

# TYPICAL CONSTRUCTIONS

CARBON STEEL BODY VALVES								API 600
Seal	Figure No	Body	Plates (1) (8)	Body Seat	Plate Seat	Wetted Parts (2)	Spring (3) (12)	TRIM No.
Metal to metal	CEPPR-YE	A216 WCB/A105	A217 CA15	AS BODY	AS PLATE	410 SS	INCONEL X750®	
Metal overlay	CEEPR-YE	A216 WCB/A105	A217 CA15	410 SS	AS PLATE	410 SS	INCONEL X750®	1
Metal overlay	CEUPR-YE	A216 WCB/A105	A217 CA15	STELLITE 6®	AS PLATE	410 SS	INCONEL X750®	8
Metal overlay	CEUUR-YE	A216 WCB/A105	A217 CA15	STELLITE 6®	STELLITE 6®	410 SS	INCONEL X750®	5
Resilient (4)	CEVPR-YE	A216 WCB/A105	A217 CA15	VITON A®	AS PLATE	410 SS	INCONEL X750®	
Lined (5)	CAXPR/MM	A216 WCB/A105	B148 C95800	CHLOROPRENE®	AS PLATE	MONEL 400®	MONEL K500®	
Metal to metal	OSPPR-YS	A352 LCC/A350 LF2	A351 CF8M	AS BODY	AS PLATE	316 SS	INCONEL X750®	
Metal overlay	OSSPR-YS	A352 LCC/A350 LF2	A351 CF8M	316 SS	AS PLATE	316 SS	INCONEL X750®	10
Metal overlay	OSUPR-YS	A352 LCC/A350 LF2	A351 CF8M	STELLITE 6®	AS PLATE	316 SS	INCONEL X750®	12
Metal overlay	OSUUR-YS	A352 LCC/A350 LF2	A351 CF8M	STELLITE 6®	STELLITE 6®	316 SS	INCONEL X750®	5
Resilient (4)	OSVPR-YS	A352 LCC/A350 LF2	A351 CF8M	VITON A®	AS PLATE	316 SS	INCONEL X750®	

  

STAINLESS STEEL BODY VALVES								API 600
Seal	Figure No	Body	Plates	Body Seat	Plate Seat	Wetted Parts (2)	Spring (3) (12)	TRIM No.
Metal to metal	SSPPR-YS	A351 CF8M/A182 F316	A351 CF8M	AS BODY	AS BODY	316 SS	INCONEL X750®	10
Metal overlay	SSUPR-YS	A351 CF8M/A182 F316	A351 CF8M	STELLITE 6®	AS PLATE	316 SS	INCONEL X750®	12
Metal overlay	SSUUR-YS	A351 CF8M/A182 F316	A351 CF8M	STELLITE 6®	STELLITE	316 SS	INCONEL X750®	5
Resilient (4)	SSVPR-YS	A351 CF8M/A182 F316	A351 CF8M	VITON A®	AS PLATE	316 SS	INCONEL X750®	

  

IRON BODY VALVES							
Seal	Figure No	Body (6)	Plates (7) (8)	Body Seat	Plate Seat	Wetted Parts (7)	Spring (7)
Resilient (4)	XANPF-MM	A126 Cl. B	B148 C95800	BUNA N®	AS PLATE	MONEL 400®	MONEL K500®
Lined (5)	XAXPF-MM	A126 Cl. B	B148 C95800	CHLOROPRENE®	AS PLATE	MONEL 400®	MONEL K500®
Resilient (4)	9ANPF-MM	A395	B148 C95800	BUNA N®	AS PLATE	MONEL 400®	MONEL K500®
Resilient (4)	9ANPF-II	A395	B148 C95800	BUNA N®	AS PLATE	INCONEL 625®	INCONEL 625®
Lined (5)	9AXPF-MM	A395	B148 C95800	CHLOROPRENE®	AS PLATE	MONEL 400®	MONEL K500®
Metal to metal	88PPF-SS	A 439 D2	A 439 D2	AS BODY	AS PLATE	316 SS	316 SS
Metal to metal	88PPF-II	A 439 D2	A 439 D2	AS BODY	AS PLATE	INCONEL 625®	INCONEL 625®
Resilient (4)	88NPF-SS	A 439 D2	A 439 D2	BUNA N®	AS PLATE	316 SS	316 SS
Resilient (4)	88NPF-II	A 439 D2	A 439 D2	BUNA N®	AS PLATE	INCONEL 625®	INCONEL 625®
Resilient (4)	8ANPF-II	A 439 D2	B148 C95800	BUNA N®	AS PLATE	INCONEL 625®	INCONEL 625®

  

ALUMINIUM BRONZE BODY VALVES							
Seal	Figure No	Body (8)	Plates (8)	Body Seat	Plate Seat	Wetted Parts (9)	Spring
Metal to metal	AAPPR-MM	B148 C95800	B148 C95800	AS BODY	AS PLATE	MONEL 400®	MONEL K500®
Resilient (4)	AANPR-MM	B148 C95800	B148 C95800	BUNA N®	AS PLATE	MONEL 400®	MONEL K500®

  

DUPLEX STAINLESS STEEL BODY VALVES							
Seal	Figure No	Body	Plates	Body Seat	Plate Seat	Wetted Parts	Spring (12)
Metal to metal	QQPPR-YI	UNS J92205	UNS J92205	AS BODY	AS PLATE	INCONEL 625®	INCONEL X750®
Metal overlay	QQUPR-YI	UNS J92205	UNS J92205	STELLITE 6®	AS PLATE	INCONEL 625®	INCONEL X750®
Resilient (4)	QQWPR-YI	UNS J92205	UNS J92205	VITON B®	AS PLATE	INCONEL 625®	INCONEL X750®

  

INCONEL STEEL BODY VALVES							
Seal	Figure No	Body	Plates	Body Seat	Plate Seat	Wetted Parts	Spring
Metal to metal	IIPPR-II	UNS N26625	UNS N26625	AS BODY	AS PLATE	INCONEL 625®	INCONEL 625®
Metal overlay	IUPR-II	UNS N26625	UNS N26625	STELLITE 6®	AS PLATE	INCONEL 625®	INCONEL 625®
Inconel clad body (10)	OIIPR/II	A352 LCC	UNS N26625	INCONEL 625® CLAD	AS PLATE	INCONEL 625®	INCONEL 625®

  

TITANIUM BODY VALVES							
Seal	Figure No	Body (11)	Plates (11)	Body Seat	Plate Seat	Wetted Parts	Spring
Metal to metal	TIPPR-TT	B348 Gr2/ B381 F2	B348 Gr2/ B381 F2	AS BODY	AS PLATES	B348 Gr2	TITANIUM Ti 6Al4V
Resilient (4)	TTVPT-TT	B348 Gr2/ B381 F2	B348 Gr2/ B381 F2	VITON A®	AS PLATES	B348 Gr2	TITANIUM Ti 6Al4V

See opposite page for applicable notes (1) to (12)

# TYPICAL CONSTRUCTIONS

## NOTES

- (1) If required, CA15/410SS plate material could be substituted with CF8M/316SS
- (2) In A216 WCB/A105 Carbon Steel valves, 316SS with 410SS hinge and stop pins is manufacturer's standard wetted parts material
- (3) If required, spring material could be substituted with 316SS
- (4) Subject to application different resilient materials are available, for example Buna N<sup>®</sup>, Viton A<sup>®</sup>, Viton B<sup>®</sup>, Viton GLT<sup>®</sup>, Neoprene<sup>®</sup>, Teflon<sup>®</sup> (PTFE), EPDM
- (5) Subject to application different linings are available, for example Chloroprene<sup>®</sup>, Neoprene<sup>®</sup>, Chlorobutyl, Rilsan Nylon II<sup>®</sup>, EPDM, Glass Flake and Coal Tar Epoxy.
- (6) Cast Iron for sizes 2" to 20" only; Ductile Iron and Ni-Resist Iron for all sizes to 144"
- (7) Alternative plate, wetted parts and spring materials are available, for example 316SS, subject to application
- (8) Alternative specifications of Aluminium Bronze available on request eg ASTM B148 C95500
- (9) In Aluminium Bronze valves, Inconel 625<sup>®</sup> wetted parts with Monel 400<sup>®</sup> hinge and stop pins is manufacturer's standard wetted parts material
- (10) Alternative base body materials for Inconel cladding could be used
- (11) Alternative Titanium specifications available: B367 C2
- (12) Inconel 718<sup>®</sup> springs can be supplied in lieu of Inconel X750<sup>®</sup> springs

## STANDARDS DEFINITIONS

### API 594 (Extract from Sixth Edition, 2004)

#### 5.4 Trim

5.4.1 The trim includes the following:

- a) Body seating surfaces
- b) Plate Seating surfaces

#### 5.5 Internal Wetted Parts

The term "wetted parts" shall include, but not be limited to, stem or shaft, hinges, pins, bolts, bearings, and any other part in contact with the fluid medium other than the body, cover, plates or disc, trim, springs and pipe plugs.

### API 600 (Extract from Second Edition, 2004)/ ISO 10434

TABLE 3 - Nominal Seating Surface Materials

Name	Trim Number				
	1	5	8	10	12
Plate seating surface	13 Cr (410SS)	Stellite 6 <sup>®</sup>	13 Cr (410SS)	18-8 Cr-Ni (316SS)	18-8 Cr-Ni (316SS)
Body seating surface	13 Cr (410SS)	Stellite 6 <sup>®</sup>	Stellite 6 <sup>®</sup>	18-8 Cr-Ni (316SS)	Stellite 6 <sup>®</sup>

## GOODWIN CHECK VALVE FEATURES:

### RETAINERLESS

To meet FUGITIVE EMISSIONS control requirements valves are supplied RETAINERLESS as standard, i.e. no threaded plugs in the pressure boundary. This design eliminates the potential leakpath to atmosphere associated with competitors' valves with threaded retaining plugs. The Retainerless design is ideal on applications where there is a risk of crevice/thread corrosion from either the contained fluid or the environment. Having no threaded retaining plugs in the pressure boundary the Retainerless design eliminates the associated problems of crevice/thread corrosion.

**PRESSURE CLASSES:** ANSI 150 TO 2500 LB, API 2000 TO 10,000 LB.

### NOMINAL SIZE RANGE

ANSI 150 lb.	2" to 144"	} Larger diameter valves for the respective pressure classes can be designed and manufactured on request.
ANSI 300 lb.	2" to 60"	
ANSI 600 lb.	2" to 54"	
ANSI 900 lb.	2" to 48"	
ANSI 1500 lb.	2" to 40"	
ANSI 2500 lb.	2" to 24"	

### FLANGE STANDARD

Unless otherwise specified in the order text, valves that are to fit between flanges, i.e. types BR, BFR and BSR, will be supplied to accommodate flanges to ANSI B16.5 for 2" through 24" and ANSI B16.47 Series A for valves 26" and larger. Customers requiring the valve to be compatible with ANSI B16.47 Series B or other flange standard must specify such in their inquiry and order.

### SEAT LEAKAGE

A metal-to-metal leakage rate of 1cc/minute/inch diameter can be achieved if specified with customer enquiry/order. (Note: API 598 specifies 3cc/minute/inch diameter with water.)

### INDEPENDENT PLATE SUSPENSION

Valves above 24" ANSI 300lb are supplied with independent plate suspension.

### PRESSURE EQUIPMENT DIRECTIVE 97/23/EC

Goodwin can manufacture its Dual Plate Check Valves in compliance with the European Pressure Equipment Directive (PED) 97/23/EC to meet customer requirements.

### ATEX DIRECTIVE 94/9/EC

Goodwin can manufacture its Dual Plate Check Valves in compliance with the European Atmosphere Explosive Directive (ATEX) 94/9/EC to meet customer requirements.