

**DECLARATION OF PERFORMANCE**

NR. 0103/007

Rel. 1

Identification code of the product-type	Welded tube made of fine grain structural steel S420MH in accordance with EN10219:2006.
Identification of the construction product	In accordance with the information included in the identification label with barcode and/or bundle number and in the inspection certificate.
Intended use of the construction product	Cold formed welded structural hollow sections of circular, square, or rectangular forms formed cold without subsequent heat treatment.
Manufacturer (registered office)	<b>Marcegaglia S.p.A.</b> Via Bresciani, 16 – 46040 Gazoldo degli Ippoliti (MN) – Italia
Production plant	<b>Casalmaggiore</b> s.s.420 Sabbionetana – 26041 Casalmaggiore (CR) - Italia
System of assessment and verification of constancy of performance of the construction product	2+
Name and identification number of the notified body	RINA Service S.p.A. – Via Corsica, 12 – 16128 Genova - Italia <b>0474</b>

Issued the certificate of conformity of the factory production control on the basis of the following elements:

- starting inspection of the production plant and of the factory production control.
- surveillance, evaluation and continuous audits of the factory production control.

**DECLARED PERFORMANCE**

Essential characteristics	Performance	Harmonised technical specification
Tolerances on dimensions and shape	In compliance with table 2	EN10219-2:2006
Elongation	In compliance with table 1	EN10219-1:2006
Tensile strength		
Yield strength		
Impact strength		
Weldability (CEV)	0,43% max	
Durability	N.P.D.	

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of Marcegaglia S.p.A. by:

**Roberto Ing. Ferrari**  
Casalmaggiore Plant Manager

Casalmaggiore 21/07/2014

This declaration of performance is valid only in presence of the material identification label and the waybill or the inspection certificate issued after delivery.

Table 1 – Mechanical properties						
Steel grade		Minimum yield strength R <sub>eH</sub>	Tensile strength R <sub>m</sub>	Minimum elongation A <sup>(a,b)</sup>	Minimum impact energy	
Steel name	Steel number	[MPa]	[MPa]	[%]	KV in J <sup>(c)</sup>	
		Specified thickness in mm			Test temperature	Min. impact energy
		≤ 16	< 40	≤ 40		
<b>S420MH</b>	<b>1.8847</b>	420	500÷660	19	-20°	40 <sup>(d)</sup>
a. For section sizes D/T < 15 (round) e (B+H)/2T < 12,5 (square and rectangular) the minimum elongation is reduced by 2. b. For thicknesses < 3,0 mm see 9.2.2. of the EN10219:2006 c. For impact properties for reduced section test pieces see 6.7.2. of EN10219:2006 d. This value corresponds to 27J at -30°C (see EN1993-1-1).						

Table 2 – Tolerances on shape and mass		
Outside dimensions (D, B e H) <sup>(4)</sup>	Circular hollow sections	Square and rectangular hollow sections
		± 1% with a minimum of ± 0,5 mm and a maximum of ±10 mm
Thickness (T)	For D ≤ 406,4 mm: T ≤ 5 mm ⇒ ± 10% T > 5 mm ⇒ ± 0,5mm per D > 406,4 mm ± 10% with a maximum of ± 2mm	T ≤ 5 mm ⇒ ± 10% T > 5 mm ⇒ ± 0,5 mm
Out of roundness (O)	2% for hollow sections having a D/T ≤ 100 <sup>(1)</sup> using the formula: $O(\%) = \frac{D_{max} - D_{min}}{D} * 100$	-
Concavity/Convexity (x <sub>1</sub> , x <sub>2</sub> ) <sup>(2)</sup>	-	Max. 0,8% with a minimum of 0,5mm using the formula: $\frac{x_1}{B} * 100\%$ ; $\frac{x_2}{H} * 100\%$ ; ecc.
Squareness of side (θ)	-	90° ± 1°
External corner profile (C <sub>1</sub> , C <sub>2</sub> or R)	-	T ≤ 6 mm ⇒ 1,6T ÷ 2,4T 6 < T ≤ 10 ⇒ 2,0T ÷ 3,0T 10 < T ⇒ 2,4T ÷ 3,6T
Twist (V)	-	2mm plus 0,5 mm/m length
Straightness (e)	0,20 % of total length and 3 mm over any 1 m length.	0,15 % of total length and 3 mm over any 1 m length
Mass (M)	± 6 % on individual delivered length	
Tolerances on length <sup>(3)</sup>	Exact length	< 6000mm ⇒ 0; + 5 mm
		≥ 6000mm and ≤ 10000mm ⇒ 0; + 15 mm
Approximate length	> 10000mm ⇒ 0; + 5 mm + 1mm/m	
	> 4000mm ⇒ 0; + 50 mm	
1. Where D/T > 100 the tolerances on out of roundness shall be agreed. 2. The tolerance on convexity and concavity is independent of the tolerance on outside dimensions. 3. The manufacturer shall establish at the time of enquiry and order the type of length range or length. 4. All external dimensions, including out of roundness, shall be measured at the minimum distance of 100 mm from the end of the hollow section.		