



1. Unique identification code of the product-type:

**SB assembly EN 15048-1:2007**

additional information:

assemblies of bolts and nuts according to EN 15048-1:2007  
sizes: M8 to M27  
strength class bolts 4.6, 5.6, 8.8, 10.9  
manufacturer mark: CLEFF"  
strength class nuts 4, 5, 8, 10  
manufacturer mark: C"

2. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

**Non-preloaded structural bolting assemblies**

3. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

**J. vom Cleff A. Sohn GmbH & Co. KG  
Kemmannstr. 90  
D-42349 Wuppertal**

4. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

**System 2+**

5. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

The MATERIALPRÜFUNGSAMT NORDRHEIN-WESTFALEN (MPA NRW), Marsbruchstraße 186, 44287 DORTMUND, body-no. 0432 executed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control under system 2+ and issued a

**certificate of conformity of the factory production control  
0432-CPR-00153-01**



6. Declared performance

Essential characteristics	Performance	Harmonised technical specification
<b>bolts</b>		
measure-, form- and positiontolerances	product class corresponding productstandard acc. EN ISO 4759-1 DIN 7990; DIN 7968: productclass C ISO 4014; ISO 4017: products $d \leq 24\text{mm}$ und $l \leq 10d$ or $150\text{mm}$ <sup>1)</sup> : productclass A products $d > 24\text{mm}$ oder $l > 10d$ or $150\text{mm}$ <sup>1)</sup> : productclass B <small>1) valid is the smaller value</small>	EN 15048-1:2007
elongation	Corresponding to the property-class of the headmarking acc. : EN ISO 898-1 Cl. 4.6: 22% Cl. 5.6: 20% Cl. 8.8: 12% Cl. 10.9: 9%	EN 15048-1:2007
tensile strength	Cl. 4.6: 400N/mm <sup>2</sup> Cl. 5.6: 500N/mm <sup>2</sup> Cl. 8.8: Products up to M10: 800N/mm <sup>2</sup> Products from M12: 830N/mm <sup>2</sup> Cl. 10.9: 1040N/mm <sup>2</sup>	
yield point	Cl. 4.6: 240N/mm <sup>2</sup> Cl. 5.6: 300N/mm <sup>2</sup>	
proof stress	Cl. 8.8: Products up to M10: 640N/mm <sup>2</sup> Products from M12: 660N/mm <sup>2</sup> Cl. 10.9: 940N/mm <sup>2</sup>	
proof load test	Cl. 4.6: 225MPa Cl. 5.6: 280MPa Cl. 8.8: Products up to M10: 580MPa Products from M12: 600MPa Cl. 10.9: 830MPa	
tensile test under wedge loading	Cl. 4.6: 400N/mm <sup>2</sup> Cl. 5.6: 500N/mm <sup>2</sup> Cl. 8.8: Products up to M10: 800N/mm <sup>2</sup> Products from M12: 830N/mm <sup>2</sup> Cl. 10.9: 1040N/mm <sup>2</sup>	
hardness	Cl. 4.6: HBW 114-209 Cl. 5.6: HBW 147-209 Cl. 8.8: Products up to M10: HBW 238-304 Products from M12: HBW 242-318 Cl. 10.9: HBW 304-361	
impact test	Cl. 4.6: NPD Cl. 5.6; 8.8; 10.9: 27J <small>gilt für <math>d \geq M16</math></small>	
durability	NPD	
emissions of dangerous substances	NPD	



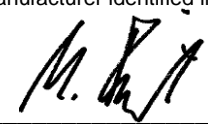
Essential characteristics	Performance	Harmonised technical specification
<b>nuts</b>		
measure-, form- and positiontolerances	product class corresponding productstandard acc. EN ISO 4759-1  ISO 4032: Products ≤ M16: productclass A Products > M16: productclass B ISO 4034: productclass C	EN 15048-1:2007
proofstress	Corresponding to the property-class of the headmarking acc. :EN ISO 898-2:  Cl. 4.: Products ≤ M16: NPD Products > M16: 510 N/mm <sup>2</sup> Cl. 5: Products M8 to M10: 590 N/mm <sup>2</sup> Products M12 to M16: 610 N/mm <sup>2</sup> Products > M16: 630 N/mm <sup>2</sup> Cl. 8: Products M8 to M10: 870 N/mm <sup>2</sup> Products M12 to M16: 880 N/mm <sup>2</sup> Products > M16: 920 N/mm <sup>2</sup> Cl. 10: Products M8 to M10: 1040 N/mm <sup>2</sup> Products M12 to M16: 1050 N/mm <sup>2</sup> Products > M16: 1060 N/mm <sup>2</sup>	EN 15048-1:2007
hardness	Cl. 4.: Products ≤ M16: NPD Products > M16: HV 117-302 Cl. 5: Products M8 to M16: HV 130-302 Products > M16: HV 146-302 Cl. 8: Products M8 to M16: HV 200-302 Products > M16: HV 233-353 Cl. 10: HV 272-353	
durability	NPD	
emmissions of dangerous substances	NPD	EN 15048-1:2007



Wesentliche Merkmale	Leistung	Harmonisierte technische Spezifikation																																																																								
<b>Garnituren</b>																																																																										
tensile strength of the assembly	<p>Corresponding to the property-class of the headmarking acc EN ISO 898-1 or EN ISO 10684:  <math>F_{bi,max} \geq F_{ub} = A_{s,norm} \times R_{m,min}</math></p> <p>Cl. 4.6:</p> <table> <tr><td>Products M8:</td><td>14600N</td></tr> <tr><td>Products M8 hdg <sup>1)</sup>:</td><td>13300N</td></tr> <tr><td>Products M10:</td><td>23200N</td></tr> <tr><td>Products M10 hdg <sup>1)</sup>:</td><td>21400N</td></tr> <tr><td>Products M12 :</td><td>33700N</td></tr> <tr><td>Products M16:</td><td>62800N</td></tr> <tr><td>Products M20:</td><td>98000N</td></tr> <tr><td>Products M24:</td><td>141000N</td></tr> <tr><td>Products M27:</td><td>184000N</td></tr> </table> <p>Cl. 5.6:</p> <table> <tr><td>Products M8:</td><td>18300N</td></tr> <tr><td>Products M8 hdg <sup>1)</sup>:</td><td>16600N</td></tr> <tr><td>Products M10:</td><td>29000N</td></tr> <tr><td>Products M10 hdg <sup>1)</sup>:</td><td>26800N</td></tr> <tr><td>Products M12 :</td><td>42200N</td></tr> <tr><td>Products M16:</td><td>78500N</td></tr> <tr><td>Products M20:</td><td>12200N</td></tr> <tr><td>Products M24:</td><td>176000N</td></tr> <tr><td>Products M27:</td><td>230000N</td></tr> </table> <p>Cl. 8.8:</p> <table> <tr><td>Products M8:</td><td>29200N</td></tr> <tr><td>Products M8 hdg <sup>1)</sup>:</td><td>26600N</td></tr> <tr><td>Products M10:</td><td>46400N</td></tr> <tr><td>Products M10 hdg <sup>1)</sup>:</td><td>42900N</td></tr> <tr><td>Products M12 :</td><td>70000N</td></tr> <tr><td>Products M16:</td><td>130000N</td></tr> <tr><td>Products M20:</td><td>203000N</td></tr> <tr><td>Products M24:</td><td>293000N</td></tr> <tr><td>Products M27:</td><td>381000N</td></tr> </table> <p>Cl. 10.9:</p> <table> <tr><td>Products M8:</td><td>38100N</td></tr> <tr><td>Products M8 hdg <sup>1)</sup>:</td><td>34500N</td></tr> <tr><td>Products M10:</td><td>60300N</td></tr> <tr><td>Products M10 hdg <sup>1)</sup>:</td><td>55700N</td></tr> <tr><td>Products M12 :</td><td>87700N</td></tr> <tr><td>Products M16:</td><td>163000N</td></tr> <tr><td>Products M20:</td><td>255000N</td></tr> <tr><td>Products M24:</td><td>367000N</td></tr> <tr><td>Products M27:</td><td>477000N</td></tr> </table> <p><small>1) only hdg bolts with undersized thread toleranceclass 6az before application of surface, headmarking U</small></p>	Products M8:	14600N	Products M8 hdg <sup>1)</sup> :	13300N	Products M10:	23200N	Products M10 hdg <sup>1)</sup> :	21400N	Products M12 :	33700N	Products M16:	62800N	Products M20:	98000N	Products M24:	141000N	Products M27:	184000N	Products M8:	18300N	Products M8 hdg <sup>1)</sup> :	16600N	Products M10:	29000N	Products M10 hdg <sup>1)</sup> :	26800N	Products M12 :	42200N	Products M16:	78500N	Products M20:	12200N	Products M24:	176000N	Products M27:	230000N	Products M8:	29200N	Products M8 hdg <sup>1)</sup> :	26600N	Products M10:	46400N	Products M10 hdg <sup>1)</sup> :	42900N	Products M12 :	70000N	Products M16:	130000N	Products M20:	203000N	Products M24:	293000N	Products M27:	381000N	Products M8:	38100N	Products M8 hdg <sup>1)</sup> :	34500N	Products M10:	60300N	Products M10 hdg <sup>1)</sup> :	55700N	Products M12 :	87700N	Products M16:	163000N	Products M20:	255000N	Products M24:	367000N	Products M27:	477000N	EN 15048-1:2007
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7. The performance of the product identified in point 1 is in conformity with the declared performance in point 6.  
 This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 3.  
 Signed for and on behalf of the manufacturer by:

**Wuppertal, den 18.06.2019**

**Unterschrift:**   
 Traubitsch ppa (techn. Leiter)