Operating Manual and Inspection Book Including Spare Parts List

POWER LIFT HL 2.30 NT
HYMAX HL 3000 PH
POWER LIFT HL 2.35 NT
HYMAX HL 3500 PH
POWER LIFT HL 2.40 NT
HYMAX HL 4000 PH

Original operating manual

Operating Manual and Inspection Book including spare parts list

Serial number:.....

Dealer address / phone

Otto Nußbaum GmbH & Co.KG | Korker Str. 24 | D 77694 Kehl-Bodersweier
www.nussbaum-group.de | email: info@nussbaum-group.de
Service hotline Germany: 0800 5 288 911 | Service Hotline International: +49 180 5 288 911

Contents

Introduction

Nussbaum products are a result of many years of experience. A high quality standard and superior concept guarantees you reliability, long lifetimes and economical operation. To prevent unnecessary damage and hazards, read this operating manual carefully and always comply with its contents.
Any other use, or use beyond purpose is considered improper.

Otto Nußbaum GmbH & Co.KG is not liable for any resulting damage. The operating company alone carries the risk.

Proper use also includes:

- Adherence to all instructions in this operating manual and
- Compliance with inspection and maintenance work and the inspections stipulated
- The operating manual is to be followed by all personnel working on the lift. This is notably with regards to Section 4 "Safety conditions"
- In addition to safety information from the operating manual, comply with rules and regulations at the location of use
- Proper system handling

Operating company obligations:

The operating company is obliged to only permit personnel to work on the system who

- Understand the principle regulations about work safety and accident prevention and who have been trained in working with the lift.
- Have read the safety section and warning information in this operating manual, have understood it and confirmed learning with a signature.

Hazards in working with the system:

Nussbaum products have been designed and built to state-of-the-art and to recognized safety standards. However, improper use may lead to hazards to life and limb of the user or result in property damage.
The system may only be operated:

- For proper intended use
- If it is technically in perfect condition

Organizational measures

- The operating manual is always to be kept ready at the location of use of the system.
- Supplemental to the operating manual, refer to and comply with generally valid legal and other binding regulations for accident prevention and for environmental protection.
- Check occasionally that personnel have an awareness of hazards and safe work in compliance with the operating manual!
- Use personal protective equipment as needed or required by regulations.
- All safety and hazard information on the system is to be kept in a legible condition!
- Replacement parts must meet technical specifications of the manufacturer. This is only guaranteed for original parts.
- Deadlines pre-set or given in the operating manual for repeating tests / inspections must be followed.

Maintenance work, error removal

- Comply with pre-determined setting, maintenance and inspection work and intervals in the operating manual, including details for exchanging parts / part fittings! These activities may only be done by specialists who have participated in a special factory training.

Guarantee and liability

- In principle, our "General sales and supply conditions" apply.
  Guarantee and liability claims for personal and property damage are excluded if due to one or more of the following causes:
- Improper use of the system.
- Improper assembly, commissioning, operation and maintenance of the system.
- Operating the system with defective safety devices or improperly attached or non-functional safety and protection devices.
- Non-compliance with information in the operating manual in terms of transport, storage, assembly, commissioning, operation, maintenance and fitting of the system.
- Independent construction changes to the system.
- Independent changes to ..... (e.g. drive ratios: power, rotation speed, etc.)
- Improperly done repairs.
- Catastrophic cases due to foreign influences or force majeure.

After successful set up, complete this form fully, sign it, make a copy and send the original to the manufacturer within a week. The copy remains in the inspection book.

Otto Nußbaum GmbH & Co. KG

Korker Straße 24

D-77694 Kehl-Bodersweier

Assembly protocol

The lift.....

with serial number..... was set up on (date).....

at (company name)..... in (town, city).....
checked for function and safety and put into operation.
The set up was done by the operating company / specialist (score out the one that does not apply).

After successful inspection of function and safety by a trained assembler, the lift is transferred without electrical connection (e.g. plug) to on-site power supply. An on-site electrical connection between the lift and the power supply is to be done by a qualified electrician. (See details in the electrical plan).

The operating company confirms proper lift set up, has read and will comply with all information contained in this operating manual and inspection book, and will keep this document accessible to trained operators at all times.

The specialist confirms proper lift set up, has read all information in this operating manual and inspection book, and has transferred the documents to the operating company.

Anchor used (*): _____(Type/ brand)

Minimum anchoring depth (*) complied with: _____mm ☐ ok

Tightening torque (*) complied with: _____NM ☐ ok

.....	.....	.....
Date	Name, operating company & company stamp	Operating company signature
.....	.....	.....
Date	Name, specialist	Signature of specialist

Service partner: ..... (Stamp)

(*) See enclosed anchor manufacturer sheet

Lift update 04/2013 // Operating Manual update 08.08.2013

Transfer protocol

The lift.....

With serial number..... was set up on (date).....

at (company name)..... in (town, city).....

checked for function and safety and put into operation.

The following listed people (operators) were trained to handle and care the lift after it was set up by a trained assembler of the manufacturer or a contract partner (specialist).
(Date, name, signature, empty lines must have a scored out)

.....	.....	.....
Date	Name	Signature
.....	.....	.....
Date	Name	Signature
.....	.....	.....
Date	Name	Signature
.....	.....	.....
Date	Name	Signature
.....	.....	.....
Date	Name	Signature
.....	.....	.....
Date	Name, specialist	Signature of specialist

Service partner: .....

1 General information

Technical documentation contains important information for safe operation and for retaining functional safety of the lift.

- To verify lift set up, the assembly protocol form is to be completed, signed and sent to the manufacturer.
- Forms are available in this inspection book for use in verifying single, regular and extraordinary safety checks. Use the forms to document inspections and leave the completed forms in the inspection book.
- The lift master forms must record changes to the construction or changes to set up location.

1.1 Set up and test the lift

Safety relevant work on the lift and safety inspections may only be done by personnel specifically trained to carry it out. They are designated in general and in this documentation as technical experts and specialists (competent people).

- Technical experts are people (freelance expert engineers, TÜV specialists) that may inspect and assess due to their education and experience with lifts. They are knowledgeable in the appropriate work safety and accident prevention regulations.

- Specialists (competent people) are people who have sufficient knowledge and experience with lifts and have participated in a special factory training by the lifts manufacturer.

1.2 Hazard information

To become aware of the hazardous points and important information, the following three symbols are used with the descriptive meaning. Pay particular attention to text positions that are labeled by these symbols.

Danger! Identifies a danger to life and limb, if the highlighted process is not done properly there is a mortal danger!

Caution! Identifies a warning of possible lift damage or other operating company property damage if the highlighted process is not done properly!

Note! Labels information about a key function or points to an important remark!

2 Lift master forms

2.1 Manufacturer

Otto Nußbaum GmbH & Co.KG
Korker Strasse 24
D-77694 Kehl-Bodersweier

2.2 Purpose

The lift is a lifting tool for raising vehicles with a total weight of (* see list) in normal workshop operation at a maximum load distribution of (2:3**) (1:3***) in or against the drive-in direction A single load from only one or two lifting arms may not happen.

Set up of the standard lift in explosion endangered workshops and humid spaces (e.g. washing halls) is prohibited.

Lift operation is done directly on the operating column (see Data sheet).

After construction and maintenance changes on load carrying parts the lift must be inspected afterwards by a specialist who approves the changes. If the set up location is changed, the lift must be checked again by a specialist and changed approved.

(*) Load carrying capacity of the POWER LIFT HL 2.xx NT series

POWER LIFT HL 2.30 NT** = 3.000 kg
POWER LIFT HL 2.35 NT** = 3.500 kg
POWER LIFT HL 2.40 NT *** = 4.000 kg

Lifting arm variants	Standard arm	Mini-Max arms (MM)	DT* Lifting arm	Sport Cars lifting arm (SC)
POWER LIFT HL 2.30 NT	590-900 mm 940-1495 mm	560-1030 mm 1000-1545 mm	480-870 mm 940-1495 mm	–
POWER LIFT HL 2.35 NT	505-823 mm 940-1495 mm	–	570-1160 mm 940-1495 mm	590-865 mm 840-1380 mm
POWER LIFT HL 2.40 NT	570-1160 mm 1130-1840 mm	635-1065 mm 1130-1840 mm	–	–

* DT = Double telescope lifting arms (previously MB arms)

2.3 Changes to the design / construction

Inspections by a technical expert are required before recommissioning
(Date, type of change, technical expert signature)

.....

.....

.....
Name, address of technical expert

....
Location, date Technical expert signature

2.4 Changing the assembly location

Inspections by a technical expert are required before recommissioning (date, type of change, specialist signature)

.....

.....

.....
Name, address of technical expert

....
Location, date Technical expert signature

2.5 Declaration of conformity

EG- Konformitätserklärung

gemäß Maschinenrichtlinie Anhang II 1A

Declaration of Conformity according Machinery Directive 2006/42/EG ANNEX II 1A
Déclaration de conformité selon directive machines annexe II 1A
Declaración de conformidad según Directiva Maquinaria 2006/42/EG ANNEX II 1A
Dichiarazione di conformità in accordo alla direttiva 2006/42/EG ANNEX II 1A

Hiermit erklären wir, daß die Hebebühne, Modell: Hereby we declare that the lift model: Par la présente nous déclarons que le pont élévateur modèle: Por la presente declara, que el elevador modelo: Con la presente si dichiara che il sollevatore:	HL 2.30 NT HL 2.40 NT

allen einschlägigen Bestimmungen der folgenden Richtlinien entspricht:
fulfils all the relevant provisions of the following Directives:
correspond aux normes suivantes:
cumple todas las disposiciones pertinentes de las Directivas siguientes:
adempie a tutte le richieste delle seguenti direttive:

Maschinenrichtlinie / Machinery Directive	2006/42/EG
EMV Richtlinie / EMC Directive	2004/108/EG

in Übereinstimmung mit den folgenden harmonisierten Normen gefertigt wurde
was manufactured in conformity with the harmonized norms
fabriqué en conformité selon les normes harmonisées en vigueurs.
producido de acuerdo a las siguientes normas armonizadas.
è stato fabbricato in conformità con le norme armonizzate

Fahrzeug- Hebebühnen / Vehicle lifts	EN 1493: 2010

Beauftragter für die Technische Dokumentation Authorised to compile the technical file	Otto Nußbaum GmbH & Co. KG
Seriennummer Serial number	_____ Seriennummer
EG Baumusterprüfung nach Anhang IX durch: EC Type examination according Annex IX approved by notified body	TÜV NORD CERT GmbH Langemarckstr. 20, D-45141 Essen (0044)
Nummer der EG Baumusterprüfbescheinigung: Number of the EC type-examination certificate	44 205 12 748008

Kehl- Bodersweier, 23.11.2016

Steffen Nußbaum
Geschäftsführer

DoC-NUS_HL230NT_HL240NT_2016-11.docx

Otto Nußbaum GmbH & Co. KG · Korker Str. 24 · D-77694 Kehl-Bodersweier
Tel.: +49(0)7853/899-0 · Fax: +49(0)7853/8787 · www.nussbaum-group.de

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EG- Konformitätserklärung

gemäß Maschinenrichtlinie Anhang II 1A

Declaration of Conformity according Machinery Directive 2006/42/EG ANNEX II 1A
Déclaration de conformité selon directive machines annexe II 1A
Declaración de conformidad según Directiva Maquinaria 2006/42/EG ANNEX II 1A
Dichiarazione di conformità in accordo alla direttiva 2006/42/EG ANNEX II 1A

Hiermit erklären wir, daß die Hebebühne, Modell: HL 2.35 NT
Hereby we declare that the lift model:
Par la présente nous déclarons que le pont élévateur modèle:
Por la presente declara, que el elevador modelo:
Con la presente si dichiara che il sollevatore:

allen einschlägigen Bestimmungen der folgenden Richtlinien entspricht:
fulfils all the relevant provisions of the following Directives:
correspond aux normes suivantes:
cumple todas las disposiciones pertinentes de las Directivas siguientes:
adempie a tutte le richieste delle seguenti direttive:

Maschinenrichtlinie / Machinery Directive	2006/42/EG
EMV Richtlinie / EMC Directive	2004/108/EG

in Übereinstimmung mit den folgenden harmonisierten Normen gefertigt wurde
was manufactured in conformity with the harmonized norms
fabriqué en conformité selon les normes harmonisées en vigueurs.
producido de acuerdo a las siguientes normas armonizadas.
è stato fabbricato in conformità con le norme armonizzate

Fahrzeug- Hebebühnen / Vehicle lifts — EN 1493: 2010

Beauftragter für die Technische Dokumentation — Otto Nußbaum GmbH & Co. KG
Authorised to compile the technical file

Seriennummer
Serial number

Seriennummer

Kehl- Bodersweier, 23.11.2016

Steffen Nußbaum
Geschäftsführer

DoC-NUS_HL235NT_2016-11.docx

Otto Nußbaum GmbH & Co. KG · Korker Str. 24 · D-77694 Kehl-Bodersweier
Tel.: +49(0)7853/899-0 · Fax: +49(0)7853/8787 · www.nussbaum-group.de

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3 Technical information

3.1 Technical data

Load carrying capacity:	POWER LIFT HL 2.30 NT = 3000 kg POWER LIFT HL 2.35 NT = 3500 kg POWER LIFT HL 2.40 NT = 4000 kg
Loading a lifting arm:	A single load from only one lifting arm may not happen
Load distribution:	POWER LIFT HL 2.30 NT / POWER LIFT HL 2.35 NT Max. 2:3 or 3:2 in or against the drive- in direction
Load distribution:	POWER LIFT HL 2.40 NT Max. 1:3 or 3:1 mm or against the drive- in direction
POWER LIFT HL 2.30 NT	Lift/lowering time: approx. 20 s/seamless 0-max 14 s with 2.68 t
POWER LIFT HL 2.35 NT	Lift/lowering time:approx. 26 s/seamless 0-max 14 s with 4 t
POWER LIFT HL 2.40 NT	Lift/lowering time:approx. 26 s/seamless 0-max 14 s with 4 t

Standard operating voltage:	3 ~/N+PE, 400 Volt, 50 Hz
Motor capacity POWER LIFT HL 2.30 NT	3 kW
Motor speed:	2880 rpm
Hydraulic pump	3.2 cm^3
Lifting / lowering pressure	190 bar/120 bar
Pressure relief valve	250 bar

Motor capacity POWER LIFT HL 2.35 NT/HL 2.40 NT	3 kW
Motor speed:	2880 rpm
Hydraulic pump	2.7 cm^3
Lifting / lowering pressure	300 bar/190 bar
Pressure relief valve	310 bar

Oil volume	Approx. 10 litres (HLP32)

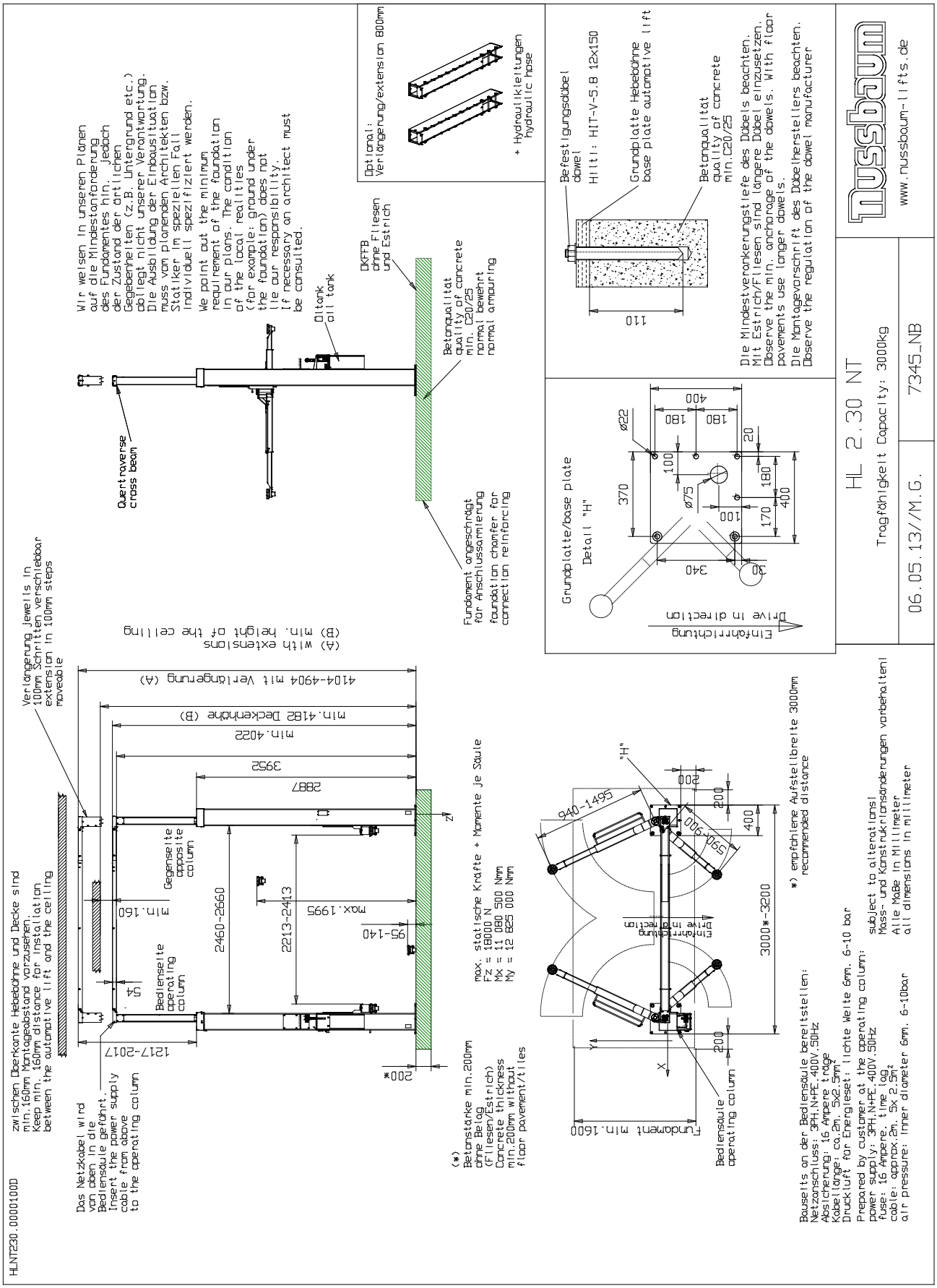
Noise level LpA:	≤ 70 dB
on-site connection:	3~/N+PE, 400 V, 50 Hz with 16 A fuses, slow, according to VDE regulations

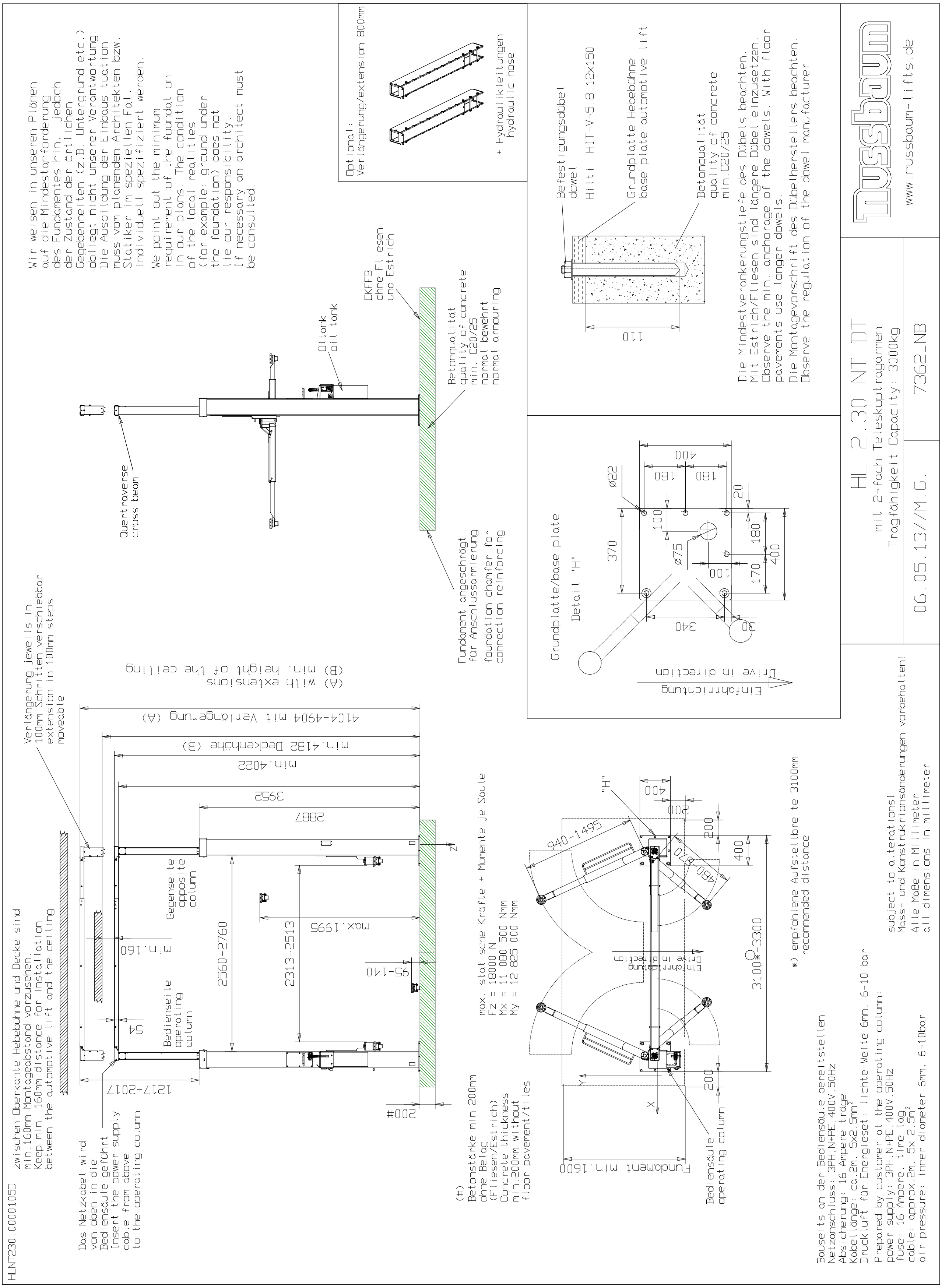
Optional energy set:	Pneumatic connection: for compressed air 6-10 bars Socket: 220 V/50 Hz

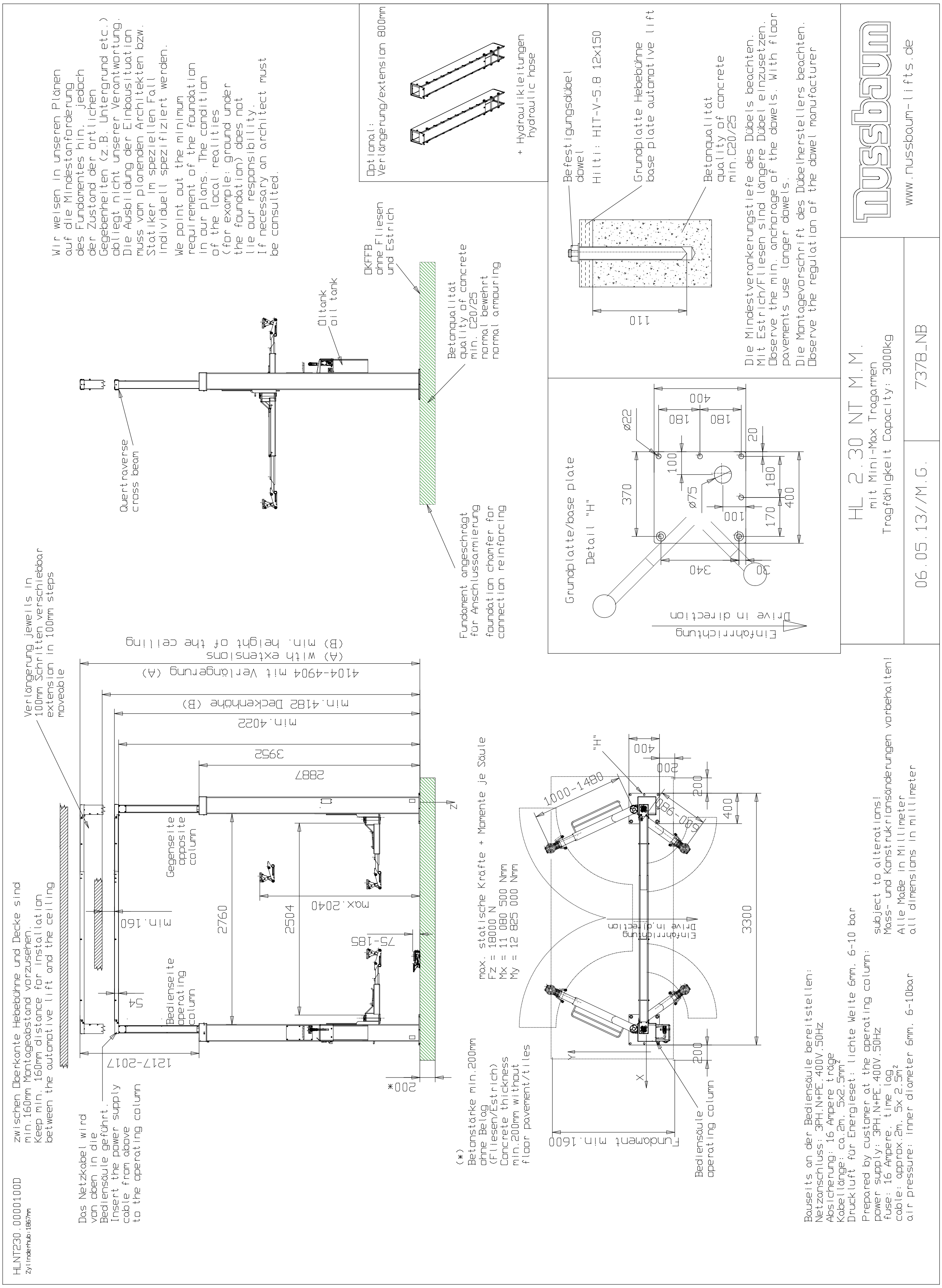
3.2 Safety devices

1. Over-pressure valve
   Hydraulic system fuse against over-pressure
2. Check valve
   Secure the vehicle against unauthorized lowering
3. Main switch with curtain lock device
   Fuse to prevent unauthorized use
4. Two independent cylinder systems (each with a command, follow system)
   Secure against unauthorized lowering of the lift.
5. Deadman controls
   Lift movement stops when the operating lever is released
6. Foot bumpers on the lifting arms
   Secure against shear and crushing points in the foot area
7. Lifting arm block
   Secures the lifting arm against horizontal movement in a lifted condition
8. Operating lever with curtain lock device
   Fuse to prevent unauthorized use

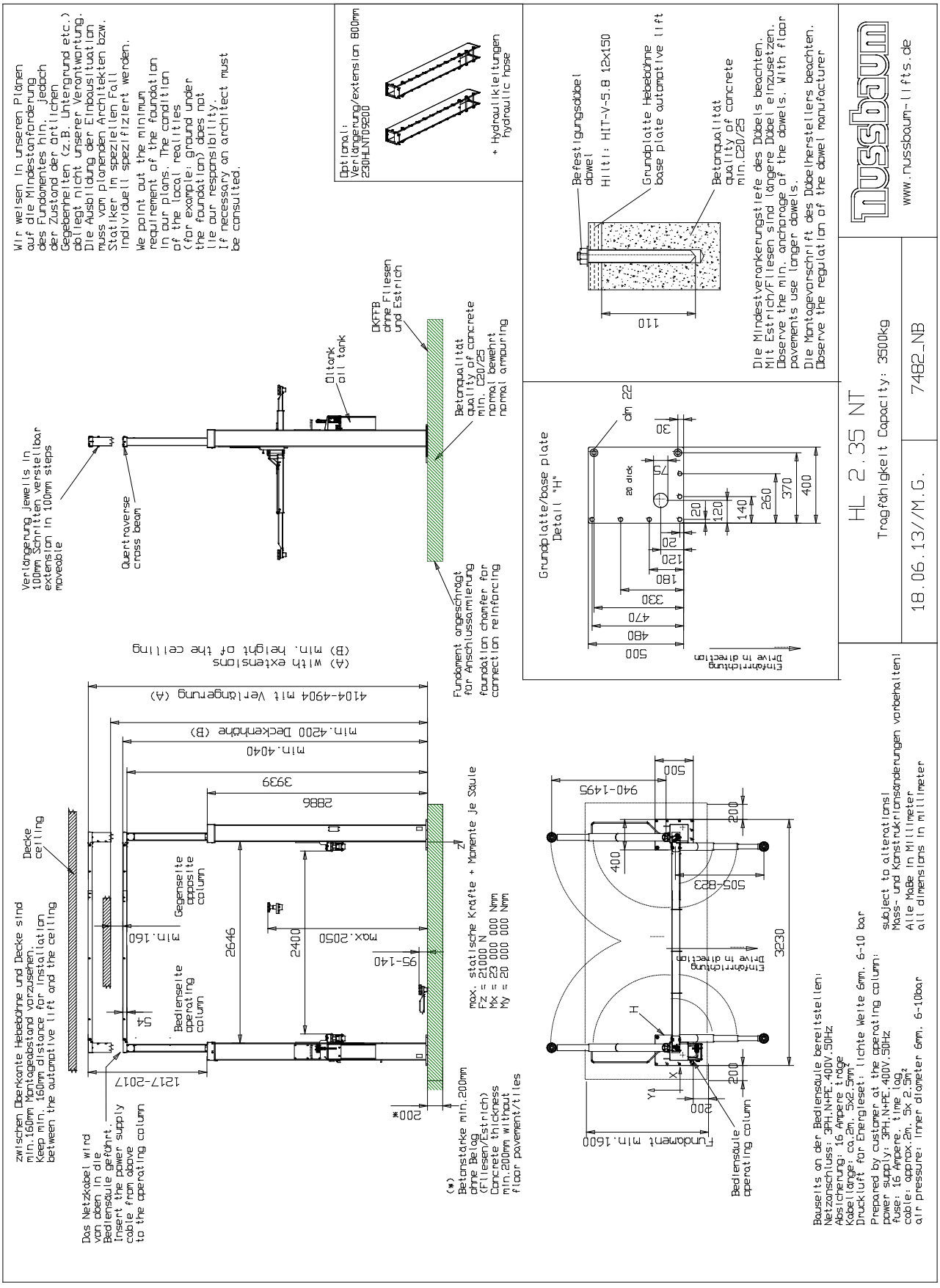
3.3 Data sheet POWER LIFT HL 2.30 NT

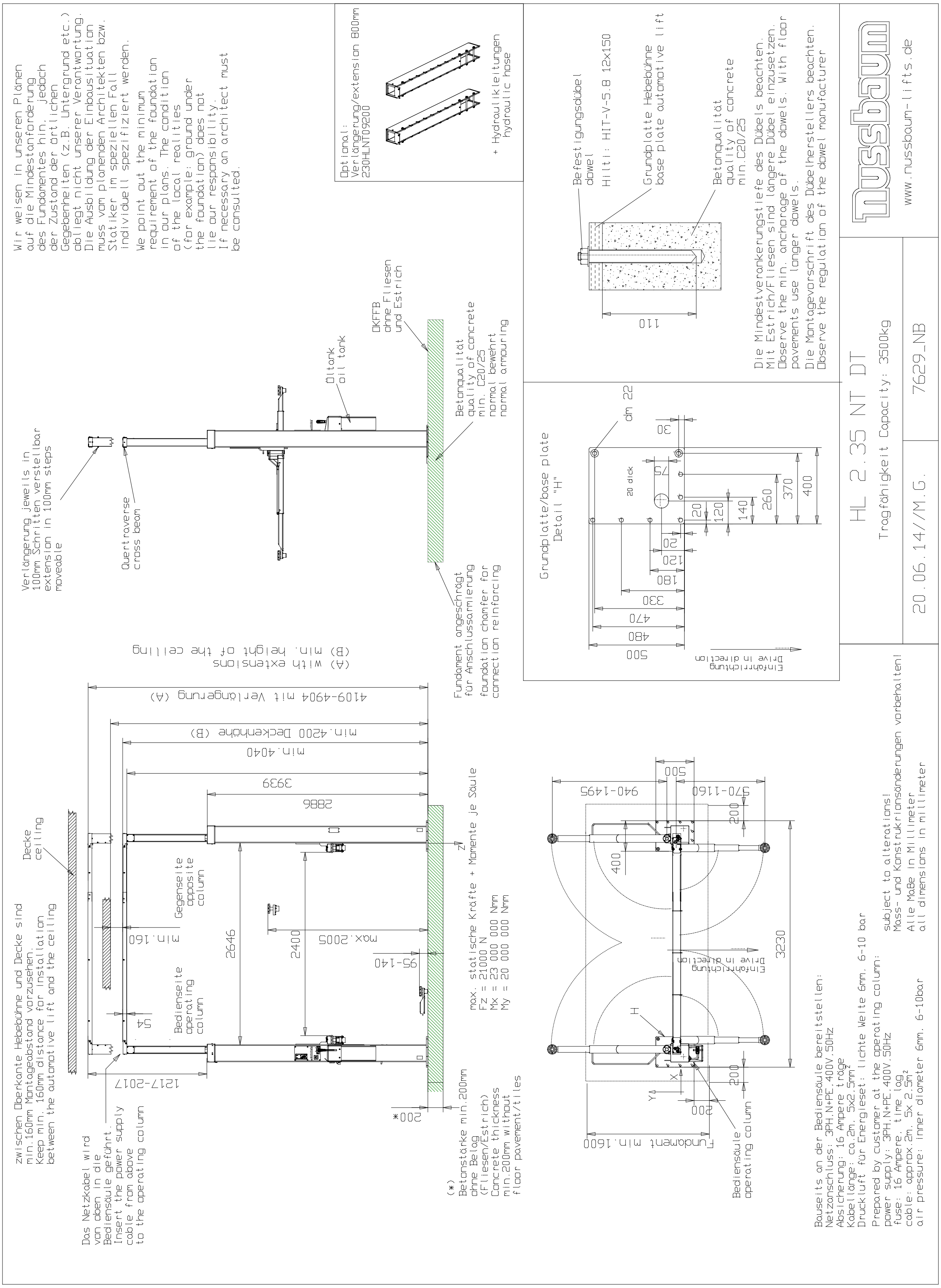


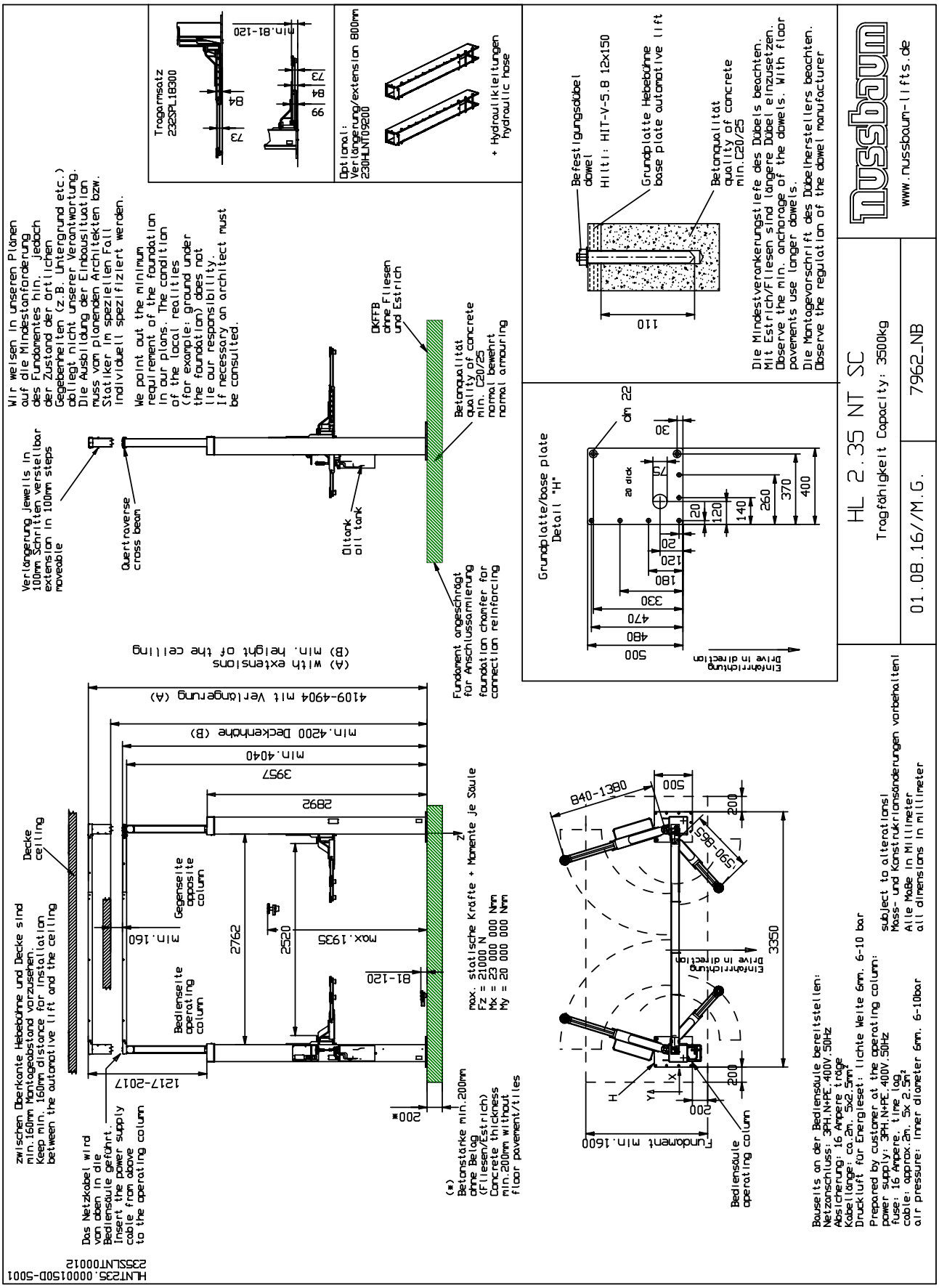

HLNT230.0000105D
Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin. Jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund etc.) obliegt nicht unserer Verantwortung. Die Ausbildung der Einbausituation muss von planenden Architekten bzw. Statiker im speziellen Fall individuell spezifiziert werden.
We point out the minimum requirement of the foundation in our plans. The condition of the local realities (for example: ground under the foundation) does not lie our responsibility. If necessary an architect must be consulted.
Optional: Verlängerung/extension 800mm
+ Hydraulikleitungen hydraulic hose
Befestigungsdübel dowel
Hilti: HIT-V-5.8 12x150
Grundplatte Hebebühne base plate automotive lift
Betonqualität quality of concrete min.C20/25
110
Die Mindestverankerungstiefe des Dübels beachten. Mit Estrich/Fliesen sind längere Dübel einzusetzen. Observe the min. anchorage of the dowels. With floor pavements use longer dowels.
Die Montagevorschrift des Dübelherstellers beachten. Observe the regulation of the dowel manufacturer
www.nussbaum-lifts.de
HL 2.30 NT DT
mit 2-fach Teleskoptragarmen
Tragfähigkeit Capacity: 3000kg
06.05.13/M.G.
7362_NB
Grundplatte/base plate
Detail "H"
Einfahrrichtung Drive in direction
Quertraverse cross beam
Öltank oil tank
OKFFB ohne Fliesen und Estrich
Betonqualität quality of concrete min. C20/25 normal bewehrt normal armouring
Fundament angeschrägt für Anschlussarmierung foundation chamfer for connection reinforcing
Verlängerung jeweils in 100mm Schritten verschiebbar extension in 100mm steps moveable
(A) with extensions
(B) min. height of the ceiling
4104-4904 mit Verlängerung (A)
min.4182 Deckenhöhe (B)
min.4022
3952
2887
Gegenseite opposite column
Bedienseite operating column
2560-2760
2313-2513
max.1995
95-140
min.160
54
1217-2017
200#
zwischen Oberkante Hebebühne und Decke sind min.160mm Montageabstand vorzusehen. Keep min. 160mm distance for installation between the automotive lift and the ceiling
Das Netzkabel wird von oben in die Bediensäule geführt. Insert the power supply cable from above to the operating column
max. statische Kräfte + Momente je Säule
Fz = 18000 N
Mx = 11 080 500 Nmm
My = 12 825 000 Nmm
(#) Betonstärke min.200mm ohne Belag (Fliesen/Estrich) Concrete thickness min.200mm without floor pavement/tiles
940-1495
870
480
3100*-3300
Fundament min.1600
Bediensäule operating column
*) empfohlene Aufstellbreite 3100mm recommended distance
Bauseits an der Bediensäule bereitstellen:
Netzanschluss: 3PH,N+PE,400V,50Hz
Absicherung: 16 Ampere träge
Kabellänge: ca.2m, 5x2,5mm²
Druckluft für Energieset: lichte Weite 6mm, 6-10 bar
Prepared by customer at the operating column:
power supply: 3PH,N+PE,400V,50Hz
fuse: 16 Ampere, time lag
cable: approx.2m, 5x 2,5mm²
air pressure: inner diameter 6mm, 6-10bar
subject to alterations!
Mass- und Konstruktionsänderungen vorbehalten!
Alle Maße in Millimeter
all dimensions in millimeter


Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin, jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund etc.) obliegt nicht unserer Verantwortung. Die Ausbildung der Einbausituation muss vom planenden Architekten bzw. Statiker im speziellen Fall individuell spezifiziert werden.
We point out the minimum requirement of the foundation in our plans. The condition of the local realities (for example: ground under the foundation) does not lie our responsibility. If necessary an architect must be consulted.
Optional: Verlängerung/extension 800mm
+ Hydraulikleitungen hydraulic hose
Befestigungsdübel dowel
Hilti: HIT-V-5.8 12x150
Grundplatte Hebebühne base plate automotive lift
Betonqualität quality of concrete min. C20/25
Die Mindestverankerungstiefe des Dübels beachten. Mit Estrich/Fliesen sind längere Dübel einzusetzen.
Observe the min. anchorage of the dowels. With floor pavements use longer dowels.
Die Montagevorschrift des Dübelherstellers beachten.
Observe the regulation of the dowel manufacturer
www.nussbaum-lifts.de
HL 2.30 NT M.M.
mit Mini-Max Tragarmen
Tragfähigkeit Capacity: 3000kg
06.05.13//M.G.
7378_NB
Grundplatte/base plate Detail "H"
Einfahrrichtung
Drive in direction
Quertraverse cross beam
Öltank oil tank
OKFFB ohne Fliesen und Estrich
Betonqualität quality of concrete min. C20/25 normal bewehrt normal armouring
Fundament angeschrägt für Anschlussarmierung foundation chamfer for connection reinforcing
Verlängerung jeweils in 100mm Schritten verschiebbar extension in 100mm steps moveable
4104-4904 mit Verlängerung (A)
(A) with extensions
(B) min. height of the ceiling
min.4182 Deckenhöhe (B)
min.4022
3952
2887
2760
2504
max.2040
75-185
min.160
54
1217-2017
200*
Gegenseite opposite column
Bedienseite operating column
max. statische Kräfte + Momente je Säule
Fz = 18000 N
Mx = 11 080 500 Nmm
My = 12 825 000 Nmm
zwischen Oberkante Hebebühne und Decke sind min.160mm Montageabstand vorzusehen.
Keep min. 160mm distance for installation between the automotive lift and the ceiling
Das Netzkabel wird von oben in die Bediensäule geführt.
Insert the power supply cable from above to the operating column
HLNT230.0000100D
(*) Betonstärke min.200mm ohne Belag (Fliesen/Estrich)
Concrete thickness min.200mm without floor pavement/tiles
Fundament min.1600
Bediensäule operating column
3300
Bauseits an der Bediensäule bereitstellen:
Netzanschluss: 3PH,N+PE,400V,50Hz
Absicherung: 16 Ampere träge
Kabellänge: ca.2m, 5x2,5mm²
Druckluft für Entgleiser: lichte Weite 6mm, 6-10 bar
Prepared by customer at the operating column:
power supply: 3PH,N+PE,400V,50Hz
fuse: 16 Ampere, time lag
cable: approx.2m, 5x 2,5mm²
air pressure: inner diameter 6mm, 6-10bar
subject to alterations!
Mass- und Konstruktionsänderungen vorbehalten!
Alle Maße in Millimeter
all dimensions in millimeter

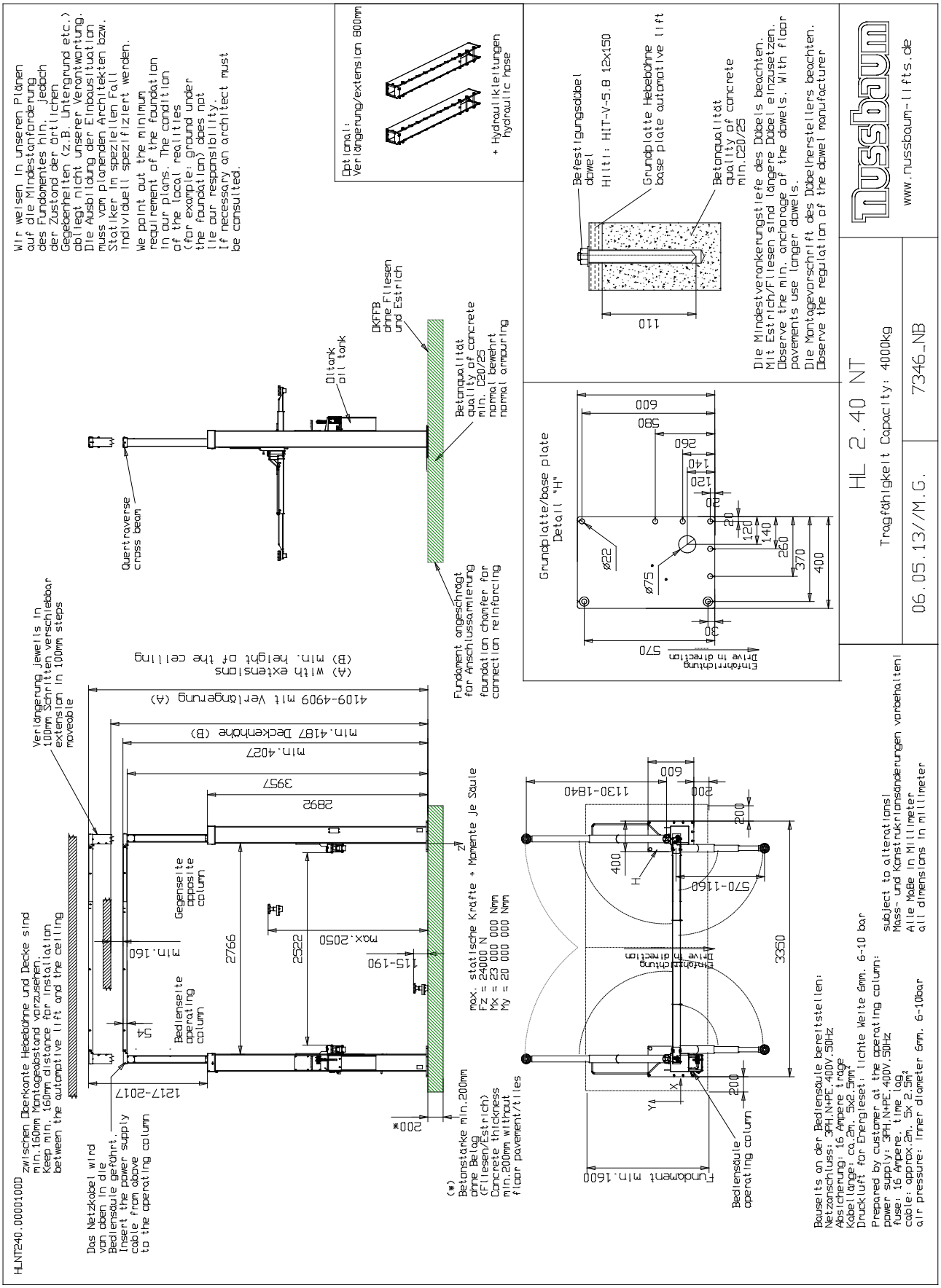
3.4 Data sheet POWER LIFT HL 2.35 NT

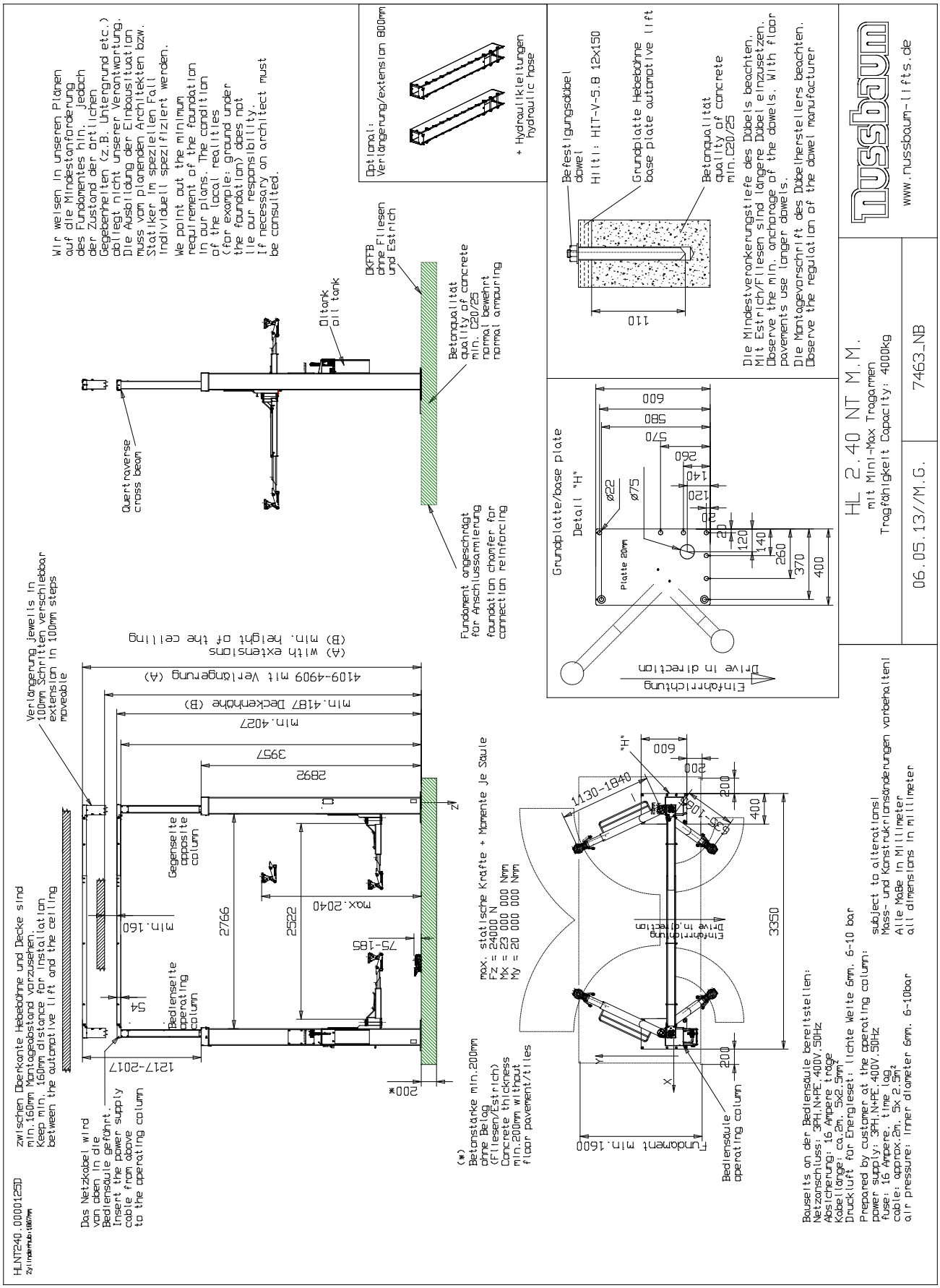



HL 2.35 NT DT
Tragfähigkeit Capacity: 3500kg
20.06.14//M.G.
7629_NB
www.nussbaum-lifts.de
Grundplatte/base plate Detail "H"
Optional: Verlängerung/extension 800mm 230HLNT09200
+ Hydraulikleitungen hydraulic hose
Decke ceiling
Gegenseite opposite column
Bedienseite operating column
Quertraverse cross beam
Öltank oil tank
Fundament min.1600
Einfahrrichtung Drive in direction

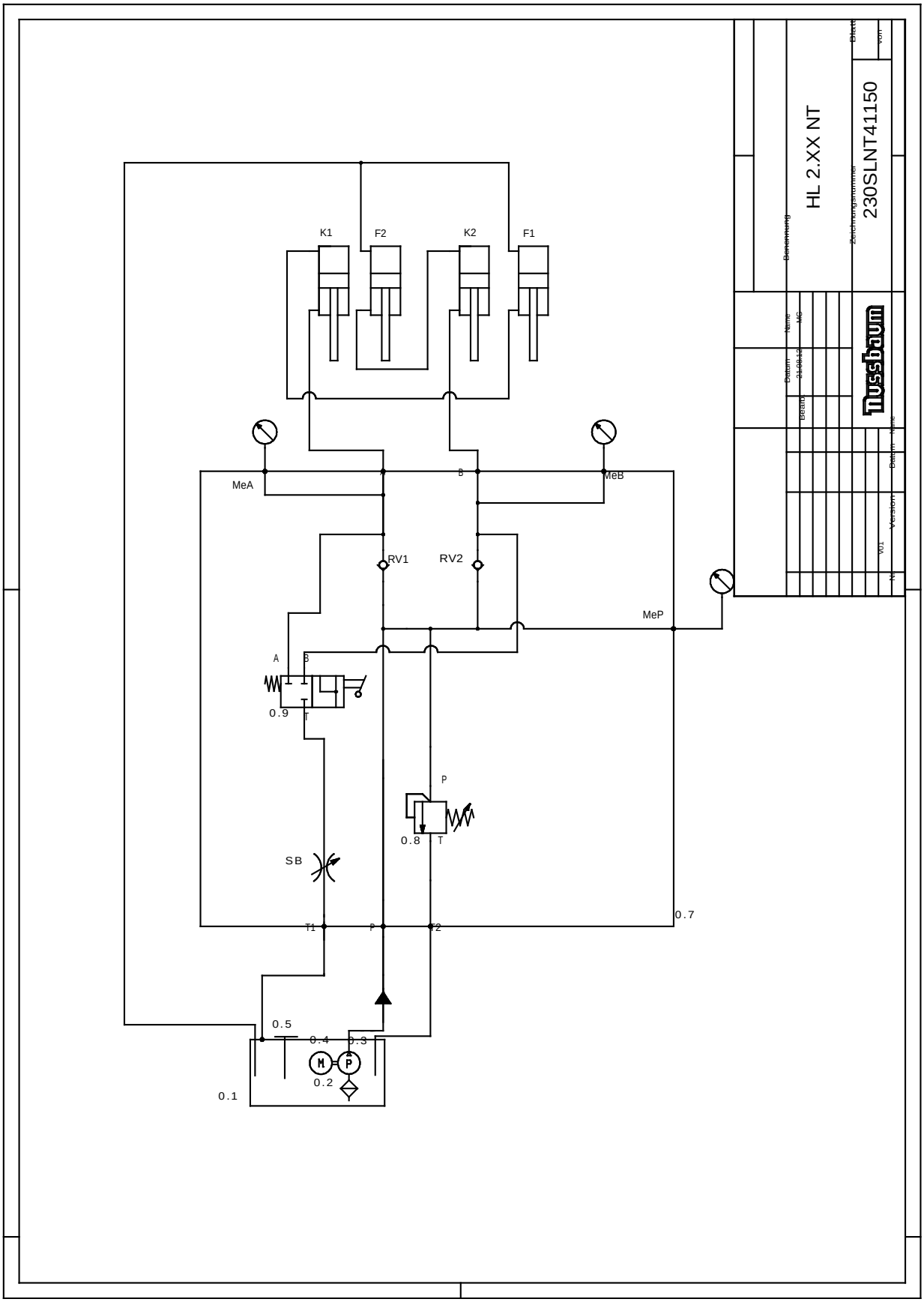

HL 2.35 NT SC
Tragfähigkeit Capacity: 3500kg
01.08.16//M.G.
7962_NB
Nussbaum
www.nussbaum-lifts.de
Trageramsatz
232SPL18300
Optional:
Verlängerung/extension 800mm
230HLNT09200
+ Hydraulikleitungen
hydraulic hose
Befestigungsdübel
dowel
Hilti: HIT-V-5.8 12x150
Grundplatte Hebebühne
base plate automative lift
Betonqualität
quality of concrete
min.C20/25
110
Die Mindestverankerungstiefe des Dübels beachten.
Mit Estrich/Fliesen sind längere Dübel einzusetzen.
Observe the min. anchorage of the dowels. With floor
pavements use longer dowels.
Die Montagevorschrift des Dübelherstellers beachten.
Observe the regulation of the dowel manufacturer
Grundplatte/base plate
Detail "H"
dm 22
zu dick
Einfahrrichtung
Drive in direction
Wir weisen in unseren Plänen
auf die Mindestanforderung
des Fundamentes hin. Jedoch
der Zustand der örtlichen
Gegebenheiten (z.B. Untergrund etc.)
obliegt nicht unserer Verantwortung.
Die Ausbildung der Einbausituation
muss vom planenden Architekten bzw.
Statiker im speziellen Fall
individuell spezifiziert werden.
We point out the minimum
requirement of the foundation
in our plans. The condition
of the local realities
(for example: ground under
the foundation) does not
lie our responsibility.
If necessary an architect must
be consulted.
Verlängerung jeweils in
100mm Schritten verstellbar
extension in 100mm steps
moveable
Quertraverse
cross beam
Öltank
oil tank
DKFFB
ohne Fliesen
und Estrich
Betonqualität
quality of concrete
min. C20/25
normal bewehrt
normal armouring
Fundament angeschrägt
für Anschlussammlerung
foundation chamfer for
connection reinforcing
(A) with extensions
(B) min. height of the ceiling
4109-4904 mit Verlängerung (A)
min.4200 Deckenhöhe (B)
min.4040
3957
2892
Decke
ceiling
Gegenseite
opposite
column
min.160
2762
2520
max.1935
Bedienseite
operating
column
81-120
1217-2017
zwischen Oberkante Hebebühne und Decke sind
min.160mm Montageabstand vorzusehen.
Keep min. 160mm distance for installation
between the automative lift and the ceiling
Das Netzkabel wird
von oben in die
Bedienssäule geführt.
Insert the power supply
cable from above
to the operating column
200*
(*)
Betonstärke min.200mm
ohne Belag
(Fliesen/Estrich)
Concrete thickness
min.200mm without
floor pavement/tiles
max. statische Kräfte + Momente je Saule
Fz = 21000 N
Mx = 23 000 000 Nmm
My = 20 000 000 Nmm
840-1380
500
200
585-965
3350
Einfahrrichtung
Drive in direction
H
Y1
X
200
Fundament min.1600
Bedienssäule
operating column
Bausets an der Bedienssäule bereitstellen:
Netzanschluss: 3PH.N+PE.400V.50Hz
Absicherung: 16 Ampere träge
Kabellänge: ca.2m. 5x2.5mm²
Druckluft für Energieset: lichte Weite 6mm. 6-10 bar
Prepared by customer at the operating column:
power supply: 3PH.N+PE.400V.50Hz
fuse: 16 Ampere. time lag
cable: approx.2m. 5x 2.5m²
air pressure: inner diameter 6mm. 6-10bar
subject to alterations!
Mass- und Konstruktionsänderungen vorbehalten!
Alle Maße in Millimeter
all dimensions in millimeter
HLNT235.000015OD-5001
235SLNT00012

3.5 Data sheet POWER LIFT HL 2.40 NT




HL 2.40 NT M.M.
mit Mini-Max Tragarmen
Tragfähigkeit Capacity: 4000kg
06.05.13//M.G.
7463_NB
Nussbaum
www.nussbaum-lifts.de
Grundplatte/base plate
Detail "H"
Einfahrrichtung
Drive in direction
Befestigungsdübel
dowel
Hilti: HIT-V-5.8 12x150
Grundplatte Hebebühne
base plate automotive lift
Betonqualität
quality of concrete
min.C20/25
110
Die Mindestverankerungstiefe des Dübels beachten.
Mit Estrich/Fliesen sind längere Dübel einzusetzen.
Observe the min. anchorage of the dowels. With floor
pavements use longer dowels.
Die Montagevorschrift des Dübelherstellers beachten.
Observe the regulation of the dowel manufacturer
Optional:
Verlängerung/extension 800mm
+ Hydraulikleitungen
hydraulic hose
Wir weisen in unseren Plänen
auf die Mindestanforderung
des Fundamentes hin. Jedoch
der Zustand der örtlichen
Gegebenheiten (z.B. Untergrund etc.)
obliegt nicht unserer Verantwortung.
Die Ausbildung der Einbausituation
muss vom planenden Architekten bzw.
Statiker im speziellen Fall
individuell spezifiziert werden.
We point out the minimum
requirement of the foundation
in our plans. The condition
of the local realities
(for example: ground under
the foundation) does not
lie our responsibility.
If necessary an architect must
be consulted.
Querträger
cross beam
Ölbehälter
oil tank
OKFFB
ohne Fliesen
und Estrich
Betonqualität
quality of concrete
min. C20/25
normal bewehrt
normal armouring
Fundament angeschrägt
für Anschlussarmierung
foundation chamfer for
connection reinforcing
(A) with extensions
(B) min. height of the ceiling
Verlängerung jeweils in
100mm Schritten verschiebbar
extension in 100mm steps
moveable
4109-4909 mit Verlängerung (A)
min.4187 Deckenhöhe (B)
min.4027
3957
2892
Gegenseite
opposite
column
Bedienseite
operating
column
min.160
54
2766
2522
max.2040
75-185
1217-2017
200*
Das Netzkabel wird
von oben in die
Bedienssäule geführt.
Insert the power supply
cable from above
to the operating column
zwischen Oberkante Hebebühne und Decke sind
min.160mm Montageabstand vorzusehen.
Keep min. 160mm distance for installation
between the automative lift and the ceiling
max. statische Kräfte + Momente je Säule
FZ = 24000 N
MX = 23 000 000 Nmm
MY = 20 000 000 Nmm
(*)
Betonstärke min.200mm
ohne Belag
(Fliesen/Estrich)
Concrete thickness
min.200mm without
floor pavement/tiles
"H"
600
200
1130-1840
400
3350
Einfahrrichtung
Drive in direction
Fundament min.1600
Bedienssäule
operating column
Bauseits an der Bedienssäule bereitstellen:
Netzanschluss: 3PH.N+PE.400V.50Hz
Absicherung: 16 Ampere träge
Kabellänge ca.2m 5x2.5mm²
Druckluft für Energieset: lichte Weite 6mm. 6-10 bar
Prepared by customer at the operating column:
power supply: 3PH.N+PE.400V.50Hz
fuse: 16 Ampere. time lag
cable: approx.2m. 5x 2.5m²
air pressure: inner diameter 6mm. 6-10bar
subject to alterations!
Mass- und Konstruktionsänderungen vorbehalten!
Alle MaBe in Millimeter
all dimensions in millimeter

3.6 Hydraulic plan



Hydraulic parts

0.1	Oil container	230HLNT01913
0.2	Suction filter	980012
0.3	Mechanical pump POWER LIFT HL 2.30 NT	3.2 cm³ 982032
	Mechanical pump POWER LIFT HL 2.35 NT / HL 2.40 NT	2.7 cm³ 980340
0.4	Motor POWER LIFT HL 2.30 NT/2.35 NT/2.40 NT	3 kW 992658
0.5	Oil dipstick	980011
RV1/RV2	Check valve	130053
0.7	Hydraulic block	230SLNT41150
0.8	Pressure relief valve	155211
0.9	Ball valve integrated in 0.7	230SLNT41150
SB	Lowering brake 15 litres ¼“	983629
F1 / F2	Cylinder, downstream side	230SLNT02850
K1	Cylinder, command side operating side	230SLNT02840
K2	Cylinder command side opposite side	230SLNT02840
Original hose set in the platforms		230HLNT01090
2 Hose set extensions for refitting		230HLNT01091
Hose set extensions from the factory		230HLNT01092

3.7 Electrical plan

SCHALTPLAN

OBJEKT : 2.xx HL NT 3x 400 / 230V
ANLAGE :
KUNDE :
SCHALTPLANNR: 2.xx HL NT 3x400 / 230V 02/14/006

Erdung nach örtlichen Vorschriften
Vor Inbetriebnahme prüfen, ob Motornennstrom mit Motorschutzrelais übereinstimmt. Alle Klemmstellen auf Ordnunggemäße Verbindung und alle Kontaktschrauben auf festen Sitz prüfen.
Vor Inbetriebnahme Verdrahtung und Steuerung auf richtige Funktion überprüfen. Keine Inbetriebnahme von unbefugter Seite vornehmen lassen.
Änderungen vorbehalten

1.) Schaltpläne und Schaltunterlagen

Die Schaltpläne werden von uns nach bestem Gewissen angefertigt. Für beigestellte Schaltpläne und Schaltunterlagen wird von uns keine Gewähr für die Richtigkeit dieser Unterlagen übernommen. Dies trifft insbesondere für Schaltungen zu, die von uns nach fremden Plänen gefertigt werden. Diese werden von uns nur nach den vom Auftraggeber überlassenen Unterlagen des Herstellers ausgeführt.

2.) Funktionsprüfung der Schaltanlagen

Schaltpläne sind keine Serienerzeugnisse. Bei der Prüfung des Schaltschrankes im Werk können Feldgeräte wie Fühler, Thermostate und Motoren nicht einbezogen werden. Auch bei sorgfältiger Prüfung lassen sich deshalb Funktions- und Schaltungsfehler nicht immer vermeiden, oder hat durch uns zu erfolgen. Sie ist grundsätzlich Bestandteil unseres Auftrages. Mängel werden im Rahmen unserer Gewährleistung bei der Inbetriebnahme beseitigt.
Bei Inbetriebnahme ohne Hinzuziehung unseres Service wird deshalb keine Mängel-Haftung übernommen. Nachbesserungen einschließlich der Berichtigung von Schaltplänen bei nicht von uns in Betrieb genommenen Schaltanlagen werden deshalb nur gegen Berechnung gemäß unseren Service-Bedingungen ausgeführt. Kosten für Nachbesserungen durch Dritte können wir nicht anerkennen.

Diese Pläne sind auf einem CAD-System erstellt worden
Um die Pläne immer auf dem aktuellen Stand zu halten, bitten wir
Änderungen nur durch uns vornehmen zu lassen.

3.) Sicherheitsprüfung und Schutzmaßnahmen

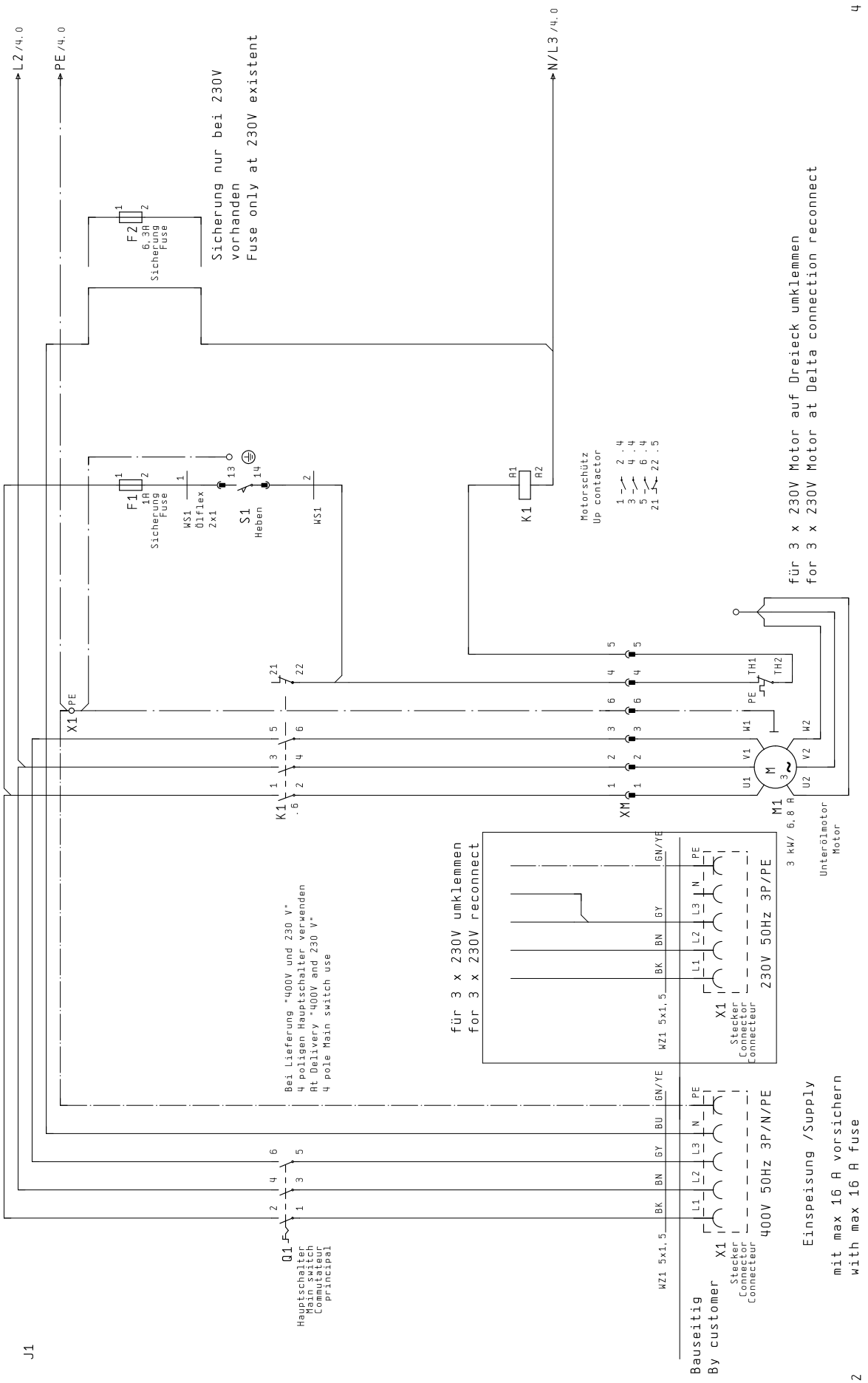
Der Schaltschrank wurde unter Beachtung der anerkannten Regeln der Technik nach VDE0100/0113 sowie der Unfallverhütungsvorschrift VBG4(elektrische Anlagen und Betriebsmittel) gefertigt bzw. geprüft.
Folgende Prüfungen wurden durchgeführt.
1. Spannungsprüfung und/oder Isolationsprüfung des Schaltschrankes nach VDE0100/5.73.
2. Prüfung der Wirksamkeit der angewandten Schutzmaßnahme bei indirektem Berühren nach VDE0100g/7.75 Par.22.
3. Funktionsprüfung und Stückprüfung nach VDE560/11.87.
An Schutzmaßnahmen wurden getroffen:
1. Schutz gegen direktes Berühren nach VDE0100/5.73. Par.4.
2. Schutz bei indirektem Berühren nach VDE0100/5.73. Par.5.

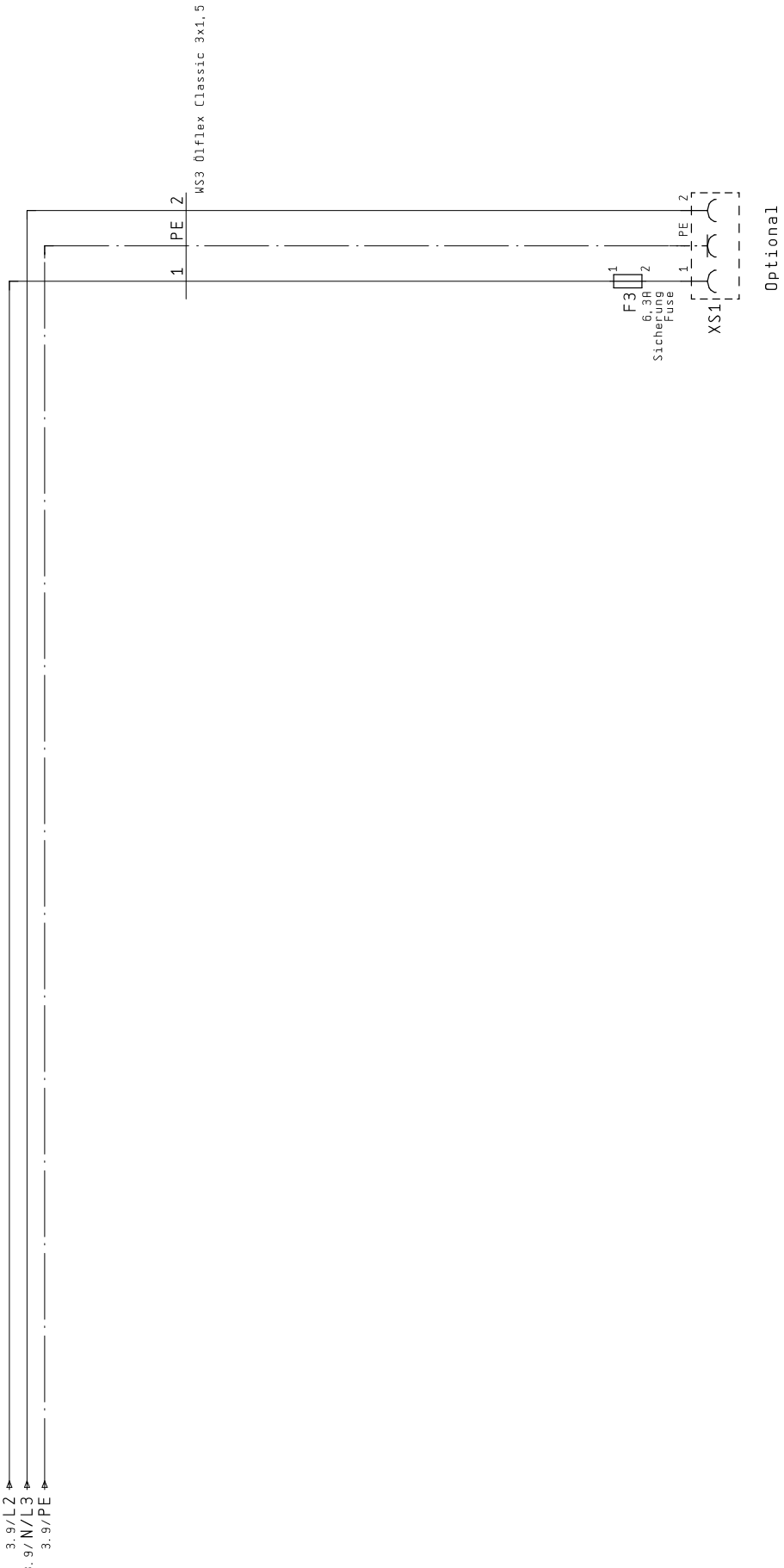
Diese Schaltpläne sind unser geistiges Eigentum.
Sie dürfen ohne unsere Genehmigung weder ver-
vielfältigt noch Dritten weitergegeben werden !

Inhaltsverzeichnis

Spalte X: eine automatisch erzeugte Seite wurde manuell nachbearbeitet

WUPJ005D 24.02.1994


L2 /4.0
PE /4.0
N/L3 /4.0
Sicherung nur bei 230V vorhanden
Fuse only at 230V existent
F2 6.3A Sicherung Fuse
F1 1A Sicherung Fuse
WS1 Ölflex 2x1
S1 Heben
K1
Motorschütz Up contactor
für 3 x 230V Motor auf Dreieck umklemmen
for 3 x 230V Motor at Delta connection reconnect
X1 PE
TH1 TH2
W1 W2 V1 V2 U1 U2
M1 3 kW/ 6,8 A Unterölmotor Motor
XM
K1 .6
Bei Lieferung "400V und 230 V" 4 poligen Hauptschalter verwenden
At Delivery "400V and 230 V" 4 pole Main switch use
für 3 x 230V umklemmen
for 3 x 230V reconnect
WZ1 5x1,5
X1 Stecker Connector Connecteur
230V 50Hz 3P/PE
400V 50Hz 3P/N/PE
Q1 Hauptschalter Main switch Commutateur principal
Bauseitig By customer
Einspeisung /Supply
mit max 16 A vorsichern
with max 16 A fuse
J1


WS3 Öiflex Classic 3x1,5
PE 2
1
F3
6,3A
Sicherung
Fuse
XS1
Optional
3.9/L2
3.9/N/L3
3.9/PE

Stückliste Bill of materials Liste de matériel

NUSTÜCK2 16.11.2004

Bauteilbenennung Component design. Désign. composant	Menge Amount Qté.	Bezeichnung Designation Description matériel	Typen nummer Model number Numéro de type	Lieferant Supplier Fournisseur	Artikelnummer Article number N° d'article
J1	1	KABELDURCHFÜHRUNG M16	KABELDURCHFÜHRUNG M16	Hilpress GmbH	993036
J1	2	KABELDURCHFÜHRUNG M20	KABELDURCHFÜHRUNG M20	Hilpress GmbH	993037
Q1	1	Hauptsch. Not-Aus 3p 16A 5,5kW	A 105/3.0200-EV/SO	Merz GmbH	990403
XS1	1	Steckergehäuse 6 polig ku	05 0-180906-0	AMP	990327
XS1	5	Flachsteckhülse Stecker 6,3mm	05447.123.111	AMP	990328
XS1	5	Steuerleitung mit num. Adern (5G2,5)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	991435
XS1	1	Netzkabel 6000 mm	6M NETZKABEL 6000 MM SL	Nussbaum	232SL03310
XM	1	Steckergehäuse 6 polig ku	05 0-180906-0	AMP	990327
XM	5	Flachsteckhülse Stecker 6,3mm	05447.123.111	AMP	990328
XM	5	Steuerleitung mit num. Adern (5G2,5)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	991435
XM	1	Netzkabel 6000 mm	6M NETZKABEL 6000 MM SL	Nussbaum	232SL03310
M1	1	Unterölmotor 3kW/ 6,8/11,8A 50Hz	U07K2-371	Hanning GmbH	992658
X1	1	Schutzleiterkl D 2,5/6.P.ADO schn-schn	D 2,5/8.P.ADO	Entrelec	990185
F1	1	Sicherungsklemme Trenner 5x20 mm	M4/8.SF	Entrelec	990661
F1	1	Feinsicherung	FEINSICHERUNG	GIF	990475
S1	1	Micro Gerätetschalter Ö + S	1115.0101	Marquardt GmbH	990322
K1	1	Leistungschütz 5,7 kW 230 V 50-60 Hz	11BG12.01 A 230V AC	Lovato electric	990841
F2	1	Einschraubsicherungshalter 5x20 mm	2918810	GIF	990125
F2	1	Feinsicherung	FEINSICHERUNG	GIF	990286
F3	1	Einschraubsicherungshalter 5x20 mm	2918810	GIF	990125
F3	1	Feinsicherung	FEINSICHERUNG	GIF	990286
XS1	1	Einbausteckdose blau 10/16 A 250V blau	EINBAUSTECKDOSE	Nussbaum	990646
WZ2	2.90	Steuerleitung mit farbig. Adern (5G1,5)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	990721
WZ1	6	Steuerleitung mit farbig. Adern (5G1,5)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	990721
WS3	0.35	Steuerleitung mit num. Adern (3G1,5)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	990010

4 Safety regulations

When working with lifts comply with legal accident prevention regulations according to BGG 945: Comply with inspection of lifts; BGR500, operation of lifts; (VBG14).

Particular attention is drawn to compliance with the following regulations:

- The max. load carrying capacity for lifts may not be exceeded. For this, see details on the model plate.
- Always follow the operating manual when using the lift.
- The lift must be completely lowered before the vehicle is driven on, and it may only be done in the intended direction.
- Vehicles with low floor clearance or fitted with custom devices are to be checked to see whether damage could occur before positioning the lifting arm and raising the vehicle.
- Only personnel aged 18 or over may operate the lift independently, they must be trained in lift operation and have their work verified by the company. You must be explicitly tasked with the operation of the lift. (excerpt from BGR500) (see transfer protocol).
- The proper positioning of the carrier plate below the vehicle is to be checked again after the vehicle has been raised slightly.
- After each set down of the vehicle, check the lifting arm positions below the fixture points again and adjust as required.
- When disassembling heavy, consider any possible centre of mass shifts. The vehicle is to be appropriately secured using suitable materials (e.g. tensioning belts, beams, etc.) against falling.
- During lifting or lowering, the work area of the lift should be clear or people.
- It is prohibited from moving people with the lift.
- Climbing onto the lift and onto a lifted vehicle is prohibited.
- After design and maintenance on load bearing parts the lift must be inspected by a technical expert.
- Vehicles may only be attached at fixture points approved by the vehicle manufacturer.
- The entire lifting and lowering process is to be continuously observed.
- It is prohibited to set up a standard lift in explosion endangered workshops and humid spaces (E.g. washing halls).
- Initial access to the lift is only permitted after the main switch has been turned off and secured, and the operating lever is additionally secured against unauthorized use.

5 Operating manual

When handling the lift, it must absolutely comply with safety regulations. Carefully read the safety regulations in Section 4 before first operation!

5.1 Positioning the vehicle

- Drive the vehicle onto the lift according to the following images, until the lifting arm receives it (figure A and B).

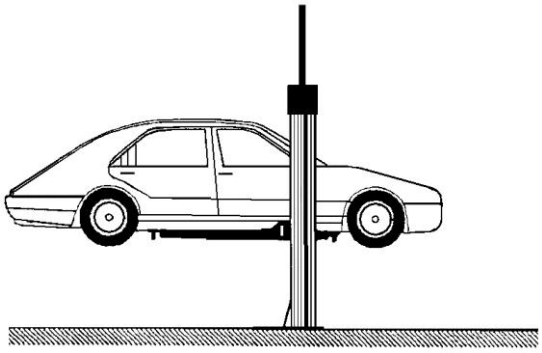


Figure A) The lift column must be located between the steering wheel and the car door hinges.

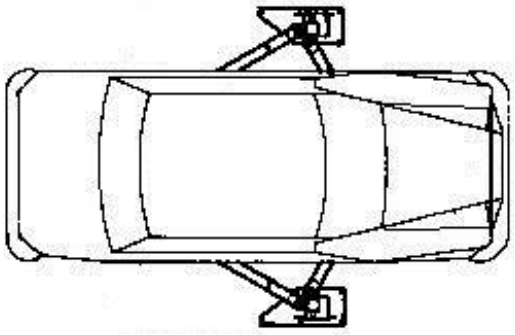


Figure B) Drive in the middle of the lift.

- Swivel in the carrier arm and pull out properly to the desired length. The adjustable receiving plates must be placed at the points specified by the vehicle manufacturer.

Version with Mini-Max lifting arms

Figure 1: Position carrier plate below the fixture points approved by the vehicle manufacturer.

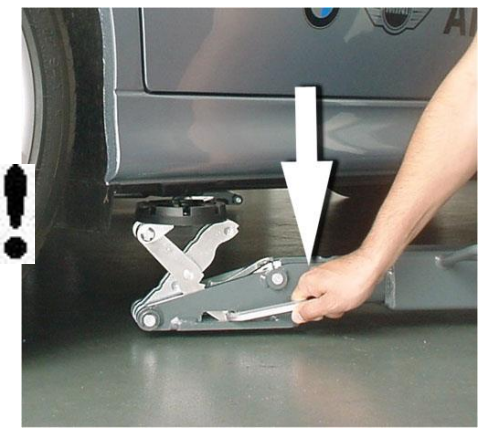


Figure 2: If required, place the carrier plate by pushing the lever at the fixture points.

Ensure that the ratchet is securely locked into the intended position.
Otherwise the "Mini-Max" can sink to its lowest position.

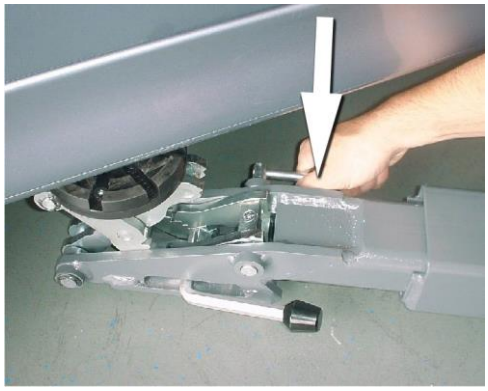


Figure 3: To release the fixture plate, the rear lever must be pushed.

- The lifting arm block must be ratcheted in after the fixture point has been reached.
- After each set down of the vehicle, check the lifting arm positions below the fixture points again and adjust as required.
- Check that there are no people or objects in the hazardous area of the lift.

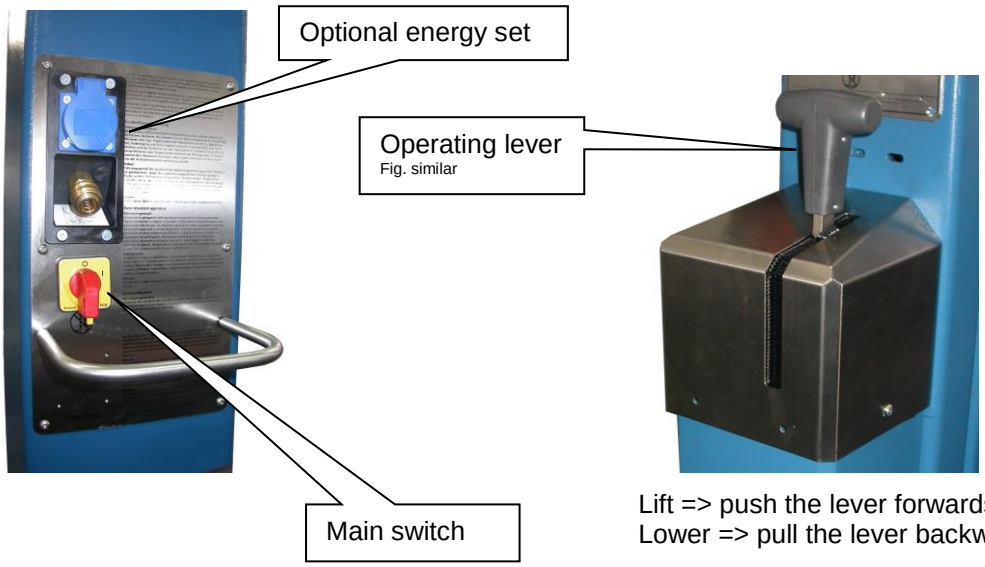
5.2 Lifting the vehicle

- Lift the vehicle until the wheels are off the ground. Push the operating lever forwards => "Lift" (see figure 4).
- If the wheels are not blocked, interrupt the lifting process and check for proper seating of the carrier plate. Similarly check whether the lifting arm blocks are ratcheted in. Otherwise, lower the lift and reposition the vehicle.
- After each set down of the vehicle, check the lifting arm positions below the fixture points again and adjust as required.
- Check that there are no people or objects in the hazardous area of the lift.
- Afterwards, lift the vehicle to the desired working height.

Ensure secure vehicle placement on the carrier plate, otherwise there is a danger of the vehicle dropping.

See to it that the lifting arm blocks are ratcheted in after the vehicle has been accepted.

Figure 4: Operating unit

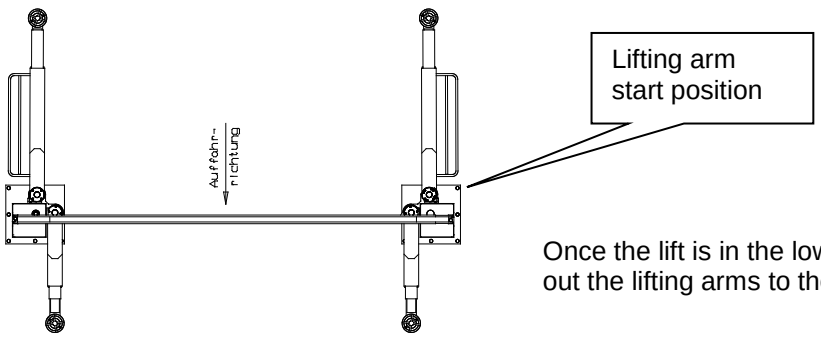


5.3 Lift synchronization

- Asynchronous running is excluded in proper operation due to two independently constructed hydraulic systems.
- For this, raise the lift to its uppermost end position. Push the operating lever for 2 more seconds. During this procedure the lift rails are equalized to each other as hydraulic oil flows to the tank as an overflow from the command cylinder via the downstream cylinder to the tank.
- Release the operating lever. The lift rails then lower some millimetres and thereby block the overflow opening of the cylinder.
- Both lift rails are now at the same height.

5.4 Lowering the vehicle

- Check that there are no people or objects in the hazardous area of the lift.
- Lower the vehicle to the desired working height or to its lowest position; pull the operating lever slowly => "Lower".
- For heavier vehicles, lift it slightly before lowering to prevent an "sticking" and any corresponding jolt during lowering.
- The lowering speed can be varied seamlessly.
- Once the lift is in the lowest position, push the lifting arms to the start position.



Once the lift is in the lowest position, swing out the lifting arms to the start position.

- Move the vehicle out of the lift.

6 Behavior in cases of error

Defective operational readiness of the lift may be due to a simple error. Check the system for the listed sources of error.
If the error cannot be removed after an inspection to the named causes, then inform customer service or your dealer.

Independent repairs to the lift, especially on the safety devices, as well as inspections and repairs to electrical systems are prohibited.
Work on electrical systems may only be done by electricians.

Problem: The lift cannot be raised!	
Possible causes:	**Repair:**
No power supply present	*Check power supply*
The main switch is not switched on, or is defective	*Check main switch*
Operating lever defective	*Check function*
Defective fuse	*Check fuses*
Power line interrupted	*Check power lines*
Motor has overheated	*Let motor cool (cooling time dependent on ambient temperature)*
Motor defective	*Do an emergency discharge (see Section 6.1)*
Only 2 phases active	*Do an on-site check with a qualified electrician*
Insufficient hydraulic oil available	*Refill new hydraulic oil*

Problem: The lift cannot be lowered!	
Possible causes:	**Repair:**
The lifting arm has moved onto an obstacle	*Raise the lift and remove the obstacle*
Operating lever defective	*Inform customer service* *Do an emergency discharge. Slowly pull lever*

6.1 Emergency discharge

There is the option of placing the lift into the lowest position with a simple operation.

An emergency discharge can only be done by personnel who are trained to operate the lift. Follow the conditions to "Lower".

Emergency discharge procedure

- People may not stand in the hazardous area around the lift.
- Slowly pull the operating lever. The lowering process starts immediately. Lowering speed can be varied by the lever position.
- Always observe the lowering process.
- Lower the lift to the lowest position.
- If required, firstly inform customer service.
- Only operate the lift if it is in seamless condition from a safety point of view again.

6.2 Moving onto an obstacle

If the lifting rails or lifting arms move onto an obstacle due to operator inattention, the lift stops in place. To remove the object, raise the lift to a height where the object can be removed.

7 Maintenance and care of the lift

Before maintenance, do all preparation work so there is no danger to life or limb or object damage during maintenance and repair work.

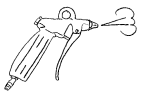
Legal principles: BSV (operating equipment regulation) + BGR500 (Operation of work equipment).

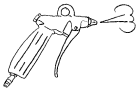
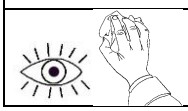
Value is placed on long lifetimes and safety in the development and production of Nussbaum products. To guarantee the safety of the operator, product reliability, low running costs, keep the warranty and also the long-lifetime of the product, proper set up and operation is just as important as regular maintenance and sufficient care.
Our platforms fulfil or exceed all safety standards of the countries we supply to. For example, European regulations require a service by qualified experts every 12 months of work of the platform. To guarantee the largest possible availability and functional capacity of the lift system, ensure the list of any cleaning, care and maintenance work is done.

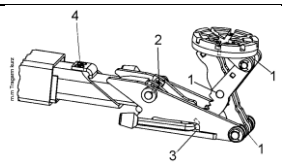
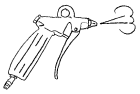
After first commissioning the lift is to be serviced at regular intervals of a maximum of one year by an authorized person according to the following plan. For intensive operation and higher degree of contamination shorten the service interval.
The complete function of the lift is to be observed during daily use. Customer service must be informed of any malfunctions.

7.1 Maintenance plan

Before beginning service, disconnect from power. The work area around the lift is to be secured against unauthorized use.

						
Visual inspection	Spray	Oil	Lubricate	Clean with compressed air	Clean	Inspect

Type of maintenance	***Maintenance plan***	***Time frame***
	Model and information signs, labels, brief operating instructions, safety stickers and warning information are to be cleaned and exchanged if damaged.	Daily
 	Check the lifting arm block and gear for wear. Exchange if there is visible damage.	At least 1 x per year
 	Lifting arm booms, lifting arm bolts, carrier plate threaded bolts are to be checked for ease of running. If required, lightly grease with a multi-purpose grease. Do not over-lubricate.	At least 1 x per year
	Check the foot bumper for condition and function. Exchange if damaged.	Daily
	The rubber acceptance plate is to be checked for wear and replaced if necessary.	Daily
 	Check the tracks and the lift rail equalization parts for wear. After cleaning, grease with a multi-purpose grease. We exclusively recommend that MO-2 high performance lubricating grease is used. (available for purchase directly from Oest)	Every 3 months
	The lift cylinder can sweat and small oil droplets can form on the base plate, this is however, not a leak.	Clean as required

  	**Version with MINI-MAX lifting arm** 1. Blow out and spray bolts. Check the rollers for wear. 2. Check the locking screws (this is only screwed in lightly and is then glued (Loctite)). Screws may not be completely tightened otherwise the ease of running of the Mini-Max mechanism is no longer guaranteed. 3. Clean and spray this frictional surface. *"Penetrating oil" similar to Top 2000 from Autol.* 4. Check the safety plate for damage and exchange if required.	Monthly
	Check all fastening screws and anchors with a torque wrench. *Fastening class 8.8* *0,08* 0,12** 0,14**** *M8 17,9 23,1 25,3* *M10 36 46 51* *M12 61 80 87* *M16 147 194 214* *M20 297 391 430* *M24 512 675 743* *Fastening class 10.9* *0,08* 0,12** 0,14**** *M8 26,2 34 37,2* *M10 53 68 75* *M12 90 117 128* *M16 216 285 314* *M20 423 557 615* *M24 730 960 1060* ** Lubricated slide friction number 0.8 MoS2* *** Lightly oiled slide friction number 0.12* **** Ensured slide friction number 0.14 screw with micro-encapsulated plastic*	At least 1 x per year
	All weld seams must have a visual inspection. Stop the system and contact the manufacturer if there are cracks or breaks in weld seams of the lift.	At least 1 x per year
	**Check the paint:** - Check the powder coating and improve if required. Damage by external influences is to be treated immediately after detection. If these points are not treated, infiltration of deposits of all kinds can cause wide-ranging and permanent damage. These points are to be lightly sanded (120 grit), cleaned and degreased. Afterwards, rework with a suitable touch up paint (note the RAL No.). - Check galvanized surfaces, touch up as needed. White rust is fostered by permanent humidity, poor ventilation. The affected areas can be treated by using a sanding cloth (A 280 grit). If required, the parts are to be treated with a suitable, resistant material (paint etc.). Check the RAL colour selection. - Rust is brought out by mechanical damage, wear, aggressive deposits (de-icing salt, leaking operating fluids) cleaning that is not done or incomplete. The affected areas can be treated by using a sanding cloth (A 280 grit). If required, post-treat the areas with a resistant material (paint etc.).	At least 1 x per year

	Check electrical components for function and condition. - Plug - Operating lever with button switch - During assembly and maintenance always check the condition of electrical lines. All cables and lines must be secured so they cannot be crushed, kinked or contact any moving assembly.	At least 1 x per year Daily
	Optional energy set: - Electrical socket - Pneumatic connection Check for condition and function.	At least 1 x per year
	Hydraulic hose lines Storage and duration of use Excerpt from DIN20066:2002-10 - For permitted loading, hoses undergo a natural change. This limits the duration of use. - Improper storage, mechanical damage and unpermitted loads are the most frequent cause of breakdowns. - The duration of use of a hose line including any storage time should not exceed six years. Hose lines are to be replaced if/when, - Damage to the outer coating up to the insert (chafe marks, cuts, cracks). - The outer coating becomes brittle (crack formation). - Deformation from the natural shape in the depressurized and pressurized conditions. - Leakage. - Damage or deformation of the mounting fixture - Meandering of the mounting fixture. - The lifetime has been exceeded. Repair of the hose line using the implemented hose / mounting fixture is not permitted. Extending the replacement intervals given in the guideline is possible if the inspection for safe-work condition is done in adjusted, shortened time frames, if required and by competent personnel. If there is an extension of the replacement interval, no situation may occur which could result in injury of employees or other personnel.	

	Excerpt from BGR237 Specifications for the hydraulic hose lines Normal specification: Increased demands e.g. by - Increased usage times e.g. multi-shift, short cycle times and pressure impulses. - Increased exterior and interior (due to media) influences which significantly reduce the lifetime of the hose lines.	Recommended exchange intervals 6 years (operation duration including max. 2 years storage time 2 year operation duration

7.2 Cleaning the lift

A regular and expert clean helps retain the value of the lift.
Additionally, it can also be a pre-requisite for the preservation of guarantee claims for any eventual corrosion damage.
The best protection for the lift is regular removal of contaminants of any kind.
- This includes above all:
  - De-icing salt
  - Sand, pebbles, earth
  - Industrial dust of all types
  - Water, also in connection with other environmental influences
  - Aggressive deposits of all types
  - Permanent humidity due to insufficient ventilation

The frequency of lift cleaning depends, among other things on the frequency of use, of lift handling, of workshop cleanliness, and the location of the lift. Furthermore, the degree of contamination depends on the time of year, the weather conditions and workshop ventilation. Under adverse circumstances, weekly lift cleaning might be required, however a monthly cleaning may be sufficient.

Do not use and aggressive and abrasive materials for cleaning, rather use mild cleaners, e.g. a commercially available detergent and luke warm water.
- For cleaning, do not use high pressure washers (e.g. steam cleaners).
- Carefully remove all contamination with a sponge, or if required with a brush.
- Make sure that there is no residue of the cleaner on the lift.
- Dry the lift with a cloth and spray it with a spray wax or oil.
- Moving parts (bolts, bearing zones) are to be lubricated or oiled according to instructions.
- When cleaning the workshop floor ensure that no aggressive cleaning materials come into contact with lift surfaces. Permanent contact with any kind of liquid is prohibited.

7.3 Checking the stability of the lift

- Retighten nuts of the approved fastening anchors to the torques specified by the manufacturer using a pre-set torque wrench.
  (Torque details are found on the data sheet of the corresponding anchor manufacturer)

8 Assembly and commissioning

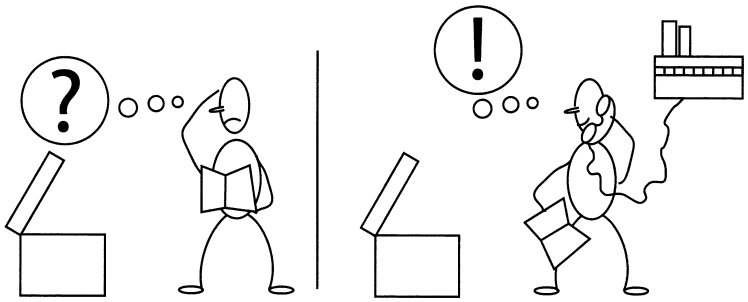


Figure 20:

8.1 Set up guidelines

- Lift set up is done by trained manufacturer personnel or a contract partner. Set up is to be done according to the assembly instructions.
- A standard lift may not be set up in explosion endangered spaces or wash halls.
- Before setting up, ensure or make a sufficient foundation.
- A level set up space is to be done in all cases, where open air and enclosed foundations where frost is expected, must have a frost-depth thickness.
- An on-site standard electrical connection of 3 ~/N + PE, 400 V, 50 Hz is to be provided. The supply is to be secured according to VDE0100 with 16 ampere fuses. The minimum line cross-section is 2.5 mm².
- The lines can be fed through the cross-beams. In all cases, prevent kinks or tensional loads on the lines.
- After successful lift installation and before first commissioning, the operating company must have the lift grounding conductors inspected on-site according to IEC regulation (60364-6-61). An insulation resistance test is also recommended.

8.1.1 Set up and anchoring the lift

☞ ***On-site provision of suitable auxiliary materials (e.g. forklifts, crane, etc.) are to be made available for unloading the lift and for assembly.***

Before setting up the lift, the operating company must ensure or make a sufficient foundation. For this, a normal reinforced concrete floor with a value of a min. C20/25 is required. The minimum foundation thickness (without screed and tiles) is to be taken from the foundation plan in this document.

In our plans, we inform of the minimum specifications for the foundation, however local conditions (e.g. underground, floor quality, etc.) are outside of our responsibility. In special cases, the design of the installation location must be individually specified by planning architects and statics experts. Open air foundations must be made to frost depth.
The operating company of the lift is solely responsible for the set up location.

If the lift is to be assembled on an existing concrete floor, cement quality and strength are to be checked beforehand. In case of doubt, make a test bore and insert an anchor. Then, tighten the anchor to the manufacturer recommended torque. After inspection within the anchor zone of influence (200 mm diameter) (see technical data sheet of the anchor manufacturer), if there is visible damage (hairline cracks, cracks or similar), or if the required torque cannot be applied then the set up location is unsuitable.

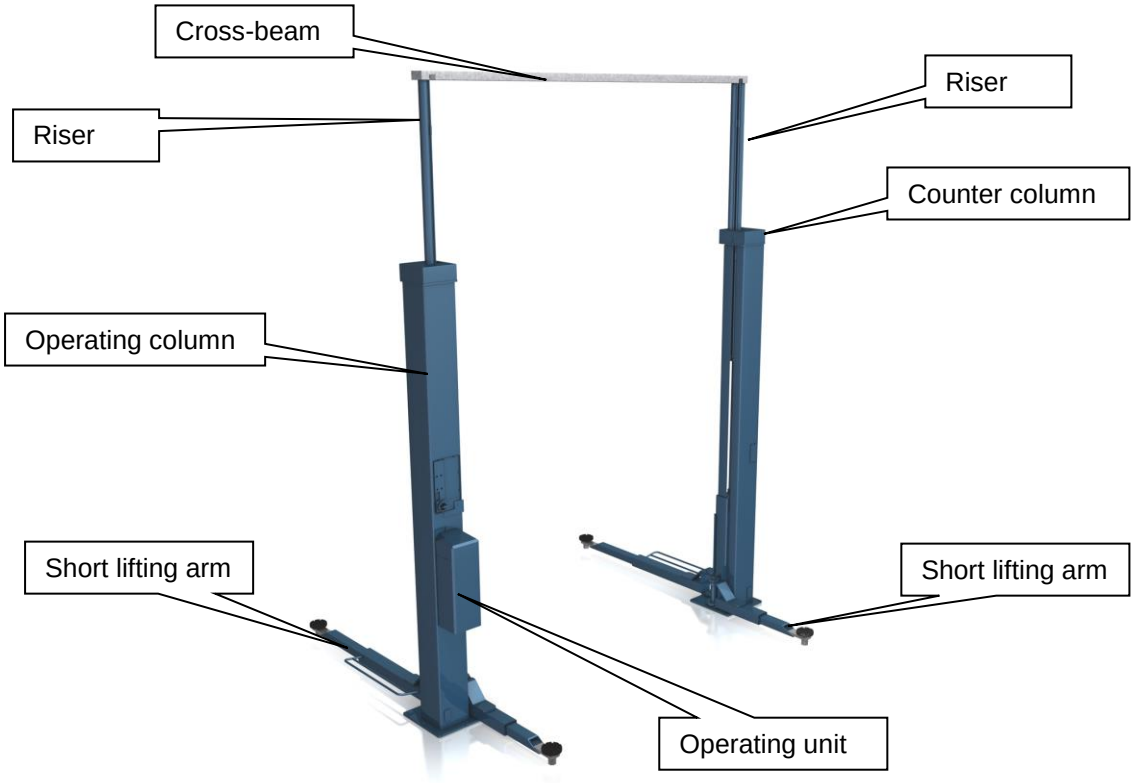


Figure 21: General assembly view without riser extension

A foundation must be made according to the "Foundation plan" sheet regulations. Also a level, set up surface must be ensured for the lift so there is continuous contact between the lift and the concrete floor.

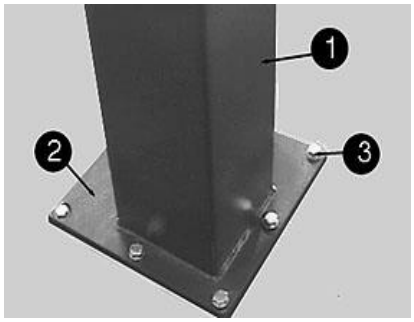


Figure 22: Anchoring

1: Column

2: Base plate

3: Safety anchor

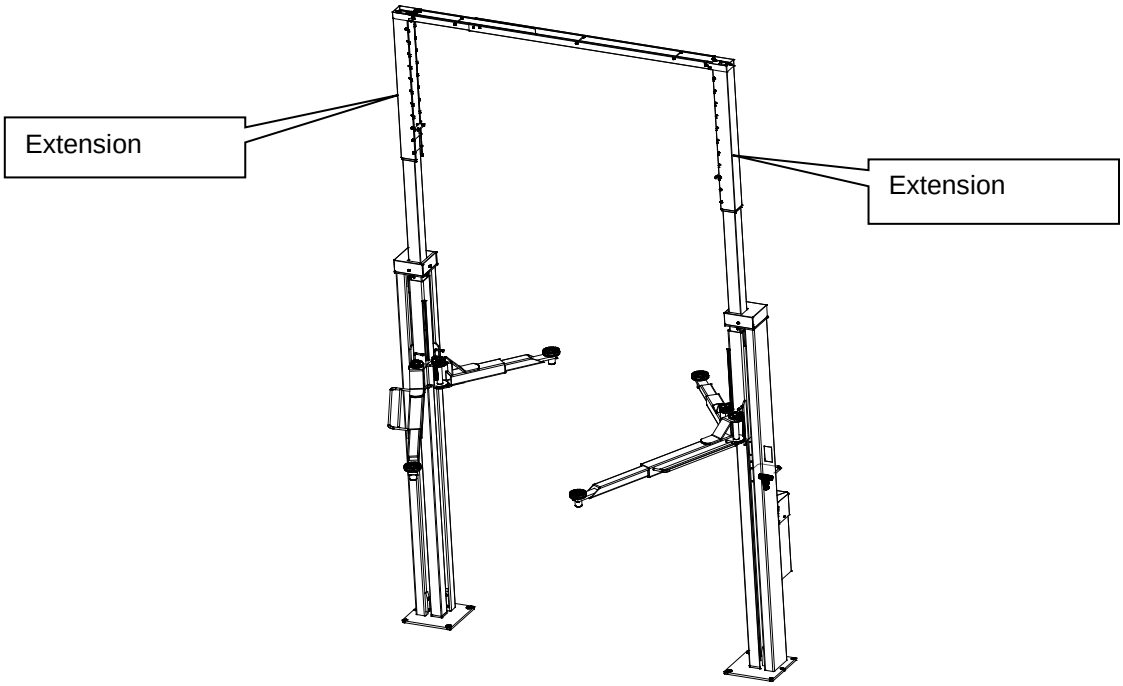
- To reach a higher level of protection against humidity from the workshop floor, a thin PE foil should be put between the workshop floor and column base plate before anchors are placed. Also, the gap between the base plate and workshop floor should be silicone sprayed after anchoring.
- Lift the cross-beam that is fastened to a column and fasten to the opposite side. Hydraulic lines are marked in colours thereby making them easy to connect.
- Holes for floor anchoring are to be placed through the holes in the base plates.
  Clean the bore holes by blowing them out with air. Insert safety anchors into the holes.
  The manufacturer recommends e.g. Hilti injection anchors or similar anchors from other manufacturers, with approval and in compliance with their specifications.
  Before anchoring the lift, check whether the concrete is of quality C20/25 up to the finishing level of the completed floor. In this case, determine the anchor length from the "Selection of anchor length without floor covering (in appendix) data sheet. If there is a floor covering (tiles, screed) on the weight bearing concrete, the thickness of this covering must be determined. Afterwards, then determine the anchor length from the "Selection of anchor length without floor covering (in appendix) data sheet.

- Position and align the lift and lift columns using a bubble level.
- The base plates are also to be supported with suitable underlays (thin metal strips) to ensure precise vertical set up and contact between the base plate and the floor.
- Tighten the anchors using a torque wrench.

Each anchor must be able to be tightened to the torque specified by the manufacturer. Safe operation of the lift is not guaranteed with a lower torque.

- If an anchor is tightened to the specified torque, then the domed washer lays flat on the base plate. Secure anchor connection is then guaranteed.

8.1.2 Lift assembly with riser extension

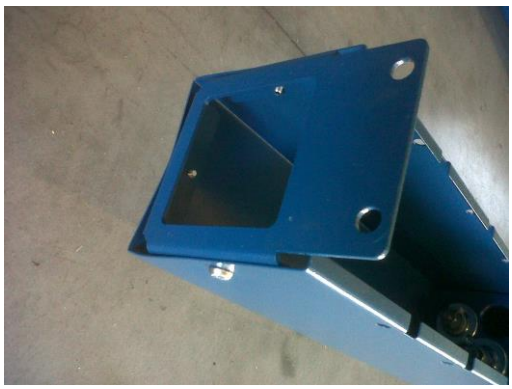


Riser extension is set on the existing riser. The open side faces inwards.

Set to the desired height (from 100 mm to 900 mm in 100 mm steps) depending on the ceiling height.

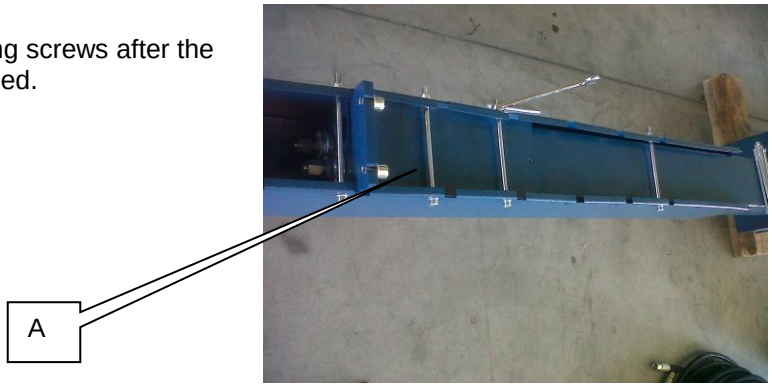
Guide the 4 hydraulic lines (fastened to the operating column) upwards out of the riser.

Fasten the cover.

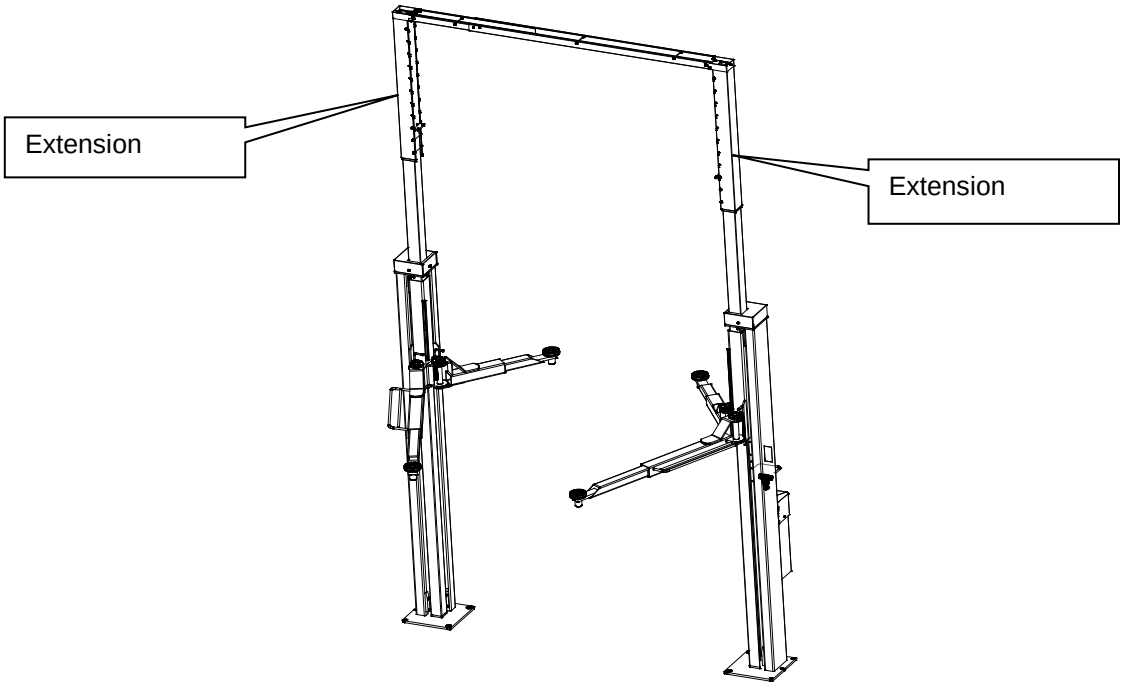


- After setting up the lifting columns, lift the cross-connection fastened to the operating column upwards and fasten to the opposite side. The hydraulic lines are placed in the cross-connection.
- Guide the lines from above into the riser of the opposite side and connect to the colour marked positions.

Fasten the extension using the long screws after the tensioning plate (A) has been placed.



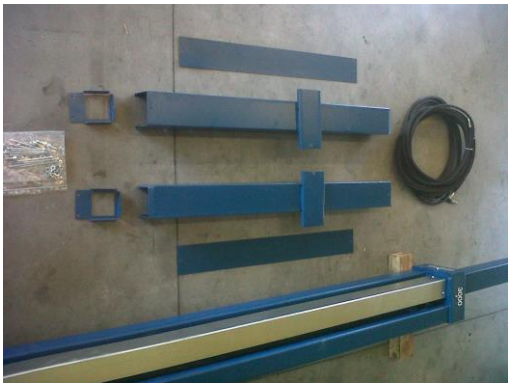
8.1.3 Retrofitting the riser extension



The optional riser extensions are delivered in a box.

Have other supplied parts at hand.

Hoses, covers, plates, extensions, press panels, screws.



Riser extension is set on the existing riser.
The open side faces inwards.

Set to the desired height (from 100 mm to 900 mm in 100 mm steps) depending on the ceiling height.

Fasten the extension using the long screws after the tensioning plate (A) has been placed.

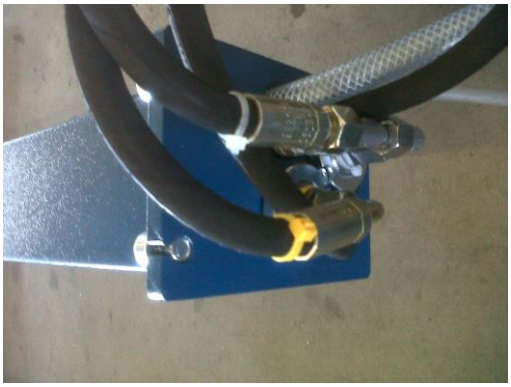
Fasten the cover.

Remove existing hydraulic lines.
Do not remove colour markings.

Loosen and turn the T-piece and bracket visible in the figure.

Exchange the supplied hydraulic hoses

Place yellow and white on the top of the operating column.



Attach red directly to the unit.

Connect blue to K1 of the operating column.

Cut the cover panel to length and mount.

8.1.4 First filling

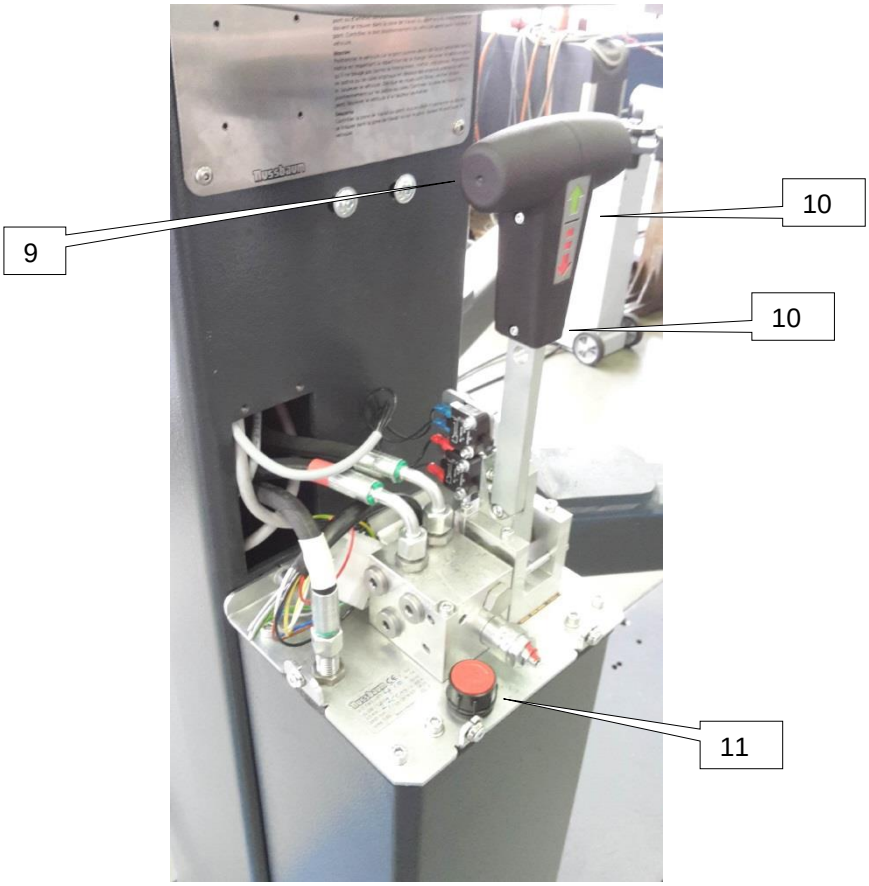
When filling the hydraulic system, identify already filled cylinders (with the sticker "first filling" on the system) and unfilled cylinders (no sticker on the system).
Lifts with this sticker already have hydraulic oil in the hydraulic cylinders

First filling with sticker

- Required oil volume: 9 litre (HLP 32) for the aggregate.

Lifts with this sticker already have hydraulic oil in the hydraulic cylinders and hoses.

- After setting up the electrical connection to the lift, the hydraulic system can be filled.



9 Operating lever
10 2x Allen key operating lever
11 Oil filling opening

• Loosen and remove the plastic part of the operating lever (9) of both Allen screws (10)
• Loosen and remove the unit cover.
• Unscrew the oil filling opening (11).
• Fill 9 litre hydraulic oil (HLP 32).
• Raise the lift approx. 1 m by pushing the operating lever (9).
The lift rails can be lifted at different times!
• Hang in the lifting arms and secure them.
• Push the operating lever forwards and raise the lift to its uppermost end position.
• Push and hold the operating lever for another 60 seconds so air can escape from the system and the overflow procedure equalises the lift to each other.

For first commissioning, it is normal to have a different start up and a large "shaking" in the uppermost position. Air trapped in the system must be completely removed first.

• Afterwards lower the lift to its lowest position. Pull the operating lever (9) and hold it until the lifting arm is completely lowered.

The oil level should be approx. 30-40 mm below the oil fill opening. Do not fill the oil tank up to the upper edge, as otherwise during lowering the oil return line can pull oil out of the line and afterwards result in a very slow lifting at the upper range.

• After commissioning, the sticker (first filling) can be removed.

First filling without sticker.

• Required oil volume: 13 litre (HLP 32) for the aggregate, hoses and cylinders.

• After setting up the electrical connection to the lift, the hydraulic system can be filled.
• Loosen and remove the plastic part of the operating lever (9) of both Allen screws (10)
• Loosen and remove the unit cover.
• Unscrew the oil filling opening (11).
• Fill hydraulic oil: 9 litre (HLP 32).
• Raise the lift approx. 1 m by pushing the operating lever (9).
The lift rails can be lifted at different times!
• Hang in the lifting arms and secure them.
• Push the operating lever (9) forwards and raise the lift to its uppermost end position.

Now fill the oil tank with hydraulic oil: 4 litre (HLP 32)!

• Afterwards hold the operating lever another 60 seconds so air can escape from the system and the lift rails can be equalised by the overflow procedure.

For first commissioning, it is normal to have a different start up and a large "shaking" in the uppermost position. Air trapped in the system must be completely removed first.

• Afterwards lower the lift to its lowest position. Pull the operating lever (9) and hold it until the lifting arm is completely lowered.

The oil level should be approx. 30-40 mm below the oil fill opening. Do not fill the oil tank up to the upper edge, as otherwise during lowering the oil return line can pull oil out of the line and afterwards result in a very slow lifting at the upper range.

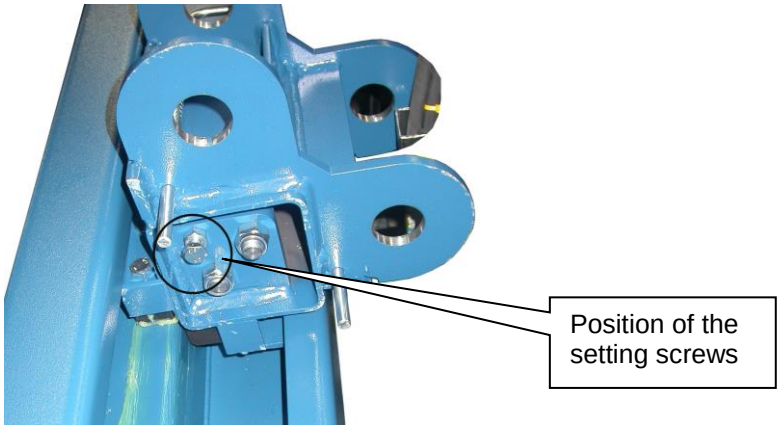
8.2 Lifting arm assembly

- Hang in the standard lifting arm and then place an acid-free multi-purpose grease into the joint bolts in each case from above into the hole and then insert the enclosed locking ring.

The lifting arm bolts must be secured on both sides as otherwise a reliable connection is not given between the lift rails and lifting arm.

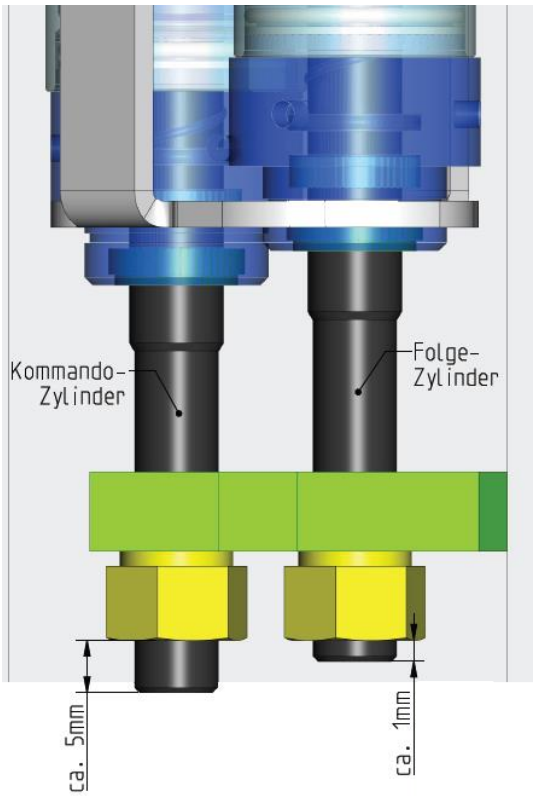
8.3 Lifting arm alignment

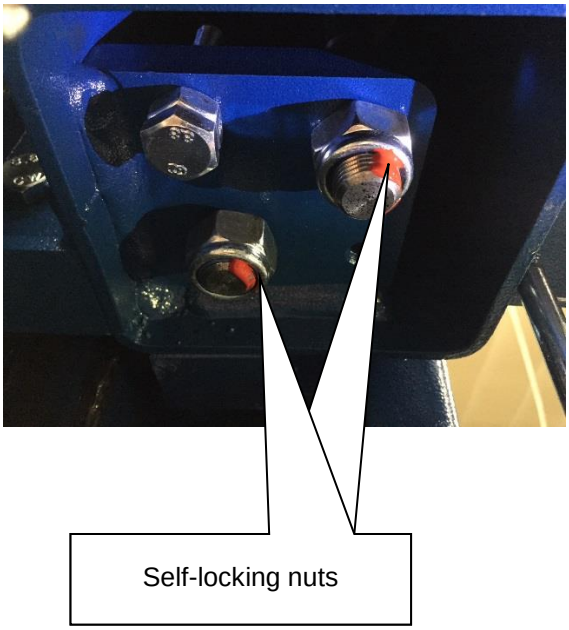
- After assembly of the lift, the lifting arm may be placed at the lowest position and become difficult to move. There is the option of setting the set screw so that the lifting arms can be moved more easily.



Control of the self-locking nuts

- After the assembly, the self-locking nuts have to be checked. The threads of the piston rod must protrude from the nuts (see drawing).





8.4 Commissioning

☞ ***Before commissioning, a single safety inspection must be done (use the "single safety inspection" form).***

If the lift set up is done by a specialist (factory trained assembler) then he can also do the safety inspection. If the set up is done by the operating company then a specialist must be tasked with the safety inspection.
The specialist confirms seamless operation of the lift on the set up protocol for single safety inspection and releases the lift for use.

☞ ***After commissioning please complete the assembly protocol and send to the manufacturer immediately.***

8.5 Changing the assembly location

To change the assembly location the pre-conditions must be met according to the assembly guidelines. The location change is to be done according to the following sequence:

- Move the lift rails to about half height.
- Remove the lifting arm (remove the safety ring of the lifting arm pin, pull out the lifting arm pin and remove the lifting arm).
- Disconnect electrical supply lines to the lift from mains power.
- Remove hydraulic lines above on the opposite side and seal them off with blind stoppers.
- Only loosen cross beams on one side and fold them under along with the hydraulic lines.
- Securely fix the beam to the columns.
- Suction off hydraulic oil.
- Loosen the anchor fastenings.
- Carefully transport the lift column using appropriate auxiliary means (e.g. crane, forklift, etc) to the new assembly location.
- Assemble the lift according to the procedure during assembly and anchoring before first commissioning.

! ***Use new anchors. The old anchors are no longer fit for purpose.***

9 Safety inspection

The safety inspection is required to guarantee operational safety of the lift. It is to be done:

1. Before first commissioning after setting up the lift.
   Use the "single safety inspection" form.

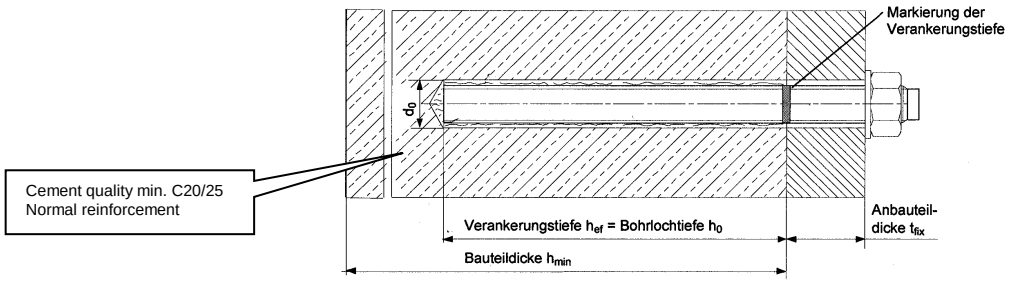
2. After first commissioning, check regularly at least once per year.
   Use the "regular safety inspection" form.

3. After changes to the lift construction.
   Use the "extraordinary safety inspection" form.

☞ ***Single and regular safety inspections must be done by a specialist. It is recommended to do maintenance at the same time.***

☞ ***After a change in construction (for example changing the load carrying capacity or changing the lifting height) and after significant maintenance on load carrying parts (e.g. welding work), inspection by a technical expert is required (extraordinary safety inspection).***

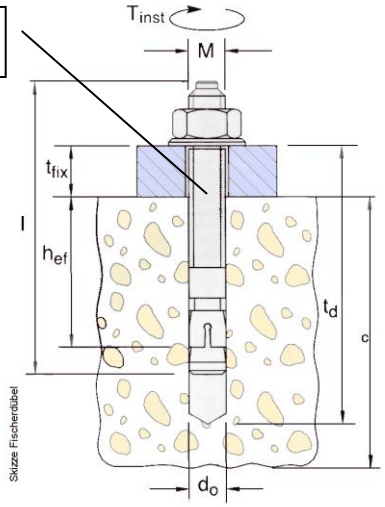
This inspection book contains forms with a printed inspection plan for safety inspections. Please use the appropriate form, record the condition of the inspected lift and leave the completed form in this inspection book.



Rights reserved to make changes!

Hilti injection anchor			**POWER LIFT HL 2.30 NT[d], , POWER LIFT HL 2.35 NT[d], , POWER LIFT HL 2.40 NT[e],**	
Concrete floor		without floor cover		
Anchor		HIT-V-5.8 M10x130	HIT-V-5.8 M12x150 Item no. 387061	HIT-V-5.8 M16x200 Item No. 956437
Drill depth (mm)	h_0	90	108	144
Minimum anchoring depth (mm)	h_{ef}	90	108	144
Concrete thickness (mm)	H_{min}	min.120	min.138	min.180
Bore diameter (mm)	d_0	12	14	18
Component thickness (mm)	t_{fix}	max. 17	max. 19	23
Torque (Nm)	T_{inst}	20	40	80
Total length (mm)	l	130	150	200
Thread	M	10	12	16
Part count	a	4		
	b	8		
	c	10		
	d	12		
	e	14		
	f	16		
	g	28		
Follow the assembly instructions of the anchor manufacturer. Use longer anchors for floor coverings (screed / tiles).				
Similar value injection anchors from other manufacturers (with permission) in compliance with their specifications.				

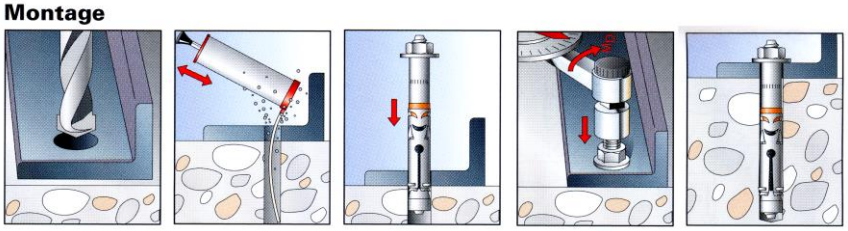
Marking the anchoring depth



Rights reserved to make changes!

fischer anchor			**POWER LIFT HL 2.30 NT POWER LIFT HL 2.35 NT POWER LIFT HL 2.40 NT**	
Anchor		FH 15/50 B **Order No. 970265**	FH 18 x 100/100 B **Order No.: 972230**	FH 24/100 B **Order No. 970267**
Drill depth	t_d	145	230	255
Minimum anchoring depth	h_{ef}	70	100	125
Concrete thickness	c	see the current foundation plan		
Bore diameter	d_o	15	18	24
Component thickness	t_{fix}	0 -50	0 -100	0 -100
Torque Nm	M_D	40	80	120
Total length	l	155	230	272
Thread	M	M10	M12	M16
Part count	a	4		
	b	8		
	c	10		
	d	12		
	e	16		
	f	20		
	g	14		

Montage



Similar value safety anchors from other manufacturers (with permission) in compliance with their specifications.

Single safety inspection before commissioning

☞ Complete and leave in the inspection book

Serial number: _____

Test step	OK	Defective Missing	Retest	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Load capacity details on the lift	☐	☐	☐	
Detailed operating manual	☐	☐	☐	
Condition, function operating lever + button	☐	☐	☐	
Label "Lift, Lower"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
Condition, rubber plate	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Securing the carrier plate (not unscrewable)	☐	☐	☐	
Condition, function carrier plate	☐	☐	☐	
Condition, function foot bumper (optional)	☐	☐	☐	
Condition sliding part lift rails	☐	☐	☐	
Paint condition	☐	☐	☐	
Load bearing construction (deformations, cracks).	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Nuts Cylinder mounting set correctly (chap 8.3).	☐	☐	☐	
Nuts Cylinder Mount: Check Sealing Wax	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Condition, function lifting arm block	☐	☐	☐	
Condition, function lifting arm movement	☐	☐	☐	
Condition, safety plate on Mini-Max	☐	☐	☐	
Condition, function of Mini-Max lifting arm	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Condition of covers	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition, hydraulic lines + screw fittings	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

(Place a checkmark in the relevant, if a retest is required then check it again!

Safety inspection done on:.....

Performed by company:.....

Name, address of specialist:.....

Result of inspection:
☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects
☐ No deficiencies, continue to operate

....
Signature of specialist Operating company signature

If requested to take care of deficiencies

Deficiency removed on: ....
Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

Complete and leave in the inspection book

Serial number: _____

Test step	OK	Defective Missing	Retest	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Load capacity details on the lift	☐	☐	☐	
Detailed operating manual	☐	☐	☐	
Condition, function operating lever + button	☐	☐	☐	
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Nuts Cylinder mounting set correctly (chap 8.3).	☐	☐	☐	
Nuts Cylinder Mount: Check Sealing Wax	☐	☐	☐	
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Condition, hydraulic lines + screw fittings	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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Regular safety inspection and maintenance

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Model plate	☐	☐	☐	
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Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

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....
Signature of specialist Operating company signature

If requested to take care of deficiencies

Deficiency removed on: ....
Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

☞ Complete and leave in the inspection book

Serial number: _____

Test step	OK	Defective Missing	Retest	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Load capacity details on the lift	☐	☐	☐	
Detailed operating manual	☐	☐	☐	
Condition, function operating lever + button	☐	☐	☐	
Label "Lift, Lower"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
Condition, rubber plate	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Securing the carrier plate (not unscrewable)	☐	☐	☐	
Condition, function carrier plate	☐	☐	☐	
Condition, function foot bumper (optional)	☐	☐	☐	
Condition sliding part lift rails	☐	☐	☐	
Paint condition	☐	☐	☐	
Load bearing construction (deformations, cracks).	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Nuts Cylinder mounting set correctly (chap 8.3).	☐	☐	☐	
Nuts Cylinder Mount: Check Sealing Wax	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Condition, function lifting arm block	☐	☐	☐	
Condition, function lifting arm movement	☐	☐	☐	
Condition, safety plate on Mini-Max	☐	☐	☐	
Condition, function of Mini-Max lifting arm	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Condition of covers	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition, hydraulic lines + screw fittings	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

(Place a checkmark in the relevant, if a retest is required then check it again!

Safety inspection done on:.....

Performed by company:.....

Name, address of specialist:.....

Result of inspection:
- ☐ Continued operation questionable, reinspection required
- ☐ Continued operation possible, remove defects
- ☐ No deficiencies, continue to operate

....
Signature of specialist Operating company signature

If requested to take care of deficiencies

Deficiency removed on: ....
Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

☞ Complete and leave in the inspection book

Serial number: _____

Test step	OK	Defective Missing	Retest	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Load capacity details on the lift	☐	☐	☐	
Detailed operating manual	☐	☐	☐	
Condition, function operating lever + button	☐	☐	☐	
Label "Lift, Lower"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
Condition, rubber plate	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Securing the carrier plate (not unscrewable)	☐	☐	☐	
Condition, function carrier plate	☐	☐	☐	
Condition, function foot bumper (optional)	☐	☐	☐	
Condition sliding part lift rails	☐	☐	☐	
Paint condition	☐	☐	☐	
Load bearing construction (deformations, cracks).	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Nuts Cylinder mounting set correctly (chap 8.3).	☐	☐	☐	
Nuts Cylinder Mount: Check Sealing Wax	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Condition, function lifting arm block	☐	☐	☐	
Condition, function lifting arm movement	☐	☐	☐	
Condition, safety plate on Mini-Max	☐	☐	☐	
Condition, function of Mini-Max lifting arm	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Condition of covers	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition, hydraulic lines + screw fittings	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

(Place a checkmark in the relevant, if a retest is required then check it again!

Safety inspection done on:.....

Performed by company:.....

Name, address of specialist:.....

Result of inspection:
☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects
☐ No deficiencies, continue to operate

....
Signature of specialist Operating company signature

If requested to take care of deficiencies

Deficiency removed on: ....
Operating company signature

(Use a new form for reinspection!)

Exceptional safety inspection

☞ Complete and leave in the inspection book

Serial number: _____

Test step	OK	Defective Missing	Retest	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Load capacity details on the lift	☐	☐	☐	
Detailed operating manual	☐	☐	☐	
Condition, function operating lever + button	☐	☐	☐	
Label "Lift, Lower"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
Condition, rubber plate	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Securing the carrier plate (not unscrewable)	☐	☐	☐	
Condition, function carrier plate	☐	☐	☐	
Condition, function foot bumper (optional)	☐	☐	☐	
Condition sliding part lift rails	☐	☐	☐	
Paint condition	☐	☐	☐	
Load bearing construction (deformations, cracks).	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Nuts Cylinder mounting set correctly (chap 8.3).	☐	☐	☐	
Nuts Cylinder Mount: Check Sealing Wax	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Condition, function lifting arm block	☐	☐	☐	
Condition, function lifting arm movement	☐	☐	☐	
Condition, safety plate on Mini-Max	☐	☐	☐	
Condition, function of Mini-Max lifting arm	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Condition of covers	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition, hydraulic lines + screw fittings	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Functional test lift with vehicle	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Stability of lift	☐	☐	☐	
General condition of lift	☐	☐	☐	

(Place a checkmark in the relevant, if a retest is required then check it again!

Safety inspection done on:.....

Performed by company:.....

Name, address of specialist:.....

Result of inspection:
☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects
☐ No deficiencies, continue to operate

....
Signature of specialist Operating company signature

If requested to take care of deficiencies

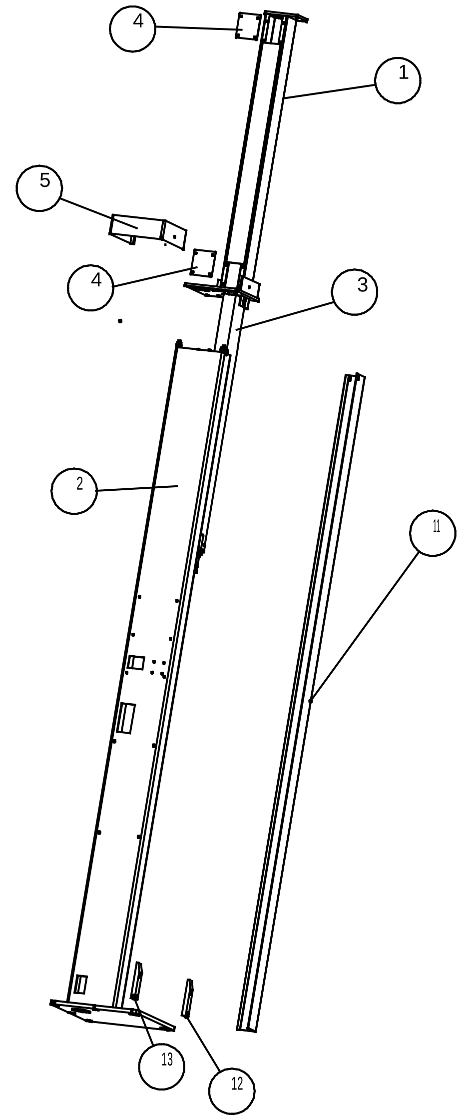
Deficiency removed on: ....
Operating company signature

(Use a new form for reinspection!)

10 Spare parts list | Ersatzteilliste

Spare parts list

Ersatzteilliste



Lfd. Nr.	Menge	Zeichnungs-Nr.:	Benennung
1	1	230SLNT05570	Kopfplatte bds. Schwt. Head plate master side
2	1	230SLNT05013	Saeule Bed.S. Schwt. column master side
3	1	230SLNT02802	Zylinder Bedienseite komplett cylinder master side complete
4	1	230SLNT05580	Deckel cover
5	1	230SLNT09047	Abdeckhaube Bedienseite cylinder complete
11	1	240SL09008	Abdeckblech cover plate
12	1	225SL05008	Hubschlittenfuehrung guiding device
13	1	230SLH05039	Hubschlittenfuehrung guiding device

Masse ohne Toleranzangaben

Massstab: | Gewicht: kg

Werkstoff / Halbzeug: - ; -

Bearb.: Datum 08.06.12 Name mg

Gepr.:

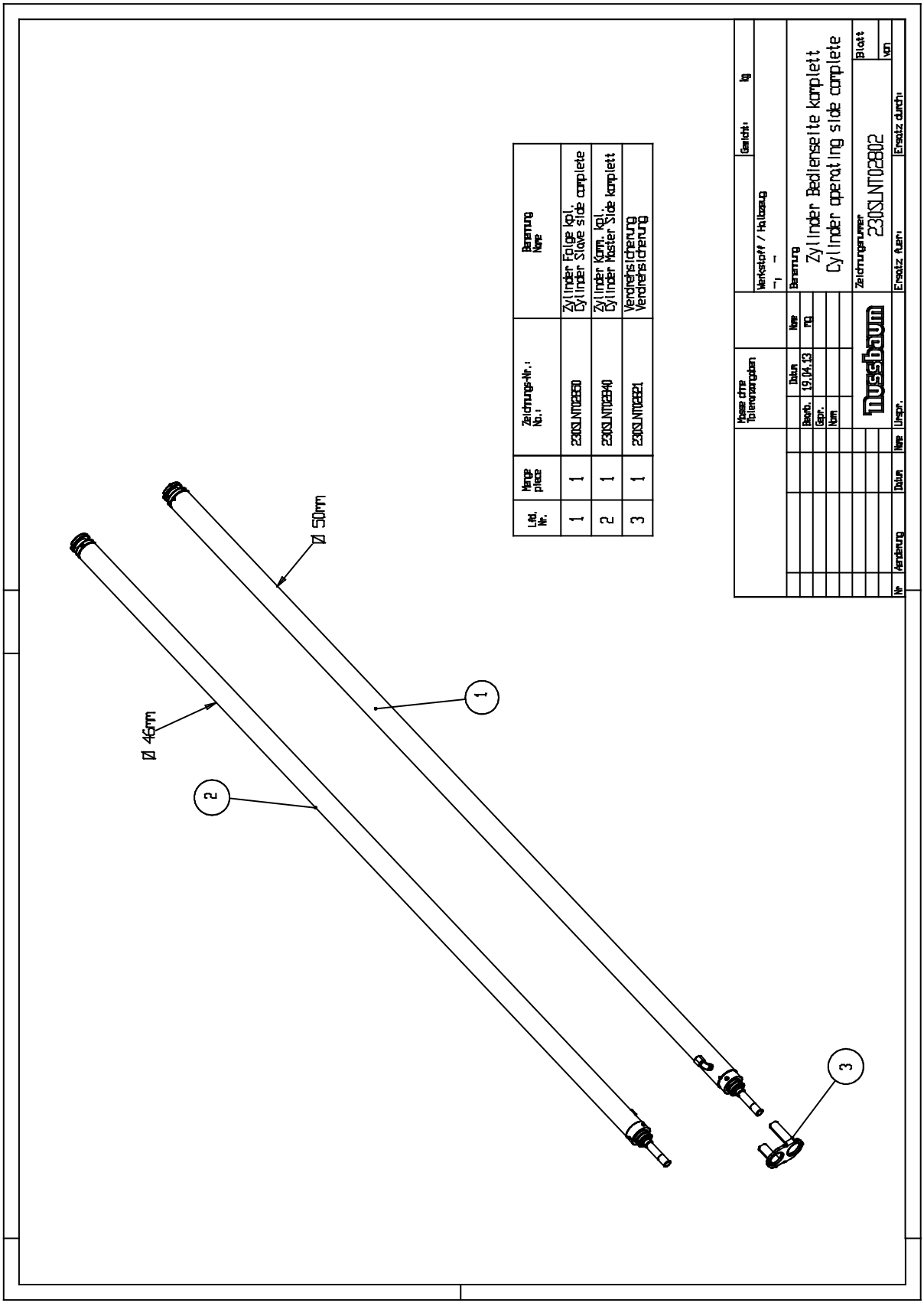
Norm

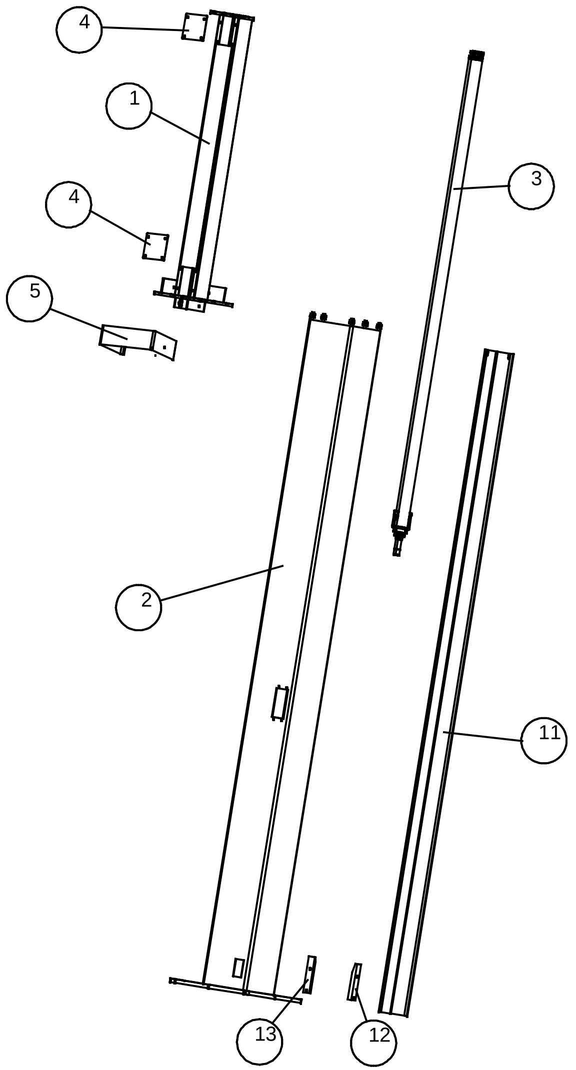
Benennung: Säule Bedienseite komplett
column master side complete

Zeichnungsnummer: 230SLNT05001

Blatt | von

Nr | Aenderung | Datum | Name | Urspr. | Ersatz fuer: | Ersatz durch:


Ø 50mm
Ø 46mm
1
2
3
Lfd. Nr.
Menge piece
Zeichnungs-Nr.: No.:
Benennung Name
1 1 2303LNT02830 Zylinder Folge Kpl. Cylinder Slave side complete
2 1 2303LNT02840 Zylinder Komm. Kpl. Cylinder Master Side komplett
3 1 2303LNT02821 Verdrehsicherung Verdrehsicherung
Maße ohne Toleranzangaben
Werkstoff / Halbzeug
Gewicht: kg
Benennung
Zylinder Bedienseite komplett
Cylinder operating side complete
Zeichnungsnummer
2303LNT02802
Blatt
von
Ersatz für:
Ersatz durch:
Name
Datum
Bearb. 19.04.13
Gepr.
Norm
Nr. Änderung Datum Name Urspr.



Lfd. Nr.	Menge	Zeichnungs-Nr.: No.:	Benennung Name
1	1	230SLNT05540	Kopfplatte bds. Schwt. Head plate master side
2	1	230SLNT05023	Saeule Bed.S. Schwt. column master side
3	1	230SLNT02801	Zylinder Gegenseite kpl. cylinder slave side complete
4	1	230SLNT05580	Deckel cover
5	1	230SLNT09047	Abdeckhaube Bedienseite cylinder complete
11	1	240SL09008	Abdeckblech cover plate
12	1	225SL05008	Hubschlittenfuehrung guiding device
13	1	230SLH05039	Hubschlittenfuehrung guiding device

Masse ohne Toleranzangaben

Massstab: | Gewicht: kg

Werkstoff / Halbzeug: - ; -

Bearb.: 08.06.12 mg | Gepr.: | Norm:

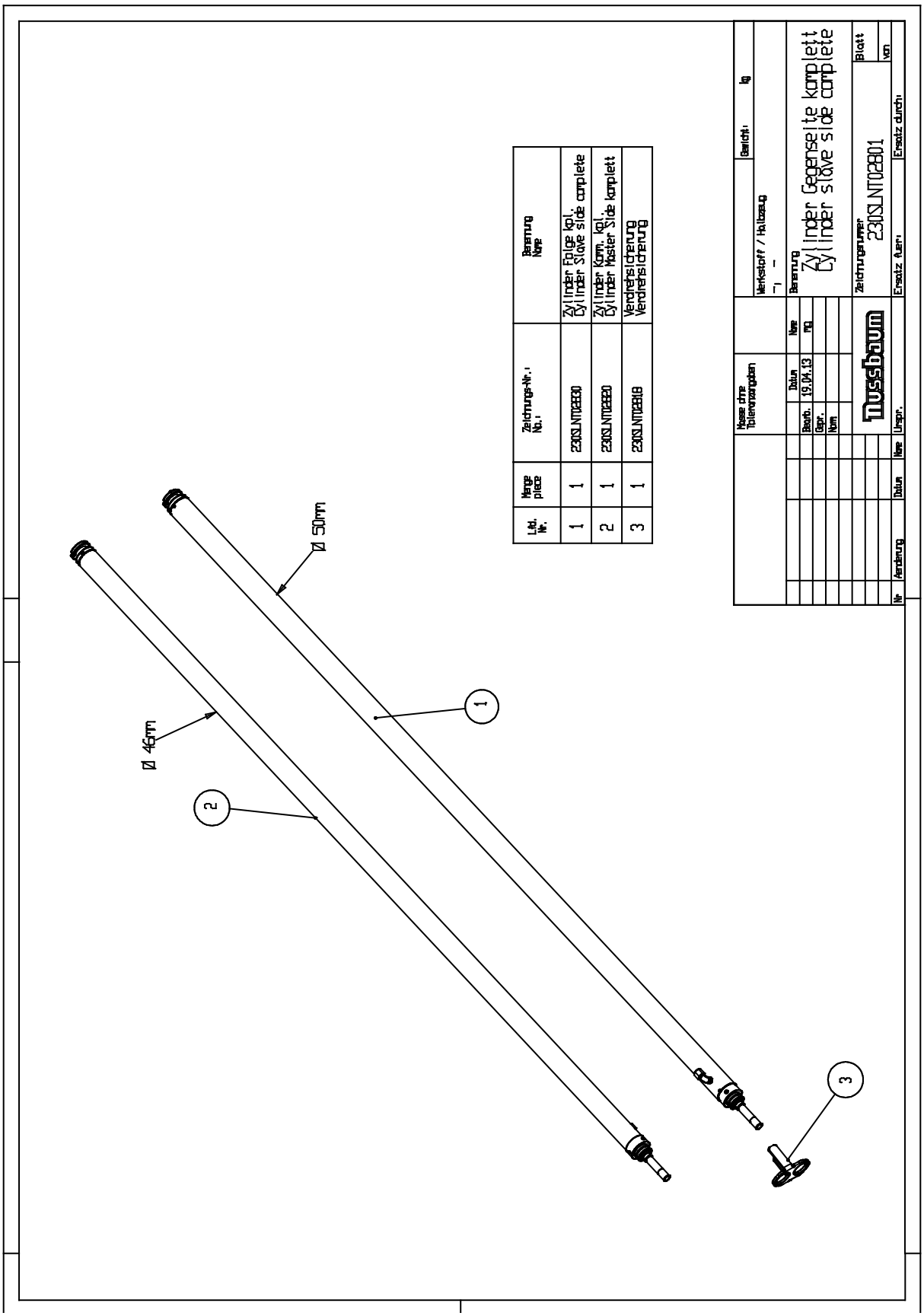
Benennung: Säule Gegenseite komplett / column slave side complete

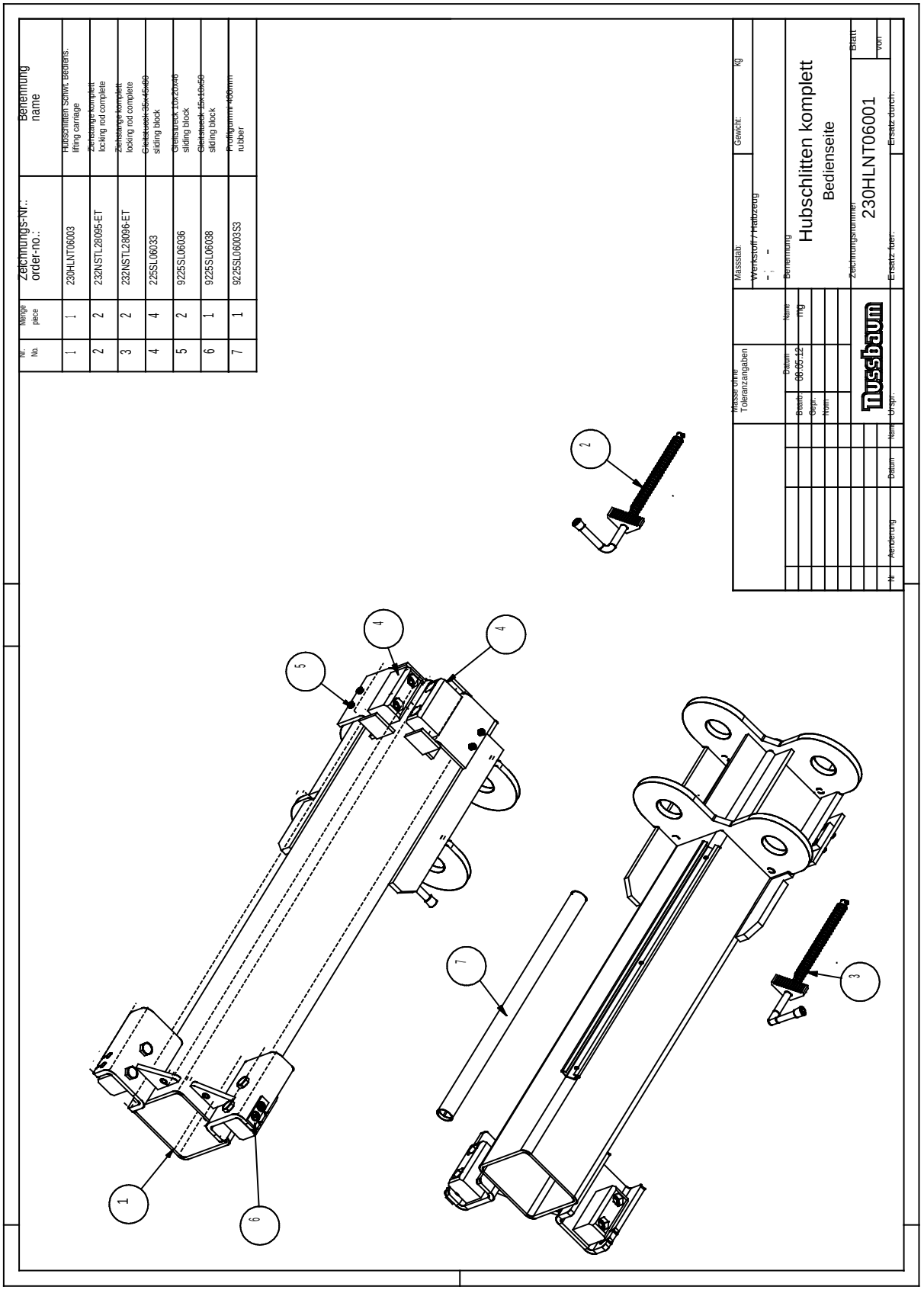
Zeichnungsnummer: 230SLNT05002

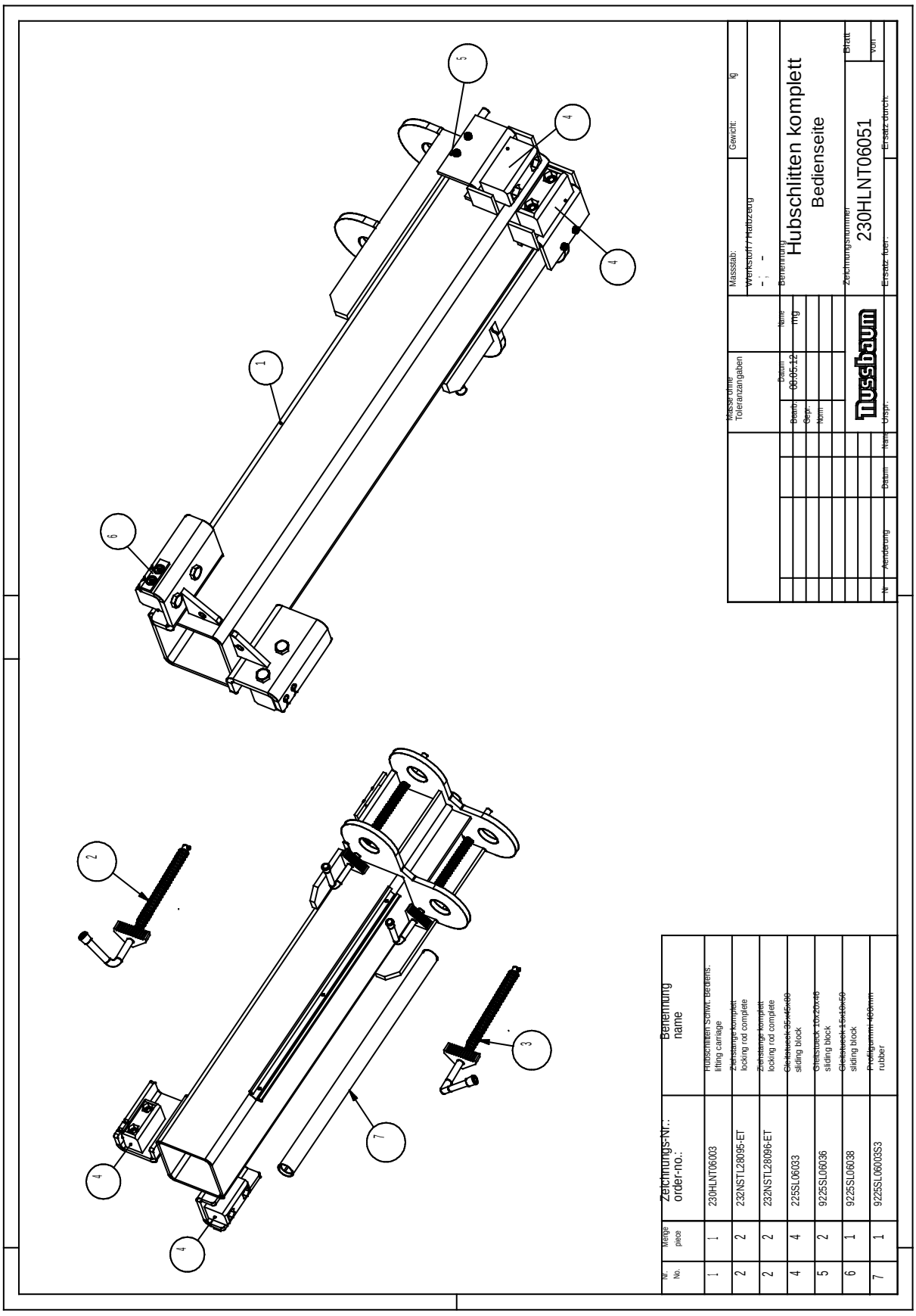
Blatt | von

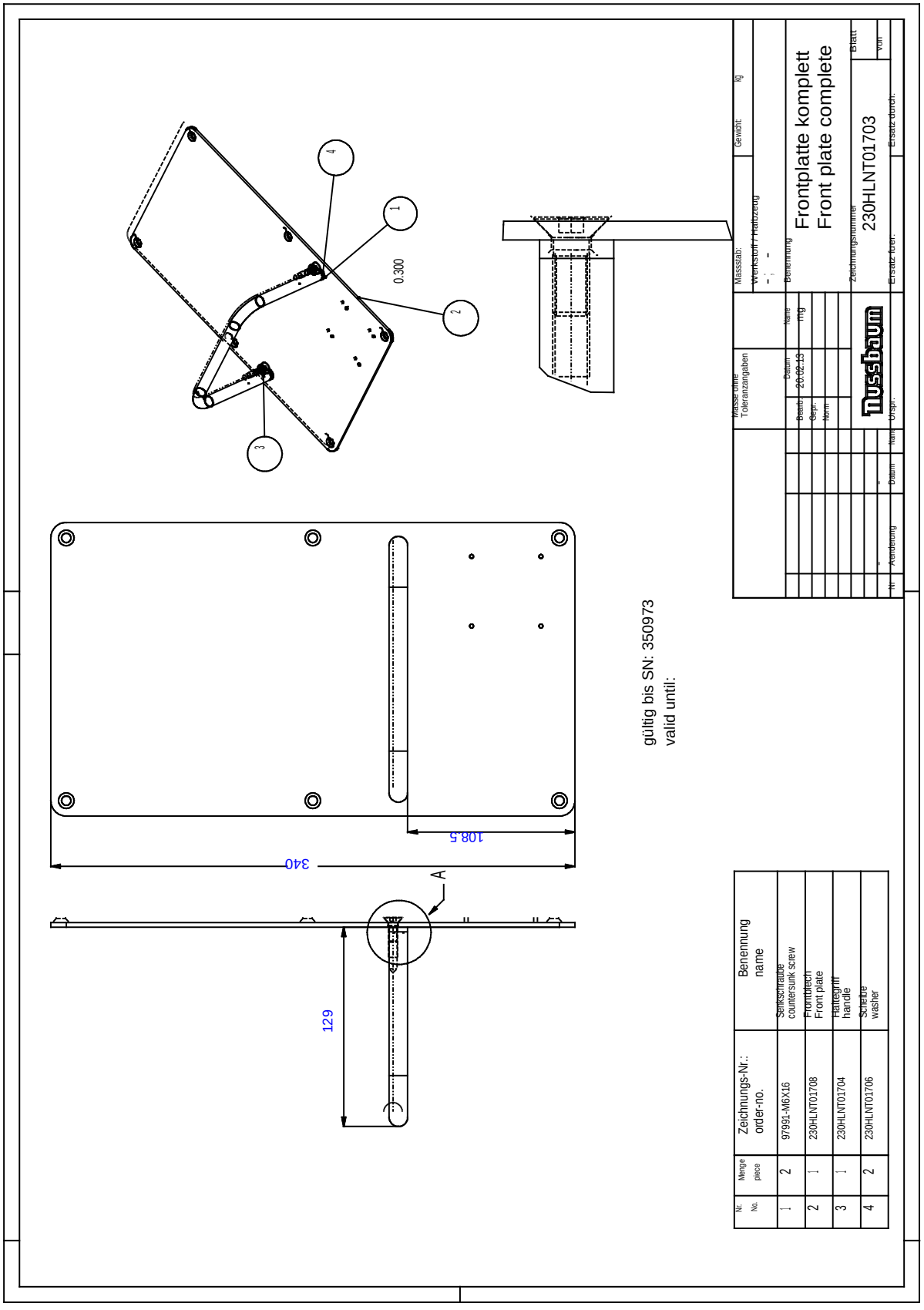
Ersatz fuer: | Ersatz durch:

Nr | Aenderung | Datum | Name | Urspr.

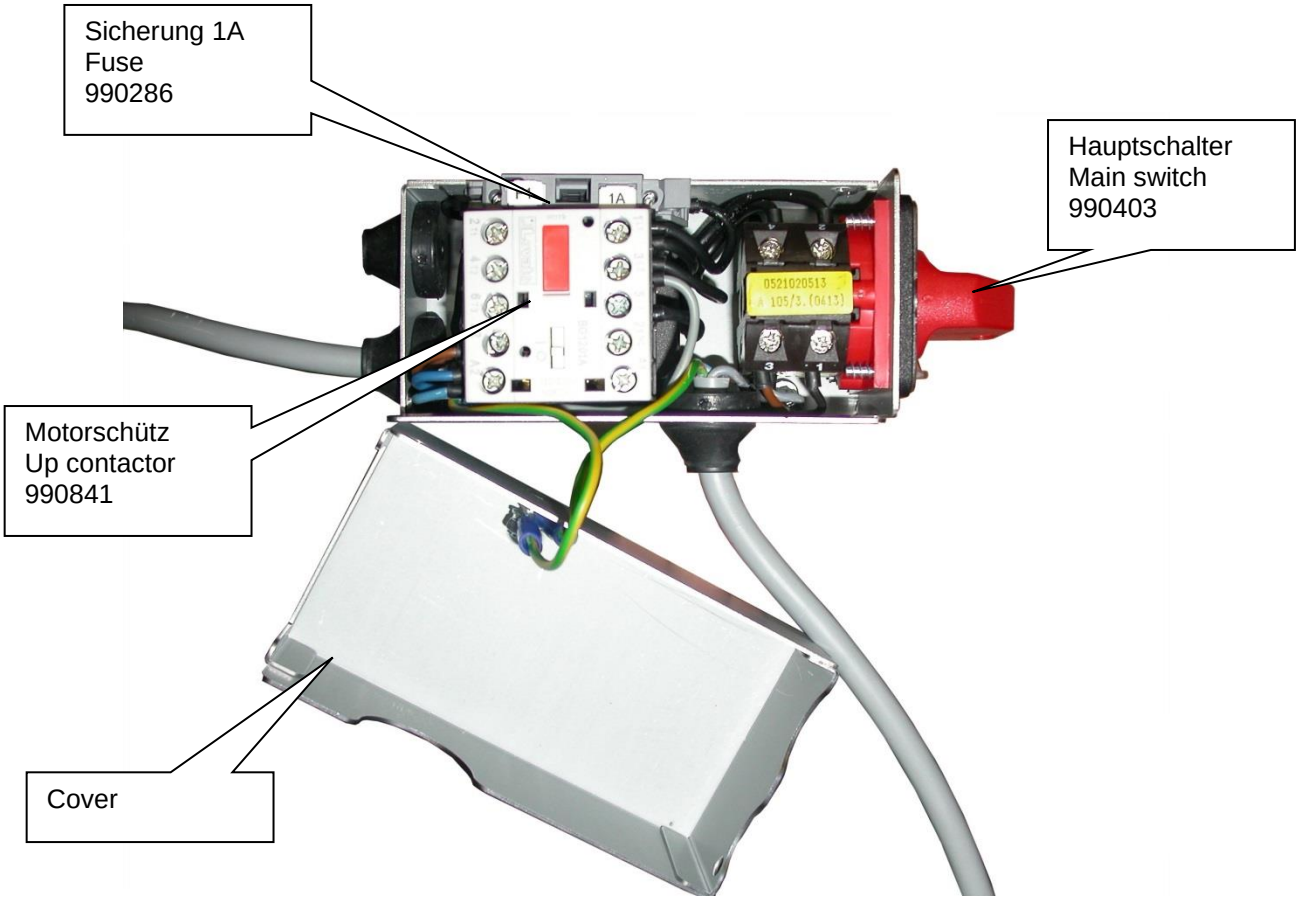

Ø 50mm
Ø 46mm
1
2
3
Lfd. Nr.
Menge piece
Zeichnungs-Nr.
Benennung Name
1 1 2303.NT02830 Zylinder Folge kpl. Cylinder Slave side complete
2 1 2303.NT02820 Zylinder Komm. kpl. Cylinder Master Side komplett
3 1 2303.NT02818 Vorderansichtenung Vorderansichtenung
Maße ohne Toleranzangaben
Werkstoff / Halbzeug
Gewicht: kg
Name
Datum
Bearb. 19.04.13
Gepr.
Norm
Benennung
Zylinder Gegenseite komplett
Cylinder slave side complete
Zeichnungsnummer
2303.NT02801
Blatt
von
Nussbaum
Nr Änderung Datum Name Ursprung Ersatz Ausführung Ersatz durch

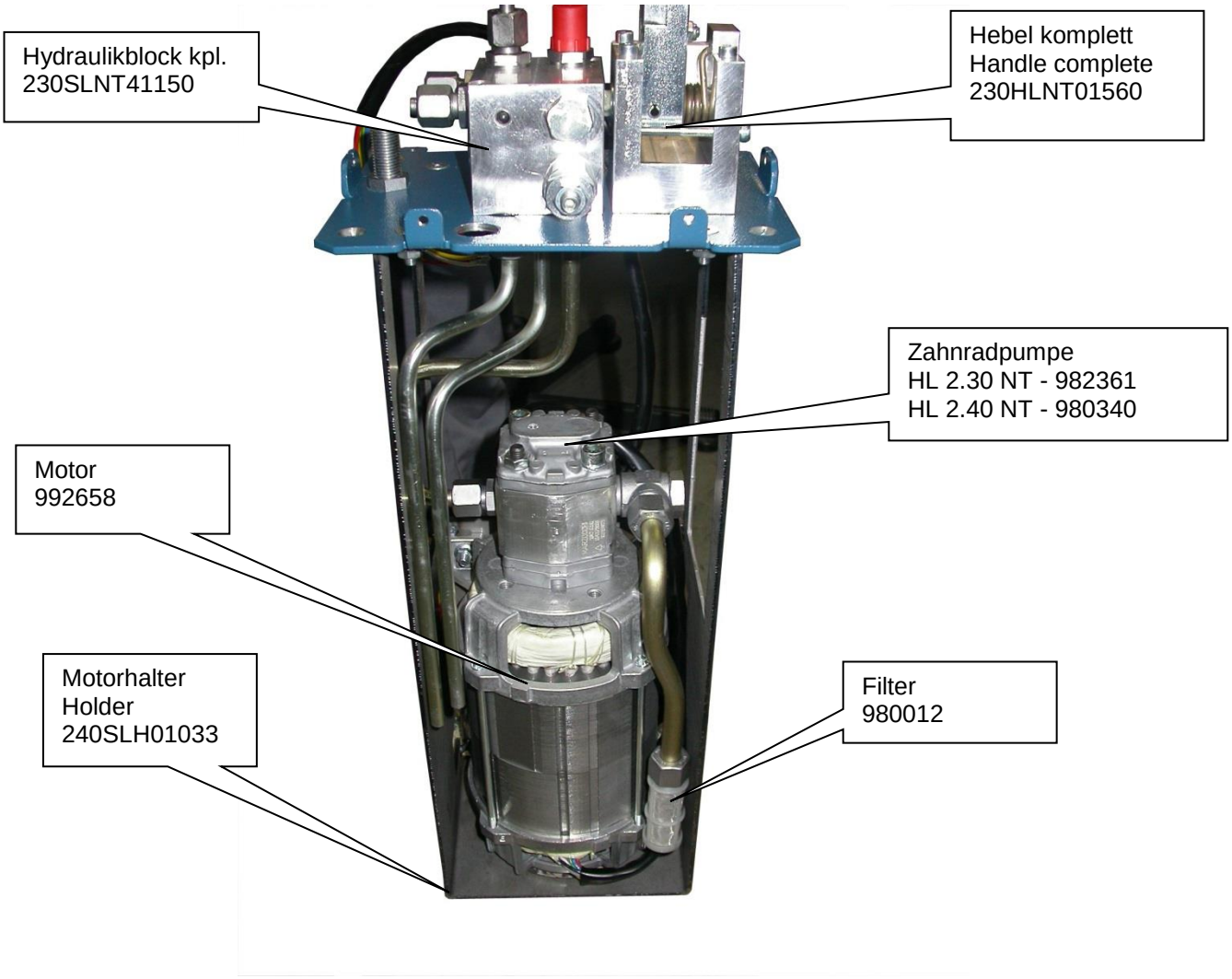

Hubschlitten komplett
Bedienseite
230HLNT06001
Nussbaum
1
2
3
4
5
6
7


Hubschlitten komplett
Bedienseite
230HLNT06051
Nussbaum
Zeichnungs-Nr.:
order-no.:
Benennung
name
Menge
piece
Nr.
No.
1 1 230HLNT06003 Hubschlitten Schwr. Bedients.
lifting carriage
2 2 232NSTL28095-ET Zahnstange komplett
locking rod complete
2 2 232NSTL28096-ET Zahnstange komplett
locking rod complete
4 4 225SL06033 Gleitstück 65x65x80
sliding block
5 2 9225SL06036 Gleitstück 10x20x40
sliding block
6 1 9225SL06038 Gleitstück 15x40x50
sliding block
7 1 9225SL06003S3 Profilgummi 493mm
rubber


Frontplatte komplett
Front plate complete
230HLNT01703
Nussbaum
gültig bis SN: 350973
valid until:
0.300
340
108.5
129
A
Benennung
name
Zeichnungs-Nr.:
order-no.
Menge
piece
Nr.
No.
Senkschraube
countersunk screw
97991-M6X16
Frontblech
Front plate
230HLNT01708
Haltegriff
handle
230HLNT01704
Scheibe
washer
230HLNT01706

Gültig bis 04-2013 (SN: 380973)
Valid until 04-2013

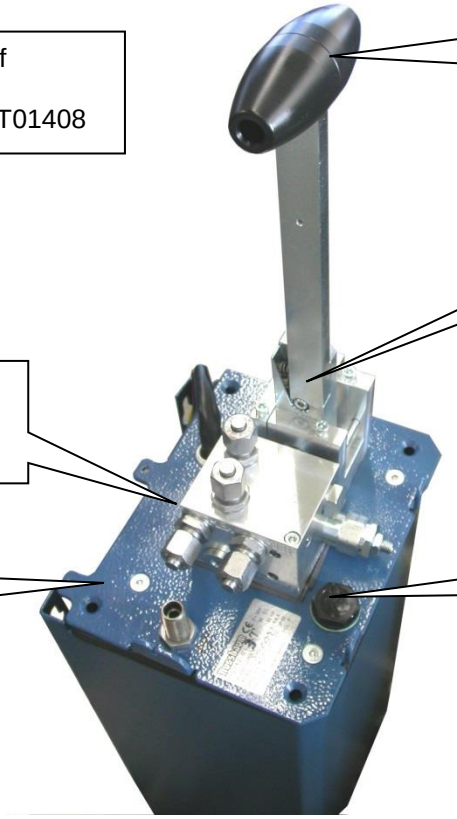



Hydraulikblock kpl.
230SLNT41150
Hebel komplett
Handle complete
230HLNT01560
Zahnradpumpe
HL 2.30 NT - 982361
HL 2.40 NT - 980340
Motor
992658
Motorhalter
Holder
240SLH01033
Filter
980012

Ölbehälter gültig bis 04-2013 / Oil tank valid until 04-2013
Bestellnummer kpl. 240SLH01013

Ölbehälter gültig ab 04-2013 / Oil tank valid since 04-2013
Bestellnummer kpl. 230HLNT01913

Handgriff
Handle
230HLNT01408



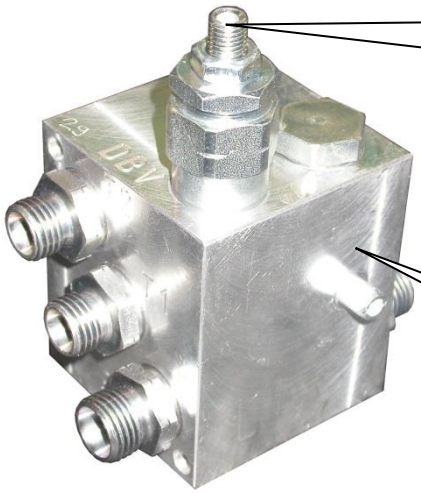
Handgriff
Handle
230HLNT01411

Hebel komplett
Handle complete
230HLNT01560

Hydraulikblock komplett
Hydraulic block complete
230SLNT41150

Deckel
Cover
230SLNT01412

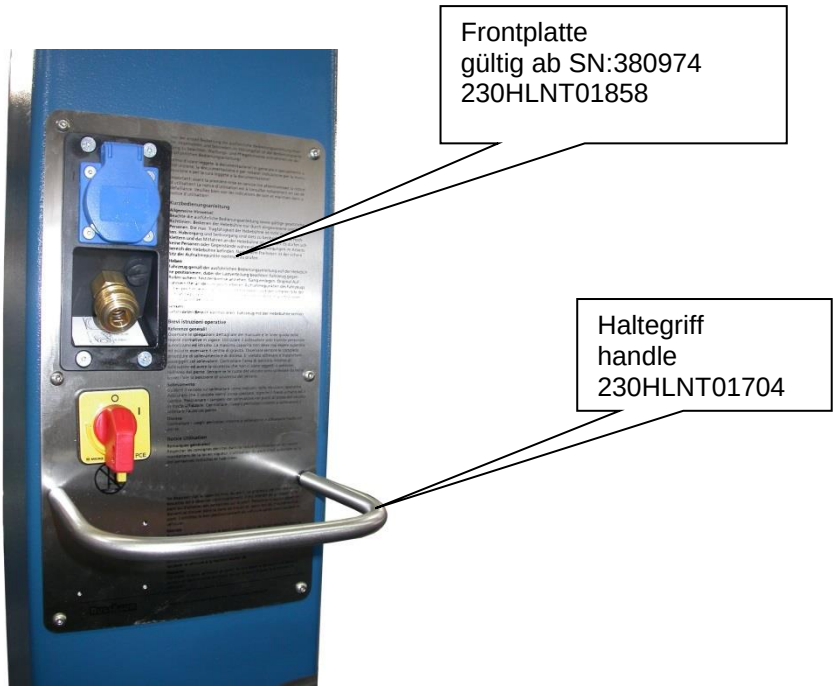
Ölpeilstab
Oil level gauge
980011

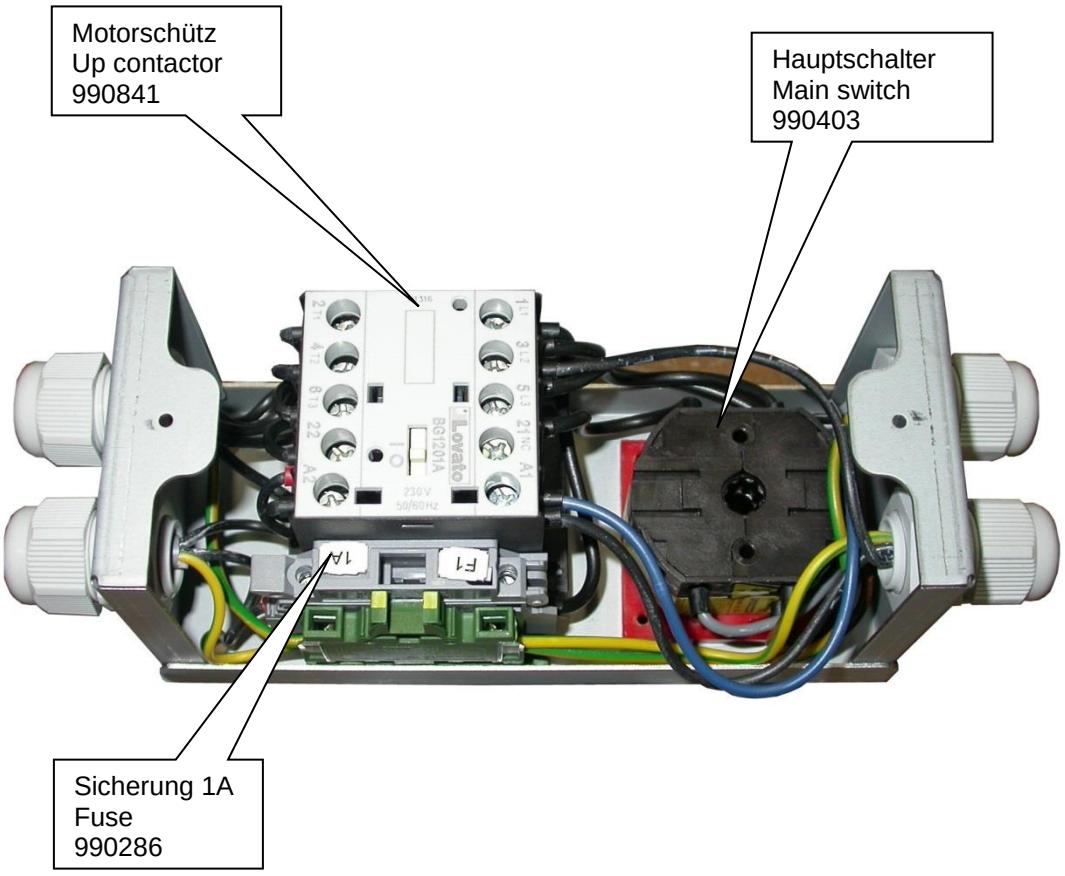


Druckbegrenzungsventil
Pressure relief valve
155211

Hydraulikblock komplett
Hydraulic block complete
230SLNT41150

Gültig ab 04-2013
Valid since 04-2013



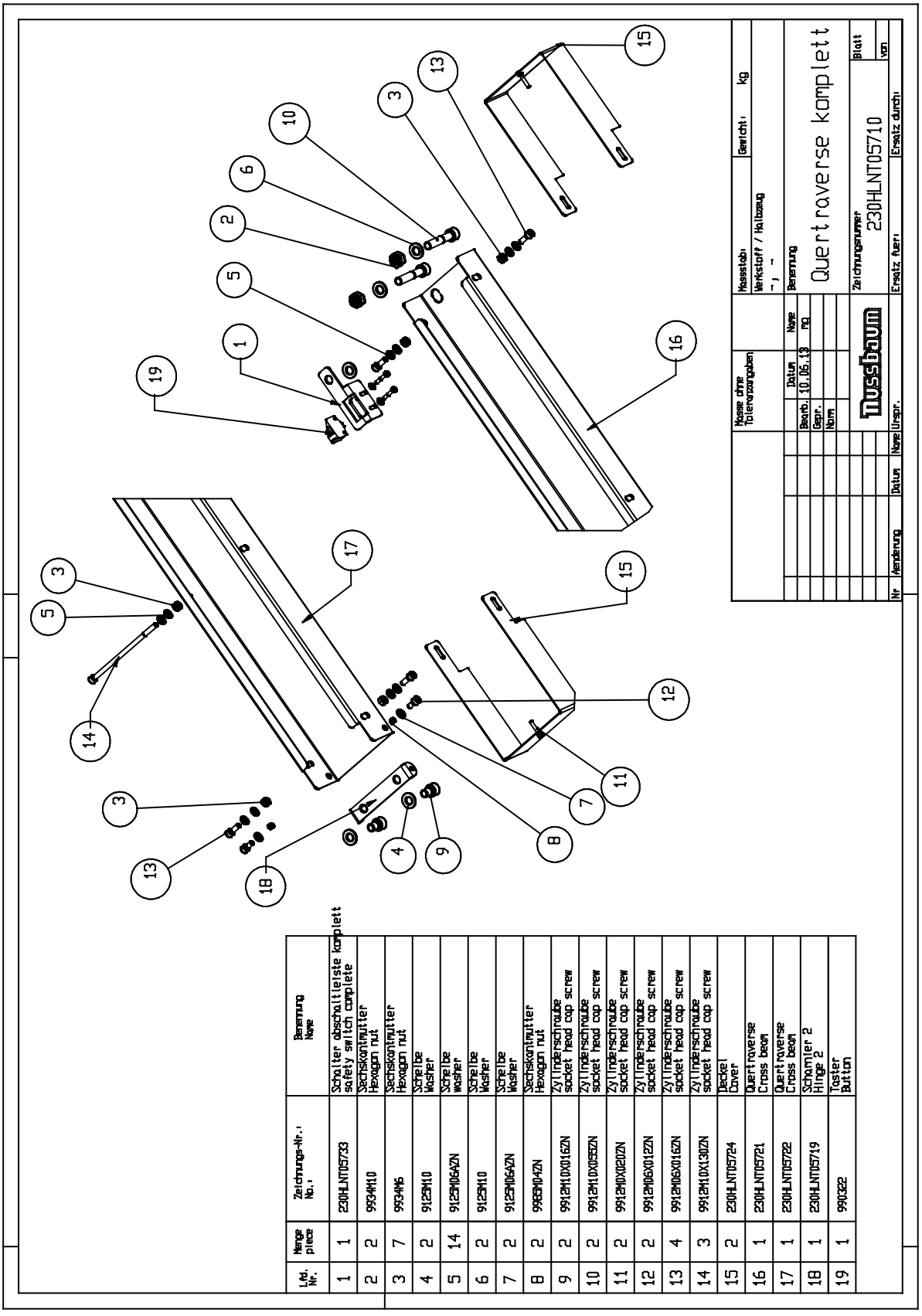


Haube ohne integriertem Energieset
gültig ab SN:380974
230HLNT01416

cover without integrated energy set

Haube mit Verriegelung
230HLNT01407-1

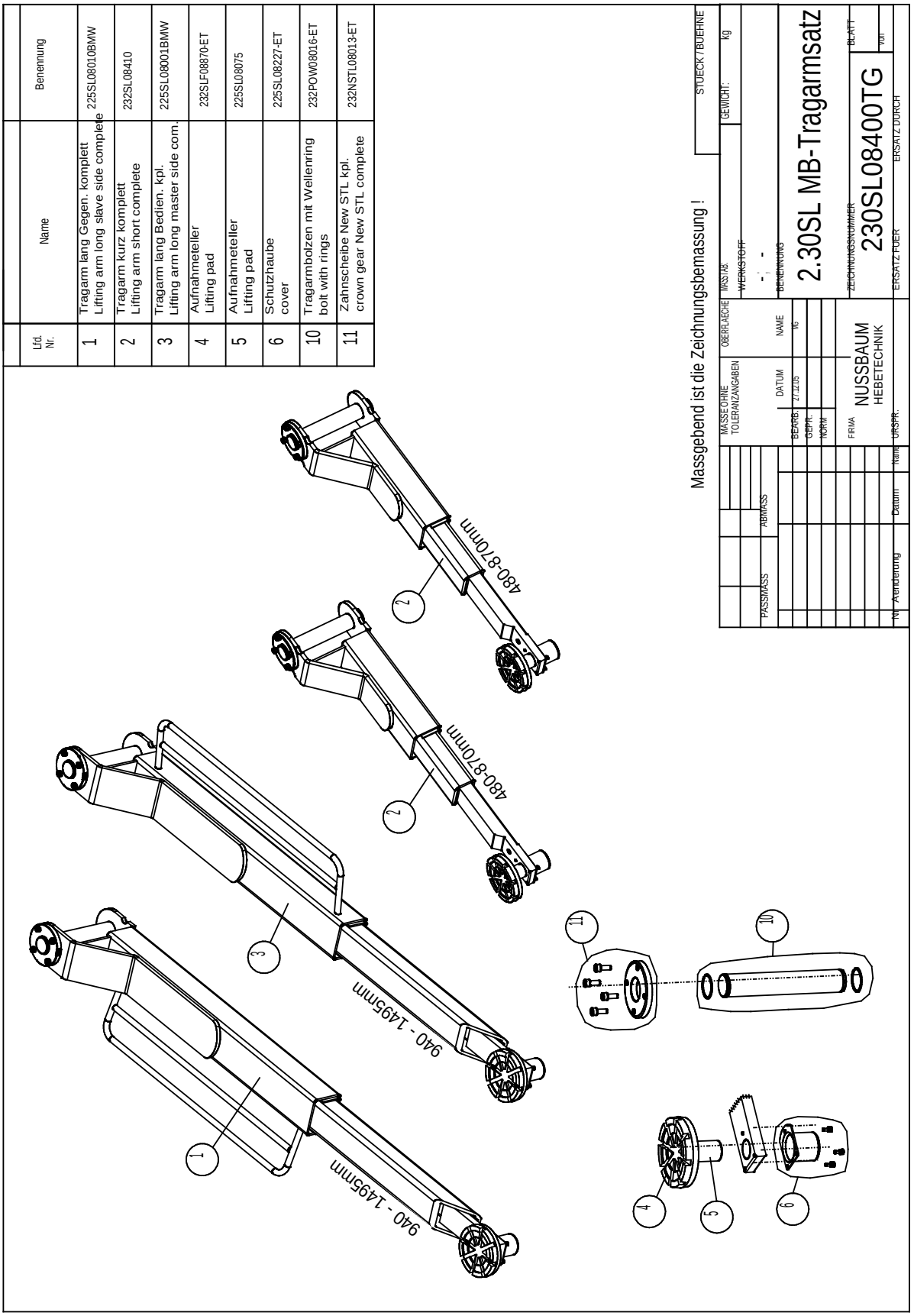
cover with locking equipment



Lfd. Nr.	Menge piece	Zeichnungs-Nr. No.	Benennung Name
1	1	230HLNT05733	Schalter abschaltleiste komplett safety switch complete
2	2	9934M10	Sechskantmutter Hexagon nut
3	7	9934M6	Sechskantmutter Hexagon nut
4	2	9125M10	Scheibe Washer
5	14	9125M06A2N	Scheibe Washer
6	2	9125M10	Scheibe Washer
7	2	9125M06A2N	Scheibe Washer
8	2	9985M042N	Sechskantmutter Hexagon nut
9	2	9912M10X0116ZN	Zylinderschraube socket head cap screw
10	2	9912M10X0135ZN	Zylinderschraube socket head cap screw
11	2	9912M10X0120ZN	Zylinderschraube socket head cap screw
12	2	9912M06X0122ZN	Zylinderschraube socket head cap screw
13	4	9912M06X0116ZN	Zylinderschraube socket head cap screw
14	3	9912M10X1302ZN	Zylinderschraube socket head cap screw
15	2	230HLNT05724	Deckel Cover
16	1	230HLNT05721	Querraverse Cross beam
17	1	230HLNT05722	Querraverse Cross beam
18	1	230HLNT05719	Scharnier 2 Hinge 2
19	1	990322	Taster Button

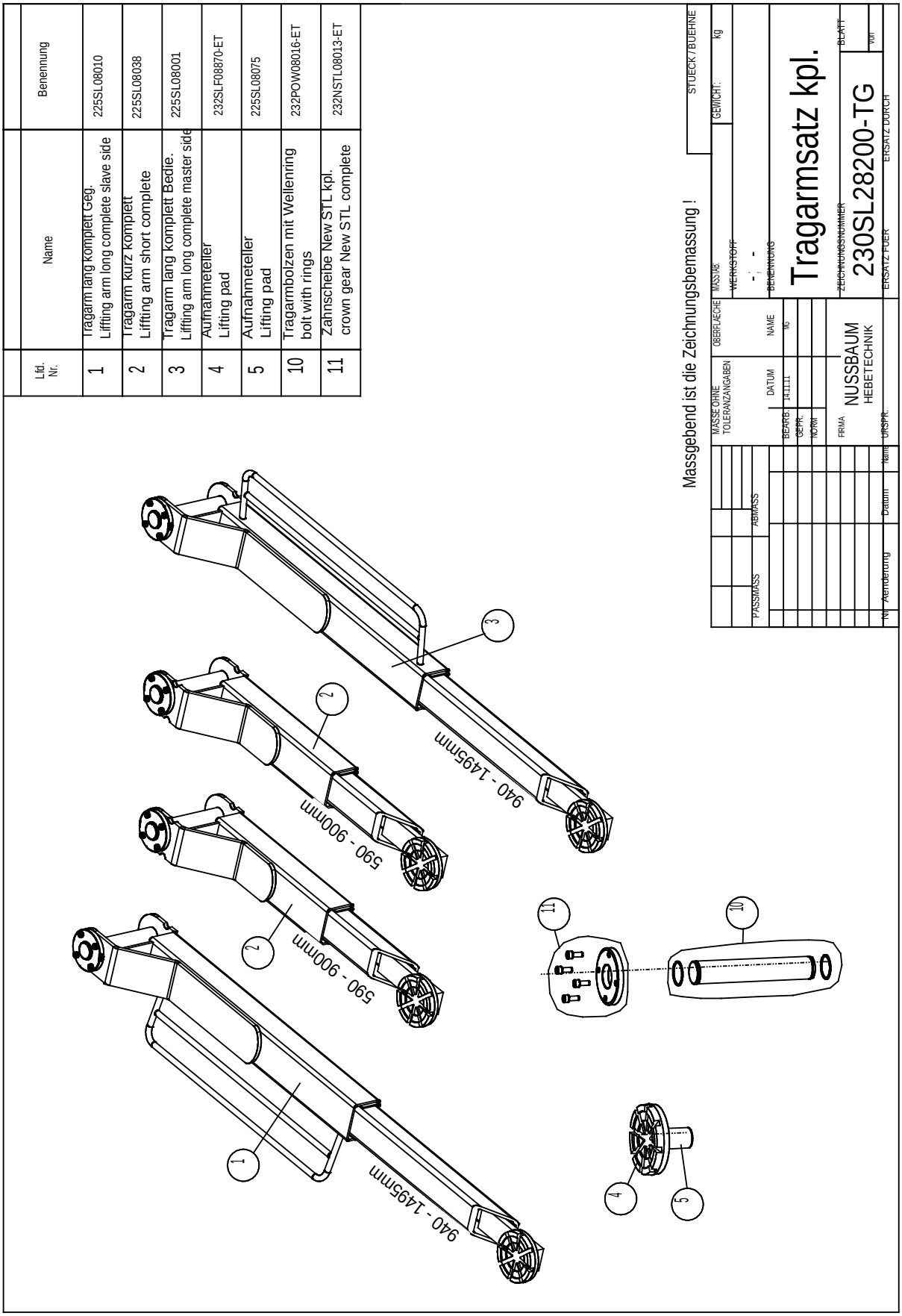
HL 2.30 NT Standard Tragarmsatz / standard arms

Lfd. Nr.	Name	Benennung
1	Tragarm lang Gegen. komplett Lifting arm long slave side complete	225SL08010BMW
2	Tragarm kurz komplett Lifting arm short complete	232SL08410
3	Tragarm lang Bedien. kpl. Lifting arm long master side com.	225SL08001BMW
4	Aufnahmeteller Lifting pad	232SLF08870-ET
5	Aufnahmeteller Lifting pad	225SL08075
6	Schutzhaube cover	225SL08227-ET
10	Tragarmbolzen mit Wellenring bolt with rings	232POW08016-ET
11	Zahnscheibe New STL kpl. crown gear New STL complete	232NSTL08013-ET



HL 2.30 NT 2-fach Tragarmsatz (MB/BMW-Version)

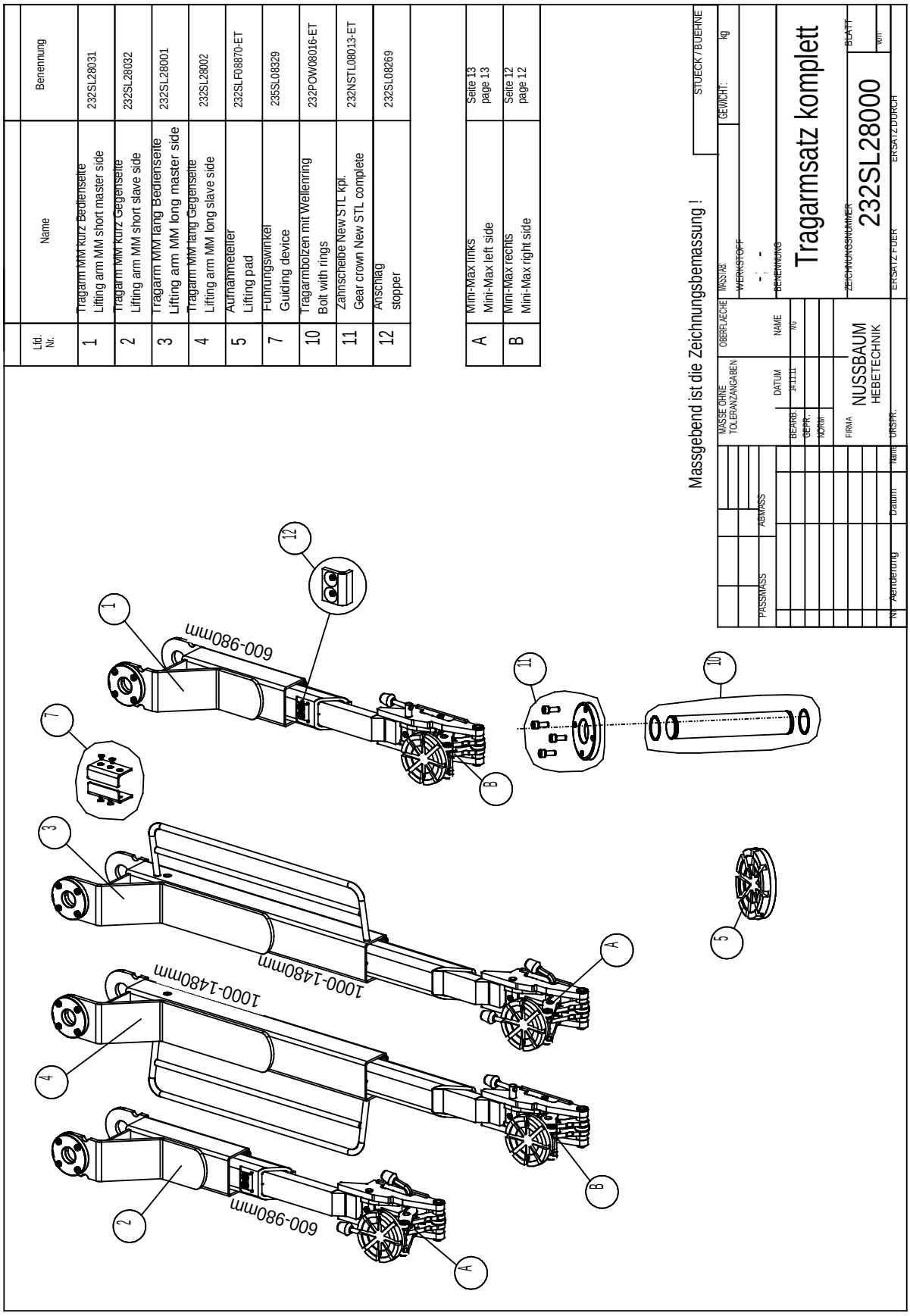
Lfd. Nr.	Name	Benennung
1	Tragarm lang komplett Geg. Lifting arm long complete slave side	225SL08010
2	Tragarm kurz komplett Lifting arm short complete	225SL08038
3	Tragarm lang komplett Bedie. Lifting arm long complete master side	225SL08001
4	Aufnahmeteller Lifting pad	232SLF08870-ET
5	Aufnahmeteller Lifting pad	225SL08075
10	Tragarmbolzen mit Wellenring bolt with rings	232POW08016-ET
11	Zahnscheibe New STL kpl. crown gear New STL complete	232NSTL08013-ET



HL 2.30 NT Mini-Max

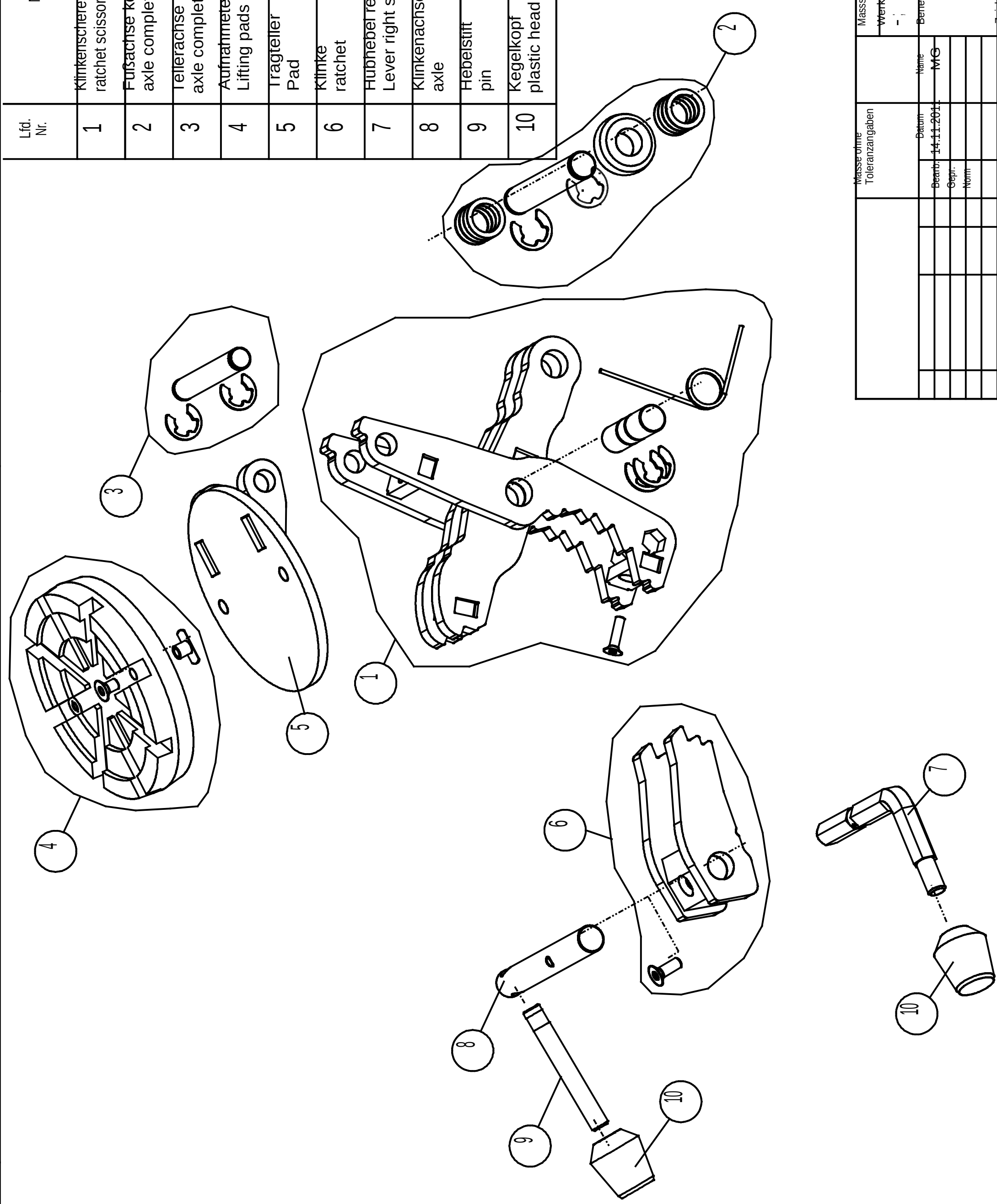
Lfd. Nr.	Name	Benennung
1	Tragarm MM kurz Bedienseite Lifting arm MM short master side	232SL28031
2	Tragarm MM kurz Gegenseite Lifting arm MM short slave side	232SL28032
3	Tragarm MM lang Bedienseite Lifting arm MM long master side	232SL28001
4	Tragarm MM lang Gegenseite Lifting arm MM long slave side	232SL28002
5	Aufnahmeteller Lifting pad	232SLF08870-ET
7	Führungswinkel Guiding device	235SL08329
10	Tragarmbolzen mit Wellenring Bolt with rings	232POW08016-ET
11	Zahnscheibe New STL kpl. Gear crown New STL complete	232NSTL08013-ET
12	Anschlag stopper	232SL08269

A	Mini-Max links Mini-Max left side	Seite 13 page 13
B	Mini-Max rechts Mini-Max right side	Seite 12 page 12

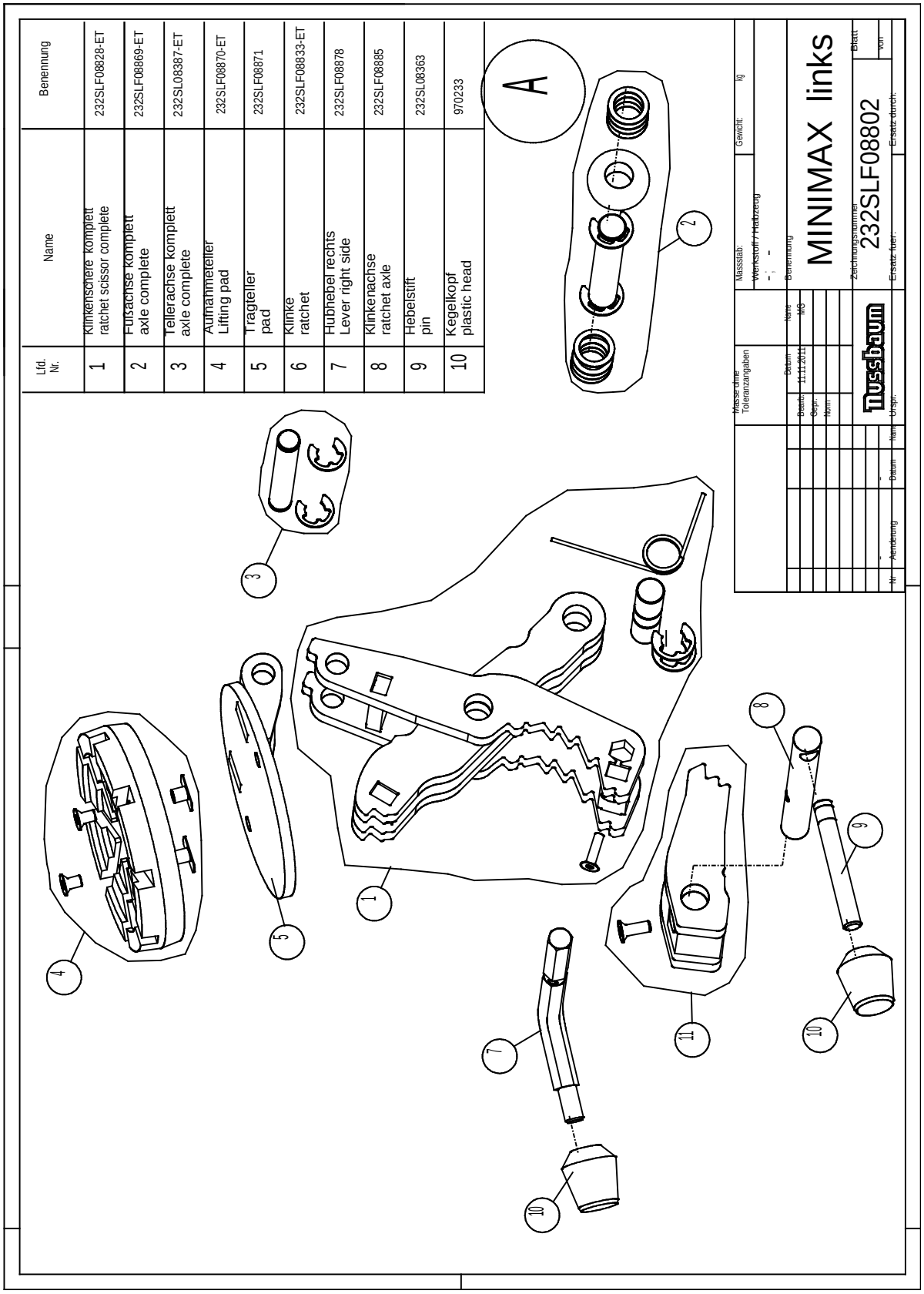


Lfd. Nr.	Name	Benennung
1	Klinkenschere komplett ratchet scissor complete	232SLF08828-ET
2	Fußachse komplett axle complete	232SLF08869-ET
3	Tellerachse komplett axle complete	232SL08387-ET
4	Aufnahmeteller Lifting pads	232SLF08870-ET
5	Tragteller Pad	232SLF08871
6	Klinke ratchet	232SLF08833-ET
7	Hubhebel rechts Lever right side	232SLF08878
8	Klinkenachse axle	232SLF08885
9	Hebelstift pin	232SL08363
10	Kegelkopf plastic head	970233

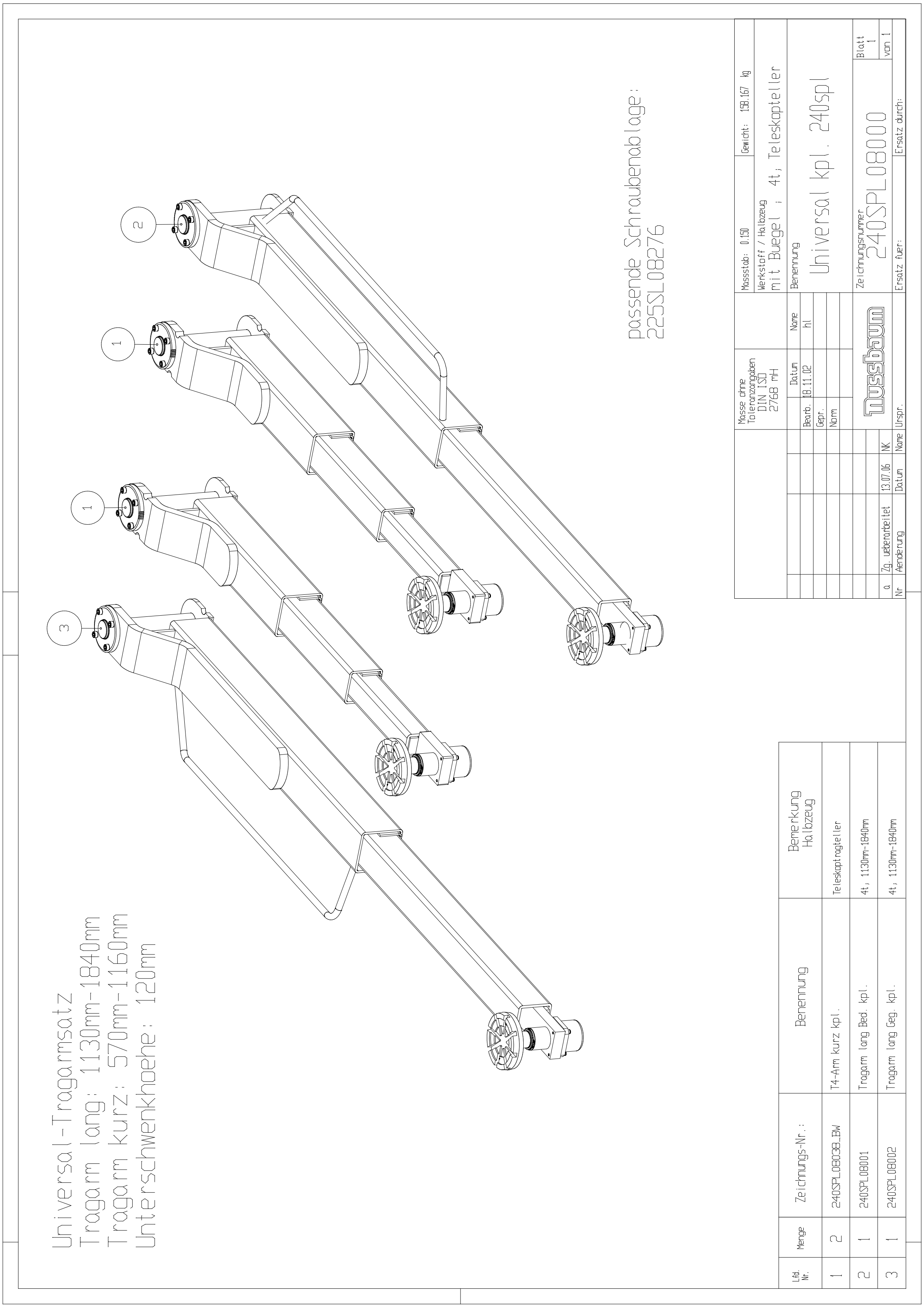
B



Masse ohne Toleranzangaben | Massstab: 0,500 | Gewicht: 3,630 kg
Werkstoff / Halbzeug: - ; -
Benennung: MINIMAX rechts
Bearb. 14.11.2011 MG
Gepr.
Norm
Zeichnungsnummer: 232SLF08801
Blatt | von
Ersatz fuer: | Ersatz durch:
Nr. | Aenderung | Datum | Name | Urspr.

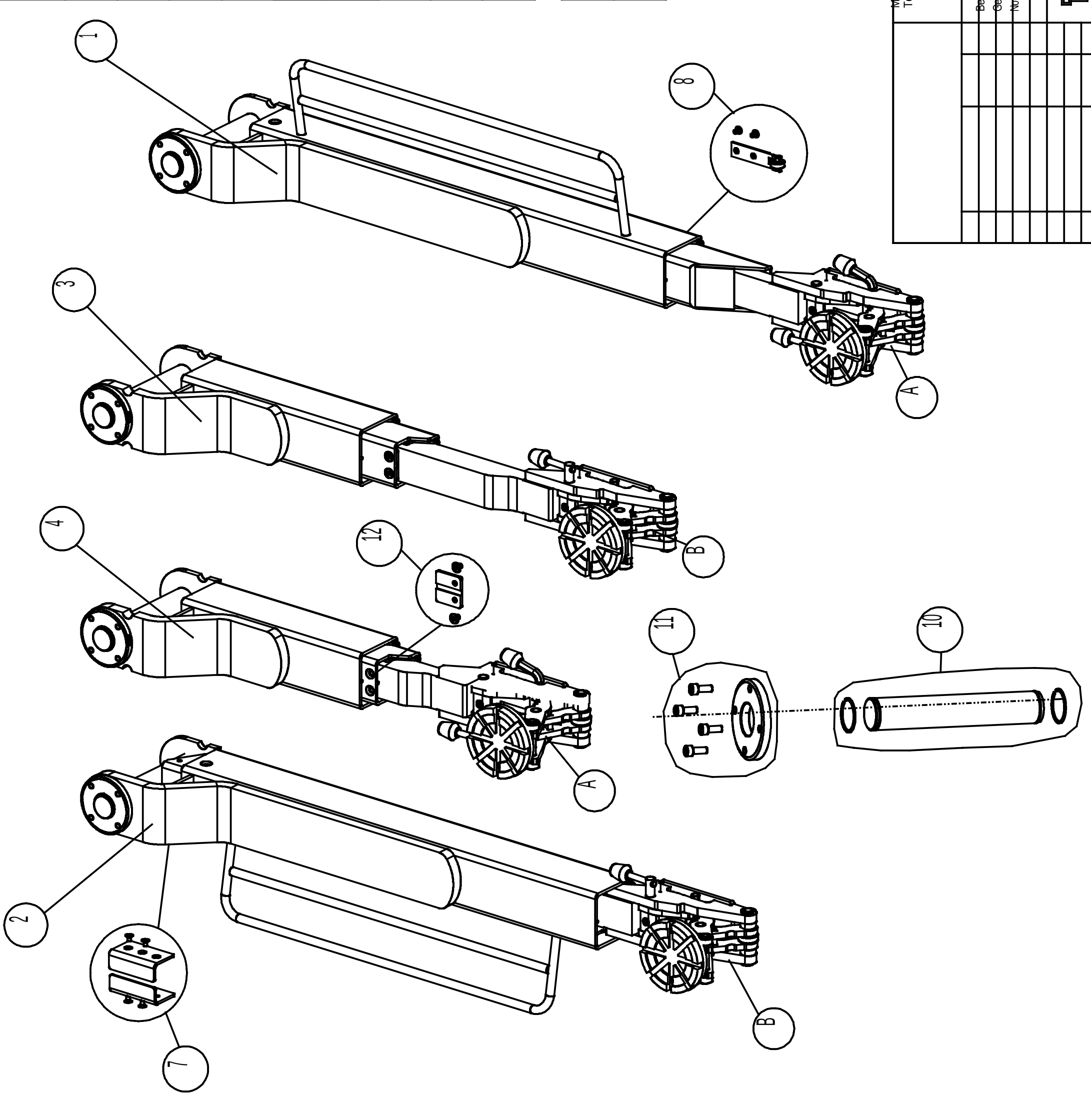

Lfd. Nr.
Name
Benennung
1 Klinkenschere komplett ratchet scissor complete 232SLF08828-ET
2 Fußachse komplett axle complete 232SLF08869-ET
3 Tellerachse komplett axle complete 232SL08387-ET
4 Aufnahmeteller Lifting pad 232SLF08870-ET
5 Trägteller pad 232SLF08871
6 Klinke ratchet 232SLF08833-ET
7 Hubhebel rechts Lever right side 232SLF08878
8 Klinkenachse ratchet axle 232SLF08885
9 Hebelstift pin 232SL08363
10 Kegelkopf plastic head 970233
A
MINIMAX links
232SLF08802
Nussbaum
Maßstab:
Gewicht:
Werkstoff / Halbzeug
Bezeichnung
Zeichnungsnummer
Blatt
Ersatz für:
Ersetzt durch:
Maße ohne Toleranzangaben
Datum
Name
Bearb.
Gepr.
Norm
Urspr.
Änderung

HL 2.40 NT Standard Tragarme



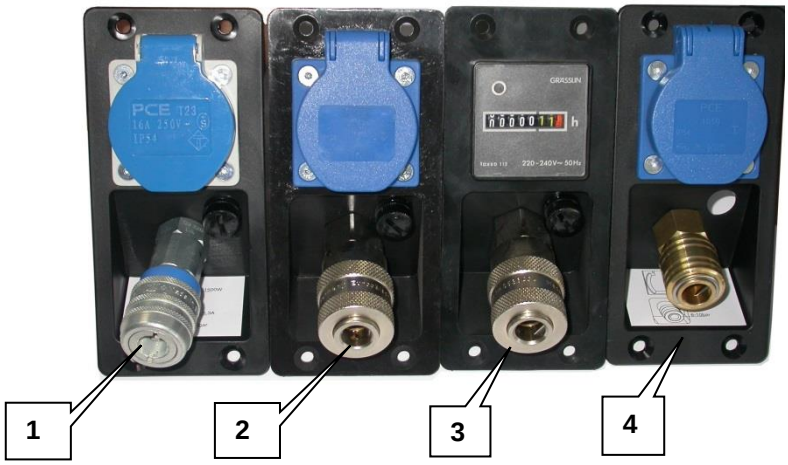
HL 2.40 NT Mini-Max Tragarme

Lfd. Nr.	Name	Benennung
1	Tragarm MM kurz Bedienseite Lifting arm MM short master side	240SPL08432
2	Tragarm MM kurz Gegenseite Lifting arm MM short slave side	240SPL08431
3	Tragarm MM lang Bedienseite Lifting arm MM long master side	240SPL08402
4	Tragarm MM lang Gegenseite Lifting arm MM long slave side	240SPL08401
7	Führungswinkel guiding	240SPL08339
8	Lagerrolle 1 komplett pulley 1 complete	240SL08061
10	Tragarmbolzen mit Wellenring Bolt with rings	232POW08016-ET
11	Zahnscheibe New STL komplett gear crown New STL complete	232NSTL08013-ET
12	Anschlag oben stopper above	240SPL08468
A	Mini-Max links Mini-Max left side	Seite 13 page 13
B	Mini-Max rechts Mini-Max right side	Seite 12 page 12



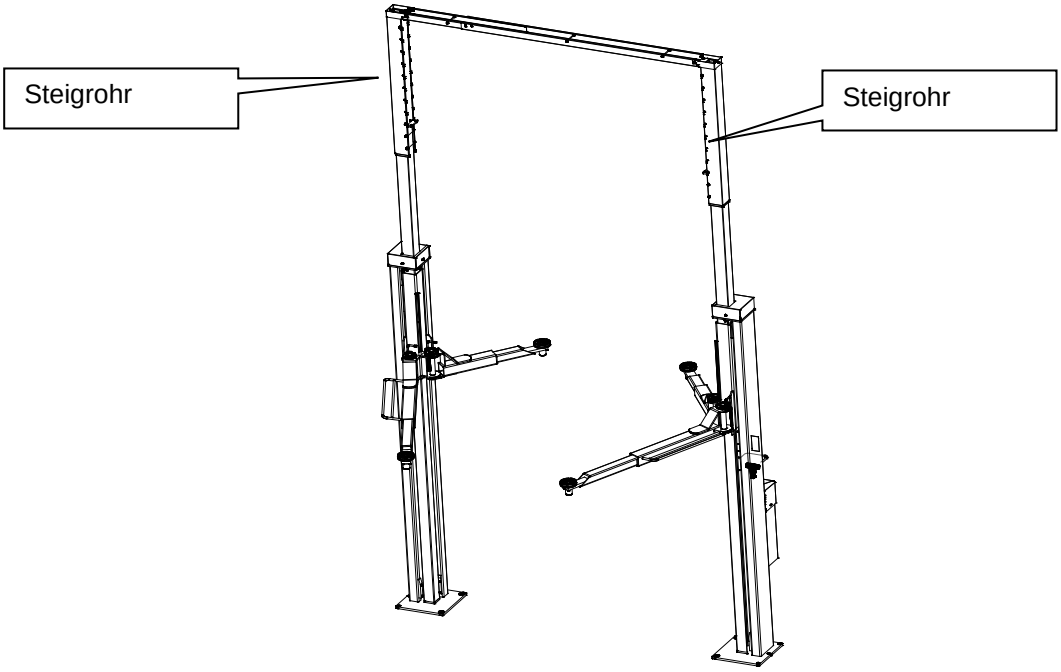
Masse ohne Toleranzangaben | Massstab: | Gewicht: kg
Werkstoff / Halbzeug: rollengelagert ; 4 to.
Benennung: Tragarme MM kpl. 240spl
Bearb.: 14.11.11 M.G.
Gepr.
Norm
Zeichnungsnummer: 240SPL08400
Blatt | von
Nr | Aenderung | Datum | Name | Urspr. | Ersatz fuer: | Ersatz durch:

Energieset komplett / Energy set complete



1	Energieset / Energy set Schweiz/ Switzerland	225SL05091CH (Bedienseite) 225SL05092CH (Gegenseite)
2	Energieset / Energy set	225SL05092MB
3	Energieset / Energy set mit Betriebsstundenzähler / with elapsed time indicator	225SL05091MB
4	Energieset / Energy set (Standard)	225SL05091 (Bedienseite) 225SL05092 (Gegenseite)

Verlängerung / Extension



Verlängerung komplett
Satz = 2 Steigrohre + Hydraulikschlauchpaket

Extension complete
Set = 2 extension pipes+ Hydraulic hose package

Bestellnummer: 230HLNT90200

Notes:

Otto Nußbaum GmbH & Co.KG | Korker Str. 24 | D 77694 Kehl-Bodersweier
www.nussbaum-group.de | e-Mail: info@nussbaum-group.de

Service Hotline Germany: 0800 5 288 911
Service Hotline International: +49 180 15 288 911