Type T205B Balanced Tank Blanketing Regulator

Introduction

Scope of the Manual

This Instruction Manual provides instruction for installation, startup, maintenance and parts ordering information for Type T205B tank blanketing regulator.

Product Description

Type T205B balanced tank blanketing regulator (Figure 1) is a direct-operated regulator with fully balanced plug design to reduce inlet pressure sensitivity and with large diaphragm to accurately control tank pressure at low pressure settings on tank blanketing systems. The regulator prevents a stored liquid from vaporizing into the atmosphere, reduces liquid combustibility and prevents oxidation or contamination of the liquid by reducing its exposure to air. Type T205B maintains a slightly positive pressure and thereby reduces the possibility of tank wall collapse during pump out operation.

Figure 1. Type T205B Tank Blanketing Regulator
Specifications

This section lists the specifications of the Type T205B Tank Blanketing Regulator. Factory specification, such as maximum temperature, maximum inlet and outlet pressures, spring range and seat or orifice size are stamped on the nameplate fastened on the regulator at the factory.

Body Sizes and End Connection Styles
See Table 1

Maximum Allowable Inlet Pressure(1)
See Table 1

Maximum Operating Inlet Pressure(1)
Gray Cast iron: 150 psig / 10.3 bar
WCC Carbon steel, LCC Carbon steel or CF8M/CF3M Stainless steel: 200 psig / 13.8 bar

Maximum Outlet (Casing) Pressure(1)
Gray Cast iron: 35 psig / 2.4 bar
WCC Carbon steel, LCC Carbon steel or CF8M/CF3M Stainless steel: 75 psig / 5.2 bar

Material Temperature Capabilities(1)(2)

Elastomer Parts
- Nitrile (NBR): -40 to 180°F / -40 to 82°C
- Fluorinated Ethylene Propylene (FEP): -20 to 180°F / -29 to 82°C
- Fluorocarbon (FKM): 40 to 300°F / 4 to 149°C
- Ethylene Propylene Diene (EPDM): -20 to 225°F / -29 to 107°C
- Perfluoroelastomer (FFKM): 0 to 300°F / -18 to 149°C

Body Materials
- Gray Cast iron: -20 to 300°F / -29 to 149°C
- WCC Carbon steel: -20 to 300°F / -29 to 149°C
- LCC Carbon steel: -40 to 300°F / -40 to 149°C
- CF8M/CF3M Stainless steel: -40 to 300°F / -40 to 149°C

Spring Case Vent Connection
1/4 NPT

Diaphragm Case Control Line Connection
1/2 NPT

Approximate Weight
17.7 lbs / 8 kg

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Table 1. Body Sizes, End Connection Styles and Maximum Allowable Inlet Pressures

<table>
<thead>
<tr>
<th>BODY SIZE</th>
<th>BODY MATERIAL</th>
<th>END CONNECTION STYLE(1)</th>
<th>MAXIMUM ALLOWABLE INLET PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>In. DN</td>
<td></td>
<td></td>
<td>psig bar</td>
</tr>
<tr>
<td>3/4 or 1</td>
<td>Gray cast iron</td>
<td>NPT</td>
<td>150 10.3</td>
</tr>
<tr>
<td>2 or 25</td>
<td>WCC Carbon steel</td>
<td>NPT, CL150 RF, CL300 RF or PN 16/25/40 RF</td>
<td>200 13.8</td>
</tr>
<tr>
<td>1. All flanges are welded. Weld-on flange dimension is 14 in. / 356 mm face-to-face.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pipe nipples and flanges are 316 Stainless steel for flanged body assemblies.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Principle of Operation**

Refer to Figure 2. Type T205B tank blanketing regulator controls the vapor space pressure over a stored liquid. When liquid is pumped out of the tank or vapors in the tank condense, the pressure in the tank decreases. Tank pressure is sensed by the actuator diaphragm. Spring force pushes the pusher post assembly, the valve disk moves away from the orifice, allowing the gas flow to increase.

When pressure in the tank increases, the actuator diaphragm is pushed. Through the action of the pusher post assembly, lever and valve stem, the valve disk moves closer to the orifice reducing gas flow.

The regulator plug is balanced (inlet pressure creates equal upward and downward forces on these components) see Figure 4, therefore, the outlet (control) pressure of the unit is not affected by inlet pressure variation.
**Installation**

**WARNING**

Personal injury, property damage, equipment damage or leakage due to escaping gas or bursting of pressure-containing parts may result if this regulator is overpressured or installed where service conditions could exceed the limits given in the Specifications section or where conditions exceed any ratings of the adjacent piping or piping connections. Refer to Overpressure Protection section for recommendations on how to prevent service conditions from exceeding those limits.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation or standard) to prevent service conditions from exceeding limits.

Additionally, physical damage to the regulator could cause personal injury or property damage due to escaping gas. To avoid such injury or damage, install the regulator in a safe location.

**Note**

If the regulator is shipped mounted on another unit, install that unit according to the appropriate instruction manual.

1. Only personnel qualified through training and experience shall install, operate and maintain a regulator. For a regulator that is shipped separately, make sure there is no damage to or debris in the regulator. Also ensure that all tubing and piping are clean and unobstructed.

2. The regulator may be installed in any position as long as the flow through the body is in the direction indicated by the arrow on the body. For proper operation to achieve the published capacities at low setpoint, the spring case barrel should be installed pointing downward as shown in Figure 1. For complete actuator drainage, the regulator should be installed as shown in Figure 3. If continuous operation of the system is required during inspection or maintenance, install a three-valve bypass around the regulator.
Figure 4. Balanced Trim Assembly

**WARNING**

A regulator may vent some gas to the atmosphere. In hazardous or flammable gas service, vented gas may accumulate and cause personal injury, death or property damage due to fire or explosion. Vent a regulator in hazardous gas service to a remote, safe location away from air intakes or any hazardous area. The vent line or stack opening must be protected against condensation or clogging.

3. To keep the vent assembly (key 26, Figure 6) from being plugged or the spring case (key 3) from collecting moisture, corrosive chemicals or other foreign material, point the vent down or otherwise protect it. The diaphragm casing (key 4) may be rotated in order to obtain desired positioning.

4. To remotely vent the regulator, remove the vent (key 26, Figure 6) and install obstruction-free tubing or piping into the 1/4 NPT vent tapping. Provide protection on a remote vent by installing a screened vent cap into the remote end of the vent pipe.

5. The Type T205B requires a downstream control line. Be sure to install the control line before putting the regulator into operation. Make the control line as short and straight as possible and do not install it in a location where flow may be turbulent. Restrictions in the control line can prevent proper pressure registration. When using a hand valve, it should be a full flow valve, such as a full port ball valve. Install the control line sloping downward toward the tank to prevent condensation buildup and avoid low points (or traps) that could catch liquid. The sensing line must enter the tank above the liquid level at a point that senses the vapor space pressure and is free from turbulence associated with tank nozzles or vents. The control line pipe should be at least 1/2 in. / 13 mm in diameter and increase 1 pipe size for every 10 ft / 3.05 m of control line, with setpoints less than 5 in. w.c. / 12 mbar.

6. An upstream shutoff valve is recommended to simplify maintenance to the regulator. It is advisable to install a pressure gauge between the upstream shutoff valve and the blanketing valve.
Type T205B

Overpressure Protection

**WARNING**

Personal injury, equipment damage or leakage due to escaping accumulated gas or bursting of pressure-containing parts may result if this regulator is:

- Overpressured
- Used with incompatible process fluid
- Installed where service conditions could exceed the limits given in the Specifications section and on the appropriate nameplate
- Where conditions exceed any ratings of adjacent piping or piping connections

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices to prevent service conditions from exceeding those limits.

Type T205B regulators have an outlet pressure rating lower than the inlet pressure rating. The recommended pressure limitations are stamped on the regulator nameplate. Some type of overpressure protection is needed if the actual inlet pressure can exceed the maximum operating outlet pressure rating. Common methods of external overpressure protection include relief valves, monitoring regulators, shut-off devices and series regulation. Overpressuring any portion of the regulators beyond the limits in the Specifications section may cause leakage, damage to regulator parts or personal injury due to bursting of pressure-containing parts.

If the regulator is exposed to an overpressure condition, it should be inspected for any damage that may have occurred. Regulator operation below the limits specified in the Specifications section and regulator nameplate does not preclude the possibility of damage from external sources or from debris in the pipeline.

**Startup, Adjustment and Shutdown**

**Note**

The Specifications section and Table 1 provide the maximum pressure capabilities for each regulator construction. Use pressure gauges to monitor inlet pressure and outlet pressure during startup and adjustment procedures.

**Startup**

1. Open shutoff valves between the tank blanketing regulator and the tank (both sensing and outlet).
2. Slowly open the supply line shutoff valve (to the blanketing valve) and leave it fully open.
3. Monitor the tank vapor space pressure.

**Adjustment**

**WARNING**

To avoid personal injury, property damage or equipment damage caused by bursting of pressure containing parts or explosion of accumulated gas, never adjust the control spring to produce an outlet pressure higher than the upper limit of the outlet pressure range (see Table 2) for that particular spring. If the desired outlet pressure is not within the range of the control spring, install a spring of the proper range according to the Diaphragm and Spring Case Area section of the maintenance procedure.

Adjust the regulator outlet (control) pressure setting to meet the requirements of the specific application. With a spring-loaded regulator, the pressure setting may be adjusted to a value within the spring range shown in Table 2. To adjust the pressure setting, perform the following steps (key numbers are referenced in Figure 6):

**For internal flat circular adjusting screw**

1. Remove the closing cap (key 22).
2. Use a 1 in. / 25 mm hex rod or flat screwdriver to turn the adjusting screw (key 35) either clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure. Always use pressure gauge to monitor the tank blanketing gas pressure when making adjustments.
3. After making the adjustment, replace the closing cap gasket (key 25) and install the closing cap (key 22).

**For external square head adjusting screw**

1. Loosen the locknut (key 20).
2. Turn the adjusting screw (key 35) either clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure. Always use pressure gauge to monitor the tank blanketing gas pressure when making adjustments.
3. After making the adjustment, tighten the locknut (key 20).

**Shutdown**

1. Close the nearest upstream shutoff valve and then close the nearest downstream shutoff valve to vent the pressure in the regulator properly.
2. Close the valve in the control line and vent the pressure in the lower casing.
3. Open the vent valve between the regulator and the downstream shutoff valve nearest to it. All pressure between these shutoff valves is released through the open vent valve, since a Type T205B remains open in response to the decreasing downstream pressure.

**Maintenance**

Due to normal wear or damage that may occur from external sources, inspect and maintain the regulator periodically. The frequency of inspection and replacement depends on the severity of service conditions, test results found during the annual test and on applicable codes and regulations. In accordance with applicable National or Industry codes, standards and regulations/recommendations, all hazards covered by specific tests after final assembling before applying the CE marking, shall also be covered after every subsequent reassembly at installation site, in order to ensure that the equipment will be safe throughout its intended life.

**WARNING**

To avoid personal injury, property damage or equipment damage caused by sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure from the regulator.

Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Emerson should be used for repairing Fisher™ regulators. Restart gas utilization equipment according to normal startup procedures.

**General Maintenance**

1. Visually inspect the regulator and its parts for any damage.
2. Ensure tight connections, tight seals and safe operation. If there is an evidence of leakage or unstable internal motion, a rebuild with seal replacement and relubrication may be necessary.
3. Observe the blanketing pressure.
4. Inspect the inlet pressure for the proper pressure (stamped on the regulator nameplate).

**Body Area**

Perform the following procedure to gain access to orifice and body O-ring. Release all pressure from the diaphragm casing and open the disk assembly before performing the following steps. Key numbers are referenced in Figure 6.

1. Remove the cap screws (key 2) and separate the diaphragm casing (key 4) from the body (key 1).
2. Remove and inspect the body seal O-ring (key 11) and the backup ring (key 49).
3. Inspect and replace the orifice (key 5) if necessary. Protect the orifice seating surface during disassembly and assembly. Lubricate the threads of the replacement orifice with a good grade of light grease and install with 340 to 470 in-lbs / 38.5 to 53.1 N•m of torque.
4. Place back-up ring (key 49) into the body (key 1). Then place the body seal O-ring (key 11) into the body.
5. Place the diaphragm casing (key 4) on the body (key 1). Secure the diaphragm casing to the body with the cap screws (key 2) using 90 to 126 in-lbs / 10.2 to 14.2 N•m of torque.

**Diaphragm and Spring Case Area**

Perform the following procedure to gain access to the spring, diaphragm, lever assembly, stem and disk assembly. Release all pressure from the diaphragm casing before performing the following steps. Key numbers are referenced in Figure 6.

1. **For internal flat circular adjusting screw** - remove the closing cap (key 22) and closing cap gasket (key 25).
2. **For external square head adjusting screw** - loosen the locknut (key 20).
2. Turn the adjusting screw (key 35) counterclockwise to remove all the compression from the control spring (key 6).

3. If the only maintenance procedure to be performed is the changing of the control spring (key 6):
   - **For internal flat circular adjusting screw**
     a. Remove the adjusting screw (key 35).
     b. Take out the control spring and replace with the desired spring.
     c. Reinstall the adjusting screw.
     d. Adjust the outlet pressure to the desired control pressure setting, refer to steps 2 and 3 of Adjustment section.
     e. Change the stamped spring range on the nameplate. Skip to step 16.
   - **For external square head adjusting screw**
     a. Remove the adjusting screw (key 35) and locknut (key 20).
     b. Remove the closing cap (key 22), closing cap gasket (key 25) and upper spring seat (key 19).
     c. Take out the control spring and replace with the desired spring.
     d. Reinstall the upper spring seat, closing cap gasket, closing cap, locknut and adjusting screw.
     e. Adjust the outlet pressure to the desired control pressure setting, refer to steps 2 and 3 of Adjustment section.
     f. Change the stamped spring range on the nameplate. Skip to step 16.

4. If the further maintenance to the internal diaphragm casing (key 4) parts is required, remove the hex nuts (key 23) and spring case cap screws (key 24). Remove the diaphragm (key 10) plus attached parts by tilting them so that the pusher post (key 8) slips off the lever assembly (key 16). To separate the diaphragm from the attached parts, unscrew the diaphragm head cap screw (key 38) from the pusher post. If the only maintenance procedure to be performed is the replacement of the diaphragm components, skip to step 11.

5. To replace the lever assembly (key 16), remove the machine screws (key 17). If the only future maintenance procedure to be performed is the replacement of the lever assembly, skip to step 10.

6. Remove the guide insert (key 18) and stem (key 14) assembly carefully from the lower casing (key 4). Remove the cotter pin (key 15), bias spring seat (key 40) and bias spring (key 39) then pull the stem out of the guide insert. Apply a moderate coating of lubricant to the stem, install the stem seal O-ring (key 30) and the two back-up rings (key 37) onto the valve stem.

7. Remove the cotter pin (key 15) to replace the disk assembly (key 13).

8. Install the disk assembly (key 13) to stem (key 14) and secure with cotter pin (key 15). Insert the stem into guide insert (key 18), put on bias spring (key 39) and bias spring seat (key 40), secure with another cotter pin. Use plier or equivalent tool to bend the cotter pin ends after insertion (see Figure 5).

9. Install the stem (key 14) and guide insert (key 18) assembly into the lower casing (key 4) and perform Body Area Maintenance procedure steps 4 through 5 as necessary.

10. Install the lever assembly (key 16) into the stem (key 14) and secure the lever assembly with the machine screws (key 17) using 14 to 19 in-lbs / 1.6 to 2.1 N•m of torque.

11. Always use a new diaphragm head gasket (key 45). Install the parts on the pusher post (key 8) in the following order:
    - Diaphragm head gasket
    - Diaphragm head (key 7)
    - Diaphragm (key 10)
    - Diaphragm head
    - Lower spring seat (key 50)
    - Washer (key 36)

Secure the parts with diaphragm head cap screw (key 38) using 60 to 72 in-lbs / 6.8 to 8.1 N•m of torque.
12. Install the pusher post (key 8) and attached parts onto the lever assembly (key 16).

13. Install the spring case (key 3) on the lower casing (key 4) so that the vent assembly (key 26) is correctly oriented and secure them with the spring case cap screws (key 24) and hex nuts (key 23) to finger tightness only.

14. Install the parts into the spring case (key 3). Follow the order below:

For internal flat circular adjusting screw
- Control spring (key 6)
- Adjusting screw (key 35)

For external square head adjusting screw
- Control spring (key 6)
- Upper spring seat (key 19)
- Closing cap gasket (key 25)
- Closing cap (key 22)
- Locknut (key 20)
- Adjusting screw (key 35)

15. Turn the adjusting screw (key 35) clockwise until there is enough control spring force to provide proper slack to diaphragm (key 10). Using a crisscross pattern, finish tightening the spring case cap screws (key 24) and hex nuts (key 23) to 98 to 126 in-lbs / 11.1 to 14.2 N•m of torque. Adjust the outlet pressure to the desired control pressure setting, refer to the Adjustment section.

16. Connect the downstream control line and refer to the Startup section before putting the regulator back in operation.

Parts Ordering

When corresponding with your local Sales Office about this regulator, include the type number and all other pertinent information stamped on the nameplate. Specify the eleven-character part number when ordering new parts from the following parts list.

Parts List

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>See Table 3</td>
</tr>
</tbody>
</table>
| 2   | Cap Screw (2 required)  
For WCC Carbon steel or gray cast iron casing  
For LCC Carbon steel or CF8M/CF3M Stainless steel casing | 1C856228992  
18B3456X012 |
| 3   | Spring Case  
Gray cast iron  
WCC Carbon steel  
LCC Carbon steel  
CF8M/CF3M Stainless steel casing | ERS02558A0  
ERS00195A1  
ERS00195B0  
ERS00195A0 |
| 4   | Lower Casing  
Gray cast iron  
WCC Carbon steel  
LCC Carbon steel  
CF8M/CF3M Stainless steel casing | 47B2271X012  
ERS00196A1  
ERS00196C3  
ERS00196A0 |
| 5  | Orifice 3/8 in. / 9.5 mm  
303 Stainless steel (standard)  
316 Stainless steel | 0B042235032  
0B0422X0012 |
| 6  | Spring      | See Table 2 |
| 7  | Diaphragm Head (2 required)  
Stainless steel | 17B9723X032 |
| 8  | Pusher Post  
For Fluorinated Ethylene Propylene (FEP) diaphragm  
316 Stainless steel | ERS00876A0 |
| 9  | Diaphragm Gasket (for FEP diaphragm)  
Nitrile (NBR) | ERS00713A0 |
| 10 | Diaphragm  
Fluorinated Ethylene Propylene (FEP) (standard)  
Nitrile (NBR) | ERS00193A0  
17B9726X012 |
| 11 | Body Seal O-ring  
Nitrile (NBR)  
Fluorocarbon (FKM)  
Perfluoroelastomer (FFKM)  
EPDM | 1H993806992  
1H9938X0012  
1H9938X0042  
1H9938X0022 |
| 12 | Insert Seal O-ring  
Nitrile (NBR)  
Fluorocarbon (FKM)  
Perfluoroelastomer (FFKM)  
EPDM | 1B885506992  
1B8855X0012  
1B8855X0062  
1B8855X0022 |
| 13 | Disk Assembly  
Stainless steel with Nitrile (NBR)  
Fluorocarbon (FKM)  
Perfluoroelastomer (FFKM)  
EPDM | ERS01112A0  
ERS01112A1  
ERS01112A2  
ERS01112A3 |
| 14 | Stem | ERS00240A0 |
| 15 | Cotter Pin (2 required)  
Stainless steel | 1A866537022 |
| 16 | Lever Assembly  
Stainless steel | 1B5375000B2 |
| 17 | Machine Screw (2 required)  
Stainless steel | 19A7151X022 |
| 18 | Guide Insert  
Stainless steel | ERS00239A0 |
| 19 | Upper Spring seat(1), Zinc-plated steel | 1J618124092 |
| 20 | Lock Nut(1), Steel | 1A413224122 |
| 22 | Closing Cap  
Plastic (standard)  
Steel  
Stainless steel  
Zinc-plated steel(1) | T11069X0012  
1E422724092  
1E422735072  
ERS01809A0 |

* Recommended spare part

1. Use for external square head adjusting screw assembly option for 1.2 to 2.5 psig / 83 to 172 mbar, 2.5 to 4.5 psig / 0.17 to 0.31 bar and 4.5 to 7 psig / 0.31 to 0.48 bar spring ranges only.
### Type T205B Regulator Assembly

**Figure 6.**

#### Key Description

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Part Number</th>
<th>Key</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Hex Nut (8 required)</td>
<td>1A345724122</td>
<td>35</td>
<td>Adjusting Screw</td>
<td>1B537944012</td>
</tr>
<tr>
<td></td>
<td>For WCC Carbon steel or gray cast iron casing</td>
<td></td>
<td></td>
<td>Internal Flat Circular, (standard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For LCC Carbon steel or CF8M/CF3M Stainless steel casing</td>
<td>1A3457K0012</td>
<td></td>
<td>External Square Head</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Spring Case Cap Screw (8 required)</td>
<td>1A579724052</td>
<td>36</td>
<td>For green or light blue spring</td>
<td>1D995448702</td>
</tr>
<tr>
<td></td>
<td>For WCC Carbon steel or gray cast iron casing</td>
<td></td>
<td></td>
<td>For black spring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For LCC Carbon steel or CF8M/CF3M Stainless steel casing</td>
<td></td>
<td></td>
<td>Washer, Plated steel</td>
<td>1B33440X012</td>
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<tr>
<td>25*</td>
<td>Closing Cap Gasket, Neoprene (CR)</td>
<td>1P753306992</td>
<td>37*</td>
<td>Backup Ring, PTFE (2 required)</td>
<td>1K788606992</td>
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<tr>
<td>26</td>
<td>Vent Assembly</td>
<td></td>
<td>38</td>
<td>Diaphragm Head Cap Screw, Zinc-plated steel</td>
<td>1B290524052</td>
</tr>
<tr>
<td></td>
<td>Spring Case Sideways (standard)</td>
<td>27A5516X012</td>
<td>39</td>
<td>Bias spring, Stainless steel</td>
<td>GE30193X012</td>
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<tr>
<td></td>
<td>(Type Y602-12)</td>
<td></td>
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<tr>
<td></td>
<td>Spring Case Down (Type Y602-1)</td>
<td>17A6570X012</td>
<td>40</td>
<td>Bias spring seat, Stainless steel</td>
<td>ERSA02020A</td>
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<td></td>
<td>Spring Case Up (Type Y602-11)</td>
<td>17A5515X012</td>
<td>45*</td>
<td>Diaphragm Head Gasket, Composition</td>
<td>1B33450X012</td>
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<tr>
<td>30*</td>
<td>Stem Seal O-ring</td>
<td></td>
<td>46</td>
<td>Nameplate</td>
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<tr>
<td></td>
<td>Nitrile (NBR)</td>
<td>1D687506992</td>
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<td>Drive Screw (2 required), Stainless steel</td>
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<td></td>
<td>Fluorocarbon (FKM)</td>
<td>1N430406382</td>
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<td>Flow Arrow</td>
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<td>Perfluoroelastomer (FFKM)</td>
<td>1D6875X0082</td>
<td>49</td>
<td>Backup Ring, Stainless steel</td>
<td>1B34446X012</td>
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<tr>
<td></td>
<td>EPDM</td>
<td>1D6875X0032</td>
<td>50</td>
<td>Lower Spring Seat, Zinc-plated steel</td>
<td>1B636325062</td>
</tr>
</tbody>
</table>

* *Recommended spare part*
**Type T205B**

EXTERNAL SQUARE HEAD ADJUSTING SCREW ASSEMBLY OPTION

EXTERAL SQUARE HEAD ADJUSTING SCREW ASSEMBLY OPTION

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APPLY LUBRICANT (L)\(^2\)

- L2 = ANTI-SEIZE COMPOUND

1. For 1.2 to 2.5 psig / 83 to 172 mbar, 2.5 to 4.5 psig / 0.17 to 0.31 bar and 4.5 to 7 psig / 0.31 to 0.48 bar spring ranges only.
2. Lubricant must be selected such that they meet the temperature requirements.

**Figure 6.** Type T205B Regulator Assembly (continued)
**Table 3. Body Materials and Part Numbers (Body, key 1)**

<table>
<thead>
<tr>
<th>BODY MATERIAL</th>
<th>END CONNECTION STYLE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray Cast Iron</td>
<td>NPT</td>
<td>ERS01588A0</td>
</tr>
<tr>
<td>WCC Carbon steel</td>
<td>NPT</td>
<td>ERS00230A1</td>
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<tr>
<td></td>
<td>CL150 RF</td>
<td>ERS01469A0</td>
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<tr>
<td></td>
<td>CL300 RF</td>
<td>ERS01469A2</td>
</tr>
<tr>
<td></td>
<td>PN 16/25/40 RF</td>
<td>ERS01469A4</td>
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<td>LCC Carbon steel</td>
<td>NPT</td>
<td>ERS00230A8</td>
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<tr>
<td>CF8M/CF3M Stainless</td>
<td>NPT</td>
<td>ERS00230A0</td>
</tr>
<tr>
<td></td>
<td>CL150 RF</td>
<td>ERS01469A6</td>
</tr>
<tr>
<td></td>
<td>CL300 RF</td>
<td>ERS01469A8</td>
</tr>
<tr>
<td></td>
<td>PN 16/25/40 RF</td>
<td>ERS01469B0</td>
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</tbody>
</table>

1. All flanges are welded. Weld-on flange dimension is 14 in. / 356 mm face-to-face.
2. Pipe nipples and flanges are 316 Stainless steel for flanged body assemblies.

**Table 4. Type T205B Trim Option Code**

<table>
<thead>
<tr>
<th>TRIM OPTION CODE</th>
<th>DIAPHRAGM MATERIAL</th>
<th>DISK AND O-RING MATERIAL</th>
<th>OPERATING TEMPERATURE RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Fluorinated Ethylene Propylene (FEP)</td>
<td>Nitrile (NBR)</td>
<td>-20 to 180°F / -29 to 82°C</td>
</tr>
<tr>
<td>NN</td>
<td>Nitrile (NBR)</td>
<td>Nitrile (NBR)</td>
<td>-40 to 180°F / -40 to 82°C</td>
</tr>
<tr>
<td>VV</td>
<td>Fluorocarbon (FKM)</td>
<td>Fluorocarbon (FKM)</td>
<td>40 to 300°F / -4 to 149°C</td>
</tr>
<tr>
<td>TV</td>
<td>Fluorinated Ethylene Propylene (FEP)</td>
<td>Fluorocarbon (FKM)</td>
<td>40 to 180°F / 4 to 149°C</td>
</tr>
<tr>
<td>TK</td>
<td>Fluorinated Ethylene Propylene (FEP)</td>
<td>Perfluoroelastomer (FFKM)</td>
<td>0 to 180°F / -18 to 82°C</td>
</tr>
<tr>
<td>TE</td>
<td>Fluorinated Ethylene Propylene (FEP)</td>
<td>EPDM</td>
<td>-20 to 180°F / -29 to 82°C</td>
</tr>
</tbody>
</table>

The distinctive diamond shape cast into every spring case uniquely identifies the regulator as part of the Fisher™ brand and assures you of the highest-quality engineering, durability, performance, and support.