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Code for construction and acceptance of coal mine preparation equipment installation engineering

煤矿选煤设备安装工程 施工与验收规范

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1 General provisions

1.0.1 This specification is formulated to ensure the construction quality of coal preparation equipment installation engineering, unify the construction and acceptance standards of coal preparation equipment installation engineering, promote the advancement of installation technology, and ensure the safe operation of equipment.

1.0.2 This specification applies to the construction and acceptance of coal preparation equipment installation engineering.

1.0.3 The construction and acceptance of coal preparation equipment installation engineering shall comply with the provisions of relevant national standards in addition to complying with this specification.

3 Basic regulations

3.0.1 The construction site shall be equipped with corresponding technical standards and construction technical documents approved by the technical person in charge of the unit, and shall be provided with a sound quality management system, quality control and inspection system.

3.0.2 The installation engineering of coal preparation equipment shall be constructed according to the design documents. When the design drawings need to be modified during construction, there shall be a design change notice or technical approval certificate provided by the design unit.

3.0.3 Welders shall pass the examination and obtain a qualification certificate, and perform welding within the approved scope of the items for which they have passed the examination.

3.0.4 The installation of coal preparation equipment shall be carried out according to the prescribed procedures; the relevant professional trades shall be handed over and inspected, and records shall be kept; each process shall be subject to quality control according to the construction technical standards, and after each process is completed, it shall be inspected and a construction record shall be kept. The next process cannot be carried out without inspection and approval of the previous process.

3.0.5 Before installing the equipment, the following inspections and acceptances shall be carried out:

1 Packing list, product certificate, product use and maintenance instructions, product testing and inspection report, equipment installation diagram and other equipment accompanying technical documents;

2 Equipment appearance including corrosion, deformation and damage;

3 Accompanying components such as various parts, components, accessories and special tools.

3.0.6 Before installing the equipment, the equipment foundation shall be inspected and accepted. The equipment foundation inspection and acceptance shall include the foundation cross line, foundation elevation, main reserved bolt hole position and depth, main embedded parts position, embedded bolt position deviation, and whether the foundation surface quality meets the installation requirements.

3.0.7 The materials used in the installation engineering shall comply with the requirements of the design and product standards and shall have a certificate of conformity. The materials shall be inspected and accepted before installation and records shall be kept. New materials or new equipment used in the equipment installation engineering shall be provided with appraisal certificate or test report.

3.0.8 Before equipment foundation grouting and other concealed works are concealed, the construction unit shall notify the relevant units for acceptance and a concealed work acceptance document shall be formed.

3.0.9 The quality acceptance of coal preparation equipment installation engineering shall be carried out according to subdivision work, divisional project and unit project, based on the self-inspection of the construction unit and the qualified pre-acceptance of the supervision unit. The division of unit project, divisional project and subdivision work shall comply with the provisions of Appendix A of this Code. Quality acceptance shall be carried out in accordance with the relevant provisions of the current national standard *Unified standard for constructional quality acceptance of industrial installation engineering* GB 50252.

3.0.10 The quality acceptance record of equipment installation engineering shall comply with the following provisions:

1 The quality acceptance record of subdivision work shall be carried out in accordance with Appendix B of this Code;

2 The quality acceptance record of divisional project shall be carried out in accordance with Appendix C of this Code;

3 The quality acceptance record of unit project shall be carried out in accordance with Appendix D of this Code;

4 The equipment no-load test run records shall be carried out in accordance with Appendix E of this Code;

5 The perceptual quality acceptance record of unit project shall be carried out in accordance with Appendix F of this Code;

3.0.11 The perceptual quality inspection items of unit project shall comply with the following provisions:

1 Nuts and washers shall be fully configured as designed. After tightening, the nuts shall be exposed 2 ~ 3 pitches from the bolts, and the exposed threads shall be free of damage.

2 The sealing shall be free of oil leakage, water leakage and air leakage;

3 Pipeline laying shall be arranged reasonably and neatly;

4 The thickness of the sound insulation and thermal insulation materials shall be uniform, the binding shall be firm, and the surface shall be flat;

5 The thickness of the anti-corrosion coating shall be uniform and the surface shall be smooth;

6 Platforms, ladders and railings shall be securely fixed and free of obvious appearance defects;

7 Welds shall be even, and welding slags and spatters shall be cleaned;

8 The incision shall be free of slag;

9 The equipment shall be free of damage and the processed surface shall be well protected;

10 The equipment shall be managed in an orderly manner and there shall be no debris around it.

3.0.12 The installation and grouting of foundation bolts and washers of coal mine preparation equipment, the assembly of couplings, bearings, transmission belts and chains, seals, and the installation of hydraulic, pneumatic and lubrication pipelines shall be carried out in accordance with the relevant provisions of the current national standard *General code for construction and acceptance of mechanical equipment installation engineering* GB 50231.

3.0.13 For the acceptance of coal mine preparation equipment installation engineering, all dominant items shall be inspected, and general items, where the number of inspections is not specified, shall be inspected based on 30% of the total number of installed equipment, which shall not less than 1 unit.

3.0.14 The acceptance of equipment installation engineering shall comply with the following provisions:

1 The supervising engineer or the project technical leader of the development unit shall organize the project professional technical leaders and quality inspectors of the construction unit to conduct inspection and acceptance of the subdivision work;

2 The general supervising engineer or the project leader of the development unit shall organize the project leaders and technical and quality leaders of the construction unit to conduct inspection and acceptance of the divisional project;

3 After the completion of the unit project, self-inspection shall be carried out, and a project acceptance report shall be submitted. The project manager of the development unit shall organize the project leaders of the construction, design, supervision and other units to conduct inspection and acceptance of the unit project.

3.0.15 It is strictly prohibited to accept the installation engineering if the quality of the engineering does not meet the requirements and still cannot meet the safety requirements after processing or rework.

3.0.16 During the operation of mechanical equipment, the bearing temperature rise and maximum temperature of each component shall comply with the following provisions:

direction of the equipment. The wet grinder grease injection device shall be sprayed first; the tooth surface of the large gear shall be sprayed (or coated) with grease;

2 The safety device shall be adjusted and tested according to the provisions of the equipment technical documents;

3 The meshing of the gear pair, chain and sprocket shall be smooth and without abnormal sound;

4 The transmission belt shall not slip, and the running deviation distance of the flat belt shall not exceed the design requirements;

5 All rotating and moving parts shall operate smoothly without any abnormality; the lining plate shall not be loose or make any abnormal noise;

6 After the lubricating, hydraulic, pneumatic and cooling system pipelines are installed, they shall be flushed first and then pressure tested. They shall work normally and there shall be no leakage;

7 The no-load continuous test run time shall be 4 hours, and the gyratory, cone and reversible hammer crushers shall be rotated forward and reversely for 2 hours each;

8 The inlet temperature of the hydraulic pump shall not exceed 60 ℃ and shall not be lower than 15 ℃.

5.8.2 The test run of hammer crusher shall comply with the following provisions:

1 The rotor shall run smoothly without obvious swing;

2 The amplitude of vibration on the bearing seat shall not be greater than 0.2 mm.

5.8.3 The test run of jaw crusher shall comply with the following provisions:

1 Before the test run, the connecting rod shall be in the highest position;

2 During the test run, the whole machine shall have no obvious vibration. When the equipment power is less than 100 kW, the jerk value shall not be greater than 2 mm; when the equipment power is greater than 100 kW, the jerk value shall not be greater than 3 mm.

5.8.4 During the test run of the impact crusher, the bidirectional amplitude on the rotor bearing seat shall not be greater than 0.2 mm.

5.8.5 During the test run of the ball mill, the amplitude of the reducer shall not be greater than 0.05 mm, the amplitude of the transmission shaft shall not be greater than 0.08 mm, and the vibration amplitude of the main bearing shall not be greater than 0.08 mm.

5.8.6 The test run of gyratory crusher shall comply with the following provisions:

6 Installation work of screening equipment

6.1 Installation of base-type vibrating screen for mine

6.1.1 The springs, before installed, shall be matched according to the actual stiffness value marked; the compression of the two sets of springs at the feeding end or the discharging end shall be consistent.

6.1.2 The center lines of the corresponding grooves of the two belt wheels shall coincide, and the tightness of the triangular belt shall be consistent.

6.1.3 The connecting bolts of the screen box and screen plate shall be firmly connected, and the fixing blocks pressing the screen plate shall be securely fixed.

6.1.4 There shall be no collision between the screen body and the feed chute, discharge chute, and under-screen funnel during operation.

6.1.5 Transmission belts and pulleys shall be equipped with safety protective covers.

6.1.6 The unbalanced weight on the flywheel shall be securely fixed.

6.1.7 When installing a suspended screen, the tension of the four steel ropes shall be uniform.

I Dominant items

6.1.8 The amplitude deviation of corresponding points on both sides of the vibrating screen box shall not exceed 10% of the rated working amplitude and shall not be greater than 1 mm.

Inspection method: Visually inspect the amplitude plate on the side of the screen box and check with a vibration meter.

6.1.9 The verticality deviation of the vibrator mounting frame (beam) shall not be greater than 1/1000, and the allowable flatness deviation of the joint surface with the vibrator shall not exceed 0.2 mm per square meter.

6.1.10 The allowable deviation of the horizontality of the transmission shaft shall not be greater than 0.2/1000.

Inspection method: level-meter inspection.

II General items

6.1.11 When installing the screen box (frame) and screen plate (mesh), the distance between the bottom edge of the hopper and the plane of the screen plate shall meet the design requirements; if there are no design requirements, the minimum distance shall not be less than 75 mm and the maximum shall not be greater than 500 mm.

13 Installation of industrial pump

13.1 Installation of centrifugal pump

13.1.1 Centrifugal pumps should not be disassembled during the anti-rust warranty period after leaving the factory. When the anti-rust guarantee period has expired or there are obvious defects that require disassembly, disassembly, cleaning and inspection shall comply with the provisions of the equipment technical documents, but pipeline pumps and coaxial pumps should not be disassembled; when there are no regulations, the following provisions shall be met:

1 The impeller parts shall be removed and cleaned, and the impeller shall be free of damage;

2 The cooling water pipeline shall be cleaned and kept unobstructed.

13.1.2 The cleaning and inspection of centrifugal pumps shall comply with the following provisions:

1 The main parts, components and auxiliary equipment, center dividing surface and end faces of set parts and components of the pump shall not have scratch and scratches;

2 The surface of the shaft shall not have cracks, crushing marks or other defects;

3 After cleaning, remove moisture, apply lubricating oil to the surface of parts and equipment, and place them in the order of assembly;

4 The vertical center surface of the pump casing should not be disassembled or cleaned.

13.1.3 The pump shaft movement shall comply with the provisions of the equipment technical documents; the thickness of the original gaskets between the planes of each stage of the multi-stage pump shall not be changed.

13.1.4 When turning manually, the connection between the pump and the motor shall be reliable; the turning shall be flexible; there shall be no abnormal sound.

13.1.5 The installation position and inlet and outlet directions of the valve shall be correct; the connection shall be firm and tight; the opening and closing shall be flexible; the direction of the hand-wheel and handle shall be reasonable.

I Dominant items

13.1.6 The axial levelness of the pump body shall comply with the following requirements:

1 For water pumps with motor power less than 40 kW, the allowable deviation of levelness shall not be greater than 1.0/1000;

14.2.4 The overall flatness allowable deviation of the cathode frame shall not be greater than 15 mm, and the overall diagonal allowable deviation shall not be greater than 10 mm.

Inspection method: ruler inspection.

14.2.5 For electrostatic dust remover with anode plate height less than or equal to 7 m, the allowable deviation of the distance between the cathode and anode shall not be greater than 5 mm; for electrostatic dust remover with anode plate height greater than 7 m, the allowable deviation of the distance between the cathode and anode shall not be greater than 10 mm.

Inspection method: ruler inspection.

14.3 Installation of field-assembled bag-type dust collector

14.3.1 The outer shell shall be tight and leak-free, and the bag interface shall be firm; the short tube and bag cap connected to the filter bag shall be free of burrs.

14.3.2 The rotation of the rotary arm of the mechanical rotary flat bag dust collector shall be flexible and reliable, and there shall be no jamming.

14.3.3 The filter bags of the chamber back-blowing bag dust collector shall be installed straight, and the tension of each filter bag shall be maintained at 25 N/m ~ 35 N/m.

Inspection method: Observation inspection, dynamometer testing.

14.3.4 The injection hole of the pulse bag dust collector shall be aligned with the center of the Venturi tube, and the allowable concentricity deviation shall not be greater than 2 mm.

Inspection method: observation and ruler measurement.

14.4 Installation of air purifying equipment for cleaning room

14.4.1 Vibration isolation pads shall be installed between the airlock room and shower room with ventilator and the ground.

14.4.2 The transfer window shall be installed firmly and vertically, and the connection with the wall shall be sealed.

14.4.3 When installing a mechanical residual pressure valve, the rotating shafts of the valve body and valve plate shall be horizontal, and the allowable deviation shall not be greater than 2.0/1000.

Inspection quantity: Full inspection.

Inspection method: level-meter inspection.

14.5 Installation of assembly-type cleaning room

14.5.1 The floor of the clean room shall be dry and flat.

14.5.2 The clean room ceiling shall remain straight after being loaded, and the pressure strips shall be tightly attached. When the clean room wall panels are upper and lower trough-shaped panels, their joints shall be flat and tight; all joints in the installed clean room, including the joints with the building, shall be sealed to prevent them from falling off and to ensure good sealing.

14.5.3 The allowable deviation of the verticality of the wall panel shall not be greater than 2.0/1000, and the allowable deviation of the levelness of the top plate shall not be greater than 1.0/1000.

Inspection method: level-meter inspection.

14.6 Installation of cleaning laminar flow hood

14.6.1 The laminar flow hood shall be equipped with an independent suspension rod and shall have anti-sway fixing measures.

14.6.2 The laminar flow hood shall be installed on the suspended ceiling, and sealing and vibration isolation measures shall be provided between its periphery and the top plate.

14.6.3 The allowable deviation of the levelness of the laminar flow hood installation shall not be greater than 1.0/1000, and the allowable deviation of the elevation shall not be greater than ±1 mm.

Inspection method: ruler and level-meter inspection.

14.7 Installation of fan filter unit

14.7.1 Before installing the high-efficiency filter of the fan filter unit, it shall be leak-tested according to the product technical documents or design requirements and the direction shall be correct.

14.7.2 Sealing measures shall be taken between the fan box and the filter, and between the filter unit and the ceiling frame.

14.7.3 The allowable deviation of the levelness of the fan filter unit shall not be greater than 1.0/1000.

Inspection method: check with level-meter.

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