

SW200 SERIES OF D.C. CONTACTORS

UNIQUE RANGE

The SW200 series of contactors has been designed for direct current loads, particularly motors as used on larger electric vehicles such as industrial trucks, airport tractors, etc.

They have double breaking main contacts with silver alloy contact tips, which are weld resistant, hard wearing and have excellent conductivity.

The range comprises: Single Pole, on/off types (SW200), Single Pole normally closed types (SW210), paired version of these for motor reversing (SW202) and derivatives of these types to give various combinations and configurations.

COMPACT SIZE

The contactors are compact in size and are fully serviceable, with a full range of spare parts available.

EASY INSTALLATION

Mounting is by means of 5mm tapped holes in the switch frame together with a range of mounting brackets complete with screws and washers.

Coil connections are by means of 6mm spades of which two are supplied per terminal.

Contactors types SW202, SW204, SW205, SW208, SW213 and SW214 are supplied as an assembly which includes a mounting bracket as a standard feature.

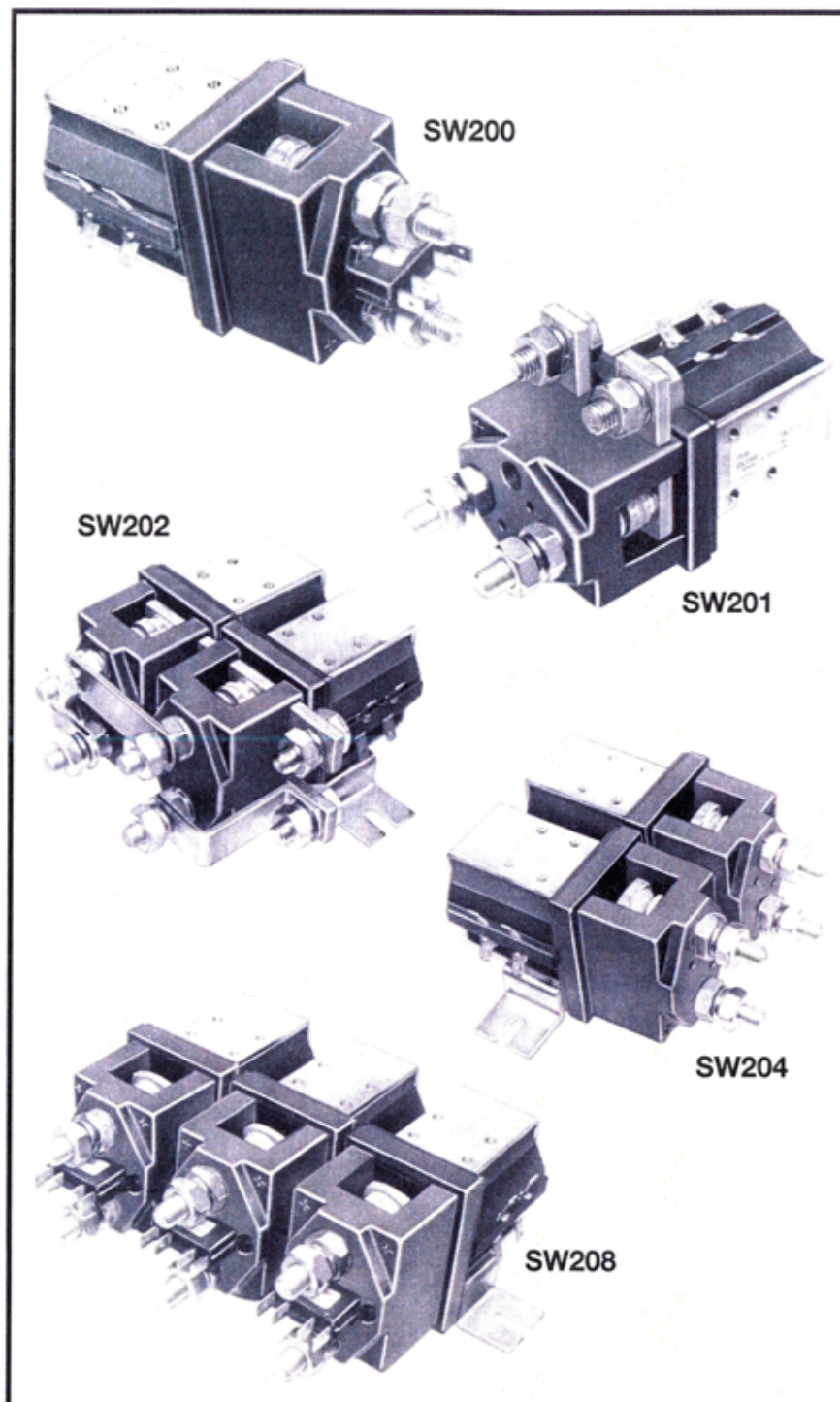
Mounting attitudes are detailed in the drawings on the following pages.

OPERATING COILS

Coil voltages ranging from 6 to 240 are available and these are wound for D.C. operation.

However coils can be fitted with a bridge rectifier for use from A.C. supplies.

Coils are normally wound for intermittent duty (up to 70% "on" time) but continuous duty version (100%) are also available.



CONTACTORS IN THE SERIES

SW200 SINGLE POLE SINGLE THROW

SW201 SINGLE POLE DOUBLE THROW

SW202 PAIRED SINGLE POLE DOUBLE
THROW ON DOUBLE BRACKET
(for motor reversing)

SW204 2xSW200 ON DOUBLE BRACKET

SW205 2xSW201 ON DOUBLE BRACKET

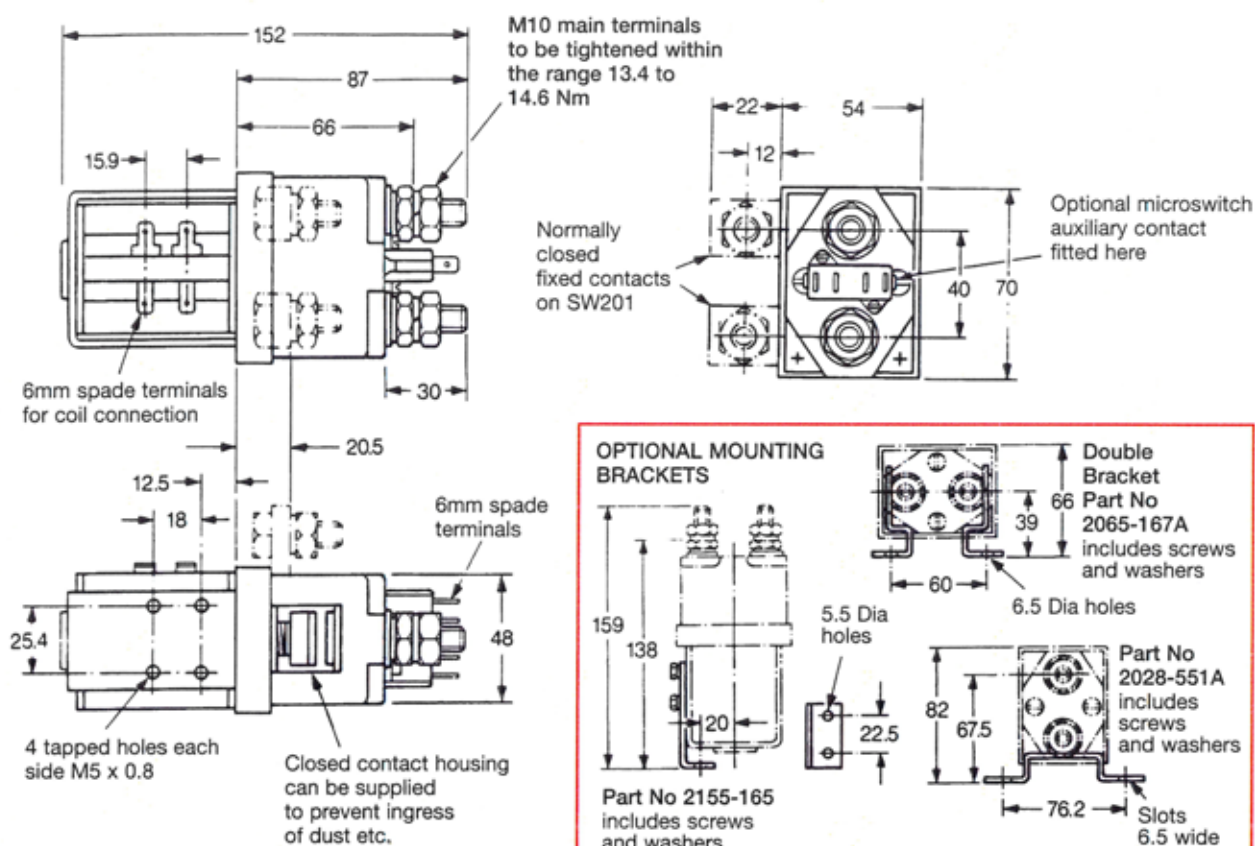
SW208 3xSW200 ON TRIPLE BRACKET

SW210 SINGLE POLE SINGLE THROW
(normally closed)

SW213 3xSW210 ON TRIPLE BRACKET

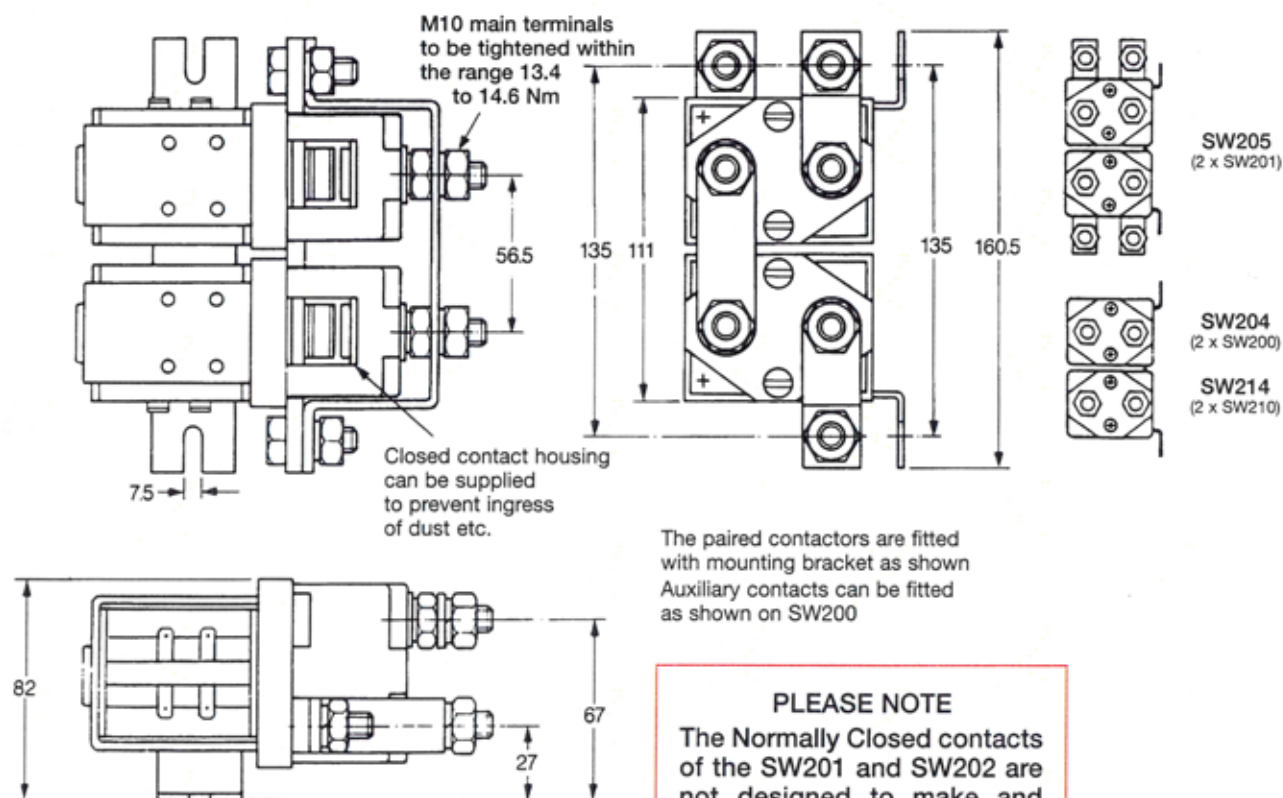
SW214 2xSW210 ON DOUBLE BRACKET

DIMENSION DRAWINGS



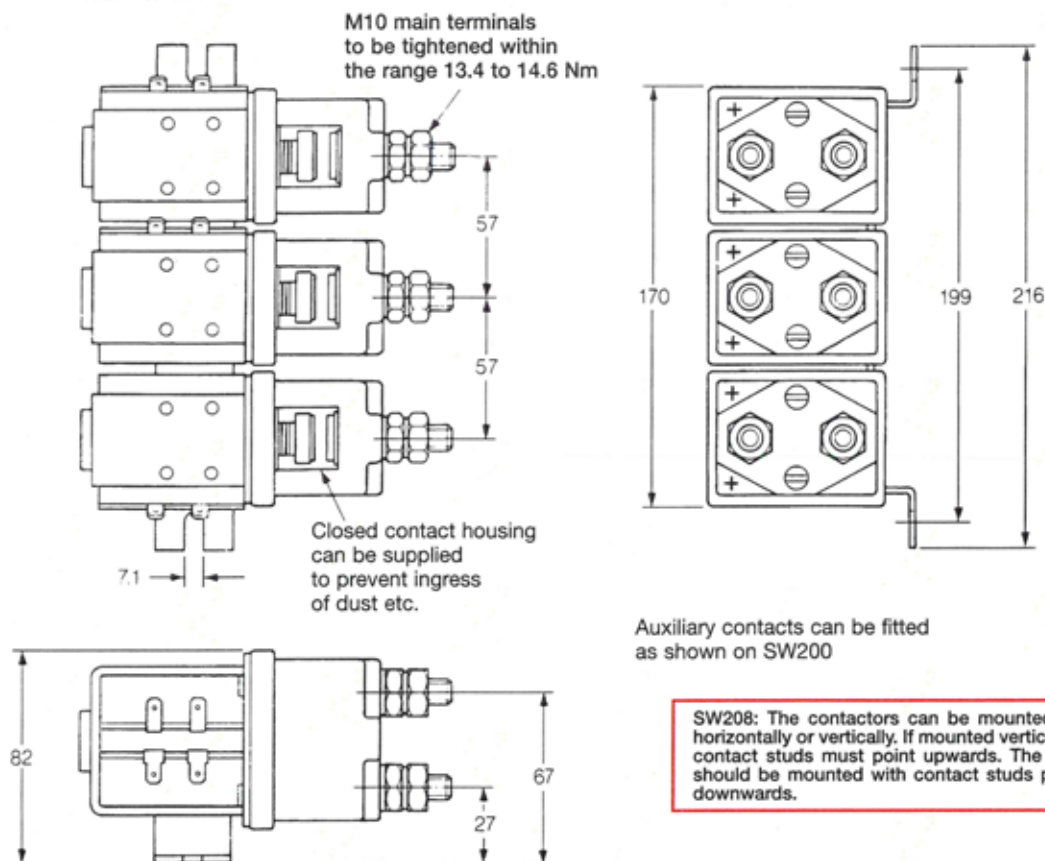
SW200, 201 AND 210

The contactors can be mounted either horizontally or vertically. If mounted vertically the contact studs must point upwards with the exception of the SW210 and its derivatives which should be mounted with the contact studs pointing downwards.



SW202, 204, 205 AND 214

DIMENSION DRAWINGS



SW208 AND 213

All dimensions in mm

Pull-in voltages are approximately 60% and 66% of the rated voltage for intermittent and continuously rated types respectively.

Drop out voltage is nominally 10% of rated voltage.

Variations from these pull-in and drop-out figures can be engineered to suit particular applications.

DOUBLE AND TRIPLE CONTACTOR ASSEMBLIES

Double or triple assemblies can be supplied on a common bracket together with inter-connecting electrical links. The most important of these arrangements are the motor reversing circuits provided by the SW202 contactor pair.

The SW202 type has a built in failsafe so that if both coils are energised simultaneously the contact design creates an open circuit situation.

MAGNETIC BLOWOUTS

The contactors are of double break configuration and are fitted with permanent magnetic blowouts

across both contact gaps as standard.

These enable high currents to be ruptured very quickly so that arcing time is reduced to a minimum.

Should the contacts be required without magnetic blowouts, for example when used to switch alternating currents, these can be omitted. Closed contact housings can be supplied to prevent the ingress of dust and dirt although these are usually not recommended when magnetic blowouts are fitted.

The suffix 'N' denotes that magnetic blowouts are not fitted, for example SW200N.

Fitting of blowouts makes the contacts polarity sensitive and the **Positive markings** on the top cover of the contactor **must** be observed.

AUXILIARY CONTACTS 'A'

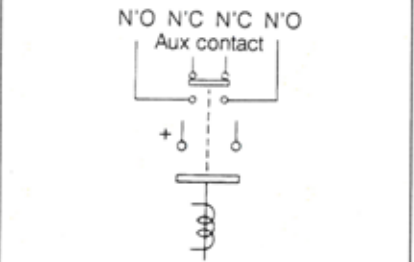
A double circuit normally open, normally closed microswitch can be fitted which has a D.C. resistive rating of 5 Amperes at 24v.

The suffix 'A' should be added to the type number when an auxiliary contact is required, for example, SW200A.

CONNECTION DIAGRAMS

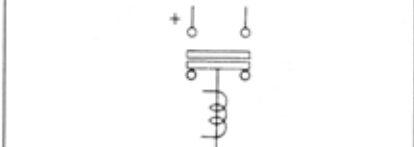
SW200

Single Pole Single Throw
(On/Off) Contactor



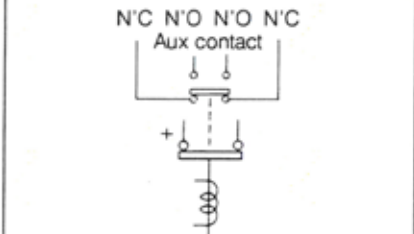
SW201

Single Pole Single Throw
(Changeover) Contactor



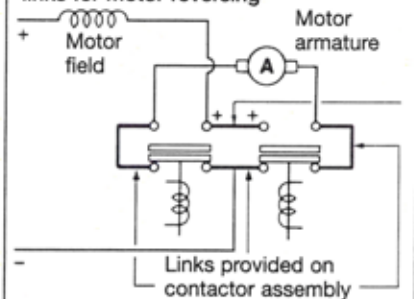
SW210

Single Pole Single Throw (Off/On)
Normally Closed Contactor



SW202

Paired Single Pole Double Throw
Contactor. Complete with necessary
links for motor reversing



CONTACTOR WEIGHTS

Add 20 gms for each auxiliary contact.

SW200 1350 gms

SW201 1600 gms

SW202 3350 gmsSW204 2900 gms

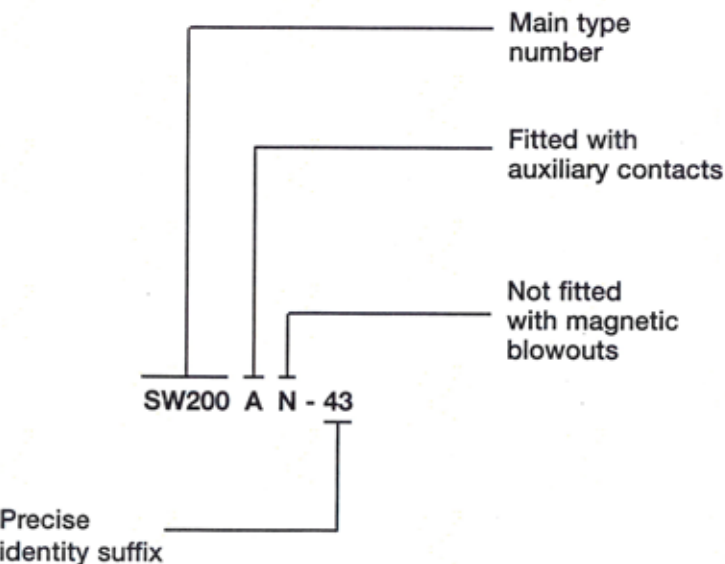
SW205 3400 gms

SW208 4300 gmsSW210 1400 gms

SW213 4400 gms

SW214 3000 gms

EXPLANATION OF CONTRACTOR TYPE NUMBERS



	Auxiliary Contacts	Magnetic Blowouts	Mounting Brackets	Closed Contact Housing
SW200	o	s	o	o
SW201	o	s	o	o
SW202	o	s	s	o
SW204	o	s	s	o
SW205	o	s	s	o
SW208	o	s	s	o
SW210	o	s	o	o
SW213	o	s	s	o
SW214	o	s	s	o

O = Optional Extra
S = Standard Feature

COIL RESISTANCES FOR POPULAR VOLTAGES

	12V DC	24V DC	36V DC	48V DC	60V DC	72V DC	80V DC
Intermittently rated coils (ohms)	4	15	32	54	94	167	141
Continuously rated coils (ohms)	8	32	94	141	245	360	360

PERFORMANCE DATA

Thermal current rating (100%)	250 Amperes
Intermittent current rating	
30% duty	450 Amperes
40% duty	390 Amperes
50% duty	360 Amperes
60% duty	320 Amperes
70% duty	300 Amperes

Typical fault currents which can be ruptured
(5ms time constant)

SW200N and SW210N	1500 Amperes at 48V D.C.
SW200 and SW210	1500 Amperes at 96V D.C.
SW201N * and SW202N *	1500 Amperes at 48V D.C.
SW201 * and SW202 *	1500 Amperes at 96V D.C.

* Normally open contacts, not normally closed contacts.

Maximum recommended contact voltages

SW200N and SW210N	48V D.C.
SW200 and SW210	96V D.C.
SW201N and SW202N	48V D.C.
SW201 and SW202	96V D.C.

Typical voltage drop across contacts per 100 Amperes

SW200 and SW210	40mV
SW201 and SW202 (normally open contacts)	40mV
SW201 and SW202 (normally closed contacts)	40mV

Mechanical life $> 5 \times 10^6$

Coil power dissipation

Intermittently rated types	30-60 Watts
Continuously rated types	13-21 Watts

Maximum pull-in voltage (coil at 20°C)

Intermittently rated types	60%V
Continuously rated types	66%V

Typical drop-out voltage 10-20%V

Typical pull-in time (n/o contacts to close) 40ms

Typical drop-out time (n/o contacts to open)

Without suppression	10ms
With diode suppression	100ms
With diode and resistor (depending on value)	30ms

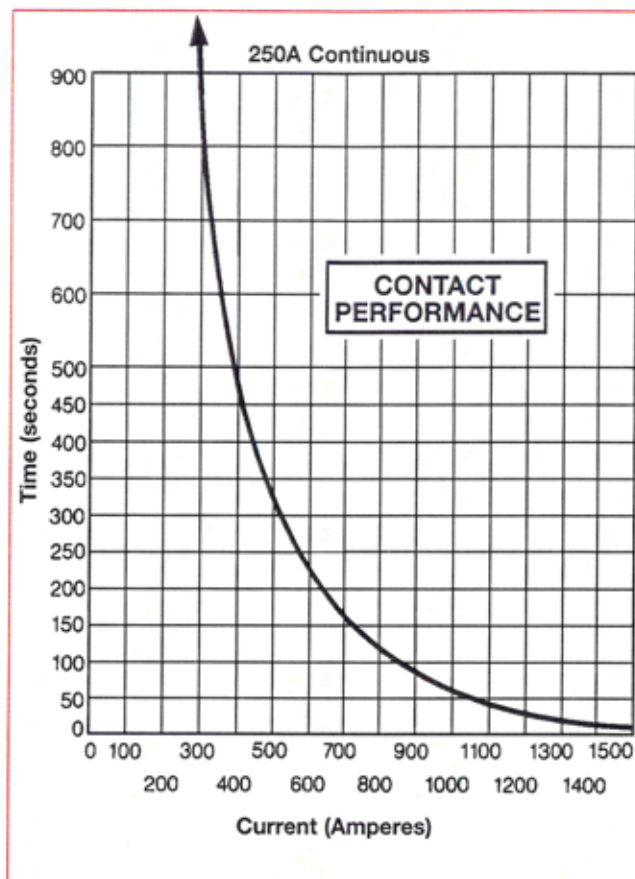
Typical main contact changeover time (SW201 and SW202)

Normally closed to normally open	14ms
Normally open to normally closed	8ms

Typical contact bounce period 3ms

Auxiliary contact thermal current rating 5 Amperes

Auxiliary contact switching capacities (resistive load)	5A at 24V D.C. 2A at 48V D.C. 0.5A at 240V D.C.
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All the above figures should be used as a guide only.
Some derating may be necessary according to type
and application.

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