





## Introduction

With more than 20 years of accumulated experience Skymed Medical Devices Inc. was incorporated in 2020 during hard pandemic period by "engineers" pioneered the production of on-site medical/industrial oxygen production plants in Turkey and visionary "top managers". Obeying EU Pharmacopeia and WHO regulations Skymed is manufacturing Medical Oxygen Production Plants helping to healthy breath at critical times. According usage area, different capacities of Industrial Oxygen Production Plants also being manufactured in the production line. In portfolio of Skymed there are being some additions day by day with new technologies like VPSA, membrane type gas production plants, activated oxygen systems, ozone waste water treatment plants, etc. and different types of medical devices are also being added continuously like infection control products, operating theatre furniture, etc. to enrich its business partners to end user hospitals.

Skymed with professional and passionate team is on the way to be leader of its market all around the world. From day to day, we are expanding our international market by supplying the needed technology and solutions to hospitals, patients, partners using our systems.

## **Quality Policy**

At SKYMED, we place the strictest demands on the reliability of our products and services. Quality assurance is therefore a firm component of our activities in all areas. Every product party runs through a multitude of tests before it is ready for the market. Our Quality System encompasses a comprehensive and exhaustive series of physical, chemical, quality control tests and inspection at various stages in the production cycle; beginning with constant surveillance of raw materials and its suppliers intensively from control of all manufactured components & sub-assemblies to the final inspection & testing of the finished products.

Skymed has successfully implemented Quality Management Systems audited by, Turkey with ISO 9001:2015 by IQR International and ISO 13485:2016 by Staunchly Management Systems and, all products conform to the guidelines of European Union.









## CONTENTS

FOREWORD	01					
CONTENTS						
SHORT INFORMATION ABOUT THE SYSTEM						
ADVANTAGES						
AREAS OF USE						
MEDICAL OXYGEN PRODUCTION AND STORAGE SYSTEM						
OXYGEN GENERATION SYSTEM FORMATION						
OXY-SKY MONITOR PARAMETERS						
OPTIONAL PRODUCTION OPTIONS						
AMBULANCE MODEL	10					
MOBILE MODEL	11					
CONTAINER MODEL	12					
HOSPITAL STANDARD MODEL	13					
OXYGEN TUBE FILLING SYSTEMS	14					
GENERAL INFORMATION	16					



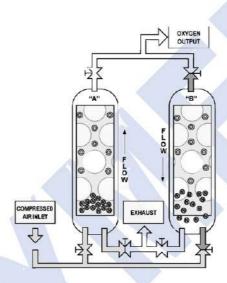




#### SHORT INFORMATION ABOUT THE SYSTEM

## **PSA Technology**

PSA technology for oxygen utilizes a molecular sieve that adsorbs the nitrogen molecules and allows the oxygen molecules to pass through the adsorber. During a PSA cycle, concentrated process gas-oxygen is delivered to the end application while the waste gases (nitrogen, other, etc.) are desorbed.



## **PSA Oxygen Plant System Information**

Oxygen Production Plant consists of 5 blocks Air Compressor, Air Tank, Air Dehumidifier (Drier), Oxygen Generator and Oxygen Tank. Air as a raw material is taken from the Air Compressor then collected in Air Tank by balancing pressure and, air flows to Dehumidifier. By receiving the air Dehumidifier dries it exhausting liquified water. At proper condition and pressure Oxygen Generator processes the income air by sieving as described above. Produced oxygen at the required concentration collected and stored in Oxygen Tank. Dimensions of blocks and capacities of models may vary according to production rates of oxygen stations.







#### **ADVANTAGES**

Traditional method of supplying oxygen with oxygen cylinders are dangerous because they are high pressure, and have the potential to burn and explode. Traditional Systems are;

Expensive: Transportation is carried out only through road transportation but the road and seasonal conditions may be risky and increase the costs, as well as labor costs.

Dangerous: There is no leakage warning single on the tubes. Liquid oxygen and cylinders are explosive. They are stored in pressurized tubes by compression. Explosion in the event of contact with flammable substances (oil, etc.) may have fatal consequences.

High Loss Rates: 20% to 30% losses are observed in liquid oxygen in tubes and tanks due to temperature changes. Compared to the traditional systems, OXY-SKY (Medical Oxygen Production and Storage System) is;

#### **PRACTICAL**

No transportation or shipping required; produces oxygen up to 95% (± 3%) purity.

#### SAFE

Works at 4-6 Bar pressure, fully automated and reliable.

#### HEALTHY

High quality medical filters are used.

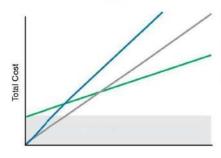






#### **ECONOMICAL**

With the medical oxygen system you can produce your own oxygen. Our air compressor, together with the refrigerated dryer and filtration system, takes the air and separates it from other gases with nanotechnology. This separation is carried out with a synthetic zeolite material which does not need to be replaced. The process is completely automated, which makes it reliable and virtually maintenance-free. The medical oxygen production and storage system necessary for a hospital on average can be amortized in approximately one year when compared to liquid oxygen and cylinders. Oxygen gas is vital in many sectors. Incorrect use, storage and transport of the oxygen gas, may result in damages, accidents and even death. Today, oxygen is supplied as a liquid in tanks and filling tubes. Liquid oxygen is supplied by means of transporting pressurized cylinders or by filling into large storage tanks in the area to be used. Transport with large, heavy and pressurized tubes is risky. So, Skymed Oxygen Systems eliminate these risks.



Blue: Bottle supply

Green: On-site generation

Grey: Liquid supply







## **AREAS OF USE**

#### **HEALTH ORGANIZATIONS**

- Hospitals
- Polyclinics
- Ambulances
- Hyperbaric oxygen therapy centers
- · Veterinary Hospitals
- Mobile Hospitals

#### WELLNESS CENTERS

- SPA and Beauty centers
- Beauty and slimming centers
- · Dermo cosmetic centers
- Ozone treatment centers

#### INDOOR ENVIRONMENTS

- Educational institutions
- Gyms, Cinemas
- Hotel, meeting and conference halls
- Shopping centers
- Commercial buildings
- · Air sterilization of the surrounding

## **INDUSTRIALAREAS**

- All factories using industrial oxygen gas
- · Paint factories using volatile dyes
- Casting factories
- Glass factories, Textile factories















#### MEDICAL OXYGEN PRODUCTION AND STORAGE SYSTEM



#### **PRODUCTION**

Skymed Medical Devices Inc. Oxygen Production and Storage System can be used in both medical and industrial fields. OXY-SKY only uses air together with our air compressor, refrigerated dryer and filtration system and separates oxygen from other gases with nano-technology. This separation is carried out with a fixed synthetic zeolite material which does not need to be replaced. The process is fully automated. It is ensured that it is virtually maintenance-free. The transmission pressure is adjusted to your needs from 0 bar (g) to 6 bar (g). The oxygen produced becomes ready for use in the range of 90% -95% purity. 99% purity range can also be produced specially upon request.



#### CONTROL

OXY-SKY Oxygen Production and Storage Systems control software is important. Especially in medical applications, the purity level of oxygen should not fall below a certain level. Our products are compliant with the Medical Device Directive (93/42 / EEC) and the 2012/7 directive issued by the Ministry of Health Pharmaceuticals and Medical Devices Agency of Republic of Turkey. Medical regulations state that medical oxygen should not fall below90%. Therefore, when the oxygen purity of all OXY-SKY models is below 90%, the system monitor and management monitor give audible and visual warning. The system automatically switches itself off without interference and prevents any damage.



#### STORAGE

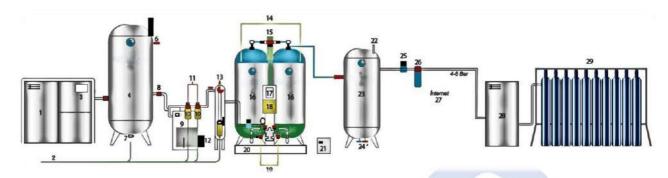
OXY-SKY models have oxygen storage tanks. The system automatically stores the pure oxygen it produces and makes it ready for use.







## SYSTEM INFORMATION



#### SCHEME with NUMBERS

- 1- Air Compressor
- 2- Pneumatic liquid waste (test controlled)
- 3- Electronic control panel of compressor
- 4- Check Valve
- 5- Air tank (Test pressure: 16 Bar (g), operation pressure: 10 Bar (g))
- 6- Pressure manometer
- 7- High pressure automatic drain valve
- 8- Air tank liquid waste discharge valve
- 9- Check Valve
- 10- Air dryer (with automatic water and oil drainage unit)
- 11- Particulate filter (0.3-0.01 Micron)
- Date
- Time
- Total work time
- Oxygen consumption of the hospital is displayed by flowmeter in Nm³/hour or lt/min
- Manuel or automatic start
- Pin code for buttons
- Digital display of Oxygen flowmeter (lt/m)
- Total oxygen production displays

- 12- Medical pre-filter change indicator
- 13- Automatic oil and liquid drainage pump with thermostat control and heater
- 14- Activated carbon filter (0.03 Micron)
- 15- PSA Oxygen generator twin tanks
- 16- N<sub>2</sub> exhaust
- 17- CE emblem, test and working pressure label
- 18- Management monitor, electronic control panel (Liquid and dust proof)
- 19- Atmosphere mechanism and chemical sensor
- 20- Air pressure control valve
- 21- Oxygen generator floor

#### **Digital Display Information**

in Nm³/hour or It/min Service information

- Oxygen tank continuous pressure, graphical and numerical display
- Error & alert records display
- Oxygen purity digital & graphical display
- Digital time and graphical pressure display of PSA working on colons
- Digital display of oxygen pressure adjustable and programmable

#### stands

- 22- Power source
- 23- High pressure automatic drain valve.
- 24- Oxygen backup tank (Test pressure: 16 Bar (g), operation pressure: 10 Bar (g)
- 25- Oxygen receiver tank safety valve.
- 26- Line pressure regulator
- 27- Sterile filter (0.001 Micron)
- 28-Internet
- 29- Oil-free oxygen high pressure compressor Inlet pressure 4 bar filling pressure 150 bar (adjustable)
- 30- Cylindrical oxygen tube filling ramp

control panel software (PLC)

- Adjustment time period of air control valves from the control unit
- Oxygen output pressure control from control panel
- Water and dust proof, lockable control panel
- Control monitor displaying valves, pressures, oxygen purity amount and liquid drain







## STANDARD COMPRESSOR & DRYER COMPRESSOR PROPERTIES

## **Compressor Properties**

- 1. Digital control panel:
- \* Total operating time; Calendar and clock information; Compressor failure record, can record the last 10 errors; Operating temperature; Setting upper-lower limit pressure values; System information; Error alarm information; Maintenance warning
  - 2. Power supply 380 V 50 Hz
  - 3. Screw block
  - 4. Noise level 70 dB
  - 5. Working pressure 7-10 bar (g)
  - 6. CE certificate
  - 7. Automatic and manual programming
  - 8. Automatic switching on and off when electricity is cutoff or connected
  - Ambient temperature + 15 C outlet temperature
  - 10. Working pressure between 4-8 Bar
  - 11. Compressor extra cooling fan
  - 12. 3 mg/m3 oil mist in air
  - 13. Air cooled compressor
  - 14. 24-hour continuous operation

#### **Optional Compressor Properties**

- 1. Direct coupled type compressor
- 2. Inverter compressor
- 3. Compressor motors IE3, IE4 efficiency class IP55 protection
- 4. Automatic dehumidification system
- 5. Sound and light alarm information
- 6. Built-in dryer unit operation and service information



#### **Dryer Properties**

- 1. On-Off button
- 2. Dryer inlet filter
- 3. Analog operation information
- Dryer motor overheating protection circuit
- 5. Automatic water discharge outlet
- 6. Operation with 220 V 50 Hz
- 7. CE certificate
- 8. Gas cooling
- 9. Environment friendly gas
- 10. Average dew point of  $\pm 3$  ( $\pm 2$ )

## **Optional Dryer Properties**

- Thermostatic control and heating of drainage to prevent freezing in cold weathers.
- 2. Display of moisture levels
- 3. Operation service information
- 4. Error information













## **OPTIONAL PRODUCTIONS**

- 1. Sending messages in Turkish or English, when the pressure drops or the levels drop below 90%, stopping, set- ting off light and sound alarms, starting automatically when the error is corrected
- 2. Low or high oxygen pressure
- 3. Low or high temperature
- 4. High humidity rate / Humidity and alarm indicator / Level filter indicator / Graphical display on monitor
- 5. Measurement of oxygen output with flowmeter, display of oxygen (flow) amount in liters / minute and hospital oxygen consumption m3 on the management monitor or digital oxygen lute flow counter
- 6. Compressor pressure display on the monitor
- 7. Display of compressor temperature and failure on the management monitor
- 8. Digital display of oil and water alarm information on the oxygen generator inlet filters in writing on the monitor.
- 9. Display of moisture in the management module

- 10. Measurement of oxygen purity with atmospheric device and zirconium sensor
- 11. Automatic oil and liquid drainage pump with thermostat-controlled heater
- 12. Wireless data sharing
- 13. Particle filter, pre-filter electrical change time information or proportional information monitor
- 14. Oil and humidity indicator with sound and light alarm system at the entrance to the oxygen generator (220 V 50 Hz).
- 15. Thermometer
- 16. Step automation system
- 17. Display of air tank pressure on management module
- 18. Monitoring and recording of oxygen system information from hospital computer
- 19. Oxygen compatible sterile filter with electronically controlled max. 0.003 mg/m3 with oil vapor
- 20. Epoxy coated oxygen tank



Monitoring and recording of oxygen system data from hospital computer

In case of failure of the air compressor, a light and sound warning is displayed in Turkish. It restarts working automatically when the error is corrected Display of pneumatic valves with different colors on the monitor

Mounting of oxygen system in the cabinet

Filter status: When the filter is full, digital change indicator gives light and sound warning.

Low or high oxygen pressure

Low or high temperature

Automatic changeover system and sound alarm

Max. double capacity air dryer

Spare dryer and compressor addition

Min. 10 m3 / min bacteria sterile filter



Inverter Power





#### AMBULANCE MODEL

Oxygen levels in cylinders used in ambulances may be lowered at any time by a leak or breakdown, resulting in a danger to the patient's life. In addition, there are risks in keeping oxygen tubes in the ambulance in case of an accident and the cylinders must be kept full. The necessity of frequent control of the levels and the exhaustion of oxygen in long-distance patient transfers causes difficulties.

MODEL A (OXY-SKY AMBULANCE) Capacity 10 L/min Flow Adjustment 1-10 L/min %95 ±3 Oxygen Purity **Exit Pressure** 4-6 Bar Capacity (m3/h) 0,6 m3/hour **Power Supply** 12 V-24 V-160 A-110 A 24 V Current 30 A (24 Volt) 12 V Current 50 A (12Volt) **Power Supply Source** Storage Battery 105x60x27cm Size 78 kg Weight 55 dB Noise Level Oxygen Tank Capacity 8 L Air Pressure 4-6 Bar(g) Vacuum -650 mm Hg Manometer 0-10 Bar(g)

	AMBULANCE MODEL ADVANTAGES
SAFE:	No risk of falling
PRACTICAL:	No filling required
HANDY	Does not leave the patient without oxygen since there is a backup system
ERGONOMIC:	No handling required
LUCRATIVE:	Production loss is 0 thanks to 24/7 operation
SAFETY:	Even if the return on investment period is longer, human life is important
RUGGED:	The whole system is guaranteed for 2 years and has 10 years spare parts warranty.
AUTOMATIC:	Automatically shuts down and switches to safe mode when oxygen purity drops below 90%
QUALITY:	The system is fully certified with CE certification





2000 VA INVERTER - POWER 24 V/220 V







## SKYMED MOBILE OXYGEN PRODUCTION MODELS

It is suitable for small hospitals, mobile hospitals, emergency services, small capacity polyclinics and intensive care units. Its small size provides ease of use. OXY-SKY provides high purity in mobile, the OXY-SKY mobile model can achieve 95% (±3) high purity oxygen production in the OXY-SKY mobile model as in our other oxygen production systems, unlike many other mobile oxygen production systems.

#### MOBILE SYSTEMS

- Mobile systems have the ability to operate 24/7
- Mobile system investment return on investment period varies between 12-24 months depending on usage
- The whole system has 2 years warranty and 10 years spare parts warranty.
- Automatically switches off when oxygen purity drops below 90% and switches to safe mode, giving sound alarm.
- Every part of the whole system is CE certified and the system is certified as a whole by CE certificate

Model	Model OXY-SKY-M-10		OXY-SKY-M-30	OXY-SKY-M-40		
Capacity	10 L/min	20 L/min	30 L/min	40 L/min		
Flow Adjustment	1-10 L/min	1-20 L/min	1-30 L/min	1-40 L/min		
Oxygen Purity	%95 ±3	%95 ±3	%95 ±3	%95 ±3		
Exit Pressure	4-6 Bar (g)	4-6 Bar (g)	4-6 Bar (g)	4-6 Bar (g)		
Capacity (m3/h)	0,6 m3/hour	1,2 m3/hour	1,8 m3/hour	2,4 m3/hour		
Oxygen Power	230 V 50 Hz %10	230 V 50 Hz %10	230 V 50 Hz %10	230 V 50 Hz %10		
Supply	4 A	5 A	6 A	6 A		
Working Current	7 A	8 A	9 A	9 A		
Start Current	0,92 kW/hour	1,0 kW/hour	1,1 kW/hour	1,2 kW/hour		
Electric Consumption	54 dB	54 dB	56 dB	56 dB		
Noise Level	10 lt	40 lt	100 lt	400 lt		
Oxygen Tank	4-6 Bar (g)	4-6 Bar (g)	4-6 Bar (g)	4-6 Bar (g)		
Air Pressure	r Pressure 0-10 Bar (g)		0-10 Bar (g)	0-10 Bar (g)		
Manometer Usage	O2 BS Plug	O2 BS Plug	O2 BS Plug	O2 BS Plug		









#### CONTAINER MODEL

It is recommended for environments where there is a need for temporary or portable oxygen production, especially in some hospitals with space problems for oxygen system. It is easy to use because it is portable. It is easily installed on the roofs of the hospitals or any other area and it is not affected by the weather conditions. It is put into service with all the equipment for Hospitals in extraordinary situations such as disasters. It is practical and ergonomic for the supply of oxygen needs of hospitals and facilities in the process of renovation.

Container Capacity	MODELS							
20	Oxy-Sky 2	Oxy-Sky 3	Oxy-Sky 4	Oxy-Sky 5	Oxy-Sky 7			
	Oxy-Sky 11	Oxy-Sky 15	Oxy-Sky 18	Oxy-Sky 22				
40	Oxy-Sky 30	Oxy-Sky 37	Oxy-Sky 45	Oxy-Sky 55	Oxy-Sky 75			
2x40	Oxy-Sky 90	Oxy-Sky 110	Oxy-Sky 132	Oxy-Sky 160	Oxy-Sky 200			
	Oxy-Sky 250				1 1			

Our Container Model systems produce 90%, 93%, 95% ±3 purity oxygen.

Oxygen production system works in the pressure range of 4-6 bar.

All OXY-SKY models we produce are suitable for Container Model.

Production loss is 0, thanks to 7/24 operation.

Return on investment period varies between 12-24 months according to usage.

The whole system has 2-year warranty and 10-year spare parts warranty.

Since it is manufactured according to the extreme temperature and humidity in the areas where it will be installed, resistant to outdoor weather conditions.

Automatically shuts down when the oxygen purity drops below 90%, switches to safe mode and beeps.

Each part of the whole system has CE certification and the system is certified as a whole by CE certification











## STANDARD MODELS

- SKYMED Hospital Standard models operate in pressure range of 4-6 Bar (g).
- Each part of the whole system has CE certification and the whole system is certified by CE certification.
- The whole system has 2 years' warranty and 10-yearspare parts warranty.
- It produces oxygen in the range of 90%, 93%, 95%±3 purities.
- No transportation and labor costs. It produces as much oxygen as you need, and goes into standby mode when you don't need it.
- Compressor pressure is 10 Bar (g). The maximum noise level is (±5) 70 dB.
- Capable of producing between 10 L / min 2500 L / min. Above 2500 L / min capacity may be produced on request.
- SKYMED is able to produce oxygen continuously, thanks to its ability to work 24/7.
- Return on investment period varies between 12-24 months according to usage.
- Automatically switches off when oxygen purity drops below 90%, and switches to safe mode.

Oxygen Production System consists of 5 blocks; Air Compressors, Air Tank (Receiver), Air Drier, Oxygen Generator, Oxygen Tank (Receiver)









## **OXYGEN FILLING SYSTEMS**

Oxygen Production and Storage Systems produced under Oxy-Sky brand has become a reliable brand all over the world. By adding Oxygen Tube Filling systems to our well-known brands (Oil Free High-Pressure Oxygen Compressor), we offer solutions for filling your cylinders in the range of 100-200 Bar reliably.

- · Our Oxygen Tube Filling systems operate completely automatically.
- You can fill your tubes yourself, regardless of tube filling suppliers.

Warning: The selection of Oxygen Oil Free High-Pressure Compressor can be changed according to the requests of our customers.











# **OXYGEN CAPACITY, FLOW & PURITY TABLE**

	FLOW m3/hr OXYGEN PURITY								AIR NM3/min 7BAR	OXYGEN TANK LITER	
MODEL	%.90			%.93			%.95				
	Nm3/hr	L/min	Kilo/hr	Nm3/hr	L/min	Kilo/hr	Nm3/hr	L/min	Kilo/hr		
OXYSKY-M-20	1,4	20	1,71	1,18	19,7	1,68	1,16	19,3	1,65	0,34	100
OXYSKY-M-30	2,2	30	2,55	1,97	29,4	2,52	1,65	27,6	2,34	0,45	150
OXY-SKY-5	3,6	60	4,25	3,00	49,0	4,2	2,75	46	3,9	0,75	200
OXY-SKY-11	7,2	120	9	7,00	117,4	8,58	5,72	95	8,17	1,65	500
OXY-SKY-15	10,2	170	13,42	10,00	167,7	12,87	8,67	144	12,39	2,5	750
OXY-SKY-22	15,05	250	19,62	15,00	251,0	18,43	11,93	199	17,05	3,2	1000
OXY-SKY-30	21,07	350	26,41	20,00	335,4	24,81	16,06	268	22,96	4,85	1500
OXY-SKY-37	27,1	450	34,42	25,00	419,3	32,31	22,93	349	29,93	5,02	2000
OXY-SKY-45	33,13	550	40,75	30,00	503,1	38,28	24,78	450	35,43	6	2000
OXY-SKY-55	41,17	686	58,87	40,00	700,0	55,28	35,8	597	51,2	9	3000
OXY-SKY-75	53,67	845	72,45	50,00	838,5	68,05	44,06	734	63	11,2	3000
OXY-SKY-90	63,06	1056	83,02	60,00	1006,4	77,98	58,00	865,7	72,2	14	4000
OXY-SKY-110	69,99	1167	100	66,00	1106,8	94	60,86	1014	87,03	15,5	4000
OXY-SKY-132	78,12	1302	111,71	75,00	1257,8	104,9	67,93	1132	97,12	17,7	5000
OXY-SKY-160	98,7	1645	141,2	95,00	1545,0	132,6	85,83	1430	122,7	23	6000
OXY-SKY-250	147,79	2463	211,3	140,00	2313,0	198,5	128,51	2142	183,8	33	10000
OXY-SKY-500	290,7	4814	406,8	276,00	4565,0	385,9	246,13	4083	344,4	66	20000
OXY-SKY-1000	570,67	9462	798	525,0	8632,0	728	480,32	7968	672,2	150,8	30000
OXY-SKY-P-10	0,7	11,7	1	0,65	10,8	0,93	0,6	9,2	0,86	0,14	5
OXY-SKY-A-10	0,7	11,7	1	0,65	10,8	0,93	0,6	9,2	0,86	0,14	5
OXY-SKY-K-5	3,6	60	4,25	3,00	50,3	4,2	2,75	46	3,9	0,75	200
OXY-SKY-K-37	27,1	450	34,42	25,00	419,3	32,31	22,93	349	9,93	5,02	1500







## **GENERAL INFORMATION**

PURITY -----OXYGEN OUTPUT ----AIR INLET Nm3 / minute (7 Bar) (g) ---OXYGEN GENERATOR POWER SUPPLY
COMPRESSOR ----MOBILE SYSTEM -----AMBULANCE SYSTEM -----WORKING AREA TEMPERATURE -----ENVIRONMENT -----ELECTRICAL PANEL ------

90% - 98% 0.6-150 (M3 /h) 0.15-35 (M3 /min) 220 V 50 Hz 380 V 50 Hz 220 V-380 V 50 HZ 12-24 V DC 115 A/h 0 to +50°C

Dry, protected, ventilated environment Thermal magnetic main switch, V automat fuses, three-phase and single- phase sockets, leakage counter

















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