

TiALSport MVI Data Sheet

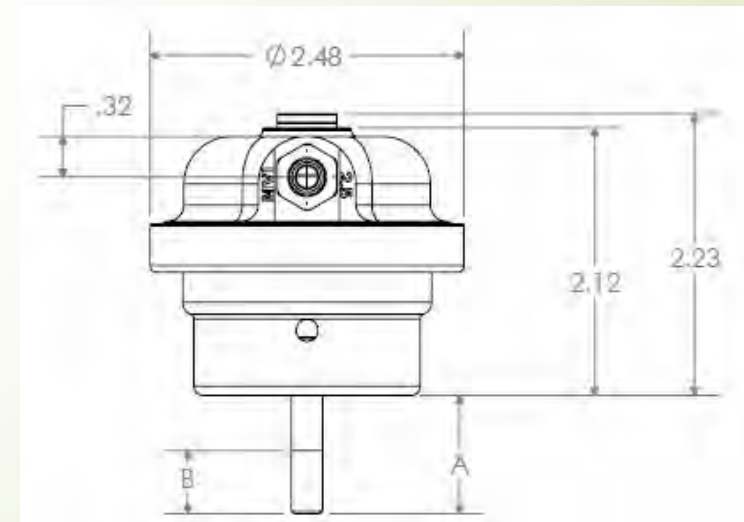
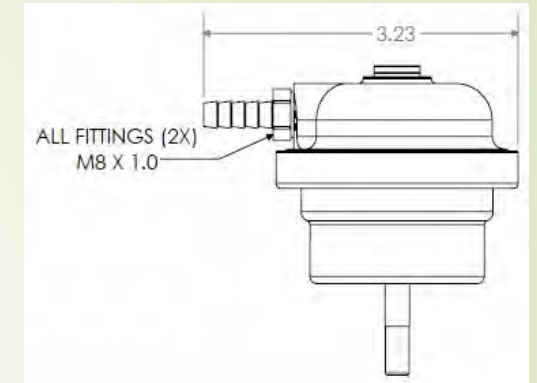
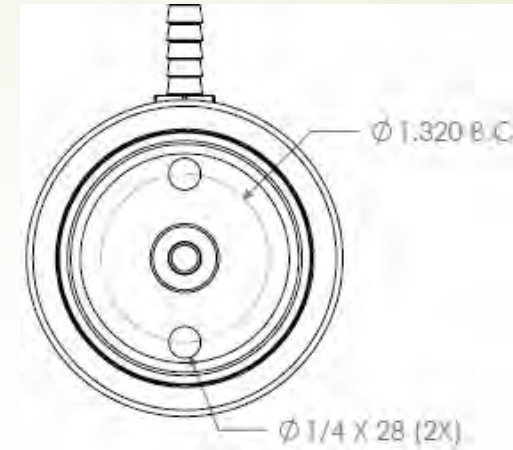
Within this sheet you'll find the technical data needed to provide for a clean installation and any future service required for your new TiALSport MVI Actuator.

For any further technical questions, please email tech@tialsport.com

Configuration

MVI Actuators can replace similar designs and offer modular construction, spring pack options and robust construction.

- ▶ MVI Actuators use a common two-bolt mount pattern that allows replacement of 480099-series crimped-canister actuators.
- ▶ Multiple stem designs are available to match existing fitment and provide a high degree of adaptation.
- ▶ Spring pack options allow initial preload ratings of 2-22psi in increments of 2psi, providing for preload adjustment from 2-26psi without compromising travel.
- ▶ Two M8x1.0 ports are provided, for optional boost port location
- ▶ The MVI is offered in a sealed, dual-port model, the MVI 2.5D. For details, contact our team at tech@tialsport.com



Connection

The MVI is connected to an internally-wastegated (IWG) turbine by means of a rod, with either a clevis or spade-type rod end.

- Stems are offered in multiple lengths to suit many needs.
- Popular outboard thread options are offered.
- "Straight" and 20-degree offset-bent stems are available.
- Custom stems can be produced based on demand and MOQ. For details contact the team at tech@tialsport.com
- Compare the noted dimensions to the diagrams on the previous page to determine your required length.


ROD P/N	Dim A	Dim B	Dim C
007604	0.94	0.50	1/4 x 28
002079	2.06	1.26	1/4 x 28
002080	2.69	1.26	1/4 x 28
005252	2.64	0.80	1/4 x 28
005988	6.51	1.26	1/4 x 28
005989	7.08	1.26	1/4 x 28
006574	7.47	1.26	1/4 x 28
006939	3.42	2.36	M6 x 1.0
006940	4.83	2.36	M6 x 1.0
006941	5.59	2.36	M6 x 1.0
006942	6.30	2.36	M6 x 1.0
007002	5.60	1.50	1/4 x 28
007438	4.06	1.26	1/4 x 28
007652	8.56	1.26	1/4 x 28

MVI Spring Chart

The following information can help you to choose the correct spring group to suit your needs.

- ▶ Unlike external wastegates, spring chart ratings reflect the actual onset of valve travel.
- ▶ Actual boost pressure can vary due to WG port size and flow, as well as the degree of leverage available within the housing.
- ▶ Due to the modular design, as many as three springs can nest within the MVI, allowing initial preload of up to 22psi.
- ▶ With threaded rod ends and adjustable clevis connections, very precise preload adjustments can be made to provide for 2-26psi of initial preload while still maintaining adequate travel.

MVI 2.5 SPRING CHART		
PRESSURE (bar)	PRESSURE (psi)	SPRING COMBINATION
1.51	21.94	BLUE, GREEN, RED
1.38	20.01	BLUE, GREEN, YELLOW
1.25	18.08	BLUE, GREEN
1.08	15.67	BLUE, RED
0.95	13.74	BLUE, YELLOW
0.81	11.81	BLUE
0.70	10.13	GREEN, RED
0.57	8.20	GREEN, YELLOW
0.43	6.27	GREEN
0.27	3.86	RED
0.13	1.93	YELLOW



Static Testing

Static (bench) testing should be performed any time the unit is disassembled and the instructions below should be followed carefully.

- ▶ The static testing values represent the rate at which the stem will just begin to move. They **DO NOT** represent the boost pressure expectation.
- ▶ To test the MVI, use a regulated source of compressed air, limited to 2bar (30psi) maximum, then note the travel vs. the table to the right.
- ▶ For combinations of springs, the resultant test value is equal to the sum of the spring values.
- ▶ The MVI should hold air and not leak under up to the 2bar test limit.
- ▶ **DO NOT USE VACUUM TO TEST THE MVI FOR ANY REASON**

PART #	COLOR	SIZE/POSITION	TEST VALUE-PSI
004803	Blue	Outer/3	12
004804	Green	Middle/2	6
004805	Red	Inner/1	4
005409	Yellow	Inner/1	2

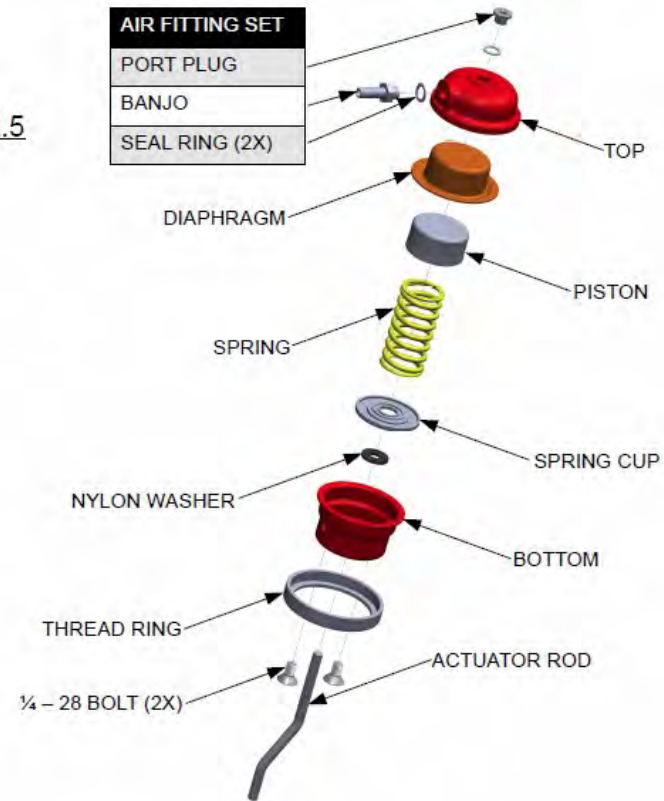
MVI FAQ

- ▶ **What spring(s) should I use for (insert value here) boost pressure?**
- ▶ *This varies greatly due to variations within IWG housing designs, as port size and flow, as well as the linkage leverage, can affect the actual boost pressure. For this reason, we suggest using a spring value that represents 70-80% of your desired peak boost threshold, then adjusting preload and external control to increase boost pressure. Test and adjust before full-power testing, for best results.*
- ▶ **Can I use my stock boost control solenoid for my TiALSport wastegate?**
- ▶ *Yes, but it's recommended to use a higher-flowing solenoid, such as the popular MAC-type air valves. They typically allow the use of larger-diameter hoses and are also a bit more robust.*
- ▶ **Can I use my manual boost controller?**
- ▶ *Yes, you sure can. Just keep in mind that MBC's are unintelligent, and cannot compensate for temperature or air density changes, nor can they adjust for differing engine loads..*
- ▶ **Can I use CO2 to control my TiALSport MVI wastegate?**
- ▶ *No, we don't recommend CO2 control for the MVI*
- ▶ **Can I connect the MVI directly to the intake manifold?**
- ▶ *No, the MVI, like all of our wastegates, is designed to function with boost-only pressure applied to the canister. Negative pressure can cause premature failure, so we suggest using a port on the turbocharger compressor cover for best results.*
- ▶ **What's the deal with the MVI 2.5 and MVI 2.5D?**
- ▶ *The MVI 2.5 is a single-port unit, and the MVI 2.5D uses a sealed, dual-port design. For applications that require a high degree of control resolution, the dual-port design can provide a good solution. Care must be taken with the MVI 2.5D to limit the stem deflection to prevent premature seal wear. However, if wear occurs, an inexpensive repair kit is available.*
- ▶ **Is it possible for me to service the MVI in the field?**
- ▶ *Yes, absolutely! With the release of P/N M00029, a Field Service Tool is available that allows a safe method to perform service and change springs on the MVI 2.5 and 2.5D, and it can also be used with competitive designs. As well, common service parts are inexpensive and kept in stock.*

Exploded View and Parts List

- ▶ The MVI is sold as with the air fitting set and stem only. No rod end is included.
- ▶ The standard part numbers include stems to match 480099-Series actuators.
- ▶ Optional stems are available. Contact the team at tech@tialsport.com for details.
- ▶ All service parts listed are available as loose items and can be found at tialsport-outlet.com
- ▶ A new Field Service Tool is available to facilitate service by the end user.

MVI 2.5



PART	PART NUMBER
AIR FITTING SET	006315
DIAPHRAGM	004790
12 PSI SPRING	004803
6 PSI SPRING	004804
4 PSI SPRING	004805
2 PSI SPRING	005409