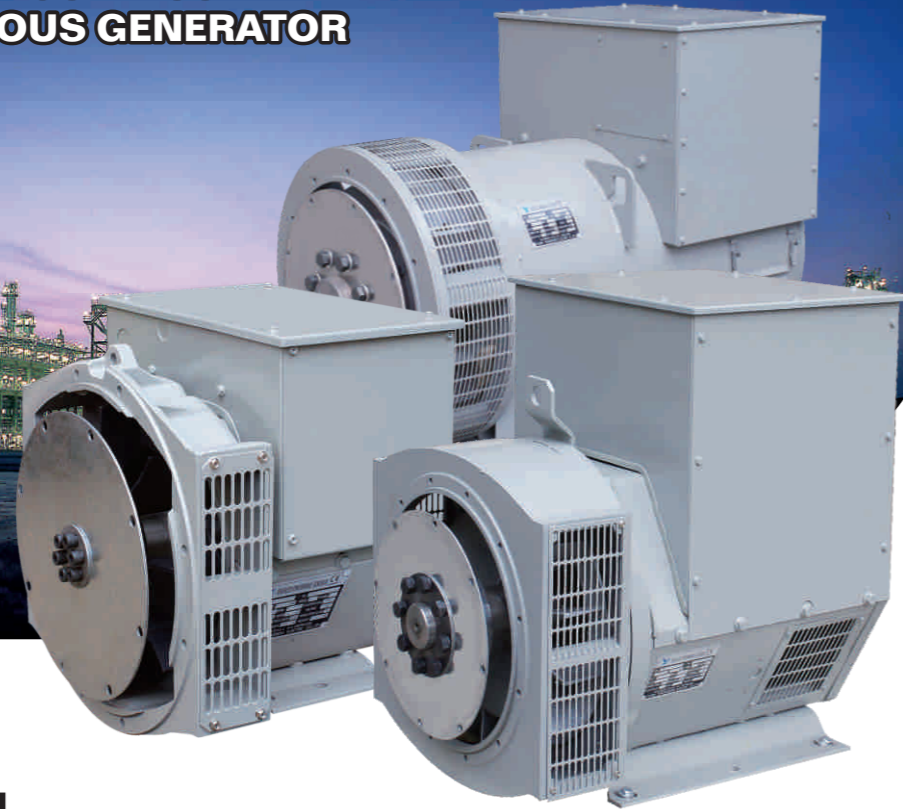


# YDSF.I

## SERIES 4POLE BRUSHLESS A.C.SYNCHRONOUS GENERATOR



### DESIGNATION

To provide standardisation of system with minimal change to customers

Y	D	S	F	.	I	1	6	4	A	1
Y	D	S	F	.	I	1	8	4	E	2

GENERATOR TYPE YDSF

INDUSTRY=(I)OR MARINE=(M)

SHAFT HEIGHT IN CM

NUMBER OF POLES 4 OR 2

CORE OF LENGTH

NUMBER OF BEARINGS 1 OR 2

## YDSF series Brushless Alternator



### FEATURES

- Alternator are composed of main generator, main exciter and excitation system. Product design to achieve brushless, constant voltage function.
- Insulation class: H  
All winding adopt H class magnet wire and H class insulation materials, meanwhile using a special epoxy resin vacuum impregnation process, and the anti-moisture, mildew, salt of black paint spraying process. Winding insulation class according to H class requirement. The insulation be able to defending against moisture, mildew, pollutants and corrosive of sea air.
- The vacuum impregnation process results in the winding with a high mechanical strength, and can resistance up to 120% of rating speed 60Hz.
- Optional permanent magnet generator PMG system, especially adapted to the non-linear loads and loads of constantly changing situations.
- Alternator can run on clockwise and anti-clockwise two of directions.
- Small size, light weight and simple structure, optimization design of CAD.
- Single-bearing alternator using internationally accepted standards SAE coupling disc to ensure the generator concentric assembly.
- By reconnect the 12 lead can access to any of voltages under 600V.
- With a self-developed advanced automatic voltage regulator AVR with higher reliability.
- The main stator winding is 2/3 pitch, eliminating the neutral current of the third harmonic wave. The stator skewed slots with a slot further reduce the harmonic wave.
- Alternator frame with 6mm steel plate, adaptor cover with high strength cast iron, strong and beautiful, less vibration.
- All rotors are dynamically balancing check, double-bearing alternator with a half-key balancing check.

### STANDARDS

YDSF.I series alternator confirm as following standard:  
GB755, Third part of BS5000, VDE0530,  
NEMA MG1-22, IEC34,  
CSA C22.2-100 and ASB59

### ELECTRICAL FEATURES

- Exciter system  
Exciter rotor windings generate excitation energy, into rectifier diodes that connection three-phase rectifier bridge diodes Rectified to DC after be deliver the rotor winding of main generator. The rectifier diodes using varistor type surge suppressors provide protection for peak voltage. Voltage regulator get energy and values of voltage measured from lead or permanent magnet generator PMG provide required DC current to exciter field winding, AVR voltage setting (potentiometer adjustment) compared with the measured continuously, Excitation current required depends on the actual value and the difference between set value.
- Non-linear load  
Usual non-linear load eg, the telecommunications rectifier load, adjustable speed drives, uninterruptible power supplies UPS, electronic motor starting devices, desktop computers and their support systems, these equipments will produce current harmonics on the power supply equipment. Furthermore, this will cause distortion of the current harmonic distortion of the voltage power supply equipment.  
To ensure that the generator have a satisfactory operating performance, should be choice of generator power based on the different non-linear load. Such as communication rectifier load, six pulse-type induced current distortion of 30%. Equipment side of the acceptable rate of abnormal voltage 20%. The generator can withstand 60% of the communication rectifier equipment. Other circumstance, please advice.
- Dynamic voltage character  
Alternator suddenly load rated loading  $\cos\Phi=0.8$ , the voltage transient less as 15-20%Un, Voltage recovery time in between 0.2-1.0 seconds. Alternator suddenly unload rated loading  $\cos\Phi=0.8$ , the voltage transient add 15-20%Un, Voltage recovery time in between 0.2-1.0 seconds.
- Voltage accuracy  
Alternator rated from unload to balance rating loading, hot and cold state, and  $\pm 5\%$  range of rating speed, voltage accuracy:  
AVR SX460 -  $\pm 1.0\%$       AVR SX440 -  $\pm 1.0\%$   
AVR SX341 -  $\pm 0.5\%$       AVR SX321 -  $\pm 0.5\%$   
AVR AS460 -  $\pm 1.0\%$
- Voltage regulator range  $> \pm 10\%$   
AVR voltage setting through by the potentiometer or external potentiometer to tuning the required voltage.
- Alternator can through reconnectable lead get single-phase, but with 60% of three-phase capacity.
- Unbalanced load  
Alternator can resistance 25% of the unbalanced load, the line voltage adjust  $< 5\%$ .
- Overload  
shortly 2 minutes 150% of rated current overload, constantly load 6hours permit 1hours overload 110%.
- Anti-radio interference  
Alternator's exciter system with high quality automatic voltage regulator to ensure a few interference in radio transmission Anti-radio interference of alternator meeting Level N comply with VDE0875.
- Parallel operation  
Usually for different design and manufacturing of alternator can transfer load without interrupting and in a short time. Droop devices to ensure reactive load distribution, The device of alternator can work with same voltage drop other alternator or parallel operation of power system.



## MECHANIC FEATURES

### ● Rotor

Rotor includes shaft, fan, main rotor, exciter rotor and rotating rectifier, main rotor with exciter winding and damper winding. The main rotor's silicon sheet is salient type.

### ● Brushless Exciter

The main generator excitation power from static magnetic field exciter. Exciter rotor installed on same shaft with main generator. Brushless exciter solve cooling and reliability problem, avoid the slip ring, commutator and brush caused by maintenance problem.

### ● Damper winding

Alternator equipped with damper winding, to ensure that good performance of parallel operation when parallel to main power network or other generator in parallel operation. Damper winding damping bar inserted into the pole in boots of silicon sheet. Each end of the magnetic damping section linking these to a closed cage. This structure allows the generator provide good torsional vibration performance when generator's load changes or run in parallel situation.

### ● Lead

According to customer requirements, cable can from right, left and top into distribution box. Distribution box are spacious, various kinds of devices can be installed inside.

### ● Protection and cooling

Alternator standard protection class is IP23, equipped with a fan in the drive end shaft. The cooling air from the non-drive end drive in, axially through the alternator and discharge from the drive end

### ● Bearing

under 500kw alternator using standard sealed bearing, no need grease lubrication. Bearing use life up to 40,000 hours.

### ● Assemble engine

single-bearing alternator with mouth adaptor and international common flange SAE-type flexible coupling disc.

Multi-connected set of transition specifications, Double-bearing adapt domestic and foreign various models of diesel engine, according to customer requirements set various size of mouth of flanges,

## NOTE

Selection of power rating given in the table based on the ambient temperature of 40°C and altitude 1000m. Altitude over 1000m, the power correction required. (temperature 40°C).

Altitude Meter	permissible output % of rating load
1000	100
1500	97
2000	94
2500	91
3000	87
3500	82
4000	77
4500	73
5000	69
Power factor Cos $\theta$	permissible output % of rating load
0.8~1	100
0.7	96
0.6	92
0.5	91
0.4	90
0	88



## MODEL & POWER

### Rating Book @ 50Hz

Model	Rated Power	Rated Volume
3-Phase 400V 50Hz 1500RPM		
YDSF.I164A	8.1kVA	6.5kW
YDSF.I164B	11kVA	8.8kW
YDSF.I164C	13.5kVA	10.8kW
YDSF.I164D	16kVA	12.8kW
YDSF.I184E	22.5kVA	18kW
YDSF.I184F	27.5kVA	22kW
YDSF.I184G	31.3kVA	25kW
YDSF.I184H	37.5kVA	30kW
YDSF.I184J	40kVA	32kW
YDSF.I224C	42.5kVA	34kW
YDSF.I224D	50kVA	40kW
YDSF.I224E	60kVA	48kW
YDSF.I224F	72.5kVA	58kW
YDSF.I224G	85kVA	68kW
YDSF.I274C	100kVA	80kW
YDSF.I274D	120kVA	96kW
YDSF.I274E	140kVA	112kW
YDSF.I274F	160kVA	128kW
YDSF.I274G	182kVA	146kW
YDSF.I274H	200kVA	160kW
YDSF.I274J	230kVA	184kW
YDSF.I274K	250kVA	200kW
YDSF.I4C	250kVA	200kW
YDSF.I4D	300kVA	240kW
YDSF.I4ES	325kVA	260kW
YDSF.I4E	350kVA	280kW
YDSF.I4FS	380kVA	304kW
YDSF.I4F	400kVA	320kW
YDSF.I5C	500kVA	400kW
YDSF.I5D	550kVA	440kW
YDSF.I5E	610kVA	488kW
YDSF.I5FS	625kVA	500kW
YDSF.I5F	670kVA	536kW
YDSF.I6B	750kVA	600kW
YDSF.I6C	800kVA	640kW
YDSF.I6D	910kVA	728kW
YDSF.I6E	1000kVA	800kW
YDSF.I6F	1130kVA	904kW
YDSF.I6G	1250kVA	1000kW

### Rating Book @ 50Hz

Model	Rated Power	Rated Volume
3-Phase 400V 50Hz 3000RPM		
YDSF.I162D	12.5kVA	10kW
YDSF.I162E	15kVA	12kW
YDSF.I162F	17.5kVA	14kW
YDSF.I162G	25kVA	20kW
YDSF.I182H	30kVA	24kW
YDSF.I182J	35kVA	28kW
YDSF.I182K	37.5kVA	30kW

### Rating Book @ 60Hz

Model	Rated Power	Rated Volume
3-Phase 440V 60Hz 1800RPM		
YDSF.I164A	10.2kVA	8.2kW
YDSF.I164B	13.8kVA	11kW
YDSF.I164C	16.9kVA	13.5kW
YDSF.I164D	20kVA	16kW
YDSF.I184E	28.8kVA	23kW
YDSF.I184F	34.4kVA	27.5kW
YDSF.I184G	37.5kVA	30kW
YDSF.I184H	46.9kVA	37.5kW
YDSF.I184J	50kVA	40kW
YDSF.I224C	52.5kVA	42kW
YDSF.I224D	62.5kVA	50kW
YDSF.I224E	70kVA	56kW
YDSF.I224F	87.5kVA	70kW
YDSF.I224G	97.5kVA	78kW
YDSF.I274C	118kVA	94kW
YDSF.I274D	138kVA	110kW
YDSF.I274E	168kVA	134kW
YDSF.I274F	190kVA	152kW
YDSF.I274G	219kVA	175kW
YDSF.I274H	245kVA	196kW
YDSF.I274J	281kVA	225kW
YDSF.I274K	299kVA	239kW
YDSF.I4C	294kVA	235kW
YDSF.I4D	360kVA	288kW
YDSF.I4ES	394kVA	315kW
YDSF.I4E	420kVA	336kW
YDSF.I4FS	456kVA	365kW
YDSF.I4F	480kVA	384kW
YDSF.I5C	550kVA	440kW
YDSF.I5D	594kVA	475kW
YDSF.I5E	713kVA	570kW
YDSF.I5FS	725kVA	580kW
YDSF.I5F	775kVA	620kW
YDSF.I6B	855kVA	684kW
YDSF.I6C	916kVA	733kW
YDSF.I6D	1043kVA	834kW
YDSF.I6E	1145kVA	916kW
YDSF.I6F	1274kVA	1019kW
YDSF.I6G	1386kVA	1109kW

### Rating Book @ 60Hz

Model	Rated Power	Rated Volume
3-Phase 440V 60Hz 3600RPM		
YDSF.I162D	15.6kVA	12.5kW
YDSF.I162E	18.8kVA	15kW
YDSF.I162F	21.9kVA	17.5kW
YDSF.I162G	31.3kVA	25kW
YDSF.I182H	37.5kVA	30kW
YDSF.I182J	43.8kVA	35kW
YDSF.I182K	46.9kVA	37.5kW