



II - POWER FACTOR OF MAIN RECEIVERS

The receivers which consume the most reactive energy are :

- low-load motors
- welding machines
- arc and induction furnaces
- power rectifiers

RECEIVER	COS φ	TG φ	
Ordinary asynchronous motors loaded at	0% 25% 50% 75% 100%	0,17 0,55 0,73 0,80 0,85	5,80 1,52 0,94 0,75 0,62
Incandescent lamps	approx. 1	approx. 0	
Fluorescent lamps	approx. 0.5	approx. 1.73	
Discharge lamps	0.4 to 0.6	approx. 2.29 to 1.33	
Resistance furnaces	approx. 1	approx. 0	
Compensated induction furnaces	approx. 0.85	approx. 0.62	
Dielectric heating furnaces	approx. 0.85	approx. 0.62	
Resistance welding machines	0.8 to 0.9	0.75 to 0.48	
Single-phase static arc welding stations	approx. 0.5	approx. 1.73	
Rotating arc welding units	0.7 to 0.9	1.02 to 0.48	
Arc welding transformers-rectifiers	0.7 to 0.8	1.02 to 0.75	
Arc furnaces	0,8	0,75	
Thyristor power rectifiers	0.4 to 0.8	2.25 to 0.75	

III - ADVANTAGES OF A GOOD POWER FACTOR

A good power factor is :

A high $\cos \varphi$ (close to 1)
or low $\text{tg } \varphi$ (close to 0)

A good power factor makes it possible to optimise an electrical installation and provides the following advantages:

- no billing for reactive energy (EDF "Tarif Vert" rate subscribers),
- decrease in the subscribed power in kVA (EDF "Tarif Jaune" rate subscribers)
- limitation of active energy losses in cables given the decrease in the current conveyed in the installation,
- improvement in the voltage level at the end of the line,
- additional power available at the power transformers if the compensation is performed in the secondary winding.