

QWISE-HJ-ZYYYZDS-2019

Company Standard

Hunan WISE New Material Technology Co., Ltd.

Steel Bonded Carbide sub-factory

Automatic profile press forming process

Operating instructions

Approved by : Zhaohui LIU Prepared by: Liyun Yun Xing Wang

Checked by Technical Dept : Yizhong Zhang and Yongshen Gong

Checked by Sub-Factory: Zhengchen Xu and Zhengdao Xiao

August 1, 2019 Release

August 1, 2019 Effective

Hunan WISE New Material Technology Co., Ltd. Release

QWISE-HJ-ZYYYYZDS-2019

Company Standard

Hunan WISE New Material Technology Co., Ltd.

Steel Bonded Carbide sub-factory Operating instructions

Automatic profile press forming

1 main raw and auxiliary materials

1.1 Main raw materials: mixed materials of various grades.

1.2 Main auxiliary materials: foam, lubricating oil.

2 major equipment and tools

2.1 Main equipment: 15 tons Dow press, 25 tons single injection hydraulic press.

2.2 Main tools: micrometer, caliper, balance, special wrench, steel ruler.

3 job quality requirements

3.1 Operate in strict accordance with the equipment safety technical regulations.

3.2 The billet single weight and size shall not exceed the range specified in the “Self Pressure/Differential Pressure Process Condition Card”.

3.3 The appearance of the compact can not have the phenomenon of delamination, crack, serious falling edge, deformation, sticking and so on.

3.4 The contents of the production transfer card are correctly filled out, so that the production plan, production transfer card and physical object are one-to-one correspondence, and no mistake can be made.

4 steps and essentials

4.1 Mold pressure test

The newly-entered mold or the mold that has been repaired into the cavity must be tested within 5 working days. It is urgent to test the mold within 2 working days of the mold. Test 3~5 pieces of compacts, judge whether the new abrasive tools or the molds of the repaired cavity are qualified after trial burning, and determine the process parameters such as single weight and size of the large-scale production of the molds. If it is unqualified, fill in the mold pressure test information feedback sheet together with the unqualified mold and return to the mold branch factory, and carefully fill out the "Differential pressure group mold pressure test record book".

4.2 Preparation before pressing and press adjustment

4.2.1 Find the mold of the type to be pressed and the “self-pressing/expressing process condition card” according to the production plan. It is required that the stopper of the isostatic mold cannot have cracks.

4.2.2 Carefully check the measuring instruments: micrometer, caliper, and equal.

4.2.3 Self-pressing machine jog debugging

4.2.3.1 Booting

Turn on the press power supply and the compressed air source, turn the shape selection switch to the jog operation state, turn off all auxiliary action switches, open the control loop switch, and start the motor.

Management focus: When the power indicator light is on and the motor start motor light is on, all auxiliary actions should be turned off to prevent the preload action from damaging the mold.

4.2.3.2 Electric adjustment of the filling height, pressing stroke, pull-down stroke and pressing stroke of the mold, the front and rear position of the pusher plate, and whether the bonded felt can be pushed out intact. Set the appropriate overpressure protection pressure and pressing speed according to the "Self Pressure/Differential Pressure Process Condition Card".

Management focus:

1 When the press is in the press stroke, the pull-down stroke cannot be adjusted.

2 The pull-down stroke cannot be adjusted too much. Otherwise, the mold cavity will contact the lower punch base when the mold is pulled down, which will damage the grinding tool.

3 Normally the pressing stroke is adjusted at the demolding position or at the end of the press stroke.

4.2.3.3 Jog pressure test

Each press hopper is fed and covered with a material cover. Connect the pusher gas source, adjust the press stroke, and rotate the size adjustment handwheel to make the billet single weight and size meet the requirements of "self-pressure/express pressure process condition card".

Management focus:

1 Do not pull the pusher box on the front of the press.

2 When the upper punch enters the cavity for the first time, apply the handwheel to adjust the entry and check if the punch is positive.

3 The pressing stroke of the first model product should be small to prevent the press from being crushed. When the cavity begins to press the stroke, the upper punch should enter the cavity about 1~2mm.

4 For the compacted blank, the thickness of the upper straight edge should be controlled within 0.15~0.4mm.

4.2.3.4 Adjusting the pressure display

Usually the pressure control zone should be adjusted to $\pm 30\%$ of the normal production pressure. When the above-mentioned debugging parameters meet the requirements of the "self-pressing / iso-pressure process condition card", the blank is determined to be qualified, and it can be converted into mass production.

4.2.4 Different press debugging

Start the hydraulic pump before pressing, let the plunger of the press run up and down 3~5 times, try to make the air in the hydraulic oil completely drain. Test the pressure of 2~5 pieces of blanks to determine whether the height of the limiter is correct, check whether the single weighing of the blank is accurate, and whether the appearance is unqualified. The single weight and size of the compact shall meet the requirements of the "self-pressure / iso-pressure process condition card".

Management focus:

1 When sending a mold, it is strictly forbidden to put your finger on the top of the punch or under the base. The stamper must be flattened and pressed until the stamper is placed flat.

2 When pressing, it is strictly forbidden to put two sets of molds at the same time to suppress or two people to press.

3 Do not violently knock the mold when loading or demoulding to prevent iron filings from injuring people.

4.3 Mass suppression

After the end of the pressure test, it is converted into continuous batch pressing. It is required that the blank weight and size fluctuation of each blank in the continuous pressing process should be no less than 6 times to 10 times. The problems found during the spot check should be adjusted in time.

Management focus: Control the compact in strict accordance with the "self-pressure / iso-pressure process condition card". Keep the energy concentrated during the pressing process, and beware of the injury.

4.4 compact placement

The compact is placed neatly in the boat pan by hand, and the compact which is not required to be half-checked is placed directly in the graphite boat with the paint applied. For compacts that need to be semi-inspected, semi-added or reloaded, the compacts should be placed in iron pans or general graphite boats. The blanks should be placed at a distance of less than 2 cm from the edge of the plate. The product transfer card should be filled correctly and correctly. Place the number in the tray and press the card with 1~2 blanks.

Management focus: When pressing the blank, it should be handled gently and placed on the boat plate at intervals. It is not allowed to reach into the pressing area when the upper punch is descending.

4.5 Compaction transfer

After each pressing of a blank, move it to the console or product transfer in time.

4.6 End of suppression

1) The self-pressing machine is shut down in accordance with the "Donster 15 ton press safety technical regulations", and the iso-pressure machine is shut down according to the "25 ton single-injection hydraulic machine safety technical regulations".

2) The waste compact, table top and floor fabrics are classified into the specified barrels, and the clean pellets that have not been used up by pressure and pressure are poured into the raw material barrels, and all the material barrels are covered.

3) Do a good job in equipment hygiene and production site civilized hygiene, and pack up measuring instruments and tools. It is necessary to semi-check and semi-add the half-pressed blanks, and perform semi-inspection and processing according to the drawings. The semi-inspected and processed products can be transferred to the next process after being confirmed by the process supervision and inspection (seal).

4) Fill in the "Differential Pressure Group Production Record Book" and "Transfer Class Record Book", including the suppression of production, the use of raw material grades (batch number), the quality of the blanks, the operation of the press, and other precautions.

Approved by : Zhaohui LIU

Prepared by: Liyun Yun Xing Wang

Checked by Technical Dept : Yizhong Zhang and Yongshen Gong

Checked by Sub-Factory: Zhengchen Xu and Zhengdao Xiao

August 1, 2019 Release

August 1, 2019 Effective

Hunan WISE New Material Technology Co., Ltd. Release