

PROJECT INFORMATION

By developing and manufacturing special technical solutions we are creating innovations for solving our customers' problems. Corresponding to their requirements we develop and manufacture different kinds of transformers, voltage stabilizers, chokes, power supply units and power resistors.

Thanks to higher quality, longer service life and lower operational costs RUHSTRAT technology brings you ahead with all kinds of application.

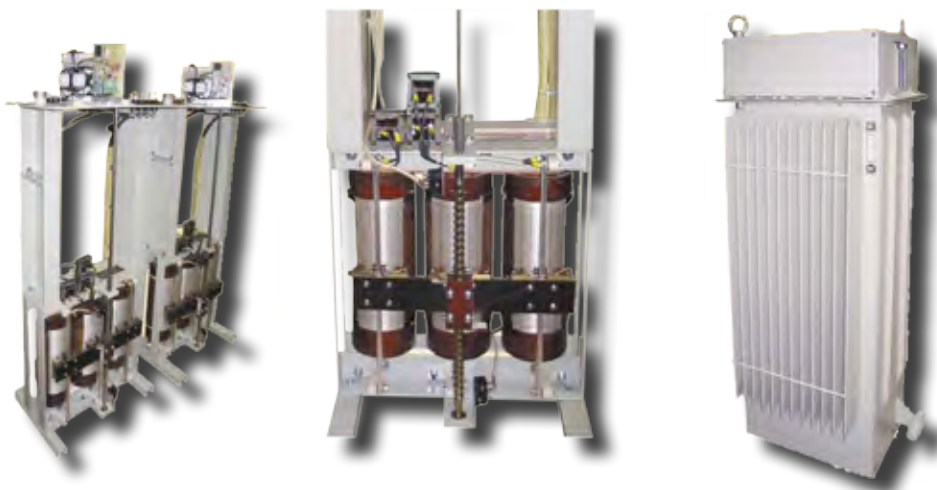
Energy Saving by Means of Variable Column Transformers

Entering a tunnel in broad daylight is a difficult task for the human eye. The reason is the difference between daylight and the comparatively dark entrance of the tunnel. These difficulties can be avoided by means of a high illumination level in the initial area of the tunnel. This illumination level may only decline slowly along a certain transition track. After the safely illuminated entrance track a relatively low illumination level on the actual tunnel track is sufficient.

RUHSTRAT variable column transformers are used for realizing the illumination control in the "Elbtunnel". By using these variable column transformers energy is saved; thereby, costs are reduced. When the tunnel lamps are switched on the variable column transformers are adjusted to 100% of the connection voltage. After the heating-

up time of the lamps the operation voltage is lowered by means of the variable column transformers, without any visible loss of luminosity. Now the luminosity in the tunnel sections is adjusted automatically step by step to the values given. Thus the ideal illumination level in the different tunnel sections is realized by means of the variable column transformers.

In order to achieve long service life and high reliability, it is necessary that the transformers are oil-cooled, due to the existing air pollution in the tunnel. A high-oil tank leads to slow heating-up of the transformers and compensates the unfavourable heat dissipation which exists with this project.



variable column transformer type 1	
rated power	24,15 kVA
rated input voltage	400V, 50 Hz
rated output values	216 to 400V, 35A
cooling	oil cooling
degree of protection	IP20 / IP54

variable column transformer type 2	
rated power	31 kVA
rated input voltage	400V, 50 Hz
rated output values	216 to 400V, 45A
cooling	oil cooling
degree of protection	IP20 / IP54