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

DB/T 8.2-2020

**Specification for the construction of seismic station - Crustal
deformation station - Part 2: Crustal tilt and strain observatory
in borehole**

(English Translation)

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Foreword

This part of DB/T 8 is one of the series of standards in the "Code for the Construction of Seismic Stations". The standard structure and name of the series are as follows.

- Seismic station construction specification gravity station (DB/T 7-2003);
- Seismic station construction specification topographic deformation station part 1.cavern ground tilt and ground strain station (DB/T 8.1-2003);
- Seismic station construction specification topographic deformation station Part 2: Borehole ground tilt and ground strain station (DB/T 8.2-2020);
- Seismic station construction specification topographic deformation station part 3.fault deformation station (DB/T 8.3-2003);
- Seismic station construction specification geomagnetic station (DB/T 9-2004);
- Seismic station construction specification for seismic station (DB/T 16-2006);
- Seismic station construction specification strong motion station (DB/T 17-2018);

---Seismic station construction specification. Geostationary station Part 1: Georesistivity station (DB/T 18.1-2006);

---Seismic station construction specification. Geostationary station. Part 2: Geoelectric field station (DB/T 18.2-2006);

---Seismic station construction specification, global positioning system continuous observation station (DB/T 19-2006);

---Seismic station construction specification, underground fluid station part 1.water level and water temperature station (DB/T 20.1-2006);

---Seismic station construction specification, underground fluid station part 2.gas radon and gas mercury station (DB/T 20.2-2006);

---Seismic station construction standard earthquake intensity quick report and early warning station (DB/T 60-2015);

This part is part 2 of DB/T 8.

This section is drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Part 1: Standard Structure and Compilation".

This part replaces DB/T 8.2-2003.Compared with DB/T 8.2-2003, the main technical changes are as follows.

---Modified some of the technical requirements of the observation site, and added the requirements of the working conditions of the observation site and comprehensive observation requirements;

---Modified some technical requirements for drilling, deleted technical requirements involving soil holes, and added technical requirements for drilling ground;

---Modified some technical requirements for the recording room, main observation equipment and auxiliary observation equipment;

---Deleted the content and technical requirements of the comprehensive observation pier;

---Added technical requirements for equipment installation and trial operation;

---Modified the technical requirements of archived materials, added observation site and drilling survey and selection report, drilling construction report, and lithology test of measurement section Content requirements for materials such as inspection reports, instrument installation reports, and station trial operation reports.

This part was proposed by the China Earthquake Administration.

This part is under the jurisdiction of the Earthquake Monitoring and Prediction Standardization Technical Committee.

Drafting organizations of this part. Institute of Crustal Stress, China Earthquake Administration, Hubei Provincial Earthquake Administration, China Seismological Network Center, China Earthquake Administration Monitoring center.

1 Scope

This part of DB/T 8 specifies the observation site, borehole construction and recording of the seismic crustal deformation observation borehole ground tilt and ground strain station Technical requirements in terms of room, equipment configuration, equipment installation and trial operation, and archiving materials.

This section is applicable to the construction of borehole ground tilt and ground strain stations for seismic monitoring.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 19531.3-2004 Technical requirements for the observation environment of seismic stations Part 3: Crustal deformation observation GB 50011-2010 Code for seismic design of buildings GB/T 50266-2013 Engineering rock mass test method standard DB/T 31.1-2008 Technical Requirements for Seismic Observation Instruments Access to the Network Crust Deformation Observer Part 1: Inclinator DB/T 31.2-2008 Technical requirements for the access of seismic observation instruments to the network. Crustal deformation observation instruments. Part 2: Strain gauges DB/T 40.1-2010 Technical Requirements for Seismic Network Design Crustal Deformation Observation Network Part 1: Fixed Station Deformation Observation Network DB/T 45-2012 Earthquake Crustal Strain Observation Method Ground Tilt Observation DB/T 54-2013 Seismic crustal strain observation method borehole strain observation DB/T 68-2017 Comprehensive lightning protection for seismic stations

3 Terms and definitions

The following terms and definitions apply to this document.

An instrument installed in a borehole (shaft) to measure changes in ground tilt over time.

An instrument installed in a borehole (shaft) to measure the strain of the earth's crust over time. According to the working principle, it is divided into component strain gauge and volumetric strain gauge.

[GB/T 18207.2-2005, definition 8.1.13] 3.3 3.4 DB/T 8.2-2020

4.1 Requirements for basic working conditions

4.1.1

It shall have continuous and stable power supply conditions and meet the requirements of instrument operation.

4.1.2

It shall have continuous and stable communication conditions and meet the data transmission requirements.

4.1.3

The conditions for safety protection shall be met.

4.1.4

It is advisable to have convenient transportation to meet the needs of timely maintenance.

4.2 Geological structure requirements

4.2.1

The observation site should be selected on both sides of the active fault zone, but the fault fracture zone should be avoided.

4.2.2

The stratum dip angle should not be greater than 40°, the rock mass is complete, and the rock structure is uniform and compact.

4.2.3

The abnormally high temperature area of geothermal should be avoided.

4.2.4

Should avoid the strong Jingliu area of groundwater.

4.2.5

Should avoid underground karst development areas.

4.3 Observation environment requirements

4.3.1

The observation site should avoid alluvial fans, alluvial fans, flash flood channels, vents, and areas vulnerable to lightning strikes.

4.3.2

Development planning areas that have an impact on borehole ground tilt and borehole strain observation should be avoided.