

Injection system FIS EM Plus with internal threaded anchor FIS IG

Permissible tensile loads of a single internally threaded anchor in glued laminated timber components \geq GL24h

Internally threaded anchor glued in parallel to the grain direction of the timber component

For the design, the entire approval Z-9.1-914 and DIN EN 1995-1-1:2010-12 / NA must be observed.

Type	Steel grade of the screw [-]	Gluing length in timber component l_{ad} [mm]	Permissible tensile load N_{perm} [kN]	Minimum spacing a_2 [mm]	Minimum edge distance $a_{2,c}$ [mm]	Minimum component dimensions $b = d$ [mm]
FIS IG M 8	5.8	120	8.8	60	30	60
	8.8	120	8.9	60	30	60
	R-70	120	8.9	60	30	60
FIS IG M 10	5.8	160	13.9	80	40	80
	8.8	160	15.9	80	40	80
	R-70	160	14.9	80	40	80
FIS IG M 12	5.8	200	20.2	100	50	100
	8.8	200	24.9	100	50	100
	R-70	200	21.7	100	50	100
FIS IG M 16	5.8	240	35.8	120	60	120
	8.8	240	35.8	120	60	120
	R-70	240	35.8	120	60	120
FIS IG M 20	5.8	300	52.4	150	75	150
	8.8	300	52.4	150	75	150
	R-70	300	52.4	150	75	150

Notes:

Drill diameter in the wood 4 mm larger than the outer diameter of the internal threaded anchor FIS IG.

Steel failure in the stress cross-section of the FIS IG and the bolt against the yield strength, composite failure in the lateral surface and tensile failure of the net timber cross-section are taken into account.

Only use non-corroding FIS IG with non-corroding screws and FIS IG made of gvz. with screws made of gvz..

Minimum screw-in depth of the screws in the FIS IG in accordance with Z-9.1-914.

Partial safety factors $\gamma_{M,H} = 1.3$; $\gamma_{M,S} = 1.25$; $\gamma_{F,global} = 1.4$ and $k_{mod} = 0.9$ from KLED short and NKL 1+2 taken into account.

Values valid for glued laminated timber \geq GL24h. Higher load-bearing capacities may be possible for higher strength classes.

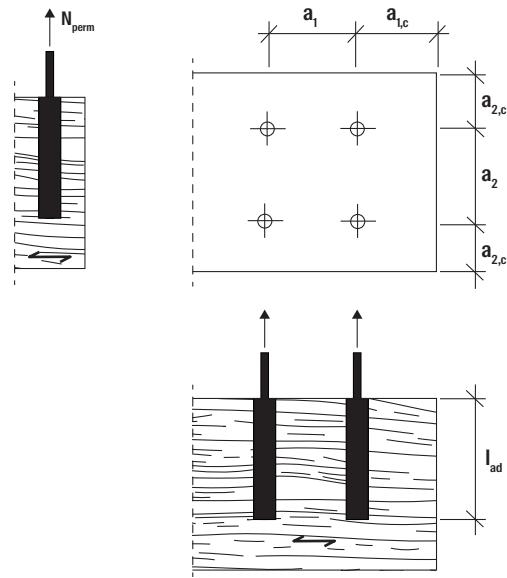
For groups of steel bars, as well as for combined loading from tensile and shear loads, as well as for bending stress, see Z-9.1-914 and DIN EN 1995-1-1 / NA.

For groups of FIS IG glued in parallel to the grain of the timber components, which are subjected to tensile stress in the direction of the grain, the connection must be verified for block shear failure in accordance with EOTA Technical Report TR 070, Section 4.1.7.

All mechanical values given must be considered in relation to the assumptions made and are examples of dimensioning.

This is a planning aid. Projects must be dimensioned exclusively by structural engineers!

All values are subject to typesetting and printing errors.



Injection system FIS EM Plus with internally threaded anchors FIS IG

Permissible tensile loads of a single internally threaded anchor in glued laminated timber components \geq GL24h

Internally threaded anchor glued in perpendicular to the grain direction of the timber component

For the design, the entire approval Z-9.1-914 and DIN EN 1995-1-1:2010-12 / NA must be observed.

Type	Steel grade of the screw [-]	Gluing length in timber component l_{ad} [mm]	Permissible tensile load N_{perm} [kN]	Minimum spacing $a_1 = a_2$ [mm]	Minimum edge distance $a_{1,c} = a_{2,c}$ [mm]	Minimum component width b [mm]	Minimum component height h [mm]
FIS IG M 8	5.8	120	8.8	48	30	60	140
	8.8	120	8.9	48	30	60	140
	R-70	120	8.9	48	30	60	140
FIS IG M 10	5.8	160	13.9	64	40	80	180
	8.8	160	15.9	64	40	80	180
	R-70	160	14.9	64	40	80	180
FIS IG M 12	5.8	200	20.2	80	50	100	220
	8.8	200	24.9	80	50	100	220
	R-70	200	21.7	80	50	100	220
FIS IG M 16	5.8	240	35.8	96	60	120	260
	8.8	240	35.8	96	60	120	260
	R-70	240	35.8	96	60	120	260
FIS IG M 20	5.8	300	52.4	120	75	150	320
	8.8	300	52.4	120	75	150	320
	R-70	300	52.4	120	75	150	320

Notes:

Drill diameter in the wood 4 mm larger than the outer diameter of the internal threaded anchor FIS IG.

Steel failure in the stress cross-section of the FIS IG and the bolt against the yield point and composite failure in the lateral surface are taken into account.

Any failure of the timber cross-section, e.g. transverse tensile failure, must be checked separately.

Only use non-corroding FIS IG with non-corroding screws and FIS IG made of gvz. with screws made of gvz.

Minimum screw-in depth of the screws in the FIS IG in accordance with Z-9.1-914.

Partial safety factors $\gamma_{M,H} = 1.3$; $\gamma_{M,S} = 1.25$; $\gamma_{F,global} = 1.4$ and $k_{mod} = 0.9$ from KLED short and NKL 1+2 taken into account.

Values valid for glued laminated timber \geq GL24h. Higher load-bearing capacities may be possible for higher strength classes.

For groups of steel bars, as well as for combined loading from tensile and shear loads, as well as for bending stress, see Z-9.1-914 and DIN EN 1995-1-1 / NA.

All mechanical values given must be considered in relation to the assumptions made and are examples of dimensioning.

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