

# YARWAY HANCOCK FORGED STEEL GLOBE STOP VALVES

SERIES 5500

Direct contact, metal-to-metal seating, make the globe valve ideal for most shut-off applications.



## **GENERAL APPLICATION**

Designed for ASME boiler and pressure vessel code, section I applications including vents, drains, bypass systems, gauge shutoff, instrument isolation, chemical cleaning systems, control valve isolation, auxiliary steam lines, heat exchangers, or wherever reliable, leak-tight performance, under high temperature/pressure conditions, is required.

## **TECHNICAL DATA**

Sizes: NPS ½ to 2
ASME 800 LTD Class

### **FEATURES**

- The 5500 has a fixed, repairable seat overlaid with Stellite or equal hardfacing.
- Available with threaded or socket weld end connections as standard.
- Valves are made using one-piece, die forged bodies.
- All internal surfaces are accurately machined to provide maximum performance.
- The disc is hardened, ground, and lapped to ensure leak free sealing over the valve's full pressure/temperature range.
- A precision machined, integral backseat is standard.
- Both seats are designed for accurate, repeatable, seating alignment.
- Corrosion inhibited graphite packing and braided graphite filament anti-extrusion rings are standard.
- Standard body and bonnet materials are carbon steel (ASME SA105), alloy steel (ASME SA182 Gr. F11) and stainless steel (ASME SA182 Gr. F316) Trim for steel valves is 13% chrome 316 stainless steel valves have 316
  trim
- Also available in a variety of body and trim materials. (See page 5)
- A needle disc option is available.
- Code compliance with ASME B16.34 and the ASME boiler and pressure vessel code, section I

Large spoked handwheel -

for ease of operation and locking.

Stainless steel thread bushing

prevents wear and corrosion.

**ACME stem thread** - for maximum strength, smooth quick operation.

**Integral bonnet and yoke** - one piece forging - is made from ASME boiler and pressure vessel CODE Section I listed materials.

**Gland/Gland flange** - rugged, forged steel, gland flange and separate gland are self aligning for straight line thrust against packing. No special tools required for packing adjustment.

**High strength bonnet bolting** - extra heavy hex head cap screws use standard tools for easy maintenance

Forged body and bonnet - in full accordance with ASME boiler pressure vessel code, Section I design and material requirements.

### Body-bonnet joint -

metal to metal surface contact for automatic gasket compression control and elimination of flange overstressing.

**Fixed back seat** - for positive, leakproof, packing chamber isolation. Fully machined for accurate seating.

Rugged stem-wedge connection

one piece steam and Tee slot design is the strongest in the industry.

s the strongest in the industry.

Standard hex gland nuts - can be adjusted with standard tools.

**Swing bolts hardened pins** - for ease of repacking pins are retained on both ends for maximum strength and safety.

Heavy duty yoke - takes high actuation

**Graphite packing** - rings with built in corrosion inhibitor for leak tight sealing at high and low pressures and temperatures.

**Non-extrusion rings** - at top and bottom of packing to prevent packing migration and ensure long service life in high pressure and temperature service.

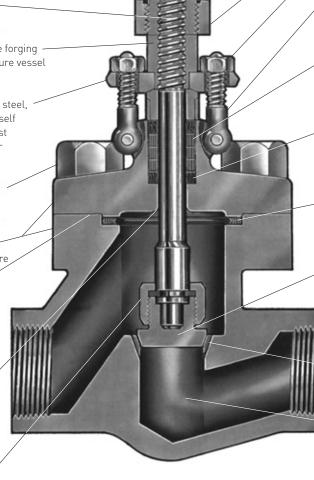
**Graphite filled stainless gasket** - with controlled compression for maximum corrosion resistance and zero leakage.

**Hardened disc** - precision ground for accurate, leak-tight seating.

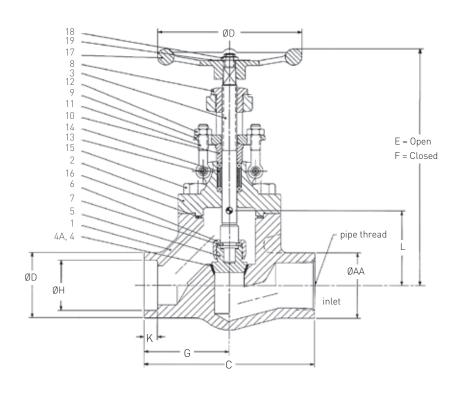
**End connections** - in accordance with ASME B16.34, B16.11 and are available in threaded and socket weld configurations.

**Renewable, hard-faced seats** - stellite or equal, are standard with all Yarway globe valves.

**Large ports and seats** - for high flow and low pressure drop.



All Yarway 5500 series valves comply with ASME B16.34.



# **PARTS LIST**

| PARISI | -151                         |                               |
|--------|------------------------------|-------------------------------|
| No.    | Description                  | Material                      |
| 1      | Body                         | ASME SA105 Carbon steel       |
| 2      | Bonnet                       | ASME SA105 Carbon steel       |
| 3      | Stem                         | 410 Stainless Steel           |
| 4      | Seat facing                  | Stellite or Equivalent        |
| 4A     | Replaceable seat (Type 5520) | 410 Stainless steel           |
| 5      | Disc                         | 420 Stainless steel           |
| 6      | Disc nut                     | 410 Stainless steel           |
| 7      | Lock ring                    | 410 Stainless steel           |
| 8      | Thread bushing               | 410 Stainless steel           |
| 9      | Packing gland flange         | Carbon steel (Phosphated)     |
| 10     | Packing gland                | 410 Stainless steel           |
| 11     | Packing gland bolt           | 410 Stainless steel           |
| 12     | Packing gland nut            | Carbon steel - Cadmium plated |
| 13     | Pin                          | 410 Stainless steel           |
| 14     | Packing set                  | Compressed Graphite           |
| 15     | Bonnet bolt                  | B7 Alloy Steel (Phosphated)   |
| 16     | Bonnet gasket                | 304 SS (Graphite) Filled      |
| 17     | Handwheel                    | Ductile iron (Phosphated)     |
| 16     | Handwheel nut                | Carbon steel (Phosphated)     |
| 19     | Marker plate                 | 304 Stainless steel           |

**NOTE:** See page 5 for alternate trim materials

# YARWAY HANCOCK FORGED STEEL GLOBE STOP VALVES

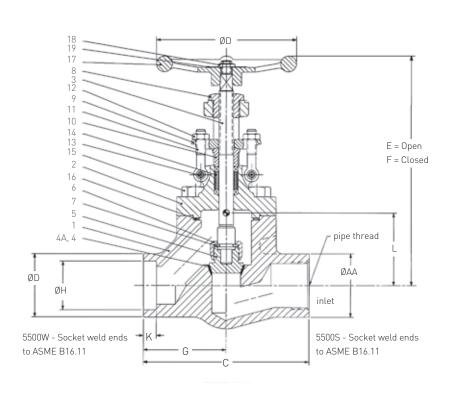
SERIES 5500

## **DIMENSIONS** (inches)

| Size | Α     | ØAA   | С     | ØD   | E      | F      | G      | ØН    | K   | Wt.   | C <sub>v</sub> |
|------|-------|-------|-------|------|--------|--------|--------|-------|-----|-------|----------------|
| NPS  |       |       |       |      |        |        |        |       |     | (lbs) | values         |
| 1/2  | 15/16 | 15/16 | 35/16 | 31/2 | 515/16 | 511/16 | 121/32 | 0.855 | 3/8 | 5.00  | 1.00           |
| 3/4  | 11/2  | 11/2  | 3%16  | 31/2 | 63/8   | 6      | 125/32 | 1.065 | 1/2 | 5.25  | 2.00           |
| 1    | 17/8  | 17/8  | 43/8  | 4    | 73/4   | 71/4   | 23/16  | 1.330 | 1/2 | 8.50  | 4.00           |
| 11/2 | 21/2  | 21/2  | 61/2  | 51/2 | 95/8   | 815/16 | 31/4   | 1.915 | 1/2 | 17.50 | 10.40          |
| 2    | 31/8  | 31/8  | 7     | 61/2 | 111/16 | 103/16 | 31/2   | 2.406 | 5/8 | 27.00 | 14.00          |

## BODY, BONNET AND TRIM MATERIAL COMBINATIONS

| Variation     | Standard                          | 11/4% Chrome alloy steel          | Stainless steel | Stainless steel                     |  |  |
|---------------|-----------------------------------|-----------------------------------|-----------------|-------------------------------------|--|--|
|               | Int. seat                         | F11 (1¼% Cr., ½% Mo)              | F316 with       | F316 with H.F.                      |  |  |
|               | 13% Cr. trim                      | 13% Cr. trim                      | 316 Trim        | Seat and disc                       |  |  |
| Suffix No.    | None                              | -445                              | -535            | -1449                               |  |  |
| Valve Types   |                                   |                                   |                 |                                     |  |  |
| Available     | 5500S -W                          | 5500S -W                          | 5500S -W        | 5500S-W                             |  |  |
| Body          | Carbon steel                      | SA182                             | SA182           | SA182                               |  |  |
|               | SA105                             | Gr. F11                           | Gr. F316        | Gr. F316                            |  |  |
| Bonnet        | Carbon steel                      | SA182                             | SA182           | SA182                               |  |  |
|               | SA105                             | Gr. F11                           | Gr. F316        | Gr. F316                            |  |  |
| Seat          | Hard faced with stellite or equal | Integral                          | 316 S/S         | Integral                            |  |  |
|               |                                   | Hard faced with stellite or equal |                 | Hard faced with stellite or equal   |  |  |
| Disc          | 420 S/S                           | 420 S/S                           | 316 S/S         | 316 S/S H.F. with Stellite or equal |  |  |
| Stem          | 410 S/S                           | 410 S/S                           | 316 S/S         | 316 S/S                             |  |  |
| Packing gland | 410 S/S                           | 410 S/S                           | 316 S/S         | 316 S/S                             |  |  |
| Disc nut      | 410 S/S                           | 410 S/S                           | 316 S/S         | 316 S/S                             |  |  |
| Lock ring     | 410 S/S                           | 410 S/S                           | 316 S/S         | 316 S/S                             |  |  |
| Gasket        | 304 S/S                           | 304 S/S                           | 316 S/S         | 316 S/S                             |  |  |
|               | Spiral wound                      | Spiral wound                      | Spiral wound    | Spiral wound                        |  |  |
|               | Grafoil® filled                   | Grafoil® filled                   | Grafoil® filled | Grafoil® filled                     |  |  |
| Packing       | Compressed graphite - lubricated  | - Corrosion inhibited             |                 |                                     |  |  |



Positive contact, metal-to-metal seating, make the globe valve ideal for most shut-off applications. The basic design eliminates the inherent problem of "wedge sticking" common in wedge

gate valves caused when high thermal transients or piping load stresses exert such force that the valve won't open. The contoured disc allows for accurate control over the initial portion of stem travel, permitting smooth, linear flow, thereby preventing mechanical and/or thermal shock to the valve, down stream piping or expensive machinery. An outstanding feature of a conventional globe valve, as opposed to a gate valve, is its ability to handle flow around the full seat diameter from the instant it starts to open. That is to say that the high velocities, occurring during the initial opening of a conventional globe valve, are distributed evenly and simultaneously across the entire seating surface. It is this characteristic that helps protect the seating surfaces from erosion. This same characteristic is what helps to prevent cavitation and high velocity fluid from damaging the valve's downstream body walls or piping. The availability of metal-to-metal seating gives globe valves the ability to withstand high temperatures. Hardened or hard faced seats enhance the globe valve's ability to hold up in abrasive and high velocity environments. A wide variety of body and trim materials permits its use in severe and corrosive service applications.

#### **SELECTION**

Globe stop valves can be used in a wide variety of services and applications, however, they are especially well suited for applications requiring:

- Tight shut-off at high pressures and temperatures.
- Slow initial opening times.
- Throttling on initial start-up or shutdown.
- Rapid actuation or high speed remote operation.
- Valve operation during, or after, high thermal or piping stress transient conditions.
- Isolation, draining, venting or filling at high pressures and/or temperatures, while having to maintain tight shut-off at maximum operating conditions.
- Pressure or temperature equalizing of systems or large valves.

When selecting globe valves, utilization of a top entry design with a non-welded bonnet closure, will permit easy access to internal components for service and parts replacement, without having to remove the valve from the line. The ability to make quick repairs is especially important at start-up time, when valve damage from fabrication debris is most likely to cause expensive down time and project delays.

### TYPICAL SPECIFYING SEQUENCE

| Example                                  | NPS 1/2 | 5500 | W | 2 | -445 |
|--|---------|------|---|---|------|
| Nominal valve size NPS                   |         |      |   |   |      |
| 1/2, 3/4, 1, 11/2, 2                     |         |      |   |   |      |
| Valve type number                        |         |      |   |   |      |
| 5500 - Globe valve, T-Type integral seat |         |      |   |   |      |
| End connection                           |         |      |   |   |      |
| S - Threaded end                         |         |      |   |   |      |
| W - Socket end                           |         |      |   |   |      |
| Design change number                     |         |      |   |   |      |
| 2  |         |      |   |   |      |
|  |         |      |   |   |      |

### Material combination suffix

None – A105 Body and bonnet, 13 Cr. trim

- -445 F11 Body and bonnet, 13 Cr. trim
- -535 316 Body, bonnet and trim
- -1449 316 Body, bonnet and trim (Trim is hard-faced with stellite)

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