

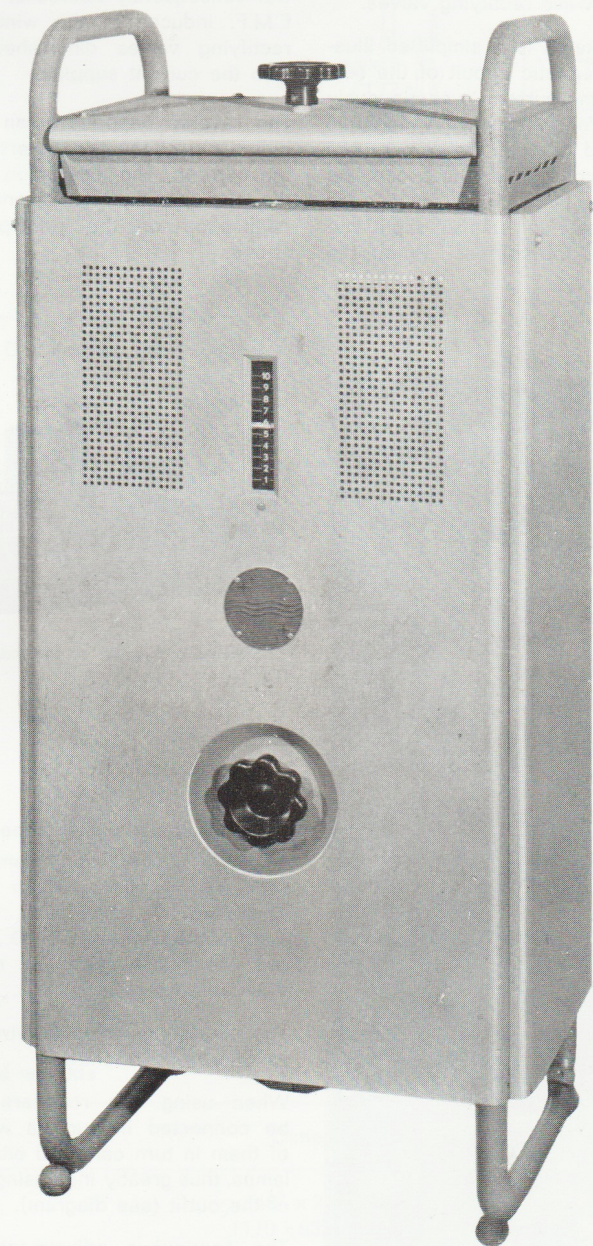
PHILIPS



Electro-acoustics Division

3922 980 45541

CINEMA RECTIFIER, TYPE 1275



This cinema rectifier is the ideal apparatus for supplying D.C. to high-intensity arc lamps of 60 to 90 A and to 90 A spot lights.

It is characterized by:

- great reliability;
- high efficiency, owing to the adjustment of the current and the stabilization of the arc being practically free from losses;
- easy operation, the intensity being adjustable continuously;
- little maintenance;
- simple installation, no special foundation being required.

Cooling

The rectifier is equipped with a fan which starts running as soon as the primary of the rectifier is switched on.

A small box with pilot lamps, type 1277, is supplied with every rectifier; it can be mounted anywhere in the projection room, but preferably on the front wall, near the projectors.

The box is provided with a green pilot lamp, indicating that the cooling is working well, and a red lamp which lights up as soon as the cooling is insufficient.

In the latter case the rectifier in use may continue in operation for about half an hour, so that it is always possible to finish the film reel in the projector.

Efficiency

At an arc voltage of 42 V and with an intensity of 90 A the efficiency is 60 %.

It diminishes slightly with decreasing load, especially at decreasing arc voltages.

MAINS

Mains voltage

With the aid of connecting links the rectifier can be adapted to three-phase mains with a voltage of 190, 220, 230, 330, 380 or 400 V.

Mains frequency

The rectifier can be supplied for 50 c/s mains (type 1275/02) or for 60 c/s mains (type 1275/62).

The current-voltage curves for 60 c/s are practically identical with those for 50 c/s, except that for 60 c/s the minimum adjustable current is still lower.

Mains-voltage fluctuations

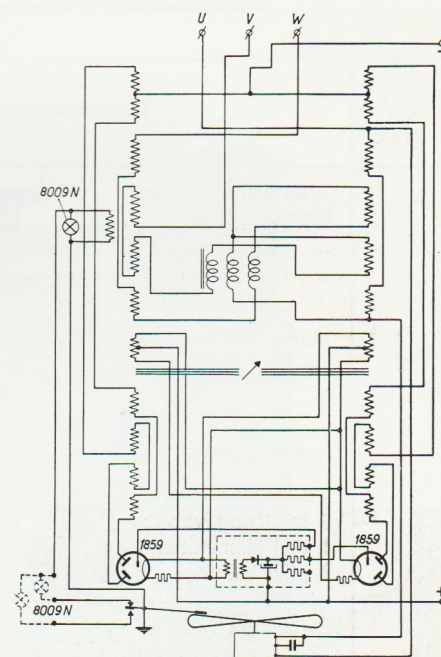
Temporary mains-voltage fluctuations between + 10 % and - 10 % are permissible and do not affect the proper functioning of the rectifier.

Carbons

The trims of H.I. carbons to be used depend to some degree on their make.

The following table may, however, serve as a guide.

Arc current	Diameter of positive carbon	Diameter of negative carbon
60 - 70 A	8 mm	7 mm
70 - 80 A	9 mm	7 mm



Circuit diagram

Dimensions and weights

Description	Dimensions	Net weight
Rectifier	46" x 21" x 16" 1170 x 535 x 415 mm	300 lbs 135 kg
Box with pilot lamps	3 3/4" x 2 3/4" x 2 3/4" 95 x 70 x 70 mm	11 ozs 0.3 kg

Working principle

The apparatus is suitable for connection to three-phase mains and comprises a transformer of special construction for feeding two full-wave rectifying valves.

The adjoining sketch is a simplified illustration of the magnetic circuit of the rectifier. The arc-lamp current is continuously adjusted in the following way: A magnetic shunt is provided between the primary and the secondary coils; this shunt consists of two stacks of laminations and can be plunged to a greater or smaller depth into the core of the transformer. When the

shunt is plunged more deeply into the core, more of the magnetic flux in the primary of the transformer is short-circuited. The flux through the secondary will consequently decrease, such that the E.M.F. induced in the windings for the rectifying valves diminishes and hence also the current supplied.

The reverse happens when the shunt is pulled out of the core, thereby increasing the current. The illustration below shows the interior of the rectifier and the practical application of the principle described above.

An indirectly illuminated dial on the front of the apparatus makes it possible, under normal conditions, to reproduce rapidly a given adjustment, without using an ammeter.

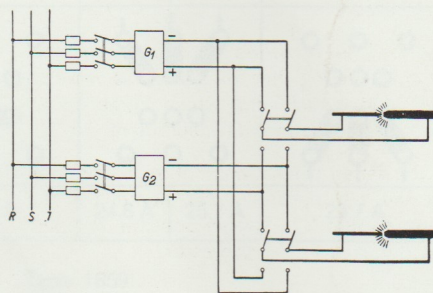
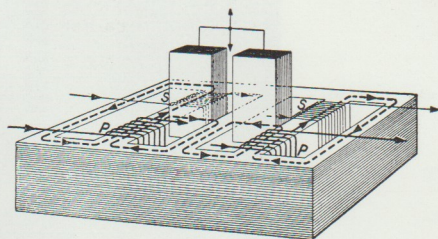


Diagram when using two rectifiers



Schematic diagram of the magnetic circuit

Maximum permissible amperage

Normally a projection room is equipped with two rectifiers, which are operated alternately. In that case, the maximum permissible amperage is 90 A. When only one rectifier is used, the maximum permissible amperage is 70 A.

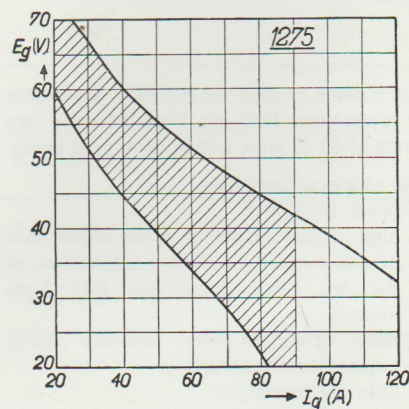
The above applies to non-tropical as well as to tropical countries.

When using two rectifiers they should be connected in such a way that each of them in turn can feed either of the arc lamps, thus greatly increasing the reliability of the outfit (see diagram).

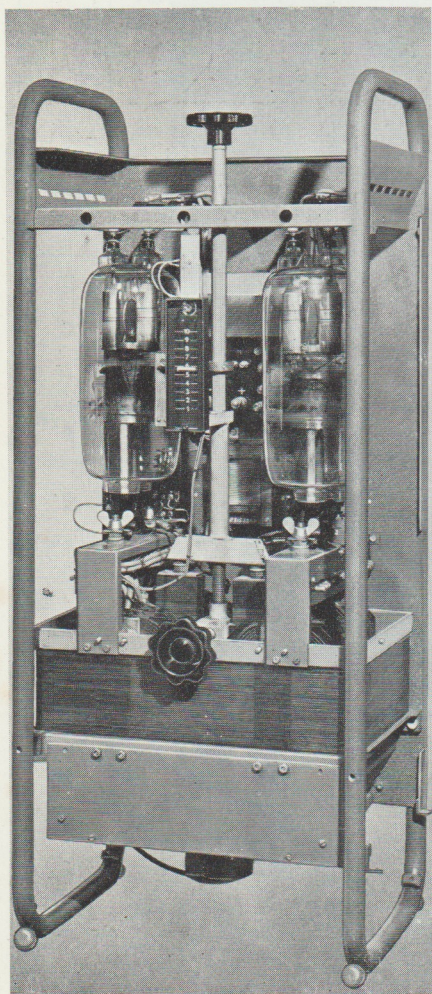
The continuous adjustment of the amperage is effected by means of a hand-wheel on top of the rectifier; this adjustment is locked with the aid of a second handwheel at the front.

Current-voltage curve

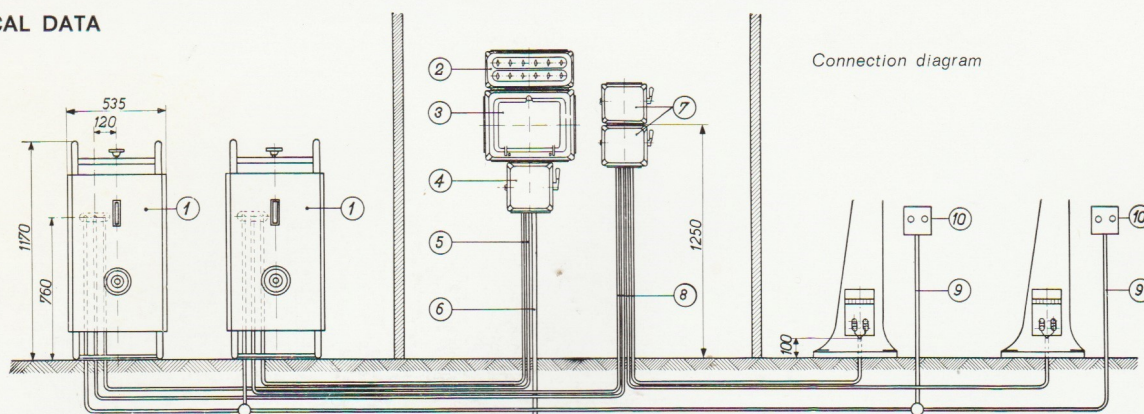
In the current-voltage graph the arc voltage in volts is indicated on the vertical axis and the arc current in amperes on the horizontal axis. Adjustment can be made to any point within the shaded area. The curve has a very favourable shape; arc-voltage variations as a result of carbon consumption have a very limited influence on the arc current.



Current-voltage curve



TECHNICAL DATA



No. in diagram	Description	Data					
1	Type 1275 rectifier: Mains voltage	3 x 400 V	3 x 380 V	3 x 330 V	3 x 230 V	3 x 220 V	3 x 190 V
	Mains connection and connection links						
	Intensity/phase at full load	14.2 A	14.8 A	17.1 A	24.6 A	25.7 A	29.7 A
	Valves and lamps: 2 rectifying valves 1 dial illumination lamp 2 pilot lamps	Type 1859 Type 8009 N Type 8008 N					
2	Switchbox with: 2 three-pole switches for the two rectifiers; amperage 10 two-pole switches for the other apparatus	25 A —x) A	25 A —x) A	25 A —x) A	25 A —x) A	25 A —x) A	25 A —x) A
3	Fuse board with: 2 three-phase groups for the two rectifiers; amperage 10 single-phase groups for the other apparatus	25 A —x) A	25 A —x) A	35 A —x) A	50 A —x) A	50 A —x) A	50 A —x) A
4	Three-pole mains switch	—°) A	—°) A	—°) A	—°) A	—°) A	—°) A
5	V.I.R. cable in 1" tube	3 x 7/.029	3 x 7/.029	3 x 7/.036	3 x 7/.036	3 x 7/.036	3 x 7/.036
6	V.I.R. cable in tube °)	—°) mm²					
7	Two-pole change-over switches	100 A					
8	V.I.R. cable in 1½" tube	2 x 19/.064					
9	V.I.R. cable in 5/8" tube	3 x 1/.044					
10	Box with pilot lamps	Type 1277					

x) Depends on the consumption of these apparatus
°) Depends on the consumption of the whole equipment.