

ICS 97.180
CCS Y 50



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39542.2-2025

Replacing GB/T 39542.2-2020

**Mechanical pencils for technical drawings - Part 2: Black leads -
Classification and dimensions**

技术制图活动铅笔 第2部分：黑铅芯 分类和尺寸

(English Translation)

Issued on: May 30, 2025

Implemented on: May 30, 2025

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword
Introduction
1 Scope
2 Normative references
3 Terms and definitions

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 2 of GB/T 39542 "Mechanical pencils for technical drawing". GB/T 39542 has published the following parts.

- Part 1: Classification, dimensions, performance requirements and tests;
- Part 2: Classification and dimensions of black lead cores;
- Part 3: Bending strength of black lead core HB lead.

This document replaces GB/T 39542.2-2020 "Mechanical pencils for technical drawing - Part 2: Classification and dimensions of black lead cores" Compared with GB/T 39542.2-2020, in addition to structural adjustments and editorial changes, the main technical changes are as follows;

- a) The definitions of black lead and hardness grade have been changed (see 3.1, 3.2, 3.1, 3.2 of the 2020 edition);
- b) Change graphite lead core to clay lead core (see 3.1.2, 3.1.2 of the 2020 edition).

This document is equivalent to ISO 9177-2:2022 "Mechanical pencils for technical drawing - Part 2: Classification and dimensions of black lead cores". The following minimal editorial changes were made to this document.

--- A footnote is added to Table 2.

Introduction

Mechanical pencils are one of the most popular writing tools among consumers. Mechanical pencils are divided into general-purpose mechanical pencils according to

different usage occasions. and technical drawing mechanical pencils to meet the evolving market needs. The third edition of ISO 9177-1 in 2016 changed the main elements of the standard name to The second edition of ISO 9177-2 and ISO 9177-3 in 2022 also made the same adjustment, and the technical content is only Limited to technical drawing mechanical pencils and their leads to distinguish them from general purpose mechanical pencils.

GB/T 39542 is intended to consist of three parts.

--- Part 1: Classification, dimensions, performance requirements and tests. The purpose is to establish the quality requirements for mechanical pencils suitable for technical drawing and test methods.

--- Part 2: Classification and dimensions of black lead. The purpose is to establish the basic qualities of black lead for mechanical pencils suitable for technical drawing. Quantity requirements.

--- Part 3: Bending strength of HB black lead. The purpose is to establish the HB black lead suitable for technical drawing mechanical pencils Requirements and test methods for core bending strength.

1 Scope

This document specifies the assortment and dimensions of black leads for mechanical pencils used for technical drawing.

This document applies to two types of black lead.

---Resin lead (marked with the letter "P");

---Clay lead (marked with the letter "C").

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

ISO 128-2 Technical product documentation (TPD) General principles for drawing Part 2: Basic rules for drawing lines]

Note: GB/T 39542.1-2020 Mechanical pencils for technical drawing Part 1: Classification, dimensions, performance requirements and tests (ISO 9177-1:2016, IDT)

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in ISO 9177-1 and the following apply.

ISO and IEC maintain terminology databases used for standardization at the following websites.

3.1 Black lead

A solid writing material containing carbon (such as graphite) and a binder.

NOTE: The black line produced by the lead is erasable.

3.1.1 Resin lead polymer lead

Black lead with an organic polymer as binder.

3.1.2 Clay Lead

Black lead with clay as binder.