STRAND ARC CONTROLS

A parallel type resistance is generally recommended. The series type is in any case unsuitable for arcs taking more than 40 amps.

A series type resistance has its steps connected in series with each other. The current is increased by reducing the number of sections connected in series.

A parallel type resistance has its steps connected in parallel with each other. The current is increased by increasing the number of sections connected in parallel.

Both types of resistance are connected in series with the arc.

It is desirable to fit a voltmeter to indicate arc voltage, since the satisfactory burning of the carbons is very dependent upon this.

When ordering, the following information should be given :—

(*a*) The supply voltage.
(*b*) The arc voltage.
(*c*) The type of resistance (whether series or parallel type).
(*d*) The number and size of the steps (in amps.) required to increase or decrease the current in the arc.
(*e*) The type of controls required for step selection (e.g. switches, contactors).
(*f*) The position of the resistance in relation to its controls.
(*g*) Whether a voltmeter, ammeter or both are required.

NOTE.

The electrical energy dissipated is calculated as follows :—
Supply (or generator) voltage less arc voltage = voltage drop.

$$\text{Resistance required (in ohms)} = \frac{\text{voltage drop}}{\text{arc current (in amperes)}}$$

Electrical energy dissipated in the resistance (in watts) =
current (in amperes) squared X resistance (in ohms).

Example.—For a 30-amp. 50-volt arc operating on a 110-volt supply :

Supply voltage (110) less arc voltage (50) = 60 volts drop.

$$\text{Resistance required} = \frac{\text{voltage drop}}{\text{arc amps.}} = \frac{60}{30} = 2 \text{ ohms.}$$

Energy dissipated = current squared (30 x 30) X resistance (2) = 1,800 watts.

PRICES and SPECIFICATIONS of RESISTANCES and CONTROL PANELS will be sent on receipt of detailed requirements.

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