

**Material Specifications for
Carbon Steel
BUTT WELDING FITTINGS**

	ASTM SPECIFICATION A234	
	WPA (Grade A)	WPB (Grade B)
GRADE SYMBOL	WPA (Grade A)	WPB (Grade B)
TYPE OF STEEL	Carbon	Carbon
CHEMICAL COMPOSITION	C-0.25 max.	C-0.30 max.
MINIMUM PHYSICAL REQUIREMENTS	TS-48,000 YP-30,000	TS-60,000 YP-35,000
HEAT TREATMENT	Cooled in Still Air	Cooled in Still Air

**Material Specifications for
Carbon Steel
FLANGES**

	ASTM SPECIFICATION*			
	A181		A105	
GRADE SYMBOL	I	II	I	II
TYPE OF STEEL	Carbon		Carbon	
CHEMICAL COMPOSITION	C-0.35 max.		C-0.35 max.	
MINIMUM PHYSICAL REQUIREMENTS	TS-60,000 YP-30,000	TS-70,000 YP-36,000	TS-60,000 YP-30,000	TS-70,000 YP-36,000
HEAT TREATMENT	Hot forged with finishing temp. above upper critical Cooled in still air		Normalized	

**GRADE AND COMPOSITION
SYMBOLS FOR CARBON STEEL BUTT-
WELDING FITTINGS**

WPA	Seamless Pipe.....	ASTM A106 Grade A
	Plate.....	ASTM A285 Grade C
	Forgings.....	ASTM A105 Grade 1
	Bars*.....	ASTM A107 GR. 1008-1022
WPB	Seamless Pipe.....	ASTM A106 Grade B
	Plate.....	ASTM A515 Grade 6S
	Forgings.....	ASTM A105 Grade 11
	Bars*.....	ASTM A107 Gr. 1025-1030
WPC	Seamless Pipe.....	ASTM A106 Grade C
	Plate.....	
	Forgings.....	ASTM A104 Grade 11'

* For fittings 2" nominal size and smaller

Low Temperature Carbon Steel

WPLO	Seamless and Welded Pipe.	ASTM A332 Grade O
	Plate.....	ASTM A300 Class 1
	Forgings.....	ASTM A350 Grade LF1

*Material specifications for the ASME Boiler Code are the same ASTM except the letter S is prefixed thereto.
A 35% Carbon maximum for flanges which are to be welded has been established by ASTM A181 and A105.