



**TRIAGE ENGINEERING PRIVATE LIMITED**

RENDERING THE RIGHT SERVICE

# VALVES

**Rendering the right services  
THAT MAKES THE INDUSTRY MOVE**

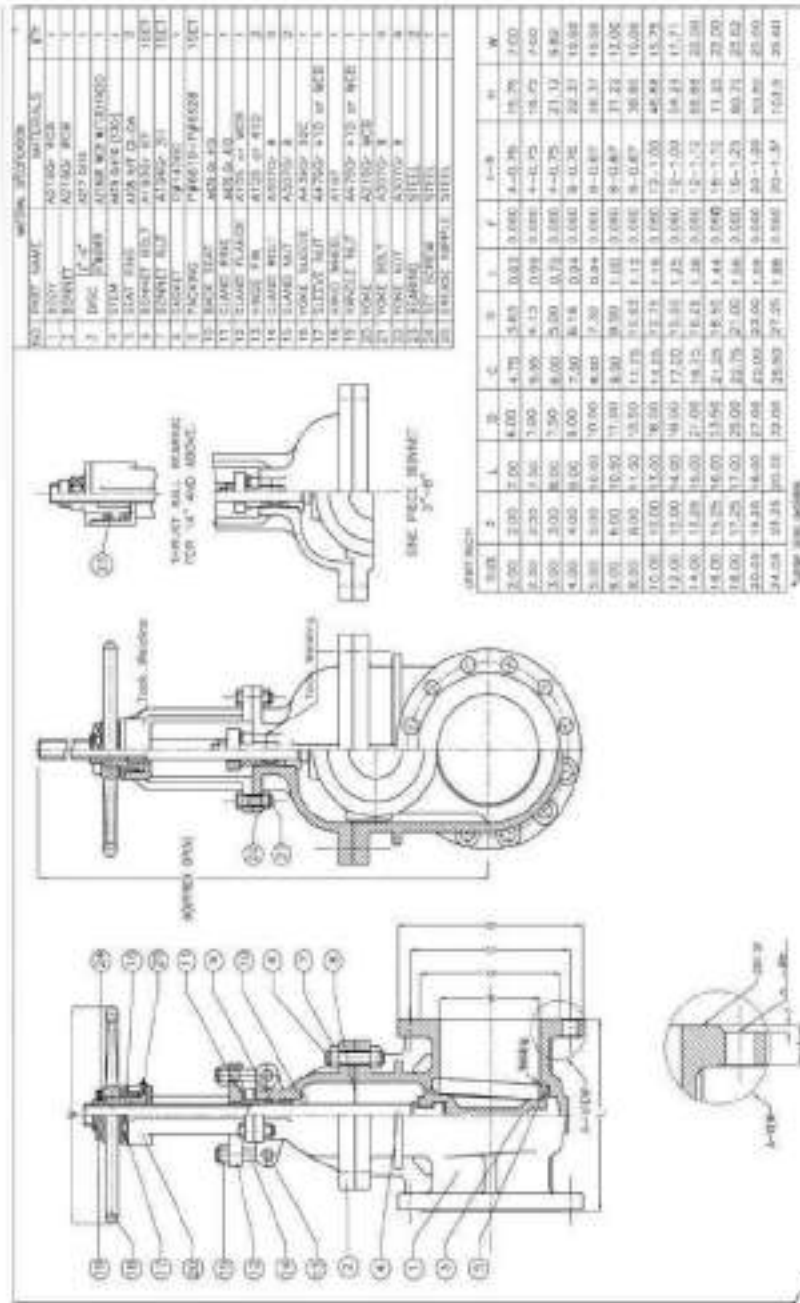


# Gate Valve

|              |                                                        |
|--------------|--------------------------------------------------------|
| DESIGN       | API 600 / API 6D / API 603 / BS 1414                   |
| FACE TO FACE | ASME B 16.10 / API 6D                                  |
| FLANGES      | ASME B 16.5 / MSS SP 44 / ASME B 16.47                 |
| BUTT WELDING | ASME B 16.25                                           |
| TESTING      | API 598 / API 6D                                       |
| MATERIAL     | ASTM SPECIFICATIONS FLEXIBLE WEDGE CONSTRUCTION        |
| EXCEPT FOR   | 2" #150                                                |
| TRIMS        | VARIETIES OF COMBINATIONS                              |
| OPTIONAL     | ELECTRICAL GEARED DRIVE                                |
|              | BYPASS ARRANGEMENT, FLOOR STAND                        |
|              | OVAL FLAT BODY BONNET JOINTS FOR 150 LBS.              |
|              | MALE FEMALE BODY BONNET JOINTS FOR RATINGS > 300 LBS.  |
|              | RTJ JOINTS ON REQUEST                                  |
| NOTE         | RTJ BODY BONNET JOINTS FOR RATINGS > 1500 LBS STANDARD |

|              |                                                 |
|--------------|-------------------------------------------------|
| DESIGN STD   | AS PER API 6D, API 600, BS 1414                 |
| FACE TO FACE | AS PER ASME B 16.10                             |
| FLANGE END   | AS PER ASME B 16.5                              |
| TESTING STD  | AS PER API 598, ISO 5208                        |
| SIZE         | API 598 / API 6D                                |
| SEAT         | ASTM Specifications Flexible wedge construction |
| MATERIAL     |                                                 |
| BODY         | WCB, CF8, CF8M ETC                              |
| GATE         | CA-15, CF8, CF8M ETC                            |
| TRIM         | 13% CR, SS 304, SS 316                          |

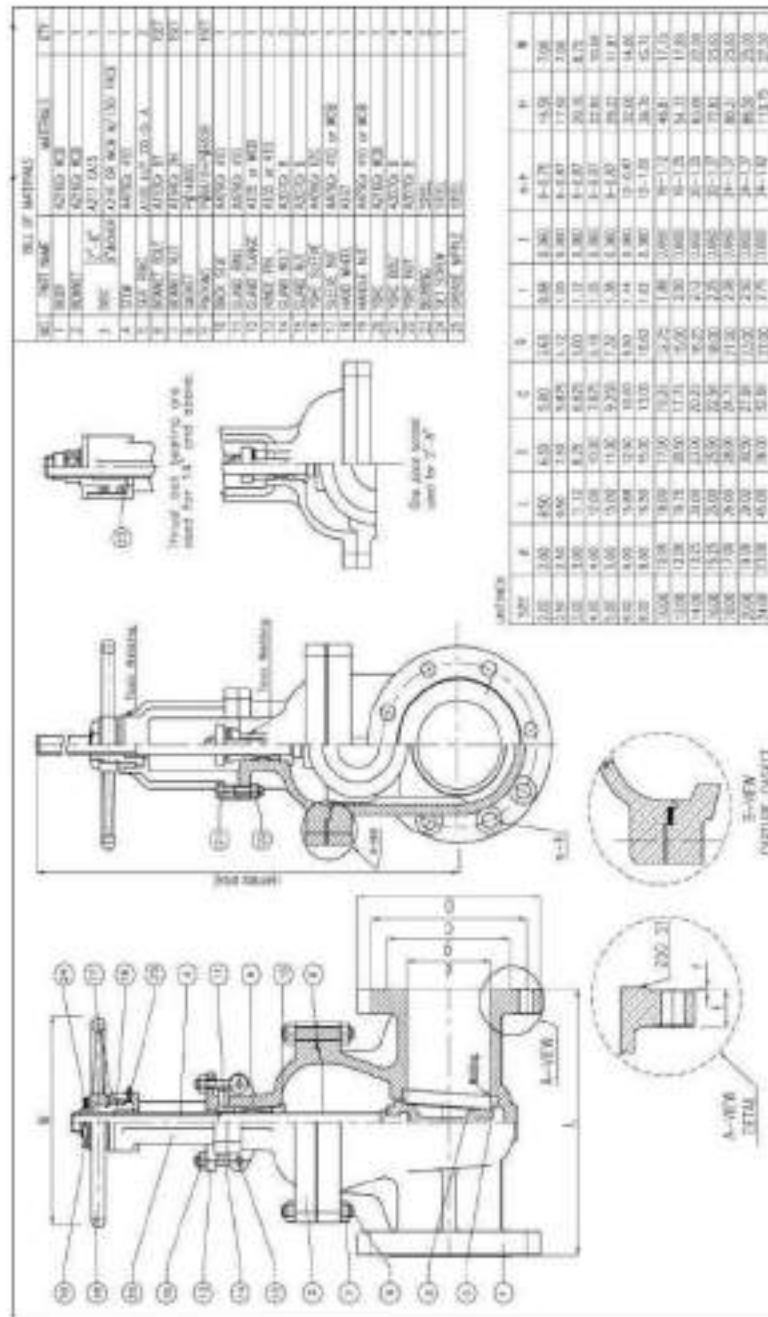
# Gate Valve Class 150 OS&Y ASTM A 215 WCB (API Trim 8)



| ITEM NO. | DESCRIPTION      | QTY | UNIT | REMARKS |
|----------|------------------|-----|------|---------|
| 1        | VALVE BODY       | 1   | PC   |         |
| 2        | VALVE GATE       | 1   | PC   |         |
| 3        | VALVE HANDLE     | 1   | PC   |         |
| 4        | VALVE FLANGE     | 1   | PC   |         |
| 5        | VALVE BOLT       | 1   | PC   |         |
| 6        | VALVE NUT        | 1   | PC   |         |
| 7        | VALVE WASHER     | 1   | PC   |         |
| 8        | VALVE GASKET     | 1   | PC   |         |
| 9        | VALVE O-RING     | 1   | PC   |         |
| 10       | VALVE PIN        | 1   | PC   |         |
| 11       | VALVE SPRING     | 1   | PC   |         |
| 12       | VALVE SCREW      | 1   | PC   |         |
| 13       | VALVE KEY        | 1   | PC   |         |
| 14       | VALVE LOCKWASHER | 1   | PC   |         |
| 15       | VALVE LOCKWASHER | 1   | PC   |         |
| 16       | VALVE LOCKWASHER | 1   | PC   |         |
| 17       | VALVE LOCKWASHER | 1   | PC   |         |
| 18       | VALVE LOCKWASHER | 1   | PC   |         |
| 19       | VALVE LOCKWASHER | 1   | PC   |         |
| 20       | VALVE LOCKWASHER | 1   | PC   |         |
| 21       | VALVE LOCKWASHER | 1   | PC   |         |
| 22       | VALVE LOCKWASHER | 1   | PC   |         |
| 23       | VALVE LOCKWASHER | 1   | PC   |         |
| 24       | VALVE LOCKWASHER | 1   | PC   |         |
| 25       | VALVE LOCKWASHER | 1   | PC   |         |
| 26       | VALVE LOCKWASHER | 1   | PC   |         |
| 27       | VALVE LOCKWASHER | 1   | PC   |         |
| 28       | VALVE LOCKWASHER | 1   | PC   |         |
| 29       | VALVE LOCKWASHER | 1   | PC   |         |
| 30       | VALVE LOCKWASHER | 1   | PC   |         |



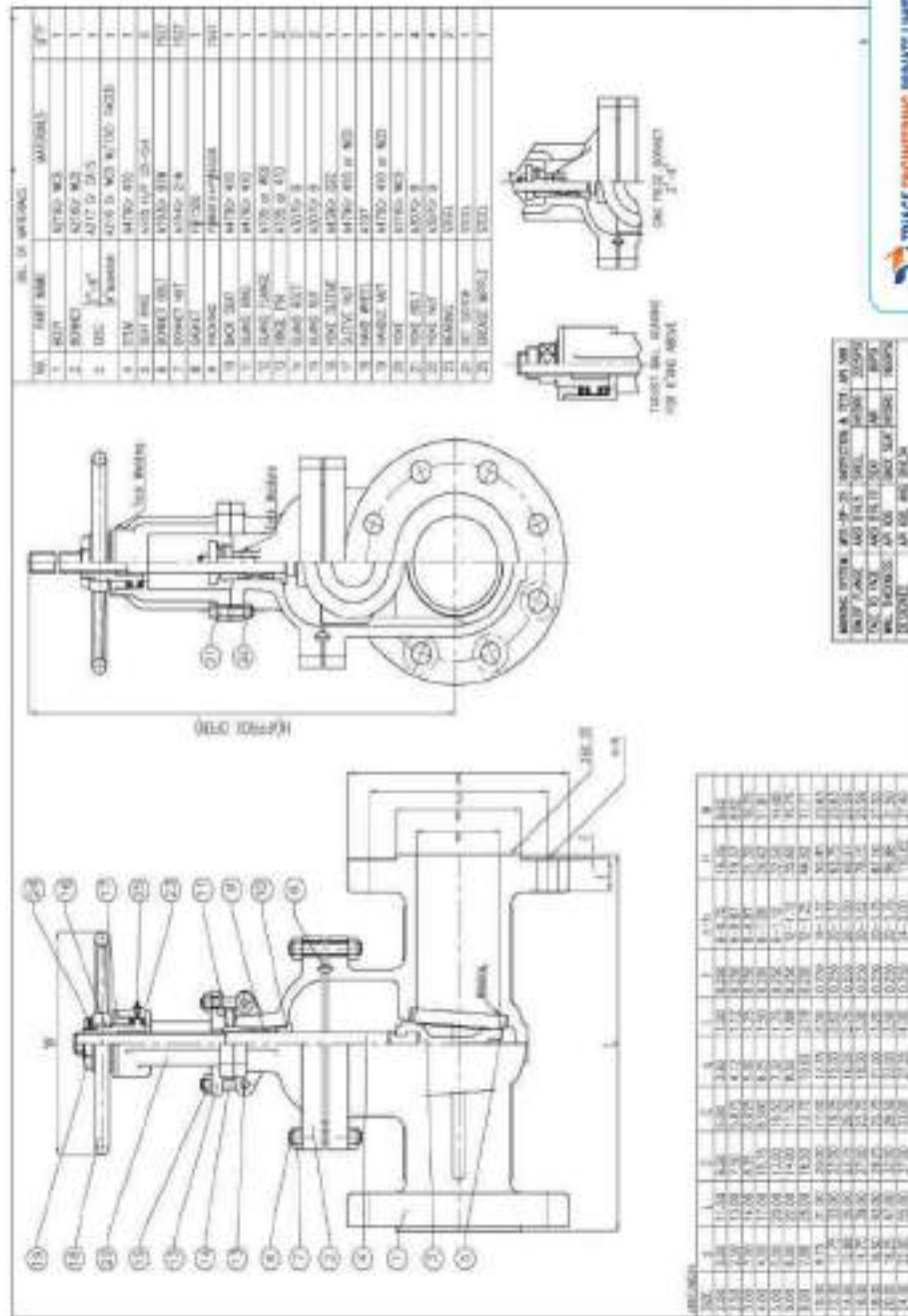
# Gate Valve Class 300 OS&V ASTM A 216 WCB (API Trim 8)



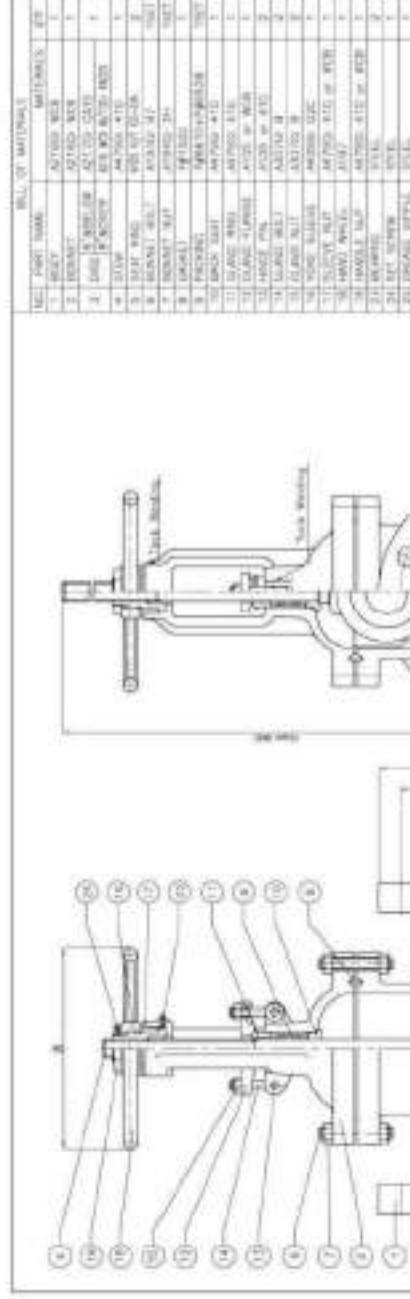
| ITEM NO. | DESCRIPTION | QTY | UNIT | REMARKS        |
|----------|-------------|-----|------|----------------|
| 1        | VALVE BODY  | 1   | PC   | ASTM A 216 WCB |
| 2        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 3        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 4        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 5        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 6        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 7        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 8        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 9        | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 10       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 11       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 12       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 13       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 14       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 15       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 16       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 17       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 18       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 19       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 20       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 21       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 22       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 23       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 24       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 25       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 26       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 27       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 28       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 29       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 30       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 31       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 32       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 33       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 34       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 35       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 36       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 37       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 38       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 39       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 40       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 41       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 42       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 43       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 44       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 45       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 46       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 47       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 48       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 49       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 50       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 51       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 52       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 53       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 54       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 55       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 56       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 57       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 58       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 59       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 60       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 61       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 62       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 63       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 64       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 65       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 66       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 67       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 68       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 69       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 70       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 71       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 72       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 73       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 74       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 75       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 76       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 77       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 78       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 79       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 80       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 81       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 82       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 83       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 84       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 85       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 86       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 87       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 88       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 89       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 90       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 91       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 92       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 93       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 94       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 95       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 96       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 97       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 98       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 99       | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |
| 100      | VALVE TRIM  | 1   | PC   | ASTM A 216 WCB |



# Gate Valve Class 500 OS&Y ASTM A 216 WCB (API Trim 8)



# Gate Valve Class 1500 OS&Y ASTM A 215 WCB (API Trim 8)



| ITEM | PART NAME | MATERIALS      | QTY |
|------|-----------|----------------|-----|
| 1    | BODY      | ASTM A 215 WCB | 1   |
| 2    | SEAT      | ASTM A 215 WCB | 1   |
| 3    | SEAT RING | ASTM A 215 WCB | 1   |
| 4    | SEAT RING | ASTM A 215 WCB | 1   |
| 5    | SEAT RING | ASTM A 215 WCB | 1   |
| 6    | SEAT RING | ASTM A 215 WCB | 1   |
| 7    | SEAT RING | ASTM A 215 WCB | 1   |
| 8    | SEAT RING | ASTM A 215 WCB | 1   |
| 9    | SEAT RING | ASTM A 215 WCB | 1   |
| 10   | SEAT RING | ASTM A 215 WCB | 1   |
| 11   | SEAT RING | ASTM A 215 WCB | 1   |
| 12   | SEAT RING | ASTM A 215 WCB | 1   |
| 13   | SEAT RING | ASTM A 215 WCB | 1   |
| 14   | SEAT RING | ASTM A 215 WCB | 1   |
| 15   | SEAT RING | ASTM A 215 WCB | 1   |
| 16   | SEAT RING | ASTM A 215 WCB | 1   |
| 17   | SEAT RING | ASTM A 215 WCB | 1   |
| 18   | SEAT RING | ASTM A 215 WCB | 1   |
| 19   | SEAT RING | ASTM A 215 WCB | 1   |
| 20   | SEAT RING | ASTM A 215 WCB | 1   |
| 21   | SEAT RING | ASTM A 215 WCB | 1   |
| 22   | SEAT RING | ASTM A 215 WCB | 1   |
| 23   | SEAT RING | ASTM A 215 WCB | 1   |
| 24   | SEAT RING | ASTM A 215 WCB | 1   |

| ITEM | PART NAME | MATERIALS      | QTY |
|------|-----------|----------------|-----|
| 1    | SEAT RING | ASTM A 215 WCB | 1   |
| 2    | SEAT RING | ASTM A 215 WCB | 1   |
| 3    | SEAT RING | ASTM A 215 WCB | 1   |
| 4    | SEAT RING | ASTM A 215 WCB | 1   |
| 5    | SEAT RING | ASTM A 215 WCB | 1   |
| 6    | SEAT RING | ASTM A 215 WCB | 1   |
| 7    | SEAT RING | ASTM A 215 WCB | 1   |
| 8    | SEAT RING | ASTM A 215 WCB | 1   |
| 9    | SEAT RING | ASTM A 215 WCB | 1   |
| 10   | SEAT RING | ASTM A 215 WCB | 1   |
| 11   | SEAT RING | ASTM A 215 WCB | 1   |
| 12   | SEAT RING | ASTM A 215 WCB | 1   |
| 13   | SEAT RING | ASTM A 215 WCB | 1   |
| 14   | SEAT RING | ASTM A 215 WCB | 1   |
| 15   | SEAT RING | ASTM A 215 WCB | 1   |
| 16   | SEAT RING | ASTM A 215 WCB | 1   |
| 17   | SEAT RING | ASTM A 215 WCB | 1   |
| 18   | SEAT RING | ASTM A 215 WCB | 1   |
| 19   | SEAT RING | ASTM A 215 WCB | 1   |
| 20   | SEAT RING | ASTM A 215 WCB | 1   |
| 21   | SEAT RING | ASTM A 215 WCB | 1   |
| 22   | SEAT RING | ASTM A 215 WCB | 1   |
| 23   | SEAT RING | ASTM A 215 WCB | 1   |
| 24   | SEAT RING | ASTM A 215 WCB | 1   |

| ITEM | PART NAME | MATERIALS      | QTY |
|------|-----------|----------------|-----|
| 1    | SEAT RING | ASTM A 215 WCB | 1   |
| 2    | SEAT RING | ASTM A 215 WCB | 1   |
| 3    | SEAT RING | ASTM A 215 WCB | 1   |
| 4    | SEAT RING | ASTM A 215 WCB | 1   |
| 5    | SEAT RING | ASTM A 215 WCB | 1   |
| 6    | SEAT RING | ASTM A 215 WCB | 1   |
| 7    | SEAT RING | ASTM A 215 WCB | 1   |
| 8    | SEAT RING | ASTM A 215 WCB | 1   |
| 9    | SEAT RING | ASTM A 215 WCB | 1   |
| 10   | SEAT RING | ASTM A 215 WCB | 1   |
| 11   | SEAT RING | ASTM A 215 WCB | 1   |
| 12   | SEAT RING | ASTM A 215 WCB | 1   |
| 13   | SEAT RING | ASTM A 215 WCB | 1   |
| 14   | SEAT RING | ASTM A 215 WCB | 1   |
| 15   | SEAT RING | ASTM A 215 WCB | 1   |
| 16   | SEAT RING | ASTM A 215 WCB | 1   |
| 17   | SEAT RING | ASTM A 215 WCB | 1   |
| 18   | SEAT RING | ASTM A 215 WCB | 1   |
| 19   | SEAT RING | ASTM A 215 WCB | 1   |
| 20   | SEAT RING | ASTM A 215 WCB | 1   |
| 21   | SEAT RING | ASTM A 215 WCB | 1   |
| 22   | SEAT RING | ASTM A 215 WCB | 1   |
| 23   | SEAT RING | ASTM A 215 WCB | 1   |
| 24   | SEAT RING | ASTM A 215 WCB | 1   |

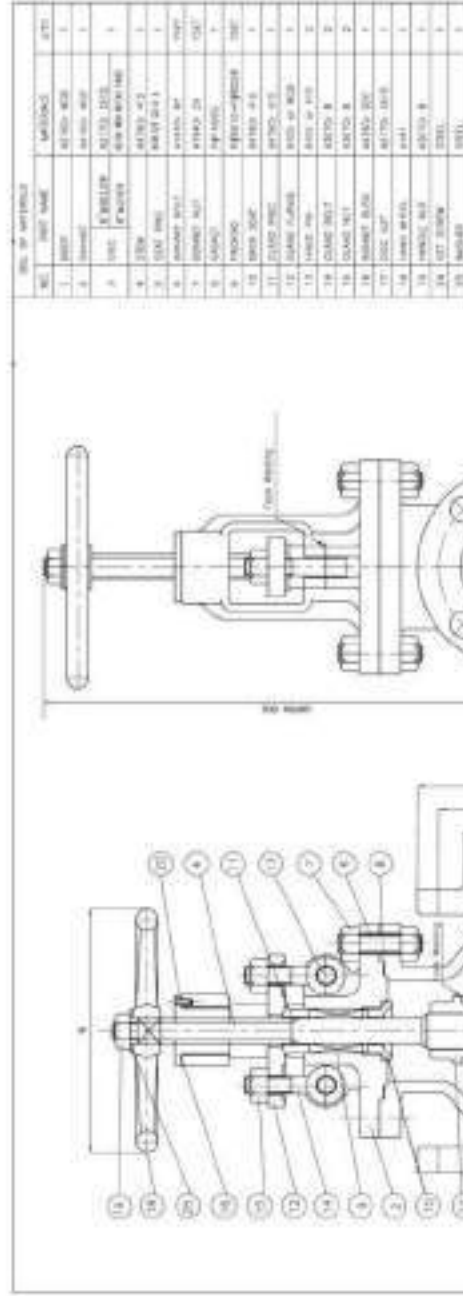


# Globe Valve

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| DESIGN STD          | API 600 / API 6D / API 603 / BS 1414                     |
| FACE TO FACE        | ASME B 16.10 / API 6D                                    |
| FLANGES             | ASME B 16.5 / MSS SP 44 / ASME B 16.47                   |
| BUTT WELDING        | ASME B 16.25                                             |
| TESTING             | API 598 / API 6D                                         |
| MATERIAL            | ASTM SPECIFICATIONS FLEXIBLE WEDGE CONSTRUCTION          |
| EXCEPT FOR MATERIAL |                                                          |
| EXCEPT FOR          | 2" #150                                                  |
| TRIMS               | VARIETIES OF COMBINATIONS                                |
| OPTIONAL            | BYPASS ARRANGEMENT, FLOOR STAND                          |
|                     | OVAL FLAT BODY BONNET JOINTS FOR 150 LBS                 |
|                     | MALE FEMALE BODY BONNET JOINTS FOR RATINGS > 300 LBS     |
| NOTE                | RTJ JOINTS ON REQUEST                                    |
|                     | RTJ BODY BONNET JOINTS FOR RATINGS > 1500 LBS (STANDARD) |

|                     |                                 |
|---------------------|---------------------------------|
| DESIGN STD          | AS PER API 6D, API 600, BS 1414 |
| FACE TO FACE        | AS PER ASME B 16.10             |
| FLANGE END          | AS PER ASME B 16.5              |
| TESTING STD         | AS PER API 598, ISO 5208        |
| SIZE                | 15 TO 600 M.M.                  |
| SEAT                | REPLACEABLE                     |
| EXCEPT FOR MATERIAL |                                 |
| BODY                | WCB, CF8, CF8M ETC.             |
| GATE                | CA-15, CF8, CF8M ETC.           |
| TRIM                | 13% CR., SS 304, SS 316         |

# Globe Valve2 Class 150 RF ASTM A 216 WCB (API Trim 8)

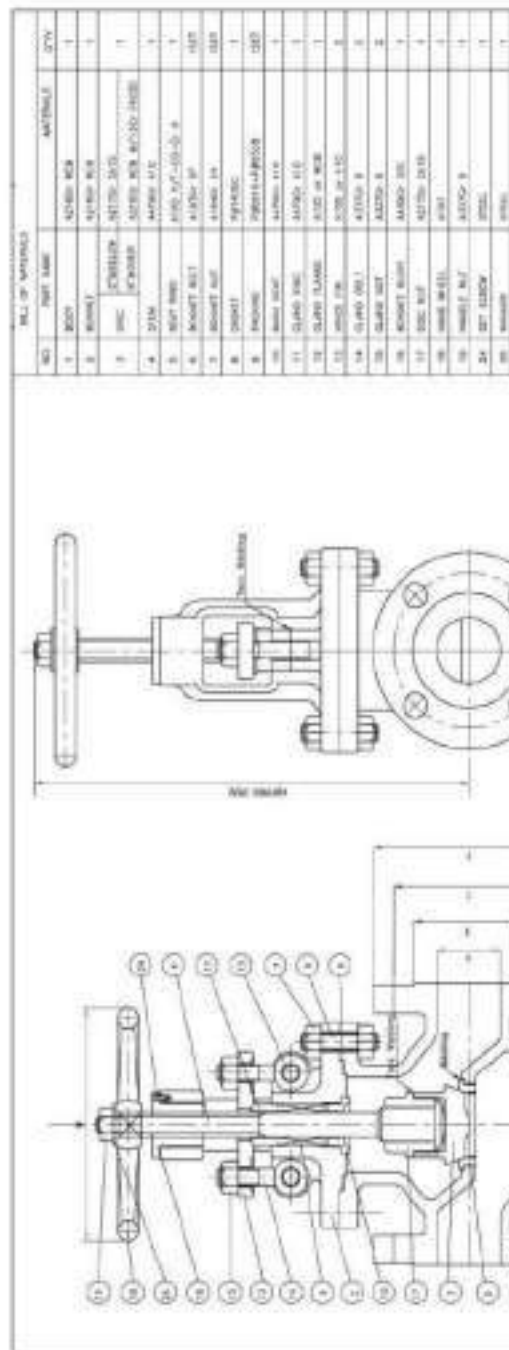


| ITEM NO. | QTY | UNIT | DESCRIPTION        | ITEM NO. | QTY | UNIT | DESCRIPTION        |
|----------|-----|------|--------------------|----------|-----|------|--------------------|
| 1        | 1   | PC   | VALVE BODY         | 11       | 1   | PC   | VALVE BALL COUPLER |
| 2        | 1   | PC   | VALVE PLATE        | 12       | 1   | PC   | VALVE BALL COUPLER |
| 3        | 1   | PC   | VALVE SEAT         | 13       | 1   | PC   | VALVE BALL COUPLER |
| 4        | 1   | PC   | VALVE STEM         | 14       | 1   | PC   | VALVE BALL COUPLER |
| 5        | 1   | PC   | VALVE BALL         | 15       | 1   | PC   | VALVE BALL COUPLER |
| 6        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 7        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 8        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 9        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 10       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 11       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 12       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 13       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 14       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 15       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |

| ITEM NO. | QTY | UNIT | DESCRIPTION        | ITEM NO. | QTY | UNIT | DESCRIPTION        |
|----------|-----|------|--------------------|----------|-----|------|--------------------|
| 1        | 1   | PC   | VALVE BODY         | 11       | 1   | PC   | VALVE BALL COUPLER |
| 2        | 1   | PC   | VALVE PLATE        | 12       | 1   | PC   | VALVE BALL COUPLER |
| 3        | 1   | PC   | VALVE SEAT         | 13       | 1   | PC   | VALVE BALL COUPLER |
| 4        | 1   | PC   | VALVE STEM         | 14       | 1   | PC   | VALVE BALL COUPLER |
| 5        | 1   | PC   | VALVE BALL         | 15       | 1   | PC   | VALVE BALL COUPLER |
| 6        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 7        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 8        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 9        | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 10       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 11       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 12       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 13       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 14       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |
| 15       | 1   | PC   | VALVE BALL COUPLER |          |     |      |                    |



# Globe Valve Class 300 RF ASTM A 216 WCB (API Trim 8)



| BILL OF MATERIALS |     |           |                                          |     |     |     |           |                                          |     |     |     |           |                                          |     |
|-------------------|-----|-----------|------------------------------------------|-----|-----|-----|-----------|------------------------------------------|-----|-----|-----|-----------|------------------------------------------|-----|
| NO.               | QTY | ITEM NAME | DESCRIPTION                              | QTY | NO. | QTY | ITEM NAME | DESCRIPTION                              | QTY | NO. | QTY | ITEM NAME | DESCRIPTION                              | QTY |
| 1                 | 1   | VALVE     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 1   | 1   | VALVE     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 1   | 1   | VALVE     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 2                 | 1   | HANDLE    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 2   | 1   | HANDLE    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 2   | 1   | HANDLE    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 3                 | 1   | STEM      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 3   | 1   | STEM      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 3   | 1   | STEM      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 4                 | 1   | PACKING   | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 4   | 1   | PACKING   | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 4   | 1   | PACKING   | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 5                 | 1   | SEAL      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 5   | 1   | SEAL      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 5   | 1   | SEAL      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 6                 | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 6   | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 6   | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 7                 | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 7   | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 7   | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 8                 | 1   | SPRING    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 8   | 1   | SPRING    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 8   | 1   | SPRING    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 9                 | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 9   | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 9   | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 10                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 10  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 10  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 11                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 11  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 11  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 12                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 12  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 12  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 13                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 13  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 13  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 14                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 14  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 14  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 15                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 15  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 15  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 16                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 16  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 16  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 17                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 17  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 17  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 18                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 18  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 18  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 19                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 19  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 19  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 20                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 20  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 20  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 21                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 21  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 21  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 22                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 22  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 22  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 23                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 23  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 23  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 24                | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 24  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 24  | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |
| 25                | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 25  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   | 25  | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |

| MATERIAL SPECIFICATIONS |     |           |                                          |     |  |  |  |  |  |  |  |
|-------------------------|-----|-----------|------------------------------------------|-----|--|--|--|--|--|--|--|
| ITEM                    | QTY | ITEM NAME | DESCRIPTION                              | QTY |  |  |  |  |  |  |  |
| 1                       | 1   | VALVE     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 2                       | 1   | HANDLE    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 3                       | 1   | STEM      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 4                       | 1   | PACKING   | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 5                       | 1   | SEAL      | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 6                       | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 7                       | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 8                       | 1   | SPRING    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 9                       | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 10                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 11                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 12                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 13                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 14                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 15                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 16                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 17                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 18                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 19                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 20                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 21                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 22                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 23                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 24                      | 1   | WASHER    | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |
| 25                      | 1   | SCREW     | CLASS 300 RF ASTM A 216 WCB (API Trim 8) | 1   |  |  |  |  |  |  |  |



Trijal Engineering Private Limited

ESTD 2015

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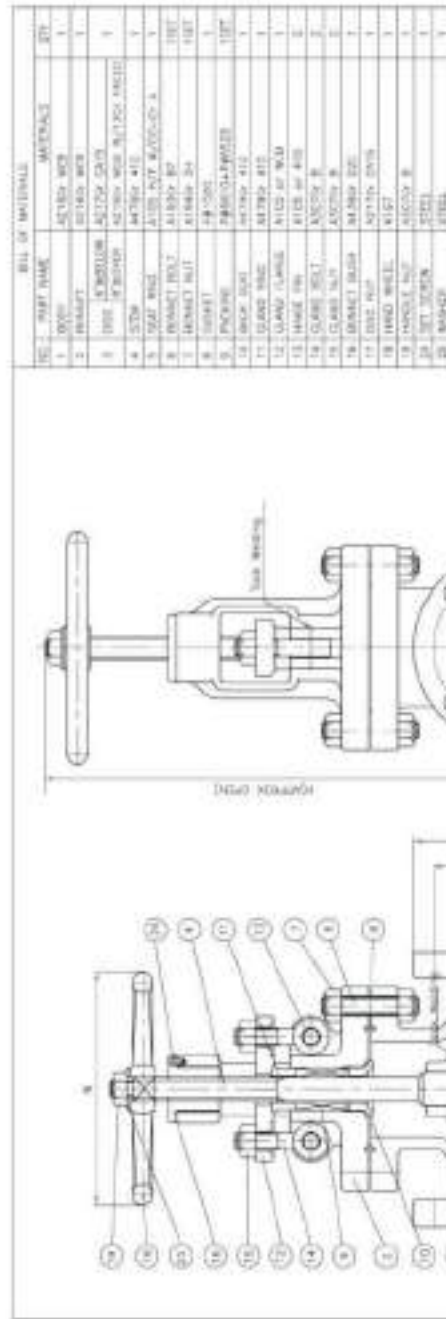
216



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REPAIRING THE RIGHT REPAIR

# Globe Valve Class 600 RF ASTM A 216 WCB (API Trim 8)



| ITEM | QTY | UNIT | DESCRIPTION | QTY | UNIT | DESCRIPTION |
|------|-----|------|-------------|-----|------|-------------|
| 1    | 1   | PC   | WHEEL       | 1   | PC   | HANDLE      |
| 2    | 1   | PC   | STEM        | 1   | PC   | DISC        |
| 3    | 1   | PC   | SEAT        | 1   | PC   | PACKING     |
| 4    | 1   | PC   | SCREW       | 1   | PC   | WASHER      |
| 5    | 1   | PC   | LOCKWASHER  | 1   | PC   | SCREW       |
| 6    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 7    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 8    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 9    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 10   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 11   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 12   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 13   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 14   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 15   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 16   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 17   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 18   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 19   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 20   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 21   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 22   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |

| ITEM | QTY | UNIT | DESCRIPTION | QTY | UNIT | DESCRIPTION |
|------|-----|------|-------------|-----|------|-------------|
| 1    | 1   | PC   | WHEEL       | 1   | PC   | HANDLE      |
| 2    | 1   | PC   | STEM        | 1   | PC   | DISC        |
| 3    | 1   | PC   | SEAT        | 1   | PC   | PACKING     |
| 4    | 1   | PC   | SCREW       | 1   | PC   | WASHER      |
| 5    | 1   | PC   | LOCKWASHER  | 1   | PC   | SCREW       |
| 6    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 7    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 8    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 9    | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 10   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 11   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 12   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 13   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 14   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 15   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 16   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 17   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 18   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 19   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 20   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 21   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |
| 22   | 1   | PC   | SCREW       | 1   | PC   | SCREW       |





# Ball Valve

## Product Details

|                        |                                             |
|------------------------|---------------------------------------------|
| MANUFACTURING STANDARD | BS 5351                                     |
| TESTING STANDARD       | BS 5146                                     |
| PRODUCT RANGE          | 15 TO 200MM                                 |
| END CONNECTION         | FLANGES AS PER ANSI B 16.5 RAISED FACE 150# |
|                        | SERRATED, E TABLE, F TABLE & DIN STD        |
| FACE TO FACE           | ANSI B16.10                                 |

### Salient features

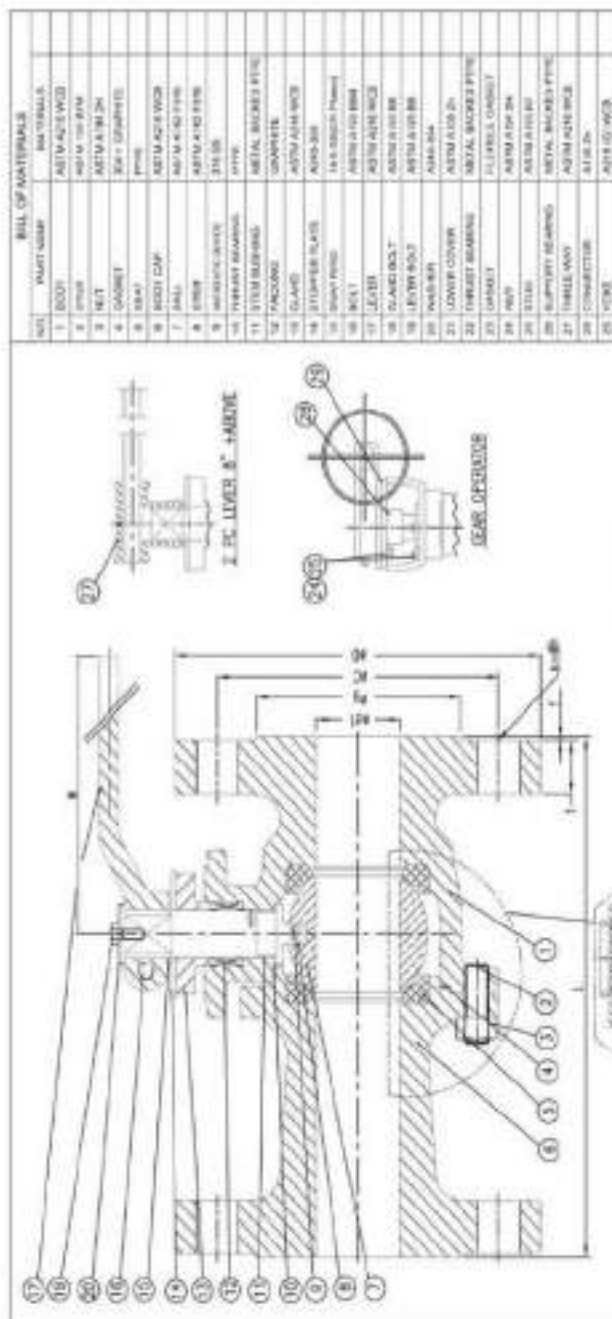
- ❖ Full port
- ❖ Blow out proof stem
- ❖ Low torque
- ❖ Floating ball
- ❖ Mirror finish ball
- ❖ Quarter turn shut off
- ❖ 100% interchangeability

### Variety of materials

S.S. ASTM, A 351, GR CF8 (304), CF3 (304L), CF8M (316), CF3M (316L), CF8C (321), CN7M (ALLOY 20), ASTM 216, GR WCB (CAST STEEL)

|              |                          |
|--------------|--------------------------|
| DESIGN STD   | AS PER API 6D, BS 5351   |
| FACE TO FACE | AS PER ASME B 16.10      |
| FLANGE END   | AS PER ASME B 16.5       |
| TESTING STD  | AS PER API 598, ISO 5208 |
| SIZE         | 15 TO 300 M.M            |
| MATERIAL     |                          |
| BODY         | CF8M,CF8, WCB,ETC        |
| GATE         | CF8M,CF8, ETC            |

# Rail Valve Class 150 Full Port ASTM A216 WCB



| ITEM | DESCRIPTION    | QTY | UNIT |
|------|----------------|-----|------|
| 1    | BODY           | 1   | PC   |
| 2    | STEM           | 1   | PC   |
| 3    | SEAT           | 1   | PC   |
| 4    | DISC           | 1   | PC   |
| 5    | PACKING        | 1   | PC   |
| 6    | STITCHER PLATE | 1   | PC   |
| 7    | LEVER          | 1   | PC   |
| 8    | LEVER PIN      | 1   | PC   |
| 9    | LEVER PIN      | 1   | PC   |
| 10   | LEVER PIN      | 1   | PC   |
| 11   | LEVER PIN      | 1   | PC   |
| 12   | LEVER PIN      | 1   | PC   |
| 13   | LEVER PIN      | 1   | PC   |
| 14   | LEVER PIN      | 1   | PC   |
| 15   | LEVER PIN      | 1   | PC   |
| 16   | LEVER PIN      | 1   | PC   |
| 17   | LEVER PIN      | 1   | PC   |
| 18   | LEVER PIN      | 1   | PC   |
| 19   | LEVER PIN      | 1   | PC   |
| 20   | LEVER PIN      | 1   | PC   |
| 21   | LEVER PIN      | 1   | PC   |
| 22   | LEVER PIN      | 1   | PC   |
| 23   | LEVER PIN      | 1   | PC   |
| 24   | LEVER PIN      | 1   | PC   |
| 25   | LEVER PIN      | 1   | PC   |
| 26   | LEVER PIN      | 1   | PC   |
| 27   | LEVER PIN      | 1   | PC   |
| 28   | LEVER PIN      | 1   | PC   |
| 29   | LEVER PIN      | 1   | PC   |
| 30   | LEVER PIN      | 1   | PC   |



MONITORING P-10 (DSD 3210)

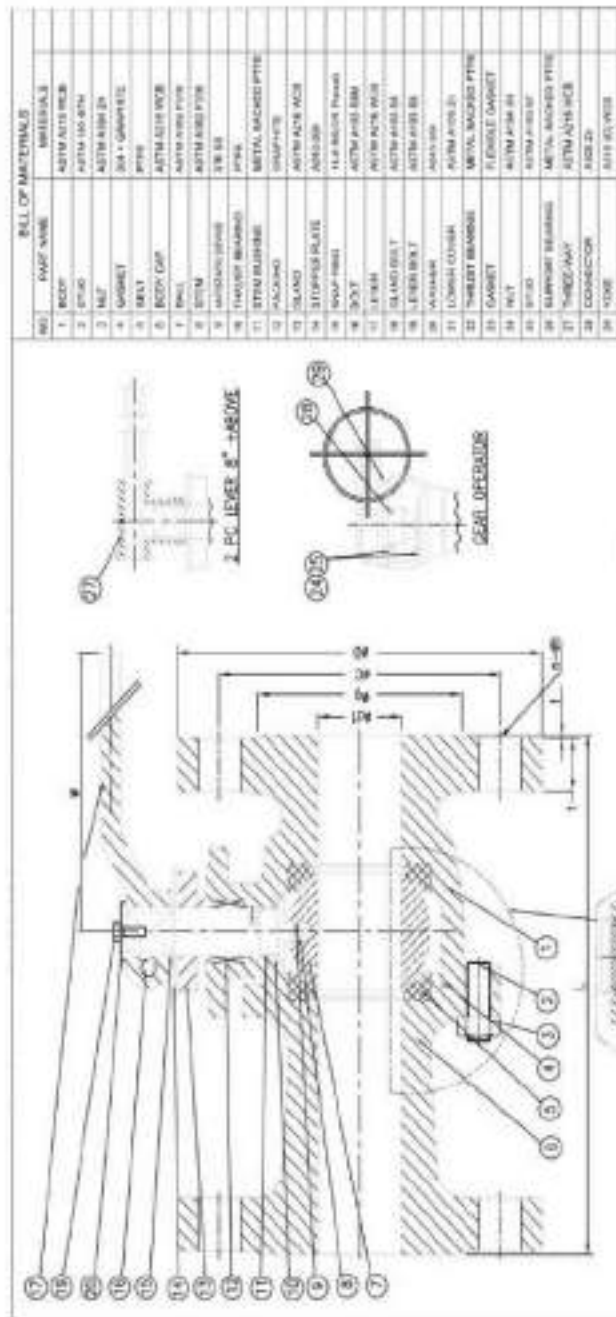
| ITEM | DESCRIPTION    | QTY | UNIT |
|------|----------------|-----|------|
| 1    | BODY           | 1   | PC   |
| 2    | STEM           | 1   | PC   |
| 3    | SEAT           | 1   | PC   |
| 4    | DISC           | 1   | PC   |
| 5    | PACKING        | 1   | PC   |
| 6    | STITCHER PLATE | 1   | PC   |
| 7    | LEVER          | 1   | PC   |
| 8    | LEVER PIN      | 1   | PC   |
| 9    | LEVER PIN      | 1   | PC   |
| 10   | LEVER PIN      | 1   | PC   |
| 11   | LEVER PIN      | 1   | PC   |
| 12   | LEVER PIN      | 1   | PC   |
| 13   | LEVER PIN      | 1   | PC   |
| 14   | LEVER PIN      | 1   | PC   |
| 15   | LEVER PIN      | 1   | PC   |
| 16   | LEVER PIN      | 1   | PC   |
| 17   | LEVER PIN      | 1   | PC   |
| 18   | LEVER PIN      | 1   | PC   |
| 19   | LEVER PIN      | 1   | PC   |
| 20   | LEVER PIN      | 1   | PC   |
| 21   | LEVER PIN      | 1   | PC   |
| 22   | LEVER PIN      | 1   | PC   |
| 23   | LEVER PIN      | 1   | PC   |
| 24   | LEVER PIN      | 1   | PC   |
| 25   | LEVER PIN      | 1   | PC   |
| 26   | LEVER PIN      | 1   | PC   |
| 27   | LEVER PIN      | 1   | PC   |
| 28   | LEVER PIN      | 1   | PC   |
| 29   | LEVER PIN      | 1   | PC   |
| 30   | LEVER PIN      | 1   | PC   |

| ITEM | DESCRIPTION    | QTY | UNIT |
|------|----------------|-----|------|
| 1    | BODY           | 1   | PC   |
| 2    | STEM           | 1   | PC   |
| 3    | SEAT           | 1   | PC   |
| 4    | DISC           | 1   | PC   |
| 5    | PACKING        | 1   | PC   |
| 6    | STITCHER PLATE | 1   | PC   |
| 7    | LEVER          | 1   | PC   |
| 8    | LEVER PIN      | 1   | PC   |
| 9    | LEVER PIN      | 1   | PC   |
| 10   | LEVER PIN      | 1   | PC   |
| 11   | LEVER PIN      | 1   | PC   |
| 12   | LEVER PIN      | 1   | PC   |
| 13   | LEVER PIN      | 1   | PC   |
| 14   | LEVER PIN      | 1   | PC   |
| 15   | LEVER PIN      | 1   | PC   |
| 16   | LEVER PIN      | 1   | PC   |
| 17   | LEVER PIN      | 1   | PC   |
| 18   | LEVER PIN      | 1   | PC   |
| 19   | LEVER PIN      | 1   | PC   |
| 20   | LEVER PIN      | 1   | PC   |
| 21   | LEVER PIN      | 1   | PC   |
| 22   | LEVER PIN      | 1   | PC   |
| 23   | LEVER PIN      | 1   | PC   |
| 24   | LEVER PIN      | 1   | PC   |
| 25   | LEVER PIN      | 1   | PC   |
| 26   | LEVER PIN      | 1   | PC   |
| 27   | LEVER PIN      | 1   | PC   |
| 28   | LEVER PIN      | 1   | PC   |
| 29   | LEVER PIN      | 1   | PC   |
| 30   | LEVER PIN      | 1   | PC   |

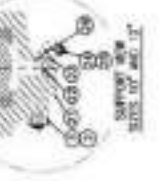




# Ball Valve Class 300 Full Port ASTM A216 WCB



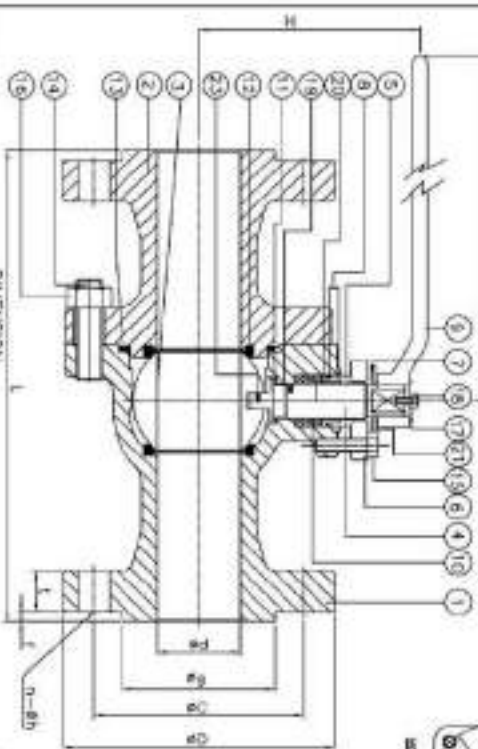
21 BALL  
22 SEAT  
23 SEAT RING  
24 BALL RING  
25 BALL RING GASKET  
26 BALL RING GASKET GASKET  
27 BALL RING GASKET GASKET  
28 BALL RING GASKET GASKET  
29 BALL RING GASKET GASKET  
30 BALL RING GASKET GASKET



| BILL OF MATERIALS |     |                         |      |     |                                |      |     |                                |      |
|-------------------|-----|-------------------------|------|-----|--------------------------------|------|-----|--------------------------------|------|
| NO.               | QTY | NAME                    | UNIT | QTY | NAME                           | UNIT | QTY | NAME                           | UNIT |
| 1                 | 1   | BALL                    | PC   | 1   | SEAT                           | PC   | 1   | SEAT RING                      | PC   |
| 2                 | 1   | SEAT                    | PC   | 1   | SEAT RING                      | PC   | 1   | SEAT RING GASKET               | PC   |
| 3                 | 1   | SEAT RING               | PC   | 1   | SEAT RING GASKET               | PC   | 1   | SEAT RING GASKET GASKET        | PC   |
| 4                 | 1   | SEAT RING GASKET        | PC   | 1   | SEAT RING GASKET GASKET        | PC   | 1   | SEAT RING GASKET GASKET GASKET | PC   |
| 5                 | 1   | SEAT RING GASKET GASKET | PC   | 1   | SEAT RING GASKET GASKET GASKET |      |     |                                |      |

The technical drawing illustrates the 7000 series ball bearing through three views:

- Cross-section A-A:** Shows the internal structure of the bearing, including the balls and the cage. The dimension  $N$  indicates the total width.
- Cross-section B-B:** Provides another perspective of the bearing's internal components.
- Outer Ring Detail:** A detailed view of the outer ring showing the mounting holes and the central shaft hole. Dimensions include:
  - $\phi$ : Outer diameter.
  - $d$ : Inner diameter (shaft hole).
  - $B$ : Width of the outer ring.
  - $r_1$ : Fillet radius at the inner edge.
  - $R_1$ : Radius of the mounting holes.
  - $\phi$ : Diameter of the mounting holes.
  - $L$ : Distance between the centers of the mounting holes.

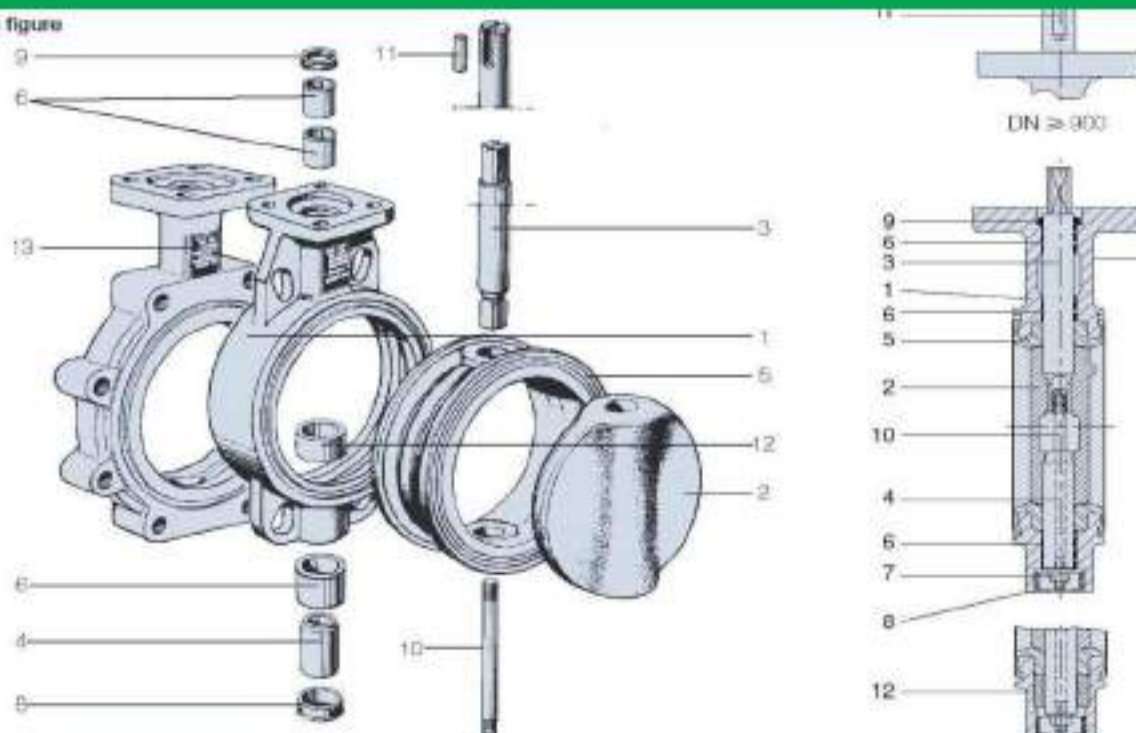
[illegible]

| DATE    | NO. | NAME | TYPE | DATE    | NO. | NAME | TYPE | DATE    | NO. | NAME | TYPE |
|---------|-----|------|------|---------|-----|------|------|---------|-----|------|------|
| 1/1/77  | 1   | JOHN | 100  | 1/1/77  | 1   | JOHN | 100  | 1/1/77  | 1   | JOHN | 100  |
| 2/1/77  | 2   | JANE | 200  | 2/1/77  | 2   | JANE | 200  | 2/1/77  | 2   | JANE | 200  |
| 3/1/77  | 3   | JOHN | 100  | 3/1/77  | 3   | JOHN | 100  | 3/1/77  | 3   | JOHN | 100  |
| 4/1/77  | 4   | JANE | 200  | 4/1/77  | 4   | JANE | 200  | 4/1/77  | 4   | JANE | 200  |
| 5/1/77  | 5   | JOHN | 100  | 5/1/77  | 5   | JOHN | 100  | 5/1/77  | 5   | JOHN | 100  |
| 6/1/77  | 6   | JANE | 200  | 6/1/77  | 6   | JANE | 200  | 6/1/77  | 6   | JANE | 200  |
| 7/1/77  | 7   | JOHN | 100  | 7/1/77  | 7   | JOHN | 100  | 7/1/77  | 7   | JOHN | 100  |
| 8/1/77  | 8   | JANE | 200  | 8/1/77  | 8   | JANE | 200  | 8/1/77  | 8   | JANE | 200  |
| 9/1/77  | 9   | JOHN | 100  | 9/1/77  | 9   | JOHN | 100  | 9/1/77  | 9   | JOHN | 100  |
| 10/1/77 | 10  | JANE | 200  | 10/1/77 | 10  | JANE | 200  | 10/1/77 | 10  | JANE | 200  |
| 11/1/77 | 11  | JOHN | 100  | 11/1/77 | 11  | JOHN | 100  | 11/1/77 | 11  | JOHN | 100  |
| 12/1/77 | 12  | JANE | 200  | 12/1/77 | 12  | JANE | 200  | 12/1/77 | 12  | JANE | 200  |
| 1/1/78  | 13  | JOHN | 100  | 1/1/78  | 13  | JOHN | 100  | 1/1/78  | 13  | JOHN | 100  |
| 2/1/78  | 14  | JANE | 200  | 2/1/78  | 14  | JANE | 200  | 2/1/78  | 14  | JANE | 200  |
| 3/1/78  | 15  | JOHN | 100  | 3/1/78  | 15  | JOHN | 100  | 3/1/78  | 15  | JOHN | 100  |
| 4/1/78  | 16  | JANE | 200  | 4/1/78  | 16  | JANE | 200  | 4/1/78  | 16  | JANE | 200  |
| 5/1/78  | 17  | JOHN | 100  | 5/1/78  | 17  | JOHN | 100  | 5/1/78  | 17  | JOHN | 100  |
| 6/1/78  | 18  | JANE | 200  | 6/1/78  | 18  | JANE | 200  | 6/1/78  | 18  | JANE | 200  |
| 7/1/78  | 19  | JOHN | 100  | 7/1/78  | 19  | JOHN | 100  | 7/1/78  | 19  | JOHN | 100  |
| 8/1/78  | 20  | JANE | 200  | 8/1/78  | 20  | JANE | 200  | 8/1/78  | 20  | JANE | 200  |
| 9/1/78  | 21  | JOHN | 100  | 9/1/78  | 21  | JOHN | 100  | 9/1/78  | 21  | JOHN | 100  |
| 10/1/78 | 22  | JANE | 200  | 10/1/78 | 22  | JANE | 200  | 10/1/78 | 22  | JANE | 200  |
| 11/1/78 | 23  | JOHN | 100  | 11/1/78 | 23  | JOHN | 100  | 11/1/78 | 23  | JOHN | 100  |
| 12/1/78 | 24  | JANE | 200  | 12/1/78 | 24  | JANE | 200  | 12/1/78 | 24  | JANE | 200  |
| 1/1/79  | 25  | JOHN | 100  | 1/1/79  | 25  | JOHN | 100  | 1/1/79  | 25  | JOHN | 100  |
| 2/1/79  | 26  | JANE | 200  | 2/1/79  | 26  | JANE | 200  | 2/1/79  | 26  | JANE | 200  |
| 3/1/79  | 27  | JOHN | 100  | 3/1/79  | 27  | JOHN | 100  | 3/1/79  | 27  | JOHN | 100  |
| 4/1/79  | 28  | JANE | 200  | 4/1/79  | 28  | JANE | 200  | 4/1/79  | 28  | JANE | 200  |
| 5/1/79  | 29  | JOHN | 100  | 5/1/79  | 29  | JOHN | 100  | 5/1/79  | 29  | JOHN | 100  |
| 6/1/79  | 30  | JANE | 200  | 6/1/79  | 30  | JANE | 200  | 6/1/79  | 30  | JANE | 200  |
| 7/1/79  | 31  | JOHN | 100  | 7/1/79  | 31  | JOHN | 100  | 7/1/79  | 31  | JOHN | 100  |
| 8/1/79  | 32  | JANE | 200  | 8/1/79  | 32  | JANE | 200  | 8/1/79  | 32  | JANE | 200  |
| 9/1/79  | 33  | JOHN | 100  | 9/1/79  | 33  | JOHN | 100  | 9/1/79  | 33  | JOHN | 100  |
| 10/1/79 | 34  | JANE | 200  | 10/1/79 | 34  | JANE | 200  | 10/1/79 | 34  | JANE | 200  |
| 11/1/79 | 35  | JOHN |      |         |     |      |      |         |     |      |      |

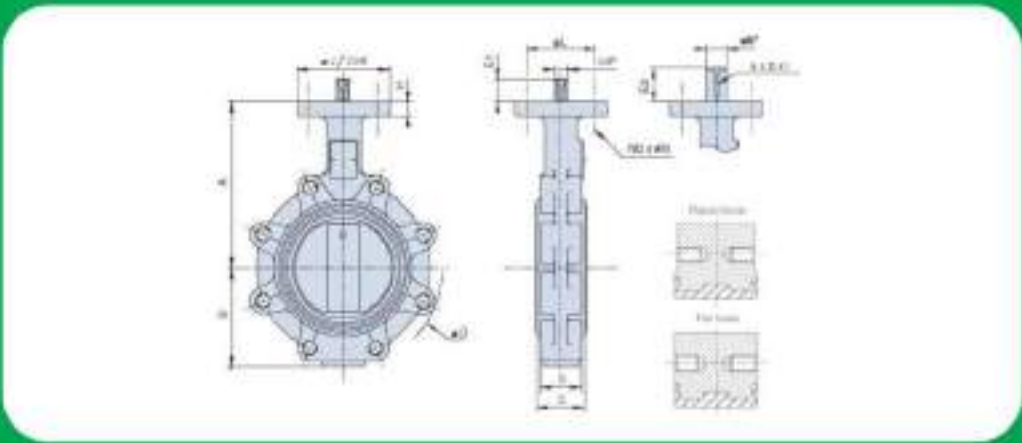


# BUTTERFLY

Basic figure



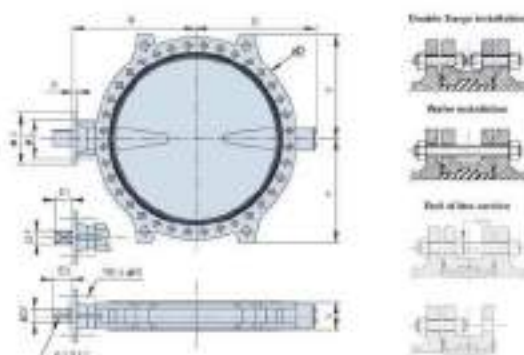
| Rep. | Nb | Designation   | Type                  | Material                                    | Other Materials        |
|------|----|---------------|-----------------------|---------------------------------------------|------------------------|
| 1    | 1  | Body          | Ductile Iron          | EN GJS 400-15+Epoxy                         | ASTM A536 Gr. 60.90.35 |
|      |    |               | Carbon Steel          | EN GP 240 GH+Epoxy                          | ASTM A216 WCB          |
|      |    |               | Stainless Steel       | EN GX2CrNiMo-19-11-2                        | ASTM A351 CF3M         |
|      |    |               | Aluminium Bronze      | En CuAl0Ni5Fe5-C                            | ASTM B148 Gr. 958      |
| 2    | 1  | Disc          | Ductile Iron          | EN GJS 400-15                               | ASTM A536 Gr. 60.90.35 |
|      |    |               | Stainless Steel*      | EN GX2CrNiMo-19-11-2                        | ASTM A351 CF3M         |
|      |    |               | For DN>300            | EN GX2CrNiMo-19-11-2                        | ASTM A351 CF8M         |
|      |    |               | Aluminium Bronze*     | En CuAl0Ni5Fe5-C                            | ASTM B148 Gr. 958      |
|      |    |               | Brass                 | EN CuZn40Pb2                                |                        |
|      |    |               |                       | Uranus 96®                                  |                        |
|      |    |               |                       | Monel 400®                                  |                        |
|      |    |               | Available coatings:   | Epoxy or Rilsan® coated                     |                        |
|      |    |               |                       | EPDM or Nitrile rubber coated (up to DN300) |                        |
|      |    |               |                       | Natural rubber coated                       |                        |
|      |    |               |                       | Ebonite coated                              |                        |
|      |    |               |                       | halar® coated                               |                        |
|      |    |               | * Polished on request |                                             | Other on request       |
| 3    | 1  | Control shaft | Stainless Steel       | EN X20Cr13                                  | ASTM A276 - 420        |
|      |    |               | Stainless Steel       | EN X5CrNiCuNb 16-4                          | ASTM A276 - 630        |
|      |    |               | Aluminium bronze      |                                             |                        |
|      |    |               | Monel                 |                                             |                        |
|      |    |               | Inconel               |                                             | Other on request       |
| 4    | 1  | Spindle       | Stainless Steel       | EN X20Cr13                                  | ASTM A276 - 420        |
|      |    |               | Stainless Steel       | EN X5CrNiCuNb 16-4                          | ASTM A276 - 630        |
|      |    |               | Aluminium bronze      |                                             |                        |
|      |    |               | Monel®                |                                             |                        |
|      |    |               | Inconel®              |                                             | Other on request       |
| 5    | 1  | Seat          | Elastomer             | EPDM                                        | White EPDM             |
|      |    |               |                       | EPDM S                                      |                        |
|      |    |               |                       | Nitrile                                     | Nitrile DN             |
|      |    |               |                       | Carboxylated Nitrile                        |                        |
|      |    |               |                       | Fluorated elastomer                         |                        |
|      |    |               |                       | Hypalon®                                    |                        |
|      |    |               |                       | Therban®                                    |                        |
|      |    |               |                       | silicone                                    | Other on request       |



| Valve dimensions in mm |           |     |     |     |      |    |      |    |     |      |     |     |     |    |    |    |    |     | Mass/weight (kg) |     |
|------------------------|-----------|-----|-----|-----|------|----|------|----|-----|------|-----|-----|-----|----|----|----|----|-----|------------------|-----|
| DN (mm)                | DN (inch) | A   | B   | C   | D    | E1 | E2   | F  | G   | H    | J   | K   | L   | Nb | M  | a  | b  | i   |                  | k   |
| 50                     | 2"        | 152 | 76  | 43  | 133  | 26 | -    | 11 | -   | 14   | 90  | -   | 70  | 4  | 9  | -  | -  | -   | 38               | 3,7 |
| 65                     | 2 1/2"    | 159 | 84  | 46  | 173  | 26 | -    | 11 | -   | 14   | 90  | -   | 70  | 4  | 9  | -  | -  | -   | 40               | 4,2 |
| 80                     | 3"        | 165 | 90  | 46  | 188  | 26 | -    | 11 | -   | 14   | 90  | -   | 70  | 4  | 9  | -  | -  | -   | 40               | 7,1 |
| 100                    | 4"        | 182 | 109 | 52  | 219  | 26 | -    | 14 | -   | 16   | -   | 100 | 102 | 4  | 11 | -  | -  | -   | 45               | 8,7 |
| 125                    | 5"        | 193 | 120 | 56  | 252  | 26 | -    | 14 | -   | 16   | -   | 100 | 102 | 4  | 11 | -  | -  | -   | 48               | 11  |
| 150                    | 6"        | 217 | 140 | 56  | 278  | 26 | -    | 19 | -   | 17   | -   | 100 | 102 | 4  | 11 | -  | -  | -   | 68               | 15  |
| 200                    | 8"        | 242 | 167 | 60  | 335  | 26 | -    | 19 | -   | 17   | -   | 100 | 102 | 4  | 11 | -  | -  | -   | 52               | 22  |
| 250                    | 10"       | 260 | 201 | 68  | 400  | 36 | 30   | 27 | 35  | 17   | -   | 132 | 125 | 4  | 14 | 10 | 8  | 60  | 60               | 33  |
| 300                    | 12"       | 310 | 228 | 78  | 482  | 36 | 30   | 27 | 35  | 17   | -   | 132 | 125 | 4  | 14 | 10 | 8  | 60  | 70               | 44  |
| 350                    | 14"       | 350 | 270 | 78  | 520  | 36 | 30   | 27 | 35  | 17,5 | -   | 132 | 125 | 4  | 14 | 10 | 8  | 60  | 70               | 67  |
| 400                    | 16"       | 375 | 300 | 102 | 588  | 43 | 90,5 | 32 | 40  | 21   | -   | 132 | 140 | 4  | 18 | 12 | 9  | 73  | 90               | 104 |
| 450                    | 18"       | 400 | 330 | 114 | 650  | 49 | 100  | 36 | 50  | 22   | -   | 140 | 140 | 4  | 18 | 14 | 11 | 80  | 100              | 136 |
| 500                    | 20"       | 425 | 375 | 127 | 704  | 63 | 100  | 46 | 60  | 25   | 210 | -   | 165 | 4  | 22 | 18 | 11 | 80  | 113              | 180 |
| 550                    | 22"       | 470 | 405 | 154 | 755  | 83 | 100  | 46 | 60  | 25   | 210 | -   | 165 | 4  | 22 | 18 | 11 | 80  |                  | 230 |
| 600                    | 24"       | 495 | 430 | 154 | 828  | 63 | 100  | 46 | 60  | 25   | 210 | -   | 165 | 4  | 22 | 18 | 14 | 80  | 140              | 280 |
| 650                    | 26"       | 545 | 485 | 165 | 870  | 83 | 110  | 55 | 80  | 30   | 300 | -   | 254 | 8  | 18 | 22 | 14 | 100 |                  | 270 |
| 700                    | 28"       | 570 | 510 | 165 | 895  | 81 | 110  | 55 | 80  | 30   | 300 | -   | 254 | 8  | 18 | 22 | 14 | 100 | 150              | 280 |
| 750                    | 30"       | 610 | 540 | 165 | 972  | 81 | 110  | 55 | 80  | 30   | 300 | -   | 254 | 8  | 18 | 22 | 14 | 100 | 150              | 370 |
| 800                    | 32"       | 640 | 560 | 190 | 1010 | 81 | 110  | 55 | 80  | 30   | 300 | -   | 254 | 8  | 18 | 22 | 14 | 100 | 170              | 400 |
| 850                    | 34"       | 700 | 540 | 203 | 1120 | -  | 110  | -  | 100 | 30   | 300 | -   | 254 | 8  | 18 | 28 | 15 | 100 |                  | 530 |
| 900                    | 36"       | 700 | 665 | 203 | 1148 | -  | 110  | -  | 100 | 30   | 300 | -   | 254 | 8  | 18 | 28 | 15 | 100 | 190              | 550 |
| 1000                   | 40"       | 750 | 715 | 216 | 1240 | -  | 110  | -  | 100 | 30   | 315 | -   | 298 | 8  | 22 | 28 | 15 | 100 | 190              | 660 |

## References

[illegible]



| Valve Dimensions in mm |           |      |      |     |      |    |     |    |     |    |     |     |    |    |    |    |     |      | Mass/weight (kg) |
|------------------------|-----------|------|------|-----|------|----|-----|----|-----|----|-----|-----|----|----|----|----|-----|------|------------------|
| DN (mm)                | DN (inch) | A    | B    | C   | D    | E1 | E2  | F  | G   | H  | J   | L   | Nb | M  | a  | b  | i   | P    |                  |
| 500                    | 20"       | 425  | 375  | 127 | 710  | 63 | 100 | 46 | 60  | 25 | 210 | 165 | 4  | 22 | 18 | 11 | 80  | 375  | 167              |
| 550                    | 22"       | 470  | 405  | 154 | 780  | 63 | 100 | 46 | 60  | 25 | 210 | 165 | 4  | 22 | 18 | 11 | 80  | 400  | 230              |
| 600                    | 24"       | 495  | 430  | 154 | 854  | 63 | 100 | 46 | 60  | 25 | 210 | 165 | 4  | 22 | 18 | 11 | 80  | 432  | 203              |
| 650                    | 26"       | 545  | 485  | 165 | 890  | 81 | 110 | 55 | 80  | 30 | 300 | 254 | 8  | 18 | 22 | 14 | 100 | 454  | 270              |
| 700                    | 28"       | 570  | 510  | 165 | 940  | 81 | 110 | 55 | 80  | 30 | 300 | 254 | 8  | 18 | 22 | 14 | 100 | 480  | 292              |
| 750                    | 30"       | 610  | 540  | 165 | 984  | 81 | 110 | 55 | 80  | 30 | 300 | 254 | 8  | 18 | 22 | 14 | 100 | 505  | 300              |
| 800                    | 32"       | 640  | 560  | 190 | 1060 | 81 | 110 | 55 | 80  | 30 | 300 | 254 | 8  | 18 | 22 | 14 | 100 | 542  | 303              |
| 850                    | 34"       | 700  | 640  | 203 | 1168 | -  | 110 | -  | 100 | 30 | 300 | 254 | 8  | 18 | 28 | 16 | 100 | 597  | 330              |
| 900                    | 36"       | 700  | 665  | 203 | 1160 | -  | 110 | -  | 100 | 30 | 300 | 254 | 8  | 18 | 28 | 16 | 100 | 597  | 393              |
| 1000                   | 40"       | 750  | 715  | 216 | 1290 | -  | 110 | -  | 100 | 30 | 350 | 298 | 8  | 22 | 28 | 16 | 100 | 660  | 383              |
| 1050                   | 42"       | 780  | 770  | 254 | 1340 | -  | 140 | -  | 100 | 30 | 350 | 298 | 8  | 22 | 28 | 16 | 120 | 695  | 1100             |
| 1100                   | 44"       | 820  | 805  | 254 | 1400 | -  | 140 | -  | 100 | 30 | 350 | 298 | 8  | 22 | 28 | 16 | 120 | 710  | 1199             |
| 1200                   | 48"       | 870  | 830  | 254 | 1490 | -  | 140 | -  | 100 | 30 | 350 | 298 | 8  | 22 | 28 | 16 | 120 | 760  | 1276             |
| 1300                   | 52"       | 960  | 955  | 254 | 1625 | -  | 140 | -  | 120 | 40 | 415 | 356 | 8  | 32 | 32 | 18 | 130 | 835  | 1672             |
| 1350                   | 54"       | 987  | 965  | 254 | 1685 | -  | 140 | -  | 120 | 40 | 415 | 356 | 8  | 32 | 32 | 18 | 130 | 865  | 1716             |
| 1400                   | 56"       | 1015 | 1000 | 254 | 1690 | -  | 140 | -  | 120 | 40 | 415 | 356 | 8  | 32 | 32 | 18 | 130 | 865  | 1749             |
| 1500                   | 60"       | 1130 | 1090 | 254 | 1855 | -  | 130 | -  | 130 | 50 | 475 | 406 | 8  | 38 | 32 | 18 | 160 | 950  | 2134             |
| 1600 (1.6)             | 64"       | 1170 | 1135 | 254 | 1930 | -  | 130 | -  | 130 | 50 | 475 | 406 | 8  | 38 | 32 | 18 | 160 | 980  | 2211             |
| 1600 (1.6)             | 64"       | 1200 | 1165 | 356 | 1930 | -  | 200 | -  | 150 | 50 | 475 | 406 | 8  | 38 | 36 | 20 | 170 | 980  | 3001             |
| 1650                   | 66"       | 1230 | 1200 | 356 | 2035 | -  | 200 | -  | 150 | 55 | 475 | 406 | 8  | 38 | 36 | 20 | 170 | 1040 | 3608             |
| 1800                   | 72"       | 1290 | 1250 | 356 | 2115 | -  | 200 | -  | 130 | 55 | 475 | 406 | 8  | 38 | 36 | 20 | 170 | 1080 | 3839             |
| 2000                   | 80"       | 1463 | 1390 | 356 | 2340 | -  | 200 | -  | 150 | 55 | 560 | 483 | 12 | 38 | 45 | 25 | 170 | 1260 | 4565             |
| 2100                   | 84"       | 1532 | 1460 | 356 | 2535 | -  | 200 | -  | 150 | 55 | 560 | 483 | 12 | 38 | 45 | 25 | 170 | 1290 | 5390             |
| 2200                   | 88"       | 1566 | 1500 | 356 | 2545 | -  | 200 | -  | 150 | 55 | 560 | 483 | 12 | 38 | 45 | 25 | 170 | 1300 | 5060             |
| 2400                   | 96"       | 1672 | 1590 | 356 | 2755 | -  | 200 | -  | 150 | 55 | 560 | 483 | 12 | 38 | 45 | 25 | 170 | 1425 | 5540             |

#### Note

- ◆ Flange accommodation must be specified when ordering
- ◆ Specify size, product name, part name, material and flange accommodation when ordering spare parts.
- ◆ C-FTF ISO 5752 series 20 – NF-E 29305 series 20 – MSS SP-67 – API 608 – DIN 3202 – BS 5155 – EN 558
- ◆ Flat face version is available, please contact factory.
- ◆ For other valve sizes, see specific dashboards
- ◆ (E2\*) Sapag standard is square shafts for DN500-DN800, key drive for DN850-DN2400, key drive for DN300-DN800 are available on request.
- ◆ 1 bar = 14.6 Psi

| Maximum differential pressure (bar) |            |             |             |             |
|-------------------------------------|------------|-------------|-------------|-------------|
| Valve size                          | 500 - 1000 | 1050 - 1600 | 1650 - 2000 | 2100 - 2400 |
| Double flanged between flanges      | 25         | 16          | 10          | 6           |
| Double flanged end of line          | 16         | 10          | 6           | 4           |

# Check Valve

## Features

|              |                                           |
|--------------|-------------------------------------------|
| DESIGN       | BS 1868 / API 6D                          |
| FACE TO FACE | ASME B 16.10                              |
| FLANGES      | ASME B 16.5                               |
| BUTT WELDING | ASME 16.25                                |
| TESTING      | API 598 / BS 6755 PART I / API 6D         |
| MATERIAL     | ASTM SPECIFICATIONS 2" #150               |
| TRIMS        | VARIETIES OF COMBINATIONS                 |
|              | BY PASS ARRANGEMENT                       |
| OPTIONAL     | DASH POT / HYDRAULIC NON-SLAM ARRANGEMENT |

## Features

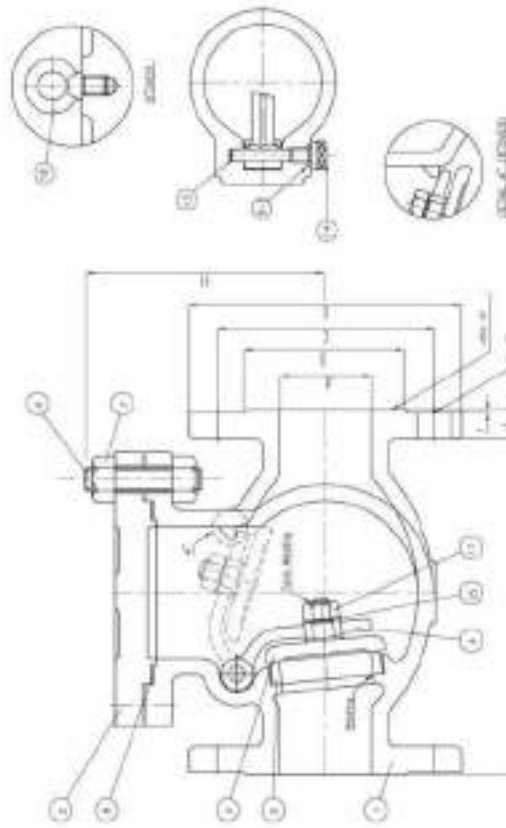
|             |                                         |
|-------------|-----------------------------------------|
| DESIGN STD. | AS PER API 6D, BS 1868                  |
| FLANGE END  | AS PER ASME B 16.5                      |
| TESTING STD | AS PER ASME B 16.5                      |
| SIZE        | AS PER API 598, ISO 5208 15 TO 600 M.M. |
| MATERIAL    |                                         |
| BODY        | WCB, CF8, CF8M ETC                      |
| DISC        | CA-15, CF8, CF8M ETC                    |





# Check Valve Class 150 RF Swing Type ASTM A 216 WCB (API Trim 8)

| FIG. 37 MATERIALS |           |           |
|-------------------|-----------|-----------|
| NO.               | PART NAME | MATERIALS |
| 1.                | BODY      | A216 WCB  |
| 2.                | SEAT      | A216 WCB  |
| 3.                | DISC      | A216 WCB  |
| 4.                | STEM      | A216 WCB  |
| 5.                | SCREW     | A216 WCB  |
| 6.                | WASHER    | A216 WCB  |
| 7.                | WASHER    | A216 WCB  |
| 8.                | WASHER    | A216 WCB  |
| 9.                | WASHER    | A216 WCB  |
| 10.               | WASHER    | A216 WCB  |
| 11.               | WASHER    | A216 WCB  |
| 12.               | WASHER    | A216 WCB  |
| 13.               | WASHER    | A216 WCB  |
| 14.               | WASHER    | A216 WCB  |
| 15.               | WASHER    | A216 WCB  |
| 16.               | WASHER    | A216 WCB  |
| 17.               | WASHER    | A216 WCB  |
| 18.               | WASHER    | A216 WCB  |
| 19.               | WASHER    | A216 WCB  |
| 20.               | WASHER    | A216 WCB  |



| SIZE | 1/2" | 3/4" | 1" | 1 1/2" | 2" | 2 1/2" | 3" | 4" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" | 36" | 42" | 48" | 60" | 72" | 84" | 96" | 108" | 120" | 144" | 168" | 192" | 216" | 240" | 288" | 336" | 384" | 432" | 480" | 528" | 576" | 624" | 672" | 720" | 768" | 816" | 864" | 912" | 960" | 1008" | 1056" | 1104" | 1152" | 1200" | 1248" | 1296" | 1344" | 1392" | 1440" | 1488" | 1536" | 1584" | 1632" | 1680" | 1728" | 1776" | 1824" | 1872" | 1920" | 1968" | 2016" | 2064" | 2112" | 2160" | 2208" | 2256" | 2304" | 2352" | 2400" | 2448" | 2496" | 2544" | 2592" | 2640" | 2688" | 2736" | 2784" | 2832" | 2880" | 2928" | 2976" | 3024" | 3072" | 3120" | 3168" | 3216" | 3264" | 3312" | 3360" | 3408" | 3456" | 3504" | 3552" | 3600" | 3648" | 3696" |
|------|------|------|----|--------|----|--------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|------|------|------|----|--------|----|--------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|





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