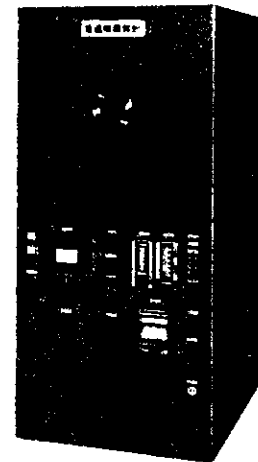


PRECISION TYPE BLACK BODY FURNACE

CHINO
PS
PERFORMANCE SPECIFICATION

- MODEL IR-R4 (Low-temperature range)
IR-R6 (Medium-temperature range)
IR-R7 (High-temperature range)
IR-R8 (Ultra-high-temperature range)

This black body furnace is used for calibrating radiation pyrometers. Its four models allow respective precision temperature test over a temperature range of 50 ~ 30000°C. This black body furnace is applicable to thermocouples and resistance thermometers as well as radiation pyrometers.



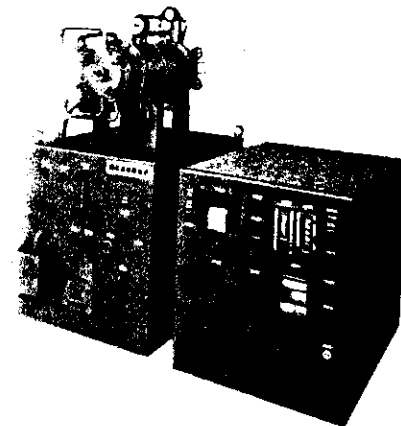
MODEL IR-R4, IR-R6, IR-R7

■ FEATURES

- High Evaluated Blackness
The blackness, or, the apparent emissivity of the black body furnace is determined by the mutual relation between the radiator cavity size and opening size, emissivity of the internal wall of the cavity, and temperature distribution.

This instrument evaluates precise blackness by fully taking the above conditions into consideration.

The black body conditions are realized by the circulating blower fan system in the low-temperature range, by the semi-three zone in the medium temperature range, by the 3-zone control in the high-temperature range, and by a special graphite shape in the ultra-high-temperature range, respectively.



MODEL IR-R8

- Automatic Test is Possible.

Respective models are provided with a program controller and a digital printer for executing automatic tests at night, etc. The instrument is designed to be safe, in particular.

- CPU is Connectable.

Operation and test data are connectable to CPU, if so designated by user.

MODELS

Model	Test temperature (normal)	Effective emissivity	Radiator diameter	Test system (Testing thermometer)	Heating element	Remarks
IR-R4 (Low-temperature range)	50~400°C	About 0.99	100φ	Comparative testing method (CA thermocouple)	Nichrome heater	Circulating blower fan system
IR-R6 (Medium-temperature range)	100~1100°C	About 0.998	50φ	Comparative testing method (PR thermocouple)	Kantal A heater	Semi-3-zone control
IR-R7 (High-temperature range)	500~1500°C	About 0.998	50φ	Comparative testing method (PR thermocouple)	SiC heater	3-zone control
IR-R8 (Ultra-high-temperature range)	1000~3000°C	About 0.90*	30φ	Comparative testing method (Two-color pyrometer or optical pyrometer)	Artificial graphite	Direct current heating

*Including the transmittance of measuring window material.

LOW-TEMPERATURE RANGE BLACK BODY FURNACE
MODEL IR-R4

■ GENERAL SPECIFICATIONS

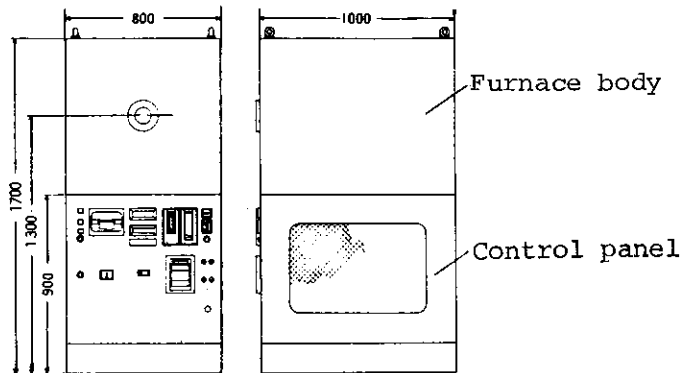
TEST SYSTEM	Comparative testing method (Comparison with standard thermocouple)
TSETTING OBJECT	Various radiation pyrometers
TEST TEMPERATURE	Normal 50 ~ 400°C
EFFECTIVE EMISSIVITY	About 0.99
RADIATOR DIAMETER	100ø
HEATING TIME	About 1.5 hours up to 400°C
HEATING ELEMENT	Nichrome heater
TESTING THERMOMETER	CA thermocouple (with test data)
TEMPERATURE CONTROL	Programmed or fixed value PID control system
DATA INDICATION	Digital indicator indication
DATA RECORDING	Digital printer recording or analog recorder recording
POWER SUPPLY	100V, 50/60Hz
POWER REQUIREMENT	For instrument — about 0.5kVA For load — about 4kVA
SAFETY DEVICES	Overheat preventing device for furnace by exclusive temperature alarmer, lamp and buzzer indications in trouble, and load power supply interruption

■ SPARE PARTS

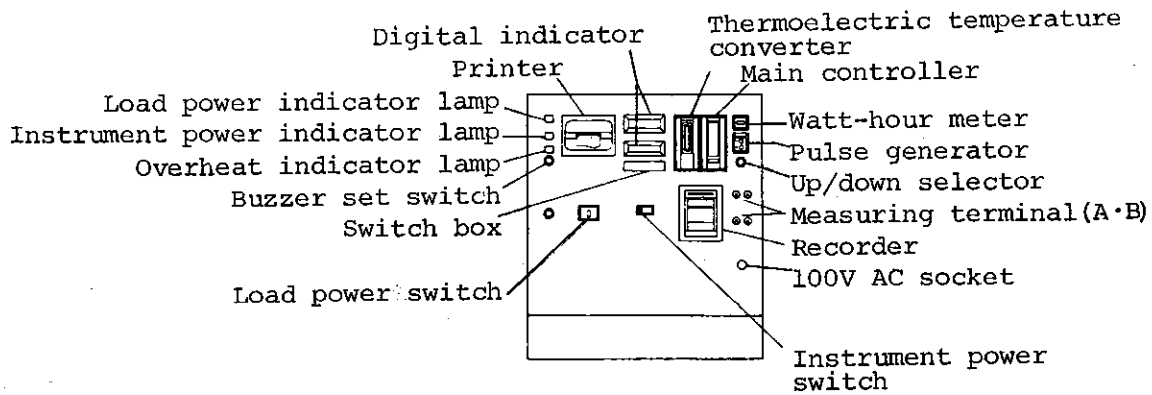
Nichrome heaters and charts for two-years' use

■ EXTERNAL DIMENSIONS

(Common to models IR-R4, IR-R6, IR-R7)



<<CONTROL PANEL>>



MEDIUM-TEMPERATURE RANGE BLACK BODY FURNACE
MODEL IR-R6

■ GENERAL SPECIFICATIONS

TEST SYSTEM	Comparative testing method (Comparison with standard thermocouple)
TESTING OBJECT	Various radiation pyrometers
TEST TEMPERATURE	Normal 100 ~ 1100°C, max. 1150°C
EFFECTIVE EMISSIVITY	About 0.998
RADIATOR DIAMETER	50φ
HEATING TIME	Within 2 hours up to 1100°C
HEATING ELEMENT	Kantal A heater
TESTING THERMOMETER	Standard thermocouple PR13% (with test data)
TEMPERATURE CONTROL	Programmed or fixed value PID control system
DATA INDICATION	Digital indicator indication
DATA RECORDING	Digital printer recording or analog recorder recording
POWER SUPPLY	100V, 50/60Hz
POWER REQUIREMENT	For instrument — about 0.5kVA For load — about 10kVA
SAFETY DEVICES	Overheat preventing device for furnace by exclusive temperature alarmer, lamp and buzzer indications in trouble, and load power supply interruption

■ SPARE PARTS

Kantal A heaters and charts for 2-years' use

HIGH-TEMPERATURE RANGE BLACK BODY FURNACE
MODEL IR-R7

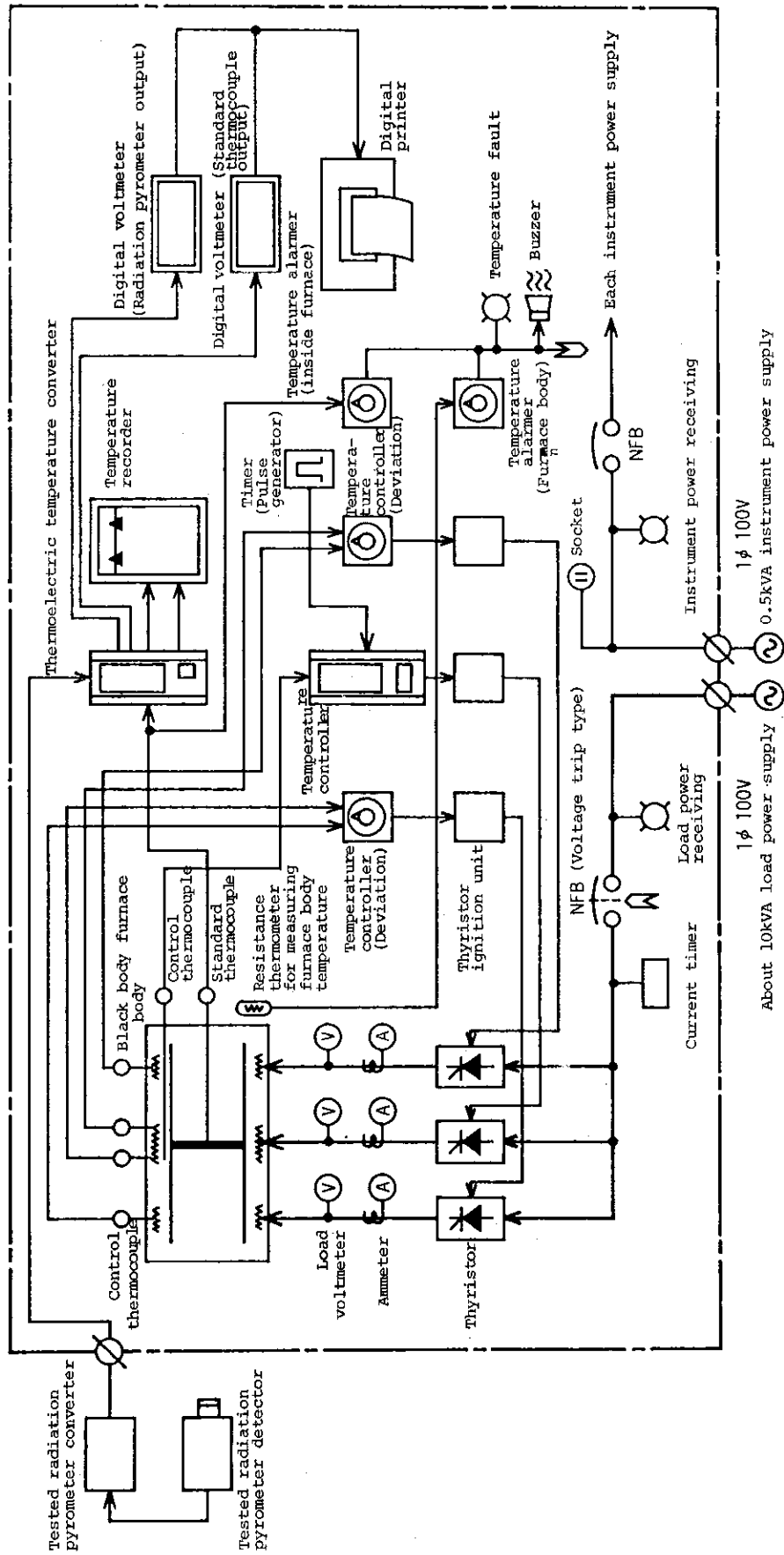
■ GENERAL SPECIFICATIONS

TEST SYSTEM	Comparative testing method (Comparison with standard thermocouple)
TESTING OBJECT	Various radiation pyrometers
TEST TEMPERATURE	Normal 500 ~ 1500°C, max. 1550°C
EFFECTIVE EMISSIVITY	About 0.998
RADIATION DIAMTER	50φ
HEATING TIME	About 3 hours up to 1400°C
HEATING ELEMENT	SiC heater
TESTING THERMOMETER	Standard thermocouple PR13% (with test data)
TEMPERATURE CONTROL	Programmed or fixed value PID control system
DATA INDICATION	Digital indicator indication
DATA RECORDING	Digital printer recording or analog recorder recording
POWER SUPPLY	For instrument — 100V, 50/60Hz For Load — Single phase 200V, 50/60Hz
POWER REQUIREMENT	For instrument — about 0.5kVA For load — about 21kVA (power capacity 45kVA)
SAFETY DEVICES	Overheat preventing device for furnace by exclusive temperature alarmer, lamp and buzzer indications in trouble, and load power supply interruption

■ SPARE PARTS

SiC heaters and charts for two-years' use

COMPOSITION



ULTRA-HIGH-TEMPERATURE RANGE BLACK BODY FURNACE
MODEL IR-R8

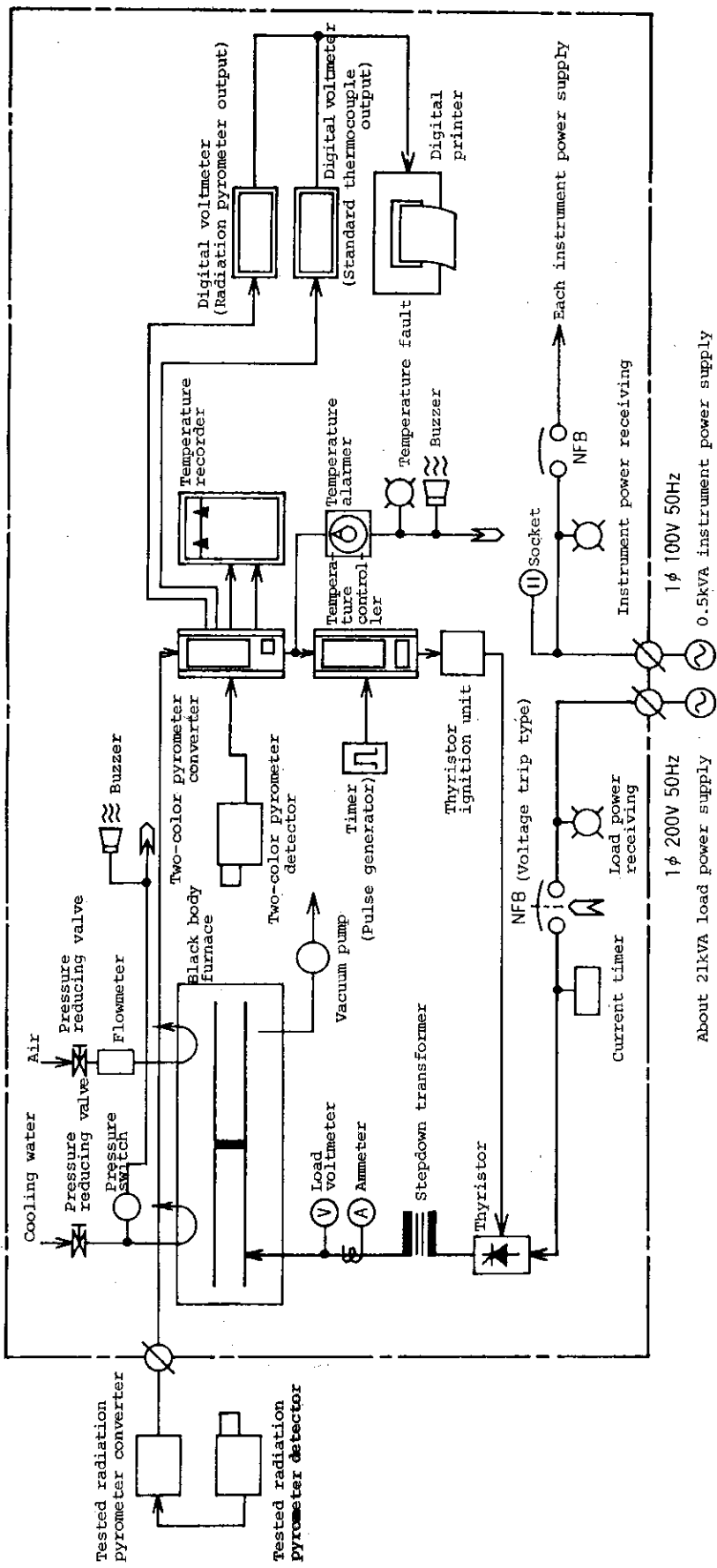
■ GENERAL SPECIFICATIONS

TEST SYSTEM	Comparative testing method (Comparison with two-color pyrometer or optical pyrometer)
TESTING OBJECT	Various radiation pyrometers
TEST TEMPERATURE	1000 ~ 3000°C
EFFECTIVE EMISSIVITY	0.90 (including the transmittance of measuring window material)
RADIATOR DIAMTER	30φ
HEATING TIME	Within 2 hours up to 3000°C
HEATING ELEMENT	Artificial graphite
TESTING THERMOMETER	Two-color pyrometer or optical pyrometer
TEMPERATURE CONTROL	Programmed or fixed value PID control system
DATA INDICATION	Digital indicator indication
DATA RECORDING	Digital printer recording or analog recorder recording
POWER SUPPLY	For instrument — 100V, 50/60Hz For load — Single phase 200V, 50/60Hz
POWER REQUIREMENT	For instrument — about 0.5kVA For load — about 20kVA
AIR PURGE	Pressure — 5kg/cm ² max. Flow ————— 30 min after turning on the power supply ... 20ℓ/min Normal time ... 2 ~ 3ℓ/min
COOLING WATER	Pressure — 8kg/cm ² max. Flow ————— 20ℓ/min
SEFETY DEVICE	Overheat preventing device for furnace by exclusive temperature alarmer, lamp and buzzer indications in trouble, and load power supply interruption

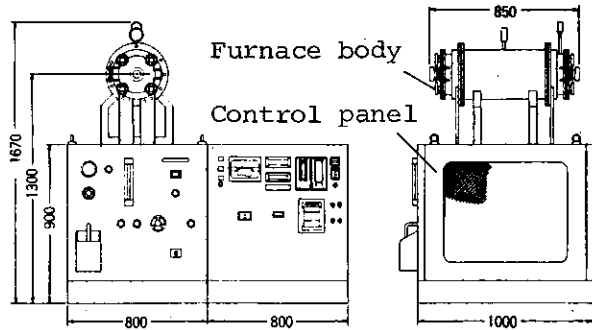
■ SPARE PARTS

Graphite tubes, and charts for 2-years' use

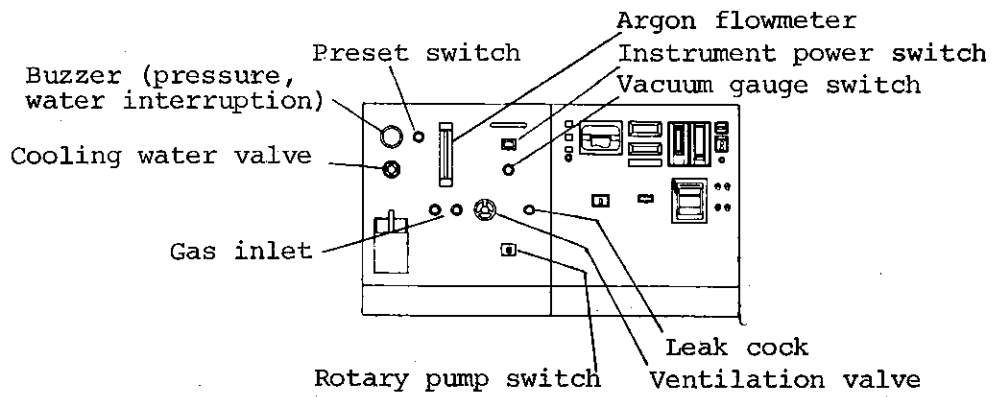
COMPOSITION



■ EXTERNAL DIMENSIONS



«CONTROL PANEL»



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