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## Forging dies—Quick change die sets with X-rail guide

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# Foreword

This document is drafted in accordance with the provisions of GB/T 1.1—2020 Directives for standardization — Part 1: Structure and drafting rules of standardization documents.

Attention is drawn to the possibility that some contents of this document may involve patents. The issuing body of this document shall not be responsible for the identification of patents.

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# Forging dies—Quick change die sets with X-rail guide

## 1 Scope

This document specifies the structure and dimensions, technical requirements of X-guide rail guided quick die change die sets for forging dies, describes the corresponding test methods, and stipulates the inspection rules, marking, packaging, transportation and storage.

This document applies to the manufacture of X-guide rail guided quick die change die sets for forging dies.

## 2 Normative References

The contents of the following documents constitute indispensable clauses of this document through normative reference in the text. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191 Packaging pictorial markings for handling of goods

GB/T 230.1 Metallic materials—Rockwell hardness test—Part 1: Test method

GB/T 231.1 Metallic materials—Brinell hardness test—Part 1: Test method

GB/T 825 Lifting eye bolts

GB/T 1958 Geometrical product specifications (GPS)—Geometrical tolerancing—Inspection and verification

GB/T 3177 Geometrical product specifications (GPS)—Inspection of plain workpiece sizes

GB/T 8845—2017 Dies—Terminology

GB/T 10610 Geometrical product specifications (GPS)—Surface texture: Profile method—Rules and procedures for the assessment of surface texture

GB/T 11880 Technical specifications for die blocks of die forging hammers and large mechanical forging presses

## 3 Terms and Definitions

The terms and definitions defined in GB/T 8845—2017 and the following apply to this document.

### 3.1 main die holder

In a die set with main and auxiliary die holder structure, a die set component mounted on the press for fixing the auxiliary die holder.

[Source: GB/T 8845—2017, 2.5.2.3]

### **3.2 auxiliary die holder**

In a die set with main and auxiliary die holder structure, a die set component mounted on the main die holder for fixing the working part of the die and realizing quick die change.

[Source: GB/T 8845—2017, 2.5.2.4]

### **3.3 guide rail pillar**

A columnar component used to fix the sliding plate and ensure the motion guidance, die closing guidance and relative position accuracy of the die set.

### **3.4 sliding plate**

A plate-shaped component with high hardness or lubricating properties used to guide and align the relative positions of components between the upper die and lower die.

[Source: GB/T 8845—2017, 2.2.2.27.5]

### **3.5 X-guide rail**

Four pairs of guide components composed of sliding plates, guide rail pillars and other parts, distributed in an X-shape at the four corners of the die holder.

### **3.6 die-lifter**

A rail structure mounted on the lower main die holder, which lifts the auxiliary die holder hydraulically to facilitate pushing and pulling.

### **3.7 quick change die set with X-guide rail**

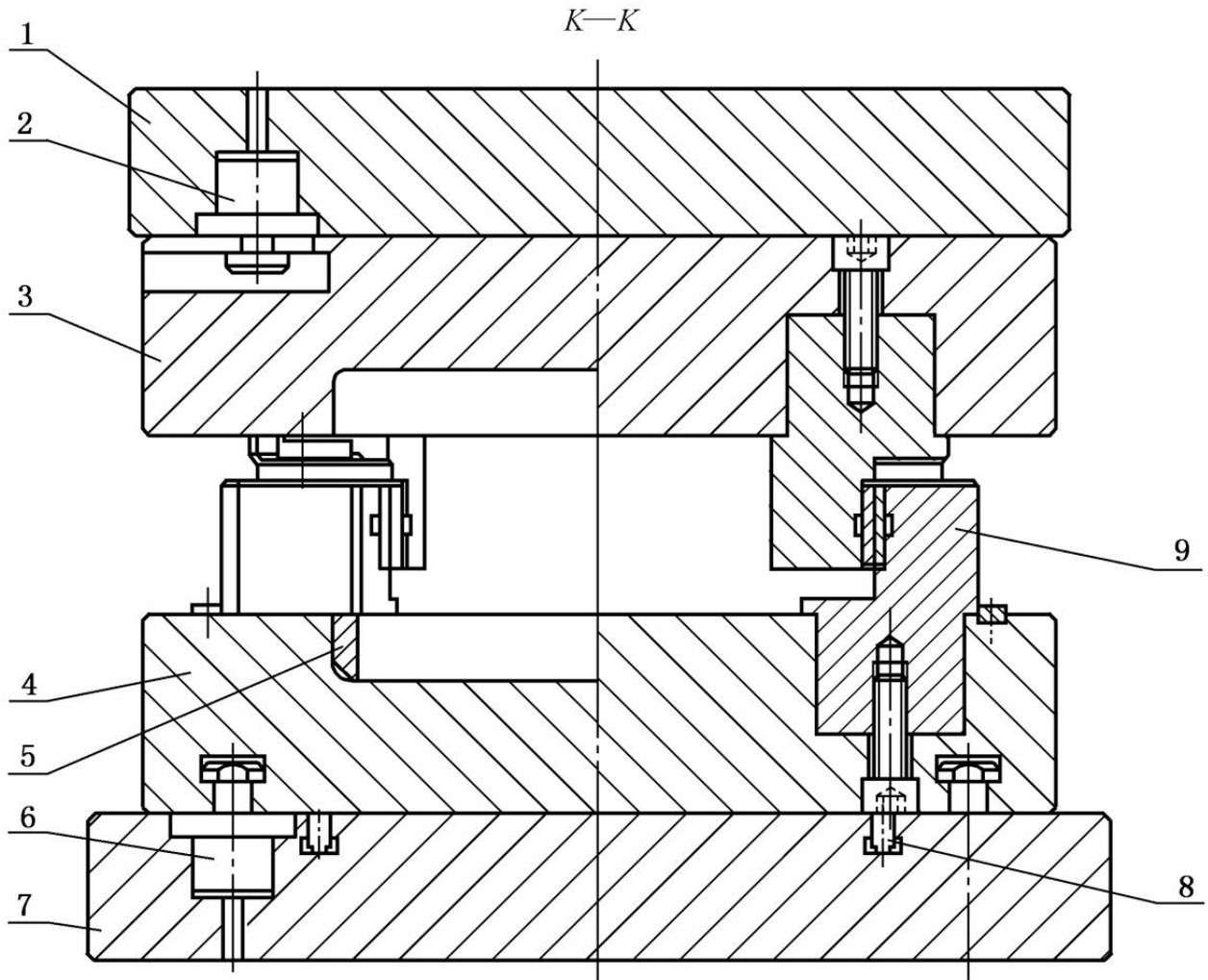
A die set that adopts X-guide rail guidance and realizes quick die change through the cooperation of mechanisms such as die-lifter and clamping cylinders.

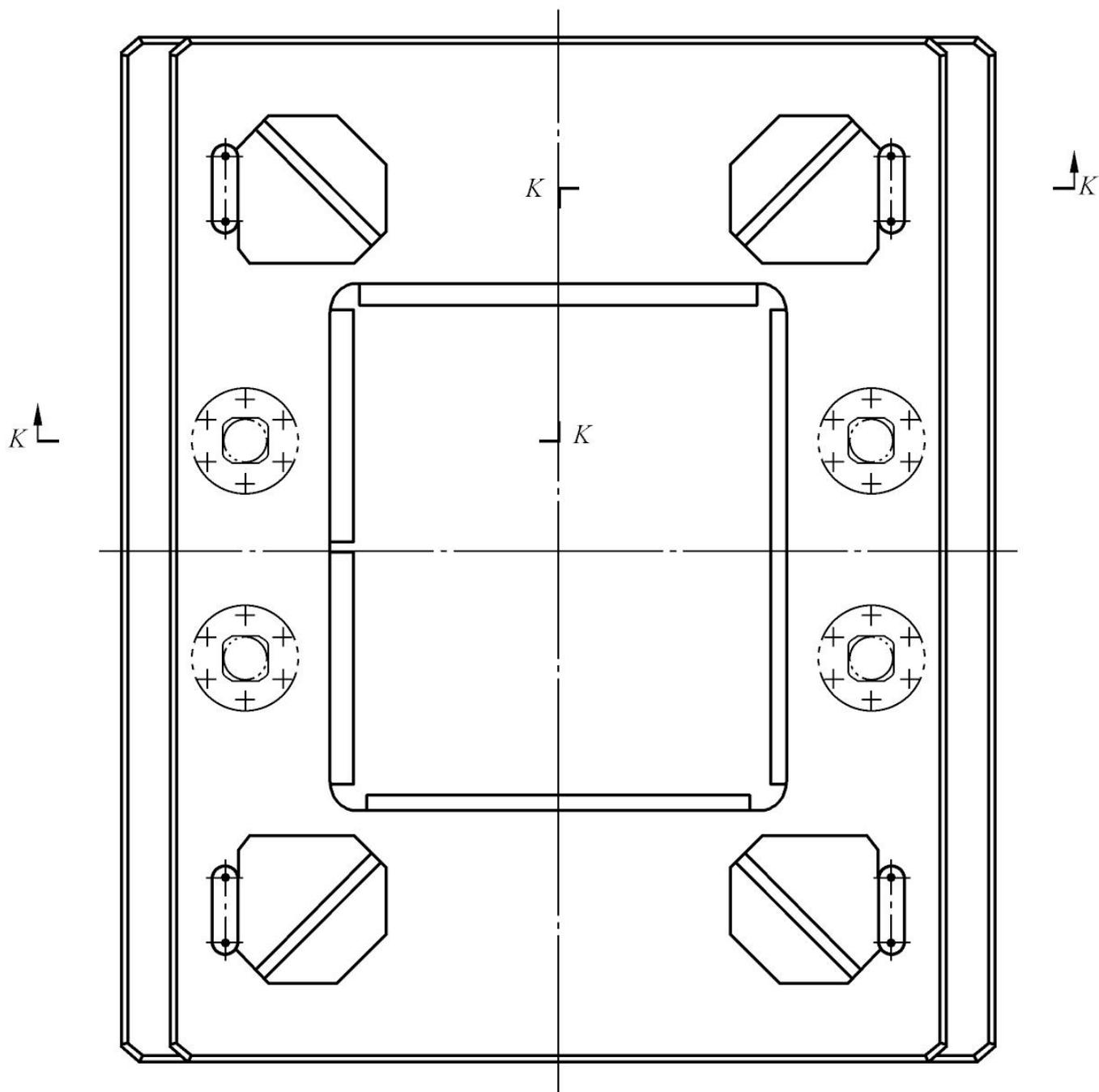
## **4 Structure and Dimensions**

### **4.1 Structure**

See Figure 1 for the schematic diagram of the structure of the quick change die set with X-guide rail.

Figure 1 Schematic diagram of quick change die set with X-guide rail





- 1 — upper main die holder;
- 2 — upper clamping cylinder;
- 3 — upper auxiliary die holder;
- 4 — lower auxiliary die holder;
- 5 — side backing plate;
- 6 — lower clamping cylinder;
- 7 — lower main die holder;
- 8 — die-lifter slide rail;

9 — X-guide rail sliding guide mechanism.