Name: _____ Group: _____ Date: _____

CONCEPT REVIEW 55

Linking in technical objects

EST

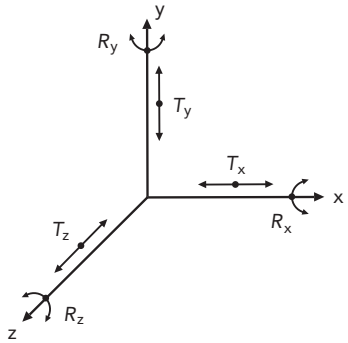
PAGES 426–430

Complete this concept review handout and keep it as a record of what you have learned.

Definitions

- Mechanical engineering is *a branch of engineering that focuses on the design, production, analysis, working and improvement of technical objects with moving parts.*
- A link allows *the keeping together of two or more pieces in the same object.*
- In mechanics, a component is *a part or fluid that performs a mechanical function.*
- Linking is *the mechanical function performed by any component that connects different parts of a technical object.*
- EST The degrees of freedom are *the set of independent movements that are possible for a given part in a technical object.*

EST Possibilities of independent motion

Possibilities	Notation	
Translational motion • Translation from left to right or from right to left	T_x	
• *Translation from top to bottom or from bottom to top*	T_y	
• *Translation from front to back or from back to front*	T_z	
Rotational motion • *Rotation about the x axis*	R_x	
• *Rotation about the y axis*	R_y	
• *Rotation about the z axis*	R_z	

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Characteristics of links

Characteristics	Description
Direct	• Two parts hold together without a linking component.
Indirect	• *Parts require a linking component to hold them together.*
Rigid	• *The linking component or the surfaces of linked parts are rigid.*
Flexible	• *The linking component or the surfaces of linked parts can be deformed.*
Removable	• *Linked parts can be separated without damaging either their surfaces or the linking component (if present).*
Non-removable	• *Separating the linked parts damages their surfaces or the linking component.*
Complete	• *Linked parts are prevented from moving independently of one another.*
Partial	• *At least one part can move independently of the other parts.*