



**Bharat Heavy Electricals Limited
(A Govt. of India Undertaking)**

Piping Centre , 80, G. N. Chetty Road, CHENNAI – 600 017
Phone : 91 (044) 28161245, e-mail: prs@bhelmpc.co.in

REF: ENQ NO:PC:9017

DT: 04.01.2010

Sub: Procurement of butt welded fittings.

Ref: Enquiry No:PC:9017 dt 04.01.10

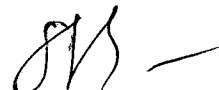
Please find the following tender documents for reference.

1. List of items
2. Tech. delivery condition TDG: 102:04

Pre qualification is the criteria for consideration for other than BHEL approved vendors. After qualifying for registration, the new vendors may be considered for future requirements, in line with BHEL system and policy. Such vendors will not be considered for this enquiry.

This is a limited tender and only vendors who are contacted through e-mail/courier may submit their offers.

The New vendors may download vendor registration forms from BHEL web site www.bhel.com and relevant data for formal registration.


Dy. Manager / Purchase
BHEL / Piping Centre
80,GN Road, T.Nagar
Chennai-600017
Ph:044-28161243

SI no	Material	Material Description	tentative annual qty nos
1	921043280000	BW LR 90DEG ELL 88.9 X 16 SA234WPC	5
2	921044550000	BW LR 90DEG ELL 73 X 9.53 SA234WPB	10
3	921044590000	BW LR 90DEG ELL 168.3 X 10.97 SA234WPB	5
4	921044650000	LR 90DEG ELL 273X9.27SA234WP22CL1	300
5	921044780000	BW LR 45DEG ELL 323.9 X 9.53SA234WPB	200
6	921044790000	BW LR 90DEG ELL 114.3 X 13.49SA234WPB	25
7	921044880000	BW LR 90DEG ELL 323.9 X 8.38 SA234WP22	5
8	921044920000	BW LR 90DEG ELL 355.6 X 7.92 SA234WPB	400
9	921044980000	BW LR 90DEG ELL 323.9 X 12.7SA234WPB	2
10	921050850000	BW UEQT 273X6.35 219.1X6.35 SA234WPB	100
11	921051220000	BW EQT 273 X 7.5 SA234WP22	2
12	921054780000	BW EQT 88.9 X 5.49 SA234WPB	1000
13	921054900000	BW EQT 73 X 14.02SA234WP22CL1	5
14	921054910000	BW EQT 219.1 X 8.18SA234WP22CL1	5
15	921054920400	BW EQT 273X9.27SA234WP22CL1	25
16	921170430000	BWCONRED114.3X6.02/73.0X5.16 SA234WPB	25
17	921171070000	BWCONRED88.9X15.24/73.0X14.02 SA234WPB	2
18	921171090000	BWCONRED114.3X6.02/88.9X5.49 SA234WPB	400
19	921171120200	BWCONRED168.3X10.97/114.3X8.56 SA234WPB	5
20	921171130000	BWCONRED219.1X8.18/114.3X6.02 SA234WPB	100
21	921171140200	BWCONRED219.1X12.7/168.3X10.97 SA234WPB	5
22	921171180000	BWCONRED323.9X12.7/168.3X10.97 SA234WPB	5
23	921171370000	C.RED 323.9X9.53/273X9.27SA234WP22CL1	5
24	921174280000	BWREDOD355.6X9.53/323.9X9.53SA234WP22CL1	10
25	921174360000	BW C RED 168.3X14.27/114.3X13.49SA234WPC	10
26	921174370000	BW C RED 168.3X14.27/73.0X9.53 SA234WPC	2
27	921174480000	CONC RED 273X9.27/219.1X12.7SA234WP22CL1	25
28	921174490000	CONCRED323.9X9.53/219.1X12.7SA234WP22CL1	25
29	921174500000	CONC RED 323.9X9.53/273X6.35SA234WPC	5
30	921174520000	CONC RED 355.6X9.53/219.1X6.35 SA234WPB	25
31	921174530000	CONC RED 219.1X8.18/114.3X 6.02 SA234WPC	25
32	921174540000	CONCRED 273 X9.27 /168.3 X 7.11 SA234WPC	40
33	921174550000	CONCRED 355.6X9.53 / 273 X 6.35 SA234WPB	50
34	921174570000	BWCONC RED 323.9X9.53/219.1X6.35SA234WPB	25
35	921174580000	BWCONC RED 323.9X9.53/273 X 6.35SA234WPB	25
36	921174820000	RED 114.3 X 6.02 / 33.4 X 4.55 SA234WPB	100
37	921175090000	RED114.3X6.02/33.4X4.55SA234WP22CL1L=102	5
38	925032130000	BW CAP 168.3 X 7.11 SA234WPB	25
39	925032180000	BW CAP 114.3 X 6.02 SA234WPC	25
40	925032700000	CAP 219.1X12.7SA234WP22CL1	25
41	925032760000	BW CAP 114.3 X 6.02SA234WP22CL1	10
42	925033010000	BW CAP 33.4 X 3.38 SA234WPB	5
43	925033020000	BW CAP 48.3 X 3.68 SA234WPB	25
44	925033030000	BW CAP 60.3 X 3.91 SA234WPB	25
45	925033040000	BW CAP 73 X 3.96 SA234WPB	25
46	925033050000	BW CAP 88.9 X 3.96 SA234WPB	25
47	925033060000	BW CAP 114.3 X 3.96 SA234WPB	5
48	925033070000	BW CAP 168.3 X 4.78 SA234WPB	25

49	925033130000	CAP 48.3 X 5.08SA234WP22CL1	5
50	925033140000	CAP 48.3 X 10.15SA234WP22CL1	5
51	925033150000	CAP 60.3 X 3.91SA234WP22CL1	5
52	925033160000	CAP 76 X 14.2SA234WP22CL1	10
53	925033170000	CAP 114.3 X 4.78SA234WP22CL1	5
54	925041340000	BW LR 90DEG ELL 323.9 X 9.53 SA234WPC	2
55	925041530000	BW LR 90DEG ELL 88.9 X 7.62 SA234WPC	2
56	925042320000	BW LR 45DEG ELL 114.3 X 13.49 SA234WPB	10
57	925042390000	BW LR90DEG ELL88.9X15.24SA234WP22CL1	5
58	925042740000	BW LR 90DEG ELL 114.3 X 5.4 SA234WPB	5
59	925042810000	BW LR90DEG ELL219.1X8.18SA234WP22CL1	25
60	925043450200	BW LR 45DEG ELL 88.9 X 11.13 SA234WPC	75
61	925043700400	BW LR 45DEG ELL 323.9X9.53SA234WPB	25
62	925044600000	BW SR 90DEG ELL 355.6 X 9.53 SA234WPB	5
63	925045050000	LR 90DEG ELL 73X5.16SA234WP22CL1	75
64	925045440000	BW LR 90DEG ELL 355.6 X 9.53 SA234WPB	400
65	925045450000	BW LR 90DEG ELL 60.3X12.5SA234WP22CL1	1500
66	925045460000	BW LR90DEG ELL114.3X6.02SA234WP22CL1	50
67	925045660000	BW LR90DEG ELL168.3X7.11SA234WP22CL1	5
68	925046020000	BWLR90DEG ELL168.3X7.11SA234WP11CL1	10
69	925046160000	BW LR 90DEG ELL 355.6 X 6.35 SA234WPB	50
70	925046520000	BWLR 90DEG ELL114.3X6.02SA234WP11CL1	2
71	925046550000	BWLR90DEG ELL219.1X 6.35SA234WP11CL1	50
72	925046560000	BWLR 45DEG ELL 273X6.35SA234WP11CL1	5
73	925046570000	BW LR 90DEG ELL 273X6.35SA234WP11CL1	15
74	925046700000	BW LR 90DEG ELL 114.3 X 17.12 SA234WPC	300
75	925046710000	BW LR 90DEG ELL 114.3 X 13.49 SA234WPC	300
76	925046720000	BW LR 90DEG ELL 168.3 X 21.95 SA234WPC	300
77	925046780000	BW LR 90DEG ELL114.3X20SA234WP22CL1	200
78	925046940000	BW LR 45DEG ELL 114.3 X 17.12 SA234WPC	25
79	925049840000	BWSR 90 ELL 168.3X4.78SA234WPB-TDC41:1	5
80	925049870000	SR 90DEG ELL 219.1X6.35SA234WP11CL1	2
81	925049900000	BW LR 45DEG ELL 219.1X8.18SA234WPC	100
82	925052060000	BW EQT 73 X 5.16 SA234WPB	50
83	925052110000	BW EQT 323.9 X 6.35 SA234WPB	75
84	925052140000	EQT 73X5.16SA234WP22CL1	10
85	925052200000	BW UEQT 88.9X5.49 48.3X3.68 SA234WPB	5
86	925052210000	BW UEQT 88.9X5.49 48.3X5.08 SA234WPB	30
87	925052390100	BWUEQT168.3X 7.11 / 114.3 X 6.02SA234WPB	15
88	925052470000	BW UEQT 114.3X6.02 73X5.16 SA234WPB	5
89	925052620000	BW EQT 114.3 X 6.02 SA234WP22	2
90	925052870000	BW UEQT 273X6.35 219.1X6.35 SA234WP22	5
91	925052890000	BW UEQT 219X6.35 114.3X6.02 SA234WP22	5
92	925053170000	BW UEQT 219.1X6.35 88.9X5.49 SA234WPB	50
93	925053190000	BW UEQT 355.6X9.53 273X6.35 SA234WPB	2
94	925053530000	BW EQT 114.3 X 6.02 SA234WP11	2
95	925053700000	BW EQT 73 X 9.53 SA234WPB	2
96	925053710000	BW UEQT 168.3X7.11 60.3X5.54 SA234WPB	5
97	925053720000	BW UEQT 88.9X5.49 73X5.16 SA234WPB	5
98	925053790000	BW UEQT 355.6X9.53 219.1X8.18 SA234WPB	5
99	925053820000	UNEQT 273X9.27/114.3X6.02SA234WP11CL1	2
100	925055610000	BWUEQT273X 9.27/168.3 X 7.11SA234WPC	2

101	925057020000	BW EQT 168.3 X 21.95 SA234WPC	5
102	925057350000	BW EQT 60.3X11.07SA234WP22CL1	2
103	925057400000	BWUEQT 219.1X6.35/114.3X6.02SA234WP11	15
104	925057530000	BW UET323.9X8.38/219.1X6.35SA234WP11	2
105	925170530000	BWCONRED168.3X7.11/88.9X5.49 SA234WPB	200
106	925170640000	BWCONRED219.1X6.35/114.3X6.02 SA234WPB	200
107	925170660000	BWCONRED219.1X8.18/168.3X7.11 SA234WPB	300
108	925170730000	BW CON RED 273X9.27/168.3X7.11 SA234WPB	50
109	925173010000	BWCONRED355.6X9.53/219.1X8.18 SA234WPB	5
110	925173120000	BWCONRED219.1X8.18/168.3X7.11 SA234WPC	200
111	925173210000	C. RED114.3X 20 / 73 X 14.02SA234WP22CL1	2
112	925173350000	C.RED 323.9X9.53/273X9.27SA234WP11CL1	5
113	925173410000	C.RED 114.3X21.5/60.3X12.5SA234WP22CL1	5
114	925173560000	BWCONRED323.9X10.31/273X9.27 SA234WPB	5
115	925174110000	BWCONRED168.3X7.11/114.3X6.02 SA234WPB	200
116	925174220000	BW CON RED 88.9X15.24/73X9.53 SA234WP22	2
117	925174640000	BWCONRED219.1X6.35/168.3X7.11 SA234WPB	200
118	925174890000	BW CON RED 88.9X11.13 73X9.53 SA234WPB	2
119	925174950000	BWCONRED219.1X6.35/88.9X5.49 SA234WPB	25
120	925175190000	BW CON RED 273X6.35 88.9X5.49 SA234WPB	5
121	925175230000	C.RED 273X9.27/219.1X6.35SA234WP22CL1	2
122	925175630000	BWCONRED168.3X7.11/114.3X6.02 SA234WP11	5
123	925175640000	C.RED219.1X8.18/168.3X7.11SA234WP11CL1	10
124	925175650000	C.RED273 X 9.27/219.1X8.18SA234WP11CL1	5
125	925175760000	BWCONRED168.3X7.11/60.3X5.54 SA234WPB	5
126	925175770000	BW CON RED 168.3X7.11 127X6.3 SA234WPB	2
127	925175820000	BWCONRED168.3X21.95/88.9X15.24 SA234WPC	5
128	925176040000	BWCONRED273X9.27/219.1X8.18 SA234WP22CL1	10
129	925176480000	BW CON RED 273X9.27/219.1X8.18 SA234WPC	50
130	925176980000	BWCONRED168.3X7.11/114.3X6.02 SA234WPC	10
131	925177160000	BW CORED 114.3X6.02/88.9X5.49 SA234WPC	5
132	925177180000	C.RED 273X6.35/219.1X6.35SA234WPB	15
133	925177690000	BWCONRED355.6X11.13/273X9.27 SA234WPB	5
134	925178320000	BW CON RED 88.9X11.13 73X9.53 SA234WPC	100
135	925178920000	BW CONRED73X5.16/60.3X5.54 SA234WP22CL1	20
136	925179050000	BW CON RED 355.6X7.92/273X6.35 SA234WPC	5
137	925179090000	C.RED355.6X9.53/168.3X27.5SA234WP22CL1	5
138	925179430000	BWC.RED168.3X7.11/141.3X6.55SA234WP22	2
139	925179450000	BWC.RED 323.9X8.38/219.1X6.35 SA234WP11	2
140	925179550000	C.RED355.6X7.92/323.9X6.35SA234WP22CL1	5
141	925179590000	BWCONRED219.1X8.18/141.3X6.0 SA234WPB	2
142	925179630000	C.RED88.9X15.24/60.3X11.07SA234WP22CL1	5
143	925179690000	BWCONRED114.3X13.49/60.3X12.5 SA234WPC	5
144	925179740000	BW CON RED 33.4X4.55/21.3X2.77 SA234WPB	20
145	925179770000	C.RED. 114.3X20/88.9X11.13SA234WP22CL1	2
146	925179910000	CONRED.114.3X12.5/60.3X11.07SA234WP22CL1	2
147	925179950000	BW CON.RED.73X9.53/60.3X11.07SA234WPC	5
148	925195290000	BW END CAP 60.3 X 5.54SA234WP22CL1	15
149	925195320000	BW END CAP 355.6 X 9.53SA234WP22CL1	10
150	925240490000	BW LR 90DEG ELL 219.1 X 20.62 SA234WPC	5
151	925240710000	BW LR 90DEG ELL 355.6 X 9.53 SA234WP11	2
152	925240800000	BW LR 45DEG ELL 168.3 X 10.97 SA234WP22	5

153	925240880000	LR 45DEG ELL 73X5.16SA234WP22CL1	25
154	925241610000	BW LR45DEG ELL355.6X7.92SA234WP22CL1	10
155	925241620000	BW LR90DEG ELL355.6X7.92SA234WP22CL1	25
156	925242030500	BW LR 90DEG ELL 355.6 X 11.13 SA234WPB	50
157	925242050000	BW LR 90DEG ELL 114.3 X 8.56 SA234WPB	10
158	925242450000	BW LR 90DEG ELL 33.4 X 4.55 SA234WPB	500
159	925242470000	BW LR 45DEG ELL 60.3 X 5.54 SA234WPB	10
160	925242580000	BW LR 90DEG ELL 323.9 X 10.31 SA234WPB	5
161	925242590000	BW LR 90DEG ELL 168.3 X 18.26 SA234WPB	5
162	925242970000	BW LR 45DEG ELL 168.3 X 18.26 SA234WPB	2
163	925243020000	BW LR 90DEG ELL 60.3 X 11.07 SA234WPC	50
164	925243130000	BW LR 90DEG ELL 88.9 X 11.13 SA234WPC	800
165	925243440000	BW LR 90DEG ELL 48.3 X 7.14 SA234WPC	25
166	925244020000	BW LR90DEG ELL219.1X12.7SA234WP22CL1	200
167	925244100000	BW SR 90DEG ELL 323.9 X 11.13 SA234WP22	10
168	925244530000	BW LR90DEG ELL323.9X6.35SA234WP11CL1	15
169	925244540000	BW SR 90DEG ELL 323.9 X 6.35 SA234WP11	2
170	925244560000	BW LR90DEG ELL 33.4X6.35SA234WP22CL1	100
171	925244590000	LR 90DEG ELL 33.4X4.55SA234WP22CL1	200
172	925244600000	BW LR 90DEG ELL 60.3X5.54SA234WP22CL1	400
173	925244610000	BW LR 90DEG ELL 33.4X9.09SA234WP22CL1	300
174	925244830000	LR 90DEG ELL 88.9X11.13SA234WP22CL1	5
175	925244680000	BW LR90DEG ELL323.9X9.53SA234WP11CL1	5
176	925246510000	BW LR90DEG ELL88.9X17.79SA234WP22CL1	25
177	925246660000	BW LR 90DEG ELL 88.9X15.24 SA234WPC	400
178	925246710000	BW LR 90DEG ELL 33.4 X 6.35 SA234WPC	25
179	925246770000	BW LR 90DEG ELL 73 X 5.16SA234WP22CL1	25
180	925246780000	BW LR45DEG ELL323.9X9.53SA234WP22CL1	15
181	925247320000	BW LR 45DEG ELL 355.6 X 6.35 SA234WPB	5
182	925247400000	BW SR 45DEG ELL 323.9 X 9.53 SA234WPB	30
183	925248010000	BW LR 45DEG ELL 73 X 3.96 SA234WPB	25
184	925248020000	BW LR 90DEG ELL 73 X 3.96 SA234WPB	10
185	925248030000	BW LR 45DEG ELL 88.9 X 3.96 SA234WPB	5
186	925248190000	LR 45DEG ELL 219.1 X 6.35SA234WP11CL1	5
187	925248200000	LR 45DEG ELL 323.9 X 10.31SA234WP11CL1	5
188	925248230000	LR 90DEG ELL 60.3 X 3.91SA234WP22CL1	5
189	925248240000	LR 90DEG ELL 114.3 X 4.78SA234WP22CL1	10
190	925248450000	BW LR 90DEG ELL 60.3 X 5.54 SA234WPC	25
191	925248480000	BW LR 45DEG ELL 323.9 X 6.35 SA234WP11	5
192	925248510000	BW LR90DEG ELL60.3X11.07SA234WP22CL1	50
193	925248570000	BW LR 45 DEG ELL 60.3X12.5 SA234WP22CL1	30
194	925248690000	BW LR 90DEG ELL 355.6X7.92 SA234WPC	2
195	925248720000	BW LR 90DEG ELL88.9X20SA234WP22CL1	25
196	925248750000	BW LR90DEG ELL323.9X6.35SA234WP22CL1	5
197	925248860000	BW LR 45 DEG 60.3X5.54SA234WP22CL1	30
198	925248910000	BW LR 90 DEG ELL 323.9X8.38 SA234WP11	2
199	925248920000	BW LR45DEG ELL 323.9X8.38 SA234WP11	5
200	925248940000	BW LR 90 DEG ELL 141.3X6.55 SA234WP22	5
201	925248960000	BW SR 90 DEG ELL 141.3X6.55 SA234WP22	2
202	925249260000	LR 90DEG ELL 168.3x14.27SA234WPC	25
203	925249300000	LR 45 DEG ELBOW 273 X 9.27 SA234WPC	5
204	925249310000	BW SR 90 DEG ELBOW 273X9.27 SA234WPC	15

205	925250070000	BW EQT 88.9 X 11.13 SA234WPC	25
206	925250360000	BW UEQT 323.9X9.53/219.1X8.18 SA234WP11	5
207	925250620000	BWUEQT219.1X20.62/168.3X18.26 SA234WPC	5
208	925250630000	BW UEQT 168.3X18.26/88.9X11.13 SA234WPC	2
209	925251090000	BW UEQT 168.3X7.11 73X5.16 SA234WP22	5
210	925251200000	UEQT 219.1X8.18/114.3X6.02SA234WP22CL1	5
211	925251580000	BW UEQT 48.3X5.08 33.4X3.73 SA234WPB	15
212	925251600000	BW UEQT 219.1X6.35 168.3X6.35 SA234WPB	5
213	925251640000	BW UEQT 273X12.7 168.3X7.11 SA234WPB	10
214	925251960000	BW EQTEE OD 323.9 X 9.53 SA234WP22CL1	15
215	925251990000	BW EQT 168.3X14.27 SA234WPC	5
216	925252000000	BW UEQT 168.3X14.27/114.3X13.49SA234WPC	2
217	925252020000	BW EQT 114.3 X 8.56 SA234WPB	10
218	925252080000	BW UEQT 88.9X7.62 60.3X5.54 SA234WPB	5
219	925252100000	BW UEQT 73X5.16 60.3X5.54 SA234WPB	25
220	925252170000	BW EQT 355.6 X 11.13 SA234WPB	10
221	925252220000	BW UEQT 168.3X14.27/73.0X9.53 SA234WPC	2
222	925252570000	BW EQT 60.3 X 5.54 SA234WPB	25
223	925252590000	BW UEQT 60.3X5.54 33.4X4.55 SA234WPB	25
224	925252610000	BW UEQT 33.4X4.55 21.3X3.73 SA234WPB	50
225	925252620000	BW UEQT 323.9X9.53 168.3X7.11 SA234WPB	25
226	925252630000	BW EQT 48.3 X 5.08 SA234WPB	25
227	925252640000	BW UEQT 48.3X5.08 33.4X4.55 SA234WPB	25
228	925252760000	BW UEQT 323.9X10.31/114.3X6.02 SA234WPB	15
229	925253080000	BW EQT 73 X 9.53 SA234WPC	5
230	925253290000	BW EQT 88.9 X 15.24 SA234WPC	15
231	925253330000	BW UEQT 88.9X11.13 60.3X11.07 SA234WPC	2
232	925253390000	BW UEQT 114.3X6.02 73.0X5.16 SA234WPC	2
233	925253710000	BW UEQT 114.3X17.12 73X9.53 SA234WPC	2
234	925253720000	BWUEQT88.9X15.24 / 60.3 X 11.07SA234WPC	5
235	925253750000	BW UEQT 168.3X21.95 73X9.53 SA234WPC	5
236	925253810000	BW UEQT 168.3X21.95/88.9X11.13 SA234WPC	5
237	925254030000	BW EQT 219.1 X 12.7SA234WP22CL1	5
238	925254380000	BW UEQT 60.3X12.5/48.3X10.15SA234WP22CL3	2
239	925254490000	UEQT 114.3X20/60.3X12.5SA234WP22CL1	2
240	925254580000	BWUEQT323.9X11.13/219.1X8.18 SA234WP22	5
241	925254860000	UEQT 114.3X20/88.9X17.5SA234WP22CL1	5
242	925254930000	BW UEQT 323.9X6.35/219.1X6.35 SA234WP11	5
243	925255470000	BW EQT 88.9 X 5.49 SA234WPC	5
244	925255590000	BW UEQT 355.6X9.53 114.3X6.02 SA234WPB	5
245	925255600000	BW EQT 273 X 6.35SA234WP11CL1	2
246	925255770000	UNEQTEE 273X9.27/219.1X6.35SA234WPB	25
247	925255840000	UNEQTEE 355.6X9.53/219.1X6.35 SA234WPB	15
248	925255870000	BWUNEQTEE323.9X9.53/219.1/6.35SA234WPB	2
249	925255880000	BWUNEQTEE323.9X 9.53 /273X/ 6.35SA234WPB	40
250	925256190000	BW EQT 48.3 X 5.08SA234WP22CL1	5
251	925256240000	BW EQT 114.3 X 20 SA234WP22	5
252	925256290000	BW EQT 273 X 12.7SA234WP11CL1	5
253	925257090000	BWUEQT168.3X18.26/114.3X13.49 SA234WPB	2
254	925257670000	BW EQT 114.3 X 13.49SA234WP22CL1	2
255	925257750000	EQT 323.9X9.53SA234WP11CL1	5
256	925257830000	UEQT 48.3 X 3.68/26.7 X 2.87SA234WP22CL1	5

257	925258020000	BW EQT 21.3 X 2.77 SA234WPB	25
258	925258030000	BW EQT 26.7 X 2.87 SA234WPB	5
259	925258040000	BW EQT 33.4 X 3.38 SA234WPB	50
260	925258050000	BW EQT 48.3 X 3.68 SA234WPB	5
261	925258060000	BW EQT 60.3 X 3.91 SA234WPB	5
262	925258070000	BW EQT 73 X 3.96 SA234WPB	5
263	925258080000	BW EQT 88.9 X 3.96 SA234WPB	10
264	925258090000	BW EQT 114.3 X 3.96 SA234WPB	10
265	925258100000	BW EQT 168.3 X 4.78 SA234WPB	10
266	925258110000	BW EQT 323.9 X 7.14 SA234WPB	2
267	925258120000	BW UEQT 21.3X3.73 13.7X3.02 SA234WPB	5
268	925258130000	BW UEQT 26.7X2.87 21.3X2.77 SA234WPB	15
269	925258150000	BW UEQT 33.4X3.38 21.3X2.77 SA234WPB	15
270	925258160000	BW UEQT 33.4X4.55 26.7X3.91 SA234WPB	5
271	925258170000	BW UEQT 48.3X3.68 21.3X2.77 SA234WPB	5
272	925258180000	BW UEQT 48.3X3.68 33.4X3.38 SA234WPB	10
273	925258190000	BW UEQT 60.3X3.91 33.4X3.38 SA234WPB	5
274	925258200100	UEQT 60.3X3.91/48.3X3.68SA234WPB	25
275	925258210000	BW UEQT 114.3X3.96 60.3X3.91 SA234WPB	5
276	925258220000	BW UEQT 114.3X3.96 73X3.96 SA234WPB	5
277	925258230000	BW UEQT 141.3X3.96 88.9X3.96 SA234WPB	5
278	925258240000	BW UEQT 141.3X3.96 114.3X3.96 SA234WPB	15
279	925258250000	BW UEQT 168.3X4.78 141.3X3.96 SA234WPB	5
280	925258260000	BW UEQT 219.1X6.35 168.3X4.78 SA234WPB	5
281	925258270000	BW UEQT 273X6.35 168.3X4.78 SA234WPB	5
282	925258340000	EQT 33.4 X 6.35SA234WP22CL1	2
283	925258360000	EQT 60.3 X 3.91SA234WP22CL1	5
284	925258380000	UEQT 33.4X3.38/13.7X2.24SA234WP22CL1	5
285	925258400000	BW UEQT 60.3X3.91 33.4X4.55 SA234WP22	5
286	925258410000	UEQT 60.3X3.91/48.3X3.68SA234WP22CL1	5
287	925258810000	BW UEQT 323.9X7.14 168.3X4.78 SA234WPB	5
288	925258820000	BW UEQT 323.9X7.14 273.1X6.35 SA234WPB	5
289	925258900000	UEQT 273X6.35/168.3X7.11SA234WP11CL1	2
290	925258910000	UEQT 219.1X6.35/168.3X7.11SA234WP11CL1	2
291	925259200000	UEQT355.6X9.53/168.3X7.11SA234WP22CL1	25
292	925259210000	UEQT355.6X9.53/273X9.27SA234WP22CL1	40
293	925259640000	BW EQ.TEE 33.4X9.09SA234WP22CL1	2
294	925259650000	BW UEQT 323.9X6.35 88.9X5.49 SA234WPB	2
295	925259680000	BW EQT 21.3 X 3.73 SA234WPB	5
296	925259700000	BW EQT 48.3 X 7.14 SA234WPC	5
297	925259710000	BW EQT 33.4 X 6.35 SA234WPC	5
298	925259720000	BW EQT 273 X 6.35 SA234WPC	5
299	925259810000	BW EQT 323.9 X 6.35 SA234WP22	5
300	925259830000	BW UEQT 114.3X17.12/88.9X15.24 SA234WPC	30
301	925259860000	UEQT114.3X17.12/88.9X15.24SA234WP22CL1	5
302	925259900000	BW UEQT 114.3X13.49 60.3X12.5 SA234WPC	5
303	925259970000	BW UEQT 114.3X17.12/60.3X11.07 SA234WPC	5
304	925270380000	BWCONRED219.1X20.62/168.3X18.26 SA234WPC	5
305	925270480000	BWCONRED323.9X9.53/219.1X8.18 SA234WP11	2
306	925270530000	BWCONRED355.6X9.53/323.9X9.53 SA234WP11	2
307	925270630000	BWCONRED323.9X18.6/273X18.26 SA234WP22	2
308	925270650000	RED 73X14.02/48.3X10.15SA234WP22CL1	2

309	925270660000	RED 60.3X12.5/48.3X10.15SA234WP22CL1	5
310	925271470000	BW CON RED 114.3X20/88.9X15.24 SA234WPC	50
311	925271510000	C.RE 323.9X6.35/219.1X6.35SA234WP22CL1	15
312	925271530000	RED323.9X 10.31/219.1X 8.18SA234WPC	5
313	925271540000	BW CON RED 48.3X5.08/33.4X3.73 SA234WPB	5
314	925271560000	BW CON RED 60.3X4.55/33.4X4.55 SA234WPB	15
315	925271570000	BW CON RED 48.3X5.08/33.4X4.55 SA234WPB	10
316	925271590000	BW CON RED 33.4X4.55/21.3X3.73 SA234WPB	20
317	925272170000	BWCONRED355.6X11.13/323.9X9.53 SA234WPB	5
318	925272360000	BWCONRED114.3X17.12/60.3X11.07 SA234WPB	2
319	925272380000	BWECCRED168.3X7.11/114.3X6.02 SA234WPB	5
320	925272490000	BWCONRED323.9X6.35/114.3X6.02 SA234WPB	5
321	925272620000	BW ECC RED 88.9X5.49/73.0X5.16 SA234WPB	5
322	925272720000	BW CON RED 88.9X5.49/48.3X3.68 SA234WPB	5
323	925273010000	BWCONRED114.3X17.12/73X14.02 SA234WPC	10
324	925273020000	BW CON RED 73X14.02/60.3X11.07 SA234WPC	5
325	925273090000	BWCONRED168.3X10.97/88.9X7.62 SA234WPC	2
326	925273100000	BWCONRED168.3X21.95/73X14.02 SA234WPC	15
327	925273120000	BWCONRED168.3X21.95/114.3X17.12 SA234WPC	5
328	925273180000	BWCONRED114.3X17.12/88.9X15.24 SA234WPC	30
329	925273260000	BWCONRED88.9X15.24/60.3X11.07 SA234WPC	25
330	925273520000	BWCONRED355.6X12.7/219.1X8.18 SA234WPB	2
331	925273620000	BWCONRED60.3X11.07/33.4X6.35 SA234WPC	2
332	925273730000	BW CON RED 33.4X6.35/21.3X4.55 SA234WPC	2
333	925273750000	BWCONRED168.3X21.95/88.9X11.13 SA234WPC	5
334	925273990000	BW CON RED 273X9.27/114.3X6.02 SA234WPC	15
335	925274170000	BWCONRED114.3X6.02/60.3X5.54 SA234WP22	2
336	925274230000	BWCONRED323.9X11.13/219.1X8.18 SA234WP22	5
337	925274300000	C.RED 114.3X20/88.9X20SA234WP22CL1	5
338	925274850000	BWCONRED323.9X6.35/219.1X6.35 SA234WP11	5
339	925275470000	C.RED 273X9.27/114.3X6.02SA234WP22CL1	5
340	925275620000	C. R. 60.3X11.07/48.3X10.15SA234WP22CL1	5
341	925276050000	C.RED 273X6.35/219.1X6.35SA234WP11CL1	5
342	925277070000	BW ECC RED 273X6.35/219.1X6.35 SA234WPB	2
343	925277080000	BW ECC RED 355.6X7.92/273X6.35 SA234WPB	25
344	925277410000	BWECCRED323.9X9.53/219.1X6.35 SA234WPB	2
345	925277540000	C.RED 88.9X17.79/60.3X12.5SA234WP22CL1	5
346	925277590000	BW CON RED 88.9X3.96/48.3X3.68 SA234WPB	5
347	925277600000	BW ECC RED 355.6X6.4 273X6.35 SA234WPB	5
348	925278010000	BW CON RED 21.3X2.77/13.7X2.24 SA234WPB	5
349	925278020000	BW CON RED 21.3X2.77/17.1X2.31 SA234WPB	10
350	925278030000	BW CON RED 21.3X3.73/10.3X2.41 SA234WPB	5
351	925278040000	BW CON RED 26.7X2.87/17.1X2.31 SA234WPB	5
352	925278050000	BW CON RED 33.4X3.38/13.7X2.24 SA234WPB	5
353	925278060000	BW CON RED 33.4X3.38/21.3X2.77 SA234WPB	25
354	925278070000	BW CON RED 33.4X3.38/26.7X2.87 SA234WPB	5
355	925278080000	BW CON RED 33.4X3.38 27X2.35 SA234WPB	2
356	925278090000	BW CON RED 48.3X3.68/21.3X2.77 SA234WPB	5
357	925278100000	BW CON RED 48.3X3.68/33.4X3.38 SA234WPB	20
358	925278110000	BW CON RED 60.3X3.91/26.7X2.87 SA234WPB	5
359	925278120000	BW CON RED 60.3X3.91/33.4X3.38 SA234WPB	5
360	925278130000	BW CON RED 60.3X3.91/48.3X3.68 SA234WPB	20

361	925278150000	BW CON RED 88.9X3.96/33.4X3.38 SA234WPB	5
362	925278160000	BW CON RED 88.9X3.96 73X3.96 SA234WPB	5
363	925278170000	BWCONRED114.3X3.96/60.3X3.91 SA234WPB	10
364	925278190000	BWCONRED114.3X3.96/88.9X3.96 SA234WPB	5
365	925278200000	BWCONRED141.3X3.96/88.9X3.96 SA234WPB	10
366	925278210000	BWCONRED141.3X3.96/114.3X3.96 SA234WPB	2
367	925278220000	BWCONRED168.3X4.78/88.9X3.96 SA234WPB	5
368	925278240000	BW RED168.3X4.78/141.3X3.96 SA234WPB	10
369	925278250000	BWCONRED219.1X6.35/114.3X3.96 SA234WPB	5
370	925278300000	BWCONRED273.1X6.35/168.3X4.78 SA234WPB	5
371	925278310000	BWCONRED273.1X6.35/193.7X7.1 SA234WPB	5
372	925278370000	BWCONRED114.3X3.96/88.9X3.96 SA234WP11	5
373	925278380000	BWCONRED141.3X3.96/114.3X3.96 SA234WP11	5
374	925278430000	BWCONRED21.3X2.77/13.7X2.24 SA234WP22	5
375	925278440000	BWCONRED33.4X3.38/21.3X2.77 SA234WP22	5
376	925278450000	BWCONRED33.4X4.55/26.7X2.87 SA234WP22	10
377	925278460000	BWCONRED48.3X3.68/33.4X3.38 SA234WP22	5
378	925278470000	BWCONRED60.3X3.91/48.3X3.68 SA234WP22	10
379	925278780000	BW CON RED 21.3X2.7 10X1.5 SA234WPB	10
380	925278870000	C.RED 33.4X6.35/21.3X4.78SA234WP22CL1	5
381	925279150000	BW CON RED 33.4X4.55/21.3X4.55 SA234WPB	2
382	925279190000	C.RED 323.9X9.53/168.3X7.11SA234WP22CL1	10
383	925279320000	C.RED 88.9X7.62/60.3X5.54SA234WP22CL1	25
384	925279450000	BW CON RED 273X9.27/219.1X6.35 SA234WPB	50
385	925279460000	BW CON RED 273X9.27 88.9X5.49 SA234WPB	5
386	925279600000	BWCONRED323.9X9.53/219.1X8.18 SA234WPB	5
387	925279830000	BWCONRED88.9X11.13/60.3X11.07 SA234WPB	2
388	955179880000	CONRED114.3X17.12/48.3X10.15SA234WP22CL1	5
389	955243000000	BWLR45DEG ELBOW 355.6 X 9.53SA234WPB	50
390	955278950000	BW RED323.9X9.53/168.3X7.11 SA234WPB	2
391	921042870000	BW LR 90DEG ELL 406.4 X 6.35 SA234WPB	75
392	921042900000	BW LR 45DEG ELL 406.4 X 6.35 SA234WPB	25
393	921044820000	BW LR 90DEG ELL 406.4 X 9.53 SA234WPB	800
394	921045010000	BW SR 90DEG ELL 406.4 X 6.35 SA234WPB	200
395	921174590000	BWCONC RED 406.4X9.53/219.1X6.35SA234WPB	2
396	924257620000	BW LR 90DEG ELL 406.4 X 12.5 SA234WPB	25
397	925041620000	BW LR 45DEG ELL 406.4 X 9.53 SA234WPB	50
398	925044570000	BW LR 45DEG ELL 406.4 X 12.7 SA234WPB	100
399	925173150000	BWCONRED219.1X23.01/168X18.26 SA234WPC	2
400	925174140000	BW CON RED 406.4X9.53/273X6.35 SA234WPB	30
401	925174430000	BWCONRED406.4X6.35/355.6X6.35 SA234WPB	20
402	925174830000	BWCONRED406.4X12.7/219.1X12.7 SA234WPB	5
403	925174900000	BWCONRED406.4X6.35/219.1X6.35 SA234WPB	5
404	925175450000	BW CON RED 406.4X6.35/273X6.35 SA234WPB	5
405	925178160000	BW CON RED 406.4X12.7/273X9.27 SA234WPB	50
406	925179240000	BW C.RED 406.4X12.7/273X9.27 SA234WPC	5
407	925179280000	BW ECC RED406.4X9.53/323.9X9.53/SA234WPB	5
408	925240600000	LR 90DEG ELL 273X25.4SA234WP22CL1	2
409	925240730000	LR 45DEG ELL 273X25.4SA234WP22CL1	2
410	925240830000	SR 90DEG ELL 406.4X22.2SA234WP22CL1	25
411	925242780000	BW LR 45DEG ELL 406.4 X 7.92 SA234WPB	25
412	925243510000	BW LR 45DEG ELL 219.1 X 25 SA234WPC	20

413	925244960000	BW LR 45DEG ELL 406.4 X 17.47 SA234WP22	2
414	925246030000	LR 45DEG ELL 406.4X19.1SA234WP22CL1	5
415	925246040000	SR 90DEG ELL 406.4X17.47SA234WP22CL1	15
416	925246330000	BW LR 45DEG ELL 406.4 X 22.2 SA234WP22	25
417	925248800000	BW LR 90DEG ELL 406.4X17.5SA234WP22CL1	100
418	925270460000	BWCONRED273X25.4/219.1X20.62 SA234WP22	2
419	925271610000	BWCONRED406.4X7.92/219.1X6.35 SA234WPB	5
420	925272870000	BWCONRED406.4X12.7/168.3X7.11 SA234WPB	2
421	925273670000	BW CON RED 406.4X17/323.9X12.7 SA234WPC	2
422	925275660000	BWCONRED219.1X25/168.3X21.95 SA234WPC	15
423	925277280000	BWCONRED406.4X6.35/323.9X6.35 SA234WPB	15
424	925278980300	BW CON RED 406.4X7.92/273X6.35 SA234WPB	2
425	925279630000	BWECCRED406.4X9.53/219.1X8.18 SA234WPB	2
426	925279690000	BW REDUCER 219.1X25/114.3X13.49SA234WPC	5
427	921051260000	BW EQT 406.4 X 16SA234WP22CL1	5
428	921051940000	BW EQT 406.4 X 12.5 SA234WPB	25
429	925042060000	BW LR 45DEG ELL 457.2 X 6.35 SA234WPB	5
430	925042360000	BW SR 90DEG ELL 457.2 X 6.35 SA234WPB	200
431	925043530000	LR ELL90DEG457.2X9.53SA234WPB	50
432	925045420000	BW LR 90DEG ELL 457.2 X 6.35 SA234WPB	10
433	925045490000	BW LR 90DEG ELL 457.2 X 16 SA234WPB	2
434	925053150000	BW UEQT 406.4X6.35 323.9X6.35 SA234WPB	5
435	925054940000	BW UEQT 406.4X9.53 219.1X8.18 SA234WPB	5
436	925057360000	BW U.EQT 168.3X3.4/88.9X3.05SA403WP304H	2
437	925057460000	BW UEQT 88.9X3.05/73X3.05 SA403WP321	2
438	925173030000	BWCONRED457.2X6.35/406.4X6.35 SA234WPB	2
439	925173190000	BWCONRED457.2X6.35/323.9X6.35 SA234WPB	5
440	925178000000	BWCONRED 88.9X3.05/60.3X2.77 SA403WP304H	10
441	925178720000	BWCONRED168.3X5/88.9X3.05 SA403WP304H	10
442	925178730000	BWCONRED219.1X6.35/141X4.42 SA403WP304H	2
443	925178740000	BWCONRED168.3X3.4/73X3.05 SA403WP304H	2
444	925178750000	ECC.RED168.3X3.4/114.3X3.05SA403WP304H	2
445	925178760000	BWECCRED219.1X6.35/114.3X4 SA403WP304H	2
446	925178800000	BW CON RED 457.2X10/355.6X7.92 SA234WPB	2
447	925178930000	CR457.2X22.2/406.4X22.2L220SA234WP22CL1	15
448	925179000000	BW RED219.1X6.35/141.3X3.96 SA403WP304H	5
449	925179970000	BWCO.RE.457.2X19.05/406.4X16.66SA234WPC	25
450	925195420000	BW END CAP 219.1X8.18 SA403WP304H	2
451	925242910300	BW SR 90DEG ELL 457 X 10 SA234WPB	5
452	925243430000	BW LR 90DEG ELL 457.2 X 12.7 SA234WPC	75
453	925244210000	BW LR 45DEG ELL 88.9 X 3.05SA403WP304	5
454	925244420000	BW LR 90DEG ELL 88.9 X 4 SA403WP304H	50
455	925244640000	BW LR 90DEG ELL 48.3 X 5.08 SA403WP304H	2
456	925246110000	BW LR 90DEG ELL 73 X 5.16 SA403WP304H	2
457	925246130100	BW LR 90DEG ELL 48.3 X 2.77 SA403WP304H	75
458	925246140100	BW LR 90DEG ELL 33.4 X 2.77 SA403WP304H	15
459	925246150000	BW LR 90DEG ELL 21.3 X 2.77 SA403WP304H	300
460	925246170000	BW LR 90DEG ELL 273 X 6.35 SA403WP304H	10
461	925246370000	BW LR45DEG ELL457.2X22.2SA234WP22CL1	10
462	925246920000	BW LR 90DEG ELL 88.9 X 5.49 SA403WP316	5
463	925247370000	BW SR 90DEG ELL 323.9X4.57 SA403WP304H	2
464	925247380000	BW LR 90DEG ELL 355.6X6.35 SA403WP304H	10

465	925247390000	BW SR 90DEG ELL 355.6X6.35 SA403WP304H	2
466	925247460500	BW LR 45DEG ELL 355.6X6.35 SA403WP304H	5
467	925247470000	BW LR 45DEG ELL 114.3X4.5SA403WP304H	2
468	925247480500	BW LR 45DEG ELL 219.1X6.35 SA403WP304H	2
469	925247490000	BW LR 45DEG ELL 168.3X5SA403WP304H	2
470	925247510000	BW LR 45DEG ELL 168.3X3.4SA403WP304H	10
471	925248270000	BW LR 90DEG ELL 73 X 3.05 SA403WP321	25
472	925248670000	BW LR 90DEG ELL 21.3 X 3.73 SA403WP304H	25
473	925248760000	BW LR 45DEG ELL 457.2 X 12.7 SA234WPC	25
474	925248770000	BW LR 90DEG ELL 457.2X20SA234WP11CL1	10
475	925248810000	BW LR 90DEG ELL 457.2 X 14.27 SA234WPB	5
476	925248850000	BW LR 45DEG ELL 168.3X7.11 SA403WP304H	15
477	925248900000	SR 90DEG ELBOW 457.2X22.2SA234WP22CL1	10
478	925248980000	BW LR 90 DEG ELL 219.1X8.18 SA403WP304H	5
479	925249010000	BW LR 90 DEG ELL 88.9X3.05 SA403WP304H	50
480	925249320000	BW SR 90 DEG ELBOW 457.2 X12.7 SA234WPC	10
481	925252210000	BW UEQT 406.4X12.7 219.1X8.18 SA234WPB	5
482	925252850000	BW UEQT 406.4X12.7 355.6X9.53 SA234WPB	2
483	925254510000	BWUEQT114.3X6.02/33.4X4.55 SA403WP304H	2
484	925254510100	BWUEQT114.3X3.05/33.4X2.77 SA403WP304H	2
485	925254520000	BW UEQT 114.3X4.5 48.3X4.5 SA403WP304H	10
486	925254530000	BWUEQT114.3X6.02/88.9X5.49 SA403WP304H	2
487	925254640000	BW EQT 88.9 X 4 SA403WP304H	5
488	925254650000	BW EQT 114.3 X 4.5 SA403WP304H	2
489	925254790000	BW EQT 60.3 X 5.54 SA403WP304H	2
490	925254810000	BW UEQT 60.3X5.54/33.4X4.55 SA403WP304H	5
491	925254820000	BW UEQT 60.3X5.54/21.3X3.73 SA403WP304H	15
492	925254830000	BW EQT 21.3 X 3.73 SA403WP304H	5
493	925254950000	BWUEQT168.3X7.11/114.3X6.02 SA403WP304H	10
494	925256170000	BW UEQT 88.9X5.49/48.3X5.08 SA403WP304H	5
495	925256170100	BW UEQT 88.9X3.05/48.3X2.77 SA403WP304H	10
496	925256830000	BW UEQT 168.3X3.4/88.9X5.49 SA403WP304H	2
497	925256920000	EQT 406.4X17.47SA234WP22CL1	5
498	925256930000	BW EQT 406.4 X 22.2SA234WP22CL1	5
499	925257070000	BW UEQT 406.4X9.53 323.9X9.53 SA234WPB	5
500	925257160000	BW EQT 73 X 5.16 SA403WP304H	2
501	925257170100	BW EQT 60.3 X 2.77 SA403WP304H	5
502	925257180000	BW EQT 33.4 X 3.38 SA403WP304H	75
503	925257180100	BW EQT 33.4 X 2.77 SA403WP304H	20
504	925257190000	BW EQT 21.3 X 2.77 SA403WP304H	15
505	925257280000	BW UEQT 73X5.16 33.4X3.38 SA403WP304H	2
506	925257410000	BW EQT 273 X 4.19 SA403WP304H	15
507	925257480000	BW UEQT 114.3X3.05 73X3.05 SA403WP304H	5
508	925257490000	BWUEQT114.3X3.05/60.3X2.77 SA403WP304H	15
509	925257630000	BW EQT 48.3 X 5.08 SA403WP304H	2
510	925258460000	BW EQT 48.3 X 3.68 SA403WP321	10
511	925258510000	BW EQT 88.9 X 5.49 SA403WP321	5
512	925258580000	BW UEQT 33.4X2.77 21.3X2.11 SA403WP321	10
513	925258670000	BW UEQT 60.3X3.91 48.3X3.68 SA403WP321	2
514	925258680000	BW UEQT 73X5.16 60.3X3.91 SA403WP321	2
515	925258710000	BW UEQT 88.9X5.49 60.3X3.91 SA403WP321	5
516	925258750000	BW UEQT 114.3X8.56/60.3X3.91 SA403WP321	5

517	925258760000	BW UEQT 114.3X8.56/88.9X5.49 SA403WP321	5
518	925259250000	BW EQT 114.3 X 4 SA403WP304H	5
519	925259260000	BWUEQT114.3X3.05/60.3X3.91 SA403WP304H	10
520	925259280000	BW EQT 355.6 X 6.35 SA403WP304H	5
521	925259290000	BW UEQT 355.6X6.35/273X4.19 SA403WP304H	5
522	925259310000	BWUEQT355.6X6.35/323.9X4.57 SA403WP304H	5
523	925259320000	BW EQT 219.1 X 6.35 SA403WP304H	5
524	925259330000	BW UEQT 219.1X6.35 114.3X4 SA403WP304H	10
525	925259360500	BW UEQT 323.9X4.57/273X4.18 SA403WP304H	5
526	925259400500	BWUEQT355.6X6.35/168.3X3.4 SA403WP304H	5
527	925259410500	BW UEQT 273X4.18 168.3X3.4 SA403WP304H	5
528	925259560000	BW EQT 219.1X3.76 SA403WP304H	25
529	925259580000	BW UEQT 168.3X5 114.3X4 SA403WP304H	5
530	925259600000	BW UEQT 168.3X5 114.3X4.5 SA403WP304H	5
531	925259690000	BW UEQT 48.3X5.08/33.4X4.55 SA403WP304H	5
532	925272500000	BWCONRED457.2X9.53/168.3X7.11 SA234WPB	2
533	925272650000	BW CON RED 457.2X16/323.9X12.7 SA234WPB	2
534	925273850000	BWCONRED457.2X14.27/406.4X14.27 SA234WPC	5
535	925274490000	BWCONRED88.9X5.49/60.3X5.54 SA403WP304H	5
536	925274770000	BWCONRED114.3X4.5/60.3X3.91 SA403WP316	5
537	925274780000	BW CON RED 114.3X4.5/88.9X4 SA403WP304H	10
538	925274870000	BWCONRED114.3X6.02/73X5.16 SA403WP304H	2
539	925276630000	C.RED 406.4 X 25 / 273 X 25SA234WP22CL1	10
540	925276800000	C.RED 168.3X3.4/141.3X3.4SA403WP304	5
541	925276870100	BWCONRED273.1X4.19/114.3X3.05SA403WP304H	5
542	925276910100	BWCONRED88.9X3.05/21.3X2.77 SA403WP304H	2
543	925276920000	BWCONRED273X6.35/168.3X7.11 SA403WP304H	2
544	925276950000	BWCONRED273.1X4.19/168.3X3.4 SA403WP304H	20
545	925277330000	BWECCRED457.2X9.53/406.4X9.53 SA234WPB	5
546	925277470000	BW RED219.1X3.76/141.3X3.76 SA403WP304H	10
547	925278560000	BWCONRED33.4X2.77/26.7X2.11 SA403WP321	2
548	925278610000	BWCONRED48.3X2.77/33.4X2.77 SA403WP321	20
549	925278620000	BWCONRED60.3X2.77/26.7X2.11 SA403WP321	5
550	925278630000	BWCONRED60.3X2.77/33.4X2.77 SA403WP321	10
551	925278630100	C.RED 60.3X2.77/33.4X2.77SA403WP321	2
552	925278640000	BWCONRED60.3X2.77/48.3X2.77 SA403WP321	5
553	925278670000	BW CON RED 73X5.16/60.3X3.91 SA403WP321	15
554	925278860000	BWCONRED48.3X5.08/33.4X4.55 SA403WP304H	15
555	925279210000	BW CON RED 457X7.92/355.6X7.92 SA234WPB	5
556	925279220000	BWCONRED73X5.16/60.3X5.54 SA403WP304H	5
557	925279470000	BW CON RED 457.2X16/323.9X9.53 SA234WPB	5
558	925279610000	BW RED 323.9X4.57 273X4.19 SA403WP304H	5
559	925279620000	BW RED 219.1X6.35 114.3X4 SA403WP304H	5
560	925279710500	BWECCRED273.1X4.19/168.3X3.4 SA403WP304H	2
561	925279720000	ECC RED 168.3X3.4/114.3X4.5SA403WP304H	2
562	925279730500	BW RED 219.1X3.76/168.3X3.4SA403WP304H	50
563	925279740000	C. RED 168.3X3.4/88.9X3.05SA403WP304H	5
564	925279750500	BW RED 323.9X4.57 273X4.18 SA403WP304H	5
565	925279770500	BWCONRED273X4.18/219.1X6.35 SA403WP304H	5
566	925279950000	BW RED355.6X6.35/323.9X4.57 SA403WP304H	2
567	925279960000	BWCONRED323.9X4.57/168.3X3.4 SA403WP304H	2
568	925279970000	BWCONRED355.6X6.35/273X4.19 SA403WP304H	2

569	955171130000	BW CON RED 457.2X12.7/273X6.35 SA234WPB	5
570	955195680000	BW CAP 457.2 X 22.2SA234WP22CL1	5
571	955242900300	BW LR 90DEG ELL 457 X 10SA234WPB	5
572	955247500000	BW LR 45DEG ELBOW 219.1X3.76SA403WP304H	5
573	955247520000	BW LR 90DEG ELBOW 323.9X4.57SA403WP304H	25
574	921042950000	BW LR 90DEG ELL 508 X 6.35 SA234WPB	25
575	921053660000	BW EQT 219.1 X 25 SA234WPC	15
576	921174290000	BWRED OD 219.1X 30/114.3 X 17.12SA234WPC	2
577	921174440000	REDOD457.2X25/406.4X22.2L381SA234WP22CL1	5
578	921174510000	CONC RED 168.3X27.5/114.3X17.12 SA234WPC	50
579	925042340000	BW LR 45DEG ELL 508 X 6.35 SA234WPB	10
580	925052540000	BW UEQT 508X6.35 355.6X6.35 SA234WPB	5
581	925054830000	BWUEQT508 X 9.53 / 406.4 X 9.53 SA234WPB	5
582	925175270000	BW CON RED 508X6.35/355.6X6.35 SA234WPB	5
583	925175390000	BW CON RED 508X6.35/406.4X6.35 SA234WPB	5
584	925176170000	BW RED 508X9.53/273.1X9.27SA234WPB	5
585	925179020000	C.RED 273X28/168.3X27.5SA234WP22CL1	5
586	925179460000	BWC.RED168.3X27.5/114.3X20 SA234WP22	20
587	925179520000	BW CON RED 273X28 219.1X25 SA234WPC	2
588	925179720000	BW CON RED 508X9.53/323.9X7.14 SA234WPB	5
589	925179870000	BW RED 219.1X28/141.3X15.88 SA234WPC	2
590	925179980000	BW CON.RE.406.4X29/273X25SA234WP22CL1	15
591	925240010000	LR 90DEG ELL 457.2X25SA234WP22CL1	200
592	925240690000	BW LR 90DEG ELL 168.3 X 30 SA234WP22	15
593	925240760000	BW LR 90DEG ELL323.9X28SA234WP22CL1	10
594	925240790000	BW LR 45DEG ELL 323.9 X 28 SA234WP22	2
595	925241560000	BW LR 90DEG ELL 168.3X27.5 SA234WPC	50
596	925242700000	BW SR 90DEG ELL 508 X 10 SA234WPB	25
597	925243590500	BW SR 90DEG ELL 168.3 X 27.5 SA234WPC	2
598	925246590000	BW LR 90DEG ELL 273 X 28SA234WP22CL1	25
599	925248680000	BW SR 45DEG ELL 508 X 10 SA234WPB	5
600	925252270000	BW UEQT 508 X 9.53 / 219.1 X 8.18SA234WP	5
601	925252400000	BW UEQT508 X 9.53 /355.6 X 9.53SA234WPB	10
602	925253610000	BW UEQT 219.1X25 168.3X21.95 SA234WPC	5
603	925255540000	BW UEQT 508X8.53 406.4X7.92 SA234WPB	15
604	925259760000	BW UEQT 219.1X25/114.3X13.49 SA234WPC	15
605	925259770000	BW UEQT 219.1X25 88.9X11.13 SA234WPC	5
606	925259920000	BW UEQT 508X9.53 219.1X6.35 SA234WPB	5
607	925270620000	BWCONRED457.2X24.5/273X18.26 SA234WP22	15
608	925271500000	BW CON RED 508X9.53/219.1X6.35 SA234WPB	5
609	925273220000	BWCONRED219.1X28/168.3X21.95 SA234WPC	10
610	925273300000	BWCONRED219.1X28/114.3X17.12 SA234WPC	5
611	925273890000	BW CON RED 219.1X30/168.3X22.2 SA234WPC	20
612	925274540000	C.RE.168.3X27.5/114.3X17.12SA234WP22CL1	5
613	925274680000	C.RED 323.9X30/168.3X27.5SA234WP22CL1	5
614	925275420000	BW CON RED 168.3X27.5/114.3X20 SA234WPC	50
615	925275520000	C. RED 328X28/273X18.26SA234WP22CL1	2
616	925277060000	BWCONRED219.1X30/168.3X18.26 SA234WPB	2
617	925277310000	BW CON RED 508X6.35/457.2X6.35 SA234WPB	5
618	925279340000	BWCONRED508X9.53/323.9X10.31 SA234WPB	2
619	955270190000	BWCONRED168.3X27.5/73X14.02 SA234WP22	2
620	921042880000	BW LR 90DEG ELL 609.6 X 6.35 SA234WPB	2

621	921043890000	BW 90 deg LR ELL 273 X 32 SA234WPC	1000
622	921044150000	BW LR 90DEG ELL 508 X 14.2 SA234WPB	15
623	921044240000	BW LR 45DEG ELL 508 X 12.7 SA234WPB	25
624	921044460000	BW LR 90DEG ELL 609.6 X 7.92 SA234WPB	20
625	921170770000	BW CON RED 273X32 219.1X25 SA234WPC	15
626	921171240000	BW CON RED 508X12.7/323.9X12.7 SA234WPB	2
627	921174240000	BW RED OD 368 X 40 X 219.1 X 28 SA234WPC	5
628	921174250000	BW RED OD 368 X 40 X 273 X 32 SA234WPC	5
629	921174260000	BWRED OD 508X14.27/457.2X12.7 SA234WPC	2
630	921174270000	BWRED OD 508X 16 / 355.6 X 12.7 SA234WPB	2
631	921174450000	REDUCER 273X32/219.1X30SA234WPC	10
632	925032640000	BW CAP 273 X 32 SA234WPC	5
633	925045800000	BW LR 90DEG ELL 508 X 28SA234WP22CL1	200
634	925046810000	BWLR90DEGEL 660 X 9.53SA234WP22CL1	5
635	925048670000	BW SR 90DEG ELL 813X10SA234WPB(Welded)	20
636	925049890000	BW LR 60 ELL 508X28SA234WP22CL1	10
637	925049930000	BW SR 90DEG ELL 609.6X7.92 SA234WPB	5
638	925049960000	BW LR 90 DEG ELL 609.6X14.27 SA234WPC	15
639	925052570000	BW UEQT 273 X 32 / 219.1 X 25 SA234WPC	10
640	925052580000	BW EQT 273.1 X 32 SA234WPC	50
641	925052600000	BW EQT 508 X 12.7 SA234WPB	50
642	925052610000	BW UEQT 508X12.7 406.4X12.7 SA234WPB	5
643	925053580000	BW UEQT 813X9.53 609.6X9.53 SA234WPB	2
644	925057070000	BW UET 508X25/219.1X12.7SA234WP22CL1	5
645	925057150000	BW EQT 457.2X14.27 SA234WPB	2
646	925057630000	BW EQT 273X45 SA234WP22CL1	5
647	925173230000	CON.RED273X45/219.1X36SA234WP22CL1	20
648	925175470000	BWCONRED609.6X6.35/406.4X6.35 SA234WPB	2
649	925178470000	BW CON RED 323.9X40 219.1X28 SA234WPC	5
650	925178670000	C.RED 219.1X32/168X27.5SA234WP22CL1	5
651	925178820000	BW CON RED 508X12.7/457.2X9.53 SA234WPB	5
652	925178850000	C.RED.813X26/508X17.48SA234WP22CL1	5
653	925179610000	BW CON RED 273X32 219.1X28 SA234WPC	50
654	925179620000	BW CON RED 273X32 114.3X17.12 SA234WPC	20
655	925179670000	C.RED 508X25/406.4X17.5SA234WP22CL1	10
656	925179760000	BW ECC RED 660 X 10 / 508 X 10 SA234WPB	5
657	925179890000	BW RED 508X12.7/406.4X17 SA234WPB	2
658	925195690000	BW CAP 508 X 64 SA234WPC	30
659	925240810000	LR 45DEG ELL 273 X 45SA234WP22CL1	5
660	925242070000	BW SR 90DEG ELL 508 X 12.7 SA234WPB	25
661	925242390000	BW LR 90DEG ELL 660.4 X 9.53 SA234WPB	5
662	925242410000	BW SR90DEG ELL 914X9.53 SA234WPB(Welded)	20
663	925242610000	BW LR 45DEG ELL 559 X 9.53 SA234WPB	5
664	925242650000	BW SR 90DEG ELL 711 X 6.35 SA234WPB	2
665	925242820300	BW LR 45DEG ELL 813 X 10 SA234WPB	5
666	925246300000	BWLR90DEGELBOW OD 508 X 25 SA234WP22CL1	200
667	925246300100	BW LR 45DEG ELL 508 X 25 SA234WP22	5
668	925246580000	BW LR90DEG ELL 355.6X36SA234WP22CL1	25
669	925246870000	BW LR 45DEG ELL 355.6X36SA234WP22CL1	2
670	925247450000	BW LR 30DEG ELL 368 X 48 SA234WPC	100
671	925248640000	BW LR 45DEG ELL 368 X 48 SA234WPC	15
672	925248780000	BW LR 45DEG ELL 273 X 32 SA234WPC	50

673	925248990000	SR ELBOW 90 DEG 508X28 SA234WP22CL1	25
674	925249000000	LR EL 45DEG 508X 28 SA234WP22CL1	5
675	925249050000	BW LR 60 DEG ELL 355.6 X 50 SA234WPC	15
676	925249210000	BW LR 90 DEG ELL 368 X 40 SA234WPC	200
677	925249220000	BW LR 30 DEG ELL 368 X 40 SA234WPC	15
678	925249250000	BW LR 60DEG ELL 368 X 48 SA234 WPC	5
679	925249330000	BW ELBOW 45 DEG 368 X 40 SA234WPC	10
680	925250810000	UEQT 323.9X28.58/273X25.4SA234WP22CL1	2
681	925251440000	BW EQT 168.3 X 27.5 SA234WPC	25
682	925251490000	BW UEQT 813 X 10 / 508 X 9.53 SA234WPB	5
683	925251910000	BW EQTEE OD 368 X 40 SA234WPC	75
684	925251920000	BW UNEQTEE OD 368X40/219.1X28 SA234WPC	10
685	925251930000	BW UNEQTEE OD 368X40/ 273 X32 SA234WPC	10
686	925251940000	BW UNEQTEED 368X40/114.3X13.49 SA234WPC	5
687	925251950000	BW UNEQTEE OD368X40/168.3X21.95 SA234WPC	5
688	925251970000	BWUEQTEED219.1X40/168.3X30SA234WP22CL1	2
689	925251980000	BW UNEQTEE OD 368 X 48/ 273X 32 SA234WPC	5
690	925252010000	BW UEQT 508X12.7 457.2X9.53 SA234WPB	15
691	925252460000	BW UEQT 508X12.7 219.1X8.18 SA234WPB	5
692	925252700000	BW UEQT 508X12.7 355.6X7.92 SA234WPB	15
693	925252730000	BW UEQT 508X15.09 219.1X8.18 SA234WPB	15
694	925252780000	BW UEQT 457.2X9.53 273X9.27 SA234WPB	50
695	925252930000	BW UEQT 609.6X12.7 406.4X9.53 SA234WPB	5
696	925252990000	BW EQT 457.2 X 12.5 SA234WPB	5
697	925253420000	BW UEQT 219.1X30 88.9X15.24 SA234WPC	2
698	925253690000	BW UEQT 273X32 114.3X17.12 SA234WPC	25
699	925253700000	BW UEQT 273.1X32 168.3X21.95 SA234WPC	25
700	925253780000	BW UEQT 323.9X36 168.3X21.95 SA234WPC	5
701	925253950000	BW EQT 273 X 36 SA234WPC	5
702	925254610000	BW UEQT 323.9X33.3/168.3X27.5 SA234WP22	5
703	925255570000	BW UEQT 457.2X9.53 323.9X6.35 SA234WPB	15
704	925255580000	BW UEQT 457.2X9.53 273X6.35 SA234WPB	10
705	925255630000	BW EQT 457.2 X 20SA234WP11CL1	5
706	925255640000	UEQT457.2X20/219.1X8.18SA234WP11CL1	2
707	925255850000	UNEQTEE 168.3X27.5/114.3X17.12SA234WPC	15
708	925255920000	BWUNEQTEE 368 X 40/ 323.9 X 40 SA234WPC	5
709	925256460000	UEQT 273X28.58/114.3X13.49SA234WP22CL1	2
710	925256640000	UEQT 219.1X36/168.3X27.5SA234WP22CL1	15
711	925257040000	BW UEQT 609.6X9.53 355.6X9.53 SA234WPB	5
712	925257060000	BW UEQT 457.2X9.53 406.4X9.53 SA234WPB	15
713	925257110000	BW UEQT 508X 12.7/ 457.2 X 12.7SA234WPB	5
714	925257120000	BW UEQT 508X12.7 355.6X12.7 SA234WPB	5
715	925257140000	BW UEQT 559 X 16 / 457.2 X 16 SA234WPB	15
716	925257530000	UEQT 508 X 28 / 406.4 X 22.2SA234WP22CL1	5
717	925257620000	BW UEQT 609.6X9.53 323.9X9.53 SA234WPB	5
718	925257660000	BW UEQT 457.2X7.92 219.1X6.35 SA234WPB	2
719	925257930000	BW EQT 457.2 X 22.2SA234WP11CL1	5
720	925258880000	BW UEQT 323.9X28 168.3X18.26 SA234WP22	2
721	925259370000	UEQT 273X45/168.3X27.5SA234WP22CL1	5
722	925259660000	UNEQT 273X28/168.3X27.5SA234WP22CL1	2
723	925259840000	BW UET 508 X 25/406.4X17.5SA234WP22CL1	5
724	925259890000	BW UEQT 508X12.7 219X6.35 SA234WPB	2

725	925259910000	BW EQT 660 X10 SA234WPB	5
726	925259990000	BW UET 508X26.19/457.2X23.83SA234WP11CL1	5
727	925270010000	C. RED 508 X 28 / 457.2 X 28SA234WP22CL1	15
728	925270130000	C.RED 273 X 45/168.3 X 27.5SA234WP22CL1	5
729	925271660000	BW CON RED 711X7.92 610X6.35 SA234WPB	5
730	925271670000	BW CON RED 711X7.92 508X6.35 SA234WPB	5
731	925271700000	BW CON RED 508X12.7/219.1X8.18 SA234WPB	5
732	925271710000	BW CON RED 508X12.7 273X12.7 SA234WPB	5
733	925272010000	BW CON RED 508X12.7 273X9.27 SA234WPB	10
734	925272210000	BWCONRED609.6X9.53/406.4X9.53 SA234WPB	5
735	925272220000	BW CON RED 813X9.53/609.6X9.53 SA234WPB	10
736	925272600000	BW CON RED 508X15.09 273X9.27 SA234WPB	5
737	925272640000	BW CON RED 610X9.53/219.1X8.18 SA234WPB	2
738	925272660000	BW CON RED 558.8X9.53/273X9.27 SA234WPB	2
739	925273580000	BW CON RED 273X32 168.3X21.95 SA234WPC	5
740	925273800300	BW CON RED 219.1X32/168.3X27.5 SA234WPC	5
741	925273810000	BW CON RED 219.1X36/168.3X27.5 SA234WPC	5
742	925273940000	BW CON RED 508X14.02 273X9.27 SA234WPC	2
743	925274410000	C.RED 355.6X37.0/168.3X27.5SA234WP22CL1	2
744	925276670000	C.RED 273X40/114.3X20SA234WP22CL1	5
745	925276730000	BWCONRED323.9X33.32/273X28.58 SA234WP22	2
746	925277030000	BW CON RED 711.2X9.53/610X9.53 SA234WPB	2
747	925277040000	BWCONRED609.6X9.53/355.6X7.92 SA234WPB	2
748	925277110000	C RED 457.2X28/406.4X22.2SA234WP22CL1	15
749	925277480000	C.RED 457.2X28.5/273X28.5SA234WP22CL1	5
750	925277530000	BW CON RED 508X12.7/355.6X7.92 SA234WPB	5
751	925278800000	C.RED 355.6 X 36 / 273 X 28SA234WP22CL1	5
752	925278910300	BW CON RED 610X10 355.6X7.92 SA234WPB	5
753	925279040000	BW CON RED 375 X 55/323.9 X50/SA234WP22C	5
754	925279060000	BW CON RED 508X25 406.4X25 SA234WPB	5
755	925279110000	C.RED 273X45/114.3X17.12SA234WP22CL1	5
756	925279550000	BW CON RED 813X9.53 508X9.53 SA234WPB	10
757	925279700000	REDUCER 273X36/219.1X30SA234WPC	15
758	955195670000	BW CAP 508 X 25SA234WP22CL1	5
759	955242300000	BW SR 90DEG ELL 558.8 X 9.53SA234WPB	5



1.0 CODES:-

The fittings shall meet Indian Boiler Regulations (IBR) and the following requirements in addition to the standards specified in the Purchase Order (PO).

2.0 RAW MATERIALS:-

- a) All pipes used for fittings shall meet the respective specification. The test certificate shall be furnished.
- b) All mother pipes used for fittings shall be subjected to a hydraulic test as per SA 530 or UT as per ASTM E 213 at the mill
- c) All plates used for fittings shall be UT tested as per S1 of SA578 and acceptance norms shall be as per Level B of SA578
- d) The raw material forging shall be ultrasonically tested as per SA 388 and the acceptance norm shall be as per 3.3.4 of ASME Sec VIII Div 2.
- e) Steel for SA182 F11, F12 & F22 if indigenously procured, to be from following manufacturers approved under IBR for creep resistant steels: i) Alloy Steel Plant Durgapur, ii) Tata Iron & Steel company, Jamshedpur & iii) Mahindra Ugine Steel Company, Mumbai.
- f) Carbon content of SA 234 WPB, WPC, SA 105 fittings shall be restricted to 0.25% max

3.0 PROCESS:-

- a) Process of manufacture shall conform to applicable standards.
- b) All fittings shall be of seamless unless otherwise specified in the purchase order.
- c) In case of welded fittings, WPS, PQR & welder qualification shall be approved by BHEL - PC, prior to start of welding.
- d) All fittings shall have smooth surfaces, workman like finish and free from loose scales and defects like laps, seams, folds, cracks, pitting etc.. Repair by welding is NOT permitted.
- e) Dimensions shall be as per ASME B16.9 or B16.28, Butt Weld edges shall be as given in Purchase Order. The ends of reducers shall have a straight portion of Minimum 13mm.
- f) Unless otherwise specified in the P.O SA 234 WP 11/12/22 fittings shall be supplied as per class 1, SA 182 F11/12 shall be supplied as class 2, SA 182 F22 shall be of class 3 only.

4.0 HEAT TREATMENT:-

4.1 All fittings shall be heat treated as below.

SA 234 WP B	- As per specification
SA 105, SA234 WP C	- Normalised
SA234 WP11/ WP12/ WP22	- Normalised & Tempered
SA182 F11/ F12/ F22	- Normalised & Tempered
Stainless Steel :-	
SA 182 F304/ 316/ 321/ 347	- Solution annealed
SA 403 WP304/ 316/ 321/ 347	- Solution annealed

4.2 Fittings conforming to SA 234 WP91 and SA182 F91 shall be normalised at 1040 to 1070 deg C (for wall thickness larger than 75 mm, accelerated cooling may be done to obtain a fully martensitic structure) and tempered at 760 $\pm$ 10 deg C

5.0 TESTING :-

- (a) All ferrous fittings shall be tested by MPI as per ASTM E-709 and SS fittings shall be LPI tested as per ASTM E 165.

S. Jayakumar, Engg

P. Elangovan, QA

Approved by

K. Vedaprasad, QC

K. Ganeshan, MPL



- (b) One fitting of each specification, heat, heat treatment lot and size shall be subjected to Tension Test as per applicable standard.
- (c) All fittings of wall thickness above 6mm or NB 200mm and above shall be Ultrasonically Tested as per SA 388; acceptance norms shall be 3.3.4 of ASME section VIII Div.2.
- (d) Hardness test shall be carried out on each fittings of WP91 / F91. For other fittings hardness shall be checked on 10% of the fittings.
- (e) In case of welded fittings; all the welds shall be 100% RT tested and acceptance norms shall be UW 51 of ASME Sec VIII DIV-1
- (f) The following supplementary tests shall be carried out for specifications namely SA105, SA 182 F11 / F12 / F22 / F91, SA 234 WPC / WP11 / WP12 / WP22 / WP91 (No supplementary test applicable for SA 234 WPB)
 - a) Product analysis – one / heat / size.
 - b) Tension test – one / heat / heat treatment lot / size.
- (g) Metallography:- Metallography shall be carried out on one per heat, per size, per heat treatment lot of WP91 / F91 fittings. Acceptance norms - The Material shall be free from any micro fissures. Microstructure shall show tempered martensite and also to be examined for any grain growth. Photomicrograph with 500x (Min) magnification along with Metallography report to be provided. The actual magnification shall be indicated.

6.0 POSITIVE MATERIAL IDENTIFICATION (PMI) FOR ALLOY STEEL FITTINGS.

Each alloy steel fitting shall be checked for the correctness of the material during manufacturing and final inspection using X-ray fluorescence principle or spark emission spectrography.

7.0 PAINTING , COLOUR CODING, MARKING, PACKING & END PROTECTION

7.1 **PAINTING** : All fittings (except stainless steel and galvanised) shall be painted on the external surface as given below

- a) surface preparation : Blast cleaning
- b) Primer coat : 50 microns of Red oxide zinc phosphate conforming to IS 12744
- c) Final coat : 70 microns of Synthetic enamel paint conforming to IS2934 .
- d) Shade : (i) smoke grey – shade no 692 of IS5 for all carbon steel fittings
(ii) Sea green -- shade no 217 of IS5 for all Alloy steel fittings

The internal surface shall be protected with rust preventive coating or rust inhibitor. Stainless steel and Galvanised fittings need not be painted.

7.2 **COLOUR CODING** : All fittings shall be colour coded circumferentially at ends as given below

SA 234 WPB / WPBW	=	Red
WPC / SA105	=	Blue

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WP11 / SA182 F11	=	Green & White
WP12 / SA182 F12	=	Black & Red
WP22 / SA182 F22	=	Blue & Red
WP91 / SA182 F91	=	Brown & Red
SA182 / SA 403 F / WP 304	=	Blue & Yellow
316	=	Black & Green
321	=	Blue & Brown
347	=	Yellow & Black

7.3 MARKING :

7.3.1 The fittings dispatched to **BHEL Stores** shall be punched / etched with Material code, Heat number, material specification, maker's emblem, Inspectors seal and Statutory authorities seal (as applicable).

In addition, the above details along with size shall be paint stenciled on the fittings.

If the thickness of the fitting is less than 6 mm, punching is not permitted and the above details shall be paint stenciled only. Fittings of size up to 2" (50mm) shall be tied together and the above details shall be punched / etched in a separate tag and tied to it.

7.3.2 The fittings dispatched directly to project site as **DTS** shall be punched and paint stenciled with DU code (14 digit work order du detail) as given by purchase in addition to marking done as per para 7.3.1.

7.4 **PACKING AND END PROTECTION :** Machined ends of the fittings shall be well protected using end caps and fittings shall be suitably packed in box / crate to avoid transit & other damages.

8.0 INSPECTION & CERTIFICATION : -

All fittings are to be Inspected at the manufacturer's works by the Inspection agencies / authorities as per IBR and as indicated in the P.O. Inspection certificate in IBR Form III C shall be submitted along with the Work Test Certificate countersigned by the above authorities and shall include the following.

1. Test Certificate Number & date.
2. BHEL P.O Number & Amendment Number
3. BHEL P.O. Serial Number
4. BHEL TDC Number
5. Size-wise Quantity
6. Specification, Grade & Year of code.
7. Heat/Melt Number
8. Starting material details.
9. Steel making process
10. Laddle Analysis of Raw Material and product analysis of fitting.
- *11. Positive Material Identification (PMI) report for Alloy steel fittings.
- *12. Supplementary Test(Product analysis, Tension test..) results.
- *13. Heat Treatment Chart.
- *14. NDE report. (VISUAL.MPI, LPI,UT)
- *15. Tensile Test Report
- *16. Hardness Test Report

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17. Metallography Report along with photomicrograph with 500x (min) magnification.
- *18. Dimensional conformance.
- *19. RT test report / Results (for welded fittings)
- *20. Guarantee of HTP shall be given as follows:- "Fittings are capable of withstanding without failure, leakage or impairment of their serviceability a hydrostatic test pressure equal to that prescribed for the specified matching pipe of equivalent material".

*Details furnished in the Tests certificate in lieu of chart/report is acceptable.

9.0 RECORDS OF REVISION :-

Rev 01 : a) Fully revised for better clarity.

: b) Para 2.0 e added.

Rev 02 : a) Para 2.0 (c): UT acceptance norms revised from level A to B.

Rev 03 : a) Fully revised for better clarity.

: b) Para 4.2, 6.0, 8.0 (11) added.

c) Para 2 (d) , 4.1, 5 (d) are revised.

Rev 04 : a) Para 5.0 (g), 7.0 and 8.0 (17) are revised.

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