

MITSUBISHI GENERATOR SERIES

MGS

MGS0020 ~ 2500



 **MITSUBISHI**
HEAVY INDUSTRIES, LTD.

RELIABILITY & QUALITY IN POWER GENERATION

Mitsubishi engineered, assembled, tested and warranted
Power Generating Systems answer your concerns about electricity.



Mitsubishi Heavy Industries, Ltd. achieves constant improvements through open and timely communication with its customers. Ranging in capacity from 0.5 to 56,400 horsepower, Mitsubishi brand diesel engines have enabled development of a series of versatile power generating systems.

With its proven performance, the Mitsubishi Diesel Generator MGS series is an expanding product line whose quality is assured by the extensive expertise and advanced technology of Mitsubishi Heavy Industries, Ltd.

- * Featuring heavy-duty industrial-use engines fine-tuned with Mitsubishi Turbochargers.
- * Comprehensive technical support for system selection & design.
- * Ready-for-use basic set with minimal options added.
- * Variety of standard options offer system flexibility.

AC GENERATOR

PX-II series Brushless Excitation AC Generator with Automatic Voltage Regulator and Voltage Control Trimmer, IEC IP-21 Enclosed, Single Bearing, Directly Coupled to Engine, Direct-drive Centrifugal Blower, 4 poles - 3 phases & 4 wires, Power Factor 0.8 (lagging), Insulation Class H with tropicalization, 1,500rpm/50Hz and 1,800 rpm/60 Hz

Overspeed Capability:	125% 2 minutes
Waveform Distortion:	Less than 3 %
Voltage Regulation:	Less than 1% from no load to full load, volts-per-hertz protection
Voltage Gain:	Adjustable to compensate for engine speed drop and line loss
TIF:	Less than 50
THF:	Less than 2%



STANDARD INSTRUMENTATION

Generator Control Panel:

24 volt DC control, IEC IP-22 Enclosure, Generator-mounted type with vibration isolator

Instruments and Control Accessories meet IEC and/or JIS:

Instruments:	Voltmeter Ammeter Frequency Meter Water Temperature Thermometer Oil Pressure Gauge Operation Hour Counter Source Pilot Lamp
Protection & Alarm:	Engine Overspeed Shutdown High Water Temperature Shutdown Low Oil Pressure Shutdown Emergency Stop Alternator Charging Failure (alarm indication only)
Controls:	Engine Control Switch & Control Mode Selector (Stop/Run/Auto) Phase Selector Switch for Ammeter/Voltmeter Voltage Adjust Trimmer Frequency Adjust Trimmer Emergency Stop Push-button Cooldown Timer Module, adjustable up to 3 minutes

MOUNTING ARRANGEMENT

Vibration Isolators between Formed Steel Baseframe and Engine-Generator.



Remarks:
3-attempt cycle cranking timer and remote annunciators interface with volt-free contacts are standard for MGS0020-MGS0090.

ADVANCED SOLUTIONS IN POWER GENERATION

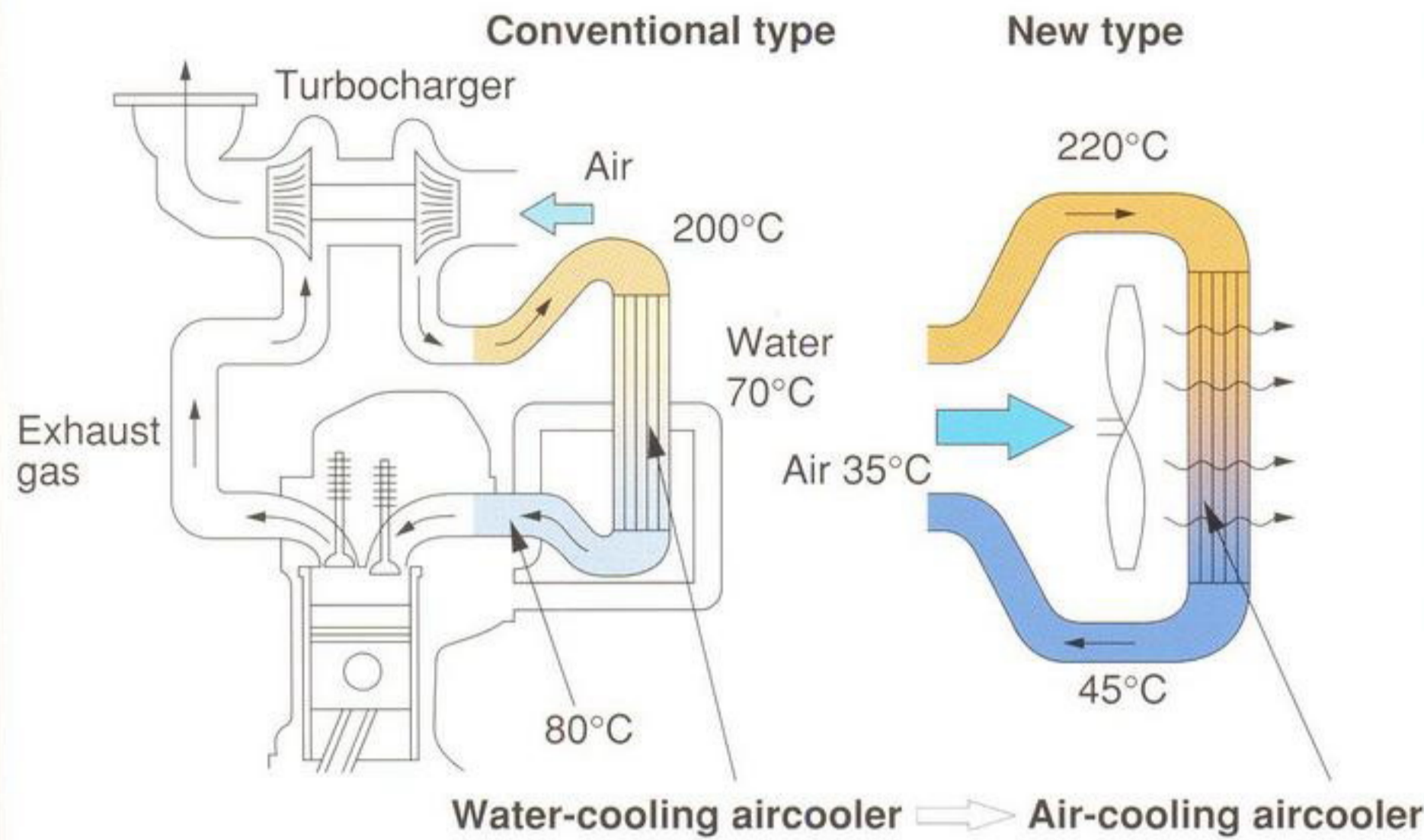
Mitsubishi engineered, assembled, tested and warranted
Power Generating Systems answer your concerns about electricity.

AIR TO AIR MODELS (PTAA)

New additions in the MGS series provide excellent power generating in Standby and Prime duty. An aftercooler, which is located between the turbocharger and the air manifold, is integrated with the engine mounted watercooled radiator. By means of this radiator heat-exchanging system, intake air is cooled efficiently, and the engine gains more power from equal displacement.

Radiator Comparison

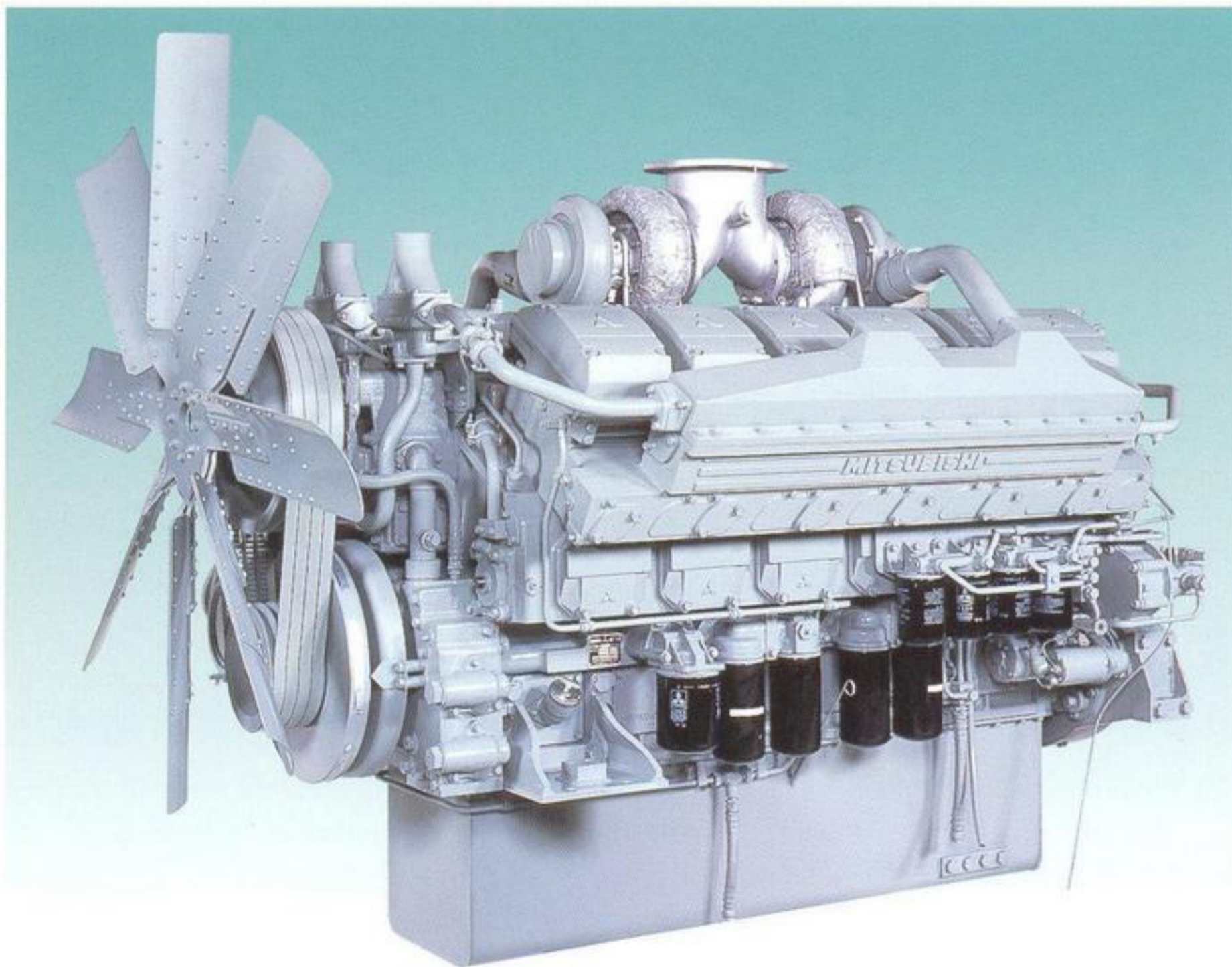
High power output is realized by the air-cooling type radiator with its increased air flow and effective cooling



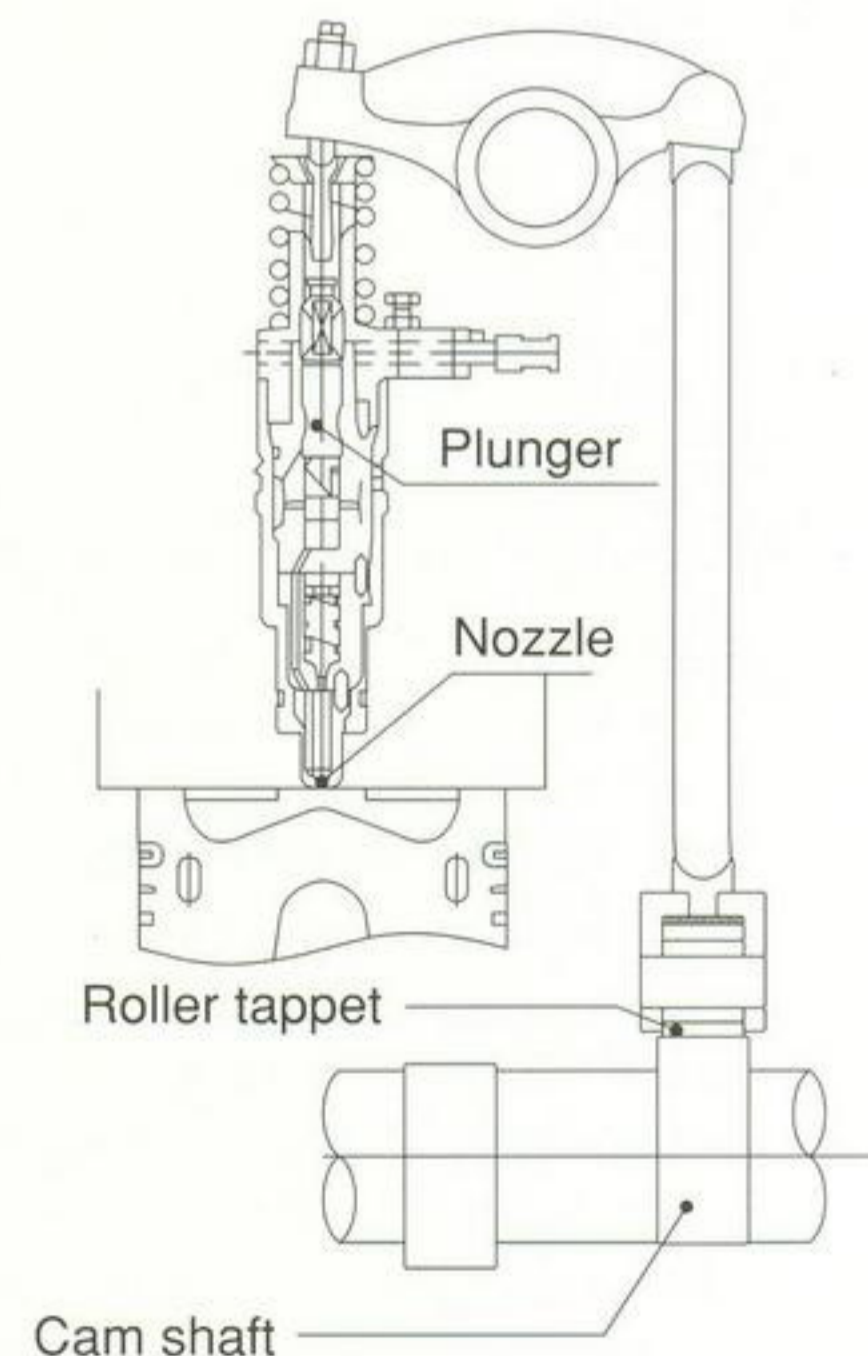
MGS1000 (S12H-PTA)

S12H-PTA is introduced into MGS series as a power source of MGS1000 (and former MGS900) . For saving your precious environmental resources combustion is controlled efficiently by Mitsubishi Unit Injector fuel system.

- * No_x 780 ppm (O₂ = 13%, at 150g/psh fuel consumption)
- * Improved 25% output per engine weight
- * Decreased 57% Lub. oil consumption
- * Space saved 20% in engine overall length



NEW UNIT INJECTOR SYSTEM



FIRST CHOICE IN POWER GENERATION

Mitsubishi engineered, assembled, tested and warranted
Power Generating Systems answer your concerns about electricity.

The MGS series diesel generator set is supplied with connections for 380, 400 or 415 Volt per 50 Hz, and 480 Volt per 60 Hz, 3 phase - 4 wires as standard. Alternative voltages are available. Some voltages require derating.

RATED OUTPUT

MGS Model	Engine Model	Gen. Code	1500 rpm/50 Hz - 380 V						1800 rpm/60 Hz - 480 V					
			STANDBY		PRIME		CONTINUOUS		STANDBY		PRIME		CONTINUOUS	
			Code: 54S		Code: 54P		Code: 54C		Code: 64S		Code: 64P		Code: 64C	
			kVA	kW	kVA	kW	kVA	kW	kVA	kW	kVA	kW	kVA	kW
MGS2500	S16R-PTAA2	64E	2,250	1,800	2,000	1,600	---	---	2,500	2,000	2,250	1,800	---	---
MGS2000	S16R-PTA2	64D	2,100	1,680	1,906	1,525	1,620	1,296	2,288	1,830	2,075	1,660	1,769	1,415
MGS1500	S16R-PTA	64C	1,900	1,520	---	---	1,555	1,244	2,035	1,628	1,845	1,476	1,565	1,252
		64B	1,780	1,424	1,735	1,388	1,550	1,240	2,025	1,620	1,838	1,470	1,565	1,252
		63E	1,575	1,260	1,530	1,224	1,530	1,224	1,890	1,512	1,835	1,468	1,565	1,252
MGS1500	S12R-PTAA2	64A	1,650	1,320	1,500	1,200	---	---	1,875	1,500	1,630	1,304	---	---
MGS1400	S12R-PTA2	63E	1,530	1,224	1,375	1,100	---	---	1,725	1,380	1,545	1,236	---	---
MGS1200	S12R-PTA	63E	1,425	1,140	---	---	1,145	916	1,515	1,212	1,375	1,100	1,160	928
		63D	1,390	1,112	1,275	1,020	---	---	1,500	1,200	1,375	1,100	1,156	925
		63C	---	---	1,150	920	1,140	912	1,400	1,120	1,375	1,100	1,150	920
MGS1000	S12H-PTA	63C	1,160	928	1,050	840	950	760	1,250	1,000	1,165	932	1,040	832
		63B	1,050	840	1,000	800	900	720	1,150	920	1,120	896	1,040	832
MGS0700	S12A2-PTA	63A	850	680	---	---	---	---	1,000	800	875	700	725	580
		62D	---	---	750	600	---	---	945	756	875	700	730	584
		62C	---	---	700	560	660	528	880	704	840	672	725	580
MGS0700	S6R2-PTAA	63A	825	660	750	600	---	---	---	---	---	---	---	---
MGS0650	S6R2-PTA	62D	750	600	---	---	588	470	---	---	---	---	---	---
		62B	681	545	650	520	585	468	---	---	---	---	---	---
MGS0500	S6R-PTA	62D	---	---	---	---	---	---	755	604	681	545	585	468
		62B	656	525	588	470	510	408	750	600	681	545	580	464
		58E	---	---	500	400	500	400	700	560	644	515	575	460
MGS0500	S6A3-PTAA	58E	550	440	500	400	---	---	600	480	535	428	---	---
MGS0450	S6A3-PTA	58E	500	400	455	364	385	308	575	460	500	400	446	357
		58B	---	---	---	---	---	---	530	424	500	400	444	355
MGS0400	S6B3-PTA	58B	420	336	375	300	320	256	465	372	420	336	363	290
		58A	---	---	---	---	---	---	455	364	415	332	356	285
MGS0300	S6B-PTA2	52D	315	252	300	240	255	204	380	304	344	275	296	237
		52C	---	---	---	---	---	---	---	---	344	275	295	236
MGS0250	S6B-PTA	52C	288	230	260	208	205	164	331	265	300	240	250	200
MGS0220	6D22-TC	46D	---	---	200	160	181	145	256	205	231	185	210	168
MGS0200	6D22-T	46D	210	168	190	152	163	130	230	184	213	170	190	152
MGS0120	6D16-T	44F	125	100	118	94	106	85	150	120	138	110	125	100
MGS0090	S6K-T	---	93.5	74.8	85.0	68.0	---	---	107.0	85.6	97.3	77.8	---	---
MGS0060	S4K-T	---	61.0	48.8	55.5	44.4	---	---	69.0	55.2	62.5	50.0	---	---
MGS0040	S4S-T	---	43.0	34.4	39.0	31.2	---	---	51.0	40.8	46.3	37.0	---	---
MGS0020	S4Q2	---	22.0	17.6	20.0	16.0	---	---	27.0	21.6	24.5	19.6	---	---

60 Hz rated output of MGS0020-MGS0090 are for 440 Volts.

CONDITIONS AND DEFINITIONS:

Engine ratings are based on SAE J1349 standard conditions and also apply at ISO 3046/1, DIN 6271 & BS5514 standard conditions.

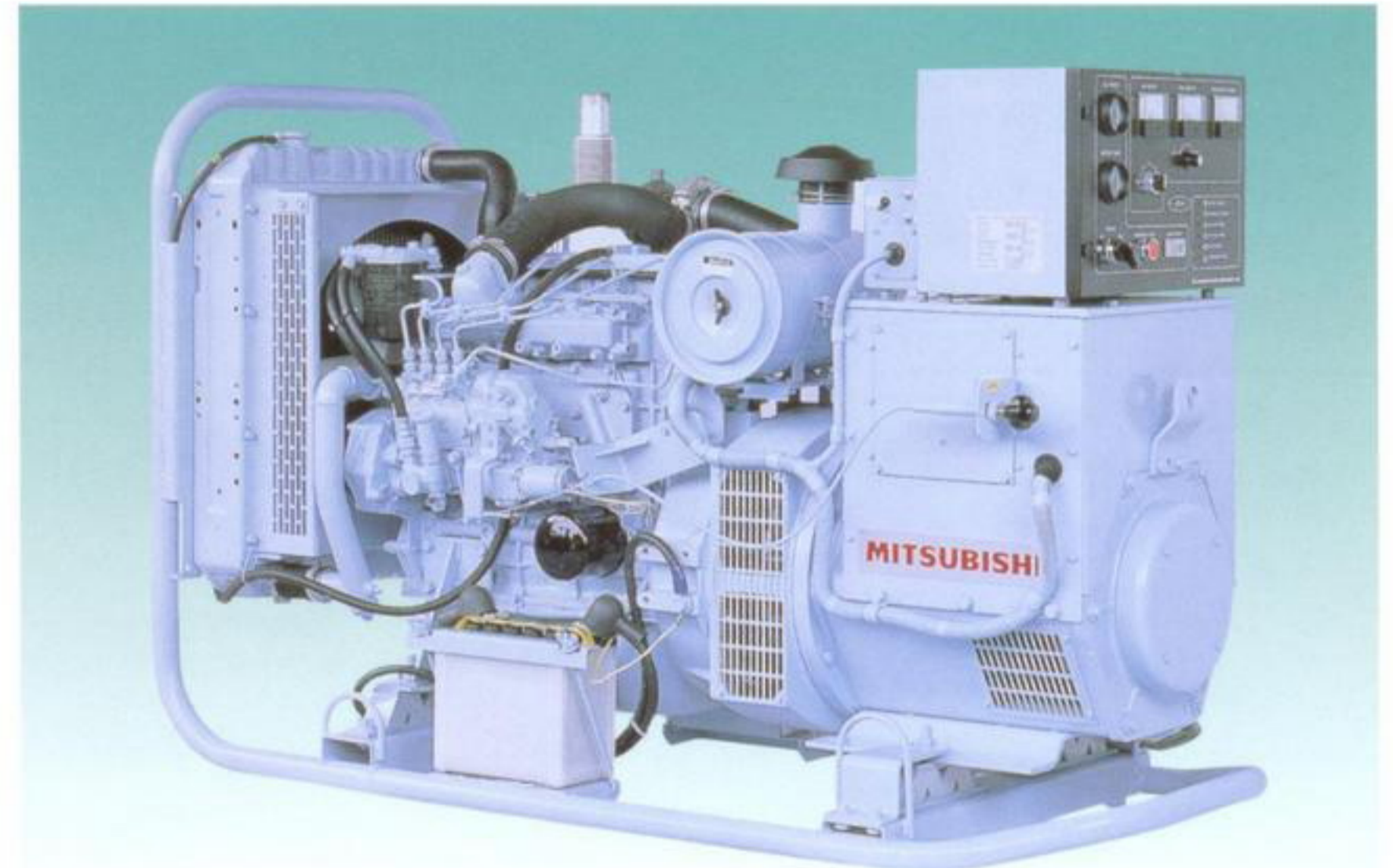
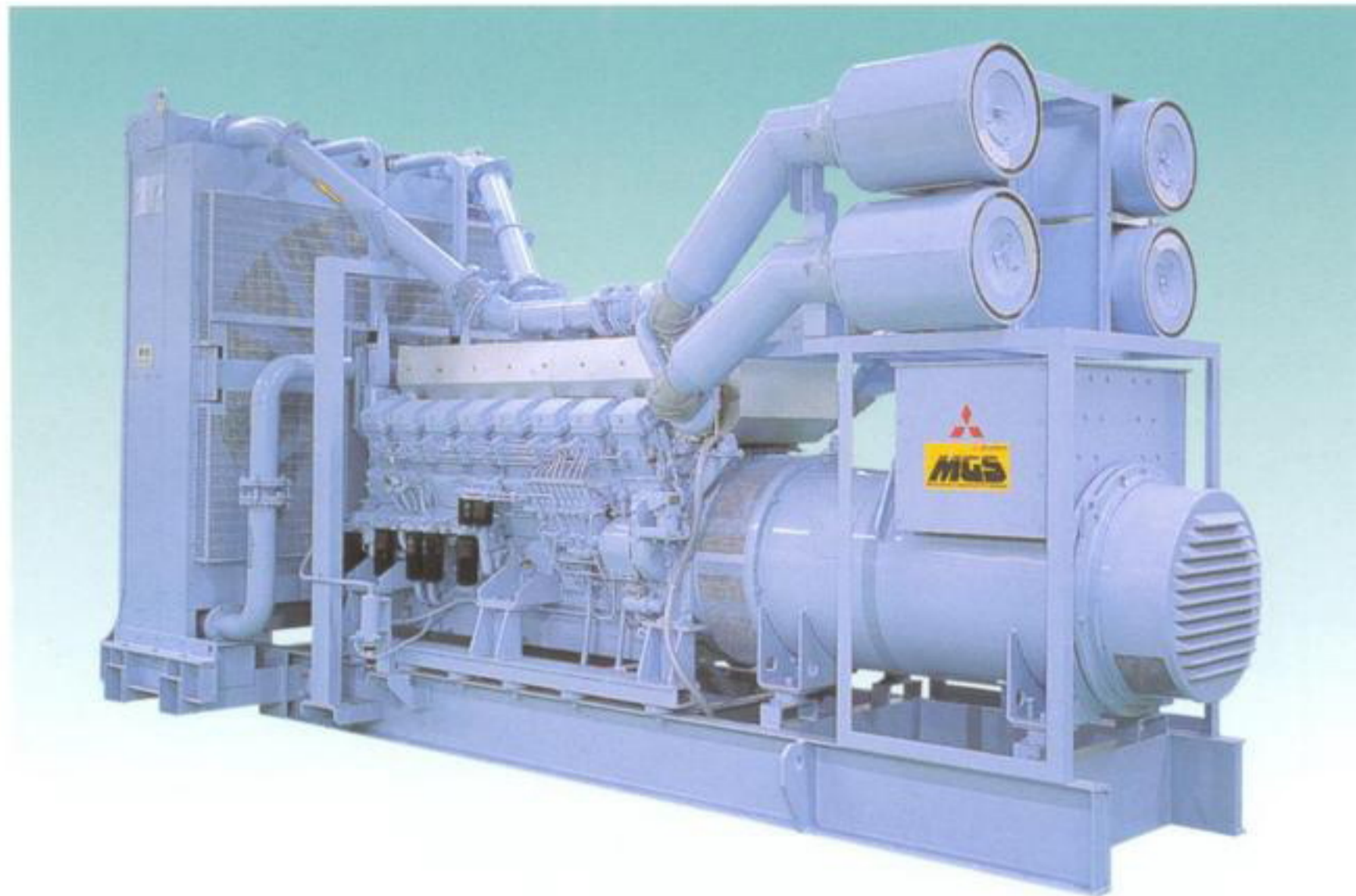
Continuous: For unlimited continuous service

Prime : For continuous electrical service with 10% overload capability for one hour in twelve in accordance with ISO 3046/1, DIN 6271, and BS 5514 standard conditions.

Standby : For continuous electrical service during the interruption of normal source power.

DEPENDABILITY & DURABILITY IN POWER GENERATION

Mitsubishi engineered, assembled, tested and warranted
Power Generating Systems answer your concerns about electricity.



BASIC DATA

MGS Model	Mitsubishi Engine Model		Number of cylinders	Bore (mm)	Stroke (mm)	Displacement (liter)	Lub.Oil capacity (liter)	Coolant capacity (liter)	Fuel consumption		DG set Measurement & Weight			
									50 Hz (liter/hr)	60 Hz (liter/hr)	Length (mm)	Width (mm)	Height (mm)	Dry Weight (kg)
MGS2500	S16R	PTAA2	V-16	170	180	65.37	230	500	321	382	6,000	2,435	3,460	16,000
MGS2000		PTA2							302	329	5,650	2,735	3,005	14,000
MGS1500		PTA							270	295	5,550	2,735	3,005	13,500
MGS1500	S12R	PTAA2	V-12	170	180	49.03	180	350	240	276	5,080	2,235	3,060	13,000
MGS1400		PTA2							224	252	4,700	2,225	2,895	10,830
MGS1200		PTA							202	227	4,700	2,225	2,895	10,830
MGS1000	S12H	PTA	V-12	150	175	37.11	200	300	168	189	4,235	1,760	2,455	7,850
MGS0700	S12A2	PTA	V-12	150	160	33.93	120	258	119	143	3,860	1,720	2,040	6,420
MGS0700	S6R2	PTAA	I-6	170	220	29.96	92	150	123	---	3,940	1,770	2,015	5,650
MGS0650		PTA							104	---	3,770	1,595	1,935	5,450
MGS0500	S6R	PTA	I-6	170	180	24.51	92	200	94	112	3,670	1,595	1,935	5,350
MGS0500	S6A3	PTAA	I-6	150	175	18.56	80	140	82	91	3,450	1,575	1,880	3,800
MGS0450		PTA							74	81	3,280	1,480	1,860	3,710
MGS0400	S6B3	PTA	I-6	135	170	14.60	70	133	61	69	2,950	1,395	1,700	2,900
MGS0300	S6B	PTA2	I-6	135	150	12.88	50	105	50	57	3,030	1,180	1,565	2,620
MGS0250		PTA							44	50	2,930	1,180	1,565	2,500
MGS0220	6D22	TC	I-6	130	140	11.10	31	86	35	43	2,780	1,090	1,395	2,150
MGS0200		T							34	40	2,780	1,090	1,395	2,120
MGS0120	6D16	T	I-6	118	115	7.50	13.5	43	22	26	2,360	1,020	1,255	1,400
MGS0090	S6K	T	I-6	102	130	6.37	15.5	18	15.3	17.6	2,095	820	1,180	1,160
MGS0060	S4K	T	I-4	102	130	4.25	13.0	13	10.3	11.5	1,800	820	1,080	910
MGS0040	S4S	T	I-4	94	120	3.33	10.0	14	7.1	8.3	1,700	750	1,060	655
MGS0020	S4Q2	---	I-4	88	103	2.51	7.0	7	4.3	5.3	1,480	650	850	465

COMBUSTION TYPE : S6B - S16R : Direct Injection type, Turbocharged with aftercooler
S4S - 6D22 : Direct Injection type, Turbocharged without aircooler
S4Q2 : Swirl Chamber type, Non-aspirated

GOVERNOR TYPE : S6B3 - S16R : Electric type
S4Q2 - S6B : Mechanical type (S6B: Electric type is available as option)

FUEL TYPE : Diesel fuel oil (ASTM No.2-D)

LUB OIL TYPE : API service grade CD class, SAE30

FUEL CONSUMPTION : Data for Maximum at 75% load of Prime rating. (Tolerance: 5%)
(with Fan) Value varies with operating condition and D/G set configuration.

ADVANCED TECHNOLOGY IN POWER GENERATING

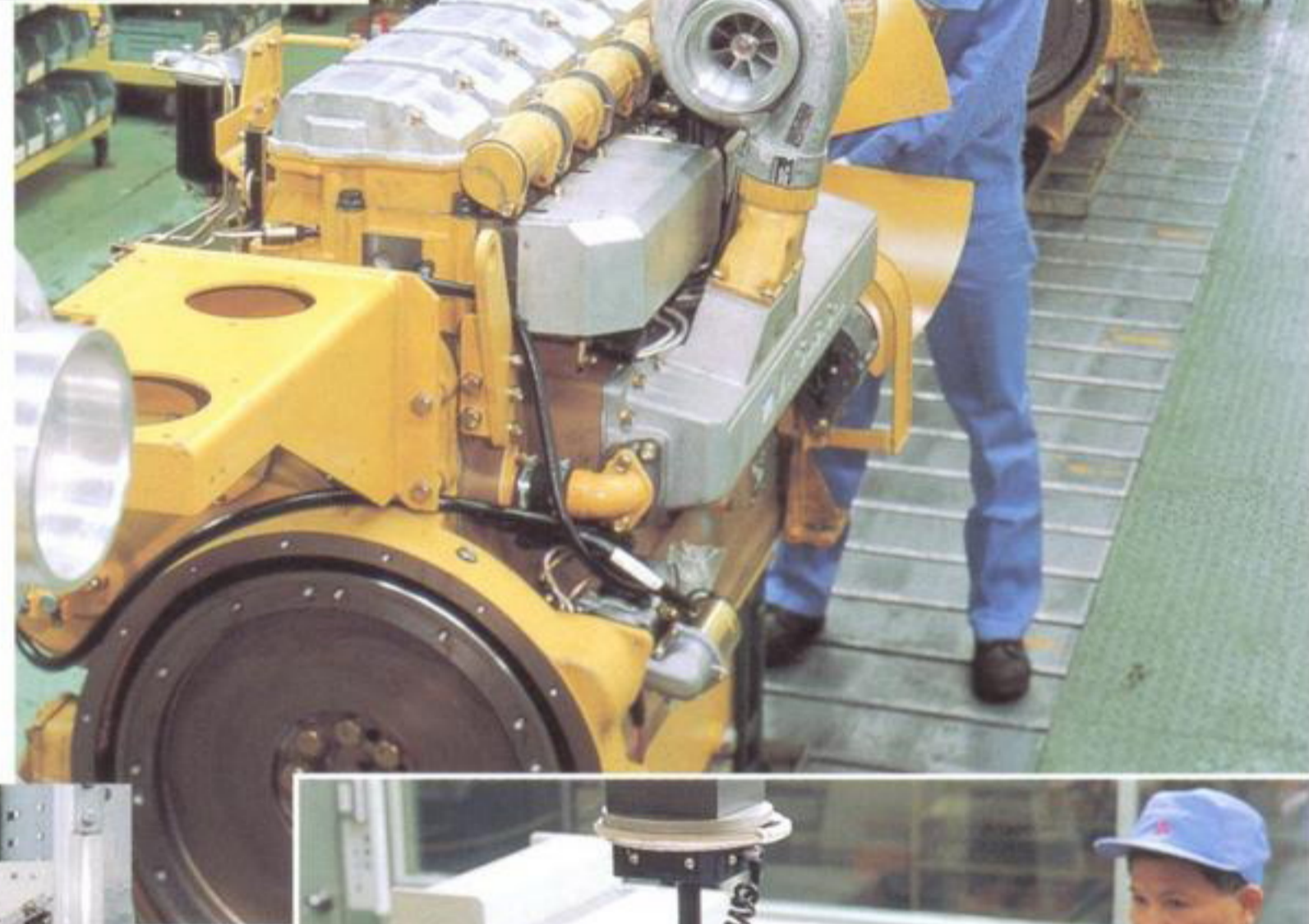


M16U-G in M-G Series



MGP45E in MGP Series (MGP25E~ MGP875)

SOPHISTICATED FACILITIES TO PRODUCE SUPERIOR POWER GENERATING SYSTEMS



MITSUBISHI HEAVY INDUSTRIES, LTD.

GENERAL MACHINERY INTERNATIONAL OPERATIONS DEPARTMENT
5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8315, Japan
Phone: 81-3-3212-9514 Fax: 81-3-3212-9854

SAGAMIHARA MACHINERY WORKS
BUSINESS DEPARTMENT

3000 Tana, Sagami-hara, Kanagawa 229-1193, Japan
Phone: 81-427-61-2056 Fax: 81-427-63-0814