

Germany homologations Prestressing strands

Approval number (Zulassung)	Diameter	Nominal tensile strength	number of wires	Nominal cross section	Nominal unit weight	Tolerance of unit weight	Tensile strength (R _m)		Elastic limit strength (R _{p0,01})	Proof strength (R _{p0,1})	Proof strength (R _{p0,2})	Elasticity modulus	Total elongation at maximum force (ε _{pu})	Lay length		Straightness in 1 m length	Construction of strand	Diameter ratio	Deflected tensile test	Stress corrosion resistance	fatigue resistance at 0,7 R _m	Relaxation at 0,7 R _m
	[mm]	[Nmm ²]		[mm ²]	[g/m]	[g/m]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[Gpa]	[%]	[mm]	[mm]				[%]	[hours]	[cycles]	[%]
Z-12.3-109	6,9	1860	7	29	227,7	± 2 %	1860	1990	1400	1600	1660	195 ±10	3,5	97	124	25	2,36+6x2,28 mm 3,16+6x3,05 mm 3,70+6x3,55 mm 4,25+6x4,08 mm 4,40+6x4,25 mm 5,25+6x5,00 mm 5,40+6x5,17 mm	>1,03	max.28	d _{sw} <3,2 mm individ. 1,5 mean: 3 d _{sw} >3,2 mm individ. 2 mean: 5	Klasse 1 (acc. To DIN EN 1992-1-1	max. 2,0
	9,3		7	52	408,2									130	167							
	11,0		7	70	547,0									154	198							
	12,5		7	93	730,1									175	225							
	12,9		7	100	785,0									181	232							
	15,3		7	140	1091,2									214	275							
	15,7		7	150	1177,5									220	283							

Prestressing indented wires

Approval number (Zulassung)	Diameter	Nominal tensile strength	Nominal cross section	Nominal unit weight	Tensile strength (R _m)		Elastic limit strength (R _{p0,01})	Proof strength (R _{p0,1})	Proof strength (R _{p0,2})	Elasticity modulus	Total elongation at maximum force (A _u)	Indentation			Number of reverse bends	Straightness in 1 m length	Stress corrosion resistance	fatigue resistance at 0,7 R _m	Relaxation at 0,7 R _m
					min.	max						depth (a)	Width (l)	Spacing ©					
	[mm]	[Nmm ²]	[mm ²]	[g/m]	[MPa]	[MPa]	[MPa]	[MPa]	[MPa]	[Gpa]	[%]	[mm]	[mm]	[mm]	[n]	[mm]	[hours]	[cycles]	[%]
Z-12.2-50	5	1770	19,6±2%	153,1	1770	1982	1350	1520	1570	205	min.	0,12±0,05	3,5±0,5	5,5±0,5	min. 3	max. 25	min. 2 hours, median>5 hours	Klasse 1 (acc. To DIN EN 1992-1-1	max. 2,0
Z-12.2-72	7	1670	38,5±2%	302,0	1670	1870	1300	1420	1470		3,5	0,15±0,05							

Coil dimensions - strands

Outer diameter D (mm)	Inner diameter d (mm)	Wide W (mm)	Weight (kg)
Max. 1600	800	500	Max. 4300
	900	710	
	965	750	

Coil dimensions - wires

max. 2400	1350-1800	max. 300	max. 2000
max. 1430	965-1030	500-530	max. 2000

