

SmartStart Plus™ Time Delay Test + Frac Valve is a time delayed pressure-activated sleeve that eliminates the need for tubing-conveyed perforating when completing the toe stage of horizontal wells. This allows the operator to meet maximum casing pressure test requirements.

### Key Features:

- Optional Time Delay setting of 15,30,45, or 60 minutes allows operator to exceed regulatory casing integrity test requirements.
- Advanced Port Jetting™ Technology improves injectivity to formation.

### Additional Features:

- One piece mandrel design provides a very robust tool that withstands burst pressure in excess of 20,000 psi.
- Opening sequence is controlled by a fit for purpose rupture disc that is designed to resist plugging or bridging at the membrane.
- Mandrel design with TORQ Thru™ Technology maintains casing string integrity and yield torque ratings. The tool can be “through torqued” onto the casing string for ease of make up.
- High torque casing connections for ease in matching any number of today’s requirements.
- Exceeds all safety and environmental standards.



## SmartStart™ PLUS 15 Time Delay Test + Frac Valve

The GEODynamics SmartStart PLUS™ Time Delay Test + Frac Valve provides the operator with an initial point to break down the formation and establishes a pump-in port for use in long horizontal completions. The device is comprised of an Opening Piston and a Fluid Metering Chamber. This Metering Chamber allows adequate time for two or more of these devices to be actuated prior to the opening of the valve. In addition, this delay sequence between activation of the device and actual opening of the ports allows time for the operator to reach a predetermined casing test pressure. The SmartStart PLUS™ Time Delay Test + Frac Valve Tools are run as an integral part of the casing string and may be utilized in both cemented and un-cemented well bores. The actuating pressure for this device is controlled by a special rupture disc. Upon reaching the actuation pressure, there is a lapse of approximately fifteen or thirty minutes before opening. Opening the SmartStart PLUS™ Time Delay Test + Frac Valve Toe Valves at maximum casing test pressures dramatically improves connectivity to the formation.

### SmartStart PLUS™ 15 Time Delay Test + Frac Valve

Part Number	Connection Size	Max O.D.	Min I.D.	Make Up Length (ft)	Delay Min.	Temp. Rating °F	Flow Area	Torque Rating ft/lbs	Working Pressure
TC-MV-450-0000	4.5	5.65	3.34	6	15	325°	6.8	15000	19000
TC-MV-450-0000-SE	4.5	5.65	3.34	6	15	375°	6.8	15000	19000
TC-MV-455-0000	5	5.65	3.34	6	15	325°	6.8	15000	19000
TC-MV-455-0000-SE	5	5.65	3.34	6	15	375°	6.8	15000	19000
TC-MV-551-0000	5.5	6.5	3.75	5.25	15	325°	7.5	20000	21000
TC-MV-551-0000-SE	5.5	6.5	3.75	5.25	15	375°	7.5	20000	21000
TC-MV-570-0000	5.5	7.38	4.6	5.25	15	325°	7.5	20000	20000
TC-MV-577-0000	5.5	7.38	4.67	5.25	15	375°	7.5	20000	20000
TC-MV-575-0000	5.5	7.5	4.5	5.25	15	325°	7.5	20000	23000

### SmartStart PLUS™ 30 Time Delay Test + Frac Valve

Part Number	Connection Size	Max O.D.	Min I.D.	Make Up Length (ft)	Delay Min.	Temp. Rating °F	Flow Area	Torque Rating ft/lbs	Working Pressure
TC-MV-450-0000-EX	4.5	5.65	3.34	6	30	325°	6.8	15000	19000
TC-MV-450-0000-EX-SE	4.5	5.65	3.34	6	30	375°	6.8	15000	19000
TC-MV-455-0000-EX	5	5.65	3.34	6	30	325°	6.8	15000	19000
TC-MV-455-0000-EX-SE	5	5.65	3.34	6	30	375°	6.8	15000	19000
TC-MV-551-0000-EX	5.5	6.88	3.75	5.25	30	325°	7.5	20000	21000
TC-MV-551-0000-EX-SE	5.5	6.88	3.75	5.25	30	375°	7.5	20000	21000
TC-MV-570-0000-EX	5.5	7.38	4.6	5.25	30	325°	7.5	20000	20000
TC-MV-577-0000-EX	5.5	7.38	4.67	5.25	30	325°	7.5	20000	20000
TC-MV-575-0000-EX	5.5	7.5	4.5	5.25	30	325°	7.5	20000	23000