

FlowSure™

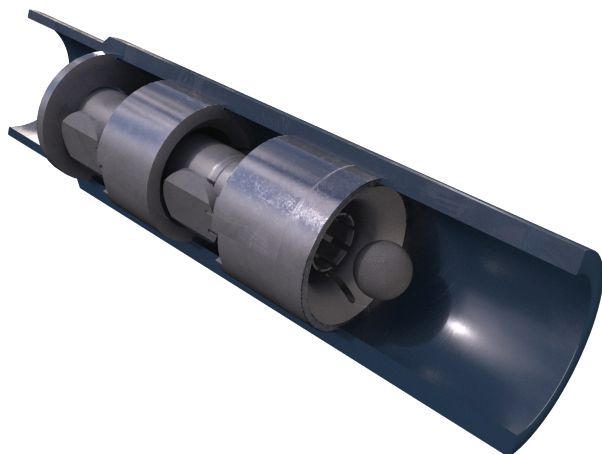
The FET Davis-Lynch new FlowSure™ Float Equipment is designed to maximize reduction of surge pressure when running close-tolerance casing or liners (small annulus). The valve features a large inside diameter to maximize conversion drop ball size.

The larger ID allows for longer circulation with harsher fluids at greater pump rates. The larger ID is also less likely to bridge off during run in hole. Precise conversion pressures are factory adjustable from 300psi to 3,000psi, although most prefer a low conversion pressure of 600-900psi. All this with most components made from an easily drilled composite (glass-reinforced epoxy resin) material.

Back-Pressure Rating

Autofill Valve Type	Size Range	Back-pressure rating (PSI)	Temp Rating (°F)
713-MP	4½" - 16"	3,000	300
713-MP	16" +	2,000	300
712-MP	4½" - 13¾"	5,000	450
713-MP	16"	4,000	450
713-MP	Over 16"	3,000	450

Larger Valve Assembly for 4 ½" Drop Ball has 2,500psi. All Back-Pressure Ratings May Be further limited by casing collapse pressure



Recommended Configurations

The recommended configuration for FlowSure™ float equipment is a double-valve float collar run in conjunction with a guide shoe. This configuration allows for a one or two joint casing shoe track and is more tolerant of large amounts of cuttings or debris entering the casing string. The guide shoe can be configured with angled jets to aid in cement distribution; eccentric noses are available as required. The guide shoe has a composite rod across it's bore to prevent the piston or tube of the float collar from possibly blocking the flow.

This equipment can be ordered in a Multi-Purpose Float Collar (Type 713-MP) and we suggest it be run with a Cement-nosed Guide Shoe (Type 601 down-jet or Type 602 up-jet) configuration. It is available for sizes 4-1/2" and larger. For extremely heavy weights of casing, please consult engineering to confirm that normal valve/ball/seat configurations can be used.

The valve is roughly 90% composite (plastic) material and 10% cast-aluminum by weight. The only aluminum components remaining are the flappers, the top portion of the piston, the ball seat, and the ring which holds the shear pins.

Nose ID Specifications

Standard Cement-Nosed Guided Shoe Types	Nose ID
4½" thru 5½"	2½"
7" & 7-5/8"	3"
9-5/8" thru 11¾"	4"
13¾ & 13-5/8"	6"
13¾ & 13-5/8"	8"

If a larger Nose ID is desired, it should be noted that larger ID's will increase the chances of the nose being damaged if mishandled, dropped or excessive casing weight is applied directly to the nose.



FlowSure™

OPTIONAL PUMP-CONVERT OPTION FOR MULTI-PURPOSE AUTOFILL FLOAT EQUIPMENT

The FlowSure patented activation system leaves the ball free to float as the casing/liner is run in hole, significantly reducing the risk of premature conversion from casing movement or sudden stops/starts. Conversion is achieved by first exceeding an activation flow rate, arming the system, then exceeding the pre-determined conversion pressure; giving a clear indication at surface that conversion has occurred. **Conversion pressures are factory adjustable from 300psi to as high as 3,000psi**, however we recommend 600-900psi conversion pressures for most applications.

FLUID WEIGHT (POUNDS PER GALLON)	CONVERSION FLOW RATE (US GAL/M)
8.33	336 (8.0bbl/min)
11.5	290 (6.9bbl/min)
14	265 (6.3bbl/min)

NOTE: Exact conversion value will vary based on fluid properties and well geometry.

Recommended Operations

Flapper valves are held in the Autofill position by a sleeve with a collet seat located at the top. This allows the casing to fill automatically with a ball in place, eliminating the need to pump a ball from surface. Reducing the conversion time and fluid circulation required.

The ball is free to float upwards, significantly reducing the shock-loading due to casing movement (sudden stops/starts) and allowing back flow circulation to clean out the Collet/sleeve bore by exposing full sleeve ID.

Once conversion is desired, the ball is pumped onto seat and the required flow rate is achieved, this pushes the Ball through the collet by means of the choke pressure built up across the collet slots. This requires a continued flow to seat and activate the ball, reducing the risk of accidental conversion. Since the ball is at/ close to the seat location, conversion occurs quickly, eliminating the time and fluid required to pump a ball onto seat from surface.

