

CALCULATION SERVICE DESCRIPTION AND IMPORTANT NOTICES

1.0 Name: Calculation Service

1.1 Article Number: 2150594

1.2 Scope: Hilti In collaboration with the customer prepares a calculation for individual Anchor/Fire-stop/Installation solutions. In the case that Hilti cannot provide a solution for a specific situation this will be clearly communicated to the customer.

1.3 Cost: The 'Calculation Service' is a **charged service** the rate is **INSERT PRICE/hr**

The process steps of the Calculation service are as follows:

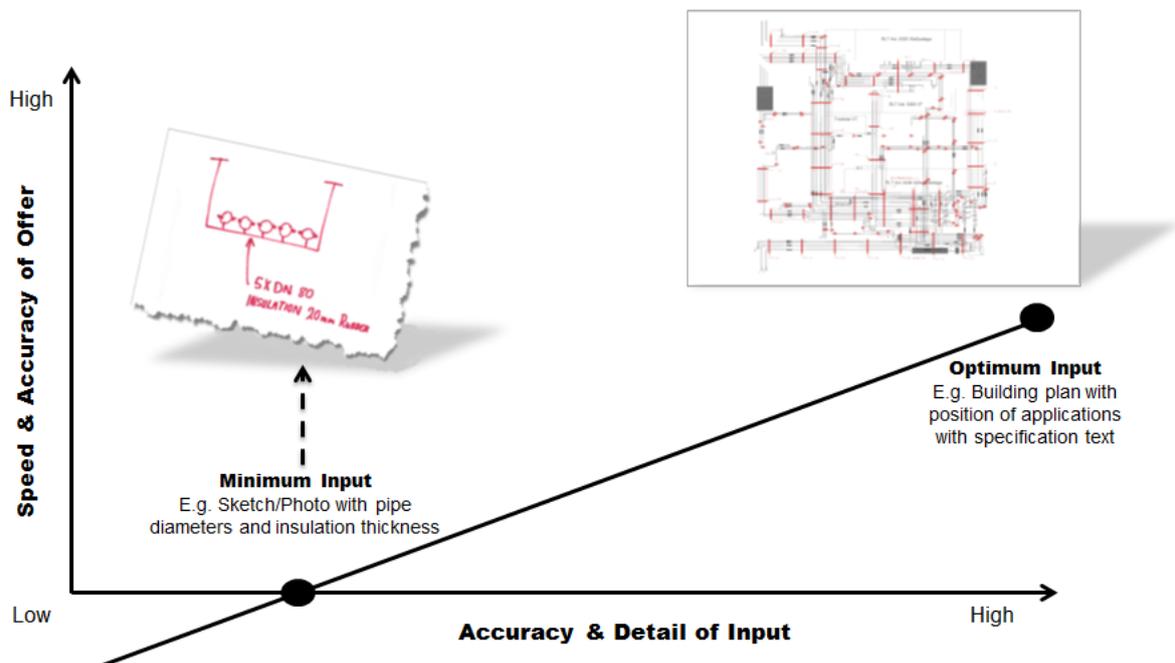
1. Customer requests service
2. Hilti contacts customer to collect all necessary inputs
3. Hilti sends customer 'summary of request' with estimated lead time and cost
4. Customer accepts offer
5. Hilti prepares calculation service content and sends to customer
6. Customer receives contents
7. Hilti sends invoice for the service
8. Customer pays invoice.

The customer will be given an opportunity to provide any missing input information up to step 2. If the customer is not forthcoming with the required inputs Hilti reserves the right to terminate the service at no expense to the customer.

If the customer wishes to terminate the service after step 4 they must do so by contacting the Hilti Service Expert per email and the customer will be invoiced for the hours spent on the service up until that point.

Hilti reserves the right to decline the service to customers who have been black listed due to poor credit rating or has a history of abusing Hilti services.

The customer is also encouraged to provide clear and detailed service inputs to increase the productivity of the Hilti Supporting Engineer thereby decreasing the service cost to the customer. The most detailed documentation which returns the quickest service output is a Building plan with position of applications with specification text.



1.4 Service Inputs

Unless provided by the customer, Hilti takes the following inputs as default:

- Corrosive Environment:..... Indoor application- Eurocode C1 & C2
- Base Material: Concrete, Cracked, C20/C25
- Static loading: Recommended loads of pipe suppliers
- Spacing: Recommended spacing from pipe suppliers or if not (Distance between Supports) limiting at the discretion of the Hilti designer
- Design Methodology according to: Applicable European Codes (Eurocode)
- Deflection Limits L/200

1.5 Calculation Service Output documents

The Calculation Service Output documents include:

1. **Summary of request.**
2. **A detailed commercial offer and Bill of Material per application,**
3. **Detailed Bill of Material (BOM).**
4. **1 Complete software calculation report per application**
5. **1 AutoCAD 2D/3D shop-drawing per application**
6. **1 AutoCAD drawing open file (.dwg) for all applications.**
7. **1 Profis Installation Software open file (.hpg) per application (If applicable).**

1. Summary of Request

Hilti sends the customer a 'summary of request' with estimated lead time and cost. Only after Hilti has received in writing a letter declaring acceptance of the service offer laid out in the 'summary of request' will the work on the calculation of applications start.

2. Detailed Commercial Offer

The commercial offer consists of a PDF Offer Document containing:

- a) A cover letter (Fig.1)
- b) A Position List (Fig.2)
- c) A Material List (Fig.3).

The offer is a binding offer and valid for **INPUT NUMBER OF DAYS** days. If the Calculation Service is intended for engineering purposes only pricing may be removed leaving the list of supports and constituent parts.

- a) **Cover letter** (Fig.1) summarises terms and conditions of offer.
- b) **Positions List** (Fig.2): The offer comprises of a list of positions, each position represents a support or application which is intended to fulfil the requirements of the customer request. Each position is given a reference number (left most column) this may have been provided by the customer or generated by Hilti. The position reference number may be used as naming for the associated CAD, PROFIS and other output documents and files for that position. Each position contains all articles used in the support/solution with the Article numbers (second column), Units (third column), Description (fourth column), Unit price (fifth column) and Price (sixth column). The positions are summed up to give the 'Sum Total' in the right most columns at the bottom of the position list.
- c) **Material List** (Fig.3): The material list is a consolidated list of all materials used in the positions and provides prices according to the nearest package size.

HILTI

Fax / E-Mail Date 13. 10. 2016
Page 1

From: John Pollitt T 09825916060877
F 09825916060876
E-Mail John.Pollitt@hilti.com

To: FACIL Installation LTD, Regional Office Schaan T 09876728421615
E 09876728421616
E-Mail paul.smith@hilti.com

Att. Of: Paul Smith T 098763343059376
E-Mail sergio.uzonibet@hilti.com

Copy to sales rep: Sergio Uzonibet T 098763343059376
E-Mail sergio.uzonibet@hilti.com

Please use the following information when referring to this offer: QT-Nr. QT00055233
Cust.-Nr. 10279404

This document on hand should be considered, we ask that you refer to the entire.

Technical & Commercial Offer for Calculation Service, Your Request Dated 13.10.2016
Project: BV-Test October 13, 8494 Schaan

Dear Mr. Smith,

We thank you for your request for a Calculation on the 13.09.2016.
Attached, our binding offer established on the basis of our General Trade Terms, the current version can be found online at www.hilti.com

This offer was constructed based on your input information and the terms and conditions of the service which can be found online at www.hilti.com

Our offer refers exclusively to Hilti products and is not applicable to products of other manufacturers.
Assembly work and other logistic services are not included in the offer. Therefore, it lies exclusively in your area of responsibility to check the information on agreement and the application requirements.

We point out that the amounts are charged in accordance with the Offer position and do not correspond to the packaging units at delivery. Non Hilti items are not part of the Hilti-program of delivery and therefore will not be offered.

The offered prices are net prices and, therefore, upon purchase, tax will be added according to established law; all prices are non-binding.

Discounts: As far as a basic agreement exists, discounts will be taken into consideration in the price establishment.
Payment: Multiple payment options are available and one can be chosen in accordance to your need.
Delivery: Multiple delivery options are available and one can be chosen in accordance to your need.

All information should be examined by a third party with respect to the conditions and requirements and the correctness of the agreement.
We stay available for further questions.
Best Regards
Hilti
John Pollitt

Hilti, CEO Director: Jochen Obert, President of the congl. Jochen Obert
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Head Office: Kistler 5, PL-0494 Schaan
Public register of the Principality of Liechtenstein: FL-0001 Uds./03-9

Training Services



Engineering Services



BIM/CAD Library



Profile Design Software



LV-Offier 13.09.2016, BV-ExEt.16, Page 1 of 3

HILTI

Calculation Service Offer

QT-Nr.: QT00055233
Client-Nr.: 10279404
Project: ExEx
Customer: Miika/Lumi/Mario

| Position Article number | Qty | Units | Description | Unit Price | Total Price |
|-------------------------|-----|-------|--|------------|-------------|
| 1.1 | 150 | pcs | MQ Channel System, Galvanised Sx DM 80 (D, 88.9 mm) steel pipe, (P-G-T-F-1-C-M-GL) | | |
| 2141900 | 2 | m | MQ-41-L 2m channel | 4.00 € | 8.00 € |
| 2141901 | 5 | pcs | MQA-2 M10 saddle nut | 0.10 € | 0.50 € |
| 309600 | 2 | pcs | MQW-LZ angle | 1.00 € | 2.00 € |
| 309639 | 2 | pcs | MQV-Z/LZ-14 channel base | 2.00 € | 4.00 € |
| 309623 | 4 | pcs | MQN push button | 1.00 € | 4.00 € |
| 2019912 | 4 | pcs | HUS-H 10*10 screw anchor | 2.50 € | 10.00 € |
| 309630 | 2 | pcs | MQZ-E41 plastic endcap | 0.50 € | 1.00 € |
| 320692 | 5 | pcs | MHN-HU 2 pipe ring | 4.50 € | 22.50 € |
| 216362 | 5 | pcs | AMT*50 4.0 threaded bolt | 0.20 € | 1.00 € |
| 216362 | 5 | pcs | M10 hexagon nut | 0.10 € | 0.50 € |
| 216362 | 5 | pcs | M10 hexagon nut | 0.10 € | 0.50 € |
| | | | Unit Price Position | | 51.50 € |
| | | | Total Price Position | | 7725.00 € |
| 2.1 | 150 | pcs | MQ Channel System, Galvanised Sx DM 50 (D, 50.2 mm) steel pipe, (P-G-T-F-1-C-L-GL) | | |
| 2142044 | 0.9 | m | MQ-21 3m channel | 3.00 € | 2.70 € |
| 2141930 | 4 | pcs | MQZ-11V-M6 trapeze wheel | 0.50 € | 2.00 € |
| 309611 | 2 | pcs | MQJ-GL-124 beam clamp | 2.00 € | 4.00 € |
| 320192 | 1 | m | AMT*1000 4.0 threaded rod | 0.24 € | 0.24 € |
| 2141906 | 4 | pcs | MQA-2 M6 saddle nut | 2.50 € | 10.00 € |
| 216362 | 5 | pcs | AMT*50 4.0 threaded bolt | 0.20 € | 1.00 € |
| 216362 | 5 | pcs | M6 hexagon nut | 0.10 € | 0.50 € |
| 310298 | 2 | pcs | MQZ-GL21 plastic endcap | 0.50 € | 1.00 € |
| 320663 | 5 | pcs | MHN-HU2 pipe ring | 4.00 € | 20.00 € |
| 309606 | 5 | pcs | MQ-124X L10m channel | 5.00 € | 25.00 € |
| | | | Unit Price Position | | 71.84 € |
| | | | Total Price Position | | 10791.00 € |
| | | | Sum Total | | 18516.00 € |

QT-Offier 13.09.2016, BV- ExEt.16, Page 2 of 3

Fig.1: Sample Offer Page 1

Fig.2: Sample Offer Position List

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Calculation Service Offer

QT-Nr.: QT00055233
Client-Nr.: 10279404
Project: ExEx
Customer: Miika/Lumi/Mario

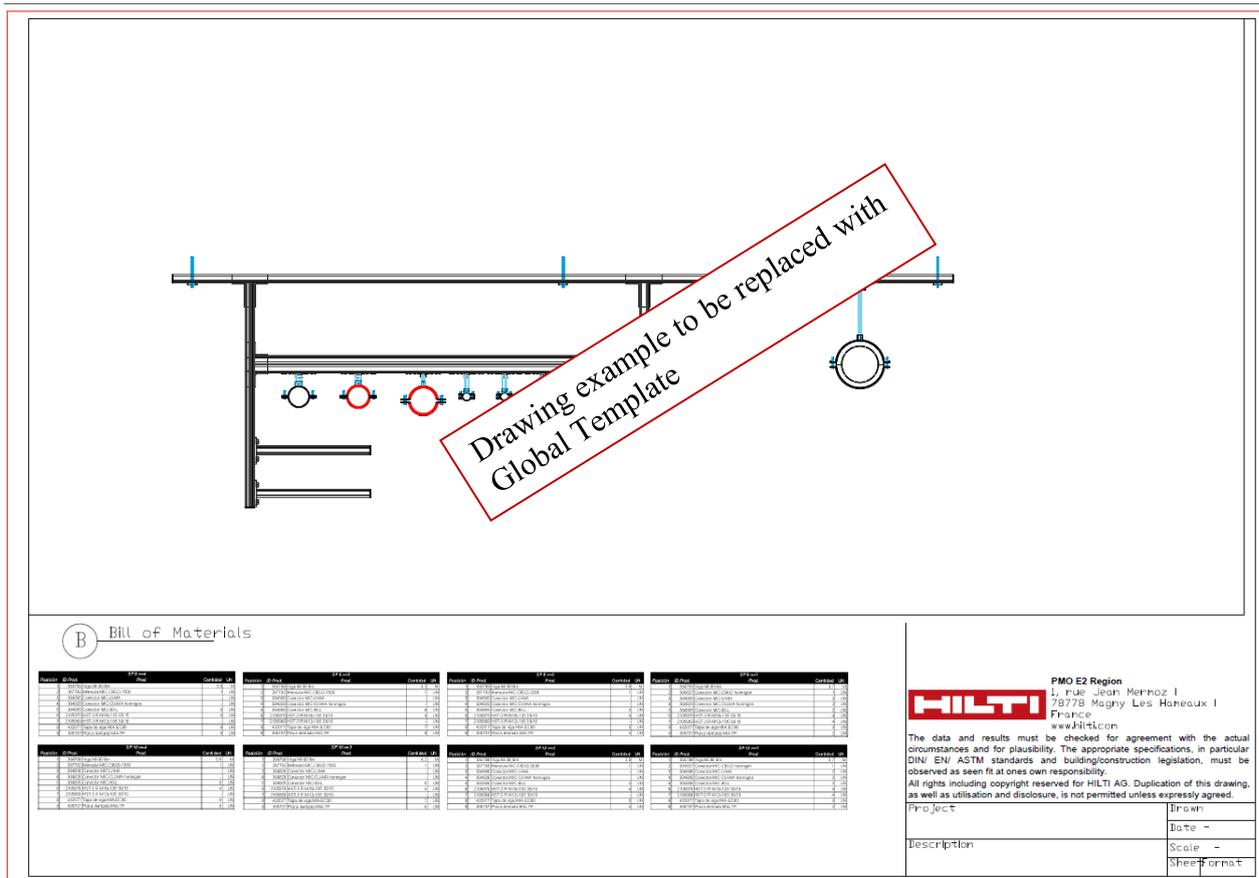
Material List

| Article number | Description | Quantity | Price | Units | Total |
|----------------|---------------------------|----------|---------|-------|-------------------|
| 216362 | AMT*50 4.0 threaded bolt | 5 | 1.00 € | 150 | 150.00 € |
| 320192 | AMT*1000 4.0 threaded rod | 1m | 0.24 € | 150 | 81.00 € |
| 216362 | AMT*50 4.0 threaded bolt | 5 | 1.00 € | 150 | 150.00 € |
| 2019912 | HUS-H 10*10 screw anchor | 4 | 8.00 € | 150 | 1,200.00 € |
| 216362 | M10 hexagon nut | 5 | 0.50 € | 150 | 75.00 € |
| 210460 | M6 hexagon nut | / | 0.10 € | 150 | 15.00 € |
| 320692 | MHN-HU 2 pipe ring | 5 | 22.50 € | 150 | 337.50 € |
| 320663 | MHN-HU2 pipe ring | 5 | 20.00 € | 150 | 300.00 € |
| 309600 | MQ-124X L10m channel | 5m | 30.00 € | 150 | 4,500.00 € |
| 2142044 | MQ-21 3m channel | 0.9m | 2.00 € | 150 | 450.00 € |
| 2141900 | MQ-41-L 2m channel | 2m | 8.00 € | 150 | 1,200.00 € |
| 2141901 | MQA-2 M10 saddle nut | 5 | 0.50 € | 150 | 75.00 € |
| 2141906 | MQA-2 M6 saddle nut | 4 | 10.00 € | 150 | 1,500.00 € |
| 309623 | MQN push button | 4 | 4.00 € | 150 | 600.00 € |
| 309611 | MQJ-GL-124 beam clamp | 2 | 4.00 € | 150 | 600.00 € |
| 309639 | MQV-Z/LZ-14 channel base | 2 | 4.00 € | 150 | 600.00 € |
| 309600 | MQW-LZ angle | 2 | 2.00 € | 150 | 300.00 € |
| 310298 | MQZ-GL21 plastic endcap | 2 | 1.00 € | 150 | 300.00 € |
| 309630 | MQZ-E41 plastic endcap | 2 | 1.00 € | 150 | 300.00 € |
| 2141930 | MQZ-11V-M6 trapeze wheel | 4 | 2.00 € | 150 | 300.00 € |
| | | | | | 18516.00 € |

QT-Offier 13.09.2016, BV- ExEt.16, Page 3 of 3

Fig.3: Material List

4. AutoCAD 2D/3D shop-drawing per application



1.6 Not provided as standard Output of Calculation Service

Unless specifically requested by the customer the Quotation service **does not** provide pricing for solutions that consider the following technical requirements:

- Supports considering Thermal Expansion/Contraction
- Seismic Resistant Design
- Fire Resistant Design
- Dynamic Loading
- Pipe Insulation / Avoid Condensation
- Specific Approvals
- Other requirements

2. General Terms and Conditions for provision of Hilti's Calculation Services

An offer is prepared on the basis of you the customers input. It is subject to the correctness and completeness of the information you provide, and dependent on you having independently reviewed the list of requested products and services you require as well as any possible specifications provided by third parties (such as planners, developers) and their conformity to technical and legal requirements.

Our solutions exclusively refer to Hilti brand products and may not be transferred to products of other manufacturers. The offer does not include assembly work. Prices offered featuring the units “kg” and “m” are based on standard construction estimates of Hilti **NAME OF MO**, and may diverge from the actual application-related requirements. You are therefore fully and solely responsible for monitoring the information to ensure conformity with the actual application-related requirements.

We would like to additionally add that the amounts are calculated according to those required by the assembled solutions and do not correspond to the delivered packaging units. Items not included are not supplied by Hilti and therefore are not offered.

For the purpose of decreasing service lead time, the Hilti designer responsible for putting the 'Offer' together may use 'typicals' which are close to the required technical solution but not exactly those which would actually be needed to cover the technical requirements of the applications. The offer is therefore considered an estimate and non-binding. As a result, if the customer wishes to be able to order the exact content of the Quotation offer they should make it clear when requesting the service that a binding offer is required.

The prices quoted are net prices and therefore do not include any applicable value added tax, applicable at the legal rate; all prices are subject to change.

Discounts: If a framework agreement has been reached, any and all price discounts agreed to have been granted.

Payment: Any applicable payment conditions agreed to with you shall apply.

Delivery: Any applicable special delivery conditions agreed to with you shall apply.

All information must be monitored by you to ensure that it is accurate and in accordance with the actual conditions and requirements.

2.0 Details of Calculation Methods

Channel Design

Where possible channel design computation is carried out by the Hilti design software 'PROFIS' ("Software") which uses the calculation engine from the RSTAB framework software by Dlubal, analogous to the elastic-elastic method in conformance with DIN 18800. The connector design method is based on a combination of several calculation models following the principles of DIN 18800 and tests carried out by an independent institute (HTL Rankweil, Austria).

Buckling and Lateral Torsional Buckling (LTB): Buckling (flexural buckling) and LTB is not accounted for in PROFIS. The elastic stress check (stress utilization ratio) is determined in this regard solely for compression loads and St. Venant's torsion. If the Hilti Design Engineer determines that a LTB calculation is specifically required, buckling and LTB checks will be carried out separately.

Local Stress and deformation of members at places where load is manually entered is not considered. All connectors and strut connection interfaces provided by Hilti are developed considering local stress and deformation in accordance with the Eurocode.

Deflection: In consideration of deflection constraints, a single element (length: node to node or support to support) is taken into account. Up until strut lengths of 300 mm PROFIS allows for a maximum deflection of 1.5mm. For strut lengths greater than 300mm the maximum deflection is dependent on the strut length and is set by the design Engineer (typically L/200 unless otherwise specified by the customer).

The static analysis is performed on the basis of a stationary system. 2nd-Order analysis due to possible eccentricities or deflections in the design (deformation according to DIN 18800 or EC3) can be calculated if specifically requested by the customer but such calculations will have a significantly longer lead time and may be subject to additional charges over and beyond the defined hourly rate.

Fastener Design

Hilti Anchors are to be calculated according to the relevant anchor design guideline (EN-1992-4 or ETAG). Accurate Fastener specification is dependent on the receipt by Supplier of accurate Customer Data regarding base material design. If the base material indicated by the Customer Data it is not covered by the approval applicable for the relevant Fastener, **IF ONSITE TESTING SERVICE HAS BEEN LAUNCHED IN THE RELEVANT MO DELETE SENTENCE (B) IF NOT DELETE SENTENCE (A) AND REMOVE UNDERLINES.**

(A) Hilti offers a professional onsite testing service that will support the estimation of the anchor resistance.

(B) the Customer is required and solely responsible to evaluate the base material with the relevant Hilti Fastener in accordance with the relevant application and carry out onsite-tests in order to confirm the correct resistance of the anchor.

Hilti does not verify the proper installation of Fasteners or the connections between. Proper installation of Fasteners is critical to realising the design resistance of the Fastener – training is available on request – contact Supplier for information.