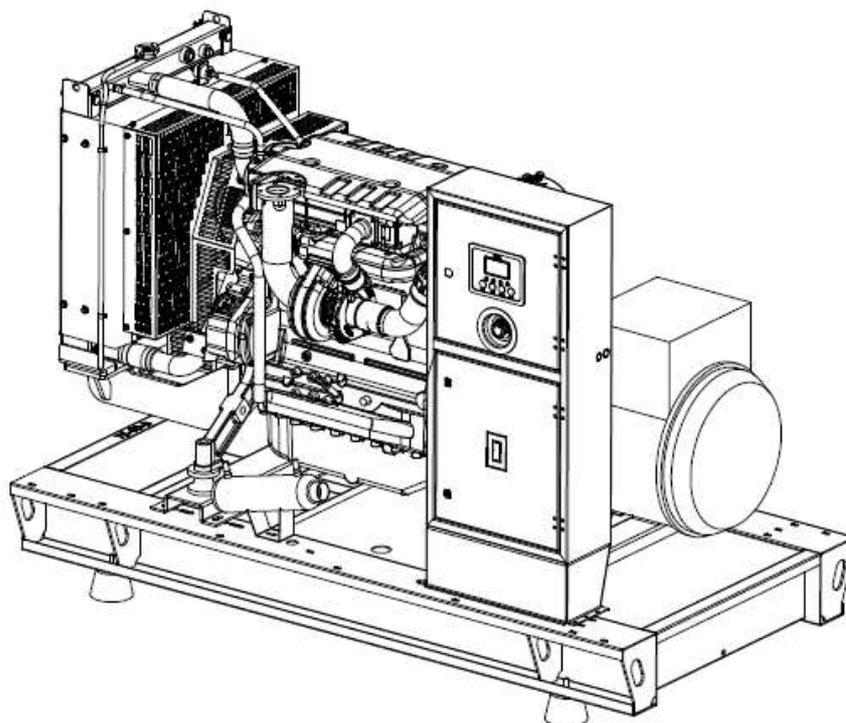


# DIESEL GENERATING SET USER MANUAL



BK2207/01

**IDEA JENERATÖR**

[www.idealgenerator.com](http://www.idealgenerator.com)

**IDJ15Y/IDJ20Y/IDJ25Y/IDJ35Y/IDJ40Y/IDJ50Y/IDJ55Y/IDJ80Y/IDJ110Y/IDJ125Y**

**IDJ15D/IDJ20D/IDJ35D/IDJ40D/IDJ50D/IDJ75D/IDJ90D/IDJ110D/IDJ125D  
IDJ150D/IDJ165D/IDJ175D/IDJ200D/IDJ220D/IDJ250D/IDJ275D/IDJ300D/IDJ330D  
IDJ385D/IDJ400D/IDJ425D/IDJ450D/IDJ500D/IDJ520D/IDJ550D/IDJ570D/IDJ640D  
IDJ715D/IDJ825D/IDJ860D/IDJ925D/IDJ1000D/IDJ1050D**

**IDJ22DW/IDJ35DW/IDJ40DW/IDJ55DW/IDJ65DW/IDJ80DW/IDJ100DW  
IDJ110DW/IDJ125DW/IDJ135DW/IDJ165DW/IDJ230DW/IDJ275DW/IDJ300DW  
IDJ350DW/IDJ400DW/IDJ470DW/IDJ505DW/IDJ550DW/IDJ640DW/IDJ690DW  
IDJ795DW/IDJ825DW/IDJ880DW/IDJ1000DW/IDJ1100DW/IDJ1315DW/IDJ1415DW  
IDJ1675DW/IDJ1925DW/IDJ2200DW/IDJ2300DW/IDJ2500DW**

**IDJ10P/IDJ15P/IDJ22P/IDJ33P/IDJ50P/IDJ71P/IDJ88P/IDJ110P  
IDJ150P/IDJ165P/IDJ200P/IDJ220P/IDJ250P/IDJ275P/IDJ300P/IDJ330P/IDJ385P  
IDJ400P/IDJ450P/IDJ500P/IDJ550P/IDJ660P/IDJ725P/IDJ780P  
IDJ825P/IDJ900P/IDJ1000P/IDJ1100P/IDJ1250P/IDJ1350P  
IDJ1500P/IDJ1650P/IDJ1900P/IDJ2000P/IDJ2200P/IDJ2500P**

**IDJ33I/IDJ50I/IDJ55I/IDJ66I/IDJ90I  
IDJ110I/IDJ130I/IDJ140I/IDJ180I/IDJ190I/IDJ220I  
IDJ275I/IDJ330I/IDJ385I/IDJ440I/IDJ500I/IDJ550I/IDJ600I/IDJ660I  
IDJ220B/IDJ25B/IDJ33B/IDJ44B/IDJ50B/IDJ55B/IDJ70B/IDJ88B/IDJ110B/IDJ150B  
IDJ165B/IDJ220B/IDJ250B/IDJ275B/IDJ300B/IDJ330B/IDJ400B/IDJ440B/IDJ500B  
IDJ550B/IDJ660B/IDJ715B/IDJ750B/IDJ825B/IDJ900B/IDJ1000B/IDJ1110B  
IDJ1250B/IDJ1400B/IDJ1500B/IDJ1650B/IDJ1900B/IDJ2000B**

**IDJ28C/IDJ40C/IDJ110C/IDJ150C/IDJ170C/IDJ220C/IDJ300C/IDJ330C/IDJ350C  
IDJ400C/IDJ440C/IDJ450C/IDJ550C/IDJ700C/IDJ880C/IDJ1100C/IDJ1100C2  
IDJ1375C/IDJ1540C/IDJ2200C**

**IDJ110V/IDJ143V/IDJ165V/IDJ200V/IDJ220V/IDJ275V/IDJ330V/IDJ385V/IDJ410V  
IDJ440V/IDJ500V/IDJ550V/IDJ650V/IDJ770V**

## **Introduction:**

Dear User,

First of all, thank you very much for choosing us. Be sure that we are committed to follow our clients and our specialist team is ready to help you 24/7.

Proper use and proper maintenance are critical to ensure long-term performance of our generators which are produced according to CE norms based on ISO9001:2008 requirements for a quality management system. According this, you can make a Periodical Maintenance Agreement with our company and ensure regular maintenance and supervisions for your generator.

You must read this manual before using the generator to earn information about correct operation, safety conditions.

Please fill the below mentioned **Model** and **Serial No** sections. its required for your after-sale service.

Generator Model: ..... Serial No: .....

Please contact our Headquarters or Authorized Service Points for your recommendations or questions about this manual.

Some of the information provided in this manual may be modified without announcement, depending on the Continuous Quality Improvement works.

We thank you once again for choosing us, and wish you continued success in your works.

Yours Sincerely,

## **IDEA MAKINA IMALAT SAN. VE TIC.LTD.STI.**

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### **Appendices:**

Service and Maintenance Registration Form

Warranty Certificate

Warranty Certificate (**Important:** Coupon must be completed and sent to IDEA.)

Failure Notification Form

Start-Up Form

### **Insert:**

Generator Technical Specifications

## **Safety Precautions**

Following the safety precautions during the installation and operation of the diesel generator will minimize the accident risks. Diesel generator shall be installed and used by people trained in this field, who read and understood this manual.

### **General:**

- Keep fire extinguisher easily reachable.
- Make sure all connection parts are safe and tight.
- Always keep the diesel generator and the generator room clean.
- Do not store the oil or oiled parts in the generator room.
- Avoid piling in such a way that blocks the generator room's cooling air.
- Before working on the generator, disconnect the battery (-) connection to prevent sudden operation of the generator.
- Use warning labels for the works you carry out during generator operation. The hot, rotating parts or those with voltage may cause accidents and injuries.
- The generator output connections shall be done by trained electricians.
- Generator output shall not be connected to the network. A transfer system must be used to prevent conflict.
- Do not smoke when you work on the generator.
- Do not work on the generator when you are physically very tired or after consuming alcohol.
- When you work on electrical parts make sure your shoes and clothes are dry and you do not wear necklace, tag etc. accessories, work on a dry and wooden platform.
- Keep materials that may be ignition source such as lighter etc. away from the fuel system and areas where there may be fuel vapor.
- There must be no leakage at fuel pipes and hoses and protection must be provided in scope of the electrical installation.
- Do not inhale the exhaust gas. **Exhaust gas is deadly!**
- The exhaust system must be established as stated in this manual.
- Keep batteries away from fire. **Battery gas is explosive!**
- Batteries must be kept straight, the electrolyte liquid within the battery is poisonous. It damages skin and eyes.
- Battery has electrical shock and high short circuit current risk. Keep watch, necklace etc. all metal objects away from your body when you work on the battery.
- Use the suitable repair set and insulated gloves.
- The electrolyte, which is diluted sulphuric acid, is electrically conductive and has corrosive effect. Protect your eyes and body fully when you work with the battery. If electrolyte contacts your



## **Safety Instructions**

The generator is driven by a diesel engine and this system cannot be used and run by a person other than the responsible person. The generator supervisor shall follow the below mentioned operation conditions.

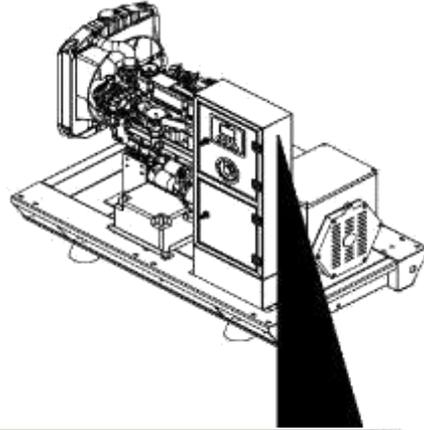
1. Before running the generator visually check everywhere and notify the electrician or the related authorities immediately if you notice cables with loose ends, hoses, broken plugs etc. and make sure there is no danger and the electric panel and generator has no problem.
2. Engine belts shall be checked, faulty ones shall be replaced, loose ones shall be tensioned.
3. Tightness of all connection pieces are checked, loose ones are tightened.
4. Engine oil and fuel are checked and added if lacking.
5. Check the periodic and daily maintenance via the related card and carry out the maintenance by notifying the related people if the oil and filter replacement time has come.
6. The daily, periodical maintenance, added oil, fuel and replaced parts and daily operation hours are recorded on the provided controlling card. This card is signed by the related chief at the end of each month and a new one is taken.
7. Make sure the panel switch (optional) is in turned off position.
8. Make sure generator grounding line is connected.
9. Even the smallest failure in electric panel, generator and engine shall not be intervened and the related people shall be notified. The electric works are carried out by the electrician, repair works by the repairman and the generator shall be stopped until they are done.
10. The person operating the generator shall always wear rubber gloves and boots or rubber shoes.
11. Energy shall not be taken from the generator panel until the generator grounding is fixed on a suitable ground, and make sure the equipment receiving energy from the generator has grounding too.
12. No person other than the related person can approach the generator during the operation.
13. The problems noticed during the operation are noted and they shall be solved by notifying the related people.
14. The generator location shall be kept locked to prevent wrong interventions.
15. The generator supervisor shall never run it in any way without learning the required information from the electrician and repairman about the electric panel, generator and engine and shall follow the abovementioned points.

## 1. GENERAL

### 1.1 Model Definition

The information label of the generator is located at the control panel.  
(See Figure 1.1)

When you apply to our authorized service, make sure the model and serial no information stated in the information label.



IDEA MAKİNA İMALAT SAN. VE TİC.LTD.ŞTİ. İstanbul Deri OSB. Sama Cad. (12.Yol) No:7 34957 Tuzla / İstanbul - TURKEY Tel : +90 216 313 42 77 - Fax : +90 216 313 42 79							
<b>DIESEL GENERATOR</b>							
<b>It is produced to use emergency stand-by power source.</b>							
	Model	: IDJ.....	Engine No	: .....			
	Serial No	: .....	Alternator No	: .....			
	Production Date:	.....	Performance Class	: G3			
	kVA	kW	cosØ	V	Hz	A	min- kg
Stand-by	.....	.....	.....	.....	.....	.....	.....
Prime	.....	.....	.....	.....	.....	.....	.....
<b>Please read operation manual before use.</b>							

Figure 1.1

### 1.2 Generating Set Main Components

Main components are shown in Figure 1.2.

Standard Equipment:

1. Diesel Engine
2. Alternator
3. Control Panel
4. Baseframe and Fuel Tank

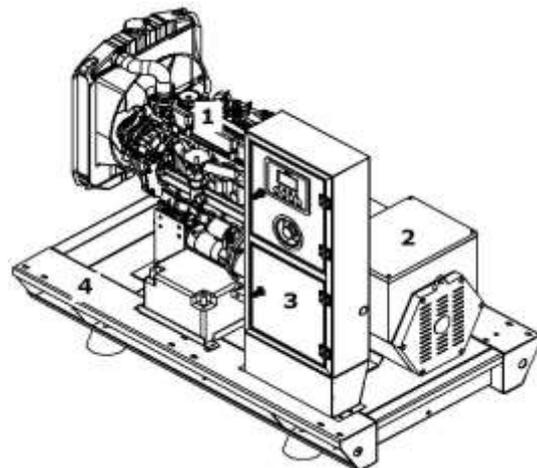


Figure 1.2

### 1.2.1 Diesel Engine

All the technical information about the industrial type diesel engines produced according to ISO 3046, BS 5514 and DIN 6271 standards are available in the Diesel Engine User and Maintenance Manual provided with the Generating Set.

All engines used have CE certificates, water cooling, 4 cycle and direct injection.

### 1.2.2 Alternator

The alternator produced according to IEC 60034-1, BS 4999-5000, VDE 0530, NF 51-100/111, OVE M-10, NEMA MG 1.22 standards and directly coupled to the engine via a flange according to SAE norms to minimize the torsional vibration.

The technical information about the alternators with single bearing, self-excited and automatic voltage regulator is available in the Alternator User and Maintenance Manual provided with the Generating Set. All the alternators have CE certificates.

### 1.2.3 Control Panel

The fuel level indicator, emergency stop button, charge warning light and the control module with microprocessor are at the front side of the control panel which allows the safe management and operation of the Generating Set.

Fuel level indicator shows the fuel level of the fuel tank mounted to the baseframe.

Emergency stop button is designed to stop the Generating Set in emergency cases. When this button is pushed the generator does not run, this button shall be opened at clockwise rotation to run the Generating Set.

Control module with microprocessor: Genset is automatically controlled via this module. It includes all the required indicators and protects the system from faults and allows load transfer.

The control module used may vary depending on the project. The technical specifications and functions in addition to the control panel's electric scheme are available in the Control Module User and Maintenance Manual provided with control panel.



Picture 1.1

#### MANUAL/AUTOMATIC CONTROL PANEL

1. Control Module
2. Emergency Stop Button

### 1.2.4 Baseframe and Fuel Tank

The baseframe is made of steel sheet profiled in such a way to provide high durability by taking the vibration and torsional tensions into account and is connected via anti vibration mounts with engine and alternator body.

The fuel tank, which has the capacity to run the set for at least 8 hours, is mounted inside the baseframe.

lift and return fuel connection points, fuel level gauge, tank cover for air circulation and filling point for fuel tank feeding.

## 2. LIFTING AND TRANSPORTATION

Use the lifting lugs to lift and transport the generator.

Always check the lifting lugs before lifting, against the cracks, breakages, bending and non-suitable or loose connection.

Make sure all the lifting equipment and supporting materials are usable, and they will resist against at least 10% more weight based on the generator gross weight (snow, frost, mud and other stacked parts and equipment weights).

Make sure the lifting hooks or locks have functional safety latches and are correctly connected.

To prevent rotating and oscillation when the group is lifted by ending the ground contact, use guiding ropes or equivalents.

Do not try to lift the generator when exposed to strong winds. Make sure there is no people below or around when the generator is hanged. Place it on external surfaces without sliding risk that can endure, based on the generator. (See Figure 2.1)

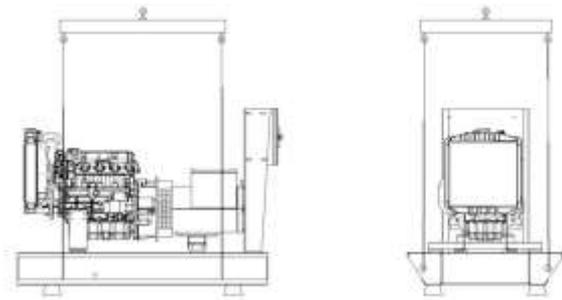


Figure 2.1

The generator can be lifted by using forklift, pushed or pulled from the chassis carefully. Use wooden wedge to prevent damage between the chassis and forklift's.

## 3. ASSEMBLY

### 3.1 Assembly Place

Convenient area shall be left around the generator to easily carry out the routine maintenance processes in addition to the assembly and disassembly of parts listed below:

- Cylinder covers
- Circulation pump
- Crankcase
- Adjusting gear box
- Starter Motor and Charger
- Flexible connections
- Alternator cover

The parts related to routine maintenance processes:

- Oil filters
- Air filters
- Fuel filters
- Oil dipstick
- Radiator filler cap and distance to fill

Assembly instructions:

1. Do not use plastic and non-suitable materials including the galvanized materials for the fuel pipe and connections.
2. The fuel pipes shall be kept away from the exhaust system as much as possible.
3. Keep a fire extinguisher in the generator room.
4. The batteries (if possible) shall be placed at a section where maintenance can be easily carried out, with individual ventilation and the battery cable lengths shall be kept as short as possible.
5. The room shall have enough size to easily provide generator entries and exits.
6. The room shall have enough illumination and sufficient number of plug sockets.
7. It is better to mount a lifting beam at the ceiling for easy maintenance.
8. Make preliminary preparation for cooling liquid drainage.
9. All rotary parts shall have protections to ensure safety.

When the generator room is designed take the below mentioned points into account:

1. The room shall have enough size to place the generator and the floor shall be suitable for machine weight and possible dynamic loads.
2. The ventilation system shall be suitable for cooling and suction air entrance.
3. The cooling liquid and fuel procurement points shall be considered.
4. When the air filters and exhaust silencer are outside the room this may cause power loss in the engine, the room shall be big enough to include such parts.
5. If a current room is going to be used, the constructions works to be carried out for the air suction and discharge shutters shall not affect the building's structural tension.
6. The generator noise shall be taken into consideration when generator is going to be run in residential areas and noise silencing methods shall be sought.

The concrete pad construction points are as below:

The below mentioned points shall be taken into consideration when making concrete pad for the machine.

The concrete pad shall resist the machine's total weight with the dynamic loads. The concrete pad dimensions shall be 300 mm more than the external measurements of machine width and length. (See Figure 3.1)

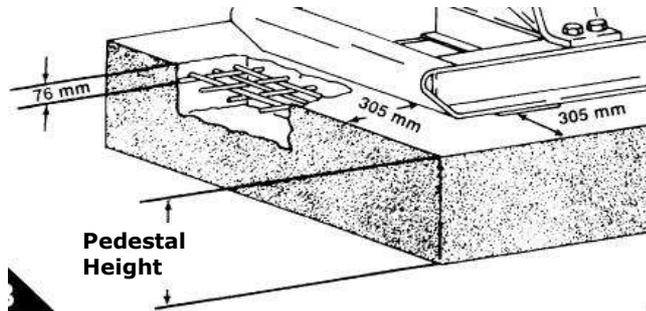


Figure 3.1

The pad height is calculated with the formula below.

$$KY = W / 2403 \times B \times E$$

KY : Pad height (m)

B : Pad length (m)

E: Pad width (m)

W: Machine's total (wet) weight (kg)

For example; in scope of a machine with 1,5-ton weight, for a pad of 3 m length, 1 m width: pad height shall be  $1500 / 2403 \times 3 \times 1 = 0,208 \text{ m} = 208 \text{ mm}$ .

The most ideal concrete mixture for the pad is recommended as: At 1: 2: 3 rate, 100 mm slump, with 20 MPa endurance for 28 days, Cement: Sand: Additive mixture.

The pad shall be strengthened with construction iron (6 no.) at 300 mm intervals. The iron shall be placed 75 mm below the top surface. See Figure 3.1

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ20D	485D	20	16	2600	2450	1700	460	470	540	0,27
IDJ25D	490D	25	20	2600	2750	1750	490	540	550	0,33
IDJ35D	K4102DS	33	26							
IDJ40D	K4102DS	40	32							
IDJ50D	K4100ZD	50	40							
IDJ75D	R4105ZD	75	60	2700	2950	1850	590	590	550	0,44
IDJ90D	R4108IZLD	90	72							
IDJ110D	R6105ZDS	110	88	2800	3300	1950	635	675	540	0,54
IDJ125D	R6105AZD	125	100							
IDJ150D	R6105AZLD	150	120	2800	3450	1950	635	675	540	0,54
IDJ175D	R6105BZLD	175	140							
IDJ200D	R6113IZLD	200	160	2900	3600	2100	850	900	450	0,96
IDJ220D	R6113IZLD	220	176	3000	4000	2150	745	845	520	0,79
IDJ250D	6L227TAD	250	200							
IDJ275D	6L227TAD	275	220							
IDJ300D	6L263TAD	300	240							
IDJ330D	6L263TAD	330	264							
IDJ350D	6L308TAD	350	280							
IDJ385D	6L308TAD	385	308							
IDJ400D	6L375TAD	400	320	3000	4100	2150	880	880	520	0,97
IDJ450D	6L450TAD	450	360							
IDJ500D	6L450TAD	500	400	3350	4500	2550	1250	1400	510	2,19
IDJ520D	6L460TAD	520	416							
IDJ550D	12V510TAD	550	440							
IDJ570D	12V510TAD	570	456							
IDJ640D	12V565TAD	640	512							
IDJ715D	12V630TAD	715	572							
IDJ825D	12V720TAD	825	660							
IDJ860D	12V720TAD	860	688							
IDJ925D	12V780TAD	925	740	3750	5500	2950	2200	1900	250	5,23
IDJ1000D	12V886TAD	1000	800							
IDJ1050D	12V886TAD	1050	840							
IDJ1100D	12V886TAD	1100	880							

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ15P	403A-15G1	14	11	2500	2300	1600	500	700	300	0,44
IDJ20P	403A-15G2	16	12,5							
IDJ25P	404A-22G1	22	18							
IDJ35P	1103A-33G	33	26	2600	2750	1750	700	700	550	0,61
IDJ50P	1103A-33TG1	50	40							
IDJ70P	1103A-33TG2	66	52,5							
IDJ90P	1104A-44TG2	88	70	2700	2900	1850	700	700	550	0,61
IDJ110P	1104C-44TAG2	110	88							
IDJ150P	1106A-70TG1	150	120	2800	3300	1860	800	900	540	0,9
IDJ170P	1106A-70TAG2	165	132							
IDJ200P	1106A-70TAG3	200	160	2800	3600	1980	900	1000	530	1,13
IDJ220P	1106A-70TAG4	220	176							
IDJ250P	1506A-E88TAG2	250	200	3000	4000	2100	1050	1100	540	1,44
IDJ300P	1506A-E88TAG4	300	240							
IDJ385P	2206A-E13TAG2	385	308	3350	4250	2550	1250	1400	510	2,19
IDJ400P	2206A-E13TAG2	400	320							
IDJ450P	2206A-E13TAG3	450	360							
IDJ500P	2506C-E15TAG1	500	400	3350	4500	2550	1250	1400	510	2,19
IDJ550P	2506C-E15TAG2	550	440							
IDJ660P	2806A-E18TAG1A	660	528							
IDJ700P	2806A-E18TAG2	700	560							
IDJ825P	4006-23TAG2A	825	660	3400	4800	500	1850	1850	200	4,28
IDJ880P	4006-23TAG3A	880	704							
IDJ900P	4006-23TAG3A	900	720	3750	5500	2950	2200	1900	250	5,23
IDJ1000P	4008TAG1A	1000	800							
IDJ1100P	4008TAG2A	1100	880							

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ22DW	4DWY-30	22,5	18	2600	2450	1700	520	420	540	0,27
IDJ35DW	4DWY-40	34	27	2600	2750	1900	520	470	550	0,31
IDJ55DW	4DWY-60	55	44	2700	2950	2050	590	590	550	0,44
IDJ65DW	4DWD-75	64	51							
IDJ80DW	4DWD-110	80	64	2800	3100	2050	620	580	550	0,45
IDJ100DW	4DWD-110	97	77,5							
IDJ125DW	6DWD-140	121	96,5	2800	3500	2050	650	740	540	0,6
IDJ165DW	6DWD-180	165	132							
IDJ200DW	6DWD-235	194	155	3000	4000	2400	910	905	520	1,03
IDJ230DW	6DWD-235	230	184							
IDJ275DW	6DWD-275	275	220							
IDJ300DW	6DWD-310	303	243	3200	4250	2300	1000	1040	400	1,3
IDJ350DW	6DWD-358	352	282							
IDJ400DW	8DWV-415	403	323	3350	4100	2750	1220	1230	550	1,88
IDJ470DW	8DWV-455	468	374							
IDJ505DW	8DWV-505	505	404							
IDJ550DW	8DWV-530	555	444							
IDJ640DW	12DWV-645	639	511	3350	4600	2500	1220	1230	550	1,88
IDJ690DW	12DWV-695	688	551							
IDJ795DW	12DWV-790	794	635	3350	4800	2500	1220	1230	550	1,88
IDJ825DW	12DWV-825	820	656							
IDJ880DW	16DWV-880	886	708,5	3900	5200	2950	1650	1720	550	3,55
IDJ1000DW	16DWV-995	1009	807							
IDJ1100DW	16DWV-1090	1108	886							

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ20B	4M06G20/5	20	16	2600	2750	1750	490	540	550	0,33
IDJ25B	4M06G25/5	25	20							
IDJ33B	4M06G35/5	33	26							
IDJ44B	4M06G44/5	44	35							
IDJ50B	4M06G50/5	50	40							
IDJ55B	4M06G55/5	55	44							
IDJ72B	4M11G70/5	72	57	2700	2950	1850	590	590	550	0,44
IDJ88B	4M11G90/5	88	70	2800	3300	1950	635	675	540	0,54
IDJ120B	4M11G120/5	120	96							
IDJ150B	6M11G150/5	150	120							
IDJ165B	6M11G165/5	165	132	3000	4000	2150	745	845	520	0,79
IDJ220B	6M16G220/5	220	176							
IDJ250B	6M16G250/5	250	200							
IDJ275B	6M16G275/5	275	220							
IDJ300B	6M16G300/5	300	240							
IDJ330B	6M16G350/5	330	264							
IDJ385B	6M21G385/5	385	327							
IDJ440B	6M21G440/5	440	352	3000	4100	2150	880	880	520	0,97
IDJ500B	6M21G500/5	500	400	3350	4500	2550	1250	1400	510	2,19
IDJ550B	6M26G550/5	550	440							
IDJ660B	6M33G660/5	660	528							
IDJ715B	6M33G715/5	715	572							
IDJ750B	6M33G750/5	750	600							
IDJ825B	M33G825/5	825	660							
IDJ900B	12M26G900/5	900	720	3750	5500	2950	2200	1900	250	5,23
IDJ1000B	12M26G1000/5	1000	800							
IDJ1110B	12M26G1100/5	1100	880							

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ27I	S8000 AM1A	27	21,5	2600	2750	1700	480	460	550	0,28
IDJ33I	S8000 AM1A	33	26							
IDJ45I	NEF45 AM2	44	35							
IDJ50I	NEF45 AM2	50	40							
IDJ55I	NEF45 AM2	55	44							
IDJ66I	NEF45 SM1A	66	52,5							
IDJ70I	NEF45 SM3	70	56							
IDJ85I	NEF45 SM3	82	65,6	2700	2950	1800	550	620	550	0,43
IDJ90I	NEF45 SM3	90	72							
IDJ110I	NEF45 TM2A	110	88	2800	3100	1900	710	830	350	0,74
IDJ130I	NEF45 TM3	131	104,5							
IDJ140I	NEF67 SM1	138	110	2800	3450	1980	695	885	415	0,77
IDJ165I	NEF67 TM4	165	132							
IDJ180I	NEF67 TM4	176	140,5							
IDJ190I	NEF67 TM4	187	149,5	2900	3600	2100	695	885	415	0,77
IDJ200I	NEF67 TM7	203	162							
IDJ220I	NEF67 TM7	220	176							
IDJ240I	NEF67 TE8W	240	192							
IDJ280I	NEF67 TE8W	275	220							
IDJ335I	C87 TE4	330	264							
IDJ385I	C13 TE2A	385	308							
IDJ440I	C13 TE3A	440	352	3200	4500	2600	880	925	400	1,02
IDJ500I	C13 TE6W	495	396							
IDJ550I	C13 TE7W	550	440							
IDJ660I	CR16 TE1W	660	528							

GENERATOR WITH FPT ENGINE				ROOM PLACEMENT DIMENSIONS						
Genset Model	Engine Model	Stand-By		Room Dim. (mm)			Radiator Window Dimensions (mm)			Air Inlet Window (m <sup>2</sup> )
		kVA	kW	W	L	H	W	L	H	
IDJ15Y	YD385D	15	12	2600	2450	1700	460	470	540	0,27
IDJ20Y	YND485D	20	16	2600	2750	1750	490	540	550	0,33
IDJ22Y	YND485D	22	17							
IDJ25Y	YSD490D	25	20							
IDJ30Y	YSD490D	30	24							
IDJ35Y	Y495D	35	28							
IDJ40Y	Y4100D	40	32							
IDJ110Y	Y110ZLD	110	88	2800	3300	1950	635	675	540	0,54
IDJ125Y	Y4110ZLD	125	100							

### 3.2 Vibration

The generator group shall be designed in such a way to transmit minimum vibration to the ground.

There are vibration insulators between the main chassis and the engine and alternator. With big generators, the vibration insulators are placed below the main chassis. Special attention for the vibration insulation at generator rooms located at high building roofs and floors. Generally spring-type vibration insulators are required. It must be absolutely verified that the buildings can carry the generator together with the auxiliary equipment.

### 3.3 Cooling and Ventilation

The most basic principle of ventilation is to make the hot air go away from the room and to get the external environment temperature within the room with minimum circulation. Figure 3.4 shows the most suitable position for the machine and room walls. The purpose here is to suck the air at a lower point as much as possible and to send outside the building by discharging from the radiator.

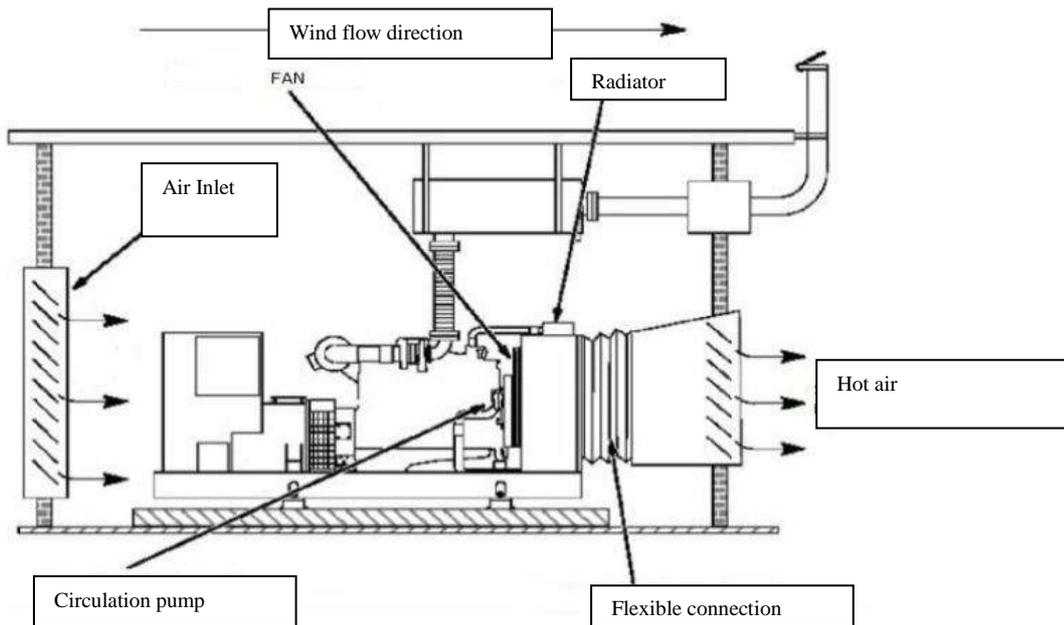


Figure 3.4

It is not enough to put radiator near to air discharge wall. In this case the air exiting between the radiator and the wall will reach the radiator propeller again. This will cause inefficient cooling and engine temperature problem.

The air discharge point to be opened on the wall in front of the radiator shall have the same rectangular shape with the radiator and 25% bigger than the radiator matrix area. The radiator flange shall be tied flexibly with a fume hood made of metal or canvas cloth with shutter frame. If the machine is mounted on vibration wedges, having flexible connection is especially very important.

Similarly the air input point dimensions shall be 25% bigger than the radiator matrix. For example, an engine with 1,44 m<sup>2</sup> radiator matrix area will have 1,80 m<sup>2</sup> air input and exit shutters. If the shutters have grids, this area should be enlarged 25% and be 2,25 m<sup>2</sup>. (See Figure 3.5)

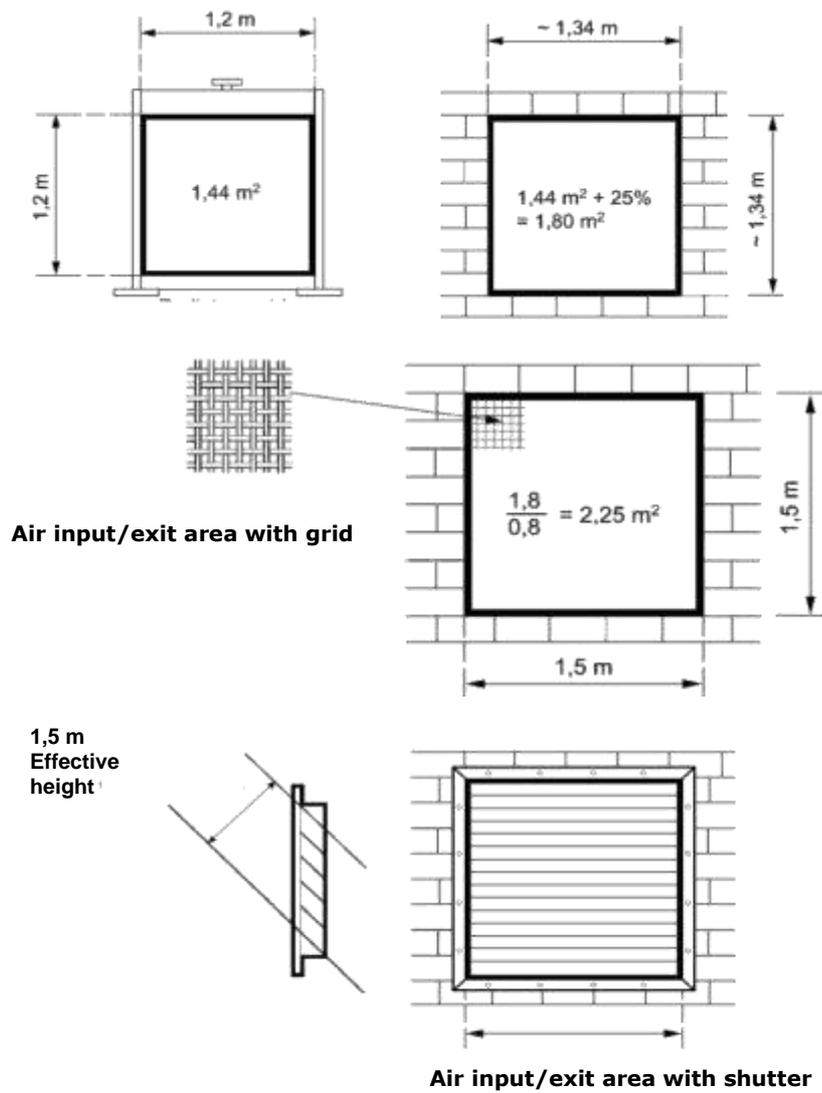


Figure 3.5

Obstacle is denied in front of the radiator.

There may be situations where the air inlet is required to be in upper sections of the wall. In such cases use ducting to provide downwards direction for the air inlet. Such a duct provides the advantage of preventing the entrance of warm air accumulated at the ceiling. (See Figure 3.6)

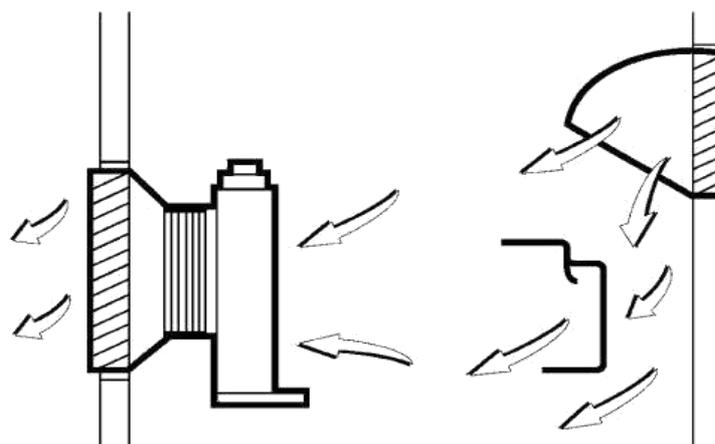


Figure 3.6

Outlet duct:

The wind density and direction shall be taken into consideration when designing the hot air outlet duct. The wind coming to the shutter may create an additional resistance in front of the fan and reduce the cooling air.

The below mentioned methods can be applied:

1. As shown in Figure 3.7, 90° duct can be mounted. In this case the air discharge shutters are going to be mounted at the duct exit. Additional precautions are required in this method for rain etc. weather conditions.
2. Directing panels can be used as shown in Figure 3.8.

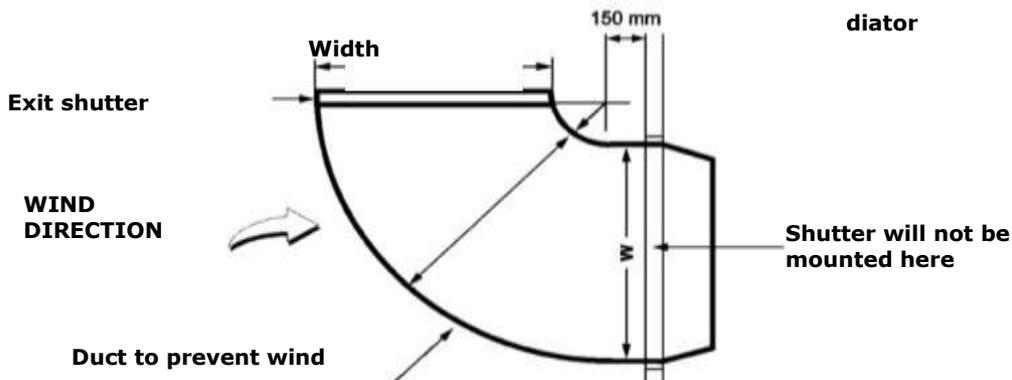


Figure 3.7

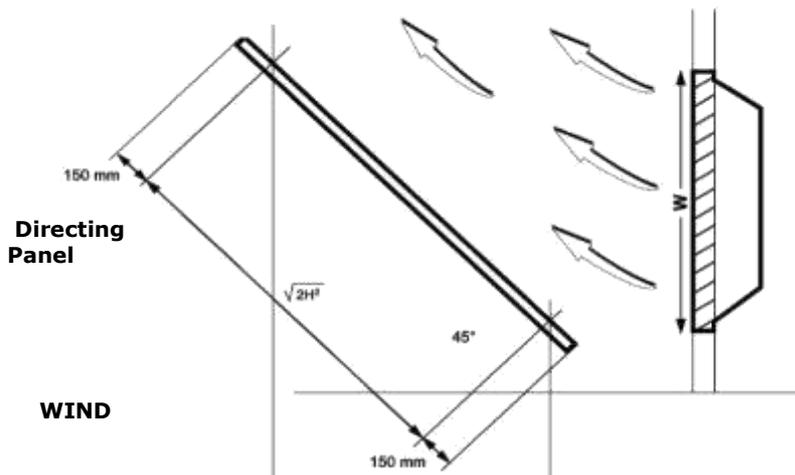


Figure 3.8

When the engine is below the ground level or a long duct line is required to be established, the back pressure occurring in the duct line shall be measured. This pressure value shall not exceed the limit permitted by the engine producer.

### **3.4 Exhaust System**

The most important point when designing the exhaust system is, to prevent the back pressure values from exceeding the permitted limits.

Extreme back pressure in the exhaust system will cause overheating of the engine by reducing the engine power. The shortest path with the least turns should be selected when designing the exhaust system. When a bend is required for the exhaust system, the radius of curvature should be 50% larger than the inside diameter of the pipe.

When a long exhaust line needs to be established, for practical application to avoid extreme back pressure, the pipe diameter should be increased one inch every 5 meters on the exhaust line if we estimate that each elbow has an extension of 1 meter.

Exhaust system hoses should be well supported and kept away from vibration points. Combustible materials must be placed at least 250 mm further than the exhaust system.

The thermal insulation must be carried out by means of thermal shields or by wrapping it with appropriate materials in the part situated after the exit of the elbow of the exhaust system. This section should be established as far as possible from the wooden areas. Note: Heat insulation is not done at exhaust manifold or turbochargers.

A rain cap should be added at the end of exhaust pipes.

Installing the silencer as close as possible to the engine will reduce the noise level. If the exhaust system is long, another silencer should be added.

Exhaust system cannot be combined for multiple generators.

A flexible connection should be used at engine exit to prevent vibration of exhaust pipes.

The employees working near the generator should always wear earmuffs.

### **3.5 Electrical Connection**

Electrical connections or repairs may only be made by electricians trained and qualified in accordance with the wiring diagrams.

You must follow the rules and regulations of international standards to be able to use the generator safely. The cables must comply with the voltage values used. They must be selected according to the table values, ambient temperatures and installation methods, and must be able to withstand currents.

Electrical connections must be done with flexible cables to prevent vibration from damaging the contactors, alternator or circuit breakers. All connections must be very carefully controlled.

Control panel can be designed so that it can be mounted on the wall. Cables connecting the generator to the load distribution board must be protected by a circuit breaker, fuse or other methods to disconnect the generator in case of any overload or short circuit.

When planning your distribution system, it is important to ensure that a balanced load is connected to the generator. If the load on a phase is extremely higher than the other two phases, this will cause overheating of alternator windings, unbalance between the phases and a possible damage on the 3-phase installation that is connected to the system.

Make sure the calculated current amount that can be provided by the generator set does not exceed any drawn phase current. If a generator is going to be connected to a ready installation, it may be correct to re-organize the electric system. The power factor of the connected load ( $\cos \phi$ )

must be determined. Power factors below 0.8 can overload the generator. Generator set is going to safely work at 0.8 power factor value. Automatic power factor correcting equipment's can be used when required, to bring the power factor to suitable values.

### 3.5.1 Cable Selection Table

GENERATOR WITH DHI ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current cos $\phi$ :0,8	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ15P	403A-15G1	14	11	20,2	1,5	24	1
IDJ20P	403A-15G2	16	12,5	23,1	1,5	24	1
IDJ25P	404A-22G1	22	18	31,8	2,5	32	1
IDJ35P	1103A-33G	33	26	47,7	10	73	1
IDJ50P	1103A-33TG1	50	40	72,3	10	73	1
IDJ70P	1103A-33TG2	66	52,5	95,4	16	98	1
IDJ90P	1104A-44TG2	88	70	127,2	25	129	1
IDJ110P	1104C-44TAG2	110	88	159	50	198	1
IDJ150P	1106A-70TG1	150	120	216,8	70	245	1
IDJ170P	1106A-70TAG2	165	132	238,4	70	245	1
IDJ200P	1106A-70TAG3	200	160	289	95	292	1
IDJ220P	1106A-70TAG4	220	176	317,9	120	344	1
IDJ250P	1506A-E88TAG2	250	200	361,3	150	391	1
IDJ300P	1506A-E88TAG4	300	240	433,5	185	448	1
IDJ385P	2206A-E13TAG2	385	308	556,3	95	292	2
IDJ400P	2206A-E13TAG2	400	320	578	95	292	2
IDJ450P	2206A-E13TAG3	450	360	650,3	120	344	2
IDJ500P	2506C-E15TAG1	500	400	722,5	150	391	2
IDJ550P	2506C-E15TAG2	550	440	794,8	185	448	2
IDJ660P	2806A-E18TAG1A	660	528	953,7	240	520	2
IDJ700P	2806A-E18TAG2	700	560	1011,5	240	520	2
IDJ825P	4006-23TAG2A	825	660	1192,1	185	448	3
IDJ880P	4006-23TAG3A	880	704	1271,6	185	448	3
IDJ900P	4006-23TAG3A	900	720	1300,5	185	448	3
IDJ1000P	4008TAG1A	1000	800	1445	240	520	3
IDJ1100P	4008TAG2A	1100	880	1589,5	185	448	4

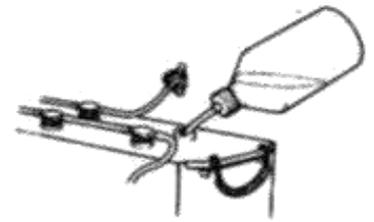
GENERATOR WITH DHI ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current cos $\phi$ :0,8	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ22DW	4DWY-30	22,5	18	32,5	6	54	1
IDJ35DW	4DWY-40	34	27	49,1	6	54	1
IDJ55DW	4DWY-60	55	44	79,5	16	98	1
IDJ65DW	4DWD-75	64	51	92,5	16	98	1
IDJ80DW	4DWD-110	80	64	115,6	25	129	1
IDJ100DW	4DWD-110	97	77,5	140,2	35	158	1
IDJ125DW	6DWD-140	121	96,5	174,8	50	198	1
IDJ165DW	6DWD-180	165	132	238,4	70	245	1
IDJ200DW	6DWD-235	194	155	280,3	95	292	1
IDJ230DW	6DWD-235	230	184	332,4	120	344	1
IDJ275DW	6DWD-275	275	220	397,4	185	448	1
IDJ300DW	6DWD-310	303	243	437,8	185	448	1
IDJ350DW	6DWD-358	352	282	508,6	240	520	1
IDJ400DW	8DWV-415	403	323	582,3	95	292	2
IDJ470DW	8DWV-455	468	374	676,3	120	344	2
IDJ505DW	8DWV-505	505	404	729,7	150	391	2
IDJ550DW	8DWV-530	555	444	802	185	448	2
IDJ640DW	12DWV-645	639	511	923,4	240	520	2
IDJ690DW	12DWV-695	688	551	994,2	240	520	2
IDJ795DW	12DWV-790	794	635	1147,3	150	391	3
IDJ825DW	12DWV-825	820	656	1184,9	185	448	3
IDJ880DW	16DWV-880	886	708,5	1280,3	185	448	3
IDJ1000DW	16DWV-995	1009	807	1458	240	520	3
IDJ1100DW	16DWV-1090	1108	886	1601,1	185	448	4

GENERATOR WITH DHI ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current cos $\phi$ :0,8	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ27I	S8000 AM1A	27	21,5	39	6	54	1
IDJ33I	S8000 AM1A	33	26	47,7	6	54	1
IDJ45I	NEF45 AM2	44	35	63,6	10	73	1
IDJ50I	NEF45 AM2	50	40	72,3	10	73	1
IDJ55I	NEF45 AM2	55	44	79,5	16	98	1
IDJ66I	NEF45 SM1A	66	52,5	95,4	16	98	1
IDJ70I	NEF45 SM3	70	56	101,2	25	129	1
IDJ85I	NEF45 SM3	82	65,6	118,5	25	129	1
IDJ90I	NEF45 SM3	90	72	130,1	35	158	1
IDJ110I	NEF45 TM2A	110	88	159	50	198	1
IDJ130I	NEF45 TM3	131	104,5	189,3	50	198	1
IDJ140I	NEF67 SM1	138	110	199,4	70	245	1
IDJ165I	NEF67 TM4	165	132	238,4	70	245	1
IDJ180I	NEF67 TM4	176	140,5	254,3	95	292	1
IDJ190I	NEF67 TM4	187	149,5	270,2	95	292	1
IDJ200I	NEF67 TM7	203	162	293,3	95	292	1
IDJ220I	NEF67 TM7	220	176	317,9	120	344	1
IDJ240I	NEF67 TE8W	240	192	346,8	150	391	1
IDJ280I	NEF67 TE8W	275	220	397,4	185	448	1
IDJ335I	C87 TE4	330	264	476,9	240	520	1
IDJ385I	C13 TE2A	385	308	556,3	95	292	2
IDJ440I	C13 TE3A	440	352	635,8	120	344	2
IDJ500I	C13 TE6W	495	396	715,3	150	391	2
IDJ550I	C13 TE7W	550	440	794,8	185	448	2
IDJ660I	CR16 TE1W	660	528	953,7	240	520	2

GENERATOR WITH DHI ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current cos $\phi$ :0,8	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ20D	485D	20	16	23,1	1,5	24	1
IDJ25D	490D	25	20	31,8	2,5	32	1
IDJ35D	K4102DS	33	26	47,7	10	73	1
IDJ40D	K4102DS	40	32	63,6	10	73	1
IDJ50D	K4100ZD	50	40	72,3	10	73	1
IDJ75D	R4105ZD	75	60	115,6	25	129	1
IDJ90D	R4108IZLD	90	72	127,2	25	129	1
IDJ110D	R6105ZDS	110	88	159	50	198	1
IDJ125D	R6105AZD	125	100	174,8	50	198	1
IDJ150D	R6105AZLD	150	120	216,8	70	245	1
IDJ175D	R6105BZLD	175	140	254,3	95	292	1
IDJ200D	R6113IZLD	200	160	289	95	292	1
IDJ220D	R6113IZLD	220	176	317,9	120	344	1
IDJ250D	6L227TAD	250	200	361,3	150	391	1
IDJ275D	6L227TAD	275	220	397,4	185	448	1
IDJ300D	6L263TAD	300	240	433,5	185	448	1
IDJ330D	6L263TAD	330	264	556,3	95	292	2
IDJ350D	6L308TAD	350	280	508,6	240	520	1
IDJ385D	6L308TAD	385	308	556,3	95	292	2
IDJ400D	6L375TAD	400	320	578	95	292	2
IDJ450D	6L450TAD	450	360	650,3	120	344	2
IDJ500D	6L450TAD	500	400	722,5	150	391	2
IDJ520D	6L460TAD	520	416	794,8	185	448	2
IDJ550D	12V510TAD	550	440	794,8	185	448	2
IDJ570D	12V510TAD	570	456	953,7	240	520	2
IDJ640D	12V565TAD	640	512	953,7	240	520	2
IDJ715D	12V630TAD	715	572	1011,5	240	520	2
IDJ825D	12V720TAD	825	660	1192,1	185	448	3
IDJ860D	12V720TAD	860	688	1271,6	185	448	3
IDJ925D	12V780TAD	925	740	1300,5	185	448	3
IDJ1000D	12V886TAD	1000	800	1445	240	520	3
IDJ1050D	12V886TAD	1050	840	1589,5	185	448	4
IDJ1100D	12V886TAD	1100	880	1589,5	185	448	4

GENERATOR WITH BAUDOUIIN ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current cos $\phi$ :0,8	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ20B	4M06G20/5	20	16	23,1	1,5	24	1
IDJ25B	4M06G25/5	25	20	31,8	2,5	32	1
IDJ33B	4M06G35/5	33	26	47,7	10	73	1
IDJ44B	4M06G44/5	44	35	63,6	10	73	1
IDJ50B	4M06G50/5	50	40	72,3	10	73	1
IDJ55B	4M06G55/5	55	44	79,5	16	98	1
IDJ72B	4M11G70/5	72	57	115,6	25	129	1
IDJ88B	4M11G90/5	88	70	127,2	25	129	1
IDJ120B	4M11G120/5	120	96	174,8	50	198	1
IDJ150B	6M11G150/5	150	120	216,8	70	245	1
IDJ165B	6M11G165/5	165	132	238,4	70	245	1
IDJ220B	6M16G220/5	220	176	317,9	120	344	1
IDJ250B	6M16G250/5	250	200	361,3	150	391	1
IDJ275B	6M16G275/5	275	220	397,4	185	448	1
IDJ300B	6M16G300/5	300	240	433,5	185	448	1
IDJ330B	6M16G350/5	330	264	556,3	95	292	2
IDJ385B	6M21G385/5	385	327	556,3	95	292	2
IDJ440B	6M21G440/5	440	352	650,3	120	344	2
IDJ500B	6M21G500/5	500	400	722,5	150	391	2
IDJ550B	6M26G550/5	550	440	794,8	185	448	2
IDJ660B	6M33G660/5	660	528	953,7	240	520	2
IDJ715B	6M33G715/5	715	572	1011,5	240	520	2
IDJ750B	6M33G750/5	750	600	1147,3	150	391	3
IDJ825B	M33G825/5	825	660	1192,1	185	448	3
IDJ900B	12M26G900/5	900	720	1300,5	185	448	3
IDJ1000B	12M26G1000/5	1000	800	1445	240	520	3
IDJ1110B	12M26G1100/5	1100	880	1589,5	185	448	4

GENERATOR WITH YANGDONG ENGINE				Cable Selection Table			
Genset Model	Engine Model	Stand-By		Full Power Current $\cos\phi:0,8$	Section	Current-carrying Capacity(Air)	Number of Cable
		kVA	kW	A	mm <sup>2</sup>	A	Qty
IDJ15Y	YD385D	15	12	20,2	1,5	24	1
IDJ20Y	YND485D	20	16	23,1	1,5	24	1
IDJ22Y	YND485D	22	17	23,1	1,5	24	1
IDJ25Y	YSD490D	25	20	31,8	2,5	32	1
IDJ30Y	YSD490D	30	24	47,7	10	73	1
IDJ35Y	Y495D	35	28	47,7	10	73	1
IDJ40Y	Y4100D	40	32	63,6	10	73	1
IDJ110Y	Y110ZLD	110	88	159	50	198	1
IDJ125Y	Y4110ZLD	125	100	174,8	50	198	1



### 3.5.2 Transfer Panel Layout

Consider the points mentioned below when placing the transfer panel:

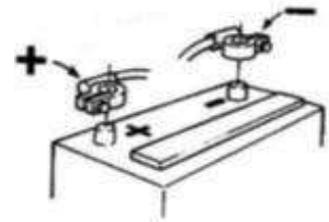
- Transfer panel shall be close to the emergency load panels as much as possible.
- Transfer panel shall be at a clean, dry, well-ventilated environment without extreme temperatures. When the environmental temperature rises above 40 °C, the fuses and switches will open in a quicker way. There must be enough work area around the transfer panel.
- The value of the currents drawn from the generator must be equally distributed to the three phases as much as possible. The current value to be drawn from one phase shall never exceed the nominal current value.

### 3.6 Starter Batteries

Make sure the batteries are placed as close as possible to the generator and the connections are correct no loose connections. Batteries must be in good condition to run the engine; maintenance methods must be meticulously performed.

Connection and disassembly

Firstly connect the battery (+) terminal. Then connect the battery (-) terminal. Start disassembly from battery (-) terminal. Then disconnect (+) terminal.



Cleaning

Keep the batteries dry and clean. The dirt and oxidation at the battery or connection terminals can cause battery voltage dropping and discharging. Disassemble the lead terminals during maintenance and clean them. Use wire brush for oxidation. After reconnecting and tightening the cables, apply vaseline on the lead terminals to delay oxidation.

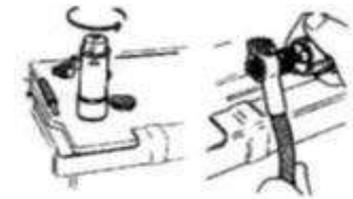


Figure 3.10A

Adding pure water

The electrolyte level must be checked from time to time in scope of the batteries that need maintenance. If the liquid level is reduced 5-10 mm, top up with pure water. Then charge for approximately 30 minutes.

Figure 3.10B

Check the manuals of dry type batteries or batteries that require no maintenance for special maintenance methods.

### 3.7 Grounding

Grounding involves connecting non-active sections of electrical installations and their earthed parts using an electrode with a conductor. The sections under electrical voltage are isolated in electrical systems to ensure the durability and the safety of life. But for various reasons, such parts will inevitably deteriorate or defects such as perforations to the earth may occur.

In such cases the surfaces that contact the conductor will be exposed to leakage electric potential. The potential electric that occurs against the earth, if all conducting pieces are connected with each other and effectively earthed, will not create potential and the risk of flowing to the earth via the living creature in case of any contact will be prevented.

Grounding must be done according to the valid national and local standards, rules, regulations and other legislation. Grounding resistance must be below 20 ohms.

Values above 15 mA and 50 Volt contact potential are dangerous. Grounding must be at least 20 m apart., if multiple grounding sheets exists because of various reasons. As the alternator chassis is connected to the generator chassis, whole mass of the generator has the same potential.

## **4. OPERATION**

### **4.1 Start-Up Precautions**

The first commissioning of the generator installed according to the information in this manual is performed in the following order:

1. Check that the generator is on a flat and suitable floor.
2. Check the engine oil and cooling liquid level and add if required.
3. Fill the fuel tank.
4. The batteries may be closed type or lead acid type; if lead acid type and electrolyte is not added, add electrolyte according to battery type and charge.
5. Check to see if there is an object that could compromise safety around and above the generator.
6. Bring the fuses and switch to turned off position.
7. Connect batteries.
8. Open the fuses.
9. Run through the generator control device.
10. Observe if there are abnormal vibrations or noise.
11. Check for liquid leakage.
12. Check that the engine oil pressure and water heat values are normal, in addition to the voltage and frequency values.
13. Check the phase return directions while powering the system via the generator, if they are not in the same direction with the network, stop and change the generator phases.
14. Stop the generator to complete the first start-up process.

### **4.2 Generator operation methods**

The operation types are selected by pressing the required button at the front panel. If you change position while the generator works, the generator will switch to the behavior that suits this new position. For example, while the generator runs on <TEST> position, if you switch to <(TEST UNDER LOAD)> position, it will receive the load.

All the detailed information regarding the control device is available in the user manual delivered with the generator.

#### **4.2.1 Manual Operation**

The generator run via the <AUTO> button on the control device.  
When the generator run and the engine achieves full cycle, check via the Led indicators that:

The oil pressure is above 2 Bars  
Water temperature is below 100 °C  
The generator voltage, between phase-neutral is 220-230 Volt  
The generator voltage, between phase-phase is 380-400 Volt  
The frequency is 50 – 52,5 Hz



Picture 4.1

After the engine is warmed up, switch the inverter switch in your system to the generator position to feed the load via the generator.

#### **4.2.2 Automatic Operation**

It is the operation mode where the generator network and load feed are automatically transferred to each other. If any of the network phase voltages exceed the programmed values, the generator automatically runs and takes the load. When the network is back, generator automatically stops.

#### **4.2.3 Test Run**

It is used to test the generator when network is available or to make the generator wait at emergency back-up mode. During this operation mode, the generator operation is independent from the network voltage values. During this operation if the network becomes unavailable the generator automatically takes the load, and when the network is back the load is transferred to the network and it continues to run. To stop the generator press <AUTO> or <OFF> buttons.

#### **4.2.4 Test Run Under Load**

It is used to test the generator under load. When you press this button the generator runs and takes the load. The load is fed via the generator even if the network is available, as long as you do not switch to another operation mode.

### **5. MAINTENANCE**

The generator has a 10-year life cycle.

You can have your generator available at any moment at maximum performance by following a good maintenance program. A regular maintenance program is the most important factor in ensuring the longevity of your generator.

These programs are available in details in the Original Engine and Alternator Manual. You can use the attached table to record the maintenance and services performed. The written records will be a reference for the services and will help diagnosing the possible future problems, or even prevent them.

If the generator set is big enough for a person to fit inside, inform other employees before carrying out maintenance and adjustments and keep the access doors safe to prevent them from being closed or locked by others.

Stop the engine before replacing or adding fuel, oil, cooling liquid or battery electrolyte. Before beginning the repairs and adjustments, to prevent the engine operation, disconnect the battery charge device feed, disconnect the battery negative (-) connection. Hang a warning sign on the battery connection to prevent others from making connection in any way. Carry out the adjustments only when the engine is turned off. If required carry out the adjustments and later, run the engine to check the adjustments. If the adjustment is not correct, turn off the engine and adjust again. Then run the engine again to check the adjustments. Do not open the radiator cover until the cooling liquid temperature drops below the boiling point. Afterwards, loosen the cover slowly and open it carefully to stop the possible extreme pressure's quick exit.

## 5.1 Maintenance Schedule

	Part	To do			PERIOD							STATEMENT
		Check	Cleaning	Change	Daily	Weekly	Monthly	Every 2 Months	Every 3 Months	Every 6 Months	Yearly	
<b>1</b>	<b>Diesel Engine</b>											
<b>1.1</b>	<b>Lubrication System</b>											
	Oil Level	o			o							
	Oil Leakage	o			o							
	Oil Dirtines	o				o						
	Oil Pressure	o				o						Must record
	Oil and Oil Filter			o						o		First oil and filter change after 50 Hour/3 Months (Which comes first)
<b>1.2</b>	<b>Fuel System</b>											
	Fuel Leakage	o			o							
	Fuel Dirtiness/ Water in Fuel	o	o			o						Fuel tank cleaning can be a necessary
	Fuel Filter			o					o			
	Injector Cup	o									o	Apply 3 years old or more generators
	Fuel Pump	o									o	Apply 3 years old or more generators
<b>1.3</b>	<b>Cooling System</b>											
	Coolant Level	o			o							
	Coolant Dirtiness	o				o						
	Leakage	o			o							
	Water Filling Cap	o			o							
	Tightness of Belt	o					o					
	Belt	o								o		
	Coolant Heat	o				o						Must record
	Coolant			o							o	
	Dirtiness of Radiator Matrix		o							o		
	Cooling System		o								o	
	Heater	o			o							
<b>1.4</b>	<b>Air Inlet System</b>											
	Air Filter Element			o						o		
<b>1.5</b>	<b>Electrical System</b>											
	Level of Electrolyte	o			o							
	Battery		o		o							
	Battery Terminals and Cables		o			o						
	Battery Charger	o			o							If need change the charger

	Starter and Charging Alternator	0	0						0			
	Electrical Wiring	0							0			
<b>1.6</b>	<b>Engine Other Features</b>											
	Engine Sound Level	0				0						
	Exhaust Gas	0				0						Color of Exhaust
	Pressure of Cylynder	0								0		Apply 3 years old or more generators
	Acoupling Bolts	0						0				
	Engine Breather	0				0						
<b>2</b>	<b>Alternator</b>											
	Vibration and Noise	0				0						
	Air Inlet	0						0				
	Windings	0							0			
<b>3</b>	<b>Control Panel</b>											
	Gauges	0				0						
	Controller	0						0				
	Battery Charger	0			0							
	Electrical Wiring	0							0			
	Transfer Panel	0							0			
	Earth	0							0			
<b>4</b>	<b>General</b>											
	Generator Room	0			0							
	Cleaning of Room	0			0							
	Safety Precautions	0			0							

## 6. DIAGNOSIS AND TROUBLESHOOTING

The diagnosis and troubleshooting tables are available in the related manuals of the diesel engine, alternator and control panel. If you cannot obtain results with these tables you can contact the Authorized Service to receive the required help.

FAULT	POSSIBLE REASONS
Generator does not run	Emergency Stop button is turned off Generator is in turned off position No fuel The fuel system has air Environmental temperature is too low Starting is carried out too slowly Check the control device Fuel properties are not suitable The fuel system has a problem
Starter motor turns the diesel too slowly	Batteries are empty Oil properties are not suitable Electric connection fault Starter motor fault
Generator keeps working	The fuel system has air Air suction is clogged Control device fault Fuel filter is dirty
It starts but the generator does not run	No fuel Control device does not let it exit Electric connection problem
Generator does not stop	Check the panel fuses Network electric problem Stop solenoid fault Control device fault
Diesel water temperature is too high	Insufficient room ventilation Not enough cooling liquid Fan does not work properly Too much oil Air suction is clogged Cooling system leakage or clogging Exhaust gas exit is clogged Radiator is clogged Injectors are faulty or wrong type
Too much oil pressure	Indicator or gauge is faulty Oil properties are not suitable
Generator does not start	Generator is in turned off position Battery is empty Starter relay is faulty Control device fault Electric connection fault Starter motor fault
Exhaust gas is blue	Too much oil Oil properties are not suitable Diesel engine problem
Exhaust gas is white	Cold operational environment Diesel is too cold Injectors have a problem
Exhaust gas is black	Not enough environmental cooling Overload Injectors have a problem

## **7. LONG-TERM STORAGE**

If the generator is going to wait for 120 days or more, special precautions must be taken to preserve the performance.

1. Empty the engine oil and add oil to the engine until the high level according to the oil dipstick.
2. Mix the protective oil and fuel at 50 – 50% rate and fill the fuel tank with it.
3. Run the generator for 5 -10 minutes without load.
4. Stop the generator and spray VCI via the engine air inlet opening.
5. Empty the protective oil and fuel mixture.
6. Cover the engine air inlet, exhaust exit and ventilation holes with tape.
7. Loosen the belts.
8. Tape the starter motor and charge dynamo terminals. Coat the starter motor and charge dynamo with polyethylene foil and place protector inside.
9. Remove the battery cables and charge the battery. Wash the battery's top section with pure water and apply vaseline on the lead terminals to prevent corrosion.
10. Cover the generator with canvas to protect it against weather conditions.

The battery must be preserved at a dry and cold location. The generator must be stored at a place with good ventilation. Do not forget to place "do not run" expression on it when you preserve the generator.

If the engine cooling water contains anti-corrosion liquid with anti-freeze, it may not be required to be emptied.

## **8. CALLING FOR SERVICE**

You can contact our closest authorized dealer for your part or service needs. You can find the list of the authorized dealers via our web site or call +90 216 313 42 77 number to learn about our dealers in your region closest to you.

Before you call us for service, it will allow solving your problem in a much more quickly and efficient way if you apply to us after preparing the below mentioned information or after filling the attached Fault Notification Form.

1. Generator Model and Serial No
2. Purchase Date
3. Explanation about the occurring problem

Intervention by unauthorized people or using unoriginal parts may cause accidents and product damages that may cause injuries or deaths.

## **9. GUARANTEE**

The Guarantee Period of the generator you have purchased to use during power cut-offs is 1 years outside Turkey or 1000 operation hours (whichever occurs first).

Your generator is guaranteed in scope of the material, production, workmanship and assembly faults.

Your generator will be fixed for free, in case of any failures caused by such reasons.

The guarantee becomes invalid in case of faults caused by misuse or acting against the points stated in the Maintenance and User Manual provided with the generator in addition to the Diesel Engine Manual and Alternator Manual, or if the periodical maintenances and supervisions are not carried out. During the service requests, our customers will have to submit the evidence that such maintenances and controls were being carried out, to the service authority.

The generator's delivery shall be done by Idea or the authorized services. Otherwise the guarantee shall become invalid. If the generator location is changed without Idea's approval, the guarantee shall become invalid.

The damages and faults, which may occur during the unloading and transportation of the generator set after the delivery is made to the transportation vehicle at the factory or on-site delivery, are out of the scope of the guarantee. The faults and damages that may be caused by the natural disasters, fires or mains electricity are out of the scope of the guarantee.

The faults that may occur as the result of using materials not approved by Idea generator are out of the scope of the guarantee.

### **IMPORTANT!**

TO PREVENT THE DIESEL GENERATOR FROM LOSING ITS GUARANTEE ; ITS MAINTENANCE MUST BE CARRIED OUT BY IDEA AUTHORIZED SERVICES AT LEAST ONCE IN SIX MONTHS AND ORIGINAL IDEA SPARE PARTS MUST BE USED.

The maintenance, repair or adjustments carried out by unauthorized services or people render the guarantee invalid.

The guarantee becomes invalid especially if the oil, diesel fuel, antifreeze or additives stated in the maintenance and user manuals are not used.

The faults caused by unbalanced loads that exceed the generator load are out of the scope of the guarantee.

The guarantee becomes invalid if the generator set's labels are erased, removed or changed.

The Guarantee Certificate contains the related detailed information about the guarantee scope and procedure. Before you use the generator, we absolutely recommend reading and understanding the Guarantee Certificate, which contains the information about the guarantee scope and procedures.



## **GUARANTEE CERTIFICATE**

IDEA gives guarantee for IDEA Diesel generator and parts in scope of the workmanship and material defects for 1 years after the first operation date or for 1000 work hours (whichever is the earliest). The guarantee period is limited to 15 months as of the shipment date.

### **Request for Guarantee Beginning Procedure**

The Buyer/User is responsible from the points below as a basic agreement responsibility. Not fulfilling these provisions may cause IDEA not to accept the Guarantee.

- a. The Buyer/User shall send the Guarantee Certificate Return coupon located at the bottom of the Guarantee Certificate to IDEA within 1 month after the date of sale or within 10 days as of the first operation date (whichever is the earliest).
- b. The Buyer/User shall notify about the fault with the help of the Guarantee Request Form among the documents delivered with the generator, without delay. This form shall be correctly and completely filled.

### **Limitations**

The Guarantee does not apply if the fault is caused by the below mentioned points:

- a. Normal wear, accident, misuse, wrong assembly, wrong application, transportation and storage damages, negligence or modifications not in compliance with IDEA or Engine/Alternator producers' specifications
- b. Not following IDEA's maintenance and user instructions and using non-suitable fuels and oils
- c. Using unoriginal parts not in compliance with IDEA's recommendations and specifications
- d. Exceeding the generator powers anticipated by IDEA or being out of the determined field conditions

### **Other Provisions**

- a. If the fault is not accepted by IDEA, the Buyer/User shall pay for the costs of troubleshooting and examination.
- b. If IDEA accepts the fault as a fault in scope of the Guarantee, the below mentioned shall be applied if the Buyer/User completely followed the agreement provisions.
  - IDEA makes a decision on the free shipment of the faulty parts or repairs at the factory or on-site.
  - The ownership of the replaced parts or complete products shall belong to IDEA and their transportation fee shall be paid by Buyer/User and they will be sent to IDEA.
- c. The guarantee does not include the coincidental costs and the costs that occur afterwards because of the faults and malfunctions experienced by the Buyer/User, including but not limited to communication costs, catering, accommodation, overtime, labor loss, inconvenience etc.
- d. The repaired or replaced parts are guaranteed until the original guarantee period of the product ends. The same applies when the product is completely replaced.
- e. The guarantee process is not carried out until the compliance to guarantee conditions is verified by IDEA, clearly and in written form. The abovementioned provisions are applied after the compliance verification.
- f. All sales and related services are subject to the abovementioned provisions.

**IDEA MAKİNA İMALAT SAN.VE TİC. LTD.ŞTİ.**

GUARANTEE CERTIFICATE (BUYER COPY)	
<b>Producing Company:</b> <b>Name:</b> IDEA MAKİNA İMALAT SAN. VE TİC. LTD. ŞTİ. <b>Address:</b> İstanbul Deri OSB. Sama Cad. (12. Yol) No:7 Tuzla İstanbul  <b>Phone:</b> +90 216 313 42 77 <b>Fax:</b> +90 216 313 42 79 <b>e-mail:</b> info@ideamakina.com.tr <b>Authorized Signature:</b> <b>Company Seal:</b>	<b>Selling Company:</b> <b>Name:</b> <b>Address:</b> <b>Phone:</b> <b>Fax:</b> <b>e-mail:</b> <b>Invoice Date and Number:</b> <b>Delivery Date and Location:</b> <b>Authorized Signature:</b> <b>Company Seal:</b>
<b>About the Goods</b>	
<b>Type:</b> <u>Generator</u> <b>Brand:</b> <u>IDEA</u> <b>Model:</b>	<b>Guarantee Period:</b> <u>1 years</u> <b>Maximum Repair Time:</b> <b>Banderole and serial number:</b>
<b>GUARANTEE CONDITIONS</b>	
<p><b>1)</b> The guarantee period begins on the delivery date and is 1 years. <b>2)</b> Whole and all parts of the commodity is in scope of the guarantee. <b>3)</b> If it is understood the product is defective, the consumer can benefit from 6502 numbered Consumer Protection Law's 11. article: a-Withdrawal from the contract, b-Requesting discount from the sales cost, c-Request free repair, ç-Request replacement by an equivalent complete product without defect; one of these rights can be used. <b>4)</b> If the consumer chooses free repair option the seller is responsible from carrying out the repair (or have it carried out) without requesting any price under any name such as workmanship, spare part etc. The consumer can also use the free repair right against the producer or the importer. The seller, producer and importer are successively responsible from consumer's opportunity to use this right. <b>5)</b> If the consumers uses the free repair right, in cases where: the fault occurs again within the guarantee period, the required maximum repair period is exceeded, the repair is not possible and these are determined based on a report by the authorized service station, seller, producer or the importer; the consumer can request the product's cost to be returned, receiving cost discount at the rate of the fault or if possible, replacement with another product without defect. The seller cannot reject the consumer's request. If this request is not fulfilled, the seller, producer and the importer shall be successively responsible. <b>6)</b> The repair period cannot exceed 20 work days. This period begins on the date of notification to the authorized service station or the seller about the fault within the guarantee period, and if the guarantee period ended, the date when the product is delivered to the authorized service station. If the fault cannot be solved within 10 work days, the producer or importer must provide another product with similar properties to the consumer's usage until the product's repair becomes completed. If the fault occurs within the guarantee period, the time spent for repair shall be added to the guarantee period. <b>7)</b> The faults caused by using the product against the points stated in the user manual are out of the scope of the guarantee. <b>8)</b> The consumer can apply to the Arbitration Committee for Consumer Problems or the Consumer Court at the settlement or the location where consumer processes are carried out, in case of any disagreement regarding the usage of rights arising from the guarantee. <b>9)</b> If this Guarantee Certificate is not provided by the Seller, the consumer can apply to the Ministry of Customs and Trade, Directorate General of Consumer Protection And Market Surveillance.</p>	

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The Guarantee Certificate Producer or Importer Copy must be sent to IDEA, otherwise guarantee rights will be lost.

GUARANTEE CERTIFICATE (PRODUCER OR IMPORTER COPY)	
<b>Producing Company:</b> <b>Name:</b> IDEA MAKİNA İMALAT SAN. VE TİC. LTD. ŞTİ. <b>Address:</b> İstanbul Deri OSB. Sama Cad. (12. Yol) No:7 Tuzla İstanbul <b>Phone:</b> +90 216 313 42 77 <b>Fax:</b> +90 216 313 42 79 <b>e-mail:</b> info@ideamakina.com.tr <b>Authorized Signature:</b> <b>Company Seal:</b>	<b>Selling Company:</b> <b>Name:</b> <b>Address:</b> <b>Phone:</b> <b>Fax:</b> <b>e-mail:</b> <b>Invoice Date and Number:</b> <b>Delivery Date and Location:</b> <b>Authorized Signature:</b> <b>Company Seal:</b>
<b>Malın</b>	
<b>Type:</b> <u>Generator</u> <b>Brand:</b> <u>IDEA</u> <b>Model:</b>	<b>Guarantee Period:</b> <u>1 years</u> <b>Maximum Repair Time:</b> <b>Banderole and serial number:</b>
<b>GUARANTEE CONDITIONS</b>	
<p><b>1)</b> The guarantee period begins on the delivery date and is 1 years. <b>2)</b> Whole and all parts of the commodity is in scope of the guarantee. <b>3)</b> If it is understood the product is defective, the consumer can benefit from 6502 numbered Consumer Protection Law's 11. article: a-Withdrawal from the contract, b-Requesting discount from the sales cost, c-Request free repair, ç-Request replacement by an equivalent complete product without defect; one of these rights can be used. <b>4)</b> If the consumer chooses free repair option the seller is responsible from carrying out the repair (or have it carried out) without requesting any price under any name such as workmanship, spare part etc. The consumer can also use the free repair right against the producer or the importer. The seller, producer and importer are successively responsible from consumer's opportunity to use this right. <b>5)</b> If the consumers uses the free repair right, in cases where: the fault occurs again within the guarantee period, the required maximum repair period is exceeded, the repair is not possible and these are determined based on a report by the authorized service station, seller, producer or the importer; the consumer can request the product's cost to be returned, receiving cost discount at the rate of the fault or if possible, replacement with another product without defect. The seller cannot reject the consumer's request. If this request is not fulfilled, the seller, producer and the importer shall be successively responsible. <b>6)</b> The repair period cannot exceed 20 work days. This period begins on the date of notification to the authorized service station or the seller about the fault within the guarantee period, and if the guarantee period ended, the date when the product is delivered to the authorized service station. If the fault cannot be solved within 10 work days, the producer or importer must provide another product with similar properties to the consumer's usage until the product's repair becomes completed. If the fault occurs within the guarantee period, the time spent for repair shall be added to the guarantee period. <b>7)</b> The faults caused by using the product against the points stated in the user manual are out of the scope of the guarantee. <b>8)</b> The consumer can apply to the Arbitration Committee for Consumer Problems or the Consumer Court at the settlement or the location where consumer processes are carried out, in case of any disagreement regarding the usage of rights arising from the guarantee. <b>9)</b> If this Guarantee Certificate is not provided by the Seller, the consumer can apply to the Ministry of Customs and Trade, Directorate General of Consumer Protection And Market Surveillance.</p>	





**TÜRK STANDARDLARI ENSTİTÜSÜ**  
**TÜRK STANDARDLARINA UYGUNLUK BELGESİ**  
**TURKISH STANDARDS INSTITUTION**  
**CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS**



**BELGE KAPSAMI ( 014998-TSE-01/03no.lu belge devamı ) : IDEA MAKİNA İMALAT SANAYİ VE TİCARETLTD.ŞTİ.**  
**İLGİLİ TÜRK STANDARDI(RELATED TURKISH STANDARD) TS-ISO 8528-5 / 15.10.2015 – TS-EN ISO 8528-13 /**  
**13.04.2018**

**Kaçar:**

230/400 V, 50Hz, IP21M(KABİNSİZ), IP 23M(KABİNLİ), G3 SINIFI, ÜÇ FAZLI, OTOMATİK VEYA MANUEL ÇALIŞTIRILABİLEN, DIESEL JENERATÖR GRUPLARI (S.D 30.11.2020 )

**-JENERATÖR GRUPLARI (DIESEL)**

-4D000002W MODEL ,DAEWOO Motorlu, Prime 13,5 KVA /10,8 kW, Standby 15 KVA/12 KW(Prime 13,5 KVA Standby 15 KVA dahil) dan , Prime 1007 KVA /806 kW Standby 1108 KVA/886 KW (Prime 1007 KVA , Standby 1108 KVA dahil) ya kadar

230/400 V, 50Hz, IP21M KABİNSİZ-IP23M KABİNLİ , G3 SINIFI, ÜÇ FAZLI, OTOMATİK VEYA MANUEL ÇALIŞTIRILABİLEN, DIESEL JENERATÖR GRUPLARI (K.D-S.D 30.11.2020 )

-4D0000P MODEL ,PERKINS Motorlu, Prime 13,5 KVA /10,8 kW, Standby 15 KVA/12 KW(Prime 13,5 KVA Standby 15 KVA dahil) dan , Prime 1028 KVA /821 kW Standby 1128 KVA/902 KW (Prime 1028 KVA , Standby 1128 KVA dahil) ya kadar

230/400 V, 50Hz, IP21M KABİNSİZ-IP23M KABİNLİ , G3 SINIFI, ÜÇ FAZLI, OTOMATİK VEYA MANUEL ÇALIŞTIRILABİLEN, DIESEL JENERATÖR GRUPLARI (S.D 30.11.2020 )

Jeneratör grupları ile birlikte test edilen maksimum güçte Alternatörler :

EINCOX marka Alternatör maksimum güç prime 1138 KVA / 910 kW , Standby 1200 KVA / 960 kW a kadar  
STAMFORD marka Alternatör maksimum güç prime 550 KVA / 440 kW , Standby 590 KVA / 472 kW a kadar  
MARSELLI marka Alternatör maksimum güç prime 1030 KVA / 840 kW , Standby 1155 KVA / 924 kW a kadar  
STAMFORD marka Alternatör maksimum güç prime 1030 KVA / 824 kW , Standby 1133 KVA / 906 kW a kadar

**Belgeleme Tarihi**

**07.12.2021**

**Belgeleme Merkezi Başkaraçın**  
**AHMET NURSI KARTAL**

**TSE İSTANBUL BELGELENDİRME MÜDÜRÜ**

Bu belge, imzalandıktan itibaren geçerlidir. Değişiklikler ihtisarıyla geçerli değildir ve geçerlidir.

Bu belge, TS EN ISO 9001 standardına, müşteri özel isteklerine imzalandıktan itibaren geçerlidir. İhtisarıyla geçerlidir.

TSE İSTANBUL BELGELENDİRME MÜDÜRÜ / Adres: Çarşıbaşı TSE İstanbul / YOL ÇARŞIYI KAPASİTESİ \* TSE İSTANBUL BELGELENDİRME MÜDÜRÜ

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**IMPORTANT!**

TO PREVENT THE DIESEL GENERATOR FROM LOSING ITS GUARANTEE ; ITS MAINTENANCE MUST BE CARRIED OUT BY IDEA AUTHORIZED SERVICES AT LEAST ONCE IN SIX MONTHS AND ORIGINAL IDEA SPARE PARTS MUST BE USED.



**START-UP FORM**

**1- THE REQUIRED VISUAL AUDITS FOR THE ENGINE AND THE ALTERNATOR.**



- There is no loose part.
- No leakage from the radiator and cooling system.
- Radiator cooling liquid level is normal.
- Hoses are not loose.
- The cooling liquid mixture rate is suitable.
- Belts are not loose or deformed.
- Diesel engine oil level is normal.
- Battery is available. Lead terminals are tight and clean.
- Crankcase ventilation is provided.
- Exhaust silencer is available.
- Exhaust pipe is according to the standards.
- There are vibration wedges below the chassis.
- No loose cable connection.

**2 - REQUIRED AUDITS BEFORE RUNNING THE GENERATOR SET.**



- No foreign material on the generator set.
- There is no obstacle that may prevent air discharge in front of the radiator.
- The ventilation of the generator location is within the stated measurement values.
- Generator set is located on a durable and flat floor.
- Air suction and discharge channels are provided to the appropriate dimensions.
- Exhaust system is duly established.
- Diesel fuel level is sufficient.

**3 - REQUIRED AUDITS AFTER RUNNING THE GENERATOR SET.**



- Generator is loaded with the system load. Frequency (motor cycle) is normal.
- No oil, water, fuel leakage.
- Motor cooling liquid temperature is normal.
- Motor oil pressure is normal.

**4 - POINTS TO TAKE INTO ACCOUNT WHEN TRAINING THE CUSTOMERS.**



- The safety rules are transmitted to the customer.
- Information is provided about the generator set's automatic and manual operation.
- Information is provided about the generator set's automatic and manual stops.
- User is informed about the maintenance processes.

**GENERATOR GROUP INFORMATION**

MODEL		GUARANTEE PERIOD	
SERIAL NO		FIRST OPERATION DATE	

The generator, of which detailed information is provided above, is received by us in complete and operational status.

**Service Authority**

Name / Surname  
Signature

**Customer Representative**

Name / Surname  
Signature