

encountered in actual operation were utilized in the design of this type to furnish what practical operators of small power plants need to meet industrial conditions.

The test of service has proven that the design and construction of Westinghouse Type G generators have produced a thoroughly reliable alternator that can be depended upon to successfully carry modern commercial loads of low power factor.

POWER FACTOR CONDITIONS

A fact not always appreciated is that the demands upon a generator increase as the power factor is decreased. It must also be borne in mind that the power factor is determined solely by the load and not by the generator.

The existence of loads of low power factor involves necessity for particular care on the part of a purchaser in the selection of both generators and prime movers. It should be remembered that the size of a generator is determined by the current and voltage required, expressed in **kilovoltamperes**, while the size of the prime mover is determined by the energy required, expressed in **kilowatts**. Both the kilovoltampere capacity of the generator and the kilowatts of the load, with the power factor, should be known in order that the generator and the engine may have the proper relative capacities.

The kilowatt capacity is equal to the kilovoltampere capacity at 100 per cent power factor only, a condition that practically never exists with commercial loads.

At lower power factors the kilowatt capacity is less than the kilovoltampere capacity in the ratio of the power factor. It is necessary to know the average power factor of the load to be carried by the generator in order to insure its successful operation, since, as already stated, the operating requirements become much more severe as the power factor is reduced.

Recent developments in alternating-current power practice require generators capable of operating under loads of low power factor.

For mutual advantage, both purchaser and manufacturer should carefully consider actual operating conditions upon the basis of generator capacity in kva. and load power factor.

Type G generators are designed with this particular requirement in view. The guarantees accompanying them are specific and ample.

PHASE WINDINGS

Standard Type G generators are furnished with either two-phase or three-phase windings.

For single-phase service three-phase windings will be supplied, the load being carried by any two leads of the three-phase winding.