

RCC-MR

**DESIGN AND CONSTRUCTION RULES
FOR MECHANICAL COMPONENTS OF NUCLEAR INSTALLATIONS
HIGH TEMPERATURE, RESEARCH AND FUSION REACTORS**

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Table A6.2610: RB 3282 and RB 3283 criteria which must be complied with (type B1 assemblies, type P and type S analyses with negligible creep conditions)

RB 3282 and 3283 criteria	Stress	Allowable limits	Non standardized bolting elements or nut height < 0.8 d	Standardized bolting elements using nuts with a usual height ($h \geq 0.8 d$)						
				$R_{p0.2}$ parts = $R_{p0.2}$ b.e.		$R_{p0.2}$ parts > $R_{p0.2}$ b.e.		$R_{p0.2}$ parts < $R_{p0.2}$ b.e.		
				Bolts – Tie-rods	Screw – studs	Bolts – Tie-rods	Screw – studs	Bolts – Tie-rods	Screw – studs	
RB 3282.11	$(\overline{\sigma_m})_{\text{virtual}}$	S_{mB}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	$\overline{\sigma_m}$	$2S_{mB}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	$\overline{\sigma_m} + \Phi \sigma_b$	$3S_{mB}$	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
RB 3282.12	$(\tau_{fv})_{\text{virtual}}$	$0.6.S_{mB}$	Yes	No	See note 1	No	See note 1	No	See note 2	
	τ_{fv}	$1.2.S_{mB}$								
	$(\tau_{fp})_{\text{virtual}}$	$0.3.S_m$								
	τ_{fp}	$0.6.S_m$	Yes	No	No	No	No	No	No	
	$(p_t)_{\text{virtual}}$	$0.5.R_{p0.2}$								
	p_t	$R_{p0.2}$	Yes	No	No	No	No	No	No	
	$(\tau_t)_{\text{virtual}}$	$0.6.S_{mB}$	Yes	No	No	No	No	No	No	No
	τ_t	$1.2.S_{mB}$								
	$(p_f)_{\text{virtual}}$	$0.5.R_{p0.2}$	Yes	No	No	No	No	No	No	No
p_f	$R_{p0.2}$									
RB 3283.11		Fatigue curve	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Note 1: Compliance is not necessary if $L_e \geq 0.8 d$
Note 2: Only compliance with τ_{fp} is necessary. For information τ_{fp} must then be calculated with length L'_e (**A6.5222**)
The mechanical properties of the nuts fitted to bolts, tie-rods or studs must be at least equal to those of the threaded rod.
“b.e.” = bolting element