

**PRODUCTION PROGRAM OF ARCELORMITTAL TUBULAR PRODUCTS IASI SA**

**Table 1 - Cold formed HF-welded hollow sections**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Cold finished structural hollow of non-alloy and fine grain steels	CFCHS CFSHS CFRHS	26,9÷219,1 20X20÷150X150 30x20÷200x100	EN 10219-1/2	S235JRH S275JRH S275JOH S355JOH S355J2H S420MH	Size Range -see Tab.1.1+Tab.1.2+Tab.1.3 Other dimensions- subject for special agreement

D [mm]	Size range for EN10219-1/2 : CFCHS																	
	Wall thickness [mm]																	
	1.5	1.8	2	2.3	2.6	2.9	3	3.2	3.6	4	4.5	5	5.6	6	6.3	7.1	8	10
26.9																		
33.7																		
38																		
42.4																		
44.5																		
48.3																		
51																		
57																		
60.3																		
63.5																		
76.1																		
88.9																		
101.6																		
108																		
114.3																		
127																		
133																		
139.7																		
152.4																		
159																		
168.3																		
177.8																		
193.7																		
219.1																		
	Out of range for all materials																	
	Valid for materials: S235JRH																	
	Valid for materials: S275JOH;S275JRH;S355JOH;S355J2H S420MH (max 8 mm)																	

Tab.1.1

BxH [mm]	Size range for EN10219-1/2; CFSHS											
	Wall thickness [mm]											
	1.5	2	2.5	3	3.5	4	4.5	5	6	7	8	10
20x20	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
25x25	Orange	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
30x30	Orange	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
35x35	Orange	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
40x40	Orange	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
50x50	Grey	Orange	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Grey	Grey
60x60	Grey	Orange	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Grey	Grey
70x70	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey	Grey
80x80	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Grey
90x90	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
100x100	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
120x120	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
140x140	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
150x150	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
	Out of range for all materials											
	Valid for materials: S235JRH											
	Valid for materials: S275JOH;S275JRH;S355JOH;S355J2H S420MH (max 8 mm)											

Tab.1.2

BxH [mm]	Size range for EN10219-1/2; CFRHS											
	Wall thickness [mm]											
	1.5	2	2.5	3	3.5	4	4.5	5	6	7	8	10
30x20	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
40x20	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
40x30	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
50x20	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
50x30	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
50x40	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
60x20	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
60x30	Orange	Orange	Orange	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
60x40	Orange	Orange	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
70x50	Grey	Orange	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
80x40	Grey	Orange	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
80x60	Grey	Grey	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
90x50	Grey	Grey	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
90x70	Grey	Grey	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
100x40	Grey	Grey	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
100x50	Grey	Grey	Orange	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
100x60	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
100x80	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
120x60	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
120x80	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
140x80	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
160x80	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
150x100	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
180x100	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal	Diagonal
200x100	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Diagonal	Diagonal	Diagonal
	Out of range for all materials											
	Valid for materials: S235JRH											
	Valid for materials: S275JOH;S275JRH;S355JOH;S355J2H S420MH (max 8 mm)											

Tab.1.3

**Table 1.4 - Product finishing-Cold rolled HF-welded hollow sections**

Properties	Definition	Comments
<b>Lengths</b>	Standard lengths: 6.0 m or 12 m	Lengths tolerances : +50/0; *Other lengths and tolerances - upon request Shorter lengths are available on request(cutting)
<b>Surface condition</b>	Black	Scaled surface, temporarily protected with rolling emulsion
<b>Ends condition</b>	Straight cut on line	*Upon request-machined ends for circular hollow section
<b>Internal weld bead</b>	Without trimming	* Upon request - trimming the internal weld bead - depending on the steel grade and size (OD x WT)
<b>Leak tightness test</b>		Not standard requirement
<b>NDT of the weld</b>	Eddy current	Non standard requirement for quality grades JR and JO ( non-specific inspection) *Specific inspection, upon request for : <ul style="list-style-type: none"> <li>▪ circular hollow section <math>\geq 33,7</math>mm</li> <li>▪ square hollow section <math>\geq 50 \times 50</math> mm</li> <li>▪ rectangular hollow section <math>\geq 60 \times 40</math> mm</li> </ul>
<b>Heat treatment of the weld seam</b>	Without subsequent heat treatment	*Upon request, weld seam annealed, only for OD: 114,3mm;133mm;139,7mm;159mm;168,3mm; 219,1mm
<b>Marking</b>	Ink-Jet marking	Printed text is in white color
	Die stamping ( the intervals between markers=1,5m)	Text length is limited to 40 characters.
	Labels	Marking is applied on labels attached to the bundle
<b>Types of inspection document</b>		Test report 2.2 acc. to EN10204 for non-specific inspection Inspection certificate 3.1 acc. to EN10204 for specific inspection *Upon request- inspection certificate 3.2 acc. to EN10204
<b>Packaging</b>	Hexagonal/Commercial bundles	About 2 Tons per bundle
	Square or Rectangular bundles	

**Table 2 - HFW welded steel tubes for pressure purposes**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Welded steel tubes for pressure purposes Technical delivery conditions Part 1: Non-alloy steel tubes with specified room temperature properties	HFW	26,9÷219,1	EN 10217-1	P195TR1 P235TR1 P265TR1 P195TR2 P235TR2 P265TR2	Size range-see Tab.2.1 Other dimensions can be produced by agreement

D [mm]	Size range for EN10217-1															
	Wall thickness [mm]															
	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0
26,9																
33,7																
42,4																
48,3																
60,3																
76,1																
88,9																
101,6																
108,0																
114,3																
133,0																
139,7																
159,0																
168,3																
193,7																
219,1																
	Out of range for all materials															
	Valid for materials: P195TR1; P235TR1; P265TR1															
	Valid for materials: P195TR2; P235TR2; P265TR2															

Tab.2.1

**Table 3 - HFW welded steel tubes for pressure purposes**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Welded steel tubes for pressure purposes Technical delivery conditions Part 2: Electric welded non-alloy steel tubes with specified elevated temperature proprieties	HFW	114.3÷219,1	EN 10217-2	P195GH P235GH P265GH	Size range-see Tab.3.1 Other dimensions can be produced by agreement

D [mm]	Size range for EN10217-2															
	Wall thickness [mm]															
	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0
26,9																
33,7																
42,4																
48,3																
60,3																
76,1																
88,9																
101,6																
108																
114,3																
133																
139,7																
159																
168,3																
193,7																
219,1																
	Out of range for all materials															
	Valid for materials: P195GH; P235GH; P265GH															

Tab.3.1

**Table 4 - HFW welded steel tubes**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Non-alloy steel tubes and fittings for the conveyance of aqueous liquids		26.9 ÷ 219,1	EN 10224	L235 L275 L355	Size range-see Tab.4.1 Other dimensions can be produced by agreement

D [mm]	Size range for EN10224															
	Wall thickness [mm]															
	1.8	2	2.3	2.6	2.9	3.2	3.6	4	4.5	5	5.6	6.3	7.1	8	8.8	10
26.9																
33.7																
42.4																
48.3																
60.3																
76.1																
88.9																
101.6																
108																
114.3																
133																
139.7																
159																
168.3																
193.7																
219.1																
	Out of range for all materials															
	Valid for materials: L235															
	Valid for materials: L275; L355															

Tab.4.1

**Table 5 - HFW welded steel tubes**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Non alloy steel tubes suitable for welding and threading	3/4"-5"	26,7-139,7	EN 10255 Series H,M Types L,L1,L2	S195T	Size Range see. Tab.5.1

Outside Diameter	Designation of thread R	Size range for EN10255				
		Wall thickness [mm]				
[mm]	-	H Heavy series	M Medium series	Type L	Type L1	Type L2*
26.9	3/4		2.6	2.3	2.3	2.3
33.7	1		3.2	2.9	2.9	2.6
42.4	1 1/4		3.2	2.9	2.9	2.6
48.3	1 1/2		3.2	2.9	2.9	2.9
60.3	2	4.5	3.6	3.2	3.2	2.9
76.1	2 1/2	4.5	3.6	3.2	3.2	3.2
88.9	3	5.0	4.0	3.2	3.6	3.2
101.6	3 1/2	-	-	3.6	-	-
114.3	4	5.4	4.5	3.6	4.0	3.6
139.7	5	5.4	5.0	4.5	-	-
		Out of range for all materials				
		* Subject to roll only against order				

Tab.5.1

**Table 6 - HFW welded steel tubes**

No.	Product description	Size		Standard	Steel grade	Comments
		Type	Range			
1	Petroleum and natural gas. Steel pipes for pipelines for pipe line transportation system	HFW	114.3-219.1	EN ISO 3183	L210/A L245/B L290/X42 L320/X46 L360/X52	PSL1 Size range-see Tab.6.1

D [mm]	Size range for EN ISO 3183															
	Wall thickness [mm]															
	1,8	2,0	2,3	2,6	2,9	3,2	3,6	4,0	4,5	5,0	5,6	6,3	7,1	8,0	8,8	10,0
26,9																
33,7																
42,4																
48,3																
60,3																
76,1																
88,9																
101,6																
108																
114,3																
133																
139,7																
159																
168,3																
193,7																
219,1																
	Out of range for all materials															
	Valid for materials: L210 or A; L245 or B; L290 or X42; L320 or X46; L360 or X52															

Tab.6.1



**Table 7 - Product finishing - Circular welded steel tubes**

Properties	Definition	Comments															
<b>Lengths</b>	Standard lengths: 6.0 m or 12 m	Lengths tolerances : +50/0; *Other lengths and tolerances - upon request Shorter lengths are available on request(cutting)															
<b>Surface condition</b>	Black	Scaled surface, temporarily protected with rolling emulsion															
	Color-coated(pre painted) Brown Red RAL3011 Oxide Red RAL3009 Flame Red RAL3000 Signal Blue RAL5005 Moss Green RAL6005 Silver Gray RAL7001 Basalt Grey RAL7012 Grey White RAL9002	Circular tube only Size range: 48.3 ÷ 219.1mm Length range: 4000 ÷ 7000mm Surface preparation: Shot-blasted, Sa2÷2.5 Number of coat-layers: 1 Nominal dry film thickness: 25µm Color type: Waterborne acrylic undercoat finishing single component paint															
<b>Internal weld bead trimming</b>	Maximum height of weld bead- acc. to standard requirements	Available for pipes between $33,7\text{mm} \leq \text{OD} \leq 219,1\text{mm}$ $2,6\text{mm} \leq \text{Wt} \leq 8,0\text{mm}$ Restriction depending on size (OD x Wt)															
<b>NDT of the weld seam</b>	Eddy current	Testing class depends on the standard for tubes and type of certificate <table border="1" data-bbox="1249 1134 1951 1321"> <thead> <tr> <th>Standard</th> <th>Certificate</th> <th>Testing class</th> </tr> </thead> <tbody> <tr> <td>EN 10217:1/2</td> <td>2.2 ;3.1</td> <td>EN ISO 10893-2/E3H</td> </tr> <tr> <td>EN 10255</td> <td>2.2 ;3.1</td> <td>EN ISO 10893-2/E4H</td> </tr> <tr> <td>EN 10224</td> <td>2.2 ;3.1</td> <td>EN ISO 10893-2/E3H</td> </tr> <tr> <td>EN ISO 3183</td> <td>3.1</td> <td>EN ISO 10893-2/E2H</td> </tr> </tbody> </table>	Standard	Certificate	Testing class	EN 10217:1/2	2.2 ;3.1	EN ISO 10893-2/E3H	EN 10255	2.2 ;3.1	EN ISO 10893-2/E4H	EN 10224	2.2 ;3.1	EN ISO 10893-2/E3H	EN ISO 3183	3.1	EN ISO 10893-2/E2H
Standard	Certificate	Testing class															
EN 10217:1/2	2.2 ;3.1	EN ISO 10893-2/E3H															
EN 10255	2.2 ;3.1	EN ISO 10893-2/E4H															
EN 10224	2.2 ;3.1	EN ISO 10893-2/E3H															
EN ISO 3183	3.1	EN ISO 10893-2/E2H															
<b>Heat treatment of the weld seam</b>	Available only for OD: 114,3 mm; 133 mm; 139,7 mm; 159 mm; 168,3 mm; 219,1 mm	EN ISO 3183; EN 10217-2 ; EN 10217-1 (for TR2 quality) *Upon request: EN 10217-1 (for TR1 quality); EN 10224; EN 10255															

<b>Leak tightness test</b>	Hydrostatic test	<p>Available only for OD: 114,3mm;133mm;139,7mm;159mm;168,3mm; 219,1mm Testing pressure and time depends on the standard for tubes</p> <table border="1"> <thead> <tr> <th>Standard</th> <th>Pressure[bar]</th> <th>Time[s]</th> </tr> </thead> <tbody> <tr> <td>EN 10255</td> <td>50</td> <td>5</td> </tr> <tr> <td>EN 10224</td> <td>70</td> <td>5</td> </tr> <tr> <td>EN 10217-1; 2</td> <td>70</td> <td>5</td> </tr> </tbody> </table> <p>Max. testing pressure 207 bar</p>	Standard	Pressure[bar]	Time[s]	EN 10255	50	5	EN 10224	70	5	EN 10217-1; 2	70	5
	Standard	Pressure[bar]	Time[s]											
	EN 10255	50	5											
EN 10224	70	5												
EN 10217-1; 2	70	5												
Eddy current full body (alternative for hydrostatic test)	for OD between 26,9mm÷88,9 mm (as per EN ISO 10893- 1)													
Flux Leakage (alternative for hydrostatic test)	for OD between 60.3mm÷193.7mm (as per EN ISO 10893- 1)													
<b>Ends condition</b>	Straight cut on line	Square cut ends-90°												
	Beveled ends angle= 30° +5°/ -0° root face=1,6mm±0,8mm	for WT≥3,6 mm *Upon request -different angles(60°,45°) for limited sizes												
	Grooved ends	<p>Standard Roll Groove acc. to Victaulic / Spec. 25.01 (available for EN 10255, EN 10224, EN 10217-1) Lengths: 5,5 m to 6,4 m</p> 												
<b>Marking</b>	Ink-Jet marking	Printed text is in white color; Marking depends on the standard												

<b>Marking</b>	Die stamping ( the intervals between markers=1,5m)	Text length is limited to 40 characters. *Special agreement for more than 40 characters
	Labels	Marking is applied on labels attached to the bundle
<b>Types of inspection document</b>		Test report 2.2 acc. to EN10204 for non-specific inspection Inspection certificate 3.1 acc. to EN10204 for specific inspection *Upon request- inspection certificate 3.2 acc. to EN10204
<b>Packaging</b>	Hexagonal/Commercial bundles	About 2 Tons per bundle

### Management system

Quality System	certified acc to EN ISO 9001 (with notified body TÜV SÜD)	since 1997
Environmental System	certified acc to EN ISO 14001 (with notified body TÜV SÜD)	since 2011
Health and Safety System	certified acc to OHSAS 18001 (with notified body TÜV Rheinland)	since 2011

### Factory Production Control and Processes

AMTP Iasi implemented FPC for steel products for construction in compliance with Regulation 305/2011/EU of the European Parliament and the Council of March 9th,2011 for products EN 10219 and EN 10255 with the right to mark them by CE mark (with notified body TUV SUD)

### Quality System Approval

AMTP Iasi is certified to fulfill the requirements of the Pressure Equipment Directive 2014/68/EU (with notified body Lloyds' Register)

### Approval of Material Manufacturers

AMTP Iasi is approved by DNV-GL as a manufacturer of tubes for shipbuilding

AMTP Iasi is also approved by Lloyd's Register as a manufacturer of tubes for shipbuilding

**Compiled by: Ioan Hrituleac / Quality Director**

**Iasi, 15 September 2016**