

Vibrators type BL & BLE – Assembly and commissioning

1 Foreword

This document contains product descriptions and hints for the safe usage of the device. For your safety and to avoid injuries you have to read the hands and the safety instructions before commissioning the device. Individual parts may be available as spare parts. In case of a defective device please contact our customer service:

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Damaged vibrators may not be used in any case and are to be replaced immediately. This document may not be reproduced.

2 Symbols

Important hints for the user of the device are marked in this document with special symbols.



Read the instruction manual General information about safe usage



Read the manual.



Danger - these instructions have to be careful he followed in order to avoid injury and damage to other machinery parts

3 Device types

This manual is written for a series of vibrators. Your actual device may differ slightly from the pictures shown in this instruction manual.

4 Safety instructions

4.1 General

Keep this manual with the device or close to where it is installed. Please note that where ever the device is installed, The applicable regulations for that specific country, guidelines and rules have to be followed. This may apply to protective gear, noise emissions and environmental guidelines.

4.2 Warning



The devices for which this manual appliance, may not be commissioned before the machine or plant in which they have been mounted, has been declared to be in conformity with the European guideline 2006/42/EG.

4.3 Intended use

This device is solely intended to be employed for silo discharge, compaction of bulk material, driving conveyors or loosening build-ups of material..

4.4 Operation

The device may only be used for the intended usage. Never operate the device when it is technically not in good condition.



Warning, the device may never be used in areas with explosive atmospheres. It may not get in contact with acids or alkalis. Do not use in wet areas. Make sure no moisture can get inside the device.

4.5 Mechanical modification



Any kind of mechanical modification of the device is absolutely prohibited.

4.6 Personell

The device may only be employed and operated by personnel that has been trained to use the device properly. They may not be under the influence of drugs or alcohol at any time.

4.7 Protective gear and clothing

The personnel should wear appropriate clothing and use protective gear where applicable.

To avoid personal injury it is advisable to use the following protective gear:

- helmet
- ear protection
- clothing made of durable material
- safety shoes



- safety goggles

The device may emit noise which may be above these allowed level for a specific country. In these cases appropriate ear protection is necessary that we recommend to be wearing ear protection permanently.

5 General

The vibrators of the series BL and BLE have been produced according to the European guideline 2006/42/EG as well as EN292 part one and two. This vibrator type produces a directed vibration. They are employed as drives for conveyors, sieves, vibration tables. They can be used for different tasks such as compaction transportation and separation of bulk material, as well as for the reduction of friction. By adapting the inlet pressure The vibration frequency and The resulting force can be changed.

The following operating temperatures are allowed:

- **Series BL:** - 20 °C to +130 °C
- **Series BLE:** - 20 °C to +200 °C (**BLE15K:** 0°C – 100°C)



For operational temperature is above 120° The fittings have to be changed to a temperature resistant Version.



6 Safety

Make sure the Air supply is disconnected when installing the vibrator. All pressure lines have to be attached securely and secured against loosening. A loose pressure hose can cause severe injuries.

The nature of vibrations can lead to a loosening of fasteners or tearing weld seams. Personal injuries and damages material can be the result.

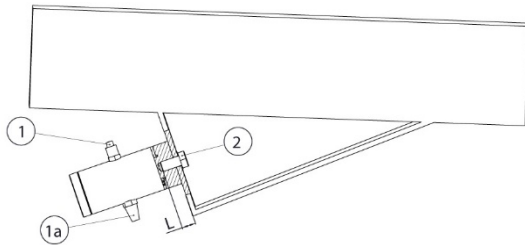
7 Noise emissions

When using the provided silencer and operating at 6 bar Limited noise will be less than 80 DBA. Reducing the pressure will result in even less noise level. We do not recommend operating the device without the silencer due to the increased noise.

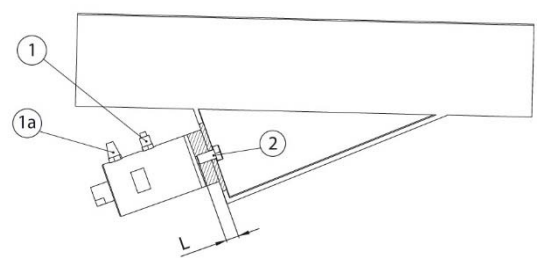
8 Mounting and commissioning

The vibrator needs to be mounted with screws of material grade 8.8 (size and torque table 7). The surface must be flat and clean. Lock washers are recommended but do not use spring washers! Use self locking nuts or Loctite 243.

- Mount fitting for air supply(1) and silencer (1a).
- Mount the vibrator with a screw (2) thread lengths can be found in table 1, torque values in table 7.
- Connect air supply.



Picture 1: Type BL



Picture 2: Type BLE

Typ	Lmin [mm]	Lmax [mm]
BL15	5	8
BL22	10	13
BL30	10	13
BLE15	10	13
BLE25	10	13
BLE40	12	15
BLE85	20	25

Table7 1: Thread depths



Attention! After approximately one hour of operation all fasteners and screws have to be checked. After that make a planned service interval (monthly) for re-checking all connections.

9 Air supply

And air or nitrogen supply of 2 to 6 bar is necessary.

- **Maximum pressure not be exceeded 6 bar!!**
- Air must be clean, filter of 10 µm.
- Air must be dry.



- Air must have oil mist.
- Air-quality according to ISO8573–1, class 5.4.4.

Longer air supply lines produce A higher resistance. When using lengths of above 3 m, make sure you use the next bigger size.

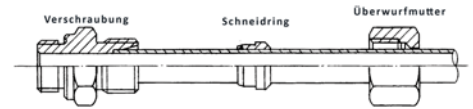


The air inlet has a smaller opening then the outlet. The inlet is marked.

We recommend the usage of compression ring fittings for a safe long-term operation.

9.1 Mounting

1. Rohr/ Cut pipe/hose perpendicularly, remove burr
2. Mount locknut and compression ring
3. When using plastic hose you need to insert a reinforcement sleeve into the hose end!
4. Insert pipe/hose all the way into the fitting, screw on lock-nut
5. Tighten the locknut about one turn. For an easier mounting, put a little amount of oil onto the thread.
6. Loosen the locknut by about a quarter turn tighten it again.



Picture 3: Compression type fitting

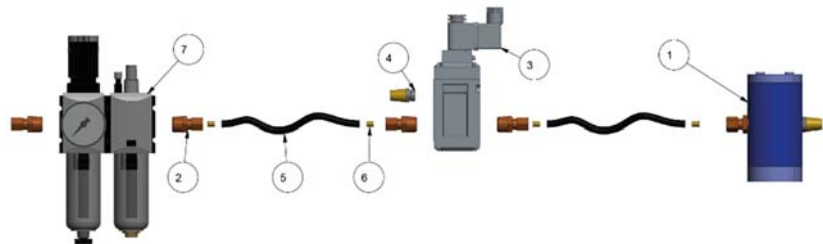


Abbildung 4: Reeinforcement sleeve

Please make sure that you use the correct setup: filter and pressure regulator oiler unit magnetic valve vibrator
 Make sure you use a **3/2 way magnetic valve** and mount it as close to the vibrator as possible

Index	Part	Qty.
1	Vibrator	1
2	Fitting	5
3	3/2 Way Magnetic valve	1
4	Silencer	2
5	Pipe/hose	2
6	Reeinforcement sleeve	4
7	Pressure regulator w. oiler	1

Table 2: Air supply



Picture 5: Air supply scheme

Do not mount any of the pneumatic components on the structure which is being driven by the vibrator. The equipment may be damaged through the vibration.

Make sure the magnetic valve has enough throughput to allow the operation of the vibrator. Do not use hand driven valves.

The usage of non-filtered air will let the vibrator operation fail and can cause a non-repairable damage to the device. Employ a filter that filters any dirt below 10 µm. All vibrators need to be operated with a mist oiler installed. Tune it to supply 2-5 drops/hour.

10 Operation

The vibrators are maintenance free. They can be cleaned with water, but it has to be made sure that no water can enter the housing. After cleaning operate the vibrator shortly in order to extract any water that may have come in through the outlet silencer.

11 Troubleshooting chart

Störung	Mögliche Ursachen	Abhilfe
The vibrator doesn't start	Air supply not according to spec. Dirt within the air supply No 3/2-way magnetic valve used 3/2-way magnetic valve installed wrong	Check the air supply, hoses pipes and pressure Check if any dirt has come into the vibrator Use the correct type Check the correct mounting of the valve
Vibrator is not functioning properly	Air supply not according to spec Mounting screws have loosened Construction is too weak	Check air supply Check mounting screws Make construction more stiff
Damaged o-rings	Wrong ambient temperature (<-20°C oder >200°C)	Exchange sealing rings and make sure temperature is not exceeded

Table 3: Trouble shooting

12 Recycling

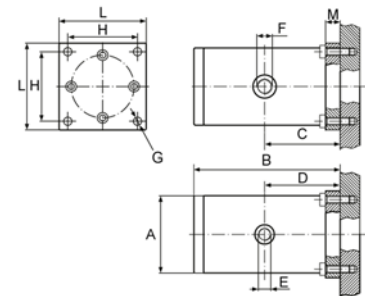
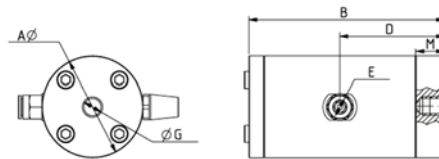
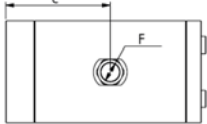
All devices are made of recyclable materials (aluminum housing, brass piston and steel screws).

13 Performance Data

Type	Frequency [1/min]			Force [N]			Working Momentum [kg*cm]			Air consumption [l/min]		
	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar	2 bar	4 bar	6 bar
BL15	4.500	5.625	6.670	27	58	81	0,02	0,03	0,03	9	15	21
BL22	2.850	3.450	4.050	88	139	192	0,20	0,21	0,21	32	50	73
BL30	2.475	3.075	3.450	145	238	300	0,43	0,46	0,46	45	90	140
BL50	1.800	2.250	2.625	379	667	903	1,07	2,40	2,40	56	125	194
BL60	1.200	1.500	1.700	608	1.079	1.383	7,67	8,76	8,76	48	125	202
BLE8	2.020	2.950	3.600	10	23	34	0,04	0,04	0,04	7	19	28
BLE15	2.280	2.520	2.820	48	78	98	0,16	0,22	0,22	20	38	67
BLE15K	1.920	2.160	2.340	43	73	86	0,21	0,29	0,29	20	42	80
BLE18	2.070	2.520	3.300	79	118	213	0,34	0,36	0,36	29	55	100
BLE25	1.860	2.040	2.220	88	127	151	0,46	0,56	0,56	32	60	105
BLE40	1.380	1.560	1.740	205	332	413	1,96	2,49	2,49	80	190	320
BLE85	1.680	1.980	2.280	983	1.593	2.113	6,36	7,42	7,42	240	390	580

Table 4: Performance

13.1 Dimensions

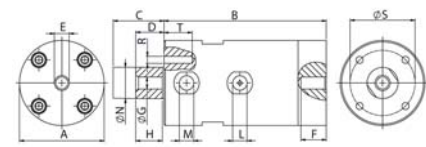
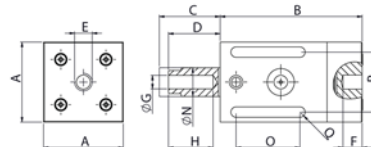
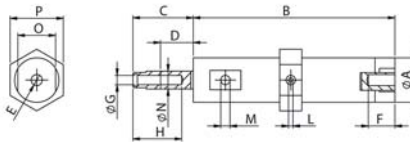


Picture 6: BL 15,22,30

Picture 7: BL 45,90

Typ	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	Gewicht
	mm	mm	mm	mm		mm		mm	mm			mm	mm	mm	mm		mm	mm	[kg]
BL15	32	69	37	37	M5	1/8"	M8				9								0,17
BL22	45	105	56	56	1/8"	1/8"	M10				13								0,50
BL30	60	116	62	62	1/4"	1/4"	M12				13								1,03
BL50	80	151	78	78	1/4"	3/8"	8,5	72		90	20								2,86
BL60	115	224	115	115	1/2"	1/2"	13	102		130	24								4,40

Table 5: Dimensions BL



Picture 8: BLE8

Picture 9: BLE15K

Picture 10: BLE 15,18,25,40,85

Typ	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	Gewicht
	mm	mm	mm	mm		mm		mm	mm			mm	mm	mm	mm		mm	mm	[kg]
BLE8	20	91	30	5	M6	10	M5	20	7	M5	M5	8	17	24					0,09
BLE15	50	115	41	7	M10	15	M10	15	13	1/8"	1/8"	15	12		36	M6	18	36	1,5
BLE15K	50	115	39	9	M10	15	M10	22	13	1/8"	1/8"	16				M6	12	36	0,5
BLE18	50	89	32	10	M10	10	M10	26	12	1/8"	1/8"	18	40	37,5	6,5				0,6
BLE25	60	115	45	10	M10	15	M10	15	19	1/4"	1/4"	22	15		46	M6	18	46	2,3
BLE40	85	140	57	13	M16	17	M16	20	36	1/4"	3/8"	40	20		65	M6	16	65	5,7
BLE85	160	122	52	22	M20	30	M20	30		3/8"	3/8"	85				M6	17	140	16,5

Table 6: Dimensions BLE

13.2 Mechanical mounting data



Type	Screw size	Washer UNI8842 	Washer Schnorr 	Torque [Nm]
BLE8	M6	6x11	6x10	11,1
BL15, BL50	M8	8x14	8x13	21
BL22, BLE15, BLE15K, BLE18, BLE25	M10	10x18	10x16	42
BL60	M12	12x20,5	12x18	72
BLE40	M16	16x26	16x24	174
BLE85	M20	20x33	20x23	230

Tabelle 7: Mechanical mounting data

14 EG-Einbauerklärung

Hersteller:

Berger Maschinenbau GmbH
Zum Birkenköpfchen 2
D-35796 Weinbach

Geräte-/Maschinentypen: Kolbenvibratoren; Serie BL und Serie BLE

Produktbeschreibung: Pneumatische Kolbenvibratoren zur Fluid-/Beton-/Schüttgut- Verdichtung/Verteilung/Lockerung und als Austraghilfe.

Hiermit erklären wir, dass die nachstehend bezeichnete Maschinenkomponente in ihrer Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG Richtlinie 2006/42/EG entspricht (Anhang II B, 1.1.1. - 1.1.2. - 1.1.3. - 1.1.5. - 1.3.1. - 1.3.2. - 1.3.3. - 1.3.4. - 1.3.6. - 1.3.7. - 1.3.8. - 1.3.9. - 1.4.1. - 1.5.2. - 1.5.3. - 1.5.4. - 1.5.5. - 1.5.6. - 1.5.7 - 1.5.8. - 1.6.1. - 1.6.4. - 1.7.2. - 1.7.3. - 1.7.4. - 1.7.4.1. - 1.7.4.2. - 1.7.4.3.).

Gemäß der Richtlinie werden die Maschinenkomponenten als unvollständige Maschinen klassifiziert. Die Maschinenkomponente darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die die Maschinenkomponente eingebaut werden soll, den Bestimmungen der Richtlinie (2006/42/EG) entspricht.

Angewandte harmonisierte Normen insbesondere:

- DIN EN 12100-1 Sicherheit von Maschinen - Grundbegriffe, allgemeine Gestaltungsleitsätze, Teil 1: Grundsätzliche Terminologie, Methodik
- DIN EN 12100-2 Sicherheit von Maschinen - Grundbegriffe, allgemeine Gestaltungsleitsätze, Teil 2: Technische Leitsätze und Spezifikationen

Angewandte sonstige Normen und technische Spezifikationen:

Wir erklären weiterhin, dass die speziellen technischen Unterlagen für diese unvollständige Maschine nach Anhang VII, Teil B erstellt wurden. Die technischen Unterlagen sind hier hinterlegt: Zum Birkenköpfchen 2, D-35796 Weinbach. Wir verpflichten uns, relevante Informationen auf begründetes Verlangen den Marktaufsichtsbehörden zu übermitteln (vorbehaltlich der Eigentumsrechte des Herstellers).

Weinbach, den 01.02.2017



E. Berger, Geschäftsführer