

TOYO BRUSHLESS

Made in JAPAN
Powered by
YANMAR

DIESEL GENERATORS

TYV/TSN Series



Open canopy type PC

TYV-SPC / TPC
TSN-SPC / TPC



Bonnet type B

TSN-SB / TB

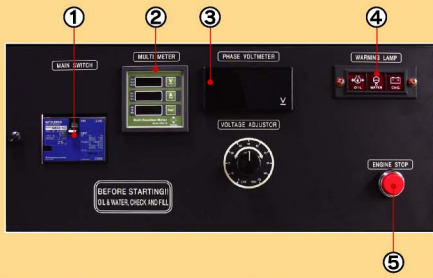


Sound proof type BS

TYV-SBS / TBS
TSN-SBS / TBS

CONTROL PANEL

Type BS



- ① Main Switch
- ② Multi Monitor
Single Phase Voltmeter
3-phase(R-0,S-0,T-0)
Single Phase Ammeter
3-phase(R-0,S-0,T-0)
Frequency meter
Battery Voltage
Hour meter
- ③ Phase Voltmeter
- ④ Warning Lamp
- ⑤ Engine Stop Switch

Optional Equipment

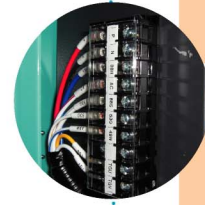
AMF PANEL (Automatic Mains Failure Panel)

- Auto charging system
- Auto maintenance running
- Automatic transfer system
- Over-speed protection / Low speed
- Start at mains Low / High voltage and stop at normal voltage.



AS PANEL (Automatic Start Panel)

- Auto start / Auto stop system
- Over-speed / Low-speed protection
- Start at mains Low / High voltage and stop at normal voltage.



Accessories

Parts		Model		TYV-7S~36S			TSN-13S~33S			TYV-9.5T~50T		TSN-17T~45T			TSN-65T/75T		
		BS	PC	BS	B	PC	BS	PC	BS	B	PC	BS	B	A1			
Multi Monitor	Single Phase Voltmeter	S	S	S	S	S											
	Single Phase Ammeter																
	Ammeter selector switch	N	N	N	N	N	S	S	S	S	S	S	S	S	S		
	Voltmeter selector switch						Voltmeter select (R-0, S-0, T-0)										
	Frequency meter						Ammeter select (R-0, S-0, T-0)										
	Battery voltmeter	S	S	S	S	S											
	Hour meter																
Phase voltmeter	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Voltage adjustor	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Main switch	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Engine start switch	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
High water temperature lamp	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
C.Water temp. meter	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S		
Low lub. Oil pressure lamp	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Lub.Oil pressure meter	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S		
Tachometer	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S		
Charge lamp	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Pre-heat lamp (glow)	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S		
Engine stop switch	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Output terminals	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		
Engine speed control knob	O	N	O	O	N	O	N	O	O	N	O	O	O	O	O		
Wheel	O	O	O	O	O	O	O	O	O	O	N	N	N	N	N		

S Standard O Option N Not Available



TOYO DENKI INDUSTRIAL CO., LTD.

6-3, Hakozaki Futo 6-chome, Higashi-ku, Fukuoka, Japan

Telephone: 81-92-651-3913 Fax: 81-92-641-1284

E-mail: toyo_denki_inc@pop06.odn.ne.jp



TOYO Brushless Diesel Generators

High Performance

TOYO Brushless Diesel Generator SET gives full play to good performance under such bad conditions as a high temperature or a high humidity.

Easy Operation

TOYO Brushless Diesel Generator SET equips an integrated operation panel, so operations are very easy and has a construction switch is easy to get a generating power.

TOYO Brushless Diesel Generator SET fitting out fuesless circuit breaker needs no troublesome fuse exchange.

Engine

Light-weight & compact YANMAR engines with high performance ensure clean exhaust gas, low noise level & low fuel consumption.

Transistor-AVR

TOYO's efficient AVR system keeps output voltage within 1.0% for single phase of the rated voltage from no load to full load at load power factor of 1.0 sudden load changes have been the main cause of damage to conventional AVR's.

TYV,TSN series generators are equipped with AVR system which resists such damage. The system also features easy motor starting (for refrigerators air-conditioner, etc.) and prevents damage from overloading.

Automatic Safety Shut Down Devices

- High water temperature
- Low lubricating oil pressure

Specifications of Single Phase

MODEL		TYV-7S		TYV-12S		TYV-15S		TYV-22S		TYV-30S		TYV-36S		TSN-13S		TSN-17S		TSN-22S		TSN-33S				
Generators	Frequency (Hz)	Hz	50	60	50	60	50	60	50	60	50	60	50	—	50	60	50	60	50	60	50	60		
	Output	Stand-by	kW		5.8	6.8	10.1	12.2	12.8	15.2	19.2	22.3	26.6	30.4	34.3	—	10.8	13.0	14.4	17.3	17.0	21.5	28.2	33.5
		Prime	kW		5.3	6.1	9.1	11.0	11.7	13.8	17.5	20.3	24.1	28.0	30.4	—	9.8	11.8	13.1	15.7	15.3	19.4	25.2	29.8
	Type	Revolving-field type AC Generator (Brushless)																						
	Excitation	Brushless, self-excitation																						
	Voltage regulation	AVR (Automatic Voltage Regulation)																						
	Rated speed	50Hz:3000min ⁻¹ or 60Hz:3600min ⁻¹												50Hz:1500min ⁻¹ or 60Hz:1800min ⁻¹										
	Phase / wire	Single Phase / 2 wire (4 wire)																						
	Voltage	220,230,240, (110/220,120/240) Voltage required																						
	Power factor	1.0																						
	No. of pole	2												4										
	Type of insulation	F-class (both stator & rotor)																						
	Bearing	Single bearing (direct coupling with engine)																						
Engine	Model (YANMAR)	—		2TNV70		3TNV70		3TNV76		3TNE84		4TNE84		4TNE84T		3TNV88		4TNV88		4TNV84T		4TNV98		
	Type	Vertical, Water-Cooled, 4-Cycle Diesel																						
	Combustion system	Swirl pre-combustion												Direct injection										
	Continuous rating output	kw		7.1	8.1	12.1	14.5	15.1	17.7	22.4	26.1	29.9	34.7	37.1	—	12.2	14.9	16.5	19.9	19.1	24.2	30.7	36.4	
		(hp)		9.5	10.9	16.2	19.4	20.2	23.7	30.0	35.0	40.1	46.5	49.7	—	16.4	20.0	22.1	26.7	25.6	32.4	41.2	48.8	
	No of cylinders Bore×Stroke	mm		2-70×74		3-70×74		3-76×82		3-84×90		4-84×90		3-88×90		4-88×90		4-84×90		4-98×110				
	Displacement	ℓ		0.569		0.854		1.116		1.496		1.995		1.642		2.190		1.995		3.318				
	Starting system	Electric starting motor																						
	Cooling system	Radiator with fan																						
	Lubrication system	Forced lubrication with trochoid pump																						
	Recommended lub.oil	API CC or CD class																						
	Aspiration	Natural												Turbo-changed		Natural		Turbo-changed		Natural				
	Recommended fuel	Diesel fuel BS 2869 A1 or equivalent																						
Fuel consumption (70%load)	ℓ/h		2.0	2.5	3.1	3.6	3.9	4.5	4.6	5.7	6.2	7.6	7.7	—	2.3	2.9	2.9	3.7	3.6	4.8	5.5	6.9		
Fuel tank capacity (BS)	ℓ		40						60						60						120			
Set	Dimensions (cm)	BS	130×66×85		140×66×85		140×66×85		160×70×90		183×70×90		183×70×90		160×70×90		183×70×90		183×70×90		205×80×105			
		B	—		—		—		—		—		—		130×67×92		148×67×92		148×67×92		160×75×100			
		PC(A1)	115×61×85		125×61×85		125×61×85		130×67×92		148×67×92		148×67×92		130×67×92		148×67×92		148×67×92		160×75×100			
	Dry weight (kg)	BS	350		395		415		565		655		680		560		630		655		890			
		B	—		—		—		—		—		—		500		560		580		770			
		PC(A1)	270		300		310		430		480		500		425		460		525		715			
	Sound level (at 7m)		Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
		BS		68	70	68	71	70	73	67	73	68	71	69	—	59	64	63	65	58	62	63	65	
B			—	—	—	—	—	—	—	—	—	—	—	—	70	73	70	73	70	73	77	80		
PC(A1)			74	75	74	76	76	80	83	87	86	90	86	—	73	76	73	76	73	76	78	81		

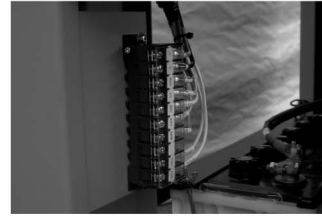
Type-BS (Sound proof type) Type-B (Bonnet type) Type-PC (Open canopy) Type-A1 (Open type)

Easy Maintenance

TOYO Brushless Diesel Generator SET requires no maintenance like machine inspection or brush exchange over a long time because of brushless construction switch doesn't have carbon brushes & slip rings at all.

TOYO Brushless Diesel Generator SET is free from radio interference and spark outbreak according to brushes contact, breakdown do to carbon dust.

AMF Terminals (option)



Remarks:

- Engine output represents at ISO 3046. standard conditions
Air temperature.....25°C
Relative humidity.....30%
Barometric pressure....750mmHg

- Alternator standard No.
IEC 34-1/1969
JEC 114Ω146
- Engine standard No.
SAEJ816b
DIN6270B
BS5514&649

Wide door & Easy maintenance



Specifications of Three Phase

MODEL		TYV-9.5T		TYV-16T		TYV-20T		TYV-30T		TYV-40T		TYV-50T		TSN-17T		TSN-23T		TSN-30T		TSN-45T		TSN-65T		TSN-75T			
Generators	Frequency (Hz)	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
	Output	Stand-by	kVA	7.9	9.2	13.3	16.0	16.9	20.0	25.2	29.4	35.0	40.1	45.2	—	13.8	16.1	18.7	21.0	23.3	29.6	37.4	44.5	54.1	64.1	62.0	74.0
		Prime	kVA	7.1	8.3	12.0	14.5	15.3	18.2	23.0	26.8	31.8	36.9	40.0	—	12.6	14.5	17.0	19.1	20.8	26.5	33.4	40.0	49.2	58.3	56.2	67.2
	Type	—	Revolving-field type AC Generator(Brushless)																								
	Excitation	—	Brushless, self-excitation																								
	Voltage regulation	—	AVR(Automatic Voltage Regulation)																								
	Rated speed	—	50Hz:3000min ⁻¹ or 60Hz:3600min ⁻¹												50Hz:1500min ⁻¹ or 60Hz:1800min ⁻¹												
	Phase / wire	—	Three Phase/ 4 wire																								
	Voltage	V	AC 200V~480V required																								
	Power factor	—	0.8																								
No. of pole	—	2												4													
Type of insulation	—	F-class(both stator & rotor)																									
Bearing	—	Single bearing(direct coupling with engine)																									
Engine	Model(YANMAR)	—	2TNV70	3TNV70	3TNV76	3TNE84	4TNE84	4TNE84T	3TNV88	4TNV88	4TNV84T	4TNV98	4TNV106	4TNV106T													
	Type	—	Vertical, Water-Cooled, 4-Cycle Diesel																								
	Combustion system	—	Swirl pre-combustion												Direct injection												
	Continous rating output	kw	7.1	8.1	12.1	14.5	15.1	17.7	22.4	26.1	29.9	34.7	37.1	—	12.2	14.9	16.5	19.9	19.1	24.2	30.7	36.4	44.9	53.3	51.4	61.5	
		(hp)	9.5	10.9	16.2	19.4	20.2	23.7	30.0	35.0	40.1	46.5	49.8	—	16.4	20.0	22.1	26.7	25.6	32.4	41.2	48.8	60.2	71.4	68.9	82.4	
	No of cylinders Bore×Stroke	mm	2-70×74		3-70×74		3-76×82		3-84×90		4-84×90				3-88×90		4-88×90		4-84×90		4-98×110		4-106×125				
	Displacement	ℓ	0.569		0.854		1.116		1.496		1.995				1.642		2.190		1.995		3.318		4.412				
	Starting system	—	Electric starting motor																								
	Cooling system	—	Radiator with fan																								
	Lubrication system	—	Forced lubrication with trochoid pump																								
	Recommended lub.oil	—	API CC or CD class																								
	Aspiration	—	Natural												Turbo-changed		Natural		Turbo-changed		Natural		Turbo-changed				
	Recommended fuel	—	Diesel fuel BS 2869 A1 or equivalent																								
Fuel consumption(70%load)	ℓ/h	2.0	2.5	3.1	3.6	3.9	4.5	4.6	5.7	6.2	7.6	7.7	—	2.3	2.9	2.9	3.7	3.6	4.8	5.5	6.9	8.8	10.6	10.4	12.4		
Fuel tank capacity(BS)	ℓ	40						60						60						120		130					
Set	Dimensions (cm)	BS	130×66×85		140×66×85		140×66×85		160×70×90		183×70×90		183×70×90		160×70×90		183×70×90		183×70×90		205×80×105		235×92×135		235×92×135		
		B	—		—		—		—		—		—		130×67×92		148×67×92		148×67×92		160×75×100		185×85×120		185×85×120		
		PC(A1)	115×61×85		125×61×85		125×61×85		130×67×92		148×67×92		148×67×92		130×67×92		148×67×92		148×67×92		160×75×100		(180×80×115)		(185×80×115)		
	Dry weight (kg)	BS	350		395		415		565		655		680		560		630		655		1130		1330		1370		
		B	—		—		—		—		—		—		500		560		580		970		1200		1250		
		PC(A1)	270		300		310		430		480		500		425		460		525		680		(780)		(800)		
	Sound level (at 7m)	—	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
BS		68	70	68	71	70	73	67	73	68	71	69	—	59	64	63	65	58	62	63	65	68	69	65	69		
B		—	—	—	—	—	—	—	—	—	—	—	—	70	73	70	73	70	73	77	80	83	84	80	84		
PC(A1)	74	75	74	76	76	80	83	87	86	90	86	—	73	76	73	76	73	76	78	81	(84)	(85)	(81)	(85)			

Type-BS (Sound proof type) Type-B (Bonnet type) Type-PC (Open canopy) Type-A1