

Documentation
Rebar coupling systems

AT-CONNECT

Strong in quality



CONTENTS

AT-Ankertechnik	3
Rebar coupling systems	4
KOMO Certification	5
AT-SA Starter Bar Anchor	6
AT-SE Starter Bar	7
AT-GSE Starter Bar	8
Specials	9
Bending and cutting	11
Adjustable couplers	15
Instructions for use	16
Coupling legend	18
Contact	19

AT-CONNECT



Production in the Netherlands



Quality management system
NEN-EN-ISO 9001 certified



The rebar coupling systems are
KOMO-certified in category I/2
for static/dynamic loads.
See page 5.



Standard lengths available
from stock



Specials in various dimensions and
bends
available within a few days

AT-CONNECT

Rebar coupling systems



Versions:



AT-SA Starter Bar Anchor

The AT-SA Starter Bar Anchor is a swaged sleeve with internal metric thread, swaged onto a reinforcing bar. The grade of the reinforcing bar is B500B. The steel sleeve is electrogalvanised. In combination with an AT-SE Starter Bar or AT-GSE Starter Bar, it forms continuous reinforcement.



AT-SE Starter Bar

The AT-SE Starter Bar is a swaged sleeve with external metric thread, swaged onto a reinforcing bar. The reinforcing bar grade is B500B. The steel sleeve is electrogalvanised. In combination with an AT-SA Starter Bar Anchor, it forms continuous reinforcement.



AT-GSE Starter Bar

The AT-GSE Starter Bar is a reinforcing bar with an external metric thread. The reinforcing bar grade is B500B. In combination with an AT-SA Starter Bar Anchor, it forms continuous reinforcement.

Information

The versions are provided with an AT-Ankertechnik marking. AT-Connect can be supplied in various lengths and bends. Standard lengths are available from stock. With its available expertise and facilities, AT-Ankertechnik is able to supply specific customer-oriented solutions quickly.



Coupling of reinforcing steel | Category 1:

The couplings have been tested to 2 million load cycles with a stress range of 60 N/mm² and certified for predominantly static applications.

Type AT-SA and AT-GSE - Category 1, Ductility class B

This certificate applies to Ø12 to Ø40

Starter Bar Anchor type
AT-SA Ø12 - 40mm



Starter Bar type AT-GSE
Ø12 - 40mm



Coupling of reinforcing steel | Category 2:

The couplings have been tested to 2 million cycles and certified for static and dynamic loads with a characteristic fatigue strength of 66 N/mm²

Type AT-SA and AT-SE - Category 2, Ductility class B

This certificate applies to Ø12 to Ø40

Starter Bar Anchor type
AT-SA Ø12 - 40mm



Starter Bar type AT-SE
Ø12 - 40mm



AT-CONNECT

AT-SA Starter Bar Anchor



AT-SA Starter Bar Anchor

The AT-SA Starter Bar Anchor is a swaged sleeve with internal metric thread, swaged onto a reinforcing bar. The reinforcing bar grade is B500B. The steel sleeve is electrogalvanised. In combination with an AT-SE Starter Bar or AT-GSE Starter Bar, it forms continuous reinforcement.



AT-SA Starter Bar Anchor - AT-CONNECT

Article number	d (mm)	L (mm)	Dnom (mm)	a (mm)	l (mm)	b (mm)
----------------	--------	--------	-----------	--------	--------	--------

A002500	Ø12	415	M16	25	62	22
A002501	Ø12	615	M16	25	62	22
A002502	Ø12	840	M16	25	62	22
A002503	Ø12	1040	M16	25	62	22
A002504	Ø12	1540	M16	25	62	22
A002505	Ø12	2040	M16	25	62	22
A002506	Ø12	3540	M16	25	62	22

A002507	Ø16	560	M20	38	86	28
A002508	Ø16	810	M20	38	86	28
A002509	Ø16	1060	M20	38	86	28
A002510	Ø16	1480	M20	38	86	28
A002511	Ø16	2240	M20	38	86	28
A002512	Ø16	3540	M20	38	86	28
A002513	Ø16	4025	M20	38	86	28

A002514	Ø20	705	M24	42	99	34
A002515	Ø20	1005	M24	42	99	34
A002516	Ø20	1320	M24	42	99	34
A002517	Ø20	1840	M24	42	99	34
A002518	Ø20	2245	M24	42	99	34
A002519	Ø20	3540	M24	42	99	34
A002520	Ø20	4025	M24	42	99	34

A002521	Ø25	1055	M30	52	118	41
A002522	Ø25	1555	M30	52	118	41
A002523	Ø25	2315	M30	52	118	41
A002524	Ø25	3555	M30	52	118	41
A002525	Ø25	4025	M30	52	118	41

A002526	Ø32	1015	M42	65	155	55
A002527	Ø32	1490	M42	65	155	55
A002528	Ø32	2390	M42	65	155	55
A002529	Ø32	3590	M42	65	155	55

A002530	Ø40	1600	M48	72	190	65
A002531	Ø40	2400	M48	72	190	65

A002532 Special

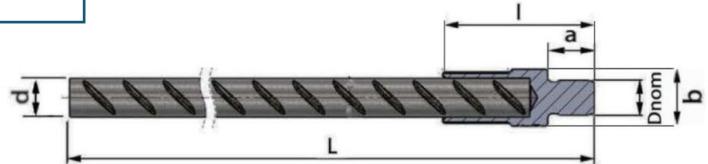
AT-CONNECT

AT-SE Starter Bar



AT-SE Starter Bar

The AT-SE Starter Bar is a swaged sleeve with external metric thread, swaged onto a reinforcing bar. The reinforcing bar grade is B500B. The steel sleeve is electro-galvanised. In combination with an AT-SA Starter Bar Anchor, it forms continuous reinforcement.



AT-SE Starter Bar - AT-CONNECT

Article number	d (mm)	L (mm)	Dnom (mm)	a (mm)	l (mm)	b (mm)
A003000	Ø12	200	M16	18,5	62	22
A003001	Ø12	375	M16	18,5	62	22
A003002	Ø12	575	M16	18,5	62	22
A003003	Ø12	800	M16	18,5	62	22
A003004	Ø12	1000	M16	18,5	62	22
A003005	Ø12	1500	M16	18,5	62	22
A003006	Ø12	2000	M16	18,5	62	22
A003007	Ø12	3500	M16	18,5	62	22
A003008	Ø16	200	M20	22,5	86	28
A003009	Ø16	520	M20	22,5	86	28
A003010	Ø16	770	M20	22,5	86	28
A003011	Ø16	1020	M20	22,5	86	28
A003012	Ø16	1440	M20	22,5	86	28
A003013	Ø16	2200	M20	22,5	86	28
A003014	Ø16	3500	M20	22,5	86	28
A003015	Ø20	200	M24	27	99	34
A003016	Ø20	665	M24	27	99	34
A003017	Ø20	965	M24	27	99	34
A003018	Ø20	1280	M24	27	99	34
A003019	Ø20	1800	M24	27	99	34
A003020	Ø20	2200	M24	27	99	34
A003021	Ø20	3500	M24	27	99	34
A003022	Ø25	200	M30	33,5	118	41
A003023	Ø25	1000	M30	33,5	118	41
A003024	Ø25	1500	M30	33,5	118	41
A003025	Ø25	2260	M30	33,5	118	41
A003026	Ø25	3500	M30	33,5	118	41
A003027	Ø32	1400	M42	46	155	55
A003028	Ø32	2300	M42	46	155	55
A003029	Ø32	3500	M42	46	155	55
A003030	Ø40	1655	M48	54	190	65
A003031	Ø40	2455	M48	54	190	65

A003032 Special

AT-CONNECT

AT-GSE Starter Bar



AT-GSE Starter Bar

The AT-GSE Starter Bar is a reinforcing bar with an external metric thread. The reinforcing bar grade is B500B. In combination with an AT-SA Starter Bar Anchor, it forms continuous reinforcement.



AT-GSE Starter Bar - AT-CONNECT

Article number	d (mm)	L (mm)	Dnom (mm)	a (mm)
----------------	--------	--------	-----------	--------

A003500	Ø12	200	M16	21
A003501	Ø12	375	M16	21
A003502	Ø12	575	M16	21
A003503	Ø12	800	M16	21
A003504	Ø12	1000	M16	21
A003505	Ø12	1500	M16	21
A003506	Ø12	2000	M16	21
A003507	Ø12	3500	M16	21

A003508	Ø16	200	M20	27
A003509	Ø16	520	M20	27
A003510	Ø16	770	M20	27
A003511	Ø16	1020	M20	27
A003512	Ø16	1440	M20	27
A003513	Ø16	2200	M20	27
A003514	Ø16	3500	M20	27

A003515	Ø20	200	M24	34
A003516	Ø20	665	M24	34
A003517	Ø20	965	M24	34
A003518	Ø20	1280	M24	34
A003519	Ø20	1800	M24	34
A003520	Ø20	2200	M24	34
A003521	Ø20	3500	M24	34

A003522	Ø25	200	M30	42
A003523	Ø25	1000	M30	42
A003524	Ø25	1500	M30	42
A003525	Ø25	2260	M30	42
A003526	Ø25	3500	M30	42

A003527	Ø32	1400	M42	45
A003528	Ø32	2300	M42	45
A003529	Ø32	3500	M42	45

A003530	Ø40	1655	M48	54
A003531	Ø40	2455	M48	54

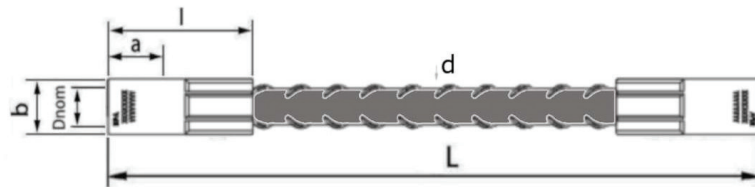
A003532	Special			
---------	---------	--	--	--

AT-CONNECT

AT-Specials

AT-SAD Starter Bar Anchor

The AT-SAD Starter Bar Anchor is a reinforcing bar fitted with two swaged sleeves with internal metric thread. The required length (dimension L) must be specified when ordering.



AT-SAD Starter Bar Anchor - AT-CON

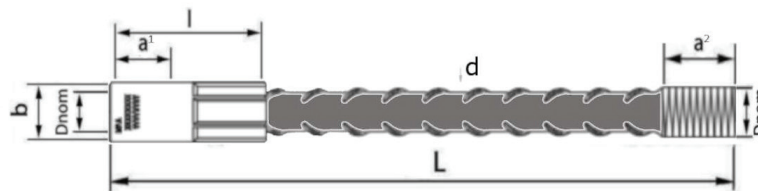
Size	d (mm)	Dnom (mm)	a (mm)	L (mm)	b(mm)
Ø12M16 x L	Ø12	M16	25	62	22
Ø16M20 x L	Ø16	M20	38	86	28
Ø20M24 x L	Ø20	M24	42	99	34
Ø25M30 x L	Ø25	M30	52	118	41
Ø32M42 x L	Ø32	M42	65	155	55
Ø40M48 x L	Ø40	M48	72	190	65

AT-CONNECT

AT-Specials

AT-SAGSE

The AT-SAGSE is a reinforcing bar with a swaged sleeve with internal metric thread on one end and an external metric thread on the other end. The required length (dimension L) must be specified when ordering.



AT-SAGSE - AT CONNECT

Size	d (mm)	Dnom (mm)	a¹ (mm)	a² (mm)	L (mm)	b(mm)
Ø12M16 x L	Ø12	M16	25	21	62	22
Ø16M20 x L	Ø16	M20	38	27	86	28
Ø20M24 x L	Ø20	M24	42	34	99	34
Ø25M30 x L	Ø25	M30	52	42	118	41
Ø32M42 x L	Ø32	M42	65	45	155	55
Ø40M48 x L	Ø40	M48	72	54	190	65

AT-CONNECT

Bending and cutting

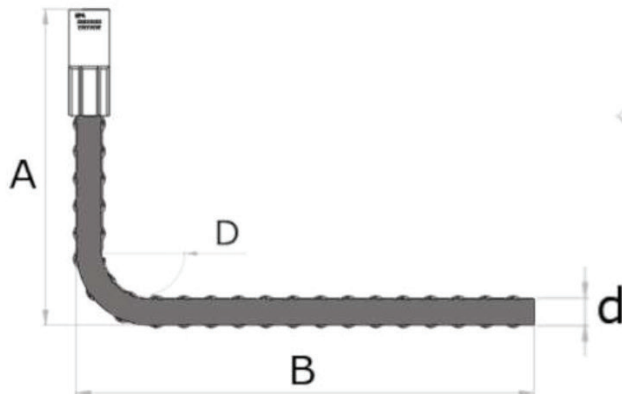
Bending and cutting

AT-Ankertechniek is KOMO-certified to carry out bending and cutting work in accordance with BRL 0503. This means that the bending and cutting work is performed under controlled conditions. All required dimensions can be bent and/or cut quickly to the required length.

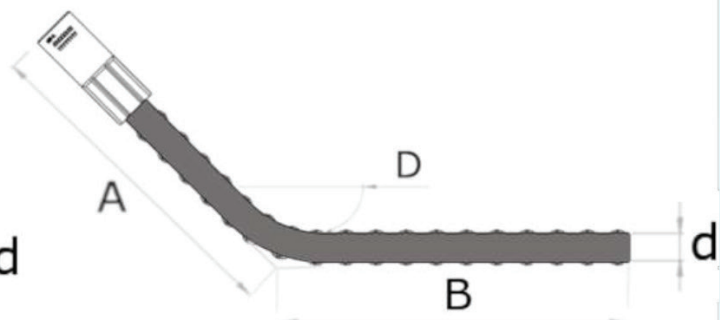
Bending mandrel diameter:

As standard, we use 5 x the bar diameter. For $\varnothing 12$ to $\varnothing 16$, 4 x the bar diameter may be used if necessary to achieve the minimum bend dimension. See pages 12-14.

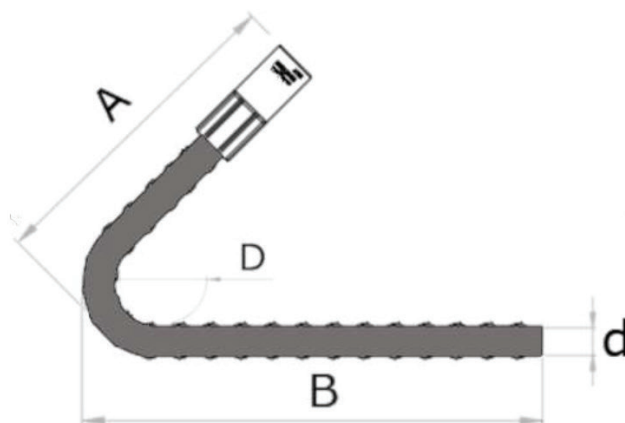
Type 1 | 90°



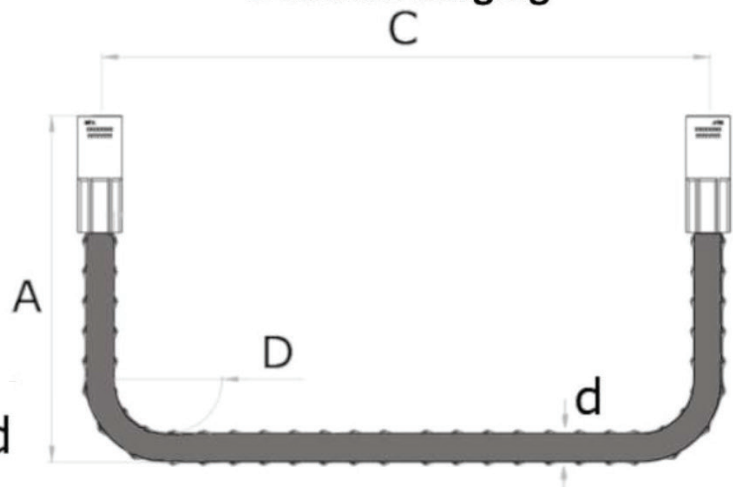
Type 2 | 180° tot 90°



Type 3 | 90° tot 45°

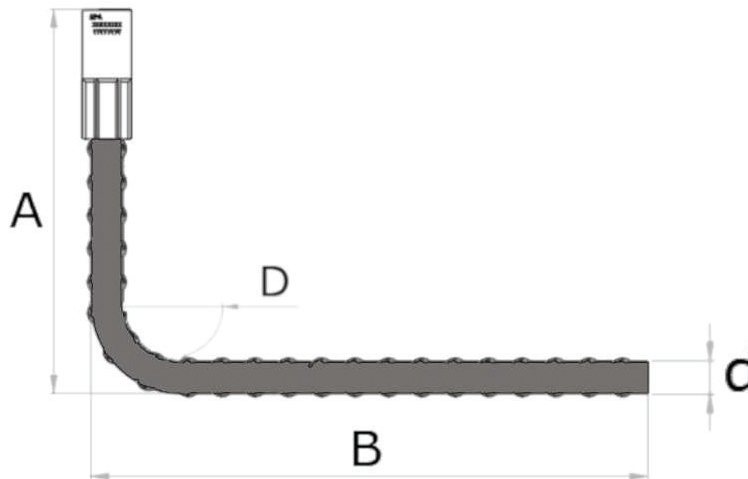


Dubbele buiging



AT-CONNECT

Bent AT-SA



Bent AT-SA Starter Bar Anchor - AT CONNECT

Size D (mm)	Bend dimension A (mm)	Bend dimension B (mm)	Bending mandrel diameter
AT-SA Ø12M16 x L	120	105	48-60*
AT-SA Ø16M20 x L	155	150	64-80*
AT-SA Ø20M24 x L	195	210	100
AT-SA Ø25M30 x L	230	220	125
AT-SA Ø32M42 x L	300	225	160
AT-SA Ø40M48 x L	400	250	200

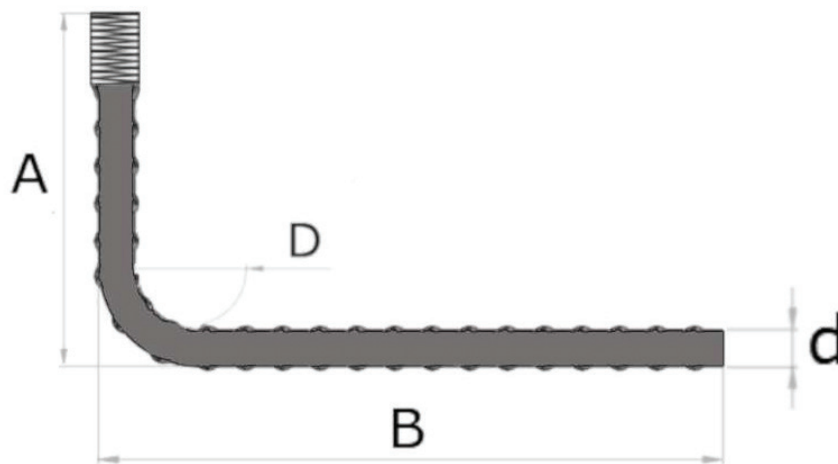
The minimum bend dimension and bending mandrel diameter are given in the table.

*As standard, we use a bending mandrel diameter of 5 x the bar diameter. For Ø12 to Ø16, 4 x the bar diameter may be used if necessary to achieve the minimum bend dimension.

The A dimension must be specified when ordering.

AT-CONNECT

Bent AT-GSE



Bent AT-GSE Starter Bar - AT CONNECT

Size D (mm)	Bend dimension A (mm)	Bend dimension B (mm)	Bending mandrel diameter
AT-GSE Ø12M16 x L	115	105	48-60*
AT-GSE Ø16M20 x L	155	150	64-80*
AT-GSE Ø20M24 x L	195	210	100
AT-GSE Ø25M30 x L	230	220	125
AT-GSE Ø32M42 x L	300	225	160
AT-GSE Ø40M48 x L	400	250	200

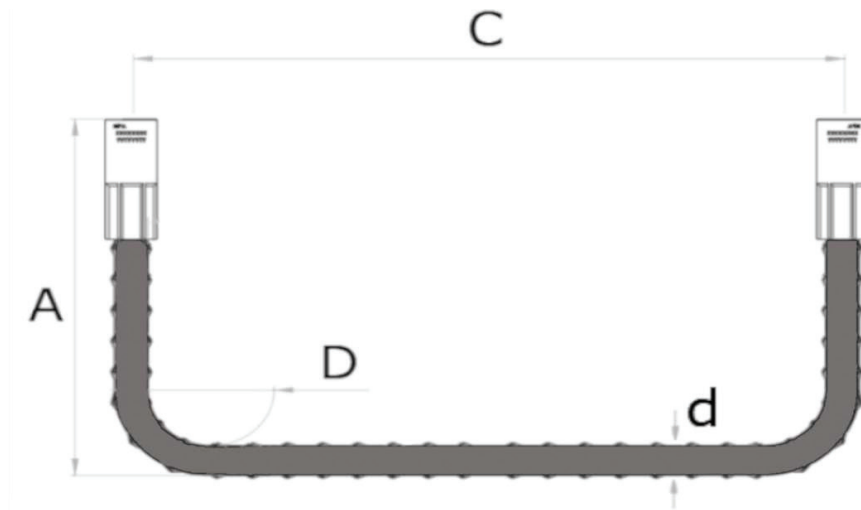
The minimum bend dimension and bending mandrel diameter are given in the table.

*As standard, we use a bending mandrel diameter of 5 x the bar diameter. For Ø12 to Ø16, 4 x the bar diameter may be used if necessary to achieve the minimum bend dimension.

The A dimension must be specified when ordering.

AT-CONNECT

Double bend



Double bend - AT CONNECT

Size (mm) Bend dimension A (mm) min. C dimension c.t.c. (mm) min. Bending mandrel diameter D

AT-SA Ø12M16 x L	115	100	48-60*
AT-SA Ø16M20 x L	155	150	64-80*
AT-SA Ø20M24 x L	195	210	100
AT-SA Ø25M30 x L	230	220	125
AT-SA Ø32M42 x L	300	225	160
AT-SA Ø40M48 x L	400	250	200

The minimum bend dimension and bending mandrel diameter are given in the table.

*As standard, we use a bending mandrel diameter of 5 x the bar diameter. For Ø12 to Ø16, 4 x the bar diameter may be used if necessary to achieve the minimum bend dimension.

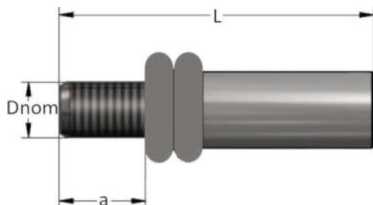
The A dimension must be specified when ordering.

AT-CONNECT

Adjustable couplers

Information

Adjustable couplers are the solution when bent reinforcing bars cannot be rotated. The adjustable couplers are available in diameters Ø12 to Ø40. An adjustable coupler consists of two locknuts, a metric threaded rod and a threaded sleeve.

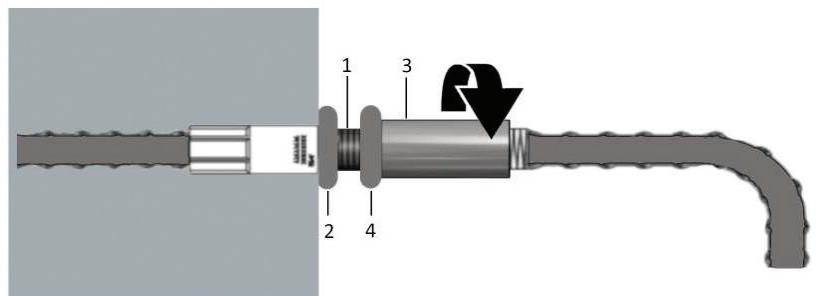


Adjustable couplers - AT CONNECT

Article number	d	Dnom (mm)	a (mm) min.	L(mm)
A001529	Ø12	M16	25	48
A001530	Ø16	M20	38	61
A001531	Ø20	M24	42	69
A001532	Ø25	M30	52	83
A001533	Ø32	M42	65	112
A001534	Ø40	M48	72	127

Using the adjustable coupler

1. Screw the threaded rod into the sleeve of the starter bar anchor
2. Tighten the locknut
3. Turn the sleeve onto the starter bar
4. Tighten the locknut



AT-CONNECT

Instructions for use

Design loads and ductility

AT-Connect design loads are based on the load-bearing capacity of the B500B reinforcing steel used, see the table below.

Design loads and ductility

d (mm)	Cross-sectional area A_s (mm ²)	Design loads N_{rd} (kN)	R_m/R_e (-)	Agt(%)
Ø12	113	49,2	$\geq 1,08$	$\geq 5,0$
Ø16	201	87,4	$\geq 1,08$	$\geq 5,0$
Ø20	314	136,6	$\geq 1,08$	$\geq 5,0$
Ø25	491	213,4	$\geq 1,08$	$\geq 5,0$
Ø32	804	349,7	$\geq 1,08$	$\geq 5,0$
Ø40	1256	546,4	$\geq 1,08$	$\geq 5,0$

Anchorage length:

The anchorage length of the reinforcing bar in the concrete must be checked in accordance with EN 1992-1-1. Once this check has been completed, the required minimum anchorage length is known. The corresponding minimum product length can then be determined.

Our starter bars and starter bar anchors have a length tolerance of $\pm 1 \times$ the bar diameter, plus a sleeve or threaded section that must be added to the anchorage length to determine the minimum product length.

Calculate product length for AT-SA Starter Bar Anchor and AT-SE Starter Bar:

Add the following to the anchorage length: the length tolerance $\pm 1 \times$ bar diameter d and the length of the swaged sleeve l .

Minimum product length $L = \text{anchorage length} + d + l$

Calculate product length for AT-GSE Starter Bar:

Add the following to the anchorage length: the length tolerance $\pm 1 \times$ bar diameter d and the length of threaded section a .

Minimum product length $L = \text{anchorage length} + d + a$



AT-CONNECT

Instructions for use

Torque wrench

AT-Connect rebar coupling systems are KOMO-certified when the couplings are tightened according to the table below. The KOMO quality mark only applies to a combination of an AT-SA Starter Bar Anchor and an AT-SE or AT-GSE Starter Bar. See page 5.



Torque wrench - AT CONNECT

Reinforcing steel diameter: (mm)	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40
Tightening torque: +/- 5% (Nm)	60	80	100	125	160	200

Installation instructions

Store materials free from dirt to ensure trouble-free installation. Install the starter bars using a torque wrench.



Welding

Welding can affect the material properties of steel. AT-Ankertechnik therefore cannot accept any liability if welding is carried out on the products.

AT-CONNECT

Coupling legend

AT-Connect

d	=	bar diameter
L	=	product length
a	=	thread length
Dnom	=	metric thread diameter
b	=	sleeve diameter
l	=	sleeve length

Bending

A	=	A bend dimension
B	=	B bend dimension
C	=	C dimension centre-to-centre
D	=	bending mandrel diameter
d	=	bar diameter

Contact



Waardsedijk Oost 6a
3417 XJ Montfoort
The Netherlands



+31 (0)88-64 30 600



info@ankertechniek.com



www.ankertechniek.com



Disclaimer

Although the utmost care has been taken in compiling this documentation, it may contain inaccuracies. Any liability in this respect is expressly excluded.

General terms and conditions

All agreements with AT-Ankertechniek BV are subject to the Metaalunie Terms and Conditions, filed with the Registry of the District Court of Rotterdam, in accordance with the latest version filed there. These terms and conditions will be sent to you promptly upon request.

No part of this documentation may be reproduced, copied or published without the written permission of AT-Ankertechniek BV.