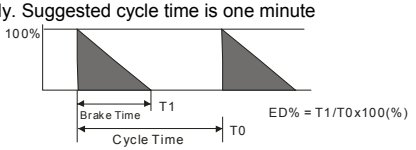
## B.1 All Brake Resistors & Brake Units Used in AC Motor Drives

Note: Please only use DELTA resistors and recommended values. Other resistors and values will void Delta's warranty. Please contact your nearest Delta representative for use of special resistors. For instance, in 460V series, 100hp/75kW, the AC motor drive needs 2 brake units with total of 16 brake resistors, so each brake unit uses 8 brake resistors. The brake unit should be at least 10 cm away from AC motor drive to avoid possible interference. Refer to the "Brake Unit Module User Manual" for further details.

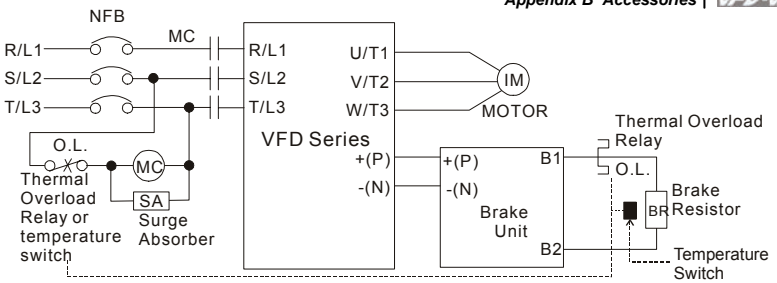
| Voltage | Applicable Motor | | Full Load Torque Nm | Resistor value spec for each AC Motor Drive | Brake Unit Model VFDB No. of Units Used | | Brake Resistors Model and No. of Units Used | | Brake Torque 10%ED | Min. Equivalent Resistor Value for each AC Motor Drive |
|---|---|---|---|---|---|---|---|---|---|---|
| | hp | kW | | | | | | | | |
| 230V Series | 1 | 0.75 | 0.427 | 80W 200Ω | | | BR080W200 | 1 | 125 | 82Ω |
| | 2 | 1.5 | 0.849 | 300W 100Ω | | | BR300W100 | 1 | 125 | 82Ω |
| | 3 | 2.2 | 1.262 | 300W 100Ω | | | BR300W100 | 1 | 125 | 82Ω |
| | 5 | 3.7 | 2.080 | 400W 40Ω | | | BR400W040 | 1 | 125 | 33Ω |
| | 7.5 | 5.5 | 3.111 | 500W 30Ω | | | BR500W030 | 1 | 125 | 30Ω |
| | 10 | 7.5 | 4.148 | 1000W 20Ω | | | BR1K0W020 | 1 | 125 | 20Ω |
| | 15 | 11 | 6.186 | 2400W 13.6Ω | 2015 | 1 | BR1K2W6P8 | 2 | 125 | 13.6Ω |
| | 20 | 15 | 8.248 | 3000W 10Ω | 2015 | 1 | BR1K5W005 | 2 | 125 | 10Ω |
| | 25 | 18.5 | 10.281 | 4800W 8Ω | 2022 | 1 | BR1K2W008 | 4 | 125 | 8Ω |
| | 30 | 22 | 12.338 | 4800W 6.8Ω | 2022 | 1 | BR1K2W6P8 | 4 | 125 | 6.8Ω |
| | 40 | 30 | 16.497 | 6000W 5Ω | 2015 | 2 | BR1K5W005 | 4 | 125 | 5Ω |
| | 50 | 37 | 20.6 | 9600W 4Ω | 2015 | 2 | BR1K2W008 | 8 | 125 | 4Ω |
| 460V Series | 1 | 0.75 | 0.427 | 80W 750Ω | | | BR080W750 | 1 | 125 | 160Ω |
| | 2 | 1.5 | 0.849 | 300W 400Ω | | | BR300W400 | 1 | 125 | 160Ω |
| | 3 | 2.2 | 1.262 | 300W 250Ω | | | BR300W250 | 1 | 125 | 160Ω |
| | 5 | 3.7 | 2.080 | 400W 150Ω | | | BR400W150 | 1 | 125 | 130Ω |
| | 7.5 | 5.5 | 3.111 | 500W 100Ω | | | BR500W100 | 1 | 125 | 91Ω |
| | 10 | 7.5 | 4.148 | 1000W 75Ω | | | BR1K0W075 | 1 | 125 | 62Ω |
| | 15 | 11 | 6.186 | 1000W 50Ω | 4030 | 1 | BR1K0W050 | 1 | 125 | 39Ω |
| | 20 | 15 | 8.248 | 1500W 40Ω | 4030 | 1 | BR1K5W040 | 1 | 125 | 40Ω |
| | 25 | 18.5 | 10.281 | 4800W 32Ω | 4030 | 1 | BR1K2W008 | 4 | 125 | 32Ω |
| | 30 | 22 | 12.338 | 4800W 27.2Ω | 4030 | 1 | BR1K2W6P8 | 4 | 125 | 27.2Ω |
| | 40 | 30 | 16.497 | 6000W 20Ω | 4030 | 1 | BR1K5W005 | 4 | 125 | 20Ω |
| | 50 | 37 | 20.6 | 9600W 16Ω | 4045 | 1 | BR1K2W008 | 8 | 125 | 16Ω |
| | 60 | 45 | 24.745 | 9600W 13.6Ω | 4045 | 1 | BR1K2W6P8 | 8 | 125 | 13.6Ω |
| | 75 | 55 | 31.11 | 12000W 10Ω | 4030 | 2 | BR1K5W005 | 8 | 125 | 10Ω |
| | 100 | 75 | 42.7 | 19200W 6.8Ω | 4045 | 2 | BR1K2W6P8 | 16 | 125 | 6.8Ω |

1. Please select the factory setting resistance value (Watt) and the duty-cycle value (ED%).
2. If damage to the drive or other equipment are due to the fact that the brake resistors and the brake modules in use are not provided by Delta, the warranty will be void.
3. Take into consideration the safety of the environment when installing the brake resistors.
4. If the minimum resistance value is to be utilized, consult local dealers for the calculation of the Watt figures.
5. Please select thermal relay trip contact to prevent resistor over load. Use the contact to switch power off to the AC motor drive!
6. When using more than 2 brake units, equivalent resistor value of parallel brake unit can't be less than the value in the column "Minimum Equivalent Resistor Value for Each AC Drive" (the right-most column in the table). An example of 575V 100HP, the min. equivalent resistor value for each AC motor drive is 12.5Ω with 2 brake units connection. Therefore, the equivalent resistor value for each brake unit should be 25Ω.
7. Please read the wiring information in the user manual of brake unit thoroughly prior to taking into operation.
8. Definition for Brake Usage ED%

   Explanation: The definition of the barke usage ED(%) is for assurance of enough time for the brake unit and brake resistor to dissipate away heat generated by braking. When the brake resistor heats up, the resistance would increase with temperature, and brake torque would decrease accordingly. Suggested cycle time is one minute




9. For safety consideration, install an overload relay between the brake unit and the brake resistor. In conjunction with the magnetic contactor (MC) prior to the drive, it can perform complete protection against abnormality. The purpose of installing the thermal overload relay is to protect the brake resistor from damage due to frequent brake, or due to brake unit keeping operating resulted from unusual high input voltage. Under such circumstance, just turn off the power to prevent damaging the brake resistor.




Note1: When using the AC drive with DC reactor, please refer to wiring diagram in the AC drive user manual for the wiring of terminal +(P) of Brake unit.

Note2: **Do NOT** wire terminal -(N) to the neutral point of power system.

10. For model VFD110V43B, the brake unit is built-in. To increase the brake function, it can add optional brake unit.