



## Circuit balancing valves

### SOLUTION OUTLINE

NSF-372 | ½"-2" MODELS

FILE NO: 36.10  
DATE: NOVEMBER 2016

SUPERSEDES: 36.10  
DATE: SEPTEMBER 2015

# GREAT VALUE PROVEN RELIABILITY

Armstrong Circuit Balancing Valves (CBVs) deliver great value with advanced product design and proven reliability.

Easy sizing and selection

Flexible configuration and line-sizing makes installation fast

Multi-turn 'Y' pattern globe-style design for accurate flow control

Perfect for control in variable speed pump systems



he choice of circuit balancing valves for any construction project makes an important difference to the long-term energy efficiency of the building and the satisfaction of tenants. **Sizing and selection, as well as ease of installation are important considerations. In addition to those factors, contractors will want a balancing solution that have considerable benefits:**



## KEY BENEFITS

Fits easily into confined spaces

Provides accurate flow control for fast and accurate balancing

Simplifies the process of adjusting and fine tuning system flow

Our industry-leading design innovations have made Armstrong Circuit Balancing Valves the trusted choice of balancing valves for contractors, engineers and building owners.

### 1/2" - 2" Armflo valves offer

Easy installation:  
installs at any angle

Extreme flow control accuracy

Stable pressure drop across the valve improves balancing accuracy

### Both the 1/2" - 2" Armflo valves and the 2 1/2" - 6" valves offer

Easy pressure measurement

Simplified process of adjusting and fine-tuning balancing

## KEY FEATURES

	1/2" - 2"	2 1/2" - 6"	8" - 12"
Minimum 5 Turn Micrometer style handle - unparalleled adjustment precision	✓	✓	✓
"Y"-pattern globe valve design, minimizes flow turbulence	✓	✓	✓
Handle set-point indicator - easily return to an earlier setting	✓	✓	✓
Integral High Precision Fixed Orifice, minimum of +/- 5% accuracy, $\Delta p$ independent of handle position.	✓		
Line Size optimization - no reducers required	✓		
Lead Free Certified to NSF 372 for North America	✓		
Non-rising handle - for installation in tight spaces	✓		
Flexible Installation - convertible design allows field adjustment to either straight or angled configuration		✓	✓
Re-packing valve under full system pressure		✓	

## KEY FEATURES

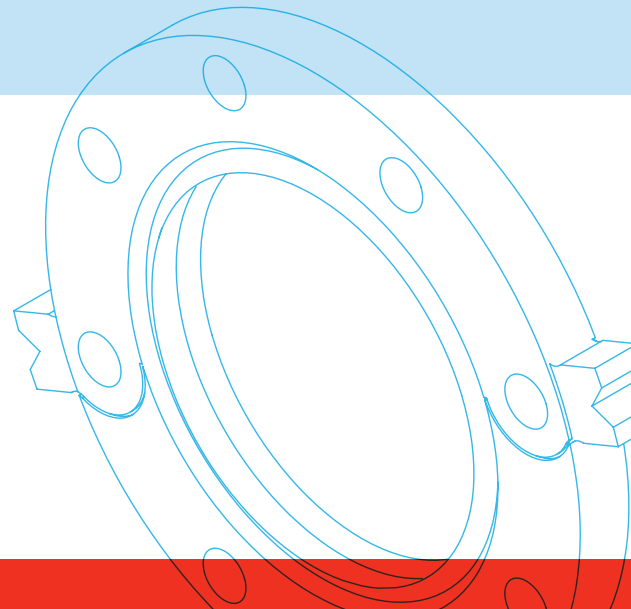
Armstrong has a wide range of accessories to complement our balancing valves, including:

**Flange adapters**

**Pressure meters**

**Orifice Plates and venturis**

**PMP ports and extension ports**



# 1/2" - 2" CBV

## Technical data

### FLOW RATE RANGES

VALVE SIZE	MIN. FLOW	MAX. FLOW
1/2" LF	0.26 (0.02)	1.98 (0.12)
3/4" LF	0.41 (0.03)	3.11 (0.20)
1/2"	1.22 (0.08)	9.57 (0.60)
3/4"	1.99 (0.13)	13.76 (0.87)
1"	4.57 (0.29)	22.97 (1.45)
1 1/4"	6.17 (0.39)	38.00 (2.39)
1 1/2"	9.02 (0.57)	50.07 (3.15)
2"	15.50 (0.98)	81.92 (5.16)

Note: flow in USgpm (L/s)

## Models: CBV-vs (solder) & CBV-VT (NPT)

Max. working pressure 300 psi/20 bar (pn 20)  
 Operating temperature range -4°F to 300°F  
 (-20°C to 150°C)

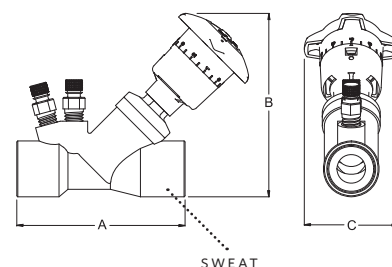
## MATERIALS OF CONSTRUCTION

Body, bonnet Brass -c46500  
 Stem and disk Brass -c46500  
 Elastomers EPDM  
 Handwheel Reinforced nylon; ABS

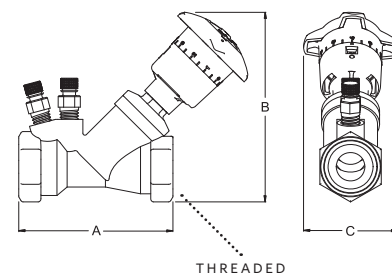
## Dimension data - inches (mm)

MODEL	PIPE SIZE	A	B	C	SHIPPING WEIGHT
CBV050VS-LF	1/2" (DN15) low flow	3.19 (81)	4.56 (116)	2.76 (70)	1.05 (0.48)
CBV050VT-LF	1/2" (DN15) low flow	2.99 (76)	4.60 (117)	2.76 (70)	1.07 (0.49)
CBV075VS-LF	3/4" (DN20) low flow	3.64 (93)	4.65 (118)	2.76 (70)	1.09 (0.49)
CBV075VT-LF	3/4" (DN20) low flow	3.26 (83)	4.90 (125)	2.76 (70)	1.21 (0.55)
CBV050VS	1/2" (DN15)	3.19 (81)	4.56 (116)	2.76 (70)	1.05 (0.48)
CBV050VT	1/2" (DN15)	2.99 (76)	4.60 (117)	2.76 (70)	1.07 (0.49)
CBV075VS	3/4" (DN20)	3.64 (93)	4.65 (118)	2.76 (70)	1.09 (0.49)
CBV075VT	3/4" (DN20)	3.26 (83)	4.90 (125)	2.76 (70)	1.21 (0.55)
CBV100VS	1" (DN25)	4.26 (108)	4.95 (126)	2.76 (70)	1.68 (0.76)
CBV100VT	1" (DN25)	3.80 (97)	5.29 (126)	2.76 (70)	1.86 (0.84)
CBV125VS	1 1/4" (DN32)	4.94 (125)	5.40 (137)	2.76 (70)	2.26 (1.03)
CBV125VT	1 1/4" (DN32)	4.32 (110)	5.60 (142)	2.76 (70)	2.34 (1.06)
CBV150VS	1 1/2" (DN40)	5.67 (144)	5.60 (142)	2.76 (70)	3.22 (1.46)
CBV150VT	1 1/2" (DN40)	5.07 (129)	5.90 (150)	2.76 (70)	3.49 (1.59)
CBV200VS	2" (DN50)	7.03 (179)	6.36 (162)	2.76 (70)	5.40 (2.45)
CBV200VT	2" (DN50)	6.00 (153)	6.68 (170)	2.76 (70)	5.97 (2.46)

### SOLDER JOINT CONNECTION



### THREADED CONNECTION



## Part numbers

MODEL - SOLDER	PART NUMBER	MODEL-THREADED	PART NUMBER
CBV050VS-LF	571110LF-370	CBV050VT-LF	571110LF-360
CBV075VS-LF	571110LF-371	CBV075VT-LF	571110LF-361
CBV050VS	571110LF-350	CBV050VT	571110LF-340
CBV075VS	571110LF-351	CBV075VT	571110LF-341
CBV100VS	571110LF-352	CBV100VT	571110LF-342
CBV125VS	571110LF-353	CBV125VT	571110LF-343
CBV150VS	571110LF-354	CBV150VT	571110LF-344
CBV200VS	571110LF-355	CBV200VT	571110LF-345



# 2 1/2"-12" CBV

## Technical data

### FLOW RATE RANGES

CONNECTION SIZES		STEM: NO. OF 360° TURNS	KV (OPEN)	CV (OPEN)	MIN. FLOW RATE L/s (USgpm)	MAX. FLOW RATE L/s (USgpm)
2½"	DN65	5	60	70	1.9 (30)	4.4 (71)
3"	DN80	5	85	100	3.8 (60)	8.8 (140)
4"	DN100	6	239	280	8.2 (130)	17.0 (270)
5"	DN125	6	281	330	15.8 (250)	31.6 (500)
6"	DN150	6	392	460	25.2 (400)	50.5 (800)
8"	DN200	12	1024	1200	50.5 (800)	107.3 (1700)
10"	DN250	12	1877	2200	94.7 (1500)	189.3 (3000)
12"	DN300	14	2815	3300	151.4 (2400)	315.5 (5000)

MODEL	CBV-FS (STRAIGHT) / CBV-FA (ANGLE)								CBV-G (STRAIGHT) / CBV-A (ANGLE)								
Connection size ANSI 125# flange	2½	3	4	5	6	8	10	12	2½	3	4	5	6	8	10	12	
Handwheel – number of 360° turns	5	5	6	6	6	12	12	14	5	5	6	6	6	12	12	14	
Maximum working pressure	250 psi (1725 kpa)								<ul style="list-style-type: none"> <li>250 psi (1725 kPa) when used with class 125/150 flange adapter</li> <li>375 psi (2575 kPa) when used with class 250/300 flange adapter</li> </ul>								
Maximum working temperature	230°F (110°C)								230°F (110 <sup>o</sup> 3)								
Materials of construction	Body	Cast iron ASTM A48 class 30B								Ductile iron ASTM A536 GR65-45-12							
	Disc	Bronze ASTM B584 C-84400								Bronze ASTM B584 C-84400							
	Seat	EPDM elastomer								Ultra high strength engineered resin							
	Stem	Brass ASTM B-16								Brass ASTM B-16				Stainless steel ASTM A582 type 416			
	Trim	Brass ASTM B283 C-37700								Brass C-37700							
	O-ring	Buna & EPDM Elastomer								Buna							
Pressure metering ports ¼" (2)									NPT brass body with EPDM <sup>1</sup> check and gasketed cap								
Drain tappings ¼" (2) brass plug									Brass plug								

**Note:** 1. EPDM is not suitable for oil service

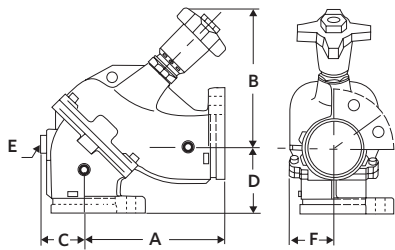


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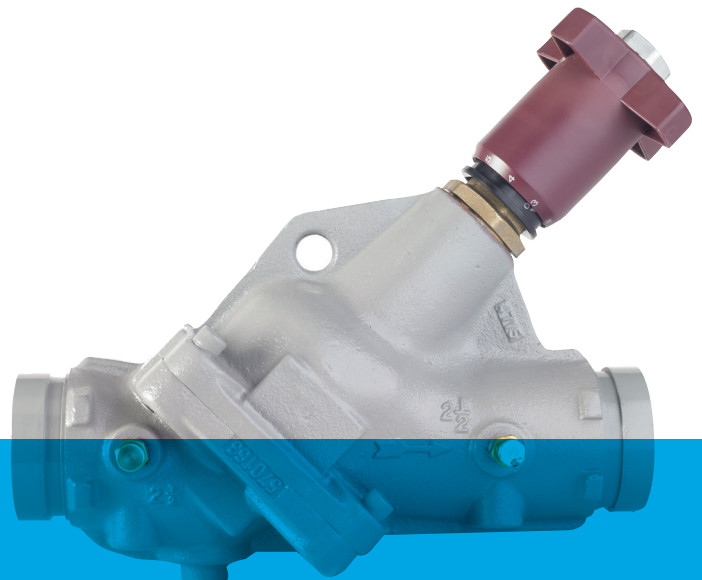
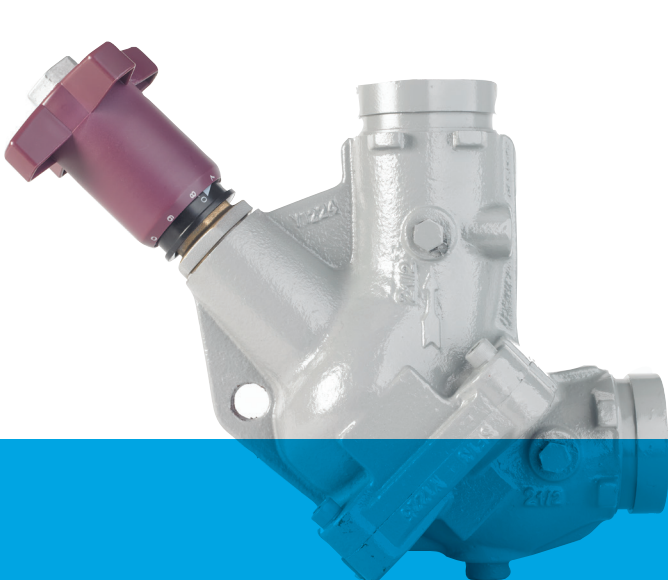
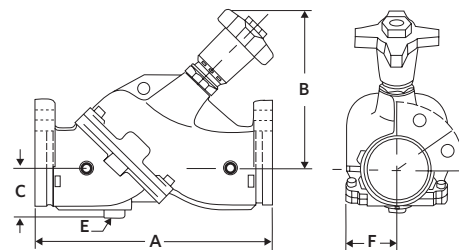
## Dimension data - inches (mm)

MODEL	PART NUMBER	PIPE SIZE	DIMENSIONS INCHES (MM)						WEIGHT lbs (kg)
			A	B (OPEN)	C	D	E	F	
CBV-2½GS	570109-386	DN65	12.00 (305)	9.62 (244)	2.75 (70)	N/A	1.00 (25)	2.56 (65)	19 (9)
CBV-2½GA	570109-486		4.60 (117)			1.00 (25)			
CBV-3GS	570109-387	DN80	12.00 (305)	10.50 (267)	2.44 (62)	N/A	1.00 (25)	3.00 (76)	24 (11)
CBV-3GA	570109-487		3.90 (98)			1.00 (25)			
CBV-4GS	570109-388	DN100	14.00 (356)	10.56 (268)	3.00 (76)	N/A	1.25 (32)	3.44 (87)	42 (19)
CBV-4GA	570109-488		4.30 (111)			1.25 (32)			
CBV-5GS	570109-389	DN125	17.50 (445)	12.80 (324)	3.60 (92)	N/A	1.25 (32)	4.94 (125)	81 (37)
CBV-5GA	570109-489		5.50 (140)			1.25 (32)			
CBV-6GS	570109-390	DN150	20.70 (525)	13.10 (332)	4.40 (113)	N/A	2.00 (51)	5.88 (149)	54 (20)
CBV-6GA	570109-490		6.63 (168)			2.00 (51)			
CBV-8GS	570109-391	DN200	28.19 (716)	24.62 (625)	5.69 (144)	N/A	2.00 (51)	7.88 (200)	310 (141)
CBV-8GA	570109-491		9.19 (233)			2.00 (51)			
CBV-10GS	570109-392	DN250	30.00 (762)	26.50 (673)	6.60 (167)	N/A	2.00 (51)	9.47 (241)	460 (209)
CBV-10GA	570109-492		9.80 (248)			2.00 (51)			
CBV-12GS	570109-393	DN300	38.10 (967)	28.40 (722)	7.60 (194)	N/A	2.00 (51)	12.63	870 (395)
CBV-12GA	570109-493		14.00 (356)			2.00 (51)			

ANGLE DESIGN  
CBV-GA - 2.5" TO 12"



STRAIGHT DESIGN  
CBV-GS - 2.5" TO 12"

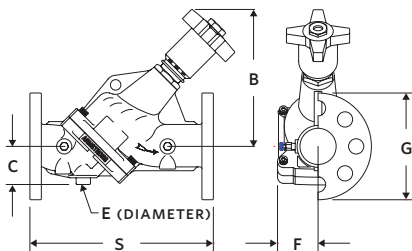


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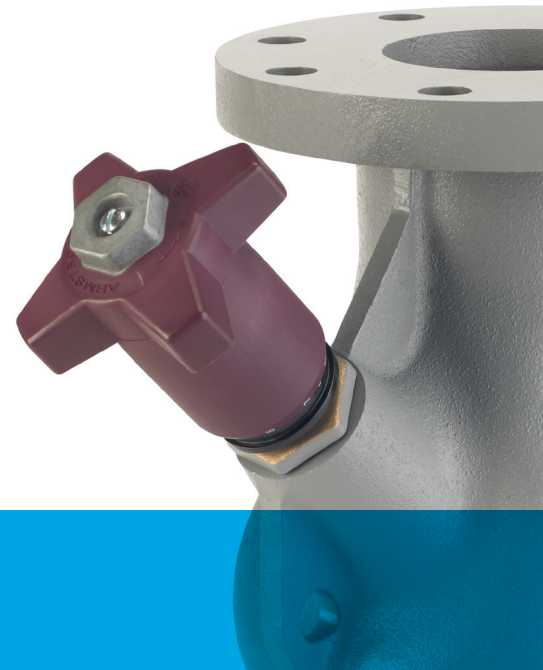
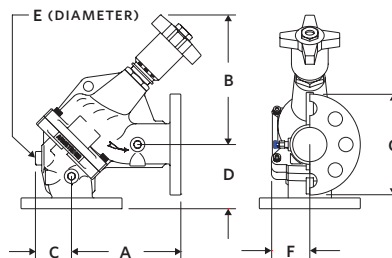
## Dimension data - inches (mm)

MODEL	PART NUMBER	PIPE SIZE	A	B (FULL OPEN)	C	D	E	F	G	S	WEIGHT lbs (kg)
125 # ANSI flange											
CBV-2½FS	570109-376	2.5	7.38	9.62 (244)	2.75	4.63	1	2.56	7	12	33
CBV-2½FA	570109-476		(187)		(70)	(118)	(25)	(65)	(178)	(305)	(15)
CBV-3FS	570109-377	3	8.19	10.50 (267)	2.44	3.88	1	3	7.5	12	39
CBVG-3FA	570109-477		(208)		(62)	(99)	(25)	(76)	(191)	(305)	(17.7)
CBV-4FS	570109-378	4	9.63	10.56 (268)	3	4.38	1.25	3.44	9	14	59
CBV-4FA	570109-478		(245)		(76)	(111)	(32)	(87)	(229)	(356)	(26.8)
CBV-5FS	570109-379	5	12	13.06 (332)	3.63	5.5	1.25	4.94	10	17.5	108
CBV-5FA	570109-479		(305)		(92)	(140)	(32)	(125)	(254)	(445)	(49)
CBV-6FS	570109-380	6	14.13	13.75 (349)	4.44	6.63	2	5.88	11	20.69	167
CBV-6FA	570109-480		(359)		(113)	(168)	(51)	(149)	(279)	(526)	(75.7)
CBV-8FS	570109-381	8	19	24.62 (625)	5.69	9.19	2.25	7.88	13.5	28	344
CBV-8FA	570109-481		(483)		(145)	(233)	(57)	(200)	(343)	(711)	(156)
CBV-10FS	570109-382	10	20.33	26.50 (673)	6.56	9.78	2.25	9.47	16	30.01	603
CBV-10FA	570109-482		(516)		(167)	(248)	(57)	(241)	(406)	(762)	(273)
CBV-12FS	570109-383	12	24.07	28.43 (722)	7.63	14.05	2.25	12.63	19	38.09	1006
CBV-12FA	570109-483		(611)		(194)	(357)	(57)	(321)	(483)	(967)	(456)
250 # ANSI flange											
CBV-8FS	570109-661	8	19.11	24.62 (625)	5.69	9.69	2.25	7.88	15	28.2	396
CBV-8FA	570109-681		(485)		(145)	(246)	(57)	(200)	(380)	(716)	(180)
CBV-10FS	570109-662	10	20.33	26.50 (673)	6.56	9.8	2.25	9.47	17.5	30.01	712
CBV-10FA	570109-682		(516)		(167)	(249)	(57)	(241)	(445)	(762)	(323.6)
CBV-12FS	570109-663	12	24.05	28.43 (722)	7.63	14.03	2.25	12.63	20.5	38.05	1163
CBV-12FA	570109-683		(611)		(194)	(356)	(57)	(321)	(521)	(966)	(528.6)

MODEL CBV-FA - 2.5" TO 12"



MODEL CBV-FS - 2.5" TO 12"



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