

TDL4 Micro Alloy Steel



Applications:

- Miniature tapping screws for plastics (mobile phones, PC, IT devices, etc.)
- Miniature machine screws (IT devices, cassettes, miniature mechanisms)

Note: TDL4 is especially recommended for screws with miniature threads and/or thin heads as it allows more freedom in designing the radius under the head

Characteristics:

- Fine grain structure with good formability
- High strength (Tensile strength 850 N/mm² maximum)
- No heat treatment required
- High toughness
- No baking after plating required
- Reduced Cost

Merits

Grade	Heat Treatment	Baking after Electro-Plating	Delayed Fracture (Hydrogen Embrittlement)	Property Class	Surface Hardness
TDL4	Not Required	Not Required	No Risk	8.8 Equivalent	N.A.
	No CO ₂ emissions & No secondary process costs		Higher tensile strength & safety/security		
Low Carbon Steel	Case Hardening	Required	Risk Factor	N.A.	Hv450~500



Technical Information

Chemistry

(% wt)

Grade		C	Si	Mn	Ti	P	S	Al	B	N
TDL4	Min.	0.03		0.8	0.005			0.01	0.0008	
	Max.	0.08	0.20	1.8	0.07	0.020	0.020	0.06	0.003	0.01
1016	Min.	0.13		0.60				0.02		
	Max.	0.18	0.10	0.90		0.030	0.035			

Note: TDL4 contains at least one element from among Cr, Mo & Ni plus V and/or Nb

Mechanical Properties

Grade	Ultimate Tensile Strength (UTS)	Yield Strength (YS)	Modulus of Elasticity (E)	Poisson's Ration	Elongation
TDL4	900 MPa	750 MPa	213,000 MPa	0.28	13.2

North America

JICAM North America, Inc.
Rockford, IL 61107
U.S.A.

Tel: 815-397-9432
Fax: 815-394-1592
Email: tkromm@jicam.com

Japan, Europe & Asia

JICAM Pacific Co., Ltd.
Toabo Bldg., 3rd Floor
No.1-4, 3-Chome, Kawara-machi
Chuo-ku, Osaka 541-0048, Japan

Tel: 81-(0)6-6229-9880
Fax: 81-(0)6-6229-9873
Email: terry@jicam.co.jp