

Installation and Operating Instructions for FPK

The pneumatic, high-frequency beaters (FPK) comply with the EC Machinery Directives 2006/42/EC. In particular, they comply with Standards DIN EN ISO 12100, Parts 1 and 2.

Important information

FINDEVA AG does not accept any responsibility for damage to property and personal injury if technical modifications are made to the product or the notes and instructions in these Operating Instructions are not complied with.

Pneumatic beaters and vibrators must be installed and operated by experienced persons.

Risk of injury!

- **Compressed-air equipment, such as beaters, vibrators, filters, lubricators and the air hoses, may be subject to very high pressure. The system must be disconnected from the compressed-air supply before such units are installed or serviced. The units must be depressurised.**
- **Air pressure may generate extremely loud noise. Consequently, always wear ear-protectors in the vicinity of the pneumatic vibrator.**
- **Comply with the national and local regulations and legislation on installation and use of pneumatic systems.**

Noise level

- **The noise level of an unscreened beater, mounted on a metal plate, exceeds 85 dB (A) if one allows only for the single noise event. The noise emitted by the unit may be reduced by enclosures.**
- **Always wear ear-protectors in the noise area.**

Mounting of the beater

- **Vibrators, beaters and parts of the structure may become loose as the result of vibration. Use bolt locks or adhesives.**

Air oiling

The pneumatic, high-frequency beater FPK can be operated with dry compressed air and thus without oiling. If you choose compressed air containing oil to operate the beater, you must also keep to this since the basic lubrication of the beater is flushed out by the air containing oil. The standard version of the beater may operate in a temperature range of between 0°C and 120°C. A special version is available at temperatures between –40°C and 150°C.

Compressed-air lines

Of course, it is possible to regulate vibrators by changes to the air pressure or air volume (at the outlet end). However, you must ensure that the compressed-air units are correctly dimensioned.

Compressed-air supply line:

- FPK-40 inside Ø > 8 mm, length < 4 m
- FPK-55 inside Ø > 10 mm, length < 4 m

Beater

Special features of this newly developed beater are its high impact frequency, broad force range and the option of also using it as a vibrator. This is possible thanks to the supplied, differing, impact-resistant, special-plastic impact plates. The beater is delivered with a baseplate which serves to secure the beater and transfer the impact pulse.

Field of application

Intermittent, compressed-air beaters can be used to beat off adhering material on the walls of containers (e.g. silos, hoppers, filter outlets, reactors and pipelines).

The beaters may be used in wet areas and in explosion-hazard areas (special type) or in the open air.

Mechanical structure and mode of operation

On the FPK, a piston is moved in linear fashion (vibration) or is shot against an impact plate (high-frequency beater), controlled by compressed air.

Operating conditions

The FPK can be used in dusty environments and is designed for **oil-free** operation.

Installation and commissioning

The clamping surface must be clean and flat. It is advisable to use a reinforcing section (channelled steel) which is spot-welded onto the object as a base structure, so as to distribute the vibration energy optimally.

Use hexagon socket-head cap bolts of quality 8.8 for securing. **(Do not use slotted-head bolts!)**

Use serrated washers or circlips (**not lock washers or conical spring washers**) so as to prevent the bolt coming loose as the result of vibrations. Use of screw-locking lacquers such as LOCTITE 243 is very advisable. Comply with the corresponding manufacturer's instructions.

The tightening torques should be in the following range:

M 6	7 Nm to 9 Nm
M 8	20 Nm to 24 Nm
M10	40 Nm to 47 Nm
M12	72 Nm to 89 Nm

The compressed air must be clean. **(5 micron/5 µm air filter)**

The air inlet is located at the centre of the housing. Attach the compressed-air supply securely to the connector. Follow the manufacturer's instructions!

Avoid transverse vibrations, such as those which may occur when fitting the FPK on only single-ribbed (L) sections. The transverse vibrations lead to heavy wear of the piston.

Use a silencer at the air outlet end.

The frequency can be influenced with a restrictor silencer (**FREE-FLOW, Item No. 44030.00** (FPK-55 + reducing adaptor)).

You should avoid operating the beater without a silencer so as not to cause high noise emission unnecessarily.

Ensure that there is an adequate air volume available, as shown in the table. Otherwise, the FPK will not achieve the ratings stated in the technical data.

Operation and maintenance

After ~1,500 hours of operation, it is advisable to dismantle the FPK, clean it and then regrease it sparingly with **Klübersynth UH1 14-31**.

Greases with a different viscosity will reduce the operating frequency or may lead to seizing of the piston as the result of resinification of the grease.

Technical data FPK-40

Frequencies

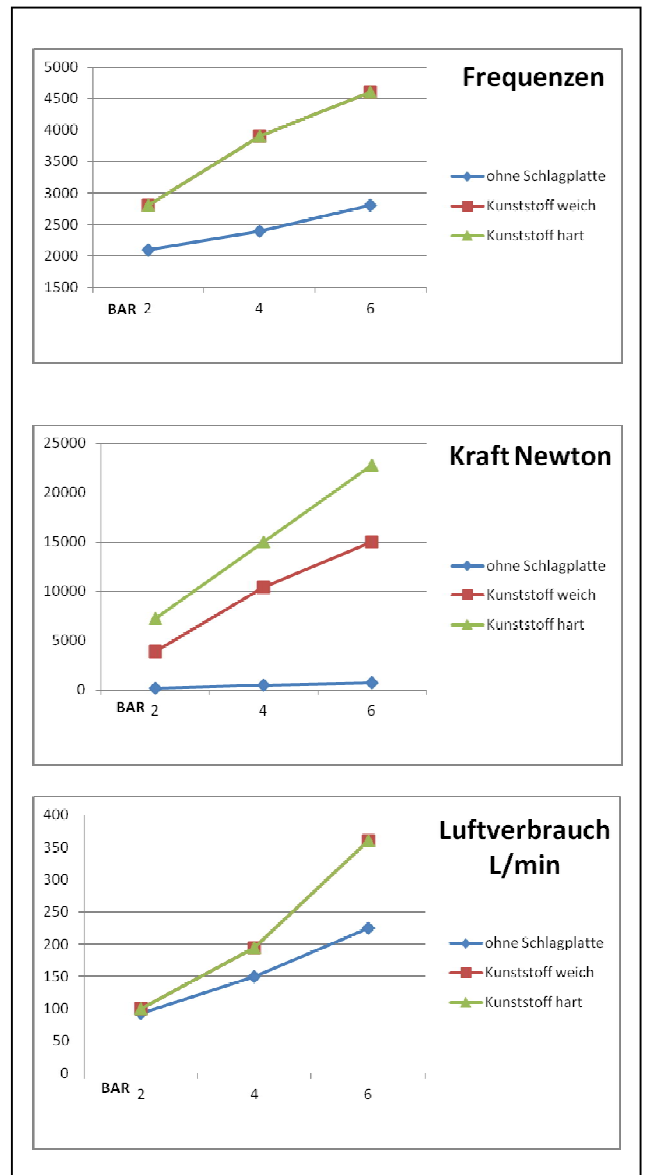
Bar	2	4	6
Without impact plate	2100	2400	2800
Soft plastic	2800	3900	4600
Hard plastic	2800	3900	4600

Force, Newtons

Bar	2	4	6
Without impact plate	195	455	730
Soft plastic	3920	10410	15030
Hard plastic	7240	14990	22750

Air consumption, l/min.

Bar	2	4	6
Without impact plate	93	150	225
Soft plastic	100	195	360
Hard plastic	100	195	360



Technical data FPK-55

Frequencies

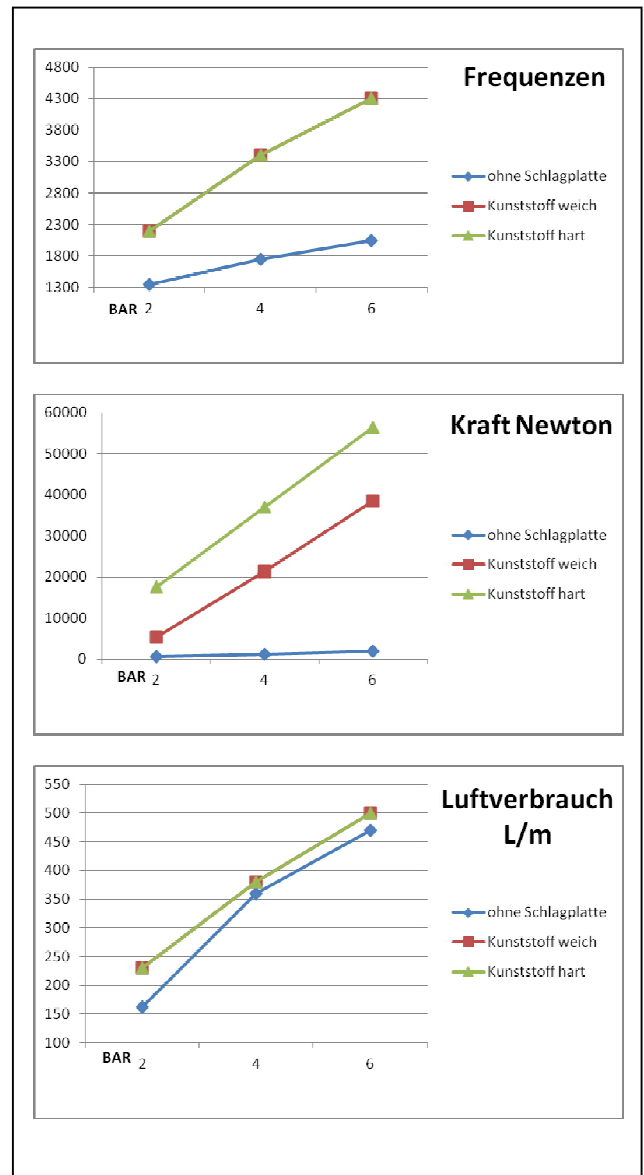
	Bar	2	4	6
Without impact plate		1350	1750	2050
Soft plastic		2200	3400	4300
Hard plastic		2200	3400	4300

Force, Newtons

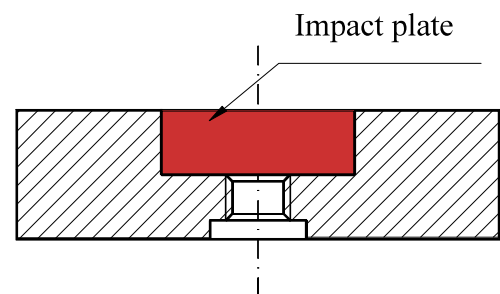
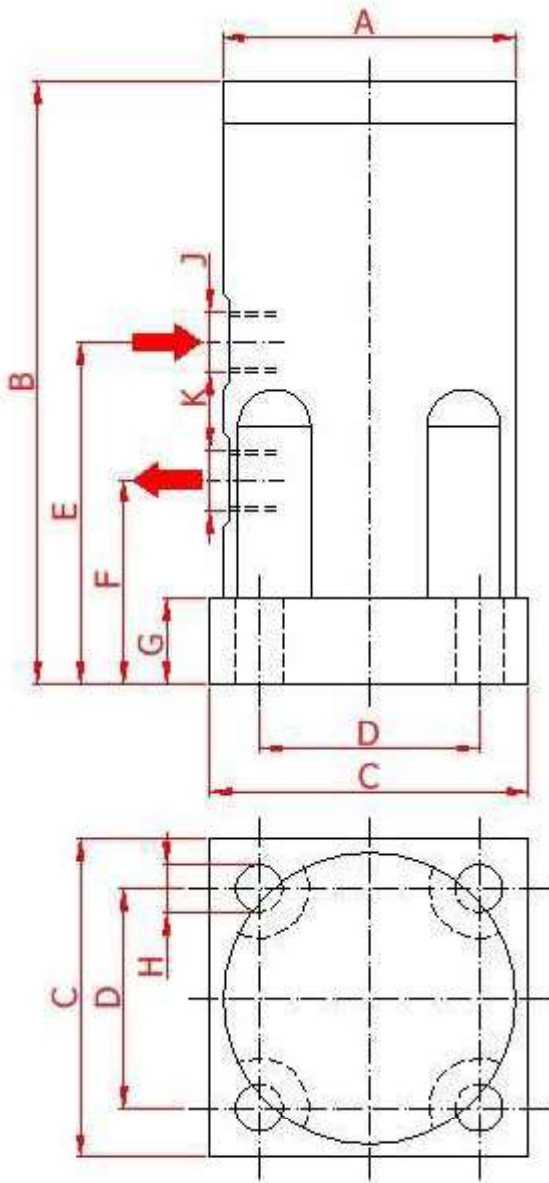
	Bar	2	4	6
Without impact plate		510	1165	1985
Soft plastic		5430	21310	36570
Hard plastic		17570	36960	56350

Air consumption, l/min.

	Bar	2	4	6
Without impact plate		162	360	470
Soft plastic		230	380	500
Hard plastic		230	380	500



Dimensions



Dimensions in mm	A	B	C	D	E	F	G	H	J	K
FPK-40	68	140	74	51	80	48	20	11	1/4"	1/4"
FPK-55	94	191	104	78	111	60	25	13	3/8"	3/8"

The parts of a spent FPK may be recycled:

Housing	Aluminium, hard-anodised
Base, cover	Aluminium, hard-anodised
Piston	Steel, PTFE-coated
Impact plate	Plastic