



DIMENSIONS SHOWN AS: inches (mm)

EXCHANGER SIZE	DIMENSIONS											
	A		B		C		D		(N1)		(N2)	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
WS-143-4E1	56 5/8	1438	37	940	26	660	38	965	6	152	2	51
WS-144-4E1	68 5/8	1743	49	1245	38	965	50	1270	6	152	2	51
WS-145-4E1	80 5/8	2048	61	1549	50	1270	62	1575	8	203	2 1/2	64
WS-146-4E1	92 5/8	2353	73	1854	62	1575	74	1880	8	203	2 1/2	64
WS-147-4E1	104 5/8	2657	85	2159	74	1880	86	2184	8	203	2 1/2	64
WS-148-4E1	116 5/8	2962	97	2464	86	2184	98	2489	8	203	2 1/2	64
WS-149-4E1	128 5/8	3267	109	2769	98	2489	110	2794	8	203	2 1/2	64
WS-1410-4E1	140 5/8	3572	121	3073	110	2794	122	3099	8	203	2 1/2	64
WS-1411-4E1	152 5/8	3877	133	3378	122	3099	134	3404	8	203	2 1/2	64
WS-1412-4E1	164 5/8	4181	145	3683	134	3404	146	3708	8	203	2 1/2	64
WS-1413-4E1	176 5/8	4486	157	3988	146	3708	158	4013	8	203	2 1/2	64
WS-1414-4E1	188 5/8	4791	169	4293	158	4013	170	4318	8	203	2 1/2	64
WS-1415-4E1	200 5/8	5096	181	4597	170	4318	182	4623	8	203	2 1/2	64

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 KPa	125 PSIG	862 KPa
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 KPa	250 PSIG	1723 KPa
CONTENTS	STEAM		WATER	

CUSTOMER:
LOCATION:

ENGINEER:
ORDER No.:
PROJECT/JOB:
LOCATION:

TAG: (QUOTE #)

TITLE	A R M S T R O N G				NUMBER	REV.
G.A. 150 LB. WS SERIES HEAT EXCHANGERS	TORONTO - CANADA	MONTREAL - CANADA	BUFFALO - N. Y.	COLCHESTER - U.K.	WS-14-4P-E1	
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