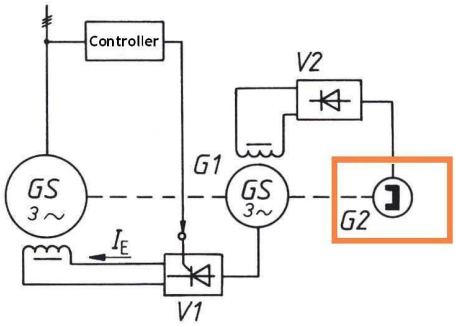
Summarized data sheet

Synchronous 3-phase Generators with Permanent Excitation, suitable as Pilot Exciters for Large Generators

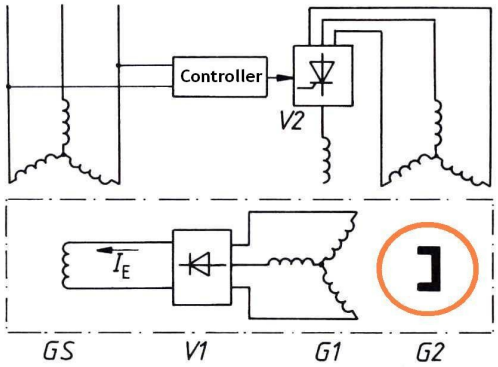
The Johannes Hübner company, Giessen, is active in the field of permanent-magnet excited synchronous machines (marked in orange). The advantage of the pilot exciter version with permanent magnet armature is unlimited availability, even after very long periods of inactivity.

For use as a 3-phase generator, in particular, a synchronous machine requires an adjustable DC current for the armature winding. So the synchronous machine needs slip rings to transfer the DC current to the armature winding. Large turbine units can therefore require the transfer of currents above 10 kA.



G1 Direct-coupled internal-field 3-phase exciter
G2 pilot exciter with permanent magnet armature
V1 thyristor converter
V2 diode rectifier

Transfer via slip rings causes losses and involves design disadvantages at high current levels (carbon brushes). Such problems can be avoided if the exciter voltage is produced on the armature itself (area inside the broken line).



Exciter implementation with out slip rings
G1 stationary pole 3-phase exciter
G2 pilot exciter with permanent magnet armature
V1 diode rectifier rotating with the armature
V2 Thyristor converter
—·— rotating components

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Performance summary

DSG P series		
Type: DSG-P	Max. power at 1000 rpm [kW]	Feasible voltage range [V]
112.14-10	3.4	* Voltages from about 100 V to 400 V AC can be implemented to customer requirements. * Special designs are possible.
112.16-10	5.7	
132.15-10	7.2	
132.20-10	9.3	
160.20-10	20.0	
200.25-10	57.0	

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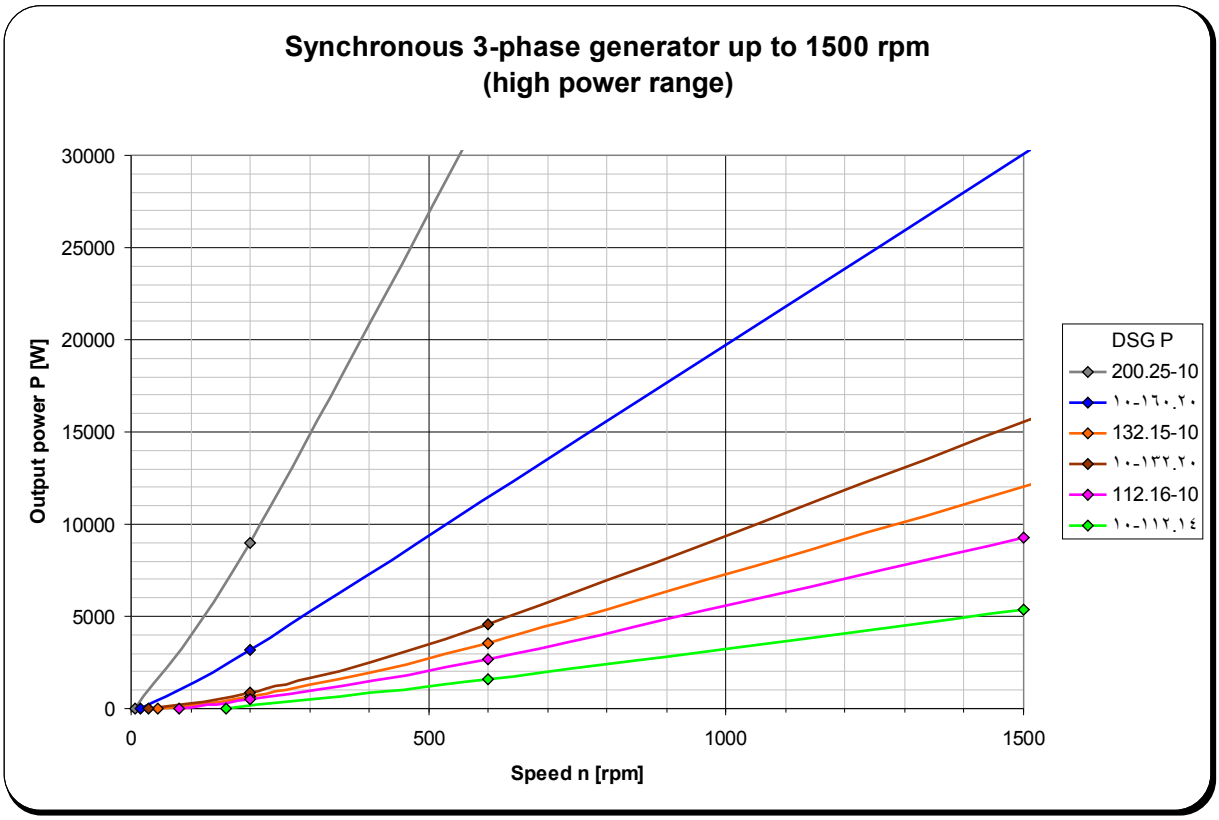

* Higher power is possibe at higher speeds !

Maximum power [W], depending on the speed

DSG P series

Speed		112.14-10	112.16-10	132.15-10	132.20-10	160.20-10	200.25-10
n = 200	**rpm**	130	500	660	850	3200	9000
n = 600	**rpm**	1600	2700	3560	4500	11920	32500
n = 1000	**rpm**	3400	5700	7200	9300	20090	57000
n = 1500	**rpm**	5300	8800	12000	15600	30300	
n = 2000	**rpm**			16800	21750	40500	