

# FULL TYPE TEST GUIDELINE

PRODUCT	FULL TYPE TEST
ANGLES / SHAPES / SECTIONS ( H-BEAM, I-BEAM, CHANNEL, FLAT BAR )	<ul style="list-style-type: none"> <li>▪ HOT FORMING &amp; COLD FORMABILITY</li> <li>▪ FLAGEABILITY</li> <li>▪ ROLL FORMING</li> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ MECHANICAL PROPERTIES</li> <li>▪ WELDABILITY</li> <li>▪ FORMALITY</li> <li>▪ DRAWING OF BARS</li> <li>▪ SUITABILITY FOR HOT DIP ZINC COATING</li> <li>▪ PLATE AND WIDE FLANGE</li> <li>▪ INTERNAL SOUNDNESS</li> <li>▪ CHARPY V-NOTCH</li> <li>▪ DIMENSION</li> <li>▪ TOLERANCE ON DIMENSIONS &amp; SHAPE</li> <li>▪ MARKING, LABELING AND PACKAGING</li> </ul>
ROD / BAR	<ul style="list-style-type: none"> <li>▪ APPEARANCE</li> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ HARDNESS AND MECHANICAL PROPERTIES</li> <li>▪ SHAPE, DIMENSIONS &amp; TOLERANCES</li> <li>▪ TENSILE</li> </ul>
STRIP / HOOP	<ul style="list-style-type: none"> <li>▪ PRODUCT ANALYSIS</li> <li>▪ TENSILE TEST</li> <li>▪ FLATTENING TEST FOR TUBES</li> <li>▪ WELD BEND TEST FOR TUBES AND FITTINGS</li> <li>▪ LEAK TIGHTNESS</li> <li>▪ SOUNDNESS OF WELDS</li> <li>▪ DIMENSIONS OF TUBES</li> <li>▪ LENGTH</li> <li>▪ OUT OF ROUNDNESS</li> <li>▪ STRAIGHTNESS</li> <li>▪ TYPES AND DIMENSIONS OF FITTINGS (IF APPLICABLE)</li> </ul>
PLATE / SHEET	<ul style="list-style-type: none"> <li>▪ CHEMICAL REQUIREMENT + CEV</li> <li>▪ METALLURGICAL STRUCTURE</li> <li>▪ TENSION TEST</li> <li>▪ CHARPY V-NOTCH TEST</li> <li>▪ MARKING</li> </ul>
HOT ROLLED COIL / COLD ROLLED COIL	<ul style="list-style-type: none"> <li>▪ SURFACE CONDITION (VISUAL)</li> <li>▪ SURFACE FINISH</li> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ MECHANICAL PROPERTIES</li> <li>▪ BENDABILITY</li> <li>▪ SHAPE</li> <li>▪ DIMENSIONS</li> <li>▪ MASS &amp; TOLERANCES</li> <li>▪ WORKMANSHIP (VISUAL) AND MARKING</li> </ul>

PRODUCT	FULL TYPE TEST
PIPE / TUBE	<ul style="list-style-type: none"> <li>▪ PRODUCT ANALYSIS</li> <li>▪ PERMITTED VARIATION IN WALL THICKNESS (INCLUDED DIAMETER)</li> <li>▪ TRANSVERSE &amp; LONGITUDINAL TENSION TEST</li> <li>▪ FLATTENING</li> <li>▪ BEND TEST</li> <li>▪ GRAIN SIZE</li> <li>▪ HYDROSTATIC OR NONDESTRUCTIVE ELECTRIC TEST</li> <li>▪ LENGTH</li> <li>▪ WORKMANSHIP</li> <li>▪ FINISH AND APPEARANCE</li> <li>▪ MARKING</li> </ul>
EGI / EG	<ul style="list-style-type: none"> <li>▪ CHEMICAL COMPOSITION – PRODUCT ANALYSIS</li> <li>▪ COATING MASS</li> <li>▪ COATING ADHERENCE – BEND TEST</li> <li>▪ MECHANICAL PROPERTIES</li> <li>▪ DIMENSIONAL TOLERANCE</li> <li>▪ WORKMANSHIP</li> <li>▪ COIL SIZE</li> <li>▪ MARKING</li> </ul>
BILLET	<ul style="list-style-type: none"> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ DIMENSION</li> <li>▪ SHAPE &amp; TOLERANCE</li> <li>▪ APPEARANCE</li> <li>▪ ULTRASONIC TEST</li> <li>▪ MARKING</li> </ul>
WIRE ROD	<ul style="list-style-type: none"> <li>▪ METALLURGICAL STRUCTURE</li> <li>▪ MECHANICAL PROPERTIES</li> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ DIMENSIONS</li> <li>▪ MASS AND PERMISSIBLE VARIATIONS</li> <li>▪ WORKMANSHIP</li> <li>▪ FINISH AND APPEARANCE</li> <li>▪ PACKAGING AND MARKING</li> </ul>
WIRE ROPE	<ul style="list-style-type: none"> <li>▪ TEST ON ROPE FOR DIAMETER</li> <li>▪ TEST ON ROPE FOR BREAKING FORCE</li> </ul>
RAIL	<ul style="list-style-type: none"> <li>▪ TENSILE</li> <li>▪ CHEMICAL</li> <li>▪ BRINELL</li> <li>▪ HARDNESS</li> <li>▪ CHARPY IMPACT</li> <li>▪ SLOW BEND</li> <li>▪ FATIGUE TEST ( 3 X 10<sup>6</sup> MILL CYCLE )</li> </ul>
MANHOLE COVER	<ul style="list-style-type: none"> <li>▪ LOAD TEST</li> <li>▪ TENSILE</li> <li>▪ MICROSTRUCTURE</li> <li>▪ DESIGN REQUIREMENT</li> <li>▪ MARKING</li> </ul>

PRODUCT	FULL TYPE TEST
ALUMINIUM SHEET / PLATE	<ul style="list-style-type: none"> <li>▪ APPEARANCE</li> <li>▪ MECHANICAL PROPERTY</li> <li>▪ DIMENSIONS AND TOLERANCES</li> <li>▪ MARKING</li> </ul>
ALUMINIUM FOIL	<ul style="list-style-type: none"> <li>▪ APPEARANCE</li> <li>▪ CHEMICAL COMPOSITION</li> <li>▪ DIMENSIONS AND TOLERANCES</li> <li>▪ MEASUREMENT OF THICKNESS</li> <li>▪ PACKAGING AND MARKING</li> </ul>