



EXCHANGER SIZE	DIMENSIONS											
	A		B		C		D		N1		N2	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
WS-85-4-1	64 3/4	1645	49	1245	40 3/4	1035	62	1575	4	102	1	25
WS-86-4-1	76 3/4	1949	61	1549	52 3/4	1340	74	1880	4	102	1 1/4	32
WS-87-4-1	88 3/4	2254	73	1854	64 3/4	1645	86	2184	4	102	1 1/4	32
WS-88-4-1	100 3/4	2559	85	2159	76 3/4	1949	98	2489	6	152	1 1/4	32
WS-89-4-1	112 3/4	2864	97	2464	88 3/4	2254	110	2794	6	152	1 1/4	32
WS-810-4-1	124 3/4	3169	109	2769	100 3/4	2559	122	3099	6	152	1 1/4	32
WS-811-4-1	136 3/4	3473	121	3073	112 3/4	2864	134	3404	6	152	1 1/4	32
WS-812-4-1	148 3/4	3778	133	3378	124 3/4	3169	146	3708	6	152	1 1/4	32
WS-813-4-1	160 3/4	4083	145	3683	136 3/4	3473	158	4013	6	152	1 1/4	32
WS-814-4-1	172 3/4	4388	157	3988	148 3/4	3778	170	4318	6	152	1 1/4	32

NOZZLE SCHEDULE				
SERVICE	MARK	SHELL SIDE	MARK	TUBE SIDE
INLET	N1	AS PER TABLE	N5	2 (51) NPT
OUTLET	N2	AS PER TABLE	N6	2 (51) NPT
DRAIN			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	150 PSIG	1034 KPa
DESIGN TEMPERATURE	375 °F	191 °C	375 °F	191 °C
MIN. DESIGN METAL TEMP.	35 °F	1.7 °C	35 °F	1.7 °C
HYDRO. TEST PRESSURE	225 PSIG	1551 KPa	300 PSIG	2068 KPa
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	WS-8-4P-1-(6)	REV.	
DATE:	12 / 01 / 94	BY:	D.C.R.	TEL: (416) 755-2291	TEL: (514) 421-2424	TEL: (716) 693-8813	TEL: (44) 120-657-9491		