



Water Channel Cleaning Machine

An Innovative Technology Without Using Chemicals.



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► Water Channel Cleaning Machine



Smart Maintenance for Molds Create New Value for Enterprises An Innovative Technology Without Using Chemicals.

Mold is the core of industrial production such as injection molding, blow molding, extrusion and die-casting. It has big influence on the merits and demerits of product quality and the production efficiency.

Good maintenance for molds can reduce costs and increase profits for enterprises.

With patented Eco-Friendly technology", KING'S mold channel cleaning machine improves both product quality and production efficiency.

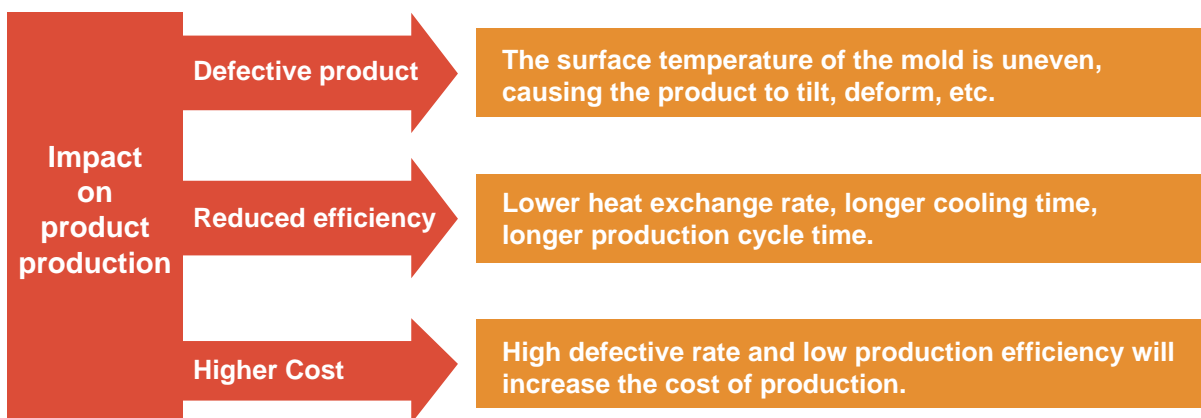
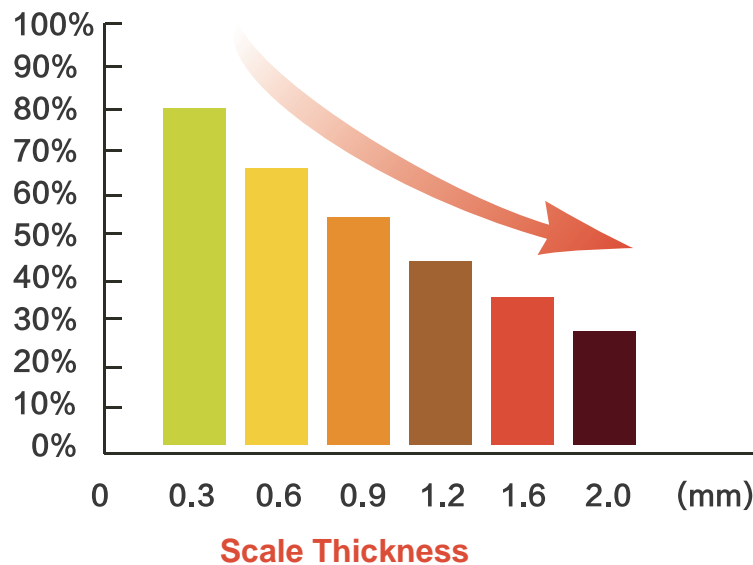
► Water Channel Trouble

The scale, iron erosion, sludge, and algae are easy to be deposited in the water channel, which will make the channel become narrow. It'll lead to low heat exchange rate, product quality instability, increase defective rate, decrease production efficiency, increase the cost of production.



A research from US Refrigeration Authority:
Only with 0.3mm thickness of scale in the water channel will lead to heat exchange loss of 21%.

Heat Exchange Rate



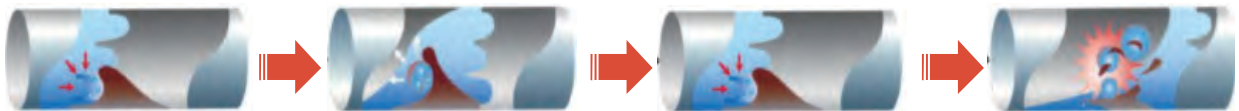
▶ Water Channel Cleaning Machine



Technical principle

With patented Eco-Friendly technology, KING'S mold channel cleaning machine has the pulse controller to make the compressed air act in the water flow. It generates a spiral shear force along the inner wall of the channel, causing the scale surface damaged. The bubble bursts with high-speed, high-pressure on the solid surface, and removes of structural layers and fragile debris, so that the channel can be effectively cleaned.

Forward cleaning



- (1) Feed high-pressure water and vapor into the channel, and by collision it'll go into the gap between the scale and the inner wall.
- (2) When water flows from a low pressure to a high pressure place, the air in the water expands and becomes water vapor, which in turn becomes bubbled.
- (3) The bubbles explodes under pressure and generate explosive shock waves on the scale layer.
- (4) The shock wave occurs radially, and peels off the scale layer.

Backward cleaning



- (5) In the reverse direction, the water with the same impact will enter the gap between the scale and the inner wall.
- (6) The scale layer which is not fully stripped off during the forward cleaning will also help generate bubbles when it is reversed.
- (7) On the same principle with forward cleaning, peel off the layer by running back and forth
- (8) With the turbulence, the scale is washed away with the water.

► Effect

◎ Before Cleaning

◎ After cleaning



2
WAYS

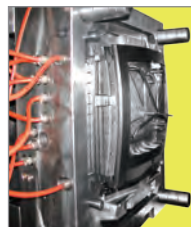


Dual Effect
Cleaning

2
SIDES



Dual Path
Cleaning



Mold Channel



Machine Oil Cooler



Constant Water
Chiller



Mold Temperature
Controller

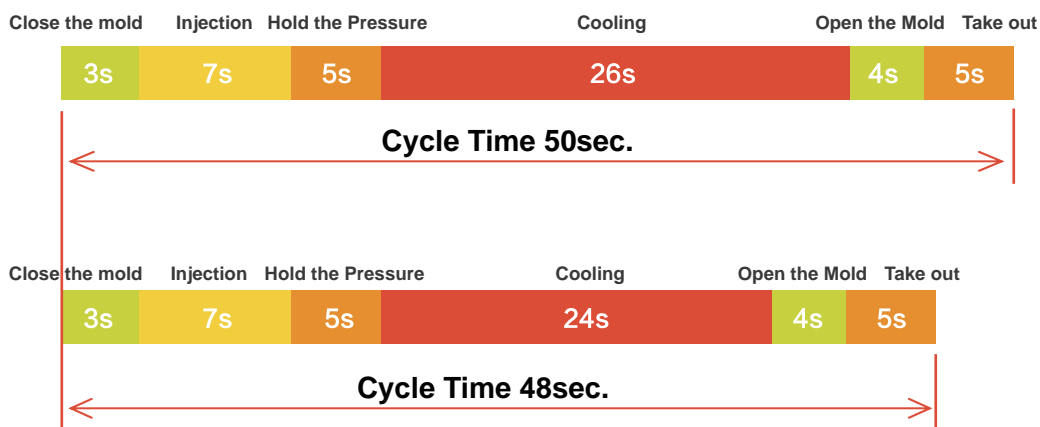


Rapid Cool and Heat
Mold Temperature
Controller

► Benefit

Here we have the comparison before and after using KING'S mold channel cleaning machine. It can certainly improve the cooling water circulation and the heat exchange rate.

| | | |
|---------------|---------------------|---------------------|
| Mold | Mold Chinnel | Flow(L/H) |
| | Before Cleaning | 1534 |
| | After Cleaning | 1942 |
| Result | Difference | 408 |
| | | Increase 27% |



- Reduce cooling time, cycle time, defective rate. Increase production efficiency!

Comparison after reducing cycle time:

| Machine | Mold channel | Cycle Time | Revenue per hour | Revenue per day | Revenue per year |
|---------------|-----------------|--------------|------------------|-----------------|------------------|
| 1250T | Before Cleaning | 50 sec | USD34 | USD816 | USD297,840 |
| | After Cleaning | 48 sec | USD35.5 | USD852 | USD310,980 |
| Result | | 2 sec faster | USD1.5 more | USD36 more | USD13,140 more |

- KING'S water channel cleaning machine can help one molding machine increase the profit of nearly USD13,140 per year, the more number of molding machines, the more revenue you can get!

► Function

Automatically Multi-Function Water Channel Cleaning Machine



► Specification

| Model Number | KWC2 | | KWC6 | | KWC8 | |
|----------------------------------|----------------------------------------------|-------------------|---------------------------|---------------------------|-------------------|-------------------|
| | KWC2-11 | KWC2-15 | KWC6-15 | KWC6-22 | KWC8-30 | KWC8-55 |
| Cleaning Medium | Water or Chemical | | | | | |
| Control System | PLC, Touch Panel and KING'S Operation System | | | | | |
| Water Tank Capacity | 30L | 40L | 60L | 80L | 100L | 120L |
| Piping Dia | 3/8" *4 | 3/8" *8 | 3/8" *8 | 1" *2 | 1.5" *2 | 2" *2 |
| Pump Capacity | 1.1KW | 1.5KW | 1.5KW | 2.2KW | 3.0KW | 5.5KW |
| Power Source (V/Hz) | AC220V 1P+N+E/AC380V 3P+N+E(5M) | | | | AC380V 3P+N+E(5M) | |
| Water Tank Number | Single Water tank | Single Water tank | Single or Dual Water Tank | Single or Dual Water Tank | Single Water tank | Single Water tank |
| Outlook Dimension | 1000*500*800mm | 1000*500*800mm | 1600*500*1100mm | 1600*500*1100mm | 1700*600*1200mm | 1700*600*1200mm |
| Weight | 180KG | 200KG | 280KG | 320KG | 350KG | 400KG |
| Standard Function: | √: With X:Without | | | | | |
| PLC Procedure Control | √ | √ | √ | √ | √ | √ |
| 7" Touch Panel Display | √ | √ | √ | √ | √ | √ |
| Smart Booster Flush Cleaning | √ | √ | √ | √ | √ | √ |
| Dual Path Cleaning | √ | √ | √ | √ | √ | √ |
| Emergency Bottom | √ | √ | √ | √ | √ | √ |
| SUS304 Stainless Steel Structure | √ | √ | √ | √ | √ | √ |
| Pipe Drainage | √ | √ | √ | √ | √ | √ |
| Flow Detection | √ | √ | √ | √ | √ | √ |
| 50 set Cleaning Data Record | √ | √ | √ | √ | √ | √ |
| 1 Years Warranty | √ | √ | √ | √ | √ | √ |
| Free Chemical Supply for 1 Years | √ | √ | √ | √ | √ | √ |
| ZOptional Function: | O:YES X:NO | | | | | |
| Leakage Test | O | O | O | O | O | O |
| Pipe off Protection | O | O | O | O | O | O |
| Single Flow Detection | X | X | X | O | O | O |
| Pipe Drainage | X | X | X | X | O | O |
| Automatic Water Replenishment | O | O | O | O | O | O |
| Automatic drain | X | X | X | X | O | O |
| Trolley | O | O | O | O | O | O |
| Automatic Water Heater | X | X | O | O | O | O |
| CH/EN, CH/JP System | O | O | O | O | O | O |
| Emergency Bottom with Lock | O | O | O | O | O | O |
| SUS316 Stainless Steel Structure | O | O | O | O | O | O |
| 10" Touch Panel Display | X | X | X | X | O | O |
| 1000 set Cleaning Data Record | O | O | O | O | O | O |
| Export Cleaning Data by USB | O | O | O | O | O | O |

• Above parameters are parts of product function, the actual specifications may be adjusted if needed.

► Q&A



1. Water Channel Cleaning Machine suitable for which field?

Suitable for Injection, Extrusion, Die-Casting and Blow Molding field. For examples like Automobile parts, Home appliance, Medical Equipment, Bottle Preform and Electronical Parts fields.



2. How to choose Water Channel Cleaning Machine Model?

There are two major factors to choose suitable machine model, it depends on real water capacity in mold and pipe connector dimension and number.



3. Water Channel Cleaning way is physical or adding chemicals?

Customers could choose physical (only water) or adding chemicals. Both ways could have cleaning effect, but physical (only water) takes twice time than adding chemicals.



4. How to distinguish the cleaning effect?

A: Take photos for Before / After cleaning
B: There is dirt, dust and iron erosion appear after cleaning
C: The flow change after cleaning



5. What's chemicals for cleaning machine?

Does the chemicals corrode the mold and harm for human?
A: The cleaning chemicals is for food grade Amino Acids, Colorless, tasteless and non-toxic.
There is almost no corrosion for mold, metal steel and sealing parts. It is not harmful for human body and could directly touch human skin.



6. How to set cleaning time? How often to use?

For physical way could set 3-6 hours; if add chemicals could set 1-3 hours. It depends on the mold dimension and the thickness of rust. It is suitable for once every month.



7. Could it clean oil channel?

It could clean oil channel by using KING'S oil channel chemicals. Please do not use water for cleaning medium.



8. Machine warranty? Is high cost for using chemicals?

Machine warranty is 12 months, in warranty period we could provide cleaning chemicals for free.

