



These assembly and operating instructions apply to: **LineDrive**

**NLD 25 and
NLD 25 L
NLD 25 A**



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Scope of supply



Check the packing for possible shipping damage.
If the packing is damaged, check the contents for completeness and possible damage. In case of damage inform the transport agent.
Compare the scope of supply with the delivery note.

1 General Notes

Conveyor systems of the series **LineDrive** comply with the EC Machinery Directive 2006/42/EC.

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

LineDrive vibrators are used for driving conveyors.

The design is based on a pneumatic piston vibrator.

Pneumatic piston vibrators can be easily regulated and stop immediately when switched off. Therefore, they are very suitable as drives for conveyors because conveying stops instantly (without delay) when the vibrator is switched off.

General areas of application are: horizontal conveying of bulk material when the space is confined.

The conveyor troughs for **LineDrive** can be produced from all physiologically imaginable materials and cleaned quick and easy. This makes it possible to use them under strict hygienic conditions, in the chemical and pharmaceutical industry as well as in the food sector.

As drive medium clean (filtered) and lubricated compressed air or nitrogen can be used.

Special characteristics:

- Suitable for lubrication-free operation
- Gentle and constant conveying
- Flat, compact construction
- Modularly extendable
- Low air consumption
- Very low noise level



IMPORTANT

Important note:

Before use of the Netter conveyor systems of the series **LineDrive** read these operating instructions carefully and keep them stored close to the conveyor system afterwards.

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In these operating instructions the following information and danger symbols are used.

	DANGER	points out a possible danger which might result in death or serious injury if not avoided.
	CAUTION	points out a possible danger which might lead to personal injury or equipment damage if not avoided.
	IMPORTANT	Note containing especially useful information and tips
	ENVIRONMENTALLY FRIENDLY WASTE DISPOSAL	points out the obligation to dispose of waste in an environmentally friendly way.

2 Safety

Intended use:

LineDrive units are intended for assembly into machinery which uses vibration for conveying bulk material.

Any other use is considered improper use.

Qualification of the personnel:

Assembly, commissioning, maintenance and repair of the conveyor system must be performed only by authorized qualified personnel.

Any handling of the conveyor system lies within the responsibility of the operator.

There are no built-in safety devices.

Accessories which ensure the correct operation and safety must provide a protection type required for the specific use.



CAUTION

Netter pneumatic external vibrators generate vibrations.

The operator of plant machinery is required to protect workers from risks to their health and safety arising or likely to arise from exposure to vibrations.



CAUTION

Netter GmbH does not assume liability for damage or injury resulting from technical modifications to the product or failure to observe the instructions and warnings in this operating manual.



DANGER

LineDrive units work with compressed air.

Ensure that the compressed air is shut off during assembly. Disconnect the air supply before starting any other work on the vibrators and supply lines.

Before starting operation all hoses must be tightly connected.

A pressurized hose coming loose can cause severe injury.



IMPORTANT

The conveyor systems of the series **LineDrive** have to be mounted on a clean and even surface ($\pm 0,1\text{mm}$ evenness).



GEFAHR

Source of danger:

LineDrives have moving parts on both sides.

Possible consequences of non-observance

Danger of crushing between the mounting brackets and the housing.

Avoiding the danger:

In order to prevent from reaching into the moving parts of the line drive, protective measures have to be taken on site, eg. covers.

3 Technical Data



NLD 25	NLD 25 L
Drive medium: Compressed air or nitrogen, filtered and lubricated: filter ≤ 5 µm Unfiltered compressed air will lead to failure of the vibrators.	
Operating pressure: 2 bar to 6 bar* Optimum operating pressure: 2 bar The operating pressures must not be exceeded or fallen short of.	
Air consumption: 10 l/min to 25 l/min	



NLD 25	NLD 25 L
Ambient temperature: 5°C to 60° C* The operating temperatures must not be exceeded or fallen short of.	
Maximum load: 30 kg	
Lubrication: LineDrive unit: The guide rods have to be lubricated at regular intervals (as a rule once a month) Recommendation: OKS 476.	
Lubrication: Vibrator: It is recommended to use lubricated compressed air to protect the drive unit. The result will be a considerably longer lifetime.	Lubrication: Vibrator: Lubrication-free operation Requirements regarding the quality of the compressed air for lubrication-free operation of pneumatic vibrators: Particle size max. 5 µm The compressed air must correspond at least to quality class 3 according to DIN ISO 8573-1.

*) Higher operating pressures and temperatures are only permitted after consultation with the application engineers of Netter GmbH and after having received their written consent.

Dimensions [mm]

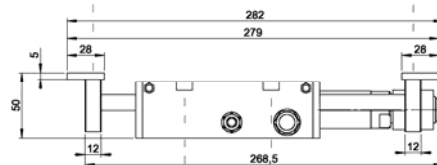
Conveyor trough



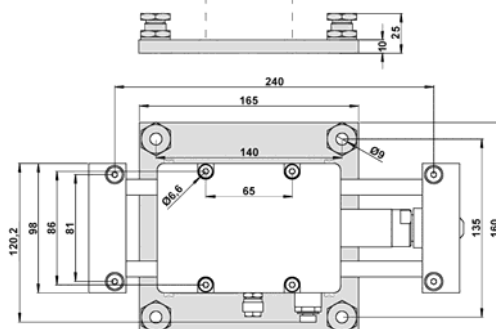
Mounting plate



Drive unit



Ground plate



4 Design and Functioning

The conveyor system basically consists of the **LineDrive** unit **3** and works with a modified Netter pneumatic piston vibrator **2** of the series NTK. The conveyor trough **1** is mounted to the drive unit. It can be fixed by means of a double-faced adhesive tape.

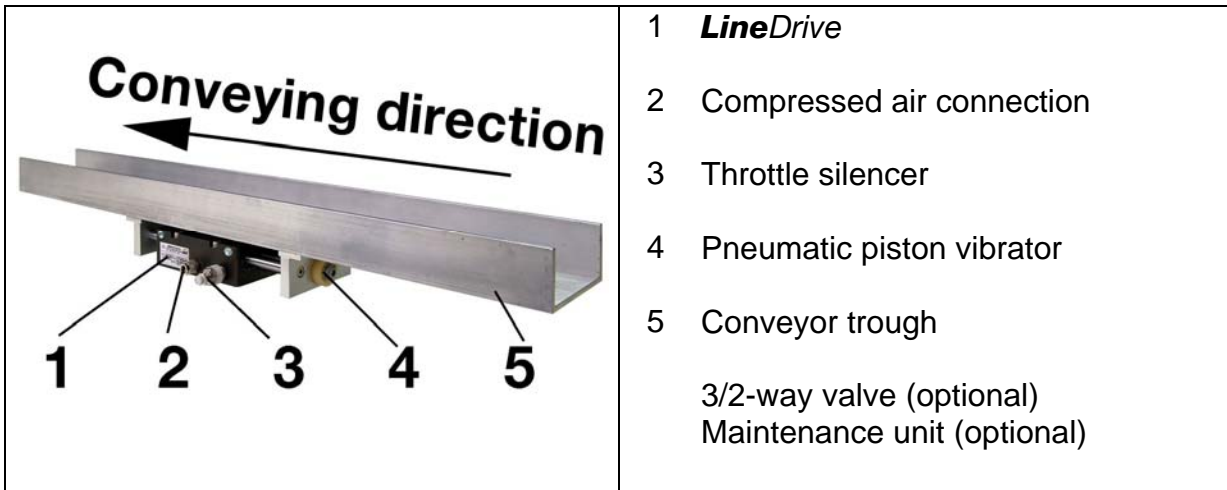
The conveyor output (volume of conveyed material / time) is determined by regulation of the frequency and amplitude. Both can be adjusted separately.

The frequency can be adjusted by means of the pressure regulator in the optional maintenance unit.

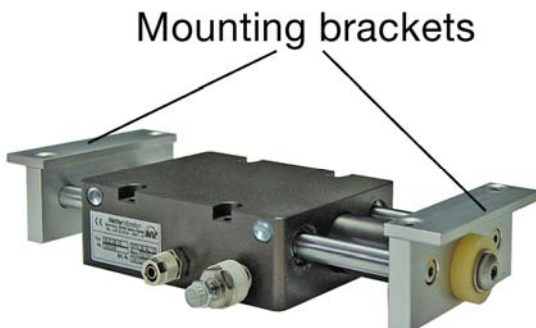
The conveying speed (amplitude) can be adjusted by regulating an optional supply air or exhaust air throttle.

A 3/2-way valve is required to ensure a proper start. This valve (which is not included in the scope of delivery) also guarantees an instant stop when switched off.

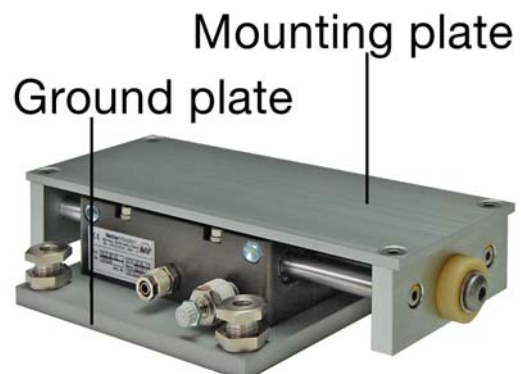
The optional maintenance unit provides the vibrator with clean (lubricated) compressed air.



LineDrive unit with mounting brackets



LineDrive unit with ground plate and mounting plate



5 Transport and Storage



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

The units are packed ready for assembly.

The type label is located on the drive.

During transport the conveyor systems must not be exposed to violent impacts or vibrations.

The conveyor system should be stored in a dry and clean environment.

If the vibrator needs to be stored for a longer period (up to a maximum of two years), the temperature in the storage room must not fall under +5°C and not exceed +40°C and the relative humidity must not exceed 60%.

6 Assembly



During installation please comply strictly with the safety regulations in chapter 2 and the accident prevention regulations!



Mount the *LineDrive* to the bottom or a counter-mass which is at least 5 times heavier than the total weight of the *LineDrive* with the conveyor trough. The conveying behavior is improved by as large a counterweight.



Mounting plate



Please observe the following for the assembly of the conveyor trough:

The trough is fixed to the slide by means of double-faced adhesive tape. If it is necessary to use additional screw connections, the trough can be screwed directly to the mounting plate.



The mounting surfaces must be absolutely even ($\pm 0.1\text{mm}$ flatness tolerance), so that the unit and the support has full area contact and warping of the housing is avoided when tightening the fastening screws.



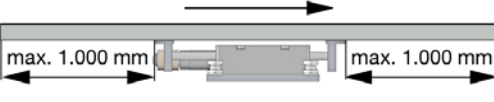


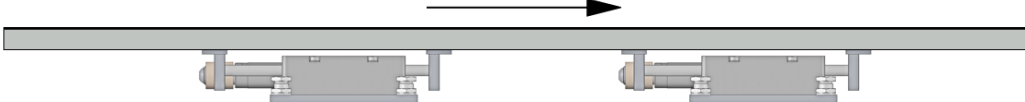
For uneven surfaces (flatness $> 0.1\text{ mm}$) use the base plate. The adjusting screws of the ground plate serve to compensate an uneven surface in order to avoid tensions in the drive and support when tightening the fixing screws.



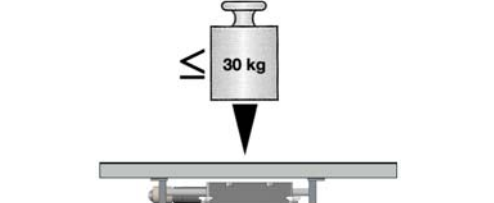

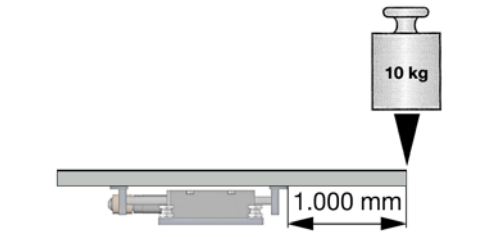
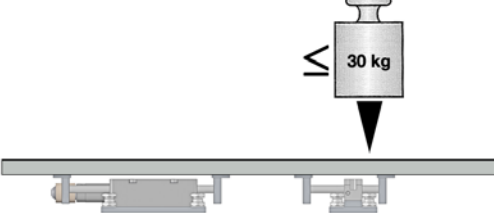

For secure fastening we recommend to use Netter NBS screw connections which consist of a screw, a special lock washer and if necessary a nut.

The assembly can also be made using fixing screws of class 8.8 (DIN 931 or 933). These must be secured by means of a suitable glue and checked or tightened at regular intervals (as a rule once a month)

Length of trough

	<p>If the overhanging trough length is 1.000 mm or more, the trough must be fixed centrally on the drive unit.</p>	
<p>IMPORTANT</p> 	<p>If the length of the trough is 2.300 mm or more, an additional support (NLD 25A) must be used.</p>	
<p>Very long troughs can be driven by coupling several Line Drive units.</p> 		

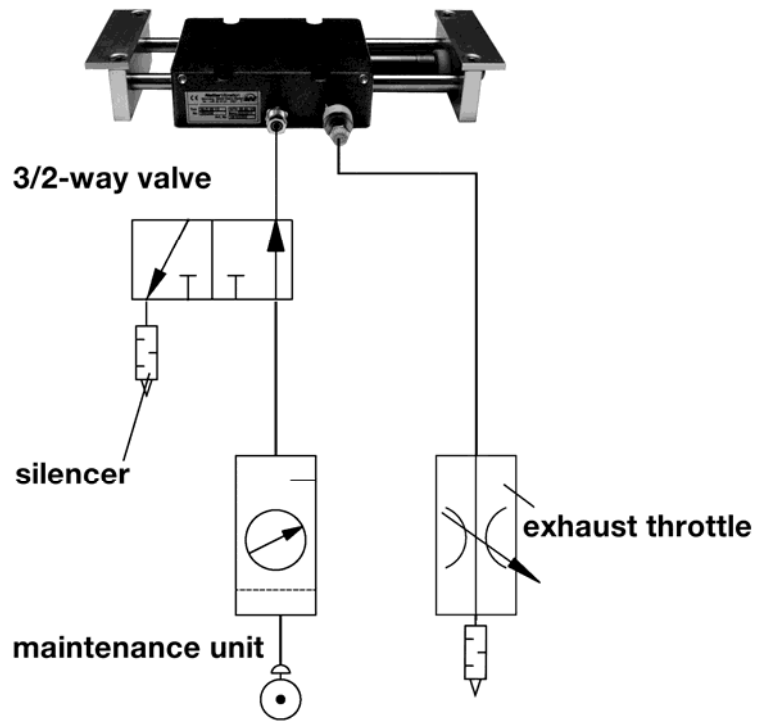
Load

	<p>The load per drive unit must not exceed 30 kg.</p>	
<p>IMPORTANT</p> 	<p>The maximum load for an overhanging trough length of 1.000 mm without support is 10 kg.</p>	
<p>IMPORTANT</p>	<p>For heavier loads a support is required. The maximum load of 30 kg must not be exceeded.</p>	
<p>Loads > 30 kg are possible, the load per drive unit, however, also must not exceed 30 kg.</p> 		

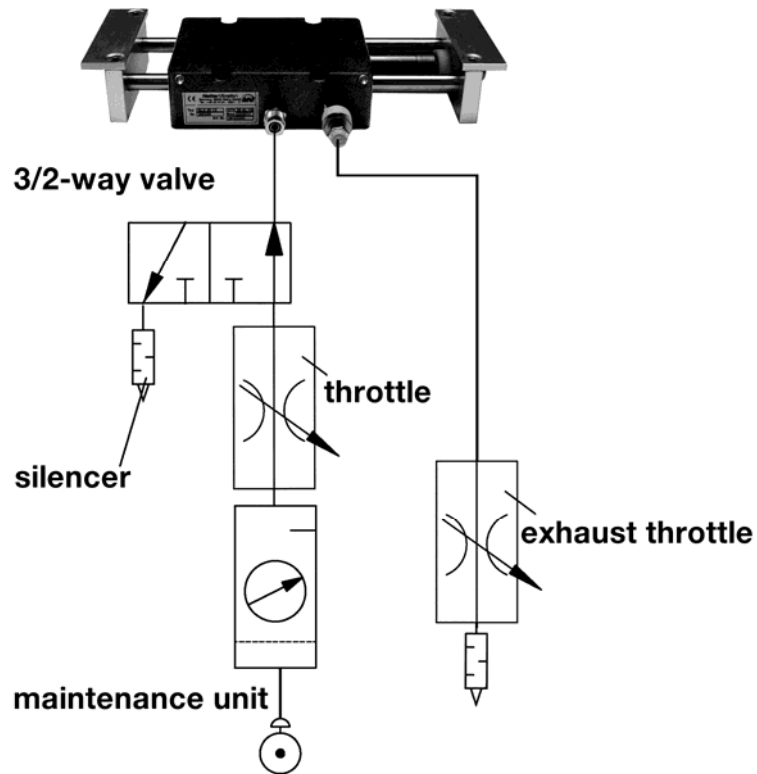
Check list for assembly:

- 1) Fix the conveyor system on a clean and even surface.
- 2) Install maintenance unit, valve and air supply line.
- 3) Fixing screws secured? Check!

Standard installation



Installation with air supply throttle for precise regulation of the flow control



7 Start-up / Operation

A 3/2-way valve has to be provided to start and stop the conveyor system.

The bulk material is fed to the conveyor trough **5**. The **LineDrive** conveyor system moves the bulk material gently to the filling point.

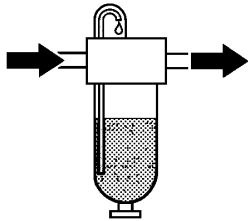
The frequency can be precisely adjusted by means of the pressure regulator which is part of the optional maintenance unit.

The conveyor output can be adjusted to match the specific characteristics of the material to be conveyed by means of a throttle valve (amplitude) installed in the exhaust line.



NLD 25	NLD 25 L
<p>For the NLD 25 it is possible to use lubricated compressed air. Oil lubrication: Fill mist lubricator with acid- and resin-free pneumatic oil, ISO viscosity class according to DIN 51519, VG 5 to VG 15, 1-2 drops/min. Recommendation: Klüber „AIR-PRESS 15“ for temperatures up to 60°C.</p>	<p>The NLD 25 L is suitable for a lubrication-free operation.</p>



<p>If dried compressed air is used or in case of extreme ambient temperatures the use of a mist lubricator is mandatory.</p>	
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Check list for commissioning:



- 1). Check hose connections before applying compressed air.
- 2). Adjust required frequency at the pressure regulator.
- 3). Adjust requested conveyor output product-specifically by means of the pressure regulator and by throttling the air supply or exhaust air.
- 4). If existing, adjust mist lubricator.
- 5). After one hour of operation the fixing screws and compressed air connections have to be checked and, if necessary, retightened. After that the fixing screws and compressed air connections have to be checked and possibly retightened at regular intervals (as a rule once a month).

8 Maintenance / Repair



NLD 25	NLD 25 L
<p>Maintenance unit: The optional maintenance unit provides the vibrators with clean (lubricated) compressed air. The service intervals mainly depend on the purity of your drive medium.</p> <p>Mist lubricator: In drive units with mist lubricator make sure that it works correctly (does the content decrease? drops/min?). Refill oil.</p>	<p>Soiling: In drive units which are operated without lubricants, a coating can develop which will slow down the vibrator. After about 1.000 operating hours the piston should be cleaned, because this will increase the lifetime of the piston vibrator.</p>
<p>Lubrication: The guide rods of the LineDrive unit must be checked and, if necessary, lubricated (as a rule once a month). Under severe operating conditions the intervals for lubrication must be shorter.</p> <p>Filter: If necessary, discharge filter, clean filter insert (wash out).</p> <p>Cleaning: The outside of the LineDrive can be cleaned with compressed water, if the exhaust air has been discharged or the air outlets have been closed. Compressed water must not enter the guide bushings and the vibrator via the silencers. LineDrive units of the series NLD must be briefly actuated after having been cleaned.</p>	

9 Troubleshooting

Fault	Possible cause	Remedy
Vibrator does not start	Silencer	Clean silencer
	Compressed air supply	Check whether pressure has been applied to the system. Pressure sufficient? Check valve.
	Exhaust air throttled too much	Open the throttle more. Check silencer (air flow sufficient?)
No start (drive and support)	Tensioning during assembly	Check whether mounting surface is even. Install drive unit and support parallel one behind the other.
	No lubrication	Lubricate guide rods at regular intervals.
Clattering	Loose screws	Check the fixing screws
Decline in performance	No lubrication	Check proper functioning of lubricator.
	Drive unit dirty	Disassemble, remove coating.
	Wear	Check vibrator for visible wear (if you see signs of wear, send drive unit to NetterVibration).
	Pressure too low	Check pressure at the unit inlet (!) during operation. Increase pressure if necessary. Line cross sections okay?

10 Spare Parts

If you order spare parts, please indicate the following details:

1. Type of unit
2. Description and position of the spare part
3. Requested quantity

11 Appendix

11.1 Accessories

The following accessories are available (on request) for **LineDrive** conveyor systems:

Description	Observation
Hoses and fittings	for air supply and exhaust air, in different qualities and dimensions
Support	to support long troughs
3/2 way valves	for electric, pneumatic and manual operation
Maintenance units	filter-regulator-lubricator
Electronic timers	Electric or pneumatic, for intermittent operation
Grease gun	for lubrication
Special versions:	Vibrators are available for extreme temperature ranges, complete as stainless steel version for use in aggressive atmosphere, for higher frequency range (HF versions). Information on request.

11.2 Waste disposal

Material specifications:

All parts of the conveyor systems can be recycled:

- Housing, cover, mounting plate: ⇒ aluminium
- O-rings: ⇒ perbunan
- Guide shaft, spring: ⇒ stainless steel
- Maintenance unit: ⇒ see technical data sheet
- Screws: ⇒ stainless steel
- Silencer: ⇒ plastic
- All parts coming in contact with the product ⇒ stainless steel



All units can be disposed of through Netter GmbH.
The valid disposal prices are available on request.

11.3 Enclosures

Enclosure (s):

Declaration of incorporation



**Further information available on request:
Leaflet no. 47 and others**