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**ASTM specifications for weld fittings and flanges**  
**Grade & composition symbols for carbon weld fittings.**

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

ASTM SPECIFICATION		
	A234	
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 COMPOSITION	TS-48,000 YP-30,000	TS-60,000 YP-35,000
HEAT TREATMENT	COOLED IN STILL AIR	COLLED 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 COMPOSITION		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 BUTTWELDING 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

Seamless Pipe..... ASTM A106 Grade C  
 Plate.....  
 Forgings..... ASTM A104 Grade 11'

\*For fittings 2" nominal size and smaller

Low Temperature Carbon Steel  
 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 welded have been established by ASTM A181 and A105.