

SMITH-COOPER<sup>®</sup>  
INTERNATIONAL



***SERIES***  
***W84/W99***



*HIGH PERFORMANCE 3-PIECE BALL VALVE  
FOR STEAM APPLICATIONS*

# Design & Features

## Body Material

316 Stainless Steel, Carbon Steel & Alloy 20

## 3-Piece Design

In-line serviceable swing-out center section allows easy access to internal valve components without disturbing alignment of pipe.

## Stem Design

Live-loaded, bottom entry, blowout proof, anti-static stem featuring packing that extends valve cycle life over conventional ball valves and is best choice for actuation.

Stem seals are live-loaded using Belleville springs to provide consistent sealing forces, reducing or eliminating the need for frequent seal adjustment.

## Tongue and Groove Design

Fully encapsulated body seals, allowing ends to be welded in-line, without time consuming and labor intensive disassembly.

Design compensates for bolt expansion and reduces the chance of external leakage.

Helps prevent seal ruptures in high pressure, cryogenic or steam applications.

## Floating Ball Design

Precision engineered and machined solid stainless steel ball with relief hole in the stem slot prevents build-up of cavity pressure while the valve is open.

## Encapsulated Body Bolts

Heavy duty stainless steel bolting is protected from outside environment assuring valve integrity.

Ideal for wash-downs.

## Slotted Seat Design

Relief slots help equalize body pressure and assure leak-tight sealing. Seats also provide a wiping action that cleans ball and seats each time valve is cycled.

## Variety of End Combinations

A wide choice of end connections are available including, but not limited to; threaded, socket weld, butt weld, flanged and flush bottom tank pad ends.

## ISO 5211 Integral Mounting Pad

Ideal for actuation.

Centering lip feature assures precise alignment of bracket, stem and coupler.

Actuators may be retrofitted on existing Sharpe® Series W84/W99 without disruption of line integrity.

Allows for secondary containment unit to be added when necessary.

## Lockable Handle

All Sharpe® Series W84/W99 valves are supplied with lever or pipe handles and are designed to permit locking the valve in either the open or closed position.

## Traceability

Body and end piece castings are marked with heat codes providing traceability to the chemical analysis and material test reports performed at the foundry. CMTR's (Certified Material Test Reports) are available upon request.

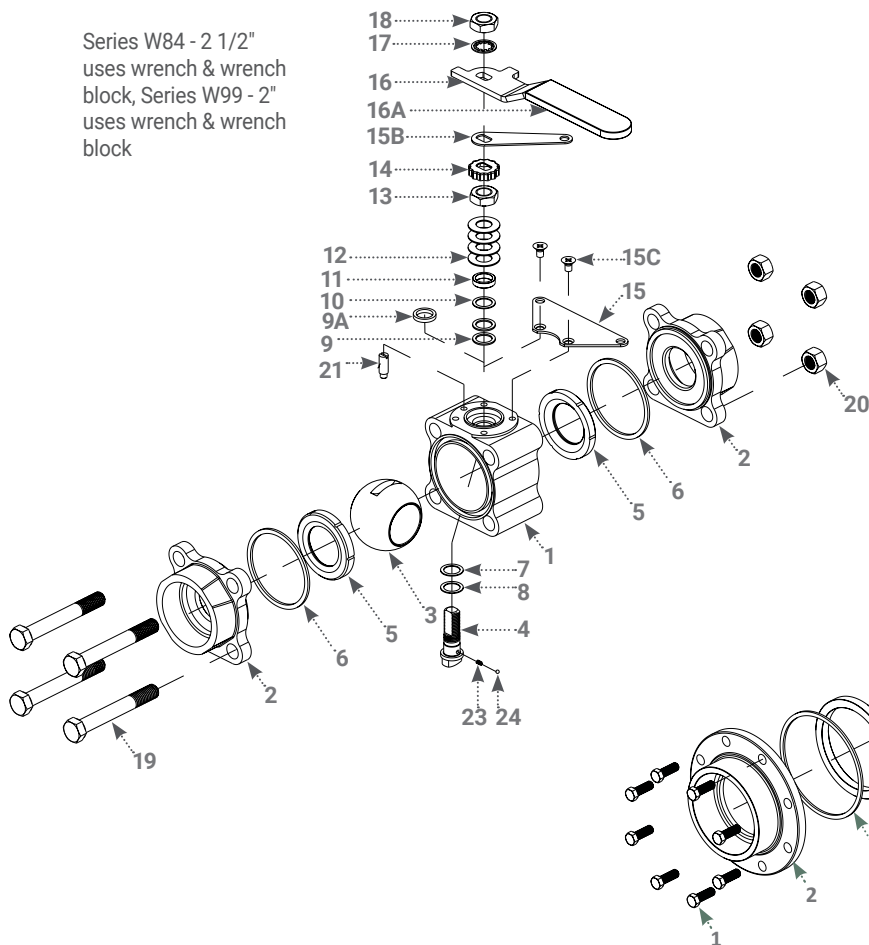
## TWO YEAR LIMITED WARRANTY

Sharpe® Valves warrants its steam valves, Series W, against defects in manufacturing provided the products are used for the purposes for which they are manufactured and sold. Such warranty shall be binding on Sharpe® Valves for a period of two years from the date of shipment. The purchaser's right of remedy under this warranty shall be limited to the repair or replacement of products found to be defective by Sharpe® Valves.

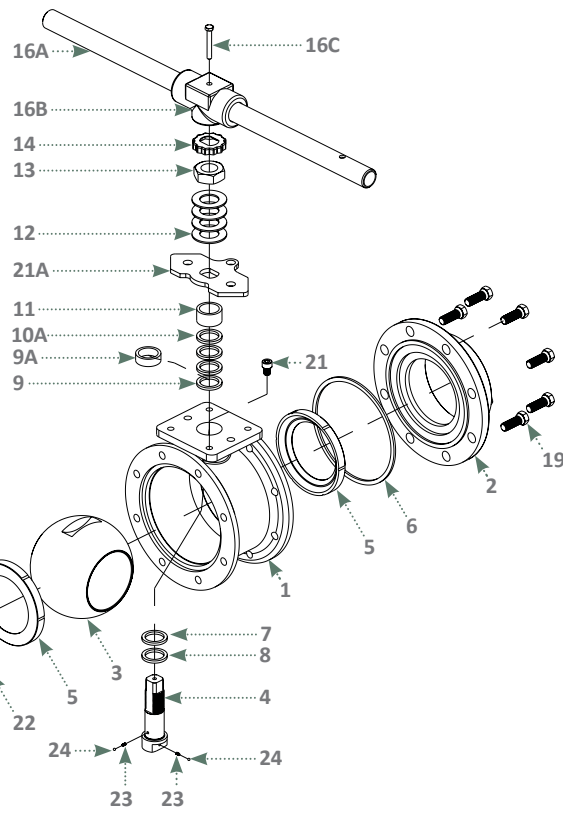
# Parts & Materials

**Series W84 - 1/4" - 2 1/2"**  
**Series W99 - 1/4" - 2"**

Series W84 - 2 1/2"  
 uses wrench & wrench  
 block, Series W99 - 2"  
 uses wrench & wrench  
 block



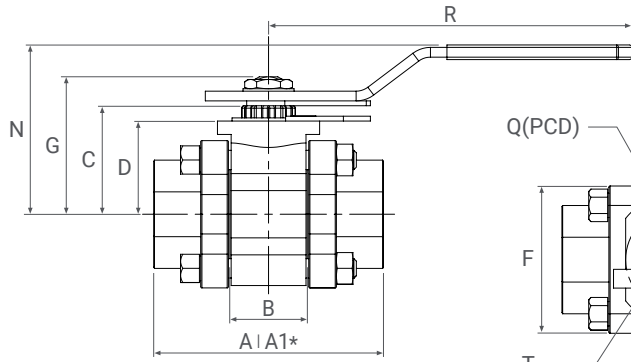
**Series W84 - 3" - 4"**  
**Series W99 - 2 1/2" - 3"**



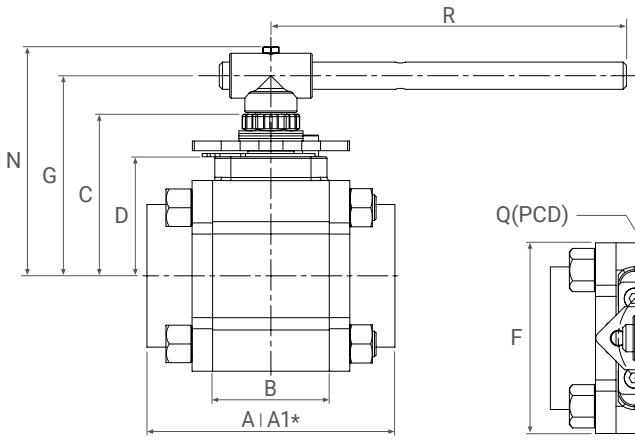
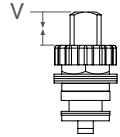
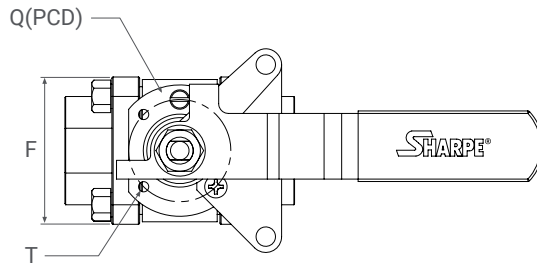
PART NO.	PART	QTY.	MATERIAL
1	Body	1	316 Stainless Steel ASTM A351 CF8M Carbon Steel ASTM A216 WCB Alloy 20 ASTM A351 CN7M
2	Ends	2	316L Stainless Steel ASTM A351 CF3M Carbon Steel ASTM A216 WCB Alloy 20 ASTM A351 CN7M
3	Ball	1	316 Stainless Steel Alloy 20
4	Stem	1	316 Stainless Steel Alloy 20
5	Seat	2	Nova PEEK
6	Body Seal	2	Graphite
7	Thrust Bearing	1	Nova (UHMWPE with UHMWPE Seats)
8	Thrust Bearing	1	PEEK (UHMWPE with UHMWPE Seats)
9	Stem Packing	2	Nova (UHMWPE with UHMWPE Seats)
9A	Stem Packing	1-2	Graphite
10	Seal Protector	1	PEEK
10A	Washer	1	300 Series Stainless Steel

PART NO.	PART	QTY.	MATERIAL
11	Gland	1	300 Series Stainless Steel
12	Belleville Washer	4	300 Series Stainless Steel
13	Packing Nut	1	300 Series Stainless Steel
14	Lock Tab	1	300 Series Stainless Steel
15	Lower Lock Latch	1	300 Series Stainless Steel
15B	Upper Lock Latch	1	300 Series Stainless Steel
15C	Latch Bolt	2	300 Series Stainless Steel
16	Handle (1/4"-2")	1	300 Series Stainless Steel
16A	Wrench (3" & 4")	1	Galvanized
16B	Wrench Block	1	300 Series Stainless Steel
16C	Hex Head Bolt	1	300 Series Stainless Steel
17	Lock Washer	1	300 Series Stainless Steel
18	Handle Nut (1/4"-2")	1	300 Series Stainless Steel
19	Body Bolts	4/16	304 Stainless Steel
20	Nuts	4	300 Series Stainless Steel
21	Stop Pin	1	300 Series Stainless Steel
21A	Stopper	1	300 Series Stainless Steel
22	Seat Retainer	1	300 Series Stainless Steel Carbon Steel
23	Anti-Static Spring	1	Hard Drawn Stainless Steel
24	Anti-Static Ball	1	300 Series Stainless Steel

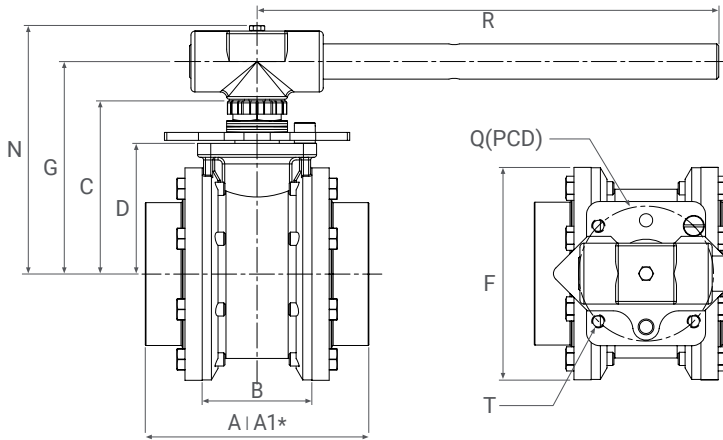
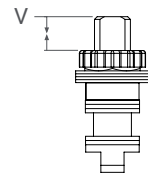
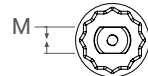
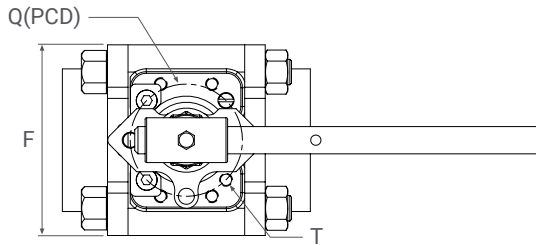
# Dimensions



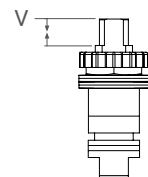
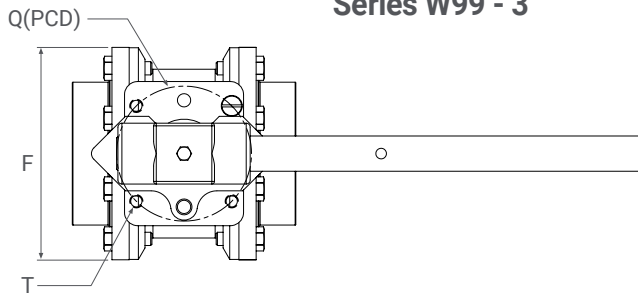
**Series W84 - 1/2" - 2"**  
**Series W99 - 1/4" - 1 1/2"**



**Series W84 - 2 1/2"**  
**Series W99 - 2"**



**Series W84 - 3" - 4"**  
**Series W99 - 3"**



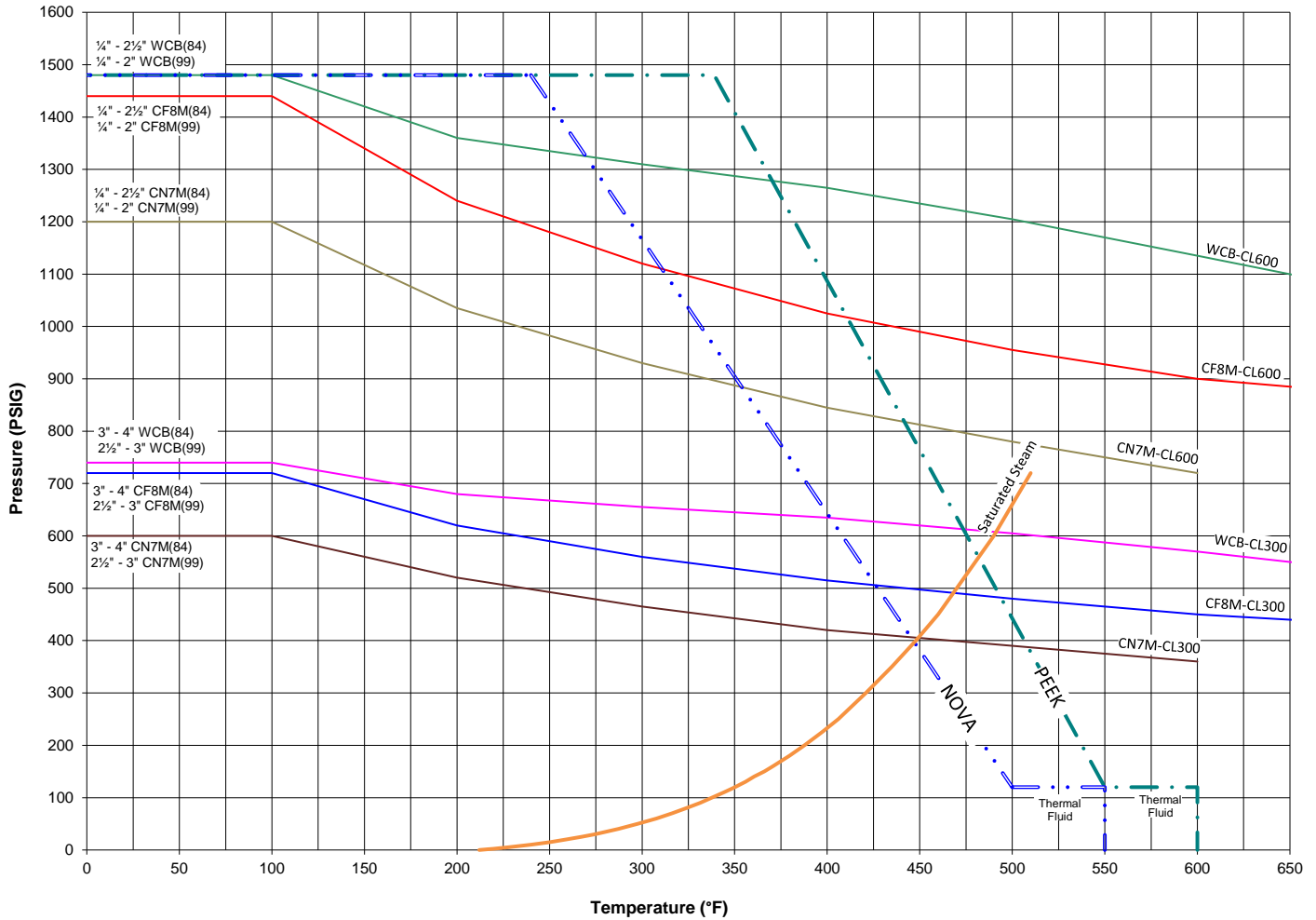
**Standard Port**   **Full Port**

W84	W99	A*	A1*	B	C	D	F	G	L	M	N	ε Q (ISO)	R	T	V
1/4", 3/8", 1/2"	1/4", 3/8"	2.62	2.62	0.82	1.22	1.06	1.81	1.58	3/8"-24 UNF	0.220	2.15	1.42 (F03)	4.53	M5 x P0.8	0.34
3/4"	1/2"	2.87	2.87	0.97	1.27	1.13	1.94	1.65	3/8"-24 UNF	0.220	2.28	1.42 (F03)	4.53	M5 x P0.8	0.39
1"	3/4"	3.72	3.72	1.25	1.73	1.51	2.38	2.23	1/2"-20 UNF	0.295	2.70	1.65 (F04)	5.79	M5 x P0.8	0.52
1 1/4"	1"	4.25	4.25	1.61	1.90	1.70	2.78	2.43	1/2"-20 UNF	0.295	2.89	1.65 (F04)	5.79	M5 x P0.8	0.53
1 1/2"	1 1/4"	4.58	4.50	1.90	2.17	1.73	3.12	2.90	3/4"-18 UNF	0.342	3.15	1.97 (F05)	6.78	M6 x P1.0	0.73
2"	1 1/2"	5.03	5.06	2.21	2.39	1.90	3.60	3.09	3/4"-18 UNF	0.342	3.37	1.97 (F05)	6.78	M6 x P1.0	0.73
2 1/2"	2"	5.88	5.87	2.93	3.98	2.85	4.77	4.88	M20 x P2.5	0.551	5.61	2.75 (F07)	8.73	M8 x P1.25	0.74
3"	2 1/2"	6.65	6.65	3.27	5.01	3.89	6.46	6.14	1" - 14 UNS	0.748	6.14	4.02 (F10)	13.74	M10 x P1.5	0.69
4"	3"	8.43	8.43	4.29	5.60	4.48	8.00	6.73	1" - 14 UNS	0.748	7.81	4.02 (F10)	13.74	M10 x P1.5	0.69

\* A - W84 Face to Face dimension for threaded, butt weld & socket weld ends | \* A1 - W99 Face to Face dimension for threaded, butt weld & socket weld ends

The dimensions above are for informational purpose only. Please refer to Sharpe® Valves if you need dimensions for construction.

**Pressure-Temperature Ratings Series W84/W99**



Standard Port (W84)  
 Class 600 1/2" - 2 1/2"  
 Class 300 3" - 4"

Full Port (W99)  
 Class 600 1/4" - 2"  
 Class 300 2 1/2" - 3"

**Performance Data**

W84	W99	Cv Flow Coefficient	Equivalent Length of Pipe (Feet)	Approx. Weight (lbs.)	Port Size
1/4"		8	1.9	1.20	.44
3/8"	1/4"	8	1.9	1.20	.44
1/2"	3/8"	8	1.9	1.20	.44
3/4"	1/2"	12	6.3	1.70	.56
1"	3/4"	32	3.1	3.00	.81
1 1/4"	1"	46	6.3	4.00	1.00
1 1/2"	1 1/4"	80	4.3	6.00	1.25
2"	1 1/2"	120	7.5	8.00	1.50
2 1/2"	2"	240	5.00	25.00	2.00
3"	2 1/2"	350	8.3	30.00	2.50
4"	3"	720	10.4	50.20	3.25

**Applicable Standards**

Body Wall Thickness	ASME B16.34
SW & Threaded Ends	ASME B16.11
Butt-weld Ends	ASME B16.25
Flange Dimensions	ASME B16.5
Basic Design	ASME B16.34 (note 1)
Testing (Options)	ASME B16.34 API 598

Note 1: When specified, valves can be furnished in accordance with ASME B16.34 requirements.

# How To Order Series W84/W99

**1"**   **W84**   -   **4**   **6**   **N**   **G**   -   **TE**   -   **OH**  
 Size   Series   Body&Ends   Ball&Stem   Seat   Seal   Ends   Options

Size	
W84	W99
-	1/4"
-	3/8"
1/2"	1/2"
3/4"	3/4"
1"	1"
1 1/4"	1 1/4"
1 1/2"	1 1/2"
2"	2"
2 1/2"	2 1/2"
3"	3"
4"	

Valve Series	
W84	Standard Port
W99	Full Port

Body & Ends	
2	Alloy 20*
4	Carbon Steel
6	Stainless Steel

Ball & Stem	
2	Alloy 20*
6	Stainless Steel

\* POA

Seat	
N	Nova
P	Virgin PEEK

Body Seal	
G	Graphite-Impregnated

Ends	
TE	Threaded Ends (NPT)
SW	Socketweld
BW10	Buttweld SCH 10*
BW40	Buttweld SCH 40
BW80	Buttweld SCH 80

Options	
OH	Oval Handle (up to 2")
L	Lockable Stem Extension

