

5 1/4" WATER VALVE BOX HEIGHT SELECTION GUIDE

Selecting the right valve box height starts with the depth of the trench, the size of the valve, and the valve box configuration. This guide provides step-by-step instructions for determining the required height and selecting an appropriate extension range for 5 1/4" Cast Iron and Bison™ valve boxes used in water applications.

The following sections cover two-piece and three-piece assemblies, with the measurements, calculations, and selection tables needed for each. Additional information on Plastic and CIP configurations, larger valve box sizes, and application-specific selection assistance is included at the end of the guide.

5 1/4" VALVE BOX TWO-PIECE ASSEMBLIES

A two-piece valve box consists of a top section and a bottom section and is designed to cover the operating nut and stuffing box. Because a portion of the valve remains below the bottom section, the total trench depth is greater than the required valve box height.

REFERENCE TABLE 1: TWO-PIECE VALVE BOX MEASUREMENTS BASED ON VALVE SIZE

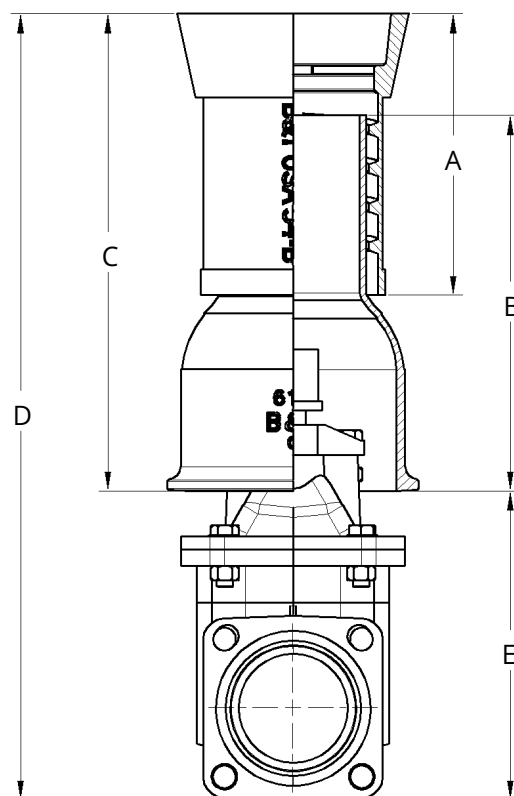
Size of the valve (IN.)	3	4	5	6	8	10
Corresponding distance (IN.) from the bottom of the two-piece valve box to bottom of the trench (DIM. E)	10	12	14	16	21	25

1. To calculate the overall height of your two-piece valve box (DIM. C), you will need to know the depth of your trench (DIM. D) and the size of your valve.
2. In Reference Table 1, use the size of your valve to determine the corresponding distance from the bottom of the valve box to the bottom of the trench (DIM. E).
3. Subtract this distance (DIM. E) from the depth of your trench (DIM. D) to determine the valve box height (DIM. C).
4. With the valve box height (DIM. C) determined, refer to the tables on the following pages to find the two-piece valve box assembly extension range that best fits your installation.

EXAMPLE: For a two-piece valve box with a 6" valve in 5' trench:

Depth of trench (DIM. D)	60"
6" valve - subtract 16" (DIM. E)	-16"
Required valve box height (DIM. C)	44"

In this example, with a required height of 44", select an assembly with an extension range that includes 44". Available options include Cast Iron 39"-50", Bison 36"-48", Plastic 36"-48" or 40"-48", and CIP 39"-48".



VALVE BOX HEIGHT WORKSHEET: 5¼" TWO-PIECE ASSEMBLY

Depth of trench (DIM. D) = _____

Size of valve = _____

Measurement of valve below the valve box (DIM. E) = _____

Use Reference Table 1 on page 1 to determine DIM. E

DIM. D - DIM. E = DIM. C

_____ - _____ = _____

Use the calculated required valve box height (DIM. C) to select an assembly with an appropriate extension range from the tables below.

5¼" VALVE BOX TWO-PIECE ASSEMBLIES

CAST IRON SCREW-TYPE & SLIDE-TYPE

PART SERIES		EXTENSION RANGE DIM. A (IN.)
SCREW-TYPE	SLIDE-TYPE	
I5B18	I5B5461S	19-22
I5B20	I5B5562S	27-37
I5B21	I5B5564S	39-50
I5B22	I5B5664S	39-60

BISON SCREW-TYPE & SLIDE-TYPE

PART SERIES		EXTENSION RANGE DIM. A (IN.)
SCREW-TYPE	SLIDE-TYPE	
P05ZHC2228A1	P05ZHS2228A1	22-28
P05ZHC2738A1	P05ZHS2738A1	27-38
P05ZHC3648A1	P05ZHS3648A1	36-48
P05ZHC3950A1	P05ZHS3950A1	39-50
P05ZHC3960A1	P05ZHS3960A1	39-60
P05ZHC5172A1	P05ZHS5172A1	51-72

CIP (CAST IRON TOP WITH BISON BOTTOM) SCREW-TYPE & SLIDE-TYPE

PART SERIES		EXTENSION RANGE DIM. A (IN.)
SCREW-TYPE	SLIDE-TYPE	
CIP05ZHC2126Z1	CIP05ZHS2126Z1	21-26
CIP05ZHC2736Z1	CIP05ZHS2736Z1	27-36
CIP05ZHC3948Z1	CIP05ZHS3948Z1	39-48
CIP05ZHC3960Z1	CIP05ZHS3960Z1	39-60
CIP05ZHC5160Z1	CIP05ZHS5160Z1	51-60
CIP05ZHC5171Z1	CIP05ZHS5171Z1	51-71

Longer boxes can be made by adding extensions

5 1/4" VALVE BOX THREE-PIECE ASSEMBLIES

A three-piece valve box consists of a top section, middle section (stem), and base (bell) and is designed to cover the entire valve. For valves up to 8", the standard #6 base covers the entire valve. For valves over 8" up to 16", use the #6 base when only the operating nut and stuffing box need to be covered, or use the #160 base to cover the entire valve.

Before calculating the required valve box height, the information below outlines Bingham & Taylor's standard base section configurations and how they affect the height of the complete assembly. From there, you can calculate the required valve box height and use the selection tables to find an assembly with an extension range that fits your installation.

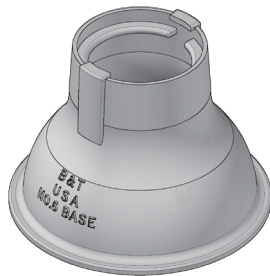
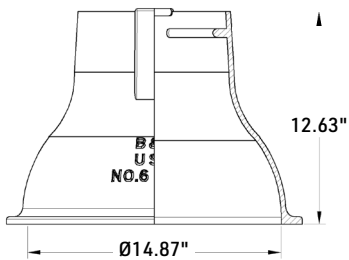
5 1/4" THREE-PIECE VALVE BOX BASES

Cast Iron and Bison™ three-piece valve boxes use different standard bases. The information below outlines the base options covered in this guide and how they affect the height of the complete assembly.

CAST IRON BASE SECTION OPTIONS

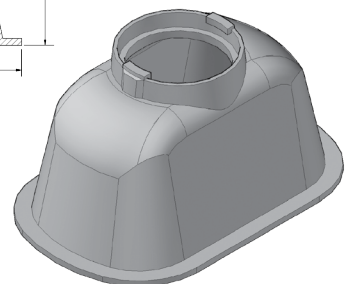
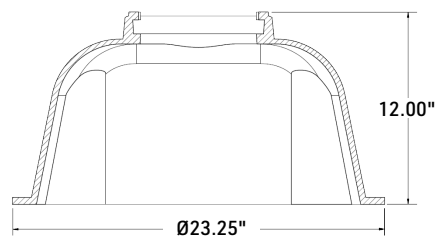
#6 Round Bell Base (Standard)

- Provides full coverage for valves up to 8"
- Covers the operating nut and stuffing box on valves over 8" up to 16"
- Bell height: 12.63"



#160 Oval Base (Optional)

- Provides full coverage for valves up to 16"
- Bell height: 12.00"

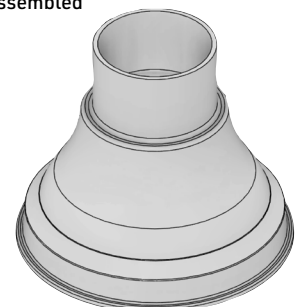
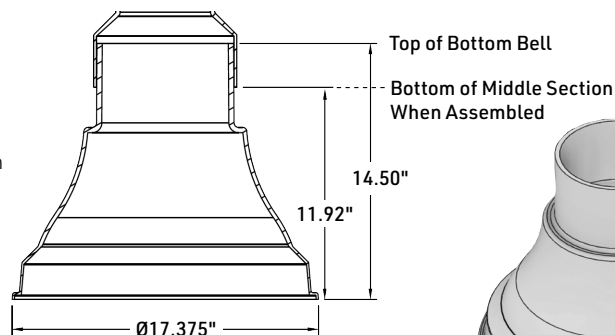


5 1/4" THREE-PIECE VALVE BOX BASES (CONT.)

BISON BASE SECTION

#107 Round Bell Base Section (Standard)

- Provides full coverage for 6"-8" full port plastic valves and 8"-16" full port steel valves
- Bell height: 14.50"; 11.92" extends below the middle section when assembled



REFERENCE TABLE 2: THREE-PIECE VALVE BOX MEASUREMENTS BASED ON VALVE SIZE

Size of valve (IN.)	3	4	6	8	10	12	14	16
Corresponding distance (IN.) from the bottom of the three-piece valve box to bottom of the trench (DIM. E)	8	12.5	15	19	24	31	36.5	41.25

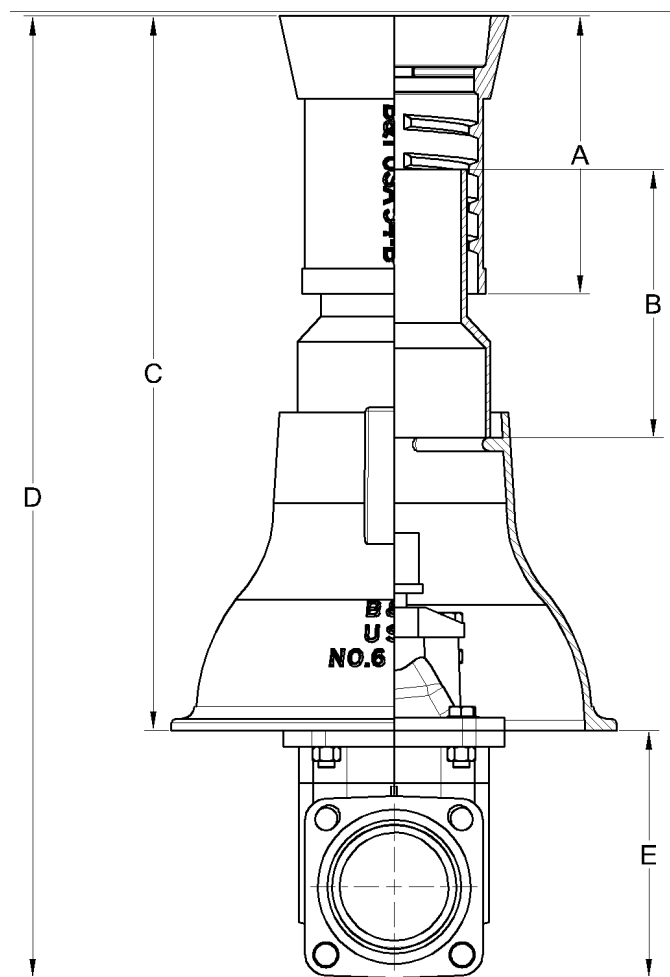
1. To calculate the overall height of your three-piece valve box (DIM. C), you will need to know the depth of your trench (DIM. D) and the size of your valve.
2. In Reference Table 2, use the size of your valve to determine the corresponding distance from the bottom of the valve box to the bottom of the trench (DIM. E).
3. Subtract this distance (DIM. E) from the depth of your trench (DIM. D) to determine the valve box height (DIM. C).
4. With the valve box height (DIM. C) determined, refer to the tables on page 5 to find the three-piece valve box assembly extension range that best fits your installation.

NOTE: When using the #160 base with a cast iron assembly, the valve box will be approximately 0.63" shorter than a box with the #6 base. Subtract 0.63" from the listed extension ranges when selecting your valve box. Choose an extension range that includes your required valve box height. If your required height exceeds the adjusted maximum, select the next larger extension range.

EXAMPLE: For a three-piece valve box with a 12" valve in 6' trench:

Depth of trench (DIM. D)	72"
12" valve - subtract 31" (DIM. E)	-31"
Required valve box height with a #6 base (DIM. C)	41"

In this example, with a required height of 41", select an assembly with an extension range that includes 41". Available options include Cast Iron 36"-48" and Bison 39"-50". When using a #160 base with a Cast Iron assembly, use the adjusted extension range as described above.



HEIGHT WORKSHEET: 5 1/4" VALVE BOX THREE-PIECE ASSEMBLY

Depth of trench (DIM. D) = _____

Size of valve = _____

Measurement of valve below the valve box (DIM. E) = _____

Use Reference Table 2 on page 4 to determine DIM. E

DIM. D - DIM. E = DIM. C

_____ - _____ = _____

Use the calculated required valve box height (DIM. C) to select an assembly with an appropriate extension range from the tables below.

5 1/4" VALVE BOX THREE-PIECE ASSEMBLIES

CAST IRON SCREW-TYPE & SLIDE-TYPE

PART SERIES		EXTENSION RANGE DIM. A (IN.)
SCREW-TYPE	SLIDE-TYPE	
I5BAA6	I5BAA6SLID	26-30
I5BA6	I5BA6SLID	28-40
I5BB6	I5BB6SLID	36-48
I5BC6	I5BC6SLID	42-54
I5BCC6	I5BCC6SLID	48-60
I5BD6	I5BD6SLID	42-66
I5BE6	I5BE6SLID	48-72

BISON SCREW-TYPE & SLIDE-TYPE

PART SERIES		EXTENSION RANGE DIM. A (IN.)
SCREW-TYPE	SLIDE-TYPE	
P05ZHC3238A7	P05ZHS3238A7	33-38
P05ZHC3950A7	P05ZHS3950A7	39-50
P05ZHC4260A7	P05ZHS4260A7	42-60
P05ZHC4455A7	P05ZHS4455A7	44-55
P05ZHC4566A7	P05ZHS4566A7	45-66
P05ZHC5272A7	P05ZHS5272A7	52-72

Longer boxes can be made by adding extensions

ADDITIONAL VALVE BOX OPTIONS

Bingham & Taylor offers additional 5 1/4" Plastic and Plastic CIP valve box configurations for water and gas applications. Depending on the configuration, Plastic middle and base components may be permanently joined, creating a two-piece assembly consisting of a top and combined bottom section. CIP configurations combine Cast Iron and Plastic components and are available in a range of configurations.

Bingham & Taylor also offers 7" and larger valve boxes for applications requiring additional size or valve coverage. Contact our technical sales team for assistance selecting the appropriate material, configuration, and extension range for applications not covered in this guide.

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