

# Appendix A

## Quick reference: Hazards

### QUICK REFERENCE

# HAZARDS

## 1. Mechanical hazards

### 1.1 Factors to consider

- ◆ Mass, velocity (kinetic energy of the controlled or uncontrolled moving components)
- ◆ Acceleration, force
- ◆ Potential energy, namely the accumulation of energy inside the machine produced by:
  - elastic components (springs, etc.)
  - gases/liquids under pressure (hydraulic, pneumatic, etc.)
  - vacuum/pressure effect

### 1.2 Hazards associated with components and tools

- ◆ Moving components and tools
- ◆ Relative location of moving components and tools
- ◆ In-running nips (rollers, conveyors, etc.)
- ◆ Inadequate strength
- ◆ Hazardous shapes (cutting, pointed, rough, etc.)  
(see examples)

### 1.3 Hazards associated with gravity

- ◆ Mass and stability (components or worker falling under the effect of their weight)  
(see examples)

## 2. Electrical hazards

- ◆ Live conductors
- ◆ Live machine components
- ◆ Electrostatic hazards

## 3. Thermal hazards

- ◆ Objects or materials at extreme temperatures (high or low)
- ◆ Presence of flame or explosion; presence of water and molten metal
- ◆ Radiation from sources of heat; cold or hot work environment, etc.

## 4. Noise

## 5. Vibration

## 6. Radiation

- ◆ Low frequency, radio frequency, microwave, X-ray and gamma radiation,
- ◆ Laser/infrared, visible and ultraviolet light, etc.

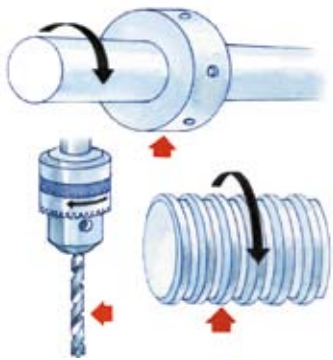
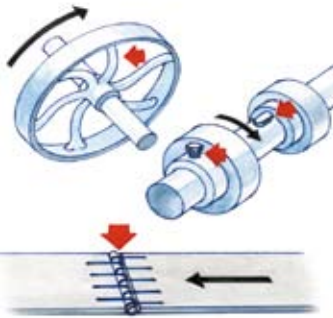
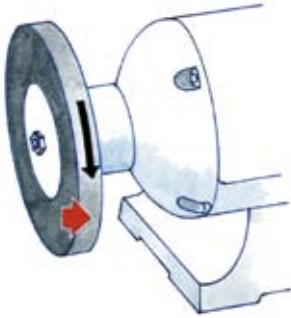
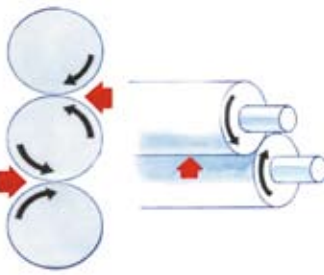
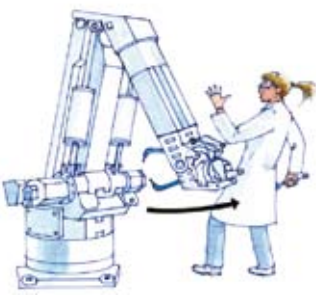

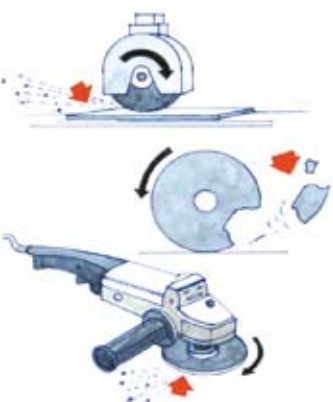
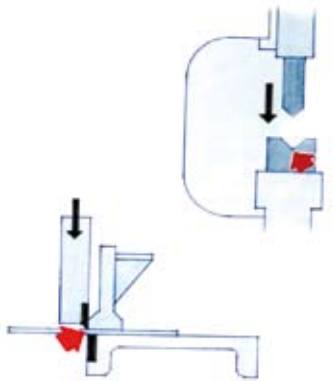
## 7. Hazards produced by materials, products, contaminants

- ◆ Hazardous materials (harmful, toxic, corrosive, reactive, humid, teratogenic, carcinogenic, mutagenic or irritating)
- ◆ Infectious materials, and combustible, flammable, oxidizing or explosive materials, compressed gases, etc.

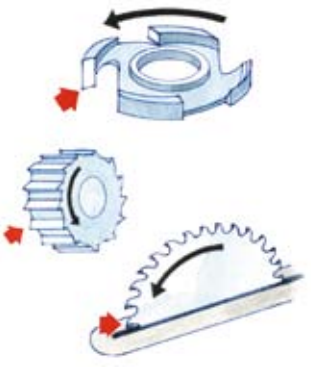
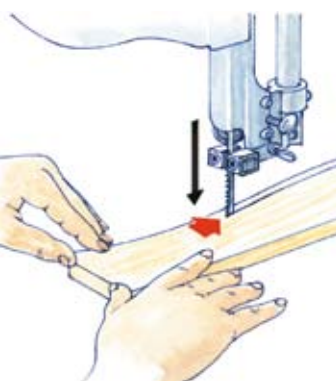
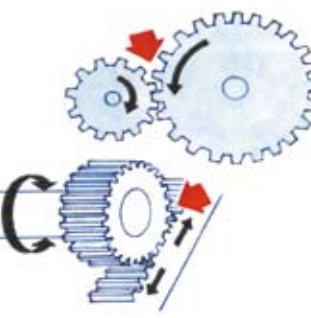
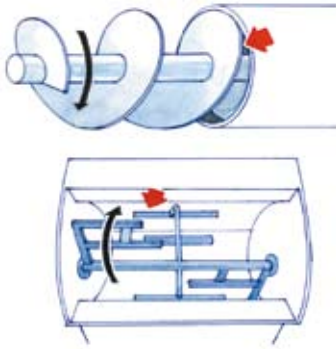
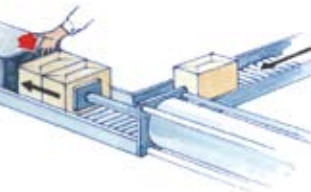
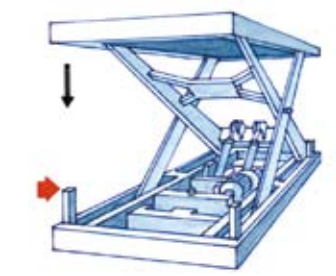
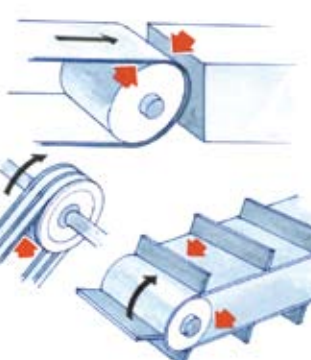
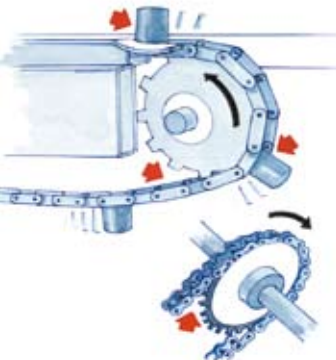
## 8. Hazards produced by non-respect of ergonomic principles

- ◆ Nonneutral posture, force, repetition, absence of micro-breaks, frequent handling
- ◆ Inadequate lighting, etc.
- ◆ Inadequate visibility, poor location of controls
- ◆ Difficult access to the working space, layout of premises, etc.


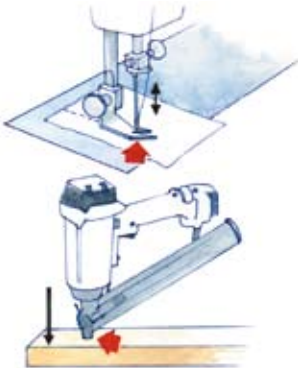
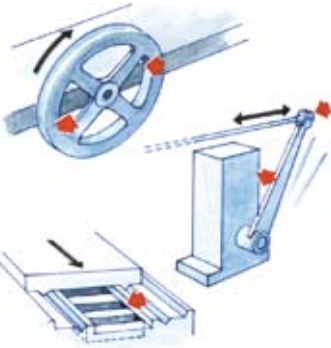
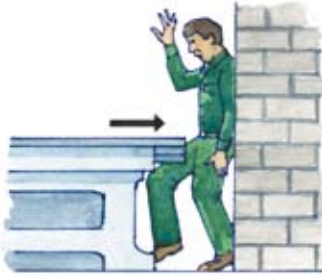
## EXAMPLES OF MECHANICAL HAZARDS ASSOCIATED WITH COMPONENTS AND TOOLS

Hazard	Possible consequences	Hazard	Possible consequences
	<ul style="list-style-type: none"> <li>● Winding</li> <li>● Entanglement</li> <li>● Drawing in</li> </ul>		<ul style="list-style-type: none"> <li>● Winding</li> <li>● Entanglement</li> <li>● Impact</li> <li>● Crushing</li> <li>● Drawing in</li> <li>● Burning</li> <li>● Puncture</li> </ul>
	<ul style="list-style-type: none"> <li>● Entanglement</li> <li>● Abrasion</li> <li>● Drawing in</li> <li>● Burning</li> <li>● Projection</li> </ul>		<ul style="list-style-type: none"> <li>● Drawing in</li> <li>● Crushing</li> <li>● Burning</li> </ul>
	<ul style="list-style-type: none"> <li>● Impact</li> <li>● Crushing</li> </ul>		<ul style="list-style-type: none"> <li>● Drawing in</li> <li>● Abrasion</li> </ul>
	<ul style="list-style-type: none"> <li>● Stabbing</li> <li>● Projection</li> <li>● Burning</li> <li>● Impact</li> </ul>		<ul style="list-style-type: none"> <li>● Crushing</li> <li>● Shearing</li> <li>● Severing</li> <li>● Projection</li> </ul>


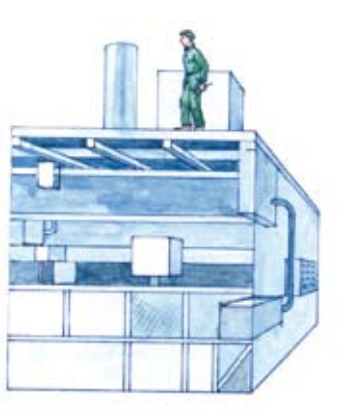




## EXAMPLES OF MECHANICAL HAZARDS ASSOCIATED WITH COMPONENTS AND TOOLS

Hazard	Possible consequences	Hazard	Possible consequences
	<ul style="list-style-type: none"> <li>● Cutting</li> <li>● Severing</li> <li>● Projection</li> <li>● Drawing in</li> </ul>		<ul style="list-style-type: none"> <li>● Cutting</li> <li>● Severing</li> <li>● Projection</li> </ul>
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## EXAMPLES OF MECHANICAL HAZARDS ASSOCIATED WITH COMPONENTS AND TOOLS

Hazard	Possible consequences	Hazard	Possible consequences
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## EXAMPLES OF HAZARDS ASSOCIATED WITH GRAVITY

Hazard	Possible consequences	Hazard	Possible consequences
	<ul style="list-style-type: none"> <li>● Slumping</li> <li>● Collapse</li> <li>● Subsidence</li> <li>● Smothering</li> <li>● Jamming</li> <li>● Crushing</li> <li>● Falling</li> </ul>		<ul style="list-style-type: none"> <li>● Falling</li> <li>● Slipping</li> <li>● Slumping</li> </ul>
	<ul style="list-style-type: none"> <li>● Crushing</li> <li>● Jamming</li> <li>● Lowering</li> <li>● Slumping</li> </ul>		<ul style="list-style-type: none"> <li>● Falling</li> <li>● Slipping</li> <li>● Tripping</li> </ul>
	<ul style="list-style-type: none"> <li>● Impact</li> <li>● Crushing</li> <li>● Slumping</li> </ul>		<ul style="list-style-type: none"> <li>● Falling</li> <li>● Tripping</li> <li>● Slipping</li> </ul>