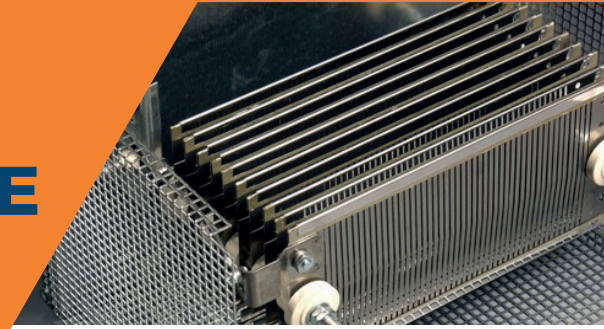


Wärtsilä JOVYLOAD BRAKE

PRODUCT LEAFLET



Mainly inverter circuits with selectable frequencies based on drive technology are deployed to control AC motors. During necessary speed changes or decelerations in the drive train the frequency of the motor is higher than the output frequency of the frequency converter. In this case the motor works as a generator, generated energy is converted via a brake resistor into heat, which consequently leads to the deceleration of the motor.

BRAKE RESISTORS IN COILED SHAPE

Wire-wound resistors depending on their application consist of a wire-winding of copper nickel CuNi44 fitted on a ceramic tube or on a frame equipped with porcelain slides. The housing is manufactured from galvanised sheet metal.

Connecting cables, terminal boxes or adjustable clips are optionally available. The modular structure allows the combination of multiple resistors to a system.

Applications: frequency converter drives of small to medium power, position: directly at the frequency converter.

BRAKE RESISTORS IN STEEL-GRID VERSION

Steel-grid resistors consist of steel sheet elements with die-cuts in meander shape. For mechanical strength the longitudinal sides of the grids are reinforced. Therefore the elements can be assembled into blocks via insulated threaded bolts. This design achieves particular good heat dissipation due to the large surface and is therefore sui-

table for high continuous performance. Additionally, due to the vast amount of resistor packages, very high pulse loads are possible.

Applications: frequency converter drives of medium up to high power, position: in direct vicinity or detached from the frequency converter

COMPACT BRAKE RESISTORS

The resistance elements consist of wire-wound resistors with welded contacts coiled onto Micanite-supports, which are fitted into anodised aluminium casings embedded in quartz sand and insulated with mica. The entire design demonstrates high stability during thermal shock stress. The resistors meet the electrical and thermal requirements of the protection class IP54. A special design allows the maximum protection class IP65.

Applications: frequency converter drives of small up to medium power, Position: directly at the frequency converter.

Tab.1 Technical data of different resistor elements

Wire resistor, wound

Resistance values	1Ω – 10kΩ
Isolation voltage	2500VAC / 1min
Operation voltage	1000VAC / 1100VDC
Isolation-resistance value	<20MΩ
Load range	50W- 1kW
Protection class	IP00 – IP23

Steel grid resistor

Resistance values	1Ω – 10kΩ
Isolation voltage	2500VAC / 1min
Operation voltage	1000VAC / 1100VDC
Isolation-resistance value	<20MΩ
Load range	500 W - 1,7 kW
Protection class	IP00 – IP23
Connection	Bolt terminal

Compact resistors

Resistance values	1Ω – 10kΩ
Isolation voltage	2500VAC / 1min
Operation voltage	600VAC / 1100VDC
Isolation-resistance value	<20MΩ
Load range	65W- 3,2kW (without additional cooling element)
Protection class	IP50 – IP65

TYPE OVERVIEW

Types	Power at relative switch-on-at relative duty cycle 120 s				Dimensions W x H x D [mm]	Weight [kg]
	100%	60%	40%	20%		
BRF30x160 AK	0,060 kW	0,085 kW	0,120 kW	0,195 kW	225x86x64	0,8
BRF30x200 AK	0,090 kW	0,125 kW	0,180 kW	0,290 kW	225x86x64	0,9
BRF40x300 AK	0,200 kW	0,280 kW	0,400 kW	0,640 kW	365x101x73	1,7
BRF40x400 AK	0,280 kW	0,390 kW	0,560 kW	0,900 kW	465x101x73	2,2
BRF60x400 AK	0,420 kW	0,590 kW	0,840 kW	1,340 kW	470x121x93	3,5
BRF60x500 AK	0,550 kW	0,770 kW	1,100 kW	1,760 kW	570x121x93	4,4
BRF60x600 AK	0,670 kW	0,940 kW	1,340 kW	2,140 kW	670x121x93	5,7
BRLW 1-7 AK-1	0,800 kW	1,120 kW	1,600kW	2,5660 kW	205x180x490	6,0
BRLW 1-7 AK-2	1,000 kW	1,400 kW	2,000 kW	3,200 kW	205x180x490	6,0
BRLW 2-7 AK-1	1,500 kW	2,100 kW	3,000 kW	4,800 kW	255x180x490	7,5
BRLW 2-7 AK-2	2,000 kW	2,800 kW	4,000 kW	6,400 kW	255x180x490	7,5
BRC 13 AK-1	2,500 kW	3,500 kW	5,000 kW	8,000 kW	380x300x480	10,0
BRC 13 AK-2	3,000 kW	4,200 kW	6,000 kW	9,600 kW	380x300x480	10,5
BRC 13 AK-3	4,000 kW	5,600 kW	8,000 kW	12,800 kW	380x300x480	11,5
BRC 13 AK-4	5,000 kW	7,000 kW	10,000 kW	16,000 kW	380x300x480	12,5
BRC 15 AK-1	6,000 kW	8,400 kW	12,000 kW	19,200 kW	580x300x480	14,5
BRC 15 AK-2	8,000 kW	11,200 kW	16,000 kW	25,600 kW	580x300x480	16,5
BRC 15 AK-3	10,000 kW	14,000 kW	20,000 kW	32,000 kW	580x300x480	20,5
BRC 17 AK-1	12,000 kW	16,800 kW	24,000 kW	38,400 kW	790x300x480	25,0
BRC 17 AK-2	15,000 kW	22,400 kW	32,000 kW	51,200 kW	790x300x480	28,0
2BRC 15 AK	20,000 kW	28,000 kW	40,000 kW	96,000 kW	580x600x480	41,0
2BRC 17 AK-1	24,000 kW	33,600 kW	48,000 kW	76,800 kW	790x600x480	50,0
2BRC 17 AK-2	30,000 kW	42,000 kW	60,000 kW	96,000 kW	790x600x480	56,0

- **ROBUST AND STABLE CONSTRUCTION**
- **HIGH OPERATIONAL SAFETY**
- **SIMPLE ASSEMBLY**
- **CUSTOMISED MANUFACTURING**
- **INDIVIDUAL TECHNICAL CONFIGURATION FOR OPERATION CYCLES**
- **GALVANISED HOUSING, WITHOUT COATING**
- **CONNECTION VIA TERMINAL BOX**
- **PROTECTION CLASS IP 20 WHEN FLOOR MOUNTED IP 23 OPTIONAL**

Fig.1 Pulse loading capacity comparison: wiring resistors / steel grid resistors

