



WESTBROOK

Name: Westbrook Manufacturing Div.

Corporate & Sales Office 1111 Lockwood Dr
Houston, Texas 77020

Mailing Address: P O Box 15614
Houston, Texas 77220

Plant: 1521 Lathrop
Houston, Texas 77020

Web Site www.westbrookmfg.com

Telephone: Houston..... 1-713-675-6438
FAX.....1-713-675-9742
WATTS..... 1-800-231-8014
WATTS..... 1-800-9-FLANGE

Firm Established 1966

Senior V.P. – North America Danny Westbrook
V. P. – Sales & Customer Service Larry York

Principal Products: Pipe Nipples, Swage Nipples, Bull Plugs,
Branch Outlets, Stainless Flanges, Carbon &
Stainless Forged Steel, Oil Country Fittings

Watts 800-231-8014
Phone 713-675-6438
Fax 713-675-9742



WESTBROOK MANUFACTURING
GENERAL TERMS AND CONDITIONS OF SALE

Product Warranty	All products furnished by Westbrook Manufacturing are warranted to be free of manufacturing defects for a period of one (1) year from the date of shipment. Any item found to be defective during that period will be replaced at no charge F.O.B. our plant in Houston, Texas, provided (a) that the product was used as recommended and in accordance with approved installation and operating practices; (b) that the failure resulted from a manufacturing defect and not from damage due to alteration, neglect, corrosive, abrasive or other wear normally to be expected in the service involved; (c) that the product has not been altered or modified; and (d) that written notice of such defect is forwarded to our offices during the one (1) year period. No labor costs or other expenses will be assumed. The Uniform Commercial Code or the Texas statutes adopting the Uniform Commercial Code shall not apply. This express warranty is in lieu of and excludes all other warranties, guarantees or representations, expressed or implied. There are no implied warranties of merchantability or of fitness for a particular purpose.
Purchaser's Remedies	The Purchaser's remedies for any product furnished by Westbrook Manufacturing that is found not to be in conformity with the terms and conditions of the contract because of breach of contract, breach of express or implied warranty or negligence shall be limited exclusively to product replacement or, at our option, repayment of the sales price of the product. Westbrook Manufacturing shall not be liable for additional claims (based on breach of contract, breach of express or implied warranty or negligence) for any other damages, whether direct, immediate, foreseeable, consequential or special, or for any expense incurred by reason of the use or misuse, sale or fabrication of products which do or do not conform to the terms and conditions of the contract.
Pricing	Prices and other terms of sale, including payment, are subject to change without notice. Unless a written provision, approved by corporate management appears in the quotation or order acknowledgement, all prices can be withdrawn or changed without notice at any time. We reserve the right to correct stenographic or clerical errors when these are discovered.
Order Acceptance	All orders are subject to approval by Westbrook Manufacturing's Credit Department prior to acceptance. No assignment of the Purchaser's rights may be made without the express written consent of Westbrook Manufacturing's management.
Remittance Terms	All accounts are payable at par in Houston, Texas in United States funds, free of exchange, collection or other charges. If in the sole discretion of Westbrook Manufacturing, the financial condition of the Purchaser requires it, we retain the right to require full or partial payment in advance of shipment. Unless otherwise indicated, payment terms are NET 30 DAYS.
Partial Shipments	Westbrook Manufacturing reserves the right to make partial shipments upon occasion and to invoice for all shipped material. These invoices shall be due and payable as provided in these Terms and Conditions of Sale. In the event that invoiced amounts become overdue, Westbrook Manufacturing shall be entitled to suspend work and avail itself of all legal remedies.
Taxes	Any sales, use, occupancy, excise tax or other tax of any nature, (federal, state or local) for which Westbrook Manufacturing shall become legally liable, either initially or through the failure of the Purchaser to pay such levy, shall be added to and shall be in addition to the price quoted and the Purchaser agrees to pay these charges.
Shortages and Damage in Transit	All Westbrook products are delivered F.O.B. our Houston warehouses. Claims for shortages must be made in writing to our offices within ten (10) days after the receipt of shipment. Loss or damage to materials in transit shall be the responsibility of the carrier.
Delivery Promises	Delivery promises are estimated as closely as possible and Westbrook Manufacturing will make every reasonable effort to ship within the time promised. However, no guarantee can be made to do so and we assume no liability for failure to ship when promised. Delivery commitments are made predicated on availability of existing or raw stock and factory workload and these factors can change dynamically.
Contract Cancellation	All accepted orders are subject to cancellation or requests by the Purchaser to suspend or delay work only upon written notification and with our written consent, subject to agreement and/or the payment of an adjustment charge. Orders for special (Non-Shelf) items may be changed or cancelled only upon our acceptance of written instructions from the Purchaser and full agreement by the Purchaser for payment of material used and work performed.
Material Return	Westbrook Manufacturing will not accept the return of any products of our manufacture without our prior consent and the issuance of a Returned Material Authorization (RMA). All returned goods are subject to our inspection to confirm that such material is of our manufacture and is in resalable condition. All items returned are subject to a handling charge; in and out freight charges and any charges for needed reconditioning, unless otherwise agreed to by Westbrook's management.
Patent Infringement	The Purchaser agrees to indemnify and hold Westbrook Manufacturing harmless against any monetary judgement for damages and/or costs which may be rendered against Westbrook in any suit alleging patent infringement for any product supplied under contract and made in accordance with a design or specification supplied by the Purchaser.
Governing Law	All contracts accepted by Westbrook Manufacturing shall be governed by, construed and enforced in accordance with the laws of the State of Texas.
Performance Waiver	The failure of Westbrook Manufacturing to insist upon the performance of any of the terms, covenants or conditions of any contract, or to exercise any of our rights under the terms of any contract, shall not be construed as an outright waiver or relinquishment of the future performance of any other terms, covenants or conditions. In addition, such lack of insistence shall not be deemed to be a waiver or relinquishment of any other term, covenant or condition existing under the contract terms.
Special Dies, Tools & Patterns	Special dies, tools and patterns produced by Westbrook Manufacturing in order to manufacture item(s) covered by a contract shall remain our property. The payment of any die, tool or pattern charge by the Purchaser shall not be construed as giving any right, title or interest in such items. Westbrook Manufacturing shall not be responsible for the retention of any specially produced die, tool or pattern on which no orders are received for a period of twelve (12) months or more.
Force Majeur	Any delay in, or failure to comply with the stated performance of a contract by Westbrook Manufacturing shall not constitute default or give rise to claims for damages if such delay or failure is caused by events beyond our control. These events shall include, but not be limited to: acts of God or the public enemy, expropriation or confiscation of facilities, compliance with any governmental authority, acts of war, rebellion or sabotage, embargoes or other export restrictions, fire, flood, explosions, accidents, breakdowns, riots or strikes and other concerted acts, direct or indirect, of workmen, or any other causes not within the direct control of Westbrook Manufacturing and which, by the exercise of reasonable diligence, Westbrook is unable to prevent or mitigate.
Purchaser's Acceptance of These Conditions	All contracts accepted by Westbrook Manufacturing shall be subject to the Terms and Conditions stated herein, or to those referred to in Westbrook Manufacturing's Price Schedule, Quotations and Order Acknowledgements and to no others whatsoever. No waiver, alteration or modification of these Terms and Conditions shall be binding on Westbrook Manufacturing unless agreed to in writing and signed by an authorized representative of our firm.

ITEMS FURNISHED BY WESTBROOK MANUFACTURING ARE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938 AS AMENDED.



WESTBROOK

RETURN POLICY

The following terms and conditions have been established to govern the return of all Westbrook products:

1. No material may be returned without our express permission and prior consent, signified by the issuance, customer approval and the return of our RMA (Return Material Authorization) to our corporate offices.
2. All returned material must be of Westbrook's manufacture and be in new and resalable condition. We reserve the right to impose a re-conditioning charge for all material that does not meet these criteria.
3. Only standard "Shelf" items qualify for return, i.e., items that are normally carried in our inventory. No credit will be allowed for specially manufactured items.
4. Westbrook personnel will inspect all material returned to verify the quantity and condition and the results of this inspection are final.
5. In and out freight charges paid by Westbrook, as well as cash discounts taken will be deducted from any credit applicable.
6. Any credit issued will be a merchandise credit, applicable to future purchases of material.
7. The standard re-stocking charge shall be 25% of the invoiced price of the material returned, unless, of course, the error is ours.
8. Westbrook shall issue and transmit an RMA to the requesting firm, authorizing the return of any material. Activation of this RMA requires the signature of an authorized member of the organization requesting the material return and the return of the signed RMA to our organization. Issued RMA's are valid for a period of 120 days from the date of issue.
9. All material returned should reference the appropriate RMA number to ensure proper identification.
10. Westbrook personnel are responsible for contacting the company returning products in the event that any problems are encountered in the return inspection process and for resolving any problems. This contact shall be documented to ensure that all parties are advised of any potential problems.
11. We reserve the right to waive or modify any of the conditions stated above.

Watts 800-231-8014
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CERTIFICATE NO: 32813



WESTBROOK

SPECIFICATION COMPLIANCE DATA SHEET FOR PIPE NIPPLES AND SWAGE NIPPLES

THREADS	ASME/ANSI	B1.20.1 1983
	API	API 5B
BEVELED ENDS	ASME/ANSI	B16.9
SQUARE CUT ENDS	ASME/ANSI	B16.11
MARKING	MSS	SP-25
COATINGS:		
ZINC ELECTRO PLATE	ASTM	B633
HOT DIP GALVANIZING	ASTM	B6, A153
PAINT (BEVELED & PLAIN ENDS)		ACRYLIC LACQUER
RAW MATERIALS:		
CARBON STEEL	ASTM/ASME	A/SA 106B,A/SA 696
STAINLESS & ALLOY		A/SA 312,A/SA 182, A/SA335, A/SA 333,A/SA 350,
LOW TEMP		B/SB 161,B/SB 163,B/SB 164, B/SB 165,B/SB 167,B/SB 407, B/SB 464,B/SB 473,B/SB 619
NICKEL ALLOY	API	J55,K55,H40, N80, L80, P110
PIPE NIPPLES:		
CARBON STEEL	ASTM	A733
STAINLESS & ALLOY	ASTM/ASME	A/SA 53GRF,A/SA 53GRB,A/SA 106B A/SA 312,A/SA 335 A/SA 333
LOW TEMP		B/SB 161,B/SB 165,B/SB 167, B/SB 407,B/SB 464,B/SB 622, J55,K55,H40,N80,L80,P110
NICKEL ALLOY	API	
SWAGE NIPPLES:		
CARBON STEEL	ASTM/ASME	A/SA 234WPB
STAINLESS & ALLOY		A/SA 403WP, A/SA 182
LOW TEMP		A/SA 420WPL
NICKEL ALLOY		B/SA 366
	MSS	SP95
	API	J55,K55,H40,N80,L80,P110

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WESTBROOK

SPECIFICATION COMPLIANCE DATA SHEET FORGED FLANGES, FITTINGS, OUTLETS & B/W FITTINGS

THREADS	ASME/ANSI API	B1.20.1 1983 API-5B
BEVELED ENDS MARKING	ASME/ANSI MSS	B16.9 SP-25
FORGED:		
CARBON STEEL	ASTM/ASME	A/SA 105
STAINLESS & ALLOY	ASTM/ASME	A/SA 182 A/SA 350
LOW TEMP		B/SB 462,B/SB 564,B/SB 163
NICKEL ALLOY	MSS ASME/ANSI	SP-79, SP-83 B16.11, B16.14, B16.25, B16.28, B16.39
OUTLET FITTINGS:		
CARBON STEEL	ASTM/ASME	A/SA 105 A/SA 182 A/SA 350
STAINLESS & ALLOY		B/SB 462,B/SB 564
LOW TEMP	MSS	SP-97
NICKEL ALLOY	ASME/ANSI	B31.1, B31.2,B31.3,B31.8
BUTTWELD FITTINGS:		
CARBON STEEL	ASTM/ASME	A/SA 234WPB A/SA 403WP, A/SA 234WP A/SA420WPL
STAINLESS & ALLOY		B/SB 366
LOW TEMP	MSS	SP-43
NICKEL ALLOY	ASME/ANSI	B16.9, B16.25
FORGED FLANGES:		
CARBON STEEL	ASME/ASTM	A/SA 105 A/SA 182 A/SA 350
STAINLESS & ALLOY		B/SB 462,B/SB 564
LOW TEMP	MSS	SP-44
NICKEL ALLOY	ASME/ANSI	B16.5,B16.36

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WESTBROOK MANUFACTURING

AVAILABLE ALLOYS FROM MATERIAL IN STOCK

WP-5	4-6 CHROME -- 1/2 MOLY
WP-9	9 CHROME -- 1 MOLY
WP-11	1 1/4 CHROME -- 1/2 MOLY
WP-22	2 1/4 CHROME -- 1 MOLY
WP-410	11.5-13.5 CHROME -- 1/2 MOLY
WP-416	12-14 CHROME -- 1/2 MOLY
WP-304	18 CHROME -- 8 NICKEL
WP-304L	18 CHROME -- 8 NICKEL
WP-309	23 CHROME -- 13 NICKEL
WP-310	25 CHROME -- 20 NICKEL
WP-316	18 CHROME -- 8 NICKEL
WP-316L	18 CHROME -- 8 NICKEL
WP-317L	19 CHROME -- 13 NICKEL 3.5 MOLY
WP-321	18 CHROME -- 8 NICKEL
WP-347	18 CHROME -- 8 NICKEL
LF-2	FOR -50 DEGREES F. BELOW ZERO
LF-3	FOR -150 DEGREES F. BELOW ZERO

ALUMINUM -- ALLOY-20 -- BRASS -- CUPRO NICKEL -- DUPLEX
HASTELLOY -- INCONEL -- INCOLOY -- NICKEL -- MONEL --
TITANIUM

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WESTBROOK

STAINLESS STEEL & ALLOYS

PIPE NIPPLES* 1-3

SWAGE NIPPLES* 4-5

PLUGS* 6

PIPING OUTLETS & TECHNICAL INFORMATION

FORGED OUTLETS* 1

FORGED FLANGES* 2

FORGED FITTINGS* 1-7

*Stocking Items

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WESTBROOK

BOX QUANTITIES STAINLESS STEEL

BUTTWELD &
SEAMLESS

STD- STANDARD
XH- X HEAVY

	CLO	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5	5 1/2"	6"	7"	8"	9"	10"	11"	12"		
1/8"	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
1/4"	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
3/8"	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
1/2"	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
3/4"	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
1"	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XH
1 1/4"	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	25		25	25	25	25	25	25	25	25	25	25	25	25	25	20	20	20	XH
1 1/2"	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	STD
	25		25	25	25	25	25	25	25	25	25	15	15	15	15	15	15	15	XH
2"	25			25	25	25	25	25	25	25	25	10	10	10	10	10	10	10	STD
	25			25	25	25	25	25	25	25	15	10	10	10	10	10	10	10	XH
2 1/2"	16				25	25	25	25	25	25	25	15	10	10	10	10	10	10	STD
	8				25	25	25	25	25	25	15	10	10	10	10	10	10	10	XH
3"	18				25	25	25	25	15	15	15	15	10	10	10	10	10	10	STD
	6				25	25	25	25	15	15	10	10	10	10	8	6	6	6	XH
4"	18					12	12	12	12	12	12	6	6	6	6	6	6	6	STD
	18					12	9	9	9	9	9	6	5	5	5	5	5	5	XH
5"	8						4	4	4	4	4								STD
	4						4	4	2	2	2								XH
6"	8						4	4	4	4	4								STD
	4						4	4	2	2	2								XH

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BOX QUANTITIES STAINLESS STEEL

SEAMLESS ONLY

S160
XX - HEAVY

	CLO	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5	5 1/2"	6"	7"	8"	9"	10"	11"	12"		
1/4"	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S160
	50	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XXH
3/8"	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S160
	50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XXH
1/2"	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S160
	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XXH
3/4"	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S160
	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XXH
1"	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	S160
	25		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	XXH
1 1/4"	25		25	25	25	25	25	25	25	25	25	15	15	15	15	15	15	15	S160
	25		25	25	25	25	25	25	25	25	25	15	15	15	15	15	15	15	XXH
1 1/2"	25		25	25	25	25	25	25	25	25	25	10	10	10	10	10	10	10	S160
	25		25	25	25	25	25	25	25	25	25	10	10	10	10	10	10	10	XXH
2"	25			25	25	25	25	25	15	15	10	5	5	5	5	5	5	5	S160
	25			25	25	25	15	15	15	15	10	5	5	5	5	5	5	5	XXH
2 1/2"	25				20	20	10	10	10	10	10	5	5	5	5	5	5	5	S160
	25				20	20	10	10	10	10	10	5	5	5	5	5	5	5	XXH
3"	10				10	10	10	10	5	5	5	3	3	3	3	3	3	3	S160
	10				10	10	10	10	5	5	5	3	3	3	3	3	3	3	XXH
4"	5					5	5	5	2	2	2	1	1	1	1	1	1	1	S160
	5					5	5	5	2	2	2	1	1	1	1	1	1	1	XXH

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WESTBROOK

WESTBROOK FITTINGS Canadian Registration Numbers

This is the list of Canadian Registrations obtained by Westbrook in conformity with requirements of Boiler and Pressure Vessels Act and CSA Standard B51.

The C.R.N. cover carbon, alloy and stainless steel fittings.

Master CRN for Fittings: 0A0599.9 Add 1 & Rev 1

Territory	C.N.R.	Expiration Date
1. British Columbia	Not Required	
2. Alberta	0A0599.92	02.07.2019
3. Saskatchewan	0A0599.96 Add 1	10.07.2019
4. Manitoba	0A0599.96 Add 1	10.07.2019
5. Ontario	0A0599.95 Add 1	10.07.2019
6. Quebec	0A0599.96 Add 1	10.07.2019
7. New Brunswick	0A0599.97 Rev 1	10.07.2019
8. Nova Scotia	0A0599.98 Rev 1	10.07.2019
9. Prince Edward Island	0A0599.9 Rev 1	10.07.2019
0. New Foundland	0A0599.90 Rev 1	10.07.2019
T. Northwest Territories	0A0599.9T Rev 1	10.07.2019
N. Nunavut	0A0599.9N Rev 1	10.07.2019
Y. Yukon Territory	0A0599.9Y Rev 1	10.07.2019

The C.R.N. are valid for 10 years from the date of registration.

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS STEEL NIPPLES

TYPE A/SA312 TP304/304L SCHEDULE 40 WELDED																	
DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	14.96	19.57	23.36	27.02	30.76	34.53	38.31	42.06	45.84	49.63	53.38	61.88	69.43	76.97	84.51	92.03	99.56
1/4"	16.86	20.91	25.11	29.77	34.41	39.02	44.03	48.69	53.32	57.96	62.60	73.13	82.36	91.63	100.88	110.15	119.42
3/8"	20.27	24.62	29.78	35.46	41.11	46.81	52.45	58.15	63.78	69.45	75.16	88.31	99.65	110.98	122.30	133.67	144.99
1/2"	26.15	31.54	37.79	45.28	52.73	60.24	67.94	75.45	82.93	90.38	97.89	114.20	129.17	144.11	159.08	174.02	188.97
3/4"	35.26	37.54	44.99	54.02	63.09	72.15	81.20	90.21	99.28	108.34	117.39	136.42	154.52	172.63	190.75	208.86	226.96
1"	46.35		58.06	68.93	80.60	92.26	103.91	115.57	127.24	138.93	150.57	176.34	199.66	222.96	246.29	269.64	292.96
1 1/4"	62.29		73.38	86.92	101.72	116.50	131.29	146.06	160.83	175.59	190.38	220.75	250.32	279.86	309.42	338.95	368.52
1 1/2"	76.29		83.62	101.06	118.50	135.99	153.42	170.87	188.32	205.76	223.22	260.02	294.93	329.85	364.75	399.63	434.53
2"	118.40			131.89	152.67	175.43	198.14	220.88	243.63	266.35	289.12	338.97	384.47	429.94	475.38	520.87	566.32
2 1/2"	240.13				275.83	311.56	347.20	378.32	414.04	449.71	485.44	564.96	636.35	707.77	779.19	850.60	921.99
3"	337.82				373.08	420.06	467.04	487.97	534.95	581.91	628.90	752.72	846.67	940.61	1,034.59	1,128.55	1,222.53
4"	431.77						568.87	624.32	685.29	746.24	807.13	966.99	1,088.85	1,210.69	1,332.58	1,454.43	1,576.30

TYPE A/SA312 TP316/316L SCHEDULE 40 WELDED																	
DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	18.51	25.98	31.66	37.21	42.90	48.59	54.27	59.97	65.67	71.35	77.08	89.47	100.88	112.28	123.66	135.04	146.47
1/4"	20.80	26.70	32.51	38.78	45.07	51.38	58.11	64.37	70.71	76.97	83.25	97.25	109.85	122.41	134.96	147.54	160.12
3/8"	25.73	32.13	39.46	47.33	55.20	63.07	70.93	78.83	86.72	94.55	102.44	120.20	135.96	151.70	167.48	183.21	198.94
1/2"	34.23	42.10	51.57	62.37	73.14	83.95	95.02	105.78	115.36	127.38	138.16	161.16	182.75	204.30	225.89	247.45	269.03
3/4"	44.68	47.73	58.29	70.48	82.69	94.91	107.12	119.36	131.55	143.79	156.02	181.45	205.88	230.29	254.74	279.18	303.59
1"	62.03		78.65	94.40	110.99	127.60	144.22	160.80	177.43	194.04	210.66	246.49	279.69	312.88	346.12	379.34	412.51
1 1/4"	84.87		100.93	121.01	142.45	163.83	185.25	206.68	228.11	249.46	270.89	314.56	357.39	400.20	443.03	485.84	528.69
1 1/2"	104.80		115.96	141.27	166.57	191.87	217.16	242.44	267.73	293.02	318.30	370.93	421.51	472.13	522.70	573.29	623.84
2"	162.79			186.25	217.51	250.80	284.17	317.53	350.90	384.21	417.54	488.96	555.70	622.35	689.02	755.78	822.40
2 1/2"	309.55				358.27	407.01	455.69	499.71	548.15	596.89	645.57	751.72	849.12	946.55	1,043.98	1,141.39	1,238.77
3"	438.45				487.17	552.05	616.94	653.94	718.83	783.75	848.62	1,010.45	1,140.25	1,270.03	1,399.83	1,529.62	1,659.45
4"	592.16						789.71	871.72	959.52	1,047.34	1,135.15	1,351.49	1,527.09	1,702.73	1,878.31	2,053.93	2,229.54

THROUGH WESTBROOK'S CONTINUOUS QUALITY IMPROVEMENT PROCESS STAINLESS NIPPLES ARE PERMANENTLY STAMPED WITH SIZE, SCHEDULE, GRADE OF MATERIAL, LOGO AND HEAT CODE.

ALL STAINLESS NIPPLES ARE PRODUCED FROM NEW MILL SPECIFICATION A/SA312 MATERIAL PER WESTBROOK'S APPROVED MANUFACTURERS LIST FOR TOTAL TRACEABILITY

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ISO 9001:2008



 CERTIFICATE NO: 32813



WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS STEEL NIPPLES

TYPE A/SA312 TP304/304L SCHEDULE 40 SEAMLESS

DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	26.18	34.24	40.89	47.28	53.82	60.42	67.05	73.61	80.21	86.86	93.42	108.28	121.51	134.70	147.90	161.05	174.23
1/4"	29.51	36.60	43.95	52.10	60.21	68.28	77.06	85.21	93.30	101.43	109.55	127.97	144.12	160.36	176.54	192.78	208.98
3/8"	35.48	43.09	52.11	62.06	71.94	81.91	91.78	101.76	111.62	121.55	131.54	154.54	174.38	194.22	214.03	233.93	253.74
1/2"	45.76	55.19	66.12	79.23	92.29	105.41	118.89	132.03	145.12	158.16	171.30	199.86	226.05	252.20	278.40	304.54	330.69
3/4"	61.70	65.70	78.74	94.53	110.40	126.26	142.11	157.87	173.73	189.60	205.44	238.74	270.40	302.12	333.82	365.50	397.19
1"	81.13		101.61	120.63	141.04	161.45	181.84	202.25	222.66	243.13	263.49	308.59	349.40	390.18	431.01	471.88	512.69
1 1/4"	109.01		128.41	152.12	178.00	203.87	229.75	255.61	281.46	307.29	333.16	386.31	438.05	489.76	541.49	593.18	644.92
1 1/2"	133.50		146.34	176.85	207.38	237.99	268.48	299.04	329.56	360.07	390.64	455.04	516.13	577.24	638.31	699.36	760.43
2"	207.21			230.81	267.17	307.00	346.75	386.54	426.35	466.13	505.97	593.19	672.83	752.39	831.91	911.53	991.07
2 1/2"	420.23				482.69	545.24	607.61	662.07	724.57	787.00	849.52	988.68	1,113.62	1,238.60	1,363.57	1,488.54	1,613.48
3"	591.18				652.88	735.10	817.32	853.95	936.17	1,018.35	1,100.58	1,317.26	1,481.68	1,646.07	1,810.55	1,974.95	2,139.42
4"	755.60						995.51	1,092.55	1,199.25	1,305.92	1,412.47	1,692.23	1,905.49	2,118.71	2,332.02	2,545.26	2,758.53

TYPE A/SA312 TP316/316L SCHEDULE 40 SEAMLESS

DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	32.40	45.47	55.41	65.12	75.08	85.03	94.99	104.95	114.93	124.86	134.88	156.59	176.54	196.48	216.41	236.31	256.31
1/4"	36.40	46.72	56.88	67.86	78.87	89.91	101.70	112.65	123.74	134.70	145.68	170.19	192.24	214.21	236.18	258.20	280.20
3/8"	45.02	56.23	69.05	82.83	96.60	110.39	124.12	137.95	151.77	165.45	179.28	210.34	237.93	265.47	293.08	320.61	348.14
1/2"	59.91	73.67	90.24	109.15	128.00	146.92	166.29	185.11	201.87	222.92	241.78	282.03	319.83	357.53	395.30	433.03	470.80
3/4"	78.20	83.52	102.00	123.33	144.71	166.09	187.46	208.88	230.21	251.64	273.04	317.53	360.28	403.00	445.80	488.57	531.28
1"	108.55		137.64	165.21	194.24	223.30	252.38	281.40	310.51	339.57	368.65	431.35	489.46	547.55	605.70	663.84	721.90
1 1/4"	148.51		176.62	211.77	249.29	286.72	324.19	361.69	399.19	436.56	474.06	550.47	625.44	700.36	775.29	850.21	925.21
1 1/2"	183.39		202.94	247.23	291.50	335.78	380.04	424.27	468.52	512.79	557.02	649.13	737.64	826.23	914.73	1,003.26	1,091.73
2"	284.88			325.94	380.66	438.90	497.31	555.68	614.08	672.36	730.70	855.68	972.48	1,089.11	1,205.79	1,322.61	1,439.21
2 1/2"	541.72				626.98	712.27	797.46	874.49	959.27	1,044.56	1,129.74	1,315.51	1,485.97	1,656.47	1,826.96	1,997.44	2,167.84
3"	767.28				852.54	966.09	1,079.64	1,144.40	1,257.95	1,371.57	1,485.08	1,768.28	1,995.43	2,222.55	2,449.70	2,676.83	2,904.03
4"	1,036.29						1,382.00	1,525.50	1,679.16	1,832.85	1,986.50	2,365.11	2,672.41	2,979.79	3,287.03	3,594.38	3,901.69

THROUGH WESTBROOK'S CONTINUOUS QUALITY IMPROVEMENT PROCESS STAINLESS NIPPLES ARE PERMANENTLY STAMPED WITH SIZE, SCHEDULE, GRADE OF MATERIAL, LOGO AND HEAT CODE.

ALL STAINLESS NIPPLES ARE PRODUCED FROM NEW MILL SPECIFICATION A/SA312 MATERIAL PER WESTBROOK'S APPROVED MANUFACTURERS LIST FOR TOTAL TRACEABILITY

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS STEEL NIPPLES

TYPE A/SA312 TP304/304L SCHEDULE 80 SEAMLESS

DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	37.40	48.93	58.41	67.54	76.89	86.33	95.79	105.16	114.60	124.08	133.46	154.69	173.58	192.42	211.29	230.07	248.91
1/4"	42.16	52.28	62.79	74.42	86.02	97.55	110.09	121.72	133.30	144.90	156.51	182.82	205.90	229.08	252.21	275.39	298.54
3/8"	50.69	61.55	74.45	88.66	102.77	117.02	131.12	145.37	159.45	173.64	187.91	220.77	249.13	277.45	305.75	334.18	362.48
1/2"	65.37	78.85	94.47	113.19	131.84	150.59	169.84	188.63	207.33	225.94	244.73	285.51	322.94	360.28	397.71	435.05	472.43
3/4"	88.14	93.86	112.48	135.06	157.72	180.38	203.01	225.53	248.19	270.85	293.48	341.06	386.30	431.59	476.88	522.15	567.41
1"	115.89		145.15	172.32	201.50	230.65	259.77	288.92	318.10	347.33	376.42	440.86	499.16	557.40	615.73	674.11	732.41
1 1/4"	155.74		183.46	217.31	254.30	291.26	328.22	365.15	402.08	438.99	475.95	551.87	625.79	699.66	773.55	847.39	921.31
1 1/2"	190.72		209.06	252.65	296.26	339.99	383.55	427.19	470.80	514.39	558.06	650.05	737.33	824.62	911.88	999.08	1,086.34
2"	296.01			329.73	381.68	438.57	495.36	552.20	609.07	665.89	722.81	847.42	961.18	1,074.84	1,188.44	1,302.18	1,415.81
2 1/2"	600.33				689.57	778.91	868.01	945.81	1,035.10	1,124.29	1,213.61	1,412.40	1,590.88	1,769.44	1,947.97	2,126.50	2,304.97
3"	844.56				932.69	1,050.15	1,167.60	1,219.93	1,337.38	1,454.78	1,572.26	1,881.80	2,116.68	2,351.53	2,586.49	2,821.37	3,056.34
4"	1,079.43						1,422.17	1,560.79	1,713.23	1,865.60	2,017.82	2,417.47	2,722.12	3,026.74	3,331.46	3,636.08	3,940.75

TYPE A/SA312 TP316/316L SCHEDULE 80 SEAMLESS

DIA. INCH	CLOSE	Length, Inches, LIST PRICE, EACH															
		1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"	7"	8"	9"	10"	11"	12"
1/8"	46.29	64.96	79.15	93.04	107.25	121.47	135.69	149.93	164.18	178.37	192.70	223.69	252.21	280.70	309.16	337.59	366.17
1/4"	52.01	66.75	81.27	96.94	112.67	128.46	145.29	160.93	176.77	192.42	208.12	243.13	274.62	306.02	337.40	368.86	400.29
3/8"	64.33	80.33	98.65	118.34	138.00	157.69	177.32	197.07	216.81	236.37	256.11	300.50	339.90	379.26	418.69	458.02	497.34
1/2"	85.58	105.25	128.92	155.93	182.85	209.88	237.55	264.44	288.40	318.45	345.40	402.91	456.89	510.76	564.72	618.62	672.57
3/4"	111.71	119.33	145.73	176.20	206.72	237.27	267.80	298.41	328.88	359.48	390.06	453.62	514.69	575.72	636.85	697.95	758.98
1"	155.08		196.63	236.01	277.48	319.00	360.56	402.00	443.58	485.10	526.66	616.22	699.22	782.21	865.29	948.34	1,031.28
1 1/4"	212.17		252.32	302.53	356.13	409.59	463.13	516.70	570.27	623.65	677.22	786.39	893.48	1,000.51	1,107.57	1,214.60	1,321.74
1 1/2"	262.00		289.91	353.19	416.44	479.69	542.91	606.10	669.33	732.55	795.74	927.33	1,053.78	1,180.33	1,306.75	1,433.22	1,559.61
2"	406.98			465.63	543.79	627.00	710.44	793.82	877.25	960.52	1,043.85	1,222.41	1,389.25	1,555.87	1,722.55	1,889.45	2,056.01
2 1/2"	773.88				895.68	1,017.53	1,139.22	1,249.27	1,370.38	1,492.24	1,613.92	1,879.30	2,122.81	2,366.38	2,609.95	2,853.49	3,096.92
3"	1,096.13				1,217.92	1,380.12	1,542.34	1,634.85	1,797.07	1,959.38	2,121.55	2,526.13	2,850.63	3,175.07	3,499.57	3,824.04	4,148.63
4"	1,480.41						1,974.28	2,179.30	2,398.80	2,618.36	2,837.87	3,378.74	3,817.72	4,256.84	4,695.77	5,134.83	5,573.84

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ISO 9001:2008



 CERTIFICATE NO: 32813



WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS & ALLOY STEEL SWAGE NIPPLES S/40 A403 WP304/304L

SIZE	LENGTH	LIST PRICE
1/4 X 1/8	2 1/4	15.94
3/8 X 1/4	2 1/2	15.94
1/2 X 1/8	2 3/4	15.94
1/2 X 1/4	2 3/4	15.47
1/2 X 3/8	2 3/4	15.94
3/4 X 1/8	3	19.04
3/4 X 1/4	3	17.62
3/4 X 3/8	3	19.04
3/4 X 1/2	3	17.62
1 X 1/8	3 1/2	24.18
1 X 1/4	3 1/2	24.18
1 X 3/8	3 1/2	24.18
1 X 1/2	3 1/2	22.41
1 X 3/4	3 1/2	22.41
1 1/4 X 1/2	4	48.42
1 1/4 X 3/4	4	48.42
1 1/4 X 1	4	43.98
1 1/2 X 1/2	4 1/2	48.42
1 1/2 X 3/4	4 1/2	48.42
1 1/2 X 1	4 1/2	47.22
1 1/2 X 1 1/4	4 1/2	47.22

SIZE	LENGTH	LIST PRICE
2 X 1/2	6 1/2	116.84
2 X 3/4	6 1/2	116.84
2 X 1	6 1/2	110.88
2 X 1 1/4	6 1/2	110.88
2 X 1 1/2	6 1/2	110.88
2 1/2 X 1	7	209.91
2 1/2 X 1 1/4	7	209.91
2 1/2 X 1 1/2	7	197.88
2 1/2 X 2	7	197.88
3 X 1	8	287.39
3 X 1 1/4	8	278.53
3 X 1 1/2	8	268.40
3 X 2	8	268.40
3 X 2 1/2	8	268.40
4 X 1	9	627.17
4 X 1 1/4	9	538.31
4 X 1 1/2	9	538.31
4 X 2	9	503.55
4 X 2 1/2	9	503.55
4 X 3	9	503.55
4 X 3 1/2	9	503.55

Other Types and Sizes on Application

EXTRAS: Eccentrics Plus 50%
 Schedule 80 Plus 10%
 Schedule 10, 160 & XXH Plus 30%
 Combination Bores Plus 50%

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS & ALLOY STEEL SWAGE NIPPLES S/40 A403 WP316/316L

SIZE	LENGTH	LIST PRICE
1/4 X 1/8	2 1/4	20.47
3/8 X 1/4	2 1/2	20.47
1/2 X 1/8	2 3/4	20.47
1/2 x 1/4	2 3/4	18.98
1/2 X 3/8	2 3/4	20.47
3/4 X 1/8	3	23.75
3/4 X 1/4	3	22.03
3/4 X 3/8	3	23.75
3/4 X 1/2	3	22.03
1 X 1/8	3 1/2	28.26
1 X 1/4	3 1/2	28.26
1 X 3/8	3 1/2	28.26
1 X 1/2	3 1/2	26.18
1 X 3/4	3 1/2	26.18
1 1/4 X 1/2	4	61.73
1 1/4 X 3/4	4	61.73
1 1/4 X 1	4	55.57
1 1/2 X 1/2	4 1/2	61.73
1 1/2 X 3/4	4 1/2	61.73
1 1/2 X 1	4 1/2	59.21
1 1/2 X 1 1/4	4 1/2	59.21

SIZE	LENGTH	LIST PRICE
2 X 1/2	6 1/2	157.75
2 X 3/4	6 1/2	157.75
2 X 1	6 1/2	146.92
2 X 1 1/4	6 1/2	146.92
2 X 1 1/2	6 1/2	146.92
2 1/2 X 1	7	275.43
2 1/2 X 1 1/4	7	275.43
2 1/2 X 1 1/2	7	256.56
2 1/2 X 2	7	256.56
3 X 1	8	358.19
3 X 1 1/4	8	381.70
3 X 1 1/2	8	357.57
3 X 2	8	357.57
3 X 2 1/2	8	357.57
4 X 1	9	851.80
4 X 1 1/4	9	802.05
4 X 1 1/2	9	802.05
4 X 2	9	612.74
4 X 2 1/2	9	612.74
4 X 3	9	612.74
4 X 3 1/2	9	612.74

Other Types and Sizes on Application

EXTRAS: Eccentrics Plus 50%
Schedule 80 Plus 10%
Schedule 10, 160 & XX Plus 30%
Combination Bore Plus 50%

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS A182 F304 SOLID ROUND HEAD PLUGS

THREADED	SIZE	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
ROUND HEAD	LGTH	1 3/8	1 5/8	1 5/8	1 3/4	1 3/4	2	2	2	2 1/2	2 3/4	2 3/4
	LIST	5.24	5.24	5.24	5.24	7.73	11.69	26.64	26.64	50.55	97.68	171.78
ROUND HEAD	LGTH	3	3	3	3	3	3	3	3	3	3	3
	LIST	6.44	7.36	9.79	13.57	15.24	18.92	39.96	39.96	60.68	106.54	187.40
ROUND HEAD	LGTH	4	4	4	4	4	4	4	4	4	4	4
	LIST	7.07	8.29	11.19	13.98	17.19	24.13	53.57	53.57	79.70	142.26	249.87
ROUND HEAD BULL PLUG	LGTH	2	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	4	5	6
	LIST	6.39	6.39	7.18	9.34	12.72	18.92	47.43	47.43	79.70	177.60	374.77

STAINLESS A182 F316 SOLID ROUND HEAD PLUGS

THREADED	SIZE	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
ROUND HEAD	LGTH	1 3/8	1 5/8	1 5/8	1 3/4	1 3/4	2	2	2	2 1/2	2 3/4	2 3/4
	LIST	6.02	6.02	6.02	7.67	12.10	18.85	42.54	42.54	65.59	111.05	216.50
ROUND HEAD	LGTH	3	3	3	3	3	3	3	3	3	3	3
	LIST	7.76	9.11	12.22	15.17	19.29	25.78	52.04	52.04	78.72	135.71	236.17
ROUND HEAD	LGTH	4	4	4	4	4	4	4	4	4	4	4
	LIST	8.64	10.37	11.19	17.68	22.91	31.41	69.41	69.41	105.06	162.14	275.47
ROUND HEAD BULL PLUG	LGTH	2	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	4	5	6
	LIST	6.80	6.80	10.09	11.73	16.60	25.78	60.86	60.86	105.06	212.71	438.56

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 CERTIFICATE NO: 32813



WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

AMOCO PLUGS A276 F410

REGULAR PATTERN		SHORT PATTERN	
SIZE	LIST PRICE	SIZE	LIST PRICE
1/8 X 3	7.54	1/8 X 1 3/4	7.04
1/4 X 3	7.54	1/4 X 1 3/4	7.04
3/8 X 3	9.35	3/8 X 1 3/4	7.04
1/2 X 3	11.22	1/2 X 1 3/4	10.62
3/4 X 3	13.59	3/4 X 1 3/4	12.98
1 X 3	17.49	1 X 1 3/4	16.56
1 1/4 X 3	32.40	1 1/2 X 2	30.64
1 1/2 X 3	32.40	2 X 2	45.43
2 X 3	46.04		

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WESTBROOK MANUFACTURING

Westbrook Mfg. Quality Control
to assure our Customers the
Raw Material is what we say it is!

The Alloy Analyzer combines a well established analytical technique, radioisotope excited x-ray fluorescence, with modern microelectronics to accomplish several measurement objectives. The primary objectives are verification of alloy grade or type and composition analysis of a large number of engineering alloys. All measurements can be made on samples in a variety of physical forms, such as pipe, plate, welds and welding materials, machined parts, castings, etc.

X-ray fluorescence is ideal for the application since it is a non-destructive method that allows the measurements of many elements with high precision. Alloy identification is accomplished by recognizing the unique combination of several elements in narrowly specified composition ranges. Accurate quantitative analysis is achieved by making appropriate corrections for inter-elements matrix effects.

In the Alloy Analyzer, the material to be analyzed is exposed for a few seconds to radiation from a radioisotope source. The atoms of some elements in the material are caused to fluoresce and emit x-rays characteristic of that element. The detector system separates x-rays coming from the sample into discrete energy regions and, from a measure of the intensity in each region, determines the element concentrations. The energy regions corresponding to the elements, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Nb, Mo and W, are analyzed effectively.

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WESTBROOK MANUFACTURING

TECHNICAL DISCUSSION

Each Westbrook Piping Outlet Fitting design incorporates a high level of integral reinforcement. These integrally reinforced designs enable Westbrook outlet fittings to effectively counteract the effects of hoop stresses resulting from internal pressure in the piping system. Integral reinforcement also provides maximum resistance to bending forces which tend to concentrate stress at the joint of the branch pipe to the header.

Integral reinforcement in the Westbrook design is accomplished by incorporating a rib of increased wall thickness at the mid section of the fitting and then tapering the wall down to a thickness no less than that of the branch pipe at the point of connection to the branch pipe. On the header end the fitting taper blends immediately into the weld bevel which, after welding, results in a full penetration welded joint with a fillet blending smoothly from the fitting web to the header pipe all the way around the connection.

This configuration minimizes stress concentration at the joint by providing a smooth transition through a heavy cross section of metal which serves to distribute stresses over a large area. It also provides increased strength to a degree that the point of potential failure due to bursting pressure is moved from the joint (that is, the outlet fitting itself) to either the header pipe or the branch pipe.

In addition, the flared inside diameter at the header end of each Westbrook Piping Outlet Fitting significantly smooths the flow of liquid or gas through the joint, minimizing turbulence and reducing erosion problems.

The short length of these fittings permits internal inspection of the weld and, in the larger sizes, makes back welding possible.

All Westbrook Piping Outlet Fittings are manufactured to meet the requirements of the American National Standard for Butt-Welding Fittings (ANSI B16.9) and the American National Standard for Socket-Welding Fittings (ANSI B16.11). Tests conducted on these fittings have uniformly resulted in failures either in the branch pipe or in the header, never in the fitting itself.

All the benefits of Westbrook Piping Outlet Fitting's integrally reinforced design are immediately available in all commonly used materials, including stainless steels, chrome moly steels, low temperature alloys and exotics, in addition to carbon steels.

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

STAINLESS A182 F304/304L PIPING OUTLET FITTINGS

STANDARD		EXTRA STRONG	3000 LBS.		SCHEDULE 160 & DOUBLE EXTRA STRENGTH WALL THICKNESS		
OUTLET SIZE	BUTTWELD	BUTTWELD	SCREWED 3000 lbs	SOCKETWELD 3000 lbs	BUTTWELD	SCREWED 6000 lbs	SOCKETWELD 6000 lbs
1/8	26.42	29.08	17.24	17.24	---	48.84	48.84
1/4	26.42	29.08	17.24	17.24	---	48.84	48.84
3/8	26.42	29.08	17.24	17.24	---	48.84	48.84
1/2	26.42	29.08	17.24	17.24	---	48.84	48.84
3/4	27.78	30.56	22.59	22.59	---	55.54	55.54
1	37.43	41.17	31.99	31.99	74.88	68.35	68.35
1 1/4	53.64	58.98	61.28	61.28	110.63	120.44	120.44
1 1/2	65.12	71.62	68.95	68.95	149.77	128.28	128.28
2	76.59	84.25	80.42	80.42	188.80	187.68	187.68
2 1/2	176.17	176.17	---	---	358.12	---	---
3	220.22	220.22	---	---	439.51	---	---
3 1/2	287.24	287.24	---	---	592.49	---	---
4	287.24	287.24	---	---	592.49	---	---
5	735.36	976.66	---	---	---	---	---
6	750.66	1,141.35	---	---	---	---	---
8	938.34	1,493.71	---	---	---	---	---

STAINLESS A182 F316/316L PIPING OUTLET FITTINGS

STANDARD		EXTRA STRONG	3000 LBS.		SCHEDULE 160 & DOUBLE EXTRA STRENGTH WALL THICKNESS		
OUTLET SIZE	BUTTWELD	BUTTWELD	SCREWED 3000 lbs	SOCKETWELD 3000 lbs	BUTTWELD	SCREWED 6000 lbs	SOCKETWELD 6000 lbs
1/8	33.81	37.20	21.43	21.43	---	69.39	69.39
1/4	33.81	37.20	21.43	21.43	---	69.39	69.39
3/8	33.81	37.20	21.43	21.43	---	69.39	69.39
1/2	33.81	37.20	21.43	21.43	---	69.39	69.39
3/4	35.55	39.11	27.83	27.83	---	70.70	70.70
1	47.31	52.04	40.04	40.04	123.78	85.66	85.66
1 1/4	69.39	76.32	70.70	70.70	182.03	154.19	154.19
1 1/2	82.46	90.72	80.94	80.94	191.14	175.63	175.63
2	98.49	108.37	96.36	96.36	240.30	239.86	239.86
2 1/2	222.72	222.72	---	---	589.82	---	---
3	294.90	294.90	---	---	618.94	---	---
3 1/2	419.77	419.77	---	---	917.50	---	---
4	419.77	419.77	---	---	917.50	---	---
5	985.15	1,276.42	---	---	---	---	---
6	1,033.95	1,332.58	---	---	---	---	---
8	1,267.83	1,798.96	---	---	---	---	---

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WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

A182 F304 90° ELBOW PIPING OUTLETS

OUTLET SIZE	STANDARD	EXTRA HEAVY	3000 LBS		SCHEDULE 160 & DOUBLE EXTRA HEAVY WALL THICKNESS		
	BUTTWELD	BUTTWELD	THREADED 3000 LBS	SOCKETWELD 3000 LBS	BUTTWELD	THREADED 6000 LBS	SOCKETWELD 6000 LBS
1/8	105.37	105.37	105.37	105.37	POA	151.92	151.92
1/4	105.37	105.37	105.37	105.37	POA	151.92	151.92
3/8	118.44	118.44	118.44	118.44	POA	151.92	151.92
1/2	87.27	87.27	87.27	87.27	POA	151.92	151.92
3/4	95.45	95.45	95.45	95.45	POA	166.95	166.95
1	109.76	109.76	109.76	109.76	POA	172.61	172.61
1 1/4	162.24	162.24	162.24	162.24	POA	213.07	213.07
1 1/2	206.70	206.70	206.70	206.70	POA	277.49	277.49
2	251.66	251.66	251.66	251.66	POA	364.24	364.24

A182 F304 45° LATERAL PIPING OUTLETS

OUTLET SIZE	STANDARD	EXTRA HEAVY	3000 LBS		SCHEDULE 160 & DOUBLE EXTRA HEAVY WALL THICKNESS		
	BUTTWELD	BUTTWELD	THREADED 3000 LBS	SOCKETWELD 3000 LBS	BUTTWELD	THREADED 6000 LBS	SOCKETWELD 6000 LBS
1/8	116.51	116.51	116.51	116.51	POA	175.29	175.29
1/4	116.51	116.51	116.51	116.51	POA	175.29	175.29
3/8	116.51	116.51	116.51	116.51	POA	175.29	175.29
1/2	116.51	116.51	116.51	116.51	POA	175.29	175.29
3/4	129.47	129.47	129.47	129.47	POA	195.34	195.34
1	158.94	158.94	158.94	158.94	POA	225.17	225.17
1 1/4	184.17	184.17	184.17	184.17	POA	324.51	324.51
1 1/2	213.90	213.90	213.90	213.90	POA	371.81	371.81
2	273.15	273.15	273.15	273.15	POA	455.77	455.77

A182 F304 NIPPLE PIPING OUTLETS

OUTLET SIZE	PLAIN END 3 1/2 LG		PLAIN END 6 1/2 LG		THREADED 3 1/2 LG		THREADED 6 1/2 LG	
	3M	6M	3M	6M	3M	6M	3M	6M
1/8	----	----	----	----	----	----	----	----
1/4	----	----	----	----	----	----	----	----
3/8	----	----	----	----	----	----	----	----
1/2	92.71	109.08	142.38	167.53	115.91	141.17	168.87	189.23
3/4	102.63	120.77	195.34	229.83	129.15	151.92	228.48	268.79
1	129.15	151.92	215.23	253.22	149.01	175.29	246.38	292.16
1 1/4	----	----	----	----	----	----	----	----
1 1/2	----	----	----	----	----	----	----	----
2	----	----	----	----	----	----	----	----



WESTBROOK

SHEET NO. 414

EFFECTIVE MARCH 5, 2007

A182 F316 90° ELBOW PIPING OUTLETS

OUTLET SIZE	STANDARD	EXTRA HEAVY	3000 LBS		SCHEDULE 160 & DOUBLE EXTRA HEAVY WALL THICKNESS		
	BUTTWELD	BUTTWELD	THREADED 3000 LBS	SOCKETWELD 3000 LBS	BUTTWELD	THREADED 6000 LBS	SOCKETWELD 6000 LBS
1/8	120.63	120.63	120.63	120.63	POA	190.83	190.83
1/4	120.63	120.63	120.63	120.63	POA	190.83	190.83
3/8	120.63	120.63	120.63	120.63	POA	190.83	190.83
1/2	120.63	120.63	120.63	120.63	POA	190.83	190.83
3/4	105.78	105.78	105.78	105.78	POA	196.61	196.61
1	129.03	129.03	129.03	129.03	POA	201.70	201.70
1 1/4	208.09	208.09	208.09	208.09	POA	253.45	253.45
1 1/2	281.44	281.44	281.44	281.44	POA	414.91	414.91
2	311.00	311.00	311.00	311.00	POA	561.28	561.28

A182 F316 45° LATERAL PIPING OUTLETS

OUTLET SIZE	STANDARD	EXTRA HEAVY	3000 LBS		SCHEDULE 160 & DOUBLE EXTRA HEAVY WALL THICKNESS		
	BUTTWELD	BUTTWELD	THREADED 3000 LBS	SOCKETWELD 3000 LBS	BUTTWELD	THREADED 6000 LBS	SOCKETWELD 6000 LBS
1/8	138.70	138.70	138.70	138.70	POA	205.54	205.54
1/4	138.70	138.70	138.70	138.70	POA	205.54	205.54
3/8	138.70	138.70	138.70	138.70	POA	205.54	205.54
1/2	138.70	138.70	138.70	138.70	POA	205.54	205.54
3/4	149.82	149.82	149.82	149.82	POA	231.96	231.96
1	192.79	192.79	192.79	192.79	POA	247.81	247.81
1 1/4	237.24	237.24	237.24	237.24	POA	290.42	290.42
1 1/2	308.89	308.89	308.89	308.89	POA	456.39	456.39
2	397.63	397.63	397.63	397.63	POA	616.59	616.59

A182 F316 NIPPLE PIPING OUTLETS

OUTLET SIZE	PLAIN END 3 1/2 LG		PLAIN END 6 1/2 LG		THREADED 3 1/2 LG		THREADED 6 1/2 LG	
	3M	6M	3M	6M	3M	6M	3M	6M
1/8	----	----	----	----	----	----	----	----
1/4	----	----	----	----	----	----	----	----
3/8	----	----	----	----	----	----	----	----
1/2	133.30	156.84	170.32	200.39	155.54	182.99	203.67	239.61
3/4	170.32	200.30	218.46	257.05	192.57	226.55	251.81	296.62
1	196.28	230.89	233.30	274.46	214.78	252.68	270.33	318.02
1 1/4	----	----	----	----	----	----	----	----
1 1/2	----	----	----	----	----	----	----	----
2	----	----	----	----	----	----	----	----



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SHEET NO.414

EFFECTIVE MARCH 5, 2007

FORGED STEEL PLUGS

304

ASME B16.11 / ASTM SA182 / ASME A182

SIZE - INCHES		1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
SOLID SQUARE HEAD PLUGS	LIST PRICE	10.37	10.37	14.05	14.44	22.63	39.39	81.41	86.43	105.69	---	---	---
	Weight Each	0.02	0.03	0.04	0.09	0.16	0.33	0.57	0.81	1.35	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

SOLID HEX HEAD PLUGS	LIST PRICE	9.22	10.53	12.13	14.52	21.59	30.74	57.70	74.59	114.25	---	---	---
	Weight Each	0.01	0.05	0.07	0.14	0.28	0.44	0.91	1.31	2.19	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

SOLID ROUND HEAD PLUGS	LIST PRICE	9.51	11.03	20.60	20.69	24.35	36.87	67.69	74.68	92.14	---	---	---
	Weight Each	0.03	0.09	0.14	0.23	0.39	0.71	1.13	1.56	3.10	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	20	---	---	---

SOLID ROUND HEAD SW PLUGS	LIST PRICE	43.66	43.66	43.66	58.39	63.60	70.89	97.55	97.55	105.25	---	---	---
	Weight Each	0.13	0.13	0.19	0.25	0.42	0.75	1.13	1.56	3.00	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

PLUGS ARE NOT IDENTIFIED BY CLASS. THEY MAY BE USED FOR RATINGS UP THROUGH CLASS 6000

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WESTBROOK

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EFFECTIVE MARCH 5, 2007

FORGED STEEL PLUGS

316

ASME B16.11 / ASTM SA182 / ASME A182

SIZE - INCHES		1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
SOLID SQUARE HEAD PLUGS	LIST PRICE	11.66	11.91	15.80	17.47	28.34	51.66	97.17	102.85	134.12	---	---	---
	Weight Each	0.02	0.03	0.04	0.09	0.16	0.33	0.57	0.81	1.35	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

SOLID HEX HEAD PLUGS	LIST PRICE	11.85	11.91	14.83	18.02	27.08	42.51	79.97	104.05	148.83	---	---	---
	Weight Each	0.01	0.05	0.07	0.14	0.28	0.44	0.91	1.31	2.19	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

SOLID ROUND HEAD PLUGS	LIST PRICE	11.61	11.86	15.73	25.05	29.36	46.58	96.74	102.39	133.52	---	---	---
	Weight Each	0.03	0.09	0.14	0.23	0.39	0.71	1.13	1.56	3.10	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	20	---	---	---

SOLID ROUND HEAD SW PLUGS	LIST PRICE	55.01	55.01	55.01	75.09	81.72	92.52	131.25	131.25	144.44	---	---	---
	Weight Each	0.13	0.13	0.19	0.25	0.42	0.75	1.13	1.56	3.00	---	---	---
	Carton Qty.	25	25	25	25	25	25	25	25	25	---	---	---

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