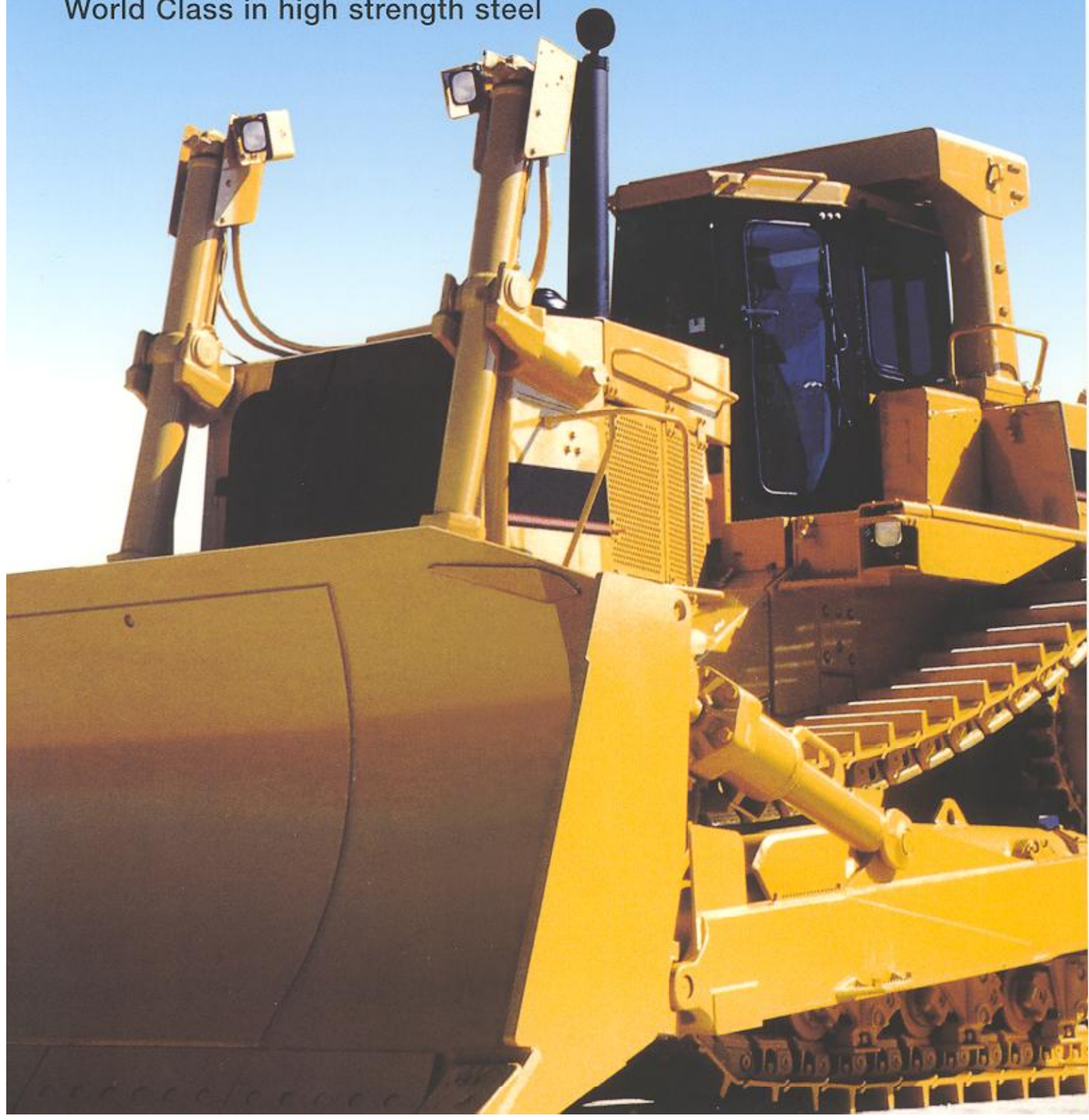


Corus Strip Products IJmuiden

Ympress E690

World Class in high strength steel



Corus Strip Products IJmuiden delivers the solution for applications requiring lighter and stronger steel. YMPRESS is the name of Corus range of high strength steels, delivering a high yield point, tensile strength and also excellent formability and weldability.

YMPRESS facts:

- Higher Load Bearing Capacity
- Down gauging possible
- Lighter component weight
- Cost reduction
- Dent Resistance
- Design Flexibility
- Environmentally Friendly, due to reduced material usage

Ympress E690

With the hot rolled high strength low alloy (HSLA) steel YMPRESS E690, Corus is delivering the solution for applications in which strength to weight ratio is of main importance.

Typical applications are trucks and trailers, cranes and crane booms and earth moving vehicles.

Employing YMPRESS E690 for components, the useful load capacity of trailers and earth moving vehicles can increase.

Crane booms can be longer, their lifting capacity can be higher, and vehicles of all kind can be lighter and stronger.

Formability

The formability of YMPRESS E690 is better than non HSLA grades with

the same strength level. As the mechanical properties of YMPRESS E690 are developed during thermal processing in the Hot Strip Mill, it is recommended that YMPRESS E690 is not subjected to hot forming operations as this may result in a reduction in mechanical properties. YMPRESS E690 combines high strength with good formability for difficult cold formed applications. Guaranteed bending radii established in accordance with ISO 7438 is equal to or better than $1.5t$ (t = sheet thickness) in the transverse direction.

Weldability

YMPRESS E690 is weldable with all conventional arc welding processes, and by utilizing the methodology outlined in EN1011:1993 the development of successful welding procedures should not present the user with a problem.

When welding YMPRESS E690 pre-heating is not generally required. This is mainly due to the low Carbon Equivalent Value (CEV) and supplied thickness range. However, in conditions of high restraint more

stringent procedures are required and consideration should be given to the guidelines in EN 1011:1993.

The choice of welding consumables suitable for YMPRESS E690 is wide and in most cases, but not exclusively, based on the need to match the mechanical properties of the material. In all cases the use of low-Hydrogen is essential and consumables should be used strictly in accordance with manufacturers recommendations.

To ensure that properties are maintained after welding, the maximum recommended heat input for YMPRESS E690 is 3.0kJ/mm.

Cutting

YMPRESS E690 may be cut using all of the normal thermal processes including Oxy-fuel, Plasma and Laser. Adherence to the machine manufacturers guidelines should ensure high quality and trouble free cutting. Due to the low CEV no



Chemical Composition (Values in weight %)

C	Mn	Si	P	S	Al	Nb	V	Ti	Mo
max 0.10	max 1.80	max 0.24	max 0.020	max 0.005	min 0.01	max 0.060	max 0.010	max 0.150	max 0.02

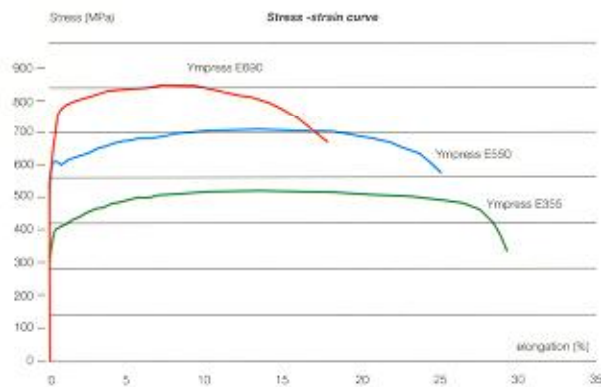
Dimensional limits - Coils

Thickness	3 – 10 mm
Width	1000 – 1840 mm
(the maximum width is dependent on the thickness)	

preheating is required, although it is recommended that steel is not stored outside in winter immediately prior to cutting.

Shearing

YMPRESS E690 can be sheared, but as shear strength is a function of the tensile strength, a proportional reduction in the capacity of the plate shearing equipment should be anticipated in comparison with mild steel grades.



Guaranteed Mechanical properties

Upper Yield Strength ¹ (min)	690 MPa
Tensile Strength	750 – 950 MPa
Elongation (min) dp5	12 %
Charpy V notch test ² 6 mm ≤ t ≤ 8 mm 8 mm < t ≤ 10 mm Impact test requirements at lower temperatures can be supplied by agreement	27 J @ -20° C by agreement
Bend test ³	1.5 t

Notes:

1. The test direction for tensile properties is transverse to the direction of rolling.
2. Minimum impact energy is based on 10mm x 10mm notched sample. The test direction is parallel to the rolling direction.
3. Bend test data for laboratory-prepared specimens with the axis of the bend parallel to the rolling direction.

