

## Classification and Reference Standards

### STIFFNESS CLASSIFICATION

The stiffness classification in ISO standards is made according to N/m<sup>2</sup> unit. As shown in Table 2, minimum initial rigidity is defined for two different series.

Original GRP Series	Thermoplastic Pipes
SN 630	SN 500
SN 1250	SN 1000
SN 2500	SN 2000
SN 5000	SN 4000
SN 10000	SN 8000

Table 2: Nominal stiffness Values (ISO)

In AWWA C950, rigidity is defined as -psi- unit and it is very close to the values in psi unit.

ISO	AWWA
SN 1250	9 psi
SN 2500	18 psi
SN 5000	36 psi
SN 10000	72 psi

Table 3: Stiffness comparison between ISO/AWWA

**Long Term Stiffness:** No requirements concerning long term rigidity are determined neither in ISO nor in AWWA.

### PRESSURE CLASSES

The pressure classes in ISO (PN), are determined by accepting the bar unit for the pressure to be applied. Nominal pressure classifications: PN 1, (2,5), (4), 6, (9), 10, (12), (15), 16, (18), (20), 25, 32. The values in the parenthesis are the pressure classes that are not preferred, as nominals. PN 1 pressure class is for the non pressure pipes (that liquid flows by gravity).

In AWWA C 950, GRP nominal pressures are classified as follows:  
Psi: 50, 100, 150, 200, 250

### INITIAL ULTIMATE DEFLECTION

The initial deflection requirements are same in ISO and AWWA C 950 and the same classification system given in Table 4 is valid in both standards.

Class	Level A	Level B
SN 500	24,4	40,8
SN 625	22,7	37,8
SN 1000	19,4	32,4
SN 1250	18,0 (18)	30,0 (30)
SN 2000	15,4	25,7
SN 2500	14,3 (15)	23,9 (25)
SN 4000	12,2	20,4
SN 5000	11,3 (12)	18,9 (20)
SN 8000	9,7	16,2
SN 10000	9,0 (9)	15,0 (15)

Table 4: Initial deflection requirements in ISO/AWWA C 950

**Level A** is the requested deflection where no damage on pipe (bore cracking) is allowed to occur. **Level B** is the required structural strength. Values in parantheses are requirements of AWWA C 950.