The *GEWI*® System – Connecting Reinforcement

Basic Concept

GEWI® reinforcing steel is B500B steel in accordance with DIN 488 with rolled-on thread on both sides forming a special left-hand thread along the entire bar length. The *GEWI*® System serves for coupling and anchoring these threadbars and has proven itself countless times during the last decades as an excellent connecting reinforcement on challenging jobsites.

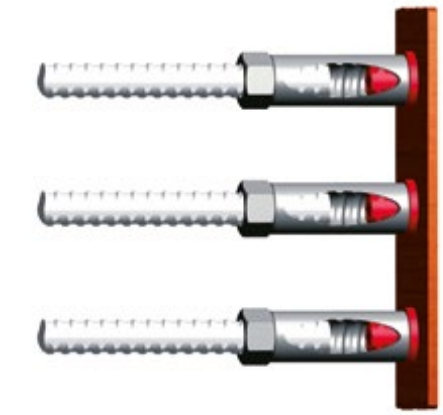
There is no need for using overlap connections and overlapping joints: *GEWI*® threaded reinforcing steel bars can be coupled directly and axially using couplers. The couplers are designed for transferring the calculational ultimate bar load with a safety factor of over 1.15 – all connections and design states can be realized as full joints independent of whether tensile, compression or alternating loads prevail.

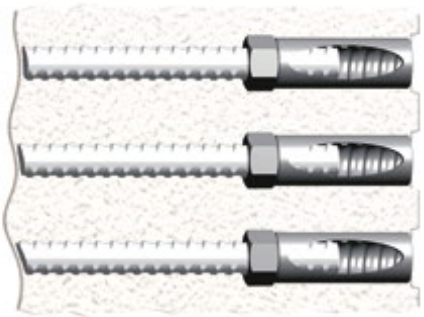
Especially in heavily reinforced structural elements in which distances between individual reinforcing bars can be a problem, the *GEWI*® System offers major advantages. Areas with double bar levels are no longer necessary and larger passageways for inserting vibrators and pouring the concrete mix are created so that the concrete quality is enhanced.

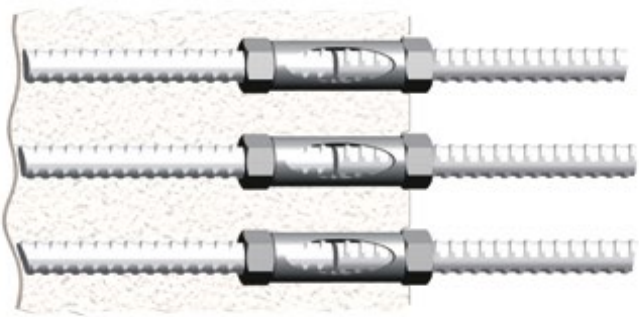
The *GEWI*® System also achieves excellent results in the end anchorage area:
The anchor lengths of the reinforcing bars can be reduced to a minimum using anchor pieces and plate anchorages, which significantly decreases the amount of steel and concrete that is needed.

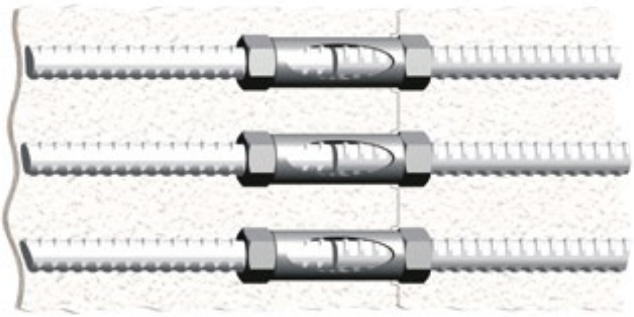
Thanks to the coarse and extremely robust *GEWI*® Thread, *GEWI*® Threadbars are perfectly suitable for on-site use and can even be screwed when extremely dirty – the same applies to *GEWI*® nuts.

In the course of time, the *GEWI*® System has been continuously developed and optimized – a large range of products is available for almost any kind of application.









Fields of Application

- Connecting reinforcement
- Challenging coupling solutions
- Civil engineering
- Construction of power plants

Key Features

- Threadbars with proven coarse *GEWI*® Thread that is suitable for on-site use – screwable even under extreme conditions
- Thread along the entire length; lengths can be flexibly adjusted on site
- Easy application – thread does not have to be cut on site
- Sufficient coverage can be easily achieved
- Only little space is required during installation
- There is no increase in reinforcement ratio in the connection and anchorage zones
- Approved by the building authorities

Additional Information

Approvals DIBt Z-1.5-76 (Ø 12-32) and Z-1.5-149 (Ø 40-50)

Technical Data

GEWI® B500B Reinforcing Steel Threadbar

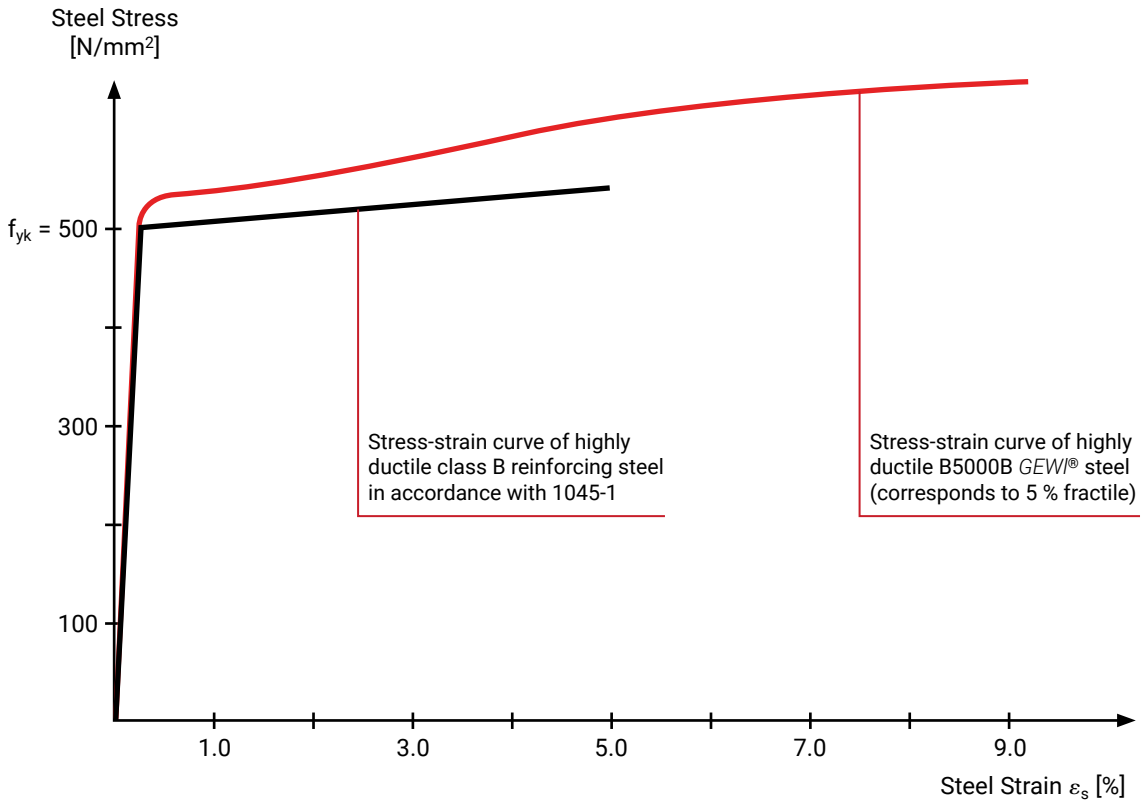
Nominal diameter Ø	Yield strength / tensile strength $f_{0,2k}/f_{tk}$	Cross-sectional area A	Load at yield F_{yk}	Ultimate load F_{tk}	Weight	Approval
[mm]	[N/mm²]	[mm²]	[kN]	[kN]	[kg/m]	
12	500/550	113	57	62	0.89	○
16	500/550	201	101	111	1.58	○
20	500/550	314	157	173	2.47	○
25	500/550	491	245	270	3.85	○
28	500/550	616	308	339	4.83	○
32	500/550	804	402	442	6.31	○
40	500/550	1,257	628	691	9.86	×
50	500/550	1,963	982	1,080	15.41	×

○ DIBt Z-1.5-76
× DIBt Z-1.5-149

Thanks to excellent characteristics, the *GEWI*® Threadbar can be classified as a highly ductile bar (class B) in accordance with DIN 1045. It also fulfills all DIN EN 1992 (EC2) requirements.

The diagram shows that *GEWI*® Threadbars clearly exceed the requirements for standard reinforcing steel.

GEWI® accessories cover all common solid construction connections and anchorage systems. The required equipment such as equipment for countering coupler connections and end anchorages is detailed in the equipment section (see page 55).



Additional Information

Approvals DIBt Z-1.5-76 (Ø 12-32) and Z-1.5-149 (Ø 40-50)

The FLIMU® System – Connecting Reinforcement

Basic Concept

The extruded coupler splice – respectively, the FLIMU® system – has been developed especially for realizing reinforcing connections in large numbers or very limited space conditions.

When realizing a FLIMU® coupler splice, two reinforcing bars are connected by extruding a coupler that has been placed onto both ends of the reinforcing bars. A reducing ring is pushed over the coupler using a high amount of pressure.

The reducing ring significantly reduces the exterior diameter of the coupler and creates a force fit connection between rebar and coupler (extrusion process).

Both B500 reinforcing steel with normal threads in accordance with DIN 488 and *GEWI*® reinforcing steel threadbar can be spliced using the FLIMU® system. This way, even reinforcing bars that have already been installed can be easily coupled to a *GEWI*® connecting bar.

The FLIMU® system is also suitable for many similar reinforcing steel bars such as Austrian ARI and ARI-G.

Suitability tests can be performed for special applications.

The corresponding extruding equipment has been kept slim on purpose in order to ensure an economic realization of the connections in very limited space and in areas with tight reinforcement layers.

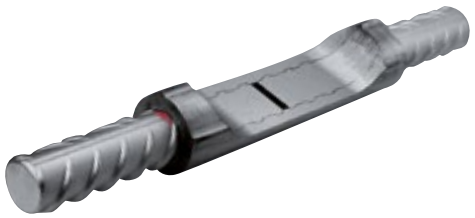
Up to 30 connections per hour are possible if installation is done professionally by trained personnel.

Fields of Application

- Connecting reinforcement
- Challenging coupling solutions
- Civil engineering

Key Features

- Bars do not have to be screwed
- Preliminary work at the bars is not required
- High installation performance
- Both threadbars and *GEWI*® reinforcing bars can be coupled
- Space-saving installation – also for multilayer reinforcement
- The complete equipment and installation aids are on stock
- General building-authority approval for Ø 12 to 32mm



Technical Data

FLIMU® System for B500 & *GEWI*® and ARI & ARI-G Reinforcing Steel

Nominal diameter Ø	Yield strength / tensile strength $f_{0,2k}/f_{tk}$	Cross-sectional area A	Load at yield F_{yk}	Ultimate load F_{tk}	Weight	Appr.
[mm]	[N/mm²]	[mm²]	[kN]	[kN]	[kg/m]	
16	500/550	201	101	111	1,58	○
20		314	157	173	2,47	○
25		491	245	270	3,85	○
28		616	308	339	4,83	○
32		804	402	442	6,31	○
40		1.257	628	691	9,86	
50		1.963	982	1.080	15,41	

○ DIBt Z-1.5-150

Overview Extruders

Extruder	Standard equipment for *GEWI*® Bars Ø	Hydraulic power unit	Weight
	[mm]		[kg]
Typ 150	16 - 20	77-159	43
Typ 250	16 - 28	77-159	75
Typ 420	25 - 32	R13,3	206
Typ 550	32 - 40	R13,3	225
Typ 1000	50	R13,3	740

Additional Information

Approval DIBt Z-1.5-150

FLIMU® System Convinces by Cost Effectiveness: Mittlerer Ring, Munich, Germany

Easy Application – simple Installation

Extruder in Use

On-site Service

Special Balancer in Use

Robust Equipment

Usable even in extremely tight Reinforcement Layers

High Installation Performance

Owner Landeshauptstadt München, Baureferat, Germany +++ **General Contractor** Joint Venture Ingenieurbau LKP, Germany +++ **Contractor** W&F (Wayss & Freytag Ingenieurbau AG); Berger Bau, both Germany +++ **Architect** Baureferat München, HA Tiefbau und HA Ingenieurbau, Germany

DYWIDAG Unit DYWIDAG-Systems International GmbH, BU Geotechnics, Germany
DYWIDAG Services Production and Supply
DYWIDAG Products supplied approx. 35,000, Ø28mm FLIMU® couplers; approx. 20,000, Ø 32mm FLIMU® couplers; rental of equipment