



NIPPON SHARYO DIESEL GENERATOR SETS

NES SERIES



ISO-9001
Certified



JQA-1232

 **NIPPON SHARYO**



THE EAGLE MARK IS YOUR GUARANTEE OF

The eagle, the king of birds, symbolizes the supremacy of NIPPON SHARYO's range of electrical equipment.



QUALITY



PROFILE OF NIPPON SHARYO

NIPPON SHARYO with 100 years history that includes the construction of the world famous "SHINKANSEN" (Bullet trains), has also been active in the field of generator sets for over 40 years. We offer a complete range of prime and standby power sources from 13 kVA to 800 kVA of silent types.



QUALITY THAT SPEAKS FOR ITSELF

The production process extends from the manufacture of the component parts through assembly under strict quality control, and includes a factory test conducted to exacting standards by our own experienced staff.

This ensures NIPPON SHARYO's position at the forefront of its competitors in terms of quality and durability.



FAST AND DEPENDABLE AFTER-SALES SERVICE

Satisfactory operation of the generator sets requires a ready supply of spare parts and periodical inspection. NIPPON SHARYO maintains a constant computer-monitored stock of spare parts, and can ensure quick delivery when required. Our technical staff will visit customers regularly to inspect the sets and provide advice and assistance as required.





VARIOUS MODELS OF NES SERIES

NIPPON SHARYO generator sets, which had been regularly used by world-wide customers under the names of NES (Nippon Sharyo's New Electric Power System) series. Every model of the NES series is mounted with a compact Direct Injection type (except NES13~25) Diesel Engine of higher power and lower fuel consumption to make a further improvement in the economic efficiency, the reliability and durability. The NES series has various models as shown herein. Each model is equipped with a brushless alternator and an accurate solid state automatic voltage regulator.

A radiator of larger capacity and a turbo-charged diesel engine with an air after cooler are installed on most of NES series so as to prevent a lowering of the generating power at higher temperature and altitude as much as possible. The series also has a wide selection of optional attachments to assure you of allowing a free choice in generator sets satisfying your requirements. (For details, see page 6)

Silent type

OUTPUT OF GENERATOR SET

The output is based on JIS B 8002 standard conditions.

[Barometric pressure : 100 kPa(760 mmHg), Ambient temperature : 25°C, Relative humidity : 30%. Output shall be de-rated by 11% for every 5°C up from the ambient temp., 25°C.]

Model	NES 13SI	NES 15SI	NES 25SI-T	NES 35SHE	NES 45SHE	NES 60SHE	NES 75SHE	NES 90SHE
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Alternator

Output (kVA)	Standby	50Hz	11.5	13	21	31.5	39	55	68	79
		60Hz	14	15.5	26	36.5	47	66	79	94
	Prime	50Hz	10.5	12.5	20	30	37	50	65	75
		60Hz	13	15	25	35	45	60	75	90

Specification of alternator;
Brushless, separately excited, self-ventilated, revolving field, 4 pole synchronous alternator.

Diesel engine

Make	#1	I	I	I	H	H	H	H	H
Model		3LD1	3LD1	4LE1	W04D-F	W04D-F	W06E-H	W06E-H	H07D-C
Aspiration	#2	N	N	N	N	N	N	N	N
Rated Output (kW)	50Hz	10.2	12.2	19.1	28.6	34.9	50.3	58.8	69.8
	60Hz	12.5	14.4	23.5	33.0	41.9	59.5	69.5	83.1
No. of cylinder		3	3	4	4	4	6	6	6
Piston displacement (ℓ)		1.50	1.50	2.18	4.01	4.01	6.01	6.01	7.41
Capacity of fuel tank (ℓ)		65	65	65	100	100	125	170	200
Fuel consumption (ℓ/h) 50/60Hz	#3	2.3/2.9	2.5/3.1	3.8/4.8	5.6/6.7	6.7/8.2	8.9/10.9	11.0/13.0	13.2/16.0

Specification of diesel engine;
4 cycle, water cooled by radiator of larger capacity, ※ (direct fuel injection), electric start.
※ NES13~25 = Swirl chamber.

Dimensions & Mass

Length	(mm)	1500	1500	1580	2020	2020	2470	2630	2800
Width	(mm)	750	750	690	880	880	880	1050	1050
Height	(mm)	870	870	900	1300	1300	1300	1300	1400
Mass (dry)	(kg)	510	520	590	1200	1200	1420	1650	1850

Silent type

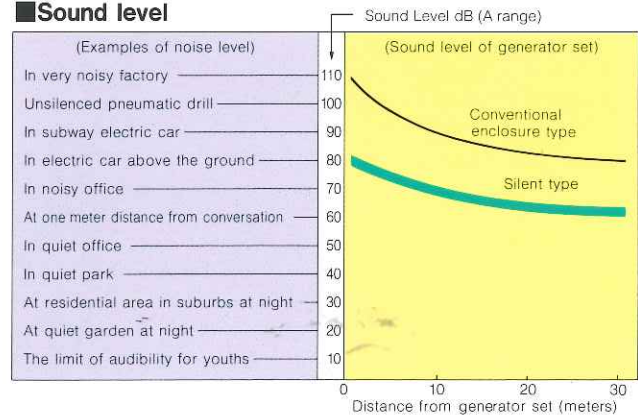


All models are provided with thick steel plate enclosures, lined with sound-absorbing materials for noise prevention.

All models have been authorized as the low noise type diesel generator sets by the Ministry of Construction, Japan.

[Sound level at 7m distance, 60Hz, no-load condition]
 NES13SI~NES300SME : Approx. 61dB~67dB(A)
 NES350SM-2~NES800SM : Approx. 68dB~73dB(A)

Sound level



STANDBY OUTPUT RATING

This rating is applicable for supplying power in case of emergency for approx. 1 hour under JIS standard conditions.

PRIME OUTPUT RATING

This rating is applicable for supplying power as main source under JIS standard conditions.

NES 125SHE	NES 150SHE	NES 220SHE	NES 260SHE	NES 300SME	NES 350SM-2	NES 400SM-2	NES 500SM-3	NES 600SM-3	NES 800SM
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105	130	215	235	275	315	365	495	575	735
131	157	242	270	330	365	420	550	630	800
100	125	195	225	250	300	350	450	550	700
125	150	220	260	300	350	400	500	600	800

Insulation class; F
 Voltage regulation; $\pm 0.5\%$ ($\pm 1.0\%$ for NES13,15)
 Power factor; 0.8 lagging

H	H	H	H	M	M	M	M	M	M
H07C-TD	M10C-TB	K13D-TA	K13C-TJ	S6B-E1PTA	S6B3-PT	S6B3-PTA	S6A3-PTA	S6R-PTA-O	S12A2-PTA
T	T	T	T	TA	T	TA	TA	TA	TA
97.8	117	171	195	235	275	342	405	485	676
115	139	193	225	257	312	382	463	533	757
6	6	6	6	6	6	6	6	6	12
6.73	9.88	13.3	12.9	12.9	14.6	14.6	18.6	24.5	33.9
250	250	370	370	490	490	490	580	600	730
17/22	21/28	33/39	37/44	41/52	48/58	55/66	73/85	87/104	113/141

#1; M=MITSUBISHI, H=HINO, I=ISUZU,
 #2; N=Natural aspiration, T=Turbo-charged, A=After cooler
 #3; Approximate liter/h at 75% load.

3100	3220	3740	3840	4140	4300	4300	4630 (5210)	4690 (5170)	5600 (6233)
1130	1130	1290	1290	1420	1420	1420	1650	1650	1950
1500	1500	1750	1800	2050	2100	2100	2340	2400	2580
2160	2500	3620	3810	4800	5400	5560	6890	8280	11000

() with rain water cover

SYNCHRO-AUTO (option)

(See page 6 code No.K-1)

The NIPPON SHARYO SYNCHRO-AUTO, a micro-computer-controlled automatic synchronizing and automatic load sharing device, has the following features :

1) Light, compact and simple to operate for its capacity. Available as a built-in attachment to the NES series generator sets.

- 2) Excellent durability against climate extremes. High reliability with a detecting system of various faults for parallel running.
- 3) No limitation on the number of generator sets in parallel running, with up to 95 % total coefficient of utility.
- 4) The NES series generator sets equipped with the SYNCHRO-AUTO are available for parallel running with the great majority of the sets produced by other manufacturers.

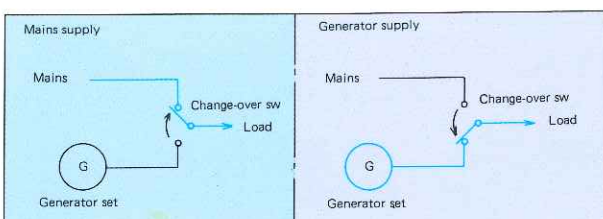


AUTOMATIC MAINS FAILURE SYSTEM (option)

(See page 6 code No.P-1, Q-1)

The system consists of an auto. start-stop unit, an automatic change-over switch (customers' preparations acceptable) and an automatic battery charger. Please consult with us about this system when required.

(AUTO START-STOP UNIT)

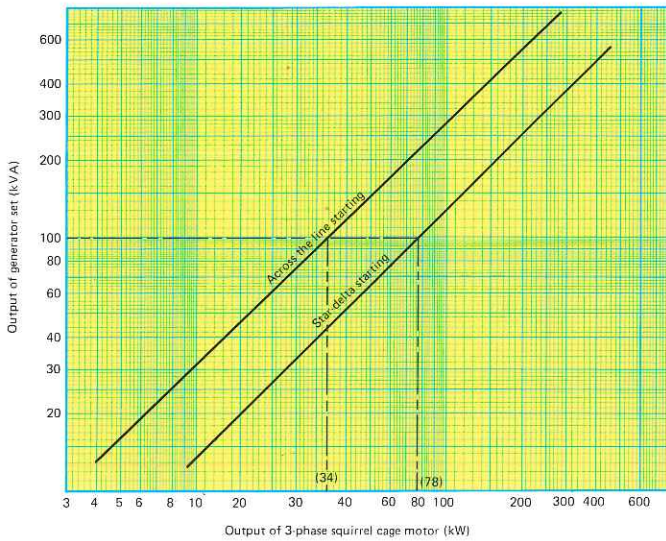


STANDARD AND OPTIONAL ATTACHMENTS TABLE

○;equipped as standard *;equipped as option

ITEM		CODE No.	
A	Diesel engine with fan, radiator, reserve tank and air cleaner	A-1	○
B	Alternator with automatic voltage regulator	B-1	○
C	Steel bed	Skid	C-1 ○
D	Enclosure	Sound proof	D-1 ○
E	Exhaust silencer	Residential, unit mounted	E-1 ○
F	Diesel engine control panel (unit mounted)	Tachometer with running hour meter	F-1 ○
		Water temp. gauge	F-2 ○
		Lube. oil press, gauge	F-3 ○
		Oil filter alarm (NES300~)	F-4 ○
		Lube. oil temp. gauge (NES300~)	F-5 ○
		Charging ammeter (NES125~)/alarm lamp (~NES90)	F-6 ○
		Speed control device	F-7 ○
		Start/stop switch	F-8/9 ○
		Preheating indicator	F-10 ○
		Fuel level gauge	F-11 ○
		Bearing temp. gauge (NES800: As standard)	F-12 ○*
		Stator temp. gauge (NES800: As standard)	F-13 ○*
		Slow down switch (NES125~)	F-14 ○
		Emergency stop switch	F-15 ○
		G	Engine governor
Hydraulic (NES600~)	G-2 ○		
Governor motor (NES600~)	G-3 ○		
H	Alternator control panel	Unit mounted	H-1 ○
		AC ammeter	H-2 ○
		Ammeter selecting switch (NES125~)	H-3 ○
		AC V-meter	H-4 ○
		Frequency meter	H-5 ○
		Voltage adjuster, Rheostat	H-6 ○
		Panel lamp/switch	H-7 ○
		ACB ON-OFF switch/lamp. (NES600~)	H-8 ○
		Voltage indicator lamp (NES125~)	H-9 ○
I	Circuit breaker	MCCB (~NES500)	I-1 ○
		ACB (NES600~)	I-2 ○
J	Synchronizing device (Manual)	Synchronizing switch (NES125~)	J-1 ○
		Synchronizing lamp (NES125~)	J-2 ○
K	Synchronizing device (Automatic)	Synchro-auto (NES300~)	K-1 *
L	Automatic idling device	(NES125~)	L-1 ○
M	Receptacle for aux. power	2-single phase AC 100V, 15A	M-1 ○
		Earth leakage breaker	M-2 ○
N	Fuel tank	Unit mounted, daily tank	N-1 ○
		Change-over cock for external fuel supply(NES25~NES60:As standard/NES75 up:As option)	N-2 ○*
O	Battery	Lead acid, unit mounted	O-1 ○
P	Automatic battery charger (Built-in)	(NES125~)	P-1 *
Q	Automatic start/stop unit (Built-in)	(NES125~)	Q-1 *
R	Output terminal		R-1 ○
S	Dual voltage system	(~NES90)	S-1 *
		(NES125~)	S-2 ○
T	Monitor	Audible alarm (NES25~)	T-1 ○
		Fault lamp, Individual lamp indication	
		High water temp	T-2 ○
		Low lube. oil press	T-3 ○
		Over current (Breaker trip)	T-4 ○
		Over speed (NES800)	T-5 ○
		Low fuel level (NES25~)	T-6 ○
		Reverse power (NES125~)	T-7 *
		Earth leakage	T-8 ○
		High battery voltage (NES25~)	T-9 ○
Low battery fluid (NES25~)	T-10 ○		

SELECTION OF GENERATOR'S OUTPUT FOR VARIOUS MOTOR STARTING METHODS



This graph is considered with the following conditions :

1. The voltage dip on application of the motor does not exceed 30%.
2. The starting kVA of the motor is 7 kVA per kW.
3. The steady state load figures are as follows :
 - (1) Power factor is 80% lag.
 - (2) Efficiency is 85%.
4. The curve on the graph is approximate, because the curve varies in accordance with relative conditions, such as voltage dip, load factor, starting kVA, efficiency of the motor(s), and break mean effective pressure of the diesel engine.

For details, consult our sales representative.

Example : NES125 (100 kVA at 50 Hz) can apply the output of motor(s) to various starting methods.

1. In case of across the line starting method (across the line starting method) :
 - (1) Motor(s) will be switched on simultaneously. The curve shows total output of the motor(s) should be within 34kW.
 - (2) motors will be switched on in the sequence given. The curve shows total output of the motors should be within 78 kW, but the output of largest motor must not exceed 34 kW.
2. In case of star-delta starting method.
The curve shows total output of the motor(s) should be within 78 kW.

Note : Rated current calculation :

Example : in case of NES125 (100kVA, 50Hz, 200V), 289A can be given as follows :

$$I(A) = \frac{\text{kVA}}{\sqrt{3} \cdot V} \times 1000 = \frac{100\text{kVA}}{\sqrt{3} \times 200\text{V}} \times 1000 \approx 289\text{A}$$



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