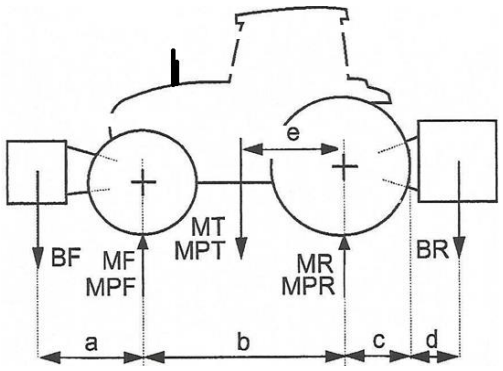
The tractor coupled with the machine may lose its stability.
The weights of the machine and the tractor have to be properly chosen.
Before you start to work you must familiarize with stability assessment and make sure that operation conditions given below are fulfilled.

If the machine stability requirements are not observed, this can lead to loss of tractor's stability. It may create a risk of serious body injures or even death. You should always take into account and observe stability requirements.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

PRESENTED CONDITIONS ARE BASED ON A MACHINE PLACED ON EVEN GROUND

Ignoring terrain inclinations or slopes may lead to loss of tractor's stability. It may create a risk of serious body injures or even death. Ballast weights and driving speed must be suitably adjusted, to ensure stable and accurate tractor's drive ability and required brake effectiveness in critical situations.



Weights, loads [kg]:
MT - Weight without load
MTP - Maximum permissible weight with load
MF - Front axle load without load
MPF - Maximum permissible weight of front axle
MR - Rear axle load without load
MPR - Maximum permissible weight of rear axle
BF - Front axle equipment weight or ballast
BR - Rear axle equipment weight or ballast

Distances [m]:
a - between front load centre of gravity and the centre line of front axle
b - wheel base
c - from centre line of rear axle to lower hitch point of tree-point hitch.
d - between rear load centre of gravity to lower hitch point of hitch
e - between the rear axle centre line and the tractor's centre of gravity

Rys.2 Description of stability parameters

1. The accessory weight together with load should be added to the value at load
2. Weight of fixed or fluid weights on the centre of front or rear wheels should be added to the values MF, MR or MT
3. In case of non balanced trailer, value “c” is the distance between the rear axle centre line and point of hitch, value “d” is equal to 0, while BR is the vertical load of trailer on hitch

Minimum load of front axle of the tractor laden:
20% of gross vehicle weight MPT
Minimum load of the rear axle of the tractor laden:
45% of gross vehicle weight MPT

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

Tabel No. 3. Calculations of required ballasts

REQUIRED BALLAST IN FRONT	REQUIRED BALLAST ON THE REAR
BRr – ballast required on the front during transport of BF load on the rear	BRr – ballast required in the rear during transport of BF load in the front
$MT \cdot e = MF \cdot b$ $e = (MF \cdot b)/MT$	$MT \cdot (b - e) = MR \cdot b$
$BR \cdot (c + d) - (MT \cdot e) + (MPF \cdot b) = BFr \cdot (a + b)$	$BF \cdot a - MT \cdot (b - e) + (MPR \cdot b) = BRr \cdot (b + c + d)$
$MPF > 0{,}2 \cdot MT$ *Maximum permissible weight of front axle must be greater than 0.2 × vehicle curb weight without load*	$MPR > 0.45 \cdot MT$ *Maximum permissible weight of the rear axle must be greater than 0.45 × vehicle curb weight without load*
$BFr > [BR \cdot (c+d) - (MF \cdot b) + (0{,}2 \cdot MT \cdot b)] / (a+b)$	$BRr > [(BF \cdot a) - (MR \cdot b) + (0{,}45 \cdot MT \cdot b)] / (b + c + d)$

You should read the Instruction Manual of the vehicle (tractor), get to know maximum axle load and fulfil the below conditions, so as to achieve:

$MPF < MPF_{max}$ of the tractor
$MPR < MPR_{max}$ of the tractor
$MPT < MPT_{max}$ of the tractor

Table No. 4. Calculations of maximum permissible weights

MAXIMUM PERMISSIBLE LOAD OF FRONT AXLE **MPF**	MAXIMUM PERMISSIBLE LOAD OF REAR AXLE **MPR**	GROSS VEHICLE WEIGHT OF LOADED VEHICLE **MPT**
$MPF = [BF \cdot (a+b) + (MF \cdot b) - BR \cdot (c+d)]/b < MPF_{max}$	$MPR = MPT - MPF < MPR_{max}$	$MPT = BF + MT + BR < MPT_{max}$

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

5. Machine use

5.1. Grapple assembly

Make sure that all mounting elements of the vehicle and the grapple are matched appropriately to guarantee safe assembly and operation. In case of the lack of clarity you should definitely contact the manufacturer of the vehicle or the grapple.

As there is a need to connect two grapple systems to the vehicle, the assembly of the grapple should be done in the following order:

I. Assembly of mechanical system of the vehicle and the grapple.

Depending on the type of fastening system, you should provide original protections. Every time when you assembly the system you should check the wear of connecting elements: bolts, journals, cotter pins, pins and screw connections.

II. Assembly of the power hydraulic system

The grapple is equipped with pipes (hoses), which need to be connected to connector pipes of the vehicle power hydraulic system. Make sure that the pipes (hoses) are run properly and check hydraulic connectors cleanliness. Connection should be made in accordance with schematic drawing 3

The grapple dismantling is carried out in reverse order with exercising special caution during disassembly of mechanical system which separates the grapple from the vehicle.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

5.2. Hydraulic control system

The grapple arms pressure operation is controlled from the vehicle operator cabin. The grapples are equipped with power hydraulic system hoses with terminals which after being connected to the power hydraulic system of the vehicle ensure smooth control of their work.

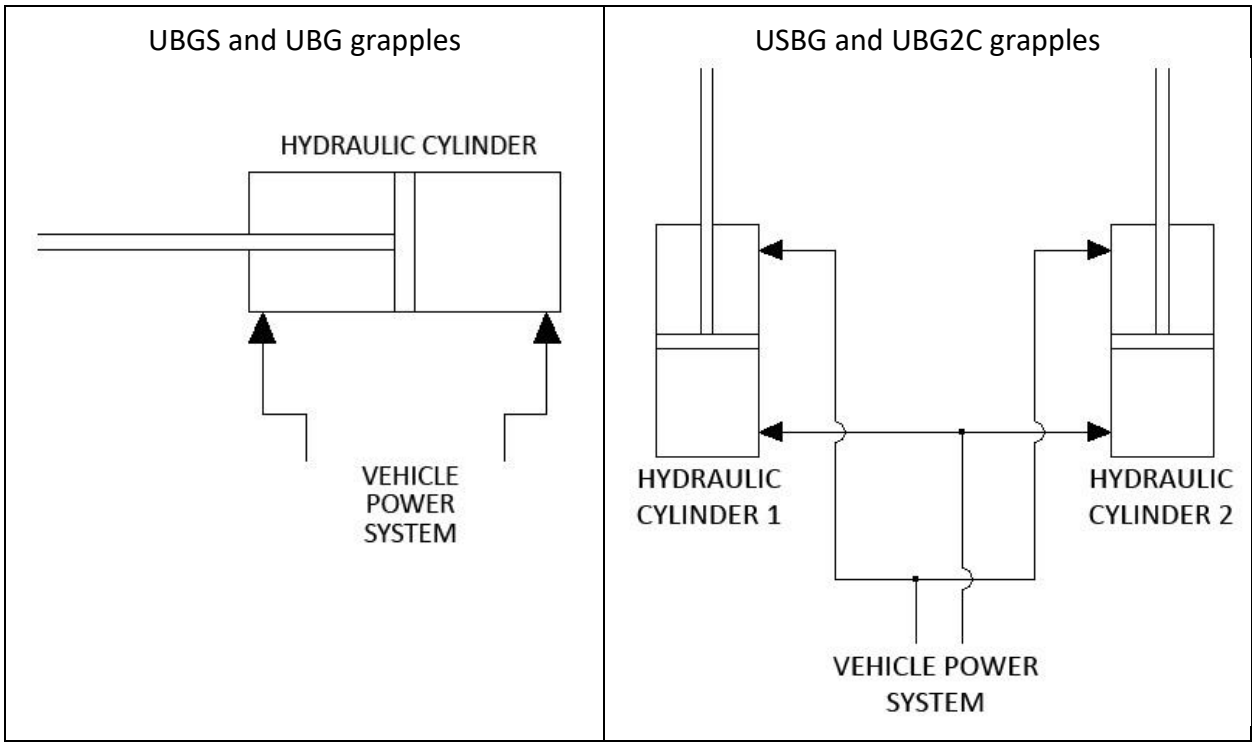


Fig.3 The grapples hydraulic systems

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

6. . Operation and maintenance procedures

All activities connected with the grapple's servicing can be done by the operator of the vehicle to which the grapple is attached provided that he is authorised to operate the vehicle.

The grapple's operation is only possible after reading the Instruction Manual.

- After work servicing

Each time, after finishing work, the grapple should be cleaned and placed on flat hardened surface. Then you should inspect connections of parts and assemblies. Worn and damaged parts should be immediately replaced with the new ones. You should check all pin, cotter pin and screw connections. Tighten the loosen screw connections in accordance with Table 5. The screws and nuts tightening torque values.

All safety signs placed on the machine and the vehicle should be kept clean.

Table No. 5
THE SCREWS AND NUTS TIGHTENING TORQUE VALUES

Strength class	6.8	8.8	10.9	12.9
Metric thread	Tightening torque [Nm]			
M6	7,6	10	15	18
M8	18	25	36	43
M10	37	49	72	84
M12	64	85	125	145
M14	100	135	200	235
M16	160	210	310	365
M18	220	300	430	500
M20	310	425	610	710
M22	425	580	820	960
M24	535	730	1050	1220

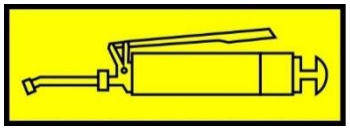
- After season maintenance

It includes all operation steps listed in paragraph entitled: After work servicing. Additionally, the grapple should be stored under canopy on flat hardened surface. It is recommended to place wooden blocks under the grapple. You should make sure that paint cover is tight. If there is no paint in some places you should clean up the areas and apply new protective coating layer on them.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

- Lubrication of movable connections

Lubrication of movable connections of the grapple with ŁT-43 grease is the basic maintenance operation step. All movable parts should be lubricated **every 8 hours** in case of intensive everyday work. Additionally, they should be lubricated at the start of every work after longer stoppage as well as once a season. Lubrication points are visible and accessible for lubricators used in general maintenance of machines and devices. Clean all connections from dirt and old used grease before lubrication. If you notice any traces of wear, you should definitely replace used parts with the new ones.



Symbol of the grease points marked on the product

ROUND BALE GRAPPLE SMART INDEX: UBGS

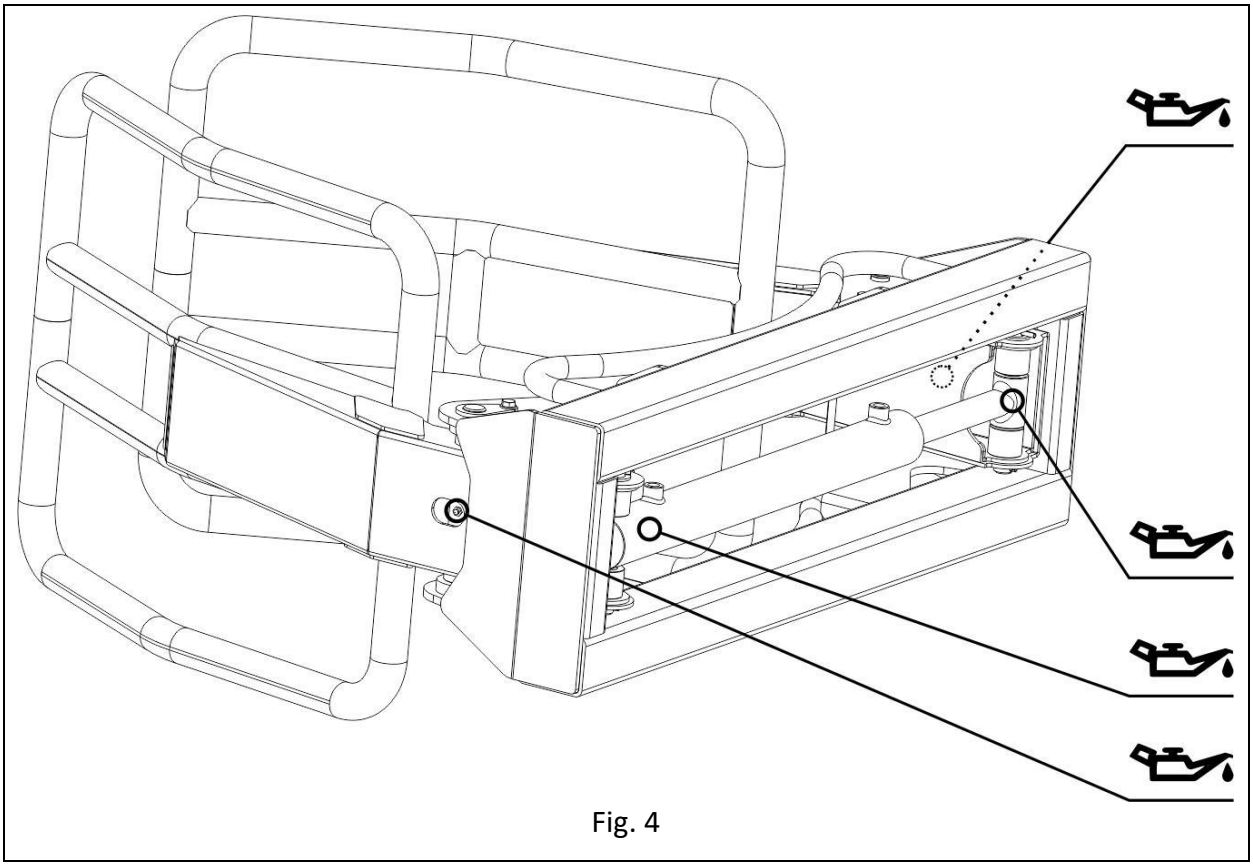


Fig. 4

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

SQUARE BALE GRAPPLE INDEX: USBG

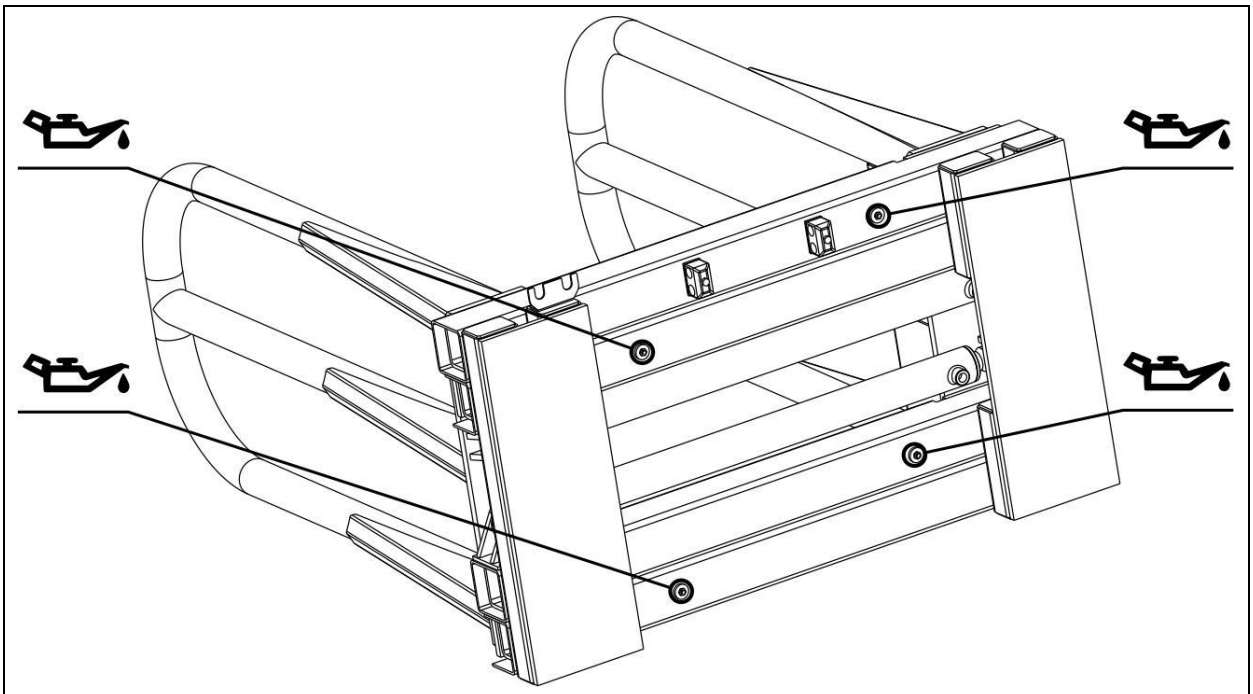


Fig. 5a

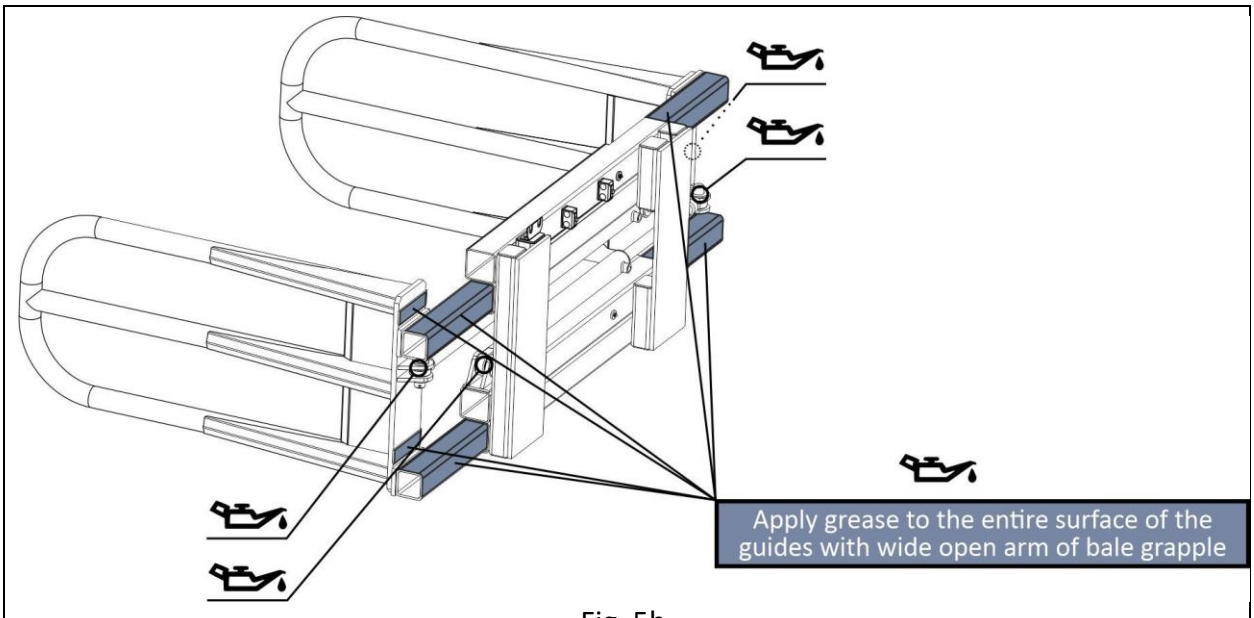


Fig. 5b.

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

ROUND BALE GRAPPLE – 1 HYDRALIC CYLINDER INDEX: UBG

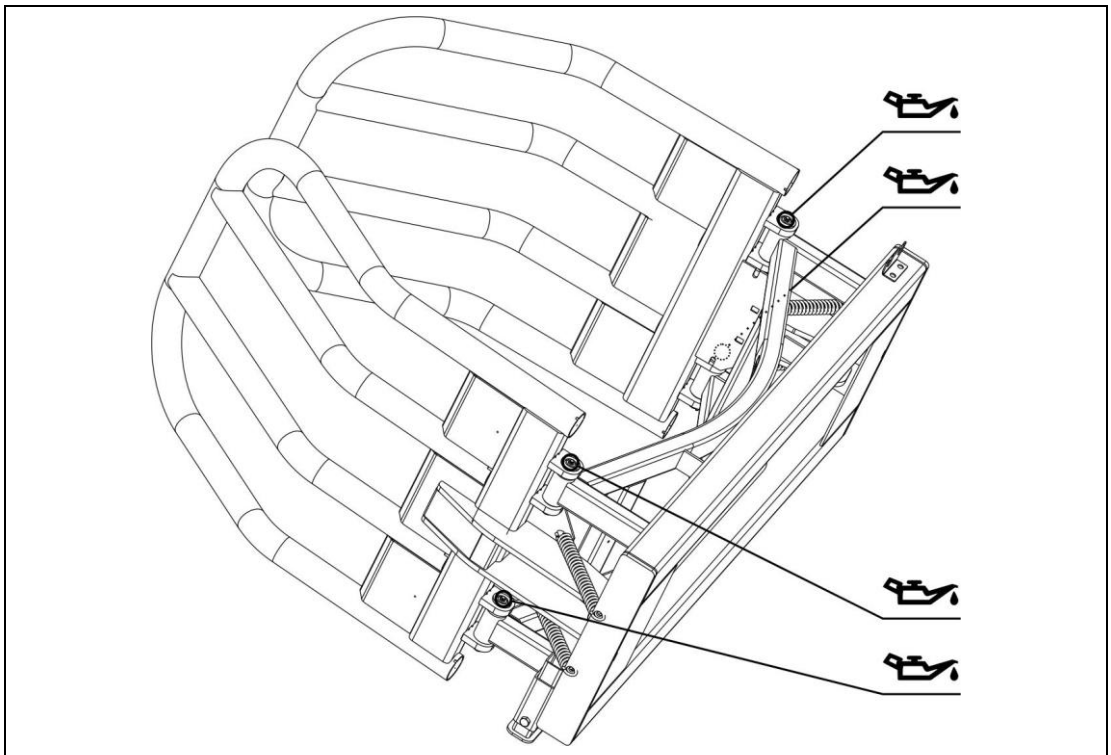


Fig. 6

ROUND BALE GRAPPLE – 2 HYDRALIC CYLINDER INDEX: UBG2C

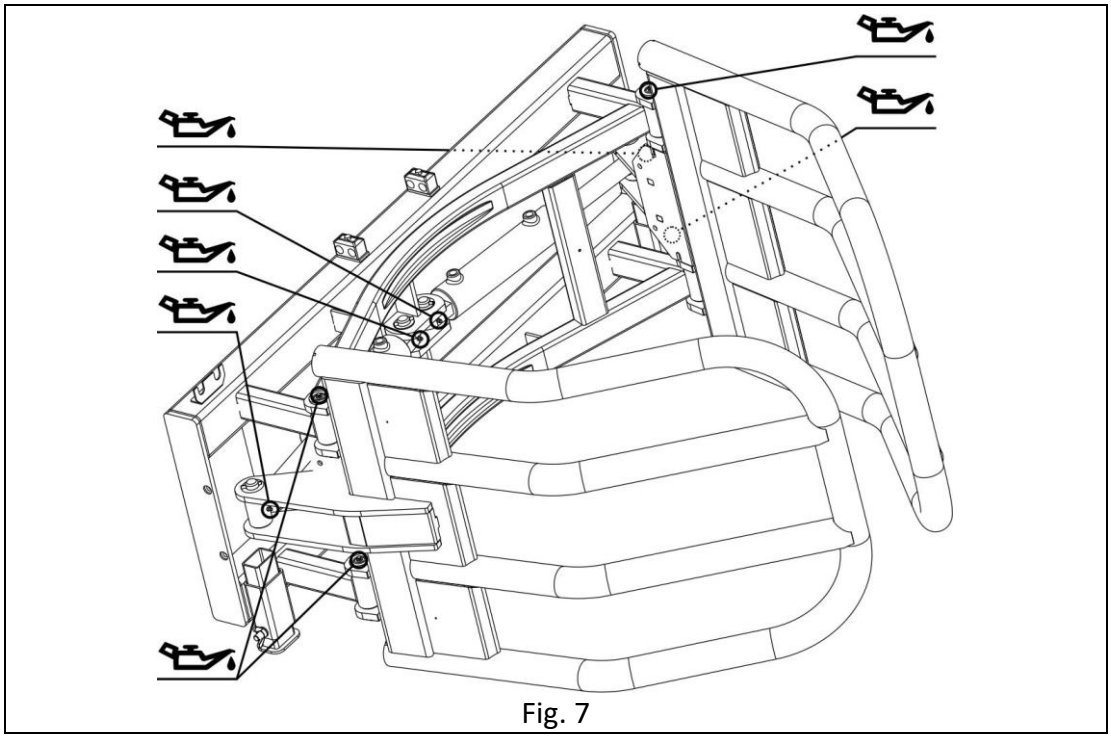


Fig. 7

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

6.1 Scrapping, the environment

In case of total wear of the machine to the level not allowing for its further use, it should be scrapped. This also concerns routine repairs or replacement of damaged parts. With the aim of doing it, the machine should be carefully cleaned. Drain used oil and pass it to utilization. Then you should disassemble the machine and segregate parts according to the types of used materials. Segregated parts should be passed to the scrap heap or for utilization according to the rules of conduct with dangerous waste.

The machine is a fully environmental friendly product. The materials used for its production are recyclable in 98%. Used parts of the machine should be utilized in accordance with local environment protection law. During the whole period of machine use you shouldn't allow for oil leak, which can cause environment pollution.

Avoid contact with oil!
Use the following personal protective equipment: protective clothes, boots, gloves and glasses

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

7. Spare parts catalogue

All parts of the grapple are available at the manufacturer. In order to purchase them you should give their name, catalogue number and quantity.

The catalogue does not contain standard parts available on general market which can be bought in industrial shops of agricultural sector.

ROUND BALE GRAPPLE SMART INDEX: UBGS

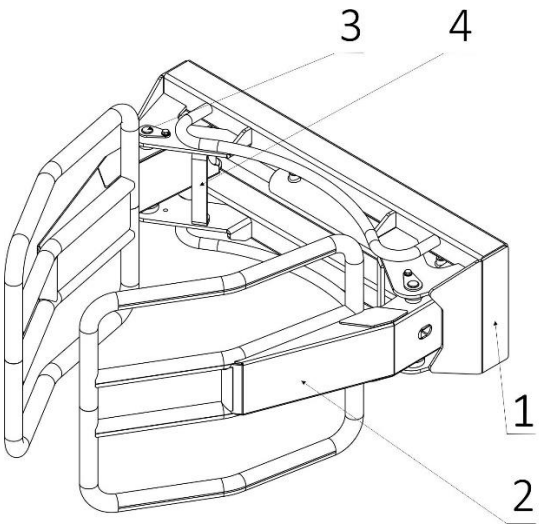


Fig. 8a

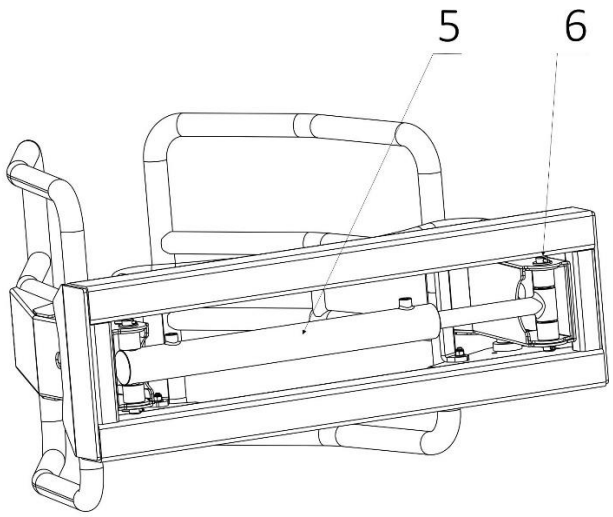


Fig. 8b

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Frame	RCHB07-ZŁ.3	1
2	Arm	RCHB07-ZŁ.1	2
3	Pin - arm fastening	RCHB07-ZŁ.5	2
4	Bumper	RCHB07-08	2
5	Hydraulic cylinder	016-003-38	1
6	Pin – cylinder fastening (set)	RCHB07-25	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

SQUARE BALE GRAPPLE INDEX: USBG

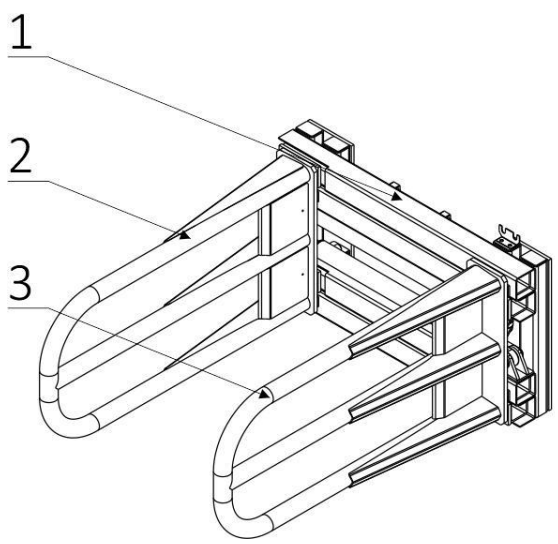


Fig. 9a

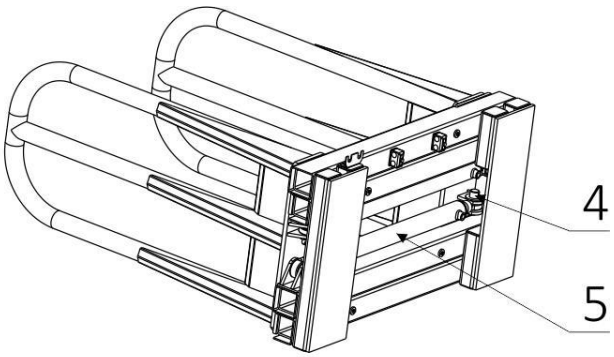


Fig. 9b

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Frame	AP04_00_01	1
2	Left arm	AP04_00_02	1
3	Right arm	AP04_00_02	1
4	Pin – cylinder fastening (set)	zl.SW-29,5-72-01-00	4
5	Hydraulic cylinder	016-003-003	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

ROUND BALE GRAPPLE – 1 HYDRALIC CYLINDER INDEX: UBG

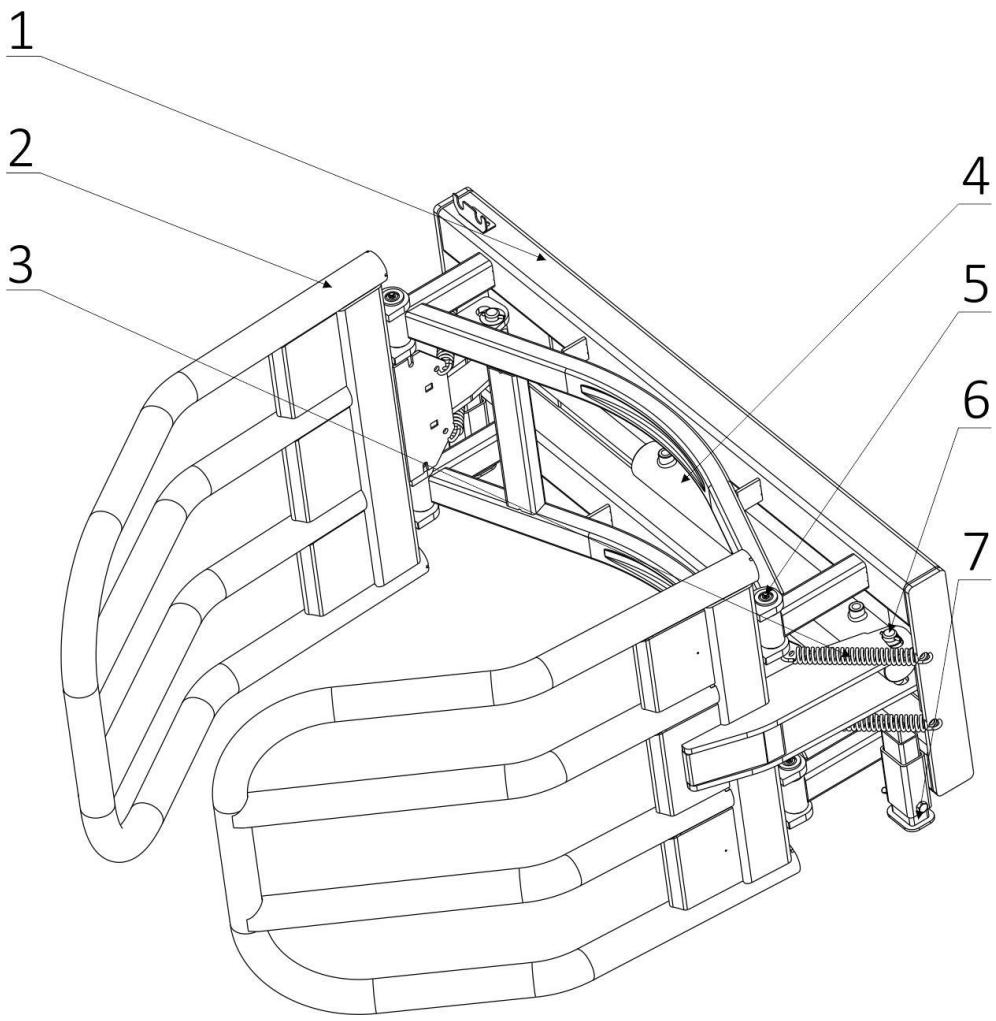


Fig. 10

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Frame	AP01_00_01-R01	1
2	Arm	AP01_00_02-R02	2
3	Spring	014-001-001	4
4	Hydraulic cylinder	016-003-001	1
5	Pin – arm fastening (set)	zl-SW-25-132-03-00	4
6	Pin – cylinder fastening (set)	SW-25-124-02	2
7	Plastic cap (foot)	AP01_00_05	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

ROUND BALE GRAPPLE – 2 HYDRALIC CYLINDER INDEX:UBG2C

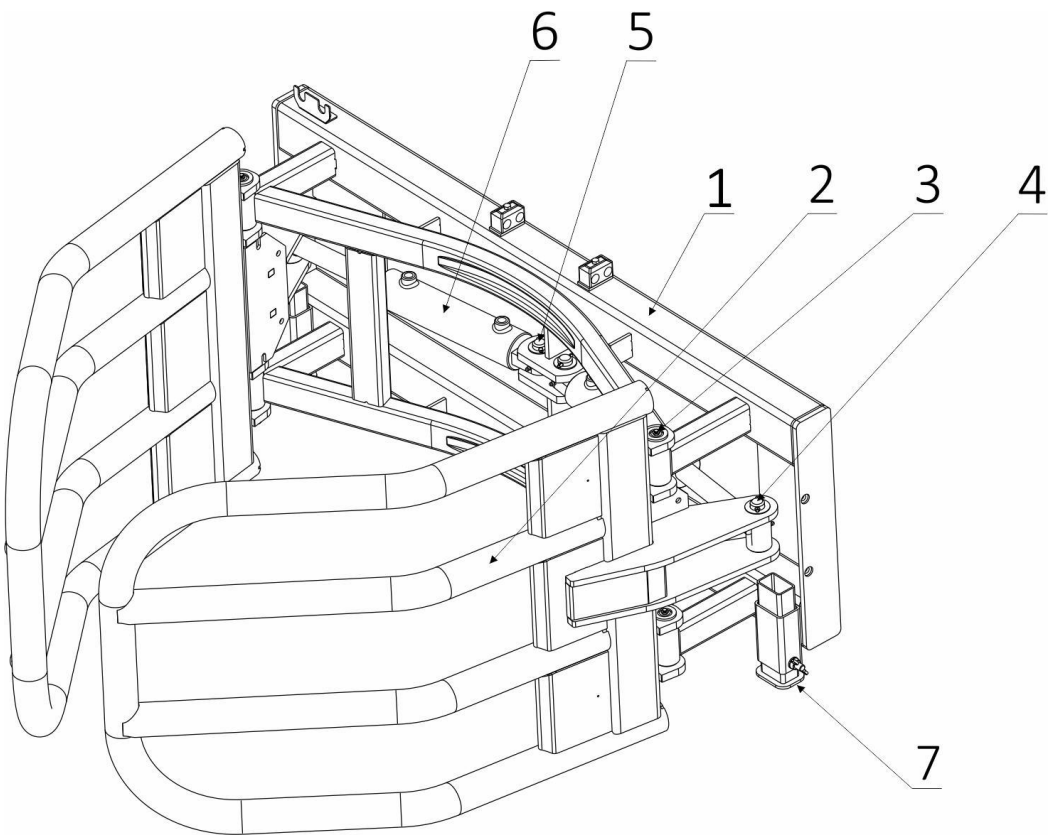


Fig. 11

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Frame	AP01_00_01-R02	1
2	Arm	AP01_00_02-R03	2
3	Pin – arm fastening (set)	zl-SW-25-132-03-00	4
4	Pin – cylinder fastening (set)	SW-25-124-02	2
5	Pin – cylinder fastening2 (set.)	SW-25-85-07	2
6	Hydraulic cylinder	016-003-002	2
7	Plastic cap (foot)	AP01_00_05	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

7.1 Hydraulic supply elements

ROUND BALE GRAPPLE SMART INDEX: UBGS – hydraulic supply elements

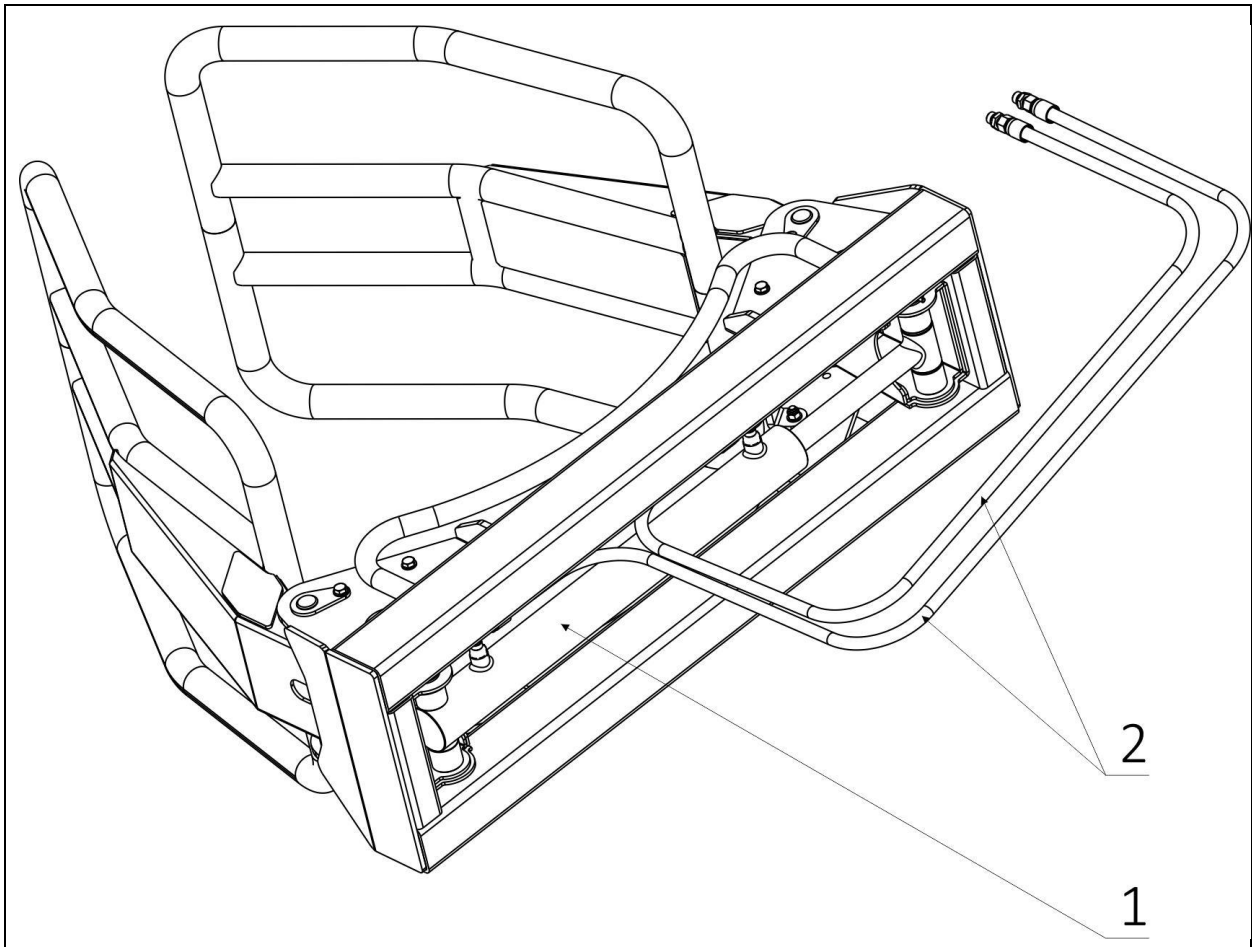


Fig. 12

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Hydraulic cylinder	016-003-038	1
2	Long hose of hydraulic cylinder	H01-001-001	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

SQUARE BALE GRAPPLE INDEX: USBG – hydraulic supply elements

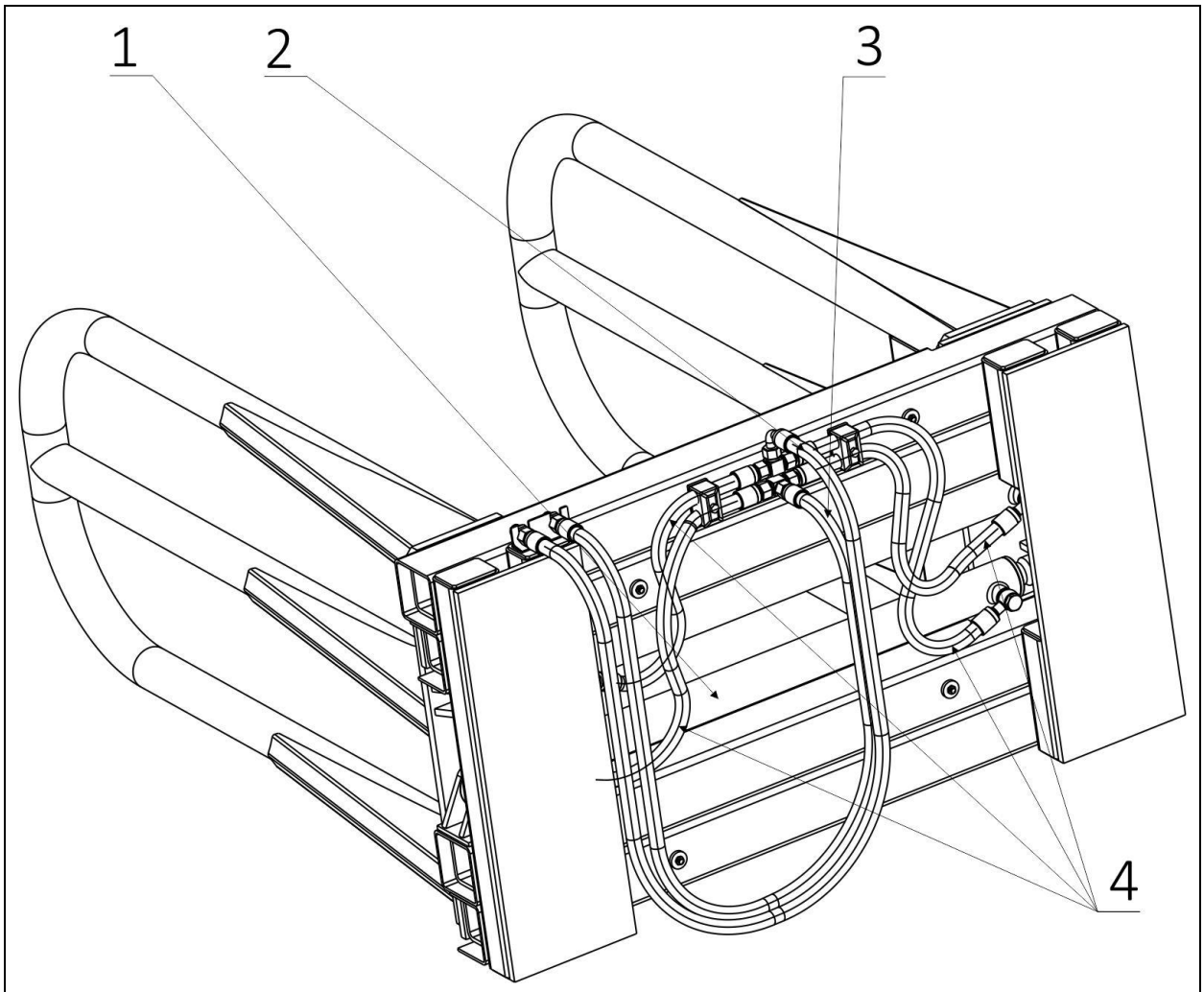
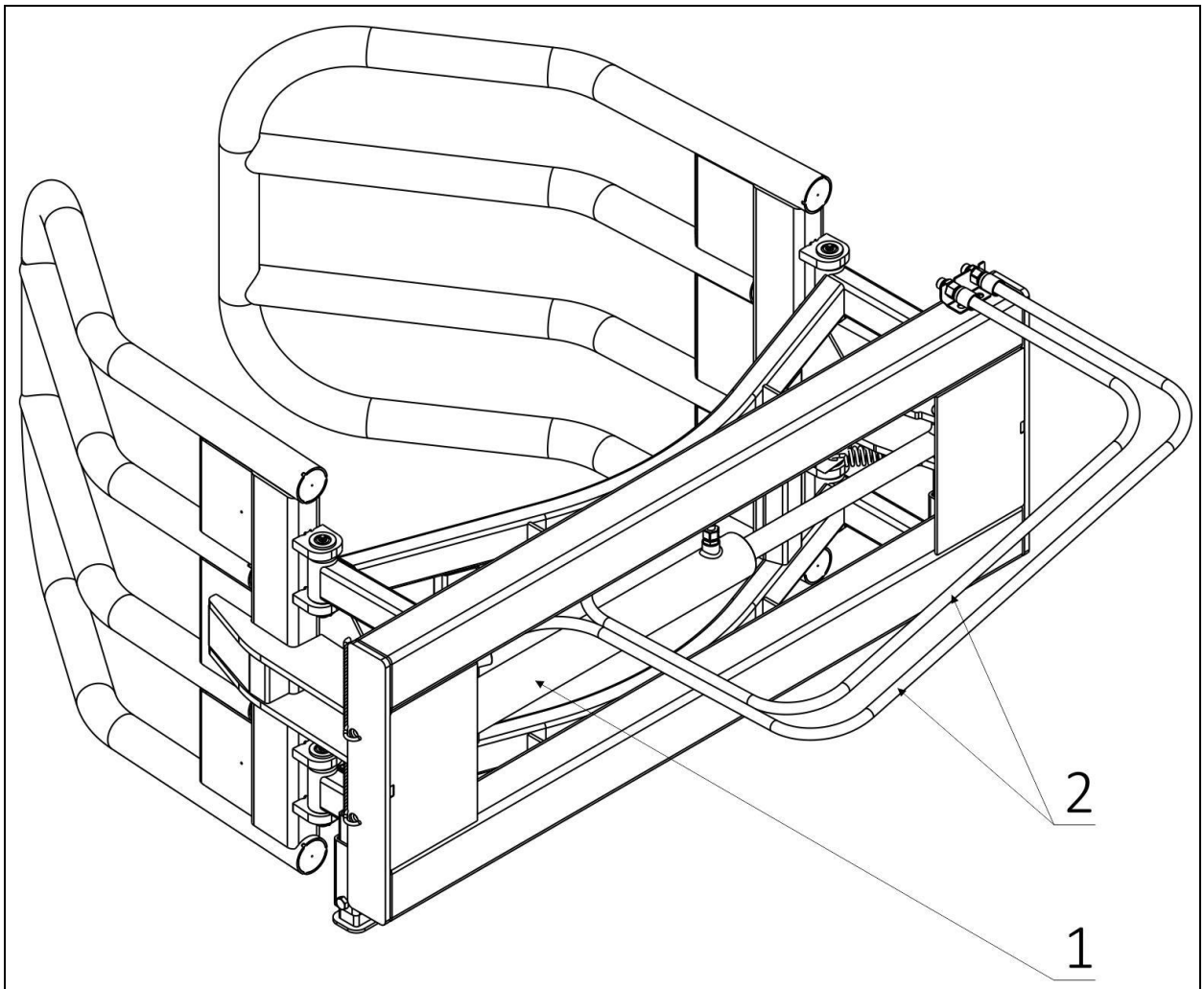


Fig. 13

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Hydraulic cylinder	016-003-003	2
2	Long hose of hydraulic cylinder 1	H01-001-007	1
3	Long hose of hydraulic cylinder 2	H01-001-008	1
4	Short hose of hydraulic cylinder	H01-001-009	4

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

ROUND BALE GRAPPLE – 1 HYDRALIC CYLINDER INDEX: UBG – hydraulic supply elements

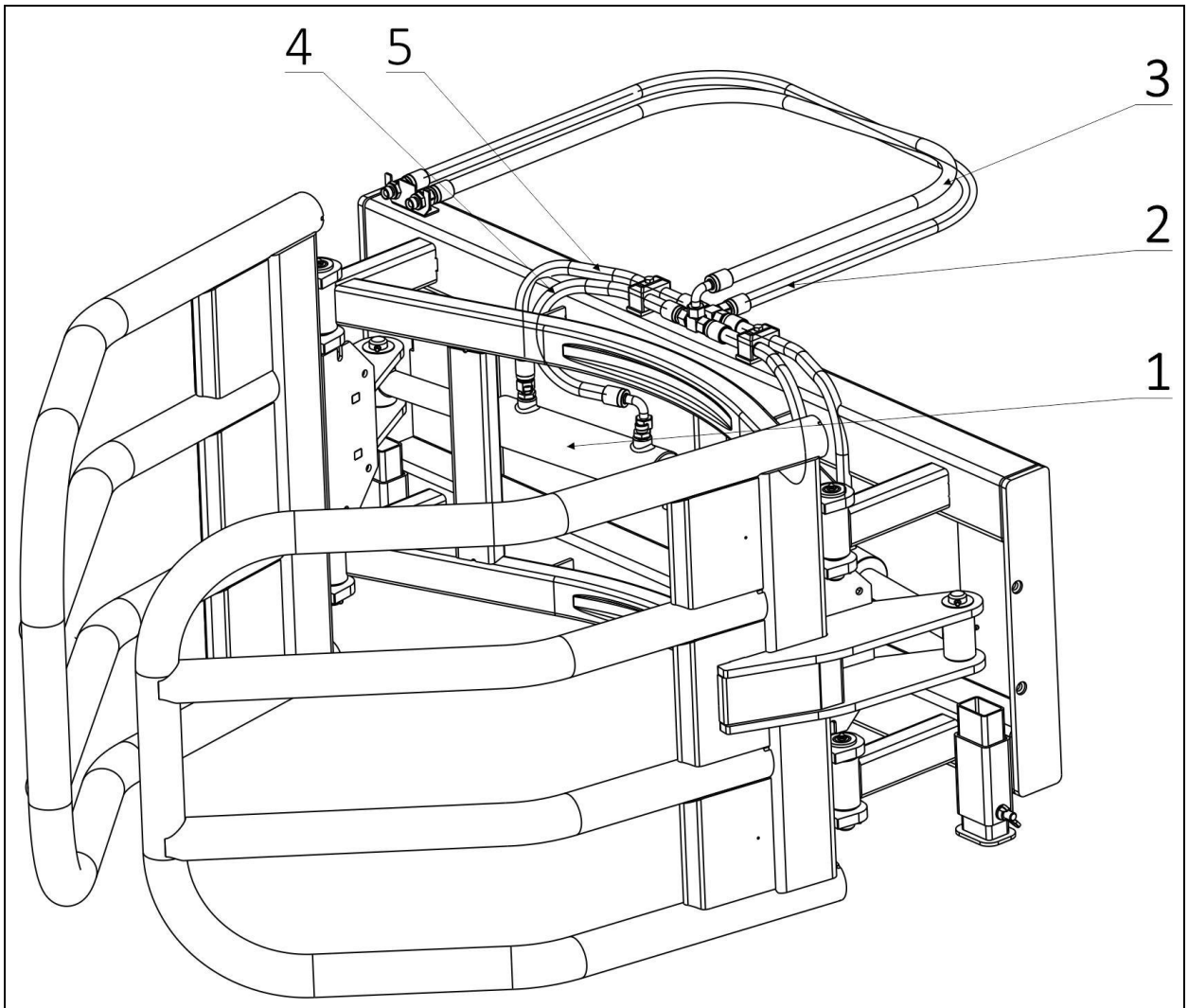


Rys. 14

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Hydraulic cylinder	016-003-001	1
2	Hose of hydraulic cylinder	H01-001-002	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

ROUND BALE GRAPPLE – 2 HYDRALIC CYLINDER INDEX: UBG2C– hydraulic supply elements



Rys. 15

No.	*Part /assembly name*	*Catalogue number*	*Number of parts*
1	Hydraulic cylinder	016-003-002	2
2	Long hose of hydraulic cylinder 1	H01-001-003	1
3	Long hose of hydraulic cylinder 2	H01-001-004	1
4	Short hose of hydraulic cylinder 1	H01-001-005	2
5	Short hose of hydraulic cylinder 2	H01-001-006	2

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

8. Warranty

WARRANTY CARD

Serial number	……	Type	……
Year of manufacture	……	KJ	……

The manufacturer undertakes under this warranty to repair free of charge any physical defects disclosed during the warranty period which covers 12 months from the date of purchase.

The manufacturer is released from liability under this warranty in the following cases:

- Mechanical damages of the machine after handing it over to the user;
- Improper operation; maintenance and storage of the product especially contrary to this Instruction Manual;
- Repairs carried out by non authorised persons without the manufacturer's consent;
- Introducing constructional modifications without the manufacturer's consent;

The warranty card is valid if it has seller's signature and sales date affixed to it confirmed by the point's of sale stamp. There must not be any crossing-outs or alterations made by unauthorised persons.
A duplicate of the warranty card may be issued upon a written request and after submitting a proof of purchase by the user.
In case the service to carry out warranty repair is called unnecessarily, the costs of this are covered by the user.
The user should notify directly the seller about any damages within 14 days from their discovery.
The manufacturer provides warranty service within 14 days from the date of notification about the damage.
The warranty period is extended by the repair time counted from the date of notification to the date of service completion if the defect prevents from using the machine.
Warranty does not cover hydraulic pipes (hoses) of the machine.

Date of selling: _____ _____
(day, month, year) *(the signature and stamp of the point of sale)*

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

RECORD OF WARRANTY REPAIRS

To be filled in by the manufacturer

Date of notification of the complaint: ____________

The repair range and the parts replaced: _________

____

____

____

Date of fault repair: _________________________

The warranty was extended until: ______________

____

(signature and stamp of service centre)

Date of notification of the complaint: ____________

The repair range and the parts replaced: _________

____

____

____

Date of fault repair: _________________________

The warranty was extended until: ______________

____

(signature and stamp of service centre)

Date of notification of the complaint: ____________

The repair range and the parts replaced: _________

____

____

____

Date of fault repair: _________________________

The warranty was extended until: ______________

____

(signature and stamp of service centre)

Date of notification of the complaint: ____________

The repair range and the parts replaced: _________

____

____

____

Date of fault repair: _________________________

The warranty was extended until: ______________

____

(signature and stamp of service centre)

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

9. Declaration of Conformity

EC Declaration of Conformity of the machine

Manufacturer: **Kołaszewski Sp. z o.o.**
ul. Lęborska 22
77-100 Bytów, POLAND

Hereby it is declared that the machine:

Machine name: **Bale grapple**
Machine type: Smart; Square; 1-hydraulic cylinder; 2-hydralic cylinder
INDEX: UBGS; USBG; UBG; UBG2C **) delete as applicable*
Serial number: ……..

to which this declaration relates, is in conformity with the provisions of:

the following DIRECTIVES

- Machinery Directive 2006/42/EC of 17.05.2006 (Journal of Laws L 157 of 9.06.2006, page.24)

HARMONIZED STANDARDS

- PN-EN ISO 4254-1: 2016-02E Agricultural machinery. Safety. Part 1: General requirements
- PN-EN 12100: 2010 Safety of machinery. General principles for design. Risk assessment and risk reduction
- PN-ISO 11684: 1998 Safety sign and hazard pictorials.
- PN-ISO 4413: 2005 Hydraulic fluid power. General rules for systems
- PN-EN ISO 13857:2010 Safety of machinery -- Safety distances preventing from reaching dangerous zones by upper and lower limbs

This declaration becomes not valid if changes are made to the machine without manufacturer's consent.

…….
place, date

……
name and surname, signature of authorized person

Kołaszewski Sp. z o.o.
ul. Lęborska 22
77-100 Bytów
tel. +48 59 822 34 88
NIP: 842 168 26 56

QUALITY POLICY STATEMENT

The goal of Kołaszewski limited liability company is to provide the services and manufactured products at a highest level by:

- implementation of projects in accordance with the expectations and requirements of Customers,
- communication with the Customer and after-sales service culture,
- compliance with standards and regulations, respecting the natural environment.

Quality Management System in the company Kolaszewski Sp.z o.o. (Ltd.) is compliant with ISO 9001:2015.

Strategic objectives of Kolaszewski Sp. z o.o.:

- operating business providing the highest quality products and services in the domestic and foreign markets
- Gaining and retaining of Customer confidence to offered products/services
- understanding of the quality objectives and requirements in all departments of the company
- continuous improvement of the Quality Management System.

Quality Policy contained in its objectives and Quality Management System documentation is known and used by all employees of the company.

The strategic objectives are achieved by:

- continuous improvement of the qualifications and skills of employees
- permanent equipping of the machine park with modern machinery
- observance of accepted standards in customer service
- continuous improvement of customer service and keeping of pro-customer attitude
- smooth, steady flow of internal information, organizational meetings
- Involvement of management in the implementation and continuous improvement of the Quality Management

Measurable operational objectives of the quality policy are determined annually during the review of the Quality Management System

Responsible for implementation — Confirmed

Edition V from 02.05.2023

PREZES
Izabela Kołaszewska-Gabor

WICEPREZES
Piotr Kołaszewski