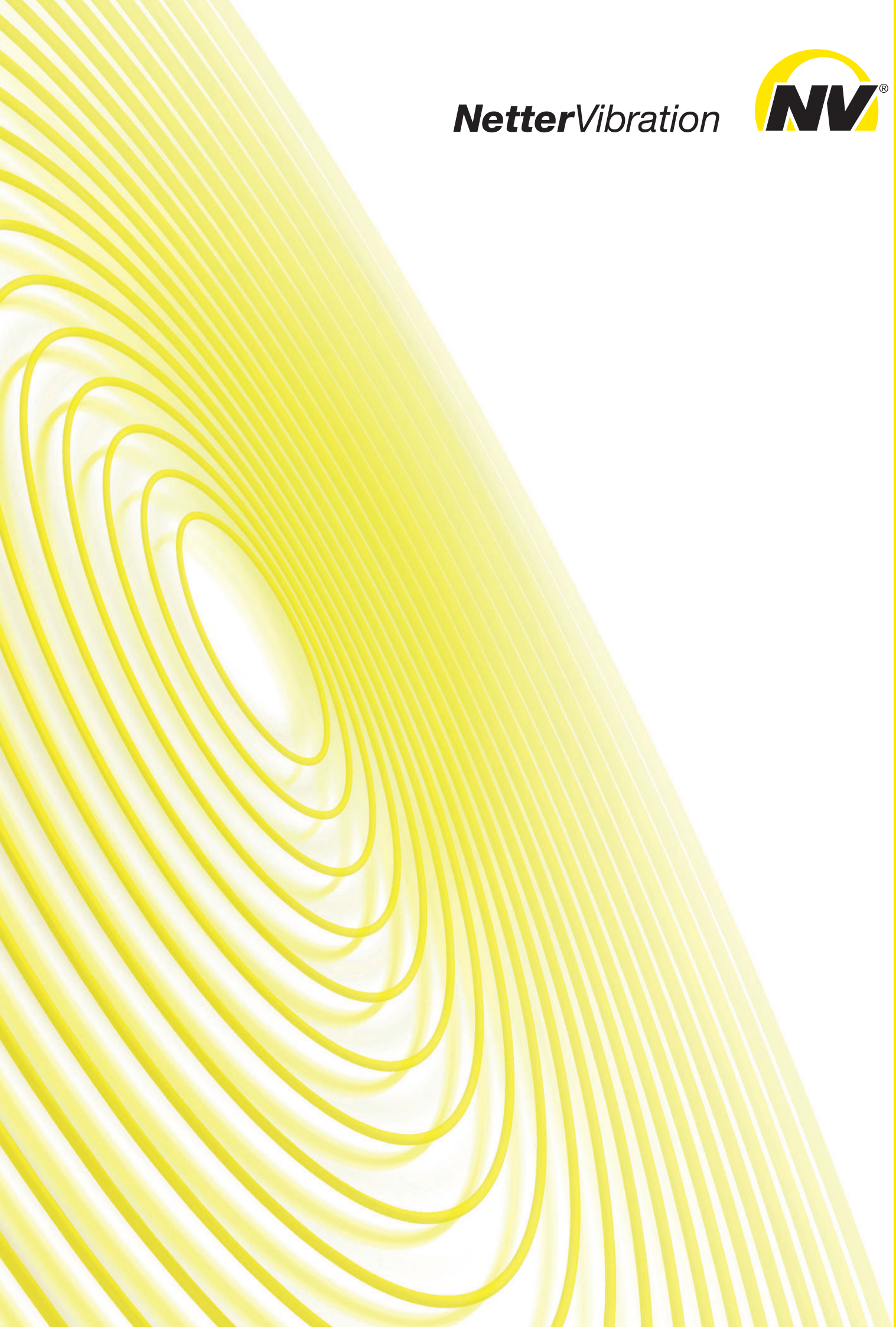

NetterVibration
NV®
Serving industry with vibration

NetterVibration

Who we are

Since 1953, ***Netter****Vibration* stands for “Serving industry with vibration” and – thanks to its wide experience – holds a leading position in the field of vibration technology. Productive and intelligent solutions, technical expertise and “Made in Germany” quality form the basis of success. Vibrators from ***Netter****Vibration* are applied in numerous industrial sectors as in, for example, chemical, food, construction or mechanical engineering ones. Complete vibration facilities such as vibration tables and dosing and conveyor troughs are part of our range of services.

Netter*Vibration* offers efficient and reliable solutions. These include conveying, separating, dosing, releasing, compacting, sorting and sieving of bulk materials such as powders, pellets or granulate materials. Moreover, with vibrators from ***Netter****Vibration* hoppers, pipes can be emptied and walls cleaned, as well as product jams loosened. Proven solutions for concrete compaction for the construction industry are available.

Netter*Vibration* develops customised solutions for all specific applications in close collaboration with its customers. This often results in unique products such as the extremely low-built drive unit LineDrive for conveyor or dosing channels, or roller vibrators for extremely high temperatures (500 °C). Experienced sales representatives and application engineers gladly advise you on-site.

Your Application decides

Dosing

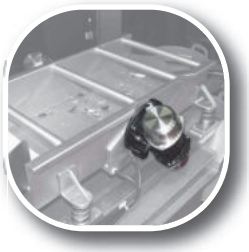
Cleaning

Compacting

Releasing

Testing

Sieving



Feeding

Loosening

Separating

Discharge aid

Industry

NetterVibration

Appliance Description	Applications	Leaflet
Pneumatic Impactors **Series PKL** – Hammer effect – Lower compressed air requirement – Low-noise versions available – Versions with automatic control	– Knocking stubborn residues from walls, pipes and containers – Preventing bridging – Evacuating residues from weighing containers – Preventing rat-holing	 Page 5
High Frequency-Impactors **Series NHK** – Linear vibration – High efficiency thanks to impacts – Efficiency adjustable by vibration console	– Loosening adhering material – Mechanical stimulation of processes – Protection of components, long service life	 Page 9
Pneumatic Linear Vibrators **Series NTS** – Linear vibration – Frequency and amplitude can be adjusted separately – Synchronous operation possible – Immediate start and stop	– Conveying, compacting and loosening bulk material – Emptying bins – Drives for conveyor troughs – Resistant against aggressive environmental conditions	 Page 11
Pneumatic Linear Vibrators Series NTK – Linear vibration – Large amplitude – Variable additional weights – Frequency and amplitude separately adjustable – Immediate start and stop	– Drives for conveyor, discharge troughs – Loosening or compacting bulk material – Mechanical stimulation of processes – Emptying bins – Drive for sieves and vibrating tables	 Page 15
Pneumatic Piston Vibrators **Series NTP** – Linear vibration – Frequency and amplitude separately adjustable – High acceleration peaks – Rubber hammer effect	– Knocking off firmly adhering materials – Drives for chutes and vibration tables – Loosening product jams – Assistance for emptying containers – Protection of equipment by elastomer insert	 Page 19
Pneumatic Rotary Vibrators **Series NCB, NCR and NCT** – Rotary vibration – Very high centrifugal force – Very high frequency – Frequency continuously variable via compressed air	– Moving bulk materials – Elimination or reduction of friction – Emptying bins – Preventing product jams – Preventing adhesives to pipes an plates	 Page 21
Vacuum Fixing Devices for Vibrators **Series VAC** – Flexible handling – Easy displacement – Frictional connection – Integrated vacuum generation	– Use of vibrators without fixed mounting – Use as a vibrating tool during maintenance – Emptying transport containers – Removing adhesions from tubes	 Page 27
Electric External Vibrators **Series NEG, NEA, NED and NES** – 3-Phase, Single Phase, Direct Current – Directional, circular vibration – Maintenance-free operation – NES housing completely of stainless steel – Adjustable with Netter frequency converters	– Drives for conveyors and sieves – Loosening adhesives and product jams – Concrete compacting, also formwork in precast plants, tunnelling, etc. – Compaction of different materials by using CC unbalances	 Page 29
Static Adjustable Frequency Converters **Series SRF, NFI and NFU** – Infinitely adjustable speed control – Parallel connection of multiple vibrators – Simple and robust design – As a standard mounted in cabinets	– Speed control for electric vibrators – Customised versions for special applications – Compacting and weighing bulk materials – Vibrator control by means of CC unbalances	 Page 45

Serving industry with vibration

NetterVibration

Leaflet	Appliance Description	Applications
 Page 49	**Pneumatic External Vibrators** **Series NTV** – High frequency – No wear – No bearings – Quickly removable thanks to quick release brackets	– Compaction of concrete in tunnel formwork constructions – Loosening product compaction – Loosening stubborn adhesions – Emptying bins – Drives for vibrating tables
 Page 51	**Vibrating Tables** **Series VT** – Linear or circular vibration – Electric or pneumatic drives – Also for lower installation heights – Many ways of controls and accessories	– Compacting bulk material in cartons or sacks – Testing component parts – Levelling material cones – Loosening and separating material adhesions
 Page 53	**Multiple-Shaft Vibration Systems** **Series *Vector*Drive** – Resonance-free start and stop – Amplitude adjustment during operation – Frequency control during operation – 100% controlled vibration	– Compacting – Conveying – Mixing – Dispersing
 Page 55	**Conveyor Systems** **Series *Dosy*Pack and *Power*Pack** – Conveyor troughs mounted on blade springs – Gentle and uniform dosing – Adjustable fine and coarse flow – Immediate start and stop	– Quick and exact dosing – Feeder for optical dosing units – Gentle conveying and filling of bulk materials – Stainless steel version for use in the chemical and pharmaceutical industries as well as in the food industry
 Page 59	**Conveyor Systems** **Series *Line*Drive** – Pneumatic linear vibrator with internal guides for quick construction of a conveyor trough – Modularly extendable	– Gentle, horizontal conveying of bulk material – Allows applications with confined space – Mounting on uneven surfaces by means of a ground plate
 Page 61	**Resonance Conveyor Systems** **Series *Flexi*Link** – Conveyor, consisting of blade springs, pneumatic linear vibrator NTK and connecting elements ***Flexi*Link** – High conveying capacity – Immediate start and stop	– Conveyor troughs (up to 20m length) – Fast conveying of powder and bulk materials – Economical conveying by making use of the spring resonance

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Pneumatic Impactors
Series PKL

- For loosening stubborn adhesions in silos, containers and pipes
- Higher impact than conventional impactors
- Low compressed air requirement per stroke
- Silenced EE version with elastomer impact plate
- Versions with self-control ST
- Versions compliant to ATEX or in stainless steel (from PKL 1000) available


PKL 450


PKL 740

PKL 1000

PKL 5000

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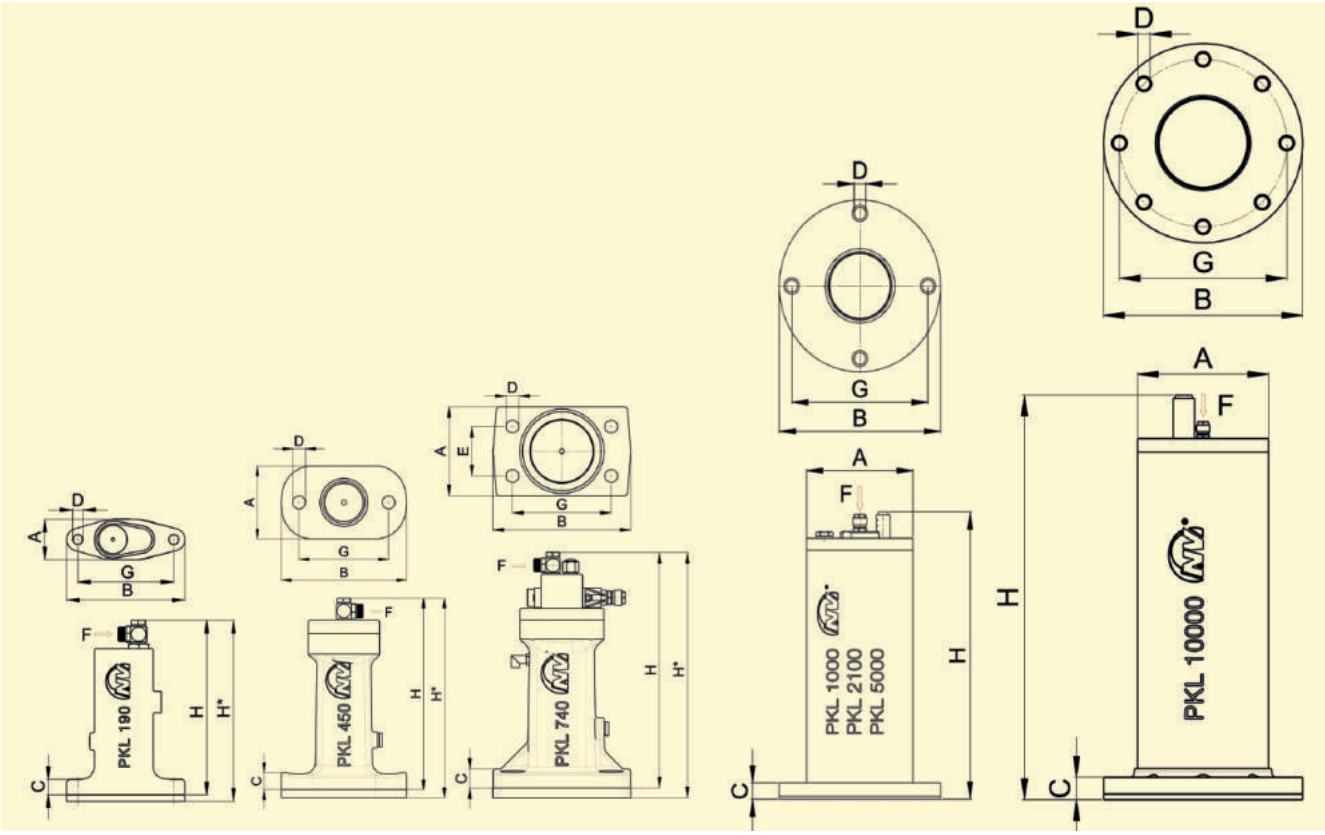
Pneumatic Impactors
Series PKL

Type	Piston weight [kg]	Force of impact* [kg]	Optimal operating pressure [bar]	Air requirement/impact at optimum pressure [Normalliter]	Total weight [kg]	Suitable for wall thickness [mm]
PKL 190/4	0.19	0.43	4.0	0.19	0.8	1 - 2
PKL 190/6	0.19	0.60	6.0	0.27	0.8	1 - 2
PKL 450/4	0.44	0.56	4.0	0.46	1.6	1 - 3
PKL 450/6	0.44	0.92	6.0	0.65	1.6	1 - 3
PKL 740/3	0.74	1.30	3.0	0.67	2.6	2 - 4
PKL 740/4	0.74	1.80	4.0	0.83	2.6	2 - 4
PKL 740/5	0.74	2.10	5.0	1.00	2.6	2 - 4
PKL 740/6	0.74	2.70	6.0	1.17	2.6	2 - 4
PKL 1000/4	1.0	2.80	4.0	2.70	5.7	2 - 4
PKL 1000/6	1.0	4.30	6.0	4.00	5.8	3 - 5
PKL 2100/4	2.10	4.20	4.0	6.53	6.7	3 - 5
PKL 2100/5	2.10	6.20	5.0	7.84	6.9	3 - 5
PKL 5000/4	4.96	6.60	4.0	7.24	16.0	4 - 8
PKL 5000/4 S	4.96	6.60	4.0	7.24	16.0	4 - 8
PKL 5000/6	4.96	10.60	6.0	10.14	16.5	6 - 12
PKL 5000/6 S	4.96	10.60	6.0	10.14	16.5	6 - 12
PKL 10000/6	10.00	17.50	6.0	17.79	34.0	> 10

* The impact force corresponds to the effect of the specified weight, which falls from a height of one metre.



Type	A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]	F	G [mm]	H [mm]	H* with EE kit [mm]
PKL 190	38.0	111	15	9	-	G 1/8, NW 6 x 1	90	163.5	169.5
PKL 450	73.5	126	14	13	-	G 1/8, NW 6 x 1	90	192.0	200.0
PKL 740	90.0	140	15	13	50	G 1/8, NW 6 x 1	100	238.5	248.5
PKL 1000	Ø 88.9	Ø 140	13	13	-	G 1/8, NW 6 x 1	Ø 116	266.0	-
PKL 2100	Ø 120.0	Ø 180	17	13	-	G 1/8, NW 6 x 1	Ø 152	300.5	-
PKL 5000	Ø 114.3	Ø 180	22	17	-	G 1/8, NW 6 x 1	Ø 152	376.5	-
PKL 10000	Ø 145.0	Ø 220	25	17	-	G 1/8, NW 6 x 1	Ø 185	445.0	-

Pneumatic Impactors
Series PKL

ST kit
Application areas
The ST kit allows a continuous impact sequence with a permanent supply of compressed air.

Design and function
The impact frequency can be adjusted by a throttle valve built into the supply air. The maximum impact sequence is to be observed.

EE kit
Application areas
The kit EE is used to generate a silenced impact ("rubber hammer effect").

Design and function
A spacer plate with an impact plate made of elastomer is installed between the impactor and the mounting surface.. From PKL 2100 upwards, the steel impact plate is replaced by an elastomer plate. The use of the elastomer impact plate significantly reduces the sound level.

Special versions for ATEX, stainless steel and high temperature
PKL E (ATEX)
Pneumatic interval impactors of the series PKL E comply with the directive 2014/34/EC equipment group II and are suitable for the use in explosive areas of the category 2 (2G and 2D 85 °C [T6]) in zones 1, 2, 21 and 22.

PKL S (stainless steel)
Stainless steel impactors meet the special requirements for the chemical resistance of surfaces.

PKL HT (high temperature)
The HT series is designed for use up to an ambient temperature of 160 °C.

Weld-on consoles
Application areas
Weld-on consoles ASB and weld-on plates ASP in even and round versions are suitable for mounting on rectangular, round and conical containers.
They enable optimal transmission of the impulse triggered by the impactor, thereby reducing the load on the weld seams and container walls.

Design and function
The weld-on consoles are welded directly to the container wall.
The impactors are mounted on the weld-on consoles using the NBS fastening kits.

Glueing consoles
Application areas
The Netter glueing console of the series NKK is used where vibrators and impactors should not be fastened by welding. These may be containers, silos or other equipment which are knocked or vibrated, including cleaning, loosening or emptying.

Design and function
The glueing console can be easily mounted during ongoing production. All parts needed for glueing are included in the set. The console serves as a connecting element between impactor and construction. After cleaning, the glueing console can be glued to the desired component.

NBS fastening kits
Application areas
The NBS fastening kits are used for secure and permanent attachment of PKL impactors.

Design and function
The kits consist of special screws, dampers, washers, nuts and lock plates, which are designed for the respective application. Rebounds from the impactors are dampened by the springs.

Control valves
Application areas
Way valves are required to control the interval impactors. Operation is possible by hand or via a corresponding electronic timer. Our product range includes electric, pneumatic and manually controllable valves.

Timers AP and PAP
Application areas
The electronic timers are used to control interval impactors, solenoid valves and motor contactors wherever a workflow should be regulated time-wise. In addition, their usage significantly reduces the continuous sound level.

Design and function
The AP 117 controls solenoid valves, which enable a change between duty and pause time. In addition, pneumatic electronic timers of the series PAP, which directly control the supplied compressed air and can be used in wet zones, are available.

NetterVibration

Pneumatic Impactors
Series PKL

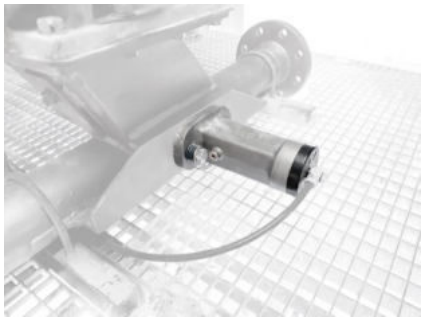
Sound protection hoods

Application areas
It is worthwhile using soundproof hoods, especially in bunkers with insulating cladding. By attaching the soundproof hoods to the insulating cladding, the sound source (bunker) is completely insulated.

Vacuum mounts VAC

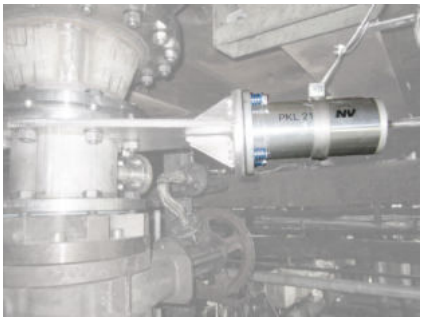
Application areas
Vacuum mounts of the VAC series are used for fast attachment to smooth, but also to rough and curved surfaces. They allow quick and easy attachment without welding or screw connections.

Design and function
As soon as compressed air is supplied to the VAC, it sucks firmly, thus ensuring a force-locked connection between the impactor and the subsurface. ATEX-compliant mounts and units with stainless steel plates are available.



PKL 450 for loosening adhesions

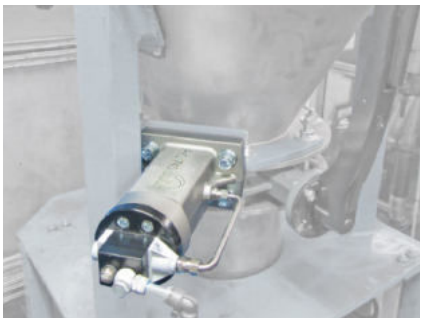
PKL 740 for cleaning bunker walls



PKL 2100 for loosening adhesions

PKL 190 for improving material flow

PKL 5000 for cleaning heat exchangers



PKL 740 for loosening bridge formations

Application areas
Pneumatic interval impactors series PKL are particularly suitable for knocking adherences, which are difficult to remove, off the walls of pipes and containers. PKL are also used when, for example, bridges and tube or manhole formations are to be loosened, or silos or containers emptied completely.

Design and function
PKL impactors allow effective and gentle cleaning at the same time. Movements resembling a hammer blow remove strongly adhering materials from the wall.
In the PKL, compressed air goes under the piston and presses it against a spring. When venting, the spring relaxes and thereby shoots the piston abruptly against a plate. The intentionally initiated impulse protects the construction (like tank wall or pipe). PKL can be operated with oil-free compressed air.

For actuation a way valve is required, which is optionally available. Safe operation is guaranteed at ten impacts per minute. The impactors, however, can be clocked higher if necessary.

Permissible operating conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with mist lubricant
Operating pressure:
2,5 bar to 6 bar
Ambient temperature:
-20 °C to 60 °C (HT version up to 160 °C)

kÉííÉêsáÄê~íáçåoffers the right accessories required for the mounting, installation and control of vibrators and interval impactors.

Netter provides solutions.
Consult our experienced application technicians.

Netter GmbH
Fritz-Lenges-Str. 3
55252 Mainz-Kastel

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- Poland
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02/2021 Subject to change

55

Electric Impactor
Series ePKL

- For loosening stubborn adhesions in silos, containers and pipes
- Energy-efficient, mobile operation possible thanks to battery pack
- Optional automatic control (ST) and integrated monitoring (number and intensity of impacts)
- Silenced EE version with elastomer impact plate
- Supply voltage 24 V/DC, activation via potential-free contact or internal control
- Power adapter available for direct supply with 230 V/AC

Automatic control ST with power supply (optional)

eVAC with external battery (optional)

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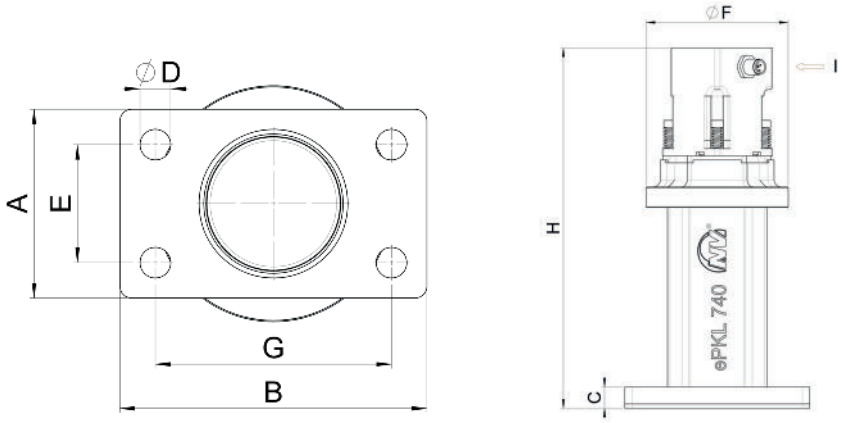
Electric Impactor
Series ePKL

Type	Piston weight [kg]	Total weight [kg]	Force of impact* [kg]	Suitable for wall thickness [mm]	Nominal voltage [V/DC]	Nominal current [A]	Nominal power [W]	Control system	Operating modes
ePKL 740	0.74	3.57	2.10	2-4	24	2.5	60	RS-485	Single impact Continuous impact

* The impact force corresponds to the effect of the specified weight, which falls from a height of one metre.



Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]
ePKL 740	80	130	15	Ø 13	50	Ø 100	100	254	M12x1

Application areas
Electric interval impactors series ePKL are particularly suitable for knocking adhesions, which are difficult to remove, off the walls of pipes and containers. ePKL are also used when, for example, bridges or rathole formations are to be loosened, or silos or containers emptied completely.

Design and function
PKL impactors allow effective and gentle cleaning at the same time. Movements re-sembling a hammer blow remove strongly adhering materials from the wall. In the ePKL the piston is raised by a stepping motor. When the upper stop is reached, the piston is released and accelerated with the help of springs. This causes the piston to hit the impact plate abruptly. The intentionally initiated impulse protects the construction (like tank wall or pipe).

Operating modes and controls
ePKL impactors can be used in the two operating modes 'single impact' or 'continuous impact'. The 'single impact' operating mode is preset on delivery. The ST kit is required for the 'continuous impact' operating mode. The preset pause time is 60 seconds. This can be adjusted when ordering. As an option, parameterisation and control can be carried out via the RS-485 interface. The ePKL also has an internal impact monitoring function.

Permissable operating conditions
Supply voltage:
24 V/DC or
via adaptor (optional) 230 V/AC
Ambient temperature:
-20°C to 40°C

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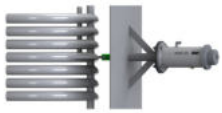
10/2024 Subject to change

28

High-Frequency Impactors
Series NHK

- Ideal for gentle cleaning of components
- Compaction of bulk materials
- Demoulding of cast parts
- High intensity
- Impact frequency up to 50 bounce impacts per second

NHK 25 on bin



NHK 25 on heat exchangers

NHK 25 an rotary kilns

NHK 25 on vibrating table

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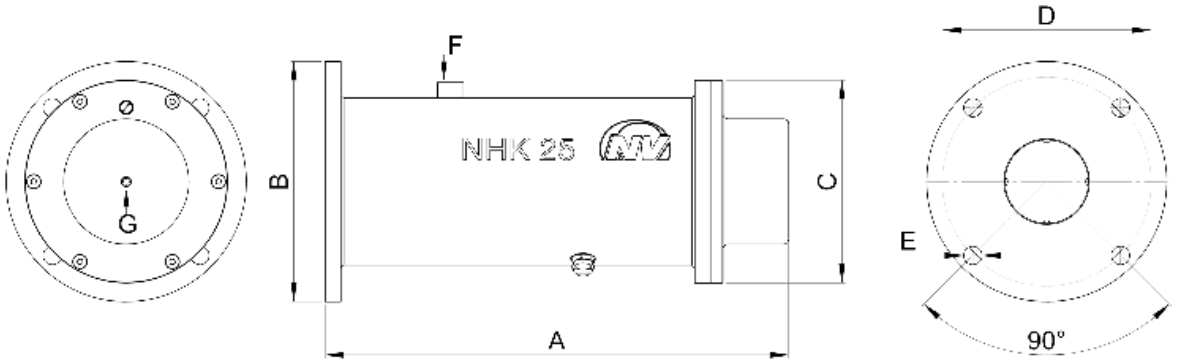
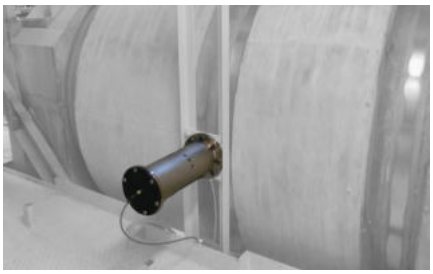
High-Frequency Impactors
Series NHK

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [inch]	G [inch]	Weight [kg]
NHK 25	444	230	194	200	17,5	G 1/2	G 1/8	35*

*Assemby with rod the weight is 38 kg



Sound protection hoods for NHK



NHK for loosening adhesions on rotary kiln

Cleaning with a drop hammer (left) and with NHK (right) after 6 months

Application areas
The high-frequency impactors of the NHK series are especially suitable for releasing and loosening very sticky materials effectively.

The wide range of applications include cleaning of rotary kilns, loosening of sticky material in bins and removing cast parts from moulds as well as removing exhaust gas residues from heat exchangers.

Design and function
The high-frequency impactors of the NHK series hits the item to be cleaned up to 50 times per second.

Due to their high intensity, the high-frequency impacts achieve a much better cleaning result and protect the component at the same time. The effective cleaning at low load enables a high system efficiency.

The pneumatic drive is almost maintenance-free and allows easy capacity adjustment via the operating pressure.

The NHK 25 has been designed for use in corrosive environments, such as flue gases and high temperatures.

An optional external rod can be added as an extension of the impact mass. With an additional control unit the NHK operating intervals can be regulated and the exernal rod can be rejetced at the end of the impact sequence.

Permissible operating conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), referably with oil mist

Operating pressure:
2 bar to 6 bar
Ambient temperature:
5 °C to 160 °C

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25

Pneumatic Linear Vibrators
Series NTS

- Linear vibration
- Resistant against aggressive environmental conditions
- Nominal frequency from 827 min^{-1} to 10,740 min^{-1}
- Centrifugal force from 19 N to 21,808 N
- Frequency and amplitude separately adjustable
- ATEX-compliant or stainless steel versions available
- Synchronous operation from NTS 350 possible

NTS 80

NTS 75/01

NTS 50/10

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Pneumatic Linear Vibrators
Series NTS

Type	Housing material	Unbalance [cmkg]			Nominal frequency [min⁻¹]			Centrifugal force [N]			Air consumption [l/min]	Sound level [db(A)]
		2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar - 6 bar	2 bar - 6 bar
NTS 80*	AL	0.009	0.009	0.009	5,280	6,900	8,820	19	22	33	7,5 - 24	70 - 82
NTS 120 HF*	AL	0.018	0.018	0.018	6,280	7,920	8,960	40	63	81	10 - 36	68 - 73
NTS 120 NF*	AL	0.038	0.046	0.046	3,871	4,510	5,095	32	52	66	7 - 19	66 - 72
NTS 180 HF*	AL	0.035	0.045	0.046	5,520	6,880	9,040	59	116	207	15 - 67	68 - 73
NTS 180 NF*	AL	0.138	0.149	0.163	3,000	4,160	4,880	68	141	212	14 - 57	66 - 72
NTS 250 HF*	AL	0.152	0.190	0.190	3,654	4,756	5,773	111	235	346	21 - 105	68 - 74
NTS 250 NF*	AL	0.402	0.475	0.542	2,328	3,100	3,894	119	251	451	20 - 99	68 - 72
NTS 350 HF*	AL	0.208	0.308	0.349	3,866	4,754	5,579	179	399	594	37 - 135	66 - 74
NTS 350 NF*	AL	0.756	0.932	0.992	2,412	3,077	3,663	241	486	733	26 - 110	65 - 70
NTS 100/01*	AL	0.330	0.430	0.410	3,920	4,640	5,840	281	513	764	33 - 181	68 - 80
NTS 75/01*	AL	1.01	1.31	1.44	2,848	3,596	4,038	451	934	1,291	99 - 442	67 -81
NTS 50/01*	AL	2.18	2.62	2.66	1,924	2,408	2,825	442	834	1,164	88 - 416	76 - 84
NTS 70/02*	AL	2.81	2.77	3.04	2,096	2,808	3,336	676	1,186	1,847	128 - 564	76 - 87
NTS 54/02*	AL	4.54	5.51	5.07	1,730	2,064	2,544	745	1,288	1,800	152 - 698	80 - 89
NTS 50/04*	AL	7.9	9.8	9.7	1,920	2,296	2,672	1,591	2,844	3,789	271 - 977	77 - 86
NTS 21/04	AL	34.9	45.9	49.1	941	1,156	1,334	1,694	3,362	4,786	225 - 718	73 - 83
NTS 50/08*	AL	11.3	15.3	17.0	1,977	2,331	2,669	2,426	4,555	6,642	216 - 803	81 - 90
NTS 50/10	GG	14.5	17.9	18.9	1,983	2,392	2,809	3,128	5,626	8,174	454 - 1,647	82 - 92
NTS 30/10	GG	50.0	80.0	96.0	840	1,044	1,300	1,940	4,780	8,900	312 - 1,438	75 - 85
NTS 50/15	GG	25.0	32.7	35.8	1,830	2,209	2,464	4,589	8,754	11,922	726 - 2,108	81 - 91
NTS 50/20	GG	24.7	34.2	37.3	1,823	2,252	2,591	4,511	9,527	13,737	887 - 2,491	81 - 92
NTS 30/20	GG	57.3	84.8	92.6	1,227	1,528	1,759	4,727	10,852	15,693	551 - 2,014	78 - 88
NTS 24/20	GG	94.2	126.6	144.8	936	1,176	1,388	4,515	9,596	15,290	642 - 2,083	75 - 80
NTS 50/40	GG	72.5	93.0	99.5	1,335	1,617	1,920	7,090	13,333	20,114	994 - 3,296	80 - 92
NTS 20/40	GG	218.9	286.7	302.3	827	985	1,147	8,227	15,239	21,808	1,340 - 4,252	77 - 89

The technical data are comparative values and can vary depending on the application. Further data on request.
* Devices for oil-free operation available.

Stainless steel vibrators
Series NTS S

Standard vibrators
Series NTS

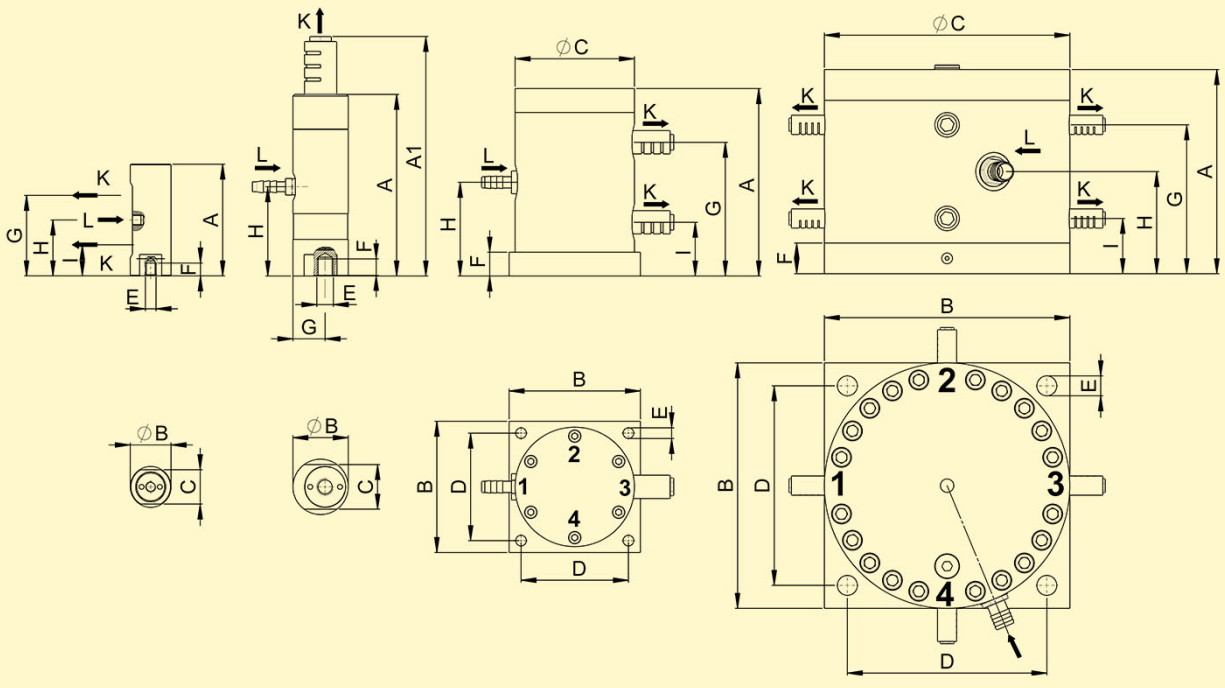
ATEX-compliant vibrators
Series NTS E

Standard vibrators
Series NTS

Pneumatic Linear Vibrators
Series NTS

Type	A [mm]	A_1 [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	K Exhaust air	L Supply air	Exhaust air Page	Housing [kg]	Piston [kg]	Total [kg]	Housing type
NTS 80	52.0	-	Ø 19.0	SW 16	-	M 5	5.5	37.5	26.0	15.0	M 5	M 5	-	0.030	0.010	0.040	I
NTS 120 HF	70.0	97.5	Ø 27.5	SW 21	-	M 8	11	16.5	34.0	-	G 1/8	G 1/8	-	0.086	0.022	0.108	II
NTS 120 NF	97.5	125.0	Ø 27.5	SW 21	-	M 8	11	16.5	48.5	-	G 1/8	G 1/8	-	0.119	0.042	0.161	II
NTS 180 HF	73.0	108.0	Ø 33.5	SW 27	-	M 10	10	19.5	35.5	-	G 1/4	G 1/8	-	0.124	0.050	0.174	II
NTS 180 NF	110.0	145.0	Ø 33.5	SW 27	-	M 10	10	19.5	54.0	-	G 1/4	G 1/8	-	0.192	0.110	0.302	II
NTS 250 HF	98.0	146.0	Ø 41.5	SW 36	-	M 12	12	24.0	49.0	-	G 3/8	G 1/8	-	0.238	0.155	0.393	II
NTS 250 NF	141.0	189.0	Ø 41.5	SW 36	-	M 12	12	24.0	70.5	-	G 3/8	G 1/8	-	0.335	0.290	0.625	II
NTS 350 HF	99.0	147.0	Ø 53.0	SW 46	-	M 12	12	30.5	49.5	-	G 3/8	G 1/4	-	0.359	0.325	0.684	II
NTS 350 NF	145.0	193.0	Ø 53.0	SW 46	-	M 12	12	30.5	72.5	-	G 3/8	G 1/4	-	0.505	0.570	1.075	II
NTS 100/01	89.0	-	Ø 69.0	Ø 69	-	M 12	14	65.5	48.5	31.5	G 1/4	G 1/4	3	0.640	0.360	1.000	I
NTS 75/01	115	-	90	Ø 80	72	Ø 9	20	81	60	38	G 1/4	G 1/4	3	1,1	0,8	1,9	III
NTS 50/01	155	-	90	Ø 80	72	Ø 9	20	121	80	40	G 1/4	G 1/4	3	1,5	1,4	2,9	III
NTS 70/02	130	-	110	Ø 100	90	Ø 9	20	91	65	39	G 3/8	G 3/8	3	1,9	1,2	3,1	III
NTS 54/02	157	-	110	Ø 100	90	Ø 9	20	112	79	45	G 3/8	G 3/8	3	2,3	1,6	3,9	III
NTS 50/04	157	-	150	Ø 139	124	Ø 13	20	113	79	44	G 3/8	G 3/8	3	4,0	4,3	8,3	III
NTS 21/04	330	-	150	Ø 139	124	Ø 13	20	280	165	49	G 3/8	G 3/8	1 + 3	8,5	12,5	21	III
NTS 50/08	173	-	200	Ø 170	165	Ø 17	30	125	92	58	G 3/8	G 3/8	1 + 3	9,0	7,1	16,1	III
NTS 50/10	157	-	200	Ø 190	165	Ø 18	20	112	79	45	G 3/8	G 1/2	1 + 3	20,0	9,0	29,0	IV
NTS 30/10	340	-	200	Ø 190	165	Ø 18	20	289	170	52	G 3/8	G 1/2	1 + 3	41,0	25,0	66,0	IV
NTS 50/15	185	-	230	Ø 220	190	Ø 22	30	134	95	56	G 3/8	G 3/4	1 - 4	32,0	15,0	47,0	IV
NTS 50/20	190	-	250	Ø 250	210	Ø 22	30	134	95	57	G 3/8	G 3/4	1 - 4	42,0	19,0	61,0	IV
NTS 30/20	278	-	250	Ø 250	210	Ø 22	30	218	139	61	G 3/8	G 3/4	1 - 4	54,0	37,0	91,0	IV
NTS 24/20	360	-	250	Ø 250	210	Ø 22	30	298	180	62	G 3/8	G 3/4	1 - 4	68,0	54,0	122,0	IV
NTS 50/40	266	-	320	Ø 320	260	Ø 26	40	194	133	72	G 1/2	G 1	1 - 4	89,0	52,0	141,0	IV
NTS 20/40	470	-	320	Ø 320	260	Ø 25	40	392	235	78	G 1/2	G 1	1 - 4	134,0	125,0	259,0	IV

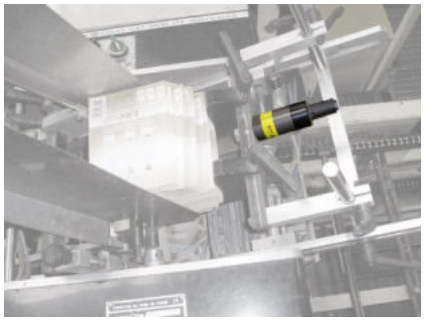
Housing type I | Housing type II | Housing type III | Housing type IV



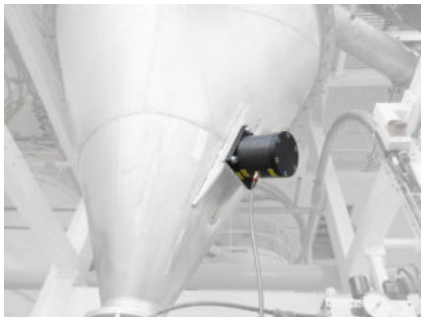
NetterVibration

Pneumatic Linear Vibrators
Series NTS

NTS 80 for filling small bottles



NTS 250 for sorting print publications



NTS 54/02 for improving material flow

NTS 50/04 as delivery aid on big bag

NTS 180 for labelling bottles

NTS 100/01 for spiral conveying of bulk materials

Application areas
Thanks to their completely linear vibration behaviour, the pneumatic linear vibrators series NTS are particularly suitable for conveying, compacting and loosening bulk materials. They are used for emptying bunkers and as drives for conveyor chutes and discharge feeders. A special feature of the NTS vibrators is the possibility of synchronisation of several vibrators. This is available from NTS 350 NF to NTS 50/08 as a special version, and as standard for the NTS 50/10 to NTS 20/40.

Design and function
The vibration (sinus-shaped) is generated by a freely oscillating, self-reversing piston. This vibration supports, facilitates or enables a variety of applications. NTS linear vibrators start and stop in any position without delay.
In the vibrators with aluminum housing up to size 50/04 and in size 50/08, a built-in compression spring ensures a safe start when mounted horizontally. The vibration range can be adjusted by controlling an optional throttle. Increasing the supply pressure causes an increase in frequency. A control valve is required for operation (not included in the scope of delivery). ATEX-compliant linear vibrators of the NTS series, equipment for oil-free operation and with stainless steel housing are available.

Permissible operating instructions
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with mist lubricant
Operating pressure:
2 bar to 6 bar
Ambient temperature:
5 °C bis 60 °C

kÉííÉêsáÄê~íáçåoffers the right accessories required for the mounting, installation and control of vibrators and impactors.

Netter provides solutions.
Consult our experienced application technicians.

Netter GmbH
Fritz-Lenges-Str. 3
55252 Mainz-Kastel

- Germany
- Switzerland
- Poland
- Spain
- Australia
- United Kingdom

www.***Netter***Vibration.com
info@***Netter***Vibration.com

06/2022 Subject to change

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Pneumatic Linear Vibrators
Series NTK

- Linear vibration
- Nominal frequency from 519 min^{-1} to 3.800 min^{-1}
- Centrifugal force from 14 N to 4.748 N
- Variable additional weights
- Frequency and amplitude are separately adjustable
- Versions compliant to ATEX or in stainless steel available

NTK 8 AL

NTK 25

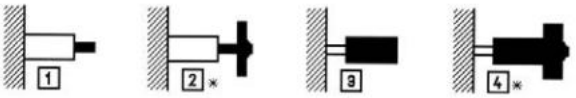
NTK 55 AL

NetterVibration

Pneumatic Linear Vibrators
Series NTK

The table shows the most frequent ratings of piston vibrators series NTK.
1 "Piston" means, that the piston vibrates, the housing is bolted to the mass to be operated.
2 The additional weights SM increase the mass of the piston and in consequence the amplitude.
3 "Housing" in the table means that the vibrator is fixed to the piston and allows additional combinations.
4 Some vibrators may be fitted with additional weights SM at the housing.

Methods of attachment



*In case of horizontal mounting with weights, please pay particular attention to the operating manual!

Type	Oscillating part		Working moment [cmkg]			Nominal frequency [min⁻¹]			Centrifugal force [N]			Air consumption [l/min]***	Noise level [dB(A)]
	Assembly	Mass [kg] **	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar – 6 bar	2 bar – 6 bar
NTK 8 AL*	Piston	0,030	0,05	0,06	0,06	2.440	3.120	3.657	15	32	44	7 – 32	61 – 75
	Piston + SM 8-1	0,046	0,08	0,10	0,10	1.858	2.412	3.000	16	32	48	6 – 31	
	Piston + 2 x SM 8-1	0,058	0,09	0,14	0,15	1.680	2.100	2.571	14	33	54	6 – 29	
	Piston + SM 8-2	0,088	0,15	0,37	0,21	1.380	1.333	2.080	15	36	50	6 – 25	
NTK15 x*	Piston	0,135	0,29	0,33	0,29	1.745	2.182	2.544	49	85	104	17 – 72	53 – 64
	Piston + SM 16-1	0,455	0,81	1,17	1,27	1.029	1.137	1.343	47	83	126	16 – 57	
	Piston + SM 16-2	0,675	1,69	1,95	1,69	758	917	1.152	53	90	123	14 – 54	
NTK16	Piston	0,150	0,27	0,37	0,34	1.680	1.920	2.400	42	75	106	14 – 58	54 – 67
	Piston + SM 16-1	0,470	1,14	1,48	1,48	908	1.309	1.527	52	139	189	11 – 44	
	Piston + SM 16-1 + SM 16-2	0,990	2,96	3,02	2,96	686	914	1.085	76	139	191	8 – 41	
	Housing	1,330	4,90	4,60	4,50	600	778	923	96	153	210	8 – 39	
NTK18 AL*	Piston	0,210	0,29	0,33	0,36	1.600	1.980	2.350	41	70	109	19 – 68	55 – 68
	Piston + SM 16-1	0,530	1,18	1,47	1,41	972	1.321	1.572	61	141	191	13 – 58	
	Piston + SM 16-2	0,750	1,96	2,29	2,16	878	1.168	1.371	83	171	223	11 – 56	
	Piston + SM 16-1 + SM 16-2	1,050	3,27	3,27	3,21	738	965	1.174	98	167	242	10 – 50	
	Piston + 2 x SM 16-2	1,270	3,86	4,13	3,93	702	902	1.039	104	184	233	9 – 46	
NTK25 AL*	Piston	0,420	1,18	1,38	1,24	1.289	1.821	1.986	107	250	269	34 – 149	56 – 73
	Piston + SM 25-1	0,775	2,59	2,95	2,88	988	1.371	1.622	139	304	415	26 – 138	
	Piston + SM 25-2	0,970	3,54	3,86	3,67	894	1.237	1.477	155	324	439	24 – 127	
	Piston + SM 25-3	1,655	6,88	6,94	6,55	686	898	1.080	177	307	419	22 – 115	
	Piston + 2 x SM 25-3	2,840	11,79	11,46	11,13	540	823	943	188	425	543	21 – 104	
NTK25	Piston	0,470	1,12	1,36	1,32	1.440	1.946	2.270	127	282	374	38 – 156	57 – 73
	Piston + SM 25-3	1,705	5,58	6,41	6,34	800	988	1.292	196	343	581	25 – 105	
	Housing	2,600	9,10	9,95	9,82	690	911	1.067	237	452	612	24 – 102	
	Housing + SM 25-3	3,835	11,45	14,07	13,74	609	780	933	233	469	656	23 – 100	
	Housing + 2 x SM 25-3	5,020	14,40	18,00	17,67	565	738	825	252	538	660	20 – 99	
NTK28 AL	Piston	0,590	2,10	2,20	2,10	1.488	1.710	1.818	255	353	381	38 – 135	56 – 72
	Piston + SM 16-1	0,910	3,06	2,92	2,89	1.230	1.482	1.602	254	352	407	32 – 133	
	Piston + SM 16-2	1,130	3,55	3,81	3,48	1.110	1.374	1.488	240	395	423	30 – 136	
	Piston + 2 x SM 16-2	1,640	5,13	5,09	4,93	960	1.164	1.290	259	378	450	30 – 122	
NTK40 AL*	Piston	1,240	2,88	2,64	2,16	1.231	1.620	2.094	239	380	519	54 – 220	58 – 70
	Piston + SM 25-3	2,475	6,72	8,40	7,44	900	1.168	1.389	298	628	787	36 – 210	
	Piston + 2 x SM 25-3	3,660	13,08	13,20	12,96	710	923	1.169	361	617	971	34 – 173	
	Piston + SM 25-4	4,910	24,24	20,64	18,72	565	780	985	424	689	995	33 – 152	
NTK40 NF	Piston	1,270	3,57	3,57	2,46	1.200	1.629	1.930	282	520	503	49 – 228	58 – 70
	Piston + SM 25-3	2,505	7,39	8,62	8,50	889	1.175	1.433	320	653	957	38 – 188	
	Housing	4,200	19,48	17,08	16,36	600	840	1.108	385	661	1.100	34 – 161	
	Housing + SM 25-3	5,435	33,44	26,34	21,65	519	738	933	494	788	1.034	29 – 145	
NTK40 HF	Piston	1,270	2,90	2,84	2,53	1.857	1.887	2.475	548	554	851	40 – 151	63 – 76
	Piston + SM 25-3	2,505	6,29	7,22	6,97	1.038	1.230	1.476	372	599	833	28 – 134	
NTK55 AL*	Piston	2,100	3,62	3,50	2,66	1.500	1.920	2.400	447	708	839	98 – 398	62 – 71
	Piston + SM 85-1	3,430	7,25	7,25	6,28	1.113	1.440	1.768	492	824	1.077	83 – 384	
	Piston + 2 x SM 85-1	4,610	11,11	10,87	9,90	985	1.292	1.500	591	995	1.222	81 – 371	
	Piston + SM 85-2	5,870	14,49	14,49	13,28	884	1.175	1.371	621	1.097	1.370	79 – 366	
	Piston + 2 x SM 85-1+ SM 85-2	8,285	22,94	22,22	20,29	758	1.011	1.200	723	1.244	1.602	73 – 355	

Type	Oscillating part		Working moment [cmkg]			Nominal frequency [min⁻¹]			Centrifugal force [N]			Air consumption [l/min]***	Noise level [dB(A)]
	Assembly	Mass [kg]**	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar – 6 bar	2 bar – 6 bar
NTK 55 NF	Piston	2,100	4,08	3,60	2,88	1.405	1.879	2.351	441	696	872	101 – 408	62 – 71
	Piston + 2 x SM 85 - 1	4,610	11,03	11,75	10,55	973	1.358	1.611	573	1.189	1.501	69 – 345	
	Housing	5,900	14,40	15,09	13,47	884	1.206	1.467	617	1.204	1.588	64 – 330	
	Piston + SM 85 - 1 + SM 85 - 2	7,050	18,94	19,66	18,22	853	1.140	1.380	755	1.401	1.903	63 – 321	
	Piston + SM 85 - 3	14,630	41,37	41,97	41,97	677	862	1.015	1.039	1.708	2.371	62 – 317	
	Housing + SM 85 - 3	18,430	46,44	52,25	49,92	649	823	960	1.071	1.940	2.523	61 – 286	
NTK 55 HF	Piston	2,100	2,49	2,74	2,49	1.760	2.352	2.836	423	831	1.099	65 – 295	64 – 74
	Piston + SM 85 - 2	3,430	4,98	6,35	6,11	1.380	1.705	2.050	520	1.013	1.407	53 – 291	
NTK 85 NF	Piston	5,200	3,91	4,67	5,04	1.892	2.400	2.830	767	1.474	2.215	166 – 545	61 – 76
	Piston + SM 85 -1	6,530	6,31	6,56	6,56	1.622	2.108	2.514	910	1.597	2.273	167 – 544	
	Piston + SM 85- 2	8,970	9,58	10,09	10,09	1.345	1.714	2.067	950	1.626	2.364	159 – 536	
	Housing	12,100	13,59	14,07	13,11	1.200	1.543	1.838	1.073	1.836	2.428	148 – 532	
	Piston + SM 85-3	17,500	25,47	26,48	24,21	894	1.166	1.407	1.116	1.975	2.627	128 – 513	
	Piston + SM 85 - 2 + SM 85 - 3	21,000	32,16	32,79	30,89	821	1.060	1.297	1.187	2.021	2.851	120 – 505	
	Piston + SM 85 - 4	28,900	45,40	51,70	45,40	707	879	1.076	1.244	2.191	2.880	111 – 494	
	Piston + SM 85 - 5	40,750	69,36	75,66	73,14	592	784	914	1.333	2.548	3.352	103 – 452	
NTK 85 HF	Piston	5,200	3,01	3,76	3,88	2.520	3.120	3.800	1.047	2.006	3.075	118 – 431	64 – 79
	Piston + 2 x SM 85- 1	7,710	5,01	6,39	6,27	2.031	2.466	2.954	1.133	2.130	2.997	120 – 446	
NTK 110	Piston	8,000	6,03	7,87	7,87	2.133	2.571	3.040	1.505	2.852	3.986	210 – 652	62 – 78
	Piston + SM 85- 2	11,770	9,18	11,27	11,80	1.760	2.160	2.538	1.559	2.884	4.169	209 – 650	
	Housing	16,600	13,48	15,68	15,93	1.447	1.846	2.133	1.548	2.930	3.974	207 – 634	
	Piston + SM 85- 3	20,530	17,04	19,93	20,98	1.324	1.655	1.964	1.638	2.993	4.435	206 – 631	
	Piston + SM 85- 2 + SM 85-3	24,090	21,24	23,60	24,65	1.200	1.527	1.821	1.677	3.018	4.480	203 – 628	
	Piston + SM 85- 4	31,990	29,89	32,78	32,51	1.046	1.292	1.632	1.794	3.001	4.748	191 – 614	
	Piston + SM 85- 5	44,455	38,67	44,57	41,95	900	1.143	1.371	1.718	3.192	4.326	180 –	

* For lubrication free operation contact our application technicians.

Subject to technical modifications.

** All weights inclusive fixing bolt. *** Normal litre = uncompressed air, NTK 16, 25, 40, 55, 85 and 110 operation is possible up to 16 bar. Technical data may vary depending on application. Please request comparative values.

NTK weights

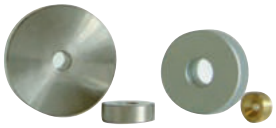
Piston, housing, total weight

Vibrator	Piston [kg]	Housing [kg]	Total weight [kg]	Possible combinations
NTK 8 AL	0,03	0,06	0,09	All combinations
NTK 15 x	0,13	0,32	0,45	of vibrators and weights within the same
NTK 16	0,15	1,34	1,49	
NTK 18 AL	0,21	0,53	0,74	
NTK 28 AL	0,59	0,60	1,19	
NTK 25 AL	0,43	0,50	0,92	group are possible.
NTK 25	0,47	2,63	3,10	
NTK 40 AL	1,28	1,01	2,29	
NTK 40 NF	1,29	4,20	5,49	
NTK 40 HF	1,27	4,38	5,65	
NTK 55 AL	2,10	1,75	3,85	Siehe table page 2 and page 3.
NTK 55 NF	2,10	5,90	8,00	
NTK 55 HF	2,10	5,60	7,70	
NTK 85 NF	5,20	12,10	17,30	
NTK 85 HF	5,20	11,30	16,50	
NTK 110	8,00	16,60	24,60	

Additional weights

Series SM

Additional weights	Dimensions [Ømm x mm]	Bore [Ømm]	Weight [kg]
SM 8 - 1	17 x 8	5,0	0,012
SM 8 - 2	30 x 10	5,0	0,053
SM 16 - 1	50 x 20	10,5	0,29
SM 16 - 2	65 x 20	10,5	0,51
SM 25 - 1	50 x 20	16,5	0,27
SM 25 - 2	65 x 20	16,5	0,47
SM 25 - 3	100 x 20	16,5	1,18
SM 25 - 4	100 x 60	16,5	3,60
SM 85 - 1	100 x 20	20,5	1,16
SM 85 - 2	100 x 60	20,5	3,50
SM 85 - 3	200 x 50	20,5	12,30
SM 85 - 4	200 x 100	20,5	22,70
SM 85 - 5	200 x 150	20,5	35,55



Applications

Additional weights SM are used to increase the working moment. While fixing additional weights on the moving part of the vibrator, the working moment and also the amplitude are individually adjustable.

The additional weights are available in different sizes. All weights are made of nickel plated steel, except SM 8-1 which is made of brass.

Bellows

Series NFB

Bellow	Vibrator	Inside diameter [mm]	Outside diameter [mm]
NFB 20	NTK 15 x, 16, 18 AL	20	50
NFB 25	NTK 25 AL	30	65
NFB 30	NTK 25	30	65
NFB 45	NTK 40	45	85
NFB 60	NTK 55	60	110
NFB 90	NTK 85	90	140
NFB 115	NTK 110	115	165

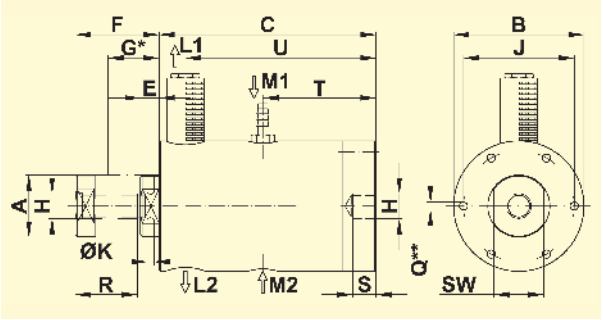
Applications

The bellows series NFB for linear vibrators series NTK are designed for the protection of the piston against outside influences such as dirt and dust. NFB bellows are available for all types from NTK 15x up to NTK 110. They are easily removable by velcros and make the flats of the piston accessible. For NTK 8 AL a protection cap that is to be screwed onto the device is available.

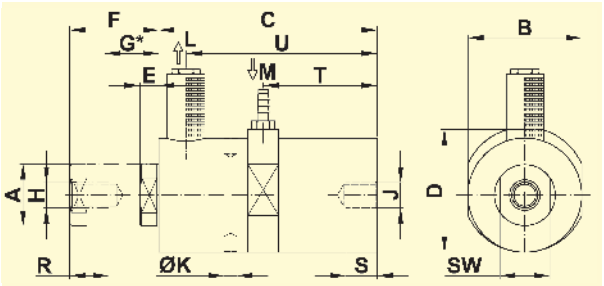
NetterVibration

Pneumatic Linear Vibrators
Series NTK

Type	ØA [mm]	ØB [mm]	C [mm]	E [mm]	F [mm]	G* [mm]	H	ØJ [mm]	ØK [mm]	L	M	ØQ** [mm]	R [mm]	S [mm]	T [mm]	U [mm]	SW [mm]
NTK 15 x	15	50	114	9	38	23,5	M10	–	–	G 1/8	G 1/8	–	20	10	55	99	13
NTK 16	16	49	111	5	38	21,5	M10	–	–	G 1/8	G 1/8	–	21	10	57	96	14
NTK 18 AL	18	49	116	8	42	25,0	M10	–	–	G 1/8	G 1/8	–	21	10	62	101	16
NTK 25	25	64	138	9	52	30,5	M16	–	–	G 1/4	G 1/4	–	25	10	73	125	22
NTK 40 NF	40	84	140	12[1]	54	33,0	M16	–	–	G 3/8	G 1/4	–	40	15	73	123	32
NTK 55 NF	55	110	125	17	50	35,0	M20	96	–	G 3/8	G 3/8	4 x 8,5	40	30	60	108	46
NTK 55 HF	55	110	115	27	50	40,5	M20	96	–	G 3/8	G 3/8	4 x 8,5	40	30	50	98	46
NTK 85 NF	85	160	122	20	50	32,5	M20	143	12,8	2 x G 3/8	G 3/8	6 x 10,5	40	20	57	105	–
NTK 85 HF	85	160	112	30	55	42,5	M20	143	12,8	2 x G 3/8	G 3/8	6 x 10,5	40	20	47	95	–
NTK 110	110	200	122	22	55	38,5	M20	182	12,8	2 x G 1/2	2 x G 3/8***	8 x 12,5	40	25	57	105	–



[1] NTK 40 HF: 22 mm
* centre of vibration
** additional form of attachment from NTK 55 upwards
*** optional M, or M_2



Type	ØA [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G* [mm]	H	J	ØK [mm]	L	M	R [mm]	S [mm]	T [mm]	U [mm]	SW [mm]
NTK 8 AL	8	17	91	22	5	32	18,5	M 5	M 6	–	M 5	M 5	15	7	47	76,5	7
NTK 25 AL	25	50	138	54	7	52	29,5	M 16	M 16	–	G 1/4	G 1/4	25	18	72	120,5	22
NTK 28 AL	28,5	50	160	54	15	53	31,5	M 10	M 16	–	G 1/4	G 1/4	20	22	94	143,0	24
NTK 40 AL	40	73	140	79	12	57	34,5	M 16	M 16	8	G 3/8	G 1/4	25	20	73	122,5	32
NTK 55 AL	55	98	133	109	20	58	38,5	M 20	M 20	10	G 3/8	G 3/8	40	35	66	115,0	46

* centre of vibration

Applications

The pneumatic linear vibrators series NTK are especially suitable for conveying, compacting and loosening bulk material, due to the completely linear vibration. They may also serve to stimulate and influence production processes.

A special feature of the NTK vibrators is the variety of mounting options. It is possible to attach the housing or the piston to a vibrating mass. Additional weights SM allow to adjust the frequency and the amplitude in many different ways.

Design and functioning principle

The vibration (linear) is produced by a freely oscillating, self reversing piston. NTK linear vibrators start and stop instantly in any installed position. The noise level is lower than 80 dB(A). The frequency can be adjusted continuously by regulating the air supply. The amplitude can be adjusted by throttling the exhaust air.

Vibrators with aluminium housing series NTK AL as well as type NTK 15x may be operated lubrication-free in compliance with instructions of ***Netter**Vibration*. NTK vibrators with steel housing require lubricated air. For operation a way valve is required (not included in scope of delivery). ATEX compliant linear vibrators of the NTK series and units with stainless steel housing are available.

Permissible operating conditions

Drive medium:
Compressed air or nitrogen (Filter ≤ 5 µm), preferably with oil mist
Operating pressure:
2 bar to 6 bar
Ambient temperature:
NTK AL 5 °C to 60 °C
NTK 15 x 5 °C to 100 °C
NTK with steel housing –10 °C to 150 °C
HT version up to 200 °C

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26

Pneumatic Linear Vibrators
Series NTP

- Linear vibration
- Nominal frequency from 1,328 min^{-1} to 11,160 min^{-1}
- Centrifugal force from 69 N to 2,039 N
- Frequency and amplitude separately adjustable
- Versions according to ATEX or in stainless steel available


NTP 18


NTP 25


NTP 32

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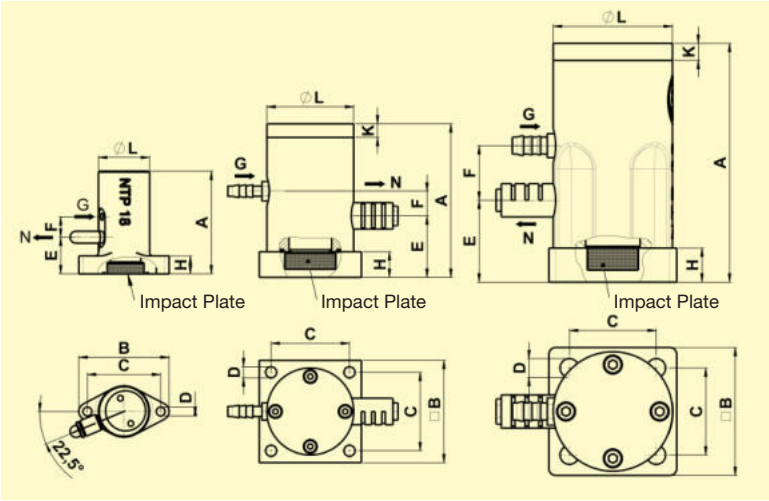
Pneumatic Linear Vibrators
Series NTP

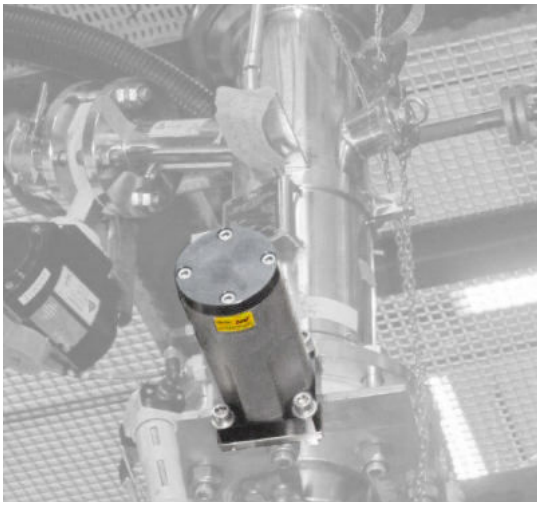
Type	Unbalance [cmkg]			Nominal frequency [min^{-1}]			Centrifugal force [N]			Air consumption [l/min]	Sound level [dB(A)]
	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar - 6 bar	2 bar - 6 bar
NTP 18 B+C	0.060	0.060	0.060	6,600	9,420	11,160	147	300	421	20 - 64	75 - 87
NTP 18 B	0.090	0.100	0.110	3,828	4,680	5,490	69	118	183	12 - 67	65 - 77
NTP 25 B+C	0.144	0.163	0.196	5,848	7,000	8,784	269	438	830	33 - 108	68 - 82
NTP 25 B	0.488	0.613	0.686	2,645	3,159	3,602	190	341	487	23 - 92	64 - 73
NTP 32 B+C	0.602	0.665	0.665	2,959	4,080	5,040	289	607	926	50 - 198	71 - 86
NTP 32 B	1.080	1.365	1.449	1,824	2,221	2,614	197	369	543	37 - 143	64 - 77
NTP 48 B+C	2.081	1.992	1.992	2,618	3,456	4,320	782	1,305	2,039	96 - 336	78 - 90
NTP 48 B	4.718	6.188	6.641	1,328	1,603	1,963	456	872	1,403	67 - 295	65 - 80

The technical data are comparative values and can vary depending on the application. Further data on request. Subject to technical modifications.

Type	A [mm]	B [mm]	C [mm]	Ø D [mm]	E [mm]	F [mm]	G	H [mm]	K [mm]	Ø L [mm]	N	Weight [kg]
NTP 18	60.2	53	43	5.2	21.5	12	M5	10.5	–	30	M5	0.16
NTP 25	90	60	46	6.5	36	14.5	G 1/8	15	8	51	G 1/8	0.61
NTP 32	140	75	51	11	48	32	G 1/4	20	10	70	G 1/4	1.47
NTP 48	194	100	78	13	60	51	G 3/8	25	15	95	G 3/8	3.95



NTP 18 B+C NTP 25 B+C NTP 32/48 B+C



NTP 48 for loosening material jams

Application areas
The pneumatic linear vibrators series NTP are particularly suitable for knocking off firmly adhering substances in hoppers, containers, silos and bunkers. They are also used as drives for vibration tables and chutes, as well as an emptying aid for containers. NTP vibrators can achieve the effect of a rubber hammer impact, or can function with hard impacts.

Design and function
The vibration (linear) is generated by a freely oscillating differential pressure piston. In the standard version B+C, the piston hits against an elastomeric impact plate, creating a rubber hammer effect.
The version B has no impact plate, the piston works here quietly against an air cushion. Hard-hitting versions are also available as B+A.
The frequency can be infinitely varied with the operating pressure. A way valve is required for operation (not included in scope of delivery). Oil-free operation is possible if Netter's recommendations are followed. ATEX-compliant linear vibrators of the series NTP and vibrators with stainless steel housings are available.

Permissible operating conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with mist lubricator
Operating pressure:
2 bar to 6 bar
Ambient temperature:
5 °C to 60 °C

kÉííÉêsáÄê~íáçåoffers the right accessories required for the mounting, installation and control of vibrators and interval impactors.

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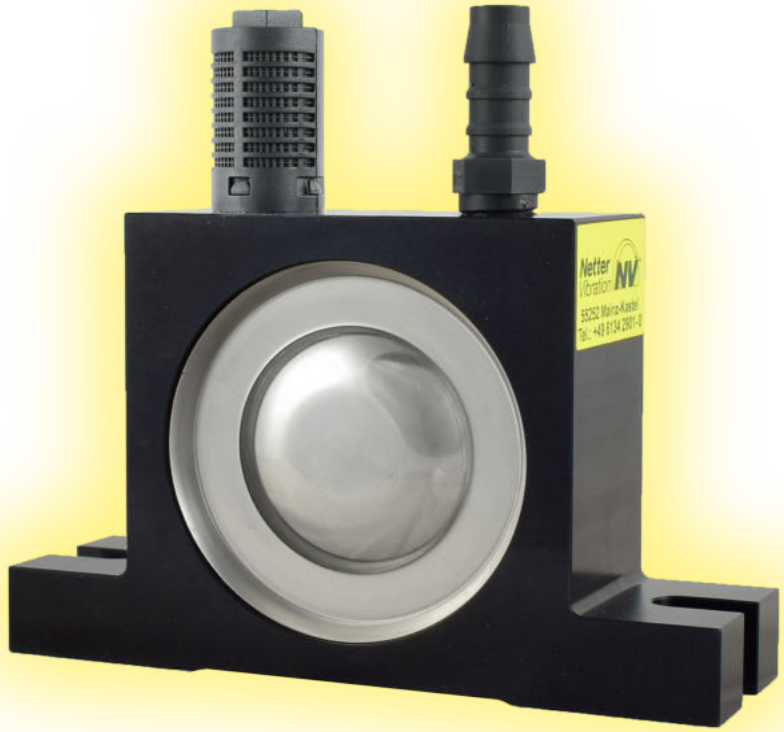
08/2018 Subject to change



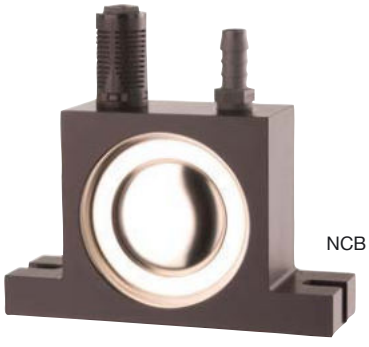
18

Pneumatic Ball Vibrators
Series NCB

- Rotary vibration
- Nominal frequency from 7.220 min^{-1} to 42.340 min^{-1}
- Centrifugal force from 222 N to 4.866 N
- Frequency continuously adjustable via air pressure
- Suitable for temperatures up to 200 °C

NCB 1

NCB 10



NCB 50

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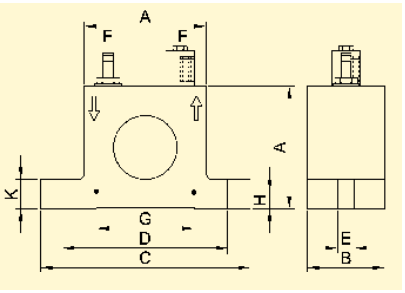
Pneumatic Ball Vibrators
Series NCB

Type	Unbalance [cmkg]	Nominal frequency [min⁻¹] 2 bar	4 bar	6 bar	Centrifugal force [N] 2 bar	4 bar	6 bar	Air consumption [l/min] 2 bar – 6 bar	Noise level [dB(A)] 2 bar – 6 bar
NCB 1	0,005	28.460	37.060	42.340	222	377	491	38 – 112	71 – 79
NCB 2	0,009	22.880	31.160	37.540	258	479	696	38 – 115	74 – 79
NCB 3	0,029	17.100	21.600	24.360	465	742	947	81 – 219	74 – 82
NCB 5	0,046	15.220	19.180	22.480	587	933	1.277	77 – 217	78 – 85
NCB 10	0,131	11.320	14.380	16.380	921	1.486	1.928	226 – 463	82 – 89
NCB 20	0,211	10.560	13.780	15.420	1.298	2.198	2.753	222 – 468	78 – 86
NCB 50	0,522	7.220	9.940	11.220	1.492	2.828	3.603	312 – 733	80 – 86
NCB 70	0,808	7.220	8.820	10.480	2.310	3.446	4.866	310 – 728	75 – 84

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G* [mm]	H* [mm]	K [mm]	Weight [kg]
NCB 1	50	18	86	68	7	G 1/8	40	7	12	0,12
NCB 2	50	18	86	68	7	G 1/8	40	7	12	0,13
NCB 3	65	26	113	90	9	G 1/4	50	9	16	0,29
NCB 5	65	26	113	90	9	G 1/4	50	9	16	0,32
NCB 10	80	37	128	104	9	G 1/4	60	10	16	0,60
NCB 20	80	37	128	104	9	G 1/4	60	10	16	0,70
NCB 50	100	50	160	130	11	G 3/8	80	12	20	1,30
NCB 70	100	50	160	130	11	G 3/8	80	12	20	1,50



*Dimensions for horizontal mounting, bore ∅E

Sorting and aligning

Emptying without bridging

Applications
Pneumatic ball vibrators series NCB can be used wherever bulk materials need to be moved.
They serve in the emptying of bunkers, for preventing bridging, rat-holing and adhesion. When used to drive chutes, sieves and vibrating tables, they ensure that the material flow is maintained.
The special feature is the simple construction.

Construction and Working Principle
The rotary vibration is created by the high centrifugal force produced by a circulating steel ball, which runs on hardened, polished steel races.
The frequency, and hence the centrifugal force, can be continuously regulated via the operating pressure.
Pneumatic ball vibrators series NCB can be operated using lubrication-free compressed air.

A way valve is required for operation (not included in the scope of supply).

Permissible Operating Conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with oil mist
Operating pressure:
2 bar to 6 bar
Ambient temperature:
– 20 °C to +120 °C
HT version up to +200 °C

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20

Pneumatic Roller Vibrators
Series NCR

- Rotary vibration
- Suitable for aggressive environmental conditions
- High propulsive power
- Nominal frequency from 10.140 min^{-1} to 34.304 min^{-1}
- Centrifugal force from 878 N to 9.100 N
- Frequency continuously adjustable via air pressure
- Suitable for temperatures up to 200 °C

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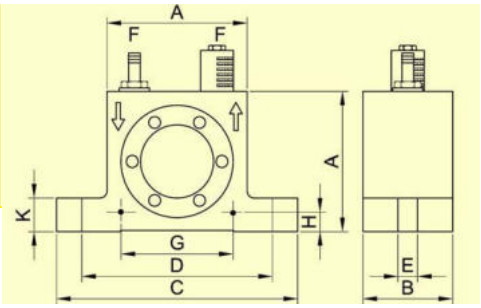
Pneumatic Roller Vibrators
Series NCR

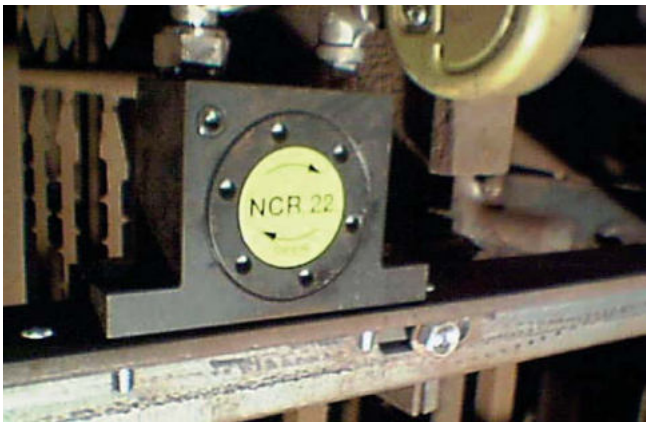
Type	Unbalance [cmkg]	Nominal frequency [min⁻¹] 2 bar	4 bar	6 bar	Centrifugal force [N] 2 bar	4 bar	6 bar	Air consumption [l/min] 2 bar – 6 bar	Noise level [dB(A)] 2 bar – 6 bar
NCR 3	0,031	22.699	30.480	34.304	878	1.579	2.000	55 – 146	74 – 85
NCR 10	0,102	20.180	24.520	27.760	2.278	3.363	4.311	121 – 301	74 – 86
NCR 22	0,224	16.400	20.040	21.780	3.313	4.933	5.828	162 – 424	77 – 87
NCR 57	0,572	12.480	14.370	15.465	4.902	6.489	7.520	246 – 574	74 – 91
NCR 120	1,200	10.140	11.680	11.760	6.765	8.976	9.100	315 – 768	86 – 97

The technical data are comparative values and can vary depending on application. Additional data available upon request.

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G* [mm]	H* [mm]	K [mm]	Weight [kg]
NCR 3	51	28,5	86	68	7	G 1/8	40	7	12	0,260
NCR 10	67	36	113	90	9	G 1/4	50	9	16	0,579
NCR 22	80	42,5	128	104	9	G 1/4	60	10	16	0,986
NCR 57	100	51	160	130	13	G 3/8	80	12	20	1,875
NCR 120	120	75	194	152	17	G 3/8	100	13	24	4,362

*dimensions for mounting horizontal, bore ØE





Dusting off filter wires

Emptying silo trailers

Applications
Pneumatic roller vibrators series NCR are particularly suitable for the elimination or reduction of friction.
They can be used for emptying bunkers and preventing adhesion to pipes and plates.
Special features of the NCR vibrators are very high frequencies, high centrifugal forces and insusceptible resonance behaviour.

Construction and working principle
The rotary vibration is created by the high centrifugal force of a circulating steel roller, which runs on a steel ring at very high frequency.

The frequency, and hence the centrifugal force, can be continuously regulated via the operating pressure.
Series NCR roller vibrators can be operated using lubrication-free compressed air.

A multi-directional valve is required for operation (not supplied).

Permissible Operating Conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5µm) preferably with oil mist

Operating pressure:
2 bar to 6 bar
Ambient temperature:
-20 °C to 120 °C
HT version for temperatures up to 200 °C

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23

Pneumatic Turbine Vibrators
Series NCT

- Rotary vibration
- Resistant to aggressive environmental conditions
- Unrestricted, lubrication-free operation
- Nominal frequency from 4.900 min^{-1} to 45.460 min^{-1}
- Centrifugal force from 288 N to 8.659 N
- Frequency continuously adjustable by means of air pressure
- Reduced noise level
- Maintenance-free due to continuously lubricated rolling bearing
- Available in ATEX conform or in stainless steel versions

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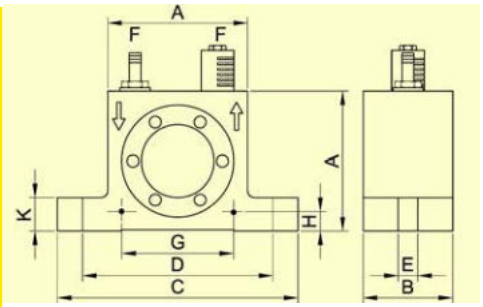
Pneumatic Turbine Vibrators
Series NCT

Type	Unbalance [cmkg]	Nominal frequency [min⁻¹]			Centrifugal force [N]			Air consumption [l/min]	Noise level [dB(A)]
		2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar – 6 bar	2 bar – 6 bar
NCT 1	0,006	29.100	38.820	45.460	288	513	703	19 – 45	68 – 83
NCT 2	0,012	21.360	29.520	34.000	311	594	787	20 – 48	66 – 81
NCT 3	0,016	26.940	34.900	39.700	637	1.069	1.383	28 – 75	63 – 77
NCT 4	0,023	21.740	26.920	30.380	597	915	1.165	31 – 73	62 – 76
NCT 4i	0,046	14.020	18.560	21.000	496	869	1.112	31 – 75	61 – 73
NCT 5	0,049	22.740	27.840	30.940	1.389	2.082	2.572	93 – 284	74 – 90
NCT 10	0,096	16.940	20.680	22.980	1.511	2.251	2.780	92 – 287	66 – 78
NCT 10i	0,192	12.200	14.680	16.420	1.567	2.269	2.839	93 – 286	63 – 77
NCT 15	0,160	15.740	20.060	22.700	2.174	3.530	4.521	215 – 461	72 – 84
NCT 29	0,282	11.920	14.760	16.740	2.197	3.369	4.334	216 – 461	66 – 78
NCT 29i	0,564	7.360	10.240	11.780	1.676	3.243	4.291	213 – 463	63 – 77
NCT 55	0,545	11.000	13.980	15.760	3.618	5.845	7.426	386 – 918	77 – 85
NCT 108	1,081	8.280	10.420	11.720	4.067	6.441	8.152	379 – 911	73 – 84
NCT 108i	2,161	4.900	6.860	8.000	2.860	5.590	7.591	392 – 927	66 – 77
NCT 126	1,262	6.060	8.280	9.400	2.591	4.760	6.124	653 – 1.707	71 – 83
NCT 250	2,502	5.500	7.020	7.800	4.152	6.761	8.348	655 – 1.710	71 – 82
NCT 250i	5,000	–	5.100	5.620	–	7.131	8.659	1.222* – 1.732	70 – 74

The technical data are relative values and can vary depending on the application. Additional data available upon request. *at 4 bar

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G* [mm]	H* [mm]	K [mm]	Weight [kg]
NCT 1	40	27	70	56	6,5	G 1/8	30	5,5	10	0,165
NCT 2	40	27	70	56	6,5	G 1/8	30	5,5	10	0,162
NCT 3	50	32	86	68	7	G 1/8	40	7	12	0,230
NCT 4	50	32	86	68	7	G 1/8	40	7	12	0,240
NCT 4i	50	32	86	68	7	G 1/8	40	7	12	0,250
NCT 5	65	43	113	90	9	G 1/4	50	9	16	0,550
NCT 10	65	43	113	90	9	G 1/4	50	9	16	0,570
NCT 10i	65	43	113	90	9	G 1/4	50	9	16	0,610
NCT 15	80	56	128	104	9	G 1/4	60	10	16	1,045
NCT 29	80	56	128	104	9	G 1/4	60	10	16	1,090
NCT 29i	80	56	128	104	9	G 1/4	60	10	16	1,180
NCT 55	100	73	160	130	13	G 3/8	80	12	20	2,125
NCT 108	100	73	160	130	13	G 3/8	80	12	20	2,250
NCT 108i	100	73	160	130	13	G 3/8	80	12	20	2,500
NCT 126	120	86	194	152	17	G 3/8	100	13	25	3,585
NCT 250	120	86	194	152	17	G 3/8	100	13	25	3,820
NCT 250i	120	86	194	152	17	G 3/8	100	13	25	4,290

*dimensions for mounting horizontal, bore ∅E



Sifting of fine grained products

Applications
Pneumatic turbine vibrators series NCT are particularly suitable for moving bulk materials. They can be used for emptying bunkers, driving chutes, sieves and vibrating tables and for the mechanical stimulation of processes.
Special features of the NCT vibrators are high frequency at low noise level and low air consumption.

Design and functioning principle
The rotary vibration is produced by an eccentrically mounted turbine with integrated unbalance masses. The frequency and therefore the centrifugal force can be continuously regulated via the operating pressure.
A directional control valve is necessary for operation (not supplied).

ATEX conform series NCT turbine vibrators and units with stainless steel housings are available.

Permissible operating conditions
Drive medium:
Compressed air or nitrogen (filter ≤ 5µm), unrestricted, lubrication-free operation
Operating pressure:
2 bar to 6 bar
Ambient temperature:
-20 °C to 120 °C

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15

Vacuum Fixing Devices for Vibrators
Series VAC

- Quick mounting without bolting or welding
- Strong connection due to high vacuum
- Can also be used on curved or uneven surfaces
- Optional air economizer
- ATEX conform and stainless steel versions available
- Customized versions possible

VAC 10 with NCT 4

VAC 15 with PKL 740 ST

VAC 30 with NTS 50/04

NetterVibration

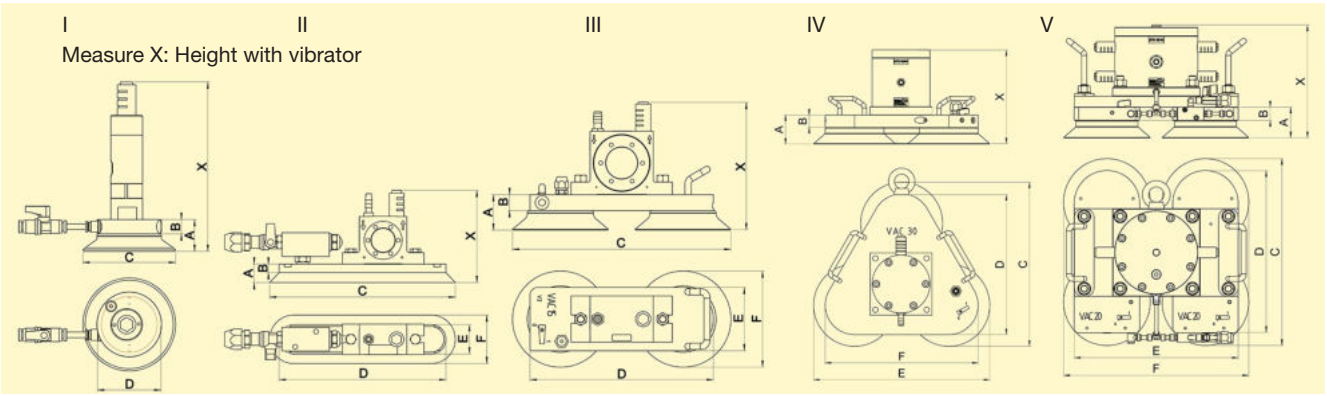
Vacuum Fixing Devices for Vibrators
Series VAC

Type + Hose set	Air consumption without Vibration [l/min]		Weight [kg]	Minimum-Ø for round containers [mm]	Suitable vibratoren						
	4 bar	6 bar			NCB	NCR	NCT	NTK	NTS	NTP	PKL
VAC 6 + HG 6 N	6.5	10	0.53	400	-	-	1, 2	-	80-180 HF/NF	18	-
VAC 8 + HG 10 N	40	60	0.95	110	1, 2	-	1, 2	8 AL	120 HF, 120 NF* 180 HF, 180 NF*	25**	-
VAC 8 + HG 10 S	20	22	1.20								
VAC 10 + HG 10 N	40	60	1.05	110	1, 2, 3	3	3, 4	15 X, 16 18 AL	120 - 250 HF/NF*	25**	190**
VAC 10 + HG 10 S	20	22	1.30								
VAC 11 + HG 10 N	40	60	1.25	110	3, 5	10	5, 10	18 AL	180 HF, 180 NF 250 HF, 250 NF	-	190**, 450**
VAC 11 + HG 10 S	20	22	1.50								
VAC 12 + HG 15 N	60	122	2.85	350	10, 20	22	15, 29	25 AL	350 HF, 350 NF 100/01, 75/01**, 50/01**	25**, 32**	450**, 740** 1000
VAC 12 + HG 15 S	29	36	3.20								
VAC 13 + HG 15 N	110	170	4.20	850	10, 20	22	15, 29	-	75/01, 50/01, 70/02*	32**, 48*	740**, 1000 2100, 5000
VAC 13 + HG 15 S	41	52	4.55								
VAC 15 + HG 15 N	110	170	3.40	650	10, 20 50, 70	22 57*	15, 29 55, 108*	18 AL, 25	250 HF, 250 NF, 350 HF, 350 NF, 75/01, 50/01, 70/02*	32, 48*	740**
VAC 15 + HG 15 S	41	52	3.75								
VAC 20 + HG 15 N	110	170	7.25	850	-	57	55, 108	-	70/02, 54/02, 50/04*	32, 48	-
VAC 20 + HG 15 S	41	52	7.60								
VAC 30 + HG 30 N	110	170	11.50	1,500	-	120	126, 250	-	50/04, 50/08*	-	-
VAC 30 + HG 30 S	49	60	12.00								
VAC 40 + HG 40 N	220	340	20.00	1,500	-	-	-	-	50/08, 50/10*	-	-

The technical data are comparative values and can vary depending on the application. Additional data available upon request. Subject to technical changes. *Depending on application, please consult us. **Adapter plate necessary, please include order! For PKL, please order EE kit!

Type	Model	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
VAC 6	I	33.5	15	100	68	-	-
VAC 8	II	19	8	150	127	30	55
VAC 10	II	22	8	200	175	26,5	55
VAC 11	II	20	5.5	300	276	26	55
VAC 12	II	25	10	300	268	68	100

Type	Model	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
VAC 13	I	70	30	200	186	-	-
VAC 15	III	56	25	350	290	100	150
VAC 20	III	70	30	430	370	150	200
VAC 30	IV	70	30	396	337.5	426	370
VAC 40	V	70	30	430	370	375	425



Application areas
The vacuum fixing devices VAC are designed for quick attachment of vibrators to smooth or, under certain circumstances, uneven and curved surfaces. The special feature of the vacuum fixing device is simple fastening without welding or screw connections. The brackets together with vibrators are used, for example, for emptying transport containers, plastic containers and for cleaning pipes.

Design and function
The appropriate vibrator is screwed onto the vacuum mount and both are supplied with compressed air by one of the optional Netter hose sets. As soon as compressed air is supplied to the VAC, the unit sucks firmly, thus ensuring a force-locked connection between the vibrator and the substrate.
The hose set with the air-saving circuit "S" holds the vibrator during its rest period at a reduced vacuum. Air consumption is thereby reduced by more than 30 percent. When starting the vibrator, the mount automatically generates full vacuum. ATEX-compliant brackets and appliances with a stainless steel plate are available.

Permissible operating conditions
Drive medium:
Compressed air or nitrogen (Filter ≤ 5 µm)
Operating pressure: 2 bar to 6 bar
Ambient temperature: -10 °C to 60 °C

kÉííÉêsáÄê~íáçåoffers the right accessories required for the mounting, installation and control of vibrators and interval impactors.

Netter provides solutions.
Consult our experienced application technicians.

Netter GmbH
Fritz-Lenges-Str. 3
55252 Mainz-Kastel

- Germany
- Switzerland
- Poland
- Spain
- Australia
- United Kingdom

www.***Netter***Vibration.com
info@***Netter***Vibration.com

08/2021 Subject to change

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Electric External Vibrators

- Circular vibration
- Nominal frequency from 750 min^{-1} to 6,000 min^{-1}
- Centrifugal force from 49 N to 217,749 N
- Smooth housing surface
- Stainless steel unbalance covers
- Available for ambient temperatures up to 55 °C
- Ex tb IIIC Db (dust ignition proof) available
- Ex e IIC available
- Degree of protection IP 66-7, insulation class F
- Stainless steel versions available

NetterVibration

Electric External Vibrators

Contents

Notes on Vibrator Design

Formulary

working moment	$M = s \times m$	centrifugal force	$F = a_{(g)} \times m \times 9.81$
acceleration	$a_{(g)} = s \times (\frac{n}{1000})^2 \times 5.59$	centrifugal force	$F = M \times (\frac{n}{1000})^2 \times 54.84$

Symbols and units

s	vibration width	cm
m	weight with vibrator	kg
F	centrifugal force	N

n	frequency	min^{-1}
M	working moment	cmkg
$a_{(g)}$	acceleration	g

Which kind of vibration for which task?

Task	Frequency	Acceleration $[a_{(g)}]$ Many times the gravitational acceleration	Vibration width	Vibration circular ↻ directed ↔
Conveying, dosing	750 – 3,000	2 – 5	large	↔
Sieving	1,000 – 1,500	3 – 4	large	↔
Draining	1,500 – 3,000	3 – 5	medium	↔
Cleaning, shaking off filter	1,500 – 3,000	2 – 3	medium	↻
Loosening, releasing Emptying bulk materials	1,500 – 3,000	0,15 – 0,2 of the material weight in the conical part of the silo	medium	↻
Compacting bulk materials	1,500 – 6,000	2 – 4	medium	↻ ↔
Compacting cement	3,000 – 9,000	0.8 – 1.5	small	↻ ↔
Testing components	300 – 6,600	0.5 – 5	adjustable	↻ ↔

CE All external vibrators manufactured by ***Netter****Vibration* comply with the applicable EU directives and bear the CE mark.

c SP us Many external vibrators made by ***Netter****Vibration* meet the standard C22.2 no. LR100-95, file no. LR100948 Part B. Class 421101 Motors and Generators (North America).

NetterVibration

Electric External Vibrators

Designs and ambient conditions

Stainless steel vibrators are resistant to very harsh environmental conditions. Especially the chemical, pharmaceutical and food industries use this resistance in production areas with aggressive, liquid and gaseous media.

ATEX vibrators allow operation in explosive atmospheres (ATEX Zones 1, 2, 21 and 22) using special design measures in which gases, vapours, mists and dusts are used. These vibrators, which meet very high safety standards, find a use especially in the chemical and petroleum industry.

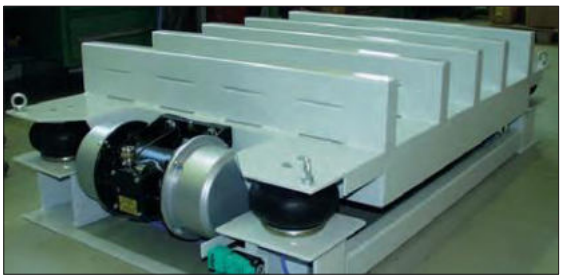
Plastic vibrators have the advantages of stainless steel devices, but are much lighter. The useful properties of these vibrators are used in the manufacture of dairy products (e.g. cheese), throughout the food industry and in extreme industrial applications.

Series	Stainless	Plastics	ATEX zone 21/22	ATEX zone 22	ATEX zone 1/2
NEG				●	
NEA	●			up to GG 60	
NED		●			
NEG E			●	●	●
NEG S	●				
NES	●		●	●	

Information on the NEG, NEA and NED series

Conveying

Sieving



Compacting

Applications
The electric external vibrators of the series NEG, NEA or NED are always used when, for example, conveyor troughs or sieves have to be driven. In addition, these vibrators can loosen product jams and deposit build-ups in silos. When used on concrete formwork, a high surface quality and compaction of the concrete is achieved by a particularly uniform vibration.
One special feature of the NEG is the maintenance-free operation even under harsh environmental conditions.

Design and function
External electric vibrators are unbalance motors based on the short circuit rotor principle and, apart from a few decisive differences, are very similar to commercially available electric motors. The NEG three-phase vibrators run on 230/400 V, 50 Hz, depending on the number of poles, at 750, 1.000, 1,500 or 3,000 min^{-1}. The NEA AC units run on 230 V, 50 Hz at 3,000 min^{-1}. Further voltages are available. The NED DC vibrators run on 12 or 24 V at 3,000 min^{-1} (NED 601110 only on 24 V, 3,600 min^{-1}).

There are unbalances on both shaft ends, which generate an omnidirectional, sinusoidal vibration with the frequency of the corresponding speed.
All NEG/NEA are also designed for use at 60 Hz, the speed is then correspondingly 20 % higher than the values at 50 Hz. The unbalance is adjusted, if necessary.
Generously dimensioned roller bearings guarantee a high degree of operational safety. All NEG are fully suitable for operation with frequency converters.

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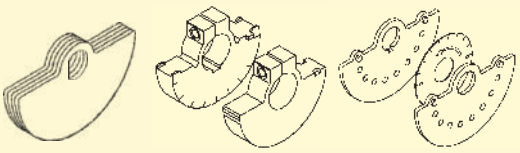
Electric External Vibrators
NEG 3-phase AC Series

Unbalance type XL Unbalance type XS Unbalance type XLs

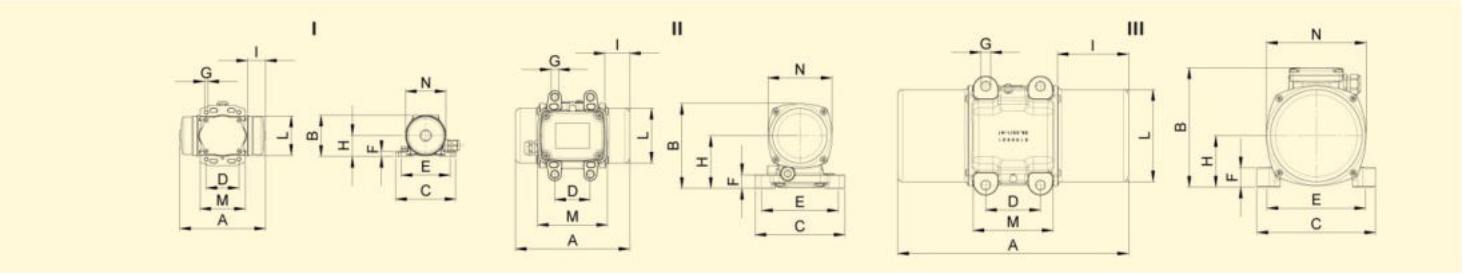


min⁻¹	Type	Housing size	Housing material	ATEX II 2D Ex tb IIIC Db T** [°C]	Unbalance [cmkg] 50 Hz	Unbalance [cmkg] 60 Hz	Centrifugal force [N] 50 Hz	Centrifugal force [N] 60 Hz	Nominal power [kW] 50 Hz 400 V	Nominal power [kW] 60 Hz 460 V	Nominal current [A] 50 Hz 400 V	Nominal current [A] 60 Hz 460 V	Weight [kg] 50 Hz	Weight [kg] 60 Hz
3000 3600	NEG 5020*	60	AL	100	0.4	0.4	197	284	0.035	0.035	0,15	0.15	2.40	2.40
	NEG 5050*				1	1	494	711	0.045	0.045	0.16	0.16	2.45	2.45
	NEG 5060	100	AL	120	1.2	1.2	592	853	0.12	0.12	0.27	0.23	4.9	4.9
	NEG 50120	101	AL	120	2.4	2.4	1,185	1,706	0.18	0.18	0.35	0.30	5.8	5.8
	NEG 50200				4	3.2	1,974	2,274					6.4	6.2
	NEG 50300	110	AL	120	6	4	2,961	2,843	0.26	0.27	0.60	0.50	9.6	9.3
	NEG 50550	120	AL	120	11.5	6.9	5,676	4,904	0.45	0.50	0.80	0.75	15.4	15.2
	NEG 50770	130	AL	120	14.7	11	7,255	7,818	0.65	0.685	1.10	1.00	19.5	19.9
	NEG 501140	133	AL	120	22.4	14.7	11,056	10,448	1	1.2	1.75	1.75	21.5	20.5
	NEG 501540	140	AL	–	31	21	15,300	14,925	1.4	1.45	2.3	2.0	35.0	32.8
	NEG 501800				36	26	17,768	18,479	2.0	2.0	3.3	2.9	37.0	33.6
	NEG 502020	150	GJS	–	41	26	20,236	18,479	2.2	2.2	3.5	3.0	48.0	47.0
	NEG 502270				46	31	22,704	22,033	2.2	2.2	3.5	3.0	49.0	49.0
	NEG 503400	170	GJS	–	66	44	32,575	31,272	4.0	4.0	6.2	5.4	106	102
	NEG 503820				77	55	38,004	39,090	4.0	4.0	6.5	5.6	103	103
	NEG 506220	190	GJS	135	126	89	62,189	63,255	5.5	5.5	9.2	8.0	188	181
	NEG 508830	195	GJS	–	179	124	88,347	88,130	10.0	9.3	18.0	13.0	215	210
1500 1800	NEG 2530	101	AL	120	2.4	2.4	296	426	0.085	0.095	0.21	0.20	6.0	6.0
	NEG 2570				6.4	4.0	790	711					6.9	6.2
	NEG 25210	110	AL	120	16.8	11.8	2,073	2,097	0.17	0.17	0.41	0.40	12.3	12,3
	NEG 25420	120	AL	120	32.6	22.7	4,023	4,033	0.30	0.35	0.60	0.60	19.4	18.4
	NEG 25540				43.8	32.6	5,404	5,792					21.8	20.8
	NEG 25700	130	AL	120	57.2	41.9	7,058	7,445	0.525	0.665	0.92	0.98	26.4	25.4
	NEG 25930	133	AL	120	75	52	9,254	9,239	0.55	0.68	0.95	0.95	28.8	27.3
	NEG 251410	140	AL	120	112	80	13,820	14,215	0.9	1.05	1.45	1.5	43.0	39.0
	NEG 251800	150	AL	135	143	97	17,645	17,235	1.1	1.2	2.0	1.9	50.0	45.3
	NEG 252060	150	AL	135	163	112	20,113	19,900	1.35	1.45	2.5	2.3	54.0	52.0
	NEG 252370	160	AL	150	192	135	23,691	23,987	1.6	1.7	3.2	3.0	69.0	63.0
	NEG 253050			135	247	172	30,477	30,561	1.9	2.0	3.8	3.5	78.5	79.0
	NEG 253720	170	GJS	135	302	207	37,264	36,780	2.2	2.5	3.9	3.9	127	122
	NEG 254310				349	235	43,063	41,755	2.5	2.8	4.8	4.65	125	120
	NEG 254900	180	GJS	135	397	273	48,986	48,507	3.6	3.4	6.0	5.0	174	166
	NEG 256460	190	GJS	135	524	365	64,656	64,854	6.0	6.0	10.5	9.0	212	200
	NEG 258040	195	GJS	135	652	452	80,450	80,312	7.0	8.0	11.6	11.5	225	210
	NEG 258260	197	GJS	135	669	492	82,548	87,419	7.5	8.5	12.2	12.0	316	303
	NEG 2511210	200	GJS	135	909	633	112,162	112,472	10.0	10.5	17.5	15.5	433	411
	NEG 2513850				1,123	825	138,567	146,587	11.0	12.0	20.0	20.0	458	424

* degree of protection IP 65, ATEX II 3D Ex tc IIIC Dc

PTC thermistors are from housing size 170 up.

** at an ambient temperature of 40 °C max., other temperatures on request



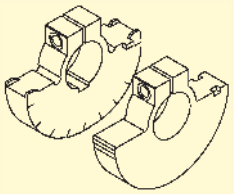
Type	Housing type	Dimensions [mm]													Unbalance [number of unbalance discs]	
		A 50/60Hz	B	C	D	E	n_2*	F	G	H	I 50/60 Hz	L	M	N	Type	50/60 Hz
						Mounting dimensions**										
NEG 5020	I	157	75	110	**60**	**85**	4	9	**6.5**	38	33	72	83	65	XL	8
NEG 5050		169			25–40	92					39					18
NEG 5060	II	197	123	127	30	85	4	24	**9**	70	40	103	86	106	XLs	4
					30	**100**										
					62	85			**11.5**							
					62	**100**										
NEG 50120	II	209	154.5	164	**65**	**140**	4	25	**13**	96	45	100	128	117	XLs	6
NEG 50200		225			62–74	106			9		53					10/8
NEG 50300	II	255	175.5	164	**65**	**140**	4	25	13	105	54	124	128	141	XLs	8/6
					90	125										
NEG 50550	II	284	195	217	**100**	**180**	4	30	**17**	115	63	143	144	160	XLs	10/6
					105	140			13							
NEG 50770	III	308	211	215	100	180	4	35	17	93.5	63	168	144	182	XLs	8/6
NEG 501140	III	314	217	217	100	180	4	35	17	93.5	76	168	146	182	XLs	12/8
NEG 501540	IV	438	257	230	140	190	4	25	17	124.5	103	201	224	241	XLs	12/8
NEG 501800																14/10
NEG 502020	IV	465	232	230	140	190	4	49	17	104	105	200	180	200	XLs	16/10
NEG 502270																18/12
NEG 503400	IV	546	289	310	155	255	4	91	25	130	130	231	210	253	XLs	12/8
NEG 503820																14/10
NEG 506220	IV	670	380	390	200	320	4	32	28	189	155	340	360	384	XS	4
NEG 508830	IV	629	395	392	200	320	4	100	28	192	134.5	358	270	375	XS	4
NEG 2530	II	209	154.5	164	**65**	**140**	4	25	**13**	96	45	100	128	117	XLs	6
NEG 2570		241			62–74	106			9		61					16/10
NEG 25210	II	295	175.5	164	**65**	**140**	4	25	13	105	74	124	128	141	XS	4
					90	125										
NEG 25420	II	340	195	217	**100**	**180**	4	30	**17**	115	91	143	144	160	XS	4
NEG 25540		380			105	140			13		111					
NEG 25700	III	378	211	215	100	180	4	35	17	93.5	98	168	144	182	XS	4
NEG 25930	III	422	217	217	100	180	4	35	17	93.5	130	168	146	182	XS	4
NEG 251410	IV	438	257	230	140	190	4	25	17	124.5	103	201	224	241	XS	4
NEG 251800		490									129					
NEG 252060		560									164					
NEG 252370	IV	523	283	275	155	225	4	28	22	140	130	231	255	271	XS	4
NEG 253050		600									168.5					
NEG 253720	IV	588	335	310	155	255	4	30	23,5	160	139	274	302	310	XS	4
NEG 254310		670/588									180/139					
NEG 254900	IV	638	346	345	180	280	4	28	26	165	154	296	330	320	XS	4
NEG 256460	IV	670	380	390	200	320	4	32	28	189	155	340	360	384	XS	4
NEG 258040	IV	624	402	392	200	320	4	35	28	199,5	132	358	352	402	XS	4
NEG 258260	VI	862	434.5	460	125	380	6	35	38	215	230	379	392	439	XS	4
NEG 2511210	VI	990	454	530	140	440	6	38	44	230	240	423	510	448	XS	4
NEG 2513850																

* number of bores
** recommended mounting dimensions printed in bold

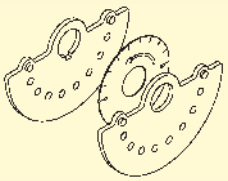
NetterVibration

Electric External Vibrators
NEG 3-Phase AC Series

Unbalance type XS



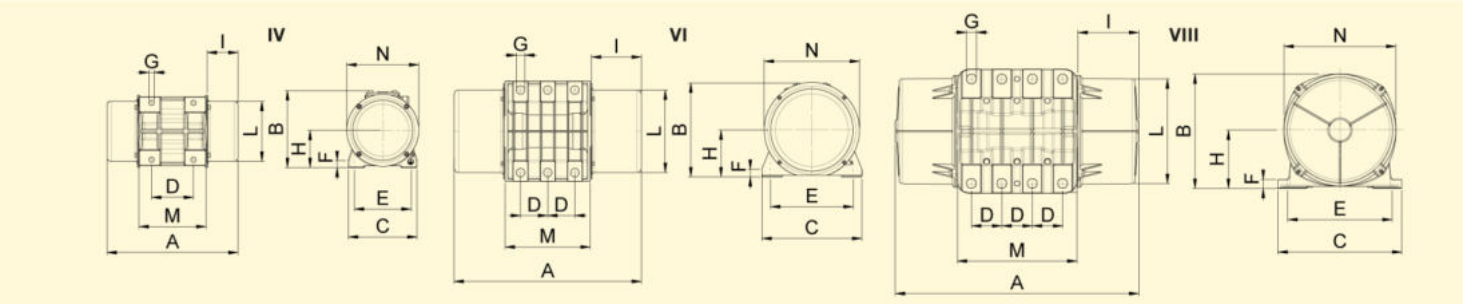
Unbalance type XLs



min⁻¹	Type	Housing size	Housing material	ATEX II 2D Ex tb IIIC Db T* [°C]	Unbalance [cmkg] 50 Hz	Unbalance [cmkg] 60 Hz	Centrifugal force [N] 50 Hz	Centrifugal force [N] 60 Hz	Nominal power [kW] 50 Hz 400 V	Nominal power [kW] 60 Hz 460 V	Nominal current [A] 50 Hz 400 V	Nominal current [A] 60 Hz 460 V	Weight [kg] 50 Hz	Weight [kg] 60 Hz
1000 1200	NEG 1630	110	AL	120	6	6	329	474	0.12	0.135	0.30	0.30	9.4	10.01
	NEG 1690				16.8	16.8	921	1,327					12.2	12.7
	NEG 16190	120	AL	120	32.6	32.6	1,788	2,577	0.185	0.205	0.50	0.50	18.9	20.5
	NEG 16310	130	AL	120	57.2	41.9	3,137	3,309	0.35	0.38	0.72	0.68	26.1	27.9
	NEG 16410	133	AL	120	75	52	4,113	4,106	0.35	0.38	0.75	0.67	28.7	33.6
	NEG 16810	140	AL	135	144	112	7,897	8,845	0.68	0.76	1.4	1.35	45	41
	NEG 161130	150	AL	135	202	143	11,078	11,293	0.,75	0.75	1.7	1.5	57	48
	NEG 161420	150	AL	–	254	187	13,929	14,767	0.95	1.0	1.8	1.7	64	58
	NEG 161610	160	AL	135	293	192	16,068	15,162	1.1	1.3	2.2	2.2	80	76
	NEG 162110				385	264	21,113	20,848	1.5	1.77	3.0	2.75	95	83
	NEG 162550	170	GJS	135	464	323	25,446	25,507	1.96	2.1	4.1	3.75	140	127
	NEG 163030				553	400	30,327	31,588	2.2	2.4	4,5	4,3	156	141
	NEG 163820	180	GJS	135	696	467	38,169	36,879	2.5	3.0	5.1	5.0	200	182
	NEG 164700				857	587	46,998	46,355	3.2	3.6	6.5	6.0	219	198
	NEG 165190	190	GJS	135	946	658	51,879	51,962	3.8	4.0	7.0	6.5	232	225
	NEG 166270	190	GJS	135	1,143	795	62,682	62,781	4.3	5.0	8.2	8.1	279	251
	NEG 166670	197	GJS	135	1,217	796	66,740	62,860	5.0	5.9	10.0	9.8	285	257
	NEG 167890	195	GJS	135	1,439	993	78,915	78,417	7.0	7.5	12.6	11.3	320	282
	NEG 168500				1,550	1,077	85,002	85,050	7.5	8.2	14.0	12.9	326	289
	NEG 169510	197	GJS	135	1,735	1,133	95,147	89,473	7.6	8.0	13.5	12.4	381	340
	NEG 1612060	200			2,199	1,509	120,593	119,165	9.0	9.5	16.3	15.0	500	445
	NEG 1613890	205	GJS	–	2,532	1,740	138,855	137,407	10.6	11.3	19.0	18.0	643	605
	NEG 1617000				3,100	2,088	170.,04	164,889	13.0	13.7	24.5	23.0	705	656
750 900	NEG 12100	120	AL	130	32.6	32.6	1,006	1,448	0.23	0.25	0.85	0.76	20.5	20.5
	NEG 12180	130	AL	130	56.8	56.8	1,752	2,523	0.35	0.38	1.10	1.05	28.0	28.0
	NEG 12230	133	AL	120	75	75	2,314	3,332	0.28	0.3	0.6	0.68	34.6	34.6
	NEG 12460	150	AL	120	144	142	4,442	6,308	0.4	0.45	1.2	1.2	46	46
	NEG 12640				202	196	6,231	8,706		0.5	1.4	1.3	57	57
	NEG 12900	160	AL	150	293	293	9,038	13,015	0.95	1.1	2.2	2.2	80	80
	NEG 121430	170	GJS	135	464	464	14,313	20,611	1.5	1.79	4.1	4.2	133	133
	NEG 122150	180	GJS	135	696	696	21.470	30.917	2,0	2,3	5,4	5,2	201	201
	NEG 122640				857	857	26,436	38,068	2.5	3.0	6.0	6.0	217	217
	NEG 122920	190	GJS	135	964	964	29,737	42,821	2.8	3.35	6.5	6.5	242	242
	NEG 123530				1,143	1,143	35,259	50,773	4.0	4.3	8.2	7.85	267	267
	NEG 124440	195	GJS	135	1,439	1,439	44,390	63.921	4.9	5.8	9.9	9.5	320	320
	NEG 127640	197			2,478	2,195	76,440	97,503	6.8	7.45	13.2	12.0	438	419
	NEG 128520	200	GJS	135	2,763	2,481	85,232	110,207	7.6	8.3	14.0	13.5	540	520
	NEG 1211070	205	GJS	–	3,589	3,100	110,712	137,703	9.2	9.6	21.0	19.5	702	680
	NEG 1213160				4,267	3,813	131,626	169,375	10.4	11.2	22.0	20.0	755	711
	NEG 1217670	210	GJS	–	5,727	4,902	176,664	217,749	12.5	16.2	26.5	28.0	1,015	981

PTC thermistors are standard from housing size 170 up.

*at an ambient temperature of 40 °C max., other temperatures on request



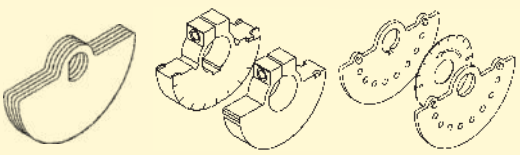
Typ	Gehäuse-typ	Abmessungen [mm]													Unwucht [Anzahl der Unwuchtscheiben]	
		A 50/60 Hz	B	C	D	E	n_2*	F	G	H	I 50/60Hz	L	M	N	Typ	Anzahl
						Befestigungsmaße**										
NEG 1630	II	255	175,5	164	**65**	**140**	4	25	13	105	54	124	128	141	XLs	8
NEG 1690		295			90	125					74				XS	4
NEG 16190	II	340	195	217	**100**	**180**	4	30	**17**	115	91	143	164	160	XS	4
					105	140			13							
NEG 16310	III	378	211	215	100	180	4	35	17	93,5	98	168	144	182	XS	4
NEG 16410	III	422	217	217	100	180	4	35	17	93,5	130	168	146	182	XS	4
NEG 16810	IV	490/438	257	230	140	190	4	25	17	124,5	129/103	201	224	241	XS	4
NEG 161130		560									164					
NEG 161420		608									188					
NEG 161610	IV	600/523	283	275	155	225	4	28	22	140	168,5/130	231	255	271	XS	4
NEG 162110		655/600									196/168,5					
NEG 162550	IV	670/610	335	310	155	255	4	30	23,5	160	180/150	274	302	310	XS	4
NEG 163030		710									200					
NEG 163820	IV	730	346	345	180	280	4	28	26	165	200	296	330	320	XS	4
NEG 164700		790									230					
NEG 165190	IV	772	380	390	200	320	4	32	28	189	206	340	360	384	XS	4
NEG 166270		850									245	340	360			
NEG 166670	VI	750	434,5	460	125	380	6	35	39	215	174	379	392	439	XS	4
NEG 167890	IV	854	402	392	200	320	4	35	28	199,5	247	358	352	402	XS	4
NEG 168500																
NEG 169510	VI	862	434,5	460	125	380	6	35	39	215	230	379	392	439	XS	4
NEG 1612060	VI	990	454	530	140	440	6	38	44	230	240	423	510	448	XS	4
NEG 1613890	VIII	960	526	570	140	480	8	41	45	268	200	488	560	516	XS	4
NEG 1617000		1.040									240					
NEG 12100	II	340	195	217	**100**	**180**	4	30	**17**	115	91	143	144	160	XS	4
					105	140			13							
NEG 12180	III	378	211	215	100	180	4	35	17	93,5	98	168	144	182	XS	4
NEG 12230	III	422	217	217	100	180	4	35	17	93,5	130	168	146	182	XS	4
NEG 12460	IV	490	257	230	140	190	4	25	17	124,5	129	201	224	241	XS	4
NEG 12640		560									164					
NEG 12900	IV	600	283	275	155	225	4	28	22	140	168,5	231	255	271	XS	4
NEG 121430	IV	670	335	310	155	255	4	30	23,5	160	180	274	302	310	XS	4
NEG 122150	IV	730	346	345	180	280	4	28	26	165	230	296	330	320	XS	4
NEG 122640		790									236					
NEG 122920	IV	772	380	390	200	320	4	32	28	189	206	340	360	384	XS	4
NEG 123530		850									245					
NEG 124440	IV	854	402	392	200	320	4	35	28	199,5	247	358	352	402	XS	4
NEG 127640	VI	1.002	434,5	460	125	380	6	35	39	215	300	379	392	439	XS	4
NEG 128520	VI	1.070	454	530	140	440	6	38	44	230	280	423	510	448	XS	4
NEG 1211070	VIII	1.140	526	570	140	480	8	41	45	268	240	488	560	516	XS	4
NEG 1213160		1.120									280					
NEG 1217670	VIII	1.150	607	610	140	520	8	38	45	297	280	542	510	582	XS	4

* number of bores
** recommended mounting dimensions printed in bold

NetterVibration

Electric External Vibrators
NEA Single-Phase AC Series

Unbalance type XL Unbalance type XS Unbalance type XLs

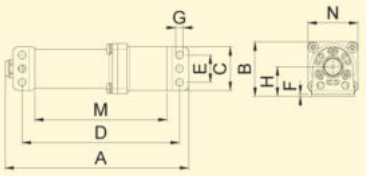


min⁻¹	Type	Housing size	Housing material	Unbalance [cmkg]		Centrifugal force [N]		Nominal power [kW]		Nominal current [A]		Weight [kg]	
				50 Hz	60 Hz	50 Hz	60 Hz	50 Hz 230 V	60 Hz 115V	50 Hz 230 V	60 Hz 115V	50 Hz	60 Hz
3000 3600	NEA 504*	50	AL	0,1	0,1	49	71	0,024	0,024	0,13	0,30	1,0	1,0
	NEA 5020*	60	AL	0,4	0,4	197	284	0,035	0,035	0,17	0,42	2,20	2,20
	NEA 5050*			1	1	494	711	0,045	0,045	0,20	0,46	2,45	2,45
	NEA 5060	100	AL	1,2	1,2	592	853	0,11	0,11	0,56	1,52	4,9	4,9
	NEA 50120	101	AL	2,4	2,4	1.185	1.706	0,165	0,165	0,75	1,52	5,9	5,9
	NEA 50200			4	3,2	1.974	2.274					6,5	6,3
	NEA 50300	110	AL	6	4	2.961	2.843	0,28	0,28	1,25	2,40	10,2	10,0
	NEA 50550	120	AL	11,5	6,9	5.676	4.904	0,5	0,5	2,30	4,50	16,3	16,1
	NEA 50770	130	AL	14,7	11	7.255	7.818	0,7	0,75	3,25	7,00	22,1	21,6
1500 1800	NEA 2530	101	AL	2,4	2,4	296	426	0,09	–	0,43	–	6,1	5,8
	NEA 2570			6,4	4,8	790	853					7,3	6,9
	NEA 25210	110	AL	16,8	11,8	2.073	2.097	0,21	–	1,00	–	12,8	11,8
	NEA 25420	120	AL	32,6	22,7	4.023	4.033	0,24	–	1,20	–	20,7	19,7
	NEA 25540			43,8	32,6	5.404	5.792					22,7	21,7
	NEA 25700	130	AL	57,2	41,9	7.058	7.445	0,45	–	2,50	–	29,4	28,4

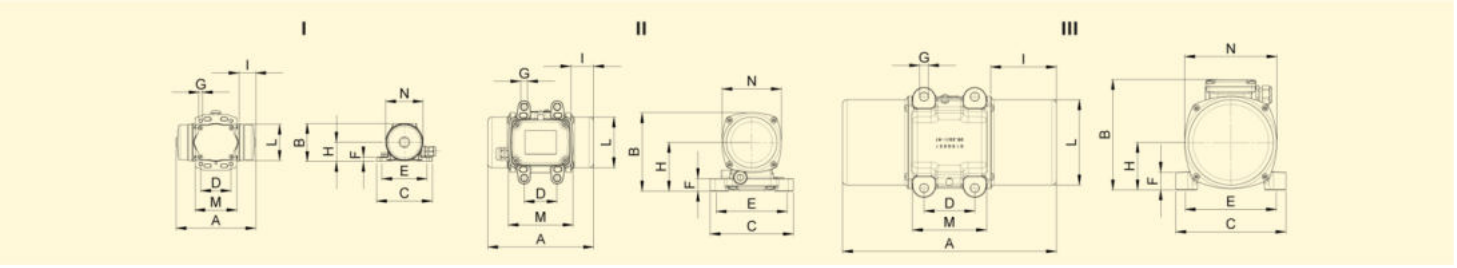
* degree of protection IP 65, ATEX II 3D Ex tc IIIC Dc

Electric External Vibrators
NED Direct Current Series

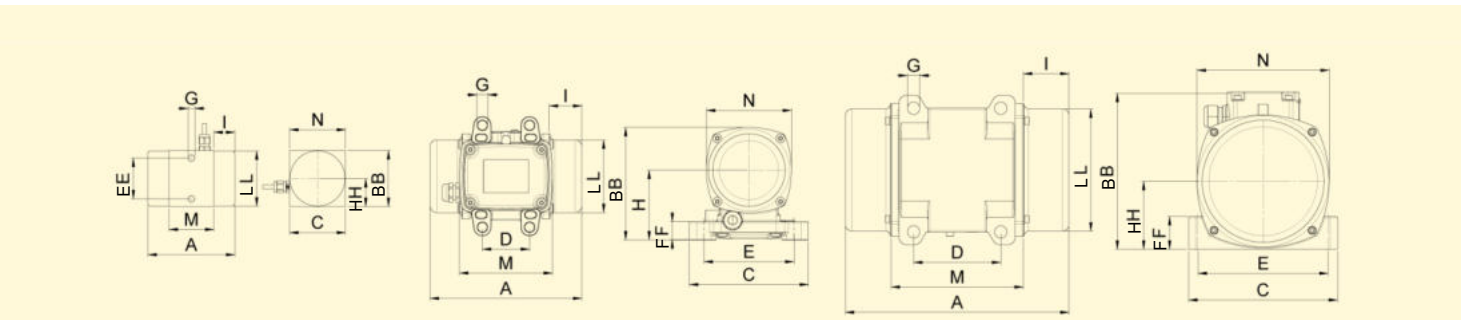
NED 605



Type	Revolutions [min⁻¹]	Nominal voltage [V]	Housing size	Housing material	Unbalance [cmkg]	Centrifugal force [N]	Nominal power [kW]	Nominal current [A]		Weight [kg]
								24V	12V	
NED 605	3.600	24/–	–	AL/POM	0,07	50	0,011	0,45	–	0,4
NED 5016	3.600	24/12	–	POM	0,3	213	0,02	0,6	1,4	1,5
NED 50120	3.000	24/12	101	AL	2,4	1.185	0,19	4,0	8,0	5,7
NED 50200	3.000	24/12	101	AL	4	1.974	0,19	4,0	8,0	6,0
NED 50550	3.000	24/12	122	AL	11,5	5.676	0,27	11,3	22,5	13,1
NED 50770	3.000	24/–	133	AL	14,7	7.255	0,53	22,0	–	20,8
NED 501140	3.000	24/–	133	AL	21	11.056	0,53	22,0	–	21,5



Type	Housing type	Dimensions [mm]													Unbalance [number of unbalance discs]	
		A	B	C	D	E	n_2*	F	G	H	I	L	M	N	Type	50/60 Hz
						mounting dimensions**										
NEA 504	I	111	67	90	25–40	75	4	9	5.5	34	24	63	59	65	XL	8
NEA 5020	I	157	75	110	**60**	**85**	4	9	**6.5**	38	33	72	83	74	XL	8
NEA 5050	I	169			25–40	92					39					18
NEA 5060	II	197	123	127	30	85	4	24	**9**	70	40	103	86	106	XLs	4
					30	**100**										
					62	85			**11.5**							
					62	**100**										
NEA 50120	II	209	154.5	164	**65**	**140**	4	25	**13**	96	45	100	128	117	XLs	6
NEA 50200	II	225			62–74	106			9		53					10/8
NEA 50300	II	255	175.5	164	**65**	**140**	4	25	**13**	105	54	124	128	141	XLs	8/6
					90	125										
NEA 50550	II	284	195	217	**100**	**180**	4	30	**17**	115	63	143	144	160	XLs	10/6
					105	140			13							
NEA 50770	III	308	211	215	100	180	4	35	17	93.5	63	168	144	182	XLs	8/6
NEA 2530	II	209	154.5	164	**65**	**140**	4	25	**13**	96	45	100	128	117	XLs	6
NEA 2570	II	241			62–74	106			9		61					16/10
NEA 25210	II	295	175.5	164	**65**	**140**	4	25		105	74	124	128	141	XS	4
					90	125										
NEA 25420	II	340	195	217	**100**	**180**	4	30	**17**	115	91	143	144	160	XS	4
NEA 25540	II	380			105	140			13		111					
NEA 25700	III	378	211	215	100	180	4	35	17	93.5	98	167	144	193	XS	4



Type	Dimensions [mm]											Unbalance [number of unbalance discs]	
	A	B	C	D	E	F	G	H	I	L	M	N	Type	No.
					mounting dimensions**									
NED 605	169	50	40	145	25	2	7	27	–	–	122	46	XL	1
NED 5016	121	77	77	–	56	–	9	38,5	29	76	63	–	XL	6
NED 50120	209	154,5	164	**65**	**140**	25	13	96	45	100	128	117	XLs	6
				62–74	106		9							
NED 50200	225	154,5	164	**65**	**140**	25	13	96	53	100	128	117	XLs	10
				62–74	106		9							
NED 50550	288	203	167	105	140	30	13	82,5	65	145	146	160	XLs	10
NED 50770	308	216	205	120	170	45	17	93,5	63	168	160	182	XLs	8
NED 501140	308	216	205	120	170	45	17	93,5	63	168	160	182	XN	4

* number of bores

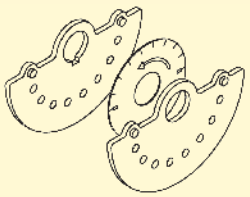
** recommended mounting dimensions printed in bold

NetterVibration

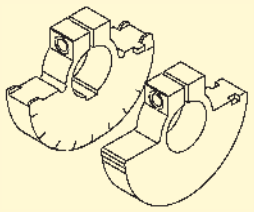
Electric External Vibrators

NEG E Series
Ex e IIC Gb
Ex tb IIIC Db

Unbalance type XLs



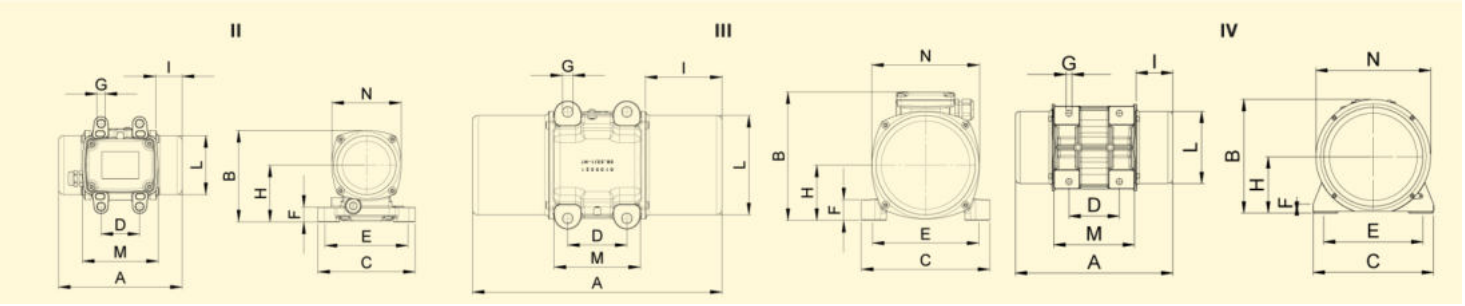
Unbalance type XS



min⁻¹	Type	Housing size	Max. surface temperature* (dust) [°C]	Temperature class (gas)	Power consumption [1] [kW] T3	Power consumption [1] [kW] T4	Nominal current [2] [A] T3	Nominal current [2] [A] T4	t_E [s] T3	t_E [s] T4	I_A / I_N T3	I_A / I_N T4
3000 3600	NEG 50300 E	110	120	T3, T4	0.26	0.23	0.57	0.48	18	12	3.50	4.20
	NEG 50550 E	120	120	T3, T4	0.50	0.35	0.76	0.57	12	8	4.20	5.60
	NEG 50770 E	130	120	T3, T4	0.55	0,39	0,95	0,72	12	8	4,20	5,52
	NEG 501140 E	133	120	T3, T4	0.55	0.46	0.86	0.76	15	11	3.88	4.37
	NEG 501540 E	140	135, 115	T3, T4	1.01	0.83	1.62	1.43	6	6	9.29	7.30
	NEG 501800 E	140	135	T3	1.01	–	1.62	–	6	–	9.29	–
	NEG 502020 E	150	170	T3	1.11	–	1.90	–	7	–	5.90	–
	NEG 502270 E	150	170	T3	1.11	–	1.90	–	7	–	5.90	–
1500 1800	NEG 25210 E	110	120	T3, T4	0.20	0,17	0,45	0,39	35	28	2,04	2,34
	NEG 25420 E	120	120	T3, T4	0,30	0.28	0.57	0.52	18	16	3.33	3.63
	NEG 25540 E	120	120	T3, T4	0.30	0.28	0.57	0.52	18	16	3.33	3.63
	NEG 25700 E	130	120	T3, T4	0.46	0.36	0.86	0.72	17	12	3.50	4.20
	NEG 25930 E	133	120	T4	–	0.37	–	0.81	–	13	–	4.00
	NEG 251410 E	140	120	T3, T4	0.90	0.63	1.38	1.05	13	8	4.00	5.36
	NEG 251800 E	140	150, 120	T3, T4	1.10	0.63	1.90	1.33	9	5,5	4.95	7.00
	NEG 252370 E	160	150, 135	T3, T4	1.60	1.15	3.04	2.47	7	5.5	6.00	7.50
	NEG 253720 E	170	135	T3, T4	2.20	1.85	3.71	3.14	6	6	7.17	8.42
	NEG 254900 E	180	135	T3	3.20	–	5.70	–	6	–	7.00	–
1000 1200	NEG 16190 E	120	120	T4	–	0.18	–	0.48	–	25	–	2.72
	NEG 16310 E	130	120	T4	–	0.32	–	0,.7	–	25	–	2,.1
	NEG 16410 E	133	120	T4	–	0.35	–	0.71	–	26	–	2.40
	NEG 16810 E	140	135	T3, T4	0.68	0.50	1.33	1.05	25	17	2.78	3.54
	NEG 161130 E	140	135	T3, T4	0.75	0.48	1.57	1.24	19	13	3.33	4.23
	NEG 161610 E	160	135	T3, T4	1.10	0.85	2.09	1.81	15	10	3.63	4.73
	NEG 162550 E	170	135	T3	1.96	–	3.90	–	8	–	5.31	–
	NEG 163820 E	180	135	T3, T4	2.20	2.00	4.85	4.28	7	6	5.88	6.66
	NEG 165190 E	190	135	T3	3.50	–	6.65	–	10	–	4.64	–
750 900	NEG 12100 E	120	130	T3	0.23	–	0.67	–	25	–	2.00	–
	NEG 12180 E	130	130	T3	0.35	–	0.86	–	25	–	2.47	–
	NEG 12230 E	133	120	T4	–	0.28	–	0.57	–	30	–	1.66
	NEG 12460 E	140	120	T3	0.50	–	1.14	–	30	–	2.15	–
	NEG 12640 E	140	120	T3, T4	0.60	0.45	1.33	1.14	30	25	2.14	2.50
	NEG 12900 E	160	150	T3	0.95	–	2.09	–	30	–	2.63	–
	NEG 121430 E	170	135	T3	1.50	–	3.61	–	15	–	4.18	–
	NEG 122150 E	180	135	T3	2.00	–	5.13	–	13	–	3.96	–
	NEG 122920 E	190	135	T3	2.63	–	6.18	–	14	–	3.84	–
	NEG 123530 E	190	135	T3	3.52	–	7.79	–	14	–	3.80	–

[1] at 50 Hz, [2] at 400 V, 50 Hz, [1][2] vibrators at 60 Hz on request
T3 = 200 °C, T4 = 135 °C

* at an ambient temperature of 40 °C max.
PTC thermistors are standard from housing size 170 up



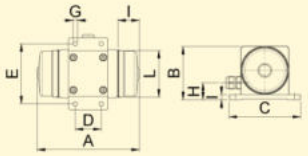
Type	Housing type	Dimensions [mm]													Unbalance [number of unbalance discs]	
		A	B	C	D	E	n_2* mounting dimensions**	F	G	H	I	L	M	N	Type	50/60 Hz
NEG 50300 E	II	255	175.5	164	**65** 90	**140** 125	4	25	**13**	105	54	124	128	141	XLs	8/6
NEG 50550 E	II	284	195	217	**100** 105	**180** 140	4	30	**17** 13	115	63	143	144	160	XLs	10/6
NEG 50770 E	III	308	211	215	100	180	4	35	17	93.5	63	168	144	182	XLs	8/6
NEG 501140 E	III	314	217	217	100	180	4	35	17	93.5	76	168	146	182	XLs	12/8
NEG 501540 E	IV	438	257	230	140	190	4	25	17	124.5	103	201	224	241	XLs	12/8 14/10
NEG 502020 E	IV	463	235	230	140	190	4	22	17	104	104	188	248	224	XLs	16/10
NEG 502270 E																18/12
NEG 25210 E	II	295	175.5	164	**65** 90	**140** 125	4	25	**13**	105	74	124	128	141	XS	4
NEG 25420 E	II	340	195	217	**100**	**180**	4	30	**17**	115	91	143	144	160	XS	4
NEG 25540 E		380			105	140			13		111					
NEG 25700 E	III	378	211	215	100	180	4	35	17	93.5	98	168	144	182	XS	4
NEG 25930 E	III	422	217	217							130	168	146			
NEG 251410 E	IV	438	257	230	140	190	4	25	17	124.5	103	201	224	241	XS	4
NEG 251800 E		490									129					
NEG 252370 E	IV	523	283	275	155	225	4	28	22	140	130	231	255	271	XS	4
NEG 253720 E	IV	588	335	310	155	255	4	30	23.5	160	139	274	302	310	XS	4
NEG 254900 E	IV	640	369	340	180	280	4	30	26	173	155	301	322	336	XS	4
NEG 16190 E	II	340	195	217	**100** 105	**180** 140	4	30	**17** 13	115	91	143	144	160	XS	4
NEG 16310 E	III	378	211	215	100	180	4	35	17	93.5	98	168	144	182	XS	4
NEG 16410 E	III	422	217	217							130	168	146			
NEG 16810 E	IV	490	257	230	140	190	4	25	17	124.5	129	201	224	241	XS	4
NEG 161130 E		560									164					
NEG 161610 E	IV	600	283	275	155	225	4	28	22	140	168.5	231	255	271	XS	4
NEG 162550 E	IV	670	335	310	155	255	4	30	23,5	160	180	274	302	310	XS	4
NEG 163820 E	IV	742	369	340	180	280	4	30	26	173	206	301	322	336	XS	4
NEG 165190 E	IV	772	380	390	200	320	4	32	28	189	206	340	360	384	XS	4
NEG 12100 E	II	340	195	217	**100** 105	**180** 140	4	30	**17** 13	115	91	143	144	160	XS	4
NEG 12180 E	III	378	211	215	100	180	4	35	17	93.5	98	168	184	182	XS	4
NEG 12230 E	III	422	217	217							130	168	145			
NEG 12460 E	IV	490	257	230	140	190	4	25	17	124.5	129	201	224	241	XS	4
NEG 12640 E		560									164					
NEG 12900 E	IV	600	283	275	155	225	4	28	22	140	168.5	231	255	271	XS	4
NEG 121430 E	IV	670	335	310	155	255	4	30	23,5	160	180	274	302	310	XS	4
NEG 122150 E	IV	742	369	340	180	280	4	30	26	173	206	301	322	336	XS	4
NEG 122920 E	IV	772	380	390	200	320	4	32	28	189	206	340	360	384	XS	4
NEG 123530 E		850									245					

* number of bores
** recommended mounting dimensions printed in bold

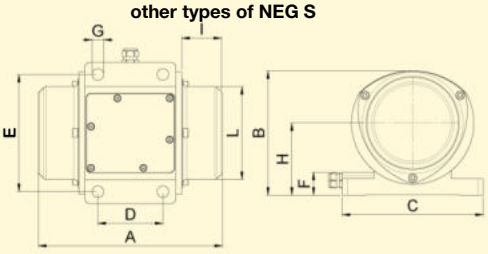
NetterVibration

Stainless Steel Electric External Vibrators
NEG S Series

NEG 5020 S and NEG 5050 S



other types of NEG S



min^{-1}	Type	Housing size	Unbalance [cmkg]		Centrifugal force [N]		Nominal power [kW]		Nominal current [A]		Weight [kg]		Dimensions [mm]							
			50 Hz	60 Hz	50 Hz	60 Hz	50 Hz 400 V	60 Hz 460 V	50 Hz 400 V	60 Hz 460 V	50Hz	60Hz	A	B	C	D	E	F	G	I
3000 3600	NEG 5020 S	60	0.39	0.39	192	277	0.035	0.035	0.15	0.15	3.8	3.8	157	82	110	40	92	8	6.5	33
	NEG 5050 S		0.91	0.91	450	647	0.045	0.045	0.16	0.16	4.0	4.0	169							39
	NEG 50120 S	101	2.4	2.4	1,185	1,708	0.18	0.18	0.35	0.30	11.2	11.1	207	139	164	65	140	18	13	44
	NEG 50200 S		4.2	3.0	2,073	2,133					11.8	11.6	223							52
	NEG 50300 S	110	6.02	4.08	2,972	2,900	0.26	0.27	0.60	0.50	18.5	18.3	246	163	164	65	140	16	13	50
	NEG 50550 S	120	9.99	6.48	4,930	4,606	0.45	0.50	0.80	0.75	30	29.8	283	191	217	100	180	25	18	62.5
	NEG 50770 S	130	15.59	10.40	7,695	7,392	0.65	0.685	1.10	1.00	36	35	308	198	220	100	180	20	19	63
	NEG 50980 S	133	19.8	13.2	9,772	9,382	1.00	1.20	1.70	1.60	40	39	324	207	220	100	180	20	19	76
	NEG 501140 S		23.0	16.5	11,352	11,727					40.5	39.5								
1500 1800	NEG 2530 S	101	2.4	2.4	296	426	0.085	0.095	0.21	0.20	11.2	10.9	207	139	164	65	140	18	13	44
	NEG 2570 S		6.2	4.2	766	747					12.3	11.9	243							62
	NEG 25210 S	110	16.84	11.76	2,078	2,090	0.17	0.17	0.41	0.40	20.5	19.5	306	163	164	65	140	16	93	80
	NEG 25420 S	120	32.64	22.66	4,028	4,027	0.30	0.35	0.60	0.60	34	33	356	191	217	100	180	25	111	99
	NEG 25540 S		43.60	32.64	5,405	5,800					36	35	392							117
	NEG 25700 S	130	57.18	41.89	7,056	7,444	0.525	0.685	0.92	0.98	43	42	392	198	220	100	180	20	107	105
	NEG 25930 S	133	75.0	52.0	9,254	9,239	0.55	0.68	0.95	0.95	49	47	452	207	220	100	180	20	115	140
1000 1200	NEG 1630 S	110	6.02	6.02	331	476	0.12	0.135	0.30	0.30	20	20	246	163	164	65	140	16	13	50
	NEG 1690 S		16.84	16.84	924	1,330					21	21	306							80
	NEG 16190 S	120	32.64	32.64	1,790	2,578	0.185	0.205	0.50	0.50	34	34	356	191	217	100	180	25	18	99
	NEG 16310 S	130	57.18	41.89	3,136	3,309	0.35	0.38	0.72	0.68	42.5	41.5	392	198	220	100	180	20	19	105
	NEG 16410 S	133	75.0	52.0	4,113	4,106	0.35	0.38	0.75	0.67	49	48	452	207	220	100	180	20	19	140
	NEG 16500 S		90.7	66.5	4,974	5,251	0.42	0.46	0.79	0.77	51	50								
750 900	NEG 12100 S	120	32.64	32.64	1,007	1,450	0.23	0.25	0.85	0.76	34	34	356	191	217	100	180	25	18	99
	NEG 12180 S	130	56.8	56.8	1,752	2,523	0.35	0.38	1.10	1.05	42	42	392	198	220	100	180	20	19	105
	NEG 12230 S	133	75.0	75.0	2,314	3,332	0.28	0.30	0.60	0.68	49	49	452	207	220	100	180	20	19	140

Container

Conveyor channel

Sieving channel

Applications

The electric external vibrators of the NEG S series are used wherever special demands are made on the chemical resistance of the surfaces. Even in the standard version, the NEG S have a surface quality RZ of 6,3 µm and therefore meet the requirements of the chemical and pharmaceutical industries. A higher surface quality, e.g. for the food industry, is easily possible on request. The protection class IP 66 allows intensive cleaning with high-pressure lamps and aggressive cleaning agents.

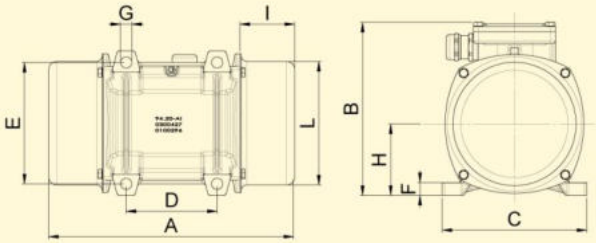
Design and function

One special feature of the NEG s series is in its modular design. As a result, even very small series in different steel materials can be produced economically. All internal components of the NEG S vibrators come from the proven NEG series and are tried and tested.

Stainless steel housings usually have a higher tare weight than the standard housing. This larger mass is to be considered in the design.

NetterVibration

Stainless Steel Electric External Vibrators
NES Series



min⁻¹	Type	Unbalance [cmkg]		Centrifugal force [N]		Nominal power [kW]		Nominal current [A]		Weight [kg]		Dimensions [mm]							
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50Hz 400V	60Hz 460V	50 Hz	60 Hz	A 50/60Hz	B	C	D	E	F	G	I 50/60 Hz
3000 3600	NES 50120	2.4	2.4	1,185	1,706	0.18	0.18	0.35	0.30	8.0	8.0	209	151	125	62–74	106	22	10	45
	NES 50200	4	3,2	1,974	2,274					8.5	8.5	225							53
	NES 50300	6	4	2,961	2,843	0.26	0.27	0.60	0.50	12.5	12.0	255	176	152	90	125	12	13	54
	NES 50550	11.5	6,9	5,676	4,904	0.45	0.50	0.80	0.75	18.5	17.5	284	200	167	105	140	15	13	63
	NES 50770	14.7	11	7,255	7,818	0.65	0.69	1.10	1.00	25.0	24.0	356	225	205	120	170	20	17	77
	NES 501140	22.4	14.7	11,056	10,448	1.00	1.20	1.75	1.75	30.0	29.0	356	225	205	120	170	20	17	77
	NES 501540	31	21	15,300	14,925	1.40	1.45	2.30	2.00	39.6	38.0	438	245	230	140	190	25	17	103
	NES 502020	41	26	20,236	18,479	2.20	2.20	3.50	3.00	48.7	46.3	438	245	230	140	190	25	17	103
1500 1800	NES 2530	2.4	2.4	296	426	0.09	0.10	0.21	0.20	7.8	7.8	209	151	125	62–74	106	10	9	45
	NES 2570	6.4	4.8	790	853					9.0	8.7	225							53
	NES 25100	7.78	6.20	960	1,102	0.09	0.10	0.21	0.20	9.4	9.0	241/225	151	125	62–74	106	10	9	61/53
	NES 25210	16.8	11.8	2,073	2,097	0.17	0.17	0.41	0.40	15.8	15.0	295	176	152	90	125	12	13	74
	NES 25420	32.6	22.7	4,023	4,033	0.30	0.35	0.60	0.60	22.5	21.7	340	200	167	105	140	15	13	91
	NES 25540	43.8	32.6	5.404	5.792					23.9	22.5	380							111
	NES 25700	57.2	41.9	7,058	7,445	0.53	0.67	0.92	0.98	32.0	30.7	378	211	205	120	170	17	17	98
	NES 251030	83	54.2	10,242	9,630	0.55	0.68	0.95	0.95	42.0	37.5	436	232	205	120	170	20	17	118
	NES 251410	112	80	13,820	14,215	0.90	1.05	1.45	1.50	53,.	50.0	442	245	230	140	190	25	17	105
	NES 251800	143	97	17,645	17,235	1.10	1.20	2.00	1.90	58.5	54.5	490	245	230	140	190	25	17	129
	NES 252060	163	112	20,113	19,900	1.35	1.45	2.50	2.30	70.0	68.0	560	245	230	140	190	25	17	164
	NES 252370	192	135	23,691	23,987	1.60	1.70	3.20	3.00	82.0	76.0	525	285	275	155	225	30	22	131
	NES 253050	247	172	30,477	30,561	1.90	2.00	3.80	3.50	92.0	89.0	601	285	275	155	255	30	22	135
	NES 253720	302	207	37,264	36,780	2.20	2.50	3.90	3.90	115.0	110.0	589	323	310	155	255	35	23,5	139.5
	NES 254310	344	235	42,446	41,684	2,50	2.80	4.80	4.65	122.0	117.0	589	323	310	155	255	35	23,5	178
1000 1200	NES 1630	6	6	329	474	0.12	0.14	0.30	0.30	12.5	12.5	255	176	152	90	125	12	13	54
	NES 1690	16.8	16.8	921	1,327					15.8	15.8	295							74
	NES 16190	32.6	32.6	1,788	2,574	0.19	0.21	0.50	0.50	22.5	22.5	340	200	167	105	140	15	13	91
	NES 16310	57.2	41.9	3,137	3,309	0.35	0.38	0.72	0.68	32.0	30.7	378	211	205	120	170	17	17	98
	NES 16410	75	52	4,113	4,106	0.35	0.38	0.75	0.68	43.5	43.5	434	232	205	120	170	20	17	117
	NES 16810	144	112	7,897	8,845	0.68	0.76	1.40	1.35	54.0	52.6	490/442	245	230	140	190	25	17	129/105
	NES 161130	202	143	11,078	11,293	0.75	0.75	1.65	1.50	67.0	59.5	560	245	230	140	190	25	17	164
	NES 161420	254	187	13,929	14,767	0.95	1.00	2.10	2.00	78.0	71.0	560	245	230	140	190	25	17	164
	NES 161610	293	192	16,068	15,162	1.10	1.30	2.20	2.20	94.0	83.0	601/525	285	275	155	225	30	22	169/131
	NES 162110	385	264	21,113	20,848	1.50	1.70	3.00	2.90	105.0	93.0	601	285	275	155	225	30	22	169
	NES 162550	464	323	25,446	25,507	1.96	2.10	4.10	3.75	130.0	116.0	657/589	323	310	155	255	35	23.5	173.5/139.5
	NES 163030	553	400	30,327	31,588	2.20	2.40	4.50	4.30	145.0	130.0	705	323	310	155	255	35	23.5	197.5
750	NES 12100	32.64	32.64	1,007	1,450	0.23	0.25	0.85	0.76	22.5	22.5	340	200	167	105	140	15	13	91
	NES 12180	56.80	56.80	1,752	2,523	0.35	0.38	1.10	1.05	32.0	32.0	378	211	205	120	170	17	17	98

Applications
The stainless steel electric external vibrators of the NES series are mainly used in the chemical, pharmaceutical and food industries. They serve as drives for conveyors, sieves and discharge aids. The stainless steel surfaces of the vibrators are particularly resistant to chemically aggressive environmental conditions and can be thoroughly cleaned mechanically and automatically with powerful cleaning agents.

The extremely resilient roller bearings guarantee a long service life. All NES are suitable for operation on Netter frequency converters.

Design and function
Stainless steel electric external vibrators are three-phase asynchronous motors with adjustable unbalances on both shaft ends, which generate a sinusoidal vibration with the frequency of the corresponding number of rotations.

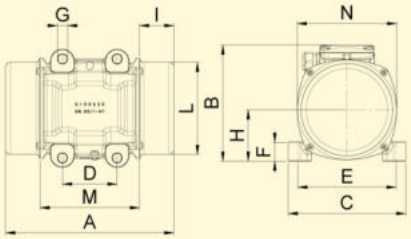
NetterVibration

NEG

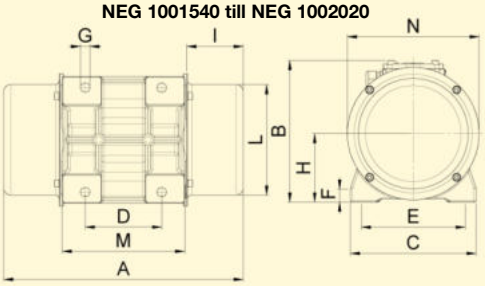
NEH

High Frequency Electric External Vibrators
NEG/NEH Series

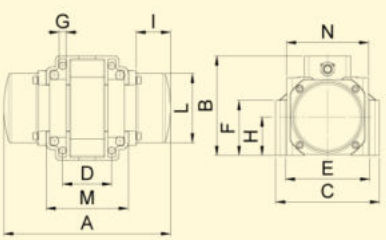
NEG 100770 and NEG 1001140



NEG 1001540 till NEG 1002020

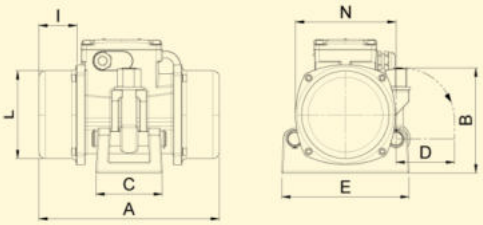


NEG 1001000 and NEG 1001400

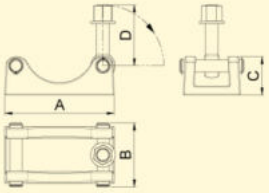


min⁻¹	Type	Unbalance [cmkg]	Centrifugal force [N]	Nominal power [kW]	Nominal current [A] 400 V 100 Hz	42 V 200 Hz	250 V 200 Hz	Weight [kg]	Dimensions [mm] A	B	C	D	E	F	G	H	I	L	M	N
0 – 6000	**NEG 100770**	3.68	7,255	0.65	1.1	–	–	22.1	308	212,5	226	100	180	35	17	93.5	63	168	162	193
	NEG 1001000	5.07	10,000	1.1	–	18.5	3.15	14.8	307	181	190	90/120	154/120	99/141	13/16.5	70.0	65.5	126	176	136
	NEG 1001140	5.6	11,056	1.0	1.75	–	–	25.0	314	217	217	100	180	35	17	93,5	76	168	152	193
	NEG 1001400	7.09	14,000	1.1	1.8*	18.5	3.15	15.2	307	181	190	90/120	154/120	99/141	13/16.5	70,0	65,5	126	176	136
	NEG 1001540	7.75	15,300	1.4	2.3	–	–	34.3	438	257	230	140	190	25	17	124.5	103	201	224	241
	NEG 1001800	9.00	17,768	2.0	3.3	–	–	35.1	438	256	230	140	190	25	17	124.5	103	201	224	241
	NEG 1002020	10.25	20,236	2.2	3.5	–	–	49.0	458	233.5	230	140	190	22	17	104	101.5	183	247	224
														Bracket						
	NEH 100600	3.03	5,980	0.5	1	9.5	1.6	8.0	255	140	97	97	180	NVH 1			54	124	–	141
	NEH 1001140	5.42	10,700	1.2	3.9	23	3.85	21.0	289	189	83	140	240	NVH 4			63	170	–	182
	NEH 1001540	7.80	15,400	1.7	4.8	29	4.9	23,0	289	189	83	140	240	NVH 4			63	170	–	182
	NEH 1002020	9.92	19,600	1.7	2.9	27**	4.5	28.0	375	189	83	140	240	NVH 4			106	170	–	179

* At same voltage 200 Hz
** 42V 100 Hz



NEH 100600 with NVH 1



Type	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
NVH1	180	105	60	100	3.5
NVH 4	240	100	70	140	4.5

Applications
The high-frequency electric external vibrators of the series NEG/NEH were specially developed for concrete compaction on formwork in precast plants and in tunnel construction. A frequency of up to 6.000 min^{-1} and a robust design help solve the most difficult applications in the construction industry.

Design and function
Electric external vibrators are unbalance motors according to the short circuit rotor principle. On both ends of the shaft there are adjustable unbalances that generate a sinusoidal vibration at a rate of rotation of the corresponding frequency.

The NEG series differs from the NEH series in its method of mounting.
NEG vibrators are mounted with Netter NBS fastening kits.
NEH vibrators are fastened with the Netter quick clamp mounts of the NVH series. This allows easy transfer of the units.

All NEG/NEH are optimised for operation on Netter frequency converters and voltage transformers.

Electric External Vibrators
Special versions

CC Unbalances

Applications
This special version with CC unbalances is used if two different unbalance settings are to be at a disposal during operation.

The CC unbalances are manufactured on customer request and allow a second unbalance setting of 25-100% of the main value.

Design and function
To use the CC unbalances, the NEG must be operable by a corresponding electrical circuit in both directions of rotation. If the NEG turns in one direction, it works e.g. with a maximum unbalance.

When the direction of rotation changes, the outer unbalance disc automatically rotates at a specified angle against the inner unbalance disc and thus provides a reduced unbalance setting.

Shaft Coupling

Applications
This special version with shaft coupling is used when large centrifugal forces are necessary, but little space is available for installation.

Design and function
Two or more vibrators in series are operated with angular synchronous unbalances by connecting the shafts of the vibrators via a shaft coupling.

Oil Circulating Lubrication

Applications
This special version with external oil circulating lubrication is recommended when operating high frequency vibrators continuously, which would lead to major heating and a reduced bearing life.

Design and function
A hydraulic pump continuously supplies the bearings with oil during operation, which flows back into the oil tank via a cooler.

Rotary Encoders

Applications
These special versions with rotary encoders are always used when the frequency and/or position of the unbalance is to be detected electronically. This enables the building of complex vibration systems.

Design and function
The external electric vibrators are equipped with a special mounting system for rotary encoders. Robust rotary encoders with integrated, highly elastic and a torsionally stiff hollow shaft coupling measure the frequency of the vibrator even under the toughest operating conditions.

Electric External Vibrators
Accessories

Static adjustable frequency converters
ATV 320 / NFU Series
Static adjustable frequency controls
SRF Series

SRF

ATV

NFU

Applications
The frequency control of the SRF series and the frequency inverters of the series ATV and NFU are used to control the frequency of electric vibrators.
Special applications require frequencies that cannot be achieved with normal multipole vibrators at mains frequency. The special feature of this frequency converter is its robust and uncomplicated design.

Design and function
SRF frequency controllers are mounted in a control cabinet with a degree of protection of IP 65. ATV units are frequency converters in the IP 2x housing and are intended for switch cabinet installation at the customer. The performance data correspond to the SRF series.
NFU units are frequency converters with a motor circuit in an IP 65 housing for wall mounting and are equipped with a main switch, a rotational direction switch and a setpoint potentiometer.

NetterVibration

Electric External Vibrators
Accessories

On-Off Switch

Applications
With the on-off switches, one or two electric external vibrators of the NEG or NEA series can be connected directly to the system or decentralized, e.g. be switched on or off from a control room.

Design and function
Depending on the material, the switches are integrated in a housing with a degree of protection of IP 55 or IP 65. Large con trol buttons allow easy operation. The main emergency stop switch is lockable. Versions with motor protection switch are available.

Brake Units
BZ Series

Applications
Brake units of the BZ series are used to bring the NEG as quickly as possible to a standstill during operation.

In order to avoid resonance phenomena of vibration tables and of conveyors, it is often necessary to be able to switch off drives without their running down uncon-trollably.

A special feature of these units is the very high braking effect with a compact size.

Design and function
The load-resistant power electronics changes the direction of the electric rotat-ting field when the brake is actuated, bringing the NEG immediately to a stand still. The short-term high braking currents can be easily handled by the NEG. The permissible temperature range is between 0 °C and +40 °C, degree of protection is IP 23. The braking devices are only suita-ble for stable mains frequencies of 50 Hz or 60 Hz. Operation together with a fre-quency converter is not permitted.

Vibration Monitoring Systems
Series ***Vibro****Monitor*

Applications
The vibration monitoring system of the series ***Vibro****Monitor* is used for the con-stant monitoring of impactors, vibrators and vibration systems.

The ***Vibro****Monitor* system reliably moni-tors the functioning of vibrators and im-pactors, even in hard-to-reach places.

Design and function
The monitoring system consists of a sensor, a connection cable and a con-troller. The controller ensures safe data transmission of the sensor signal up to a max. distance of 250 m. Depending on the version, one controller can steer up to 4 sensors. The controller can be mounted on a standard M36 DIN rail.

Safety Cable
Series NSE

Applications
The safety cables of the NSE series pre-vent the external electric vibrators from falling down if they accidentally come loose.

The use of safety cables is recommend-ed, especially in critical installation situa-tions, e.g. at high altitudes.

Fastening Kits
Series NBS

Applications
The NBS series fastening kits are for the safe and permanent attachment of the electric external vibrators and are sized to exactly match the foot height of the housings.

They are available in different designs, among others in stainless steel in the appropriate strength category.

Netter*Vibration* has a worldwide net-work of experienced dealers and applica-tion technicians who are happy to solve problems, also on-site, together with you or your customers with the help of vibra-tion technology.

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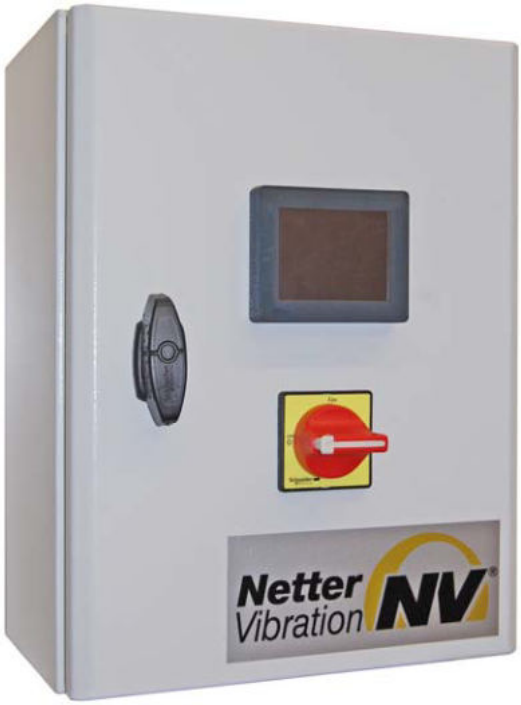


36

Static Adjustable Frequency Controls
Series SRF / NFU / ATV

- Infinitely adjustable speed control of electric external and internal vibrators
- Parallel connection of multiple vibrators
- Simple and robust design
- Clearly arranged menu navigation
- Special versions according to customer

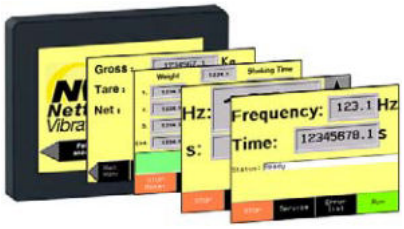
NetterVibration

Static Adjustable Frequency Controls
Series SRF

Type	Supply Voltage	Max. Motor-Power Input [kW]	Max. Motor-Current [A]	Dimensions (W x H x D) [mm]
SRF 1-007/4,8	1~ 200..240V 50/60Hz	0,75	4,8	300 × 400 × 200
SRF 1-011/6,9		1,10	6,9	300 × 400 × 200
SRF 1-022/11		2,20	11,0	400 × 500 × 250
SRF 2-007/2,3	3~ 380..415V 50/60Hz	0,75	2,3	400 × 500 × 250
SRF 2-015/4,1		1,50	4,1	
SRF 2-022/5,5		2,20	5,5	
SRF 2-040/9,5		4,00	9,5	
SRF 2-055/14,3		5,50	14,3	600 × 600 × 300
SRF 2-075/17		7,50	17,0	
SRF 2-110/27,7		11,00	27,7	
SRF 2-150/33		15,00	33,0	

Switch Cabinet
As a standard, the frequency control systems of the series SRF are mounted in switch cabinets. These switch cabinets are suitable for wall mounting and provide protection against dust and splash water (Protection type IP54). Netter SRF are also available as switch cabinet with socket, with frame and as desk version.

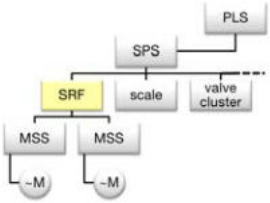
The standard color is light grey. (RAL 7035), other colors or a stainless steel enclosure are available. The motor outputs are connected to a terminal strip or, if requested by the customer, the housing of the switch cabinet is provided with plug connections.
The dimensions of the switch cabinet depend on the size of the frequency converter.



Operation
As a standard, the SRF can be operated and controlled using a 3.5“ color touch panel.
The vibration process can be started and stopped by this panel.
By buttons or a keyboard the operator can enter the desired frequency and shaking time, readable on large displays.
As languages G/E/F can be selected.

The CC unbalance function (big/small working moment) and a control group for two vibrating tables are stored in the program and can be activated if required. Error messages and alarms are displayed in separate windows which simplifies maintenance and service. Depending on the customer’s requests, the size of the touch panel and the program of the SRF can be adjusted to suit the requirements on site.

Configuration
If requested, ***k ÉííÉê****Vibration* can configure additional inputs and outputs on the SRF, therewith safety devices or external operating units can be connected to the SRF. An optional mini control system allows complex monitoring and control tasks.



Bus Communication
Netter SRF can be used for all kinds of communication configurations in industrial plants.
The communication via Modbus, CANopen and other bus systems is possible after consultation with ***kÉííÉê****VibrationK*

When the SRF is integrated into an existing production process, it communicates with the central process control system.

Avoiding Uncontrolled Resonances
The integrated braking function in the frequency converter helps to prevent uncontrolled oscillation when decelerating the vibrators. This might have a negative effect on the vibration result.

Depending on the application and for the control of multipole vibrators with high working moments we recommend the use of separate brake resistors.

Static Adjustable Frequency Converter
Series NFU

Type	Supply Voltage	Max. Motor- Power Input [kW]	Max. Motor- Current [A]	Dimensions (W x H x D) [mm]
NFU 1-004/3,3	1~ 200..240V 50/60Hz	0,4	3,3	250 × 340 × 182
NFU 1-007/4,8		0,75	4,8	
NFU 1-011/6,9		1,1	6,9	250 × 340 × 235
NFU 1-015/8		1,5	8,0	
NFU 1-022/11		2,2	11,0	
NFU 2-004/1,5	3~ 380..415V 50/60Hz	0,4	1,5	250 × 340 × 200
NFU 2-007/2,3		0,75	2,3	
NFU 2-011/3		1,1	3,0	
NFU 2-015/4,1		1,5	4,1	
NFU 2-022/5,5		2,2	5,5	250 × 340 × 235
NFU 2-040/9,5		4,0	9,5	

Frequency converters of the series NFU with motor output in the IP 65 housing for wall-mounting are equipped with an on-off switch, direction switch and potentiometer for frequency setting.

A display at the device shows the output frequency of the converter. The NFU can also communicate with other devices via Modbus or CANopen. The NFU offers the possibility to connect one vibrator. In case two or more vibrators are required, it is necessary to connect an external motor terminal box as well as a motor protection relay.

Optionally, a brake resistor can be mounted and connected to prevent uncontrolled vibrations in critical applications if required. The NFU is pre-adjusted and ready for installation.

Design
Depending on the application a reserve should be calculated when designing the frequency converter, as bigger vibrators have a higher starting current.
If multi-pole vibrators (4 or 6-pole) are required, we recommend using Netter frequency converters with three-phase supply.

Static Adjustable Frequency Converter
Series ATV

Type	Supply Voltage	Max. Motor- Power Input [kW]	Max. Motor- Current [A]	Dimensions (W x H x D) [mm]
ATV-320U07M2C	1~ 200..240V 50/60Hz	0,75	4,8	72 × 143 × 138
ATV-320U11M2C		1,10	6,9	105 × 142 × 158
ATV-320U22M2C		2,20	11,0	105 × 142 × 158
ATV-320U07N4C	3~ 380..415V 50/60Hz	0,75	2,3	105 × 143 × 158
ATV-320U15N4C		1,50	4,1	
ATV-320U22N4C		2,20	5,5	140 × 184 × 158
ATV-320U40N4C		4,00	9,5	
ATV-320U55N4C		5,50	14,3	150 × 232 × 232
ATV-320U75N4C		7,50	17,0	
ATV-320D11N4C		11,00	27,7	180 × 330 × 232
ATV-320D15N4C		15,00	33,0	

ATV frequency converters are mounted in an IP 2x housing for installation in a customer's existing switch cabinet. The performance data correspond to those of the series SRF.

***Netter**Vibration* provides application-specific parameter settings on request.

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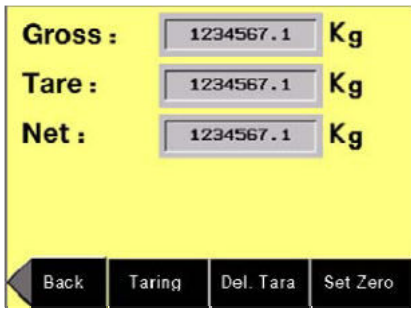
Static Adjustable Frequency Controls
Special version of the series SRF



Integrated Weighing Mechanism
If required, ***kÉííÉê****Vibration* offers the SRF with integrated weighing mechanism. It is possible to simultaneously compact and weigh bulk material by mounting weighing cells at the vibration table. The current weight is shown on the touch panel of the SRF. Also weight-dependent shaking applications are possible.

Pre-adjusted and ready for Installation
All required parameters, such as starting and stopping time, run-up ramp, maximum motor and pulse frequency, slip compensation and U/K characteristic will be pre-adjusted and tested depending on the application by ***kÉííÉê****Vibration* before delivery.
After installation and connection at the customers' site the SRF is ready for operation.

Explosion-proof Control Systems
In dialogue with the user ***kÉííÉê****Vibration* implements control systems which fulfil all requirements of the ATEX directive.
These control systems comply with the Equipment Group II. Depending on the version it can be used in hazardous areas of the zones 1, 2, 21 or 22.


SRF with vibrating table


Integrated weighing system


SRF and vibrating table made of stainless steel


Vibrating table with roller track

Applications
The frequency control of the series SRF and the frequency converters of the series ATV and NFU are used for speed regulation of electric vibrators.
Special applications require frequencies which cannot be achieved with normal vibrators at line frequency. These frequency converters are characterized by their simple and robust design.

Design and Functioning Principle
Low-loss power electronics allows the operation at input voltages with high tolerances. The frequency converters generate three-phase voltages with variable frequencies of 0 Hz to 500 Hz, what makes it possible to easily adjust the speed. The permissible temperature range is 0 °C to +40 °C.

All required parameters such as starting and stopping time, run-up ramp, maximum motor and pulse frequency, slip compensation and U/F characteristic are defined by ***kÉííÉê****Vibration*.
Optionally a brake resistor can be used for time-critical applications. The brake resistor permits a fast braking within a few revolutions in order to avoid unwanted resonance vibrations.

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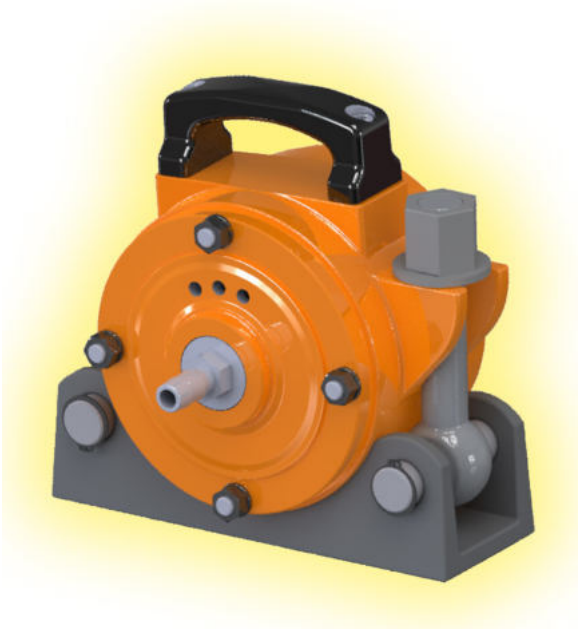

14

Pneumatic External Vibrators
Series NTV

- Circular vibration
- Nominal frequency from 8,500 min^{-1} to 15,000 min^{-1}
- Centrifugal force from 7,630 N to 53,100 N
- Frequency infinitely variable by air pressure
- No bearings
- Easily and quickly removable
- Silenced version NTV Q

NTV 8-1

NTV 12-F

NTV 20-4 with NVH-4

NTV 30-4Q

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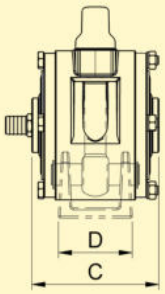
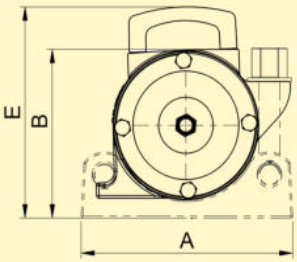
Pneumatic External Vibrators
Series NTV

	NTV 8-1	NTV 8-F	NTV 12-1	NTV 12-F	NTV 20-4	NTV 33-4	NTV 34-4	NTV 53-4	NTV 30-4Q	NTV 35-4Q
Nominal frequency [min^{-1}]	14,000		15,000		8,500	8,500	13,500	13,000	10,500	10,000
Centrifugal force [N]	7,630		11,800		20,440	33,980	34,400	53,100	29,700	35,400
Unbalance [cmkg]	0.71		0.96		5.16	8.58	3.00	4.60	4.90	6.45
Air consumption [l/min]	1,600		1,750		1,700	1,700	1,800	1,800	1,600	1,800
Weight [kg]	6.6	7.1	7.0	7.5	14.9	16.2	14.9	16.0	19.0	21.0

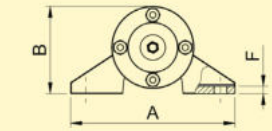
Data obtained on 6 bar
Equipment: 1: bracket size 1 • 4: carrying handle size 4 • F: flange for screw connection • Q: silencer

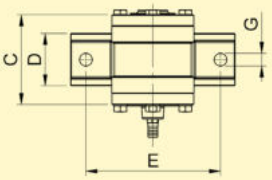
NTV 8-1, NTV 12-1 • NTV 20-4 to NTV 53-4 • NTV 30-4Q, NTV 35-4Q





NTV 8-F, NTV 12-F



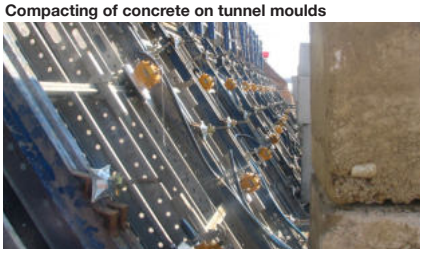


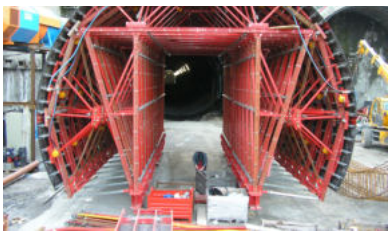
Bracket NVH1 , NVH 4

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	Ø G [mm]
NTV 8-1, NTV 12-1	180	130	145	94	-	-	-
NTV 8-F, NTV 12-F	220	115	145	72	180	10	17
NTV 20-4 to NTV 53-4	240	190	165	90	235	-	-
NTV 30-4Q, NTV 35-4Q	240	190	165	90	235	-	-

Type	A [mm]	D [mm]	Weight [kg]
NVH 1	180	90	3.5
NVH 4	240	90	4.5

Compacting of concrete on tunnel moulds





Application
The pneumatic external vibrators series NTV are especially suitable for compacting, conveying and loosening bulk material.

They are used for compacting concrete, emptying bins and as drives for vibrating crosses.

A special feature is the ruggedness against strong varying loads. There is no danger of overload.

Design and functioning principle
The circular vibration is produced by eccentric rotating rotors. The frequency and herewith the centrifugal force are continously adjustable by the operating pressure. A way valve is required for actuation (not included in scope of delivery).

Permissible operating conditions
Drive medium:
Oiled and filtered compressed air

Operating pressure:
1 bar to 6 bar

Ambient temperature:
-10 °C to +60 °C

Units for other temperatures are available.

Netter*Vibration* offers the accessories required for the mounting, installation, control and monitoring of vibrators and impactors.

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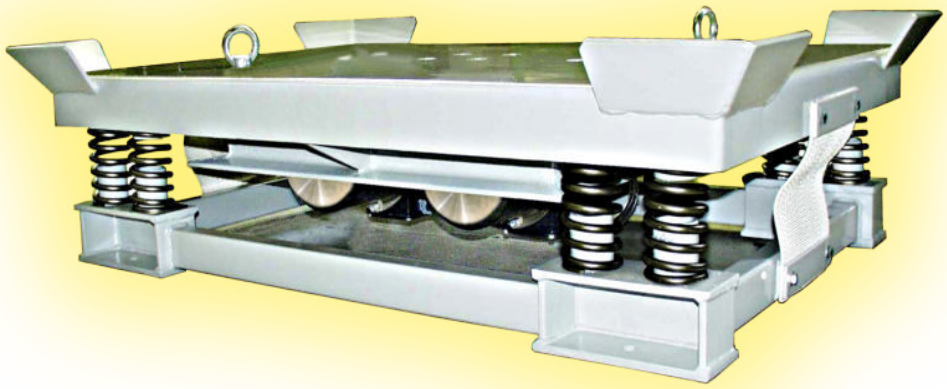

41

Vibrating Tables
Series VT

- Electric or pneumatic drives
- Variable centrifugal force
- Adjustable vibration amplitude
- Directional or circular rotation
- Best vibration insulation
- Low noise
- Low overall height
- Robust versions for continuous operation
- Various controls and accessories
- Movable

VTP 3/3
with NTS 350 NF
pneumatic

VTF 8/8
with 2 NTS 50/08
flat design

VT 7/8
with 2 NEG 50770
electric

NetterVibration

Vibrating Tables
Series VT

A small extract from our range of vibrating tables

Version	Type	Vibrator	Length [mm]	Width [mm]	Height [mm]	Vibrations	Weight [kg]
Electric	VTE 3/3	NEG 50120	300	300	273	circular	20
	VTE 6/6	2xNEG 2570	600	600	273	vertical directional	41
	VTE 8/12	2xNEG 25930	800	1200	350	vertical directional	290
Pneumatic	VTP 3/3	NTK 18 AL	300	300	350	vertical directional	22
	VTP 5/5	NTS 50/01	500	500	350	vertical directional	31
	VTP 10/10	NTS 50/08	1000	1000	300	vertical directional	185

All sizes: A special feature is the flat construction, with heights from just 80 mm on.
Loads: 1 to 20.000 kg
Materials: Painted or galvanized sheet steel and pickled stainless steel
Controls: Electric switch cabinet with:
- On/Off switch with motor protection relay
- Frequency control and display
- Brakes
- Timers
- Remote controls and much more.

Electro-pneumatic controls in terminal boxes:
- Control valves
- Throttles
- Maintenance units

Multiple-shaft vibration system

In individual cases, the required drive can only be determined by means of testing. We offer test devices for this purpose.

Design: The electric or pneumatic vibrators are attached to the inflexible plate of the vibrating table. The plate is connected to the base via a vibration-optimized spring suspension.

Applications

Electrical, Electronic and Precision Engineering Industries	
Inspection	of connections, individual parts or complete devices for cold solder spots, hairline cracks, functional errors, natural resonancies
Simulation	of transport movements, mechanical environmental influences
Untangling, separating, distributing, aligning	of small parts, such as screws, bolts, springs, hooks, rings, etc. prior to hand-assembly or automatic processing on assembly lines
Testing	of electrical components and devices (mechanical vibration tests)

Car Industry, Vehicle Construction	
Inspection (Durability tests)	of small add-on parts, such as carburetors, coils, valves, mechanical and electrical connections, safety devices, headlights, exterior mirrors, etc. for functional errors, hairline cracks, natural resonancies, wear

Food, Packaging and Chemical Industries	
Compaction	of loose products in small containers, such as barrels, cardboard drums, cartons, bags etc.
Flattening, distributing	of granules before closing packages
Loosening	of products which have become compacted during transport or storage, prior to further processing
Sedimentation	of solid materials out of suspensions
Levelling	of sacks and bags, prior to palletising or stacking

Construction industry	
Compaction	of concrete blocks, on the construction site or in the test laboratory

VTF/R 10/12 with 2 NEG 251370 E
for applications conforming to ATEX

VTH/W 12/12 with 2 NEG 501510
for a weighing machine

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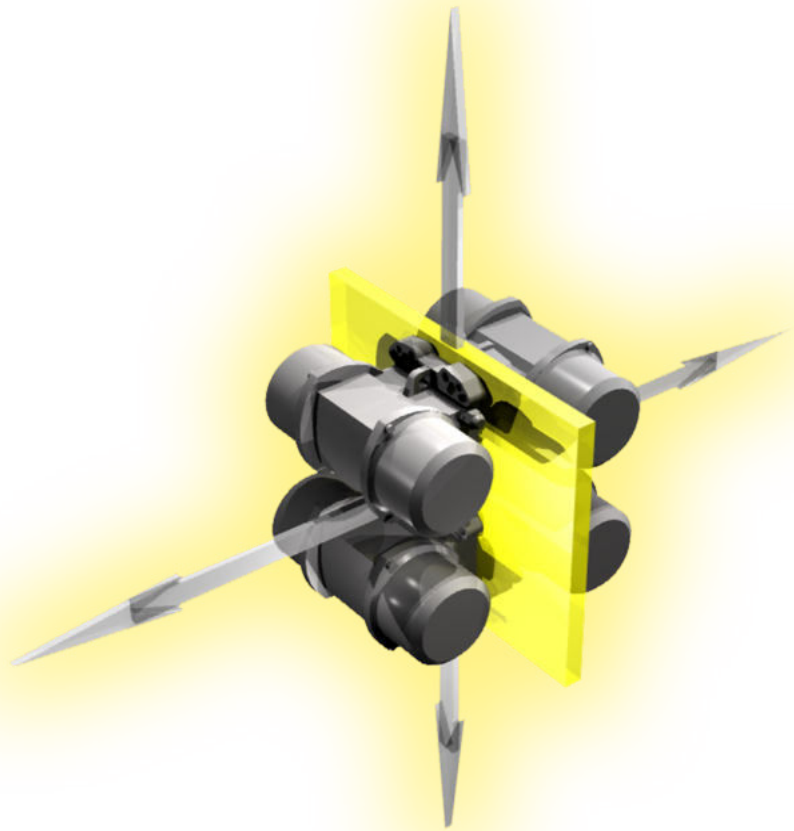
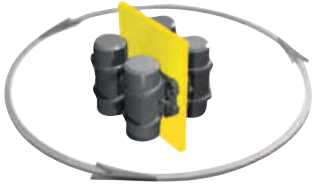
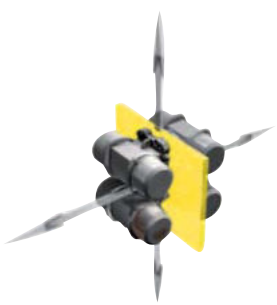


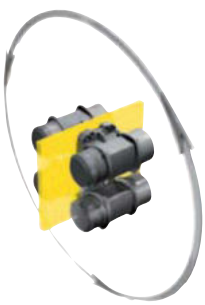
37

Multiple-Shaft Vibration Systems
Series *VectorDrive*

- 100% controlled vibration in each direction
- Resonance-free start and stop
- Amplitude adjustment during operation
- Frequency control during operation
- Constant acceleration with varying loads
- Prevention of resonance and associated noise
- Operating times of less than 1 second possible
- Control loops for acceleration possible







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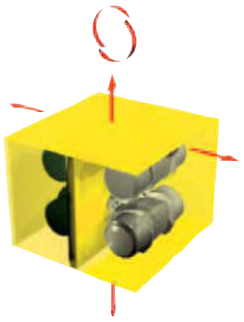
Multiple-Shaft Vibration Systems
Series *VectorDrive*

Horizontal arrangement of vibrators

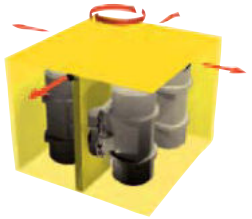
E.g.for mixing, feeding, compacting and rocking



VectorDrive

Vertical arrangement of vibrators

E.g. for mixing, tumbling, compacting and sieving

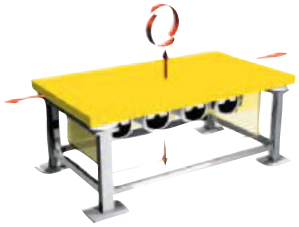


Visual aging of paving stones

Linear arrangement of vibrators

(compact mounting)

E.g. for feeding, compacting and rocking



Applications:
The multiple-shaft vibration system ***Vector****Drive* offers a multitude of application possibilities.
The resonance-free starting and stopping, together with independent regulation of the working direction, frequency and amplitude open up new possibilities for compacting, mixing, feeding and distributing.

Design and Function:
The ***Vector****Drive* system consists of a control unit and at least 4 vibrators.
For an electric vibrator there are generally two operating conditions and two transitional phases: standstill (no vibration), nominal rotational speed (vibration) and acceleration up to nominal rotational speed or deceleration down to standstill. Often, however, only the two operating conditions, standstill and nominal rotational speed, are desired, since detrimental resonance zones must be passed through in the transitional phases.
Example: Bulk material is optimally compacted using external vibrators at 3000 revs/min. When passing through rotational speeds between 1700 revs/min and 1300 revs/min, undesirable loosening can occur. The best solution would be to simply switch on the vibration at the nominal rotational speed and then switch it off again.

The control unit of the ***Vector****Drive* system makes this desired “on/off” effect (vibration / no vibration) possible.
Within a fraction of a second, the unbalances are positioned with each other in a way that allows the required centrifugal force and working direction.

Independent of the arrangement of the vibrators on the table, it is possible to create circular vibrations, as well as linear vibrations, by a change of the working direction. The various working directions can be controlled successively during operation, also with changing frequencies and amplitudes.

The ***Power****Cube* is the preferred variant for the arrangement of the vibrators. The vibrators, in this case, are arranged in a cube under the table. The vibrators can be easily rearranged by dismounting and rotating the cube. Of course, it can just as easily be mounted under a different table construction.

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44

Dosing Station
Series *DosyPack*

- Exact dosing
- High conveying performance
- Gentle and uniform dosing
- Adjustable fine or coarse flow
- All product-carrying parts made of stainless steel AISI 304
- High surface quality
- Quick and easy to clean

*DosyPack*4

Dosy*Pack* 40

Dosy*Pack* 56

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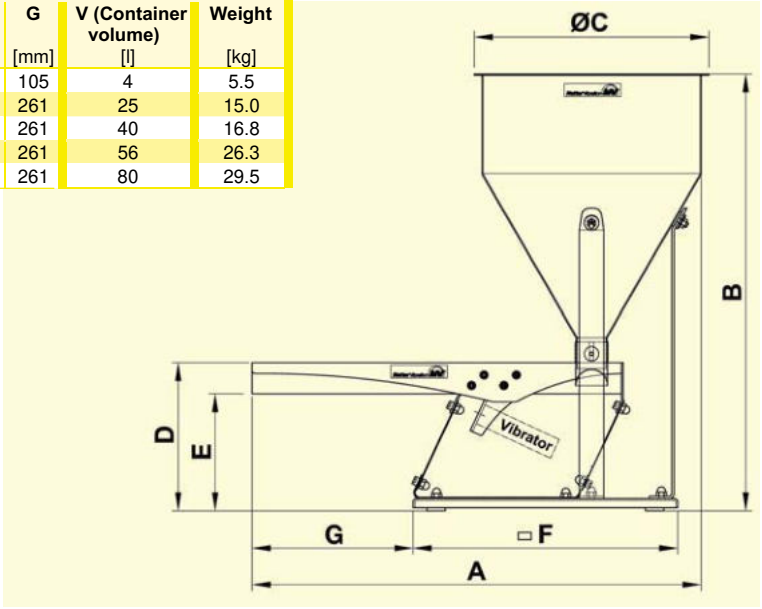
Dosing Station
Series *DosyPack*

Product Characteristics			Feed Rate [g/s]		
Example	Grain Density [kg/ dm³]	Grain Size [mm]	*DosyPack* 4	*DosyPack* 25 to 80	Noise Level [dB(A)]
Sand	1.54	0 - 1	0 - 20	0 - 260	56 - 75
Granulate	0.70	1 - 3	-	0 - 150	56 - 75
Plastic caps	0.20	∅ 10	-	0 - 25	56 - 73

The technical data relate to the examples given and can vary, depending on the product.

Type	A [mm]	B [mm]	ØC [mm]	D [mm]	E [mm]	□ F [mm]	G [mm]	V (Container volume) [l]	Weight [kg]
DosyPack 4	420	480	200	190	175	290 × 150	105	4	5.5
DosyPack 25	729	710	381	241	190,5	430 × 280	261	25	15.0
DosyPack 40	729	860	381	241	190,5	430 × 280	261	40	16.8
DosyPack 56	805	844	533	241	190,5	430 × 280	261	56	26.3
DosyPack 80	805	994	533	241	190,5	430 × 280	261	80	29.5

Dosing port at the silo outlet



Applications

Dosy*Pack* dosing stations are particularly suitable for the fast and exact dosing of all types of bulk material, or as feeders for optical sorting facilities. Gentle dosing is possible for especially sensitive products.

Design and functioning principle

The dosing station basically consists of a conveyor channel mounted on leaf springs and a silo. All product-carrying parts are made of brushed stainless steel (R_a=0,8), all other parts are made of corrosionresistant and physiologically harmless materials.

Because of the functional design ***Dosy****Packs* are fast and easy to clean. This allows it to be used even under the extreme hygienic conditions demanded by the chemical, pharmaceutical and food industries.

The flow rate can be varied with the dosing port at the silo outlet.

Pneumatic linear vibrators series NTS and NTK may be selected for driving. They work without running on, so that the product flow is immediately interrupted, once the vibrators are switched off.

The exact feed quantity is regulated by adjusting the frequency and amplitude of vibration. Both can be independently adjusted. Increasing the supply pressure causes an increase in the frequency. The amplitude can be adjusted by regulating the optional throttle.
A multi-directional valve is required for operation (not supplied).

In addition to the standard versions, series ***Dosy****Pack* dosing stations are also availablein customised designs. Furthermore, all individual components can be supplied separately.

Permissible operating conditions Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with oil mist
Operating pressure:
2 bar to 6 bar
Ambient temperature:
5 °C to 60 °C

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Conveyor Systems
Series *PowerPack*

- Gentle and smooth conveying
- Coarse and fine flow settings
- Instant starting and stopping
- Stainless steel version possible

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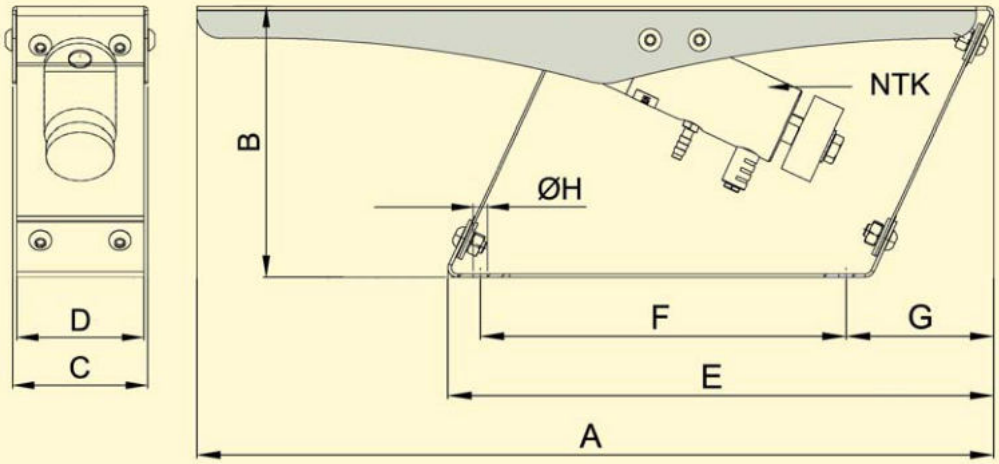
Conveyor Systems
Series *PowerPack*

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	ØH [mm]	Weight without trough [kg]
***Power**Pack* **180**	500	170	85	80	343	230	93	9	ca. 2,1
***Power**Pack* **250/350**	580	173	100	80	442	321,5	94	9	ca. 3,6

Conveyor systems of the PowerPack series consist of:

A conveyer trough, manufactured either by the client or as per the client's requirements,



the upper part,

the blade springs,

pneumatic linear vibrators series NTK or NTS

and the lower part.

Applications
Conveyor systems of the ***Power**Pack* series serve to convey bulk material efficiently and gently. The stainless steel version allows the operation in the chemical, pharmaceutical and food industries.

Design and functioning principle
The ***Power**Pack* feeder system works with forced vibrations. The conveyor trough is mounted on blade springs and is driven by a pneumatic linear vibrator of the NTK or NTS series. Depending on the application, it is also possible to use an electric external vibrator of the NEG series. The selection of the vibrator depends not only on the material properties, but also on the requested frequency or amplitude. Unlike many other conveyor systems, the frequency and amplitude of the ***Power**Pack* series can be controlled separately. It is therefore possible to satisfy many individual requirements.

In addition to the general standard versions, customized versions of the ***Power**Pack* series are also available. Furthermore, all components can be supplied separately.

Permissible operating conditions:
Drive medium:
Compressed are or nitrogen
(Filter 5 µm), preferably with oil mist.
Operating pressure:
2 bar to 6 bar

Ambient temperature:
5 °C to 60 °C
HT versions up to 200 °C

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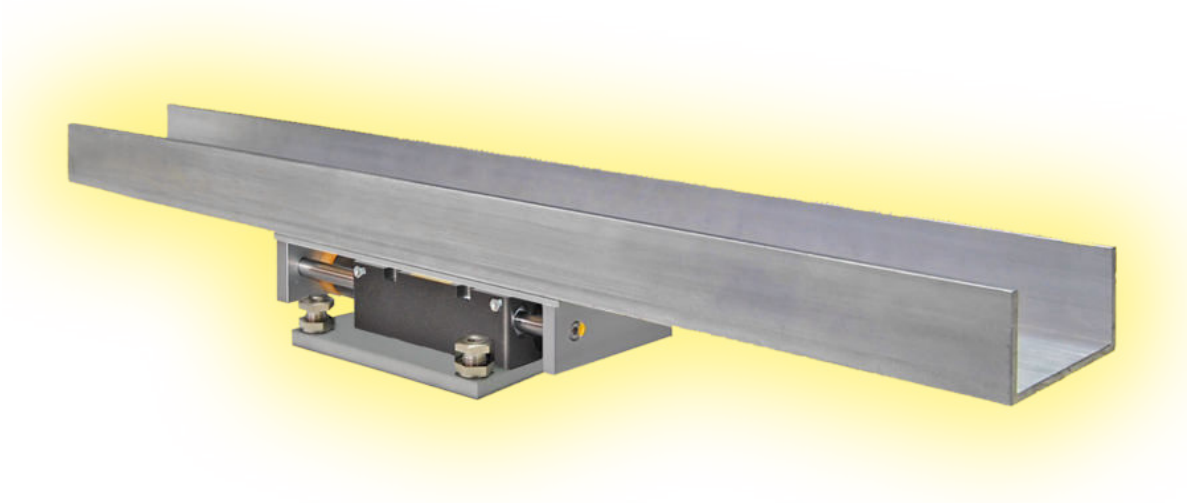

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Conveyor System
Series *LineDrive*

- Gentle and constant conveying
- Flat, compact construction
- Modularly extendable
- Low air consumption
- Very low noise level

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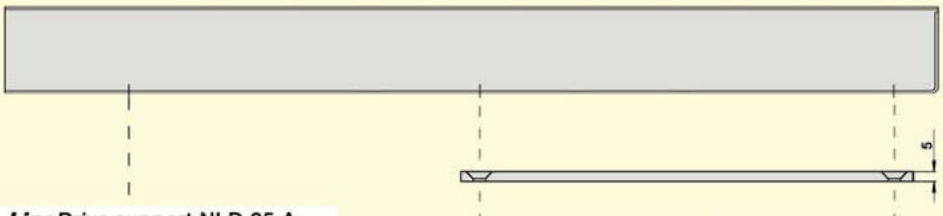
Conveyor System
Series *LineDrive*

The conveyor system of the ***LineDrive*** series consist of:



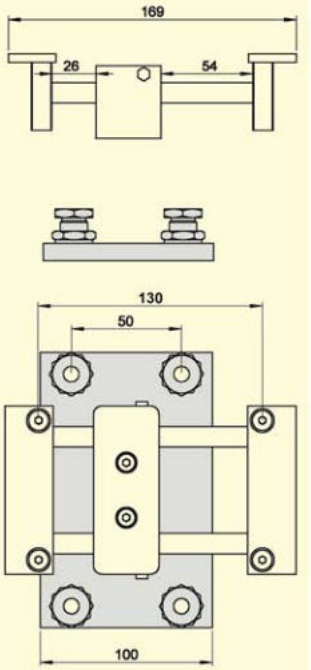
a conveyor trough, manufactured either by the client or as per client's requirements,

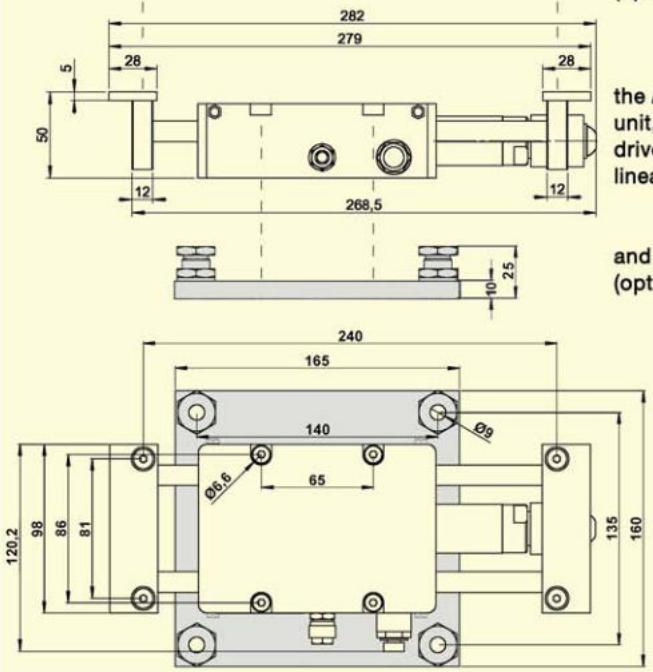
the mounting plate (optional)

the ***LineDrive*** unit, driven by a linear vibrator

and the ground plate (optional).

LineDrive support NLD 25 A





The LineDrive support is required as support for longer conveyors or for greater loads as well.


Conveyor system ***LineDrive***


trough


mounting plate


drive unit


ground plates


support

Applications
The ***LineDrive*** conveyor system is suitable for gentle, horizontal conveying of bulk material. The flat design (height of drive 5 cm) allows applications even with confined space constraints.

Design and functioning principle
Traditional vibration conveyor systems work on the throwing principle, in which the product is "thrown" forward, following a trajectory parabola. With the ***LineDrive*** conveyor principle, the material slides along the conveyor trough. This is made possible by a pneumatic linear drive.
The conveyor output can be adjusted to suit the specific characteristics of the material to be conveyed by regulating the compressed air.
In longer conveyor systems (from approx. 2m), the trough is supported by the ***LineDrive*** support. It is possible to convey greater loads by coupling several ***LineDrive*** propulsion systems.
In addition to the standard versions, customized variants of the ***LineDrive*** series are also available.

Mounting plate
The mounting plate is suitable for mounting the entire surface of the conveyor troughs on a ***LineDrive*** unit.

Ground plates
The ground plates are used to compensate unevenness in order to avoid any tensioning in the ***LineDrive*** unit.

Permissible operating conditions:
Drive medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with oil mist

Optimum operating pressure: 2 bar

Ambient temperature:
5°C to 60°C

Weight without trough:
2,7 kg

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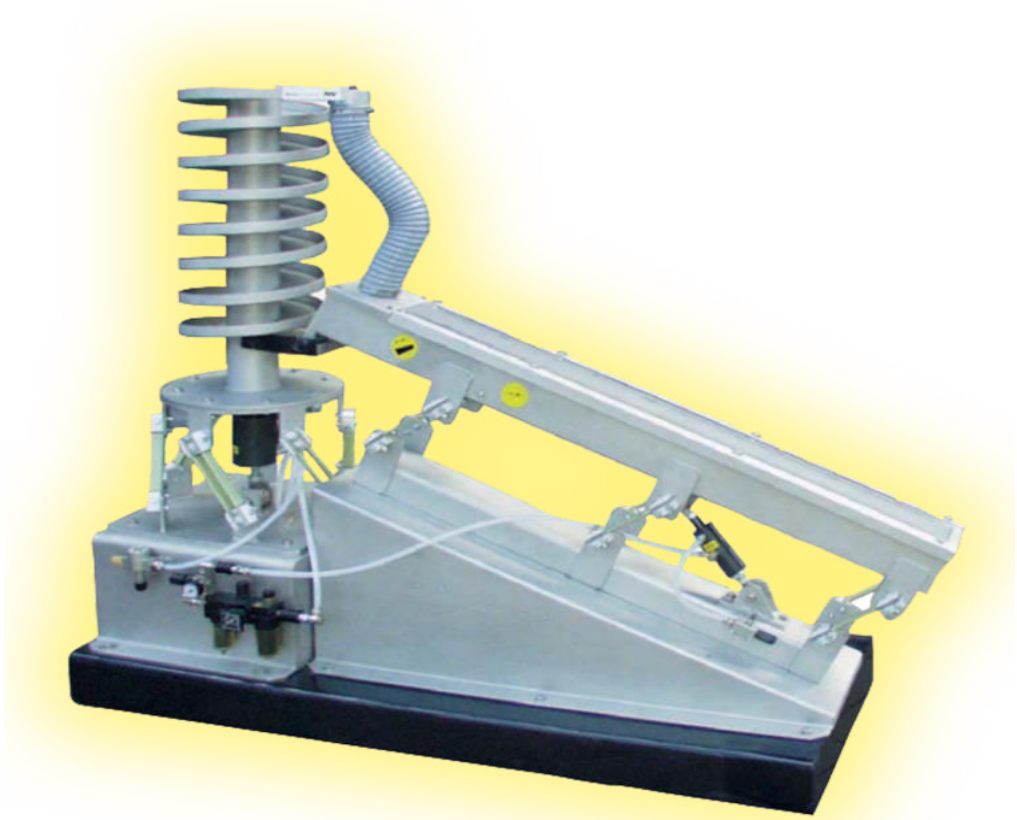

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Resonance Conveyor System
Series ***Flexi****Link*

- High conveying performance by use of spring resonance
- Low air consumption
- Immediate starting and stopping
- Low unit weight

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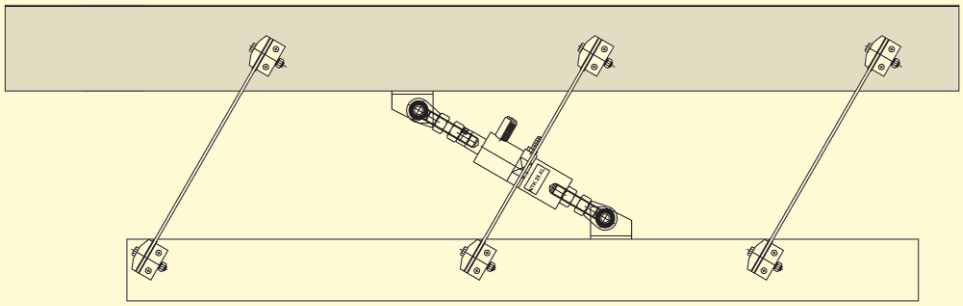
Resonance Conveyor System
Series ***Flexi**Link*

Netter resonance conveyor systems in the FlexiLink series consist of:

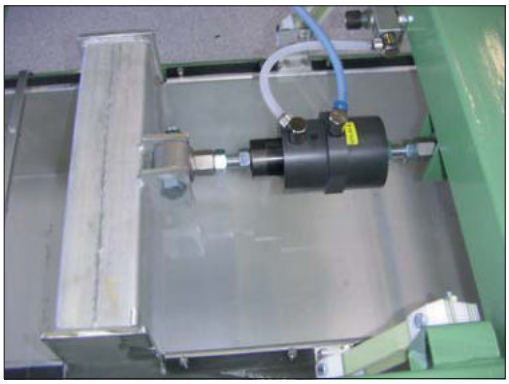


A conveyer trough, manufactured either by the client or as per the client's requirements

blade springs,

a pneumatic linear vibrator series NTK with the ***Flexi**Link* connecting element

and the counter-weight (frame/floor)



Applications
Conveyor systems series ***Flexi**Link* serve to convey bulk material efficiently and gently.

Design and functioning principle
The feeder system consists of a pneumatic linear vibrator series NTK, blade springs and the ***Flexi**Link* connecting element.
This system uses the natural resonance of the springs in order to convey bulk materials. Once the trough starts to vibrate at the resonance frequency, very little additional energy is required to maintain the vibration. Even with varying loads, the trough continues to vibrate in resonance.
The amplitude can be adjusted by means of an optional exhaust throttle.
In addition to driving classic feeder troughs, the ***Flexi**Link* system can also be used to drive spiral feeders. The blade springs are then arranged in a circle in order to accommodate the spiral feeder.
In addition to the standard versions, customized variants series ***Flexi**Link* are also available. Furthermore, all components can be supplied separately.

Permissible operating conditions:
Drive Medium:
Compressed air or nitrogen (filter ≤ 5 µm), preferably with oil mist
Operating pressure:
2 bar to 6 bar
Ambient temperature:
5°C to 60°C

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Special Equipment

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Stainless-steel vibrators are resistant against extremely aggressive ambient conditions. Especially the chemical, pharmaceutical and food industry use this resistance in production areas with aggressive liquids and gases.	
Special constructive measures in **ATEX vibrators** permit them to be used in potentially explosive areas (ATEX zones 1, 2, 21 and 22) where they are operated in the presence of gases, vapors, mist and dust. This equipment which meets very high safety standards is used above all in the chemical and mineral oil industry.	
Lubrication-free vibrators can be operated with dry compressed air due to special materials and coatings. The pharmaceutical and food industry use this lubrication-free devices with dry, lubrication-free compressed air in production areas of the medical and clean-room technology.	
High-temperature vibrators are suitable for use at ambient temperatures up to 500°C (depending on the version). The use of special materials, coatings and components permits the operation of the devices at very high temperatures. In particular foundries and the energy industry use high-temperature equipment for their applications (emptying of moulding boxes, cleaning of electrostatic precipitators).	
Special materials and coatings permit **low-temperature vibrators** to be used at temperatures up to -32°C depending on the version. This type of equipment is required by the pharmaceutical, chemical and food industry for their low temperature areas.	
Plastic vibrators provide the benefits of stainless steel devices, but weigh considerably less and depending on the design can be operated with lubrication-free compressed air. Thanks to the beneficial properties of these devices they can be used for the production of dairy products (e.g. cheese), in all areas of the food industry and for extreme industrial applications.	

Series	Stainless steel	ATEX	Lubrication-free	High temperature	Low temperature	Plastic
PKL	●	●	●	●	●	
NTK	●	●	●	●	●	●
NTS	●	●	●	●	●	●
NTP	●	●	●	●	●	
NCT	●	●	●	●	●	
NCB	●			●	●	
NCR				●	●	
NVT		●				
NVE		●				
VT	●	●				
KRD		●				
NWE	●	●				
VAC	●	●	●		●	
NES	●	●	●			
NEG	●	●	●			●

Serving industry with vibration

Cleaning

Goodbye to bridging and material accumulation: vibrators and impactors ensure reliable knocking off and loosening of build-up and material residues in silos, containers and hoppers.

Concrete compaction

No matter if mass concrete or prefabricated concrete parts in the construction industry: fresh concrete becomes air-free in seconds with vibration and is uniformly compacted for perfect strength and stability.

Dosing

With vibration, bulk material can be precisely dosed. This applies to fine powders, pills, granulates, stones and even large automotive components. Our product range also includes dosing stations and conveying systems.

Emptying

Thanks to the impactors and vibrators from NetterVibration, goods and bulk materials are completely unloaded from containers, hoppers, silos, wagons and silo trailers. Easily and carefully.

Feeding

With vibration, conveyor systems can be used to gently move material, precisely dose as well as separate. A clear advantage compared to other conveyor systems.

Loosening

No more wedging, jamming or sticking of material during transport, conveying or production of parts, goods and bulk materials. Thanks to the vibration tables and solutions from ***Netter****Vibration*.

Sieving

Efficient sieving for fast processes and neat results: i. e. when removing fragments from pasta, bringing powder to uniform particle size or separating and sorting types of screws.

Sorting

With the sorting systems from ***Netter****Vibration*, different materials are separated from each other without any effort. By size, type, shape, weight and colour. For effective and accurate production.

Testing

Goods and components are tested for vibration resistance to ensure their quality. ***Netter****Vibration* offers individual vibration systems, especially developed for testing purposes.

Compacting

Transport and conveying capacities can be used more efficiently by gaining valuable volume through the compaction of bulk material. This also saves space and, above all, transport and packing costs.

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