NetterVibration

Operating instructions for pneumatic internal vibrators NVV series

July 2025
No. 1991

These operating instructions apply to:

NVV 28
NVV 35
NVV 45
NVV 55
NVV 65
NVV 75
NVV 85
NVV 100
NVV 150

Serving industry with vibration

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Scope of delivery

Please refer to the delivery note for the scope of delivery.
Check the packaging for possible transport damage. In the event of damage to the packaging, check the contents for completeness and possible damage. Inform the carrier in the case of damage.

Designation

The pneumatic internal vibrators of the series NVV are hereafter referred to as "NVV".

Version of document

Document no.	1991
Version no.	2
Date of issue	July 2025

1 General information

Use and storage

Before installing the NVV read these instructions carefully. It is the basis for any action when dealing with the NVV, and may be used for training purposes. The instructions should be subsequently stored at the operation site.

Target group

The target group for these instructions is technical staff, who have basic knowledge in pneumatics and mechanics.

Only complying technical staff may work on the NVV.

The NVV may only be installed, put into operation, maintained, troubleshot and disassembled by persons authorised by the operator.

Copyright

Limitation of liability

All technical information, data and instructions for installation, operation and maintenance in these instructions are based on the latest information available at the time of printing and take our past experience to the best of our knowledge into account.

No claims can be derived from the information, illustrations and descriptions in these operating instructions.

The manufacturer does not assume liability for damages resulting from:

- failure to observe the instructions,
- improper use,
- unauthorised repairs,
- technical modifications,
- use of non-permissible spare parts.

Translations are made to the best of our knowledge.

Netter*Vibration* does not assume liability for translation errors, even if the translation was made by us or on our behalf. Only the original German text remains binding.

Directives / standards observed

The pneumatic internal vibrators of the series NVV comply with the following directives and regulations:

- EC Machinery Directive 2006/42/EC
- Supply of Machinery (Safety) Regulations 2008 (UK)

In particular, the standard EN ISO 12100 has been observed.

Instruction and warning symbols

The following instruction and warning symbols are used in these instructions:

Personal injuries

⚠ WARNING	
	indicates a potential danger. Disregard of this notice can result in death or severe personal injuries.

⚠ CAUTION	
	indicates a potentially dangerous situation. Disregard of this notice can result in minor or moderate personal injuries.

Material damages

NOTICE
indicates potential material damage. Disregard of this notice can result in material damage.

Notes

IMPORTANT
indicates actions, methods or notes that are not relative to safety, e.g. useful information and tips.

	**Environmentally safe disposal** indicates the obligation of environmentally safe disposal.

2 Safety

Intended use

The NVV are intended for generating radial vibrations.

The NVV are used exclusively for compacting concrete or bulk materials, for cleaning or venting.

The NVV must be fully immersed in concrete, bulk materials or liquids for operation.

The NVV may also be used outdoors as well as in dusty and humid environment.

Any other use is considered improper.

Qualification of qualified personnel

Installation, commissioning, maintenance and troubleshooting of the NVV may only be performed by authorised qualified personnel, who have basic knowledge in pneumatics and mechanics.

All handling of the NVV is the responsibility of the operator.

Vibration energy

⚠ WARNING

Damage to health due to vibration energy

Vibrating of whole bodies or any parts of them will result in damage to health.

- ➢ During operation of the NVV, only touch/hold the hose outside a sufficient safety distance (of at least 1 m) to the vibrator's nosepiece.
- ➢ Never touch the vibrator's nosepiece during operation.
- ➢ Limit the exposure time, take breaks during operation and wear suitable personal protective equipment.
- ➢ Never stand or sit on the NVV during operation.

Compressed air

⚠ WARNING

Compressed air

A loosened hose which is under pressure can lead to personal injuries.

- ➢ Screw the hose lines on carefully.
- ➢ Check the hose lines and connections after one hour of operation and thereafter regularly (generally monthly).
- ➢ Retighten the hose lines, if necessary.
- ➢ Ensure that the compressed air is disconnected from the supply lines during all work on the NVV.
- ➢ Prevent the NVV from being switched back on during all work.

Heavy parts

⚠ WARNING

Risk of injury while handling heavy parts

Risk of serious injury due to weight during transport and operation of the NVV.

- ➢ Observe the weight information in chapter Technical data, starting on page 8.
- ➢ Wear suitable personal protective equipment.

Falling parts

⚠ WARNING

Falling parts

The NVV can fall down during transport and operation. Falling parts lead to severe personal injuries.

- ➢ Wear suitable personal protective equipment.

Sound level

⚠ WARNING

Sound level

Near the NVV or in the vicinity of the constructions connected with the NVV, the sound pressure level may exceed 80 dB(A). The human ear can be permanently damaged by the high sound level.

- ➢ When working in the noise area, use ear protection if 80 dB(A) is exceeded.

Oil mist

⚠ CAUTION

Health and environmental risk due to oil mist during preserving

Oil mist is harmful to human health and the environment. Oil mist can cause damage to the skin, the mucous membranes and the respiratory system.

- ➢ Avoid direct contact with oil mist.
- ➢ In order to preserve the NVV 150 before storage, wear suitable personal protective equipment.
- ➢ Take measures to avoid release of oil mist into the environment.

Hot surfaces

⚠ CAUTION

Risk of burns due to hot surfaces

NVV can strongly heat up during operation. Direct contact may cause burns.

- ➢ Do not touch the vibrator's nosepiece during operation or shortly after being switched off.
- ➢ Only operate the NVV within the permissible ambient temperature, according to chap. Technical data, page 8.

Keep distance

NOTICE

Strong impacts against the vibration body can damage it.
Maintain a sufficient distance (one to two times the diameter of the vibration body) from the formwork wall and reinforcement.

3 Technical data

Permissible operating conditions

Parameter	Description
Drive medium	NVV must be operated with filtered (filter ≤ 40 µm), lubricated compressed air or lubricated nitrogen according to the following specification: ISO 8573-1 [x : 6 : 4] Filter >10 µm Humidity, pressure dew point ≤ +10 °C Total oil content ≤ 5 mg/m³
Lubrication	Below -10 °C: ISO viscosity class according to DIN ISO 3448, VG 15 or 22, SAE viscosity class 5 From -10 °C to +27 °C: ISO viscosity class according to DIN ISO 3448, VG 22 or 32, SAE viscosity class 10 Above +27 °C: ISO viscosity class according to DIN ISO 3448, VG 32 or 46, SAE viscosity class 20 Fill the mist lubricator with acid- and resin-free compressed air oil.
Permissible ambient temperature	-20 °C to +50 °C Lower or higher temperatures are only permitted after consultation with and the written consent of application engineers from ***Netter****Vibration*.
Operating pressure	2.0 to 6.0 bar The maximum operating pressure of 6 bar must not be exceeded.

Performance data

For technical performance data, please refer to the brochure of the NVV. The technical performance data changes over the service life (wear and contamination).

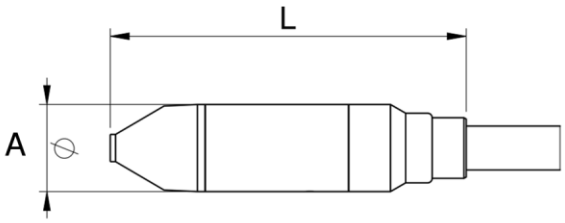
Valves/ hoses

Netter*Vibration* recommends the following cross-sections:

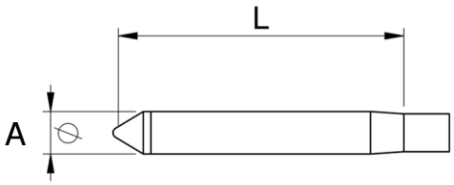
Typ: NVV ...	Connection thread [inch]	Valve/ball valve [inch]	Minimum hosesize*
28, 35, 45, 55	3/4	G 1/4	DN 8
65, 75, 85		G 3/8	DN 10
100, 150		G 1/2	DN 12

** DN = diameter nominal (inner diameter)*

Dimensions



NVV 150



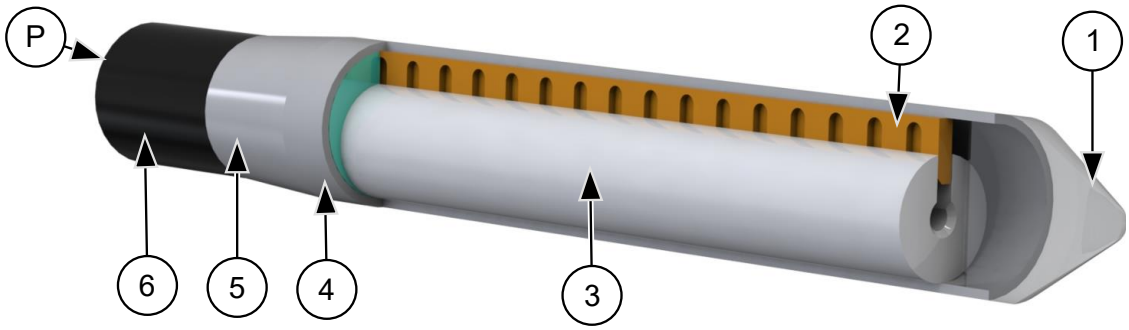
NVV 28 - 100

Type	Ø A [mm]	L [mm]	Total length* [mm]	Weight [kg]
NVV 28	28	234	2,584	4.5
NVV 35	35	278	2,628	6.0
NVV 45	45	285	2,635	8.0
NVV 55	55	316	2,666	9.0
NVV 65	65	327	2,677	10.0
NVV 75	75	366	2,716	15.0
NVV 85	85	395	2,745	19.0
NVV 100	100	395	2,745	23.0
NVV 150	150	508	1,400	38.0

** hose and handpiece included*

4 Design and function

Design



1	Vibrator's nosepiece	5	Rear body
2	Vane	6	Hose
3	Rotor	P	Compressed air
4	Housing		

Function

The NVV generate radial vibrations, i.e. the vibrations act in all directions of a plane.

The frequency and therefore also the centrifugal force are infinitely variable via the operating pressure.

The vibration is produced by a rotor (3) that is eccentrically driven around the shaft.

The incoming compressed air (P) flows axially through the rotor by an internal bore and pushes the movable vane (2) radially against the housing (4). Through the channels of the vane the compressed air is fed into the housing where it fills the space to form an air chamber. The constant air supply increases the volume of the air chamber, causing the rotor to rotate within the housing. The compressed air chamber is continuously vented by discharging the air through the exhaust in the handpiece.

5 Transport and storage

Observe the safety instructions in chap. Safety, starting on page 5.

Transportation options

The NVV can be transported manually as a unit.
Depending on the series, two people are required for transportation.
Observe the weight specifications in chap. Dimensions, page 9.

During transport, care must be taken that the NVV and attachments are not damaged.

Alternatively the NVV can be transported in the following ways:

- With a forklift or pallet truck:
  Place the NVV on a suitable pallet and secure against slipping.
  Lift, transport and lower the pallet carefully.

Packaging

The NVV are packed and ready for assembly. Accessories and add-on parts are delivered unmounted, unless otherwise agreed upon.

The packaging protects the NVV from transport damage. The packaging material has been selected from an environmentally safe and technically disposable point of view and is therefore recyclable.

The return of packaging to the material cycle conserves raw materials and reduces the amount of waste.

Storage conditions

- Store the NVV in a dry and clean environment.
- Protect the NVV from UV-exposures, weather and ozone.
- The storage temperature is between 0 °C and 40 °C.
- Hang the NVV 28 - 100 with the vibrator's nosepiece upwards and leave the manual valve open to drain out any water or dirt.
- Before storage of the NVV 150:

  1. Fill the housing of the NVV with approx. 60 ml of oil as shown in the permissible operating conditions (see chap. Technical data, page 8 “Lubrication”).
  2. Run the NVV for 30 s.
     Caution: Health and environmental risk due to escaping oil mist!
  3. Hang the NVV with the vibrator's nosepiece upwards and the manual slide valve open to drain out any water or dirt.

6 Start-up and operation

Observe the safety instructions in chap. Safety, starting on page 5.

Permissible operating conditions

Please refer to chap. Technical data, page 8 for permissible operating conditions.

Regulations

Installation work as well as operation of the NVV are to be carried out taking the valid accident prevention regulations into account.

The operator is responsible for the proper condition of the NVV.

Standard installation

For all NVV, use a ball valve to shut off the main line and

- a maintenance unit with mist lubricator for NVV 150,
- a filter regulator for all other types of NVV (with an integrated mist lubricator).

Measures

Carry out the following measures before start-up:

1. Check whether all permissible operating conditions are fulfilled.
2. Check that all protective measures been observed.
3. Check that the compressed air lines and connections are undamaged.
4. Check that the NVV is free of contamination. Blow out any water or dirt from the internal air ducts with compressed air before connecting the NVV and putting it into operation.
5. Check that the maintenance unit/filter regulator unit is correctly installed and connected.
   For initial operation, observe the specifications in the operating instructions for the maintenance unit/filter control unit.
6. Check that all components of the NVV have been connected correctly.
7. Eliminate possible errors.

Initial lubrication

The vibrators are delivered without oil. Before the first commissioning, add 4 - 6 drops of oil through the gauze at the claw coupling of the NVV.

NVV 28 - 100: Fill the integrated mist lubricator with oil in accordance with the permissible operating conditions.

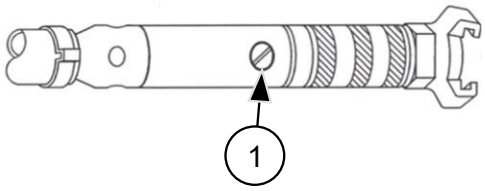
NVV 150: Fill the mist lubricator of the maintenance unit with oil in accordance with the permissible operating conditions. Observe the operating instructions for the maintenance unit.

Notice: The NVV is only ready for operation after the mist lubricator has been filled and is functioning properly.

Regular lubrication

Lubricate the NVV regularly.

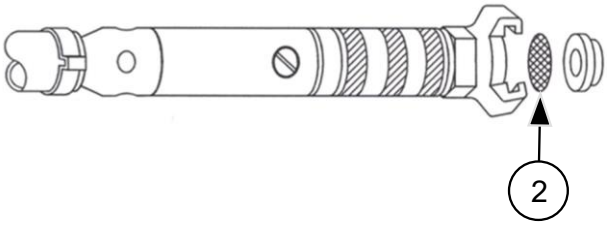
Fill the mist lubricators with the recommended oil after every 4 hours of operation and daily before use. With integrated mist lubricators: use the filler neck (1).



Checking the coupling

Regularly check the gauze (2) on the coupling of the NVV before starting operation.

A gauze that is not properly fitted, dirty or defective can lead to contamination of the internal air ducts and failure of the NVV.



Setting the frequency

Use the pressure control valve of the filter regulator/maintenance unit to set the operating frequency of the NVV. Observe the maximum permissible operating pressure of 6 bar.

By reducing the operating pressure, the centrifugal force is also reduced. At the same time the vibration amplitude remains almost constant.

Procedure

When starting-up the NVV carry out the following steps in succession:

1. Close the ball valve.
2. Close the manual (slide) valve of the NVV. For NVV 28 - 100, turn the manual valve clockwise while looking at the claw coupling.
3. Connect the claw coupling.
4. Open the ball valve.
5. Set the desired operating pressure (max. 6 bar) on the maintenance unit (NVV 150) or on the filter regulator (all other NVV). Observe the operating instructions for the maintenance unit/filter regulator.
6. Open the manual (slide) valve, for NVV 28 - 100 by turning it anti-clockwise.
7. For better cooling, immerse the NVV completely in the material to be compacted to prevent overheating.
8. Ensure that you do not pinch the NVV in the reinforcement bars or touch the formwork walls and the formwork floor.
9. Ensure that the exhaust vents on the NVV handpiece are not blocked or submerged in concrete.
10. Once the desired degree of compaction has been achieved, slowly pull the NVV out of the material to be compacted and close the manual (slide) valve.

11. Important: After use, fill the NVV 150 with 60 ml of oil and let the vibrator run for 30 seconds.

Tap to start

If the NVV does not start, the vibrator's nosepiece should be briefly tapped onto a firm surface.

Checklist start-up

Check that the following steps have been carried out:

- Is the use of ear protection and other protective clothing ensured? ☐
- NVV checked for contamination and internal air ducts cleared of water and contamination? ☐
- Have you checked the claw coupling and gauze for contamination or damage? ☐
- Initial lubrication carried out and mist lubricator filled? ☐
- Ball valve, maintenance unit/filter regulator and supply line installed? ☐
- Desired frequency set on pressure control valve and maximum air pressure observed? ☐
- After one hour of operation: Hose supply connections checked, retightened, if necessary? ☐
  Then follow the maintenance plan.
- After four hours of operation: Lubrication carried out? ☐
  Mist lubricator refilled?
  Then follow the maintenance plan.

7 Maintenance and servicing

Observe the safety instructions in chap. Safety, starting on page 5.

Cleaning

To clean the NVV, proceed as follows:

1. Close the supply air opening and the handpiece.
2. Clean the NVV externally with a jet of water.
3. Activate the NVV briefly.

Maintenance plan

Maintenance of the NVV must be carried out as follows:

Interval	Action
Before each start-up	Check hose supply connections for damage, permeability and kinks. If necessary, clean and remove kinks or replace.
	Remove contaminants from the internal air ducts of the vibrators using compressed air.
	Check the condition of the gauze. Replace damaged gauze, clean soiled gauze.
	Check the function of the mist lubricator. Refill oil.
After one hour of operation after initial start-up	Check hose screw connections and hose fittings, retighten if necessary.
After every four hours of operation	Check the function of the mist lubricator. Refill oil.
Monthly	Check hose screw connections and hose fittings, retighten if necessary.
	Check the function of the NVV.

Maintenance intervals

The maintenance intervals depend essentially on the operating conditions, the service life and how clean the drive medium is.

Unfiltered compressed air leads to high wear, clogging or complete breakdown of the NVV.

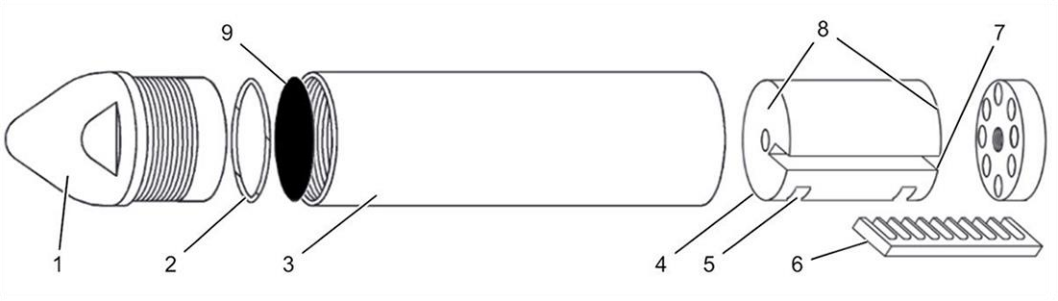
Replacement criteria

The rotor should be replaced if its length is below

- 109.8 mm for NVV 150,
- 129.7 mm for all other types of NVV.

The vibrator's nosepiece and the vane should be replaced if they show signs of excessive wear.

Replacement of the vane/ the rotor



1	Vibrator's nosepiece	6	Vane
2	O-ring	7	Slot (hidden)
3	Housing	8	Running face(s)
4	Rotor	9	Front closure plate (only for NVV 150)
5	Milled slot in the rotor		

The replacement of the vane/the rotor has to be carried out as follows:

1. Clamp the housing (3) in a vice, using appropriate chuck jaws (prisms), and unscrew the vibrator's nosepiece (1; right-hand thread).
2. Only for NVV 150:
   Remove the front closure plate (9) using a 16 mm extractor (available on request).
3. Remove the housing from the vice and tilt slightly so that the rotor (4) drops into your hand without being damaged.
4. Examine and clean the parts. Criteria for replacement see page 15.
5. Replace the vane (6)/the rotor. Ensure that the vane is easy to move and 0.1 to 0.15 mm shorter than the rotor. Otherwise, it must be shortened so that it does not protrude from the ends of the rotor. The open channels of the vane must point away from the milled slots in the rotor (5).
6. Lightly oil the running faces (8) of the rotor.
7. For assembly, place the housing on a solid surface, put the rotor with vane into the housing. Ensure that the running face without slot points to the nosepiece.
8. Only for NVV 150:
   Insert the front closure plate in the housing.
9. Fit a new O-ring (2) onto the nosepiece and screw the nosepiece on the housing.

8 Troubleshooting

Observe the safety instructions in chap. Safety, starting on page 5.

Expertise and regulations

Work on the NVV may only be carried out by authorised persons.

In the case of unauthorised intervention in the NVV there is no longer any warranty claim.

Interventions of any kind are to be agreed upon with ***Netter****Vibration*.

Malfunctions and causes

In the case of malfunctions of the NVV proceed as follows:

Malfunction	Possible cause	Corrective action
NVV does not start	Compressed air supply	Check if there is enough pressure at the NVV. Check the pressure control valve.
	Wrong position of the rotor	Briefly tap the vibrator's nosepiece onto a firm surface.
	Vane jammed, too long, missing or incorrectly inserted	Check position and length of the vane (see chap. Replacement of the vane/the rotor, page 16).
	Hose defective or torn off	Check the hose for damage and for correct fixing, as well in the handpiece (through the inspection window).
NVV has too little power	Line cross-sections	Observe the recommended cross-sections (see chap. Technical data, page 8). Check air pressure and supply lines.
	Wear	Check the vane (see chap. Maintenance, page 16) and the rotor for visible wear. For wear criteria, see page 15. In addition, check the function of the mist lubricator.
Power loss	NVV polluted	Clean the NVV (see chap. Maintenance, page 15).

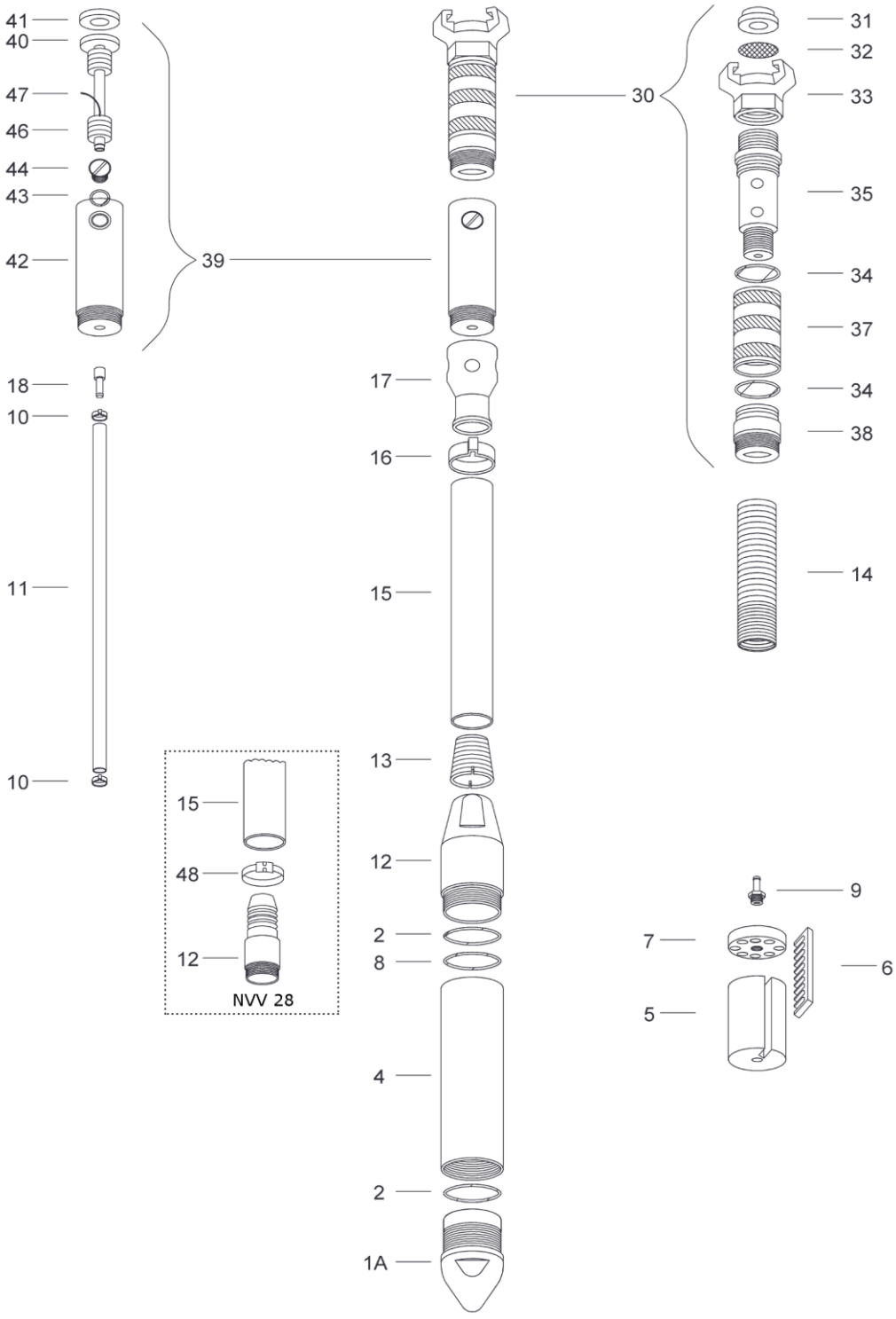
9 Spare parts and accessories

Ordering of spare parts

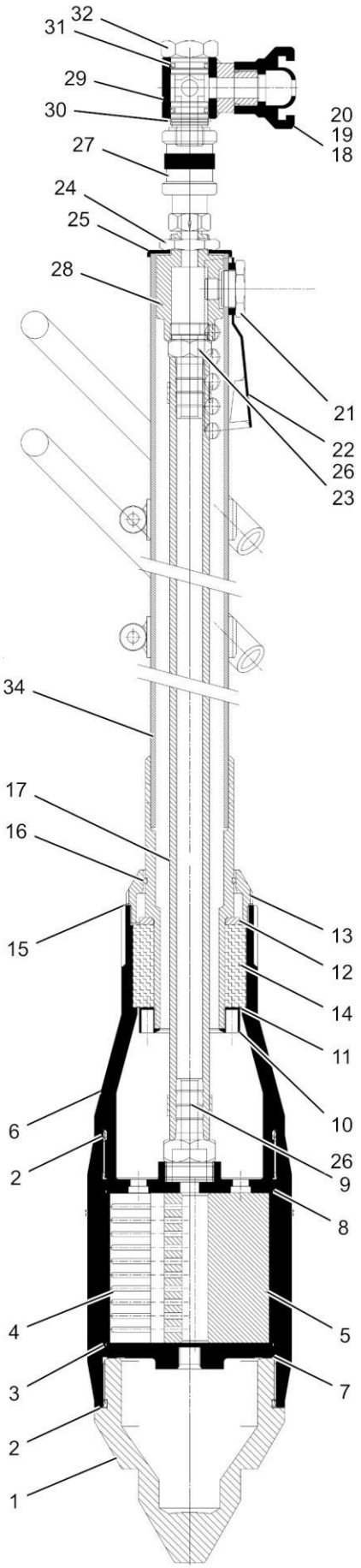
Please provide the following details when ordering spare parts:

- type of NVV
- position number of spare part
- required amount

NVV 28 - 100



NVV 150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10 Disposal

Prices

All parts of the NVV must be properly disposed of according to the material specifications. The valid disposal prices of the NVV are available on request.

Material specifications

All parts of the NVV can be recycled.

Material	Part
Steel	Housing, rotor, vibrator's nosepiece
Aluminium	Handpiece
Plastics	Vane, hose

11 Annex

The declaration of conformity can be found at: www.***Netter****Vibration*.com