

Material properties

Material	Ck 45 (Germany / DIN)
Group	Structural and constructional steels
Subgroup	SEW 550 Steel for larger forged parts
Comment	Quality specifications

Application -

Yield Stress[MPa]			
Dimension	Min	Max	Approx
Forging; Quenched and tempered; <= 250 mm	345	-	-
Forging; Quenched and tempered; <= 250 mm	345	-	-
Forging; Quenched and tempered; > 250 <= 500 mm	325	-	-
Forging; Quenched and tempered; > 250 <= 500 mm	325	-	-
Forging; Normalized; <= 250 mm	325	-	-
Forging; Normalized; <= 250 mm	325	-	-
Forging; Normalized; > 250 <= 500 mm	305	-	-
Forging; Normalized; > 250 <= 500 mm	305	-	-
Forging; Normalized; > 500 <= 1000 mm	295	-	-
Forging; Normalized; > 500 <= 1000 mm	295	-	-

Tensile Stress[MPa]			
Dimension	Min	Max	Approx
Forging; Quenched and tempered; <= 250 mm	590	740	-
Forging; Quenched and tempered; <= 250 mm	590	740	-
Forging; Quenched and tempered; > 250 <= 500 mm	590	740	-
Forging; Quenched and tempered; > 250 <= 500 mm	590	740	-
Forging; Normalized; <= 250 mm	590	720	-
Forging; Normalized; <= 250 mm	590	720	-
Forging; Normalized; > 250 <= 500 mm	590	720	-
Forging; Normalized; > 250 <= 500 mm	590	720	-
Forging; Normalized; > 500 <= 1000 mm	590	720	-
Forging; Normalized; > 500 <= 1000 mm	590	720	-

Elongation A5 [%]			
Dimension	Min	Max	Approx
Forging; Quenched and tempered; <= 250 mm Note: Lo = 5 x d; (long.)	18.0	-	-
Forging; Quenched and tempered; <= 250 mm Note: Lo = 5 x d; (tang.)	15.0	-	-
Forging; Quenched and tempered; > 250 <= 500 mm Note: Lo = 5 x d; (long.)	17.0	-	-
Forging; Quenched and tempered; > 250 <= 500 mm Note: Lo = 5 x d; (tang.)	14.0	-	-
Forging; Normalized; <= 250 mm Note: Lo = 5 x d; (long.)	18.0	-	-
Forging; Normalized; <= 250 mm Note: Lo = 5 x d; (tang.)	14.0	-	-
Forging; Normalized; > 250 <= 500 mm Note: Lo = 5 x d; (long.)	16.0	-	-
Forging; Normalized; > 250 <= 500 mm Note: Lo = 5 x d; (tang.)	13.0	-	-
Forging; Normalized; > 500 <= 1000 mm Note: Lo = 5 x d; (long.)	15.0	-	-
Forging; Normalized; > 500 <= 1000 mm Note: Lo = 5 x d; (tang.)	12.0	-	-

Impact [J]			
Dimension	Min	Max	Approx
Forging; Quenched and tempered; <= 250 mm Impact Test: Charpy V Notch; (long.)	31	-	-
Forging; Quenched and tempered; <= 250 mm Impact Test: Charpy V Notch; (tang.)	24	-	-
Forging; Quenched and tempered; > 250 <= 500 mm Impact Test: Charpy V Notch; (long.)	27	-	-
Forging; Quenched and tempered; > 250 <= 500 mm Impact Test: Charpy V Notch; (tang.)	21	-	-
Forging; Normalized; <= 250 mm Impact Test: Charpy V Notch; (long.)	31	-	-
Forging; Normalized; <= 250 mm Impact Test: Charpy V Notch; (tang.)	24	-	-
Forging; Normalized; > 250 <= 500 mm Impact Test: Charpy V Notch; (long.)	27	-	-
Forging; Normalized; > 250 <= 500 mm Impact Test: Charpy V Notch; (tang.)	21	-	-
Forging; Normalized; > 500 <= 1000 mm Impact Test: Charpy V Notch; (long.)	24	-	-
Forging; Normalized; > 500 <= 1000 mm Impact Test: Charpy V Notch; (tang.)	17	-	-

Chemical Composition [%]

Criterion	Min	Max	Approx
C	0.4200	0.5000	-
Si	-	0.3500	-
Mn	0.5000	0.8000	-
P	-	0.0350	-
S	-	0.0350	-
