

# ATOS

## AuT0mobile Structural Steel





ATOS steel refers to all steel products used for automotive structures.

These are high strength steels of greater than 500MPa tensile strength and greater than 300MPa yield strength. High strength is obtained by adding alloying elements or cooling to low temperature. Steel products having tensile strength of more than 780MPa can be manufactured.

POSCO produces ATOS540 to ATOS780 steels in compliance with the ATOS (AuTOMobile Structural Steel) specification.



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# Automobile Structural Steel

## General Characteristics

The name refers to all steel products used for automotive structures. These are steels which have high tensile strength, greater than 500MPa, and yield strength, greater than 300MPa. High strength is obtained by adding alloy elements or cooling to low temperature. Steel products with tensile strength greater than **780MPa** can be manufactured.

POSCO produces **ATOS540 to ATOS780** grade in compliance with the ATOS (AuTOMobile Structural Steel) specification.

## Product Types, Components, Materials, and Material Property

Specifications	Thickness(mm)	Chemical Composition(wt.%)					
		C	Si	Mn	P	S	Nb
ATOS540	3.2~12.7	≤ 0.20	≤ 0.40	≤ 1.50	≤ 0.03	≤ 0.03	Added
ATOS590	3.2~12.7	≤ 0.20	≤ 0.40	≤ 1.50	≤ 0.03	≤ 0.03	
ATOS780	3.2~14.0	≤ 0.20	≤ 0.40	≤ 2.00	≤ 0.03	≤ 0.005	

Specifications	Tensile Test					Bending Test		
	Yield Point (MPa)	Tensile Strength (MPa)	Elongation(%), Thickness(mm) *Rolling Direction			Bending Angle	Inner Radius	Test Piece (JIS No.3)
			No.5 Test Piece, 3.2~5.0	No.5 Test Piece, 5.0~6.3	No.1 Test Piece, 6.3~12.7			
ATOS540	≥ 540	≥ 340	≥ 20	≥ 21	≥ 14	180°	1.5t	Perpendicular to Rolling Direction
ATOS590	≥ 590	≥ 420	≥ 19	≥ 20	≥ 13	180°	1.5t	Perpendicular to Rolling Direction
ATOS780	≥ 780	≥ 700	≥ 14	≥ 14	≥ 9	180°	1.5t	Perpendicular to Rolling Direction

- Remarks) 1. The number inside parentheses is for reference only.  
 2. Appearance, form, dimension, weight and permissible tolerances comply with JIS G 3134.  
 3. Number of tensile test pieces and bending test pieces for ATOS590 & ATOS780: throughout the same type and thickness of steel, one piece per class. If the weight exceeds 50 tons, two pieces per class.  
 4. A bending test piece is perpendicular to JIS unit 3 rolling direction.

### ■ ATOS780

It has high strength and excellent cold formability, making it suitable for parts such as crane booms, lift arms, and truck/trailer frames.

## Adequate Welding Material Suggestion

Specifications	Yield strength tensile strength (MPa)	Bending ratio (R/t)	Ceq	Heat treatment	Heat input (butt joint)	Welding material	
ATOS590	YS ≥ 420 TS ≥ 590	-	0.35	Pre-heating, Post-heating usually not required	-	Solid-wire	AWS A5.28-05-ER80SG (Ex. KISWEL Z0-60)
						Flux-cored	AWS A5.29-07-E81T1-Ni1 (Ex. KISWEL K81-T)
ATOS780	YS ≥ 700 TS ≥ 780	-	0.40	Pre-heating, Post-heating usually not required	0.3~1.0 kJ/mm heat input amount test (in progress)	Solid-wire	AWS A5.28-05-ER120SG (Ex. KISWEL ZH-120)
						Flux-cored	AWS A5.29-07-E121T1-G (Ex. KISWEL K120TG)

# Available Dimensions

⚠ Please be sure to consult with our associates when making orders for specific usage.

## HR Coil & HR Sheet

### ■ ATOS590

(Unit : mm)

Thickness / Width	3.2	3.6	5.0	6.0	7.0	9.0	12	14
730								
1,120								
1,220								
1,320								
1,420								
1,495								
1,520								
1,570								
1,620								

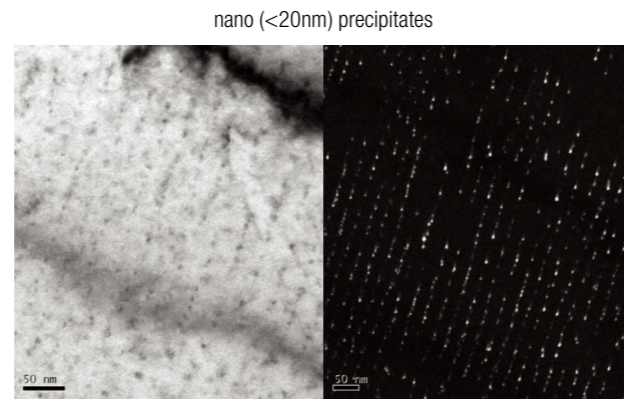
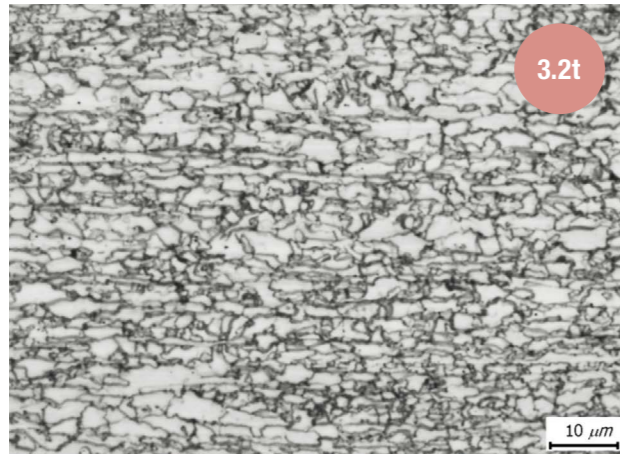
### ■ ATOS780

(Unit : mm)

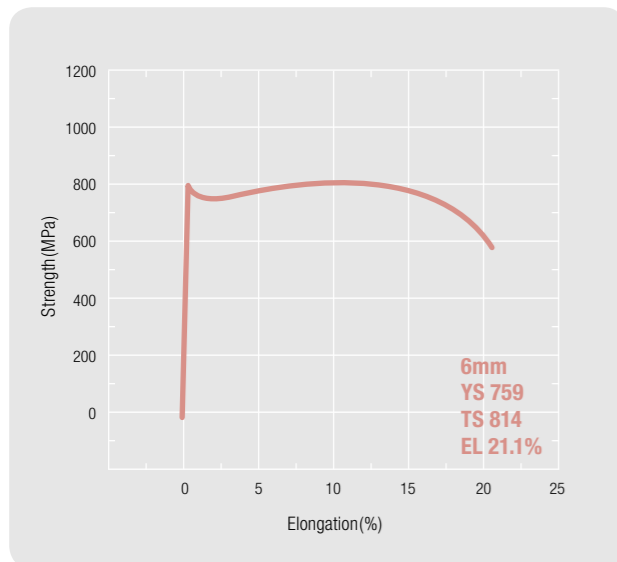
Thickness / Width	3.2	3.6	5.0	6.0	7.0	9.0	12	14
730								
1,120								
1,220								
1,320								
1,420								
1,495								
1,520								
1,570								
1,620								

# ATOS780

## Ferritic Microstructure + Nano Precipitates



## Stress-Strain Curve



- With its high strength and excellent cold forming ability, it is applied to make frames for trucks and trailers.

# ATOS

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