

Výukový materiál zpracovaný v rámci operačního programu Vzdělávání pro konkurenceschopnost



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

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Šablona: II/2 Inovace a zkvalitnění výuky cizích jazyků na středních školách

Sada: 2 AJ

Číslo: VY_22_INOVACE_PRO_1.,2.,3.,4.,ROC_24

Technical English



Předmět:	Anglický jazyk
Ročník:	1.,2.,3.,4.,ročník
Klíčová slova:	forming, forging, bending
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Technical English

Forming



Metal forming

- is the metalworking process of fashioning metal parts and objects through mechanical deformation;
- the workpiece is reshaped without adding or removing material, and its mass remains unchanged.
- it operates on the materials science principle of plastic deformation, where the physical shape of a material is permanently deformed.



Technical English

Forming



Forming conditions

Material can be formed in **hot** or **cold** conditions.

Hot forming or hot working processes

- are processes where metals are plastically deformed above their recrystallization temperature. Being above the recrystallization temperature allows the material to recrystallize during deformation.

Cold forming or cold working processes

- are processes where metals are plastically deformed bellow their recrystallization temperature.

Technical English

Forming



Hot forming or hot working processes

➤ Forging (kování)

- is a manufacturing process involving the shaping of metal using localized compressive forces.
- it is often classified according to the temperature at which it is performed (cold, warm, hot).
- Forged parts can range in weight from less than a kilogram to 580 metric tons. Forged parts usually require further processing to achieve a finished part.
- It can be performed in different ways (pressing or hammering)

Technical English

Forming

Cold forming or cold working processes

- Are applied for soft materials otherwise the workpieces would crack.
 - The force required for cold forming must be much higher than in hot forming.
- **Blanking** (stříhání)
 - **Bending** (ohýbání)
 - **Drawing** (tažení)
 - **Extrusion** (protlačování)



Technical English

Forming

Equipment

- Hammer and anvil
- Blanking press
- Blanking punch
- Extrusion die
- Plug
- Drawing bench
- Blanking die

Workers

- Smith
- Rolling-mill operator
- Clipper

Products



Technical English

Forming

Practice 1

(match the numbers to the letters)

1) Extrusion

2) Blanking

3) Bending

4) Forging

- a) Is a process of producing a metal component by hammering.
- b) Is a technique of pulling the metal through the hole of a die to change its shape.
- c) Is a mechanical process of shearing metal workpieces into a desired shape.
- d) Is a metal forming process when workpieces assumes a curved shape.



Technical English

Forming



Practice 2 (true or false)

- 1) T/F In forming process, a force is applied to workpieces to modify their geometry rather than remove material.
- 2) T/F In hot forming processes the temperature during processing is more than the recrystallization temperature of the metal.
- 3) T/F Forging is cold forming process.
- 4) T/F The force required in cold forming process must be much lower than in hot forming process.
- 5) T/F Hot forming processes are applied for hard material.
- 6) T/F Hammers and anvils are used in forging.

Check your answers

Practice 1

1B	2C	3D	4A
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Practice 2

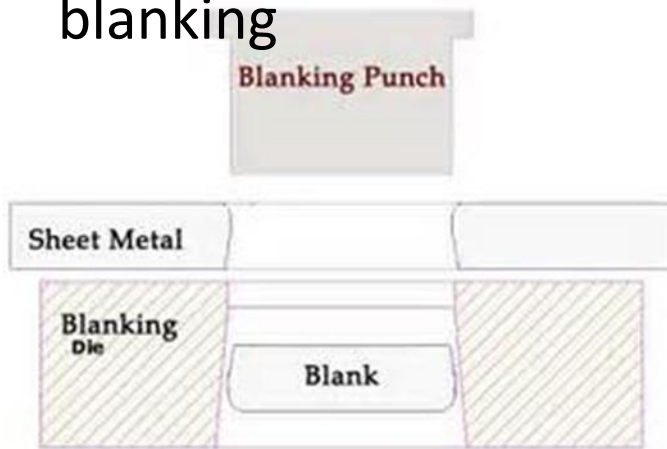
1T	2T	3F	4F	5F	6T
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Vocabulary

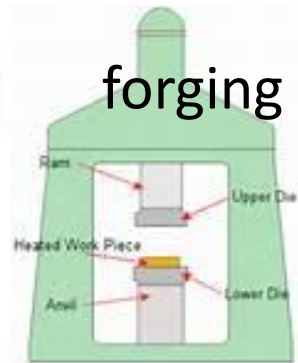
English	Czech	English	Czech
Blanking die	Střižnice	modify	Upravit
anvil	Kovadlina	processing	Zpracování
Blanking press	Stříhadlo	shearing	Stříhací
Blanking punch	Střižník	tension	Tah
deform	Přetvářet, měnit tvar	forming	Tváření
crack	Trhlina, prasklina	plug	Nárazník, tržník
Extrusion die	průtlačnice	compressive	stlačený

Summary Forming

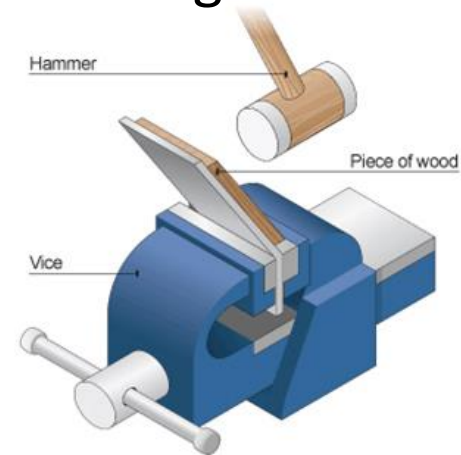
blanking



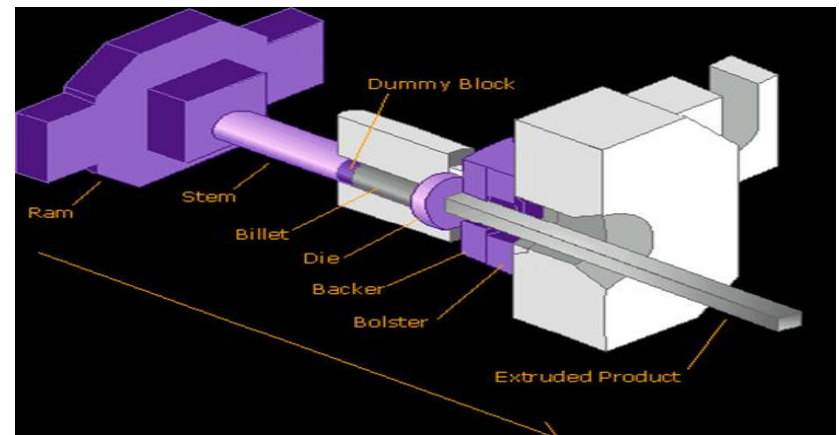
forging



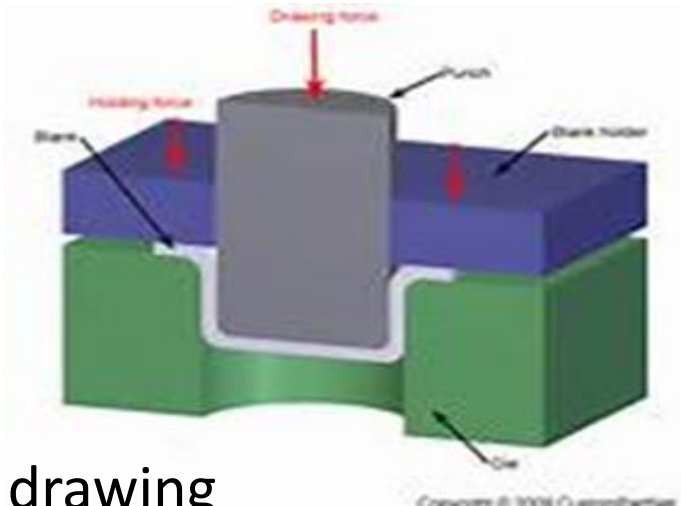
bending



extrusion



drawing



Použité zdroje



- Veškeré použité obrázky (kliparty) pocházejí ze sady Microsoft Office 2010.
- Všechny fotografie pochází z archivu autora nebo Wikipedie
- O'Sullivan N., Libbin J.D., *Engineering*, Express Publishing 2011
- White L., *Engineering*, OUP 2003
- Deutch P., Hendrychová P., *Technická angličtina pro SPŠ se zaměřením na elektrotechniku a strojírenství*, CZ.1.07/1.1.04/01.0086

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