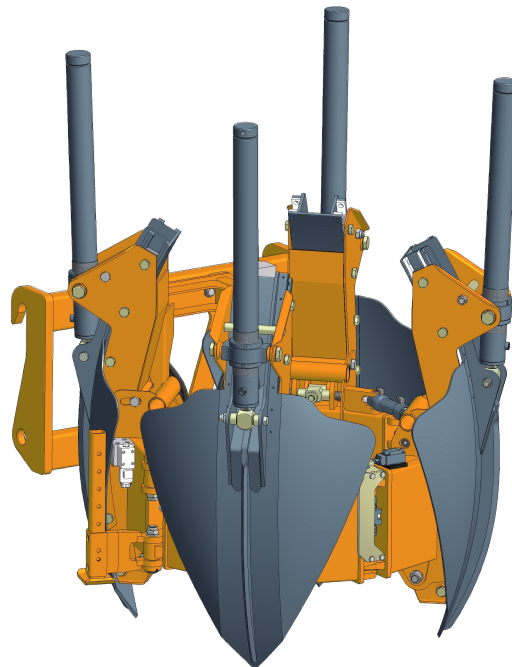


# M A N U A L

# O N

## TREE SPADE OPTIMAL 1100

111043 -



**Manufacturer:**

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 **WARNING Operator must have read and understood instructions before running the tree spade. Untrained operators can cause injury or death.**

-  **Safety Alert Symbol:** This symbol is used for important safety messages. When you see this symbol, follow the message to avoid personal injury or death.
-  Never use tree spade without instructions. See machine signs (decals), and Operation & Maintenance Manual of tree spade. The operation instructions for power unit must be followed.
  -  Before starting operations, bolts and hydraulic fittings must be checked to make sure they are free of damage and well tightened. Defective or loose hose pipes might cause serious injuries and therefore must be replaced immediately.
  -  The operator is responsible for ensuring that no person is near the tree spade when in operation.
  -  No one should be underneath the raised tree spade or near shearing and pinching areas, or near any hydraulic components. We are advising the user that due to their functional positions and movements the danger areas cannot be furnished with protective guards.
  -  Keep bystanders well away from work area.
  -  Do not perform any manual work on the tree or shrub when it is inside the tree spade. In particular, do not check the position of the tree or shrub by hand or feet when it is inside the tree spade. Do not tie the tree or shrub when it is near or inside the machine.
  -  When sight is limited, an assistant should direct the operator by hand signals.
  -  When driving, the tree spade should be in the lowest possible position. When moving and working on public roads, the traffic rules and regulations must be adhered to.
  -  Never leave power unit with engine running or with lift arms up.
  -  To park, engage parking brake and put tree spade flat on the ground.
  -  When doing cleaning, maintenance or repair work, lower the tree spade to the ground and stop the engine of the power unit.
  -  Never modify equipment. Use only original spare parts approved by manufacturer for this particular model tree spade.
  -  When digging, it might happen that a stone gets caught between two blades and the blades get bent. This causes tremendous tension in the steel blade. Do not try to release the stone by means of a crow bar or other tools. Place the digging head again into the planting hole and retract the blades. Thereby the stone will come loose and the blades which got a high degree of bending strength will regain their former shape. After that the root ball can be dug again.
  -  The operator must be sure that the ground he is going to dig is free from any underground installations such as cables, pipes or any other utilities or dangerous matter. Damaging such underground installations or matter is dangerous and might result in serious injury or death.
  -  Safety stickers have been placed on the tree spade to warn the user of possible dangers. In case a safety sticker has been worn or destroyed, it must be replaced immediately. Safety stickers can be ordered with your distributor or the manufacturer. For ordering please use the part numbers listed on page 2A. Fix the stickers on the locations marked on page 2A.

1. Tower:



Part N° 711800001

7. Frame:



711800001

4. Tower:



Part N° 711800004



KEEP AWAY FROM SWING AREA WHEN IN OPERATION



Part N° 711800006

Part N° 711800008

Part N° 711800009



Part N° 711800005



AVOID INJURY Stay Clear Of Elevated Unit And Tree Spade

8. Oil -

Manifold:



NO SE ACERQUE A LA ZONA DE MOVIMIENTO CUANDO ESTÁ EN FUNCIONAMIENTO



Part N° 711800010

Part N° 711800015

Part N° 711800016

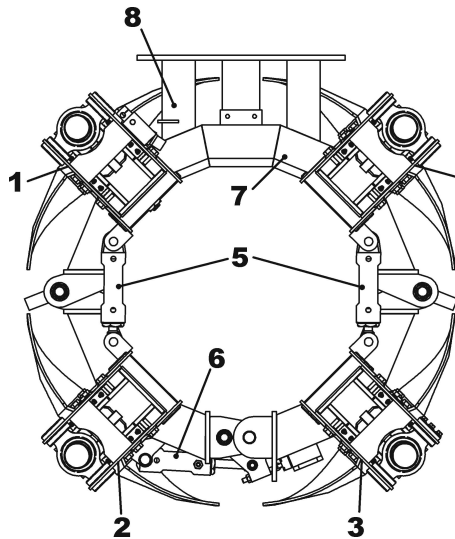


EVÍTESE LA HERIDA No se acerque ni la unidad elevada ni la transplantadora

5. Gate Cylinder:



Part



5. Gate Cylinder:



N

711800007 Part N° 711800007

2. Tower:



Part N° 711800001

Part N° 711800001



AVOID INJURY Stay Clear! This structure swings outward

Part N° 711800012

Part N° 711800014



MOVING MACHINERY KEEP HANDS AND FEET CLEAR

6. Lock Cylinder:



EVÍTESE LA HERIDA i No se acerque! Está estructura mueve hacia afuera

Part N° 711800017



Part N° 711800020



MAQUINARIA EN MOVIMIENTO MANTENGA MANOS Y PIES ALEJADOS



**1. Operating Specifications**

<b>Description</b>	<b>Tree Spade OPTIMAL 1100</b>	
<b>serial number</b>	<b>111 xxx</b>	
<b>capacity</b>	upper root ball diameter	114 cm (44")
	root ball depth	75 cm (30")
<b>dimensions of basic machine</b>	height	179 cm (70")
	width, gate closed	131 cm (52")
	width, gate open	198 cm (78")
	clearance between open gate	100 cm (39")
<b>weight</b>	basic machine, empty	925 kg (2035 lbs.)
<b>rated type of attachment</b>	attachment by means of back plate to loader or excavator	
	minimum lift capacity	3.500 kg (7.700 lbs.)
	the power unit must be equipped with an auxiliary double-acting hydraulic circuit for implements:	
	working pressure	160 - 200 bar (2,300-2,900 lbs/in <sup>2</sup> )
	oil flow	40 – 60 l/min. (11 – 16 GPM)
<b>controls</b>	electro-hydraulic valves, double-acting, for four functions; individual spade control actuated by control box or joy stick	
<b>field of application</b>	tree nurseries; gardens; civic greens	

## **2. Assembly**



### **IMPORTANT:**

When doing assembly work, heed relevant instructions of manufacturers of power unit!

### **2.1 Back Plate**

The tree spade is attached to the power unit by means of a back plate. The back plate is procured from the manufacturer of the power unit, or it might be fabricated according to the drawings and instructions of the manufacturer of the power unit.

The back plate is to be furnished with borings as per drawing page 18. At these attachment points the tree spade is bolted tightly to the back plate.

### **2.2 Installation of Electro-Hydraulic Control**

2.2.1 Install control box or joystick at suitable and dry location in the power unit, e.g. the control box on the instrument panel, or the joy stick at the hydraulic lever.

2.2.2 Install 13-pole electric socket next to hydraulic disconnect of auxiliary hydraulic circuit at the power unit.

3. The blue wire should be connected to 12 VDC, the brown wire to the ground. It is best if the blue wire is connected to a power source that is only available when the ignition switch is on, to avoid inadvertently leaving power on the tree spade.

### **3. Putting into Service**

The tree spade with the back plate is attached and secured to the power unit.

Both the hydraulic connecting hoses of the tree spade are to be connected to the hydraulic disconnect of the auxiliary hydraulic circuit of the power unit.

The plug of the electric control cable is to be plugged into the socket on the power unit (see section 2.2.2).

Make sure that hydraulic working pressure and oil flow of power unit meets the requirements as laid down in the operating specifications on page 3.



#### **IMPORTANT:**

The hydraulic disconnect of the tree spade and the power unit must match and must be connected properly. Faulty connections are extremely dangerous.

When operating the power unit, follow the instructions of the operating manual of the power unit !

## 4. Operating Instructions



### **IMPORTANT:**

The Operator must be a reliable person. Before commencing production work, he or she must study these operating instructions thoroughly.

The following safety instructions must be observed:

It is the operator's prime duty to ensure that any persons must stay clear off the danger area. Special care must be taken that no one is ever under the raised tree spade, or near the potential shearing and pinching areas, or near the opened gate, near the spades or near any hydraulic components.

Do not perform any manual work at the tree or shrub when it is inside the tree spade. In particular, do not check the position of the tree or shrub by hand or feet when it is inside the tree spade. Do not bind the tree or shrub when it is near or inside the machine.

When sight is limited, an assistant should direct the operator by hand signals.

Before starting to work with the tree spade, make sure the hydraulic fittings and the bolts are properly tightened and are free from any defects.

### 4.1 Control Box

The work movements are controlled as follows:

#### Pre-Selector

0 : control box switched off

(LED light indicates when gate is not locked)

function 1 : gate lock

function 2 : gate

function 3 : blades

function 4 : stabilizers (optional)

#### Manual Controls (hydraulic)

unlock / lock

open / close

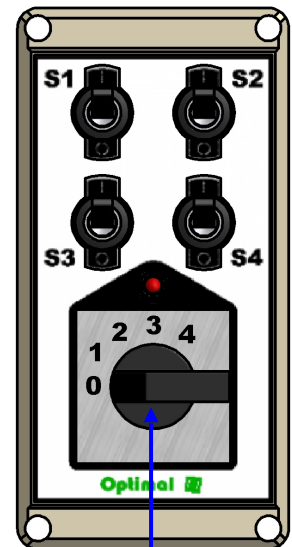
up / down

up / down

The control box is installed in the driver's cabin. The function required is preset with the pre-selector of the control box, and it is then activated by means of the manual control lever or pedal respectively.

The tree spade is equipped with individual blade control as standard, i.e. each blade can be controlled individually with toggle switches S1, S2; S3 and S4.

Individual blade control is of particular advantage when soil conditions are difficult.



*Pre-Selector*

## 2. Operation

4.2.1 Lower the tree spade with the lift arms of the power unit until the blade points are about 20 cm (8") above the ground.

4.2.2 To open the gate, the gate lock must be unlocked first:  
pre-selector: function 1, gate lock  
manual control: unlock

4.2.3 Now the gate can be opened:  
pre-selector: function 2, gate  
manual control: open

4. With the gate wide open, the tree spade is driven towards the tree to be dug. Position the tree into the centre of the circular frame of the tree spade, then close the gate:  
pre-selector: function 2, gate  
manual control: close

4.2.5 Lock the gate:  
pre-selector: function 1, gate lock  
manual control: lock

**It is of utmost importance to lock the gate before digging. It must never be forgotten because digging with an unlocked gate will bend the frame!**

A safety switch ensures that the tree spade digs only when the gate is properly locked. Furthermore, a red control lamp will light up to indicate that the gate is not locked.

4.2.6 When having locked the gate, the tree spade is lowered to the ground and brought into a level position by means of the lift arms of the power unit. Again check if the tree is positioned in the centre of the frame, and correct, if necessary.

7. In case the power unit had been furnished with rear stabilizers of its own, extend rear stabilizers with the respective control valve of the power unit. But in case stabilizers have been installed with the tree spade and they are controlled by Optimal control box, extend rear stabilizers by setting  
pre-selector: function 4 (optional), rear stabilizers  
manual control: down

4.2.8 Now proceed with digging:  
pre-selector: function 3, blades (S1-S4)  
manual control: down

The blades are pressed into the soil by means of spade cylinders suspended at the spade towers. When all four blades are activated simultaneously, only the blades which encounter the least soil resistance are moving at a given time.

In the event the tree spade lifts from the ground, retract the blades slightly (manual control: "up") and then dig again, or press the blades down one by one, or by opposite pairs. In either case, the digging movements must be carried out step by step, until all blades are completely pressed into the soil. **When digging, do not rock the tree spade forward and backward by means of the tilting cylinder of the power unit!**

4.2.9 Once all blades have been completely pressed into the soil, the tree spade with the planting material is lifted out of the ground by means of the lift arms of the power unit.

4.2.10 The root ball is lowered by means of the lift arms of the power unit.

Then the gate is unlocked:

pre-selector: function 1, gate lock

manual control: unlock

and the gate is opened:

pre-selector: function 2, gate

manual control: open

4.2.11 The rear stabilizers are retracted with the control valve of the loader, or with the optional function 4 (up) of the pre-selector.

4.2.12 When work has been accomplished, the pre-selector is set to 0.



**IMPORTANT:**

When moving and working on public roads, the traffic rules and regulations must be adhered to.

When driving, the tree spade should be in the lowest possible position.

When digging, it might happen that a stone gets caught between two blades and the blades get bent. This causes tremendous tension in the steel blade. Do not try to release the stone by means of a crow bar or other tools.

Place the digging head again into the planting hole and retract the blades. Thereby the stone will come loose and the blades which got a high degree of bending strength will regain their former shape. After that the root ball can be dug again.

**4.3 Releasing the Tree**

When transplanting, or when placing the tree in a basket, lower the tree spade by means of the lift arms, retract spades (function 3 "blades", control valve "up") then unlock gate (function 1 "gate lock", control valve "unlock") and open gate (function 2 "gate", control valve "open").

When the work has been finished, set the pre-selector in off-position (function 0). If the tree spade is controlled by means of a joy stick, the hydraulics are off when no button is being pressed.

## **5. Care and Maintenance**

### **5.1 Blade Guides**

The blades are furnished with plastic linings which slide on steel guides. Once the plastic lining is worn to the point that the heads of the countersunk screws are flush with the surface of the plastic linings, they must be replaced to prevent the screws from damaging the guides.

 **IMPORTANT:** Keep the guides clean.

### **5.2 No Lubrication**

All sliding surfaces and bearings are made of plastic and do not require any lubrication.

### **3. Hydraulic Oil Supply**

Check level of hydraulic oil regularly. For checking, retract all blades “up” and lower the tree spade to the ground. If in that position the oil level is below the mark of the sight glass, oil must be refilled.

### **5.4 Hydraulic Hoses**

All hydraulic hoses must be inspected at least once per year. Damaged hoses must be replaced. At least after 6 years all hoses must be replaced.

### **5.5 Cylinders**

In case the tree spade is not getting used for two weeks, all piston rods of the hydraulic cylinders must be cleaned and covered with a preserving oil film.

 **IMPORTANT:** Tree spade must be lowered to the ground and switched off when doing cleaning, maintenance or repair work !

Use original spare parts only !

The tree Spade must be inspected by an expert on operational safety once per year !

Do not alter the design of the tree spade without having consulted the manufacturer !

## 5.6 Ajusting Blades

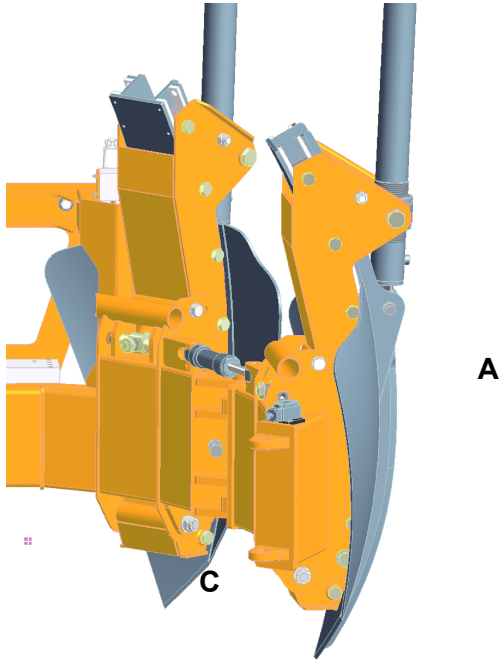


Illustration 1

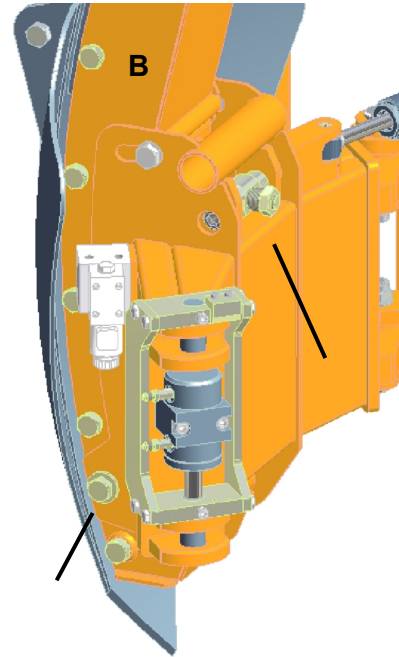


Illustration 2



Illustration 3

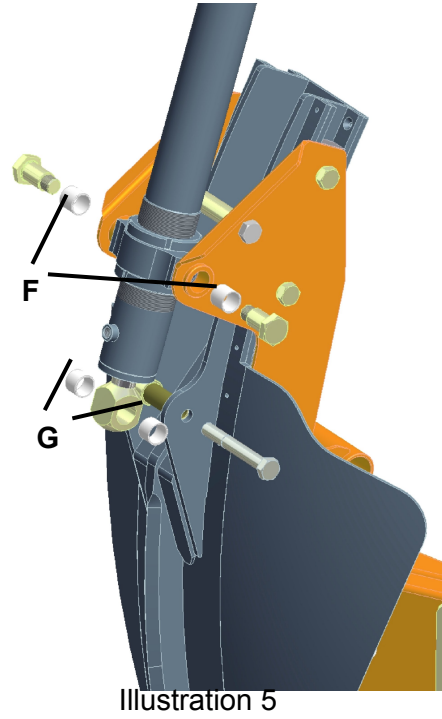
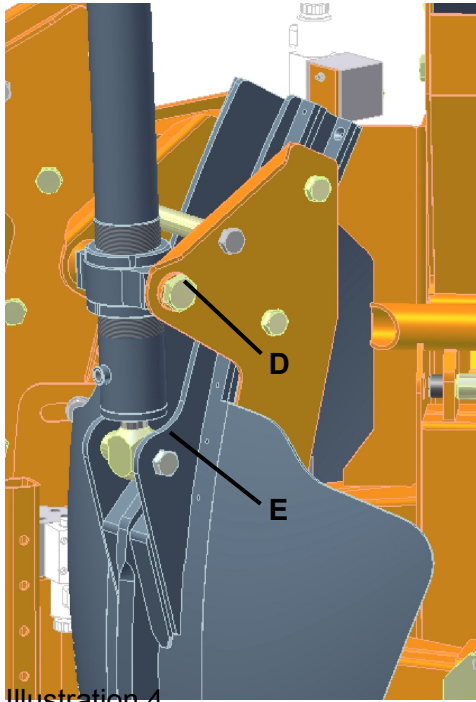
1. General view of spade tower

2. A adjustment screw  
B locking screw  
C locking screw

3. Loosen locking screws B and C.  
Move spade tower forward or  
backward by means of adjustment  
screw A

When blades are in desired position,  
tighten locking nuts B and C.  
Locking nut C must be tightened  
with a torque of 420 Nm.

### 5.7 Replacing Plastic Bush of Spade Cylinder



Unscrew bolts (D) and (E), remove worn bushes, insert new bushes (F) and (G).

**5.8 Replacing Plastic Bush of Gate Cylinder**



Illustration 6

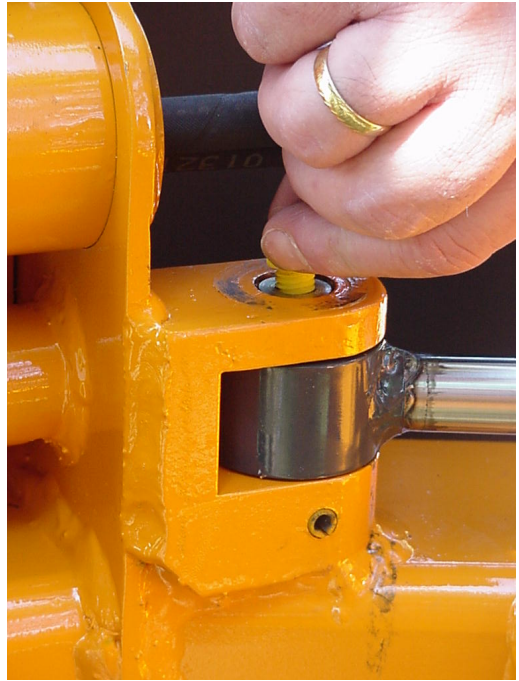


Illustration 7



Illustration 8



Illustration 9

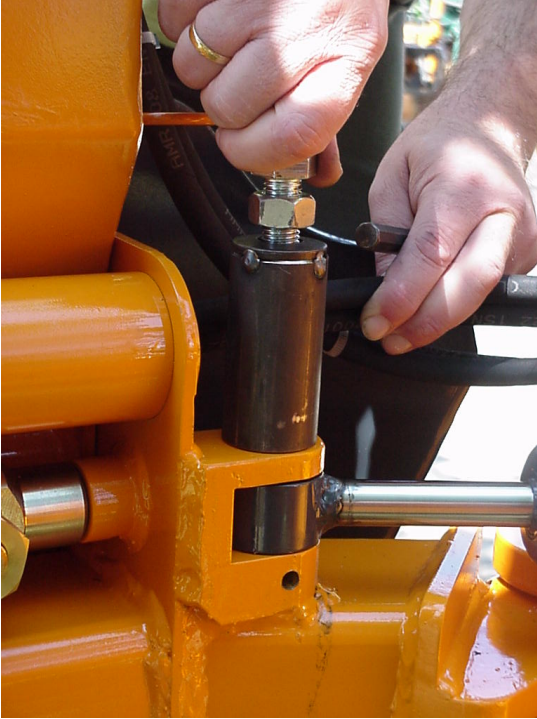


Illustration 10



Illustration 11

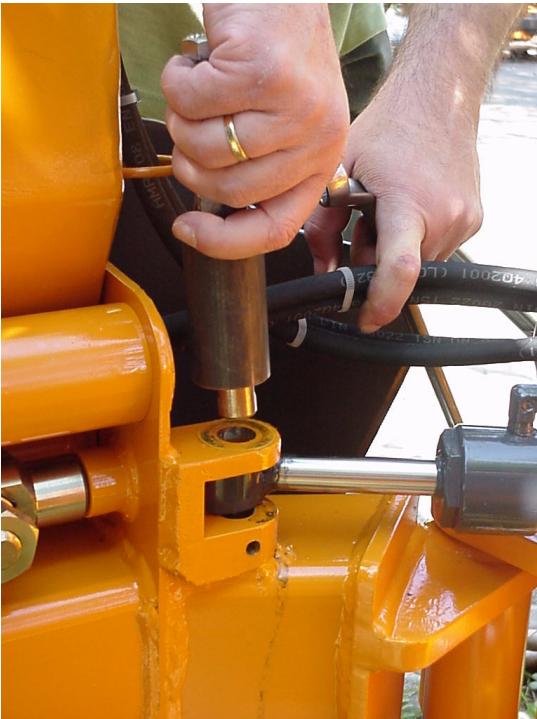


Illustration 12



Illustration 13

6. General view of gate cylinder with piston rod and eye joint.
7. Screw off plastic thread plug.
8. Remove dowel pin by means of drift punch.
9. Dowel pin has been removed. Note female thread on top of the pin,
10. Place extractor on top of pin and fasten screw into female thread.
11. When screw has a firm grip, hold it with wrench in position and tighten nut until it is stopped by the extractor. Now hold nut and tighten screw further into pin thread, thereby extracting the pin.
12. Pin and plastic bush is removed from eye joint.
13. The plastic bush is replaced.

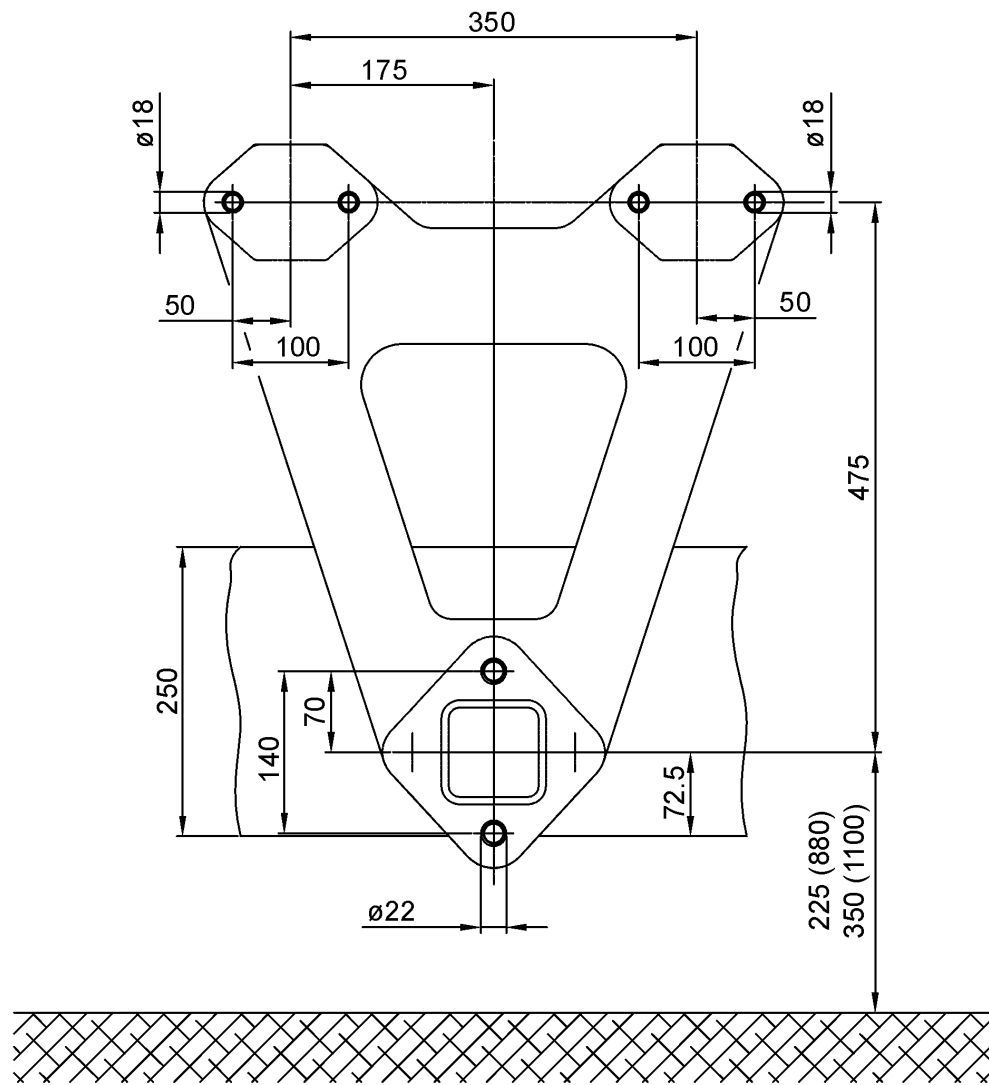


Extractor with screw and nut.

## 6. Trouble Shooting

1. Nothing moves. (none of the hydraulic functions works)
  - Electricity supply to control box is interrupted. Check fuses at power unit.
  - Hydraulic disconnect is not properly attached. Check attachment.
  
2. Two hydraulic functions (e.g. gate lock and spades) work at the same time.
  - On one of the valves the plunger does not move.  
This defect might be caused by a dirt particle. Disassemble and clean the respective valve.
  - If this does not solve the problem, the valve is damaged and must be replaced.
  
3. After the blades have been retracted and the valve has been relieved, they immediately move down again.
  - If the spades move down a short way only, the oil supply of the pump might be too high.  
Oil flow of power unit must be regulated by service of manufacturer.
  - If the spades move down all the way, the seals in the spade cylinder might be defect und must be replaced.
  - If the spades move down all the way, the spade valve might be defect and must be replaced.
  
4. The gate does not close and / or lock completely.
  - The adjustment screw at the hinge wants readjustment.  
Adjust adjustment screw.
  - The eye joint is worn, bushes must be replaced.

5. Although the gate has been closed and locked properly, the blades do not move down.
  - The safety switch at the lock needs readjustment.
  - The electricity supply is interrupted. Check fuses at power unit.
  
6. The blades do not close properly although the spade cylinders are fully extended.
  - Guides are worn and must be replaced.
  - Blades are bent and have to be adjusted.
  
7. One function (any) does not work.
  - The electricity supply is interrupted. Check power circuit.
  - The magnet of the respective control valve is defect. Valve must be replaced.
  - The plunger of the control valve is seized, probably due to a dirt particle in the hydraulic oil. Disassemble valve and clean.

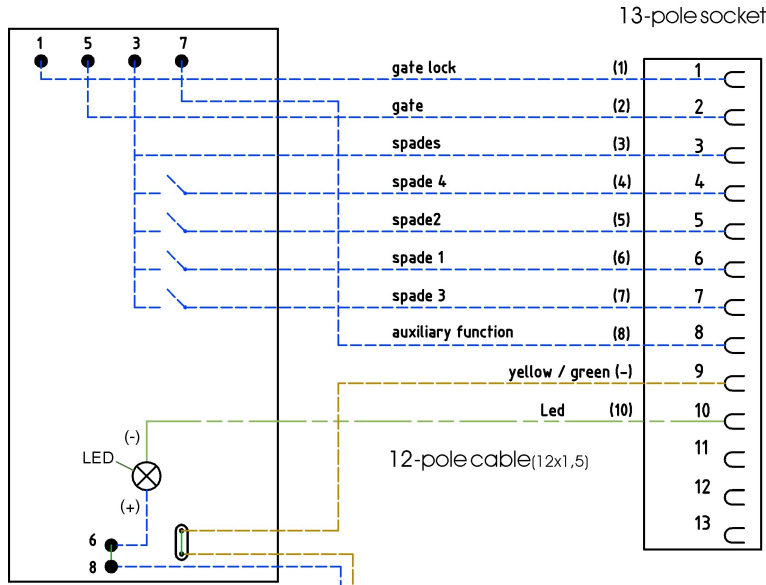


ANBAUPUNKTE -  
ATTACHMENT POINTS

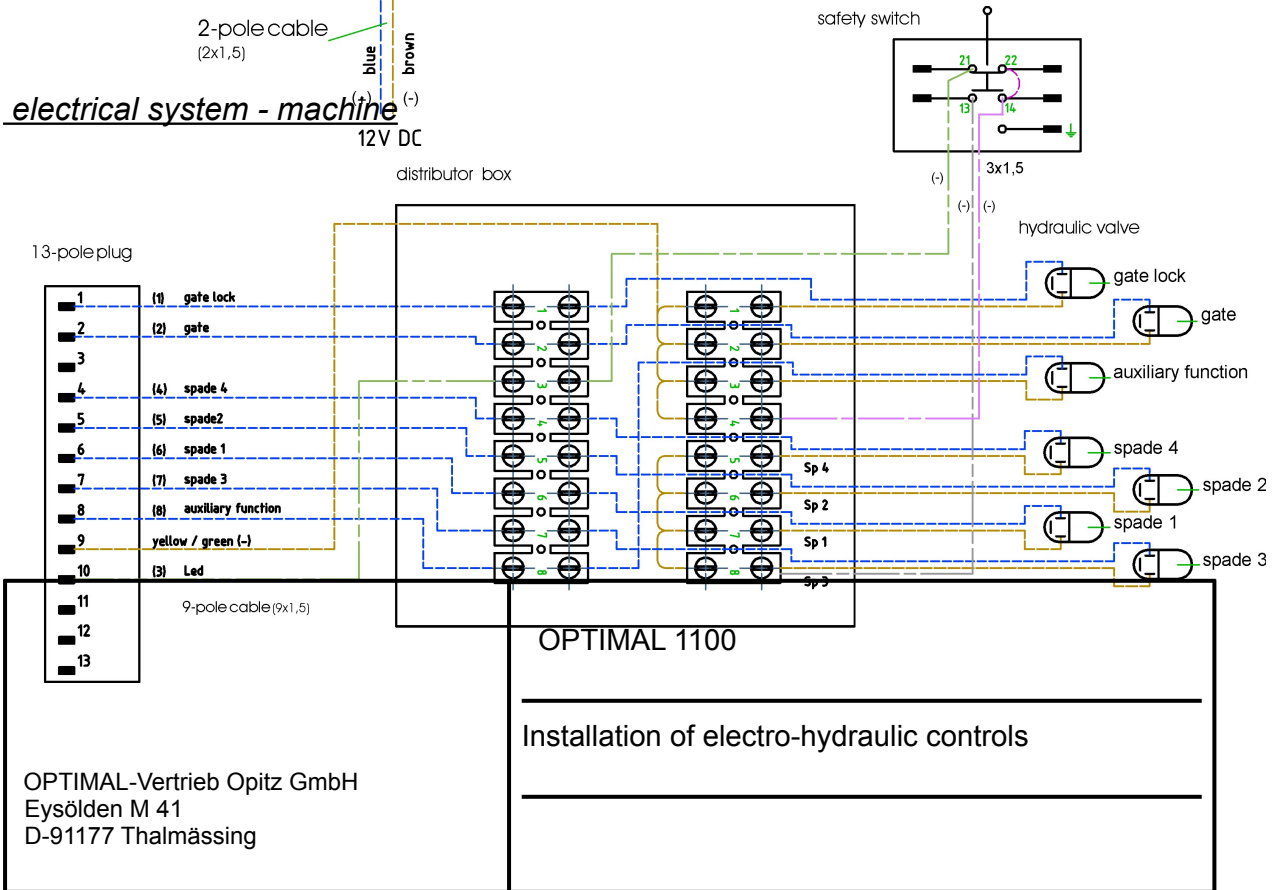
**Optimal**  
-Vertrieb Optitz GmbH  
Kynärdon 8441 D-91177 Thalmünster

control box

casing



electrical system - machine

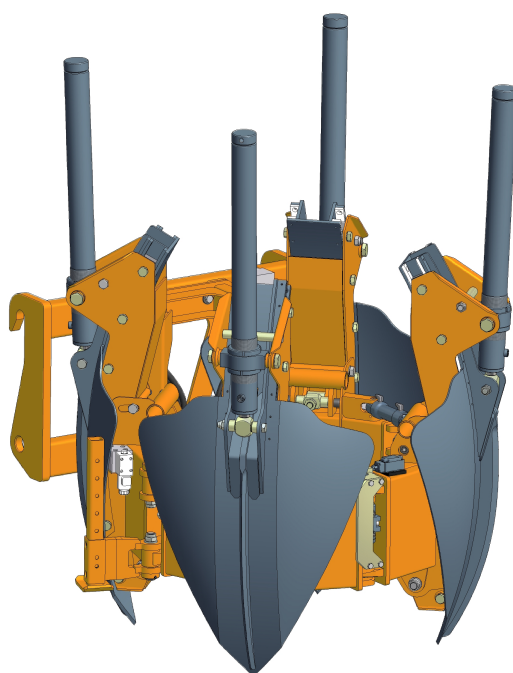


OPTIMAL-Vertrieb Opitz GmbH  
Eysölden M 41  
D-91177 Thalmässing



# SPARE PARTS ON TREE SPADE OPTIMAL 1100

111043 -



**Manufacturer:**

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**Distributor:**

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Phone: (251-490-9871)

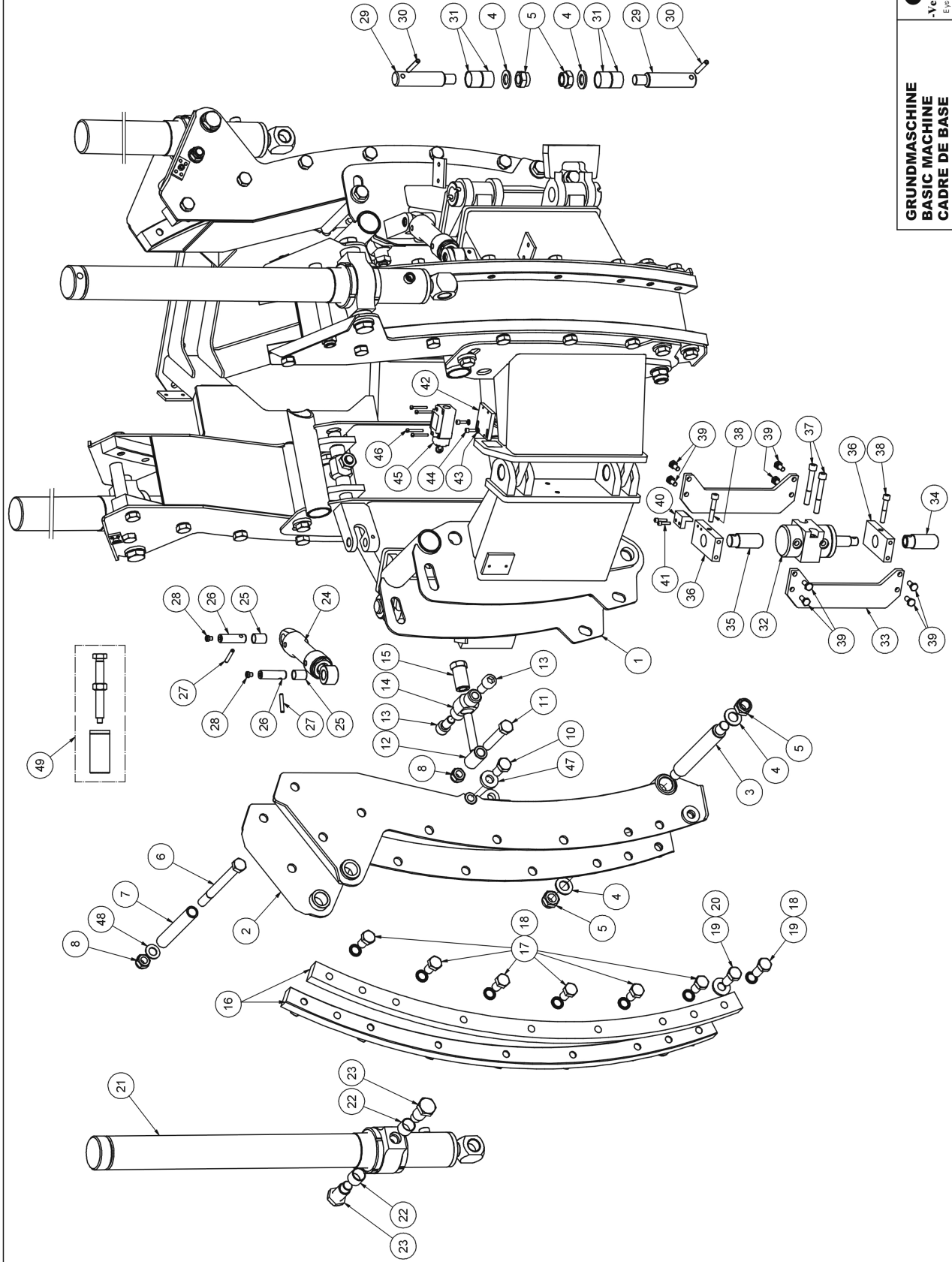
eMail: [sales@optimaltreespades.com](mailto:sales@optimaltreespades.com)  
web: [www.optimaltreespades.com](http://www.optimaltreespades.com)

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# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange Tafel - Table - Feuille 1



**GRUNDMASCHINE**  
**BASIC MACHINE**  
**CADRE DE BASE**

**Optimal**  
 -Vertrieb Optitz GmbH  
 Eberden M41 91177 Thurnhausen

Tafel - Table - Feuille 1

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Grundrahmen / Spaten- main frame / spade - cadre de base / bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	1	Grundrahmen main frame cadre de base	3181110400
2	4	Führungskasten spade tower boîtier de guidage	3181110010
3	4	Achsbolzen ø 35 pivot pin ø axe ø 35	3071110060
4	12	Scheibe 24 washer 24 rondelle 24	506924
5	12	Sicherungsmutter M 24 x 1,5 lock nut M 24 x 1,5 écrou de sécurité M 24 x 1,5	50224150985
6	4	Schraube M 20 x 220 bolt M 20 x 220 vis M 20 x 220	50120220931
7	4	Distanzrohr spacer tube distanceur	3111110060
8	8	Sicherungsmutter M 20 lock nut M 20 écrou de sécurité M 20	502200985
9	8	Scheibe 20 washer 20 rondelle 20	5069201
10	8	Schraube M 20 x 45 hex head screw vis M 20 x 45	50120045933
11	4	Schraube M 20 x 110 bolt M 20 x 110 vis M 20 x 110	50120110931

Tafel - Table - Feuille 1

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Grundrahmen / Spaten- main frame / spade - cadre de base / bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
12	4	Verstellspindel adjustment block vis de réglage	3140880010
13	8	Schraube M 20 x 40 socket head screw M 20 x 40 vis M 20 x 40	50120040912
14	4	Schwenkbolzen adjustment pin arbre à rotule	3070880010
15	4	Gewindebuchse insert nut douille filetée	3130880010
16	8	Verschleißleiste guide patin d'usure	3061110011
17	48	Schraube M 20 x 35 lock bolts for guides M 20 x 35 vis M 20 x 35	50120035933
18	56	Si-Scheibe washer rondelle	506203
19	16	Schraube M 20 x 45 lock bolts for guides M 20 x 45 vis M 20 x 45	50120045933
20	8	Scheibe 20 washer 20 rondelle 20	5069201
21	4	Spatenzylinder spade cylinder Vérin de bêche	3010100061
22	8	Lagerbuchse bush douille	544303430

Tafel - Table - Feuille 1

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Grundrahmen / Spaten - main frame / spade - cadre de base / bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
23	8	Schwenkbolzen adjustment pin arbre à rotule	3071110020
24	2	Öffnungszylinder gate cylinder Vérin d'ouverture	3010200040
25	4	Lagerbuchse bush douille	544202330
26	4	Bolzen pin arbre	3070880070
27	4	Spannhülse tapered sleeve entretoise	506798451481
28	4	Schraubstopfen threaded plug bouchon fileté	599700M10
29	4	Scharnierbolzen hinge pin axe de charnière	3071110010
30	4	Spannhülse tapered sleeve entretoise	506710060148
31	8	Lagerbüchse bush douille	544353930
32	1	Verriegelungszylinder gate lock cylinder vérin de verrouillage	3010300081
33	2	Verbindungsplatte butt plate plaque de liaison	3181110370

**Tafel - Table - Feuille 1****OPTIMAL 1100****ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE****Grundrahmen / Spaten - main frame / spade - cadre de base / bêche**

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
34	1	Verriegelungsbolzen, unten lock pin, bottom axe de verrouillage bas	3071110040
35	1	Verriegelungsbolzen, oben lock pin, top axe de verrouillage haut	3071110030
36	2	Querplatte transvers plate plaque en biais	3181110360
37	2	Schraube M 12 x 90 socket head screw M 12 x 90 vis M 12 x 90	50112090912
38	2	Schraube M 10 x 60 socket head screw M 10 x 60 vis M 10 x 60	50110060912
39	8	Schraube M 10 x 25 hex head screw M 10 x 25 vis M 10 x 25	50110025933
40	1	Winkel angle stop coude	3181110380
41	2	Schraube M 6 x 25 socket head screw M 6 x 25 vis M 6 x 25	50106025912
42	1	Befestigungsplatte fixing plate Plaque de maintien	3981400010
43	2	Scheibe 6,4 DIN 125 washer 6,4 DIN 125 Rondelle 6,4 DIN 125	506906
44	2	Schraube M 6 x 20 socket head screw M 6 x 20 vis M 6 x 20	50106020912

Tafel - Table - Feuille 1

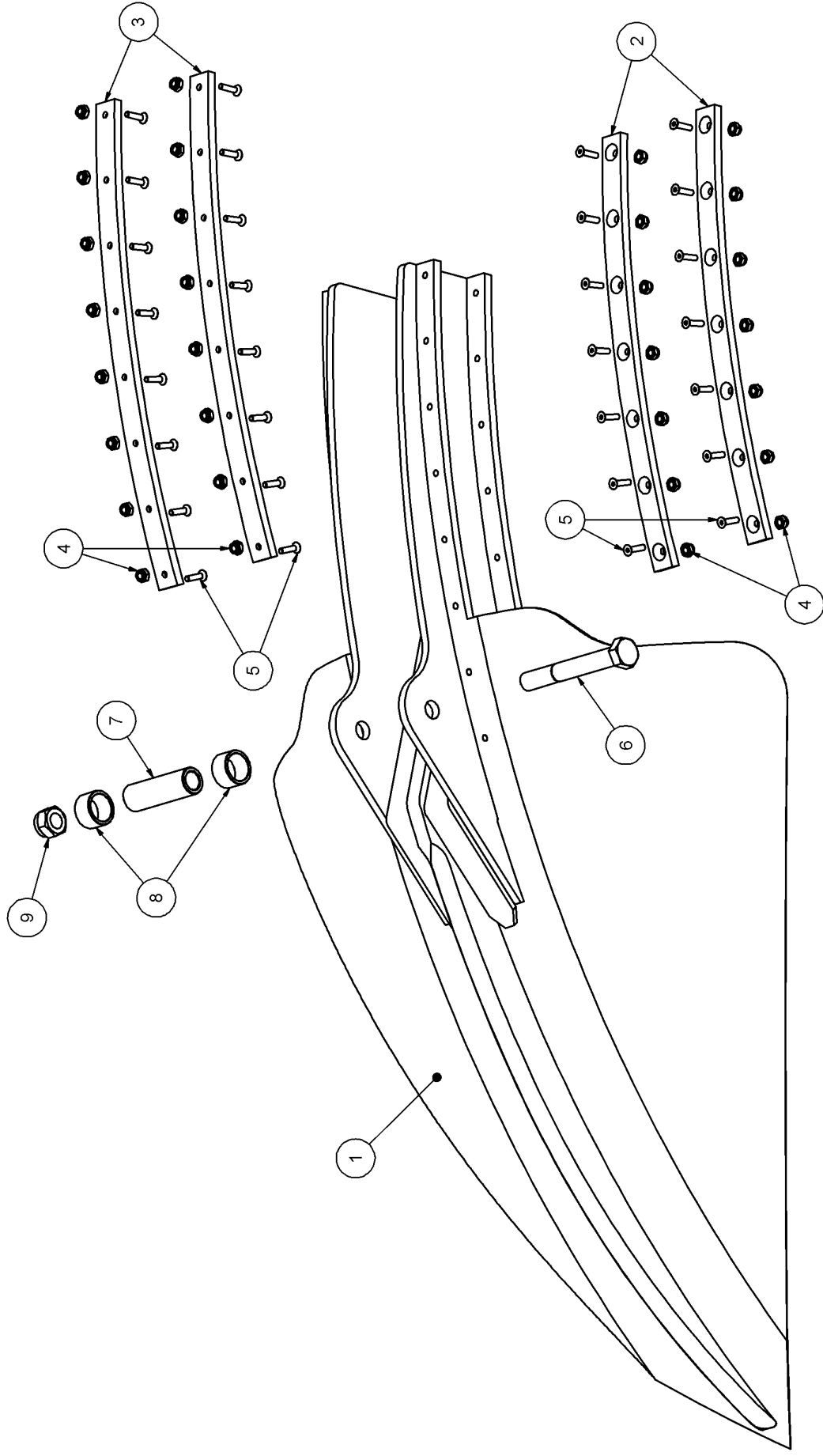
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Grundrahmen / Spaten - main frame / spade - cadre de base / bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
45	1	Sicherheitsschalter safety switch commutateur de sécurité	5990043782
46	4	Schraube M 5 x 40 slotted hex screw M 5 x 40 Vis M 5 x 40	50105040084
47	8	Scheibe 20 washer 20 rondelle 20	5069201
48	4	Scheibe 20 DIN 125 washer 20 DIN 125 rondelle 20 DIN 125	506920
49	1	Werkzeug für Bolzen tool for pin outillage pour axe	3700880050

# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange **Tafel - Table - Feuille 2**



**SPATEN  
SPADE  
BÉCHE**

**Optimal**  
Vertrieb Optiz GmbH  
Eysleben-Mt. 91177 Thalmässing

Tafel - Table - Feuille 2

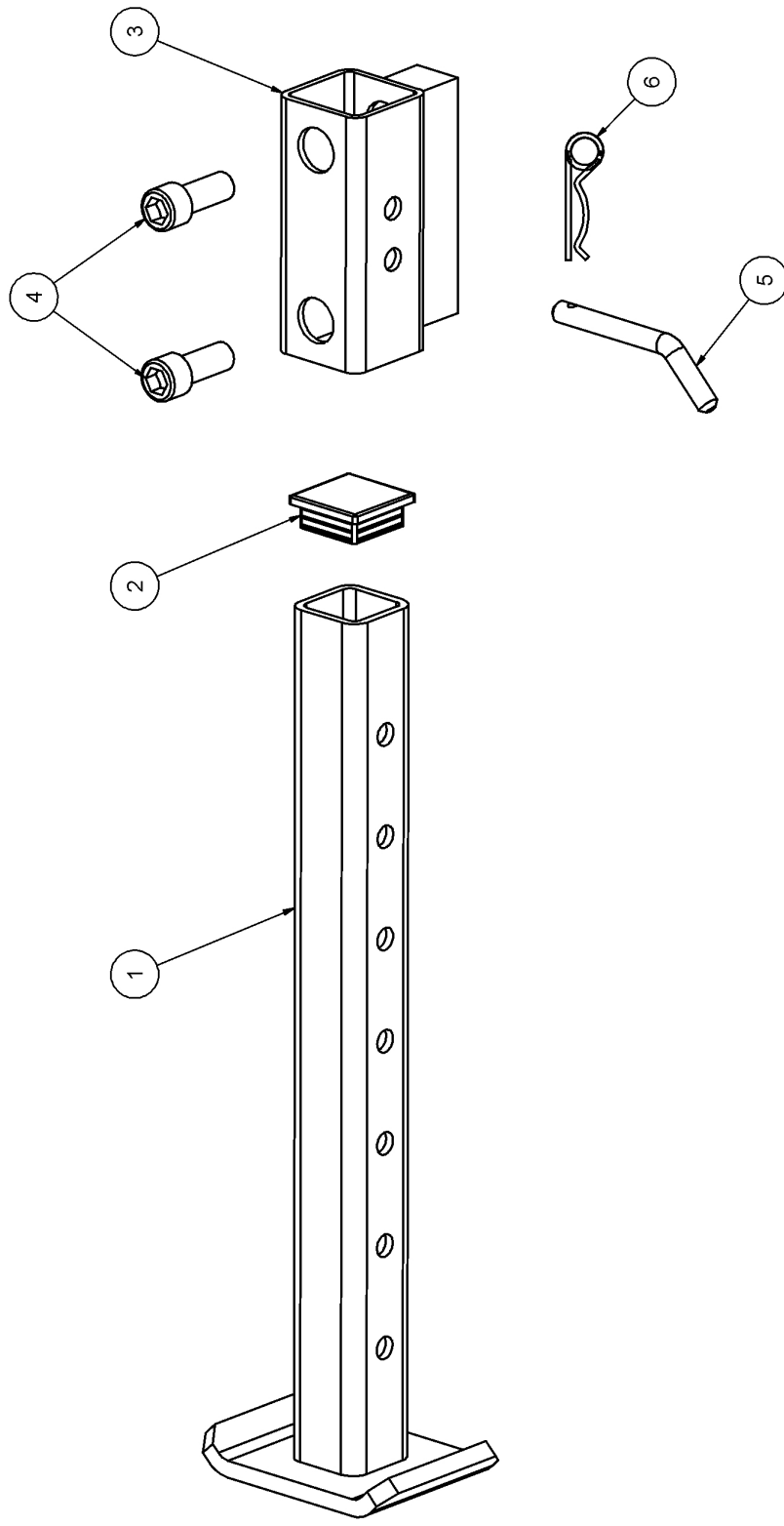
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Spaten - spade - bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	4	Spaten, kpl. spade, complete bêche complète	3161110060
2	8	Kunststoffleiste, kurz plastic guide, short Patin en plastique, court	3061110020
3	8	Kunststoffleiste, lang plastic guide, long Patin en plastique, long	3061110030
4	120	Sicherungsmutter M 6 lock nut M 6 écrou de sécurité M 6	502060985
5	120	Schraube M 6 x 25 countersunk socket screw M 6 x 25 vis M 6 x 25	501060257991
6	4	Schraube M 20 x 150 bolt M 20 x 150 vis M 20 x 150	50120150931
7	4	Buchse bush douille	31111030
8	8	Distanzbuchse spacer entretoise	3111110080
9	4	Sicherungsmutter M 20 lock nut M 20 écrou de sécurité M 20	502200985

# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange **Tafel - Table - Feuille 3**



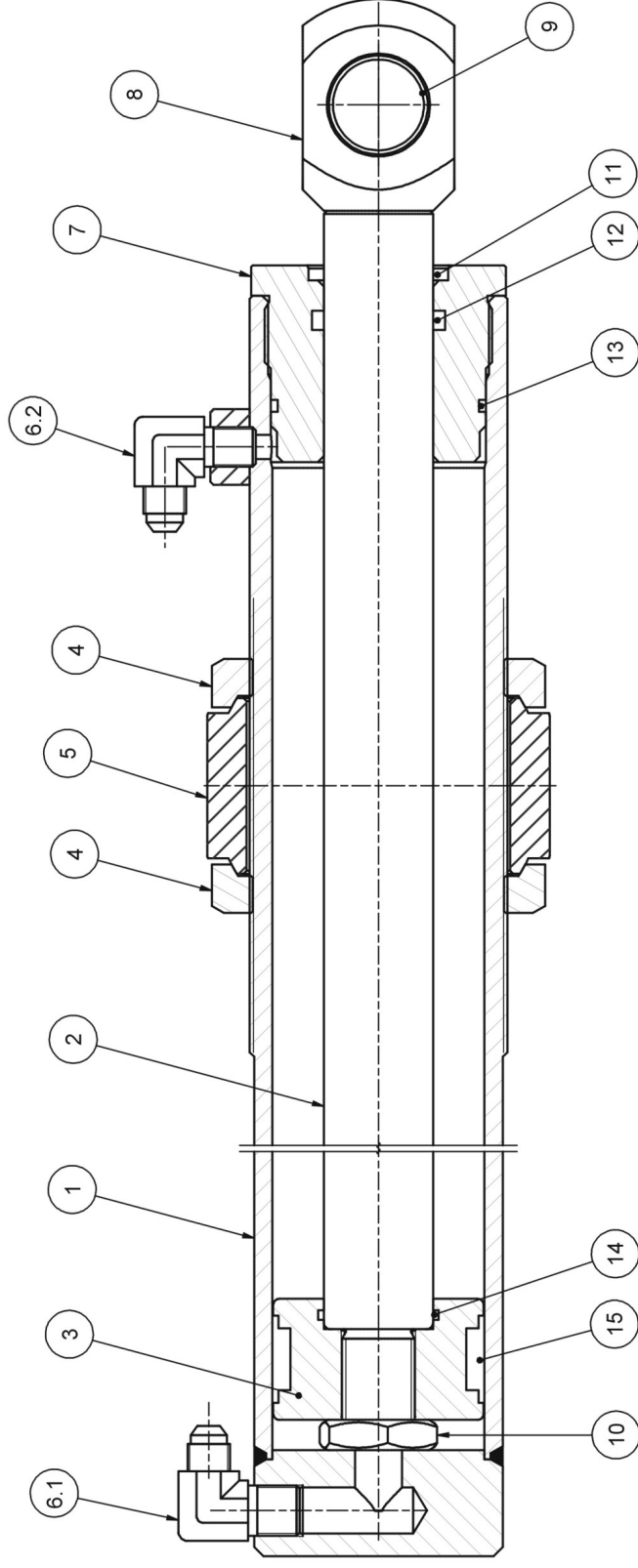
**VERSTELLFUSS  
ADJUSTMENT FEET  
PIED DE RÉGLAGE**

**Optimal**  
- Vertrieb: Optiz GmbH  
- System Nr. 91177-Feinlösung

**Tafel - Table - Feuille 3****OPTIMAL 1100****ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE****Verstellfuß - adjustment feet - Pied de réglage**

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	2	Verstellfuß adjusting foot pied de réglage	3301100050
2	2	Kunststoff-Endkappen 45 x 45 x 2 plastic cover bouchon carré 45 x 45 x 2	5992045045
3	2	Halterung für Verstellfuß foot bracket Fixation du pied de réglage	3301100020
4	4	Schraube M 16 x 40, 8,8 vz. socket head screw M 16 x 40 vis M 16 x 40, 8,8 vz.	50116040912
5	2	Bolzen für Höhenverstellung pin pin for height adjustment axe pour réglage en hauteur	3301100060
6	2	Federstecker 3 mm cotter pin goupille	5990403

# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange Tafel - Table - Feuille 4



**SPATENZYLINDER**  
**SPADE CYLINDER**  
**VÉRIN DE BÈCHE**

**Optimal**  
 -Vertrieb Optiz GmbH  
 Eyslander-M41 0177 Thunaustr.

Tafel - Table - Feuille 4

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Spatenzylinder - spade cylinder - Vérin de bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	1	Zylinderrohr, geschw. 70/36 cylinder body corps de vérin	3020700021
2	1	Kolbenstange ø 36 x 951 piston rod ø 36 x 951 tige de piston ø 36 x 951	3030360031
3	1	Kolben 70 36 241 piston 70 36 241 piston 70 36 241	3127036241
4	2	Nutmutter KM 17 mit Profil slotted nut KM 17 Ecrou à créneaux	31350317
5	1	Schwenkauge cylinder suspension rotule de vérin	3091110011
6.1	1	Verschraubung 107051-10-17 union 107051-10-17 boulonnerie 107051-10-17	515070511017
6.2	1	Verschraubung 107051-10-13 union 107051-10-13 boulonnerie 107051-10-13	515070511013
7	1	Führungsbüchse 70 36 365 guide bush 70 36 365 douille de guidage 70 36 365	3117036365
8	1	Gelenkauge ø 30 eye joint ø 30 rotule ø 30	3071110050
9	2	Lagerbuchse GSM-3034-25 bush GSM-3034-25 douille GSM-3034-25	544303425
10	1	Mutter M 24 x 1,5, 8.8 vz. nut M 24 x 1,5, 8.8 vz. écrou M 24 x 1,5, 8.8 vz.	50224150936

Tafel - Table - Feuille 4

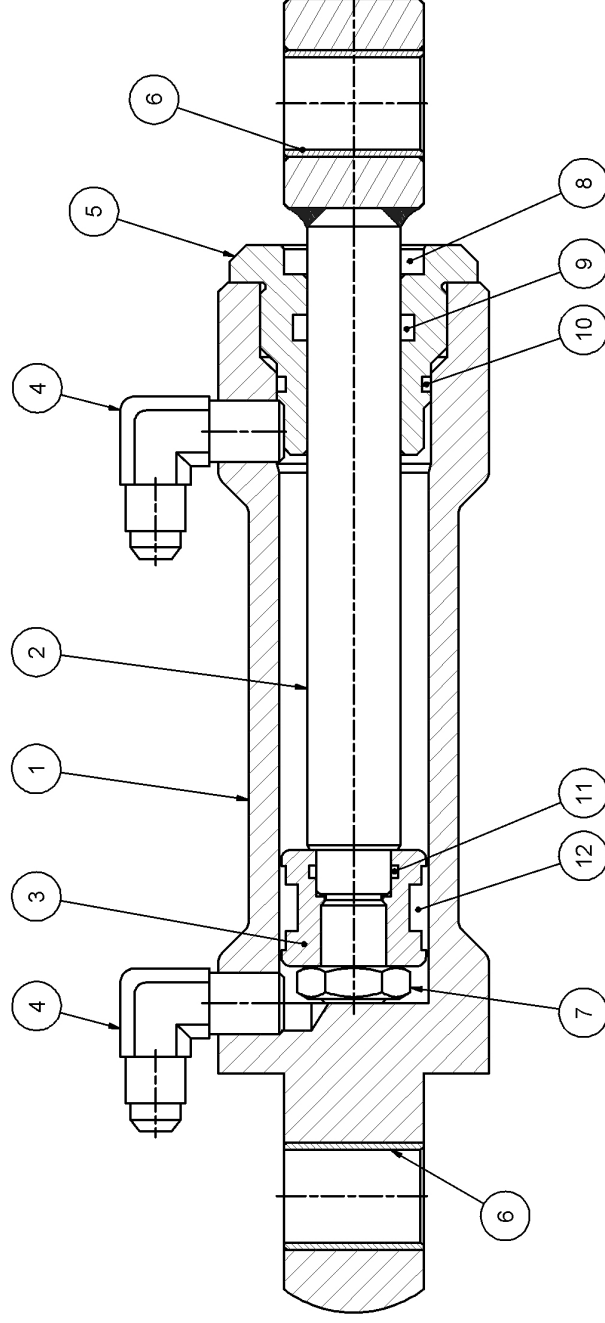
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Spatenzylinder - spade cylinder - Vérin de bêche

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
11	1	Abstreifer P7 – 36 scraper P7 - 36 Râcloir P7 – 36	5160336
12	1	Stangendichtung TS 36 x 44 x 6 piston rod seal TS 36 x 44 x 6 joint d'étanchéité de tige TS 36 x 44 x 6	5160236446
13	1	O-Ring 64,5 x 3 90 Shore o-ring joint torique	5170645030
14	1	O-Ring 36 x 2,5 70 Shore o-ring Joint torique	5170360025
15	1	Kolbendichtsatz DAS 7058 piston seal DAS 7058 Kit de joints de piston DAS 7058	51604070058
	1	kompl. Dichtsatz seal kit jeu de joints	516007036602

# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange    **Tafel - Table - Feuille 5**



**ÖFFNUNGSZYLINDER**  
**GATE CYLINDER**  
**VÉRIN D'OUVERTURE**

**Optimal**  
-Vertrieb Optiz GmbH  
Fysshöken M41 91177 Thalmässing

Tafel - Table - Feuille 5

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Öffnungszylinder - gate cylinder - Vérin d'ouverture

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	1	Zylinderrohr für Öffnungszyl. cylinder body corps de vérin	3020320020
2	1	Kolbenstange ø 20 x 171 piston rod ø 20 x 171 tige de piston ø 20 x 171	3030200020
3	1	Kolben, HZ 32/20 piston HZ 32/20 piston, HZ 32/20	3123220010
4	2	Verschraubung 107051-08-13 union 107051-08-13 boulonnerie 107051-08-13	515070510813
5	1	Führungsbuchse, HZ 32/20 guide bush HZ 32/20 douille de guidage, HZ 32/20	3113220010
6	2	Lagerbuchse GSM-2023-30 bush GSM-2023-30 douille GSM-2023-30	544202330
7	1	Mutter M 14 x 1,5 nut M 14 x 1,5 écrou M 14 x 1,5	50214120936
8	1	Abstreifer W4 – 20 x 30 scraper W40 – 20 x 30 râcloir W4 – 20 x 30	5160320
9	1	Stangendichtung T7 20 x 26 piston rod seal joint d'étanchéité de tige	5160220
10	1	O-Ring 28 x 2,5 o-ring 28 x 2,5 Joint torique 28 x 2,5	5170280025
11	1	O-Ring 16 x 2 90 Shore o-ring 16 x 2 joint torique 16 x 2	5170160020

Tafel - Table - Feuille 5

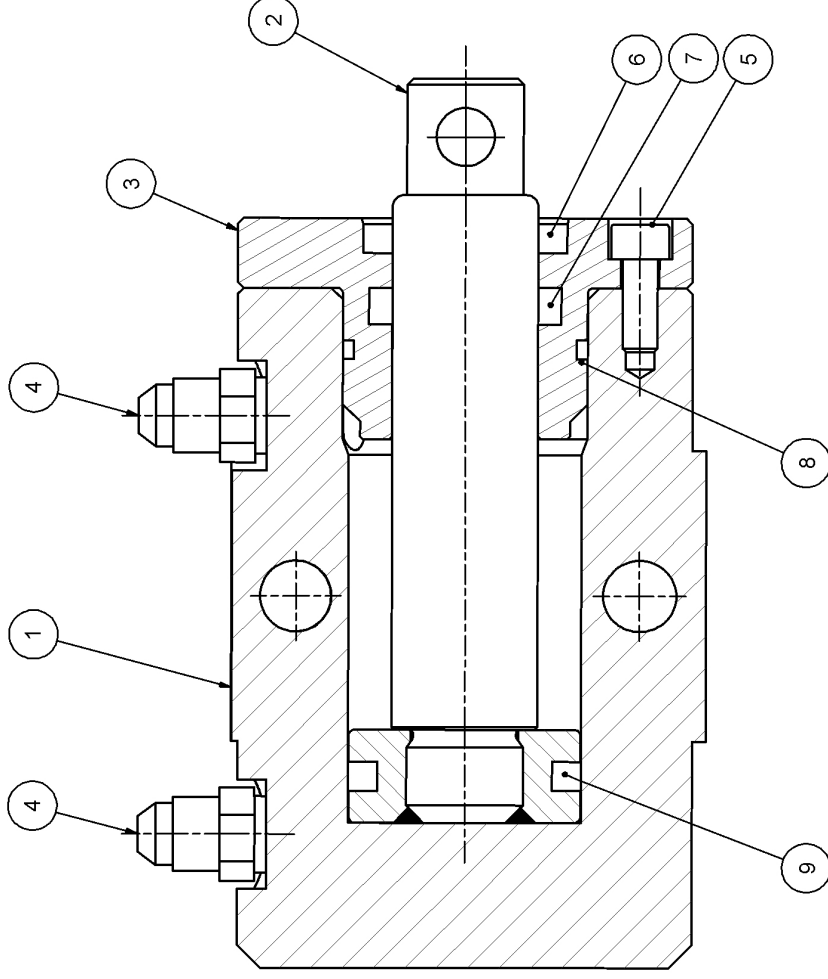
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Öffnungszylinder - gate cylinder - Vérin d'ouverture

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
12	1	Kolbendichtsatz TPM 32 x 24 piston seal TPM 32 x 24 Kit de joints de piston TPM 32 x 24	5160132
	1	kompl. Dichtsatz seal kit jeu de joints	516003220601

**Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange    Tafel - Table - Feuille 6**



**VERRIEGELUNGSZYL.  
GATE LOCK CYLINDER  
VÉRIN DE VERROUILLAGE**

**Optimal**  
Vertrieb Optiz GmbH  
Eschka 361 9177 Dornstede

Tafel - Table - Feuille 6

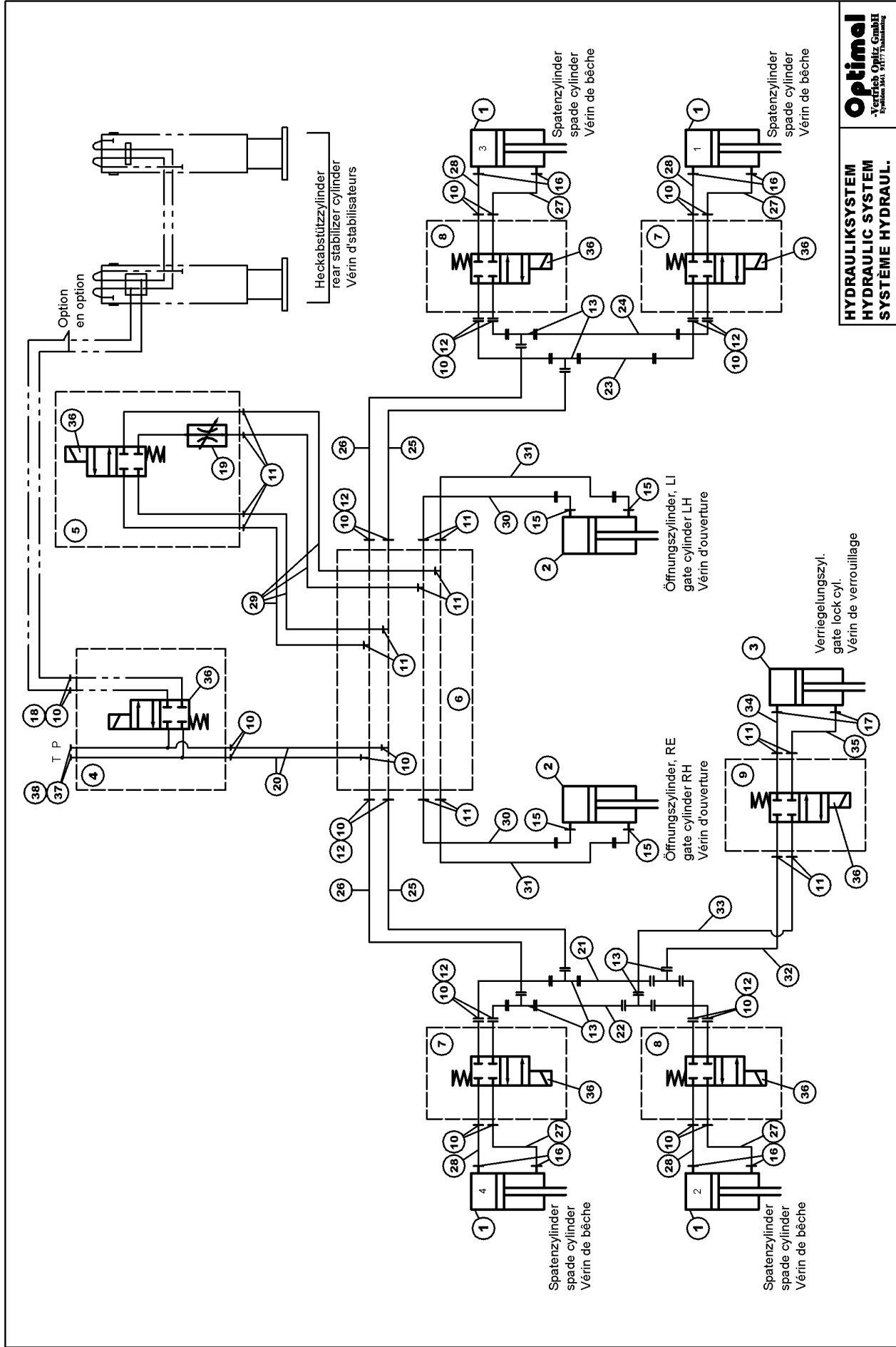
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Verriegelungszyylinder - gate lock cylinder - Vérin de verrouillage

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	1	Zylinderrohr, HZ 40/25 cylinder body corps de vérin, HZ 40/25	3020400070
2	1	Kolbenstange ø 25 x 128 piston rod ø 25 x 128 Tige de piston ø 25 x 128	3030250051
3	1	Führungsbuchse, HZ 40/25 guide bush HZ 40/25 douille de guidage, HZ 40/25	3114025010
4	2	Verschraubung union boulonnerie	515021000813
5	6	Schraube M 6 x 16 socket head screw M 6 x 16 vis M 6 x 16	50106016912
6	1	Abstreifer P7 – 25 (W4-25) scraper P7 - 25 Râcloir P7 – 25	5160325
7	1	Stangendichtung S 8 – 25 (blau) piston rod seal S 8 – 25 (blau) joint d'étanchéité de tige S 8 – 25 (bleu)	5160225
8	1	O-Ring 35 x 2,5 90 Shore o-ring 35 x 2,5 joint torique 35 x 2,5	5170350025
9	1	Kolbendichtsatz KPD-040-PU piston seal KPD-040-PU kit de joints de piston KPD-040-PU	51601402
	1	kompl. Dichtsatz seal kit jeu de joints	516004025602

# Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange **Tafel - Table - Feuille 7**



**HYDRAULIKSYSTEM**  
**HYDRAULIC SYSTEM**  
**SYSTÈME HYDRAUL.**

**Optimal**  
 Vertrieb Optiz GmbH  
 Industriestraße 11  
 42699 Solingen

Tafel - Table - Feuille 7

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Hydrauliksystem - hydraulic system - Système hydraulique

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	4	Spatenzylinder spade cylinder vérin de bêche	3010100060
2	2	Öffnungszylinder gate cylinder vérin d'ouverture	3010200040
3	1	Verriegelungszylinder gate lock cylinder vérin de verrouillage	3010300081
4	1	Steuerblock, Zusatzfunktion control block, auxiliary functions distributeur	3051110060
5	1	Steuerblock 2, Öffnungszyl. control block, 2, gate cylinder distributeur	3051110030
6	1	Ölverteiler oil manifold distributeur d'huile	3051110050
7	2	Steuerblock 1, links Spatenzyl. control block, spade cylinder LH Distributeur	3051110020
8	2	Steuerblock 1, rechts, Spatenzyl. control block, spade cylinder RH Distributeur	3051110010
9	1	Steuerblock3, Verriegelungszyl. control block, gate lock cylinder Distributeur	3051110040
10	26	Verschraubung gerade 3/8 union 3/8 raccord fileté droit 3/8	515020231017
11	16	Verschraubung gerade 1/4 union 1/4 Raccord fileté droit 1/4	515020230813

**OPTIMAL 1100**  
**ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE**

**Hydrauliksystem - hydraulic system - Système hydraulique**

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
12	12	Winkelverschraubung ellbow union coude fileté	5150701710
13	6	T-Verschraubung union boulonnerie en T	5151300310
15	4	Winkelverschraubung ellbow union Coude fileté	515070510813
16	8	Winkelverschraubung ellbow union Coude fileté	515070511017
17	2	Verschraubung, gerade union raccord fileté droit	515021000813
18	2	Verschlusskappe cover cap Bouchon	5150103310
19	1	Drosselschraube oil flow adjuster vis de réglage	3140880030
20	2	Hydraulikschlauch NW 10 hydraulic hose Tuyau hydraulique	513101045012
21	1	Hydraulikschlauch Nw10 hydraulic hose Tuyau hydraulique	513102039011
22	1	Hydraulikschlauch NW10 hydraulic hose Tuyau hydraulique	513102040511

## OPTIMAL 1100

## ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

## Hydrauliksystem - hydraulic system - Système hydraulique

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
23	1	Hydraulikschlauch NW10 hydraulic hose Tuyau hydraulique	513102043511
24	1	Hydraulikschlauch NW10 hydraulic hose Tuyau hydraulique	513102045011
25	2	Hydraulikschlauch NW10 hydraulic hose Tuyau hydraulique DN 10	513102063012
26	2	Hydraulikschlauch NW 10 hydraulic hose Tuyau hydraulique DN 10	513102069012
27	4	Hydraulikschlauch NW 10 hydraulic hose Tuyau hydraulique DN 10	513102106011
28	4	Hydraulikschlauch NW 10 hydraulic hose Tuyau hydraulique DN 10	513102144011
29	4	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062047011
30	2	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062063013
31	2	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062075013
32	1	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062054014
33	1	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062061014

Tafel - Table - Feuille 7

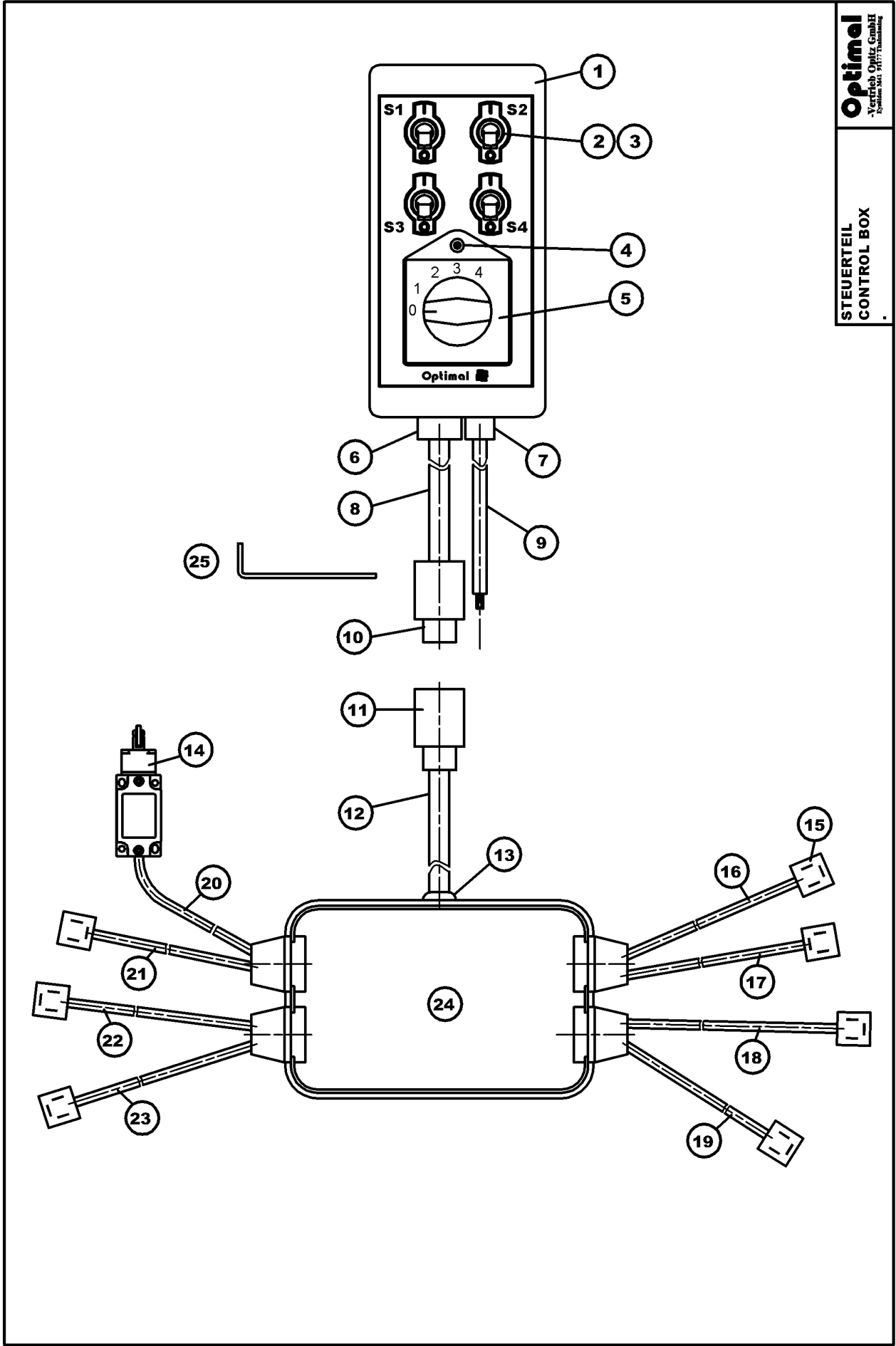
OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Hydrauliksystem - hydraulic system - Système hydraulique

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
34	1	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062042013
35	1	Hydraulikschlauch NW 6 hydraulic hose Tuyau hydraulique DN 6	513062044013
36	1	Einzelventil NG 6 control valve NG06 valve NG06	547001
37	2	Verschraubung gerade 3/8 union 3/8 raccord fileté droit 3/8	515020231217
38	2	Verschlusskappe cover cap Bouchon	5150103312

**Ersatzteilliste - Spare Parts List - Liste De Pièces De Rechange Tafel - Table - Feuille 8**



**Optimal**  
 -Vertrieb Optiz GmbH  
 -Spezialtechnik 10771 Hamburg

**STEUERTEIL  
 CONTROL BOX**

Tafel - Table - Feuille 8

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Steuerteil – control box – boîtier de contrôle

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
1	1	Gehäuse casing boîtier	3981110010
2	4	Kippschalter toggle switch commutateur	5470700728
3	4	Bezeichnungsschild name plate plaque de désignation	5470700168
4	1	LED – Signallampe, 12V indicator lamp voyant	5997149845
5	1	Drehschalter 0,1,2,3,4 rotary switch 0,1,2,3,4 commutateur rotatif	5470A242600E
6	1	Kabelverschraubung M20x1,5 straight cable fitting boulon de câble	5997527727
7	1	Kabelverschraubung M12x1,5 straight cable fitting boulon de câble	5997527701
8	1	Kabel 12x1,5 – 560cm (220,5") cable 12x1,5 – 560cm (220,5") Câble 12x1,5 – 560cm (220,5")	5121215
9	1	Kabel 2x1,5 – 170cm (67") cable 2x1,5 – 170cm (67") Câble 2x1,5 – 170cm (67")	5122015
10	1	Steckdose 13-polig 13-pole socket Fiche 13 pôles	5998JB005949
11	1	Stecker 13-polig 13-pole plug Prise 13 pôles	5998JA005951

Tafel - Table - Feuille 8

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Steuerteil – control box - boîtier de contrôle

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
12	1	Kabel 9x1,5 – 250cm (98") cable 9x1,5 – 250cm (98") câble 9x1,5 – 250cm (98")	5129015
13	1	Kabeltülle cable sleeve Passe-fil	72112
14	1	Sicherheitsschalter safety switch Commutateur de sécurité	5990043782
15	7	Standard – Stecker standard plug Prise standard	54743650
16	1	Kabel 2x1,5 – 239cm (94") - Verriegelung cable 2x1,5 – 239cm (94") – gate lock câble 2x1,5 – 239cm (94") – verrouillage	5122015
17	1	Kabel 2x1,5 – 72cm (28") – Zusatzfunkt. cable 2x1,5 – 72cm (28") – optional function câble 2x1,5 – 72cm (28") – fonction en option	5122015
18	1	Kabel 2x1,5 – 194cm (76,5") – Spaten 2 cable 2x1,5 – 194cm (76,5") – blade 2 câble 2x1,5 – 194cm (76,5") – bêche 2	5122015
19	1	Kabel 2x1,5 – 150cm (59") – Spaten 4 cable 2x1,5 – 150cm (59") – blade 4 câble 2x1,5 – 150cm (59") – bêche 4	5122015
20	1	Kabel 3x1,5 – 202cm (79,5") – Si.Schalter cable 3x1,5 – 202cm (79,5") – safety switch câble 3x1,5 – 202cm (79,5") – commutateur de sécurité	5123015
21	1	Kabel 2x1,5 – 65cm (25,5") – öffnen cable 2x1,5 – 65cm (25,5") – gate câble 2x1,5 – 65cm (25,5") – ouvrir	5122015
22	1	Kabel 2x1,5 – 193cm (76") – Spaten 1 cable 2x1,5 – 193cm (76") – blade 1 câble 2x1,5 – 193cm (76") – bêche 1	5122015

Tafel - Table - Feuille 8

OPTIMAL 1100

ERSATZTEILLISTE - SPARE PARTS LIST – LISTE DES PIÈCES DE RECHANGE

Steuerteil – control box - boîtier de contrôle

<u>Pos.</u> <u>Item</u> <u>Pos.</u>	<u>Menge</u> <u>Quantity</u> <u>Quantité</u>	<u>Bezeichnung</u> <u>Description</u> <u>Description</u>	<u>ET-Nummer</u> <u>Part Number</u> <u>Référence</u>
23	1	Kabel 2x1,5 – 145cm (57“) – Spaten 3 cable 2x1,5 – 145cm (57“) – blade 3 câble 2x1,5 – 145cm (57“) – bêche 3	5122015
24	1	Verteilerdose distributor box boîtier de distribution	3981110020
25	1	Halter f. Steckdose 13-pol. bracket for 13-pole socket Maintien pour prise 13 pôles	3159990010



**LIMITED WARRANTY**

OptimalVertrieb Opitz GmbH ("Opitz") warrants that this product will be free from defects in material and workmanship for a period of 6 months from the date of purchase (the "Warranty Period"). If, during the Warranty Period, this product proves to be defective, Opitz will remedy the defect by either repairing or replacing the product or any of its defective parts, at Opitz's option.

If you need warranty service, you must, prior to the lapse of the Warranty Period, file a claim, together with proof of purchase and your original Warranty Certificate received at the purchase of the product, with Prichard's Nursery Equipment, LLC; P.O. Box 250; Harrison, TN 37341-0250; USA. After a warranty claim is properly filed, Opitz or its designated representative will evaluate the warranty claim. This warranty is conditioned upon your reasonable cooperation with Opitz in the evaluation of your warranty claim and the implementation of any remedy. When supplying replacement product or parts under this warranty, Opitz reserves the right to substitute product or parts of comparable value and design for any discontinued designs. This warranty is not transferable and applies only to the original consumer purchaser.

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Date of Sale: ..... Product Sold: .....

Product Serial Number: ..... Expiration Date of the Warranty: .....

Name and Address of Buyer: .....  
.....  
.....  
.....

Signature of Buyer: .....