



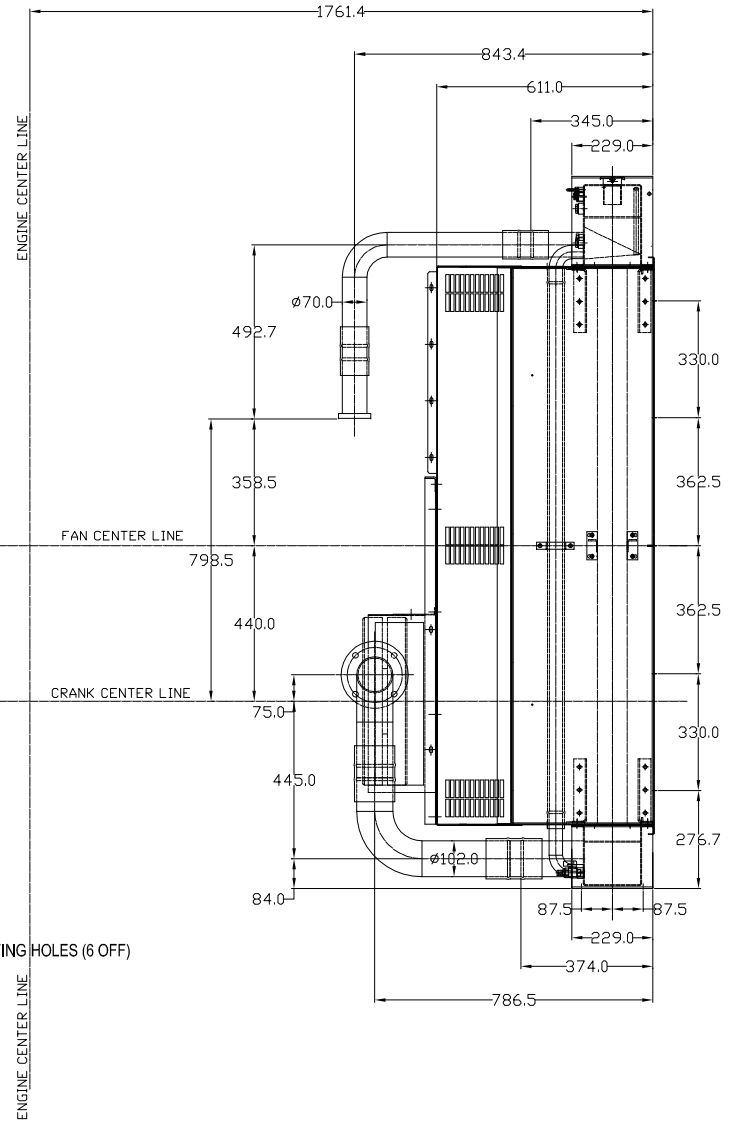
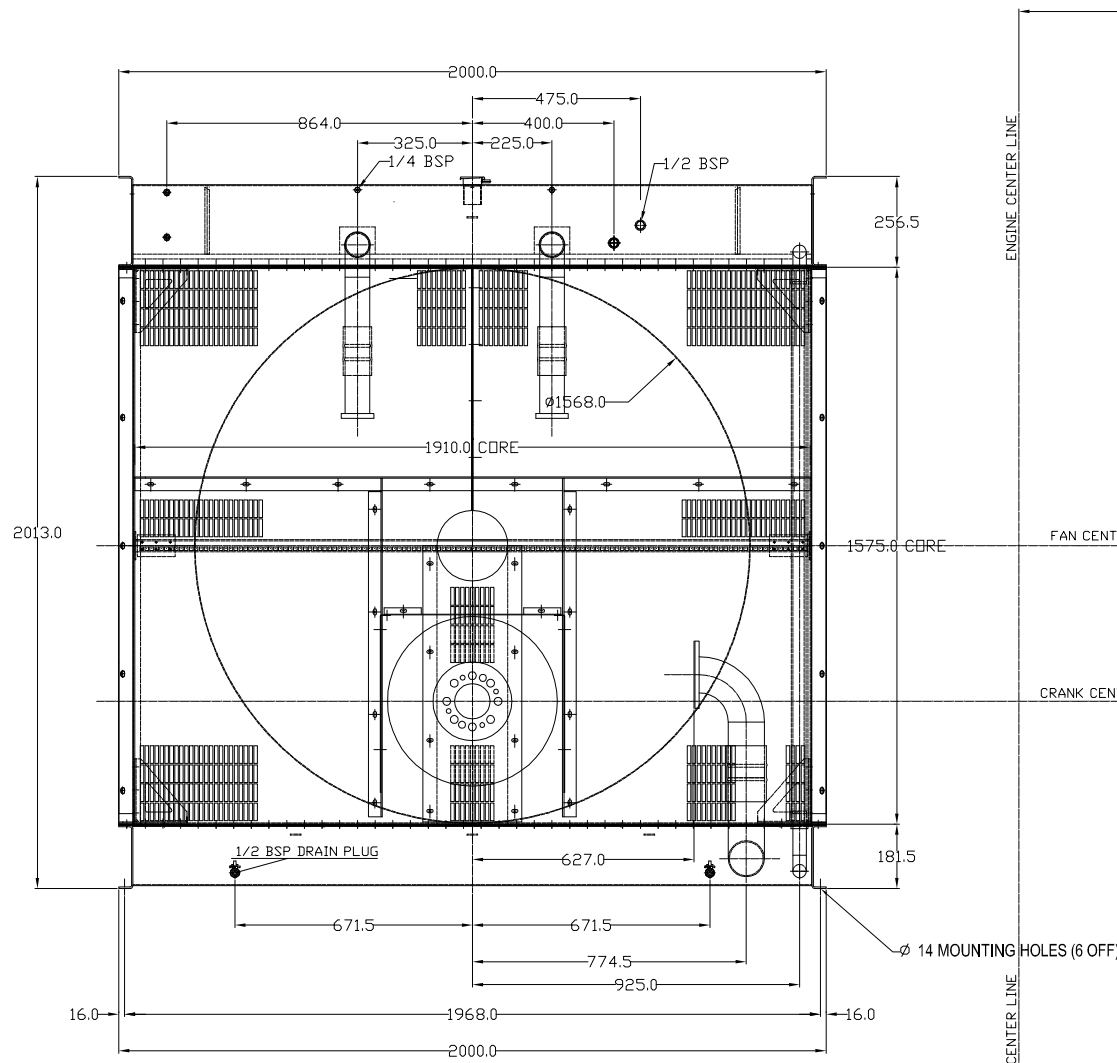
MITSUBISHI S12R-PTA2

Click on the headlines below to get redirected to the respective sections in this document.

[Radiator drawing](#)
[Technical data](#)
[Elastic data](#)
[Exhaust gas emission](#)
[Fuel consumption](#)

828 548 DLU

WORKING PRESSURE 10 PSI
TESTING PRESSURE 15 PSI



- RADIATOR WATER CAPACITY : 98 Lt.
- EXPANSION TANK WATER CAPACITY : 45 Lt.
- ENGINE BLOCK WATER CAPACITY : 125 Lt.
- TOTAL SYSTEM WATER CAPACITY : 268 Lt.

%70 PURE WATER (WITHOUT LIME) AND %30 ANTIFREEZE MUST BE USED IN THE SYSTEM.

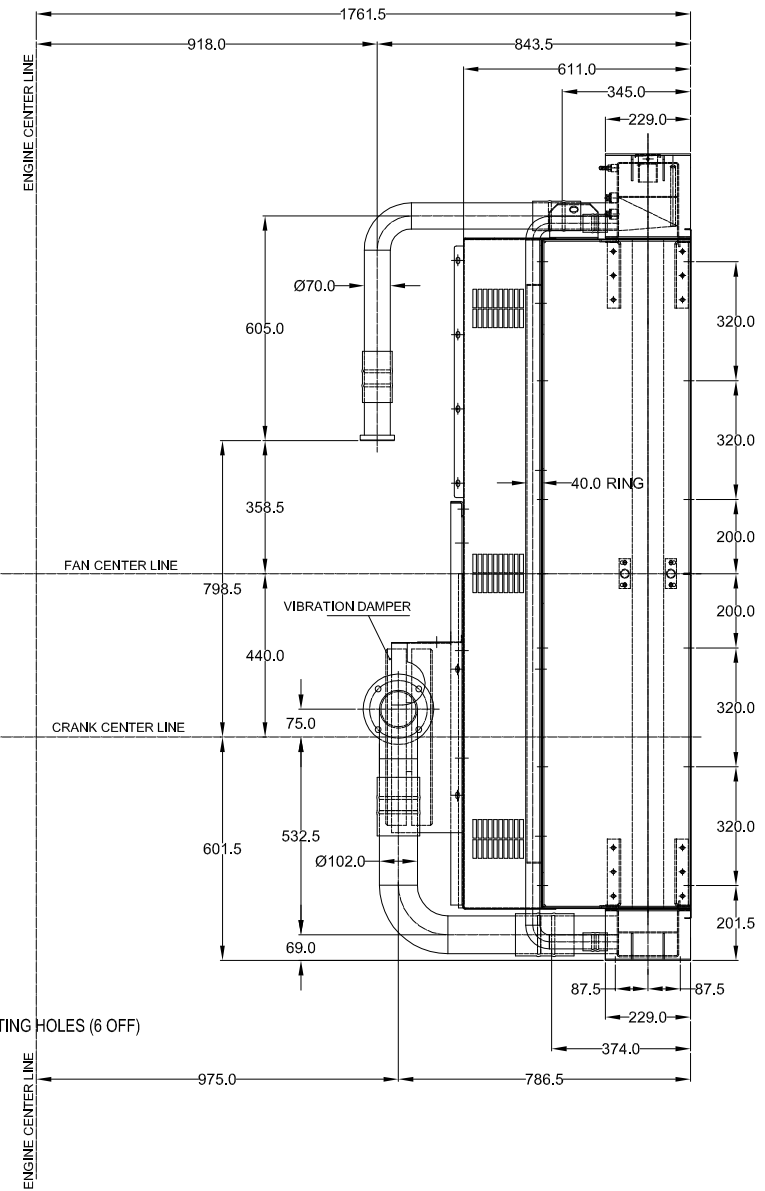
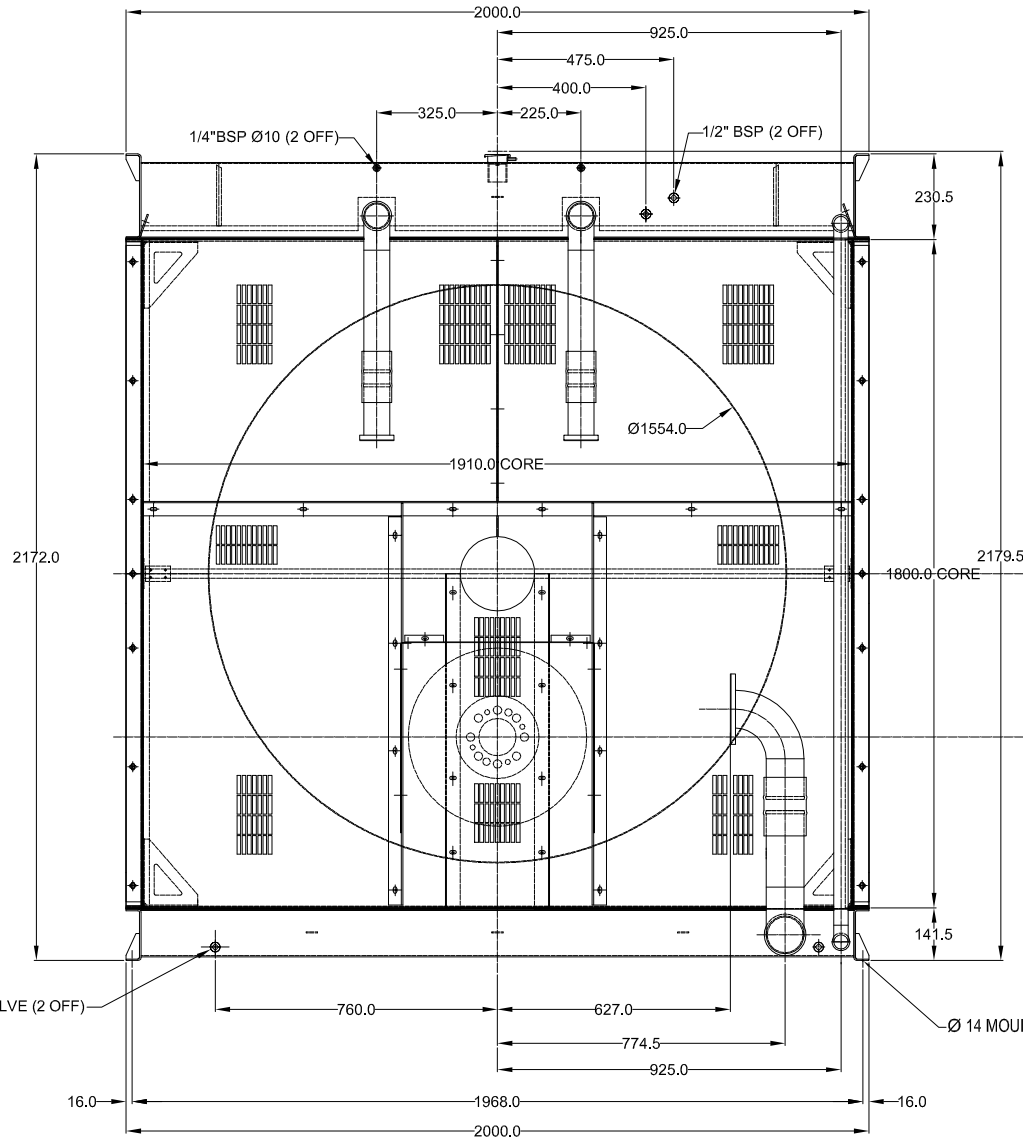
© THIS DRAWING IS THE COPYRIGHTED PROPERTY OF PANOTO RADIATORS AND MUST NOT BE REPRODUCED OR PASSED ON TO A THIRD PARTY WITHOUT WRITTEN PERMISSION.
© 2006 SIZIM TİM İÇİŞİLERİ VE YATIRIM BAKANLIĞI PANOTO RADIATOR A.Ş. TİP. YAZILIMCI. MAKİNE. ÇİZİM. TILAMAZ VE ÇİFTİNCİ SAHİLERİ VE YERLEMLERİ.

ASSEMBLY TOLERANCES		ISSUE	A	ENGINE MODEL	MITSUBISHI S12R PTA2		THIRD ANGLE PROJECTED	PANOTO RADIATOR MAKING VE SAN. TİC. A.Ş.
UP TO 120	70,8	SCALE		TITLE	GENERAL ASSEMBLY			
120 TO 300	71,2			NAME	DATE	SIGNATURE	PART NO	828 548 DLU
300 TO 500	71,5						DRAWING NO	
500 TO 1000	72	DRAWN BY			21.02.2006			
ABOVE 1000	72,5	CHECKED BY			21.02.2006			
ANGULAR	70,25	APPROVED			21.06.2006			

NO	PART	QTY	SPEC	DESCRIPTION	SETTER	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
1	---	---	---	---	---	---	---	---	---

828 853 CLM

WORKING PRESSURE 10 PSI
TESTING PRESSURE 15 PSI



- RADIATOR COOLANT CAPACITY : 105 Lt.
- EXPANSION TANK VOLUME : 53 Lt.
- EXPANSION TANK COOLANT CAPACITY : 38 Lt.
- ENGINE BLOCK COOLANT CAPACITY : 125 Lt.
- TOTAL SYSTEM COOLANT CAPACITY : 268 Lt.

%70 PURE WATER (WITHOUT LIME) AND %30 ANTIFREEZE MUST BE USED IN THE SYSTEM.

© THIS DRAWING IS THE COPYRIGHT OF PANOTO RADIATORS AND MUST NOT BE REPRODUCED OR PASSED ON TO A THIRD PARTY WITHOUT WRITTEN PERMISSION

© BU ÇIZIMIN TÜM TELİF HAKKI PANOTO RADYATÖRE AITTİR. YAZILI İZİN OLMASIZIN ÇOĞALTIYLAZ VE ÜÇÜNCÜ SAHİSLARA VERİLEMEZ.

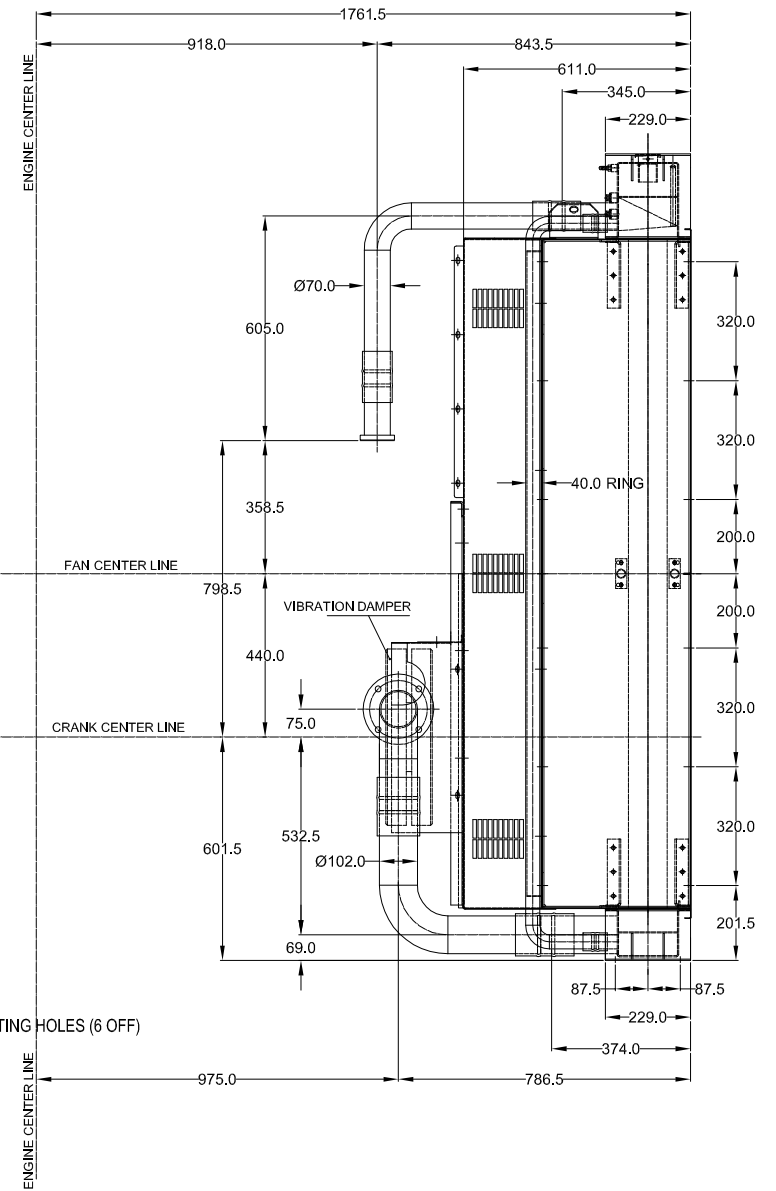
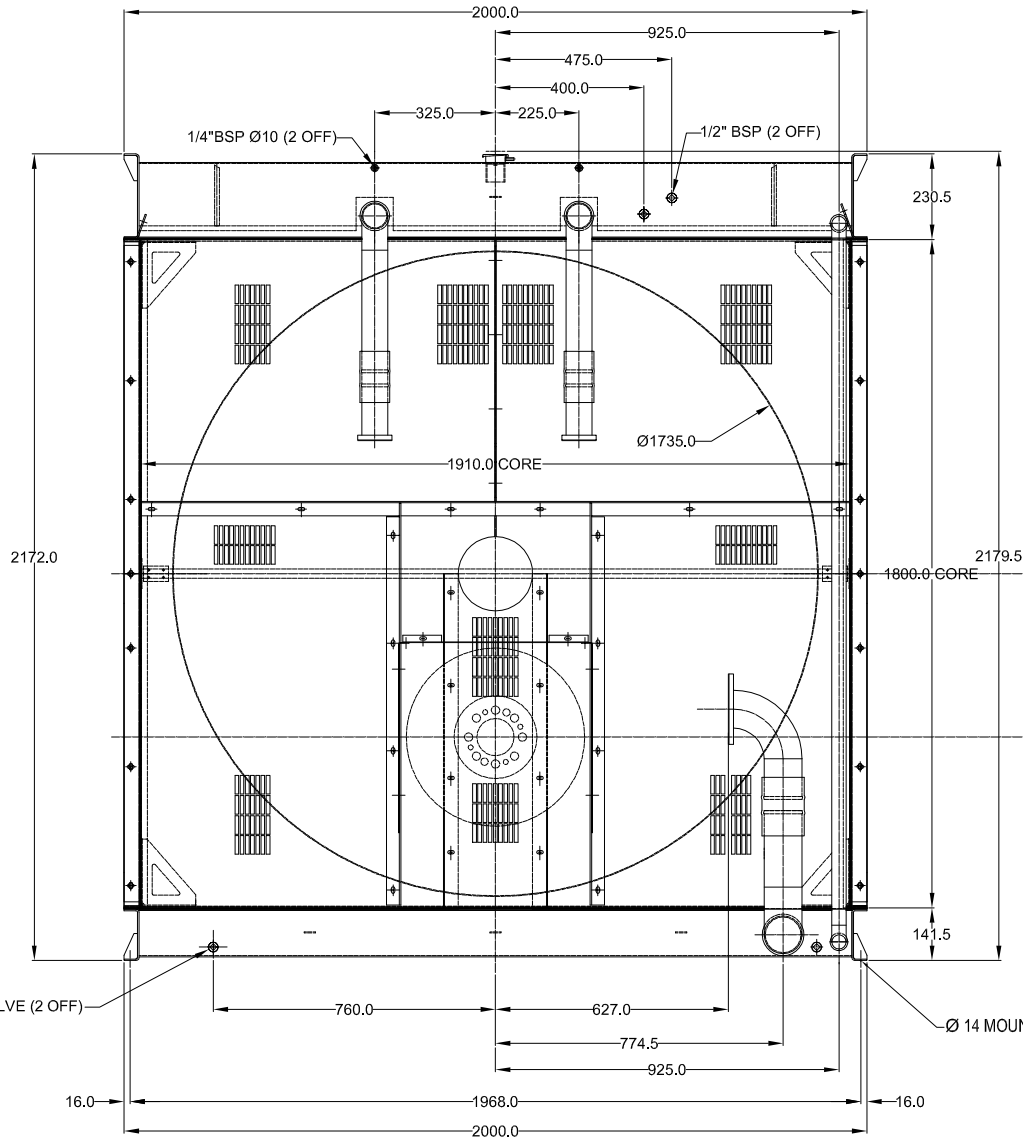
ASSEMBLY TOLERANCES		ISSUE	A
		SCALE	
UP TO 120	±0,8		
120 TO 300	±1,2		
300 TO 500	±1,5		
500 TO 1000	±2	DRAWN BY	
ABOVE 1000	±2,5	CHECKED BY	
ANGULAR	±0,25°	APPROVED	

FAN		Ø1524 MITSUBISHI		50 Hz.		AIR ON 55.5°C	
ENGINE MODEL	MITSUBISHI S12R PTA2			THIRD ANGLE PROJECTION		PANOTO RADIATOR - MACHINERY INDUSTRY & TRADE INC. CO.	
TITLE	50Hz. RADIATOR			PART NO	828 853 CLM		
NAME	DATE	SIGNATURE		DRAWING NO			
	01.11.2011						
	01.11.2011						
	01.11.2011						

NO	PART	QTY	SPEC	DESCRIPTIONS	LETTER	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
1	---	---	---	---	---	---	---	---	---

828 854 CLM

WORKING PRESSURE 10 PSI
TESTING PRESSURE 15 PSI



- RADIATOR COOLANT CAPACITY : 105 Lt.
- EXPANSION TANK VOLUME : 53 Lt.
- EXPANSION TANK COOLANT CAPACITY : 38 Lt.
- ENGINE BLOCK COOLANT CAPACITY : 125 Lt.
- TOTAL SYSTEM COOLANT CAPACITY : 268 Lt.

%70 PURE WATER (WITHOUT LIME) AND %30 ANTIFREEZE MUST BE USED IN THE SYSTEM.

© THIS DRAWING IS THE COPYRIGHT OF PANOTO RADIATORS AND MUST NOT BE REPRODUCED OR PASSED ON TO A THIRD PARTY WITHOUT WRITTEN PERMISSION

© BU ÇIZIMIN TÜM TELİF HAKKI PANOTO RADYATÖRE AITTİR. YAZILI İZİN OLMASIZIN ÇOĞALTIYLAZ VE ÜÇÜNCÜ SAHİSLARA VERİLEMEZ.

ASSEMBLY TOLERANCES		ISSUE	A
		SCALE	
UP TO 120	±0,8		
120 TO 300	±1,2		
300 TO 500	±1,5		
500 TO 1000	±2	DRAWN BY	
ABOVE 1000	±2,5	CHECKED BY	
ANGULAR	±0,25°	APPROVED	

FAN		Ø1700 10-10 / 34° / PPG / 9WR		60 Hz.		AIR ON 55°C	
ENGINE MODEL	MITSUBISHI S12R PTA2			THIRD ANGLE PROJECTION		PANOTO RADIATOR - MACHINERY INDUSTRY & TRADE INC. CO.	
TITLE	60Hz. RADIATOR			PART NO		828 854 CLM	
NAME	DATE	SIGNATURE		DRAWING NO			
	01.11.2011						
	01.11.2011						
	01.11.2011						

NO	PART	QTY	SPEC	DESCRIPTIONS	LETTER	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
1	---	---	---	---	---	---	---	---	---



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0215-0004E Rev.2 (1/4)

DATE

February, 2014

Specification Sheets of S12R-PTA2 Engine

Specification Sheets of S12R-PTA2 Engine are enclosed herein.

Revision	First Edition : September, 2007 (T13-0310-E Mar.'99)	Engine Engineering Department High Speed Engine Designing Section		
	Rev.1 : Mar., 2013			
	Rev.2 : Feb., 2014	Approved by	Checked by	Drawn by

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, After Cooler (Jacket water to Cooler)	
Cylinder Arrangement	60°V	
No.of Cylinders	12	
Bore mm(in.)	170	(6.69)
Stroke mm(in.)	180	(7.09)
Displacement liter(in ³)	49.03	(2992)
Compression Ratio	13.5:1	
Dry Weight - Engine only - kg(lb)	5400	(11907)
Wet Weight - Engine only - kg(lb)	5680	(12524)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Load

Hydraulic (std.) or Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	2100	
Moment of inertia of Rotating Components - kgf·m ² (lbf·ft ²)	75.3	(1787)
(Includes Std.Flywheel)		
Cyclic Speed Variation with Flywheel at 1800rpm	1/507	
1500rpm	1/294	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf·m(lbf·ft)	450	(3256)
---	-----	--------

AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping)		
With Clean Filter Element - mm H ₂ O (in.H ₂ O)	400	(15.7)
With Dirty Filter Element - mm H ₂ O (in.H ₂ O)	635	(25.0)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H ₂ O (in.H ₂ O)	600	(23.6)
---	-----	--------

LUBRICATION SYSTEM

Oil Pressure at Idle - kgf/cm ² (psi)	2~3	(29~43)
at Rate Speed - kgf/cm ² (psi)	5~6.5	(71~93)
Maximum Oil Temperature - °C(°F)	110	(230)
Oil Capacity of Standard Pan High - liter (U.S.gal)	150	(39.6)
Low - liter (U.S.gal)	110	(29.1)
Total System Capacity (Includes Oil Filter) - liter (U.S.gal)	180	(47.6)
Maximum Angle of Installation (Std. Pan) Front Down	6.5°	
(Engine Only) Front Up	6.5°	
Side to Side	22.5°	

COOLING SYSTEM

Coolant Capacity (Engine only) - liter (U.S.gal)	125	(33.0)
Maximum External Friction Head at Engine Outlet - kgf/cm ² (psi)	0.35	(5.0)
Maximum Static Head of Coolant above Crankshaft Center - m(ft)	10	(32.8)
Maximum Outlet Pressure of Engine Water Pump - kgf/cm ² (psi)	2	(28.6)
Standard Thermostat (modulating)Range- °C(°F)	71~85	(160~185)
Maximum Coolant Temperature at Engine Outlet- °C(°F)	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Intercooler Inlet, TK type- °C(°F)	-	
Maximum Air Restriction on Discharge Side of Radiator and Fan-mm H ₂ O(in.H ₂ O)	10	(0.4)

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0215-0004E Rev.2 2/4

FUEL SYSTEM

Fuel Injector	Mitsubishi PS6 Type × 2
Maximum Suction Head of Feed Pump - mm Hg (in. Hg)	75 (3.0)
Maximum Static Head of Return & Leak Pipe - mm Hg (in.Hg)	150 (5.9)

STARTING SYSTEM

Battery Charging Alternator - V-Ah	24-30
Starting Motor Capacity - V -kW	24-7.5×2
Maximum Allowable Resistance of Cranking Circuit - m Ω	1.5
Recommended Minimum Battery Capacity	
At 5°C(41°F) and above - Ah	300
Below 5°C(41°F) through - 5°C(23°F)	600

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0215-0004E Rev.2 3/4

ENGINE RATING

All data represent net performance with standard accessories such as air cleaner, inlet /exhaust manifolds, fuel oil system, L.O. pump, etc. under the condition of 100kPa(29.6inHg) barometric pressure, 77°F(25°C) ambient temperature and 30% relative humidity.

ITEM	UNIT	STAND-BY POWER			PRIME POWER		
		60Hz	50Hz		60Hz	50Hz	
Engine Speed	rpm	1800	1500		1800	1500	
No. of Cylinders		12					
Bore	mm (in.)	170 (6.69)					
Stroke	mm (in.)	180 (7.09)					
Displacement	liter (in. ³)	49.03 (2992)					
Brake Horse power without Fan	HP (kW)	1971 (1470)	1763 (1315)		1796 (1340)	1602 (1195)	
Brake Mean Effective Pressure without Fan	kgf/cm ² (psi)	20.4 (290)	21.9 (311)		18.6 (264)	19.9 (283)	
Mean Piston Speed	m/s (ft/min)	10.8 (2126)	9.0 (1772)		10.8 (2126)	9.0 (1772)	
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	193 (144)	141 (105)		193 (144)	141 (105)	
Intake Air flow	m ³ /min (CFM)	121 (4273)	105 (3708)		109 (3849)	96 (3390)	
Exhaust Gas Flow	m ³ /min (CFM)	320 (11299)	279 (9851)		290 (10240)	253 (8933)	
Coolant Flow	liter/min (U.S. GPM)	1850 (489)	1650 (436)		1850 (489)	1650 (436)	
Coolant Flow to Intercooler (TK only)	liter/min (U.S. GPM)						
Cooling Air Flow (Std. Fan)	m ³ /min (CFM)	1800 (63558)	1800 (63558)		1800 (63558)	1800 (63558)	
Fan Loss Horse Power (Std. Fan)	HP (kW)	67 (50)	40 (30)		67 (50)	40 (30)	
Radiated Heat to Ambient	kcal/hr (BTU/min)	91072 (6023)	79303 (5245)		82436 (5452)	72061 (4766)	
Heat Rejection to Coolant	kcal/hr (BTU/min)	758934 (50195)	660861 (43708)		686970 (45435)	600510 (39717)	
Heat Rejection to Inter Cooler (TK Version)	kcal/hr (BTU/min)						
Heat Rejection to Exhaust	kcal/hr (BTU/min)	921463 (60944)	772431 (51088)		826458 (54661)	701891 (46422)	
Noise Level (1 m height & distance) (excludes, Intake,Exhaust & Fan)	dB(A)	TBD	TBD		TBD	TBD	

The specifications are subject to change without notice.

APPLICATION : GENERATOR

Pub. No. T0215-0004E Rev.2 4/4



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0307-0007E Rev.2 (1/2)

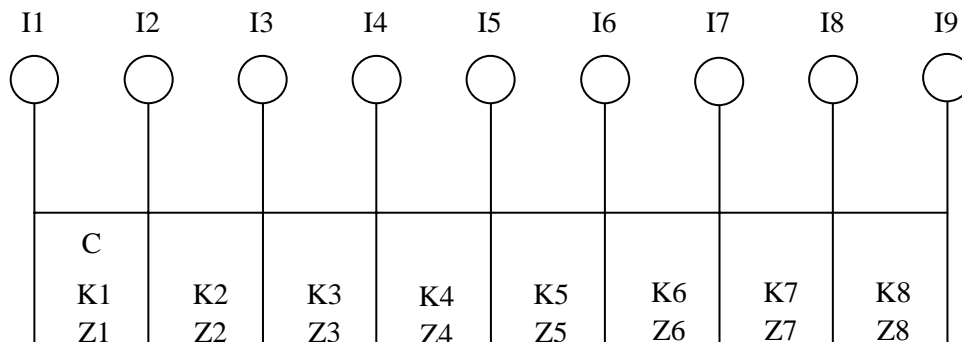
DATE

April, 2009

Elastic data of S12R Engine

Elastic data of S12R Engine are enclosed herein.

Revision	First Edition : July, 2006 (Refer to ELASTIC-S12R-PTA Oct.,2003, S12R.0)	Engine Engineering Department Large Engine Design Section		
	Rev.1 : July, 2006	Approved by	Checked by	Drawn by
	Rev.2 : April, 2009			

S12R-PTA ELASTIC DATA

(USE:45R89-19502 CONNECTING ROD)

	Moment of inertia J kg.m ²	Damping coefficient Nm/rad/s	Spring const. x10 ⁷ Nm/rad	Tensile strength N/mm ²	Section modulus cm ³	
I1	DAMPER ×1pc. ×2pcs.	1.01 2.02	C=524.6 C=1049.3	K1=0.0	0.0	Z1 =0.0
I2	PULLEY Damper 1pc. Damper 2pcs.	1.37 2.16	—	K2=1.089	834	Z2 =373.7
I3	No.1 CRANK	0.999	—	K3=0.735	834	Z3 =373.7
I4	No.2 CRANK	0.610	—	K4=0.735	834	Z4 =373.7
I5	No.3 CRANK	0.999	—	K5=0.735	834	Z5 =373.7
I6	No.4 CRANK	0.999	—	K6=0.735	834	Z6 =373.7
I7	No.5 CRANK	0.610	—	K7=0.735	834	Z7 =373.7
I8	No.6 CRANK	0.998	—	K8=1.304	834	Z8 =373.7
I9	FLYWHEEL 21in	11.21	—			

Hysteresis constant: 92 No. of Cylinder: 12 Bore:170mm Stroke:180mm

Length of Con-Rod: 340mm Weight of Reciprocating Parts: 12.63 kg

Firing order:1-12-5-8-3-10-6-7-2-11-4-9

Firing interval:0-60-120-180-240-300-360-420-480-540-600-660

APPLICATION : LAND USE

The data is subject to change without notice.



**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0402-0001E Rev.1 (1/2)

DATE

May, 2008

Exhaust Gas Emission Data

Exhaust Gas Emission Data is enclosed herein.

These data are subject to change without notice.

Revision	First Edition : May, 2008	Engine Engineering Department Engine System Designing Section		
	Rev.1: February, 2013			
		Approved by	Checked by	Drawn by

EXHAUST GAS EMISSION DATA OF DIESEL ENGINE FOR GENERATOR
For Reference

MODEL	S6A3-P/A		S12A2-P/A		S12H-P/A		S6R-P/A		S12R-P/A		S12R-PTA2		S12R-PTAA2 (W/FAN)		S16R-P/A		S16R-PTA2		S16R-PTAA2 (W/FAN)		S16R2-PTAW
	400/ 1500	890	679/ 1500	825	935/ 1500	877	515/ 1500	940	1110/ 1500	1190/ 1800	1195/ 1500	1340/ 1800	1277/ 1500	1387/ 1800	1480/ 1500	1590/ 1800	1630/ 1500	1775/ 1800	1684/ 1500	1895/ 1800	
Prime Rating kW/min ⁻¹ (without fan)																					
NOx	g/Nm ³	3.7	3.7	3.4	3.8	3.6	3.7	3.5	3.7	3.5	3.7	3.5	3.5	3.2	3.8	3.7	3.9	3.4	3.1	3.6	
	g/AW·h	8.6	8.6	7.7	8.8	8.2	8.4	8.4	7.7	8.4	8.8	7.7	8.4	7.3	8.7	7.7	8.8	7.7	7.1	5.8	
CO	PPM	(220)	(210)	(220)	(310)	(210)	310	210	(310)	(210)	(310)	(210)	(320)	(200)	(310)	(210)	(310)	(210)	(200)	119	
	g/Nm ³	(0.44)	(0.45)	(0.44)	(0.59)	(0.43)	0.52	0.39	(0.59)	(0.43)	(0.59)	(0.43)	(0.55)	(0.42)	(0.56)	(0.43)	(0.59)	(0.43)	(0.55)	0.4	
	g/AW·h	(1.2)	1.4	(1.2)	1.4	(1.4)	1.5	1.2	(1.8)	(1.4)	(1.8)	(1.2)	(1.5)	(1.2)	(1.6)	(1.4)	(1.8)	(1.2)	(1.5)	0.5	
HC	PPM	(50)	(50)	(50)	(110)	(120)	110	120	(110)	(120)	(110)	(120)	(110)	(120)	(110)	(120)	(110)	(120)	(110)	35	
	g/Nm ³	(0.05)	(0.06)	(0.05)	(0.11)	(0.13)	0.09	0.11	(0.11)	(0.13)	(0.11)	(0.13)	(0.10)	(0.13)	(0.10)	(0.13)	(0.11)	(0.13)	(0.10)	0.19	
	g/AW·h	(0.15)	(0.18)	(0.15)	(0.31)	(0.38)	0.27	0.34	(0.31)	(0.38)	(0.31)	(0.35)	(0.29)	(0.38)	(0.29)	(0.38)	(0.31)	(0.35)	(0.29)	0.10	
CO ₂	%	6.7	6.2	6.7	6.9	6.5	8.0	7.1	6.9	6.5	6.7	6.5	6.7	6.5	6.7	6.5	6.7	6.5	6.7	8.0	
	g/AW·h	619	646	619	619	625	598	619	619	625	620	613	619	612	619	612	620	613	619	612	0.4
PM	g/Nm ³	0.12	0.12	0.12	0.12	0.11	0.10	0.12	0.12	0.11	0.10	0.09	0.09	0.08	0.11	0.12	0.11	0.12	0.09	0.07	0.03
	g/AW·h	0.37	0.37	0.38	0.38	0.37	0.34	0.35	0.35	0.37	0.34	0.33	0.33	0.31	0.33	0.39	0.33	0.39	0.33	0.31	0.04

Notes

- Allowance: +25%
- Condition: 100kPa(750mmHg) barometric pressure, 298K(25°C) ambient temperature and 30% relative humidity.
- NOx, CO, HC[PPM]: with 13% O₂ Level.
NOx, CO, HC, Particulates[g/Nm³]: with 5% O₂ Level.
NOx, CO, HC, Particulates[g/PS·h]: with 13% O₂ Level.
CO₂[%]: Calculated Data.
(): Estimated Data.
- *1: Standby Rating
- These data are subject to change without notice.





**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T0404-0009E (1/3)

DATE

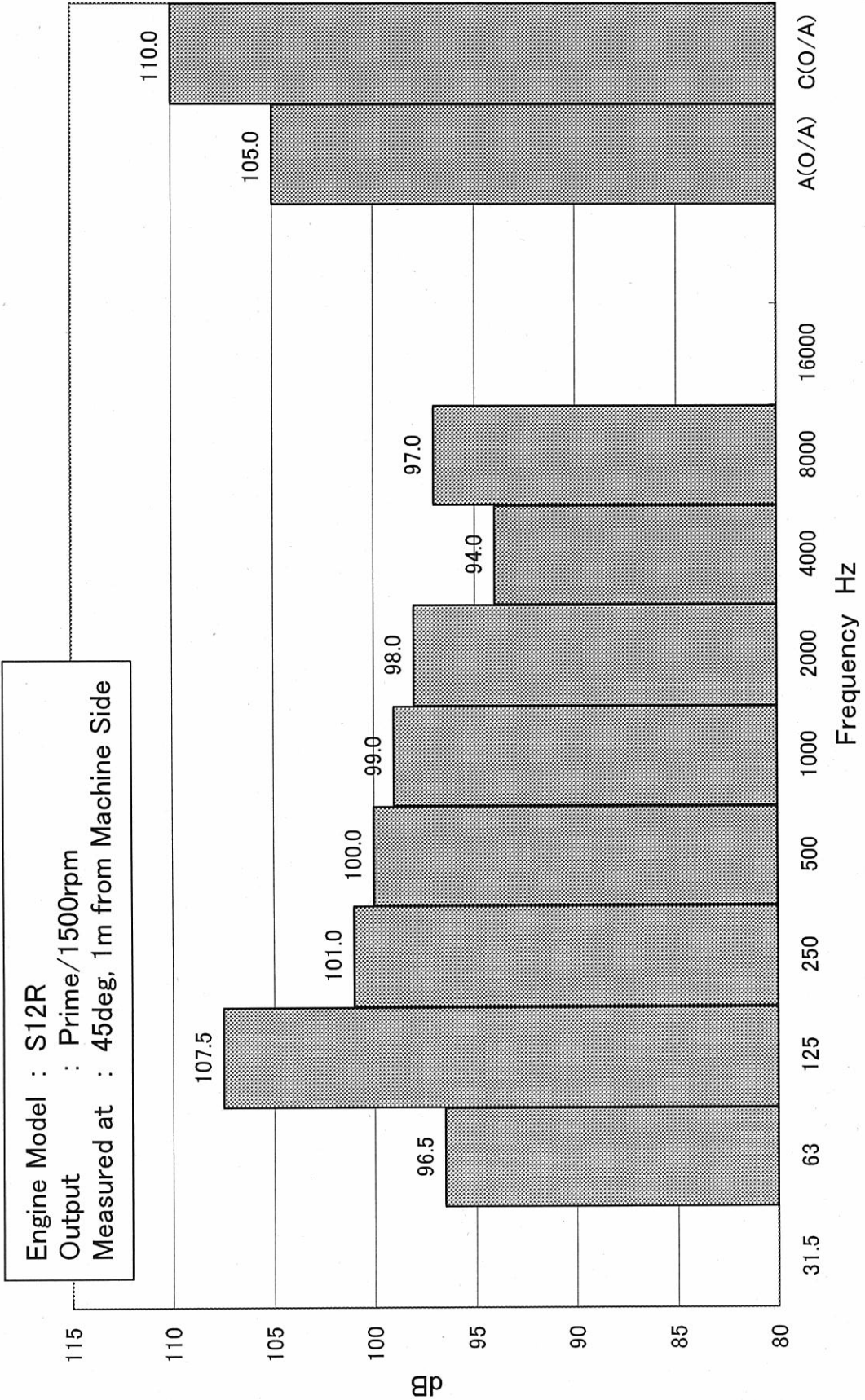
Sep., 2006

Mechanical Noize Data of S12R

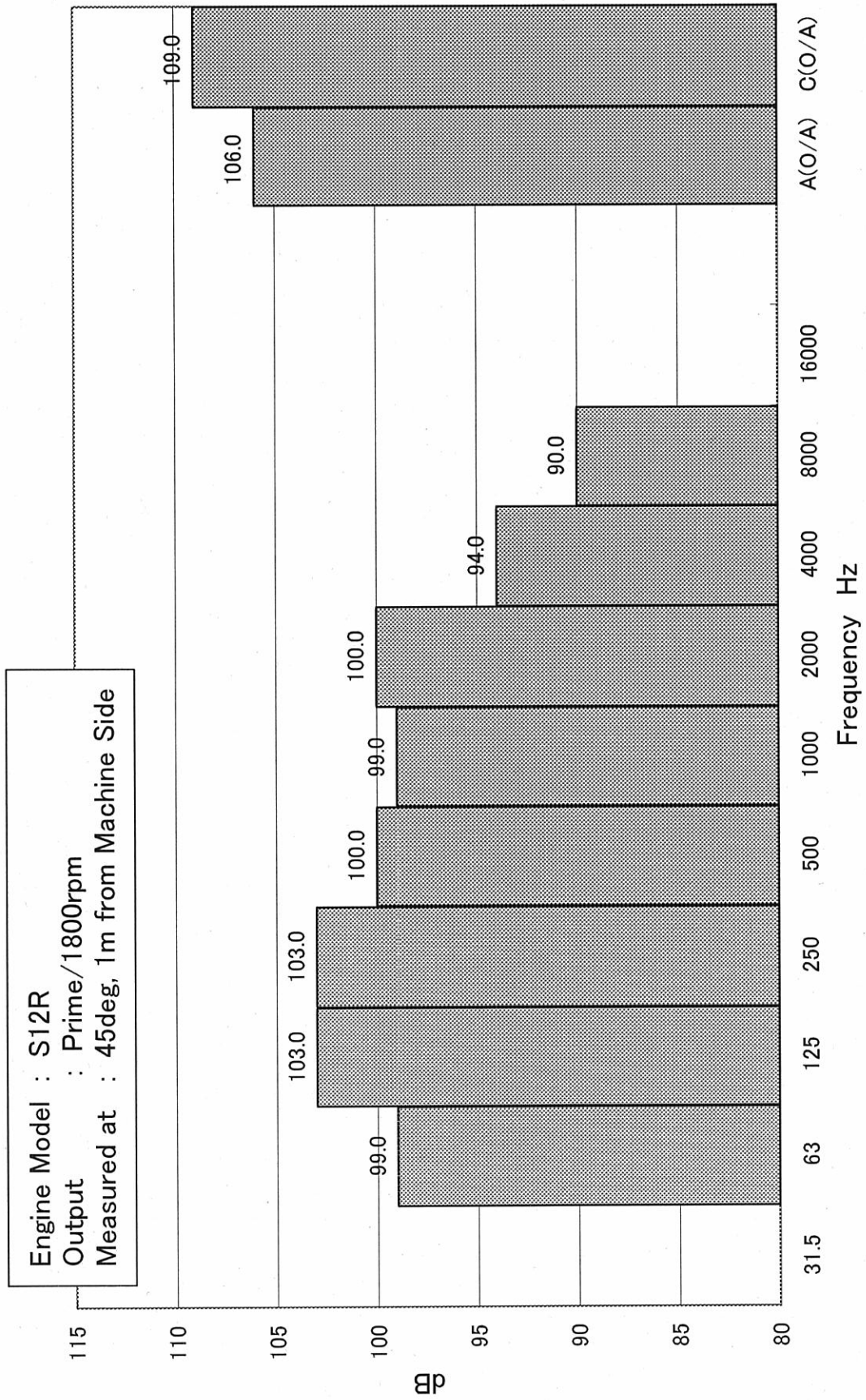
Mechanical Noize Data of S12R is enclosed herein.

Revision	First Edition : Sep.,2006	Engine Engineering Department Large Engine Design Section		
		Approved by	Checked by	Drawn by

Mechanical Noise Analysis



Mechanical Noise Analysis





**MITSUBISHI DIESEL ENGINE
TECHNICAL INFORMATION**

ITEM NO.

T33-0100-E

DATE

Jun. 1999

FUEL CONSUMPTION

(SB, SA, SH, SR SERIES ENGINES FOR GENERATOR DRIVE)

ENGINE MODEL	ENGINE rpm	REMARKS
S6B-PTA, PTK	1500	W/Fan, W/O Fan
	1800	
S6B3-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S6A3-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S12A2-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S12H-PTA	1500	W/Fan, W/O Fan
	1800	
S6R-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S6R2-PTA, PTK	1000	W/Fan, W/O Fan
	1200	
S12R-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S12R-PTA2, PTK2	1500	W/Fan, W/O Fan
	1800	
S16R-PTA, PTK	1200	W/Fan, W/O Fan
	1500	
S16R-PTA2, PTK2	1500	W/Fan, W/O Fan
	1800	
S6A3-PTAA	1500	W/Fan
	1800	
S6R2-PTAA	1500	W/Fan
S12R-PTAA2	1500	W/Fan
	1800	
S16R-PTAA2	1500	W/Fan
	1800	

First Edition : Jun. 1999

Engine Engineering Department
Large Engine Design Section

Revision

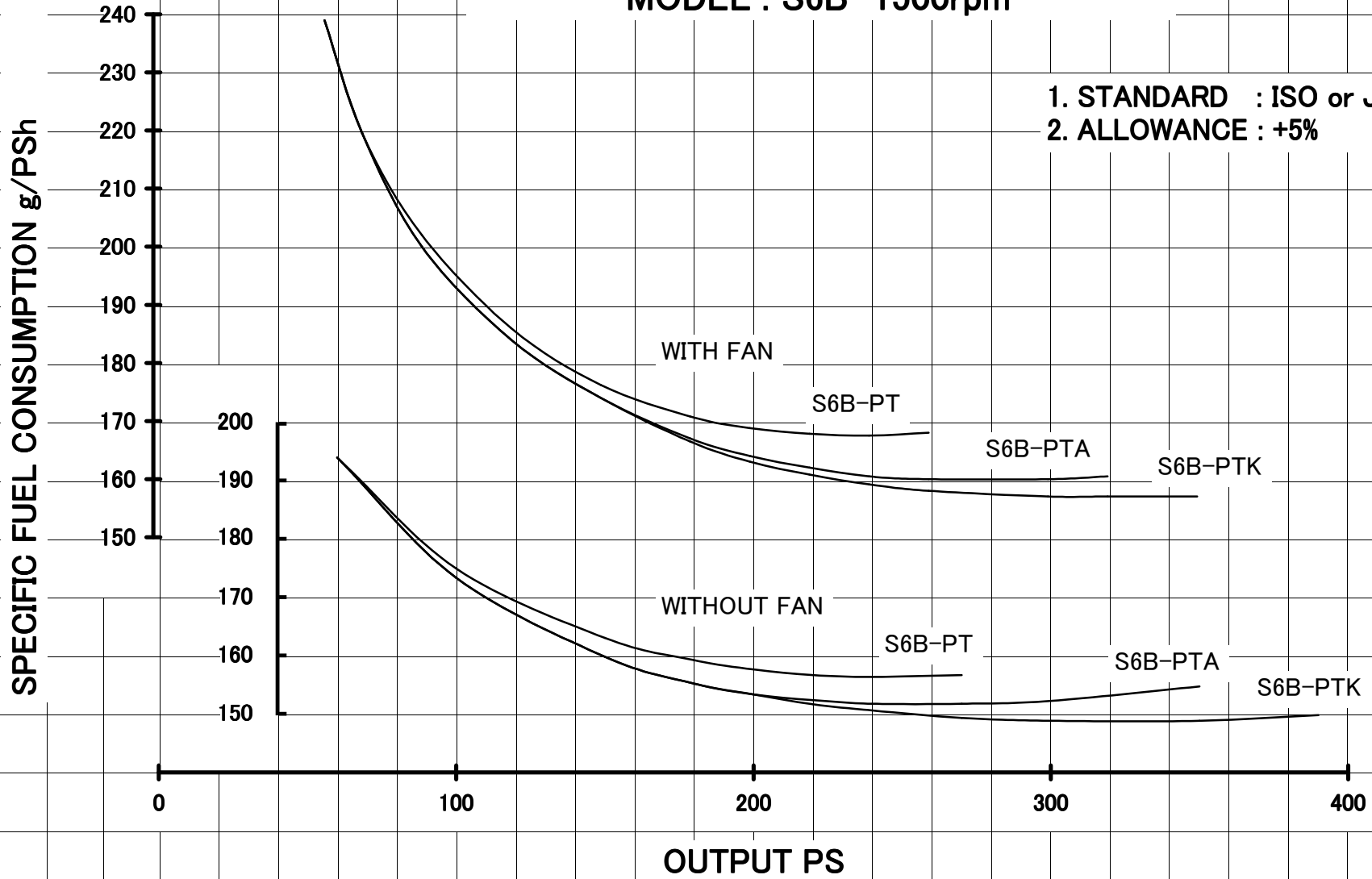
Approved by

Checked by

Drawn by

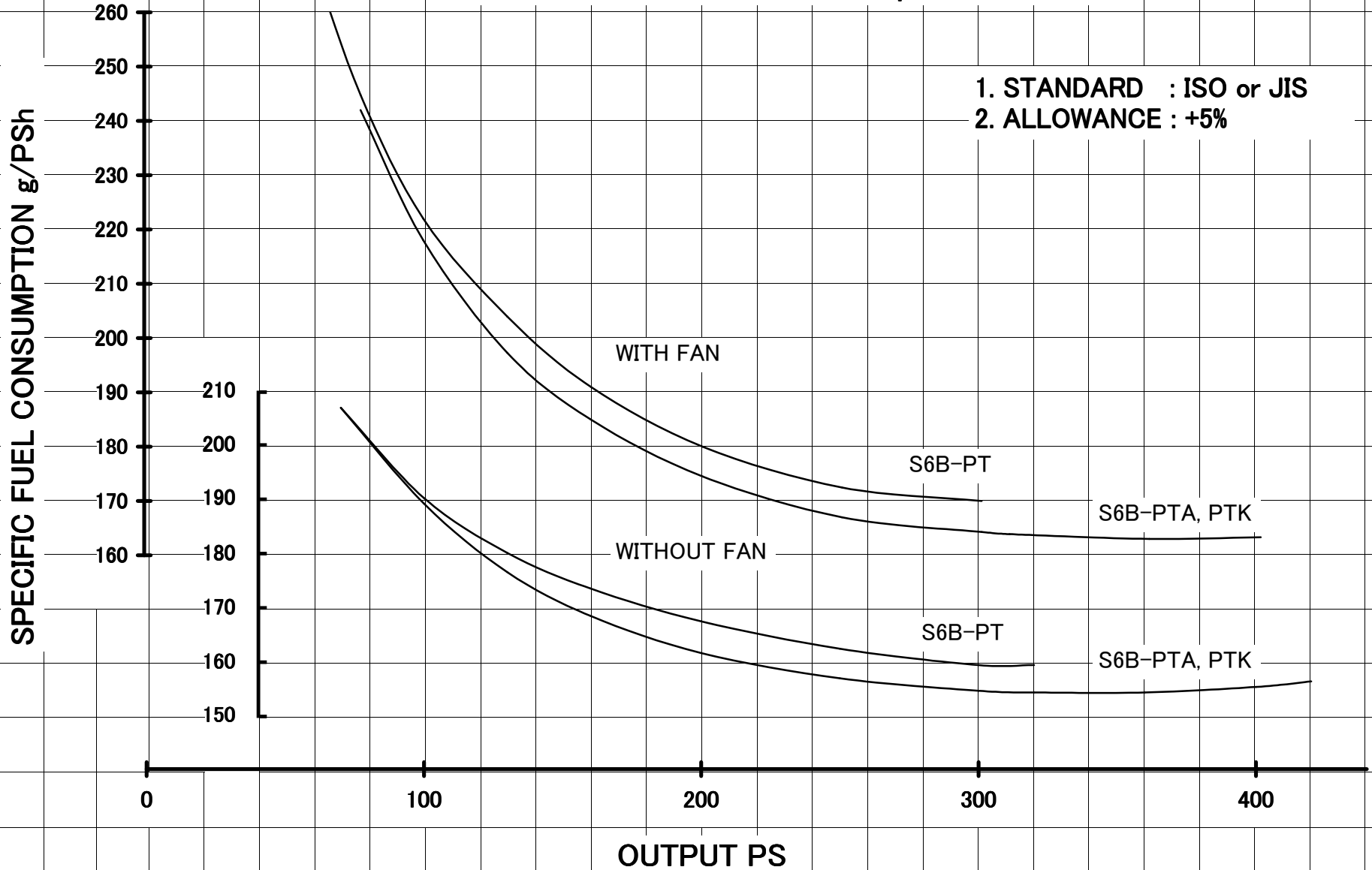
SPECIFIC FUEL CONSUMPTION MODEL : S6B 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

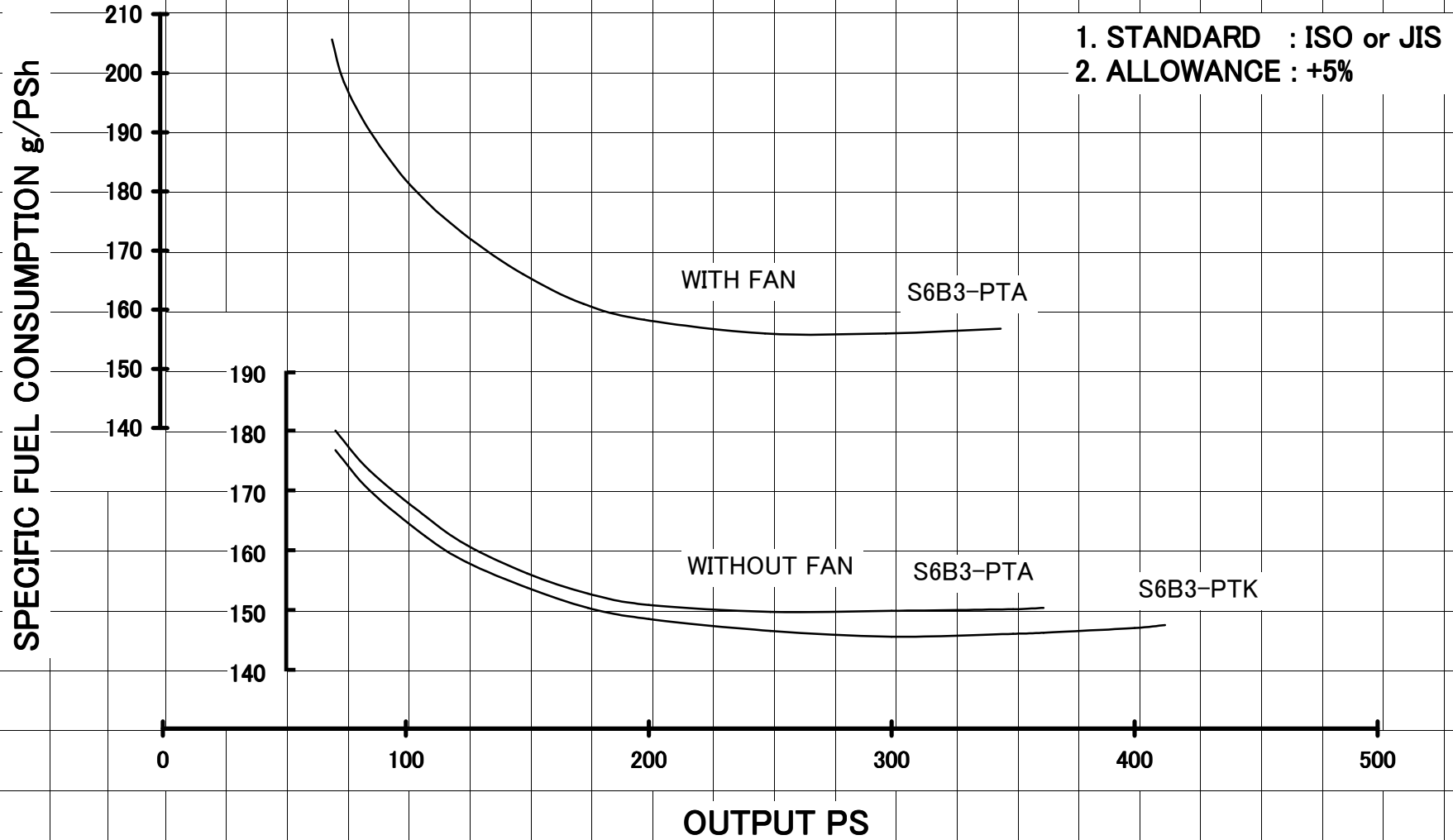


SPECIFIC FUEL CONSUMPTION MODEL : S6B 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S6B3 1200rpm

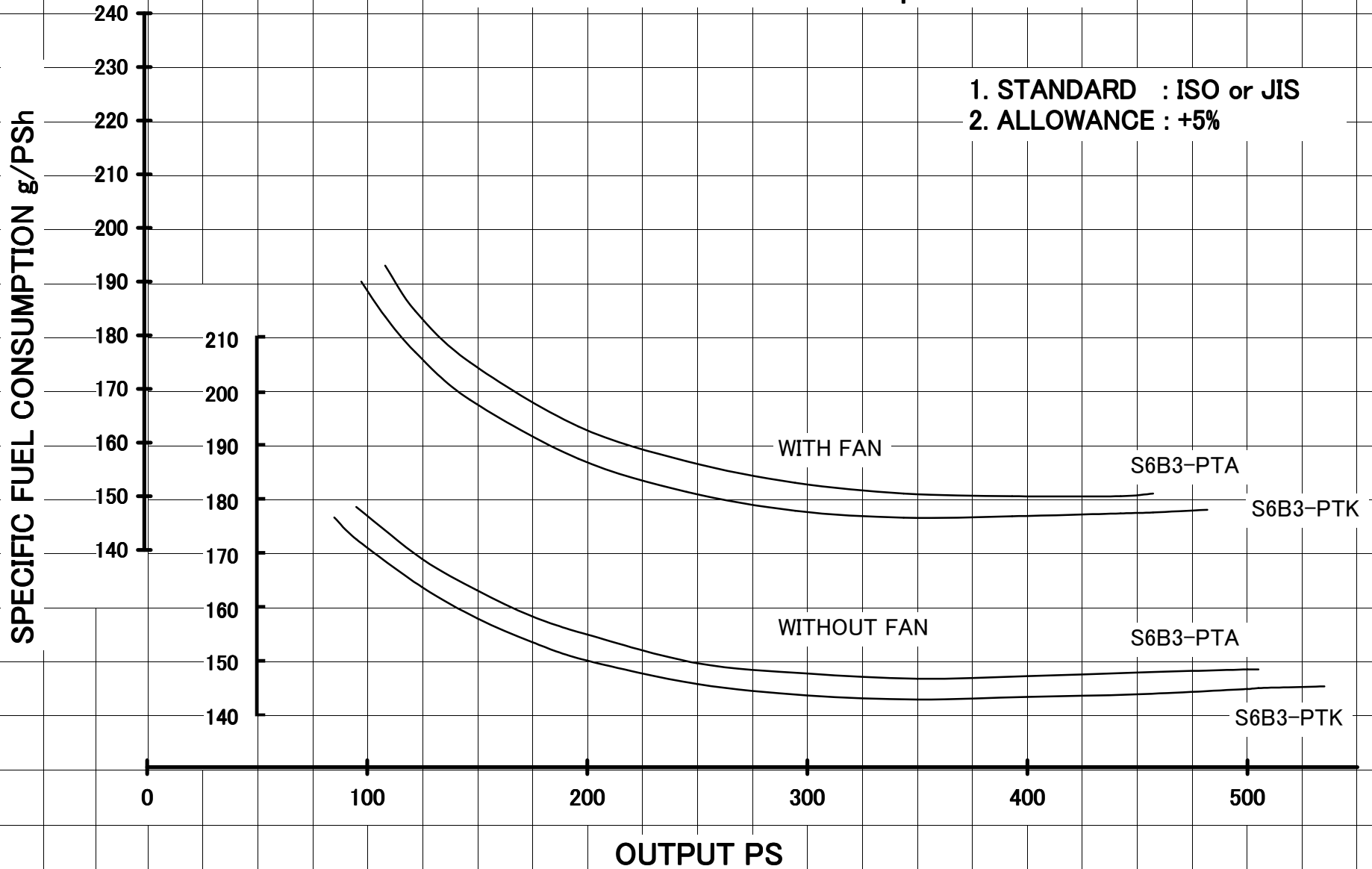


SPECIFIC FUEL CONSUMPTION

MODEL : S6B3 1500rpm

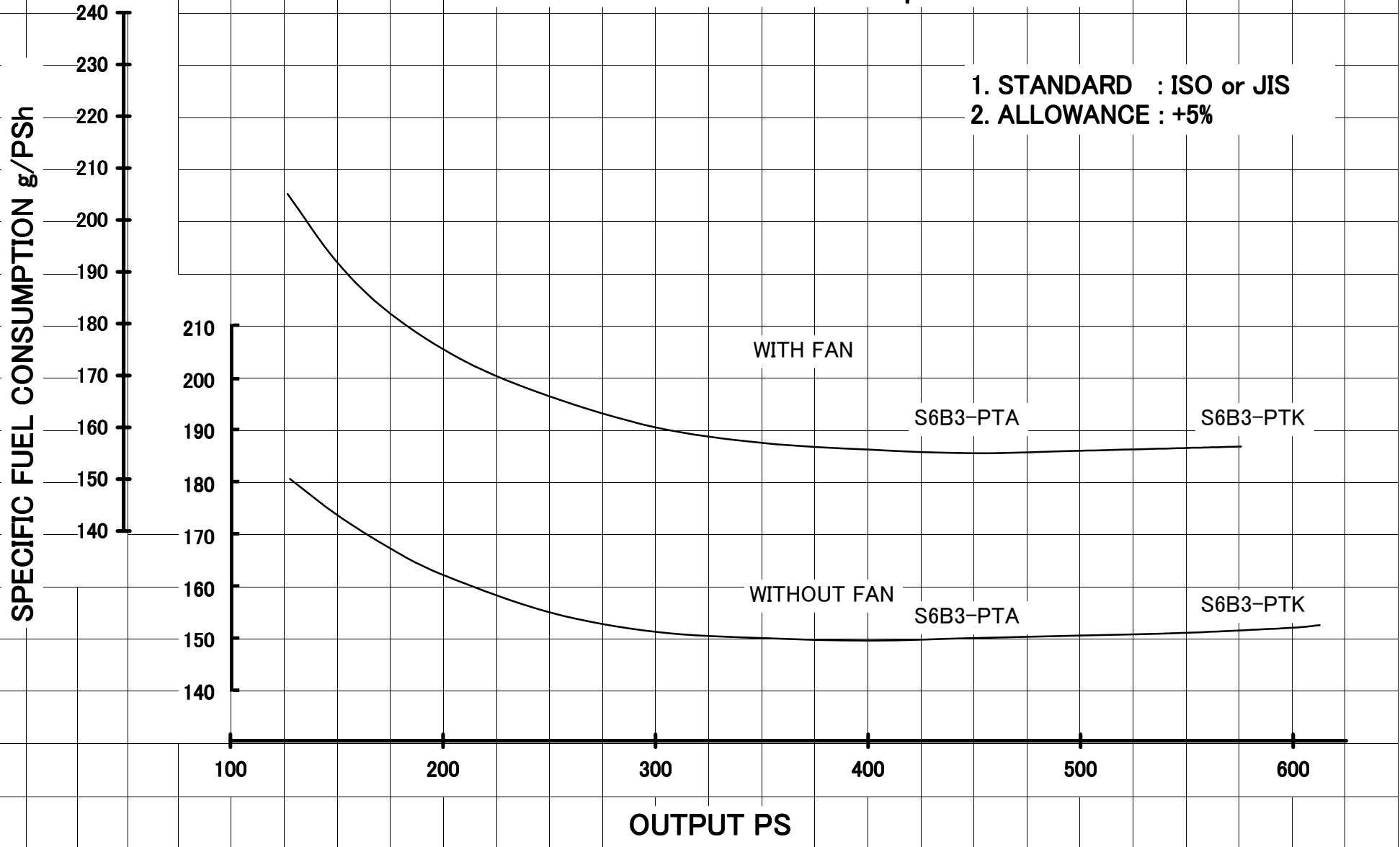
1. STANDARD : ISO or JIS

2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S6B3 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S6A3 1200rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

210
200
190
180
170
160
150
140

190
180
170
160
150
140

WITH FAN

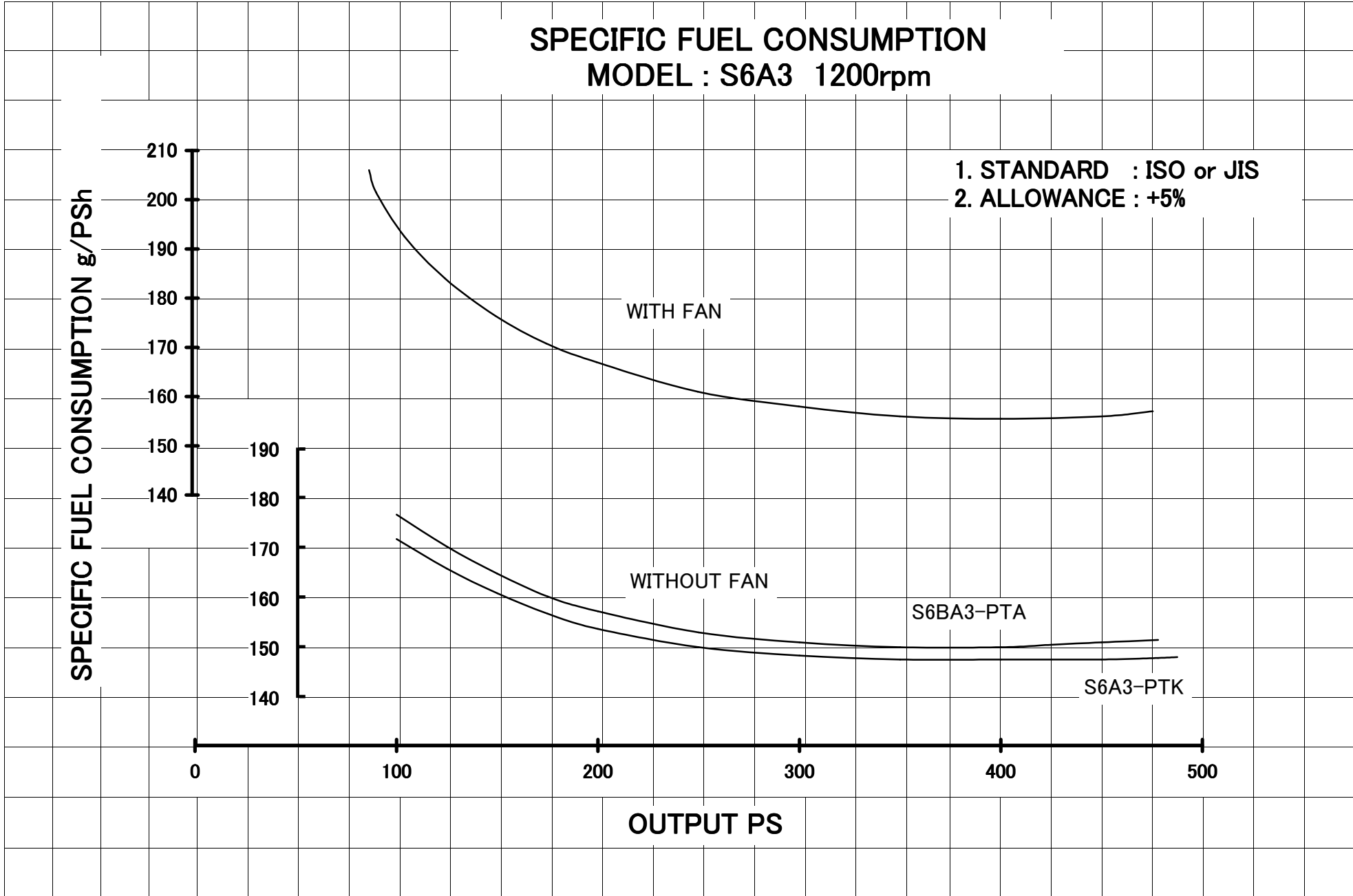
WITHOUT FAN

S6BA3-PTA

S6A3-PTK

0 100 200 300 400 500

OUTPUT PS



SPECIFIC FUEL CONSUMPTION MODEL : S6A3 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

220
210
200
190
180
170
160
150
140

210
200
190
180
170
160
150
140

WITH FAN

S6A3-PTA

S6A3-PTK

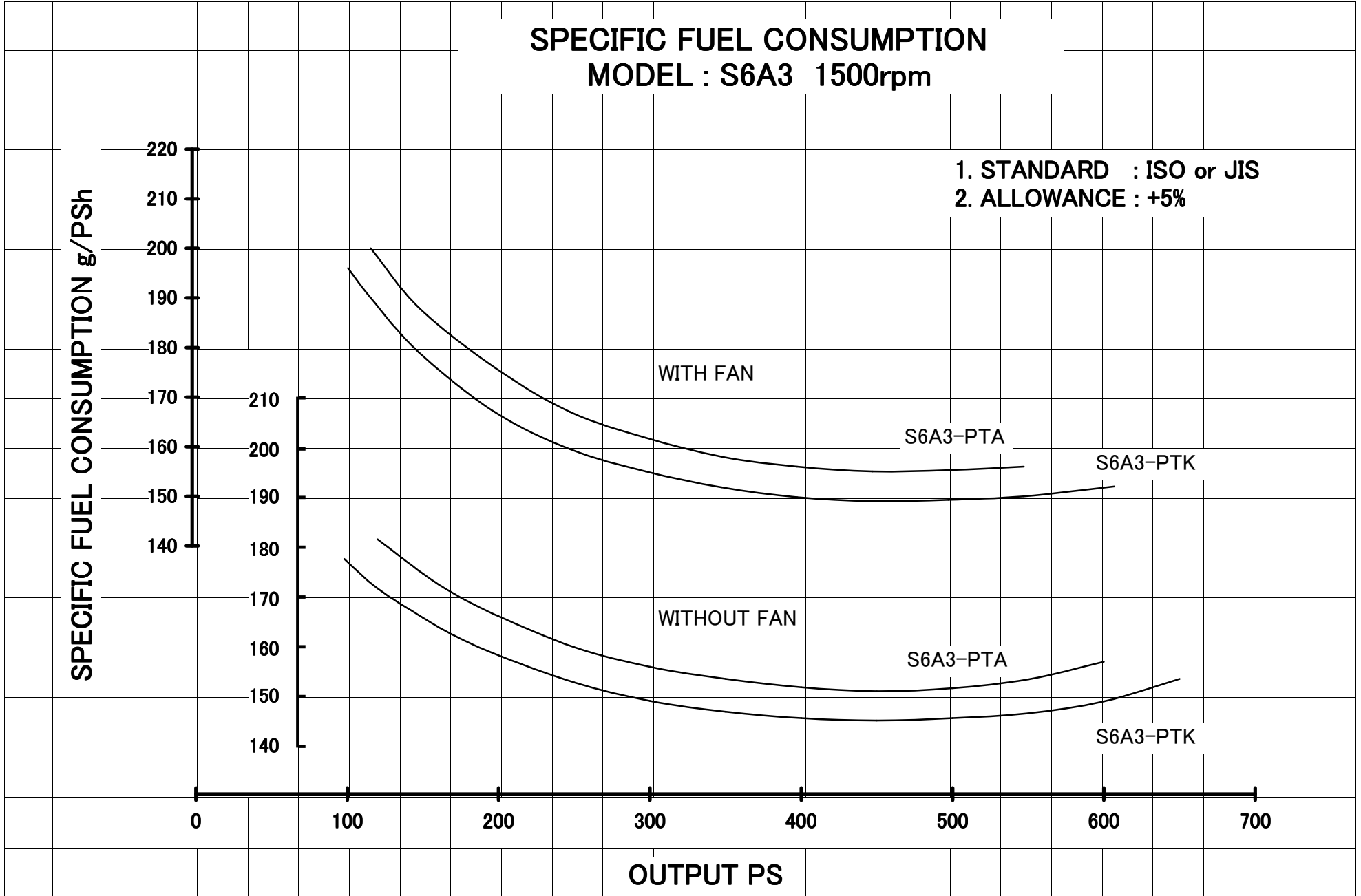
WITHOUT FAN

S6A3-PTA

S6A3-PTK

0 100 200 300 400 500 600 700

OUTPUT PS



SPECIFIC FUEL CONSUMPTION

MODEL : S6A3 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

230
220
210
200
190
180
170
160
150

210
200
190
180
170
160
150

WITH FAN

WITHOUT FAN

S6A3-PTA

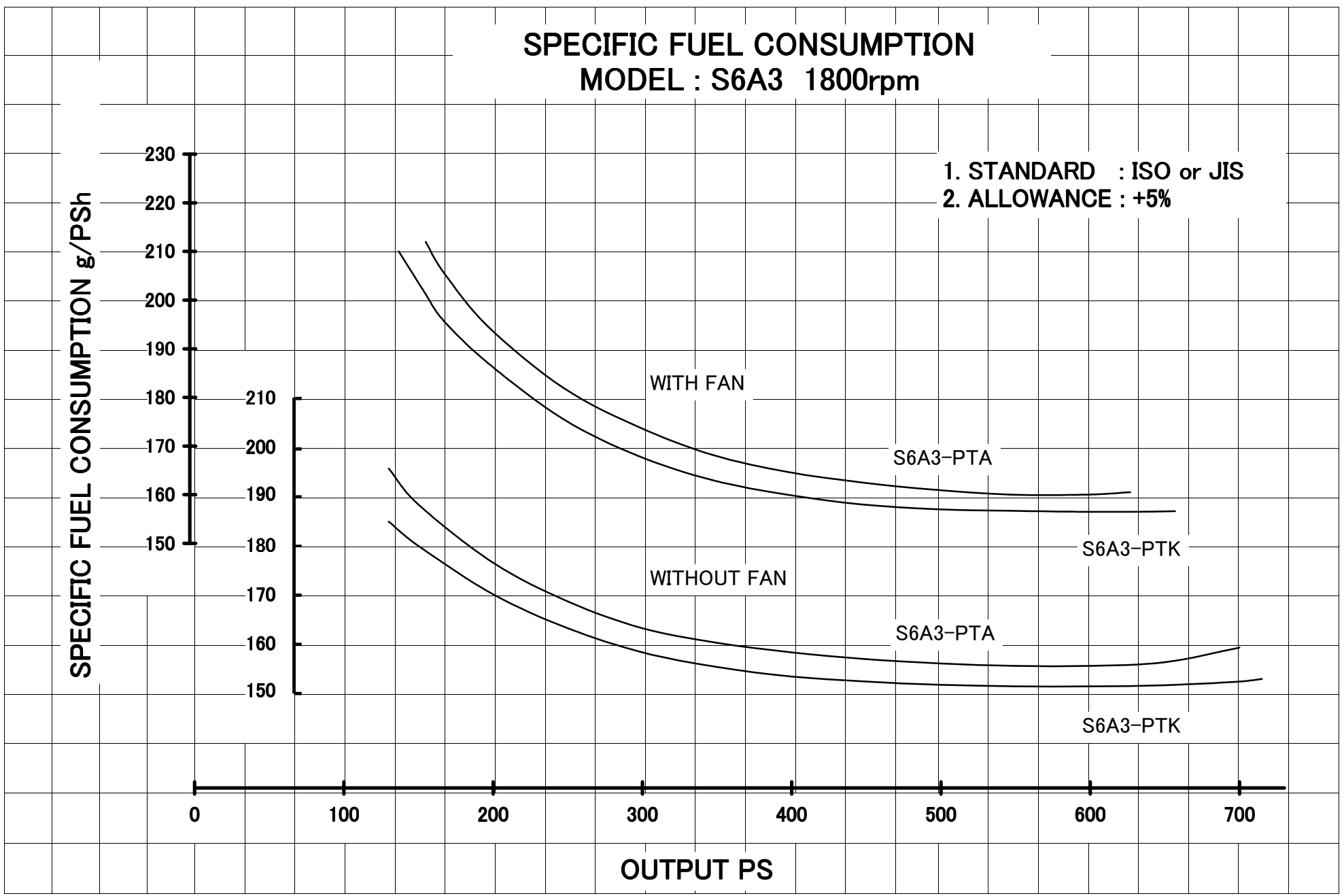
S6A3-PTK

S6A3-PTA

S6A3-PTK

0 100 200 300 400 500 600 700

OUTPUT PS



SPECIFIC FUEL CONSUMPTION MODEL : S12A2 1200rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

190
180
170
160
150

180
170
160
150

0

200

400

600

800

OUTPUT PS

WITH FAN

S12A2-PT

S12A2-PTA

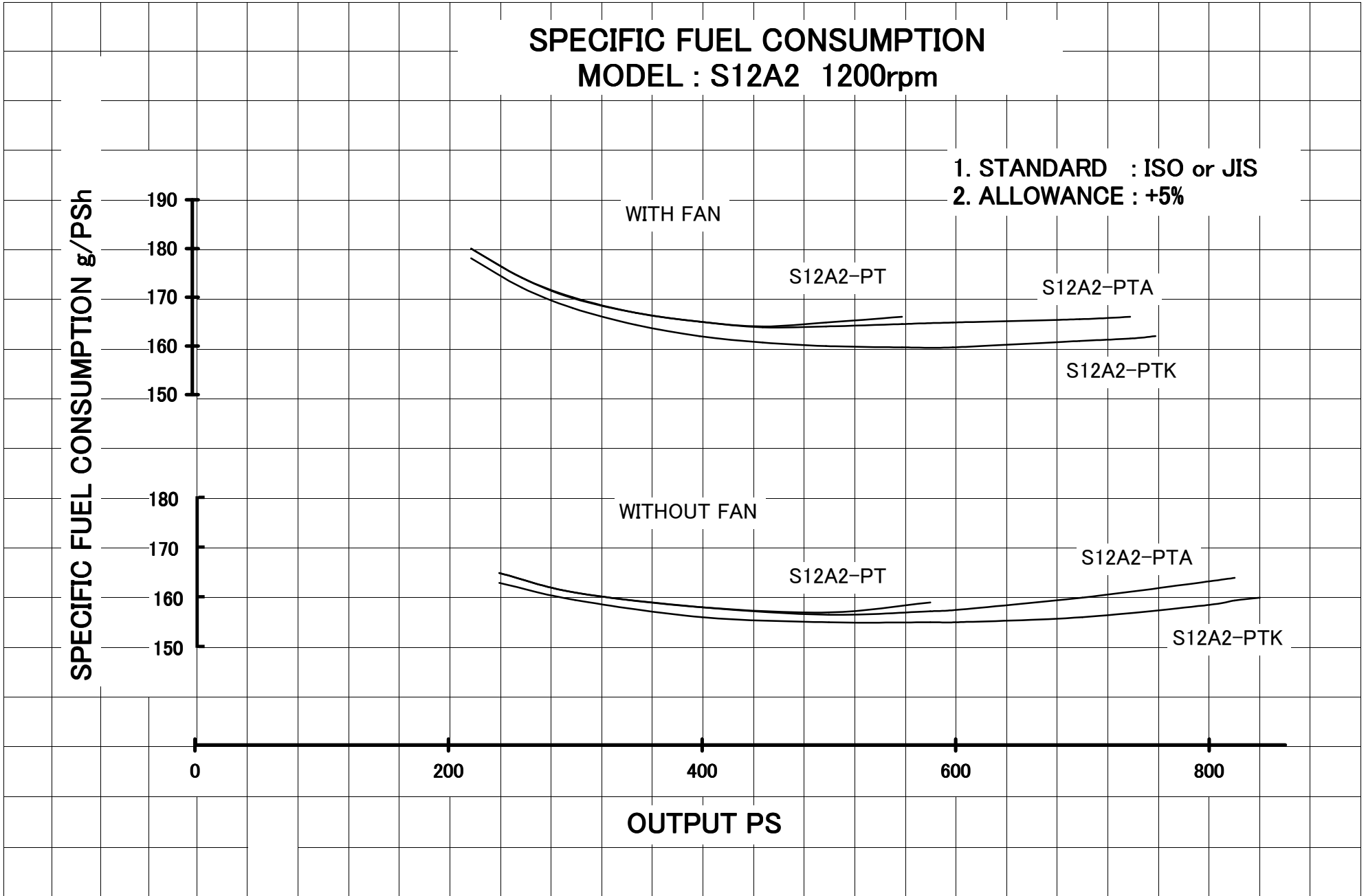
S12A2-PTK

WITHOUT FAN

S12A2-PT

S12A2-PTA

S12A2-PTK



SPECIFIC FUEL CONSUMPTION MODEL : S12A2 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

190
180
170
160
150

190
180
170
160
150
140

0

200

400

600

800

1000

OUTPUT PS

WITH FAN

S12A2-PT

S12A2-PTA

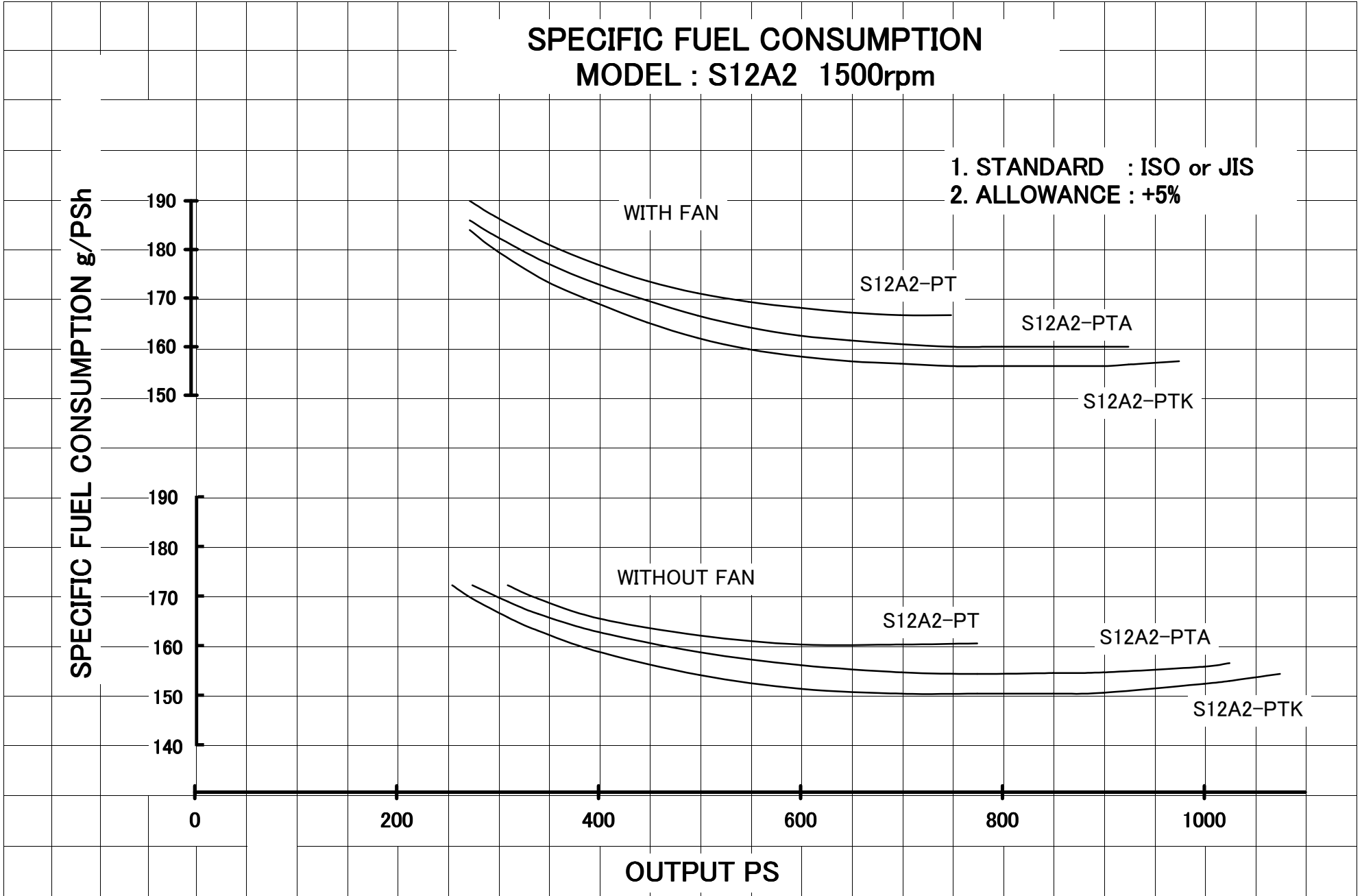
S12A2-PTK

WITHOUT FAN

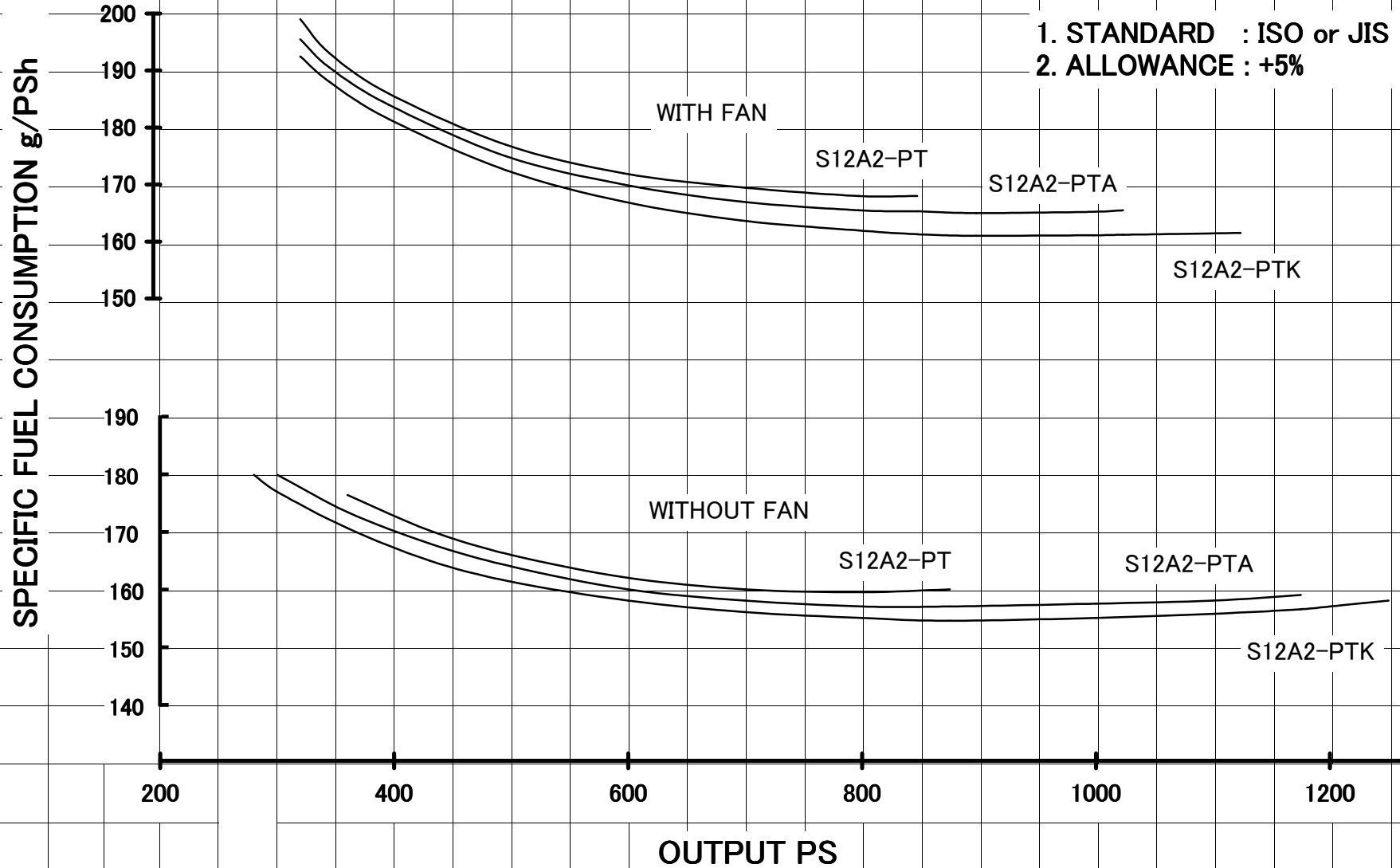
S12A2-PT

S12A2-PTA

S12A2-PTK

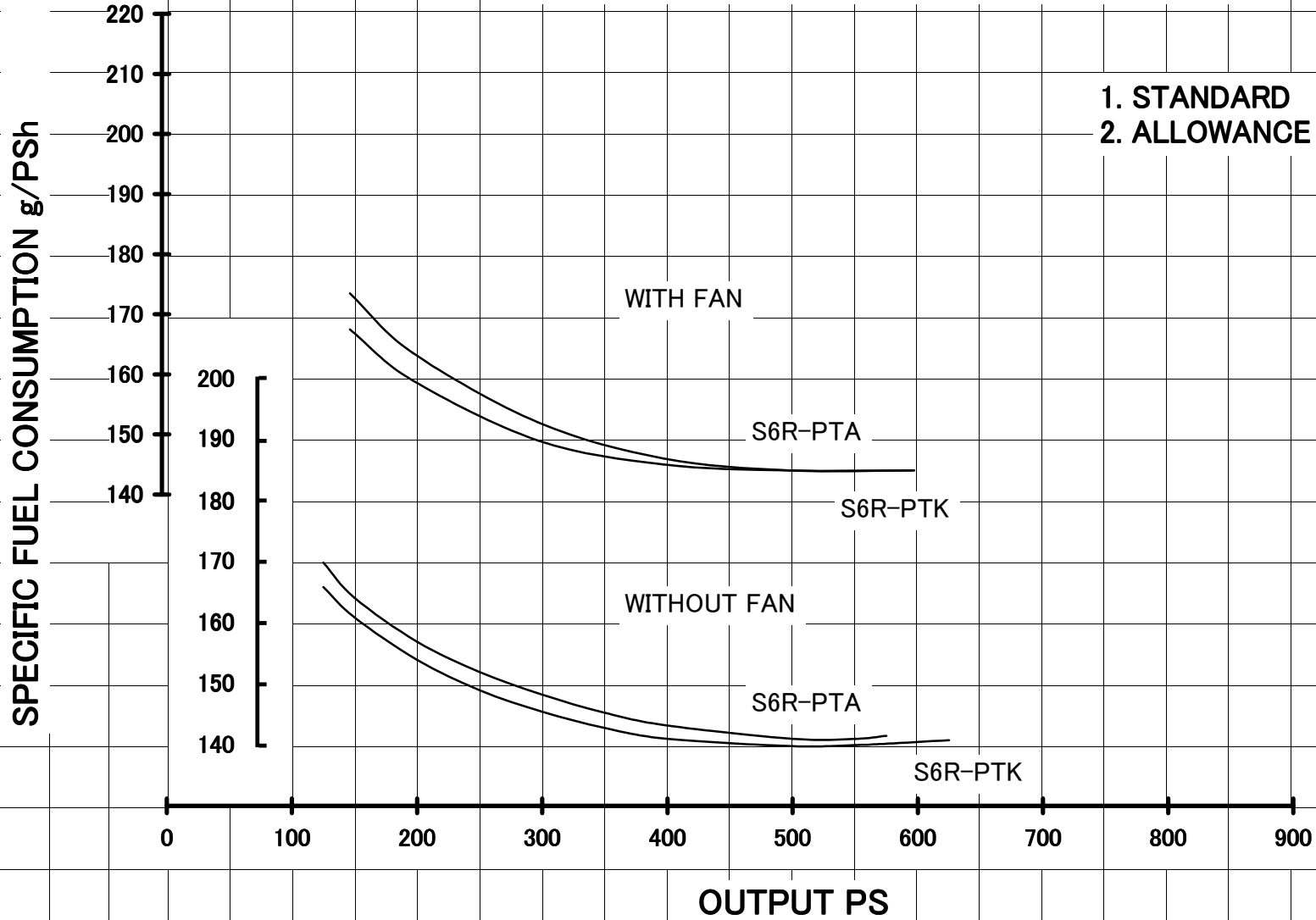


SPECIFIC FUEL CONSUMPTION MODEL : S12A2 1800rpm



SPECIFIC FUEL CONSUMPTION MODEL : S6R 1200rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

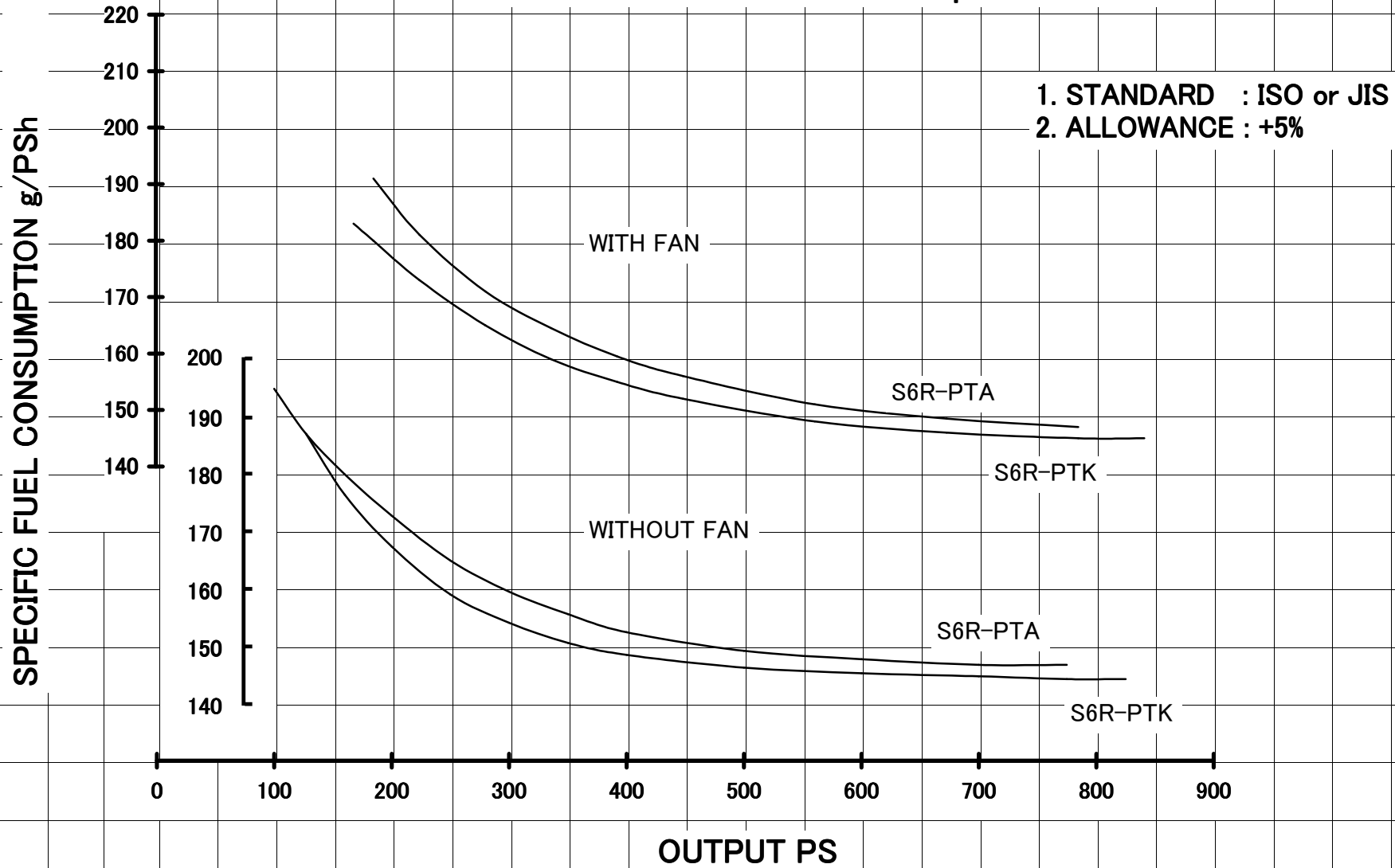


SPECIFIC FUEL CONSUMPTION

MODEL : S6R 1500rpm

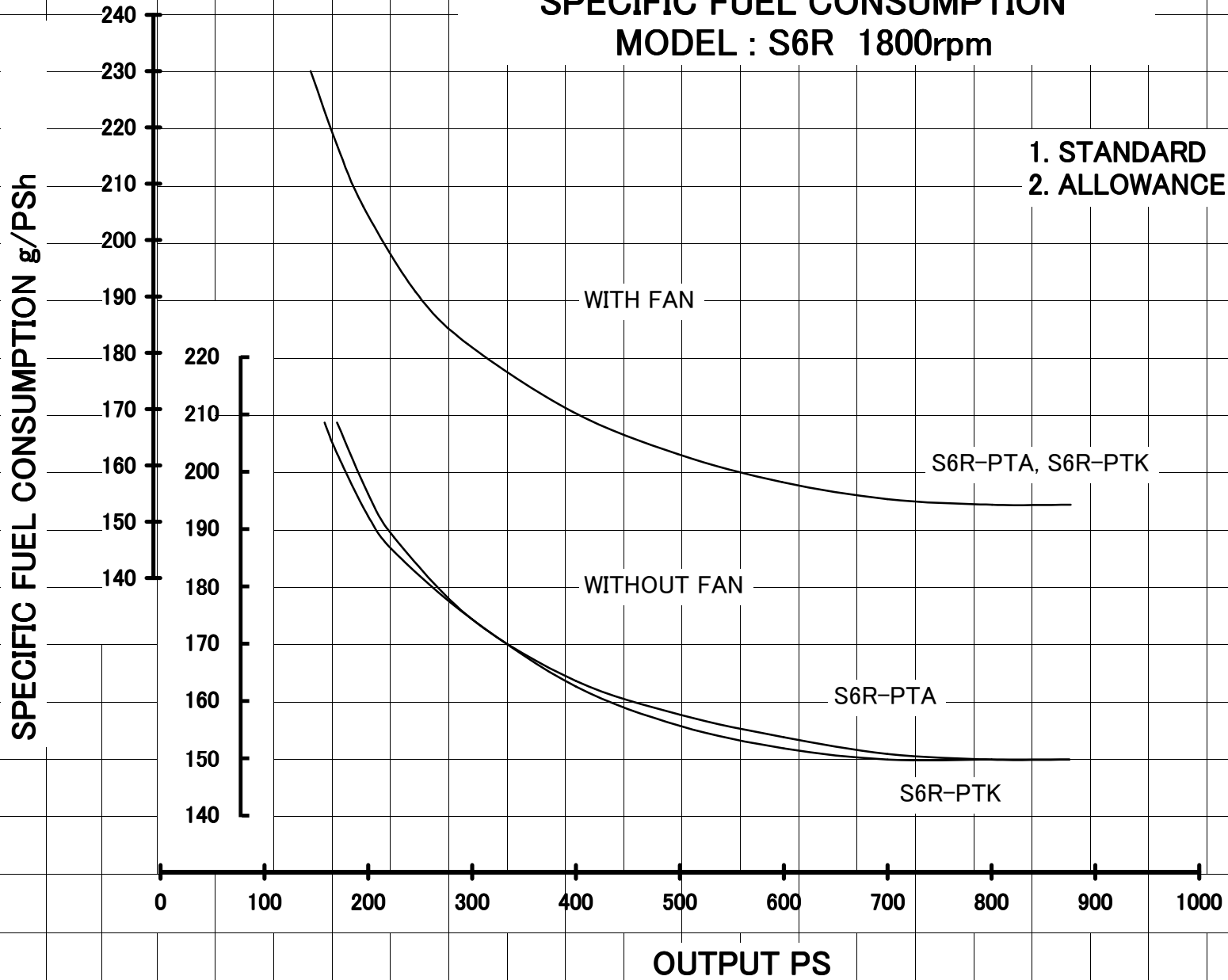
1. STANDARD : ISO or JIS

2. ALLOWANCE : +5%



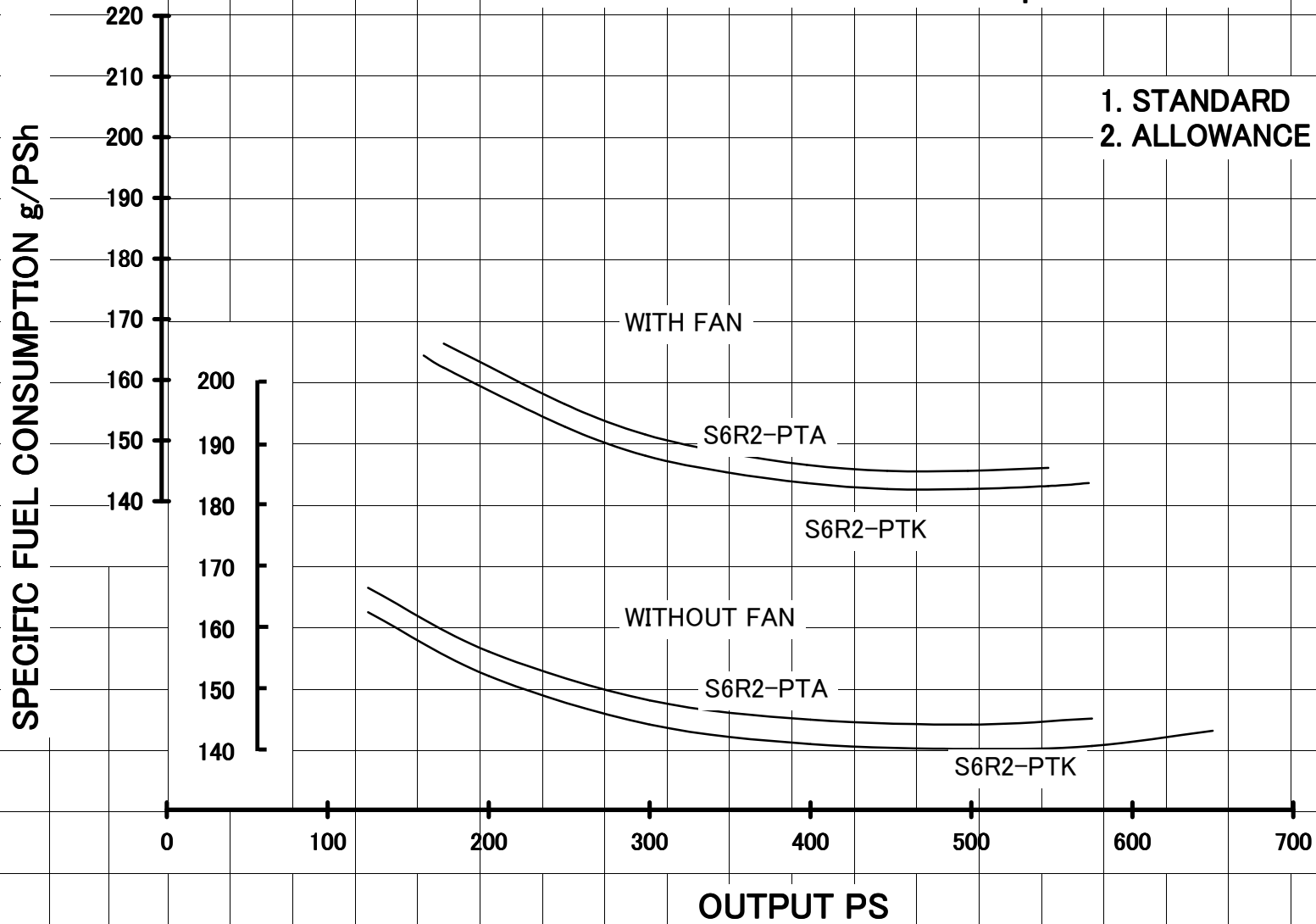
SPECIFIC FUEL CONSUMPTION MODEL : S6R 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S6R2 1000rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

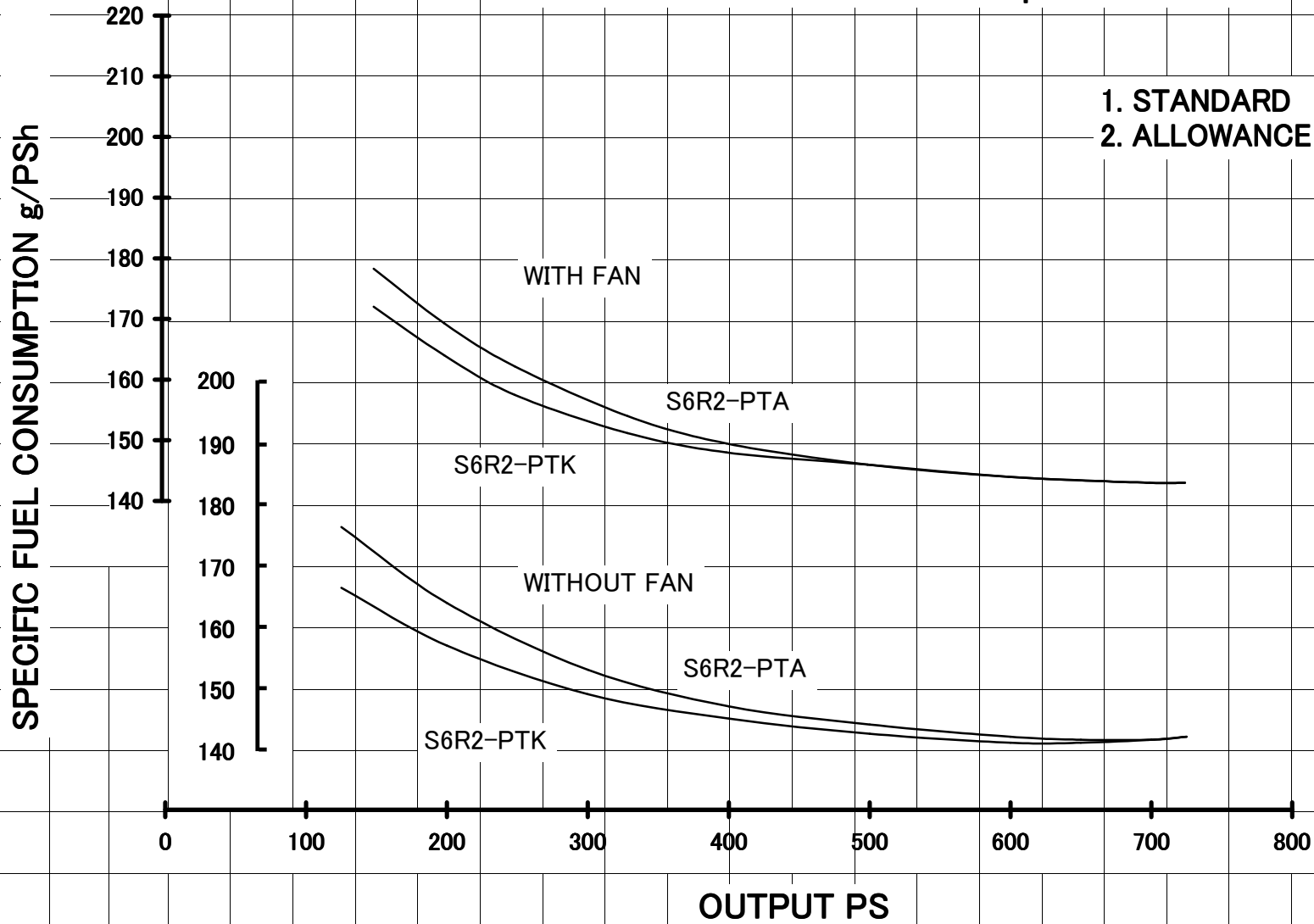


SPECIFIC FUEL CONSUMPTION

MODEL : S6R2 1200rpm

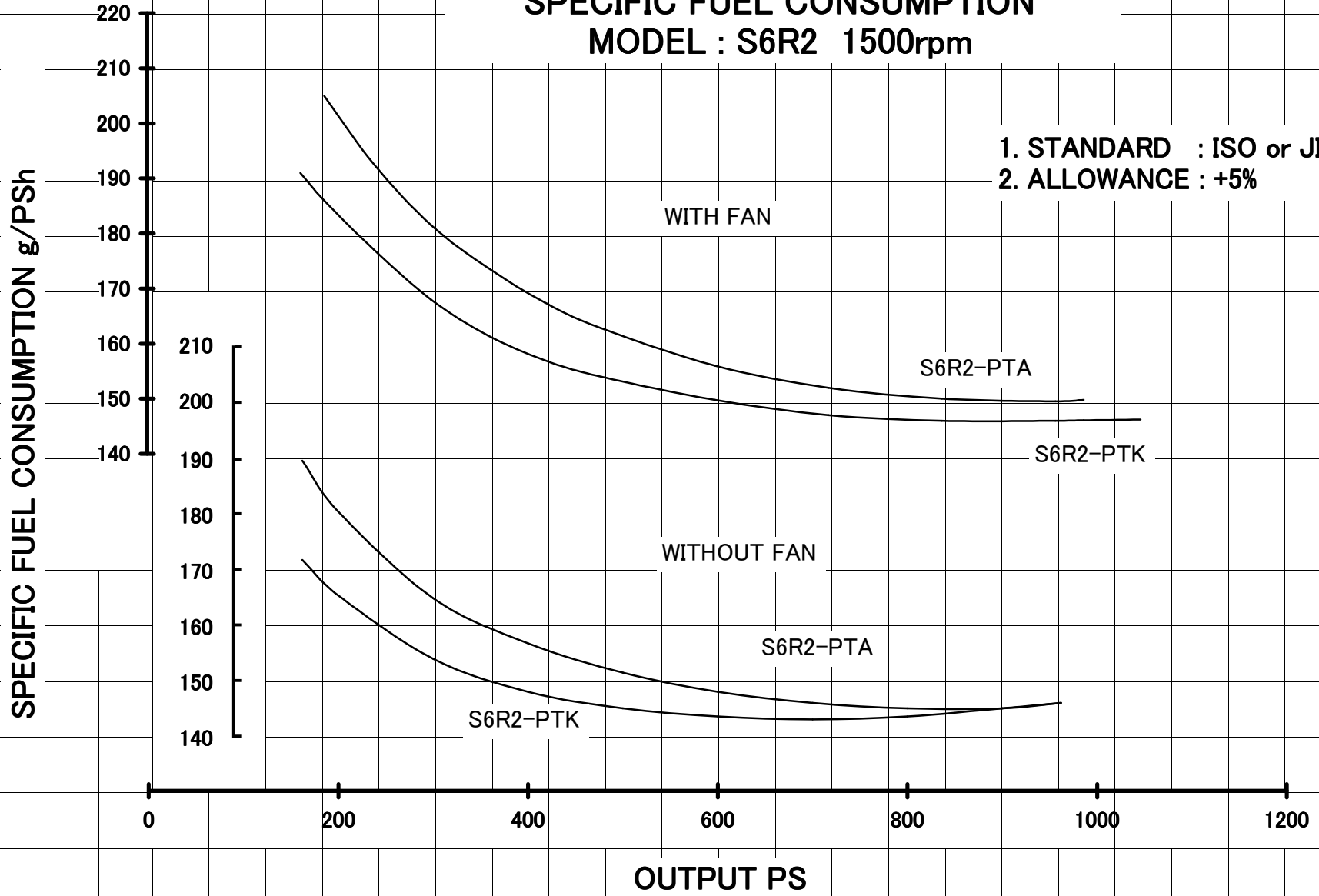
1. STANDARD : ISO or JIS

2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S6R2 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

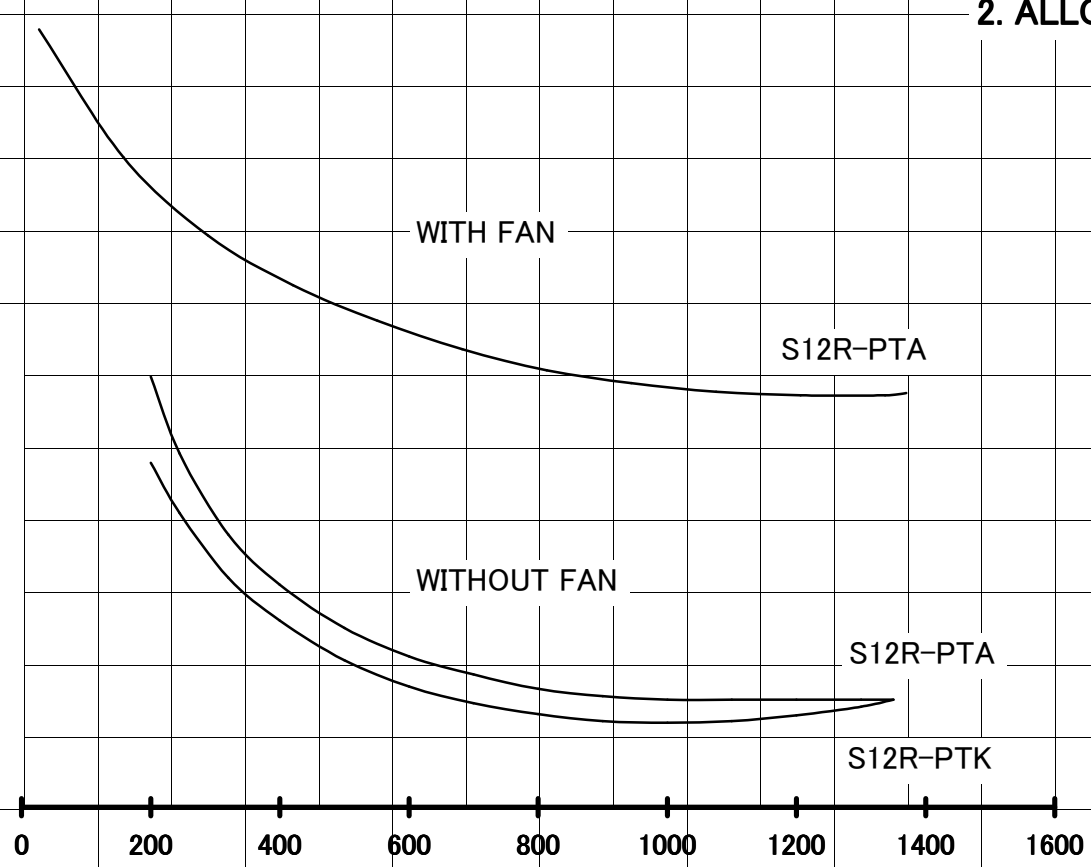


SPECIFIC FUEL CONSUMPTION MODEL : S12R 1200rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

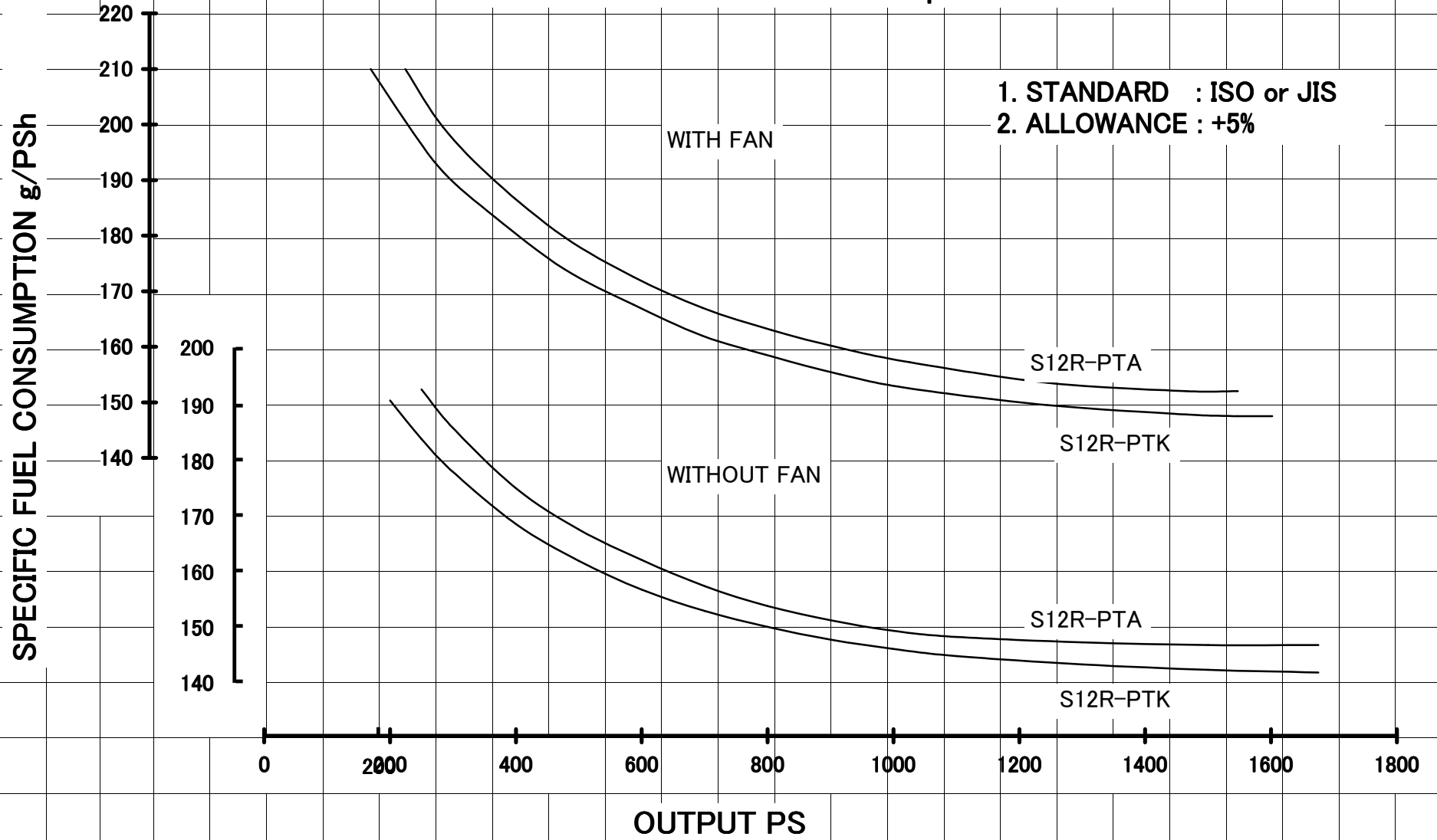
SPECIFIC FUEL CONSUMPTION g/PS_h

200
190
180
170
160
150
140
190
180
170
160
150
140

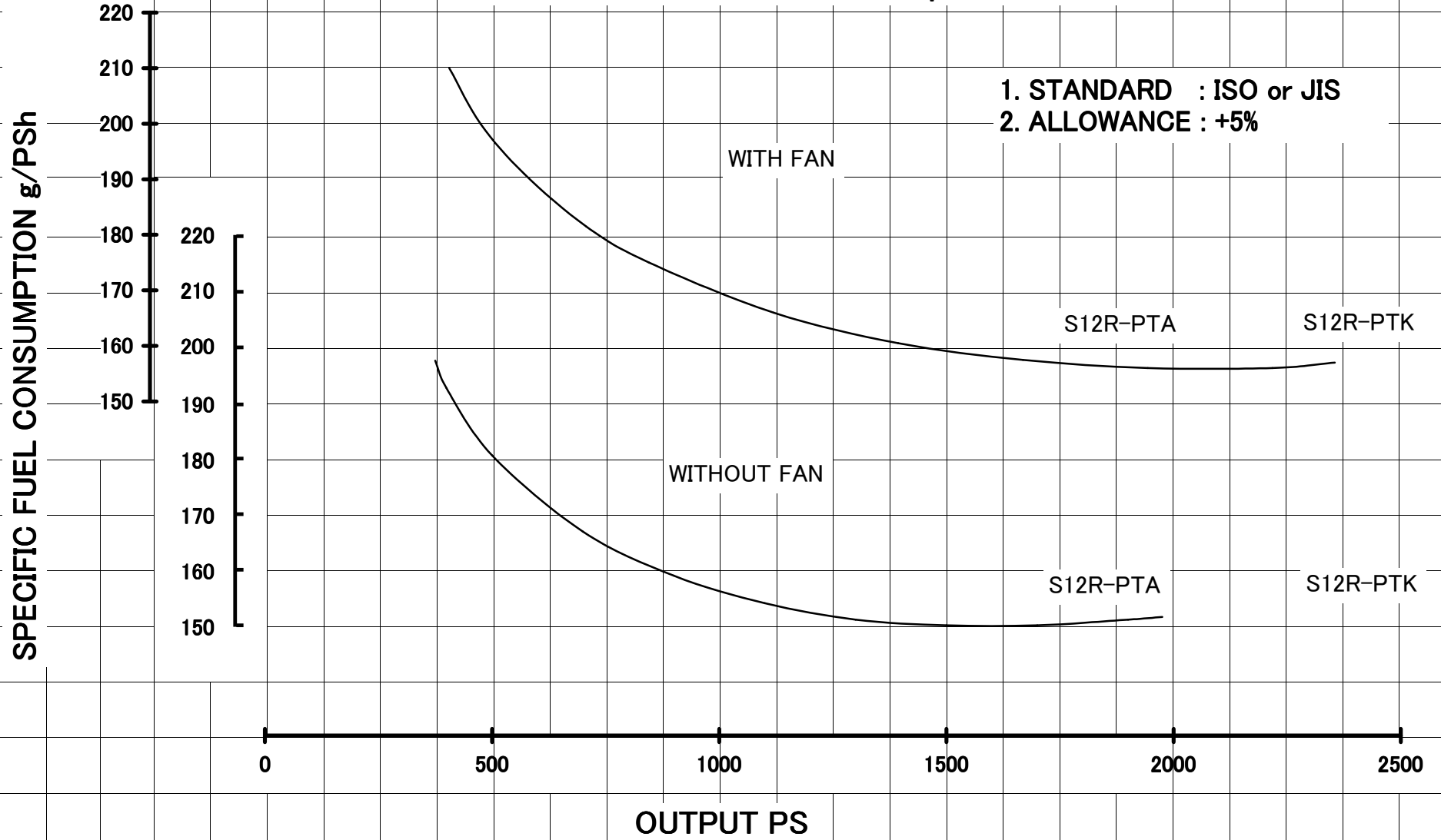


OUTPUT PS

SPECIFIC FUEL CONSUMPTION MODEL : S12R 1500rpm



SPECIFIC FUEL CONSUMPTION MODEL : S12R 1800rpm



SPECIFIC FUEL CONSUMPTION MODEL : S16R 1200rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PSH

210
200
190
180
170
160
150
140

190
180
170
160
150
140

0 200 400 600 800 1000 1200 1400 1600 1800 2000

OUTPUT PS

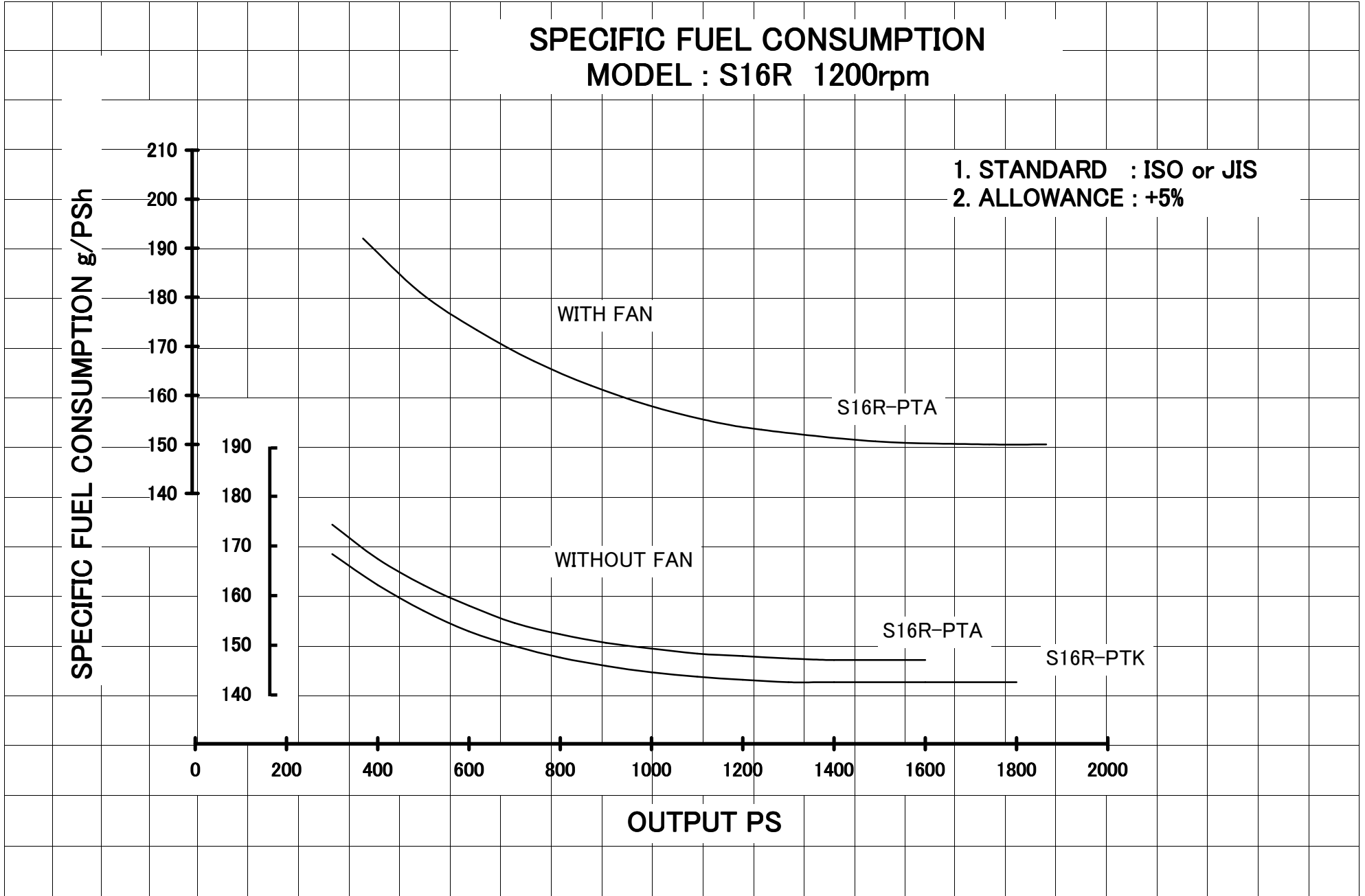
WITH FAN

S16R-PTA

WITHOUT FAN

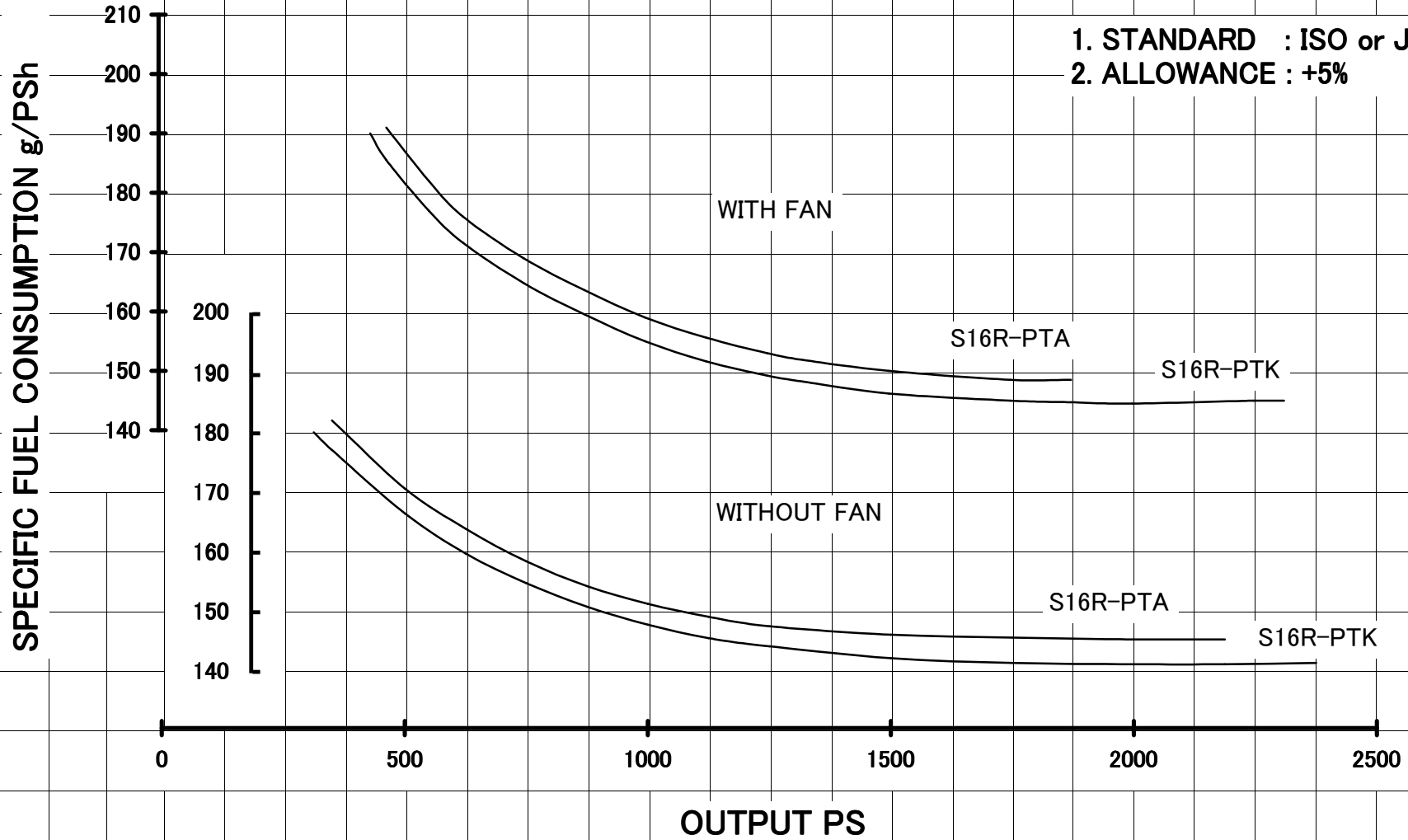
S16R-PTA

S16R-PTK



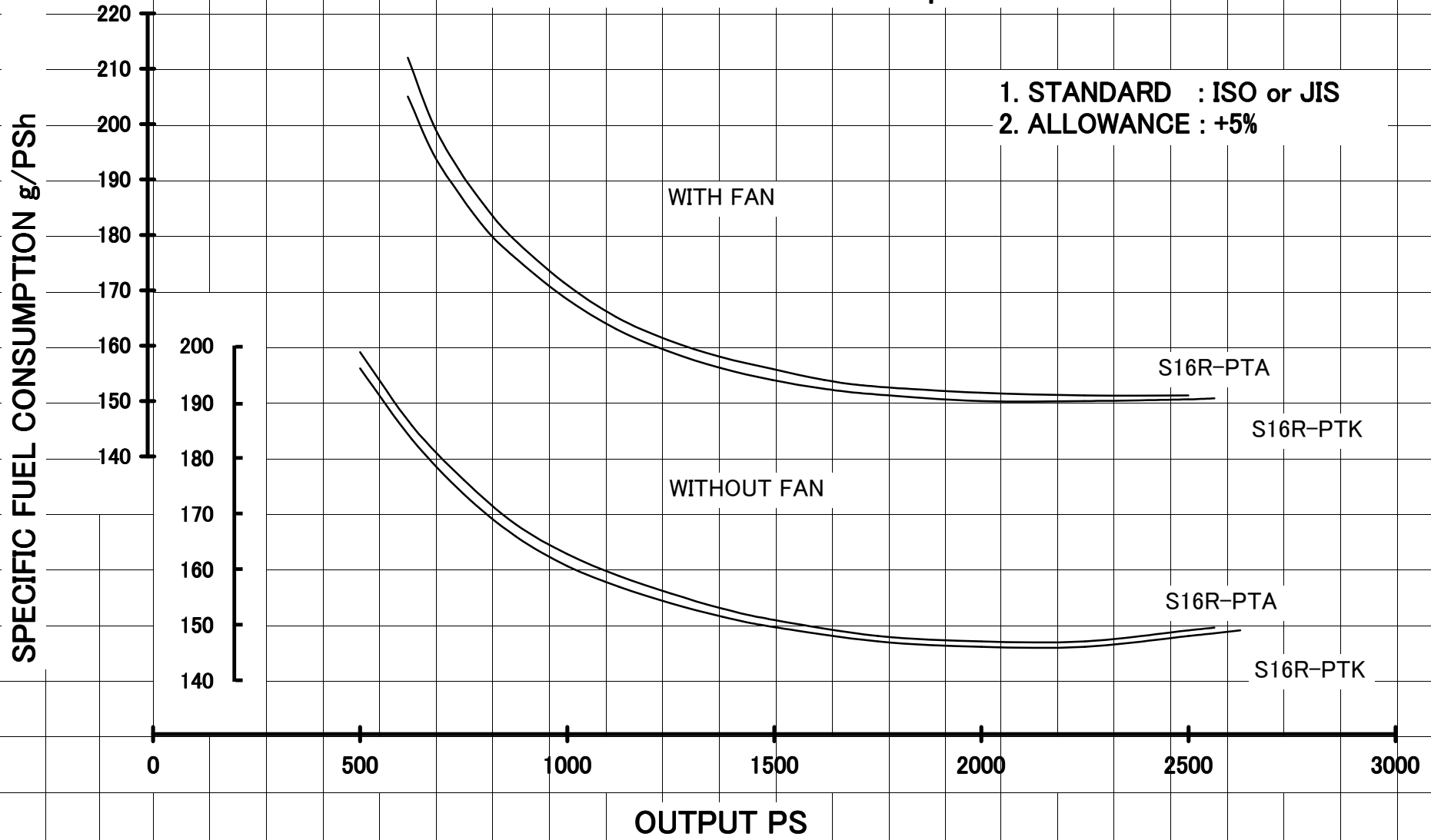
SPECIFIC FUEL CONSUMPTION MODEL : S16R 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



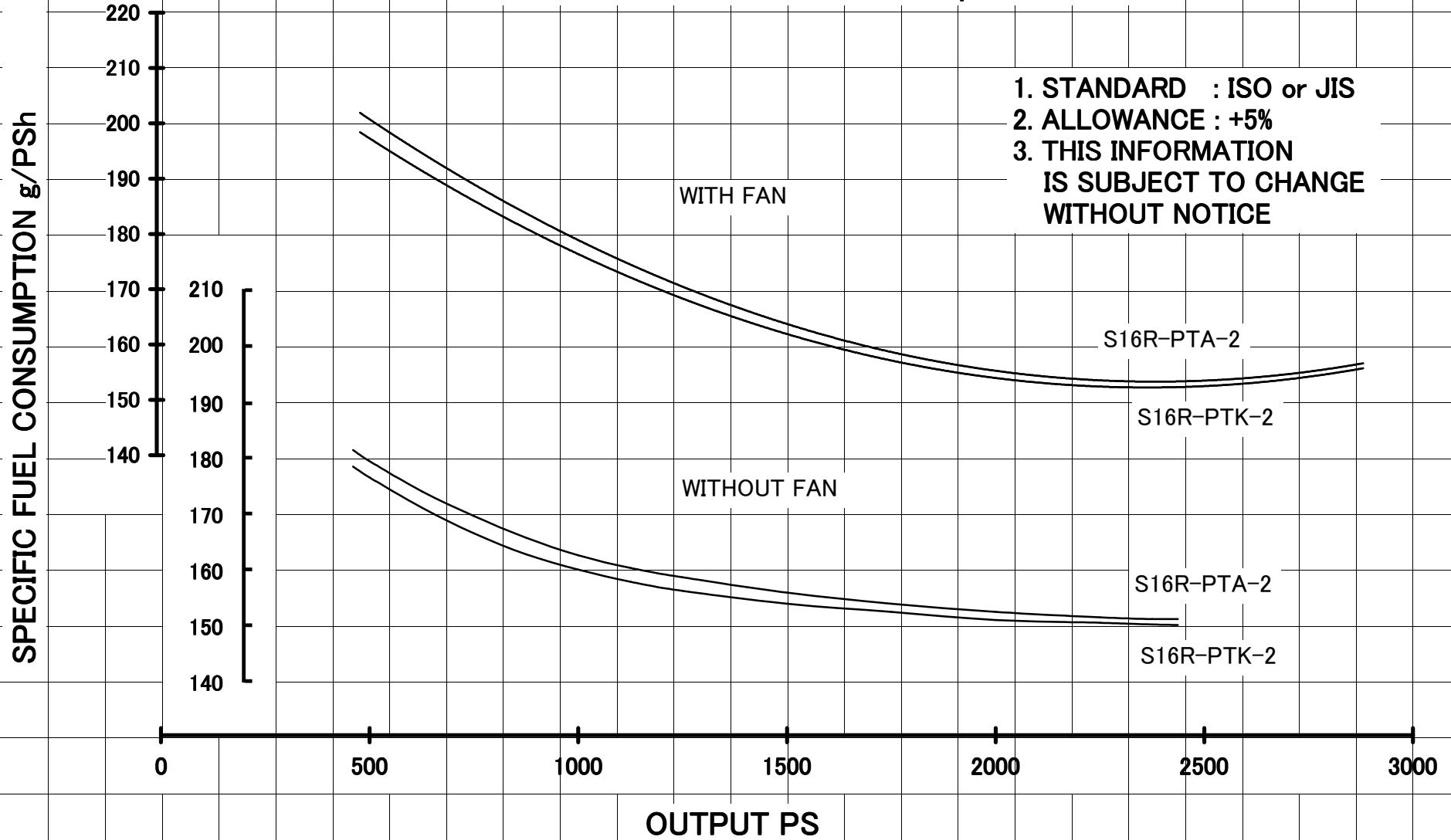
SPECIFIC FUEL CONSUMPTION MODEL : S16R 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



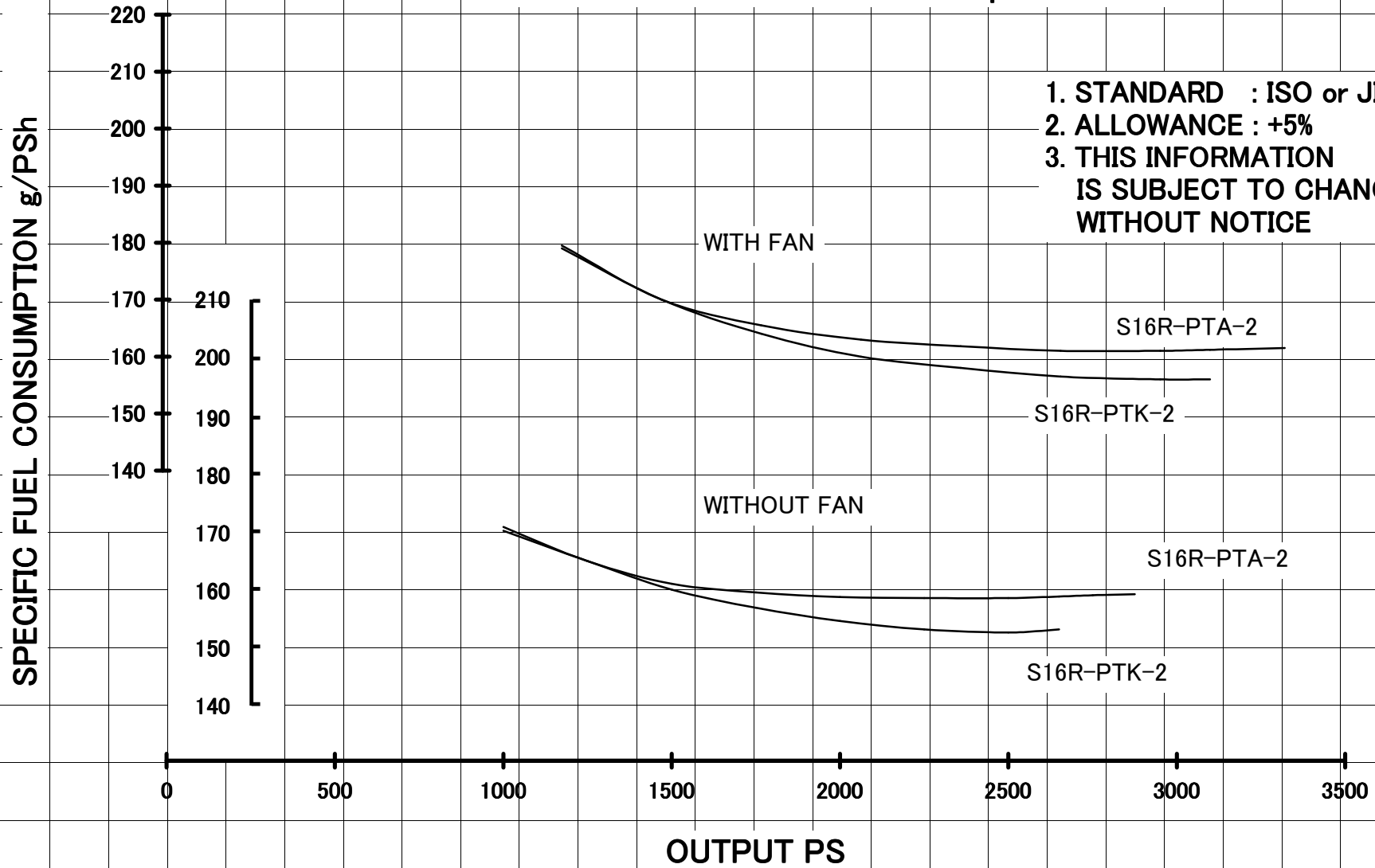
SPECIFIC FUEL CONSUMPTION MODEL : S16R-2 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%
- 3. THIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE



SPECIFIC FUEL CONSUMPTION MODEL : S16R-2 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%
- 3. THIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE



SPECIFIC FUEL CONSUMPTION
MODEL : S6R2-PTAA 1500rpm

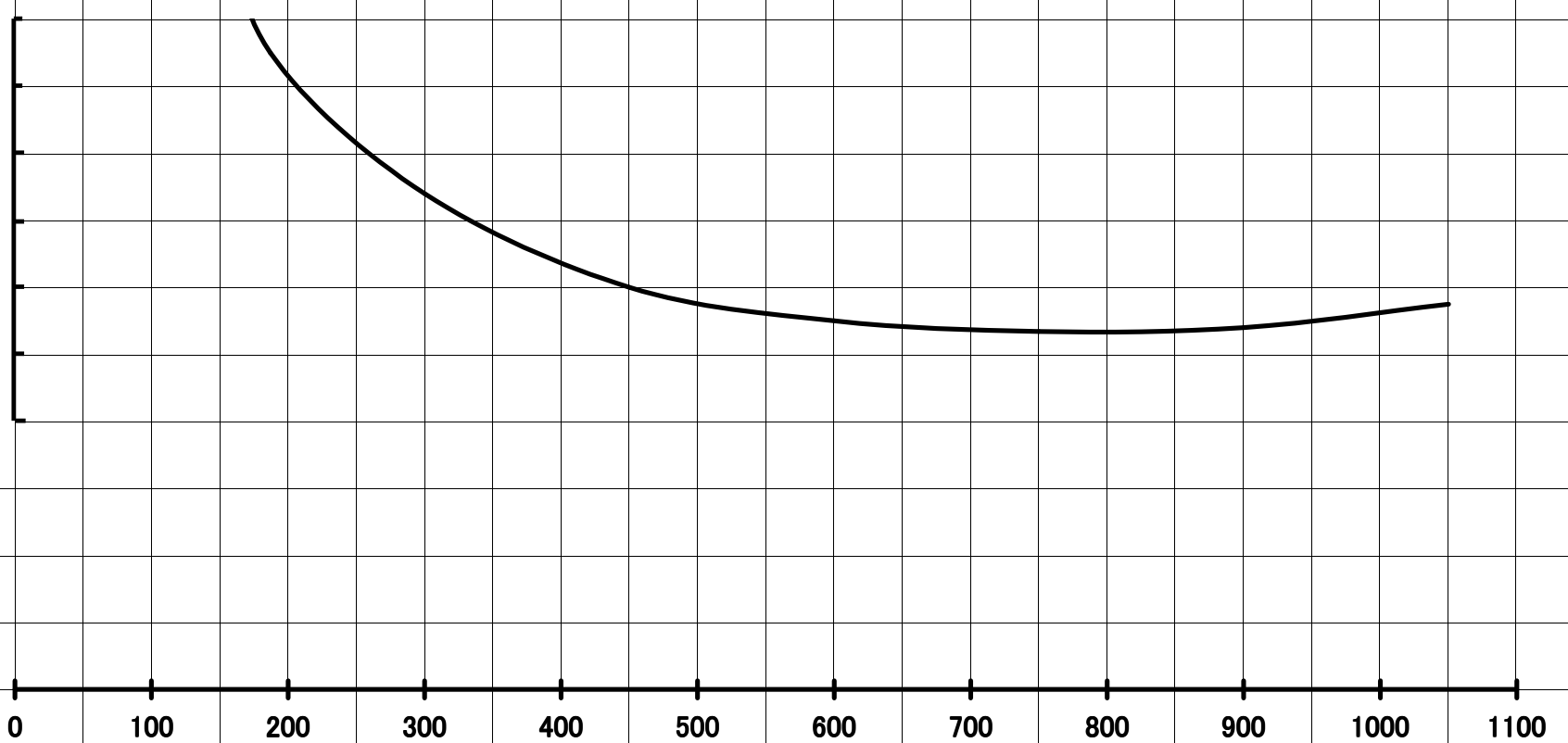
- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

200
190
180
170
160
150
140

0 100 200 300 400 500 600 700 800 900 1000 1100

OUTPUT PS



**SPECIFIC FUEL CONSUMPTION
MODEL : S12H-PTA 1500rpm**

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

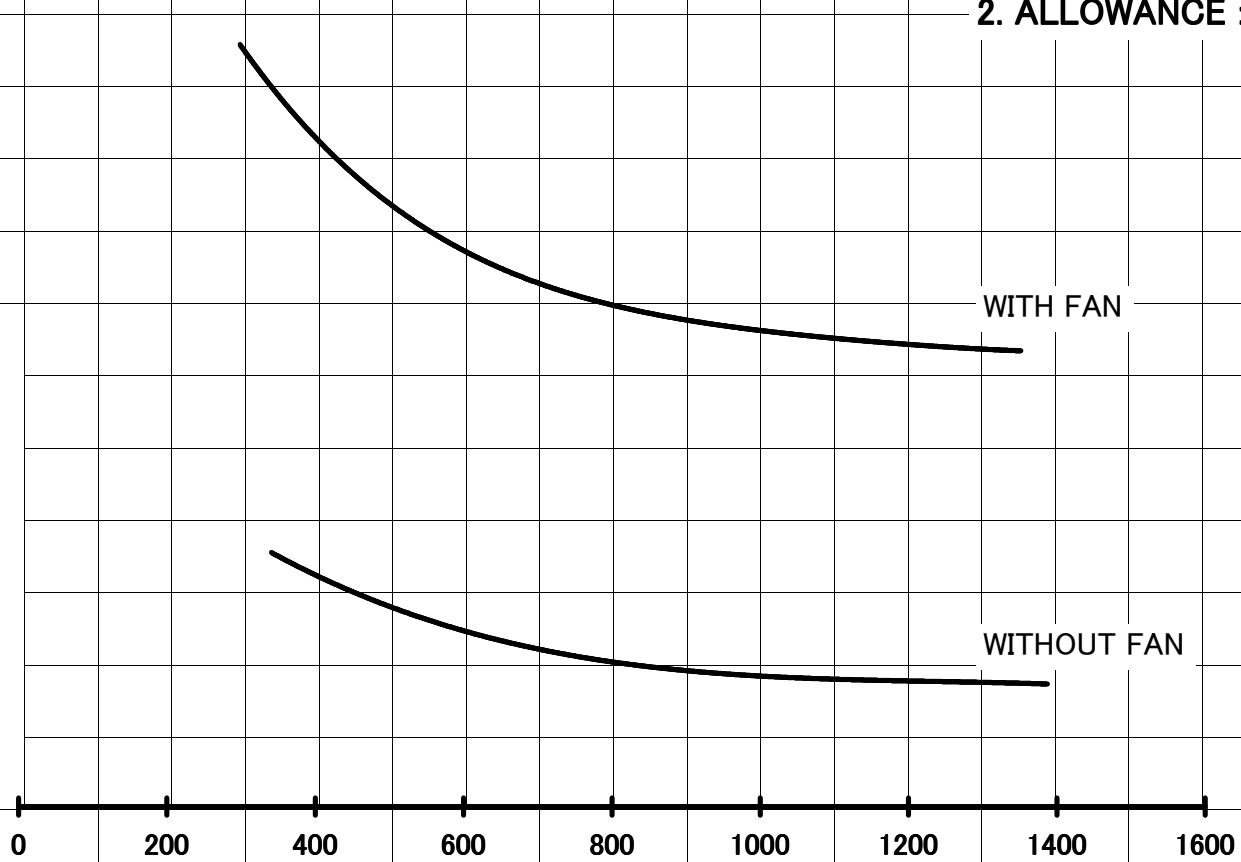
200
190
180
170
160
150
140
190
180
170
160
150
140

0 200 400 600 800 1000 1200 1400 1600

OUTPUT PS

WITH FAN

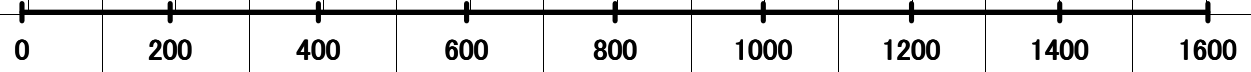
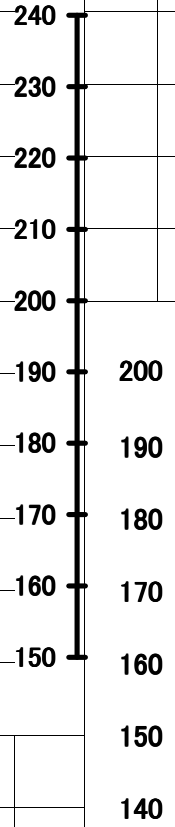
WITHOUT FAN



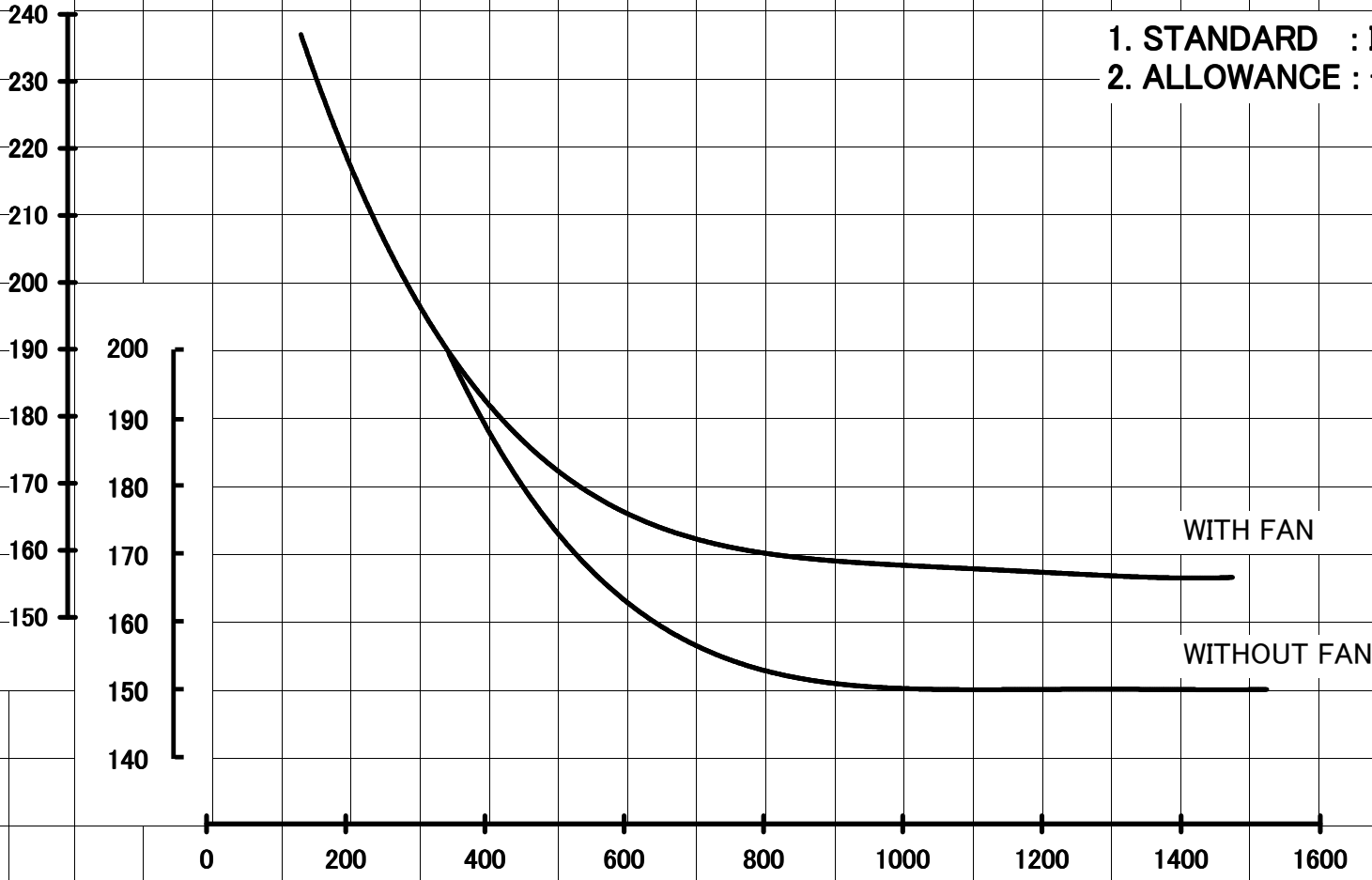
SPECIFIC FUEL CONSUMPTION
MODEL : S12H-PTA 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PSH



WITH FAN
WITHOUT FAN



SPECIFIC FUEL CONSUMPTION MODEL : S12R-PTAA2

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

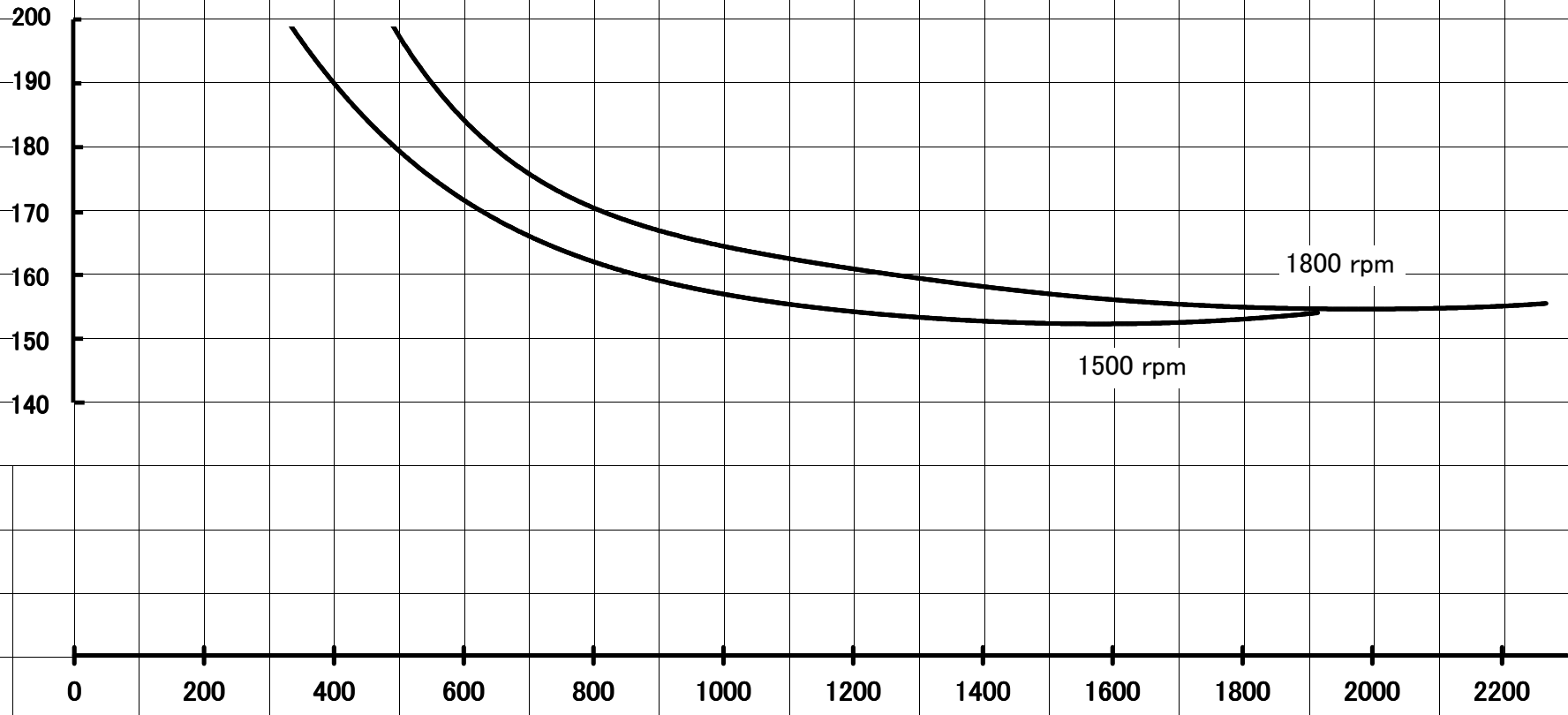
200
190
180
170
160
150
140

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200

OUTPUT PS

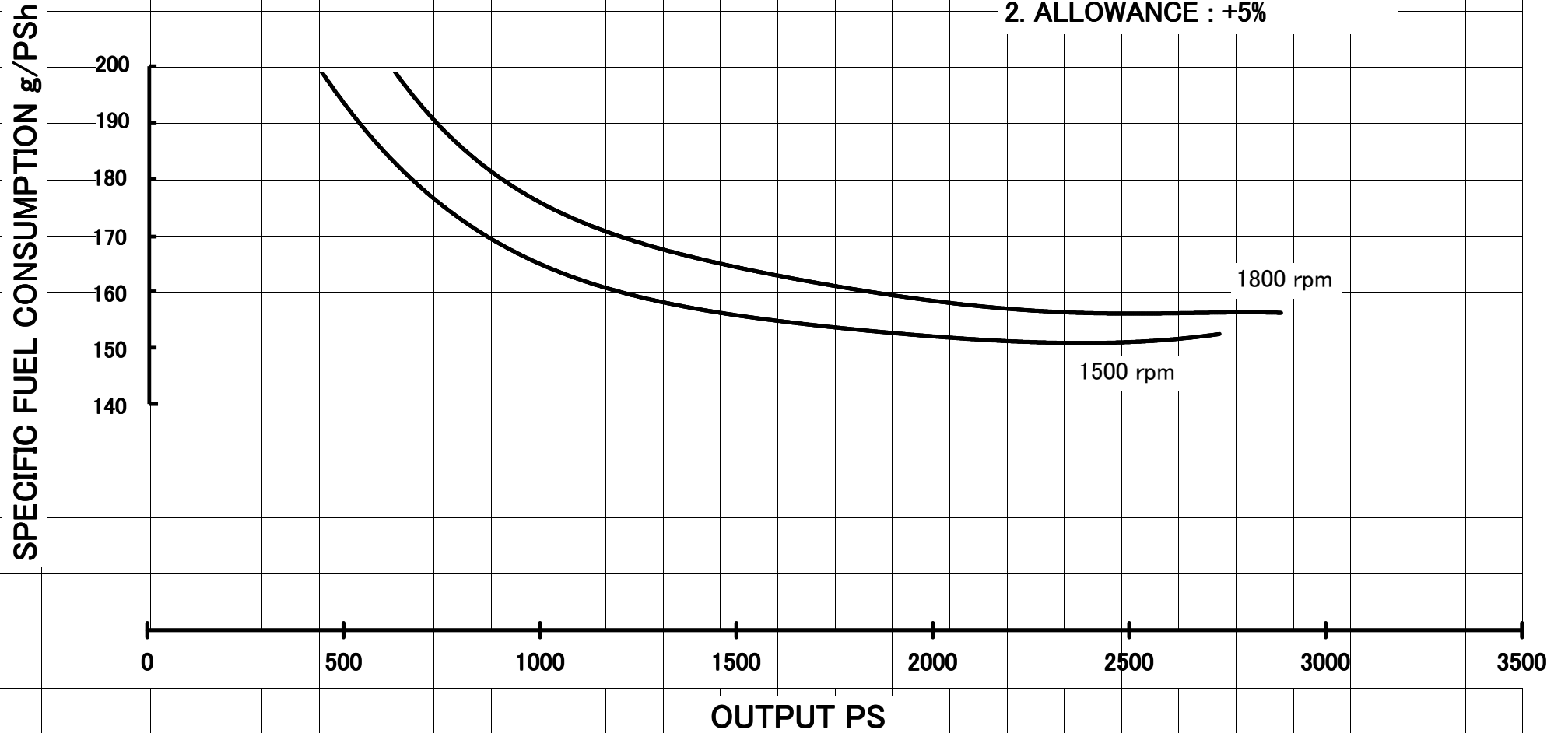
1500 rpm

1800 rpm



**SPECIFIC FUEL CONSUMPTION
MODEL : S16R-PTAA2**

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%



SPECIFIC FUEL CONSUMPTION MODEL : S12R-2 1500rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

SPECIFIC FUEL CONSUMPTION g/PS_h

220
210
200
190
180
170
160
150
140

200
190
180
170
160
150
140

0 200 500 1000 1500 2000 2100

OUTPUT PS

WITH FAN

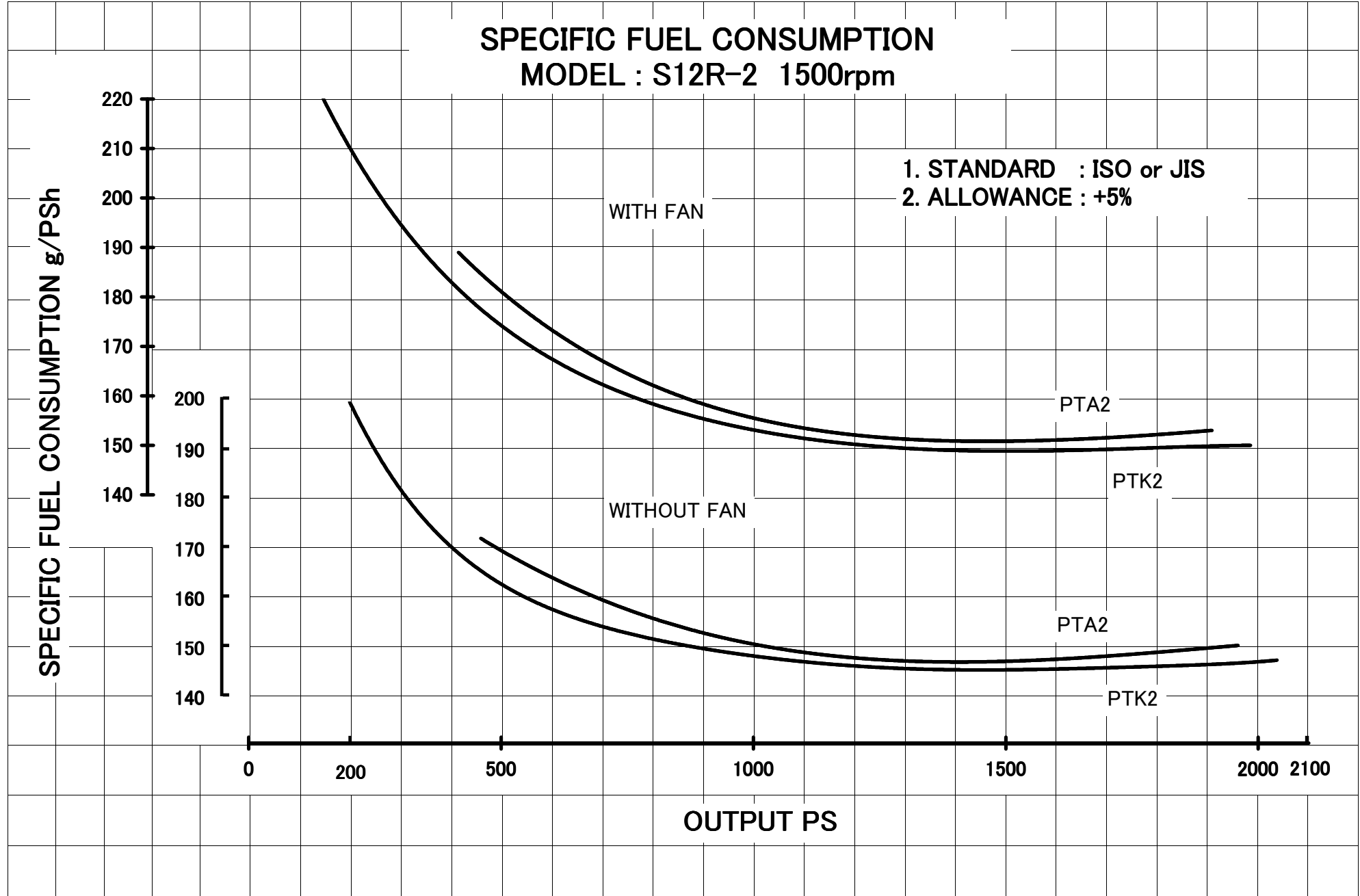
WITHOUT FAN

PTA2

PTK2

PTA2

PTK2



SPECIFIC FUEL CONSUMPTION MODEL : S12R-2 1800rpm

- 1. STANDARD : ISO or JIS
- 2. ALLOWANCE : +5%

