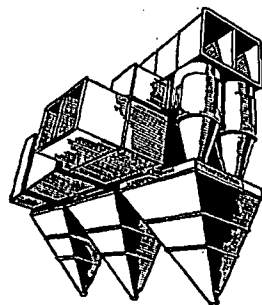


1
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when you're sick—why not call upon engineering specialists to determine—and solve—your dust-collection problem? In the past 10 years, the Buell Engineering Company has designed and installed thousands of dust-collection systems, each

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Engineered Efficiency in **DUST COLLECTION**

180 (255b)

ary resistance for wound-rotor induction motors is:

$$R = \frac{E_s}{1.73 \times I_s} \times \left(\frac{100}{T_s} - 0.10 \right)$$

Where R is the external resistance per phase of the Y , in ohms; E_s , the locked secondary volts; I_s , the full-load secondary current; T_s , the torque developed on first point of the controller expressed in percent of full-load torque. Based on this formula, resistance values are obtained that give smooth acceleration up to the last point of the controller. Secondary resistors for slipring motors are usually Y -connected, although the delta connection may be used to reduce the current handled by the contact fingers. If the resistors are delta-connected, determine the proper value for Y -connected resistors and convert to an equivalent delta. E. J. Kelley, Kansas City, Missouri.

Grid-Resistor Values In Terms of Slip

ROTOR GRID RESISTORS for slipring motors are designed for starting only as well as starting and speed regulation. Both types are generally designed for starting under various loads.

It appears that JHV's resistor is designed for a larger starting load than actually exists. If his motor is larger than necessary, the rotor current at the slip will be smaller than calculated. The rotor-control equipment will not work properly unless designed for the lighter load. This is especially important where regulation is required.

Let the resistance per phase of rotor winding equal X ohms. Slip at full load is:

$$s = \frac{1200 - 1150}{1200} = 0.0417$$

Slip for $\frac{3}{4}$, $\frac{1}{2}$ and $\frac{1}{4}$ load can be determined from the motor's circle diagram if available; it can be approximated as directly proportional to the load for zero to full load.

Hence, slip at $\frac{3}{4}$, $\frac{1}{2}$ and $\frac{1}{4}$ load equals 0.031, 0.021 and 0.010, respectively. Total resistance per phase in the rotor circuit, including the existing resistance X , is

$$R_s = \frac{X}{s}$$

Number of steps in the rheostat is N , and in this case 12. The slip at the first step is given by

$$s_1 = \sqrt[12]{s} = 0.77$$

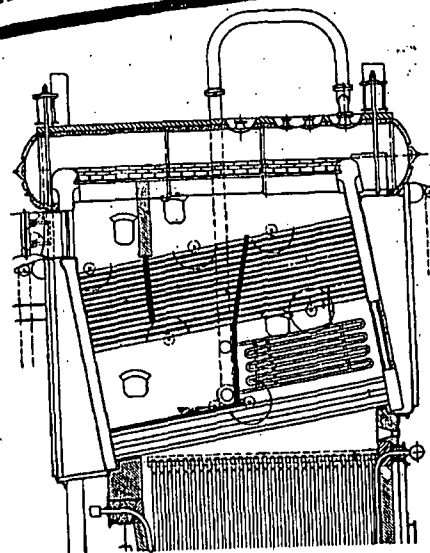
Since

$$R_s = \frac{X}{s}$$

then $R_s = 24 X$ ohms. Value of each

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