



Performance of Guardian Fastening system on different substrates

Characteristic values are calculated from the following formula according to EAD-030351-00-0402 and CEN/TS-17659:

$$R_k: \alpha (X_m - (k \times s))$$

where: R_k = characteristic values of axial load resistance

α = corr. factor for tested substrate spec. compared with nominal substrate spec.

X_m = mean axial pull-out load for 10 specimens

$k = 1,92$ (according to Table D1 in EN-1990:2002)

s = standard deviation

Table 2: Concrete substrate ¹⁾

Fastener	Substrate	R_k : Characteristic values of axial load resistance (kN)
GUARDIAN CS 6.1 / ACS-6.1	C25-C30	4.28
GUARDIAN B NRF 5.5	C25-C30	1.79
GUARDIAN BN 5.6	C25-C30	1.92
GUARDIAN CP & CPN (Polypropylene)	C25-C30	1.57
GUARDIAN HD 6.1	C25-C30	4.83
GUARDIAN LBS 6.0	C20-C25	2.92
GUARDIAN LBS 6.0	C25-C30	3.26
GUARDIAN CS-S 6.1	C25-C30	2.92
GUARDIAN CS-S 6.1	C32-C40	3.29
GUARDIAN CS-S 6.1	C40-C50	3.69

¹⁾ See clause 2 regarding hole diameter and drill depth

Table 3: Light weight concrete substrate ²⁾

Fastener	Substrate	R_k : Characteristic values of axial load resistance (kN)
GUARDIAN LBS 6.0	Density 600 kg/m ³	2.07
GUARDIAN LBS 8.0	Density 450 kg/m ³	0.93
GUARDIAN LBS 8.0	Density 550 kg/m ³	1.44
GUARDIAN HD 6.1	Density 600 kg/m ³	1.36
GUARDIAN LBS-S 6.0	Density 450 kg/m ³	1.34

²⁾ Autoclaved aerated concrete units according to EN 12602:2016

Table 4: Profiled steel sheets substrate ³⁾