Operating instructions for vacuum mounts series VAC / VAC TWIN

September 2022
No. 1555E
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CE

These operating instructions apply to:

VAC 6
VAC 8
VAC 10
VAC 11
VAC 12
VAC 13
VAC 15
VAC 20
VAC 30
VAC 40

Series VAC TWIN

Serving industry with vibration

Netter GmbH
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Contents

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 vacuum mounts of the series VAC are hereafter referred to as "VAC".

Version of document

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Version no.	3
Date of issue	September 2022

1 General information

Use and storage

Before installing the VAC read these instructions carefully. It is the basis for any action when dealing with the VAC, 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 VAC.

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

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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 vacuum mounts of the series VAC comply with the EC Machinery Directive 2006/42/EC.

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

⚠ DANGER	
	indicates an immediate danger. Disregard of this notice will result in death or severe 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 VAC are used for quick attachment of vibrators to smooth and flat or convex surfaces. The VAC can be used in combination with vibrators for emptying transport containers or cleaning tubes and hoppers.

The VAC are used where there are otherwise no conventional mounting options for vibrators, where frequent relocation is necessary and where welding or screwing is not possible.

VAC can also be used outdoors as well as in dump environments. The VAC may not be submerged in bulk materials or in liquids.

Any other use is considered improper.

Qualification of qualified personnel

Installation, commissioning, maintenance and troubleshooting of the VAC may only be performed by authorised qualified personnel.

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

Falling parts

⚠ WARNING

Falling parts

The VAC can come loose with small component cross sections and in the event of an unexpected pressure drop.

The vibrators screwed to the VAC can be loosened by vibration

Pneumatic vibrators at full power can cause the VAC to slide.

Falling parts can cause severe personal injuries.

- ➢ All VAC except VAC 8 and VAC 10 are equipped with an adjustable safety cable. Choose a secure attachment point (such as an eye) for the safety cable on the container or system. Adjust the cable with the cable clamps as short as possible so that the VAC can never fall into a loose cable.
- ➢ VAC 8 and VAC 10 have to be secured against dropping down by the customer.
- ➢ If you attach the VAC to round components, then the specified minimum diameters given in Ch. Technical data (cf. page 8; "Parameters") must be observed.
- ➢ For the first start-up, set the frequency of the vibrator by means of a throttle check valve (e.g. on the hose set HG ... with DRV) so that sliding of the VAC is prevented.

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 VAC.
- ➢ Prevent the VAC from being switched back on during all work.

Sound level

⚠ WARNING

Sound level

Depending on the VAC and vibrator used, the sound pressure level may exceed 80 dB(A) in the vicinity of the constructions connected to the VAC. 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.
- ➢ Depending on the design and combination of VAC and vibrator, take additional noise protection measures.

Heavy parts

⚠ WARNING

Risk of injury while handling heavy parts

Risk of serious injury due to weight during transport and installation of the VAC.

- ➢ Observe the weight information in Chapter Technical data, from page 8 on.
- ➢ Only qualified personnel may transport and install the VAC.
- ➢ Use suitable load handling devices and slinging equipment.
- ➢ Wear suitable personal protective equipment.

Combination VAC and vibrator

NOTICE

Only use approved combinations of VAC and vibrator. The applicable vibrators can be found in Ch. Technical data, page 9.

When using other vibrators, the operator is responsible for checking safety and functionality.

Assembly

NOTICE

If VAC and vibrator are ordered separately, the vibrator must first be mounted on the VAC, then the VAC on the container.

Silencer

NOTICE

Operation of the VAC with silencers is mandatory.

Silencers reduce the noise level and protect the VAC from contamination entering.

Clean surface

NOTICE

The VAC may only be operated on clean and dustless surfaces free from grease.

Fastening of vibrator

IMPORTANT

Information on secure fastening of the vibrator can be found in the corresponding operating instructions.

3 Technical data

Permissible operating conditions

Drive medium	The VAC must be operated with filtered compressed air (filter ≤ 5 µm). Further drive medium requirements to be respected can be found in the operating instructions of the mounted vibrator.
Lubrication	The VAC do not need lubrication.
Ambient temperature	-10 °C to +60 °C
Operating pressure	2 to 6 bar

Parameters

Type: **VAC ... + HG ...**	**Vacuum generated** **[bar]**		**Suction generated** **[N]**		**Weight** **[kg]**	**Air consump-tion [l/min]**		**Sound pressure level [dB(A)]**		**Min.-Ø for round con-tain-ers [mm]**
	4 bar	6 bar	4 bar	6 bar		4 bar	6 bar	4 bar	6 bar	
6 + 6 N	0.8	0.8	350	350	0,53	6.5	10	72	76	400
8 + 10 N	0.60	0.85	340	481	0.95	40	60	72	72	110
8 + 10 S	0.60	0.85	340	481	1.20	20	22	72	72	110
10 + 10 N	0.60	0.85	465	658	1.05	40	60	72	72	110
10 + 10 S	0.60	0.85	465	658	1.30	20	22	72	72	110
11 + 10 N	0.60	0.85	710	1,005	1.25	40	60	72	72	110
11 + 10 S	0.60	0.85	710	1,005	1.50	20	22	72	72	110
12 + 15 N	0.60	0.85	1,250	1,770	2.85	60	122	74	74	350
12 + 15 S	0.60	0.85	1,250	1,770	3.20	29	36	74	74	350
13 + 15 N	0.60	0.85	1,362	1,930	4.20	110	170	83	77	850
13 + 15 S	0.60	0.85	1,362	1,930	4.55	41	52	83	77	850
15 + 15 N	0.60	0.85	1,476	2,091	3.40	110	170	74	74	650
15 + 15 S	0.60	0.85	1,476	2,091	3.75	41	52	74	74	650
20 + 15 N	0.60	0.85	2,724	3,859	7.25	110	170	74	74	850
20 + 15 S	0.60	0.85	2,724	3,859	7.60	41	52	74	74	850
30 + 30 N	0.60	0.85	4,086	5,789	11.50	110	170	74	74	1,500
30 + 30 S	0.60	0.85	4,086	5,789	12.00	49	60	74	74	1,500
40 + 40 N	0.60	0.85	5,448	7,718	20.00	220	340	74	74	1,500

For information on the VAC TWIN, please refer to the supplement to operating instructions for VAC TWIN / VAC TWIN GD.

Service life

The technical performance data changes over the service life (wear and contamination).

Approved combinations of VAC and vibrator

Type	Applicable vibrators						
	NCB	NCR	NCT	NTK	NTP	NTS	PKL
VAC 6	-	-	1, 2	-	18	80 - 180 (HF, NF)	-
VAC 8	1, 2	-	1, 2	8 AL	25*	120 (HF, NF), 180 (HF, NF)	-
VAC 10, VAC 8 TWIN***	1, 2, 3	3	3, 4	15 X, 16, 18 AL	25*	120 - 250 (HF, NF)	190*
VAC 11, VAC 10 TWIN***	3, 5	10	5, 10	18 AL	-	180 (HF, NF), 250 (HF, NF)	190*, 450*
VAC 12, VAC 8 / 10 TWIN***	10, 20	22	15, 29	25 AL	25*, 32*, 48*	350 (HF, NF), 100/01, 75/01*, 50/01*	450*, 740*, 1000*
VAC 13, VAC 12 TWIN***	10, 20	22	15, 29	-	32*, 48	75/01, 50/01, 70/02	740**, 1000, 2100, 5000
VAC 15	10, 20, 50, 70	22, 57	15, 29, 55, 108	18 AL, 25	32, 48	250 (HF, NF), 350 (HF, NF), 75/01, 50/01, 70/02	740**
VAC 20	-	57	55, 108	-	32, 48	70/02, 54/02, 50/04	-
VAC 30	-	120	126, 250	-	-	50/04, 50/08	-
VAC 40	-	-	-	-	-	50/08, 50/10	-

* *adapter plate necessary, not included in delivery*

** *adapter plate or insert EE required*

*** ***Netter****Vibration has to be consulted*

NOTICE

Not every pneumatic vibrator may be screwed onto the VAC. Damage to the internal control bores is possible with drilling patterns other than the templates (see chap. Installation, from page 17 on). The above combinations of VAC and vibrator are tested and can be used without restrictions except those marked with */**/***.

When using other vibrators, the operator is responsible for checking safety and functionality.

Hose sets to be used

Depending on the vibrator used, the VAC ought to be used with the following hose sets:

Vibrator: PKL	Other vibrators
Hose set HG 10 N or HG 10 S	Combinations of VAC and hose set mentioned under "Parameters" (see page 8, column `Type VAC ... + HG ...`)

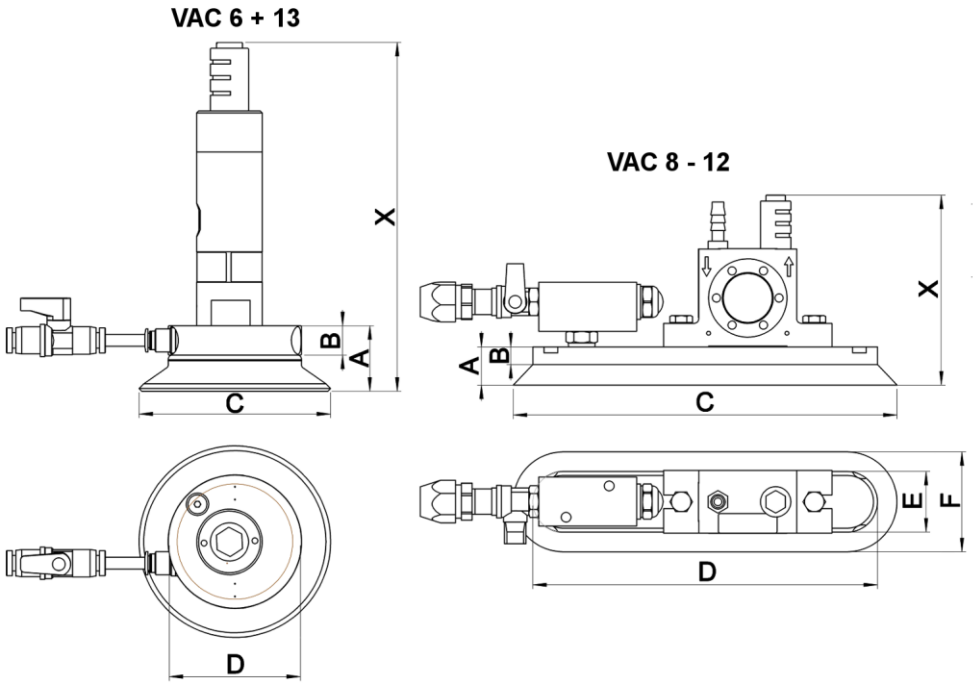
Hoses

***Netter**Vibration* recommends the following cross sections for hoses:

Type	Hose size to the hose set*	Hose size to the VAC*	Hose size to the vibrator*
VAC 6	DN 6	DN 4	DN 4
VAC 8, VAC 10, VAC 11	DN 9	DN 6	DN 6
VAC 12, VAC 13, VAC 15, VAC 20	DN 13	DN 6	DN 9
VAC 30, VAC 40	DN 17	DN 9	DN 12

** DN= nominal diameter (inner diameter)*

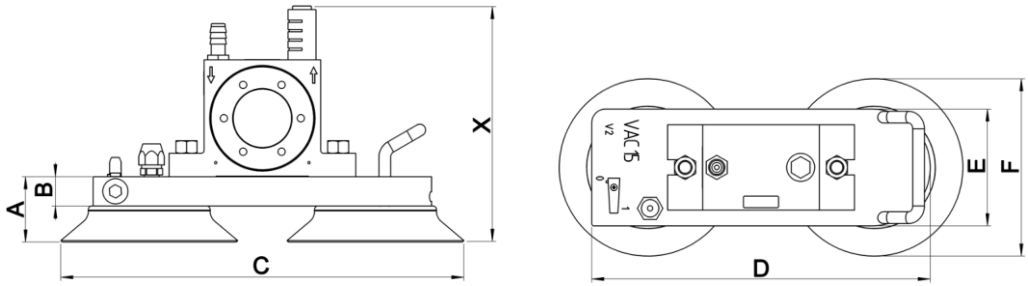
Dimensions VAC 6 - 13



Type: VAC ...	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
6	33.5	15	100	68	-	-
8	19	8	150	127	30	55
10	22	8	200	175	26.5	55
11	20	5.5	300	276	26	55
12	25	10	300	268	68	100
13	70	30	200	186	-	-

Dimension X depending on the vibrator

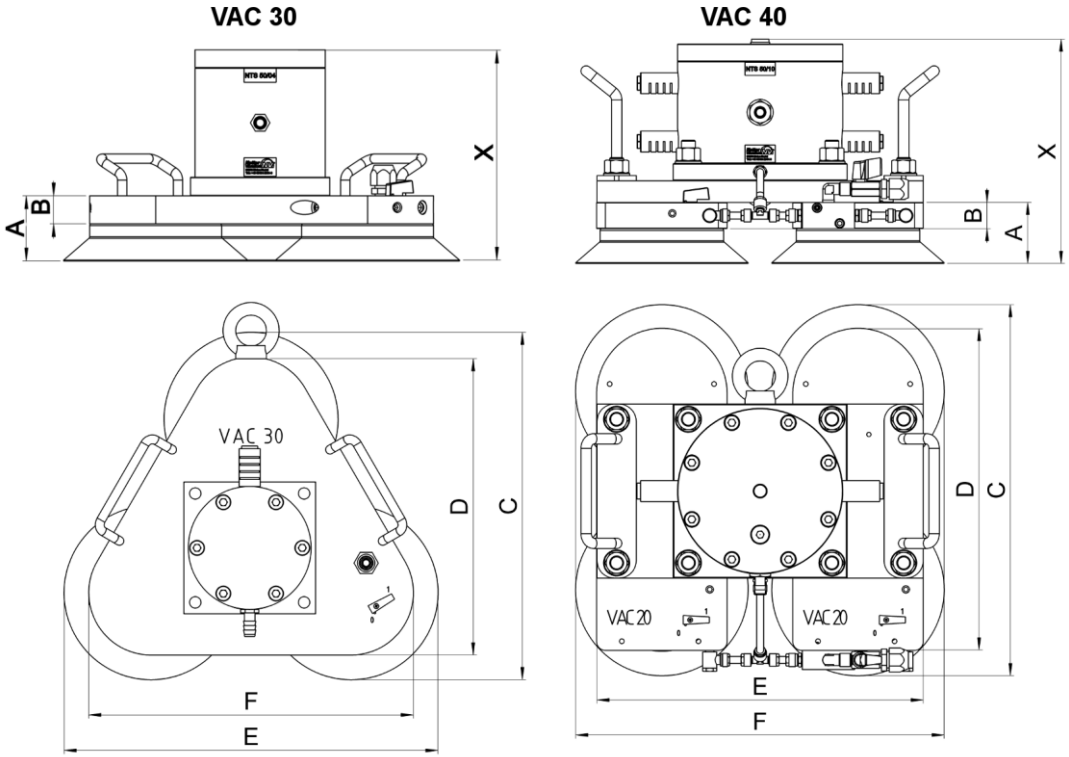
Dimensions VAC 15 / 20



Type: VAC ...	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
15	56	25	350	290	100	150
20	70	30	430	370	150	200

Dimension X depending on the vibrator

Dimensions VAC 30 / 40



Type: VAC ...	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
30	70	30	396	337.5	426	370
40	70	30	430	370	375	425

Dimension X depending on the vibrator

Tightening torques

Netter*Vibration* recommends the following tightening torques for screws and nuts of the quality 8.8 (coefficient of sliding friction 0.14):

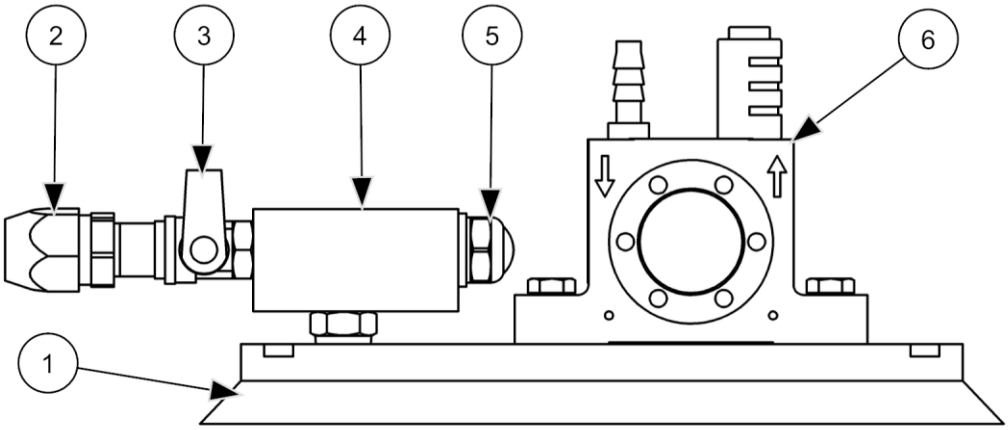
	M4	M5	M6	M8	M10	M12	M16	M20	M22	M24	M30
Tightening torque [Nm]	3	6	10	25	50	87	210	411	559	711	1,422
Minimum screw depth [mm] for tapped hole in S 235 JR*	7	8	10	13	17	20	27	34	37	40	50

** Material S 235 JR = St 37-2, minimum screw depth for other materials on request*

To fasten the vibrator, observe the tightening torques in the operating instructions of the vibrator.

4 Design and function

Design

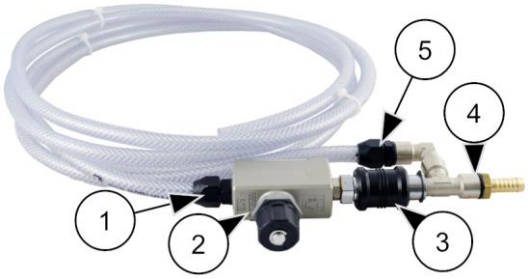


1	Ground plate with suction cup	4	Vacuum nozzle
2	Hose set connection	5	Silencer
3	2/2-way ball valve	6	Vibrator

Function

VAC mainly consist of a ground plate with suction cup(s) (1), a 2/2-way ball valve (3) and a vacuum nozzle (4). By actuating the 2/2-way valve (3) a vacuum is generated with the vacuum nozzle (4). As a result, the VAC attaches itself with the suction cup(s) (1) to the mounting surface.

Hose set HG N with DRV



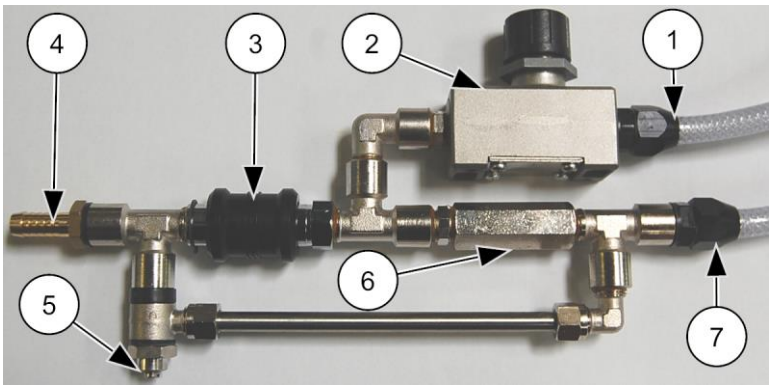
1 Vibrator connection
2 Throttle check valve (DRV)
3 3/2-way manual slide valve
4 Compressed air connection
5 VAC connection

When the compressed air supply line is open, the VAC is permanently supplied with compressed air through the hose set.

The vibrator is switched on and off by actuating the 3/2-way manual slide valve (3).

The hose set HG ... N with DRV is equipped with a throttle check valve (2). By using the throttle check valve, it is possible to set the pressure applied to the vibrator and thereby the frequency of the vibrator.

Hose set HG S with DRV



1 Vibrator connection
2 Throttle check valve (DRV)
3 3/2-way manual slide valve
4 Compressed air connection
5 Throttle screw (air-saving function)
6 Throttle valve
7 VAC connection

In addition to the standard version N the hose set HG ... S has an economy switch position. With the vibrator switched off the compressed air consumption can be reduced by approx. 30 % in comparison to the standard version by means of a throttle screw (5). This compressed air reduction is possible, because the "holding function" does not require the totally available compressed air. For operating the vibrator, the totally available compressed air is needed and released by the hose set HG ... S.

5 Transport and storage

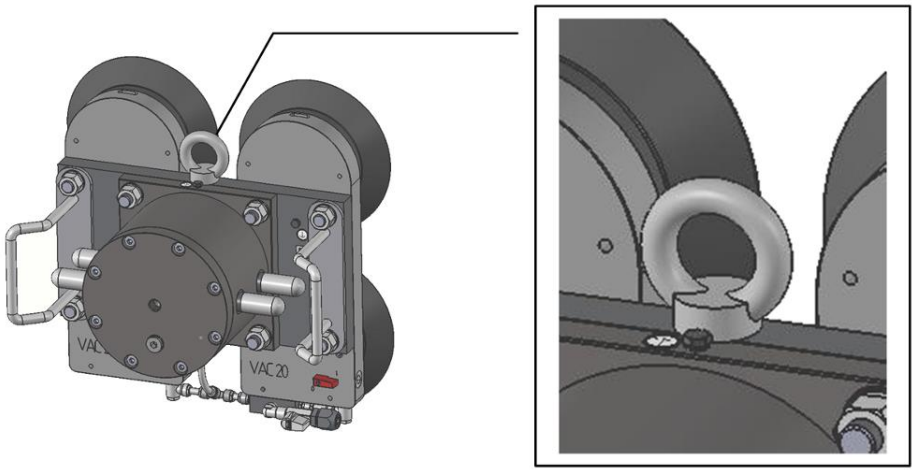
Observe the safety instructions in chap. Safety, from page 5 on.

Transport conditions

Special conditions of transport are not required.

Lifting VAC 40

Due to its own weight, the VAC 40 may only be lifted with a suitable load handling device. In case it has to be lifted, the VAC 40 is equipped with an M16 eye bolt.



Packaging

The VAC are packed and ready for assembly. VAC together with hose set and vibrator are delivered completely, unless otherwise agreed.

The packaging protects the VAC 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 VAC in a dry and clean environment.
- Protect the VAC from UV-exposures, weather and ozone.
- The storage temperature is between -20 °C and +60 °C.
- Close all openings when re-storing.
- Replace aged, brittle suction cups before renewed start-up.

6 Installation

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

Technical data Information on tightening torques for screws and cross-sections for hoses can be found in Ch. Technical data, from page 8 on.

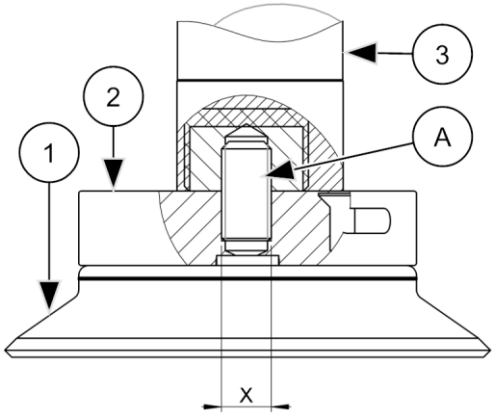
Procedure When installing the VAC, carry out the following steps in succession:

Adapter plate

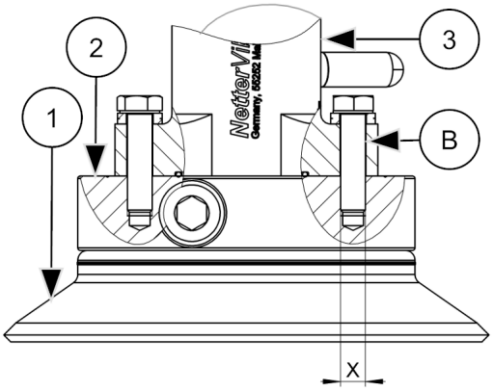
IMPORTANT
Some vibrators require an adapter plate for mounting on certain types of VAC (see Ch. Technical data, page 9).

Adapter plates with matching bores are available on request.

VAC 6 Mount the approved vibrator as follows:



Example: NTS

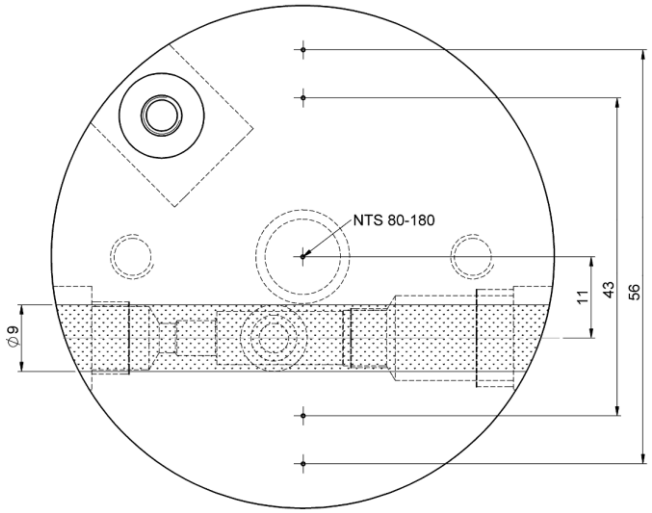


Example: NTP

1 Suction cup
2 Ground plate of VAC
3 Vibrator
A Setscrew
B Hexagon bolt

1. Determine and mark the required bores using the following template. Common hole spacings are marked.
2. Drill tapped blind holes from above into the ground plate (2). The diameter of the through-holes (x) that is necessary for the vibrator can be found in the table for the template.
3. Mount the vibrator (3) with setscrews (A; for NTS) or hexagon bolts (B; for NTP and NCT). Use suitable screw lockings.

Template for bores VAC 6



Thread	Vibrator : dimension [mm]
M10	NTS 180
M8	NTS 120
M6	NCT (1, 2) : 56
M5	NTS 80
	NTP 18 : 43

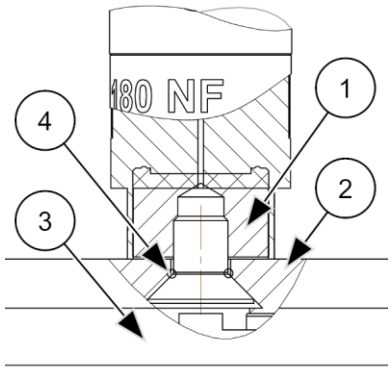
Note: The grey marked area may not be drilled.

VAC 8
VAC 10
VAC 11
VAC 12

There are the following options for screwing the approved vibrator on the adapter plate or the ground plate of the VAC:

Use suitable lockings with every option.

Option A



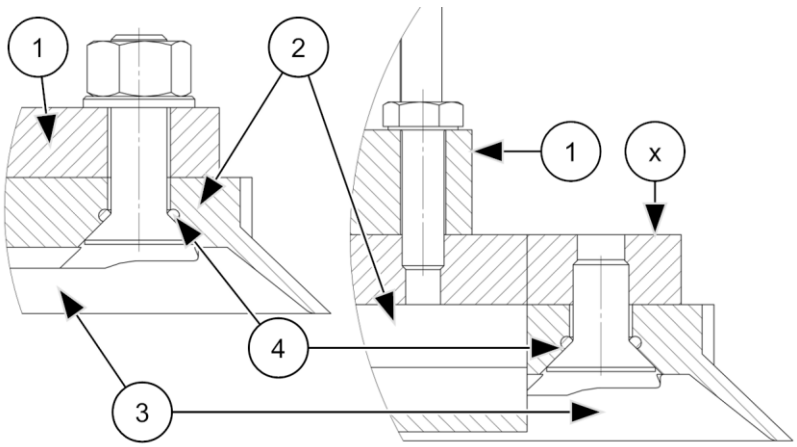
1 Vibrator
2 Ground plate of VAC
3 Suction cup
4 O-ring
x Adapter plate

Drill through the suction cup (3) and the ground plate (2) from below. Countersink the bore.

For a vacuum to build up, each countersunk screw must be sealed with an O-ring (4).

Screw the vibrator (1) onto the ground plate using the countersunk screw.

Option B

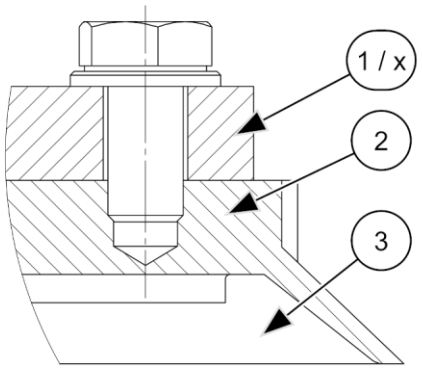


Drill through the suction cup (3) and the ground plate (2) from below. Countersink the bore.

For a vacuum to build up, each countersunk screw must be sealed with an O-ring (4).

In case of screw connection with thread in the adapter plate (x), make sure that the screw does not protrude over the adapter plate.

Depending on the fastening method, you have to mount the vibrator (1) on the adapter plate (x), before mounting the adapter plate on the ground plate.

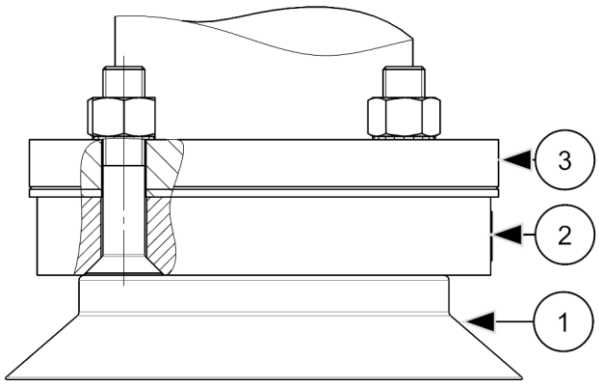
Option C	
	1 Vibrator 2 Ground plate of VAC 3 Suction cup x Adapter plate
	Drill tapped blind holes from above into the ground plate (2). Make sure that the suction cup (3) is not perforated. Depending on the fastening method, you have to mount the vibrator (1) on the adapter plate (x), before mounting the adapter plate on the ground plate.

Vibrator thread size

The thread size of the vibrator can be found in the corresponding operating instructions.

VAC 13
VAC 15
VAC 20
VAC 30
VAC 40

Mount the approved vibrator as follows:



1 Suction cup
2 Ground plate of VAC
3 Vibrator (flange/base plate)

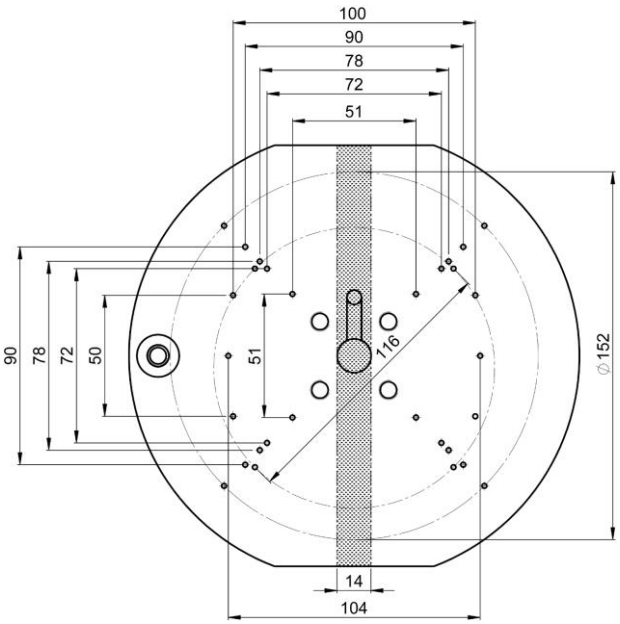
1. Unscrew the suction cups (1) of the VAC.
2. Determine and mark the required bores using the following templates. Common hole spacings are marked.
3. Drill through-holes. Countersink the bores on the suction cup side of the ground plate (2). The diameter of the through-holes for the vibrator can be found in the table for the corresponding template.
4. Mount the vibrator (3) with the designated countersunk screws with hexagon socket and suitable screw lockings.
5. Mount the suction cups in the correct position.

Adapter plate or EE insert

IMPORTANT

An adapter plate is required for mounting the PKL 740 on the VAC 13 or the VAC 15, unless the EE insert is used.

Template for bores VAC 13



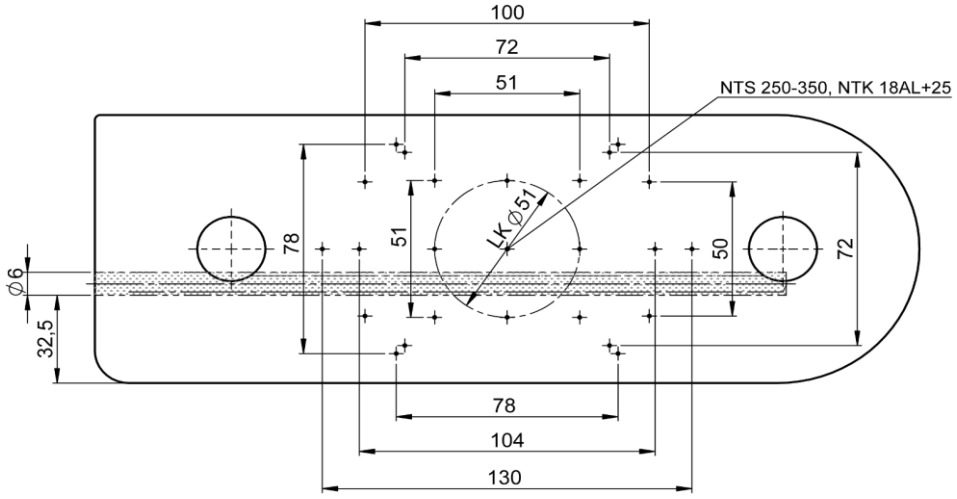
Ø bores [mm] (thread)	Vibrator : dimension [mm]
17 (M16)	PKL 5000 : Ø152
13 (M12)	NTP 48 : 78x78
	PKL 740 : 100x50
	PKL 1000 : Ø116
	PKL 2100 : Ø152
11 (M10)	NTP 32 : 51x51
9 (M8)	NCB (10, 20), NCR 22, NCT (15, 29) : 104
	NTS (75/01, 50/01) : 72x72
	NTS 70/02 : 90x90

Note: The grey marked area may not be drilled.

Assembly of PKL 5000 / PKL 2100 on VAC 13

Drill a through hole of 14.5 mm in the flange of the PKL 5000 / PKL 2100 in order to be able to mount the air hose of the VAC 13.
There is a punch mark for this hole on the underside of the flange of the PKL 5000 / PKL 2100, for the PKL 2100 marked with a "V".

Template for bores VAC 15

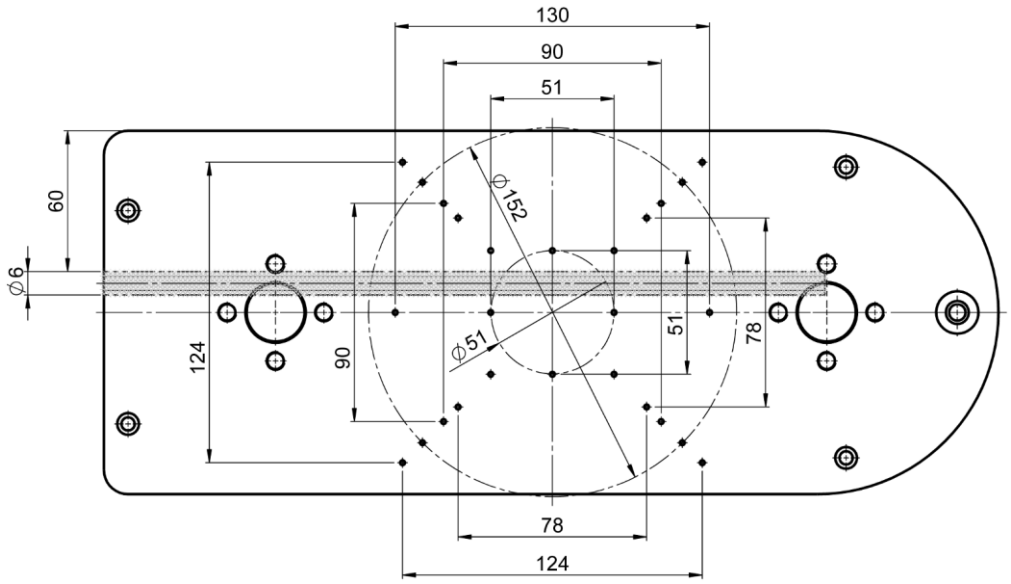


Note: The grey marked area may not be drilled.

Ø bores [mm] (thread)	Vibrator : dimension [mm]		
17 (M16)	NTK 25		
13 (M12)	NTP 48 : 78x78	NCB (50, 70), NCR 57, NCT (55, 108) : 130	
	NTS (250, 350)	PKL 740 : 100x50	
11 (M10)	NTK 18 AL	NTP 32 : 51x51	NTS 70/02 : Ø51*
9 (M8)	NTS (75/01, 50/01) : 72x72	NCB (10, 20), NCR 22, NCT (15, 29) : 104	

* *when using a round base plate*

Template for bores VAC 20

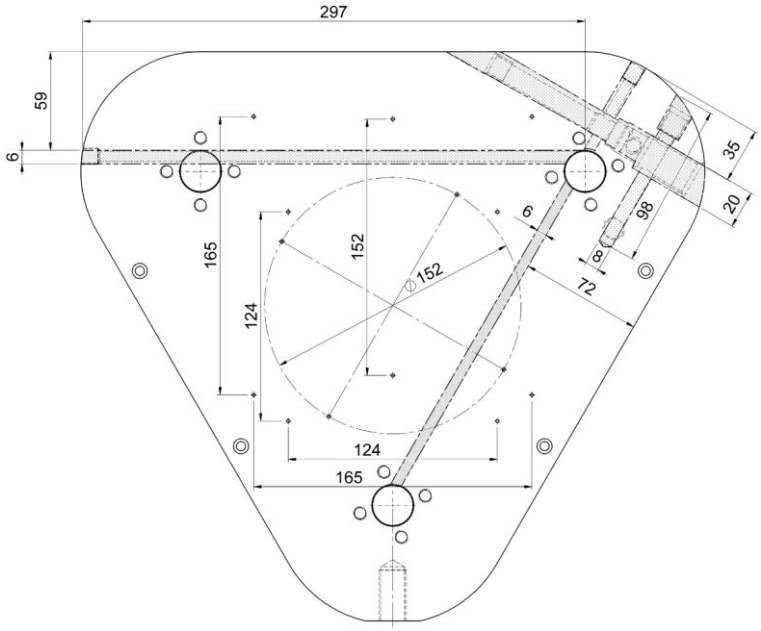


Note: The grey marked area may not be drilled.

Ø bores [mm] (thread)	Vibrator : dimension [mm]	
13 (M12)	NTP 48 : 78x78	
	NCR 57, NCT (55, 108) : 130	NTS 50/04 : 124x124
11 (M10)	NTP 32 : 51x51	
9 (M8)	NTS (54/02, 70/02) : 90x90	NTS 70/02 : Ø51*

* *when using a round base plate*

Template for bores VAC 30



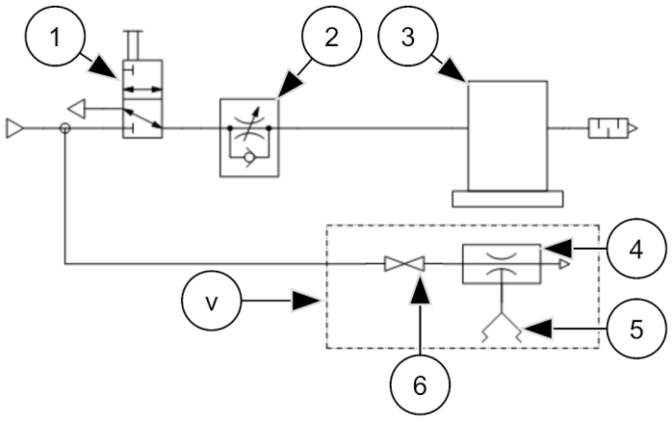
Note: The grey marked area may not be drilled.

Ø bores [mm] (thread)	Vibrator : dimension [mm]	
17 (M16)	NCR 120, NCT (126, 250) : 152	NTS 50/08 : 165x165
13 (M12)	NTS 50/04 : 124x124	

Bores VAC 40

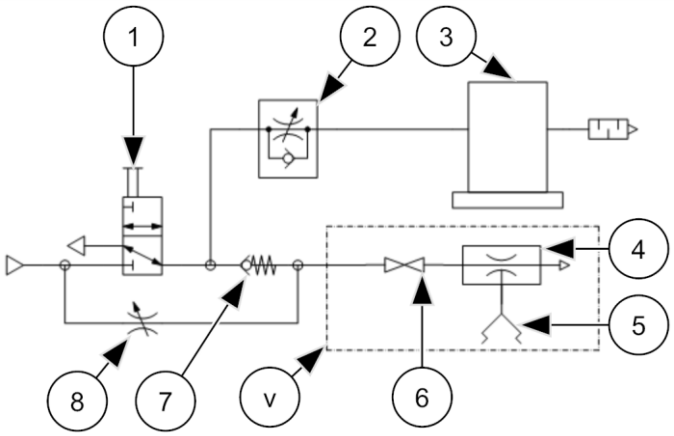
The VAC 40 consists of two VAC 20 and an adapter plate. The adapter plate is delivered with the through-holes necessary for the installation of the vibrator.

Standard installation for all types with hose set HG ... N with DRV



1 3/2-way manual slide valve
2 Non-return throttle valve
3 Vibrator
4 Vacuum nozzle
5 Suction cup
6 2/2-way ball valve
v VAC

Standard installation for all types with hose set HG ... S with DRV



1 3/2-way manual slide valve
2 Non-return throttle valve
3 Vibrator
4 Vacuum nozzle
5 Suction cup
6 2/2-way ball valve
7 Non-return valve
8 Throttle valve
v VAC

Air supply

The loss of pressure increases with hose length. The nominal diameters in Ch. Technical data, from page 8 on, apply to hose lengths up to 3 m. Longer supply lines require larger cross-sections.

Air discharge

From the two outgoing hoses of the hose set, connect

- the hose, which is always under pressure, to the VAC and
- the detachable hose to the vibrator.

Checklist installation

Check that the following steps have been carried out:

- Compliance with permissible ambient temperatures ensured? ☐
- Mounting surface clean? ☐
- Vibrator and hose set mounted? ☐
- Screw size and tightening torques observed? ☐
- Fastening screws secured with liquid safety agent, if necessary? ☐
- VAC and vibrator connected according to circuit diagram? ☐
- Compressed air supply line fastened securely? ☐
- Hose supply connection sealed with liquid sealant, if necessary? ☐
- Specifications on kind of hose, hose length and nominal width observed? ☐
- Function of VAC checked? ☐
- VAC secured against falling by means of the safety cable? ☐

7 Start-up and operation

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

Permissible operating conditions

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

Procedure

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

1. Switch on the compressed air to supply the VAC and the vibrator.
2. Position the VAC at the desired location and activate the 2/2-way ball valve on the VAC to generate the vacuum required under the suction cup.
3. Check the VAC for tightness. If the VAC can be loosened by hand,
   - check the mounting surface for unevenness and contamination,
   - control and, if necessary, increase the pressure (e.g. with a maintenance unit with pressure regulator).
4. Start the vibrator with the 3/2-way manual slide valve on the hose set.
5. Set the frequency of the vibrator by means of a throttle check valve (e.g. on the hose set HG ... with DRV) so that sliding of the VAC is prevented.

Checklist start-up

Check that the following steps have been carried out:

Hose connections checked before installation? ☐

Desired frequency set? ☐
The maximum permissible frequency must not be exceeded.

After 30 minutes of operating time:
Frequency still as set? ☐
If necessary, adjust frequency.

After one hour of operating time:
Hose supply lines and fastening screws checked, retightened if necessary? ☐
Then abide to the maintenance plan.

8 Maintenance and servicing

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

Maintenance plan

Maintenance of the VAC must be carried out as follows:

Interval	Action
After an hour of operation after initial start-up	Check fastening screws, retighten if necessary.
	Check hose screw connections and hose fittings, retighten if necessary.
Monthly	Check fastening screws, retighten if necessary.
	Check hose screw connections and hose connections and retighten, if necessary.
	Check hose supply lines for permeability and kinking. If necessary, clean and remove kinks.
	Check the function of the silencer. Clean silencer.
	Check the frequency of the vibrator and set, if necessary.
	Check suction cups for wear. Replace aged, brittle suction cups.
	Check vacuum nozzle for airflow. In case of clogging, the nozzle of the VAC 8 / 10 / 11 / 12 must be disassembled and cleaned. On all other types, disassembly and cleaning of the vacuum nozzle may only be performed by ***Netter****Vibration*.
	Check safety cable.

Observe the maintenance instructions of the vibrator.

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 of the silencer or complete breakdown of the VAC.

9 Troubleshooting

Malfunctions and causes

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

Malfunction	Possible causes	Corrective actions
Suction capacity of the VAC is too low	Air supply insufficient	Check pressure before VAC and set to 2 to 6 bar.
	Hose connections not correctly assembled	Check the hose connection assembly.
	Lines kinked	Lay lines without kinking.
	Cross-section of supply line insufficient	Increase cross-section of supply line.
	Silencer clogged	Clean or replace silencer.
	Vacuum nozzle clogged	Clean vacuum nozzle (let clean; see page 24, "maintenance plan").
	Suction cups worn	Replace aged, brittle suction cups.
	Mounting surface permeable to air or rough	VAC is not suitable for this application.
VAC slides when vibrated	Air supply insufficient	Check pressure before VAC and set to 2 to 6 bar.
	Lines kinked	Lay lines without kinking.
	Silencer clogged	Clean or replace silencer.
	Vacuum nozzle clogged	Clean vacuum nozzle (let clean; see page 24, "maintenance plan").
	Mounting surface permeable to air	VAC is not suitable for this application.
	Mounting surface oily, greasy or moist	Remove relevant layers.
	Suction cups worn	Replace aged, brittle suction cups.
	Vibrational frequency too high	Set frequency with a non-return throttle valve.

10 Spare parts and accessories

Ordering of spare parts

Please provide the following details when ordering spare parts:

- type of VAC
- description and position of spare part
- required amount

Possible accessories

The following accessories are available for the VAC:

Accessory	Description
Hose material and hose screw connections	For air supply, available in various qualities and dimensions
3/2- or 2/2-way valves	For electrical, pneumatic, manual activation
Non-return throttle valves	For frequency regulation, manually adjustable
Maintenance units	Filter regulator unit NFR for mounting with oil-free vibrators, maintenance unit NWE (filter regulator unit with lubricator) for mounting with lubricated vibrators

Special models

The following special models are available on request:

- other materials (e.g. silicone suction cups, stainless steel plates)

11 Disposal

Prices

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

Material-specifications

All parts of the VAC can be recycled.

Material	VAC 6	VAC 8 / 10 / 11 / 12	VAC 13 / 15 / 20 / 30 / 40
Steel	Safety cable, fastening screws	Ground plate, safety cable, fastening screws	Safety cable, fastening screws
Aluminium	Ground plate	Vacuum nozzle, hose screw connection	Ground plate, handle, hose screw connection
Brass, nickle-plated	Screw connections	Screw connections	Screw connections, vacuum nozzle
Plastics	Vacuum nozzle, suction cup	Suction cup, seal rings	Suction cups, seal rings

12 Annex

The declaration of conformity can be found at: www.NetterVibration.com