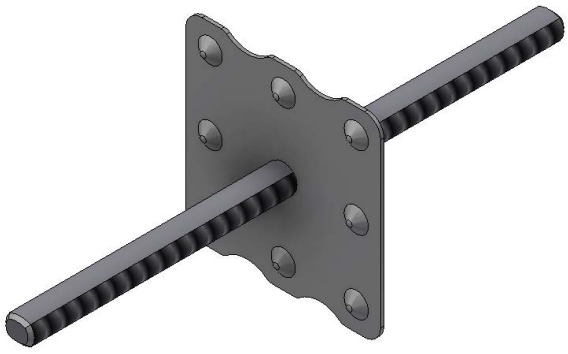
The Formwork Experts.

Water stop G 15.0

Art. n° 581819000

Test Report

water impermeability
AB 1331-3_en



TECHNICAL REPORT

Pöyry Infra GmbH
Materialversuchsanstalt Strass
Certified Laboratory for Construction Material

Oberdorf 103
A 6261 Strass / Austria
phone +43 (0)676 83878 500
fax +43 (0)676 83878 507
mva-strass.at@poyry.com

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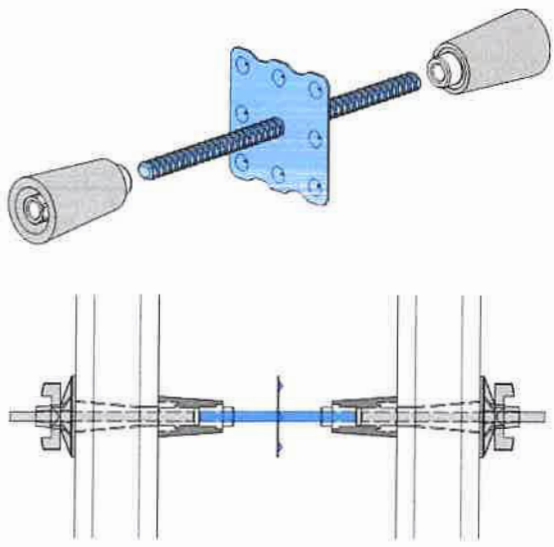
DOKA INDUSTRIE GMBH

JOSEF UMDASCH PLATZ 1
3300 AMSTETTEN

WATERTIGHT FORM-TIES
WATERSTOP G 15.0



LABORATORY TEST REPORT – WATER TIGHTNESS

(CASTING AND TEST DATE: JANUARY TO MAY 2012)

PÖYRY
Engineering balanced sustainability

1 GENERAL

The laboratory „Materialversuchsanstalt (MVA) Strass“ of Pöyry Infra GmbH Austria was assigned on 22nd November 2011 by the client „Doka Industrie GmbH”, order number NB-00345549, to perform tests regarding the water tightness of form-ties.

2 PROCEDURE

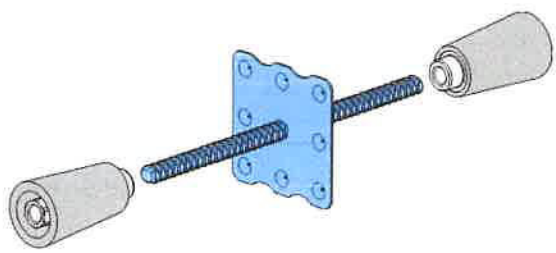
- Casting of the test walls and assembly of the tested form-ties took place at the MVA Strass laboratory (see photo documentation in attachment 1). Concrete production was performed by an ÖNORM B4710 certified batching plant. After hardening of the concrete the samples including the form-ties have been extracted by means of core drilling with a diameter of Ø 150 mm (see photo documentation in attachment 1).

- Determination of the water penetration depth on three samples for each type of form-tie as well as on three additional samples without form-ties.

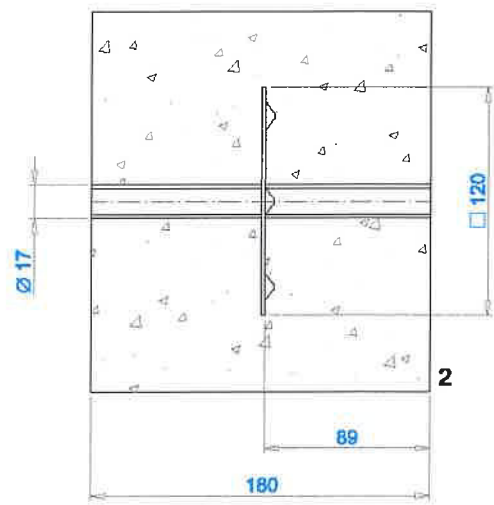
2.1 Tested Form-ties

DOKA Waterstop G 15.0

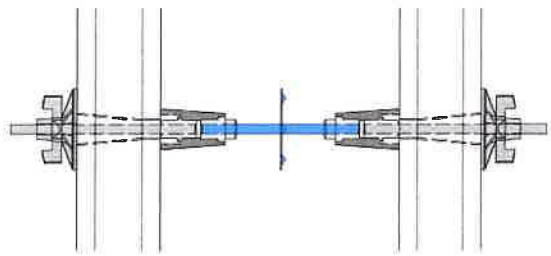
Form-tie



Scheme of the sample



Scheme of the construction set-up



Installation and use:
see Doka User Information- -Doka form-ties for special requirements – page 20

2.2 Concrete

The concrete mix design corresponds to a concrete class C25/30/XC4/XF3/F3 according to EN 206.

All mix design components (raw materials) are CE certified.

Mix Design

Cement	CEM I 42.5 R SR, 0% C3A	305 kg/m³
Puzzolan	Fly Ash acc. to EN 450, k=0.4	60 kg/m³
Water / (Cement + k × Fly Ash) - ratio		0.50

Compressive strength, concrete age of 28 days, according to EN 12390-3:

Average of three samples **46.2 MPa**

3 TEST RESULTS

3.1 Sampling

After drilling of the samples (age of concrete was 28 days) the specimen have been stored under water (20 ±5°C) in accordance with EN 12390-2. Specimen preparation and testing have been performed based on EN 12390-8. A water pressure of 500 ±50 kPa (5.0 ±0.5 bar) has been applied to the samples (minimum 28 days old) for 72 ±2 hours. Samples have then been split rectangular to the area where the water pressure has been applied (deviating from the regulations of EN 12390-8 this area did not face downwards due to the embedded form-ties). The water penetration was then marked at the samples testing area and the maximum penetration depth was evaluated and noted.

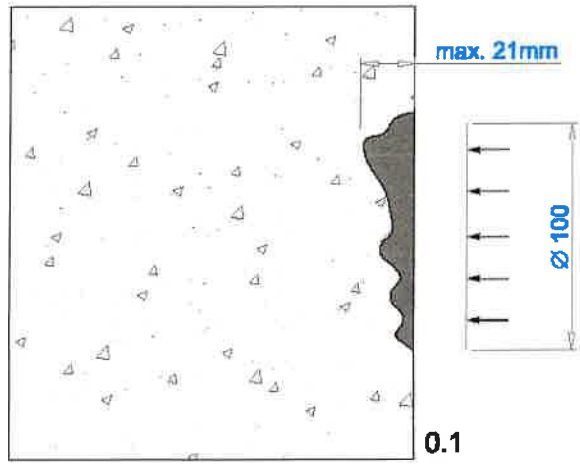
3.2 Water penetration of comparator samples without form-ties

Maximum water penetration depth, age of 28 days, based on EN 12390-8

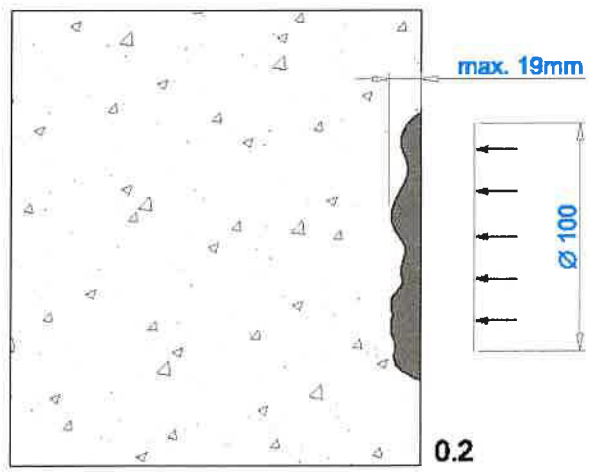
Average of three samples **26 mm**

Schematic drawing of the water penetration into the test samples

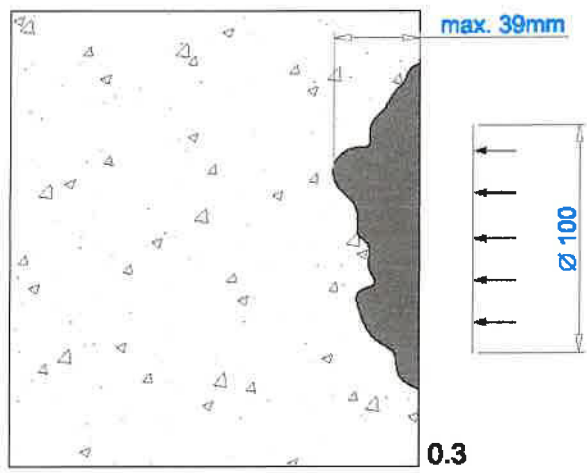
Sample 0.1



Sample 0.2



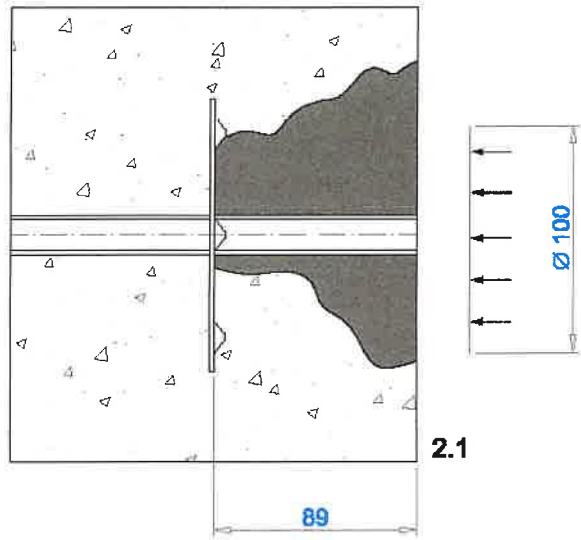
Sample 0.3



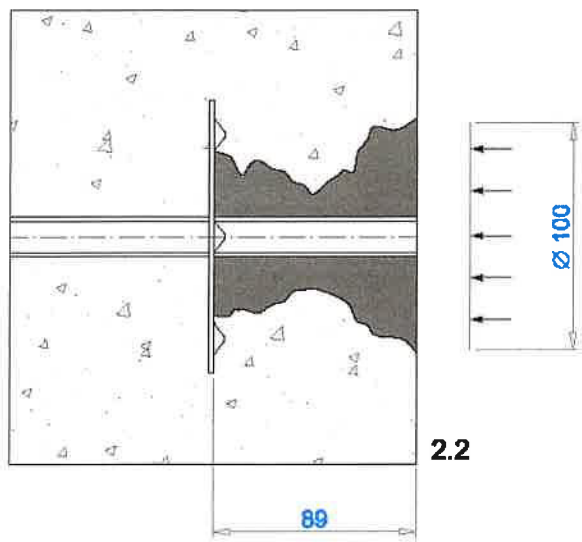
3.3 Water penetration of test samples - form-tie „Doka Waterstop G 15.0“

Schematic drawing of the water penetration into the test samples

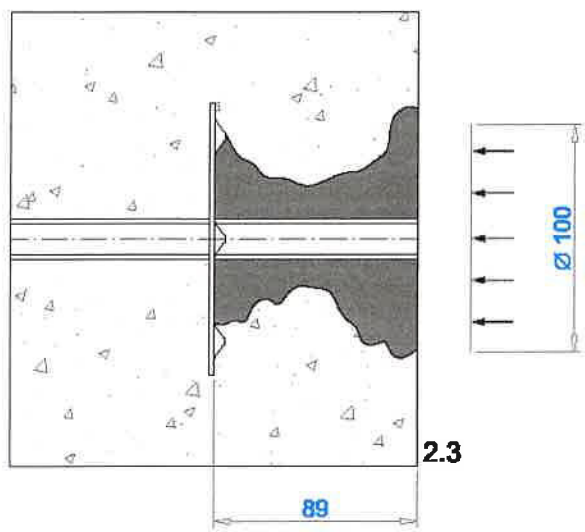
Sample 2.1



Sample 2.2



Sample 2.3



4 CONCLUSION

The samples with form-ties "Doka Waterstop G 15.0" showed a water penetration until the sealing plate of the waterstop.

No passing of water could be observed at the opposite side of the test area.

Materialversuchsanstalt Strass

Pöyry Infra GmbH

i.V.

i.V. Bmstr. Ing. Hubert Dichtl
Head of Laboratory

i.A. Rainer Draxl
Laboratory Engineer

ATTACHEMENT 1 – PHOTO DOCUMENTATION

A1 – Casting of the test walls, assembly of the form-ties

A2 – Concrete placement

A3 – Core drilling of the specimen

A4 – Test procedure – samples at the test apparatus – 5 bar water pressure

A5 – Testing of the samples - splitting