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Institute for Building Materials, Concrete Construction and Fire Protection | Braunschweig Civil Engineering Materials Testing Institute

Materialprüfanstalt (MPA) für das Bauwesen · Beethovenstr. 52 · D-38106 Braunschweig

Apolo MEA Befestigungssysteme GmbH
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Letter **8733/2013**

Our Ref.:	(3479/606/13)-NB
Customer-No.:	11893
Official in Charge:	Frau Bollmohr
Dept.:	BS
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Your Ref.:	
Your message of:	
Date:	31.05.2013

Extension of the validity of Test Report No. (3181/336/12)-NB of 12/11/2012, "Apolo MEA Injection system Vinyl for concrete" bonded anchor

Dear Sir or Madam,

In reply to your enquiry we wish to inform you that the statements made in the above Test Report No. (3181/336/12)-NB of 12/11/2012 regarding the reaction to fire of centrically tensioned

"Apolo MEA Injection system Vinyl for concrete"

bonded anchors, with M8 to M30 anchor rods made from electrogalvanised steel (strength class ≥ 5.8) or

with M8 to M30 anchor rods made from A4 stainless steel or HCR steel (strength class ≥ A70),

which are set in uncracked reinforced concrete (strength class between ≥ C20/25 and ≤ C50/60) and exposed on one side to a fire in accordance with the DIN EN 1363-1 : 1999-10 standard temperature-time curve (ETK), continue to apply until 6 March 2018.

This letter consists of 4 pages and contains an abstract of the above Test Report.

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Notified body (0761-CPD)
MPA Braunschweig has been approved and notified as a civil engineering testing, inspection and certifying body.
MPA Braunschweig has been accredited as a testing and calibration laboratory in compliance with ISO/IEC 17025, and as an inspection body in compliance with ISO/IEC 17020.

1 General

In view of the results that were achieved in the fire test, the fire resistance times that are listed in the tables in section 2 below can be assigned to the "Apolo MEA Injection system Vinyl for concrete" bonded anchors as a function of the maximum tensile loads, due consideration being to the notes in section 3 below. The edge and centre distances have to be selected so that the steel failure / the mortar failure (failure as a result of ETK temperature exposure) becomes decisive.

If the edge distance c is so large that steel failure becomes the failure mode, the load values in tables 1 to 2 can also be transferred to anchors that are subjected to lateral loads.

2 Evaluation of test results

Table 1: Fire resistance times of the "Apolo MEA Injection system Vinyl for concrete" bonded anchor in conjunction with M8 to M30 anchor rods made from electrogalvanised steel strength class ≥ 5.8) as a function of the maximum tensile load

Designation	**Fire resistance time in minutes**			
"Apolo MEA Injection system Vinyl for concrete" bonded anchor[1)]	**30 max. N [kN]**	**60 max. N [kN]**	**90 max. N [kN]**	**120 max. N [kN]**
M8	≤ 1.64	≤ 1.12	≤ 0.59	≤ 0.33
M10	≤ 2.60	≤ 1.77	≤ 0.94	≤ 0.52
M12	≤ 3.35	≤ 2.59	≤ 1.82	≤ 1.44
M16	≤ 6.25	≤ 4.82	≤ 3.40	≤ 2.69
M20	≤ 9.75	≤ 7.52	≤ 5.30	≤ 4.19
M24	≤ 14.04	≤ 10.84	≤ 7.64	≤ 6.04
M30	≤ 18.26	≤ 14.10	≤ 9.94	≤ 7.86

1) When rating fasteners it has to be checked whether the permissible loads of the general type approvals (e.g. ETA-10/0134) are decisive.

Table 2: Fire resistance times of the "Apolo MEA Injection system Vinyl for concrete" bonded anchor in conjunction with M8 to M30 anchor rods made from A4 stainless steel or HCR steel as a function of the maximum tensile load

Designation	Fire resistance time in minutes			
"Apolo MEA Injection system Vinyl for concrete" bonded anchor[1)]	30 max. N [kN]	60 max. N [kN]	90 max. N [kN]	120 max. N [kN]
M8	≤ 1.64	≤ 1.12	≤ 0.59	≤ 0.33
M10	≤ 2.60	≤ 1.77	≤ 0.94	≤ 0.52
M12	≤ 3.35	≤ 2.59	≤ 1.82	≤ 1.44
M16	≤ 6.25	≤ 4.82	≤ 3.40	≤ 2.69
M20	≤ 9.75	≤ 7.52	≤ 5.30	≤ 4.19
M24	≤ 14.04	≤ 10.84	≤ 7.64	≤ 6.04
M30	≤ 18.26	≤ 14.10	≤ 9.94	≤ 7.86

1) When rating fasteners it has to be checked whether the permissible loads of the general type approvals (e.g. ETA-10/0134) are decisive.

3 Special notes

The above-mentioned Test Report, together with this extension, does not replace an approval (Building Code Test Certificate - abP, National Technical Approval - abZ, European Technical Approval - ETA) that is required under the German building code procedure. It should, in addition, be noted that load values under fire exposure conditions may in the future be regulated by European Technical Approvals.

The above assessment only applies to the tested "Apolo MEA Injection system Vinyl for concrete" bonded anchors on the basis of the conditions that are set out in the Technical Data Sheets of Apolo MEA Befestigungssysteme GmbH. The anchors must be installed in accordance with the specification provided by Apolo MEA Befestigungssysteme GmbH and in accordance with valid type approval (ETA, abZ).

The assessment for the above "Apolo MEA Injection system Vinyl for concrete" bonded anchors only applies in connection with substrates made from reinforced concrete (strength class ≥ C20/25 and ≤ C50/60) that can at least be classified under a fire resistance class that corresponds to the fire resistance class of the anchors.

The validity of Test Report No. (3181/336/12)-NB of 12/11/2012 will in connection with this letter expire on 06/03/2018.

Yours sincerely

i. A.
ORR Dr.-Ing. Rohling
Head of Testing Laboratory

i. A.
Dipl.-Ing. Bollmohr
Engineer in Charge