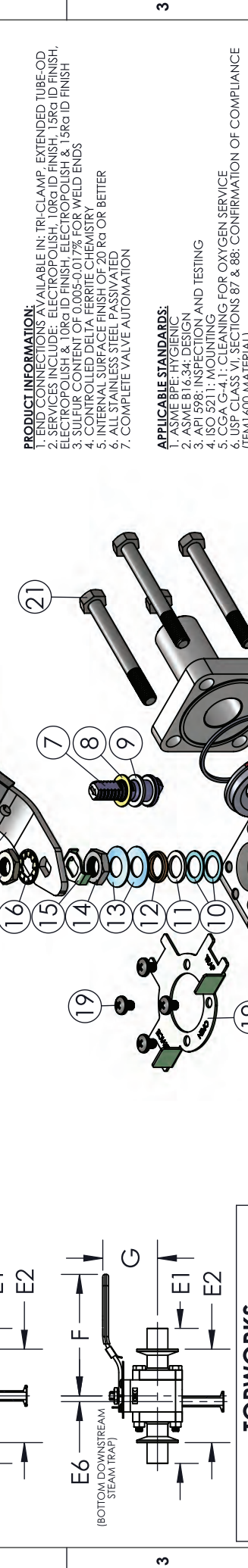


| A | B | | C | | D | | E | | F | | G | |
|--------|------------|----------|-------------|------------|------------|------------|------------|------------|-----------|-----------|------------|--------|
| | SIZE | A | ØB | C | ØD | E1 | E2 | E3 | E4 | F | G | K |
| 1/2" | 0.21 (5.3) | 1.0 (25) | 0.64 (16.2) | 0.37 (9.4) | 5.50 (140) | 3.50 (89) | 2.89 (73) | 2.89 (73) | 5.0 (127) | 2.22 (56) | 0.37 (9.4) | M5-0.8 |
| 3/4" | 0.21 (5.3) | 1.0 (25) | 0.64 (16.2) | 0.62 (16) | 6.00 (152) | 4.00 (102) | 2.99 (76) | 2.99 (76) | 5.0 (127) | 2.28 (58) | 0.37 (9.4) | M5-0.8 |
| 1" | 0.33 (8.4) | 1.2 (30) | 0.72 (18) | 0.87 (22) | 6.50 (165) | 4.50 (114) | 3.19 (81) | 3.19 (81) | 6.0 (152) | 2.56 (65) | 0.30 (7.6) | M5-0.8 |
| 1-1/2" | 0.43 (11) | 1.4 (36) | 1.16 (29) | 1.37 (35) | 7.50 (191) | 5.50 (140) | 3.63 (92) | 3.63 (92) | 7.0 (178) | 3.09 (78) | 0.34 (8.6) | M6-1.0 |
| 2" | 0.43 (11) | 1.4 (36) | 1.16 (29) | 1.87 (47) | 8.00 (203) | 6.25 (159) | 3.96 (101) | 3.96 (101) | 7.0 (178) | 3.45 (88) | 0.34 (8.6) | M6-1.0 |

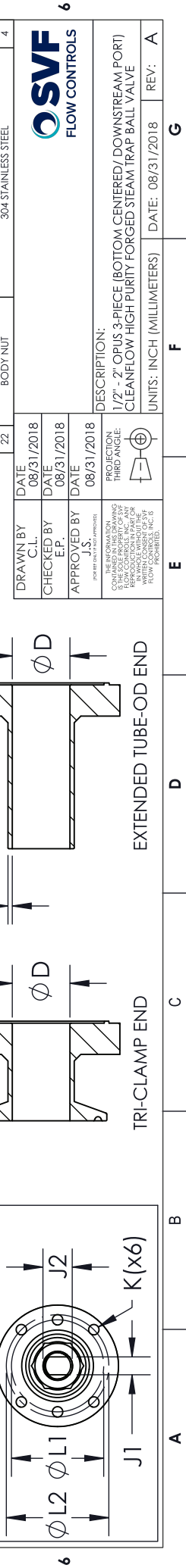
| 1" | 3/4" | | 1" | | 1" | |
|-----|-------------|-----|-----------|-----------|-----------|-----------|
| | ISO 5211 | W | ØD1 | ØD2 | ØD1 | ØD2 |
| F03 | 0.065 (1.7) | N/A | 0.62 (16) | 0.62 (16) | 0.62 (16) | 0.87 (22) |
| F03 | 0.065 (1.7) | N/A | 0.62 (16) | 0.62 (16) | 0.62 (16) | 0.87 (22) |
| F04 | 0.065 (1.7) | N/A | 0.62 (16) | 0.62 (16) | 0.20 (5) | 0.87 (22) |
| F05 | 0.065 (1.7) | N/A | 0.62 (16) | 0.62 (16) | 0.43 (11) | 0.87 (22) |
| F05 | 0.065 (1.7) | N/A | 0.62 (16) | 0.62 (16) | 0.65 (17) | 0.87 (22) |



PRODUCT INFORMATION:
 1. END CONNECTIONS AVAILABLE IN: TRI-CLAMP, EXTENDED TUBE-OD
 2. SERVICES INCLUDE: ELECTROPOLISH, 10Rq ID FINISH, 15Rq ID FINISH, ELECTROPOLISH & 10Rq ID FINISH, ELECTROPOLISH & 15Rq ID FINISH
 3. SULFUR CONTENT OF 0.005-0.017% FOR WELD ENDS
 4. CONTROLLED DELTA FERRITE CHEMISTRY
 5. INTERNAL SURFACE FINISH OF 20 Rq OR BETTER
 6. ALL STAINLESS STEEL PASSIVATED
 7. COMPLETE VALVE AUTOMATION

APPLICABLE STANDARDS:
 1. ASME BPE-HYGIENIC
 2. ASME B1.6-34: DESIGN
 3. API 598: INSPECTION AND TESTING
 4. ISO 5211: MOUNTING
 5. CGA G-4.1: CLEANING FOR OXYGEN SERVICE
 6. USP CLASS VI, SECTIONS 87 & 88: CONFIRMATION OF COMPLIANCE (TFM1600 MATERIAL)

| ITEM NO. | DESCRIPTION | MATERIALS | QTY. |
|----------|-----------------------|-------------------------------|------|
| 1 | BODY (TRI-CLAMP PORT) | A182-F316L | 1 |
| 2 | END (ETO) | A182-F316L | 2 |
| 3 | END (TRI-CLAMP) | A182-F316L | 2 |
| 4 | BALL | A182-F316L | 1 |
| 5 | SEAT | TFM1600 CAVITY-FILLED TFM1600 | 2 |
| 6 | BODY SEAL | PIFE | 2 |
| 7 | STEM | A479-316L | 1 |
| 8 | STEM THRUST WASHER | TFM1600 | 1 |
| 9 | STEM THRUST WASHER | VIRGIN PEEK | 1 |
| 10 | STEM SEAL | TFM1600 | 2 |
| 11 | STEM SEAL | VIRGIN PEEK | 1 |
| 12 | GLAND FOLLOWER | 304 STAINLESS STEEL | 1 |
| 13 | BELLEVILLE WASHER | 301 STAINLESS STEEL | 2 |
| 14 | JAM NUT | 304 STAINLESS STEEL | 1 |
| 15 | LOCK TAB | 304 STAINLESS STEEL | 1 |
| 16 | SERRATED LOCK WASHER | 304 STAINLESS STEEL | 1 |
| 17 | HANDLE NUT | 304 STAINLESS STEEL | 1 |
| 18 | LEVER HANDLE | 304 STAINLESS STEEL | 1 |
| 19 | LOCKING DEVICE | 304 STAINLESS STEEL | 2 |
| 21 | BODY BOLT | 304 STAINLESS STEEL | 4 |
| 22 | BODY NUT | 304 STAINLESS STEEL | 4 |



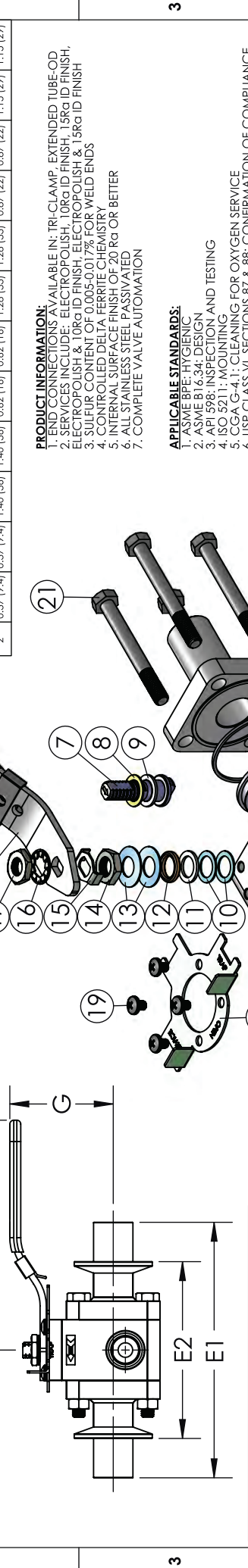
OSVF FLOW CONTROLS

DATE: 08/31/2018

DESCRIPTION: 1/2" - 2" OPUS 3-PIECE (BOTTOM CENTERED/ DOWNSTREAM PORT) CLEANFLOW HIGH PURITY FORGED STEAM TRAP BALL VALVE

UNITS: INCH (MILLIMETERS) DATE: 08/31/2018 REV: A

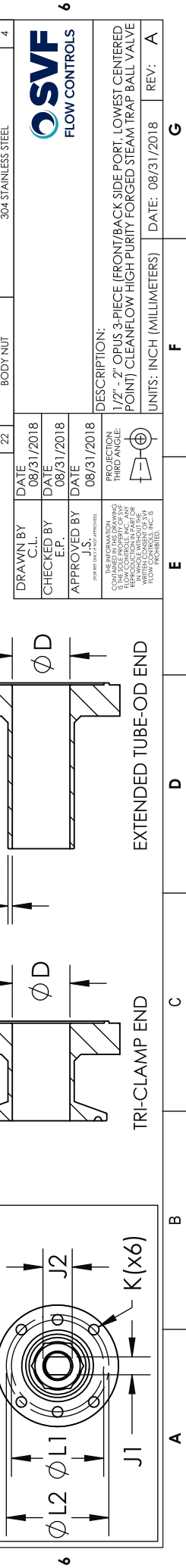
| A | B | | C | | D | | E | | F | | G | | |
|--------|------------|----------|-------------|------------|------------|------------|------------|------------|------------|-----------|-----------|------------|--------|
| | SIZE | A | ØB | C | ØD | E1 | E2 | E3 | E4 | F | G | K | |
| 1/2" | 0.21 (5.3) | 1.0 (25) | 0.64 (16.2) | 0.37 (9.4) | 5.50 (140) | 3.50 (89) | 2.89 (73) | 2.89 (73) | 2.89 (73) | 5.0 (127) | 2.22 (56) | 0.37 (9.4) | M5-0.8 |
| 3/4" | 0.21 (5.3) | 1.0 (25) | 0.64 (16.2) | 0.62 (16) | 6.00 (152) | 4.00 (102) | 2.99 (76) | 2.99 (76) | 2.99 (76) | 5.0 (127) | 2.28 (58) | 0.37 (9.4) | M5-0.8 |
| 1" | 0.33 (8.4) | 1.2 (30) | 0.72 (18) | 0.87 (22) | 6.50 (165) | 4.50 (114) | 3.19 (81) | 3.19 (81) | 3.19 (81) | 6.0 (152) | 2.56 (65) | 0.43 (11) | M5-0.8 |
| 1-1/2" | 0.43 (11) | 1.4 (36) | 1.16 (29) | 1.37 (35) | 7.50 (191) | 5.50 (140) | 3.63 (92) | 3.63 (92) | 3.63 (92) | 7.0 (178) | 3.09 (78) | 0.56 (14) | M6-1.0 |
| 2" | 0.43 (11) | 1.4 (36) | 1.16 (29) | 1.87 (47) | 8.00 (203) | 6.25 (159) | 3.96 (101) | 3.96 (101) | 3.96 (101) | 7.0 (178) | 3.45 (88) | 0.56 (14) | M6-1.0 |



PRODUCT INFORMATION:
 1. END CONNECTIONS AVAILABLE IN: TRI-CLAMP, EXTENDED TUBE-OD
 2. SERVICES INCLUDE: ELECTROPOLISH, 10R ID FINISH, 15R ID FINISH, ELECTROPOLISH & 10R ID FINISH, ELECTROPOLISH & 15R ID FINISH
 3. SULFUR CONTENT OF 0.005-0.017% FOR WELD ENDS
 4. CONTROLLED DELTA FERRITE CHEMISTRY
 5. INTERNAL SURFACE FINISH OF 20 R_a OR BETTER
 6. ALL STAINLESS STEEL PASSIVATED
 7. COMPLETE VALVE AUTOMATION

APPLICABLE STANDARDS:
 1. ASME BPE-HYGIENIC
 2. ASME B1.6-34: DESIGN
 3. API 598: INSPECTION AND TESTING
 4. ISO 5211: MOUNTING
 5. CGA G-4.1: CLEANING FOR OXYGEN SERVICE
 6. USP CLASS VI, SECTIONS 87 & 88: CONFIRMATION OF COMPLIANCE (TFM1600 MATERIAL)

| ITEM NO. | DESCRIPTION | MATERIALS | QTY. |
|----------|-----------------------|-------------------------------|------|
| 1 | BODY (TRI-CLAMP PORT) | A182-F316L | 1 |
| 2 | END (ETO) | A182-F316L | 2 |
| 3 | END (TRI-CLAMP) | A182-F316L | 2 |
| 4 | BALL | A182-F316L | 1 |
| 5 | SEAT | TFM1600 CAVITY-FILLED TFM1600 | 2 |
| 6 | BODY SEAL | PTFE | 2 |
| 7 | STEM | A479-316L | 1 |
| 8 | STEM THRUST WASHER | TFM1600 | 1 |
| 9 | STEM THRUST WASHER | VIRGIN PEEK | 1 |
| 10 | STEM SEAL | TFM1600 | 2 |
| 11 | STEM SEAL | VIRGIN PEEK | 1 |
| 12 | GLAND FOLLOWER | 304 STAINLESS STEEL | 1 |
| 13 | BELLEVILLE WASHER | 301 STAINLESS STEEL | 2 |
| 14 | JAM NUT | 304 STAINLESS STEEL | 1 |
| 15 | LOCK TAB | 304 STAINLESS STEEL | 1 |
| 16 | SERRATED LOCK WASHER | 304 STAINLESS STEEL | 1 |
| 17 | HANDLE NUT | 304 STAINLESS STEEL | 1 |
| 18 | LEVER HANDLE | 304 STAINLESS STEEL | 1 |
| 19 | LOCKING DEVICE | 304 STAINLESS STEEL | 2 |
| 21 | BODY BOLT | 304 STAINLESS STEEL | 4 |
| 22 | BODY NUT | 304 STAINLESS STEEL | 4 |



OSVF FLOW CONTROLS

DATE: 08/31/2018

DESCRIPTION: 1/2" - 2" OPUS 3-PIECE (FRONT/BACK SIDE PORT, LOWEST CENTERED POINT) CLEANFLOW HIGH PURITY FORGED STEAM TRAP BALL VALVE

UNITS: INCH (MILLIMETERS) DATE: 08/31/2018 REV: A