

# ORIGINAL OPERATING MANUAL

## 2-POST LIFT

### Nortec PD4000CE

PD4000CE

Study version :

1.1

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This manual is an integral part of the product and must be kept together with the device in an easily accessible place. All interested persons must have free access to read its content. The manufacturer is not responsible for any damage resulting from the ignorance of the instructions contained in this document.

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# PRECAUTION

## WARNING



- This instruction manual is an essential integral part of this product. Please read all instructions.
- Properly keep this manual for use during the maintenance.
- Use only as described in this manual. Use only manufacturer's recommended adapters.
- This equipment is only used for its clearly designed purpose, and never use it for other purposes.
- The manufacturer is not responsible for any damage caused as a result of improper use or use it for other purposes.
- Always wear safety goggles.

## IMPORTANT SAFETY

### INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

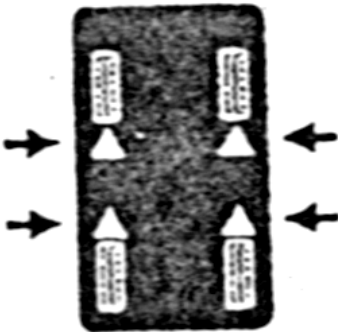
- Only the qualified personnel having undergone special training can operate this machine. Without the permission of the manufacturer or not following the requirement of the manual, any changes in the machine part and in the usage scope may cause direct or indirect damage to the machine.
- Don't keep the lift in the extreme temperature and humidity environment. Avoid installation beside the heating equipment, water tap, air humidifier or stove.
- Prevent the lift from contacting large amount of dust, ammonia, alcohol, thinner or spray adhesive, and prevent it from rain shower.
- Always disconnect equipment from electrical supply when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.
- To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
- To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
- During the machine operation, non-operators should be kept away from the machine.
- Do not operate equipment with a damaged cord or the equipment has damaged or lost parts, until examined by a qualified serviceman.
- The lift can't be overloaded. The rated load of the lift is already marked on the nameplate.
- Please don't raise the lift when there are people in the vehicle. During the operation, the customer and spectators shouldn't stand in the lifting area.
- Keep the lifting area free from obstacle, grease, machine oil, garbage and other impurities.
- Position the swing arm of the lift, making it contact the lifting point as recommended by the manufacturer. Raise the carriage and confirm the lifting pad and vehicle are closely contacted. Raise the carriage to the appropriate working height.
- For some vehicles, the parts dismantling (or installation) will cause severe deviation of the center of gravity, leading to unstable vehicle. The support is needed to keep the balance of the vehicle.
- Before moving the vehicle away from the lifting area, please position the swing arm and lifting pad back away to avoid blockage during the movement.
- Use appropriate equipment and tools as well as safety protection facilities, e.g. working uniform, safety boot, etc.
- Pay special attention to various safety marks attached to the machine body.
- Keep hair, loose clothing, fingers, and all parts of body away from moving parts
- Pay special attention not to dismantling the safety unit of the machine or making it not functioning.
- The hydraulic oil used for this lift is N32 or N46. Please refer the safety data of grease and oil shown in the manual.
- Adequate ventilation should be provided when working on internal combustion engines.

# Caution labeling exemplify

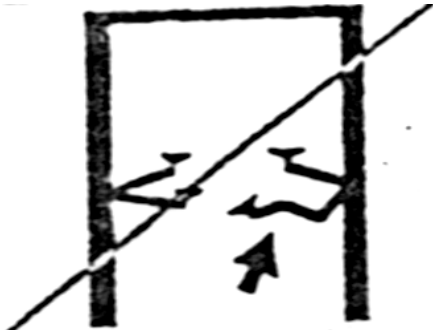
(1) Read operating and safety manual before using lift .



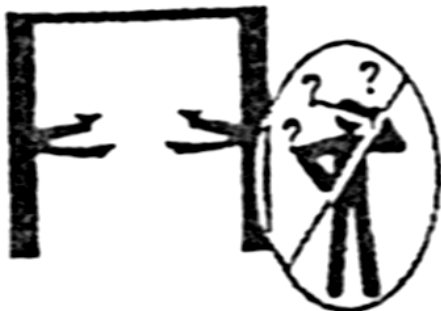
(2) Use vehicle manufacturer's lift points.



(3) Do not operating a damaged lift !



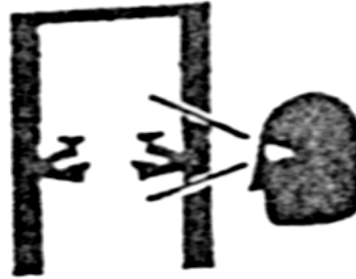
(4) Lift to be used by trained operator only!



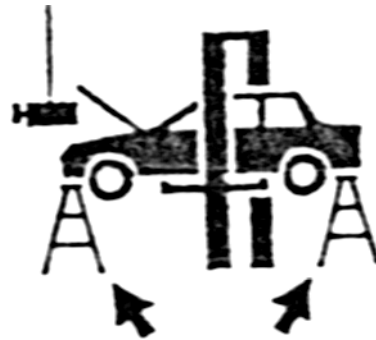
(5) Authorized personnel only in lift area.



(6) Proper maintenance and inspection is necessary for safe operation.



(7) Always use safety stands when removing or installing heavy components.



(8) Auxiliary adapters may reduce load capacity.



(9) Clear area if vehicle is in danger of falling .



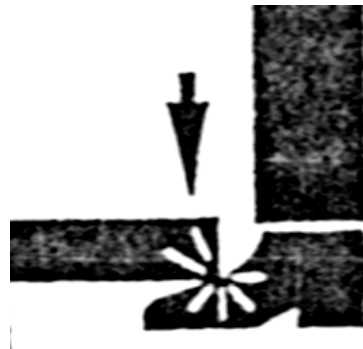
(13) Do not override self-closing lift controls.



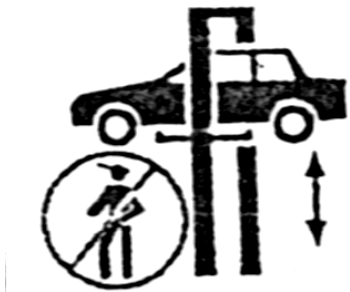
(10) Position Vehicle with center of gravity midway between adapters. .



(14) Keep feet clear of lift while lowering !



(11) Remain clear of lift when raising or lowering vehicle .



(15) Do not stand on lift arm while rising or lowering .



(12) Avoid excessive rocking of vehicle while on lift .



(16) When operating the lift, please have earmuff on.



# 1 Outline

## 1.1 Model Description

Model	Description
PD4000CE	4.0T Clear floor 2-post lift

## 1.2 Purpose

This machine is applicable for the lifting of various small and medium-sized vehicles with total weight below 4.0t in garage and workshop.

## 1.3 Functions and Features

- Designed based on the international standard, meeting the demand of the garage and workshop.
  - Dual hydraulic cylinders drive, stable lifting and lowering.
- Basic parameters of the equipment:

- Electromagnetic full-scope safety lock.
- Lowering electrically, safe and simple in operation.
- Adopt two steel cables for equalization, force two carriages to move synchronously, and effectively prevent the vehicle from tilting.
- Lowest height of lifting pad is 104mm, good for repairing low chassis or low profile car.

## 1.4 Technical Specifications

Model	Rated load T (Lb)	Lifting height mm (in)	Rising time Sec	Descending time Sec	Motor power kw	Passage width mm (in)	Machine width mm (in)	Machine height mm (in)
PD4000CE (symmetric installation)	4.0T (8000Lbs)	1900 (75.3)	<55	>45	2.2	2803 (112.6)	3426 (135.1)	4560 (179.5)

### Noise:

Working noise: ≤80dB(A)

### Power unit:

Working pressure: 16Mpa

Electrical parameters of the machine:

### Motor:

Three phase: 380V/50Hz 2.2kw

Single phase: 220V/50Hz 2.2kw

## 1.5 Environmental Requirement

Working temperature: -5°C ~+40°C

Transport/storage temperature: -5°C ~+40°C

Relative humidity: Temperature +30°C, relative humidity 80%

Height above sea level: No more than 1800mm

## 2 Lift the structure and installation method

### 2.1 Lift structures

The structure of PD4000CE is as shown in Fig. 1 and Fig 2:

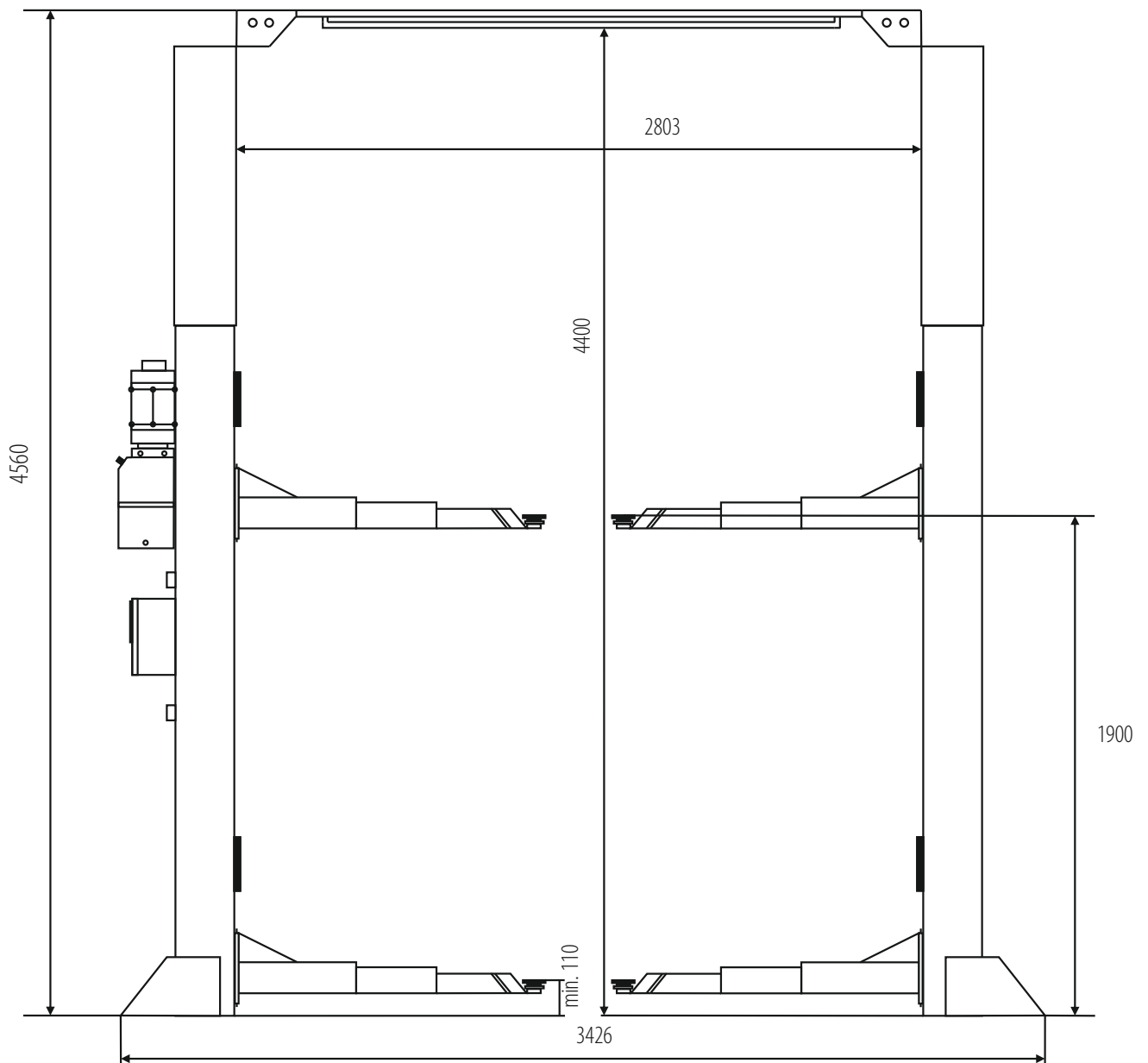


Fig. 1

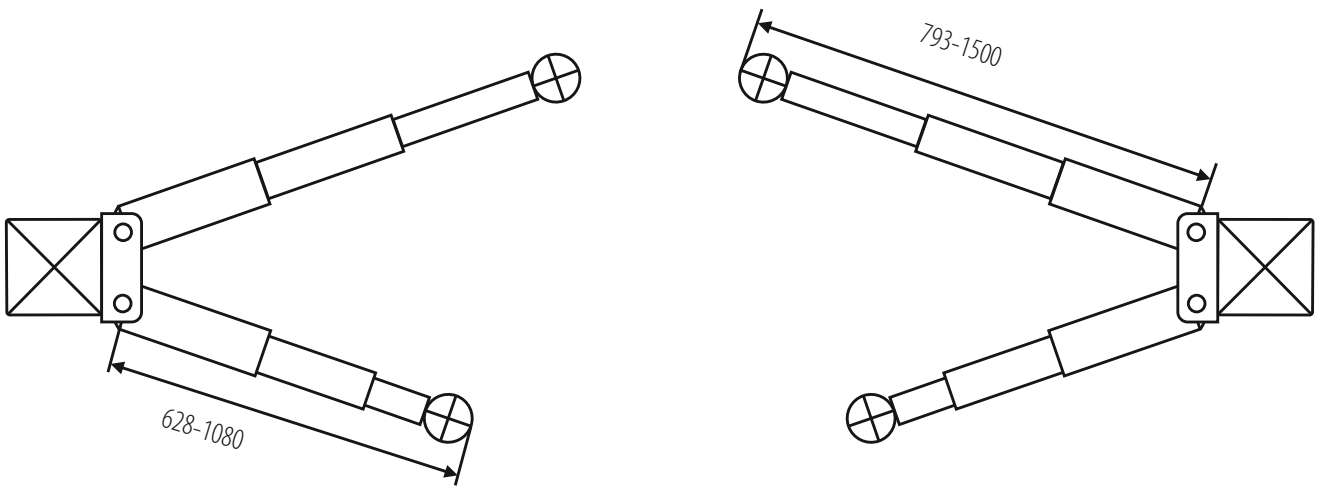


Fig. 2

## 2.2 Base plate layout

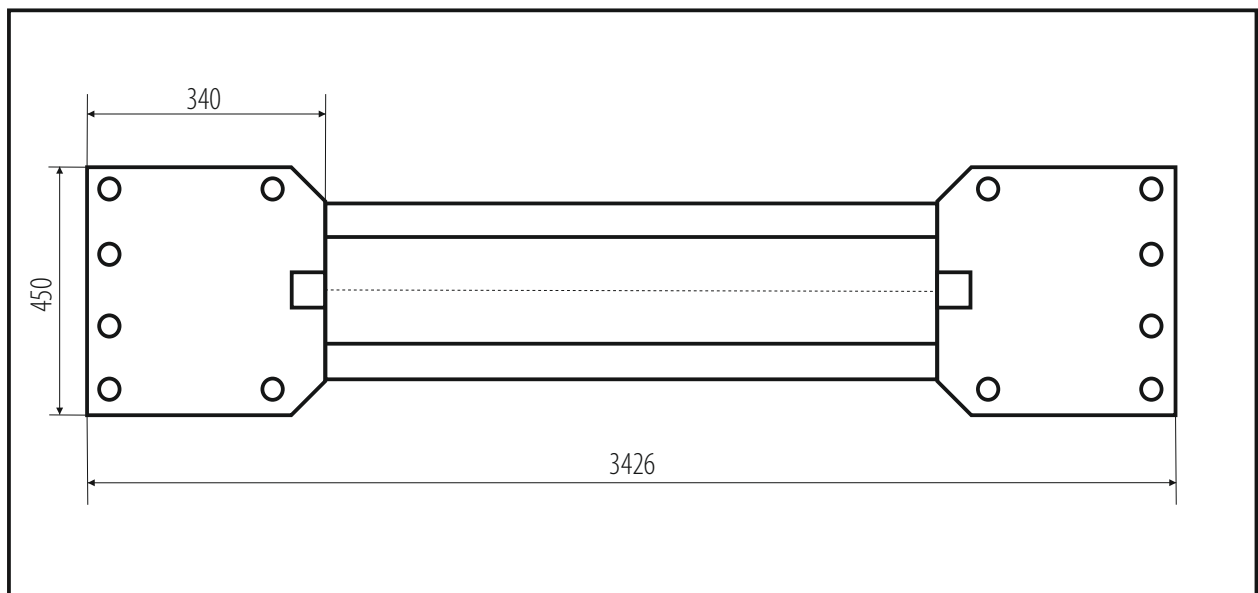
(As shown in Fig.3)

With total width as the basis, draw two parallel lines(#1 and #2) on the concrete slab, with the error within 3mm.

Determine the column location on any chalk line, and mark

the total width of base plate. Mark the point 3 and 4.

Starting from point 3, draw one diagonal line to the point 5 forming a triangle. In this way, the #1 and #2 lines can determine the location of the two columns.



FLOOR DIMENSIONS: 4000x1500mm

Fig. 3

**Note: Must sure foundation concrete above 3000PSI(2.1kg/m m<sup>2</sup>) before assembly.**

## 2.3 Install the column

1. First connect and assemble the column, and then raise the column upper right to the location. Align the base plate of column with the chalk line layout. Guided by the hole on the base plate of the column, drilling the holes into the concrete slab and use five concrete anchor bolts to fix it into the ground. During the drilling holes, ensure no movement from the chalk line.(As shown in Fig.4)
2. To get the correct and safety installation, please follow the following installation steps.
3. Wear the safety goggles.
4. Use hard alloy drill.
5. Don't use the drill with wearing exceeding the tolerance.
6. The column and concrete surface should be kept perpendicular.
7. Let the column work itself. Don't apply the extra force, and don't ream the hole or allow the column to wobble.
8. The drilling depth of the hole is based on the length of bolt. The distance from the bolt head to the concrete floor should be more than twice of the bolt diameter.
9. Remove the dust from the hole.
10. Gently tap the bolt into the hole till the washer rests against the baseplate of column.
11. Tighten the bolt.

## 3 Operation Description

### 3.1 Precautions for Operation

- Different vehicles have different center of gravity positions. First understand the position of center of gravity, and when the vehicle enters into the lift, make its center of gravity close to the plane formed by two columns. Adjust the swing arm, and make the lifting pad support onto the lifting point of the vehicle.
- Carefully read the warning symbol.
- The hydraulic valves have been adjusted before ex-factory, and the user can't make self-adjustment, otherwise it will be responsible for all the consequences generated.
- Based on the production needs, some specifications in the instruction manual are subjected to change without notice.

### 3.2 Preparation before Operation

- Lubricate contact surface of the carriage and corners of the column with general-purpose lithium grease. All sliding surface should be coated evenly from the top to bottom.
- Fill hydraulic oil N32 or N46 to the oil reservoir of the power unit.

### 3.3 Inspection before operation

- Check to see if the motor power is installed properly.
- Check to see if all the connection bolts are fastened.
- Press the UP button to start the motor, and the lift rises. Release the UP button, and lift will stop. When lower the lift, press the DOWN button to lower ,the lift go up a little ,then the lift will lower . Release the DOWN button, the carriage will stop .When the lift work, first must be to press the LOCK button to lock.

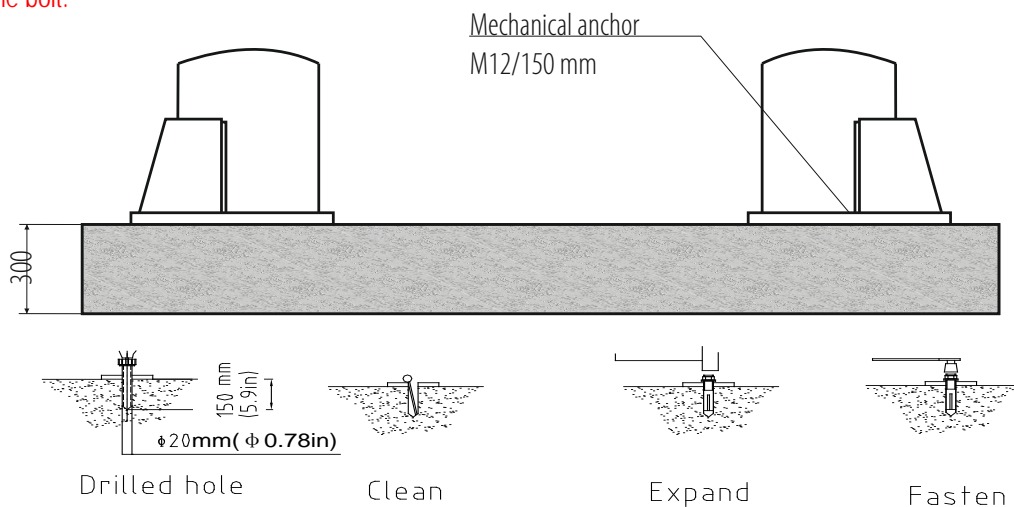


Fig.4

**⚠** Before prior to servicing the professional do not use the lift when the wire damage is found, there is a lack of spare parts or spare parts is damaged

### 3.4 Lifting the Vehicle

- Keep work area clean, don't operate the lift in cluttered work area.
- Lower the carriage to the lowest position.
- Reduce the swing arm to the minimum length.
- Swing the arm along the route of the vehicle
- Move the vehicle to the location between the two columns
- Swing the arm and put the lifting pad below the recommended lifting point, and adjust the height of lifting pad to touch lifting point of vehicle
- Press the UP button on the electric control box, slowly lift the vehicle to ensure the load balance, and then raise the lift to the required height.
- Release the UP button and the carriage will stop.
- Press the DOWN button to engage the safety lock of carriage. At this time, the vehicle can be repaired.

**⚠** Note:

- ◇ When lifting the vehicle, all the swing arms must be used.
- ◇ Before lifting the vehicle, check all the hydraulic hose and fittings for oil leakage. In case of leakage, please don't use the lift. Remove the fitting with leakage and re-seal. Re-install the fitting and check if oil leakage still exists.
- ◇ After the vehicle is lifted, when adding or removing any major heavy object, use jack stand to maintain the balance of the vehicle.

### 3.5 Lowering the Vehicle

- Clean the work area before lowering the vehicle.
- First press the UP button to raise the vehicle a little, then press and hold the DOWN button to disengage the safety lock meanwhile lower the vehicle.
- Lower the vehicle till the swing arm down to the bottom and the lifting pads leave the vehicle chassis, and then release the two buttons.
- The swing arms under the vehicle must be fully shrunk

**⚠** Note: When the lift doesn't work, you must switch off the power.

## 4 Hydraulic and Electrical System of the Equipment

### 4.1 Hydraulic System of the Lift

Diagram of the hydraulic system of clear floor 2-post lift

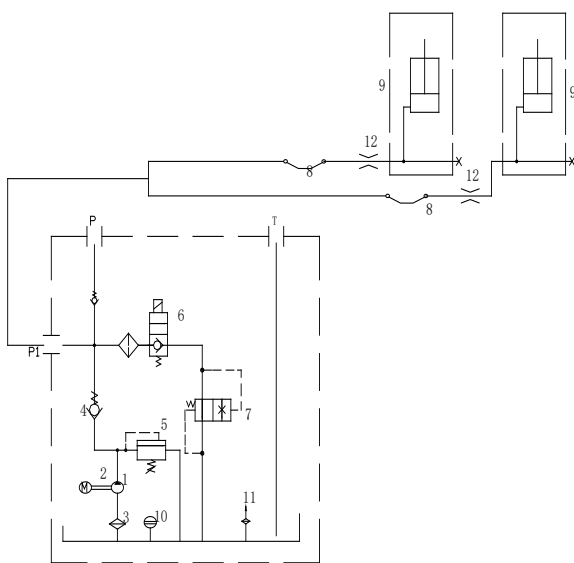


Fig. 5

- 1- Gear pump, 2- Motor, 3- Oil filter, 4- Check-valve, 5- Safety valve, 6- Solenoid valve, 7- Servo flow-control valve, 8- Hose, 9- Hydraulic cylinder, 10- Level gauge, 11- Air filter, 12-throttle valve

The working principle of the hydraulic system is as follows:

When the UP button is pressed, the motor is started, driving the oil pump, sucking the hydraulic oil from the oil tank into the oil cylinder 9, forcing the piston rod move. At this time, the safety valve 5 is closed, and Max working the pressure is already adjusted before ex-factory. The safety valve can ensure the capacity of the rated load, but when the pressure in the system exceeds the limit, automatically overflow will be happened inside safety valve to protect the hydraulic system. Release the UP button to stop the oil supply and the lifting will stop. For lowering, press and hold the DOWN button, the electromagnetic safety lock mechanism will be released, meanwhile, the solenoid valve 6 is actuated, the hydraulic oil flows back from the hydraulic cylinder into the oil tank through the solenoid valve 6 and flow-control valve 7, and the lift starts the lowering

## 4.2 Electrical System of the Lift

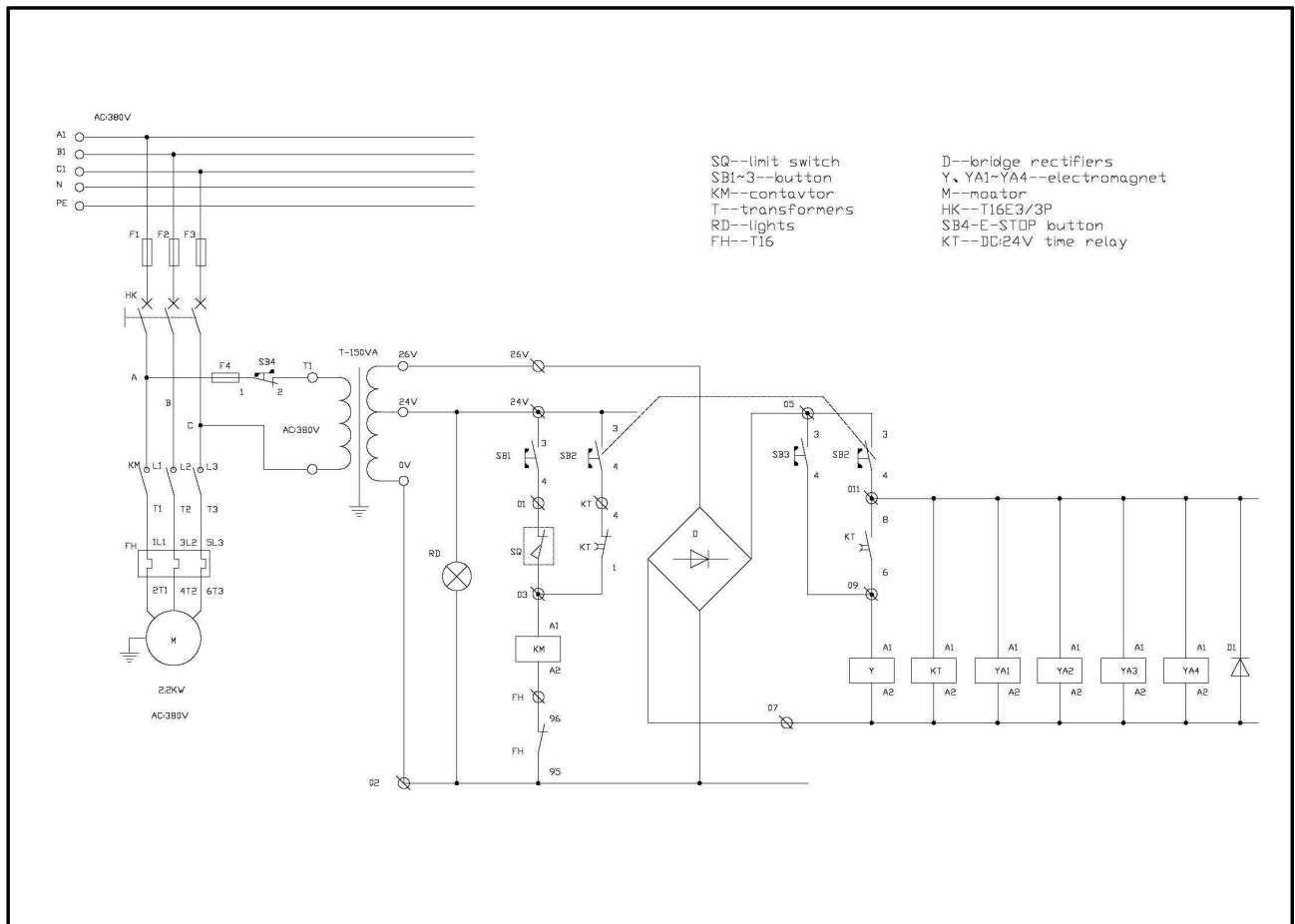


Fig. 6



**NOTES:** This equipment needs NFB (non-fuse breaker) upon installation. This equipment does not include this part, bought and installed by users.

The NFB is 16A.

Electrical operation description:

UP button      DOWN button      LOCK button

- Switch on the cable is properly connected.
- During the lifting, after pressing the UP button, the oil pump works, and the lift rises. Release the UP button, press the LOCK button, and the lift is locked. When you need to lift down, press the DOWN button, lift will go up a little time, then decrease.
- If any button is found to have no response, check the circuit breaker to see if opened.

## 5 Solutions to FAQ

Symptom	Reason	Solution
Motor not operation	<ul style="list-style-type: none"> <li>◆ Check the circuit breaker or fuse</li> <li>◆ Check the voltage to the motor</li> <li>◆ Check all the wire connection</li> <li>◆ Limit switch is failed</li> <li>◆ Motor wire is burnt</li> </ul>	<ul style="list-style-type: none"> <li>◆ Replace the burnt fuse or reset the circuit breaker</li> <li>◆ Supply correct voltage for motor</li> <li>◆ Repair all the wires</li> <li>◆ Replace the limit switch</li> <li>◆ Replace the motor</li> </ul>
Motor is running, but the lift can't be raised.	<ul style="list-style-type: none"> <li>◆ Motor rotation reversed</li> <li>◆ Solenoid valve body open.</li> <li>◆ Hydraulic pump sucks the air</li> <li>◆ Suction tube is separate from the hydraulic pump</li> <li>◆ Low oil level</li> </ul>	<ul style="list-style-type: none"> <li>◆ Change the motor rotating direction by changing wire connection.</li> <li>◆ Repair or replace the solenoid valve body</li> <li>◆ Fasten all the suction pipe fittings</li> <li>◆ Replace the suction tube</li> <li>◆ Add the oil into the oil tank</li> </ul>
Motor is running, the lift can be raised without load, but the vehicle can't be raised	<ul style="list-style-type: none"> <li>◆ Motor is running under low voltage</li> <li>◆ Impurities inside the solenoid valve body</li> <li>◆ Regulation pressure of safety valve is incorrect</li> <li>◆ Lift is overloaded</li> </ul>	<ul style="list-style-type: none"> <li>◆ Supply correct voltage to the motor</li> <li>◆ Remove impurities from the solenoid valve body.</li> <li>◆ Adjust the safety valve</li> <li>◆ Check the weight of the vehicle</li> </ul>
The lift is lowering slowly without pressing the down button	<ul style="list-style-type: none"> <li>◆ Impurities on the solenoid valve body.</li> <li>◆ External oil leakage</li> </ul>	<ul style="list-style-type: none"> <li>◆ Clean the solenoid valve body</li> <li>◆ Repair the external leakage</li> </ul>
The lifting speed is slow or oil flows out of the oil fill cap	<ul style="list-style-type: none"> <li>◆ Air and oil are mixed</li> <li>◆ Air and oil suction are mixed</li> <li>◆ Oil return pipe is loosened</li> </ul>	<ul style="list-style-type: none"> <li>◆ Replace the hydraulic oil</li> <li>◆ Fasten all the suction pipe fittings</li> <li>◆ Re-install the oil return pipe</li> </ul>
The lift can't rise horizontally	<ul style="list-style-type: none"> <li>◆ Balance cable is not adjusted properly</li> <li>◆ The lift is installed on the slop floor</li> </ul>	<ul style="list-style-type: none"> <li>◆ Adjust the balance cable to the proper tension</li> <li>◆ Shimming the columns to level the lift, If exceeding 12mm, pour new concrete floor and make it leveled. Refer to installation description.</li> </ul>
Anchor bolt is not fastened	<ul style="list-style-type: none"> <li>◆ Hole is drilled too big</li> <li>◆ Concrete floor thickness or fastening force is insufficient</li> </ul>	<ul style="list-style-type: none"> <li>◆ Pour the fast curing concrete into the big hole and reinstall the anchor bolt, or use new drill to drill the hole for re-positioning the lift</li> <li>◆ Cut open the old concrete and make new concrete slab for the lift. Refer to installation description.</li> </ul>

## 6 Repair and Maintenance

### Keep clean

- This unit should be cleaned with dry cloth frequently to keep it clean. Before cleaning, first switch off the power to ensure the safety.
- The working environment of this unit should be clean. In case of dust in the working environment, it will speed up the parts wearing and shorten the service life of the lift.

### Every day:

- Before the operation, carefully check the safety mechanism of the lift to ensure the electromagnet suction and release action is proper, and the safety plate is in good condition. When finding any abnormal situation, make adjustment, repair or replacement immediately.
- Check to see if the connection between hydraulic cylinder and carriage is proper, if the connecting nut between the steel chain and carriage is loose or falling. Refer to Fig. 7.
- Check to see if the steel cable connection is proper, and if the tension is at the optimum status.

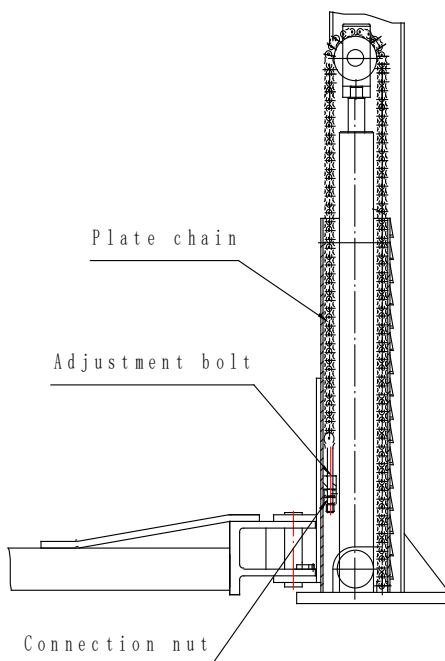


Fig. 7

### Every month:

- Check the anchor bolts.
- Lubrication chains/cables.
- Check all the chain connectors, bolts and pins to ensure correct installation
- Check all the hydraulic lines for wearing
- Check to see if the carriage and the inner side of the column are properly lubricated. Use high-quality heavy lubrication grease (lithium based lubrication grease).

**⚠ Note:** All the anchor bolts should be tightened completely. If any screw doesn't function for some reason, the lift can not be used until the bolt is replaced

### Every six months

- Check all the movable parts for possible wearing, interference or damage.
- Check the lubrication of all the pulleys. If the pulley has dragging during the lifting and lowering, add appropriate lubricant to the wheel axle.
- When necessary, check and adjust the balancing tension to ensure the horizontal lifting and lowering.
- Check the verticality of the column.

**⚠ Note:** The inner corner of each column should be lubricated with lubricant, to minimize the roller friction and ensure the smooth and even lifting.

### Maintenance of hydraulic system:

- Clean and oil change  
In the six months after initial use of this unit, clean the hydraulic oil tank and replace the oil, later clean the hydraulic system once a year, and replace the oil. See Fig. 8.
- Replace the seal  
After this unit is put into operation for certain period, if finding the oil leakage, carefully check it; if the leakage is due to the wearing of sealing materials, immediately replace the worn one based on the original spec. See Fig. 8

Diagram of hydraulic line of clear floor 2-post lift

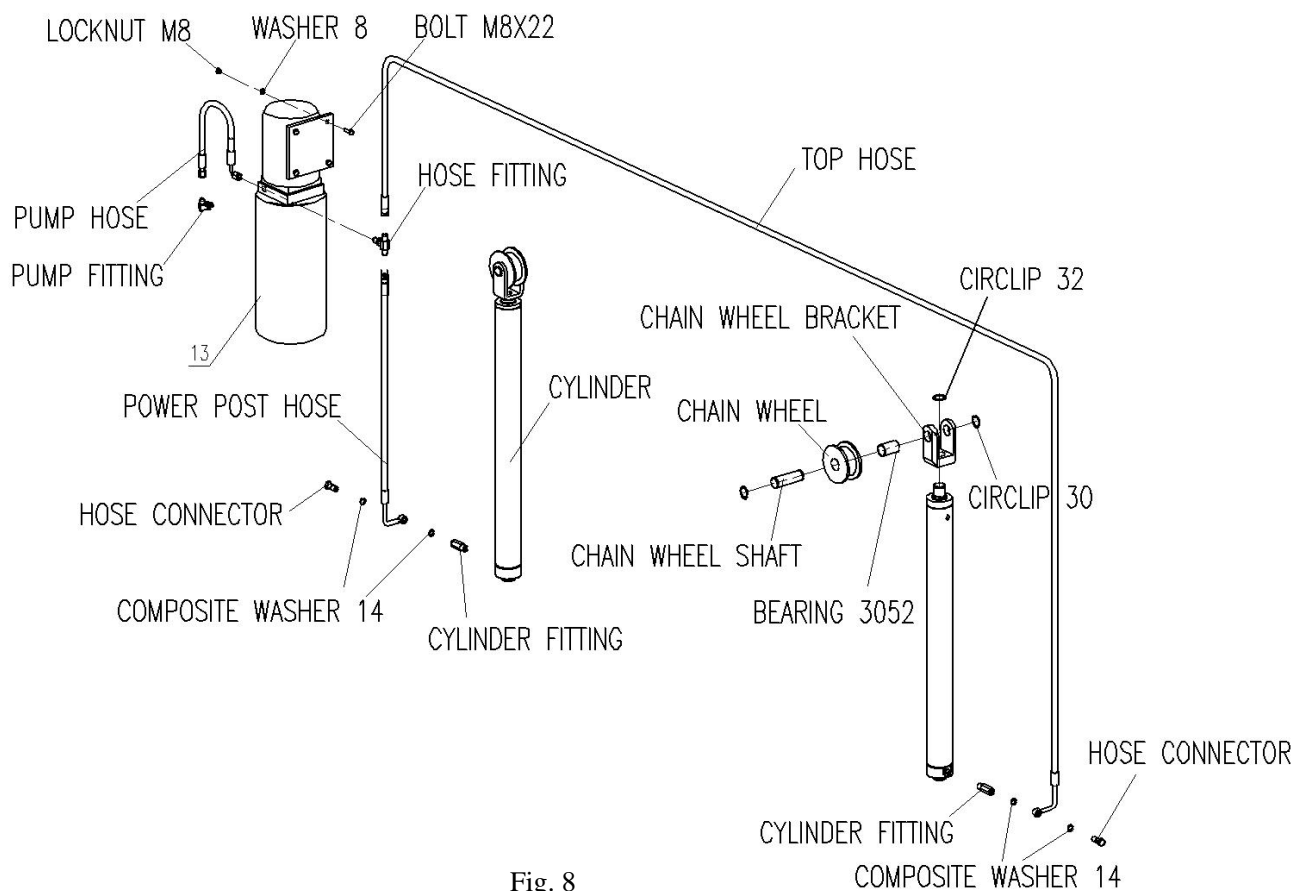
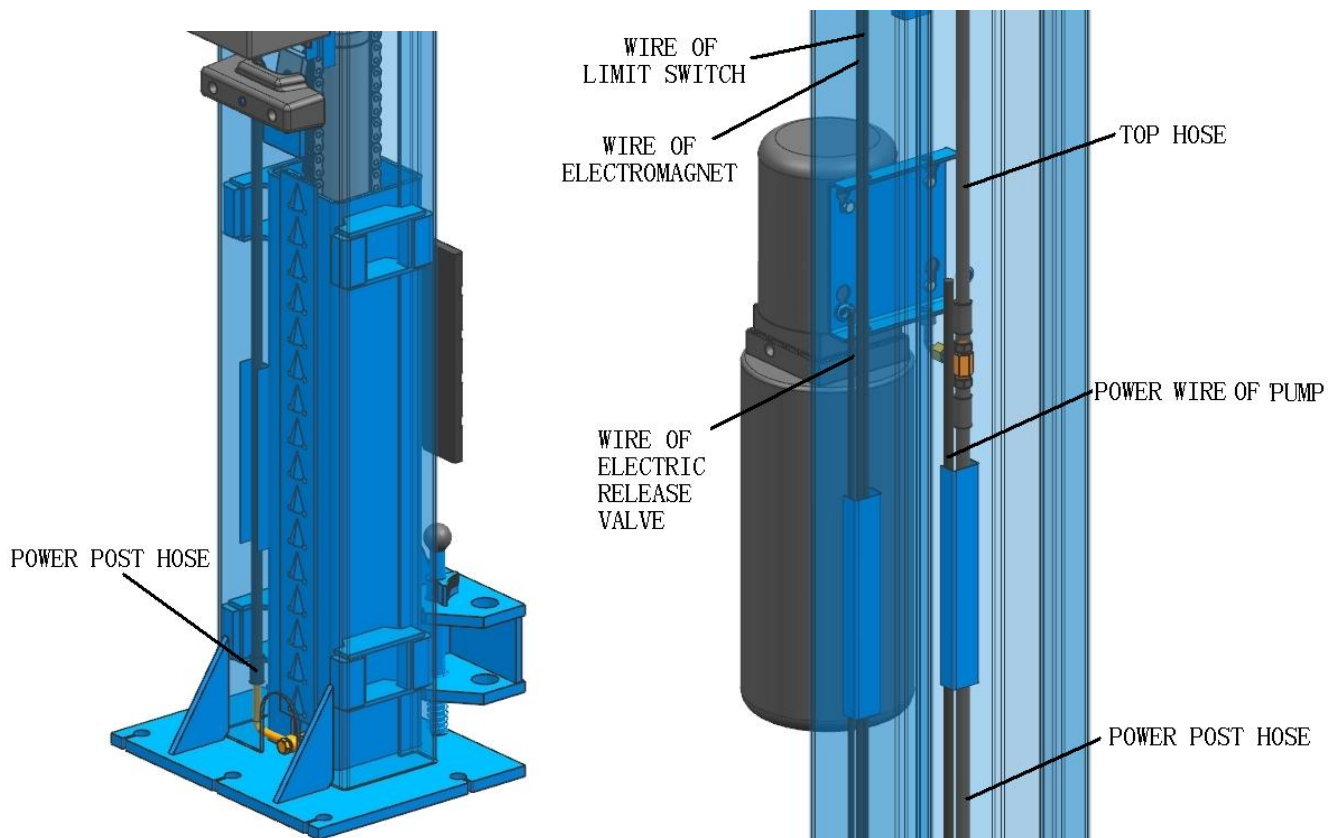


Fig. 8



## Wearing Parts

No.	Name	Model	Spec	Qty	Remark
1	O rubber sealing ring	GB3452.1-92	63×5.7	1	
2	Dust proof ring		FC40X48X4.5	1	
3	Shaft sealing ring		KY63X53X7.3	1	
4	Rubber pad			4	Self-made part

## 7 Storage and Scrap

### 7.1 Storage

When the equipment requires long-time storage:

- Disconnect the power supply
- Lubricate all the parts requiring lubrication: mobile contact surface of the carriage, etc.

- Empty all the oil/liquid storage units
- Put the plastic cover over the equipment for dust protection

### 7.2 Scrap

When the equipment service life is expired and can no longer be used, disconnect the power supply, and properly dispose of as per relevant local regulations.

## Grease and hydraulic oil for lift

### 2# lithium based lubrication grease

Item	Quality Index
Conical degree (1/10mm)	278
Dripping point °C	185
Corrosion (T2 copper sheet, 100 °C, 24h)	No change for copper sheet
Copper mesh oil split (100°C, 22h) %	4
Evaporation (100°C, 22h) %	2
Oxidation stability (99°C, 100 h)	0.2
Anti-corrosion (52°C, 48)	Class 1
Impurity (microscope) / (pcs/cm <sup>3</sup> )	
Above 10µm no more than	5000
Above 25µm no more than	3000
Above 75µm no more than	500
Above 125µm no more than	0
Similar viscosity ( -15 °C , 10s <sup>-1</sup> ) ,(Pa·s) no more than	800
Water spray loss (38°C, 1h) (%) no more than	8

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### **N32 hydraulic oil (used for low ambient temperature)**

Item	Quality Index
Kinematic viscosity 40°C	28.8~35
Pour point /°C no higher than	-15
Flash point /°C no lower than	175

### **N46 hydraulic oil (used for high ambient temperature)**

Item	Quality Index
Kinematic viscosity 40°C	41.4~50.6
Pour point /°C no higher than	-9
Flash point /°C no lower than	185

**DEKLARACJA ZGODNOŚCI WE**  
*Declaration of Conformity EC*



**My**  
*We*

**Nortec Sp. z o. o.**  
**Świerkowa 32**  
**62-020 Rabowice, Poland**

**Deklarujemy z całą odpowiedzialnością**

*Declare, undertaking sole responsibility, that the product*

<b>Podnośnik</b> <i>Vehicle Lift</i>	<b>PD4000CE</b>	<b>numer seryjny</b> <i>serial number</i>
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**wymieniony powyżej jest zgodny z odnośnymi wymaganiami Unijnego prawodawstwa harmonizacyjnego:**

*to which this declaration applies is in compliance with the relevant requirements of Union harmonized legislation:*

**2006/42/EC**

DYREKTYWA 2006/42/WE PARLAMENTU EUROPEJSKIEGO I RADY z dnia 17 maja 2006 r. w sprawie maszyn, zmieniająca dyrektywę 95/16/WE (przekształcenie)

**2014/30/UE**

DYREKTYWA 2014/30/UE PARLAMENTU EUROPEJSKIEGO I RADY z dnia 26 lutego 2014 r. w sprawie harmonizacji ustawodawstw państw członkowskich odnoszących się do kompatybilności elektromagnetycznej, zastępuje dyrektywę 2004/108/WE

**W celu zapewnienia zgodności z wyżej wymienionymi dyrektywami(a) zostały zastosowane następujące normy zharmonizowane:**

*In order to ensure compliance with the mentioned Directive(s) have been applied harmonized standards listed below:*

**EN 1493:2010**

Podnośniki Pojazdów

**EN 60204-1:2010**

Bezpieczeństwo maszyn – Wyposażenie elektryczne maszyn – Część 1: Wymagania ogólne

**EN 61000-6-1:2008**

Kompatybilność elektromagnetyczna (EMC) – Część 6-1: Normy ogólne – Odporność w środowiskach: mieszkalnym, handlowym i lekko przemysłowym

**EN ISO 12100:2012**

Bezpieczeństwo maszyn – Ogólne zasady projektowania – Ocena ryzyka i zmniejszanie ryzyka

**Podmiotem odpowiedzialnym za dokumentację techniczną jest Nortec Sp. z o.o.**

*The technical documentation file is constituted by Nortec Sp. z o.o.*

Rabowice, 12.02.2020

Beata Broczkowska

**Deklaracja została przygotowana zgodnie z normą**  
*The version of this declaration conforms to the regulation*

**EN ISO/IEC 17050-1**