

**Table 4A-1—Typical reactance values for induction and synchronous machines, in per unit of machine kVA ratings\***

	$X_d'$	$X_d''$
Turbine generators <sup>†</sup>		
2 poles	0.09	0.15
4 poles	0.15	0.23
Salient-pole generators with damper windings <sup>†</sup>		
12 poles or less	0.16	0.33
14 poles or less	0.21	0.33
Synchronous motors		
6 poles	0.15	0.23
8–14 poles	0.20	0.30
16 poles or more	0.28	0.40
Synchronous condensers <sup>†</sup>	0.24	0.37
Synchronous converters <sup>†</sup>		
600 V direct current	0.20	—
250 V direct current	0.33	—
Individual large induction motors, usually above 600 V	0.17	—
Smaller motors, usually 600 V and below	See tables 4-1 and 4-2.	

NOTE—Approximate synchronous motor kVA bases can be found from motor horsepower ratings as follows:

0.8 power factor motor—kVA base = hp rating

1.0 power factor motor—kVA base = 0.8 · hp rating

\*Use manufacturer's specified values if available.

<sup>†</sup> $X_d'$  not normally used in short-circuit calculations.

**Table 4A-2—Representative conductor spacings**

Nominal system voltage (volts)	Equivalent delta spacing (inches)
120	12
240	12
480	18
600	18
2400	30
4160	30
6900	36
13 800	42
23 000	48
34 500	54
69 000	96
115 000	204

NOTE—When the conductors are arranged in a triangular pattern, the spacing between conductors should be used.

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When the conductors are arranged in a horizontal pattern, the spacing between the middle conductor and the outer conductors should be used.

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