





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.%) |        |        |        |         | Nb    |
|----------------|---------------|----------------------------|--------|--------|--------|---------|-------|
|                |               | C                          | Si     | Mn     | P      | S       |       |
| 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        | 2.5~14.0      | ≤ 0.20                     | ≤ 0.40 | ≤ 2.00 | ≤ 0.03 | ≤ 0.005 |       |

| Specifications | Yield Point (MPa) | Tensile Strength (MPa) | Tensile Test                                    |                          |                           | Bending Test  |              |                                    |
|----------------|-------------------|------------------------|---|--------------------------|---------------------------|---------------|--------------|------------------------------------|
|                |                   |                        | 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.

## Adequate Welding Material Suggestion

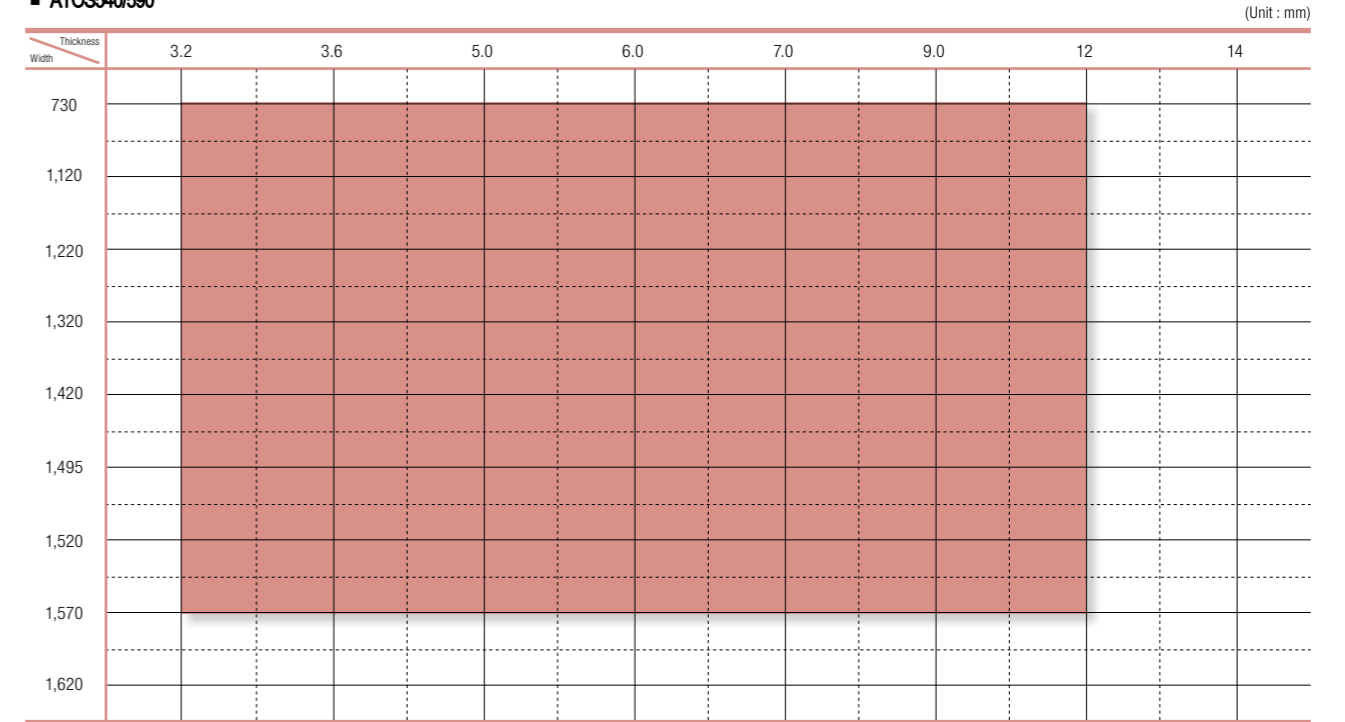
| Specifications | Yield strength tensile strength (MPa) | Bending ratio (R/t) | Ceq  | Heat treatment                                 | Heat input (butt joint)                            | Welding material |   |
|----------------|---------------------------------------|---------------------|------|--|--|------------------|---|
| ATOS590        | YS ≥ 420<br>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<br>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

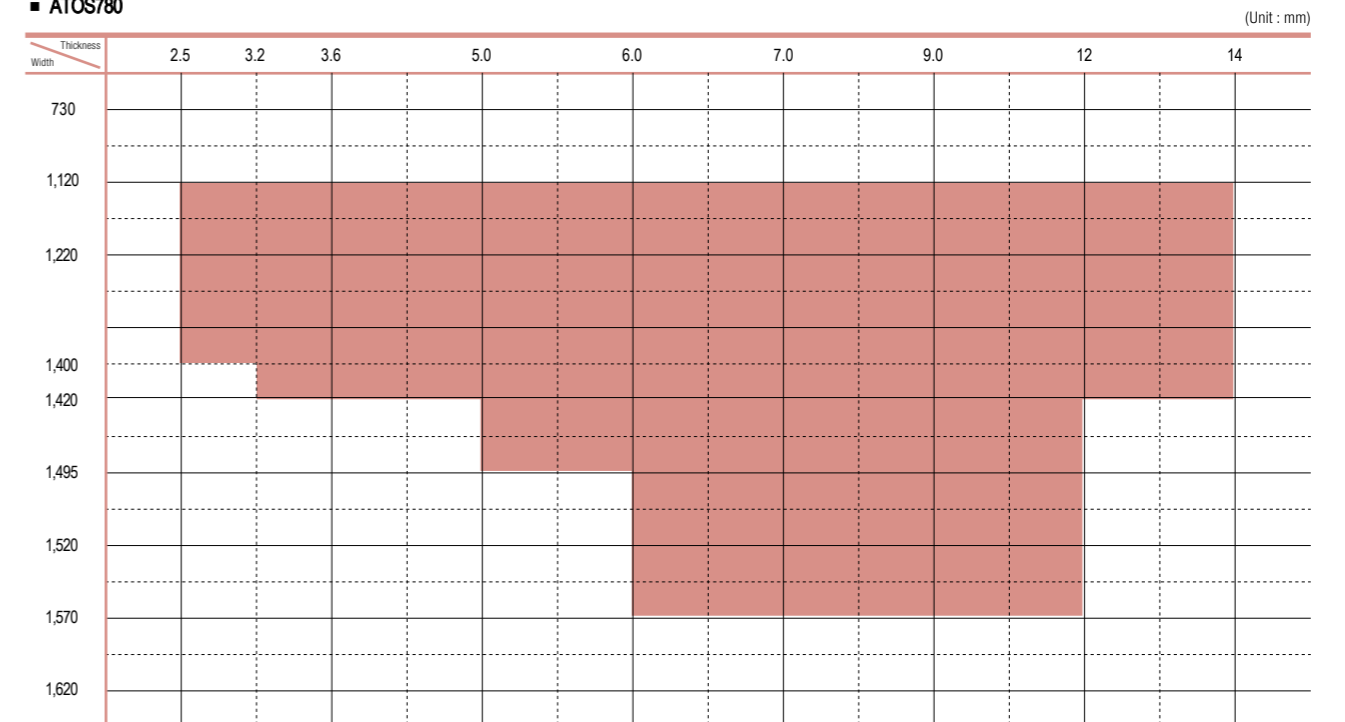
⚠ Please be sure to consult with our associates when making orders for specific usage.

## HR Coil & HR Sheet

### ■ ATOS540/590

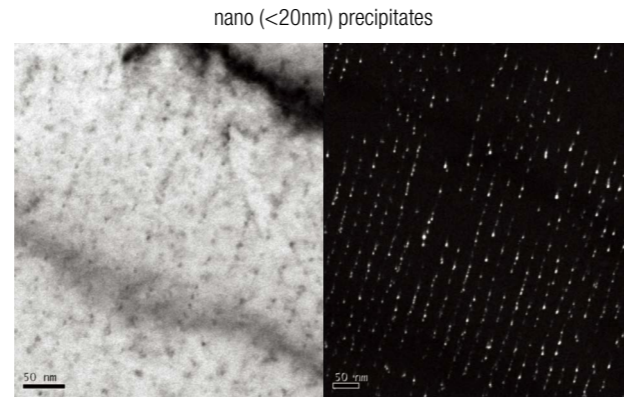


### ■ ATOS780

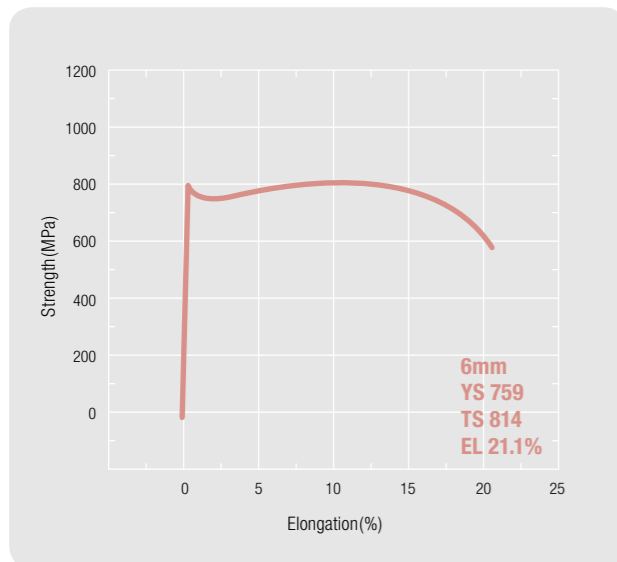


# ATOS780

## Ferritic Microstructure + Nano Precipitates



## Stress-Strain Curve



· Thanks to its high strength and excellent cold forming ability, it is widely used to make booms and outriggers as well as frames for trucks and trailers.




# ATOS

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