

DEPRAG Assembly Cell for Auto Flush Valves in Toilet Bowl Tanks

This month's machine was manufactured for Grohedal. The assembly cell consists of three (3) different stations, which assemble individual parts to build a completely functioning flush valve.

The individual parts processed by the LTS-Station are as follows:



Individual Parts [click on picture for more details]

1. Linear Transfer System [LTS]:

The Operator loads the part fixtures with the individual parts and operates the start button to activate the cycle.

Station 1 verifies that all parts are present and accurately positioned. At station 2, the lever is automatically fed and clipped onto the swimmer. Subsequently, the connection is tested. At station 3, the weld-plate is automatically fed and welded to the overflow tube, using an automatic sonic welder. At station 4, the seal ring and the support ring are automatically fed and attached to the previously assembled weld-plate. At station 5, all four assembled components are combined and the assembly is verified as to accuracy.



Station 1 – Click on the picture for more details



Click here to watch several movies showing this assembly cell in action!

2. Rotary Index Table [RIT]:

The RIT is activated using an opto-touch button. At station 1, the housing is fed and positioned on the RIT using a gripper. At station 2, the large piston is fed and inserted into the housing using a gripper with rotational movement. The accurate positioning is verified. On station 3, the bellows is automatically fed and inserted into the large piston using a vacuum suction head. Thereafter, the connection between bellows and piston is verified using a depth control. On Station 4, the KS-nipple is automatically fed and positioned to the housing using also a vacuum suction head. A gripper brings the KS-nipple to the required final position. At station 5, the small piston is automatically fed and positioned in the housing using a swivel gripper.



Station 2 – Click on the picture for more details

The individual parts processed by the RIT-Station are as follows: [click on picture for more details]



At station 6, the spring is coiled using a winding machine, picked by a gripper and positioned in the small piston. Thereafter, the spring is tensioned using an appropriate mechanism. At station 7, the cap is automatically fed, oriented using a swivel gripper and clipped onto the housing. At station 7, both the clear hose and the green hose are automatically fed and cut to length. The safety door opens automatically after correct assemble. The Operator can then remove the completely assembled part.

CLICK HERE TO VIEW THE COMPLETE ASSEMBLED PART!

3. DCAM Test Station

The assembled parts from the LTS- and RIT-stations are connected to each other by hand and manually completed with an adapter coil. The Operator inserts the complete assembled part into the test station. The green and clear hose are connected to the test station and the function of the flush valve is tested. A gripper places the correct functioning valves into boxes and a conveyor automatically moves completely filled boxes.



Station 3 – Click on the picture for more details