LOCK

CONNECTOR SELECTION AND GUIDE TO DURABILITY

rothoblaas

Solutions for Building Technology

CORROSION

SERVICE CLASSES

The service classes are related to the thermo-hygrometric conditions of the environment in which a timber structural element is installed. They relate the temperature and humidity of the surroundings to the water content within the material.

	SC1	SC2	SC3	SC4
EXPOSURE	internal elements within insulated and heated buildings	external but covered sheltered elements (i.e. not directly exposed to rain or precipitation), in uninsulated and unconditioned structures	external exposed elements directly exposed to the weather and not permanently exposed to water	external in contact with water elements immersed in soil or water (e.g. foundation piles and marine structures)
MOISTURE LEVEL atmospheric/timber	65% (12%)	85% (20%)	95% (24%)	- saturated

ATMOSPHERIC CORROSIVITY CLASSES

Corrosion caused by the atmosphere depends on relative humidity, air pollution, chloride content and whether the connection is internal, external protected or external. Exposure is described by the CE category which is based on category C as defined in EN ISO 9223. Atmospheric corrosivity only affects the exposed part of the connector.

	C1	C2	C3	C4	C5
MOISTURE	rare condensation	rare condensation	occasional condensation	frequent condensation	permanent condensation
DISTANCE FROM THE SEA		> 10 km from the coast	from 10 to 3 km from the coast	from 3 to 0,25 km from the coast	< 0,25 km from the coast
POLLUTION	very low deserts, central arctic/antarctic	low rural areas with little pollution, small towns	average urban and industrial areas with medium pollution	high highly polluted urban and industrial area	very high environment with very high industrial pollution

WOOD CORROSIVITY CLASSES

Corrosion caused by wood depends on the wood species, wood treatment and moisture content. Exposure is defined by the TE category as indicated.
The corrosivity of wood only affects the connector part inserted in the wooden element.

	T1	T2	T3	T4	T5
TIMBER pH AND TREATMENT	any	any	pH > 4 "standard" woods low acidity and no treatment	pH ≤ 4 "aggressive" woods high acidity and/or treated	any
MOISTURE CONTENT OF THE WOOD	≤ 10%	10% < ≤ 16%	16% < ≤ 20%		> 20%
SERVICE CLASS	SC1	SC2	SC3	SC3	SC4

For further information, see **SMARTBOOK TIMBER SCREWS** at www.rothoblaas.com.

CORROSION RESISTANT

Manufactured from aluminium alloy EN AW-6005A, the LOCK T concealed connector offers considerable resistance to atmospheric corrosion, especially in non-aggressive environments. It is suitable for outdoor use in service class 3, which makes it a versatile choice for various fastening requirements, especially when combined with careful screw selection. With its polyester-based powder coating (Qualicoat class 1 certified), the LOCK T EVO version is particularly suitable for environments with a higher presence of corrosive agents.

GALVANIC CORROSION

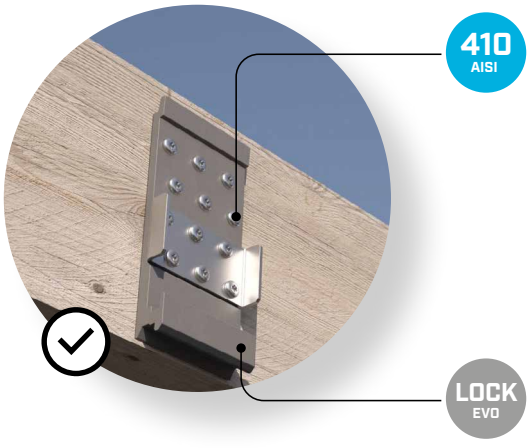
When selecting the combination of LOCK T connector and screw, it is essential to consider the phenomenon of galvanic corrosion. This phenomenon takes place whenever two dissimilar metals come into contact in the presence of an electrolyte, such as moisture or an aqueous solution. If the contact area between the screw and the LOCK T connector is subjected to moisture, it may corrode due to the electrochemical potential difference between the metals. Three specific conditions must be fulfilled simultaneously for galvanic corrosion to occur:

metals of different types
(different electrical potential)

presence of an electrolyte

electrical continuity between the two metals

This is effectively solved by the LOCK T EVO version with polyester powder coating, which electrically insulates the parts and thus prevents galvanic corrosion. With this solution, a longer life and reliability of the LOCK T connectors is guaranteed, even in humid environments.[1]



[1] For more in-depth information on the service, environmental and timber corrosivity class, refer to the "TIMBER SCREWS AND DECK FASTENING"-catalogue and the "SMARTBOOK TIMBER SCREWS".
Visit www.rothoblaas.com in the catalogue section.

Theory, practice and experimental campaigns:
our experience is in your hands.
Download the SMARTBOOK TIMBER SCREWS.

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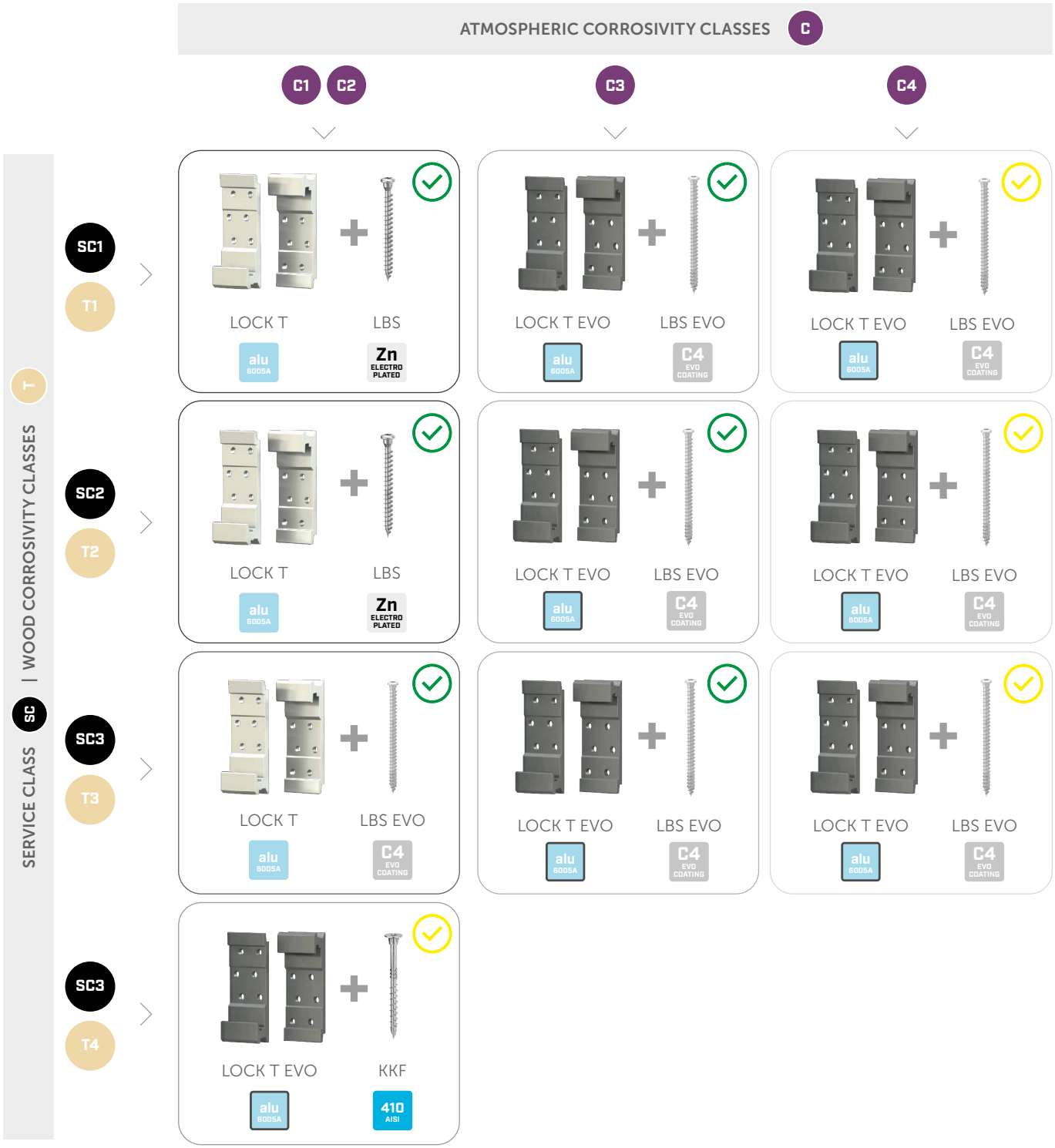
DURABILITY MATRIX

MATERIAL:

- alu 6005A — EN AW-6005A aluminium alloy
- alu 6005A — EVO version with special paint in graphite black colour
- 410 AISI — AISI410 martensitic stainless steel
- Zn ELECTRO PLATED — electrogalvanized carbon steel
- C4 EVO COATING — carbon steel with C4 EVO coating

LEGEND:

- use according to regulations
- use based on Rothoblaas expertise



NOTES

- LOCK STOP can be used as an accessory, available with hot dip galvanised coating (Z275) up to SC2,C2 and stainless steel (AISI304) up to SC3,C4

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