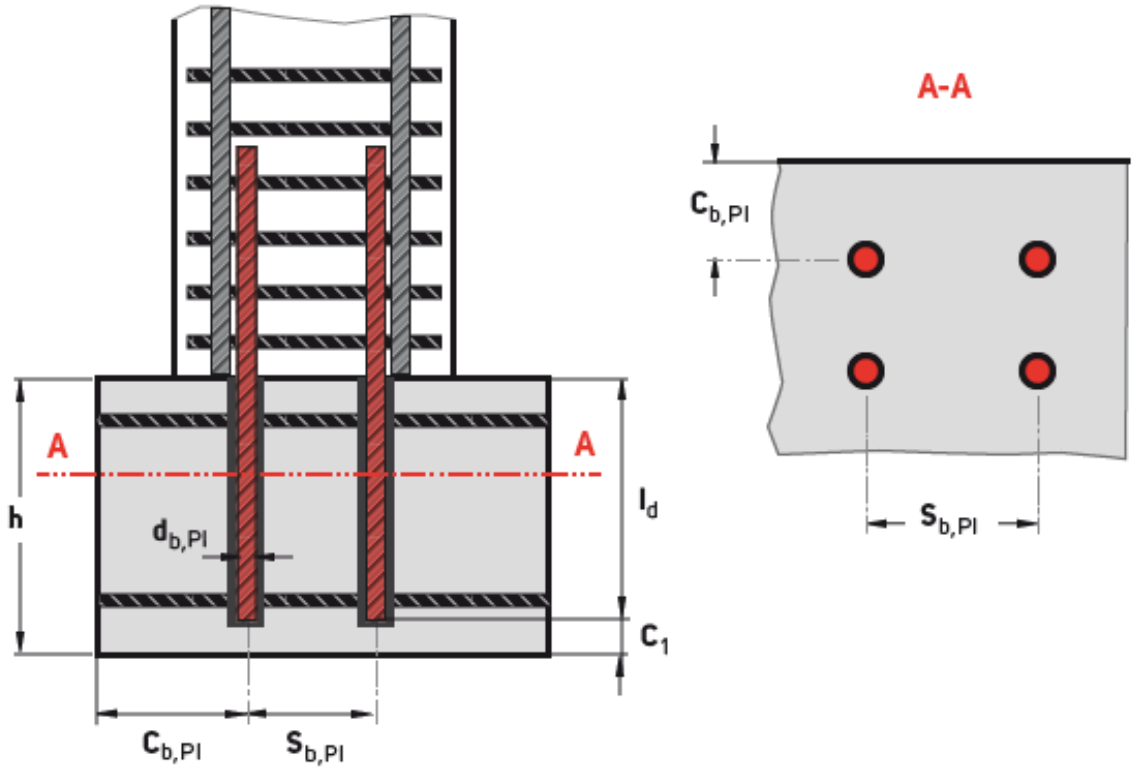
Company:		Page:	1
Specifier:		Project:	
Address:		Fastening application:	
Phone | Fax:	|	Date:	3/11/2022
E-Mail:			

Specifier's comments:

1 Input data

Post-installed reinforcement:	**Hilti HIT-RE 500 V3 + bar #3**
Application type:	Starter bars
Material:	Custom, f_y = 400 N/mm²
Approval No.:	ESR-3814
Issued | Valid:	January 2017 | January 2019
Design method:	ACI 318-11
Base material:	cracked concrete, f_c' = 20.68 N/mm², temp. adhesive / concrete: 20/20 °C
Installation:	**drilling method: Hammer drilling, Installation condition: Dry**
Seismic design (cat. C, D, E, or F):	no
λ	1.00

2 Geometry



Company:
Specifier:
Address:
Phone | Fax: |
E-Mail:

3 Post-installed reinforcement - anchorage in tension

3.1 Inputs

Rebar diameter	9.52 mm
Rebar yield steel strength	400 N/mm²
Rebar coating	no
In-plane spacing between bars	50.0 mm
Edge distance for bars	50.0 mm
K_{tr}	0.00
Reduction for excessive reinforcement	no

3.2 Equations

$$c_b = \min\left(c_{b,PI} ; \frac{s_{b,PI}}{2}\right)$$

$$l_{d,initial} = \frac{3}{40}\left(\frac{f_y}{\lambda \sqrt{f_c'}}\frac{\Psi_t \Psi_s \Psi_e}{\min\left(\frac{c_b + K_{tr}}{d_b} ; 2.5\right)}\right) d_b$$ ACI 318-11 Eq. (12-1)

$$l_d = \max(l_{d,initial} ; l_{d,min})$$

3.3 Variables

d_b	$s_{b,PI}$	$c_{b,PI}$	K_{tr}	f_y	f_c'	λ
9.52 mm	50.0 mm	50.0 mm	0.00	400 N/mm²	20.68 N/mm²	1.00

3.4 Calculations

c_b	$\min((c_b + K_{tr}) / d_b ; 2.5)$	Ψ_t	Ψ_s	Ψ_e	$l_{d,min}$
25.0 mm	2.50	1.00	0.800	1.00	305 mm

3.5 Results

$l_{d,initial}$	l_d
243 mm	305 mm

Company:		Page:	3
Specifier:		Project:	
Address:		Fastening application:	
Phone | Fax:	|	Date:	3/11/2022
E-Mail:			

4 Required drilled hole length

4.1 Equations

$l_e = l_d$

4.2 Results

l_e
305 mm

4.3 Notes

The combination rebar size and adhesive temperature only allows: manual dispenser (HDM), cordless dispenser (HDE), and pneumatic dispenser (HIT-P 8000D).

4.4 Find out more

https://www.us.hilti.com/rebar

https://www.us.hilti.com/profis-rebar-videos

5 Remarks; Your cooperation duties

The results of the calculations carried out by means of the Software are based essentially on the data You put in. Therefore, You bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by You. Moreover, You bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for Your specific project. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application, local conditions, or for Your applicable jurisdiction.

6 Warnings

The applications described in PROFIS Rebar are intended to serve as illustrative examples. It is the responsibility of the Engineer of Record (EOR) to determine reinforcement size and grade using reinforced concrete design principles. Development length and lap splice calculations are based on provisions given in Chapter 12 or Chapter 21 of the ACI 318-11 code (published 2011). Calculations using the Hilti Method are based on the provisions given in Part 6.6 of the Post-Installed Reinforcing Bar Guide for Hilti North America, and utilize the characteristic bond stress values published in the product ICC-ES Evaluation Service Reports (ESRs) current as of 7/31/2015. Post-installed reinforcing bar embedment's calculated using the Hilti Method are only assumed to be relevant for the purpose of shear force transfer across a concrete interface. When new concrete is placed against existing concrete, roughening the surface of the existing concrete in conformance with the code is recommended. Post-installed reinforcing bars must be installed per the Manufacturer's Printed Installation Instructions (MPII) provided with the packaging of the adhesive product. Reference the ESR for additional design and installation provisions.