

21世纪高校双语教学丛书

英汉对照

# English for Die and Mould

## 模具英语

■ 主编 吴凤仙



WUHAN UNIVERSITY PRESS

武汉大学出版社

供高职高专学生使用

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# 前 言

进入 21 世纪,我国的制造业高度发达,制造技术不断提高,模具行业也在飞速发展,先进的模具设计和模具制造技术标志着中国已跻身世界前列,成为制造业大国。随着模具制造行业的不断发展壮大,我国与国外大型知名企业的业务交往以及大量的模具技术设备的引进也随之增多,模具专业英语的应用也越来越广泛。对于模具专业的大中专学生和从事模具设计以及模具制造业的工程技术人员来说,熟练掌握该行业的英语技能是非常必要的。为满足中国制造业的快速发展,模具制造行业实现技术技能创新的迫切要求,我们组织编写了《模具英语》教材,以培养大批不仅要掌握先进的模具技术,而且要具备过硬的专业英语能力的高素质、复合型人才。

本教材是一本模具专业基础知识的英语教科书,全书共 10 个单元,介绍了冷冲压模具、冲裁工艺、冲裁模具的设计、弯曲、拉伸、冷挤压以及其他冷冲压成形工艺,塑料模、模具基本结构、特种加工和现代模具制造等方面的知识。学生在具备了多年扎实的英语知识和一定数量的模具专业知识的基础上,通过对该教材的学习能够获得模具专业英语阅读理解能力,从而加深对模具专业知识的理解。

本书编写特点:

1. 内容具有实用性和先进性。介绍了模具技术领域的最新技术和知识。
2. 图文并茂。大多数单元都配有与内容相关的插图,即通过文中图例便可直观地理解各段文章大意,有利于专业英语的学习。
3. 每篇课文后附有相关生词,并注出读音便于学生正确的朗读。
4. 每个单元配有相应的练习,题型多样,且专业性强。
5. 每篇课文后有注释和句子结构分析,书后有参考译文及习题参考答案,有利于学生掌握和巩固所学知识。

本书在编写过程中,得到了湖北襄樊职业技术学院机械电子信息工程学

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由于编者水平有限，敬请读者批评指正！

编 者

2008 年 9 月于襄樊

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## ***Unit 1***

# **Cold Stamping Mould**

## **Lesson 1 Basic Concept of Cold Stamping**

Cold stamping process is a procedure which is completed with a mould and stamping equipments. For a usual stamping operation, stamping equipment may machine several or many stamping parts, sometimes even hundreds of or thousands of them every minute. So the stamping machining productivity is very high, its operation is simple and convenient and it is easy to bring mechanization and automation into realization. The size precision of the stamping products is determined by moulds and the products are reliable in qualities so that they need no more mechanical machining for use.

The cold stamping machining does not need heating treatment, and unlike cutting machining it needs very little energy when removing metal allowance, so it is a kind of economic machining method. In addition, material surfaces are not damaged during the stamping processes. The cold stamping has many advantages including better quality, light weight and low cost. For these reasons it is widely used in the modern industrial practice.

### **New Words ■ ■ ■ →**

stamp [stæmp]

v. 压碎, 冲模

productivity [ˌprɒdʌk'tɪvəti]	<i>n.</i> 生产率
mechanization [ˌmekənai'zeɪʃən]	<i>n.</i> 机械化
automation [ˌɔ:tə'meɪʃən]	<i>n.</i> 自动化
reliable [rɪ'laɪəbl]	<i>adj.</i> 可靠的, 可依赖的
mechanically [mi'kænikəli]	<i>adv.</i> 机械地

### Phrases

to bring... into realization	实现
to be determined by	由……所决定
metal allowance	金属余量
in addition	另外

### Notes:

1. Cold stamping process is a procedure which is completed with a mould and stamping equipments.  
冷冲压工序是靠模具与冲压设备完成加工的过程。句中“which is... equipments”是定语从句, 修饰“a procedure”。
2. The size precision of the stamping products is determined by moulds.  
冲压产品的尺寸精度是由模具决定的。
3. ... and unlike cutting machining it needs very little energy when removing metal allowance.  
……冷冲压加工不像切削加工那样在切除金属余量时要消耗大量的能量。句中 it 指冷冲压加工。
4. For these reasons it is widely used in the modern industrial practice.  
因此, 在现代工业生产中得到广泛应用。句中 it 指冷冲压加工。

## Lesson 2 The Classification of the Cold Stamping Process

Many stamping processes are needed to complete one stamping part. Because the shape of the stamping parts, the size precision, production

batch and raw materials are different, the stamping processes are also diversified, but they are roughly classified into separation processing and plastic moulding processing.

Separation processing is to make stamping parts and flat sheet separated from each other on the certain contour line such as parting, blanking and punching, etc. The plastic moulding is the process of plastic formation without fracturing the materials so as to produce the parts in certain shapes, sizes and precision requirement. The plastic moulding involves bending, drawing, moulding, and cold extrusion.

The die which completes only one blanking and piercing during a single press stroke is called single-operation die. The die which completes two or more than two blankings and piercings simultaneously during a single press stroke at different locations is called progressive die.

The die which completes two or more than two blankings and piercings at the same location during a single press stroke is called a compound die.

## New Words

classification [ˌklæsɪfɪˈkeɪʃən]

batch [bætʃ]

diversified [daɪˈvɜːsɪfaɪd]

roughly [ˈrʌfli]

contour [ˈkɒntʊə]

blanking [ˈblækiŋ]

punching [ˈpʌntʃɪŋ]

deformation [ˌdiːfɔːˈmeɪʃən]

fracture [ˈfræktʃə]

bending [ˈbendiŋ]

drawing [ˈdrɔːɪŋ]

piercing [ˈpiəriŋ]

stroke [straʊk]

die [daɪ]

*n.* 分类, 类别

*n.* 一次生产量; 一批

*adj.* 多样化的, 各色各样的

*adv.* 粗略地, 大致

*n.* 轮廓

*n.* 落料, 冲裁

*n.* 穿孔, 冲孔

*n.* 变形

*v. / n.* (使) 破裂

*n.* 弯曲

*n.* 拉伸

*adj. / n.* 刺透的; 冲孔, 刺穿

*n.* 冲程; 击打

*n.* 模具, 冲模

simultaneously [ˌsɪml'teɪniəsli]

*adv.* 同时地

progressive [prə'gresiv]

*adj.* 进步的, 渐进的

### Phrases

raw material

原材料

to classify into

分类

flat sheet

板材

plastic deformation

塑性变形

single-operation

单工序

progressive die

级进模

### Notes:

1. Many stamping processes are needed to complete one stamping part.  
一个冲压件往往需要经过多道冲压工序才能完成。
2. Separation processing is to make stamping parts and flat sheet separated from each other on the certain contour line such as parting, blanking and piercing, etc.  
分离工序是使冲压与板材沿一定的轮廓线相互分离的工序, 例如切断、落料、冲孔等。
3. The die which completes only one blanking and piercing during a single press stroke is called single-operation die.  
在一次冲压过程中, 只能完成一个冲压工序的模具, 称为单工序模。

## Lesson 3 The Classification of the Mould and Structure

### 1. The Classification of the Mould

Because of different stamping processes, mould structures and types, the classification methods are different.

According to the process character, the mould can be classified into punching, bending, drawing and molding die. According to the guide

form it can be classified into guideless die, guide board, guide pin and guide bush. According to the stamping process tasks the mould can be classified into single operation die, composite operation die. The composite operation die can be further classified into compound die and progressive die.

## 2. Mould Structure

### Punching die

For different stamping parts and processes, the moulds used are often different. Their basic structures are roughly composed of six parts as far as the function and purpose are concerned. Take the typical guide pin and guide bush punching die for example, whose structure is shown in Figure 1-1.

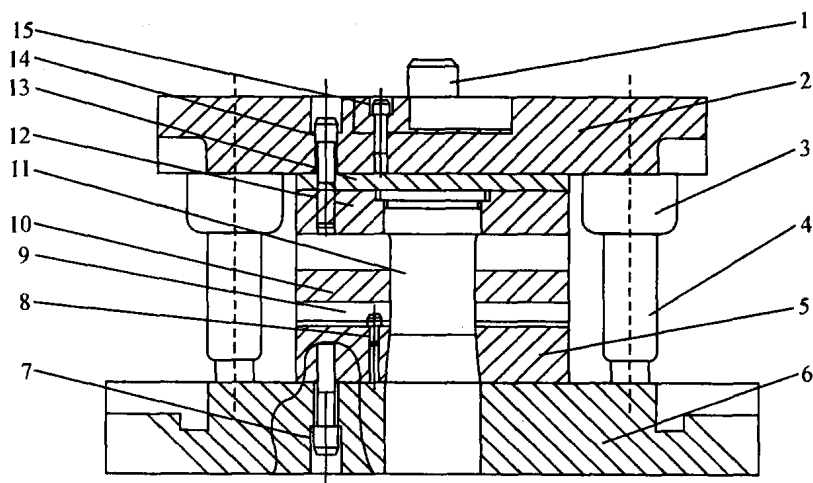


Figure 1-1 Guide pin and guide bush punching die

Figure 1-1 is a guide pin and guide bush punching die. The die uses the guide pin and the guide bush to perform accurate positioning of the upper die and lower die. Before blanking die and blanking punch are performed, the guide pin has been directed into the guide bush so that the

clearance between the punch and die are uniform during the punching stroke. The components equipped with an upper shoe and a lower shoe, a guide pin and a guide bush are called a die set. Die sets in many sizes and designs are commercially available. When punching die is working, the metal strip performs correct positioning by the guide sheet and the baffle plate to ensure that the jointed value on the strip is uniform during punching.

Because the guidance of the guide post die is accurate and reliable and is able to ensure that the punching clearance is uniform and stable, the precision of the punching workpiece is higher than that of punched workpiece with the guide plate die. The punching die can be used for a long time and it is easy and convenient to be mounted on the punch press for use. Compared with the guide plate die, the punching die is much easier to be operated. The unloading stripper has no guide function any longer but it is only used for unloading. The guide pin die is now used more widely and suited for mass-production. The disadvantage of the guide pin die is as follows: The contour size of the punching die is bigger, the structure is more complex and the cost of production is too high. Now the standard die sets are gradually applied in many factories in order to reduce design time and production period.

### **Bending die**

Bending die is classified into simple bending die, complex bending die, progressive bending die and general-purpose bending die. The main parts of the bending die consist of punch and die. The bending die in perfect structure also has material pressing device, positioning device and guide device. Sometimes roll axes are used to carry out more complex motions. The Figure 1-2 is a V-shape bending die. The mould consists of punch, die, positioning board, lower shoe, handle for die block and jacking. When operating, V-shape bending die puts the blank between the positioning board and it slides on the die angle by the action of the punch, at the same time the jacking is moving down and compresses the spring until the blank is bent and shaped.

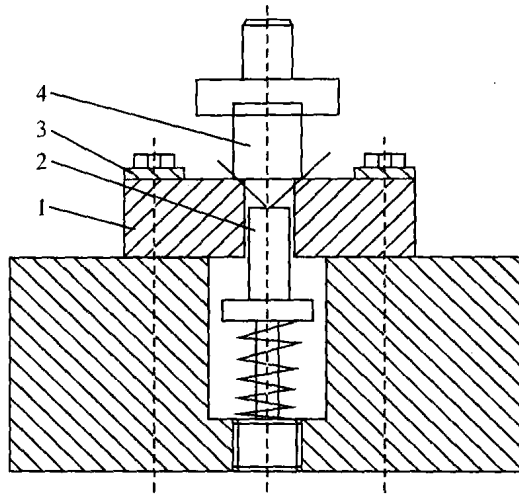


Figure 1-2 V-shape bending die

### Drawing die

Drawing is a process of changing a flat, precut metal blank into a hollow vessel without excessive wrinkling, thinning or fracturing. The various forms produced may be cylindrical or box shaped with straight or tapered sides or a combination of straight, tapered, or curved sides. The size of the parts may vary from 25mm diameter or smaller, to aircraft or automotive parts large enough to require the use of mechanical equipment.

According to the different type of punch presses, drawing die can be classified into drawing die used on the single-action punch die and drawing die used on the double-action punch die. According to the different assembly process, they can be classified into simple drawing die, compound drawing die and progressive drawing die. The drawing die can also be classified into drawing die with material pressing device and drawing die without material pressing device.

The first drawing die with material pressing device are applied to the parts whose drawing sheet is thinner; more easily wrinkled and drawing height is big. During the operation the die and the material pressing ring are lowered simultaneously, when the material pressing ring reaches the

blank, the upper parts of the die keeps lowering until ring presses the blank for drawing.

## New Words ■■■ →

pin [pin]	<i>n.</i> 支柱, 支杆
bush [buʃ]	<i>n.</i> 衬套, 套筒
composite ['kɒmpəzɪt]	<i>adj.</i> 复合的, 组合的
accurate ['ækjʊrɪt]	<i>adj.</i> 精确的, 准确的
uniform ['ju:nɪfɔ:m]	<i>adj.</i> 一致的, 均匀的
strip [stri:p]	<i>n.</i> 带状物, 长条
sheet [ʃi:t]	<i>n.</i> 板料, 板材
lap [ləp]	<i>v.</i> / <i>n.</i> 搭接
seep [si:p]	<i>v.</i> / <i>n.</i> 渗出, 渗漏
convenient [kən'vi:njənt]	<i>adj.</i> 方便的, 合适的
mount [maʊnt]	<i>v.</i> 安装, 装配
general-purpose ['dʒenərəl'pə:pəs]	<i>adj.</i> 通用的, 万能的
jacking ['dʒækɪŋ]	<i>n.</i> 顶出器
compress [kəm'pres]	<i>v.</i> 压缩, 压紧
spring [sprɪŋ]	<i>n.</i> 弹簧
hollow ['hɒləʊ]	<i>adj.</i> 空心的
vessel ['vesl]	<i>n.</i> 容器
excessive [ɪk'sesɪv]	<i>adj.</i> 过分的, 过度的
wrinkle ['rɪŋkl]	<i>v.</i> 皱纹, 使皱
cylindrical [sɪ'lɪndrɪkl]	<i>adj.</i> 圆柱的
tapered ['teɪpəd]	<i>adj.</i> 锥形的
curved [kə:vɪd]	<i>adj.</i> 弯曲的, 弧形的

## Phrases ■■■ →

single operation die	单工序模
to be composed of	由……组成
as far as... be concerned	就……而言



to take something for example	以……为例
guide pin	导柱
guide bush	导套
upper shoe	上模座
lower shoe	下模座
die set	模架
baffle plate	挡料销
lap jointed value	搭边值
guide post (pin) die	导柱式冲压
punch press	冲床, 压力机
as follows	如下
standard die sets	标准模架
roll axes	滚轴
handle for die block	模柄
by the action of	在……的作用下
hollow vessel	空心零件
single-acting	单动的
double-acting	双动的
pressed material device	压料装置

### Notes:

1. According to the process character, the mould can be classified into punching, bending, drawing and moulding dies.  
按完成的工序特征, 模具可分为冲裁模、弯曲模、拉伸模、成形模。
2. Before blanking die and blanking punch are performed, the guide pin has been directed into the guide bush so that the clearance between the punch and die are uniform during the punching stroke.  
凸、凹模在进行冲裁之前, 导柱已经进入导套, 从而保证在冲裁过程中凸、凹模之间的间隙均匀一致。
3. When punching die are working, the metal strip performs the correct positioning by the guide sheet and the baffle plate to ensure that the jointed value on the strip is uniform during punching.