Steam Pressure Regulators

Series 127
Sizes: 1/2” – 4”

Series 152A
Sizes: 1/2” – 2”
Series 252A
Sizes: 1/2” – 3/4”
### Series 127

**Steam Pressure Regulating Valves**

**Sizes: ½” – 4” (15 – 100mm)**

For Main Line or Large Process Service

Standardly furnished with stainless steel seat and trim

The design of Watts Series 127 steam pressure regulators is based upon the tested and proven performance principles of reliable previous models. They are especially engineered and recommended for main line and high capacity process regulation service, heating applications, and are also suitable for dead-end service. The 127 Series are single seated, remote control, diaphragm type regulators, ideal for institutional, industrial, and commercial application; and no regulator offers greater service capabilities at such moderate cost.

Standard construction features stainless steel and nickel alloy seats and trim for either superheated or saturated steam service. Size ½" – 1¼" standardly furnished with Composition Disc construction (127SC). Initial pressures up to 150 lbs. When specially required with stainless steel valve disc; specify Series 127SS. Initial pressures up to 250 lbs. Sizes 1½" and above standardly furnished with stainless steel valve disc (127SS). Bronze bodies with screwed connections are furnished in sizes ½" – 3” inclusive; and sizes 3” and 4” are also available in cast iron flanged bodies. Initial pressures up to 125 lbs.

Based upon initial pressures up to 250 lbs., an accurate selection of reduced pressure is possible in a range down to 5 lbs. and up to 150 lbs., depending on size of regulator and supply pressure. See page 7 for standard ranges available. Reduced pressure below those shown are also available at extra charge. Consult factory.

Because of the severe conditions imposed on any equipment in steam service, Watts engineers gave particular attention to the convenience of maintenance and the need to quickly restore regulator service when maintenance is required. As shown below, the Series 127 incorporates outstanding maintenance features. Springs and diaphragm chamber assemblies are easily changed and the valve is simple to adjust.

### Maximum Working Pressures

- **Bronze Bodies – Series 127SC** – Initial Pressure up to 150 lbs. Sizes ½” – 1¼"
- **Bronze Bodies – Series 127SS** – Initial Pressure up to 250 lbs. Sizes ½” – 3”
- **Iron Bodies – Standard Flange** – Initial Pressure up to 125 lbs. Sizes 3” – 4”. 125 lbs. W.S.P.

### Dimensions – Weights

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SIZE (DN)</th>
<th>DIMENSIONS (approx.)</th>
<th>WEIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in.</td>
<td>mm</td>
<td>in.</td>
</tr>
<tr>
<td><strong>Bronze Body</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female Screwed Connections</td>
<td>½”</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>¾”</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1”</td>
<td>25</td>
<td>4¼</td>
</tr>
<tr>
<td></td>
<td>1¼”</td>
<td>32</td>
<td>4½</td>
</tr>
<tr>
<td></td>
<td>1½”</td>
<td>40</td>
<td>5½</td>
</tr>
<tr>
<td></td>
<td>2”</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2½”</td>
<td>65</td>
<td>7/₄</td>
</tr>
<tr>
<td></td>
<td>3”</td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td><strong>Iron Body</strong> *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flanged Connections</td>
<td>3”</td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>4”</td>
<td>100</td>
<td>12½</td>
</tr>
</tbody>
</table>

Dimension “D” is 6”, 8”, or 10” depending upon reduced pressure range.

* Flange size connections 125 lbs. W.S.P.
Outstanding Maintenance Features
All steam pressure regulators have certain fundamental design factors, but not all competitive designs have the outstanding accessible features incorporated in the latest Watts design. As evidenced in the following illustrations, Watts Series 127 was purposely designed with ease of servicing and to simplify stocking flexibility or job change pressure specifications.

Diaphragm chamber is easily changed by the removal of two bolts. Chambers and springs are interchangeable for all sizes.

Lugs on the bonnet permit easy removal of the topwork by applying a hammer and blunt tool as illustrated, to expose valve disc and seat.

Valve disc and seat can be easily serviced, but STANDARDLY FURNISHED stainless steel and nickel alloy seats and trim reduce maintenance and increase longevity.

Basic Installation Information
Series 127 may be installed with the diaphragm above or below the line. It may also be installed in a vertical line. Pressure connections must always have a water seal.
Series 152A, 252A
Medium Volume Process Regulators

Sizes: Series 152A 1/2" – 2" (15 – 50mm),
       Series 252A 1/2" – 3/4" (15 – 20mm)

For Steam
The general objective in the Watts 152A design is to offer a standard price regulator capable of handling the majority of lower volume process requirements for either saturated wet, or superheated steam without need of specifying type of trim required for various services.

This latest design also offers highly sensitive response to reduced pressure changes. Consequently, it maintains fullest possible volume without appreciable reduced pressure drop.

These valves are used successfully on applications where smaller demands are met, such as in autoclaves, steam table, laundry mangles, steam irons, single radiators, vulcanizers and sterilizers.

Construction of 152A Series is cast iron for supply pressure up to 200 lbs. Reduced pressure is adjustable in various pressure ranges, see table on page 5. Also custom made valves and ranges available. Consult factory.

Servicing convenience is indicated by certain unique design features. The disc and stem assembly is easily removable, so that a new assembly can be installed quickly while the worn assembly is being repaired for further service later. A large bottom plug facilitates such maintenance, as well as the cleaning or replacing of the strainer. Maintenance can be performed without removing the valve body from the line.

252A — Identical to Series 152A except furnished with special composition bronze body for supply pressures in excess of 200 lbs. and up to 300 lbs. Sizes 1/2" and 3/4".

152AT or 252AT — Tight seating model for dead-end and liquid service. When utilizing a Teflon® valve disc in the 252AT, the maximum operating temperatures are 300°F at 300psi and 400°F at 200psi. 152AT maximum inlet pressure 200 lbs.

Stainless Steel
152SS — With stainless steel body and cage, 1/2", 3/4", 1" for pressure up to 300psi and 420°F.

152SST — Tight seating model for dead-end and liquid service, 1/2", 3/4", 1". Operating temperatures are 300°F at 300psi and 400°F at 200psi.

Dimensions – Weights

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SIZE (DN)</th>
<th>DIMENSIONS (approx.)</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in. mm</td>
<td>A in. mm B in. mm C</td>
<td>lbs. kgs.</td>
</tr>
<tr>
<td>152A, 152SS</td>
<td>1, 1 1/4</td>
<td>5 5/8 144 2 51</td>
<td>20 9</td>
</tr>
<tr>
<td>152A</td>
<td>1 1/2, 2</td>
<td>6 5/8 170 2 7/4</td>
<td>40 18</td>
</tr>
</tbody>
</table>

Specification Table for Simplified Selection

Due to Watts standardized superior features, it is only necessary to specify type number and reduced pressure range required.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SERVICE</th>
<th>BODY MATERIAL</th>
<th>MAXIMUM INITIAL PRESSURE</th>
<th>DISC</th>
<th>SEAT</th>
<th>REQUIRED PRESSURE RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>152A</td>
<td>Saturated, Wet or Superheated Steam</td>
<td>Iron</td>
<td>200 lbs.</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>See page 5</td>
</tr>
<tr>
<td>152SS</td>
<td>Saturated, Wet or Superheated Steam</td>
<td>Stainless Steel</td>
<td>300 lbs.</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>See page 5</td>
</tr>
<tr>
<td>252A</td>
<td>Saturated, Wet or Superheated Steam</td>
<td>Composition Bronze</td>
<td>300 lbs.</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
<td>See page 5</td>
</tr>
</tbody>
</table>
**Outstanding Features**

This is a typical multiple installation on a hospital autoclave.

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**Series 152A, 252A Adjusting Spring Range Chart**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>ADJUSTABLE RANGES</th>
<th>SPRING AND MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Series 152A, 252A</td>
<td>Series 152SS</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>3 lbs. – 15 lbs.</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>10 lbs. – 50 lbs.</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 140 lbs.</td>
<td>141</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>3 lbs. – 15 lbs.</td>
<td>145</td>
</tr>
<tr>
<td></td>
<td>10 lbs. – 50 lbs.</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 140 lbs.</td>
<td>141</td>
</tr>
<tr>
<td>1&quot;</td>
<td>3 lbs. – 15 lbs.</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>10 lbs. – 30 lbs.</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 140 lbs.</td>
<td>142</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td>3 lbs. – 15 lbs.</td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>10 lbs. – 30 lbs.</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 140 lbs.</td>
<td>142</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>5 lbs. – 40 lbs.</td>
<td>276</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 100 lbs.</td>
<td>299</td>
</tr>
<tr>
<td>2&quot;</td>
<td>5 lbs. – 40 lbs.</td>
<td>276</td>
</tr>
<tr>
<td></td>
<td>30 lbs. – 100 lbs.</td>
<td>299</td>
</tr>
</tbody>
</table>

*The minimum reduced pressure ranges shown are recommended only when very sensitive regulation service is needed for specific requirements. However, all valves may be adjusted below the working range minimums shown for lower regulation or complete shut off.

† Series 152SS adjustable range is 10 – 50 lbs.

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**Sensitivity Adjuster Feature**

**Now Standardly Furnished in Series 152A, 252A, 152SS**

Simple, External Adjustment . . . Lets you “dial out” any vibration noises

A unique feature of the new 152A, 252A Series is that they are now standardly furnished with a **“sensitivity adjuster feature”** which permits the user to “dial out” any vibration noises which may be created in the line because of certain critical flow conditions. The regulator is furnished with the “compensator screw” in the vertical or “wide open” position. If, however, flow conditions in the line cause vibration, the adjustment screw can be turned slowly with a screwdriver until the vibration is eliminated. This feature, exclusive in Watts pressure regulators, puts an end to “chattering” problems caused by critical steam flow. This added feature also improves performance and capacity.

**When utilizing a Teflon® disc in the 152SST or 252AT, the maximum operating temperatures are 300°F at 300psi and 400°F at 200psi.**
Size and Capacity Information

For Watts Series 127 and 152A Pressure Regulators

For steam service the correct size valve is most important for satisfactory regulator service, and selection should be carefully considered. In a broad sense, the smallest size regulator that will satisfy the peak demands of a given installation is the correct size. If a regulator is too large, wire drawing of the seat and disc will result — if too small, service will be inadequate and regulation will be uneven. Size of the valve is in direct relation to the demand and it is determined by the weight of steam required under given initial and reduced pressures.

It is important when ordering to give certain other information so that our engineers can specify the proper combination of diaphragm, seat and disc, springs or weights that will serve your need best. Our engineering department will also be glad to help solve any installation problems that are encountered.

Steam Capacity Chart

Chart I

Table of Valve Co-Efficients for Steam

Table A

<table>
<thead>
<tr>
<th>MODEL</th>
<th>1/8&quot;</th>
<th>1/4&quot;</th>
<th>1&quot;</th>
<th>1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>127</td>
<td>.065</td>
<td>.147</td>
<td>.262</td>
<td>.409</td>
<td>.589</td>
<td>1.05</td>
<td>1.64</td>
</tr>
<tr>
<td>152A, 252A</td>
<td>.024</td>
<td>.085</td>
<td>.120</td>
<td>.132</td>
<td>.187</td>
<td>.216</td>
<td>—</td>
</tr>
</tbody>
</table>

How to Use Steam Capacity Chart

1. To find correct valve size when initial and reduced pressure and amount of steam (pounds per hour) are known. In Chart I under the known initial pressure and opposite the required reduced pressure select the figure shown. Divide the amount of steam required by this figure. The quotient thus obtained is the valve co-efficient. Select a valve size whose co-efficient is equal to or next larger than this figure.

Example:

Initial pressure is 100 lbs.
Amount of Steam: 275 lbs. per hour
Reduced pressure is 45 lbs.
Under 100 and opposite 45 is the figure 5950
Co-efficient is 275 ÷ 5950 equals .046

For Type 127, the nearest valve co-efficient in Table A is .065, which corresponds to a 1/2" valve.
For Type 152A, the nearest valve co-efficient in Table A is .085, which corresponds to a 1/4" valve.

2. To determine the valve size when the amount of radiation, initial and reduced pressure are given. Convert the radiation to pounds of steam by dividing the square feet of radiation by 4, then proceed as in 1.

3. To determine the size of valve necessary for steam coil heater in water storage tank when initial and reduced pressures are given and heater recovery capacity in gallons per hour is known.

Multiply cap. gal. per hr. by .93 for 80˚ rise per hr.
Multiply cap. gal. per hr. by 1.16 for 100˚ rise per hr.
Multiply cap. gal. per hr. by 1.62 for 140˚ rise per hr.
Multiply cap. gal. per hr. by 1.74 for 150˚ rise per hr.
The resulting figure is pounds of steam required.
Determine valve size as shown in 1.

4. To determine the capacity of a valve when the initial and reduced pressure are known. In Chart I under the known initial pressure and opposite the known reduced pressure select the figure shown. Multiply this by the co-efficient for the size of the valve. The result is the cap. in lbs. steam per hr.
Series 127 Standard Reduced Pressure Range Chart

The Table shows minimum and maximum reduced pressure ranges obtainable with various selections of chamber diameters and adjusting spring, depending on supply pressures.

<table>
<thead>
<tr>
<th>VALVE SIZE</th>
<th>MODEL</th>
<th>INITIAL PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>1&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>2&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>2 1/2&quot;</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>3&quot; &amp; 4&quot;</td>
<td></td>
<td>206</td>
</tr>
</tbody>
</table>

Note: Consult factory for special ranges below those shown, providing initial pressure, reduced pressure and valve sizes.

Quick Reference Capacity Chart for Average Conditions

<table>
<thead>
<tr>
<th>MODEL SIZE</th>
<th>INITIAL PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FROM 50</td>
</tr>
<tr>
<td></td>
<td>UP TO 20</td>
</tr>
</tbody>
</table>

Maximum Capacities in lbs. of Steam per Hour

Example: Initial pressure is 100 lbs., reduced pressure is 50 lbs. and capacity required is 1500 lbs. of steam per hour. By referring to the proper initial reduced pressure column (100 up to 50) a Type 127 valve, size 1" is required.

Note: Shaded areas are not for 3" & 4" flanged valves, maximum pressure 125.
For Technical Assistance Call Your Authorized Watts Agent.

<table>
<thead>
<tr>
<th>HEADQUARTERS: Watts Regulator Company</th>
<th>Telephone #</th>
<th>Fax #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watts Regulator Co. Division</td>
<td>815 Chestnut St., North Andover, MA 01845-6098 U.S.A.</td>
<td>978 688-1811</td>
</tr>
</tbody>
</table>

### North East
- **Edward H. Platt & Deely, Inc.**
  - 271 Royal Ave., Hawthorne, NJ 07506
  - 973 427-2898
  - 973 427-4246
- **Edward Platt, Deely & Co., Inc.**
  - 368 Wyandanch Ave., North Babylon, NY 11703
  - 631 253-0600
  - 631 253-0303
- **W. P. Haney Co., Inc.**
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  - 508 238-0200
  - 508 238-8533

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  - 724 745-7420
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  - 804 643-7355
  - 804 643-7380
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  - 703 866-5332
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  - 215 443-7500
  - 215 443-7573
  
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  - 504 602-8106
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  - 601 856-8390
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  - 787 769-0085
  - 787 750-5120
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  - 205 879-3469
  - 205 870-5027

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  - 317 845-7967
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  - 517 263-8988
  - 517 263-2328
- **Disney McLane & Associates**
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  - 513 842-1682
  - 877 476-1682
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  - 708 429-1211
  - 708 429-0507

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  - 714 888-2448
- **Delco Sales, Inc.**
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  - 808 895-0090
  - 808 895-0091
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  - 253 867-5040
  - 253 867-5055
- **P R Sales, Inc.**
  - 3050 North San Marcos Place, Chandler, AZ 85225
  - 480 892-6000
  - 480 892-6096

### Canada
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  - (Watts Regulator Co. Division) 5435 North Service Road, Burlington, Ontario L7L 5H7
  - 905 332-4090
  - 905 332-7068
- **Con-Cur West Marketing, Inc.**
  - #109-42 Falcon St., Coquitlam, British Columbia V3K 6X9
  - 604 540-5088
  - 604 540-5064
- **D.C. Sales, Ltd.**
  - 10-6130 4th St. S.E., Calgary, Alberta T2H 2A6
  - 403 253-6780
  - 403 259-8331
- **D.C. Sales, Ltd.**
  - 11420 142 Street, West Jordan, UT 84088
  - 801 282-0700
  - 801 282-0600

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