



®

SOUTHWEST OILFIELD PRODUCTS, INC.

MUD PUMP EXPENDABLE PARTS LIST

SOUTHWEST “NEW STYLE” 8476-4A FLUID END FOR NATIONAL 12-P-160

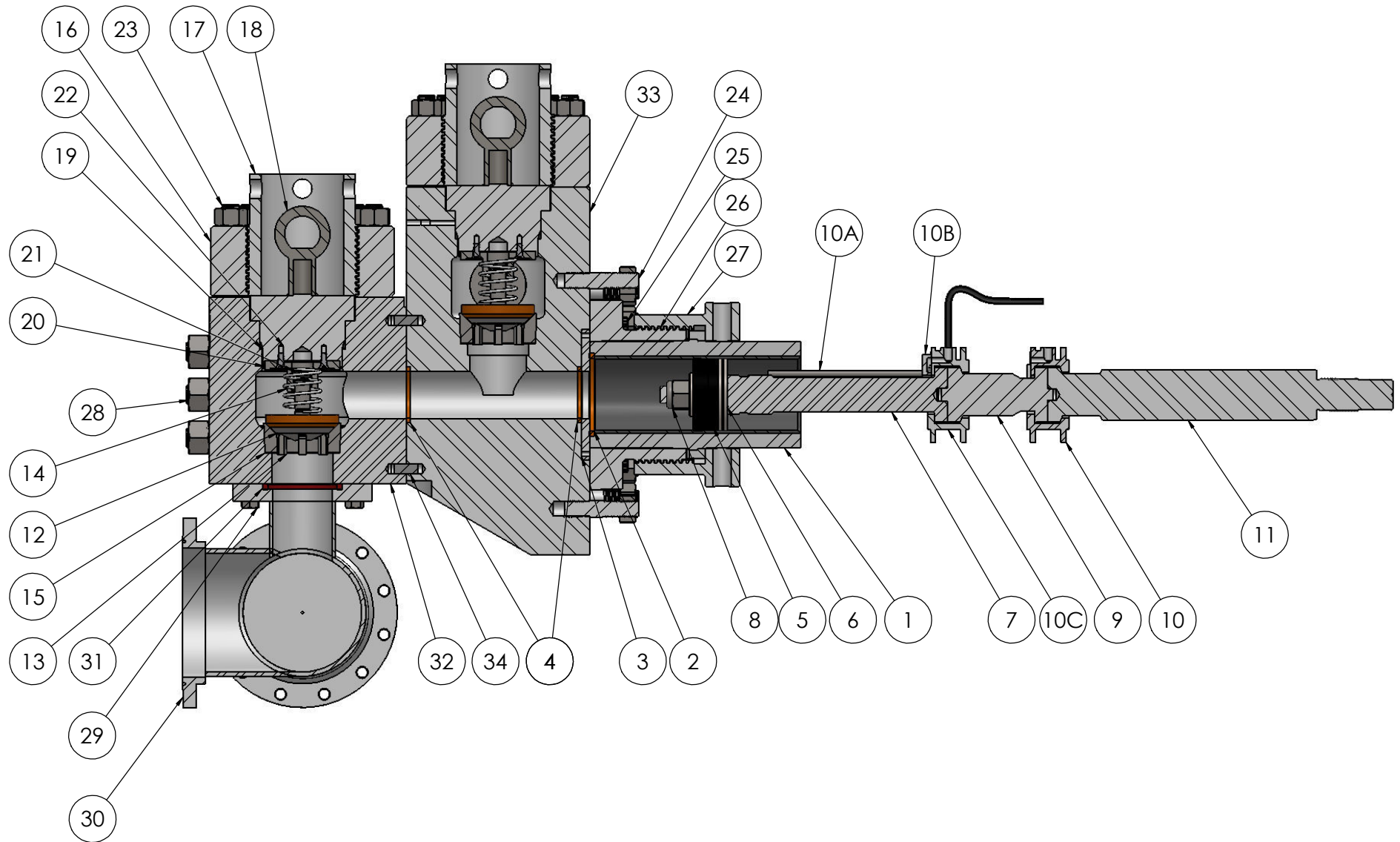
MUD PUMP PERFORMANCE CHART



| PUMP | | | | | LINER SIZE IN INCHES | | | | | | | | | | | | |
|----------|--------|--------|--------------------|------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| MODEL | I.H.P. | S.P.M. | STROKE | | 4 | 4 ½ | 5 | 5 ¼ | 5 ½ | 5 ¾ | 6 | 6 ¼ | 6 ½ | 6 ¾ | 7 | 7 ¼ | 7 ½ |
| 12-P-160 | 1600 | 120 | 12 | MAX-P.S.I. | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 4670 | 4305 | 3980 | 3690 | 3430 | 3200 | 2990 |
| | | | | G.P.R. | 1.96 | 2.48 | 3.06 | 3.37 | 3.70 | 4.05 | 4.41 | 4.78 | 5.17 | 5.58 | 6.00 | 6.43 | 6.88 |
| | | | G.P.M. @ 120 R.P.M | | 235 | 298 | 367 | 404 | 444 | 486 | 529 | 574 | 620 | 670 | 720 | 772 | 826 |

| | | | | |
|-------|---------------------------|---------------------------|--------------------------------|--------------------------------|
| NOTE: | I.H.P.= INPUT HORSE POWER | S.P.M.= STROKE PER MINUTE | P.S.I.= POUNDS PER SQUARE INCH | G.P.R.= GALLONS PER REVOLUTION |
|-------|---------------------------|---------------------------|--------------------------------|--------------------------------|

*MAX – P.S.I. CALCULATIONS DO NOT EXCEED MAXIMUM FLUID END PRESSURE RATINGS

BASED ON 100% VOLUMETRIC EFFICIENCY AND 90% MECHANICAL EFFICIENCY



| | | | | | |
|--|--|------|------------|------------|--|
|  | UNLESS OTHERWISE SPECIFIED: | | DRAWN BY | DATE | SOUTHWEST OILFIELD PRODUCTS 10340 WALLISVILLE ROAD, HOUSTON, TX 77013 TITLE: FLUID END ASSEMBLY FOR NATIONAL 12-P-160 SWFE |
| | DIMENSIONS ARE IN INCHES | | BH | 04/09/2015 | |
| | TOLERANCES: | | CHECKED BY | DATE | |
| | FRACTIONAL: $\pm 1/64$ ANGULAR: $\pm 0.5^\circ$ DECIMAL: $+ .005 / - .000$ ALL FILLETS & RADI: $1/16$ MAX CHAMFERS $1/16 \times 45^\circ$ MAX SURFACE FINISH 125 RMS MAX CONCENTRICITY NOT TO EXCEED .005 T.I.R. BREAK SHARP CORNERS $1/32 \times 45^\circ$ MAX | | EF | 04/09/2015 | |
| THIRD ANGLE PROJECTION  | MATERIAL | | N/A | | SIZE DWG. NO. REV. C 8476-4A A SHEET 1 OF 1 |
| HEAT TREAT | | N/A | | | |
| THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SOUTHWEST OILFIELD PRODUCTS. ANY REPRODUCTION BY PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SOUTHWEST OILFIELD PRODUCTS IS PROHIBITED. | | DATE | | | |
| 10/14/2015 | | | | | |

| FLUID END TYPE | MODEL OF PUMP | SIZE OF PUMP |
|------------------------------|--------------------------|---------------------|
| SOUTHWEST 5000 P.S.I. | NATIONAL 12-P-160 | 7-1/2" X 12" |

| ITEM NO. | PART NO. | DESCRIPTION | QTY. REQ'D |
|----------|-------------|---|------------|
| | 8476-4A | FLUID END ASSEMBLY: (CONSISTS OF ITEMS 3,4,16,17,18,19, 20, 21,22,23,24,25,26,27,28,29,31,32,33,34,&47) | |
| 1 | 1376YXX | LINER (REFER TO GUIDE TO ORDERING CHART FOR TYPE (Y) AND FOR SIZE (XX)) | 3 |
| 2 | 2930-XX | LINER SEAL (REFER TO GUIDE TO ORDERING CHART FOR TYPE AND SIZE (XX)) | 3 |
| 3 | 8476-3 | WEARPLATE | 3 |
| 4 | 2988 | WEARPLATE AND MODULE SEAL (2988U URETHANE AVAILABLE) | 6 |
| 5 | XX-BYY | PISTON (REFER TO GUIDE TO ORDERING CHART FOR SIZE (XX) AND FOR TYPE (YY)) | 3 |
| 6 | 568-225 | PISTON O-RING | 3 |
| 7 | 1286-32 | PISTON ROD (WITH ELASTIC STOP NUT) | 3 |
| 8 | API-4ESN | PISTON ROD ELASTIC STOP NUT | 3 |
| 9 | 1286-1 | SUB ROD | 3 |
| 10 | 1286CWY | ROD CLAMP (CONSIST OF 10A, 10B, 10C) (FOR CLAMP ONLY, USE 1286C) | 6 |
| 10A | 1200H30 | HOSE (1/2" X 30" WITH 1/2" MALE X 3/8" MALE CONNECTIONS) | 3 |
| 10B | 1286CWYFP14 | DUAL SPRAY PIPE | 3 |
| 10C | 4020-29 | ROD CLAMP BOLT (7/8 X 5" GRADE 8 BOLT WITH LOCK NUT AND WASHER) | 12 |
| 11 | 1200G86 | PONY ROD | 3 |
| 12 | SEE PAGE | VALVE | 6 |
| 13 | SEE PAGE | VALVE INSERT (IF REQUIRED) | 6 |
| 14 | SEE PAGE | VALVE SPRING | 6 |
| 15 | SEE PAGE | VALVE SEAT | 6 |
| | SWTM1700 | HYDRAULIC SEAT PULLER KIT COMPLETE (REFER TO TOOLS PAGE OF CATALOG FOR DETAILS) | |
| | 4476-6A | SOUTHWEST HP QUICK-CHANGE VALVE COVER ASSEMBLY (CONSISTS OF ITEMS 16-23) | 6 |
| 16 | 4476 | THREADED FLANGE | 6 |
| 17 | 4597 | SCREW GLAND | 6 |
| 18 | 4676-6A | PLUG (COMPLETE WITH VALVE GUIDE, SCREWS, AND BUSHING) | 6 |
| 19 | P119 | HP VALVE COVER PLUG SEAL | 6 |
| 20 | 4776R | VALVE GUIDE (COMPLETE WITH BUSHING #4700I) | 6 |
| 21 | 4700I | VALVE GUIDE BUSHING (4700I URETHANE AVAILABLE) | 6 |
| 22 | 4016-98 | VALVE GUIDE SCREW | 12 |
| 23 | 4015-54 | VALVE COVER STUD (WITH SW PART# HHN1500-6 1-1/2-6" HEAVY HEX NUT) | 72 |
| 24 | 4015-95 | POWER END STUD (WITH SW PART# HHN1375-6 1-3/8"6 HEAVY HEX NUT) | 30 |
| 25 | 4017-65 | LINER RETAINER FERRY HEAD CAP SCREW | 18 |
| 26 | 6476 | LINER RETAINER FLANGE | 3 |

| FLUID END TYPE | MODEL OF PUMP | SIZE OF PUMP |
|------------------------------|--------------------------|---------------------|
| SOUTHWEST 5000 P.S.I. | NATIONAL 12-P-160 | 7-1/2" X 12" |

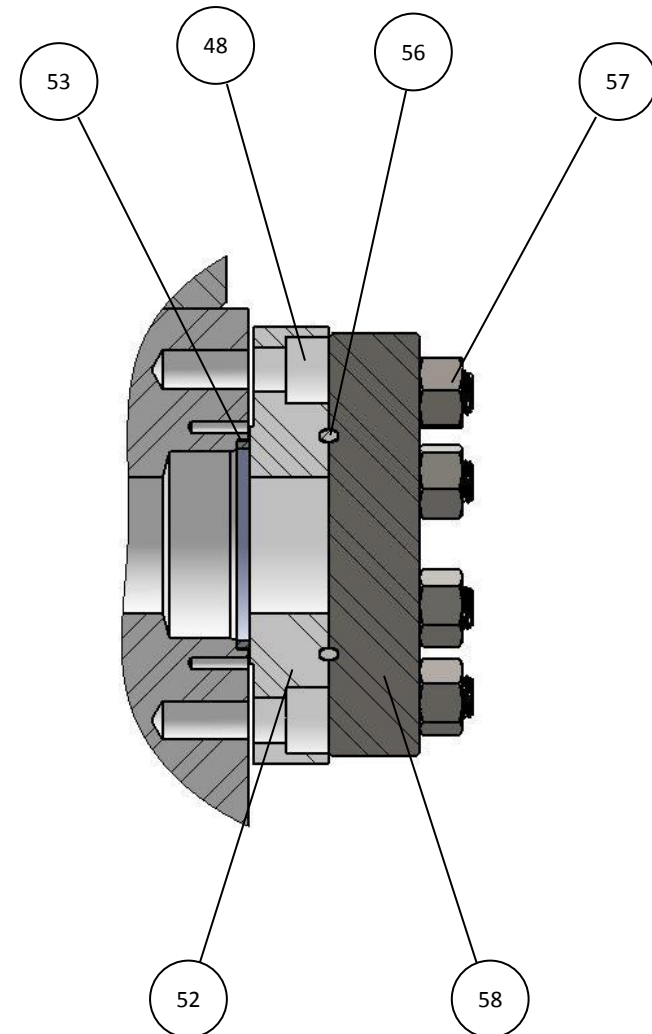
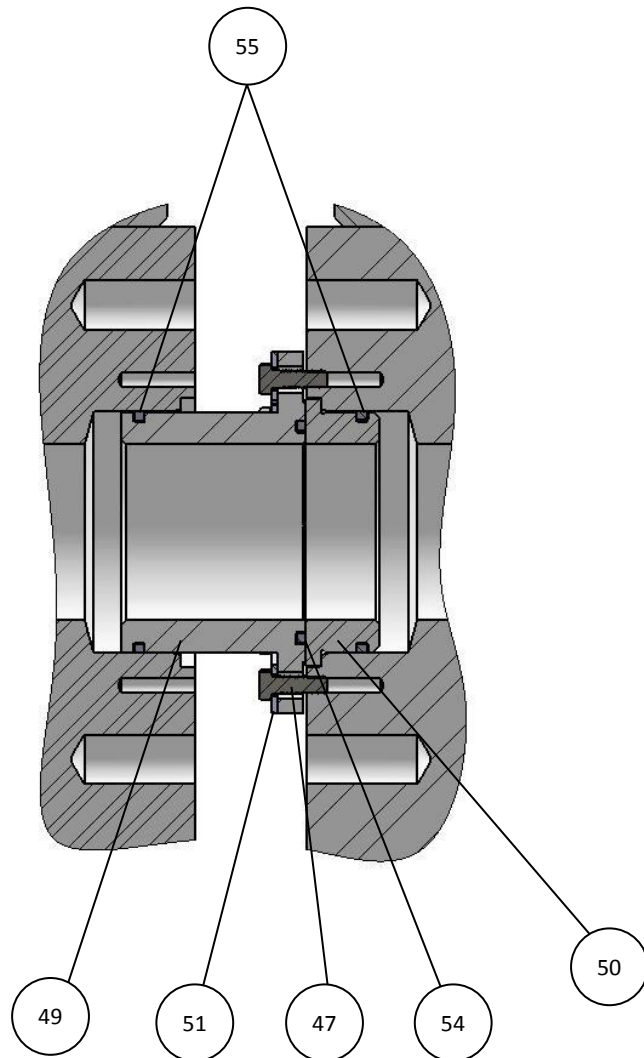
| ITEM NO. | PART NO. | DESCRIPTION | QTY. REQ'D |
|----------|---------------|---|------------|
| 27 | 6576 | LINER RETAINER NUT | 3 |
| 28 | 4018-17 | SUCTION MODULE STUD (WITH SW PART# HHN1750-6 1-3/4"-6 HEAVY HEX NUT) | 18 |
| 29 | 4018-19 | SUCTION MANIFOLD CAP SCREW (WITH LOCK WASHER) | 24 |
| 30 | 8576-50 | SUCTION MANIFOLD (FRONT OR SIDE INLET) | 1 |
| 31 | AJO419R | SUCTION MANIFOLD GASKET | 3 |
| 32 | 8476-6S | SUCTION MODULE (STUDDED ONLY) | 3 |
| 33 | 8476-5D | DISCHARGE MODULE (STUDDED ONLY) | 3 |
| 34 | 8488-5 | DOWEL PIN | 6 |
| | | <i>ITEMS NUMBERS 35 THRU 46 ARE NOT SHOWN INTENTIONALLY</i> | |
| 47 | 4018-18 | DISCHARGE CONNECTOR CAP SCREW (WITH LOCK WASHER) | 16 |
| 48 | 4018-39 | DISCHARGE SPACER FLANGE SOCKET HEAD CAP SCREW | 16 |
| 49 | 8376-1 | DISCHARGE CONNECTOR | 2 |
| 50 | 8376-2 | DISCHARGE ADAPTER | 2 |
| 51 | 8376-3 | BACK-UP RING | 4 |
| 52 | 8376-4 | DISCHARGE SPACER FLANGE | 2 |
| 53 | 2976-3 | DISCHARGE SPACER FLANGE SEAL | 2 |
| 54 | 2976-1 | DISCHARGE CONNECTOR / ADAPTER PACKING | 2 |
| 55 | 2976-2 | DISCHARGE CONNECTOR / ADAPTER PACKING | 4 |
| 56 | R44D | RING JOINT GASKET | 2 |
| 57 | 4017-22 | DISCHARGE SPACER FLANGE STUD (WITH SW PART# HHN1500-6 1-1/2"-6 HEAVY HEX NUT) | 16 |
| 58 | 5000-5BFLANGE | BLIND FLANGE 5" | 1 |
| 59 | 9070012 | PONY ROD SEAL (NOT SHOWN) | 12 |
| 60 | 80491292 | SPLASH GUARD (NOT SHOWN) | 3 |
| 61 | 8376-50A | COMPLETE STRAINER CROSS | 1 |
| 62 | 6576-22A | HYDRAULIC LINER RETAINER | 3 |
| | | | |
| | | **POLYURETHANE SEALS AVAILABLE ** | |



SOUTHWEST
OILFIELD PRODUCTS, INC.

DRAWING NO. 8376-A

SOUTHWEST DISCHARGE MANIFOLD
ASSEMBLY, FOR NATIONAL 12-P-160





SOUTHWEST 5000PSI 12P-160 GUIDE TO ORDERING

| PISTONS | | | | | | LINERS | | LINER GASKETS | |
|---|----------|--------------|----------|-----------|----------|----------|-----------|---------------|----------|
| SIZE | PITBULL® | SINGLE-DURO® | BULLDOG® | BLACKCAT® | HELLCAT® | GRAYLOY® | ZIRCONIA | RUBBER | URETHANE |
| 4" | 76BDP | 76BSD | 76BDB | 76BBC | 76BPP | 1376G06 | 1376ZIR06 | 2930-06 | 2930-06U |
| 4 1/2" | 78BDP | 78BSD | 78BDB | 78BBC | 78BPP | 1376G08 | 1376ZIR08 | 2930-08 | 2930-08U |
| 4 3/4" | 79BDP | 79BSD | 79BDB | 79BBC | 79BPP | 1376G09 | 1376ZIR09 | 2930-09 | 2930-09U |
| 5" | 81BDP | 81BSD | 81BDB | 81BBC | 81BPP | 1376G1 | 1376ZIR1 | 2930-1 | 2930-1U |
| 5 1/4" | 82BDP | 82BSD | 82BDB | 82BBC | 82BPP | 1376G2 | 1376ZIR2 | 2930-2 | 2930-2U |
| 5 1/2" | 83BDP | 83BSD | 83BDB | 83BBC | 83BPP | 1376G3 | 1376ZIR3 | 2930-3 | 2930-3U |
| 5 3/4" | 84BDP | 84BSD | 84BDB | 84BBC | 84BPP | 1376G4 | 1376ZIR4 | 2930-4 | 2930-4U |
| 6" | 85BDP | 85BSD | 85BDB | 85BBC | 85BPP | 1376G5 | 1376ZIR5 | 2930-5 | 2930-5U |
| 6 1/4" | 86BDP | 86BSD | 86BDB | 86BBC | 86BPP | 1376G6 | 1376ZIR6 | 2930-6 | 2930-6U |
| 6 1/2" | 87BDP | 87BSD | 87BDB | 87BBC | 87BPP | 1376G7 | 1376ZIR7 | 2930-7 | 2930-7U |
| 6 3/4" | 88BDP | 88BSD | 88BDB | 88BBC | 88BPP | 1376G8 | 1376ZIR8 | 2930-8 | 2930-8U |
| 7" | 89BDP | 89BSD | 89BDB | 89BBC | 89BPP | 1376G9 | 1376ZIR9 | 2930-9 | 2930-9U |
| 7 1/4" | 91BDP | 91BSD | 91BDB | 91BBC | 91BPP | 1376G10 | 1376ZIR10 | 2974-11 | 2974-11U |
| 7 1/2" | 92BDP | 92BSD | 92BDB | 92BBC | 92BPP | 1376G11 | - | 2974-11 | 2974-11U |
| NOTE: ALL PISTONS AND GRAYLOY® ARE REGISTERED TRADEMARKS OF SOUTHWEST® OILFIELD PRODUCTS. | | | | | | | | | |

VALVES & SEATS 12-P-160

| TYPE | VALVE | INSERT | SPRING | STAINLESS SPRING | SEAT | PULLER HEAD | PULLER HEAD STYLE |
|--|-------------|------------|-------------|---------------------|------------|-----------------------|----------------------|
| SOUTHWEST (Full Open) | 777-8B | N/A | 941 | N/A | 877-8 | SWTM4250 | SPLIT JAW |
| FULL OPEN-ROUGHNECK | SWND-7V2 | | SW5710-115L | N/A | SWND-7S12 | SWND-7PH SWTM40-SN | PANCAKE SPLIT JAW |
| FULL OPEN-ROUGHNECK (High Temp) | SWND-7V2HC | | SW5710-115L | N/A | SWND-7S12 | SWND-7PH SWTM40-SN | PANCAKE SPLIT JAW |
| FULL OPEN-ROUGHNECK (w/Replaceable Urethane Insert) | SWND-7V1 | SWND-7I | SW5710-115L | N/A | SWND-7S12 | SWND-7PH SWTM40-SN | PANCAKE SPLIT JAW |
| 3 WEB DOUBLE ANGLE O-RING | SWR0500110 | SWR0514275 | SWR0513744 | SWR0514790 | SWR0514299 | SWTM3-7T | 3 J HOOK |
| 3 WEB (High Temp) | SWR0520502 | SW0520501 | SWR0513744 | SWR0514790 | SWR0514299 | SWTM3-7T | |
| 3 WEB STANDARD PLATE | SWR0505062 | SWR0504893 | SWR0513937 | SWR0514423 | SWR0514299 | SWTM3-7T | |
| 4 WEB | SWU5C-EEF | SWUDD-7B | SW5710-115 | N/A | SW7DD-B12 | SWTM4-7 | 4 J HOOK |
| 4 WEB (High Temp) | SWU5C-EEFHT | SWUDD-7BHT | SW5710-115 | N/A | SW7DD-B12 | SWTM4-7 | |
| | | | | | | | |

PANCAKE



SPLIT JAW



3 J HOOK



4 J HOOK





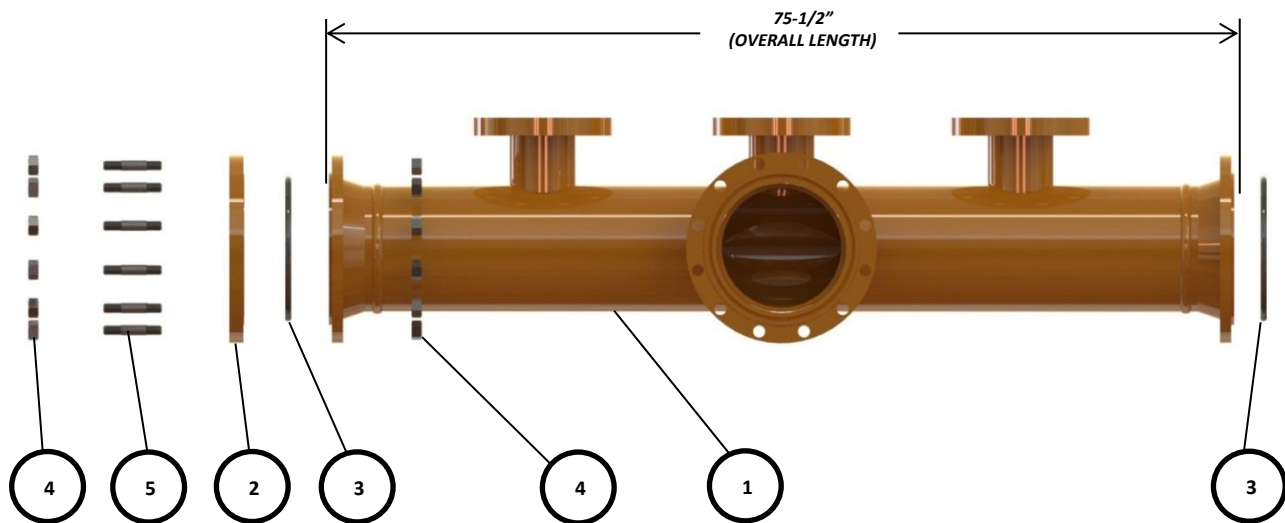
SOUTHWEST
OILFIELD PRODUCTS, INC.

12-P-160 SUCTION MANIFOLD (PART NO. 8576-50)



NOTE:

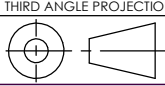
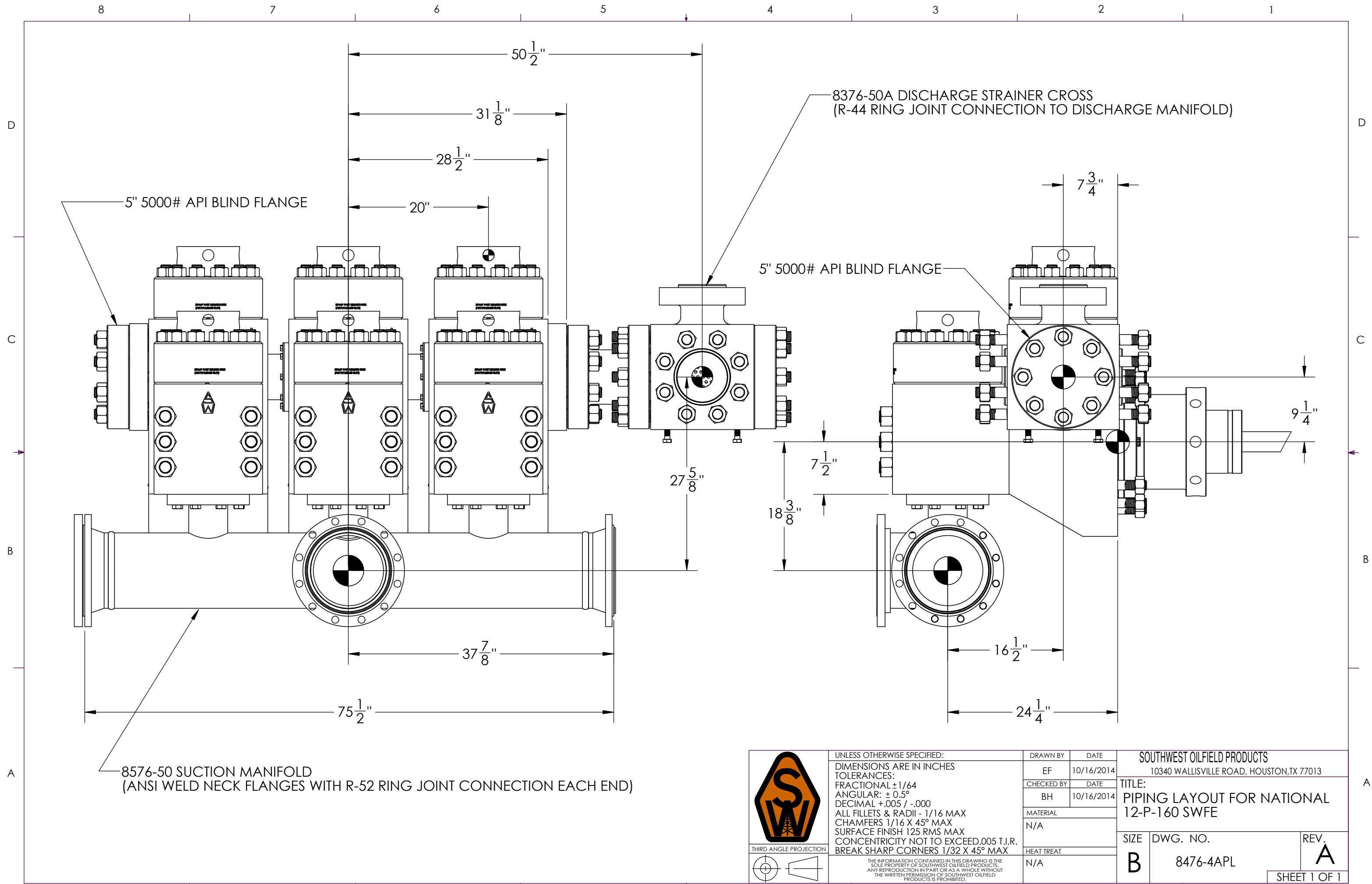
10" 150LB. ANSI RING JOINT FLANGE
(ITEM NO. 2 & 3) ON EACH END & CENTER
INCLUDED WITH MANIFOLD
(R-52D RING JOINT SEAL)



BOM TABLE:

| ITEM No. | Part # | Description | Qty. |
|----------|---------------|-------------------------------|------|
| 1 | | 8576-50 MANIFOLD | 1 |
| *2 | 150-10BFLANGE | 10" 150 LB. ANSI BLIND FLANGE | 1 |
| *3 | R-52D | RING JOINT GASKET | 2 |
| *4 | HHN0875-9 | 7/8-9 HEAVY HEX NUT | 24 |
| *5 | 4017-56 | ALLOY PUMP STUD | 12 |

*THESE ITEMS MUST BE PURCHASED SEPARATELY



UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL $\pm 1/64$
ANGULAR: $\pm 0.5^\circ$
DECIMAL $+0.005 / -0.000$
ALL FILLETS & RADII - $1/16$ MAX
CHAMFERS $1/16 \times 45^\circ$ MAX
SURFACE FINISH 125 RMS MAX
CONCENTRICITY NOT TO EXCEED .005 T.I.R.
BREAK SHARP CORNERS $1/32 \times 45^\circ$ MAX

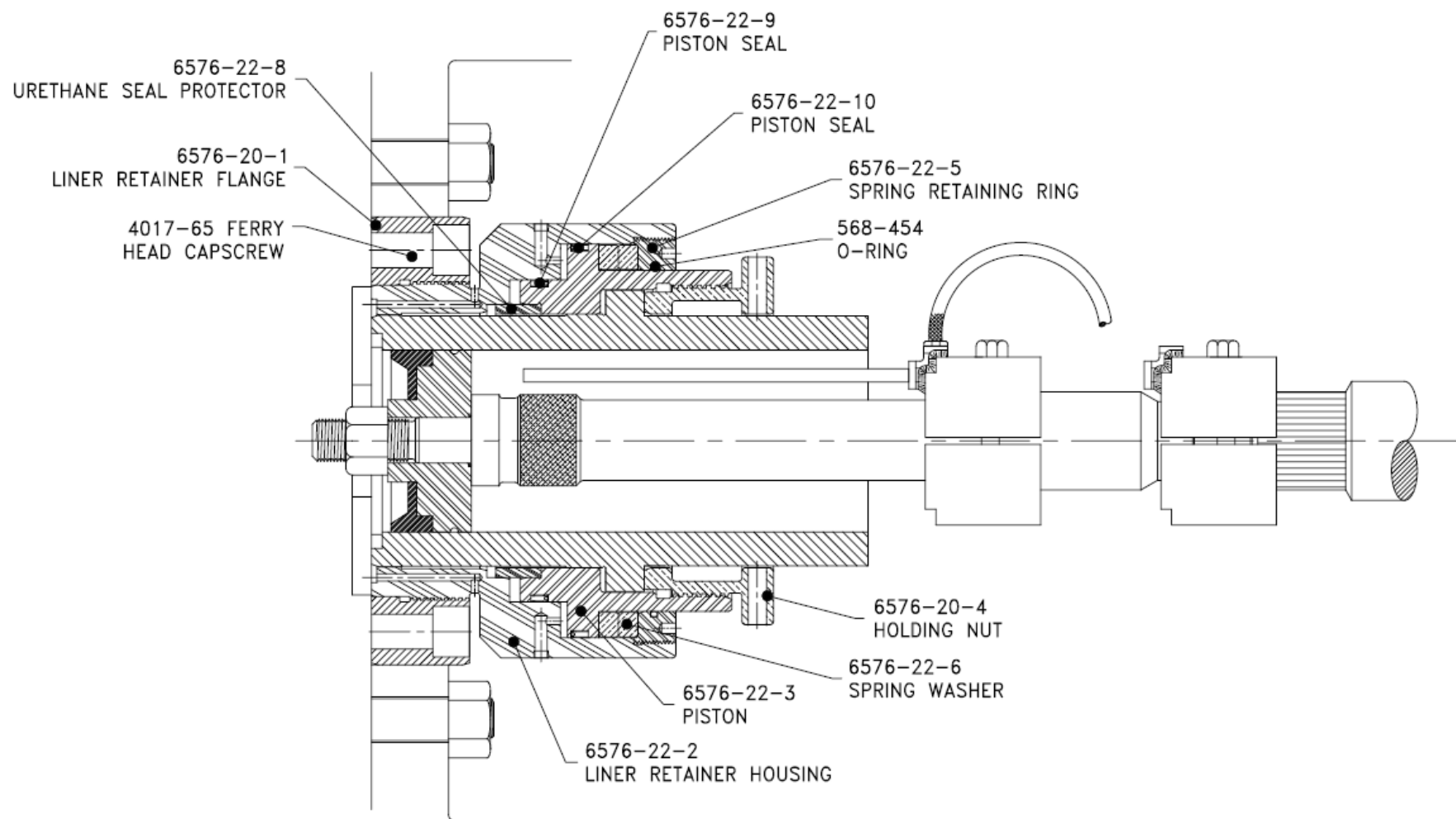
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PRODUCTS IS PROHIBITED.

| | |
|------------|------------|
| DRAWN BY | DATE |
| EF | 10/16/2014 |
| CHECKED BY | DATE |
| BH | 10/16/2014 |
| MATERIAL | |
| N/A | |
| HEAT TREAT | |
| N/A | |

| | | |
|--|-----------------------|-----------|
| SOUTHWEST OILFIELD PRODUCTS 10340 WALLISVILLE ROAD, HOUSTON, TX 77013 | | |
| TITLE: PIPING LAYOUT FOR NATIONAL 12-P-160 SWFE | | |
| SIZE B | DWG. NO. 8476-4APL | REV. A |
| SHEET 1 OF 1 | | |



6576-22A HYDRAULIC LINER RETAINER FOR NATIONAL 12-P-160 5000 PSI

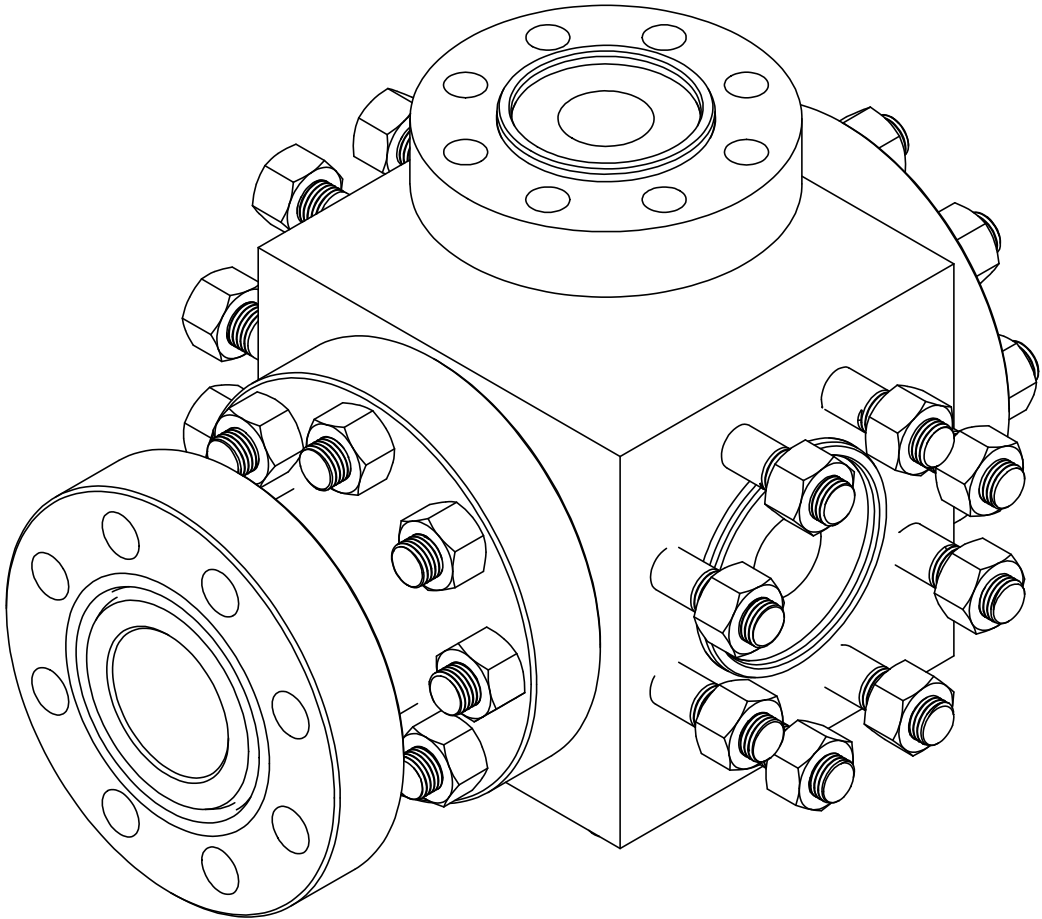


D

C

B

A



8376-50A DISCHARGE STRAINER CROSS ASSEMBLY
OVERVIEW

THE 8376-50A DISCHARGE STRAINER CROSS IS DESIGNED FOR USE ON MUD PUMP DISCHARGE MANIFOLDS AND HAS A WORKING PRESSURE RATING OF 5,000 PSI.

THIS CROSS FEATURES A STRAINER THAT IS ACCESSED BY REMOVING A BLIND FLANGE FROM THE OPPOSITE SIDE OF THE DISCHARGE MANIFOLD FLANGE.

THIS CROSS USES R-TYPE RING JOINT GASKETS FOR SEALING.

CONTENTS

- 1. OVERVIEW
- 2. NOMENCLATURE
- 3. FACE SIZES & BOLT PATTERNS
- 4. BILL OF MATERIALS

| REVISION | DATE | DESCRIPTION |
|----------|------------|---|
| A | 06/04/2012 | DRAWN IN SOLIDWORKS |
| B | 07/18/2013 | ADDED R-44 RING JOINT TO SPOOL OUTSIDE FLANGE |
| C | 08/22/2014 | REFORMATTED UPON REQUEST FROM MFG ENG |

| | | | | |
|--|------------|------------|--|----------------------|
| | DRAWN BY | DATE | SOUTHWEST OILFIELD PRODUCTS 10340 WALLISVILLE ROAD, HOUSTON, TX 77013 | |
| | BH | 05/03/2012 | TITLE: DISCHARGE STRAINER CROSS ASSEMBLY F/ NATIONAL 12P-160 | |
| | CHECKED BY | DATE | | |
| | MG | 07/22/2014 | | |
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| | | | | REV. C |
| | | | SHEET 1 OF 4 | |

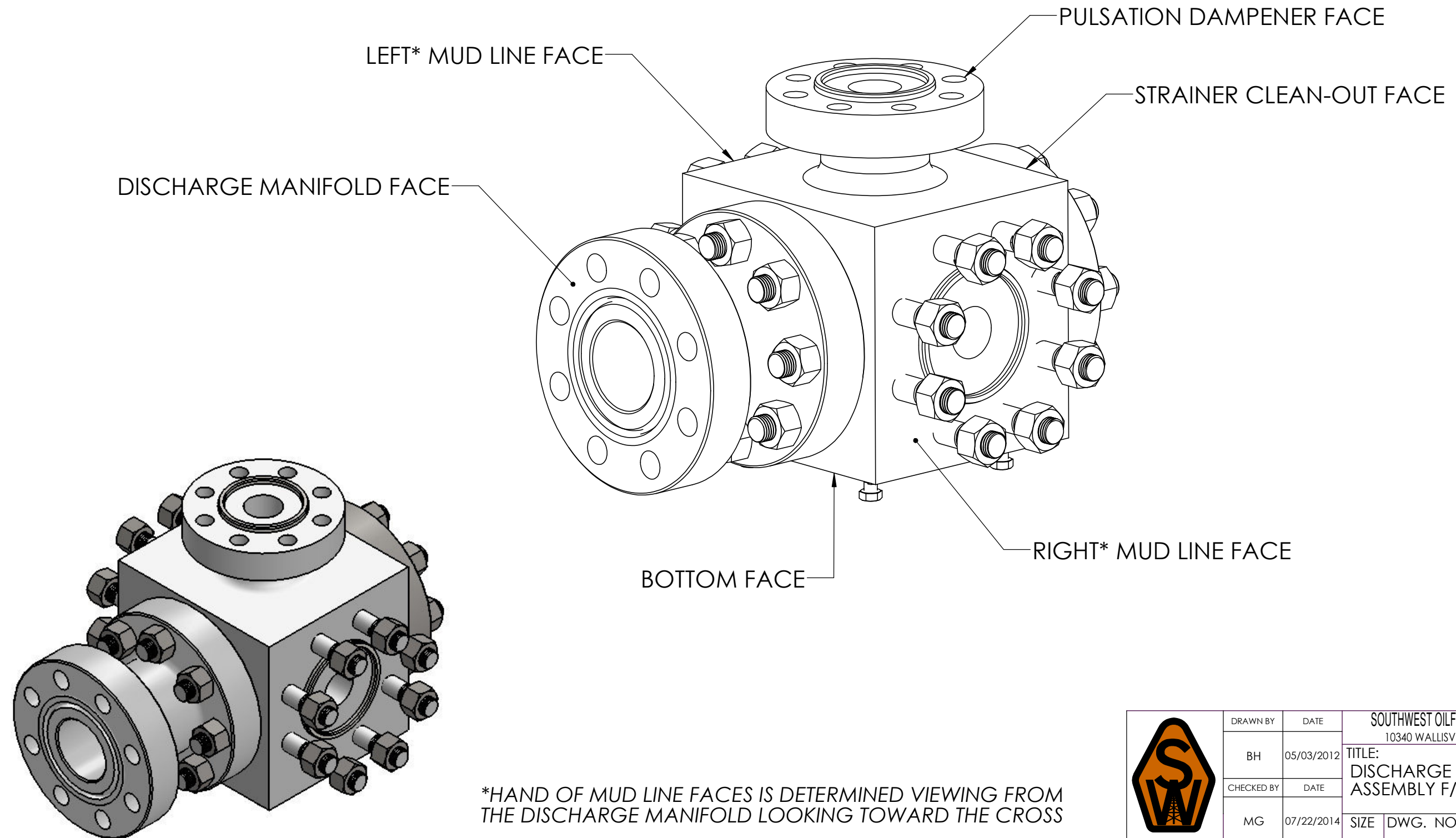
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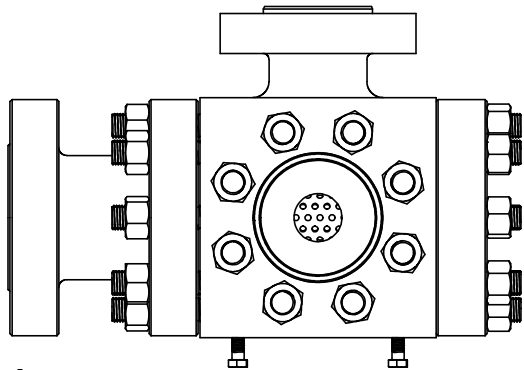
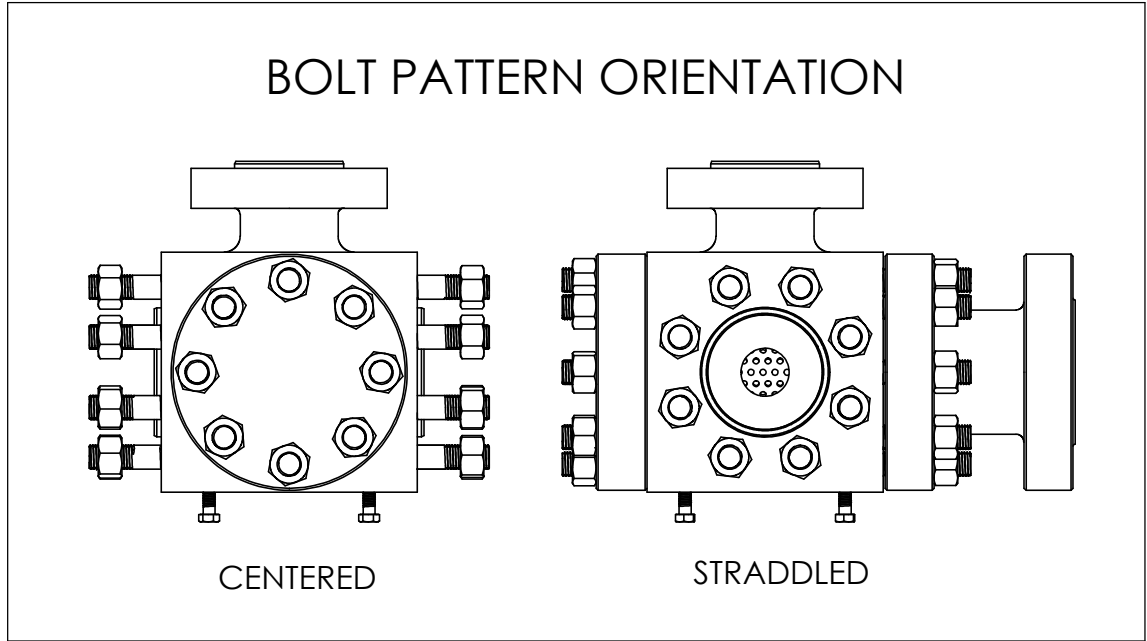
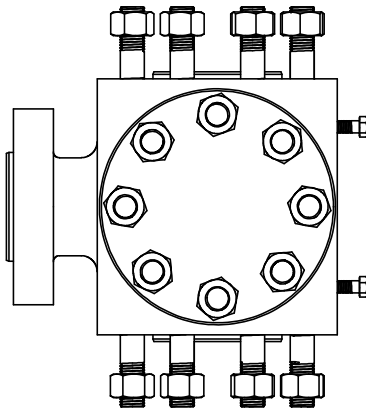
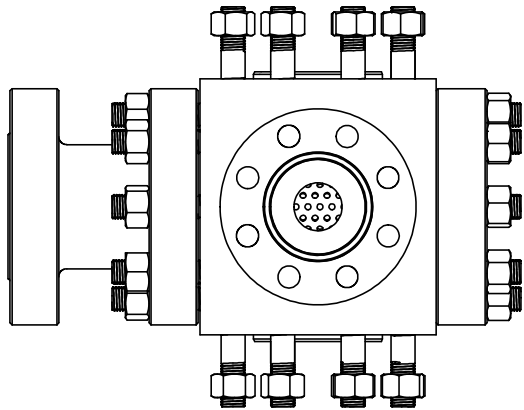
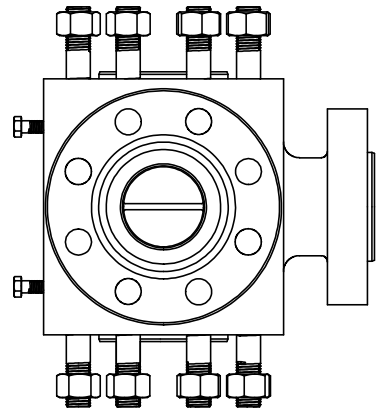
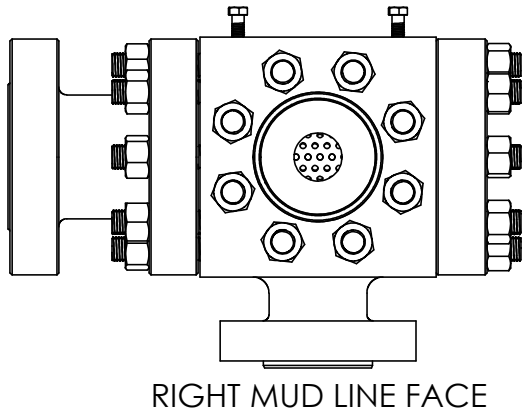
8376-50A DISCHARGE STRAINER CROSS ASSEMBLY NOMENCLATURE



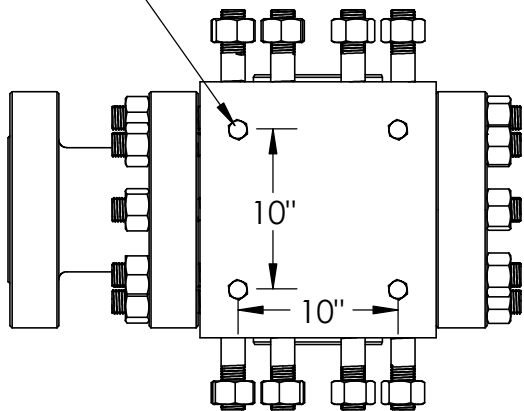
**HAND OF MUD LINE FACES IS DETERMINED VIEWING FROM THE DISCHARGE MANIFOLD LOOKING TOWARD THE CROSS*

| | | | | |
|---|------------|------------|--|----------------------|
|  | DRAWN BY | DATE | SOUTHWEST OILFIELD PRODUCTS 10340 WALLISVILLE ROAD, HOUSTON, TX 77013 | |
| | BH | 05/03/2012 | TITLE: DISCHARGE STRAINER CROSS ASSEMBLY F/ NATIONAL 12P-160 | |
| | CHECKED BY | DATE | | |
| | MG | 07/22/2014 | | |
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| | | | REV. C | SHEET 2 OF 4 |

8376-50A DISCHARGE STRAINER CROSS ASSEMBLY
FLANGE SIZES AND BOLT PATTERNS



4X $\varnothing \frac{21}{32}$ " ∇ 1 $\frac{1}{4}$ "
3/4-10 UNC ∇ 1"



| FLANGE SIZES | | | |
|--------------------|--------------------|--------|-------------|
| FACE | DESCRIPTION | GASKET | ORIENTATION |
| PULSATION DAMPENER | 4-1/16" API 6B, 5K | R-39 | STRADDLED |
| DISCHARGE MANIFOLD | 5-1/8" API 6B, 5K | R-44 | STRADDLED |
| STRAINER CLEAN-OUT | 5-1/8" API 6B, 5K | R-44 | CENTERED |
| RIGHT MUD LINE | 5-1/8" API 6B, 5K | R-44 | STRADDLED |
| LEFT MUD LINE | 5-1/8" API 6B, 5K | R-44 | STRADDLED |
| BOTTOM FACE | N/A | N/A | N/A |

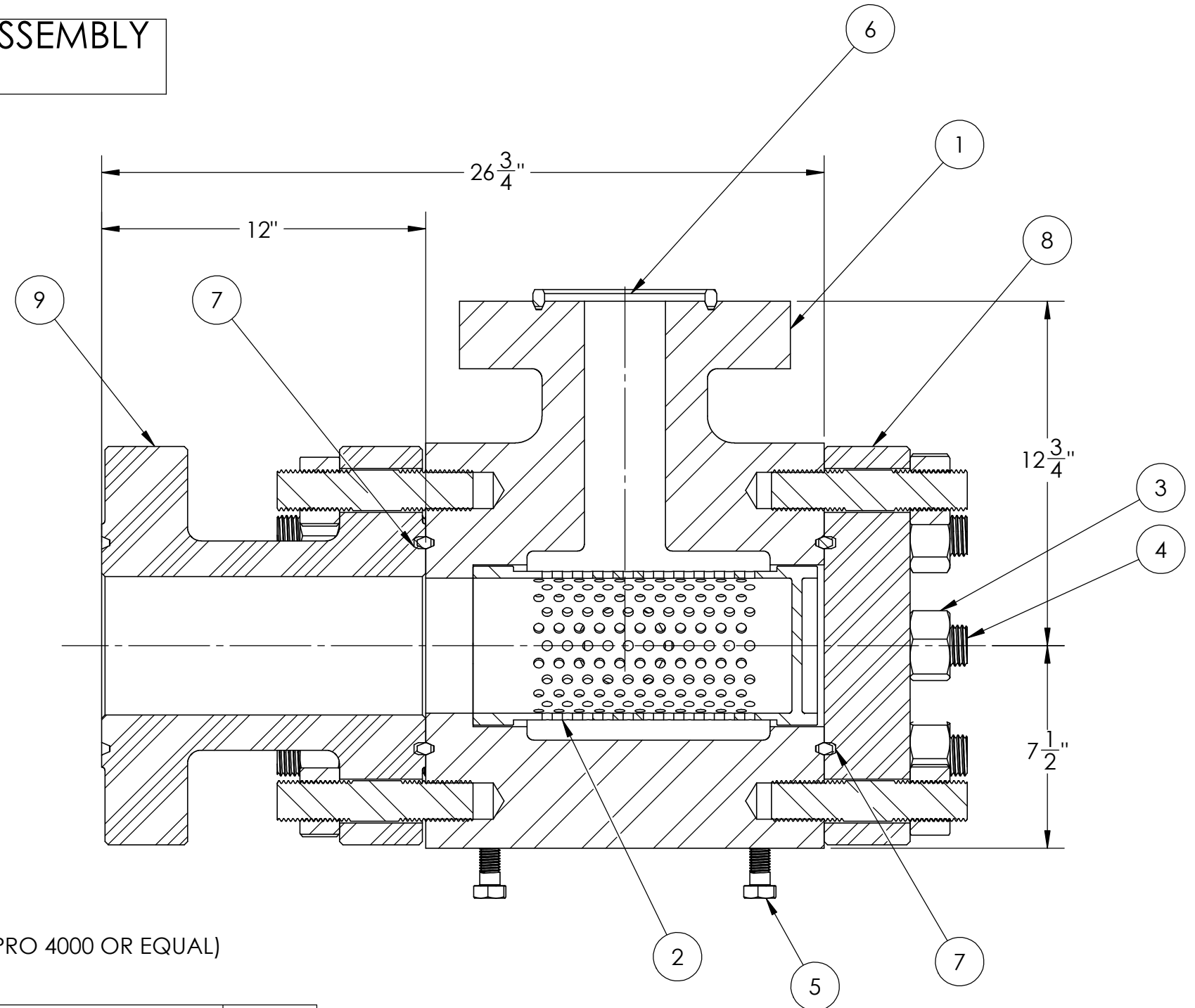
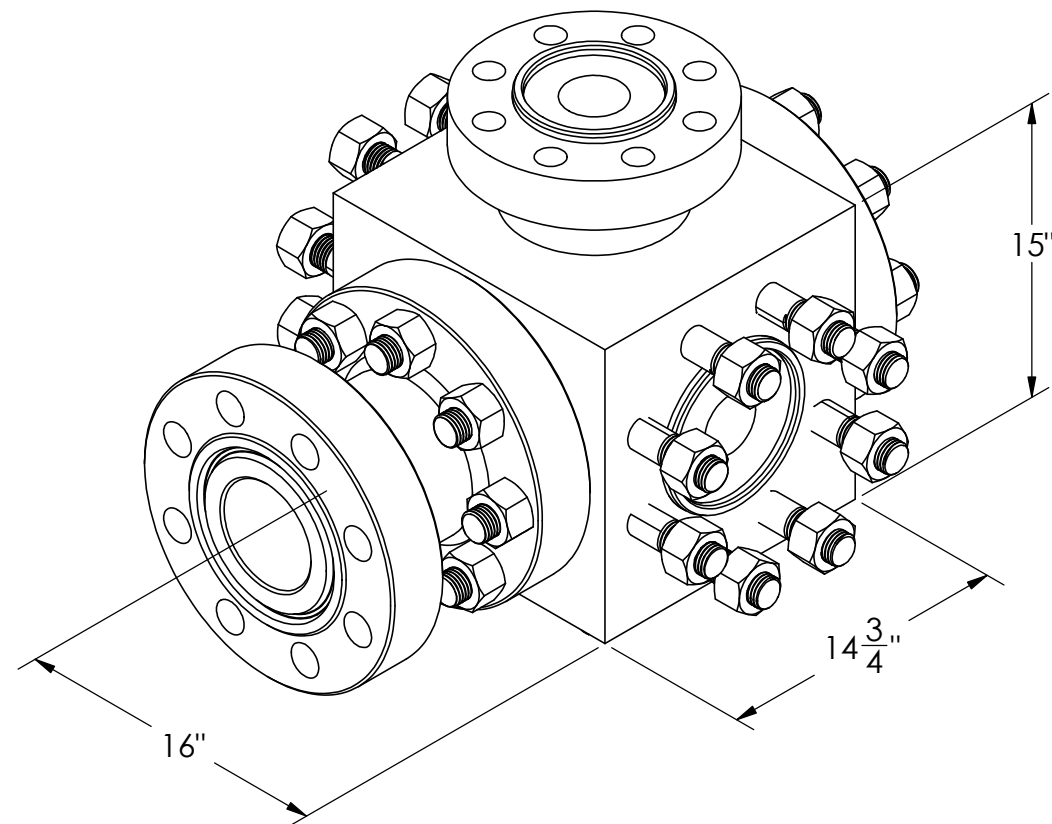


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| CHECKED BY | DATE | SIZE | DWG. NO. |
| MG | 07/22/2014 | B | 8376-50A |
| | | REV. | C |


SHEET 3 OF 4

8376-50A DISCHARGE STRAINER CROSS ASSEMBLY
BILL OF MATERIALS



NOTE: 4018-67 TAP END STUD, TORQUE NUT TO 1606 FT-LBS
(LUBED WITH API MODIFIED THREAD COMPOUND PER RP 5A3, SOUTHWEST HI PRO 4000 OR EQUAL)

| ITEM NO. | PART NO. | DESCRIPTION | QTY. |
|----------|---------------|--|------|
| 1 | 8376-50 | DISCHARGE STRAINER CROSS | 1 |
| 2 | 8276-50 | DISCHARGE STRAINER | 1 |
| 3 | HHN1500-6 | 1-1/2-6 HEAVY HEX NUT | 32 |
| 4 | 4018-67 | PULSATION DAMPNER STUD | 32 |
| 5 | 4017-77 | CAPSCREW | 4 |
| 6 | R-39 | RING GASKET | 1 |
| 7 | R-44 | R-44 RING JOINT GASKET FOR API CONNECTIONS | 4 |
| 8 | 5000-5BFLANGE | 5-1/8" 5000# BLIND RJT FLANGE | 1 |
| 9 | 8388-14-SPOOL | 12" SPOOL W/ 5-1/8" 5000# API FLANGES | 1 |

| | | | | |
|--|------------|------------|--|--------------|
|  | DRAWN BY | DATE | SOUTHWEST OILFIELD PRODUCTS 10340 WALLISVILLE ROAD, HOUSTON, TX 77013 | |
| | BH | 05/03/2012 | TITLE: DISCHARGE STRAINER CROSS ASSEMBLY F/ NATIONAL 12P-160 | |
| | CHECKED BY | DATE | SIZE | DWG. NO. |
| | MG | 07/22/2014 | B | 8376-50A |
| THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SOUTHWEST OILFIELD PRODUCTS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SOUTHWEST OILFIELD PRODUCTS IS PROHIBITED. | | | | REV. C |
| | | | | SHEET 4 OF 4 |

**TORQUE SPECIFICATIONS FOR 8476-4A SOUTHWEST FLUID END ASSEMBLY
FOR NATIONAL 12-P-160 5000 P.S.I.**

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | TORQUE TYPE (EXPRESSED IN FOOT-POUNDS) | |
|--------------------|---|--|--------------------|
| | | <u>COPPERCOTE</u> | <u>MOLY GREASE</u> |
| API-4 ESN | PISTON ROD NUT | <i>NO MORE FORCE THAN ONE MAN ON 3' WRENCH/CHEATER COMBINATION</i> | |
| 4020-29 | ROD CLAMP BOLT | <i>150 MAXIMUM</i> | <i>150 MAXIMUM</i> |
| 4015-54 | VALVE COVER STUD | 1208 | 1752 |
| 4015-95 | POWER END STUD | 877 | 1272 |
| 4017-65 | LINER RETAINER SOCKET HEAD CAP SCREW | 644 | 966 |
| 4018-17 | SUCTION MODULE STUD | 2275 | 3299 |
| 4018-19 | SUCTION MANIFOLD CAP SCREW | 215 | 322 |
| 4018-39 | DISCHARGE SPACER FLANGE SOCKET HEAD CAP SCREW | 1586 | 2379 |
| 4017-22 | DISCHARGE SPACER FLANGE STUD | 1322 | 1917 |



SOUTHWEST
OILFIELD PRODUCTS, INC.

8476-4A NATIONAL 12-P-160 FLUID END REVISION SUMMARY

| <u>REVISION</u> | <u>DATE</u> | <u>REASON OF CHANGE</u> |
|------------------------|--------------------|---|
| REV A | 10/20/2014 | ADDING DRAWING NO. 8476-4APL PIPING LAYOUT. |
| REV B | 04/10/2015 | UPDATED FLUID END ASSEMBLY DRAWING. |
| REV C | 05/29/2015 | ADDED 6576-22A ASSEMBLY DRAWING AND UPDATED MAIN PARTS PG. & TORQUE SPEC. PG. |
| REV D | 04/06/2016 | ADDED 1286CWY ROD CLAMP ASSEMBLY DRAWING. |
| REV E | 10/12/2020 | UPDATED PISTON SHEET. |