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Polishing instruction for Plastic-Mould-Steel grades

Step one: Oil stone rough grinding

1. See below listed the oil stone number from rough to fine:

120# → 180# → 240# → 280# → 320#;

2. Practical hints for rough grinding:

- (1). Don't put too much pressure on the work-piece in order to avoid friction heat, because this will cause microstructure transformation and also avoid deep trace on the mold surface;
- (2). Avoid the mold cavity surface forming thick plastic deforming area;
- (3). Change the grinding direction in 45 ° to the previous grinding direction, when changing to the next oil stone.
- (4). Clean the mold and oil stone frequently during grinding;
- (5). The work-piece and hands should be cleaned carefully between each change of oil stone in order prevent a coarse abrasive particle and dust.

Step two: Abrasive paper fine grinding

1. See below listed the abrasive paper number from rough to fine:

320# → 400# → 500# → 600# → 800# → 1000# → 1200# → 1500# → 2000#

(if Mirror Polishing add → 2500# → 3000#) ;

2. Practical hints for fine grinding:

- (1). Use a bamboo stick to press the abrasive paper on the work-piece to grind, single direction grinding with suitable pressure until the surface only shows scratches from the present grinding step (observe with a loupe).
- (2). Change the grinding direction in 45 °, when changing another abrasive paper.
- (3). Reduce the polishing pressure after changing the abrasive paper number.
- (4). Change the new abrasive paper in time

Step three: Polishing

1. See below listed the number of Diamond polishing paste:

(7#) → 5# → 3# → 1#;

2. Practical hints for Polishing:

- (1). Clean the mold surface completely;
- (2). Stop polishing immediately after the grinding trace has completely disappeared and then clean the polished surface with water or coal oil.



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Remarks:

- (1). If possible, make a clear request to the roughness of the mold surface after fine machining or EDM in order to shorten the total grinding & polishing time and assure the polishing quality;
- (2). If polishing defects (such as pin hole, spot, orange skin etc) appear during the grinding steps(rough- or fine grinding), grinding must be stopped immediately as continuous grinding can not remove defects. It is necessary to change to the previous used rough oil stone or abrasive paper. After completely removing the defects, the normal grinding steps must follow.
- (3). If some deep nicks appear during grinding, not only the this nick area must be grinded, but the whole mold surface has to be grinded to remove nicks, otherwise area grinding will lead to part recess of the mold surface.
- (4). Both, the rough- and fine grinding part of the mold must be carried out uniform.
- (5). To grind a thin part or slit or small hole , it would be better to use electric-grinding tools.
- (6). The final grinding direction must be according to the mold stress releasing direction.