

**NATIONAL ANNEX
TO STANDARD
SFS-EN 1991-3 EUROCODE 1: ACTIONS ON STRUCTURES
Part 3: Actions induced by cranes and machinery**

Preface

This National Annex is used together with standard SFS-EN 1991-3:2007

This National Annex sets out:

a) the national parameters for the following paragraphs in Standard SFS-EN 1991-3 where national selection is permitted:

- 2.1(2)
- 2.5.2.1(2)
- 2.5.3(2)
- 2.7.3(3)
- A2.2(1)
- A2.2(2)
- A2.3(1)

b) guidance for use of the informative annex B.

2 Actions induced by hoists and cranes on runway beams

2.1 Field of application

2.1 (2)

Where the crane supplier is known at the time of design of the crane runway beams, the actions given by crane supplier are primarily used. The actions should be stated as static values without partial factors. The loads should be divided to permanent and variable and accidental actions. The dynamic factors for different actions should be stated. To dimension the building frame and for fatigue analysis, the simultaneous actions on different crane runways should be stated.

2.5.2.1 Vertical loads

2.5.2.1(2)

The recommended values are used. For fatigue analysis, the lower value for eccentricity can be used in particular cases, but when stating the value, the eccentricity tolerance of the rail relative to web and inaccuracies of the crane wheels should be taken into account. For the value of the eccentricity of the rail relative to web $\Delta = 5$ mm can be used, when the thickness of the web $t_w \leq 10$ mm and $\Delta = 0,5 t_w$, when $t_w > 10$ mm. The inaccuracies of the crane wheels should be stated together with the crane supplier. If the inaccuracies are not stated, the recommended value $e = 0,25 b_r$ should be used.

2.5.3 Multiple crane action

2.5.3(2)

The recommended values given in the table 2.3 are used

2.7.3 Drive force K

2.7.3(3)

For the friction factor, the recommended values are used

Annex A (normative)

Basis of design - supplementary clauses to EN 1990 for runway beams loaded by cranes

A.2 Ultimate limit states

A.2.2 Partial factors

A.2.2(1)

Table A.1(FI) provides the values to be used in Finland

Table A.1(FI) Design values of crane actions (STR/GEO) (set B)

Persistent and transient design situations	Permanent actions		Crane action is leading variable action	Crane action is accompanying variable action
	Unfavourable	Favourable		
(Eq.6.10a)	$K_{FI} 1,35G_{kj,sup}$	$1,0G_{kj,inf}$		
(Eq.6.10b)	$K_{FI} 1,15G_{kj,sup}$	$1,0G_{kj,inf}$	$K_{FI} 1,35Q_{k,l}$	$K_{FI} 1,35\psi_{0,i}Q_{k,i}$

For other actions, the values in table A.1.2(B) of the Finnish National Annex to standard SFS-EN 1990 should be used. The above table should be used also when designing the crane supporting structures.

A.2.2(2)

The values $\gamma_{Gsup} = 1,1$ ja $\gamma_{Ginf} = 0,9$ given in Finnish National Annex to standard SFS-EN 1990 should be used.

A.2.3 ψ -factors for crane loads

A.2.3(1)

The recommended values are used. The values are also used when designing crane supporting structures. For structural fire design only the permanent crane actions are taken into account. It is not necessary to dimension crane runways for fire actions if not otherwise stated in project specifications. In project specifications special attention should be paid to the rescue routes and attack routes for fire brigade, for which the crane runway may have to be locally dimensioned for fire actions.

Annex B (Informative)

Guidance for crane classification for fatigue

The informative annex B may be used