G Plus Line

Synchronous Generators





Synchronous Generators



WEG also has a line of turbogenerators and hydrogenerators.



Turbogenerators

Output up to 60,000 kVA
Voltages up to 13,800 V



Hydrogenerators

Output up to 200,000 kVA
Voltages up to 13,800 V

Available with ratings up to 4200kVA, the G Plus series generators from WEG are normally used in gas and diesel generating set units. They are also suited to operate with steam, gas or hydraulic turbines. They operate in many configurations from emergency to continuous duty power units in the following applications:

- Industrial
- Commercial
- Naval
- Telecommunications
- Mining
- Homes
- Irrigation
- Hospitals
- Airports and others.



Certifications

WEG's Quality System is certified in accordance with the ISO 9001/14001 standard requirements. The Quality System is audited and certified by the Bureau Veritas Quality Institute. To comply with most demanding markets, WEG synchronous generators are certified by worldwide institutions such as C.S.A (CANADIAN STANDARDS ASSOCIATION), C.E. (EUROPEAN COMMUNITY) and UL (UNDERWRITES LABORATORIES).

WEG synchronous generators for naval applications can be supplied if requested with certificates from classifying entities such as: Lloyds, Bureau Veritas, ABS, Germanischer Lloyd, DNV and others.



Constructive Features

Easy access to diodes. **Voltage regulator** encapsulated and protected against vibrations, humidity and salty environment. Stator winding with 2/3 pitch, reduces harmonic distortion in applications with non-linear loads. Exciter stator with permanent power supply.

magnets imbedded in the main exciter stator, assures generator starting process (residual voltage) without the need of flashing or external

Auxiliary winding for voltage regulator power supply without the need of a traditional PMG. Maintain 300% of short circuit current for up to 10s.

Technical Features

- Power: up to 4200kVA
- Frames: 160 to 630 (IEC)
- Low voltage: 110 to 690 V
- High voltage: 2300 to 13,800 V
- Frequency: 50 and 60 Hz
- Degree of Protection: IP21 (IP23, IP23W, IP54, IP54W, IP55 and IP55W under request)
- Insulation class: H (low voltage) and F (medium & high voltage)
- Winding pitch: 2/3
- Number of poles: 4, 6 and 8 poles.

Note:

- 1) The three-phase generators with 12 leads can operate on 190/208/220/240/ 380/440/480V in 60Hz and 190/208/220/230/380/400V in 50 Hz.
- 2) Three-phase generators with 12 leads can be reconnected to supply single-phase voltages from 110 to 480V.





Operating Conditions

Altitude

Rated power refers to installations up to 1000 m.a.s.l. On applications in higher altitudes the following correction factor must be applied to the output:

Altitude (m.a.s.l.)	1000	1500	2000	2500	3000
K Factor	1	0.94	0.9	0.85	0.8

Ambient temperature

Rated power refers to installations with maximum ambient temperature of 40°C. For applications with ambient temperature other than 40°C, apply the following output correction factor:

Ambient temperature (°C)	30	35	40	45	50	55
K Factor	1	1	1	0.94	0.89	0.85

Abrasive dust

Additional protections are recommended if the generator is to be used in environments where abrasive dust may enter through ventilation.

Although the generator coils are protected against abrasive environments, severe conditions may require additional protection such as: deflectors, closed cabinets, filters or other suitable protection. Contact WEG for recommendations.

Marine environments

Generators are manufactured with an additional protection over all windings (main stator/rotor and excitation) for marine environments or naval applications.

Outdoor applications (weather-exposed)

In all outdoor applications the generators must be protected and still maintain adequate openings for ventilation. This protection must be designed in such a way as to prevent the generator of being directly exposed to rain, snow or dust. The use of space heaters is recommended depending on the location and application. Contact WEG for recommendations about required protections.



Duty Cycle

S1 / Continuous / Prime Duty

The generator operates at rated power levels during unlimited periods of time with up to 10% overloading during 1 hour every 12 hours or 2 hours every 24 hours without causing any damage to its insulation system.

The Continuous or Prime duty is mostly applied where no other source of power is available such as: rental units, irrigation units, refrigeration, co-generation, peak shaving applications, etc. Temperature rise for continuous duty are typically 125°C, 105°C or 80°C over 40°C ambient.

Stand-by Duty (Ambient temperature of 40°C)

The generator operates as a backup, with variable loads during emergency situations in locations where the main source of power is off. In this duty cycle the generator will not allow overloads and will operate with variable loads up to its maximum rated power level for the stand-by duty at 40°C ambient. The maximum allowed winding temperature is 150°C (per Nema MG-1 and IEC 34 standards), however under these conditions the generator's expected life will be reduced 2 to 6 times. The usage of the generator in stand-by duties is limited to 500 hours per year.

Stand-by Duty (Ambient temperature of 27°C)

This condition is similar to the 150°C temperature rise over 40°C ambient described previously. However the maximum ambient temperature is now 27°C. In this application the generator can supply higher power levels at temperature rise of 163°C. The main application remains in emergency as a back-up for the main source as well as limited to 300 hours per year of operation.

WARRANTY

WEG warranty for continuous duty generators covers manufacturing or material defects for a period of 12 months starting from the invoice issue date (shipping), or 12 months starting from the WEG distributor or retailer's invoice issue date, limited to 18 months from the date of manufacturing. For stand by duty the warranty is limited to 24 months from invoice issue date (shipping) or 30 months from manufacturing date.

Voltage Regulators

Designed to achieve optimal performance due to its refined engineering and rigorous component selection, the voltage regulators are encapsulated and able to withstand high vibration levels when installed inside the main terminal box. Its performance has been proved in the most variety of applications and environmental conditions.

Applications and technical features

MODEL		Voltage R	egulator	
MODEL	WRGA-01	GRT7-TH4 R2 5A E9	GRT7-TH4 R2 7A E9	WRGA-02/D
GTA 16	Std.	OIP	OIP	-
GSA 16	-	OIP	OIP	-
GTA 20	Opt.	Std.	Opt.	-
GSA 20	-	Opt.	Opt.	Opt.
GPA 20	-	-	-	Std.
GTA 25	-	Std.	Opt.	-
GSA 25	-	Opt.	Opt.	Opt.
GPA 25	-	-	-	Std.
GTA 31	-	Std.	Opt.	-
GSA 31	-	Opt.	Opt.	Opt.
GPA 31	-	-	-	Std.
GTA 35	-	Std.	Opt.	-
GSA 35	-	Opt.	Opt.	Opt.
GPA 35	-	-	-	Std.
GTA 40	-	-	Std.	-
GSA 40	-	-	Opt.	-
GPA 40	-	-	-	-
GTA 45	-	-	Std.	-
GSA 45	-	-	Opt.	-
GPA 45	-	-	-	-
GTA 50	-	-	Std.	-
GSA 50	-	-	Opt.	-
GPA 50	-	-	-	-
GTA 56	-	-	Std.	-
GSA 56	-	-	Opt.	-
GPA 56	-	-	-	-
	Techni	ical Features (1)		
Power supply connection	single-phase	single-phase	single-phase	three-phase
Sensing voltage connection	single-phase	single-phase	single-phase	three-phase
Rated Current [A]	7	5	7	5
Pick current (máx 10s) [A]	10	7	10	7
Analogic input +/- 9 Vcc	-	Std.	Std.	-
Analogic input 0 up to 10 Vcc	-	Opt.	Opt.	Std.
Digital input	-	Opt.	Opt.	Std.
Droop adjustment for parallel operation	-	Std.	Std.	Std.
Static regulation	0.5%	0.5%	0.5%	0.5%
Adjustable dynamic answer	8 to 500 ms	8 to 500 ms	8 to 500 ms	8 to 500 ms
Under frequency protection (U/F)	Std.	Std.	Std.	Std.
Internal voltage adjustment	+/-15%	+/-15%	+/-15%	+/-15%
External voltage adjustment	+/-10%	+/-15%	+/-15%	+/-15%
External CT for parallelism	-	5A	5A	5A
EMI supression	Std.	Std.	Std.	Std.

CAPTION

Std STANDARD

Opt OPTIONAL

OIP OPTIONAL ONLY FOR PANEL INSTALLATION

(1) Technical features of the standard regulators. Optional features can be requested. For other technical features, please contact WEG.



GTA 160



FRAME		DIMENSIONS (mm)																
	Α	В	AB	BB	AA	HA	K	K1	Н	HD	AC	Х	٧	С	Z	0	L	
161	280 ~~ 3	280	280 ~~	220	00	70	15	15	40	160	465		014	001	417	47	270	523
162		~~	320	99	70	15	15	42	001	400	~~	314	201	497	4/	352	603	

	FLANGE													
SAE $\varnothing P$ $\varnothing N$ $\varnothing P1$ $\varnothing M$ T $\varnothing S$ α β														
5	355.6	314.3	301	333.4		11	22.5°	45°						
4	404	361.9	346	381	6	12.5	150	200						
3	450	409.6	388	428.6		12.5	10°	30°						

	COUPLING DISC													
SAE	ØPA	ØAM	G	TB	ØAS	¢	Holes							
7.5	241.3	222.2	30.2		9	45°	8							
8	263.5	244.5	61.9	0.1	10.3	60°	6							
10	314.3	295.3	53.9	3.1	10.3	45°	8							
11.5	352.4	333.3	39.6		10.3	45°	8							

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GTA 200



FRAME		DIMENSIONS (mm)																
	А	В	AB	BB	AA	HA	K	K1	Н	HD	AC	Х	V	С	Z	0	L	
201	256		400	115	70	15	20	10	200	571		200	011	591.5	674	337.5	716	
202	356	356	-	400	110	70	15	20	40	200	371	-	300	311	721.5	37.4	467.5	846

FLANGE												
SAE $\varnothing P$ $\varnothing N$ $\varnothing P1$ $\varnothing M$ T $\varnothing S$ α β												
5	450	314.3	301	333.4	5	11	22.5°	45°				
4	440	361.9	346	381								
3	450	409.6	388	428.6		10 E	150	200				
2	490	447.7	410	466.7	0	12.0	10-	30-				
1	553	511.2	474	530.2	1							

	COUPLING DISC													
SAE	SAE ØPA ØAM G TB ØAS Ø Holes													
7.5	241.3	222.2	30.2		9	45°	8							
8	263.5	244.5	61.9	16		60°	6							
10	314.3	295.3	53.9	4.6	10.3	450	0							
11.5	352.4	333.3	39.6			401	0							

Remarks: Values subject to change without prior notice. Two bearing upon request.

Protection: IP21 Low Voltage B15T - Single bearing



Protection: IP21

B15T - Single bearing

Low Voltage

Mechanical Features

GTA 250



FRAME		DIMENSIONS (mm)																
	Α	В	AB	BB	AA	HA	K	K1	Н	HD	fAC	Х	٧	С	Z	0	L	
251	106	311	500	380	380	100	70	04	26	050	COF	EDE	40E	20E	050	EE	341	866
252	252 406	356	500	425	100	7.9	24	24 36	6 250	695	536	425	300	200	55	491	1016	

	FLANGE													
SAE	ØP	ØP1	ØP2	ØN	ØM	Т	ØS	α	β					
3	450	390		409.6	428.6									
2	EEO	410	553	447.7	466.7	6	12.5	15°	30°					
1	553	490		511.2	530.2									

COUPLING DISC													
SAE	ØPA	ØAM	G	TB	ØAS	¢	Holes						
10	314.3	295.3	53.9		10.3								
11.5	352.4	333.3	39.6	4.6	10.3	45°	8						
14	466.7	438.2	25.4		13.5								

GTA 315





ГРАМЕ								DIM	ENSIONS	(mm)			-				
FRAME	Α	В	AB	BB	AA	HA	K	K1	Н	HD	AC	X	V	C	Z	0	L
311	500	406	600	490	06	10	0	40	015	0.06*	676	601*	105	210	24	342.5	1076
312	000	508	000	590	90	13	20	42	310	930	070	031	400	310	34	492.5	1226.5

*Dimension valid for 12-lead generators. For generators with 6 leads HD = 868 and X = 454

				FLAM	IGE				
SAE	ØP	ØP1	ØP2	ØN	ØM	Т	ØS	α	β
2	490	410		447.7	466.7		10 E		
1	553	496	6 676 <u>511.2</u> 5		530.2		12.0	15°	30°
1/2	676	540		584.2	619.1	6			
0	714	610	714	647.7	679.5		14	11º15'	22°30′

		(COUPLING	G DISC			
SAE	ØPA	ØAM ØAM 3.7 438.2 2		TB	ØAS	¢	Holes
14	466.7	438.2	25.4	6.0	13.5	45°	8
18	571.5	542.9	15.7	0.2	18	60°	6

Remarks: Values subject to change without prior notice. Two bearing upon request.



GTA 355 Low Voltage





Protection: IP21 B15T - Single bearing

FDAME								DIME	VSIONS	(mm)							
FRAME	Α	В	AB	BB	AA	HA	K	K1	Η	HD	ØAC	Х	V	С	Z	0	L
351	E00	410	660	600	120	10	26		0EE	1050	700	6.05	165	400	10.0	628	1451
352	920	550	000	740	130	10	- 30	-	300	1053	760	030	400	400	10.0	666	1637

				FLA	NGE				
SAE	ØP	ØP1	ØP2	ØN	ØM	Т	ØS	α	β
1	553	496	780	511.2	530.2		12.5	15°	30°
0	714	610	780	647.7	679.5	6	14	11015	00000
00	-	760	883	787.4	851		14	011-10	22-30

		(COUPLING	G DISC			
SAE	ØPA	ØAM	G	TB	ØAS	¢	Holes
14	466.7	438.2	25.4	6.0	13.5	45°	8
18	571.5	542.9	15.7	0.2	10	600	C
21	673.1	641.4	0	5.85	10	00-	0

GTA 400 Low and **High Voltage**





								DIME	NSIONS ((mm)	-							
FRAME	Α	В	AB	BB	AA	HA	ØK	Н	HD	ØAC	Х	1	V	С	Z		0	L
401		560		921												521	304*	1580
402	630	630	789	1026	150	28	36	400	1135	825	618	638	855*	410	32,5	626	409*	1685
403		710		1206												801	584*	1685

			FL	ANGE								COUPLI	NG DISC			
SAE	ØP	ØN	ØP1	ØM	Т	ØS	α	β	SAE	ØPA	ØAM	G	TB	ØAS	ф	Holes
1/2	75 4	584.2	540	619.1			15°	30°	14	466.6	438.2	25.4		14	450	
0	/ 54	647.7	610	679.5	6	14	11015	200201	16	517.5	489	15 7	70	14	45°	ð
00	883	787.4	760	851			CI-11	22-30	18	571.4	542.9	10.7	1.0	10	60°	6
*Medium/H	0 883 787.4 760 851								21	673.1	641.4	0.0		18	30°	12

Remarks: Values subject to change without prior notice. Two bearing upon request.



Protection: IP21 Low and High voltage B15T - Single bearing

GTA 450



ſ									DIME	NSIONS ((mm)								
	FRAME	Α	В	AB	BB	AA	HA	ØK	Н	HD	ØAC	Х	١	/	С	Z		0	L
ſ	451	750	630	000	850	150	00	00	450	1.410	055	710	000	055*	105	00 F	747	530*	1734
ſ	452	/50	640	890	950	1 150	22	30	450	1412	955	/ 18	638	800	435	32,5	947	730*	1934

			FL	ANGE				
SAE	ØP	ØN	ØP1	ØM	Т	ØS	α	β
1	560	511.2	470	530.2		12.5	15°	30°
0	754	647.7	610	679.5	6	14	11015	00000
00	883	787.4	760	851		14	11-15	2230

	_		COUPLI	NG DISC			
SAE	ØPA	ØAM	G	TB	ØAS	φ	Holes
14	466.7	438.2	25.4		14	450	0
16	517.5	489	38.2 25.4 189 15.7	11 7	13.5	40-	0
18	571.5	542.9	10.7	11.7	10	60°	6
21	673.1	641.4	0.0		10	30°	12



EDAME								DIMI	ENSIONS	(mm)								
FRAME	I ^E A B AB BB AA HA ØK H HD Ø								ØAC	Х	١	/	С	Z	(0	L	
501	900	710	1000	1010	150	27	33	500	1560	1055	1017	485	800*	492	32.5	1248	933*	2166

FLANGE										COUPLING DISC										
SAE	ØP2	ØP	ØPN	ØP1	T	ØM	ØS	α	β	SAE	ØPA	ØAM	G	TB	ØAS	φ	Holes			
00	920	883	787.4	760	6	851	14	11º15'	22°30'	21	673.1	641.4	0	11.7	18	30°	12			

*Medium/High voltage only

Remarks: Values subject to change without prior notice. Two bearing upon request.



Protection: IP21 Low and High Voltage Single bearing

GTA 560



ГЛАМЕ	DIMENSIONS (mm)																	
FRAME	A	B AB		BB	AA	HA	ØK	Н	HD	ØAC	Х	V		С	Z	0		L
561	1000	1307	1180	1545	220	32	42	560	1560	1200	1190	620	1000*	450	32.5	1200	820*	2312

FLANGE											COUPLING DISC										
SAE	ØP	ØP2	ØN	ØP1	ØM	Т	ØS	α	β		SAE	ØPA	ØAM	G	TB	ØAS	ф	Holes			
00	940	1000		70.0	054	6	14	11º15'			21	673.1	641.4			18					
		1090	/8/.4	760	851				22°30'	24	733.3	692.2	0 1	11.7	21	30°	12				

*Medium/High voltage only

Remarks: Values subject to change without prior notice. Two bearing upon request.

Customer Service

WEG has available to its customers a extensive customer service and service shop network, which are responsible for after-sales support. Included in these services are standard customer requests, field services including diagnostics/ analysis, machine commissioning and overtime services. A nationwide network of Authorized Service Agent is also available.

The manuals supplied with the equipments provide quick and accurate information on safety instructions, installation and maintenance.

The Customer Service team is trained and experienced and able to handle most diverse field situations and remote support by using last generation equipment and providing reliable results.

Components and Parts

WEG has a components and parts sales team which covers all markets served, ensuring quick customer service turnaround and technical assistance.





Components

