

Design Standards:

1. Design & Manufacture according to API 608, ASME B16.34.
2. Face to Face dimensions to ASME B16.10.
3. Fire safe to API 607.
4. Flange dimensions to ASME B16.5.
5. Valves tested to API 598.

| Part No | Part Name | Material | Qty |
|---------|--------------------|------------------------|-----|
| 21 | Cap Screw | ASTM A193 B8 | 1 |
| 20 | Washer | SS304 | 1 |
| 19 | Lever | ASTM A351 CF8 | 1 |
| 18 | Stopper | SS304 | 1 |
| 17 | Bolt | ASTM A194 B8M | 2 |
| 16 | Packing Gland | ASTM A351 CF8M | 1 |
| 15 | Packing | Graphite | 3 |
| 14 | Packing washer | RPTFE | 1 |
| 13 | Rivet | SS304 | 1 |
| 12 | Nameplate | SS304 | 2 |
| 11 | Backseat Washer | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 4 |
| 2 | Body Bolt | ASTM A193 B8M | 4 |
| 1 | Body | ASTM A351 CF8M | 1 |

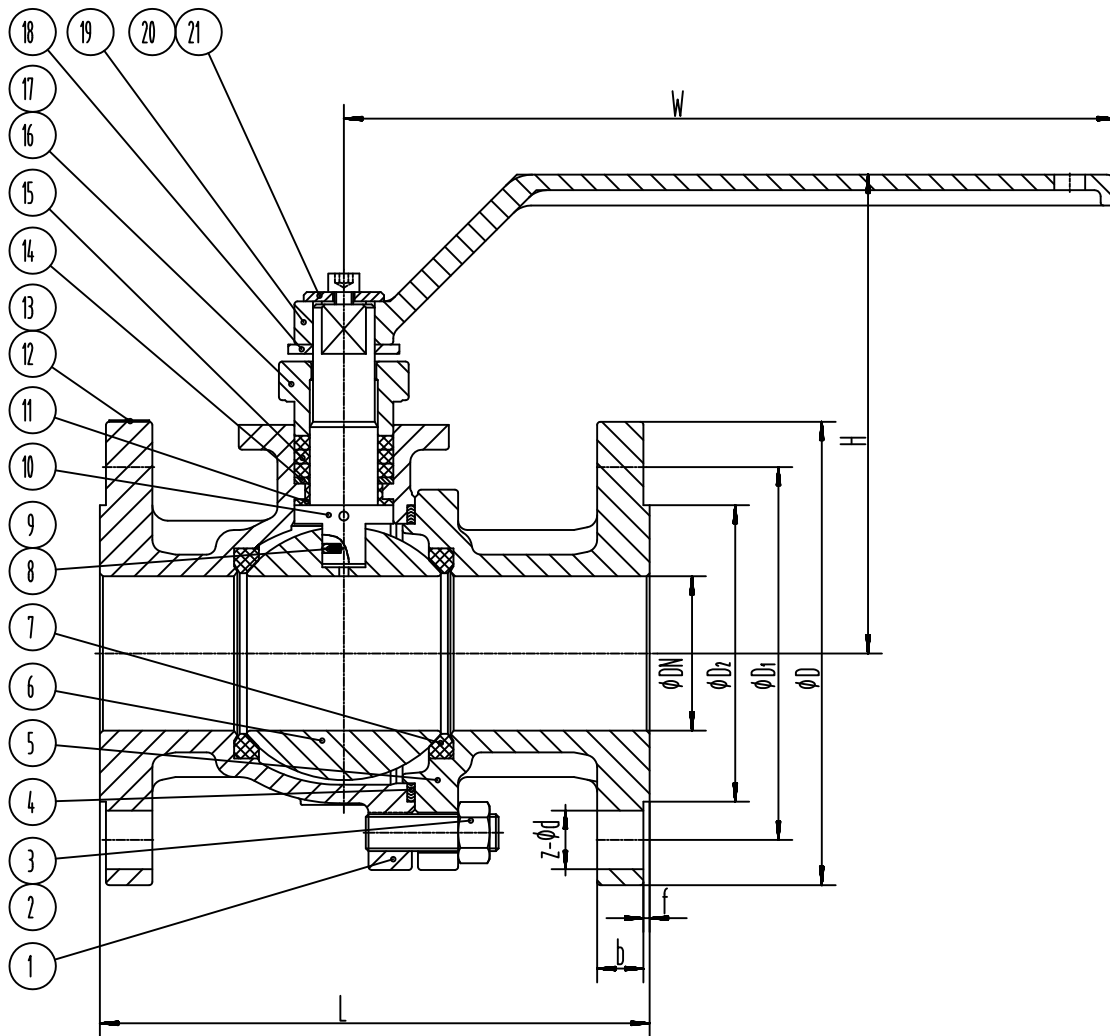
| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-------|------------------|------|------|----------------|----------------|------|------|-------|------|------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 1/2 | 4.25 | 0.5 | 3.54 | 2.37 | 1.37 | 0.31 | 0.08 | 4-5/8 | 5.91 | 3.7 | FZ15FRC.50 |
| | 3/4 | 4.61 | 0.75 | 3.94 | 2.75 | 1.69 | 0.35 | 0.08 | 4-5/8 | 6.69 | 3.94 | FZ15FRC.75 |
| | 1 | 5 | 1 | 4.33 | 3.13 | 2 | 0.38 | 0.08 | 4-5/8 | 7.09 | 4.33 | FZ15FRC1 |
| | 1 1/4 | 5.51 | 1.25 | 4.53 | 3.5 | 2.5 | 0.44 | 0.08 | 4-5/8 | 7.87 | 4.84 | FZ15FRC1.25 |
| | 1 1/2 | 6.5 | 1.5 | 4.92 | 3.87 | 2.87 | 0.5 | 0.08 | 4-5/8 | 8.66 | 5.16 | FZ15FRC1.5 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2017-3-17 |
| Checked By | YJW | Date | 2017-3-17 |
| Approved By | PJO | Date | 2017-3-17 |
| Certified By | QXL | Date | 2017-3-17 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



Design Standards:

1. Design & Manufacture according to API 608, ASME B16.34.
2. Face to Face dimensions to ASME B16.10.
3. Fire safe to API 607.
4. Flange dimensions to ASME B16.5.
5. Valves tested to API 598.

| | | | |
|---------|--------------------|------------------------|-----|
| 21 | Cap Screw | ASTM A193 B8 | 1 |
| 20 | Washer | SS304 | 1 |
| 19 | Lever | ASTM A216 WCB | 1 |
| 18 | Stopper | SS304 | 1 |
| 17 | Bolt | ASTM A194 B8M | 2 |
| 16 | Packing Gland | ASTM A351 CF8M | 1 |
| 15 | Packing | Graphite | 3 |
| 14 | Packing washer | RPTFE | 1 |
| 13 | Rivet | SS304 | 1 |
| 12 | Nameplate | SS304 | 2 |
| 11 | Backseat Washer | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 6 |
| 2 | Body Bolt | ASTM A193 B8M | 6 |
| 1 | Body | ASTM A351 CF8M | 1 |
| Part No | Part Name | Material | Qty |

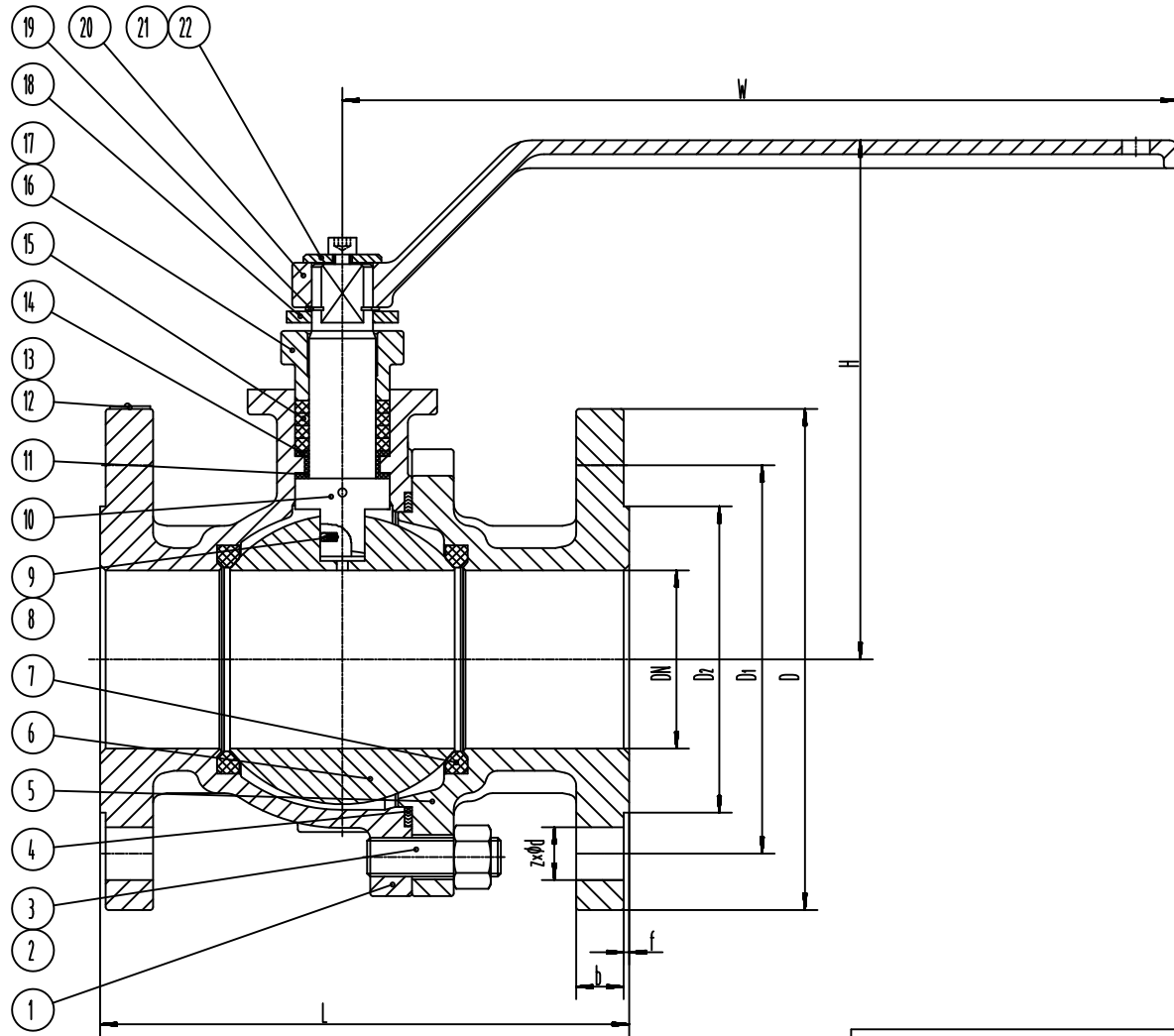
| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-----|------------------|----|------|----------------|----------------|------|------|-------|------|-----|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 2 | 7 | 2 | 5.91 | 4.75 | 3.63 | 0.56 | 0.08 | 4-3/4 | 9.84 | 6.1 | FZ15FRC2 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



Design Standards:

1. Design & Manufacture according to API 608, ASME B16.34.
2. Face to Face dimensions to ASME B16.10.
3. Fire safe to API 607.
4. Flange dimensions to ASME B16.5.
5. Valves tested to API 598.

| | | | |
|---------|--------------------|------------------------|-----|
| 22 | Cap Screw | ASTM A193 B8 | 1 |
| 21 | Washer | SS304 | 1 |
| 20 | Lever | ASTM A216 WCB | 1 |
| 19 | Stop collar | SS304 | 1 |
| 18 | Stopper | SS304 | 1 |
| 17 | Bolt | ASTM A194 B8M | 2 |
| 16 | Packing Gland | ASTM A351 CF8M | 1 |
| 15 | Packing | Graphite | 4 |
| 14 | Packing washer | RPTFE | 1 |
| 13 | Rivet | SS304 | 1 |
| 12 | Nameplate | SS304 | 2 |
| 11 | Backseat Washer | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 6 |
| 2 | Body Bolt | ASTM A193 B8M | 6 |
| 1 | Body | ASTM A351 CF8M | 1 |
| Part No | Part Name | Material | Qty |

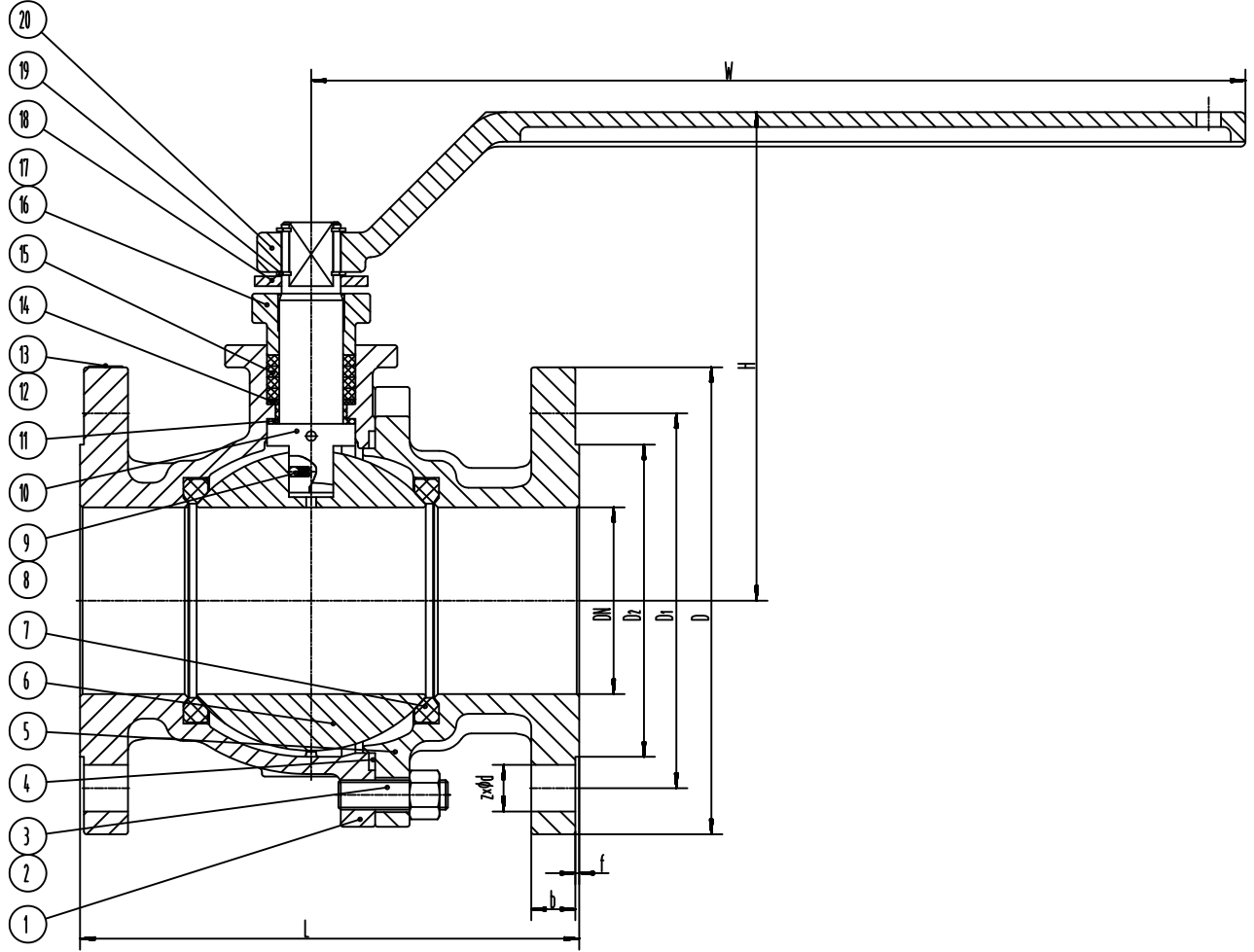
| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-------|------------------|-----|------|----------------|----------------|------|------|-------|-------|------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 2 1/2 | 7.5 | 2.5 | 7.09 | 5.5 | 4.13 | 0.63 | 0.08 | 4-3/4 | 11.81 | 7.36 | FZ15FRC2.5 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



- Design Standards:
1. Design & Manufacture according to API 608, ASME B16.34.
 2. Face to Face dimensions to ASME B16.10.
 3. Fire safe to API 607.
 4. Flange dimensions to ASME B16.5.
 5. Valves tested to API 598.

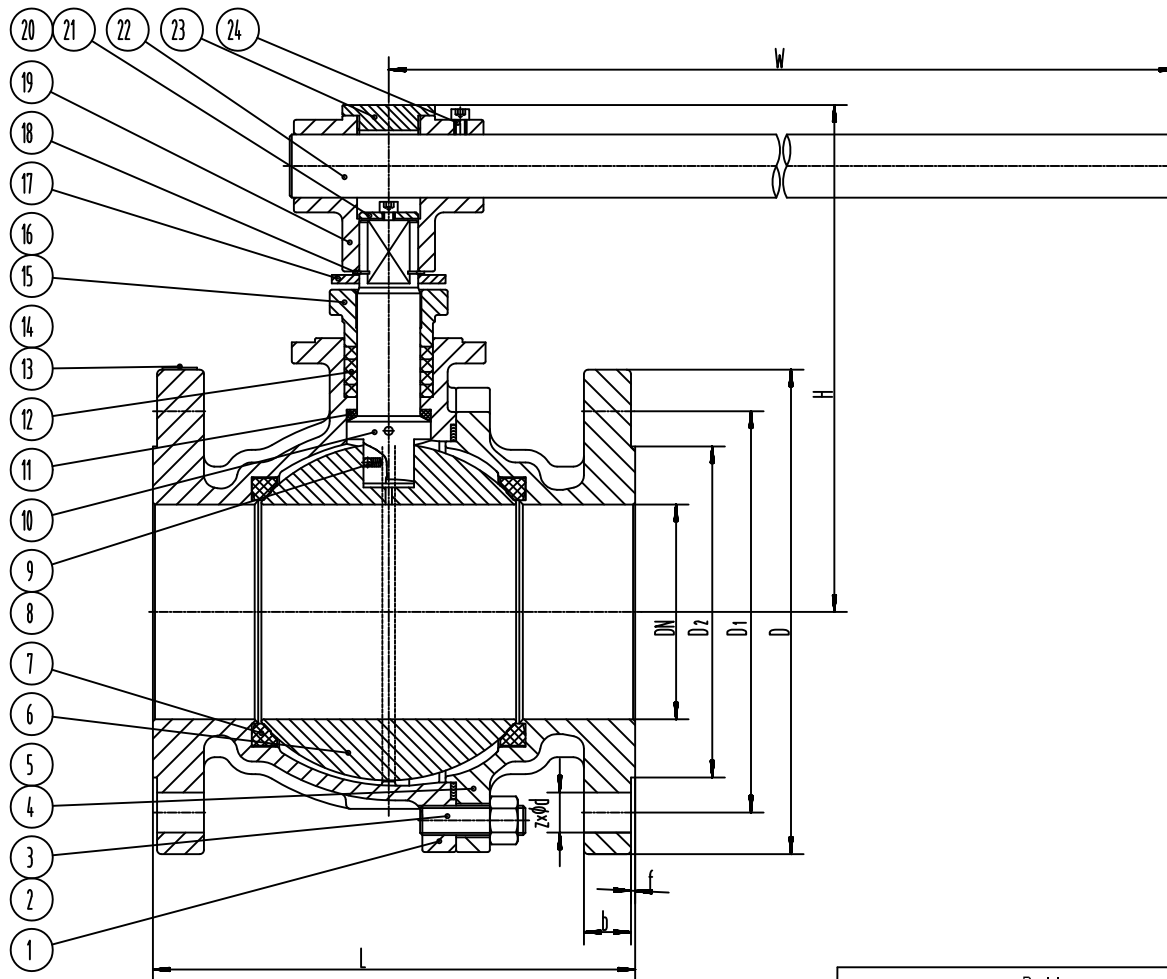
| Part No | Part Name | Material | Qty |
|---------|--------------------|------------------------|-----|
| 20 | Lever | ASTM A216 WCB | 1 |
| 19 | Stop collar | SS304 | 2 |
| 18 | Stopper | SS304 | 1 |
| 17 | Bolt | ASTM A194 B8M | 2 |
| 16 | Packing Gland | ASTM A351 CF8M | 1 |
| 15 | Packing | Graphite | 4 |
| 14 | Packing washer | RPTFE | 1 |
| 13 | Rivet | SS304 | 1 |
| 12 | Nameplate | SS304 | 2 |
| 11 | Backseat Washer | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 8 |
| 2 | Body Bolt | ASTM A193 B8M | 8 |
| 1 | Body | ASTM A351 CF8M | 1 |

| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-----|------------------|----|------|----------------|----------------|------|------|-------|-------|------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 3 | 8 | 3 | 7.48 | 6 | 5 | 0.69 | 0.08 | 4-3/4 | 14.96 | 7.83 | FZ15FRC3 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



| | | |
|--|----------|-------|
| Desc: | | |
| General Arrangement Drawing FZ15FRC Floating Ball Valve | | |
| Scale: | DWG No.: | Rev.: |



- Design Standards:
1. Design & Manufacture according to API 608, ASME B16.34.
 2. Face to Face dimensions to ASME B16.10.
 3. Fire safe to API 607.
 4. Flange dimensions to ASME B16.5.
 5. Valves tested to API 598.

| | | | |
|---------|--------------------|------------------------|-----|
| 24 | Bolt | ASTM A193 B8 | 1 |
| 23 | Top cap | ASTM 1025 | 1 |
| 22 | Lever | ASTM 1035 | 1 |
| 21 | Cap Screw | ASTM A193 B8 | 1 |
| 20 | Washer | SS304 | 1 |
| 19 | Adapter | ASTM A351 CF8 | 1 |
| 18 | Stop collar | SS304 | 1 |
| 17 | Stopper | SS304 | 1 |
| 16 | Bolt | ASTM A194 B8M | 2 |
| 15 | Packing Gland | ASTM A351 CF8M | 1 |
| 14 | Rivet | SS304 | 1 |
| 13 | Nameplate | SS304 | 2 |
| 12 | Packing | Graphite | 4 |
| 11 | Upper Seal | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 8 |
| 2 | Body Bolt | ASTM A193 B8M | 8 |
| 1 | Body | ASTM A351 CF8M | 1 |
| Part No | Part Name | Material | Qty |

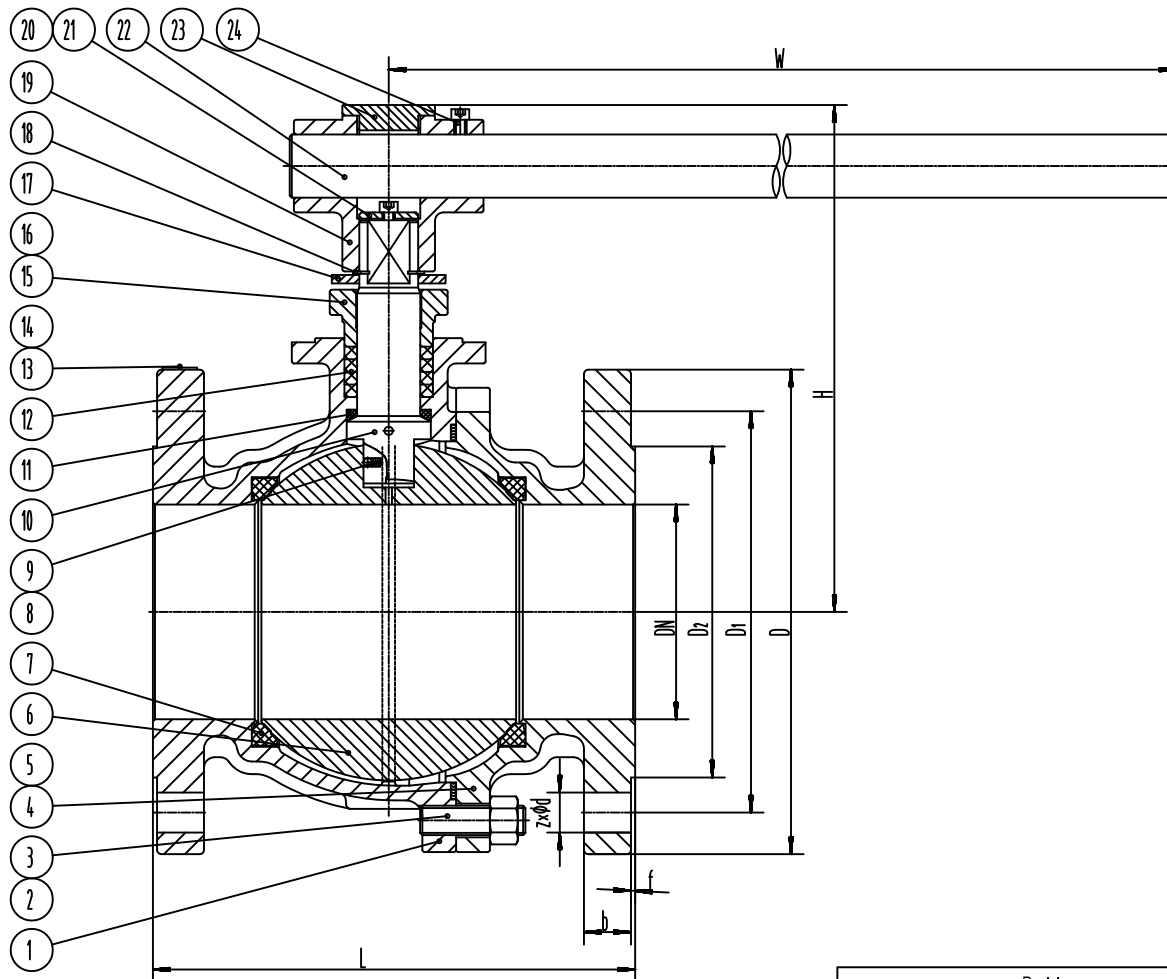
| Class | NPS | Dimensions(Inch) | | | | | | | | | Product SKU | |
|-------|-----|------------------|----|------|----------------|----------------|------|------|-------|-------|-------------|----------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | | H |
| 150 | 4 | 9 | 4 | 9.06 | 7.5 | 6.19 | 0.88 | 0.08 | 8-3/4 | 19.69 | 9.49 | FZ15FRC4 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



Design Standards:

1. Design & Manufacture according to API 608, ASME B16.34.
2. Face to Face dimensions to ASME B16.10.
3. Fire safe to API 607.
4. Flange dimensions to ASME B16.5.
5. Valves tested to API 598.

| Part No | Part Name | Material | Qty |
|---------|--------------------|------------------------|-----|
| 24 | Bolt | ASTM A193 B8 | 1 |
| 23 | Top cap | ASTM 1025 | 1 |
| 22 | Lever | ASTM 1035 | 1 |
| 21 | Cap Screw | ASTM A193 B8 | 1 |
| 20 | Washer | SS304 | 1 |
| 19 | Adapter | ASTM A351 CF8 | 1 |
| 18 | Stop collar | SS304 | 1 |
| 17 | Stopper | SS304 | 1 |
| 16 | Bolt | ASTM A194 B8M | 2 |
| 15 | Packing Gland | ASTM A351 CF8M | 1 |
| 14 | Rivet | SS304 | 1 |
| 13 | Nameplate | SS304 | 2 |
| 12 | Packing | Graphite | 4 |
| 11 | Upper Seal | RPTFE | 1 |
| 10 | Stem | ASTM A182 F316 | 1 |
| 9 | Anti-static Ball | ASTM A182 F316 | 2 |
| 8 | Anti-static Spring | SS316 | 2 |
| 7 | Seat | RPTFE | 2 |
| 6 | Ball | ASTM A182 F316 | 1 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 10 |
| 2 | Body Bolt | ASTM A193 B8M | 10 |
| 1 | Body | ASTM A351 CF8M | 1 |

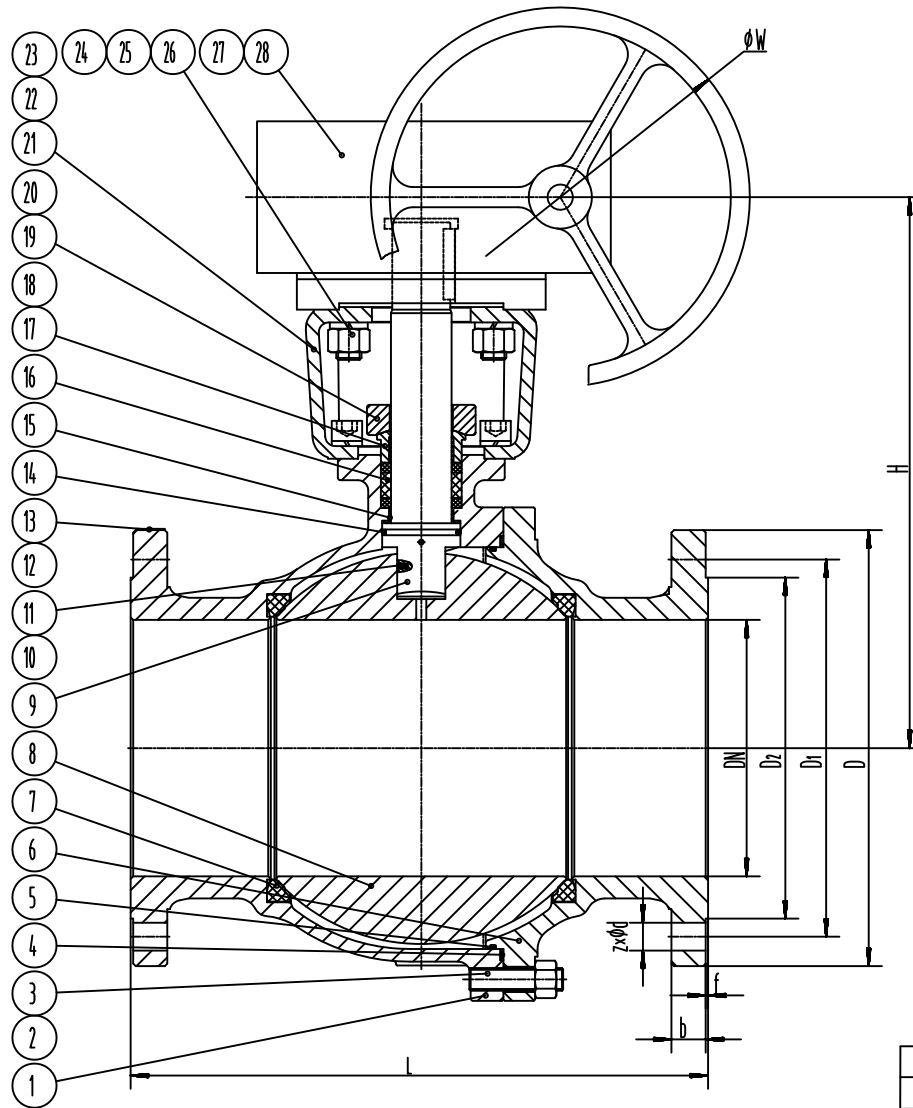
| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-----|------------------|----|-------|----------------|----------------|------|------|-------|------|------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 6 | 15.5 | 6 | 11.02 | 9.5 | 8.5 | 0.94 | 0.08 | 8-7/8 | 31.5 | 12.6 | FZ15FRC6 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: **General Arrangement Drawing
FZ15FRC Floating Ball Valve**

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



Design Standards:

1. Design & Manufacture according to API 608, ASME B16.34.
2. Face to Face dimensions to ASME B16.10.
3. Fire safe to API 607.
4. Flange dimensions to ASME B16.5.
5. Valves tested to API 598.

| | | | |
|---------|--------------------|------------------------|-----|
| 28 | Gear | ASTM A216 WCB | 1 |
| 27 | Key | ASTM 1045 | 1 |
| 26 | Nut | ASTM A194 8M | 4 |
| 25 | Bolt | ASTM A193 B8M | 4 |
| 24 | Spring gasket | ASTM A240 316 | 4 |
| 23 | Nut | ASTM A194 8M | 4 |
| 22 | Bolt | ASTM A193 B8M | 4 |
| 21 | Yoke | ASTM A216 WCB | 1 |
| 20 | Bolt | ASTM A193 B8M | 2 |
| 19 | Gland flange | ASTM A351 CF8M | 1 |
| 18 | Gland | ASTM A182 F316 | 1 |
| 17 | bushing | PTFE | 1 |
| 16 | Packing | Graphite | 5 |
| 15 | Backseat Washer | RPTFE | 1 |
| 14 | O ring | VITON | 1 |
| 13 | Rivet | SS304 | 2 |
| 12 | Nameplate | SS304 | 1 |
| 11 | Anti-static Ball | ASTM A182 F316 | 2 |
| 10 | Anti-static Spring | SS316 | 2 |
| 9 | Stem | ASTM A182 F316 | 1 |
| 8 | Ball | ASTM A182 F316 | 1 |
| 7 | Seat | RPTFE | 2 |
| 6 | Body Closure | ASTM A351 CF8M | 1 |
| 5 | O ring | VITON | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 12 |
| 2 | Body Bolt | ASTM A193 B8M | 12 |
| 1 | Body | ASTM A351 CF8M | 1 |
| Part No | Part Name | Material | Qty |

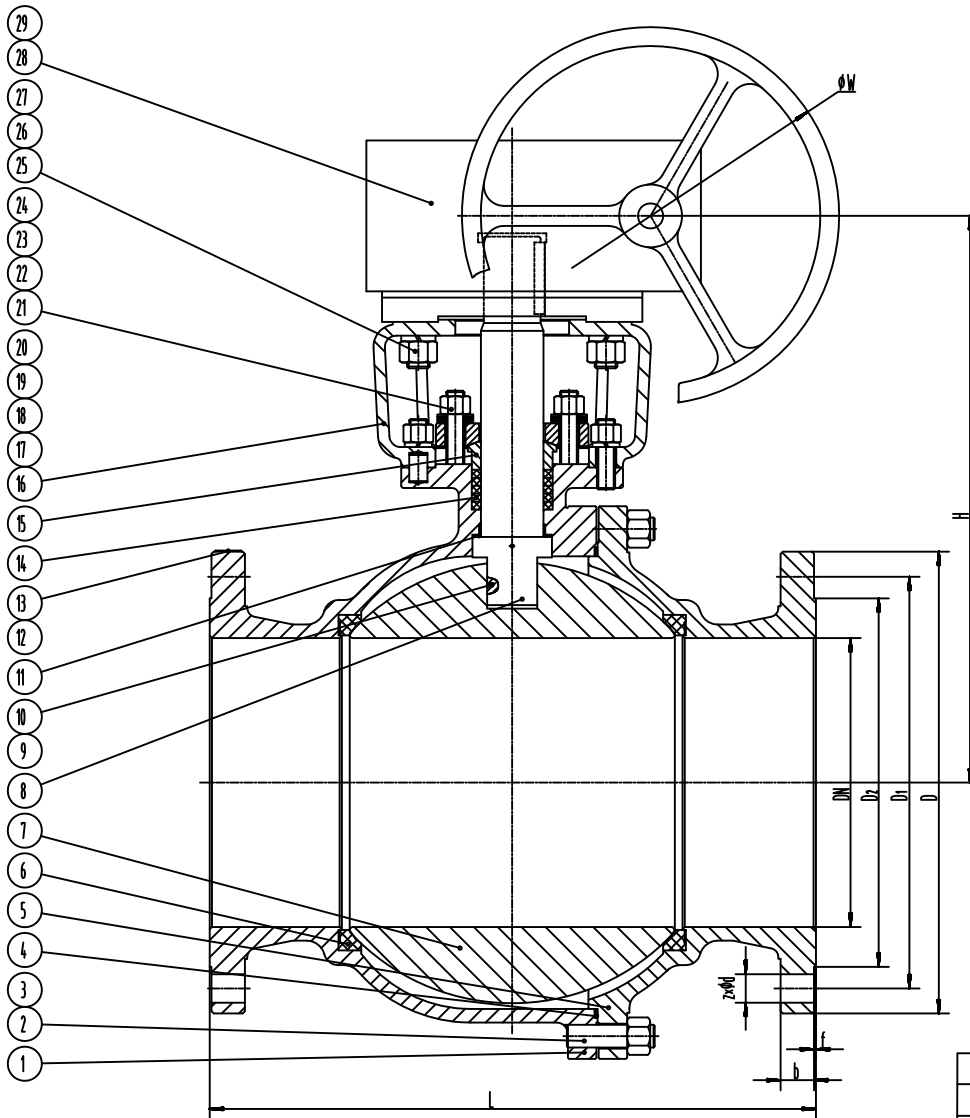
| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-----|------------------|----|-------|----------------|----------------|------|------|-------|-------|-------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-φd | W | H | |
| 150 | 8 | 18 | 8 | 13.58 | 11.75 | 10.63 | 1.06 | 0.08 | 8-7/8 | 11.81 | 17.17 | FZ15FRC8 |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|



| Class | NPS | Dimensions(Inch) | | | | | | | | | | Product SKU |
|-------|-----|------------------|----|-------|----------------|----------------|------|------|------|-------|------|-------------|
| | | L | DN | D | D ₁ | D ₂ | b | f | Z-ød | W | H | |
| 150 | 10 | 21 | 10 | 15.94 | 14.25 | 12.75 | 1.13 | 0.08 | 12-1 | 15.75 | 18.5 | FZ15FRC10 |

- Design Standards:
1. Design & Manufacture according to API 608, ASME B16.34.
 2. Face to Face dimensions to ASME B16.10.
 3. Fire safe to API 607.
 4. Flange dimensions to ASME B16.5.
 5. Valves tested to API 598.

| 29 | Gear | ASTM A216 WCB | 1 |
|---------|--------------------|------------------------|-----|
| 28 | Key | ASTM 1045 | 1 |
| 27 | Nut | ASTM A194 8M | 4 |
| 26 | Bolt | ASTM A193 B8M | 4 |
| 25 | Spring gasket | ASTM A240 316 | 4 |
| 24 | Spring | ASTM A240 316 | 16 |
| 23 | Nut | ASTM A194 8M | 4 |
| 22 | Bolt | ASTM A193 B8M | 4 |
| 21 | Gland flange | ASTM A351 CF8M | 1 |
| 20 | Pin | ASTM A182 F316 | 2 |
| 19 | Spring gasket | ASTM A240 316 | 6 |
| 18 | Nut | ASTM A194 8M | 6 |
| 17 | Bolt | ASTM A193 B8M | 6 |
| 16 | Yoke | ASTM A216 WCB | 1 |
| 15 | Gland | ASTM A182 F316 | 1 |
| 14 | Packing | Graphite | 6 |
| 13 | Rivet | SS304 | 2 |
| 12 | Nameplate | SS304 | 1 |
| 11 | Backseat Washer | RPTFE | 1 |
| 10 | Anti-static Ball | ASTM A182 F316 | 2 |
| 9 | Anti-static Spring | SS316 | 2 |
| 8 | Stem | ASTM A182 F316 | 1 |
| 7 | Ball | ASTM A182 F316 | 1 |
| 6 | Seat | RPTFE | 2 |
| 5 | Body Closure | ASTM A351 CF8M | 1 |
| 4 | Gasket | ASTM A240 316+Graphite | 1 |
| 3 | Body Nut | ASTM A194 8M | 16 |
| 2 | Body Bolt | ASTM A193 B8M | 16 |
| 1 | Body | ASTM A351 CF8M | 1 |
| Part No | Part Name | Material | Qty |

| Revisions | | | |
|--------------|-----|------|-----------|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| Drawn By | HGP | Date | 2016-7-28 |
| Checked By | YJW | Date | 2016-7-28 |
| Approved By | PJO | Date | 2016-7-28 |
| Certified By | QXL | Date | 2016-7-28 |



Desc: General Arrangement Drawing
FZ15FRC Floating Ball Valve

| | | |
|--------|----------|-------|
| Scale: | DWG No.: | Rev.: |
|--------|----------|-------|