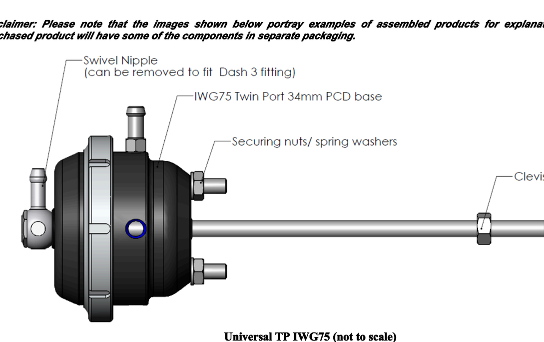
Product Name:	**IWG75 Universal Actuators**
Product Description:	Universal Internal Wastegate Actuator
Product Number:	TS-0681-XXXX

IMPORTANT NOTES ON YOUR IWG75 Universal INTERNAL WASTEGATE ACTUATOR
- Consult your local specialist before setting your desired boost pressure, setting boost beyond your engines capability may result in engine damage.
- **The universal range is not vehicle/application specific. The range is not supplied with a bracket or a clevis. The thread on the rod is ¼" UNF 28 TPI. The product is supplied with a single ¼" nut.**
- **Allow for adequate cool airflow around the top diaphragm housing**

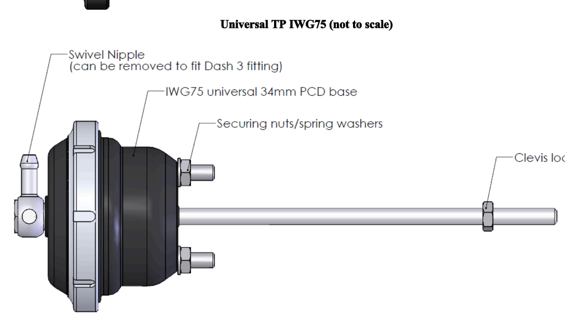
RECOMMENDATIONS
- Turbosmart recommends that boost pressure is set using a Dynamometer and not on public roads.
- Turbosmart recommends that a boost gauge be permanently fitted to the vehicle.
- Turbosmart recommends that the engines Air/Fuel ratio is checked while setting the desired boost pressure, as any increase in boost pressure can cause the engine to run "LEAN", resulting in possible engine damage.

BASIC COMPONENTS OF YOUR IWG75 UNIVERSAL INTERNAL WASTEGATE ACTUATOR

Disclaimer: Please note that the images shown below portray examples of assembled products for explanation purposes. The purchased product will have some of the components in separate packaging.



Universal TP IWG75 (not to scale)



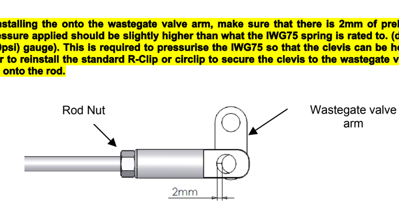
Universal IWG75 (not to scale)

SETTING YOUR PRELOAD

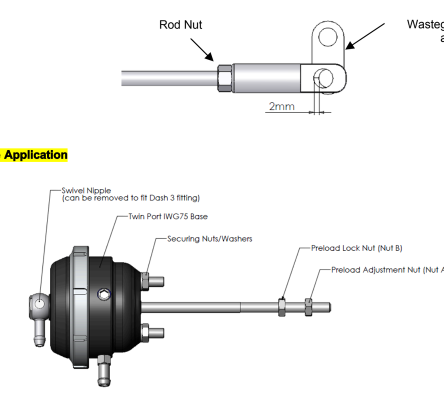
The internal wastegate actuator is designed to have 2mm of preload applied to the rod during installation. Please ensure that this is set accordingly.

Clevis Type Application

For a clevis type application, when installing the onto the wastegate valve arm, make sure that there is 2mm of preload. Then use compressed air - the amount of air pressure applied should be slightly higher than what the IWG75 spring is rated to. (do not apply air pressure supply higher than 3 bar (40psi) gauge). This is required to pressurise the IWG75 so that the clevis can be hooked onto the wastegate valve arm easily. Remember to reinstall the standard R-Clip or circlip to secure the clevis to the wastegate valve arm. Then tighten the rod nut to secure the clevis onto the rod.



Non-Clevis Type Application



For a non-clevis type application, the preload is set by adjusting both of the ¼" nuts accordingly. The thread on the rod is ¼" UNF which means that one full turn of the nut equals to approximately 1mm change in rod extension, hence 1mm of preload. To set preload, hand-tighten the preload adjustment nut (nut A) clockwise to hold the wastegate flap shut. Now, use a 11mm spanner to turn nut-A two complete turns in a clockwise direction. The preload is now set to 2 mm. To lock the preload setting, tighten the preload lock nut (Nut-B) in an anticlockwise direction until it is hand-tight against the wastegate valve arm. Use a torque wrench to tighten both nuts to 6.5Nm (4.79 ft-lb).

Confirm that preload is set correctly by applying air pressure (from a regulated air pressure supply no higher than 3 bar (40psi) gauge pressure) to the top cap of the IWG, the rod should move without hesitation once the air pressure applied to the cap of IWG is higher than the spring pressure.

NOTE: The Universal IWG75 is only supplied with a single ¼" nut.

ACHIEVING YOUR TARGET BOOST PRESSURE

There are various factors involved in achieving your target boost pressure including.

- The size of the spring fitted in your wastegate actuator i.e. the boost pressure achieved by the wastegate actuator spring only.
- The desired level of boost pressure and the difference between this and your wastegate spring pressure.
- The size of your turbocharger, wastegate and the resulting exhaust manifold backpressure in your system.

Turbosmart recommends the ideal setup for achieving your target boost pressure is to use the wastegate actuator in conjunction with a Turbosmart boost controller.

IMPORTANT NOTES ON SETTING THE WASTEGATE ACTUATOR SPRING PRESSURE

A stiffer spring should only be used when necessary. The wastegate actuator allows for different combinations of spring pressures. All springs that are adaptable with the wastegate actuator are shown in the table below. The tuner can use combinations of up to 3 springs to achieve the following base boost pressures. To aid in the identification of these springs they are supplied colour coded. If this colour coding is not clear please use the dimensions in the following table to identify the spring. Please see the following detailed instructions on setting your wastegate actuator spring pressure. The springs chosen should be rated to the lowest boost level desired.

Notes:

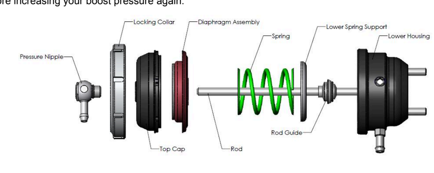
1. **As a rough guide it is possible to double the base pressure when accompanying a Turbosmart IWG75 with a Turbosmart boost controller if the system is adequately sized. Results will vary depending on every application.**
2. **Check the spring combination in your IWG75. If more springs are required, they can purchased from your Turbosmart dealer by using the TS-xxx-xxxx part numbers shown below each spring.**

Pressure rating			3 PSI Inner	5 PSI Inner	7 PSI Middle	11 PSI Middle	10 PSI Outer	7 PSI Outer
Part number			TS-0505-2001	TS-0505-2002	TS-0505-2003	TS-0505-2004	TS-0505-2005	TS-0505-2006
Colour			BRN/BLK	BRN/GRY	BRN/PUR	BRN/RED	BRN/BLU	BRN/PNK
Dimensions			29mm OD, 32mm Length	29mm OD, 36mm Length	36.5 OD, 43mm Length	36.5 OD, 52mm Length	44mm OD, 68mm Length	44mm OD, 57mm Length
Desired Boost Pressure								
PSI	BAR	KPa						
3	0.207	20.68	▲					
5	0.345	34.47		▲				
7	0.483	48.26			▲			
10	0.69	68.95					▲	
11	0.76	75.84				▲		
12	0.827	82.74		▲	▲			
13	0.89	89.6	▲				▲	
14	0.965	96.53			▲			▲
15	1.03	103.4		▲			▲	
16	1.1	110		▲		▲		
17	1.172	117.2			▲		▲	
19	1.31	131		▲	▲			▲
20	1.38	138	▲		▲		▲	
21	1.45	145				▲	▲	
22	1.517	151.7		▲	▲		▲	
23	1.59	159		▲		▲		▲
24	1.655	165.5	▲			▲	▲	
26	1.793	179.3		▲		▲	▲	

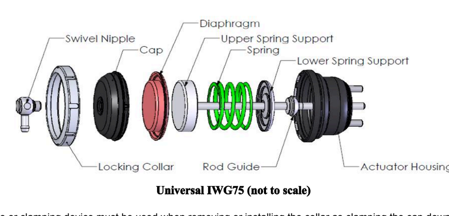
CHANGING THE SPRINGS

WARNING! Fitting a wastegate actuator with a higher spring pressure may cause a higher than expected increase in boost pressure**.**

Turbosmart recommends adjusting your boost controller back to its minimum setting and measuring the new minimum boost pressure achieved by the new spring, before increasing your boost pressure again.



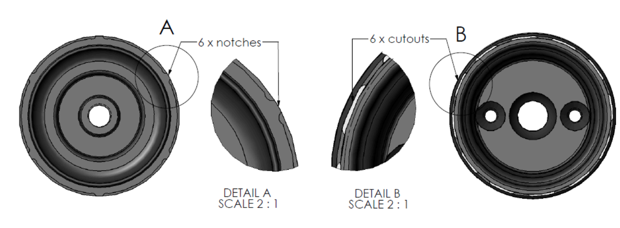
Universal IWG75 Twin Port (not to scale)



Universal IWG75 (not to scale)

IMPORTANT: A press or clamping device must be used when removing or installing the collar as clamping the cap down removes the load off the collar from the diaphragm and allows the collar to be removed.

1. If the engine has been running, allow it to cool down before removing the actuator from its bracket.
2. Use a press or a vice to clamp down the cap to the body and remove collar.
3. Remove the actuator from the clamping device carefully as the cap is under spring load.
4. Remove cap, diaphragm and upper spring support with rod.
5. Change the springs making sure that they sit in the right grooves in the lower spring support
6. Reassemble in reverse order. Ensure that the diaphragm is installed in the centre of the upper spring support and when installing the cap, make sure that the cap and diaphragm are centred and that the locating notches on the cap match the cut-outs in the lower housing. **When installing the clevis, make sure that there is 2mm worth of preload.**

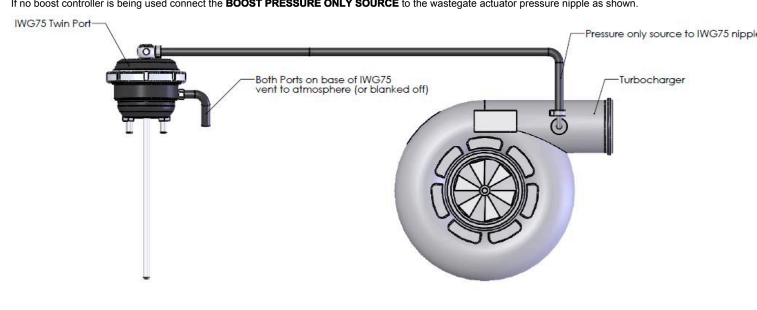


NOTES ON BOOST CONTROL HOOKUP (UNIVERSAL TWIN PORT)

WARNING! Changing your connection method can cause a higher than expected increase in boost pressure. Turbosmart recommends adjusting your boost controller back to its minimum setting and measuring the new minimum boost pressure achieved by the new setup before increasing your boost again.

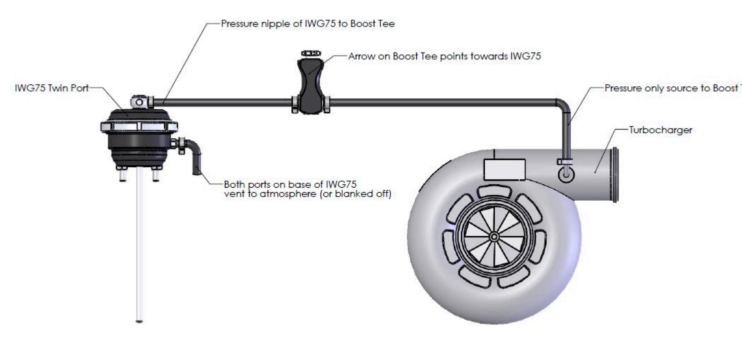
Basic setup

If no boost controller is being used connect the **BOOST PRESSURE ONLY SOURCE** to the wastegate actuator pressure nipple as shown.



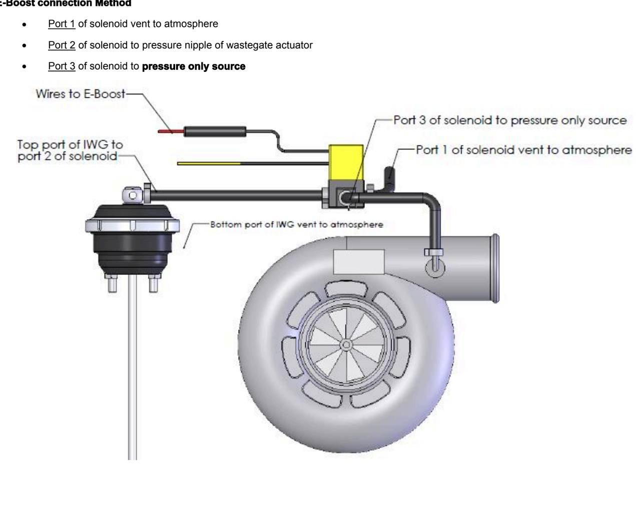
Boost Tee setup

When using your wastegate actuator in conjunction with a Turbosmart Boost Tee, fit the controller between the boost pressure source and pressure nipple as shown. Ensure the arrow on the Boost Tee is pointing in the direction illustrated.
Refer to the instructions supplied with your Boost Tee for further detail if necessary.



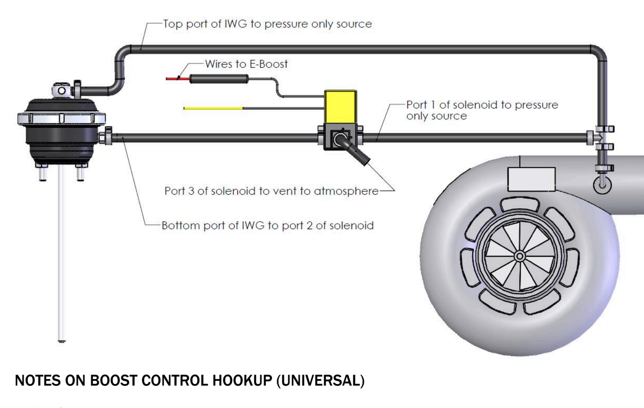
E-Boost connection Method

- Port 1 of solenoid vent to atmosphere
- Port 2 of solenoid to pressure nipple of wastegate actuator
- Port 3 of solenoid to **pressure only source**



Two port connection ***(For controlling boost on a turbo system with high back pressure)***
Disclaimer: Please note that base boost pressure will increase when using this method. Reset your Turbosmart electronic boost controller to factory settings prior to further configuration.

- Connect the top port of the wastegate and port 1 of the solenoid to a pressure only source (by teeing into source)
- Port 2 of the solenoid to the bottom port of the wastegate
- Port 3 of solenoid vent to atmosphere

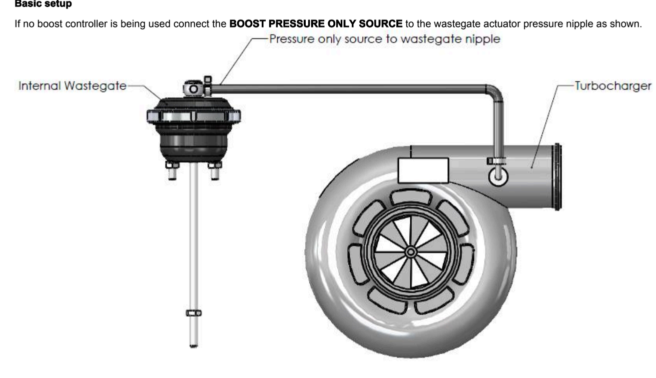


NOTES ON BOOST CONTROL HOOKUP (UNIVERSAL)

WARNING! Changing your connection method can cause a higher than expected increase in boost pressure. Turbosmart recommends adjusting your boost controller back to its minimum setting and measuring the new minimum boost pressure achieved by the new setup before increasing your boost again.

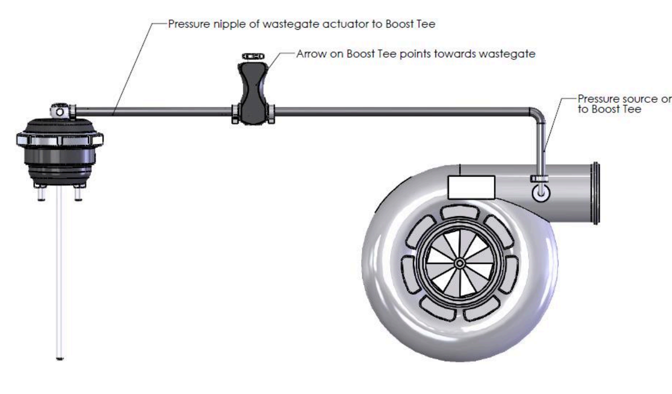
Basic setup

If no boost controller is being used connect the **BOOST PRESSURE ONLY SOURCE** to the wastegate actuator pressure nipple as shown.



Boost Tee setup

When using your wastegate actuator in conjunction with a Turbosmart Boost Tee, fit the controller between the boost pressure source and pressure nipple as shown. Ensure the arrow on the Boost Tee is pointing in the direction illustrated.
Refer to the instructions supplied with your Boost Tee for further detail if necessary.

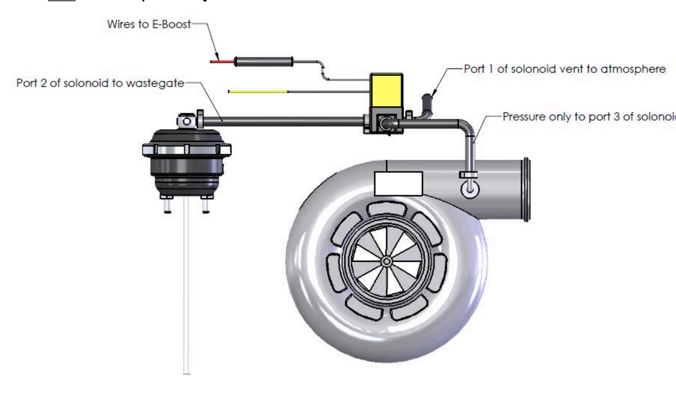


E-Boost connection methods

Turbosmart recommends using the wastegate actuator in conjunction with the Turbosmart E-Boost.

E-Boost connection Method

- Port 1 of solenoid vent to atmosphere
- Port 2 of solenoid to pressure nipple of wastegate actuator
- Port 3 of solenoid to **pressure only source**



The Turbosmart Pledge

TURBOSMART
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Limited Warranty: Turbosmart warrants its products to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from date of purchase. If found to be defective, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Turbosmart to the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Turbosmart be liable for special or consequential damages. This warranty is only valid on products purchased from Turbosmart Authorized Dealers.

Service: After the warranty period has expired, repair service is charged based on a minimum and maximum charge rate. (Contact Customer Service for current rate).

Returns: When returning a Turbosmart product for repair, it must be accompanied by a completed Customer Warranty Form and RMA number. To access this form please go to our website www.turbosmartonline.com and you will find it on the Downloads page.

THE TURBOSMART PLEDGE

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We sometimes make mistakes, as do our dealers, distributors and suppliers. Even customers can sometimes order the wrong parts. Do not use, modify, install, trial assemble, nick, drop, scratch or adjust any part until you first check for any damage. Damage must be reported immediately. NO EXCEPTIONS. If there are any components missing please contact your authorized reseller immediately upon receipt of your shipment. Missing components must be reported within five (5) business days of receipt. Parts returned for any reason MUST BE IN RESALABLE CONDITION. It is YOUR responsibility, "THE CUSTOMER" to carefully package any returns to avoid shipping damage. Insurance is highly recommended. Credit cannot be issued for damaged goods.

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All warranty claims must be returned to the nearest Turbosmart Office, you must return the product and sales receipt, at your own expense, accompanied by the Customer Warranty Form stating the reason for the claim. Proof of purchase must be provided with any warranty claim and will be verified with the authorized reseller from which the product was purchased.

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Happy motoring!
The Turbosmart Team.