Automatic robot program generation for windows and doors without additional programming after commissioning

Recognition

REITER used to detect the workpieces 3D cameras which detects sent out laser beams on the workpiece and interpolated due to light refraction to a 3D model. Thus, it is possible to realize the condition true to detail of the workpiece and create the movement program, depending on the painting rules (workpiece family, colour code).

The great advantage is to equip the traverse chaotic and assume no loss in quality. Furthermore, varying depths and workpiece recognized and process reliably painted. It is not necessary to define a “global” depth adjustment, than would be the case with a 2D detection. Thus, the spraying distance gun to workpiece is constant in all phases of the painting.

Features

• Detailed 3D model
• Profiling is recognized
• Chaotic loading possible (commission-based production)
• Detailed depth recognition, especially at glued attachments
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Plant Concepts

The REITER robot painting system works with a gapless post-delivering of the traverses which are waiting prior the spray booth. The two robots paint during the traverses pass through the booth route (line tracking). The controller calculates the smallest time sequence release from any upcoming traverse. Thus, the idling is minimized and increases the capacity again by 20% to 30%. On average, the traverse speed is 1 m/min to 1.5 m/min.
**ROWINCO 3D – Benefits**

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**Paint Quantity**

REITER is able to control colour-dependent quantities of paint through the use of brush tables of the robot. Therefore for the same painting program the robot can be variably set the quantity of paint. In application, this looks like this:

In covering colours per stroke (painting path) the quantity of paint are placed higher than, for example in glazes. The herein given advantage is that no compromise must be found, but always for the material currently used, the optimum can be achieved. In addition, these values can be adjusted by offsets variable for tests. A stored standard program adapted variably to the application using „pre-sets“ in the robot controller.

**Features**

- Quantity of paint, depending on the hue, variably regulated by means of paint pressure regulator
- Layer application variable
- Use of „Preset“ tables which are automatically assigned to the colour
- No programming intervention in the robot program necessary
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Painting Rules

As part of the commissioning the existing „data pool“ of REITER is adapted to the production portfolio of customers. The most ideal paint finish is thus achieved from a variety of rules. Furthermore, it is in operation is not necessary to choose the respective product family (floor, wings, doors) as this selection is automatically done by the software. Based on the created 3D model, the software recognizes the product and loads the stored program. The motion programs are also created automatically online, which means that no robot programming skills are required to operate the facility and after commissioning no additional robot programs must be created at a consistent product portfolio.

Features
- No intervention in the control program needed
- Independent recognition and loading of the correct program
- No robot programming skills needed
- No robot programs must be created after commissioning
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Paint Supply System

The colours are, unlike comparable competitive solutions directly on the colour changer which is mounted directly on the robot base. Thus we get the shortest way to the spraying system of about 2.0 m. The resulting volume at a DN06 hose is thus approximately 70 - 100 ml, which is discarded in the case of the colour change.

In addition, a colour change can be started already in the booth 1 at a application with two robots (two booth), while booth 2 still painted with the „old“ colour. The colour change is generally also very variable adjustable to achieve the most optimal rinsing results for the colour currently used without unnecessary discard detergent over a so-called tracking control. In addition, in multicoloured solutions (colour changer), the individual media supplied in the „ring“. This means that even when not using the media are circulated in order to counteract the settling of paints.

Features
• Shortest paths from the colour changer to the spraying system
• Max. 70-100 ml colour loss per colour change
• Colour change times of max. 2 minutes to dump
• Independent colour change in the individual booths (robots), thus increasing of the capacity
• Loop system
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Application Technology – Spraying Systems

REITER uses the so-called Airless Plus process for ROWINCO systems. Unlike competitors, we are hereby able in combination with two proportional valves to control the fan air and the atomizer air at the spray system independently of each other closely.

Therefore one is able to minimize overspray and always to apply the most ideal spray pattern.

Features
- Fan and atomizer air are controlled independently, stored in preset tables and assigned to the colours (continuously)
- Reduced overspray
- Always best possible atomizer pattern
- Only one spray gun for paint application with each layer of lacquer thickness required