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1.1. THREADED SLEEVES for different fixing purposes



ANCHORING TECHNOLOGY



ROBUSTA
GAUKEL

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ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES



GENERAL INFORMATION

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Your advantages at a glance:

- Proven a million times over
- Inexpensive, non-recoverable installation parts
- Universal system for fixing anchor tie bars for formwork and bolts for fastening and transportation purposes
- Can be installed in floors, foundation slabs and walls
- For in-situ concrete and construction with precast components
- 4 different anchor diameters available from Ø 15.0 mm to Ø 36.0 mm in conformity with the Dywidag formwork anchoring system
- Larger Ø 50 and Ø 60 mm sizes can be supplied with special bolts for transporting tunnel segments
- Anchor sleeve lengths (infinitely variable) tailored to structural dimensions
- Permissible service loads from 5.0 kN to 60.0 kN
- Comprehensive selection of hexagonal and transport bolts

The **ROBUSTA-threaded sleeves** are available in three different diameters according to the Dywidag-anchoring-system.

The required measurements will be defined according to the existing load and the thickness of the concrete element.

We offer a wide range of standard lengths, different lengths are available upon request.

To reach the load capacity in green concrete the threaded sleeve has to be completed with one or two threaded plates.



The permissible service loads depending on the concrete strength are shown in the respective tables.

These values are based on extensive tests of FMPA Stuttgart, in which the breaking load for different sleeve lengths has been determined.

Practical experience:

The permissible loads are based on a min. concrete strength of 15 N/mm² which meets the general site progress where anchors usually are loaded the next day after having poured the concrete.

In addition to these values the table contains permissible service loads for a concrete strength of 25 N/m² which is equal to an already hardened concrete.

Load table threaded sleeves: permissible tension forces (service loads)*

D&W 15 mm		
Length mm	Adm. F [kN] 15 N/mm ²	Adm. F [kN] 25 N/mm ²
100	5	8
120	7	10
170	11	16
220	15	21
270	19	27
320	23	32
400	29	41
500	37	52

D&W 20 mm		
Length mm	Adm. F [kN] 15 N/mm ²	Adm. F [kN] 25 N/mm ²
120	8	10
170	12	16
220	17	22
270	21	28
320	26	34
400	33	44
500	42	56

D&W 26,5 mm		
Length mm	Adm. F [kN] 15 N/mm ²	Adm. F [kN] 25 N/mm ²
170	15	20
220	20	26
270	26	32
320	31	38
400	40	48
500	51	60

*These load capacities are understood as "characteristic loads" with a safety factor included of at least 3 against breaking of concrete.



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ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 15 MM



Installation-kit D&W 15 mm and accessories – our solution for a wide range of applications!

The D&W 15 mm diameter sleeve compatible with the commonly used tie-bars is useful for **anchoring formwork brackets, square timbers, rail posts, push-pull-props, cantilever supports** etc.

With our wide range of accessories you will get a perfect anchoring system for different ranges of application.

– **recoverable clamping flanges with fine-grained cone for high exposed concrete requirements** (see pages 6 –9)

For guaranteed vertical installation (see pages 10 – 12)

– **Vertical positioner** for fixing the installation-kit to the reinforcement

– **Installation cap** for simply locating the anchoring points

– **Screw-on set** reusable, for fixing easily all parts in the anchoring points

Hexagonal and **transportation bolts with suitable shackles** are also available.

In case of concerns that rust might effect the surface of an exposed concrete part the threaded sleeves can be made out of stainless steel for a favorable price.

Installation at wooden shuttering without fair face concrete requirement

Using the **non-recoverable clamping flange** the sleeve will be installed with a **concrete cover of 20 mm**.

The clamping flange will be fixed with 2 nails 28 x 60 mm made out of stainless steel.

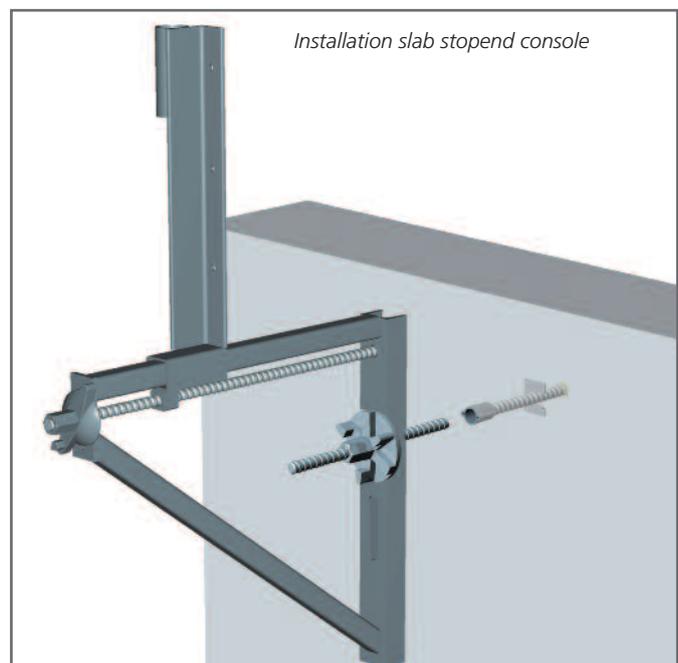
After striking the nails sticking out of the concrete surface are cut off with tongs.

Having used the anchor point the left anchor holes will be closed permanently with a **grey plastic plug** which is included in the installation-kit.

This assures a close and exact cover.



Installation slab stop end bar



Installation slab stop end console



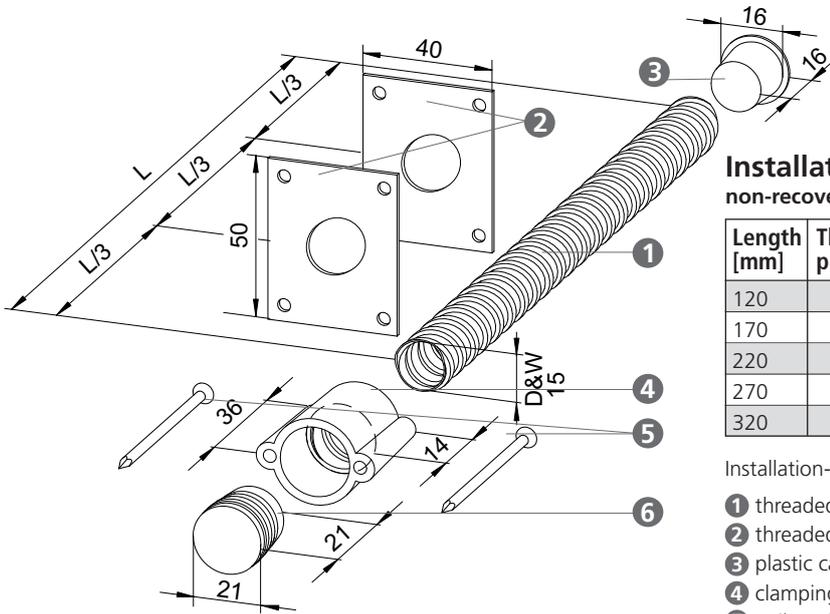


ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

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INSTALLATION-KIT D&W 15 MM

TECHNICAL DATA:



Installation-kit D&W 15 mm non-recoverable clamping flange

Length [mm]	Threaded plates	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	1	4.00	101012	101062
170	1	4.50	101017	101067
220	2	7.10	101022	101072
270	2	7.65	101027	101077
320	2	8.20	101032	101082

Installation-kit consisting of:

- ① threaded sleeve (item no. 1015..* – V2 A: item no. 1016..*)
- ② threaded plate (item no. 101591)
- ③ plastic cap yellow (item no. 101593)
- ④ clamping flange (non-recoverable) (item no. 101592)
- ⑤ nails stainless steel (item no. 109940)
- ⑥ plug for clamping flange (item no. 101597)

*the last two numbers indicate the length of threaded sleeve.

All parts of the installation-kit are also available separately.

Installation at wooden shuttering with fair face concrete requirement

With the help of our recoverable **clamping flange with double headed nail** we offer a remarkable easy fixing of the sleeve to a wooden shuttering.

A saving of time and money results from the facts, that there is only 1 fixing nail and that the sleeve can be pushed over the pin and removed without winding.

An easy removing of the fixing flange is guaranteed by the double headed nail.

After pouring and striking the clamping flange a fitting cone made of fine-grained concrete will be glued into the remaining conical deepening with a 2-component-glye.

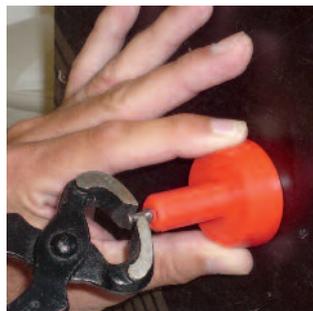
In this way no steel- or plastic parts will remain at the external face and you achieve a homogenous concrete surface. The concrete covering measures 15 mm.



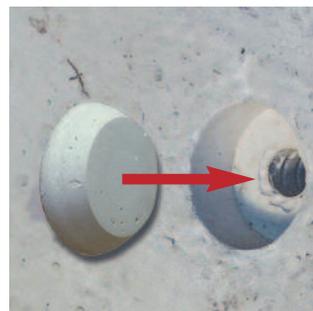
Easy and quick mounting and removing:



Easily nail clamping flange to the wooden shuttering



An easy removing of the nailing flange by the double headed nail



After removing the flange glue in the fine-grained concrete cone into the circular recess



Thus results a perfect high exposed concrete surface



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ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 15 MM



Installation at wooden shuttering with fair face concrete requirement

Using the **recoverable clamping flange** the threaded sleeve is going to be installed with a **concrete cover of 3 cm**.

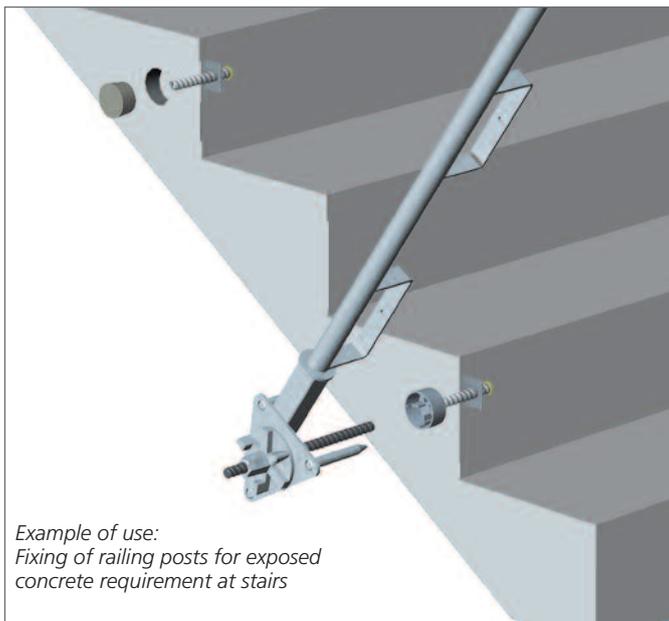
For fixing to wooden shuttering one centre nail 38 x 100 mm is required, alternatively 4 nails 22 x 50 mm can be used.

For fixing to steel shuttering we offer a magnetic clamping flange.

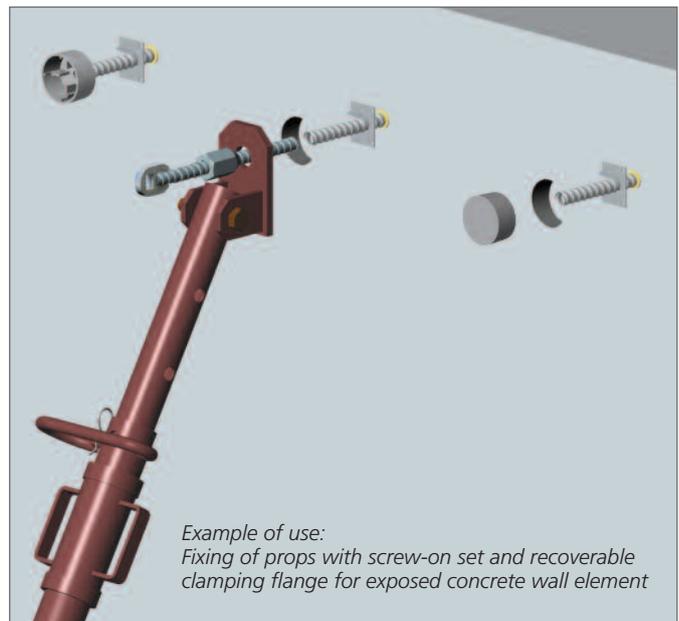
After striking the clamping flange can be removed non-destructively and gently with a removing tool. A fitting cone made of fine-grained concrete will be glued into the remaining conical deepening with a 2-component-glue. In this way no steel- or plastic parts will remain at the external face and you achieve a homogenous concrete surface.



We recommend to nail the clamping flanges without sleeve before beginning the reinforcement work. The threaded sleeve will be screwed into the clamping flange after finishing the reinforcement work in order to prevent danger of destruction.



Example of use:
Fixing of railing posts for exposed concrete requirement at stairs



Example of use:
Fixing of props with screw-on set and recoverable clamping flange for exposed concrete wall element

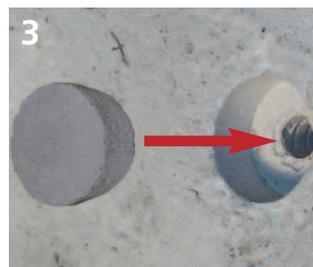
Installation and removing of recoverable clamping flange at wooden shuttering:



1
Nail clamping flange to the shuttering and then screw on the installation-kit



2
Removing of clamping flange with removing tool



3
Remove recoverable clamping flange with removing tool after concreting. No plastic parts will remain in the concrete surface.



4
Glue in fine-grained cone, perfect result for high exposed concrete!





ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

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INSTALLATION-KIT D&W 15 MM

Installation at steel shuttering with high exposed concrete requirement

These magnetic clamping flanges are available in 3 different anchoring diameters, **D&W 15 mm**, **D&W 20 mm** and **D&W 26.5 mm**, und zwar jeweils mit zwei different sizes of concrete cover (15 or 30 mm).

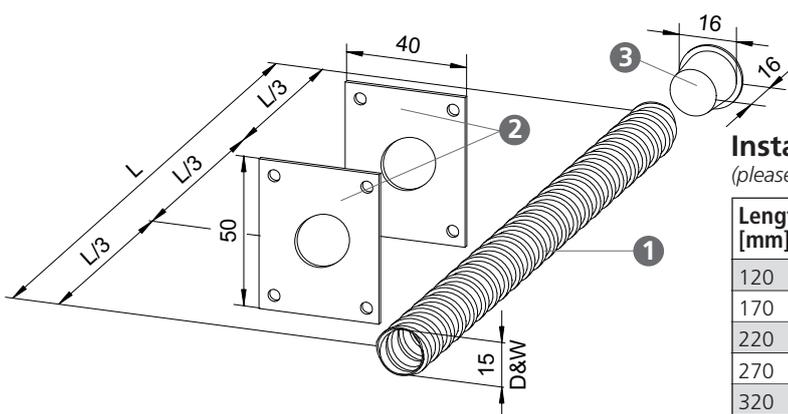
The base of all 3 diameters is identical, that means, all fine grained concrete cones for concrete cover 15 / 30 mm can be glued in.

The cylindrical pin has 3 spring-loaded impressable balls, which are situated according to the diameter of the thread of the sleeve. Therefore the sleeve can be screwed on as usual.

When casing out the clamping flange will not be screwed out but remains because of the strong magnet sticking on the formwork and will be drawn out of the sleeve.



TECHNICAL DATA:



Installation-kit D&W 15 mm

(please order clamping flange separately)

Length [mm]	Threaded plates	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	1	3,29	101112	101162
170	1	3,79	101117	101167
220	2	6,29	101122	101172
270	2	6,89	101127	101177
320	2	7,33	101132	101182

Installation-kit consisting of:

- ① threaded sleeve (item no. 1015..* – V2 A: item no. 1016..*)
- ② threaded plate (item no. 101591)
- ③ plastic cap yellow (item no. 101593)

*the last two numbers indicate the length of threaded sleeve.

All parts of the installation-kit are also available separately.

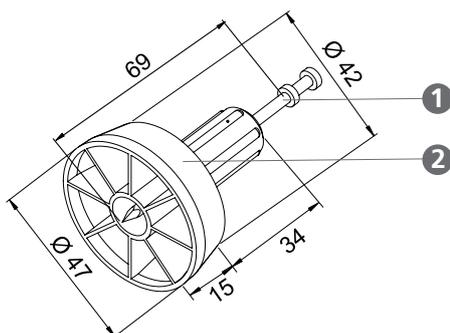
Clamping flange with double-headed nail, recoverable

Weight [kg/100 set]	Item No.
1,40	101590

Clamping flange consisting of

- ① clamping flange, recoverable (item no. 101590)
- ② double-headed nail (item no. 109945)

Both parts are also available separately.



fine grained concrete cone and 2-component glue see page 8



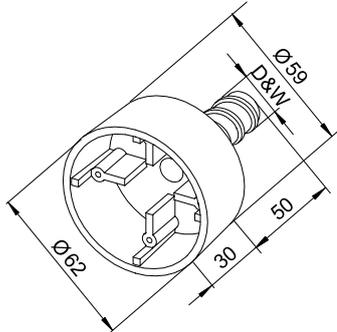
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ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 15 MM

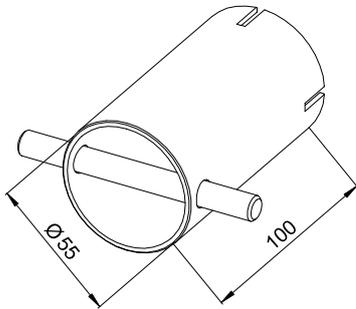


TECHNICAL DATA:



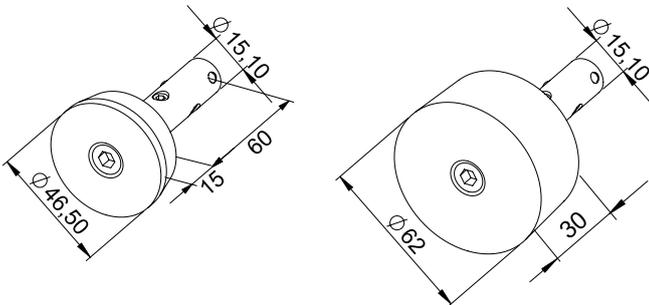
Clamping flange D&W 15 mm for wooden shuttering, recoverable

Weight [kg/100 units]	Item No.
2.70	101595



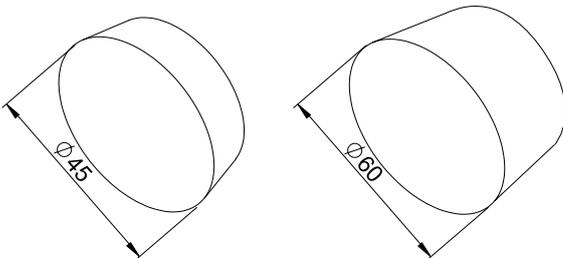
Removing tool, galvanized fitting for all recoverable clamping flanges

Weight [kg/unit]	Item No.
0.32	109933



Magnetic clamping flange D&W 15 mm for steel shuttering, mit Neodymium high-efficiency magnet adhesion approx. 80 kg

for concrete cover [mm]	Weight [kg/100 units]	Item No.
15 mm	26.0	101586
30 mm	74.0	101587



Fine grained concrete cone for all recoverable clamping flanges and magnets

for concrete cover [mm]	Weight [kg/100 units]	Item No.
15 mm	4,20	109950
30 mm	14,00	109930

2-component glue to glue in fine grained concrete cones (for approx. 120 cones)

Weight [kg/unit]	Item No.
1 x 2 / 1 x 1	109931





Vertical installation into slabs and base plates (areas non encased)

Vertical positioner

The **vertical positioner** is of plastic and is easily fixed with wire tie to the reinforcement.

The mounting is easy and quick.

The threaded sleeve with marking plugs guarantees, that the anchoring point after concreting and smoothing the concrete surface is easy to discover again.

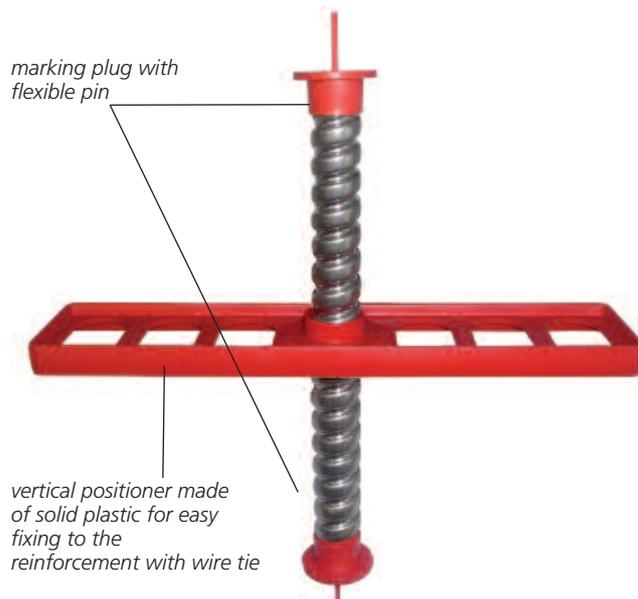
Special advantage:

With the vertical positioner a perfect vertical position of sleeve is guaranteed.

The sleeve can be screwed after mounting.

Therefore the upper edge of the plug is adjustable in height and can so be used as a level marker for the concrete.

Especially suitable for slabs with embedded heating and cooling channels, because hard and dangerous drilling is not necessary.



Accessory for universal fixing: screw-in set

Wide range applicable bolt with nut, which makes you independent in multiple ways:

User defined clamping thickness, regardless of clamping a steel plate with 5 mm or a planking with 5 cm thickness.

User defined screwing depth, regardless of screwing the bolt into the dowel 35 mm or into the threaded sleeve 100 mm.

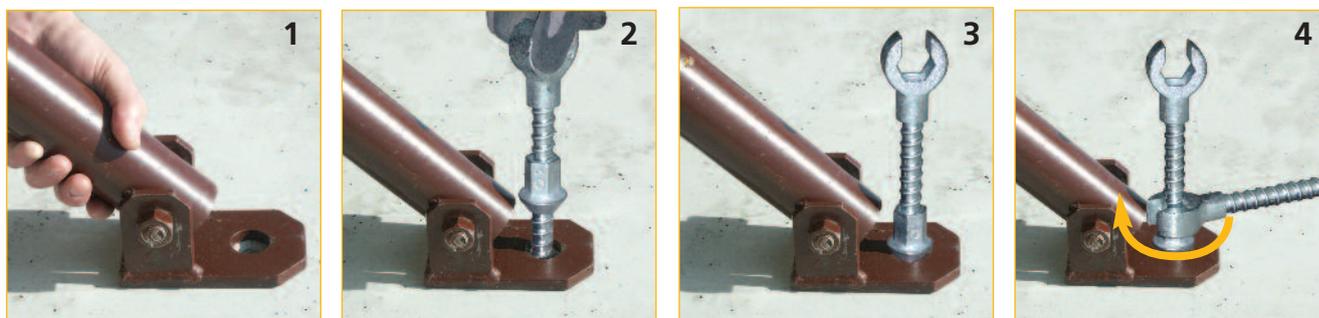
User defined hole diameter between 17 and 30 mm, the tightening of the conical shaped nut guarantees automatically a centering without any tolerance in the middle of the hole. A shifting is not possible.

Tightening without any special tool (fork wrench), hammer will be enough!

No additional costs for adapter sleeves or washers.



Easy mounting of the screw-in set:



1. Place clamping part over the anchoring point.

2. Screw bolt into the anchoring ground.

3. Tighten hexagonal bolt, in this way the nut will center the clamping part without tolerances.

4. Final tightening of the screw by simply turning with a second screw-in set.

Because of the form of a screw spanner of the screw-in set also a conical flange nut can be tightened.





Easy mounting – a lot of advantages

Easy mounting: the installation-kit with vertical positioner is quickly fixed with wire-tie. Afterwards the marking plug can be adjusted to the concrete height. The installation-kit is attached firmly to the reinforcement and remains in vertical position. After smoothing the concrete surface it is very easy to discover the anchoring point by the flexible pin of the marking plug.



For heating and cooling-systems in slabs the perfect solution

When there are concrete slabs with a huge number of cables and pipe ducts you can avoid dangerous drilling, the anchors can be placed into correct and absolutely vertical position



Gauge for downward slopes: example of using for vertical positioner and screw-in set

Installation-kits with vertical positioner, together with screw-in set, are the perfect helper as gauges for slabs with downward slopes.

Especially in buildings with multiple slopes in different directions, for example in underground garages and buildings with side wings.

The screw-in set without hexagon nut is screwed as deep as necessary into the threaded sleeve until the correct level is adjusted. After that a rectangular steel tube is placed into the upper opening of the bolt.

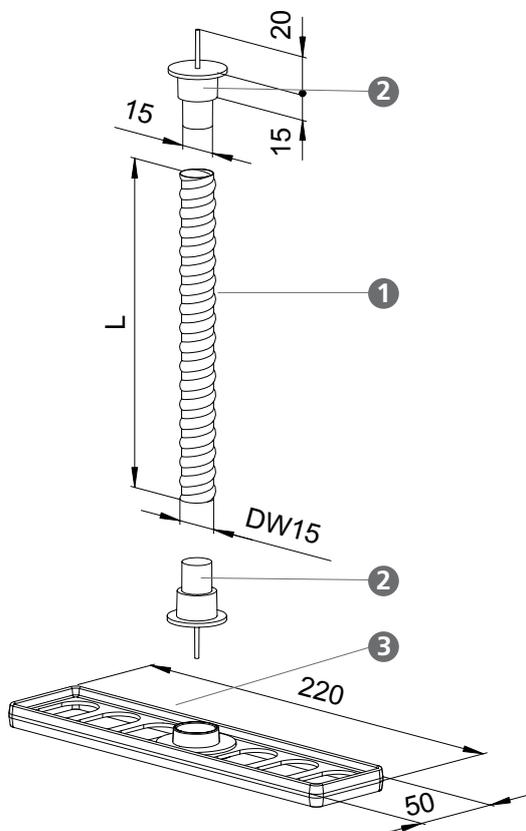
This tube is then the gauge for smoothing the surface level of the fresh concrete.

After finishing the concrete works, the rectangular tubes and the bolts can be removed from the soft concrete and the small remaining holes are then filled with concrete.





TECHNICAL DATA:



Installation-kit D&W 15 mm with marking plugs and vertical positioner (red colour)

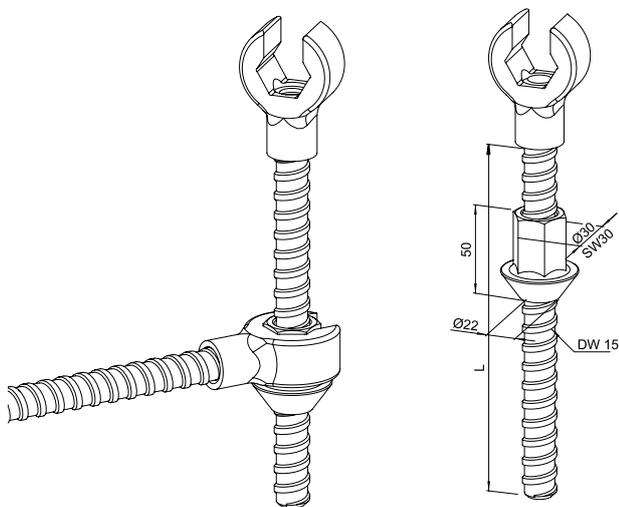
Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	4.40	101312	101362
170	4.90	101317	101367

Installation-kit consisting of

- ① threaded sleeve (item no. 1015..* – V2 A: item no. 1016..*)
- ② 2 marking plugs (item no. 101598)
- ③ vertical positioner (item no. 101588)

*the last two numbers indicate the length of threaded sleeve.

All parts of the installation-kit are also available separately.



Screw-in set, Ø 15 mm, galvanized

Length* [mm]	Weight [kg/unit]	Item No.
180	0.46	111820
300	0.78	111825

*other lengths available upon request.



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INSTALLATION-KIT D&W 15 MM – ACCESSORIES



Bolts

Bolts with hexagonal head are available which can be used together with built in shackles for any purpose.

To determine the length of the screws please make sure that it corresponds with the length of the sleeves.

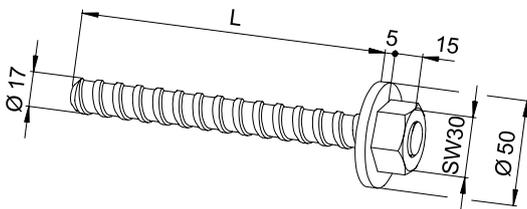
The formula for a correct determination of the length is:

Length of screw = length of sleeve – 20 mm.

If you have to fix parts with a thickness of more than 10 mm, you will have to increase the length of the screw by adding the clamp thickness.



TECHNICAL DATA:

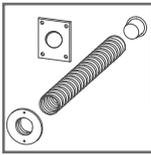


Hexagonal bolt D&W 15 mm, galvanized

Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
100	10	0.30	111610
150	10	0.38	111615
200	10	0.46	111620
300	10	0.60	111630

* other lengths available on request.





Installation-kit Ø 20 mm and accessories

Installation-kits with Ø 20 mm offer all the advantages of installation-kits with 15 mm, as mentioned above. Additionally higher transverse forces are possible.

In this way more possibilities can be offered for the anchoring of scaffoldings and railing posts.

The various accessories we supply offer a perfect anchoring system with different usage possibilities.

– **Recoverable clamping flanges with fine grained concrete cone** for high exposed concrete requirements (see page 15)

For vertical installation (see pages 16 + 17):

– **ROBUSTA-vertical positioner** to fix the installation-kit to reinforcements, especially for vertical anchoring of screwing railing post Ø 20 mm.

– **marking plug** to relocate the anchoring points very easy



Also available: **hexagonal and transportation bolts** with fitting shackles.

In case of danger of rusting at the sensitive exposed concrete parts the sleeve is also available in fine steel rust-free at a very inexpensive price.

Installation at wooden shuttering without exposed concrete requirements:

The non-recoverable clamping flange is fixed with 2 nails. After striking the overhanging nail ends are cut off with tongs.

Anchoring of scaffolding brackets

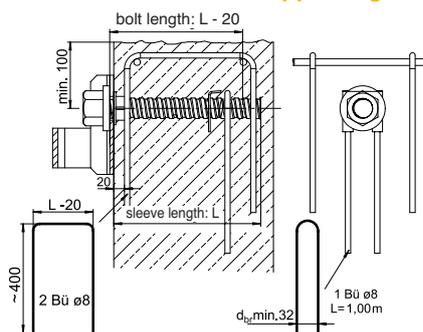
Use up to scaffolding group 2 according to a working load of 150 kg/m².

At slab edges with thermal insulation the selected sleeve and bolt have to be longer to guarantee the anchoring depth into the concrete.

In these cases the supporting load of the working platform has to be reduced because of the bending of the screw.

Fitting into the boring at the universal suspension shoe the anchoring bolt with special head will be used. The hexagonal head has an additional flange, which will reduce the hole tolerance and secure the transverse supporting load.

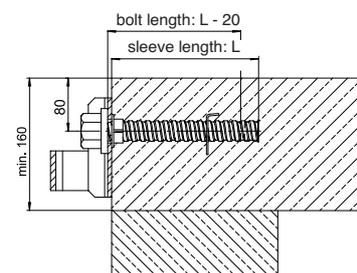
In the concrete wall – upper edge:



Sleeve length [mm]	Bolt length [mm]	Admissible load [kN]*
170	150	12
220	200	17

Distance towards edge upwards to the head of the wall minimum 10 cm.
To prevent breaking of the sleeve additional stirrups have to be installed.

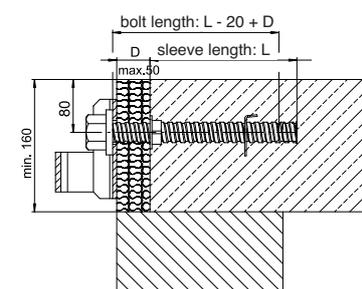
In the concrete slab with wall underneath:



Sleeve length [mm]	Bolt length [mm]	Admissible load [kN]*
170	150	12
220	200	17

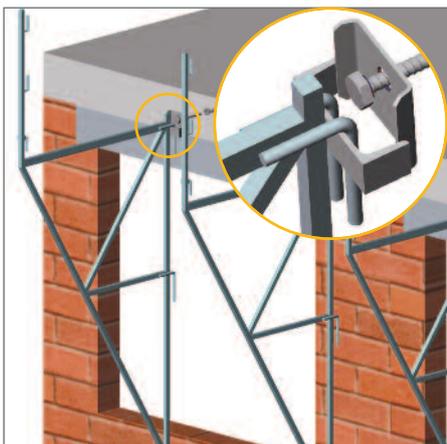
Bolt length = sleeve length – 20 mm

In the concrete wall, with thermal insulation (max. thickness 5 cm)



Sleeve length [mm]	Bolt length [mm]	Admissible load [kN]*
170	220	12

*These load capacities are understood as "characteristic loads" with a safety factor included of at least 3 against breaking of concrete.



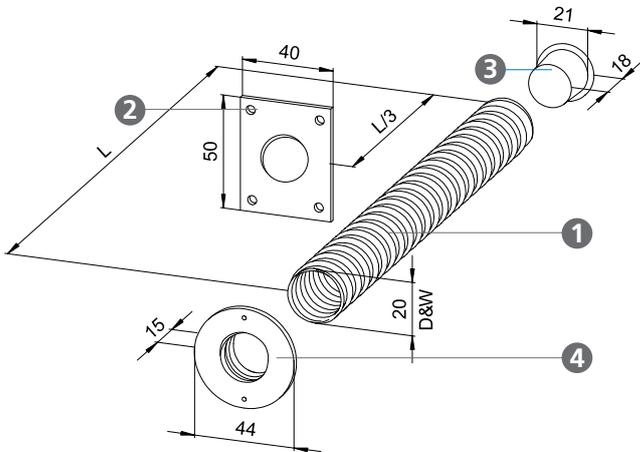
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ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 20 MM



TECHNICAL DATA:



Installation-kit D&W 20 mm non-recoverable clamping-flange

Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	5.10	102212	102262
170	5.70	102217	102267
220	6.30	102222	102272
270	6.90	102227	102277

Installation-kit consisting of:

- ① threaded sleeve (item no. 1020..* – V2 A: Item No. 1021..*)
- ② threaded plate (item no. 102091)
- ③ plastic cap yellow (item no. 102093)
- ④ clamping flange (non-recoverable) (item no. 102092)

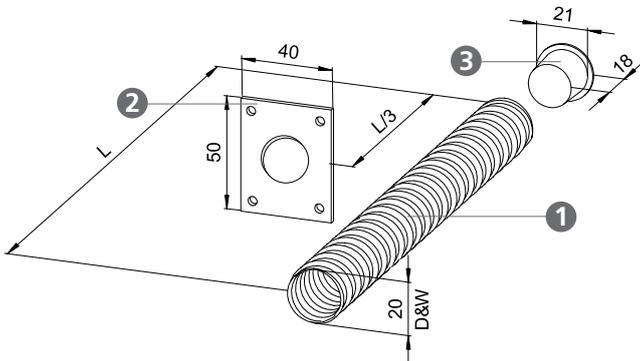
*the last two numbers indicate the length of threaded sleeve.

Alle parts of the installation-kit are also available separately.

Installation at wooden / steel shuttering with high exposed concrete requirement

see use and mounting page 6, D&W 15 mm

TECHNICAL DATA:



Installation-kit D&W 20 mm (please order clamping flange separately)

Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	4.35	102312	102362
170	4.95	102317	102367
220	5.60	102322	102372
270	6.25	102327	102377

Installation-kit consisting of

- ① threaded sleeve (item no.. 1020..* – V2 A: item no.. 1021..*)
- ② threaded plate (item no. 102091)
- ③ plastic cap yellow (item No. 102093)

*the last two numbers indicate the length of threaded sleeve.

Alle parts of the installation-kit are also available separately.

Clamping flange D&W 20 mm for wooden shutterings recoverable

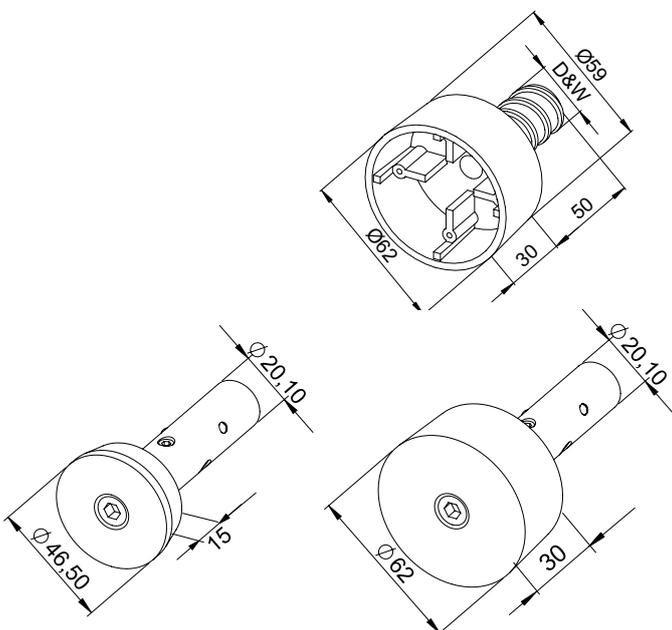
Weight [kg/100 units]	Item No.
3,00	102095

removing tool see page 8

Magnetic clamping flange D&W 20 mm for steel shuttering, with Neodymium high-efficiency magnet adhesion approx. 80 kg

for concrete cover [mm]	Weight [kg/100 units]	Item No.
15 mm	37.0	102086
30 mm	85.0	102087

fine grained concrete cones and 2-component glue see page 8



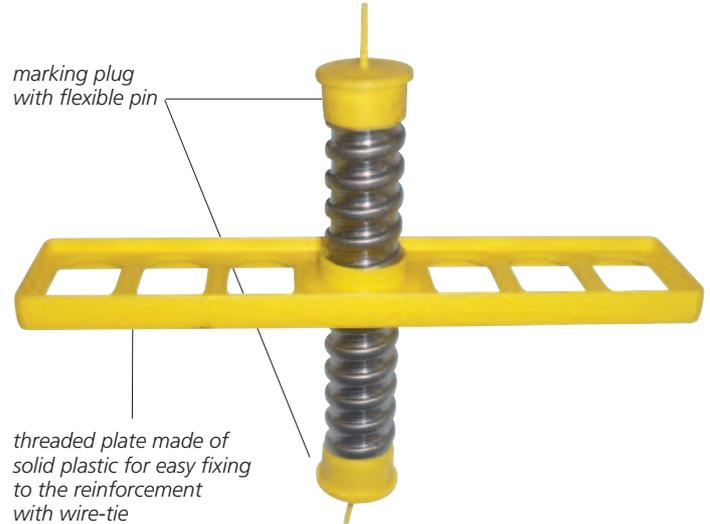


Installation in floors from above

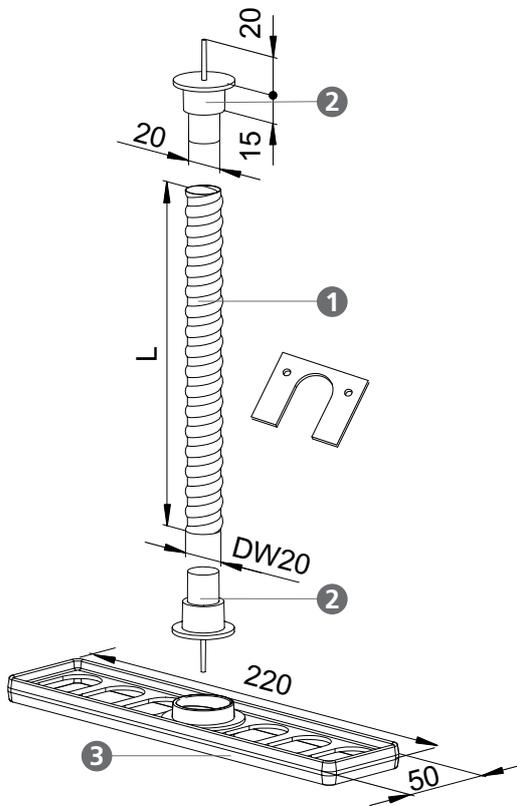
Vertical positioner

The **vertical positioner** is a threaded plate made of plastic that is easily fixed with wire-tie to the reinforcement. The mounting is easy and quick. The threaded sleeve with marking plugs guarantees, that the anchoring point after concreting and smoothing the concrete surface is easy to discover.

More to this product also see page 10.



TECHNICAL DATA:



Installation-kit D&W 20 mm with marking plug (yellow) and vertical positioner

Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
120	5.10	102512	102562
170	5.80	102517	102567

Installation-kit consisting of:

- ① threaded sleeve (item no.. 1020..* – V2 A: item no. 1021..*)
- ② 2 marking plugs (item no. 102098)
- ③ vertical positioner (item no. 102088)
- ⑤ threaded plate (item no. 101591)

*the last two numbers indicate the length of threaded sleeve.

All parts of the installation-kit are also available separately.





Hexagonal bolts, transportation bolts, shackles

Bolts with hexagonal head and transportation bolts are available with square boring for every possibility of use. With a fitted shackle they can be used for all kinds of transportation.

To determine the length of the screws please make sure that it has to fit to the length of the sleeves.

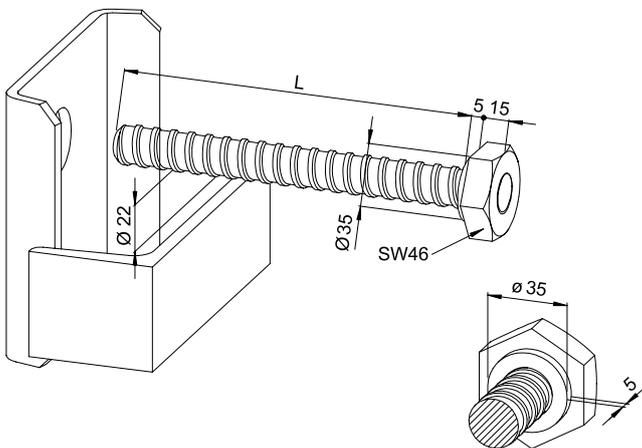
The formula for a correct determination of the length is:

Length of screw = length of sleeve – 20 mm.

If you have to fix parts with a thickness of more than 10 mm, you will have to extend the length of the screw with the according clamping thickness.



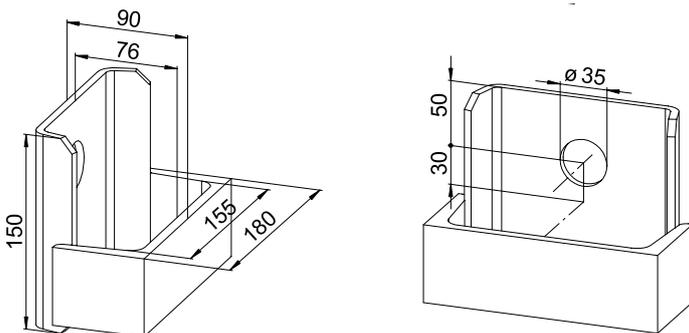
TECHNICAL DATA:



Hexagonal bolts with special head, Ø 20.0 mm galvanized

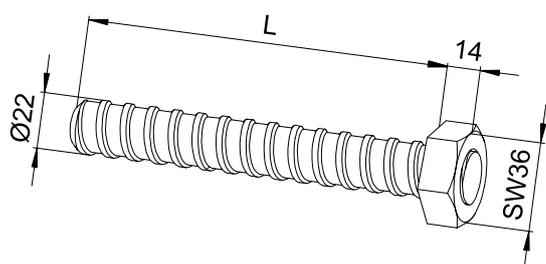
Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
150	10	0.67	112215
200	10	0.78	112220
250	10	0.89	112225
300	10	1.00	112230

Special head with flange Ø 35 mm, fitting to the anchoring hole of the ROBUSTA-suspension shoe



Suspension shoe, galvanized

Adm. load [kN]	Weight [kg/unit]	Item No.
20.0	2.6	319901



Hexagonal bolt D&W 20 mm, galvanized

Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
100	10	0,38	112110
150	10	0,52	112115
200	10	0,65	112120
250	10	0,79	112125
300	10	1,00	112130

**ATTENTION:

Please mind possible lower load of the threaded sleeves!

This load is meant as characteristic values.



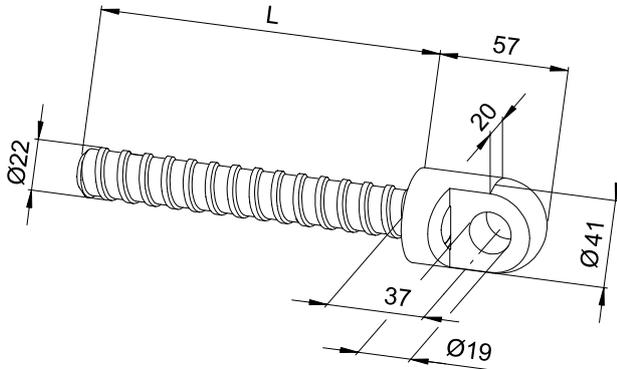


ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

1

INSTALLATION-KIT D&W 20 MM – ACCESSORIES

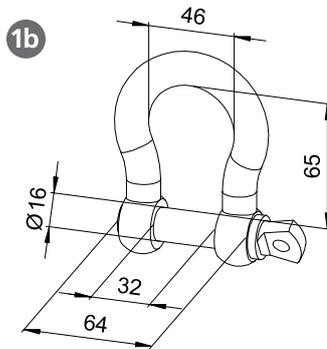
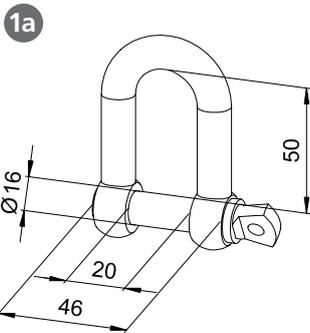
TECHNICAL DATA:



Transportation bolt D&W 20 mm, galvanized

Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
100	10	0.56	112010
150	10	0.68	112015
200	10	0.83	112020

*other lengths available upon request



Shackles, galvanized

Type	Adm. load** [kN]	Weight [kg/unit]	Item No.
1a	10	0.34	119920
1b	10	0.49	119921

**ATTENTION:

Please mind possible lower load of the threaded sleeves!
This load is meant as characteristic values.



1

ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 26.5 MM



Installation-kit D&W 26.5 mm

With the diameter 26.5 mm we are offering a very inexpensive anchoring sleeve to attach scaffolding.

The supporting power corresponds to scaffolding groups 3 – 5.

Especially at huge sites with thousands of non-recoverable anchors the enormous advantage of saving costs has been proven.

The sturdy hexagonal bolt with coarse thread guarantees a multiple use with low casualty rate. That's why we offer it also for rent with our ROBUSTA-foldable work platform system.



Installation at wooden shuttering without high exposed concrete requirement

The non-recoverable clamping flange is fixed with 2 nails.

The overlying nail ends will be pinched off with tongs. This does not disturb when the surfaces will be plastered or covered subsequent.

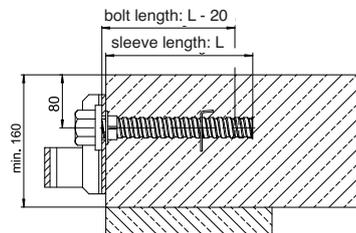
Fixing of consoles and folding brackets:

For high anchoring loads, use up to scaffolding groups 3 – 5 according to a surface load of actual load up to 450 kgs/m².

For slab edges with thermal insulation sleeve and bolt has to be chosen longer so that the anchoring depth in the concrete is guaranteed.

In this case the load of the bracket has to be reduced because of bolt bending.

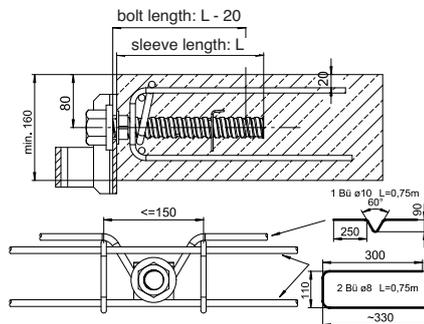
In the concrete slab with wall underneath:



Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
3 – 5	220	200	20
3 – 5	270	250	26

bolt length = sleeve length – 20 mm

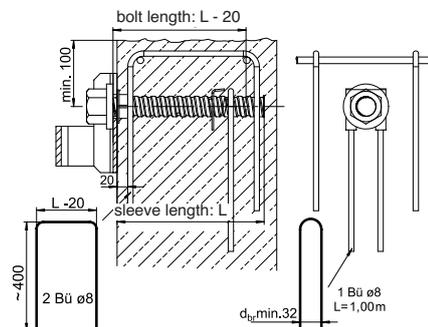
In the concrete slab without wall underneath:



Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
1 + 3	270	250	18

Bolt length = sleeve length – 20 mm
To prevent breaking, additional stirrups are required!

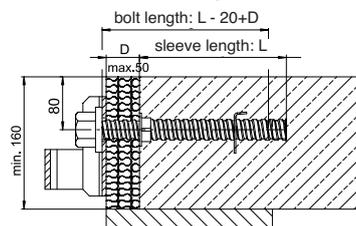
In the concrete wall – upper edge:



Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
1 – 3	170	150	15
3 – 5	220	200	20
3 – 5	270	250	26

Distance towards edge upwards to the head of the wall minimum 10 cm.
To prevent breaking of the sleeve additional stirrups have to be installed.

In the concrete wall, with thermal insulation (max. thickness 5 cm):



Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
1 – 3	170	220	18

* These load capacities are understood as "characteristic loads" with a safety factor included of at least 3 against breaking of concrete.



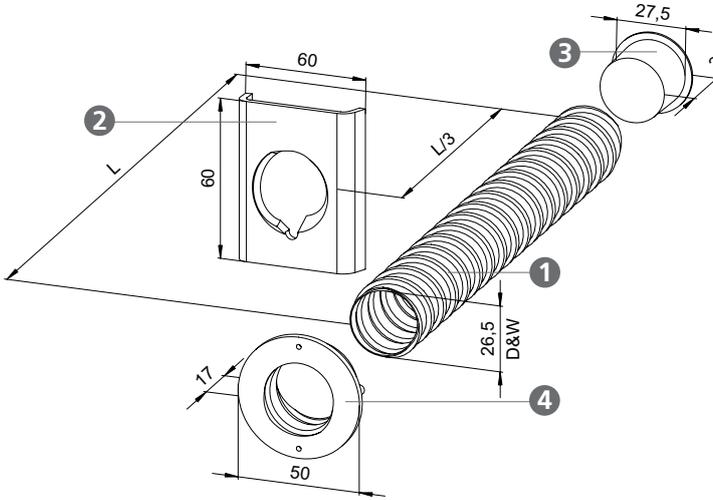


ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

1

INSTALLATION-KIT D&W 26.5 MM

TECHNICAL DATA:



Installation-kit Ø 26.5 mm with non-recoverable clamping flange

Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
170	18,00	102817	102867
220	19,30	102822	102872
270	20,60	102827	102877
320	21,90	102832	102882

Installation-kit consisting of:

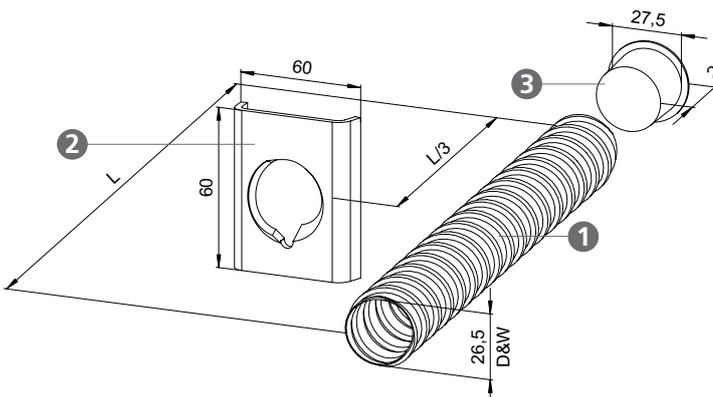
- ① threaded sleeve (item no. 1026..* – V2 A: item no. 1027..*)
- ② threaded plate (item no. 102691)
- ③ plastic plug, yellow (item no. 102693)
- ④ clamping flange (non-recoverable) (item no. 102692)

*the last two numbers indicate the length of threaded sleeve.

All parts of the installation-kit are also available separately.

Installation at wooden / steel formwork with high exposed concrete requirement

see use and mounting page 6, D&W 15 mm



Installation-kit D&W 26.5 mm (please order clamping flange separately)

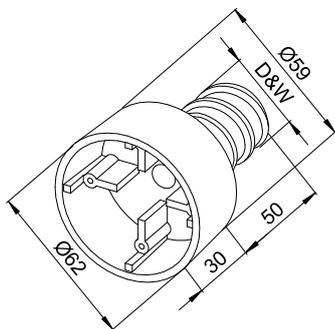
Length [mm]	Weight [kg/100 units]	Item No. S 235 JR	Item No. V2 A
140	8,90	102914	102964
190	9,70	102919	102969
240	10,50	102924	102974
320	11,30	102932	102979

Installation-kit consisting of:

- ① threaded sleeve (item no. 1026..* – V2 A: item no. 1027..*)
- ② threaded plate (item no. 102691)
- ③ plastic cap yellow (item no. 102693)

*the last two numbers indicate the length of threaded sleeve.

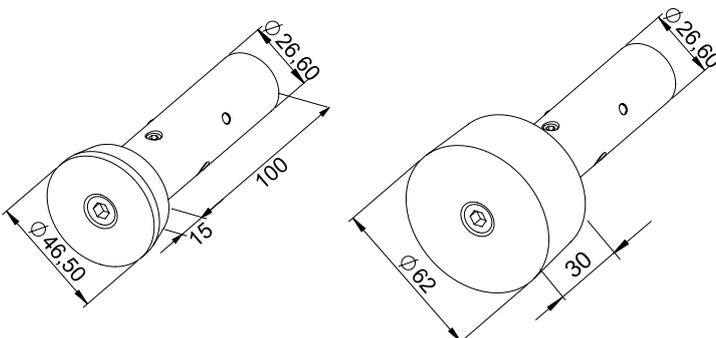
All parts of the installation-kit are also available separately.



Clamping flange D&W 26.5 mm for wooden shutterings, recoverable

Weight [kg/100 units]	Item No.
3.30	102695

Removing tool, fine grained concrete cones and 2-component glue see page 8



Magnetic clamping flange D&W 26.5 mm for steel shuttering, mit Neodymium high-efficiency magnet adhesion approx. 80 kg

for concrete cover [mm]	Weight [kg/100 units]	Item No.
15 mm	60.0	102686
30 mm	106.0	102687



1

ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT 26.5 MM – ACCESSORIES



Metal fixing core

The damaging and bending of the sleeve when concreting, especially with high pouring heights, is prevented with the help of a sturdy metal core.

For quick installation and removing the core has only at the end 3 threads.

That way the sleeve can be put through the greatest length of the core without screwing.

The sturdy conical base plate has 4 nailing holes \varnothing 4 mm to be fixed to the wooden casing.

After removing the formwork the deepened hexagonal head SW 17 is accessible in the baseplate.

The removing of the fixing core with a ratchet can be managed within seconds and the core can be used again for the next concreting.



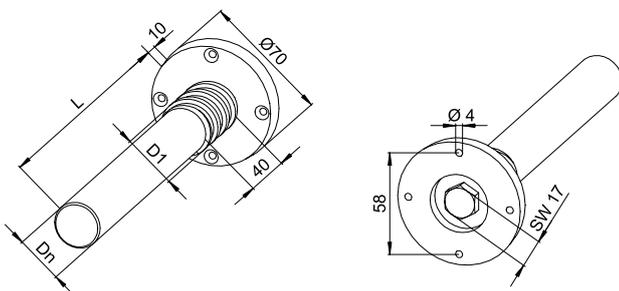
Vertical fixing

Vertical positioner, wire bending part

The vertical positioner made of stable wire guarantees a vertical installation of the sleeve at the reinforcement. Also after the fixing the sleeve remains able to turn and this way can be adjusted accordingly in height. Wire bending parts are available for all other diameters of sleeves on request, we will produce them according to clients needs.

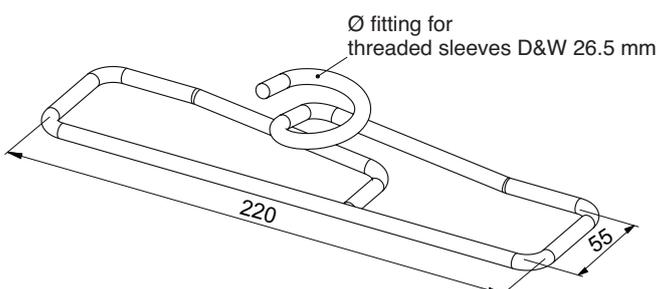


TECHNICAL DATA:



Metal fixing core D&W 26.5 mm, galvanized

Length [mm]	Weight [kg/unit]	Item No.
150	0.46	102651
200	0.92	102652
250	1.15	102653



Vertical positioner D&W 26.5

Weight [kg/unit]	Item No.
0,20	102688





Hexagonal bolts, transportation bolts, shackles

Bolts with hexagonal head and transportation bolts are available with square boring for every possibility of use. With a fitted shackle they can be used for all kinds of transportation.

To determine the length of the screws please note that it has to fit to the length of the sleeves.

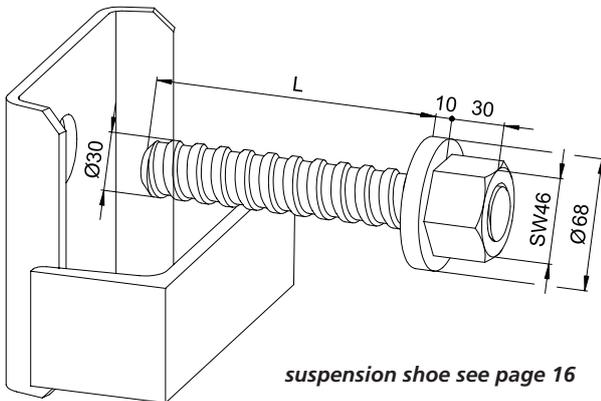
The formula for a correct determination of the length is:

$$\text{Length of screw} = \text{length of sleeve} - 20 \text{ mm.}$$

If you have to fix parts with a thickness of more than 10 mm, you will have to extend the length of the screw by the according clamping thickness.



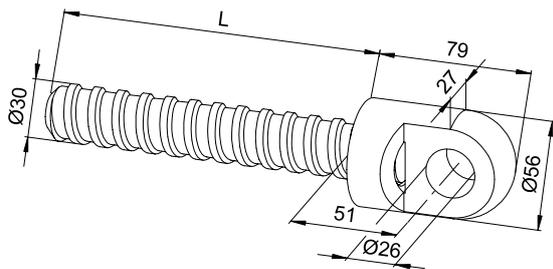
TECHNICAL DATA:



Hexagonal bolt D&W 26.5 mm, galvanized

Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
150	50	1.38	112715
200	50	1.60	112720
250	50	1.83	112725
300	50	2.07	112730

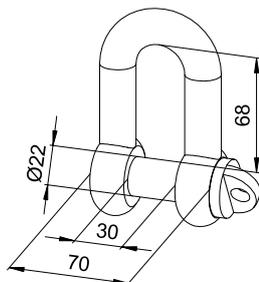
*other lengths available upon request



Transportation bolt D&W 26.5 mm, galvanized

Length* [mm]	Adm. load** [kN]	Weight [kg/unit]	Item No.
150	20	1,48	112615
200	20	1,60	112620
250	20	1,93	112625
300	20	2,05	112630

*other lengths available upon request



Shackle, galvanized

Type	Adm. load** [kN]	Weight [kg/unit]	Item No.
2	20	0.96	119922

**ATTENTION

Please mind possible lower load of the threaded sleeves!

This load is meant as characteristic values.



1

ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

INSTALLATION-KIT D&W 26.5 MM – ACCESSORIES



Special solution: bolt with suspension cone

ONE anchoring system for many working platform systems!

As an alternative to the anchoring of working platforms without a suspension shoe, where the fixing is done directly with a suspension cone, you can use the bolt with suspension cone and take advantage of the ROBUSTA-threaded sleeves also for your working platform system.

The use of this bolt is only possible in connection with the clamping flange with a concrete covering of 30 mm.

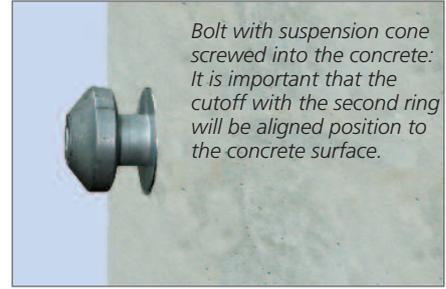
A safe taking of the shear load is guaranteed because of the support of the second ring in the depression. The protruding anchor head is suitable for all scaffolding brackets for cone suspension of the same kind.

Because of the official approval a correct anchoring of the loads is



Approval-No. Z-21.6-1744

guaranteed. Parts produced by other manufacturers can be used without problems. To tighten or loosen the screws easily, the square core of a normal ratcheting end wrench is inserted into the depression in the bolt head.

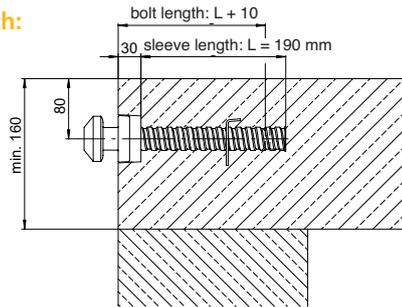


Bolt with suspension cone screwed into the concrete: It is important that the cutoff with the second ring will be aligned position to the concrete surface.



Scaffolding bracket with conical split suspension shoe

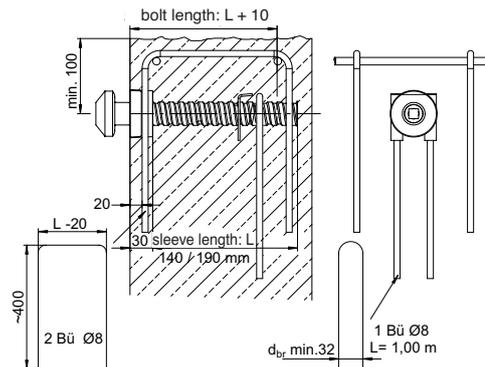
In the concrete slab with wall underneath:



Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
3 – 5	190	200	20

bolt length = sleeve length + 10 mm

In the concrete wall – upper edge:

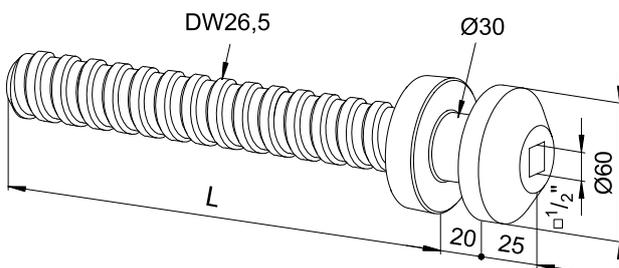


Scaffolding group	Sleeve length [mm]	Bolt length [mm]	Adm. load* [kN]
1 – 3	140	150	15
3 – 5	190	200	20

Distance towards edge upwards to the head of the wall minimum 10 cm. To prevent breaking of the sleeve additional stirrups have to be installed.

* These load capacities are understood as "characteristic loads" with a safety factor included of at least 3 against breaking of concrete.

TECHNICAL DATA:



Bolt with suspension cone

Length [mm]	Weight [kg/unit]	Item No.
150	1,45	112815
200	1,70	112820





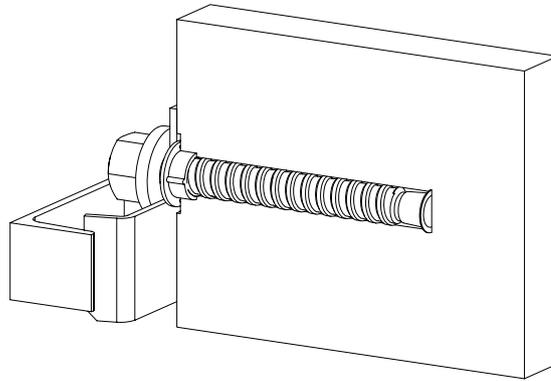
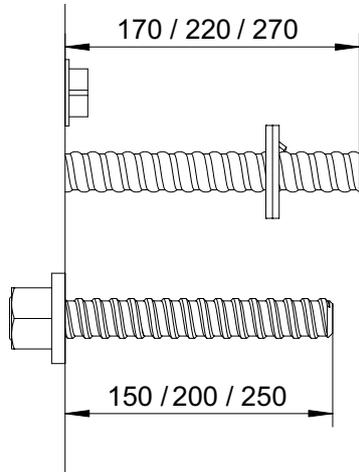
ANCHORING SYSTEMS FOR DIFFERENT FIXING PURPOSES

1

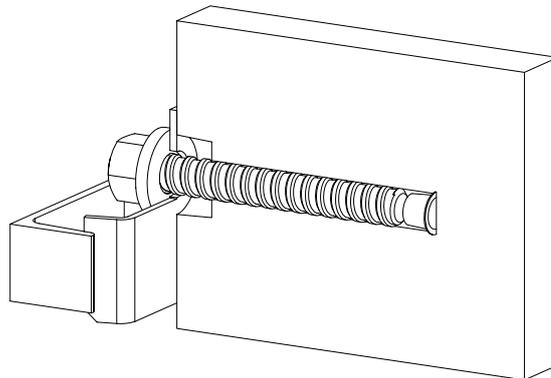
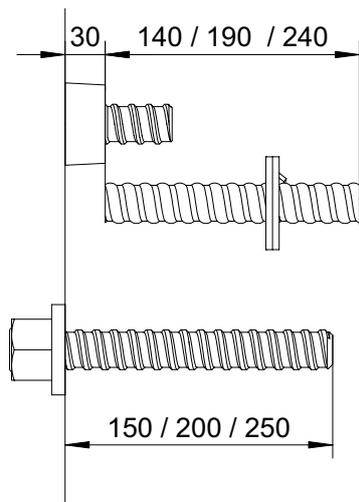
INSTALLATION-KIT D&W 26.5 MM – ACCESSORIES

Survey: combination of the bolt lengths and according lengths of sleeves:

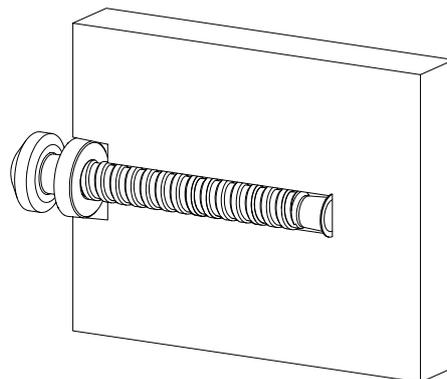
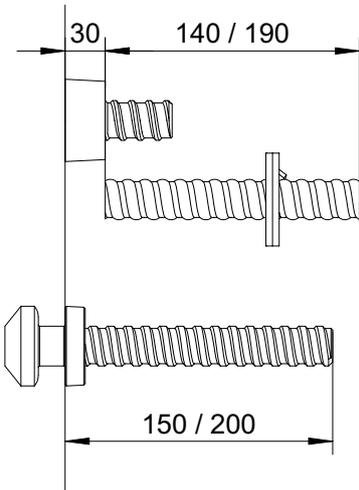
Installation-kit with **non-recoverable clamping flange**, with hexagonal bolt SW46 mm, Ø 26.5 mm
Sleeve length = bolt length + 20 mm



Installation-kit with **recoverable clamping flange** 30 mm, with hexagonal bolt SW46, Ø 26.5 mm
Sleeve length = bolt length - 10 mm



Installation-kit with **recoverable clamping flange** 30 mm, with bolt with suspension cone Ø 26.5 mm
Sleeve length = bolt length - 10 mm



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