

Attachments to concrete structures

Scope

This guide shows how to place and install mechanical and chemical fasteners into concrete structures in order to maintain the load-bearing capacity of the concrete structure. The guide is designed for **installation technicians** and for the **designers and constructors of piping systems, facilities and electrical systems**. The guide also provides instructions for how the **structural engineer**, during the design engineering process, can facilitate future attachments by making drawings of drill zones. Chapter 6 is particularly relevant to structural engineers.

The guide covers attachments for items that can be mounted using a hand-held drill with a maximum hole diameter of 20 millimetres. Holes with a larger diameter may require consulting the relevant drawings and/or the person who leads and coordinates ongoing work. The guide does not cover through-hole drilling.

The guide includes, among other things, the choice of fastener, guidelines for placement of the attachment, including sample drawings of typical drill zones, and a checklist that can be used during the installation process.

All dimensions in this guide and its appendices are theoretical and do not universally apply. For secure installation every time, always take the project-specific prerequisites into account.

Contents

1	Related documents	2
2	Introduction	2
	2.1 General information about concrete structures	2
3	Selection of fasteners	4
	3.1 Concrete screw	5
	3.2 Expansion bolt	5
	3.3 Chemical anchor	5
4	Placement of the attachment	7
	4.1 No-drill zones	7
	4.2 Beams	7
	4.3 Columns	8
	4.4 Walls	8
	4.5 Beams and roofs	9
5	Execution and control	11
	5.1 When things go wrong	11
6	Design engineering of concrete structures	11
	6.1 Dimensioning of an attachment to existing concrete	12
7	Images of attachments in concrete	13
	7.1 Examples of improperly mounted attachments	13
	7.2 Examples of properly mounted attachments	15
	Bilaga 1: The installation technician's checklist for the mounting of equipment on concrete load-bearing structures	
	Bilaga 2: Typical drill zones in prefabricated concrete components	