

## 1. Use, characteristic

The direct current braking block DCBB is designated for the braking of asynchronous motors by direct current. The braking is performed in to two phases of the motor by a current from a one way rectifier with a zero diode, both of the diodes are protected by RC members against the effects of the voltage spikes.

The DCBB when connected according to the enclosure, or in a similar connection securing the maintaining of technical parameters, ensures the shortening of the rundown period of the motors following the instruction for stopping.

The amount of the braking current, which means the braking intensity, is given by the impedance of the motor's winding, and it can be affected by the connection method and the amount of the supply voltage.

The time of the effect of the braking current is set during the putting into operation by a time relay, for the necessary period for putting the motor into a calm state, so that the motor is not unnecessarily loaded by the braking current. According to the application method, the braking period ranges between about 2 to 10s.

Special applications, for example a higher frequency of breaking than is stated in the technical information, has to be agreed upon with the manufacturer.

## 2. Construction design

The DCBB 16 is designed to be mounted into distribution boards while being attached to the normalized installation strips of profiles EN 50035 ( TS 32 ) and EN 50022 ( TS 35 ).

DCBB 63, DCBB 80 only for the strip EN 50022 (TS35)

The brake circuits are built in to the plastic cover. The removal of the heat loss is secured by a cooler on the top of the cover.

The terminals DCBB16 allow the connecting of one wire up to a cross-section of 2.5 mm<sup>2</sup>.

The terminals DCBB 63, DCBB 80 allow the connecting of one wire up to a cross-section of 6mm<sup>2</sup>.

## 3. Technical parameters

Type	DCBB16	DCBB63	DCBB80
Operational voltage	max. 400V AC	max. 500V AC	max. 500V AC
Average value of the braking DC current	max. 16A	max. 63A	max. 80A
Period and frequency of braking	about 2 ÷ 10 s, max 30 cycles / hour		
Operational environment	ambient temperature -10 to +50 °C, relevant humidity max. 80%		
Operational temperature	arbitrary		
Protection	IP20		
Dimensions	79 x 96 x 81 mm	110 x 110 x 123 mm	
Weight	0.35 kg	0.86 kg	

#### 4. Related norms

ČSN EN 60146-1-1 „Semiconductor converters - general requirements for converters with network commutation“

ČSN EN 60204-1 „Machine equipment safety - Electrical devices of machines“

#### 5. Installation, operation and maintenance

The installation of the DCBB must correspond to the valid norms and regulations, primarily it has to correspond to the norm ČSN 60204-1.

The evaluation of the concordance of the device, before being introduced to the market or in to operation for the entire system, including the DCBB and the method of its electrical installation, is the responsibility of the customer of the product.

The product does not contain high-frequency circuits – sources of interference and due to the reason of its utilization in a machine's electrical installation, it is not necessary to perform any further verification of concordance with regards to the EMC.

The DCBB do not require any special operation or maintenance.

#### 6. Packing, transportation and storage

The DCBB are delivered packed in a carton box.

The transportation of the DCBB is done by regular transportation means. During transportation, the DCBB must be secured in such a way, so that they do not get damaged.

It is possible to store the DCBB in areas protected against undesired effects, with an ambient temperature of –10 to +50°C with a relative humidity of max. 80%.

#### 7. Disposal

During the operation or the disposal of the device, it is necessary to maintain the relevant national regulations about the environment and the disposal of waste. In the case that the device has to be scrapped, it is necessary during its scrapping to proceed according to separated disposal, which means to respect the difference of materials and their composition (for example metals, plastics, etc.)

During separated disposal, it is necessary to refer to specialized companies, who perform the collection of these materials and at the same time respect the valid local norms and regulations.

Enclosure no. 1 - Examples of application of the DCBB16, 63, 80 in vibrating technology

Enclosure no. 2 - Table of values for 1 motor

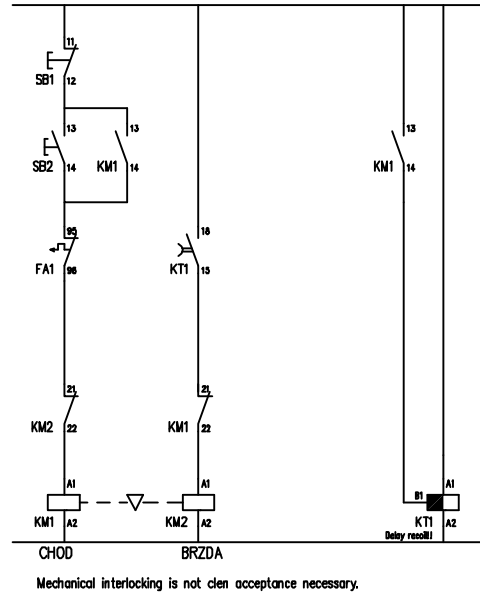
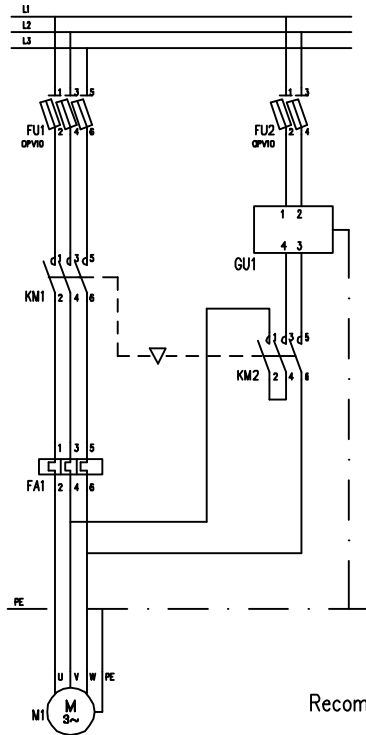
Enclosure no. 3 - Table of values for a pair of motors

Processed by: Pavel Pech

Appendix 1 – Instruction for use D.C breaking BSB 16,BSB 63,BSB 80

Examples for use with vibratory machines

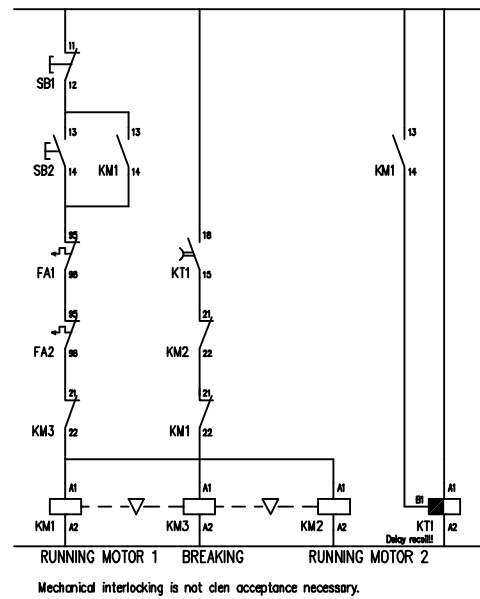
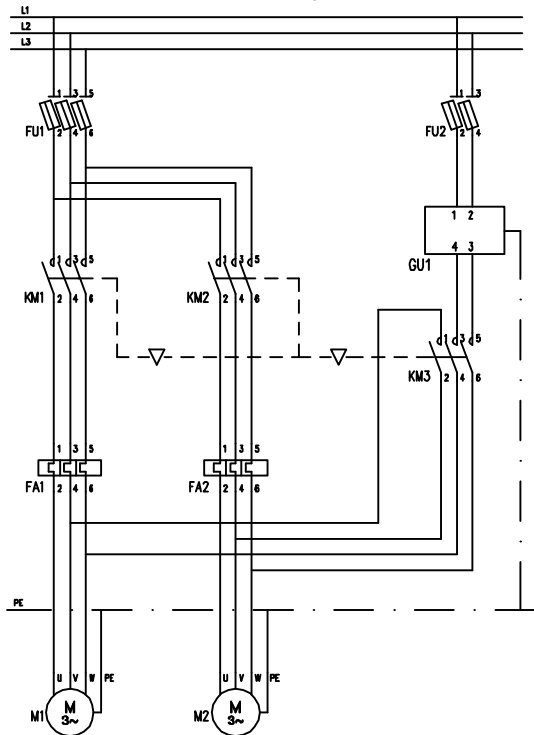
Recommended el. connection diagram for one surface vibrator.



Mechanical interlocking is not dien acceptance necessary.

Recommend parts values: see Appendix 2

Recommended el. connection diagram for two surface vibrators.



Mechanical interlocking is not dien acceptance necessary.

Recommend parts values: see Appendix 3

## Appendix 2 – Instructions for use of DCBB

### 1 motor 3x400V

M1	FU1 [A gG]	FU2 [A gG]	FA1	KM1	KM2	GU1
FO12/6 NO02-515,805,1090 NO12 NO16	2	4	LRD03 0,25-0,40A	LC1D09	LC1D09	BSB16
NO14 NO28	2	4	LRD04 0,40-0,63A	LC1D09	LC1D09	BSB16
NO22 NO26 NO38	4	6	LRD05 0,63-1A	LC1D09	LC1D09	BSB16
NO24 NO36	4	8	LRD06 1-1,7A	LC1D09	LC1D09	BSB16
NO32 NO34	6	8	LRD07 1,6-2,5A	LC1D09	LC1D09	BSB16
NA36	10	10	LRD08 2,5-4A	LC1D09	LC1D12	BSB16
NA32 NA34 NA44 NA46	16	16	LRD10 4-6A	LC1D09	LC1D18	BSB63
NA54 NA56	20	25	LRD12 5,5-8A	LC1D09	LC1D18	BSB63
NA64	20	40	LRD14 7-10A	LC1D12	LC1D32	BSB80
NA66	25	40	LRD16 9-13A	LC1D18	LC1D40	BSB80

### 1 motor 3x500V

M1	FU1 [A gG]	FU2 [A gG]	FA1	KM1	KM2	GU1
NO02-515,805,1090 NO16	2	4	LRD02 0,16-0,25A	LC1D09	LC1D09	BSB63
FO12/6 NO12 NO14 NO28	2	4	LRD03 0,25-0,40A	LC1D09	LC1D09	BSB63
FO22/6 NO22 NO24 NO26	4	6	LRD05 0,63-1A	LC1D09	LC1D12	BSB63
NO32 NO34 NO36	4	8	LRD06 1-1,7A	LC1D09	LC1D12	BSB63
NA36 NO34	6	8	LRD07 1,6-2,5A	LC1D09	LC1D18	BSB63
NA32 NA34	10	10	LRD08 2,5-4A	LC1D09	LC1D18	BSB63
NA44 NA46 NA54 NA56	16	16	LRD10 4-6A	LC1D09	LC1D32	BSB63
NA64	20	40	LRD14 7-10A	LC1D12	LC1D40	BSB80
NA66	25	40	LRD16 9-13A	LC1D18	LC1D50	BSB80

### Appendix 3 – Instructions for use of DCBB

#### 2 motors 3x400V

M1,M2	FU1 [A gG]	FU2 [A gG]	FA1,FA2	KM1,KM2	KM3	GU1
FO12/6 NO02-515,805,1090 NO12 NO16	4	4	LRD03 0,25-0,40A	LC1D09	LC1D09	BSB16
NO14 NO28	4	4	LRD04 0,40-0,63A	LC1D09	LC1D09	BSB16
NO22 NO26 NO38	4	4	LRD05 0,63-1A	LC1D09	LC1D09	BSB16
NO24 NO36	6	6	LRD06 1-1,7A	LC1D09	LC1D09	BSB16
NO32 NO34	8	8	LRD07 1,6-2,5A	LC1D09	LC1D09	BSB16
NA36	12	10	LRD08 2,5-4A	LC1D09	LC1D12	BSB16
NA32 NA34 NA44 NA46	20	12	LRD10 4-6A	LC1D09	LC1D18	BSB63
NA54 NA56	25	12	LRD12 5,5-8A	LC1D09	LC1D18	BSB63
NA64	32	20	LRD14 7-10A	LC1D12	LC1D25	BSB63
NA66	32	20	LRD16 9-13A	LC1D18	LC1D25	BSB63

#### 2 motors 3x500V

M1,M2	FU1 [A gG]	FU2 [A gG]	FA1,FA2	KM1,KM2	KM2	GU1
NO02-515,805,1090 NO16	2	4	LRD02 0,16-0,25A	LC1D09	LC1D09	BSB63
FO12/6 NO12 NO14 NO28	4	4	LRD03 0,25-0,40A	LC1D09	LC1D09	BSB63
FO22/6 NO22 NO24 NO26	4	4	LRD05 0,63-1A	LC1D09	LC1D09	BSB63
NO32 NO34 NO36	6	8	LRD06 1-1,7A	LC1D09	LC1D12	BSB63
NA36 NO34	8	8	LRD07 1,6-2,5A	LC1D09	LC1D18	BSB63
NA32 NA34	12	10	LRD08 2,5-4A	LC1D09	LC1D18	BSB63
NA44 NA46 NA54 NA56	20	16	LRD10 4-6A	LC1D09	LC1D25	BSB63
NA64	32	20	LRD14 7-10A	LC1D12	LC1D40	BSB63
NA66	32	20	LRD16 9-13A	LC1D18	LC1D40	BSB63