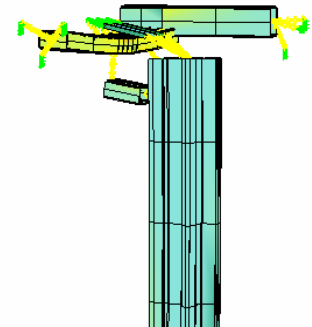


## Structural and Dynamic Design of a Rack Feeder (1 / 1)

Location	<b>Graz, Austria</b>
Client	KNAPP Logistik Automation GmbH
Date	2006
Services	Structural and dynamic design; Parametric study

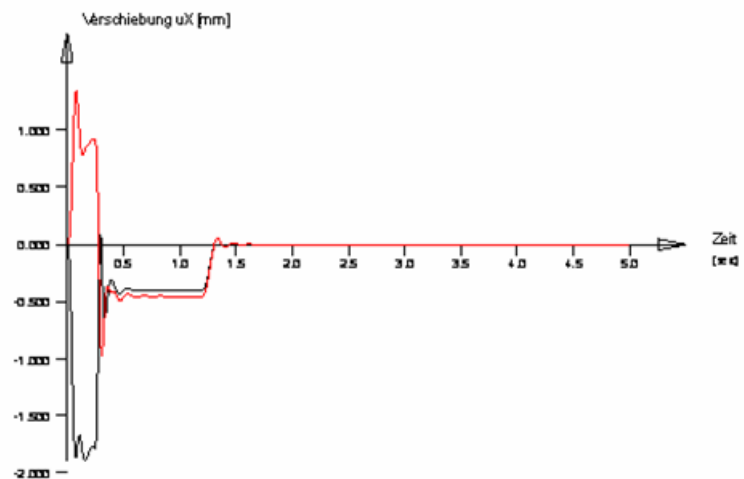
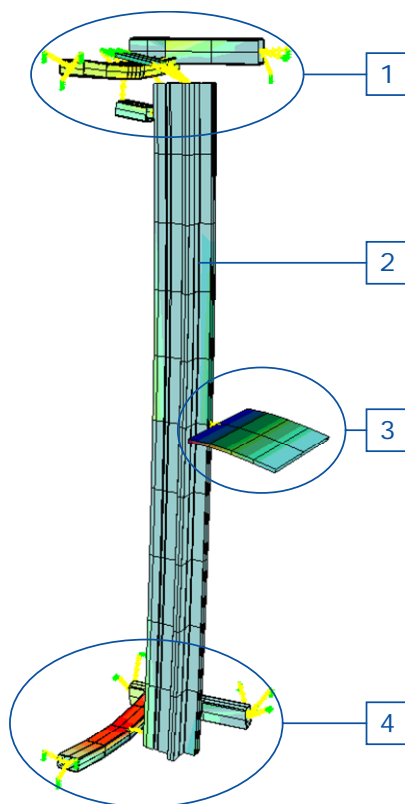


### Description

Rack feeders are central components of automated racking systems. The design and the optimisation of a new feeder were based on results gained from static and dynamic analyses. Dynamic loading during acceleration, breaking and emergency stops governed many aspects of the global and detailed design. Fatigue was the governing criteria for all investigations.

A global parametric study resulted in general design guide lines giving the highest possible acceleration values for given feeder height and crane platform loading capacity.

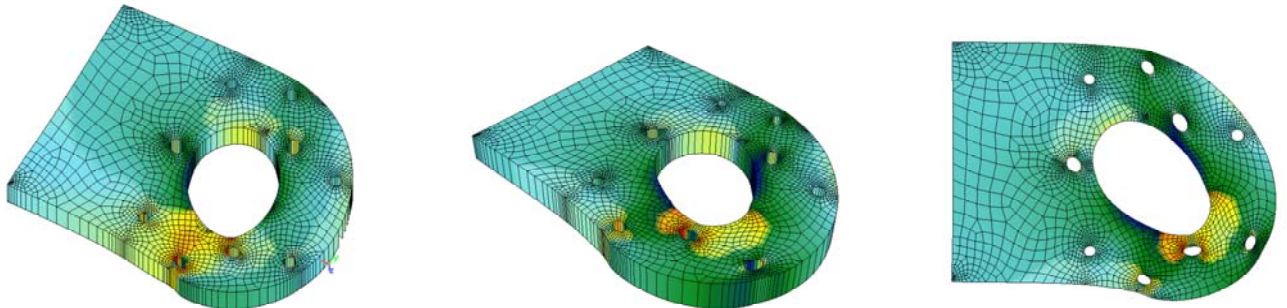
The connection elements between the rack feeder mast and the sliding carriage on the one hand and the rack feeder mast and the crane platform on the other hand were analysed in an extensive 3D finite element analysis.



Node displacements during emergency stop.

Numerical model of rack feeder  
(1. Sliding carriage top, 2. Rack feeder  
mast, 3. Crane platform, 4. Sliding carriage  
bottom).

## Structural and Dynamic Design of a Rack Feeder (1 / 2)



Connection elements – stress analysis.