

These operating instructions apply for:

NCX 380  
NCX 480  
NCX 580 L  
NCX 660 K

NCZ 300  
NCZ 370  
NCZ 480  
NCZ 560  
NCZ 660  
NCZ 800



### Important note:

Before use of the pneumatic linear vibrators series NCX and NCZ read this operating instruction carefully and store afterwards.

Netter GmbH does not assume liability for damage to property and persons if the product has been technically modified or if the notes and regulations of these operating instructions have not been observed.

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### Scope of delivery:



Check the packaging for possible signs of transport damage. In the event of damage to the packaging, check that the contents are complete and undamaged. If there is any damage, inform the shipping agent. Compare the scope of the delivery with the delivery note.

## 1 General notes







Netter electric internal vibrators series NCX and NCZ comply with the EC-Machinery Directive 2006/42/EC, the Electromagnetic Compatibility Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.

The NCX and NCZ electric internal vibrators generate undirected (circular) vibrations and are used exclusively for compacting concrete. Their high centrifugal force enables an excellent compaction performance with optimal air void which requires modern concrete technology.

### Special features:

- High centrifugal force leads to a rapid and reliable concrete compaction
- Full protection of the electrical part by thermal sensors
- Components can be replaced quickly without special tools
- Steel or vulcollan nosepiece
- Impact-resistant hand switch

The following instruction and warning symbols are used in these operating instructions.

	Notes on important procedures		Warning of dangerous electric voltage
	Important note on procedures to be especially observed		Disconnect unit from power supply, pull electric plug
	Warning of a danger spot		Environmental waste disposal

## 2 Technical data



### Nominal voltage, nominal frequency:

42 to 48 V, 200 Hz or 250 V, 200Hz

### Frequency:

12,000 min<sup>-1</sup>

### Protection:

IP 44 (hand switch)

### Ambient temperature:

0°C to 40°C

Temperature must not be exceeded or fallen short of.

### NCX Series

Type	Head diameter [mm]	Head length [mm]	Head weight [kg]	Total weight [kg]	Hose length* [m]	Cable length* [m]	Nominal frequency [min <sup>-1</sup> ]	Centrifugal force [N]	Effective diameter [cm]	Current consumption [A]	Voltage* [V]	Power (42 V) [kW]
NCX 380	39	370	2,9	9,5	5,0	10	12.000	1.200	40	7	42-48	0,5
NCX 380 S	39	370	2,9	5,0	0,8	15	12.000	1.200	40	7	42-48	0,5
NCX 480	49	375	4,7	15,2	5,0	10	12.000	3.000	55	18	42-48	1,3
NCX 480 S	49	375	4,7	6,2	0,8	15	12.000	3.000	55	18	42-48	1,3
NCX 580 L	59	400	7,8	17,0	5,0	10	12.000	4.800	65	25	42-48	1,8
NCX580 LS	59	400	7,8	7,8	0,8	15	12.000	4.800	65	25	42-48	1,8
NCX 660K	66	415	9,0	19,5	5,0	10	12.000	6.000	85	28	42-48	2,0

\* Other voltages, cable lengths and hose lengths on request.

### NCZ Series

Type	Head diameter [mm]	Head length [mm]	Head weight [kg]	Total weight [kg]	Hose length* [m]	Cable length* [m]	Nominal frequency [min <sup>-1</sup> ]	Centrifugal force [N]	Effective diameter [cm]	Current consumption [A]	Voltage* [V]	Power (42 V) [kW]
NCZ 300	32	320	1,7	7,9	5,0	10	12.000	1.160	40	8	42-48	0,6
NCZ 300 S	32	320	1,7	6,6	0,8	15	12.000	1.160	40	8	42-48	0,6
NCZ 370 S	38	360	2,9	9,6	5,0	10	12.000	1.400	45	8	42-48	0,6
NCZ 370 S	38	360	2,9	5,0	0,8	15	12.000	1.400	45	8	42-48	0,6
NCZ 480	49	400	5,1	14,2	5,0	10	12.000	3.100	60	15	42-48	1,1
NCZ 480 S	49	400	5,1	6,2	0,8	15	12.000	3.100	60	15	42-48	1,1
NCZ 560	58,5	400	6,8	15,9	5,0	10	12.000	4.850	65	23	42-48	1,6
NCZ 560 S	58,5	400	6,8	6,8	0,8	15	12.000	4.850	65	23	42-48	1,6
NCZ 560 L	58,5	450	7,8	16,8	5,0	10	12.000	6.100	75	21	42-48	1,5
NCZ 560 LS	58,5	450	7,8	9,2	0,8	15	12.000	6.100	70	21	42-48	1,5
NCZ 660	66	510	11,4	21,4	5,0	10	12.000	8.500	110	27	42-48	1,9
NCZ 800	80	440	13,8	29,0	5,0	10	12.000	10.470	160	35	42-48	2,5

\* Other voltages, cable lengths and hose lengths on request.

### 3 Design and function

The NCX and NCZ internal vibrators consist of a stator, rotor and the outer sleeve with a steel or vulcollan nose-piece.

The stator with a low loss factor, has a high efficiency.

The special roller and needle bearings are designed for heavy loads and high compaction performance.

The vibration is generated by an unbalance that rotates around a shaft.

The unbalance of the NCZ is mounted with slip joint on the rotor.

This keeps the starting current low as well as the wear of the bearings.

In the NCX vibrators the unbalance is fastened directly on the rotor.

The NCX and NCZ internal vibrators are switched on by pressing the hand switch and then slowly inserted into the concrete.

Once the required compaction level has been reached, the vibrators are pulled out slowly and switched off.

### 4 Safety



**Nominal voltage, nominal frequency:**

42 to 48 V, 200 Hz or 250 V, 200Hz

**Frequency:**

12,000 min<sup>-1</sup>

**Protection:**

IP 44 (hand switch)

**Ambient temperature:**

0°C to 40°C

Operating temperatures must not be exceeded or fall short of.



Only persons over 18 years and trained in working with internal vibrators (prevention of accidents regulations) are authorised to operate the internal vibrators.

**Protection**

The vibrators are protected, against thermal overheating by three thermal sensors which switches off the vibrators in case of overheating.

Special personal protection in accordance with DIN, VDE and CE is ensured by an isolating transformer on the output terminal of the frequency converter.



**Attention HEALTH RISK.**

**Do not hold or touch the vibrator element during operation!**

**Declaration of Conformity  
according to EC directive 2006/42/EC on machinery (Annex II 1 A)**

We hereby declare, that the

**electric external vibrators series NCX and NCZ**

are in accordance with all relevant provisions of the above machinery directive.

Furthermore the partly completed machineries comply with the regulations:

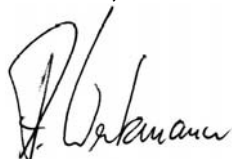
**low voltage regulation 2006/95/EG and  
electromagnetic compatibility 2004/108/EG**

Applied harmonized regulations are:

**DIN EN ISO 12100 part 1/A1:2009-10  
DIN EN ISO 12100 part 2/A1:2009-10  
DIN EN ISO 60034-1 amendment 1:2007-09**

The relevant technical documentation is compiled in accordance with part A of annex VII.  
The authorized person who compiled the relevant technical documentation in accordance with annex II digit 1 part B. No. 2, 2006/42/EC is Michael Möller.

Mainz-Kastel, 17.09.2010



i.A. A. Werkmann  
(Quality Manager)



Parts under voltage or rotating parts can cause serious or fatal injuries. The operator of vibration devices must protect employees against actual or possible risks to their health and safety from the effects of vibration



Incorrect installation of the vibrators can cause to fail the vibrators and lead to serious or even fatal injuries.

All transport, installation and start-up work as well as maintenance must be carried out by specially qualified personnel (observe IEC 364 or DIN VDE 0100 and IEC 664 or DIN VDE 0110).

Repairs to the vibrator or its components must only be done by authorised personnel for safety reasons and to comply with the documented system data and functions.



The internal vibrators are built according to current EC directives. When installing and operating the vibrators, the conditions and regulations of the local electrical engineering associations (e.g. VDE) and the familiar accident prevention regulations shall be observed.



**Any modification to the unit can change the properties of the electric internal vibrators or damage the unit and lead to all warranty claims being rejected.**

**Non-compliance with the operating instructions also results in the rejection of all warranty claims.**



**Permitted operating conditions:**

The vibrators must **not** be used in a potentially explosive environment.



When working on the internal vibrator, it must be safely disconnected from the frequency converter.

Please proceed as follows:

1. Switch off
2. Protect against being inadvertently switched on
3. Ensure unit is voltage-free



The proper condition of electrical cables with connectors should be checked at regular intervals (at least every six months).

Any faults discovered must be immediately rectified.

Take care that the cables are not worn through by vibrating parts.



Always pull the internal vibrator slowly out of the concrete while still running, otherwise there is a risk of the protective hose being pulled off the vibration head.

## 5 Transport and Storage



Check the packaging for possible shipping damage. If the packaging is damaged, check the contents for completeness and possible damage. In case of damage inform the transport agent.

The units are packed ready for installation. The type designation is located on the top part of the head.

When transporting the internal vibrators, take care that they are not exposed to any heavy impact.

The units should be stored in a dry and clean environment. After a storage period of more than 2 years, the vibrators must be electrically tested.

## 6 Start-up / Operation



**Attention HEALTH RISK.**  
**Do not hold or touch the vibrator element during operation!**

Before start-up, make sure that the internal vibrator shows no signs of visible damage.

The unit is connected to the CEE socket (vibration-resistant plug connector) of a suitable frequency converter e.g. Netter NFC.

Check the type designation on the internal vibrator, compare the technical data with the details on the frequency converter and check the nominal voltage and the average power consumption.

The units are protected against thermal overheating by three thermal sensors. They switch off the vibrator automatically in case of overheating.

### Start-up

The unit starts after pressing the on / off switch.

For compaction, slowly and fully insert the vibration head (for better cooling) into the concrete vertically, diagonally or horizontally depending on the concrete depth.

Once the required compaction level has been reached, pull out the unit slowly and switch it off.

Internal vibrators should only be operated for a short time outside of the concrete (overheating).

In unfavourable temperature conditions, there is an increased risk that the built-in thermal fuse for protection against over-heating will automatically switch off the vibrator. If this does happen, let the vibrator cool off for a few minutes before switching on again.



Keep sufficient distance (1-2 times the head diameter) of wall formwork and reinforcement one. Strong impacts to the head may damage this.

## 7 Troubleshooting

### Short-circuit, earth fault, phase failure

In case of short-circuit, earth fault or phase failure on the vibrator, the frequency converter breaks down. In this case change the vibrator.

In case of problems with the internal vibrator, it is recommended to send in the whole unit for repair.

## 8 Appendix

### 8.1 Disposal

Depending on the material, the parts must be disposed of according to official regulations.

#### Material specifications:

	NCX	NCZ
<b>Steel</b>	stator, rotor, unbalance, bearings, outer sleeve, nosepiece, spacer, pin, inner ring	stator, rotor, bearings, outer sleeve, nosepiece, spacer
<b>Bronze</b>		unbalance
<b>PTFE</b>	gaskets	gaskets



All devices can be disposed of through Netter GmbH.  
The applicable disposal prices are available upon request.

### 8.2 Enclosures

#### Enclosure(s):

Declaration of conformity



**Additional information available upon request:  
Leaflet No. 1 NCZ and 3 NCX, and much more**