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**DZ**

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

**DZ/T 0276.29-2015**

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**Regulation for testing the physical and mechanical properties  
of rock. Part 29: Test for determining the strength of rock  
mass(Bearing plate method)**

岩石物理力学性质试验规程 第29部分：岩体强度试验（承压板法） 清晰版  
**(English Translation)**

**Issued on: February 4, 2015**

**Implemented on: April 1, 2015**

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**Issued by: Ministry of Land and Resources**

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### Foreword

DZ/T 0276 "Testing Procedures for Physical and Mechanical Properties of Rocks" is divided into 31 parts.

- Part 1. General and general provisions;
- Part 2. Rock moisture test;
- Part 3. Rock particle density test;
- Part 4. Rock density test;
- Part 5. Rock water absorption test;
- Part 6. Rock hardness test;
- Part 7. Rock gloss test;
- Part 8. Rock antifreeze test;
- Part 9. Rock resistance to disintegration test;
- Part 10. Rock expansion test;
- Part 11. Rock erosion test;
- Part 12. Rock acid and alkali resistance test;
- Part 13. Rock specific heat test;
- Part 14. Rock thermal conductivity test;
- Part 15. Rock breakdown voltage and breakdown strength test;
- Part 16. Rock volume resistivity and surface resistivity test;

- Part 17. Rock radioactivity specific activity test;
- Part 18. Rock uniaxial compressive strength test;
- Part 19. Rock uniaxial compression deformation test;
- Part 20. Rock triaxial compression strength test;
- Part 21. Rock tensile strength test;
- Part 22. Rock flexural strength test;
- Part 23. Rock point load strength test;
- Part 24. Rock acoustic wave velocity test;
- Part 25. Rock shear strength test;
- Part 26. Rock mass deformation test (bearing plate method);
- Part 27. Rock mass deformation test (drilling deformation method);
- Part 28. Rock mass strength test (direct shear test);
- Part 29. Rock mass strength test (bearing plate method);
- Part 30. Rock bolt load test;
- Part 31. Rock sound wave velocity test.

This part is part 29 of DZ/T 0276.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part is proposed by the Ministry of Land and Resources of the People's Republic of China.

This part is under the jurisdiction of the National Land Resources Standardization Technical Committee (SAC/TC93).

## 1 Scope

This part of DZ/T 0276 specifies the strength of rock mass by the pressure plate method.

This part is applicable to rock mass strength bearing plate test of Grade III and below in rock physical and mechanical properties test.

## 2 Principle

The compressive strength of the rock mass is measured by applying pressure to the surface of the rock mass in the semi-infinite space through a rigid bearing plate.

### **3.1 Pilot selection**

The direction of the pilot force should be consistent with the actual direction of the engineering rock mass.

### **3.2 Bearing plate requirements**

#### **3.2.1**

The pressure plate is rounded with a diameter of 300 mm.

#### **3.2.2**

The distance from the edge of the pilot to the edge of the cave wall should be greater than 1.5 times the diameter of the bearing plate, and the distance from the hole or the face should be greater than the diameter of the bearing plate.

2 times, the distance to the air surface should be greater than 6 times the diameter of the bearing plate, and the pilot spacing should be greater than 3 times the diameter of the bearing plate.

#### **3.2.3**

The lithology within the diameter of the 3x bearing plate below the pilot surface should be the same.

#### **3.2.4**

The disturbed rock mass of the pilot surface should be cleaned up.

#### **3.2.5**

The pressure bearing surface shall be flattened and ground with a grinding wheel, and the undulation difference shall be less than 1% of the diameter of the bearing plate. 1.5 times the pressure plate outside the pressure surface the surface of the rock mass should be flat in the diameter range without loose blocks.

## **4 General regulations**

### **4.1**

Rigid bearing plate test The installation of the pressurization system and the force transmission system shall comply with the following requirements.

a) Clean the pilot surface, lay a layer of cement slurry, place a rigid bearing plate and squeeze out the excess cement slurry to make the bearing plate parallel test table surface. The thickness of the cement slurry should be less than 1% of the diameter or side length of the bearing plate.

b) The rigid bearing plate should not be moved until the test is completed.

- c) The bearing plate should meet the stiffness requirements. The thickness of the single bearing plate should not be less than 6cm. When the stiffness is insufficient, stack steel plates or the way of the force transmission box improves the rigidity of the bearing plate.
- d) Install jacks, force transmission columns and steel backing plates on the bearing plate in turn, fill mortar between the steel backing plates and the rock mass or install reaction devices (such as

Figure 1).

- e) Apply contact pressure to make the entire system in close contact.
- f) The entire system should have sufficient stiffness and strength, the center of all components should be kept on the same axis, the axis should be in the direction of pressurization Consistent.