

iPG* Alternator / Generator
(*Intelligent Premium Generator)

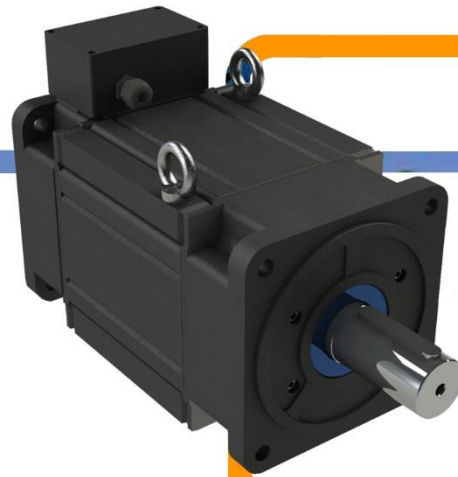


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Continuously Maximum Power

for small size **Wind** and **Hydraulic Turbines**

iPG Direct Drive PM **ALTERNATOR / GENERATOR**



- Highest efficiency at all
- Almost nominal efficiency over the full range of speed and torque
- Very low cogging torque (< 0,5%)
- Very compact design



EMF Motor[®]

EMF Motor

Only the Best wins ...

Every solution comes from a real understanding of the challenges facing designers and users.

EMF Motor continues to be a company made of innovative individuals striving to design, create and build products and solutions that help to improve industrial technology. We design our products for durability and we test them rigorously to ensure the highest levels of reliability.

Our products are the “**next big thing**” in generators. Our patented technology provides the ground to attract world’s most talented and motivated engineers. EMF Motor products will benefit design engineers to innovate compact products that will respond to the increasing demand from customers.

“ **Precise motion and high efficiency** ” are our focus. iPG Alternator / Generator can distinctly differentiate your wind and hydraulic turbines, your efficiency and your operations and deliver a market place advantage by improving its performance. This means totally increased efficiency which is the expectation within every company. Perfectly deployed motion can make your product more reliable and efficient and enhance accuracy.

How is this all possible? What is so different about the iPT Generators ?

iPG Alternator / Generator works with a patented motor principle that is most suitable for applications with high torque at low speed. iPG Alternator / Generator is a synchronous machine and the windings have no influence on the pole number. The high pole number is achieved by intelligent magnetic field.

As a result iPG Alternator / Generator, as a direct drive, offers great advantages in all performance criterias, such as very high energy efficiency, high dynamics, high overload capacity, quiet and practically maintenance free operation.

Why iPG* Alternator / Generator is so different than the rest of the motors in the world ?

** Intelligent Premium Alternator / Generator*

iPG *Intelligent Premium Alternator / Generator* works with the patented EMF Motor principle that is most suitable for high torque low speed applications. iPG *Intelligent Premium Alternator / Generator* works synchronously and the windings have no influence on the pole number. The high pole number is achieved by intelligent magnetic field.

High efficiency at all operating values

Operates close to nominal efficiency
even at 20 % speed and torque.

**Continuously
maximum power generation !**

iPG *Intelligent Premium Alternator / Generator*
generates power with every flow

Very low cogging torque

Cogging torque lower than 0,5 %

Easy start

Easy and stable power control

Compact size & High pole

Up to three frame size smaller

High controllability

Advantages

- The most efficient generator of the world !
- High efficiency at low speed and low torque
- 220-400 V at the same motor
- Sensorless PM control
- 66 - 88 - 110 poles
- Quiet
- Gearless
- No oil
- No cooling
- Compact size



Benefits

- iPG generates constantly power with every flow
- Generates electricity even at low speeds
- Reduced Inventory cost
- Best performance for alternator generator application
- High controllability
- Environmental friendly
- No maintenance cost, no energy production stop
- Environmental friendly
- No additional energy cost
- Up to 3 frame size smaller !

<i>iPG 73 Series</i>			Rated Speed (rpm)						
					100	150	200	300	500
iPG 73 - 80	Power	kW					0,9	1,1	1,5
	Torque	Nm					40	35	28
	Efficiency	%					86	89	92
iPG 73 - 120	Power	kW					1,2	1,6	2,0
	Torque	Nm					57	50	38
	Efficiency	%					88	91	93
iPG 73 - 160	Power	kW				1,3	1,5	2,0	2,5
	Torque	Nm				80	72	63	47
	Efficiency	%				86	89	92	93
iPG 73 - 200	Power	kW			1,1	1,5	1,8	2,4	2,9
	Torque	Nm			100	92	87	75	55
	Efficiency	%			84	88	90	92	94

<i>iPG 100 Series</i>			Rated Speed (rpm)					
			60	80	100	150	200	300
iPG 100 - 140	Power	kW		1,3	1,5	1,9	2,3	3,1
	Torque	Nm		150	140	124	108	98
	Efficiency	%		84	86	88	90	92
iPG 100 - 200	Power	kW	1,3	1,7	2,1	2,8	3,4	4,2
	Torque	Nm	205	205	200	180	160	133
	Efficiency	%	85	86	88	90	91	93
iPG 100 - 240	Power	kW	1,4	1,9	2,3	3,1	3,8	4,9
	Torque	Nm	230	230	220	200	180	156
	Efficiency	%	87	87	88	91	93	94

<i>iPG 132 Series</i>			Rated Speed (rpm)						
			40	60	80	100	150	200	300
iPG 132 - 140	Power	kW	1,2	1,8	2,3	2,7	3,8	4,8	5,8
	Torque	Nm	280	280	270	260	244	228	183
	Efficiency	%	85	85	87	89	92	93	94
iPG 132 - 200	Power	kW	1,6	2,4	3,1	3,9	5,5	6,9	8,2
	Torque	Nm	380	380	375	370	350	330	260
	Efficiency	%	87	88	89	90	92	93	94
iPG 132 - 240	Power	kW	1,9	2,9	3,8	4,7	6,6	8,2	9,7
	Torque	Nm	460	460	455	445	418	390	310
	Efficiency	%	88	89	90	90	92	93	94
iPG 132 - 300	Power	kW	2,4	3,6	4,8	6,0	8,7	10,9	15,3
	Torque	Nm	575	575	569	556	522	488	388
	Efficiency	%	89	91	93	94	95	95	95

Please contact EMF Motor for other torque and speed values.

<i>iPG 160 Series</i>			Rated Speed (rpm)					
			40	60	80	100	150	200
iPG 160 - 300	Power	kW	3,5	5,0	6,4	7,6	10,0	11,9
	Torque	Nm	830	800	765	727	635	570
	Efficiency	%	83	88	91	93	95	95
iPG 160 - 400	Power	kW	4,6	6,7	8,5	10,2	12,5	14,7
	Torque	Nm	1100	1060	1020	970	795	700
	Efficiency	%	83	88	91	93	94	95
iPG 160 - 500	Power	kW	5,7	8,3	10,7	12,7	14,7	16,8
	Torque	Nm	1355	1315	1275	1212	934	803
	Efficiency	%	83	88	91	94	95	96

<i>iPG 200 Series</i>			Rated Speed (rpm)					
			40	60	80	100	150	200
iPG 200 - 300	Power	kW	8,2	11,7	14,4	15,1	20,0	22,5
	Torque	Nm	1963	1863	1713	1438	1275	1075
	Efficiency	%	90	92	92	93	94	95
iPG 200 - 400	Power	kW	10,8	15,5	19,1	20,1	25,7	27,5
	Torque	Nm	2585	2465	2285	1916	1638	1313
	Efficiency	%	90	92	92	94	95	96
iPG 200 - 500	Power	kW	12,9	18,5	22,9	24,0	34,2	35,3
	Torque	Nm	3080	2940	2725	2288	2175	1688
	Efficiency	%	90	92	93	95	95	96
iPG 200 - 600	Power	kW	15,5	22,2	27,4	28,8	40,2	42,7
	Torque	Nm	3690	3530	3270	2750	2563	2038
	Efficiency	%	91	92	93	94	95	96
iPG 200 - 700	Power	kW	18,0	25,9	32,0	33,5	45,7	49,7
	Torque	Nm	4306	4126	3816	3200	2913	2375
	Efficiency	%	91	92	93	95	96	97

<i>iPG 250 Series</i>			Rated Speed (rpm)					
			40	60	80	100	150	200
iPG 250 - 600	Power	kW	23,2	33,3	40,2	42,9	53,4	57,6
	Torque	Nm	5550	5300	4800	4100	3400	2750
	Efficiency	%	92	93	94	95	96	96
iPG 250 - 800	Power	kW	30,8	44,6	55,3	61,8	77,0	82,7
	Torque	Nm	7350	7100	6600	5900	4900	3950
	Efficiency	%	92	94	95	96	96	97

Please contact EMF Motor for other torque and speed values.

<i>iPG 315 Series</i>			Rated Speed (rpm)					
			40	60	80	100	150	200
iPG 315 - 700	Power	kW	34,4	50,3	65,4	76,6	95,0	100,2
	Torque	Nm	8210	8010	7810	7315	6050	4785
	Efficiency	%	94	95	95	96	96	96
iPG 315 - 900	Power	kW	42,3	61,8	77,4	85,3	110,6	117,5
	Torque	Nm	10090	9840	9240	8140	7040	5610
	Efficiency	%	94	95	96	96	96	96
iPG 315 - 1100	Power	kW	46,9	68,7	86,6	96,8	122,7	131,3
	Torque	Nm	11190	10940	10340	9240	7810	6270
	Efficiency	%	94	95	96	96	96	96

Please contact EMF Motor for other torque and speed values.

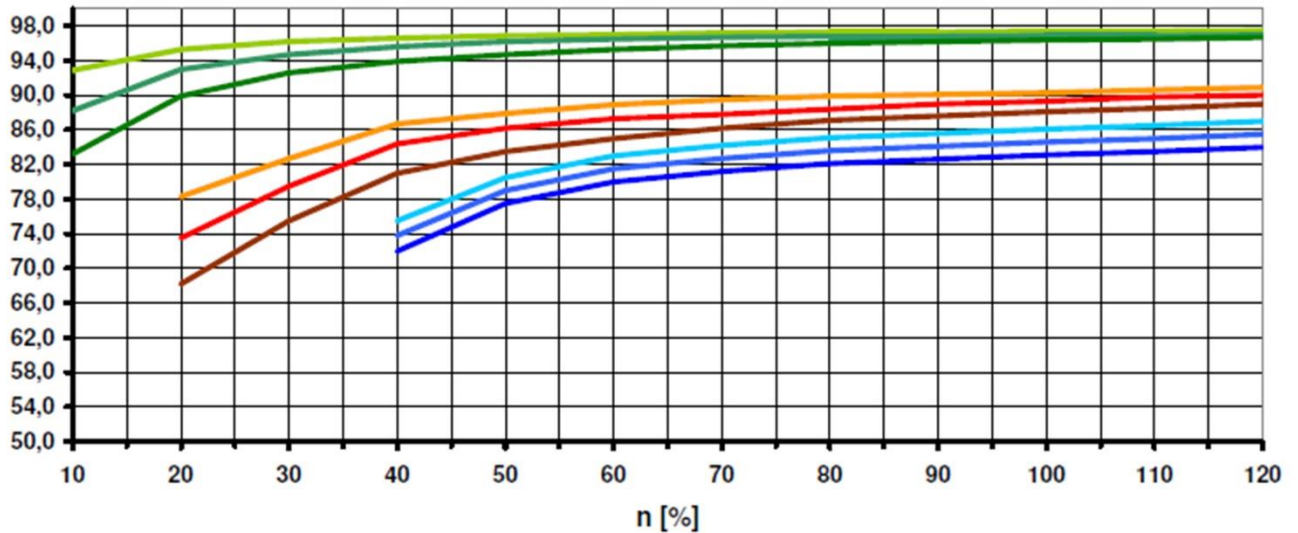
" We are proud to produce the most efficient torque motor in the world awarded German patented permanent magnet technology. "



Efficiency Map Comparison

EMF Motor vs. PM Synchronous Generator vs. AC Geared Generator

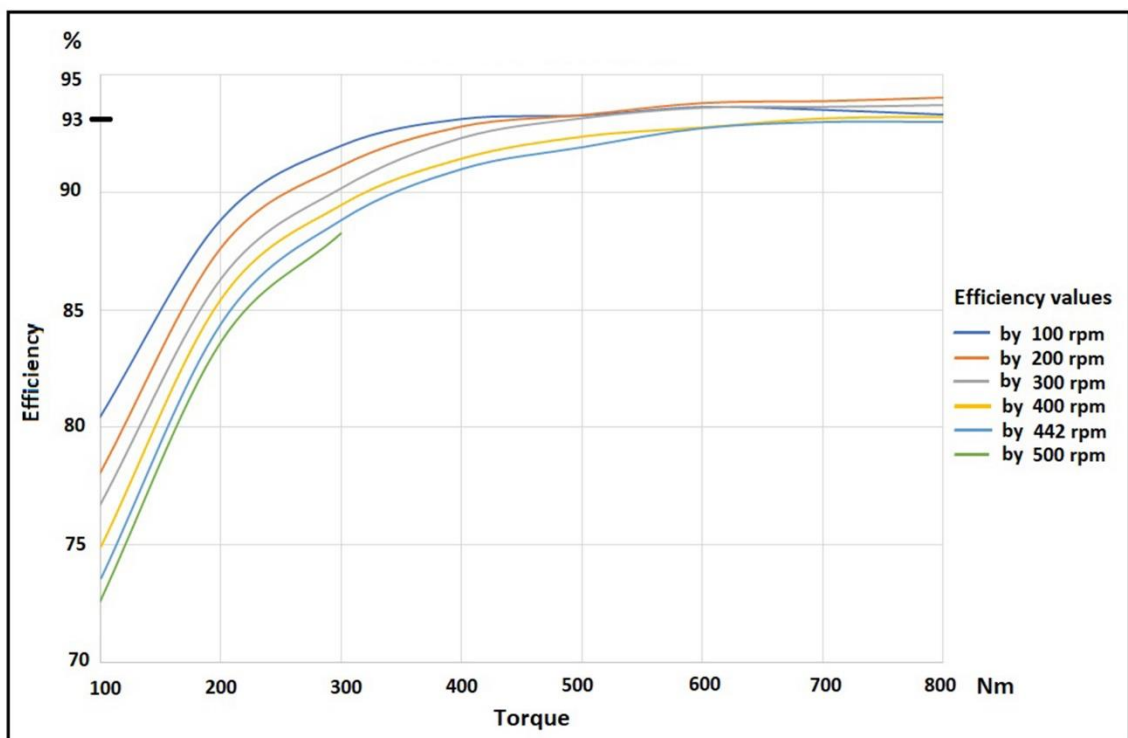
Measured generators:
110 kW 200 rpm



- iPG Generator 50%M — iPG Generator 75%M — iPG Generator 100%M
- Standard PM Syn. Generator 60%M — Standard PM Syn. Generator 80%M — Standard PM Syn. Generator 100%M
- AC Geared Generator 60%M — AC Geared Generator 80%M — AC Geared Generator 100%M

iPG Generator Efficiency Map

Nominal data of the measured generator:
800 Nm 442 rpm 93 %





EMF Motor®



1st Machine and Accessories
Manufacturing
Technologies R&D Project Market
Industrialist Category 2012
Grand Prize



Istanbul Chamber of Industry
Energy Efficient Product
Jury Honourable Mention 2011



TET R&D Project Market 2017
Smart Transportation Category



Global Success Club
Turkish - German
Innovation Award 2017

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