

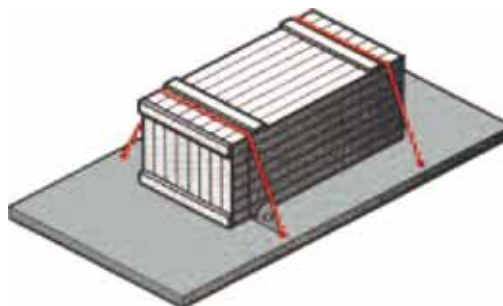
Friction factors according to EN 12195-1:2000 table 5:

Combination of materials in the contact surface	Friction factor μ	when using a slip resistant mat
Cut timber against fabric base laminate/plywood	0.5	0.6
Cut timber against grooved aluminium	0.4	0.6
Cut timber against steel sheets	0.4	0.6
Cut timber against shrink films	0.3	0.6
Shrink films against fabric base laminate/plywood	0.4	0.6
Shrink films against grooved aluminium	0.4	0.6
Shrink films against steel sheets	0.4	0.6
Shrink films against shrink films	0.4	0.6
Cardboard box against cardboard box	0.5	0.6
Cardboard box against wooden pallet	0.5	0.6
Big bags against wooden pallet	0.4	0.6
Flat steel bars against cut timber	0.5	0.6
Unpainted corrugated sheets against cut timber	0.5	0.6
Painted corrugated sheets against cut timber	0.4	0.6
Unpainted corrugated sheets against unpainted corrugated sheets	0.3	0.6
Painted corrugated sheets against painted corrugated sheets	0.2	0.6

Number of required textile lashings for different cargo weights

- at different friction factors
- at different angles

Tension force of ratchet 300 daN at standard hand force of 50 daN according to EN 12195



Applicable to textile lashings model ZGR-50-2500 with LC 2500 daN and model ZGR-50-2000 with LC 2000 daN

Cargo weight	Friction factor μ 0.20 Top angle			Friction factor μ 0.40 Top angle			Friction factor μ 0.60 Top angle		
	30°	60°	90°	30°	60°	90°	30°	60°	90°
1000 kg		10	9	7	4	3	3	2	2
2000 kg					8	7	6	3	3
3000 kg						10	9	5	4
4000 kg								7	6
5000 kg								8	7
6000 kg								10	9
7000 kg									10
8000 kg									
9000 kg									
10000 kg									

Cells without indication require more than 10 web lashings. In these cases a reasonable cargo securing can only be obtained by direct lashing method. Obstruction forces by cargo boards and form-fit locking devices have not been considered.