



EXCHANGER SIZE	DIMENSIONS											
	A		B		C		D		N1		N2	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
WS-168-4E1	119 3/8	3032	97 1/4	2470	83	2108	98	2489	10	254	3	76
WS-169-4E1	131 3/8	3337	109 1/4	2775	95	2413	110	2794	10	254	3	76
WS-1610-4E1	143 3/8	3642	121 1/4	3080	107	2718	122	3099	10	254	3	76
WS-1611-4E1	155 3/8	3947	133 1/4	3385	119	3023	134	3404	10	254	3	76
WS-1612-4E1	167 3/8	4251	145 1/4	3689	131	3327	146	3708	10	254	3	76
WS-1613-4E1	179 3/8	4556	157 1/4	3994	143	3632	158	4013	10	254	3	76
WS-1614-4E1	191 3/8	4861	169 1/4	4299	155	3937	170	4318	10	254	3	76
WS-1615-4E1	203 3/8	5166	181 1/4	4604	167	4242	182	4623	10	254	3	76

NOZZLE SCHEDULE				
SERVICE	MARK	SHELL SIDE	MARK	TUBE SIDE
INLET	(N1)	AS PER TABLE	(N5)	4 (102) NPT
OUTLET	(N2)	AS PER TABLE	(N6)	4 (102) NPT
DRAIN	(N3)	1/2 (13) NPT	(N7)	1/2 (13) NPT
VENT	(N4)	3/4 (19) NPT		

NOTES: 1. SUPPORTS SUPPLIED ONLY IF SPECIFIED ON ORDER.
 2. NOZZLE SIZES SHOWN ARE RECOMMENDED FOR MAXIMUM EXCHANGER LIFE.
 3. FABRICATED TO ASME CODE SECTION VIII DIVISION 1 AND LATEST ADDENDA.
 4. DRAWING IS NOT TO SCALE.
 5. ALL DIM'S ±1/8 (3) UNLESS OTHERWISE SHOWN.

DESIGN CONDITIONS				
	SHELL		TUBES	
DESIGN PRESSURE	150 PSIG	1034 KP ₀	125 PSIG	862 KP ₀
DESIGN TEMPERATURE	375 °F	191 °C	375 °F	191 °C
MIN. DESIGN METAL TEMP.	40 °F	4.4 °C	40 °F	4.4 °C
HYDRO. TEST PRESSURE	225 PSIG	1551 KP ₀	250 PSIG	1723 KP ₀
CONTENTS	STEAM		WATER	

CUSTOMER: _____
 LOCATION: _____
 ENGINEER: _____
 ORDER No.: _____
 PROJECT/JOB: _____
 LOCATION: _____
 TAG: _____ (QUOTE # _____)

TITLE	G.A. 150 LB. WS SERIES HEAT EXCHANGERS				A R M S T R O N G				NUMBER	REV.
DATE:	12 / 01 / 94	BY:	D.C.R.	TORONTO - CANADA	MONTREAL - CANADA	BUFFALO - N. Y.	COLCHESTER - U.K.	WS-16-4P-E1-(10)		
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