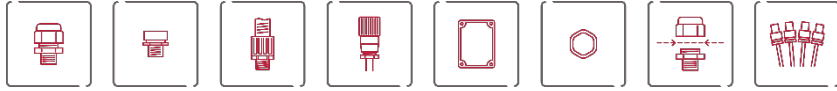


# Euro-Top EMC Ampacity Cable Glands





# Euro-Top EMC Ampacity Cable Glands

EMC cable glands are used to shield and ground electromagnetic signals on the cable shield – and thus to protect the entire system. But why are Euro-Top EMC Ampacity cable glands needed?

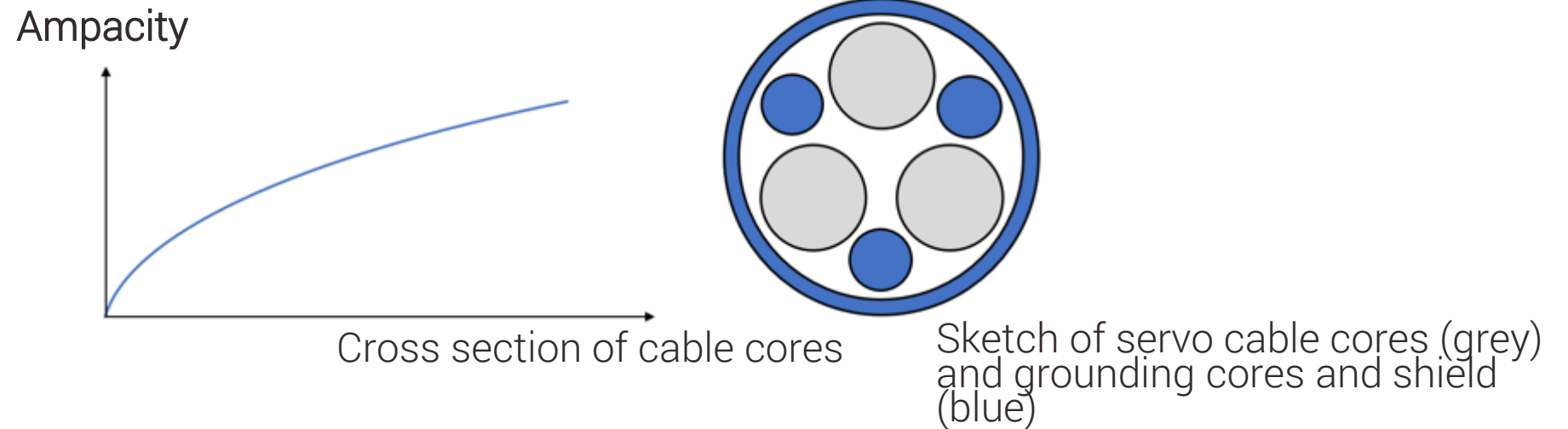
Ampacity means the maximum permissible current carrying capacity of a system before it suffers short-term or permanent damage. This maximum current carrying capacity of the system depends on

- its temperature rating
- its electrical resistance
- the frequency of the current
- its ability to dissipate heat
- the ambient temperature

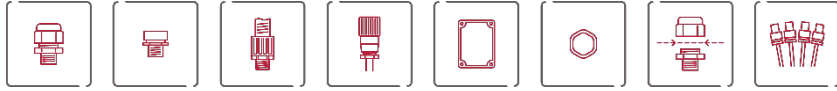
The parameters specified here are critical, for example, in railway applications or in systems that use high-frequency control signals such as VSD (Variable Frequency Drives) or PWM (Pulse Width Modulation). These control signals cause induction currents in the cable shield and must be diverted (earthed) with low resistance so that the system does not fail due to overheating.



# Euro-Top EMC Ampacity Cable Glands



EMC cable glands are suitable for deriving high-frequency electromagnetic signals of small fault currents on the cable shielding. For the above-mentioned applications, however, the cable glands must be able to divert several 100 amperes with low resistance.



# Euro-Top EMC Ampacity Cable Glands

Our Euro-Top EMC Ampacity cable gland was developed to conduct high electrical currents on the cable shield without causing a significant increase in the temperature of the system. A highly efficient contact system with the largest possible cross-section ensures a low-resistance discharge of the current. This prevents the system from overheating because the loss of power can be described as

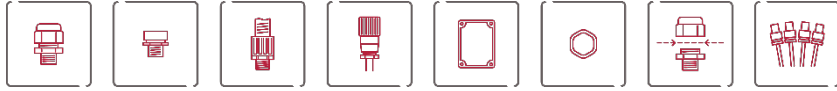
$$P_w \approx I^2 * Z_D$$

where

- $P_w$  = dissipated power
- $I$  = induced current
- $Z_D$  = impedance of the device in  $\Omega$

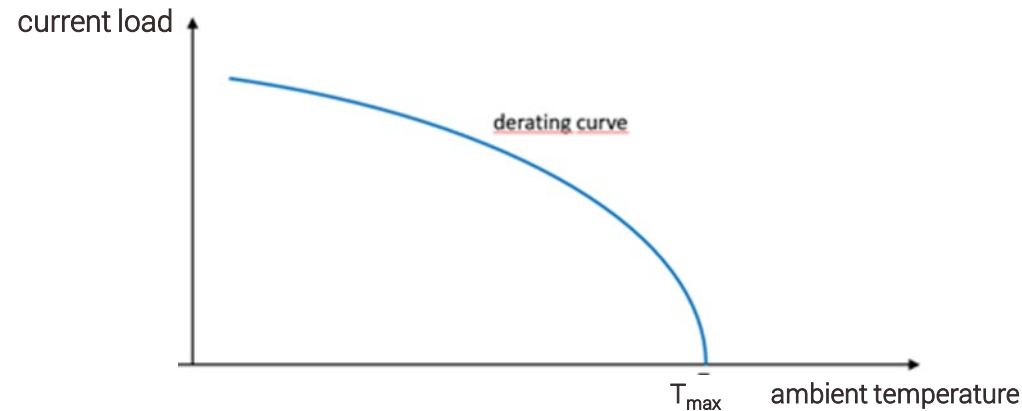
A power loss leads to an increase in temperature. The maximum allowable temperature increase of the system depends on the ambient temperature, since

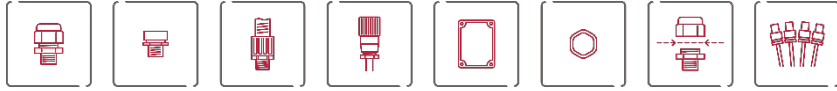
$$T_{\max} = T_{\text{amb}} + T_{\text{increase}}$$



# Euro-Top EMC Ampacity Cable Glands

and  $T_{\max}$  stands for the maximum allowable temperature of the system (e.g. 80 ° C). It also means that the maximum current load of a system also depends on the ambient temperature: if the ambient temperature  $T_{\text{amb}}$  already corresponds to the maximum permissible temperature  $T_{\max}$ , the current load would be zero.





# Euro-Top EMC Ampacity Cable Glands

External laboratory tests according to IEC 60512-5-2 (current carrying capacity) and IEC 60512-5-1 (temperature increase) showed that even with residual currents of several 100 A when using our Euro-Top EMC Ampacity cable glands, no significant temperature increase in the system can be observed.

In addition to the excellent current conduction properties, our Euro-Top EMC Ampacity cable glands naturally also offer the well-known excellent EMC shielding values up to the GHz range. They are shock and vibration resistant in accordance with international automotive standards and are also easy to install.