

Specifications

Control action : PI action  
Proportional band : 10~300%  
Reset time : 1~40 sec or 1~8 min  
Input : 10~50 ma dc (TELEPERM unified signal current),  
Pt (100 ohm) 50°C range or more or 10 mv dc or more (direct input)  
Output : Pulse

II. S-SERIES TELEPERM C CONTROLLER  
[MODEL : S-ECC-N, (D)]

The S-SERIES TELEPERM C controller operates with 10~50 ma dc of TELEPERM unified signal current, to pneumatic control diaphragm valves and electro-hydraulic actuating units.  
The controller actuates the final control element, converting dc current into pneumatic or hydraulic pressure by means of an on-the-site electro-pneumatic positioner.

Specifications

Control action (PI, PID action)

	For PID Action	For Short Duration PI Action	For Long Duration PI Action
Proportional Band	3~300%	3~300%	3~300%
Reset Time	0.1~20 min	1~60 sec	0.1~20 min
Rate Time	0.02~5 min	—	—

Input : 10~50 ma dc (TELEPERM unified signal current)  
Pt (100 ohm) more than 50°C range or more than 10 mv dc  
Output : 10~50 ma dc (with accessory for upper and lower limit proportioned action)

III. ANOTHER INSTRUMENT OF S-SERIES  
TELEPERM CONTROLLER PRODUCT LINE

The following product line instruments are provided for TELEPERM control system use (except for the S-SERIES TELEPERM controller).  
S-SERIES TELEPERM sub-panel  
[Model S-EHSTS, (C)]  
S-SERIES TELEPERM setter [Model S-ESTM, (H)]  
S-SERIES TELEPERM manual selector  
[Model S-EHS, (C)]

(By Y. Oshiba, Sales Dept., Measuring Instrument Div.)

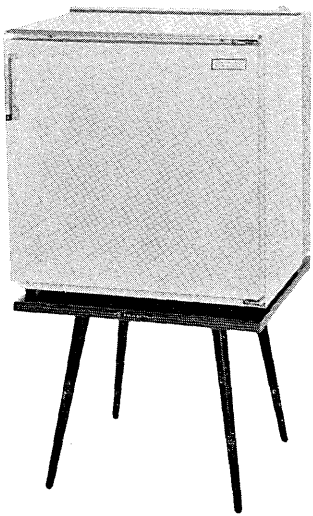
FUJI CHEMICAL REFRIGERATOR, MODEL R51

For the first time in Japan's history of electrical refrigerator manufacture, an electric refrigerator that employs no motor—the Fuji Chemical Refrigerator—has been produced. The all new Fuji Chemical Refrigerator employs a heating principle for refrigeration and, unlike conventional refrigerators, it is not equipped with a motor or compressor. Instead, an electrical heating device which heats ammonia is employed. Due to the non-employment of many of the mechanical parts employed in conventional refrigerators, the Fuji Chemical Refrigerator is small and light, and is trouble, noise, and vibration free. Its weight is one half that of an ordinary refrigerator (27 kg or 59.4 lbs.) and its size is slightly larger than a standard television set, making it ideal for trailer homes, small apartment kitchenettes, reception rooms, hotels, inns, college dormitories, and bachelor quarters.

Features

1) Compact and Light  
The Fuji Chemical Refrigerator measures 53.5 cm (21-3/8") in width, 59.5 cm (23-3/4") in height, and 55.8 cm (22-5/16") in depth. Its portability enables

convenient placement in any location—on a shelf, against a cabinet, or under a counter—and it requires less space (1.8 sq. ft.) than any other electric refrigerator. The "little butler" R51 is ideal where space economy is imperative and is recommended as a "second" refrigerator for all homes.



Model R51

## 2) No Vibration or Noise

The R51 does not employ an electric motor or compressor. Hence, it is both noise and vibration free—no comparison in noise-free operation can be made between the R51 and other refrigerators because it is the quietest of all electric refrigerators.

## 3) Work Table Top

The high quality melamine board refrigerator top becomes an indispensable kitchen utility table. It is beautifully finished and is both heat resistant and scratch-proof.

## 4) Flush Installation

The sides, top and back of the R51 are flat, enabling flush installation against a cabinet, wall, or in a corner. The flush-set door opens without protruding beyond the side of the refrigerator, allowing a convenient fit into a corner. Since the back of the refrigerator fits flush against the wall, no items fall from the back of the table top. Ventilation holes are positioned in back of the refrigerator for dissipation of condenser heat.

## 5) Large Storage Capacity Despite Compact Size

This refrigerator stores 10 bottles of beer, 6 bottles of milk, 3 bottles of juice, 4 eggs, and other food-stuffs to include butter, cheese, ham, sausage, fish, meat, canned goods, fruits, and vegetables.

## 6) Exterior Temperature Control

The temperature control dial is mounted on the top of the refrigerator, enabling control of temperature without opening the door. This means improved operating efficiency and conservation of power consumption. The interior temperature can be maintained at any desired value by means of the precision thermostat.

## 7) Trouble-free Performance

Since no mechanical parts such as a motor or compressor are employed in the R51, no mechanical trouble occurs. A hermetically-sealed cooling cycle assures semi-permanent life.

### Cooling Principle of Fuji Chemical Refrigerator, Model R51

- ① Ammonia water is heated (by the heater) and ammonia gas is generated (Generator).
- ② The ammonia gas is then liquidified (Condenser).

- ③ The liquified ammonia, together with pre-enclosed hydrogen, evaporates actively and draws heat away from the surroundings.

This continuous chemical process is the cooling principle of the R51.

The non-employment of a motor or compressor is a unique technique developed for the first time in Japan.

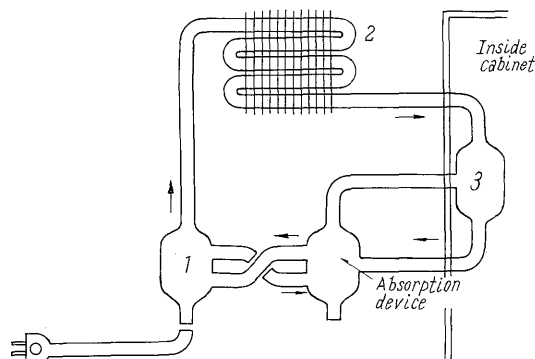


Figure for cooling system

### Specifications

Total capacity :	44 liters or 1.5 cu. ft.
Effective capacity :	41 liters or 1.4 cu. ft.
Outside dimensions :	W 535 × H 595 × D 558 mm (W 21-3/8" × H 23-3/4" × D 22-5/16")
Cabinet :	High quality finished steel sheet
Inner box :	Special high grade plastic
Defrosting system :	Dial defroster
Refrigerator :	Absorption type automatic circulating heater (125 w) 100 v 50/60 c/s (Available : 110, 200, 220, and 230 v)
Refrigerant :	NH <sub>3</sub> , H <sub>2</sub> O, H <sub>2</sub>
Interior temperature :	0°C ~ 10°C (32°F ~ 50°F) freely adjustable
Evaporator :	-15°C ~ 0°C (5°F ~ 32°F) freely adjustable
Heat insulator :	Styrofoam and super fine glass fiber
Weight :	27 kg (59.4 lbs.)
Accessories :	1 ice tray, 1 drip pan, 2 sliding shelves, 1 key

(By K. Uekuri, Foreign Trade Dept.)

# Outline of Our Products

## (I) Power Station

- a) Generators :  
Synchronous generators up to 150,000 kva  
Direct current generators up to 10,000 kw  
Other generators of all kinds
- b) Water Turbines & Pump Turbines :  
Francis type, Pelton type, Kaplan type turbines and pump turbines up to 150,000 kw
- c) Steam Turbines up to 150,000 kw
- d) Gas Turbines :  
Closed-cycle type up to 50,000 kw

## (II) Nuclear Reactor

Power Reactors, Experimental Reactors, Sub-critical Assemblies

## (III) Transmission & Distribution

- a) Transformers :  
Power transformers up to 300 Mva, 480 kv  
Furnace transformers up to 60 Mva, 154 ka  
Measuring transformers up to 287 kv  
Other transformers of all kinds
- b) Standard Transformers (for general use), Single-phase & Three-phase Distribution Transformers from 3 kva to 1000 kva
- c) Rotary Condensers up to 75,000 kva
- d) Static Condensers
- e) Circuit Breakers :  
Expansion circuit breakers up to 287 kv  
Oil circuit breakers up to 154 kv
- f) Switchboards :  
Sheet iron made switchboards for all kinds of service
- g) Switch Equipment :  
Disconnecting switches up to 480 kv
- h) Induction Voltage Regulators up to 1000 kva
- i) Lightning Arresters up to 161 kv

## (IV) Rectifier

- a) Mercury-arc Rectifiers :  
Single-anode or multi-anode type, air-cooled pump-less up to 6000 amp
- b) Selenium Rectifiers
- c) Silicon Rectifiers
- d) Rotary Converters up to 3000 kw, 1500 v

## (V) Motor & Application

- a) Motors :  
Three-phase synchronous motors up to 150,000 kw  
Three-phase induction motors up to 10,000 kw  
Three-phase commutator motors up to 300 kw  
Direct current motors up to 10,000 kw  
Other motors of all kinds
- b) Standard Motors (for general use):  
Three-phase squirrel cage motors from 0.4 kw to 75 kw  
Three-phase wound motors from 20 kw to 75 kw  
Single-phase split-phase start induction motors, 100 & 200 w  
Single-phase repulsion start induction motors from 200 to 750 w  
Single-phase condenser start induction motors from 200 to 750 w
- c) Ventilating Fans for radial & axial types

- d) Mine Winder Set for vertical shaft & inclined shaft
- e) All kinds of Winches for cargo boat use
- f) Steering Engines for boat use
- g) Fuji-Voith Schneider Propellers
- h) Torque Converters
- i) Steam Converting Valves

## (VI) Control

- a) Regulating Apparatus :  
Motor starters, controllers, speed regulators, voltage regulators & other regulating apparatus for all kinds of service
- b) Circuit Breakers :  
Air circuit breakers up to 500 v, 3000 amp  
High speed air circuit breakers up to 1500 v 6000amp
- c) Switch Equipment :  
Knife switches, magnetic switches & other kinds of switch equipment

## (VII) Instrument

- a) Watt-hour Meters :  
Single-phase WhM for low tension circuit use  
Three-phase WhM for low & high tension circuit use
- b) Relays :  
All kinds of relays for power & industry use
- c) Electric Measuring Instruments :  
Switchboard meters, portable type meters, precision meters, recording meters, telemetering & telecontrolling equipment
- d) Industrial Measuring Instruments :  
Thermometers, pyrometers, gas analysers, hydrometers, salinometers, pH meters, pressure gauges, flow meters (for water, steam, gas & air), level meters, indicators and recorders
- e) Automatic Controlling Equipment :  
Electro-pneumatic controllers for temperature, pressure, flow, liquid level etc.; ratio controllers for gas & liquid mixing  
Magnetic controllers, electrical indicating controllers with on-off contacts

## (VIII) Radiation Equipment

Linear accelerators, synchrotron, Cockcroft-Walton type d-c high voltage generators

## (IX) Household Appliances

- a) Electric Washing Machines & Spin Dryers
- b) Vacuum Cleaners
- c) Electric Refrigerators
- d) Electric Fans
- e) Air Conditioners
- f) Transistor Radios
- g) Tape Recorders
- h) Television Sets
- i) Stereo Players
- j) Electric Juicers
- k) Toasters, Hot Plates & Irons
- l) Heating Apparatus :  
Electric foot warmers, bed warmers, body warmers, electric stoves, etc.
- m) Electric Home Pumps for deep or shallow well
- n) Dry Batteries
- o) Flashlights & Gas Lighters
- p) Electric Illuminating Apparatus