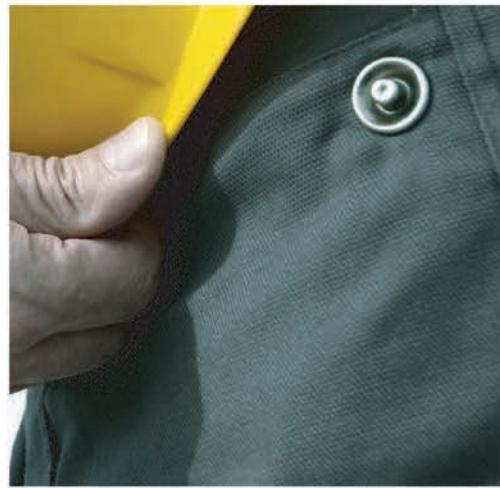
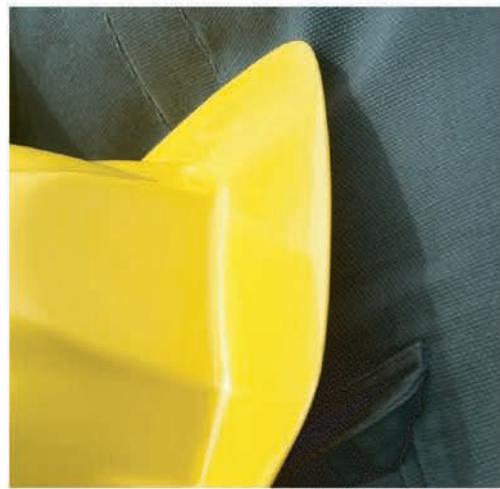
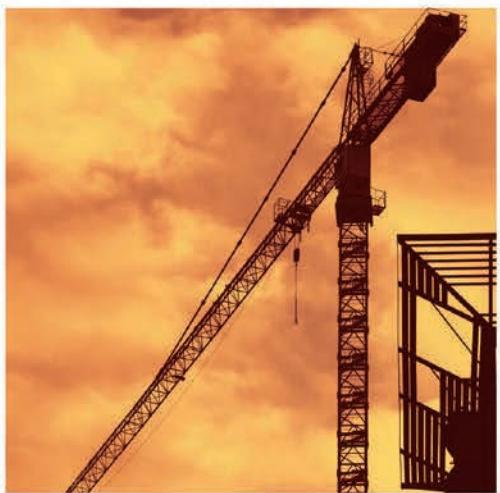


fm ferrometal



**STEEL CONSTRUCTION
FASTENERS**



Ferrometal Oy founded in 1976

Location: Nurmijärvi, Finland.

Stocked articles 45.000 pcs.

Pallet locations in stock: 14.000 pcs.

Part of Würth Group since 1989.

Modern logistics to guarantee superior service level.

Quick and prompt deliveries.

In the Baltic region, Ferrometal Oy is known as the industry-leading supplier of fasteners and other small accessories required for the assembly and installation of our customers' end products. Having the widest product range in the field ensures that the products required are quickly found and delivered to the customers' production facilities or work sites in a timely manner.

For our industrial customers, we offer logistics solutions tailored to their needs and utilising the latest technology. We are known for our Rfid-Kanban solutions, as well as for our ability to streamline the customers' small accessories logistics.

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STEEL CONSTRUCTION FASTENERS

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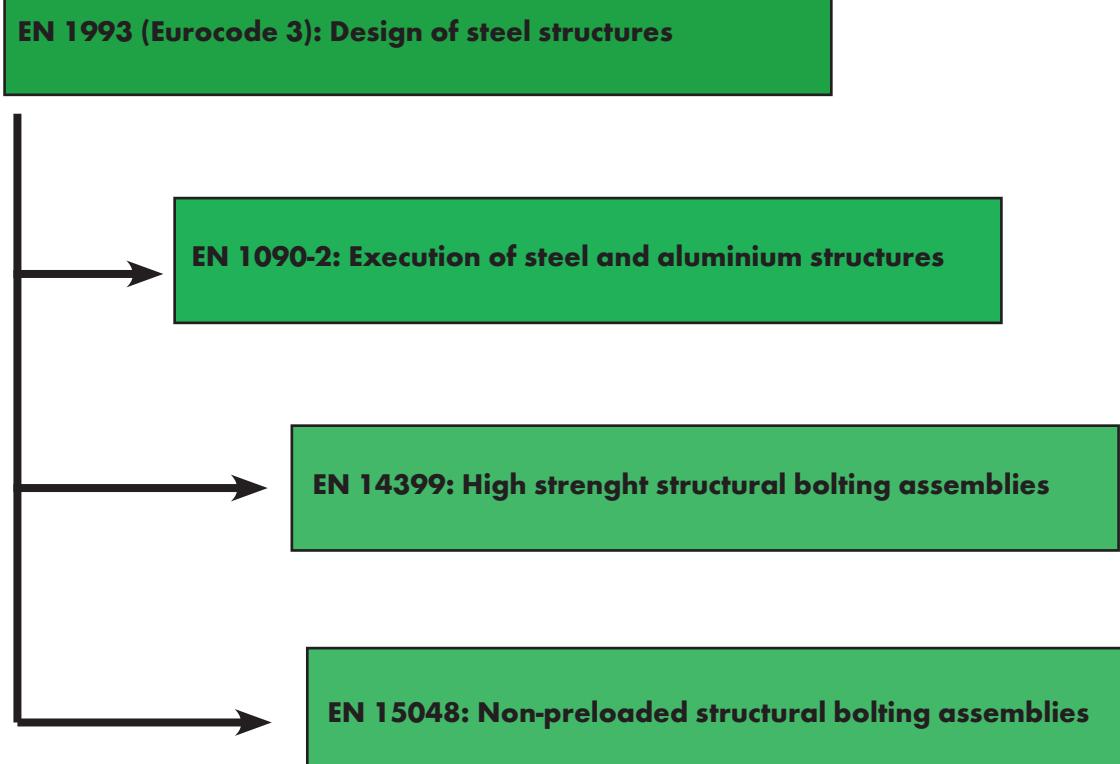


New Construction Products Regulation (CPR)

The implementation of standard EN 1993 (Eurocode 3) has brought significant changes to fasteners used in steel bolting construction. The products used must meet the requirements of European quality standards. Fastener hot dip galvanising must conform to EN 10684. In case of other fasteners, e.g. special fasteners, are used, the related technical features and any required testing must be indicated in the specification of the construction project.

Standard fasteners used in steel construction are divided into two categories in sites planned according to EN 1993 and implemented according to EN 1090-2:

- Preloaded friction joints are carried out with bolt assemblies according to EN 14399. These types of products have been on the market for a few years now, and they are also included in Ferrometal's delivery scope. The products are commonly referred as HV sets.
- Bolting for non-preloaded joints are subject to the new standard EN 15048. The availability of these bolt assemblies is currently limited. Ferrometal is the first fastener supplier in Finland to carry this extensive product range in their stock.



1. High-strength, structural bolting assemblies for preloading EN 14399

Summary of standard EN 14399:

- Part 1 General Requirements
- Part 2 Suitability for preloading
- Part 3 HR System: Hexagon Bolt and Nut Assemblies
- Part 4 HV System: Hexagon Bolt and Nut Assemblies
- Part 5 Plain Washers
- Part 6 Plain Chamfered Washers
- Part 7 HR System: Countersunk Bolts and Nut Assemblies
- Part 8 HV System: Hexagon Fit Bolts and Nut Assemblies
- Part 9 HR or HV System: Direct Tension Indicators for Bolt and Nut Assemblies
- Part 10 HRC System: Bolt and Nut Assemblies with calibrated preload



1.1 What is an HV set EN 14399-4?

The marking HV is derived from the German term "Hochfest Vorgespannt", which refers to a high-strength, preloaded bolt. Currently, HV refers to hexagon bolt and nut assemblies according to standard EN 14399-4. These bolt assemblies are used in bolt connections of preloaded, load-bearing steel structures.

HV bolt assemblies also include washers pursuant to EN 14399-6. All system components (bolts, nuts, washers) must be procured from the same manufacturer.

Preloaded bolt connections are used for ensuring slip resistance, for structures located in seismic regions or structures that are otherwise subjected to dynamic loads. Preloading is also utilised for improving fatigue resistance and long-term durability.



These types of connections can also be executed with an HR bolt assembly according to EN 14399-3. In Finland, however, the use of HV sets has been established as the standard for design and execution. These two assemblies should not be confused with one another. They are two distinct systems with different characteristics and component dimensions.

HV bolt assembly standards were revised back in 2007. Some old bolt lists or drawings may still include the following old designations from the DIN standard:

| Product | Old standard | Current standard |
|-----------|--------------|------------------|
| HV bolt | DIN 6914 | EN 14399-4 |
| HV nut | DIN 6915 | EN 14399-4 |
| HV washer | DIN 6916 | EN 14399-6 |

1.2 HV bolt characteristics

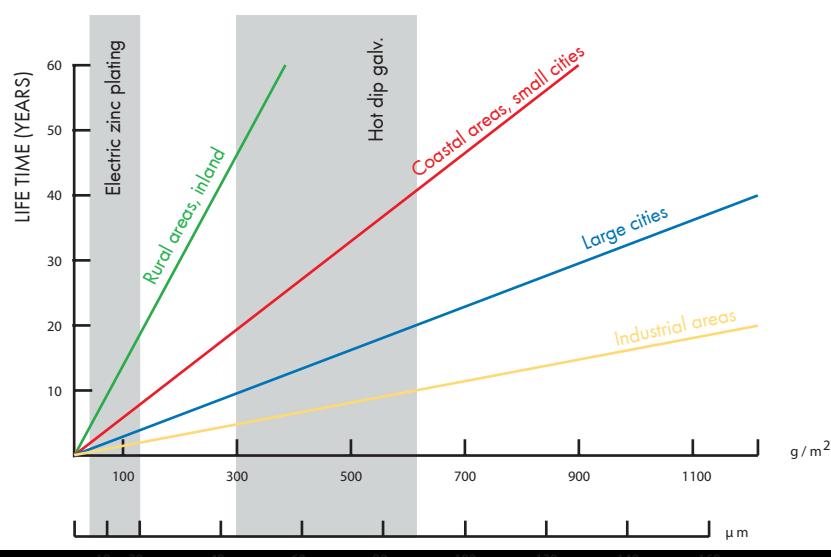
HV bolts are in many ways different to regular hexagon bolts.

- The steel strength of the bolts is 10.9, nuts are of strength 10 and washers are grade HV300.
- The width across flats of the bolts and nuts is wider than usual with a stronger under the head of the bolt. This ensures improved load and fatigue resistance.
- The manufacturer may indicate batch numbers in the heads of bolts and the face surface of nuts. This ensures that the products are visually traceable for a long period of time following installation. Batch number labelling may be used instead of 3.1 material certificates.
- HV sets used are typically hot dip galvanised. Pre-galvanising thread tolerance for HV bolts is 6 g, making it over-sized after hot dip galvanising. The HV nut thread is manufactured according to the 6AZ tolerance to ensure the fit with the over-sized bolt.
- The friction coefficient is achieved by applying the necessary coating and lubrication. This enables precise preloading of the connection.
- The HV bolt assembly components are CE labeled, pursuant to the requirements of the harmonised standards on construction products.

1.3 Corrosion protection and surface treatment

Corrosion protection and surface treatment are key factors in the technical functionality of HV bolt assemblies. In addition to providing corrosion protection for the assembly for the duration of its planned life cycle, surface treatment ensures the correct and accurate preloading of the connection during the manufacturing stage.

The bolt assemblies are hot dip galvanised according to EN ISO 10684, with a minimum zinc coating thickness of 40 µm. Combined with the typical procedure of painting the structure, the zinc coating provides excellent protection against corrosion for the most demanding exposure classes.



In addition to hot dip galvanising, the HV nuts are lubricated in order to ensure consistent friction values. The treatment is carried out with a molybdenum disulphide (MoS₂) lubricant.

1.4 k factor and tightening methods

The k factor describes the linear relationship between the tightening torque (M) and the preloading force (F) achieved. The manufacturer indicates the applicable k factor for the assemblies. For example, the k factor for K-class k1 is $0.10 < k < 0.16$.

Connections must be tightened according to the manufacturer's instructions. There are two primary tightening methods: the torque method and the combined method. Both methods are aimed at producing the most accurate preloading force on the bolt assembly.

The torque method is a two-stage operation, bedding in followed by tightening. Tightening is always done in two steps using a calibrated manual or machine-powered torque wrench. The first stage involves tightening all assemblies to the torque of $0.75 \times M_A$. The final torque in the second tightening is $1.10 \times M_A$.

| Nominal diameter | The required preloading force F_v [kN] is calculated with the following formula: $F_p, C^* = 0.7 \times f_{yb} \times A_s$ | Torque method | |
|------------------|---|--|--|
| | | Torque method M_A for achieving the required preload force F_v [Nm] | |
| | | Hot galvanised and lubricated ^a uncoated and lubricated ^a | |
| M12 | 50 | 100 | |
| M16 | 100 | 250 | |
| M20 | 160 | 450 | |
| M22 | 190 | 650 | |
| M24 | 220 | 800 | |
| M27 | 290 | 1250 | |
| M30 | 350 | 1650 | |
| M36 | 510 | 2800 | |

^a The manufacturer always delivers prelubricated nuts (e.g. molybdenum disulphide MoS2). The torque is identical for hot dip galvanised and plain assemblies.

The combined method also involves two stages of tightening. In the first stage, the assemblies are tightened to a preload torque indicated by the manufacturer. Final torque is achieved by rotating the nut by the indicated degree.

| Combined method | | | | | | | | |
|--|---|---------------------|-----|-----|------------------------|-----|------|------|
| Nominal diameter | M12 | M16 | M20 | M22 | M24 | M27 | M30 | M36 |
| Preloading $F_p, C^* = 0.7 \times f_{yb} \times A_s$ [kN] | 59 | 110 | 172 | 212 | 247 | 321 | 393 | 572 |
| Preload torque M_A [Nm] | 75 | 190 | 340 | 490 | 600 | 940 | 1240 | 2100 |
| Final tightening by rotating; depending on the clamp length $\sum t$ | | | | | | | | |
| | Total clamp length connection components $\sum t$ (incl. any spacers and washers) | Rotation in degrees | | | Rotation in part-turns | | | |
| 1 | $\sum t < 2d$ | 60° | | | 1/6 | | | |
| 2 | $2d \leq \sum t < 6d$ | 90° | | | 1/4 | | | |
| 3 | $6d \leq \sum t < 10d$ | 120° | | | 1/3 | | | |

1.5 Observations on the use of HV sets

- HV bolt assemblies should only contain bolts, nuts and washers from one manufacturer.
- Protect all products against dirt during storage and delivery.
- HV washers should be installed with the chamfered edge facing outwards from the structure.
- HV nuts should be with labelling facing outwards for any post-installation inspection.
- The assembly must always be tightened by rotating the nut.
- Do not lubricate the bolt or nut before tightening! Values indicated by the manufacturer only apply to products in as-delivered state.
- Tightening inspections are subject to the requirements of EN ISO 1090-2.
- If a preloaded assembly is opened at a later stage, it must be replaced with a new assembly. Re-preloading of the same set is not allowed.

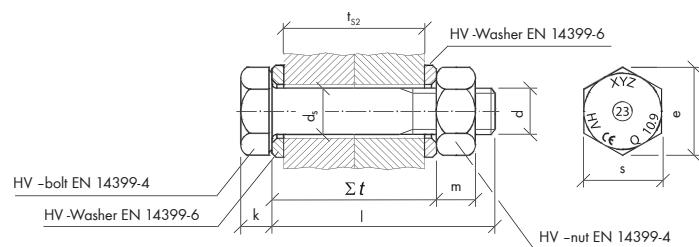
HV sets



HV sets EN 14399-4 HV washers EN 14399-6

| Thread diameter Ø d | M12 | M16 | M20 | M22 | M24 | M27 | M30 | M36 |
|---------------------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| Shaft diameter Ø d _s | = thread diameter Ø d | | | | | | | |
| Head height k | 8 | 10 | 13 | 14 | 15 | 17 | 19 | 23 |
| Nut height m | 10 | 13 | 16 | 18 | 20 | 22 | 24 | 29 |
| Width across flats | 22 | 27 | 32 | 36 | 41 | 46 | 50 | 60 |
| Cross-measure e | 23.91 | 29.56 | 35.03 | 39.55 | 45.20 | 50.85 | 55.37 | 66.44 |
| Washer outer diameter Ø | 24 | 30 | 37 | 39 | 44 | 50 | 56 | 66 |
| Washer inner diameter Ø | 13 | 17 | 21 | 23 | 25 | 28 | 31 | 37 |
| Washer thickness | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 |

| Nominal length l | Clamp length $\Sigma t_{\min} - \Sigma t_{\max}$ / Steel structure thickness mm Paketdicke t in mm | | | | | | | | | | | | | | | |
|------------------|--|---------|---------|---------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 11-16 | 5-10 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | |
| 35 | | 16-21 | 10-15 | 12-17 | 4-9 | | | | | | | | | | | |
| 40 | | 21-26 | 15-20 | 17-22 | 9-14 | 13-18 | 5-10 | | | | | | | | | |
| 45 | | 26-31 | 20-25 | 22-27 | 14-19 | 18-23 | 10-15 | | | | | | | | | |
| 50 | | 31-36 | 25-30 | 27-32 | 19-24 | 23-28 | 15-20 | 22-27 | 14-19 | 19-24 | 11-16 | | | | | |
| 55 | | 36-41 | 30-35 | 32-37 | 24-29 | 28-33 | 20-25 | 27-32 | 19-24 | 24-29 | 16-21 | | | | | |
| 60 | | 41-46 | 35-40 | 37-42 | 29-34 | 33-38 | 25-30 | 32-37 | 24-29 | 29-34 | 21-26 | 26-31 | 16-21 | | | |
| 65 | | 46-51 | 40-45 | 42-47 | 34-39 | 38-43 | 30-35 | 37-42 | 29-34 | 34-39 | 26-31 | 31-36 | 21-26 | | | |
| 70 | | 51-56 | 45-50 | 47-52 | 39-44 | 43-48 | 35-40 | 42-47 | 34-39 | 39-44 | 31-36 | 36-41 | 26-31 | 34-39 | 24-29 | |
| 75 | | 56-61 | 50-55 | 52-57 | 44-49 | 48-53 | 40-45 | 47-52 | 39-44 | 44-49 | 36-41 | 41-46 | 31-36 | 39-44 | 29-34 | |
| 80 | | 61-66 | 55-60 | 57-62 | 49-54 | 53-58 | 45-50 | 52-57 | 44-49 | 49-54 | 41-46 | 46-51 | 36-41 | 44-49 | 34-39 | |
| 85 | | 66-71 | 60-65 | 62-67 | 54-59 | 58-63 | 50-55 | 57-62 | 49-54 | 54-59 | 46-51 | 51-56 | 41-46 | 49-54 | 39-44 | 43-48 |
| 90 | | 71-76 | 65-70 | 67-72 | 59-64 | 63-68 | 55-60 | 62-67 | 54-59 | 59-64 | 51-56 | 56-61 | 46-51 | 54-59 | 44-49 | 48-53 |
| 95 | | 76-81 | 70-75 | 72-77 | 64-69 | 68-73 | 60-65 | 67-72 | 59-64 | 64-69 | 56-61 | 61-66 | 51-56 | 59-64 | 49-54 | 53-58 |
| 100 | | 81-86 | 75-80 | 77-82 | 69-74 | 73-78 | 65-70 | 72-77 | 64-69 | 69-74 | 61-66 | 66-71 | 56-61 | 64-69 | 54-59 | 58-63 |
| 105 | | 86-91 | 80-85 | 82-87 | 74-79 | 78-83 | 70-75 | 77-82 | 69-74 | 74-79 | 66-71 | 71-76 | 61-66 | 69-74 | 59-64 | 63-68 |
| 110 | | 91-96 | 85-90 | 87-92 | 79-84 | 83-88 | 75-80 | 82-87 | 74-79 | 79-84 | 71-76 | 76-81 | 66-71 | 74-79 | 64-69 | 68-73 |
| 115 | | 96-101 | 90-95 | 92-97 | 84-89 | 88-93 | 80-85 | 87-92 | 79-84 | 84-89 | 76-81 | 81-86 | 71-76 | 79-84 | 69-74 | 73-78 |
| 120 | | 101-106 | 95-100 | 97-102 | 89-94 | 93-98 | 85-90 | 92-97 | 84-89 | 89-94 | 81-86 | 86-91 | 76-81 | 84-89 | 74-79 | 78-83 |
| 125 | | 106-111 | 100-105 | 102-107 | 94-99 | 98-103 | 90-95 | | | 94-99 | 86-91 | 91-96 | 81-86 | 89-94 | 79-84 | 83-88 |



| Thread diameter \varnothing d | M12 | M16 | M20 | M22 | M24 | M27 | M30 | M36 |
|---|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Shaft diameter \varnothing d _s | = thread diameter \varnothing d | | | | | | | |
| Head height k | 8 | 10 | 13 | 14 | 15 | 17 | 19 | 23 |
| Nut height m | 10 | 13 | 16 | 18 | 20 | 22 | 24 | 29 |
| Width across flats | 22 | 27 | 32 | 36 | 41 | 46 | 50 | 60 |
| Cross-measure e | 23.91 | 29.56 | 35.03 | 39.55 | 45.20 | 50.85 | 55.37 | 66.44 |
| Washer outer diameter \varnothing | 24 | 30 | 37 | 39 | 44 | 50 | 56 | 66 |
| Washer inner diameter \varnothing | 13 | 17 | 21 | 23 | 25 | 28 | 31 | 37 |
| Washer thickness | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 |

| Nominal length l (mm) | Clamp length $\Sigma t_{\min} - \Sigma t_{\max}$ / Steel structure thickness m | | | | | | | | | | | | | |
|-----------------------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | 111-116 | 105-110 | 107-112 | 99-104 | 103-108 | 95-100 | 99-104 | 91-96 | 96-101 | 86-91 | 94-99 | 84-89 | 88-93 | 76-81 |
| 130 | | | | | | | | | | | | | | |
| 135 | 116-121 | 110-115 | 112-117 | 104-109 | 108-113 | 100-105 | 104-109 | 96-101 | 101-106 | 91-96 | 99-104 | 89-94 | 93-98 | 81-86 |
| 140 | 121-126 | 115-120 | 117-122 | 109-114 | 113-118 | 105-110 | 109-114 | 101-106 | 106-111 | 96-101 | 104-109 | 94-99 | 98-103 | 86-91 |
| 145 | 126-131 | 120-125 | 122-127 | 114-119 | 118-123 | 110-115 | 114-119 | 106-111 | 111-116 | 101-106 | 109-114 | 99-104 | 103-108 | 91-96 |
| 150 | 131-136 | 125-130 | 127-132 | 119-124 | 123-128 | 115-120 | 119-124 | 111-116 | 116-121 | 106-111 | 114-119 | 104-109 | 108-113 | 96-101 |
| 155 | 136-141 | 130-135 | 132-137 | 124-129 | 128-133 | 120-125 | 124-129 | 116-121 | 121-126 | 111-116 | 119-124 | 109-114 | 113-118 | 101-106 |
| 160 | 141-146 | 135-140 | 137-142 | 129-134 | 133-138 | 125-130 | 129-134 | 121-126 | 126-131 | 116-121 | 124-129 | 114-119 | 118-123 | 106-111 |
| 165 | 146-151 | 140-145 | 142-147 | 134-139 | 138-143 | 130-135 | 134-139 | 126-131 | 131-136 | 121-126 | 129-134 | 119-124 | 123-128 | 111-116 |
| 170 | 151-156 | 145-150 | 147-152 | 139-144 | 143-148 | 135-140 | 139-144 | 131-136 | 136-141 | 126-131 | 134-139 | 124-129 | 128-133 | 116-121 |
| 175 | 156-161 | 150-155 | 152-157 | 144-149 | 148-153 | 140-145 | 144-149 | 136-141 | 141-146 | 131-136 | 139-144 | 129-134 | 133-138 | 121-126 |
| 180 | 161-166 | 155-160 | 157-162 | 149-154 | 153-158 | 145-150 | 149-154 | 141-146 | 146-151 | 136-141 | 144-149 | 134-139 | 138-143 | 126-131 |
| 190 | 171-176 | 165-170 | 167-172 | 159-164 | 163-168 | 155-160 | 159-164 | 151-156 | 156-161 | 146-151 | 154-159 | 144-149 | 148-153 | 136-141 |
| 200 | | | 177-182 | 169-174 | 173-178 | 165-170 | 169-174 | 161-166 | 166-171 | 156-161 | 164-169 | 154-159 | 158-163 | 146-151 |
| 210 | | | | 183-188 | 175-180 | | 179-184 | 171-176 | 176-181 | 166-171 | 174-179 | 164-169 | 168-173 | 156-161 |
| 220 | | | | 193-198 | 185-190 | | 189-194 | 181-186 | 186-191 | 176-181 | 184-189 | 174-179 | 178-183 | 166-171 |
| 230 | | | | 203-208 | 195-200 | | 199-204 | 191-196 | 196-201 | 186-191 | 194-199 | 184-189 | 188-193 | 176-181 |
| 240 | | | | 213-218 | 205-210 | | 209-214 | 201-206 | 206-211 | 196-201 | 204-209 | 194-199 | 198-203 | 186-191 |
| 250 | | | | 223-228 | 215-220 | | 219-224 | 211-216 | 216-221 | 206-211 | 214-219 | 204-209 | 208-213 | 196-201 |
| 260 | | | | | | | | | | | 224-229 | 214-219 | | |

1.6 HRC (TCB) bolt assemblies EN 14399-10



Advanced fastening solution for preloaded bolt connections

The TCB bolt assembly is a Eurocode-pursuant fastening solution for preloaded bolt connections. The TCB sets fullfil to the requirements of standard EN 14399-10 and property class 10.9/10. The sets exceed the minimum values of preload specified in EN 1090-2, making them a suitable replacement for other bolt assemblies (e.g. HV) in EN 14399.

| F _{p,C} values [kN] | | Bolt diameter (mm) | | | | | | | |
|------------------------------|--|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Property class | | 12 | 16 | 20 | 22 | 24 | 27 | 30 | 36 |
| 8.8 | | 47 | 88 | 137 | 170 | 198 | 257 | 314 | 458 |
| 10.9 | | 59 | 110 | 172 | 212 | 247 | 321 | 393 | 572 |



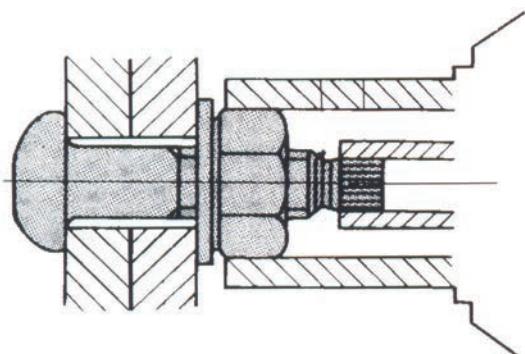
The assemblies consist of a bolt, a nut and a washer.

The assembly is tightened with an electrical shear wrench, which is very powerful and easy to use. A single person is able to install and tighten the connection from one side of the structure.

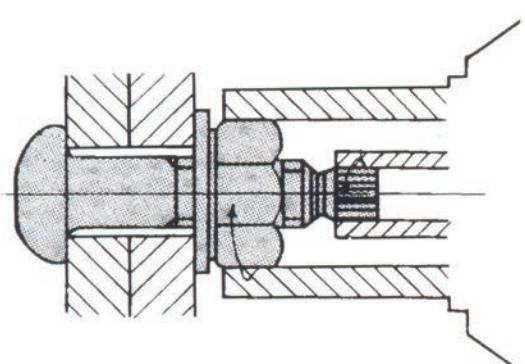


Calibration or adjustment of the wrench is not necessary, as the geometric and torque characteristics of the bolt automatically produce the required preloading into the joint.

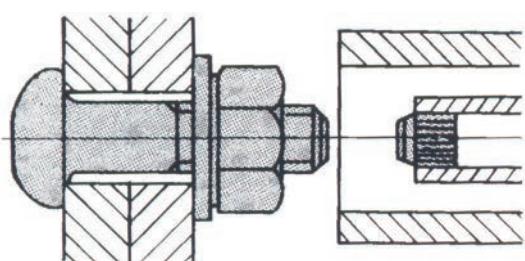
Quick and easy to install!



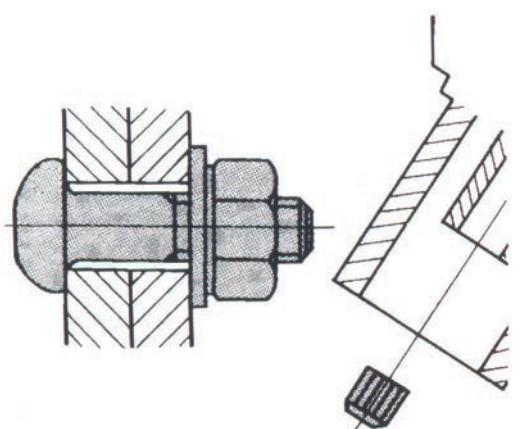
1. Slide the inner socket over the bolt spline and the outer socket over the nut.



2. Switch the wrench on. The outer socket will rotate and tighten the nut until the bolt reaches the required tension. After this the outer socket will stop rotating and the inner socket will rotate in the opposite direction and shear the spline off.



3. When the spline has sheared off pull back on the wrench until the outer socket is no longer engaging the nut. The installation is ready and in right tension.

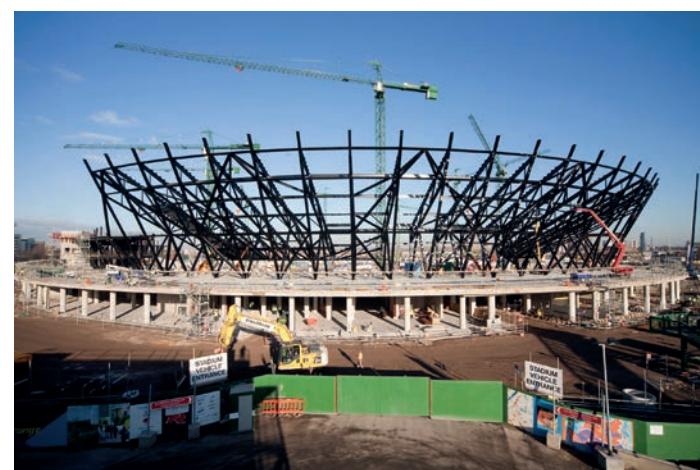


4. The bolt spline is retained by the wrench and can be discarded by engaging the small trigger on the wrench handle.

Benefits

- Extremely easy, quick and safe installation. Easy visual inspection of successful installation: once the spline end of the bolt has been cut, installation is complete.
- HRC bolts facilitate installation at the correct preload while providing improved vibration resistance without additional locking methods.
- While tightening the bolt is not subjected to torsional shearing, which eliminates the danger of relaxation.
- The bolt assemblies are treated with the durable, corrosion-resistant Greenkote finish. The neutral salt spray resistance of the coating is up to 1,200 h, making the bolt suitable for extreme conditions.
- Quiet, no impact power wrench.
- One wrench can be used for several different bolt diameters simply by changing the socket.
- Complete portfolio of steel construction bolts with CE markings.

For more information on the TCB assemblies, please contact Ferrometal Oy Sales Department.



2. Non-preloaded structural bolting assemblies for preloading EN 15048-1



2.1 What is an SB set EN 15048-1?

Typically, steel structure bolting joints either conduct static shear force or simply fasten steel structure components together. In these types of connections, precise preloading of the bolts is not technically necessary nor economically prudent.

So far, these types of connections have been executed with property class 8.8 hexagonal bolts according to standards DIN 931 or DIN 7990, and hexagonal nuts according to DIN 934. In the past, the connections have been approved with reports authenticated by Finnish Constructional Steelwork Association (Teräsrakennetystyry), as well as Material Certificates such as EN 10204.3.1.

Bolt assemblies for non-preloaded steel structure connections pursuant to EN 1090-2 must be made with SB sets of the new standard EN 15048-1. Non-preloaded connections can also be executed with HV/TCB assemblies EN 14399.

"Bolt assembly" refers to a bolt, a nut and any washer(s). EN 15048 requires that all bolt assembly components must comply to European standards. The standard does not, however, specify any standards applicable to the components, but rather indicates the general technical requirements. Ferrometal Oy's SB sets include hexagonal bolts EN ISO 4014 and EN ISO 4017 and hexagonal nuts EN ISO 4032. The property class of our SB set components is 8.8 and they are hot dip galvanised.

Full and partial thread SB set EN 15048-1:



"SB" stands for Structural Bolting.

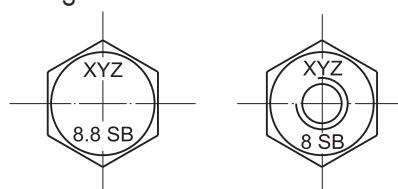
2.2 New requirements

Similar to HV sets, SB sets must also be procured from one, CE-certified manufacturer. This requirement applies to bolts and nuts. The use of washers is optional, which is why no new requirements have been introduced. Washers commonly used in steel construction will continue to be approved for use.

SB sets must also carry CE marking, although a label on the package is sufficient. The manufacturing batch number must be indicated on the package in order to ensure traceability. Declaration of Performance (DoP) documentation is available on our website at www.ferrometal.fi.

Furthermore, each individual bolt and nut must carry the "SB" marking in addition to the property class and manufacturing markings. The marking indicates that the products have been approved for steel constructions, distinguishing them from ordinary hexagonal bolts.

The following example represents product labelling conventions.



2.3 SB set installation

The length of the bolt should be selected so that the bolt protrudes at least one full thread from the nut after tightening. There should also be one full thread of space between the bearing surface of the nut and the threadless part of the shaft. Nuts should be installed so that their stampings are visible for post-installation inspection.

As the bolts are not precisely preloaded, the standards do not indicate a torque for the assemblies. However, the assemblies must be connected tightly. Over tensioning should be avoided, especially with bolt diameter M12 and with short bolts. The only reference to SB set installation is found in EN 1090-2: "Each bolt assembly must be tightened to a sufficient tightness. Sufficient tightness is typically achieved when the installer uses a regular-sized bolt wrench without an extension or when a torque wrench begins hammering."

The recommended torques are pursuant to the torque levels of typical 8.8 bolts. For more information, contact the Sales Department at Ferrometal Oy.

2.4 Use of washers

Standard EN 15048-1 does not prescribe the use of washers in non-preloaded connections, with the exception of single lap joints featuring a single bolt or a row of bolts. In order to facilitate execution of the connection, distribution of surface pressure and protection of the paint coating of the structure, it is, however, recommendable to use washers under the bolt head and the nut as a good workmanship. Our recommendation is to use the common DIN 126 / EN ISO 7091, HV 100 or HV 200 washers. Thicker, 8 mm washers pursuant to DIN 7989 are also available in these strength grades.



Washer DIN 126



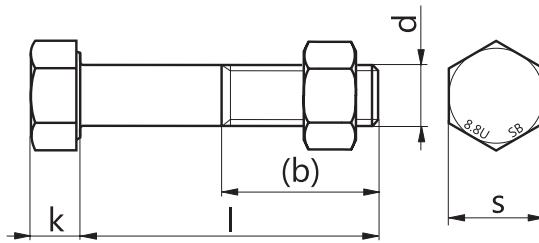
Washer DIN 7989

SB bolt assemblies

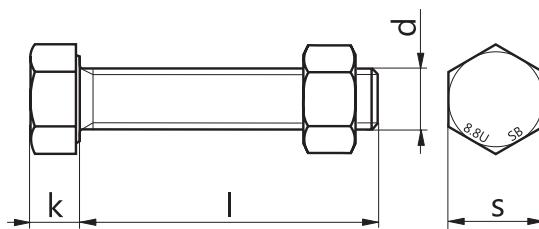


SB sets to EN 15048-1

DIN EN ISO 4014



DIN EN ISO 4017



| d | M12 | M16 | M20 | M24 | M30 |
|------------------------|------------|------------|------------|------------|------------|
| b(L≤125) | 30 | 38 | 46 | 54 | 66 |
| b(125<L≤200) | - | - | 52 | 60 | 72 |
| k | 7,5 | 10 | 12,5 | 15 | 18,7 |
| s | 18 | 24 | 30 | 36 | 46 |

5060 1 set = 1x EN ISO 4014 + 1x EN ISO 4032

5061 1 set = 1xEN ISO 4017 + 1x EN ISO 4032

SB SCREW ASSEMBLY, PARTIAL THREAD FOR NON-PRETENSIONED CONNECTIONS IN STEEL STRUCTURES


| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506012 45 | M12 | 45 mm | M12X45 (pack 50 pcs) | 12 mm | 68.100 g |
| 506012 50 | M12 | 50 mm | M12X50 (pack 50 pcs) | 12 mm | 70.000 g |
| 506012 55 | M12 | 55 mm | M12X55 (pack 100 pcs) | 12 mm | 73.000 g |
| 506012 60 | M12 | 60 mm | M12X60 (pack 50 pcs) | 12 mm | 78.000 g |
| 506012 65 | M12 | 65 mm | M12X65 (pack 50 pcs) | 12 mm | 82.000 g |
| 506012 70 | M12 | 70 mm | M12X70 (pack 50 pcs) | 12 mm | 85.000 g |
| 506012 80 | M12 | 80 mm | M12X80 (pack 50 pcs) | 12 mm | 93.000 g |
| 506012 90 | M12 | 90 mm | M12X90 (pack 50 pcs) | 12 mm | 104.500 g |
| 506012 100 | M12 | 100 mm | M12X100 (pack 50 pcs) | 12 mm | 100.000 g |
| 506012 110 | M12 | 110 mm | M12X110 (pack 50 pcs) | 12 mm | 131.000 g |
| 506012 120 | M12 | 120 mm | M12X120 (pack 50 pcs) | 12 mm | 127.000 g |
| 506012 130 | M12 | 130 mm | M12X130 (pack 50 pcs) | 12 mm | 138.800 g |
| 506012 140 | M12 | 140 mm | M12X140 (pack 50 pcs) | 12 mm | 149.000 g |
| 506016 55 | M16 | 55 mm | M16X55 (pack 25 pcs) | 16 mm | 143.000 g |
| 506016 60 | M16 | 60 mm | M16X60 (pack 25 pcs) | 16 mm | 150.000 g |
| 506016 65 | M16 | 65 mm | M16X65 (pack 25 pcs) | 16 mm | 161.000 g |
| 506016 70 | M16 | 70 mm | M16X70 (pack 25 pcs) | 16 mm | 170.000 g |
| 506016 75 | M16 | 75 mm | M16X75 (pack 25 pcs) | 16 mm | 173.000 g |
| 506016 80 | M16 | 80 mm | M16X80 (pack 25 pcs) | 16 mm | 184.000 g |
| 506016 90 | M16 | 90 mm | M16X90 (pack 25 pcs) | 16 mm | 202.000 g |
| 506016 100 | M16 | 100 mm | M16X100 (pack 25 pcs) | 16 mm | 220.000 g |
| 506016 110 | M16 | 110 mm | M16X110 (pack 25 pcs) | 16 mm | 235.000 g |
| 506016 120 | M16 | 120 mm | M16X120 (pack 25 pcs) | 16 mm | 249.000 g |
| 506016 130 | M16 | 130 mm | M16X130 (pack 25 pcs) | 16 mm | 260.000 g |
| 506016 140 | M16 | 140 mm | M16X140 (pack 25 pcs) | 16 mm | 278.500 g |
| 506016 150 | M16 | 150 mm | M16X150 (pack 25 pcs) | 16 mm | 289.000 g |
| 506016 160 | M16 | 160 mm | M16X160 (pack 25 pcs) | 16 mm | 309.000 g |
| 506016 180 | M16 | 180 mm | M16X180 (pack 25 pcs) | 16 mm | 338.000 g |
| 506016 200 | M16 | 200 mm | M16X200 (pack 25 pcs) | 16 mm | 369.000 g |
| 506020 60 | M20 | 60 mm | M20X60 (pack 25 pcs) | 20 mm | 262.000 g |
| 506020 65 | M20 | 65 mm | M20X65 (pack 25 pcs) | 20 mm | 281.000 g |
| 506020 70 | M20 | 70 mm | M20X70 (pack 25 pcs) | 20 mm | 287.000 g |
| 506020 75 | M20 | 75 mm | M20X75 (pack 25 pcs) | 20 mm | 298.000 g |
| 506020 80 | M20 | 80 mm | M20X80 (pack 25 pcs) | 20 mm | 312.000 g |
| 506020 90 | M20 | 90 mm | M20X90 (pack 25 pcs) | 20 mm | 326.000 g |
| 506020 100 | M20 | 100 mm | M20X100 (pack 25 pcs) | 20 mm | 365.000 g |
| 506020 110 | M20 | 110 mm | M20X110 (pack 25 pcs) | 20 mm | 389.000 g |
| 506020 120 | M20 | 120 mm | M20X120 (pack 25 pcs) | 20 mm | 409.000 g |
| 506020 130 | M20 | 130 mm | M20X130 (pack 25 pcs) | 20 mm | 437.000 g |
| 506020 140 | M20 | 140 mm | M20X140 (pack 25 pcs) | 20 mm | 452.000 g |
| 506020 160 | M20 | 160 mm | M20X160 (pack 25 pcs) | 20 mm | 497.000 g |
| 506020 180 | M20 | 180 mm | M20X180 (pack 10 pcs) | 20 mm | 560.000 g |

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506020 200 | M20 | 200 mm | M20X200 (pack 10 pcs) | 20 mm | 607.000 g |
| 506024 70 | M24 | 70 mm | M24X70 (pack 10 pcs) | 24 mm | 436.000 g |
| 506024 75 | M24 | 75 mm | M24X75 (pack 10 pcs) | 24 mm | 465.000 g |
| 506024 80 | M24 | 80 mm | M24X80 (pack 10 pcs) | 24 mm | 487.000 g |
| 506024 90 | M24 | 90 mm | M24X90 (pack 10 pcs) | 24 mm | 521.000 g |
| 506024 100 | M24 | 100 mm | M24X100 (pack 10 pcs) | 24 mm | 555.000 g |
| 506024 110 | M24 | 110 mm | M24X110 (pack 10 pcs) | 24 mm | 589.000 g |
| 506024 120 | M24 | 120 mm | M24X120 (pack 10 pcs) | 24 mm | 623.000 g |
| 506024 130 | M24 | 130 mm | M24X130 (pack 10 pcs) | 24 mm | 657.000 g |
| 506024 140 | M24 | 140 mm | M24X140 (pack 10 pcs) | 24 mm | 694.000 g |
| 506024 150 | M24 | 150 mm | M24X150 (pack 10 pcs) | 24 mm | 720.000 g |
| 506024 160 | M24 | 160 mm | M24X160 (pack 10 pcs) | 24 mm | 765.000 g |
| 506024 180 | M24 | 180 mm | M24X180 (pack 10 pcs) | 24 mm | 784.000 g |
| 506024 200 | M24 | 200 mm | M24X200 (pack 15 pcs) | 24 mm | 891.400 g |
| 506030 90 | M30 | 90 mm | M30X90 (pack 10 pcs) | 30 mm | 932.000 g |
| 506030 100 | M30 | 100 mm | M30X100 (pack 10 pcs) | 30 mm | 987.000 g |
| 506030 110 | M30 | 110 mm | M30X110 (pack 10 pcs) | 30 mm | 1043.000 g |
| 506030 120 | M30 | 120 mm | M30X120 (pack 10 pcs) | 30 mm | 1100.000 g |
| 506030 130 | M30 | 130 mm | M30X130 (pack 10 pcs) | 30 mm | 1140.000 g |
| 506030 140 | M30 | 140 mm | M30X140 (pack 10 pcs) | 30 mm | 1195.000 g |
| 506030 150 | M30 | 150 mm | M30X150 (pack 10 pcs) | 30 mm | 1250.000 g |
| 506030 160 | M30 | 160 mm | M30X160 (pack 10 pcs) | 30 mm | 1310.000 g |
| 506030 180 | M30 | 180 mm | M30X180 (pack 10 pcs) | 30 mm | 1420.000 g |
| 506030 200 | M30 | 200 mm | M30X200 (pack 5 pcs) | 30 mm | 1524.000 g |
| 506030 220 | M30 | 220 mm | M30X220 (pack 5 pcs) | 30 mm | 1599.600 g |
| 506030 240 | M30 | 240 mm | M30X240 (pack 5 pcs) | 30 mm | 1850.000 g |
| 506030 260 | M30 | 260 mm | M30X260 (pack 5 pcs) | 30 mm | 1820.000 g |
| 506036 110 | M36 | 110 mm | M36X110 (pack 5 pcs) | 36 mm | 1569.800 g |
| 506036 120 | M36 | 120 mm | M36X120 (pack 5 pcs) | 36 mm | 1705.000 g |
| 506036 130 | M36 | 130 mm | M36X130 (pack 5 pcs) | 36 mm | 1786.000 g |
| 506036 140 | M36 | 140 mm | M36X140 (pack 5 pcs) | 36 mm | 1864.000 g |
| 506036 160 | M36 | 160 mm | M36X160 (pack 5 pcs) | 36 mm | 2021.000 g |

SB SCREW ASSEMBLY, FULL THREAD FOR NON-PRETENSIONED CONNECTIONS IN STEEL STRUCTURES

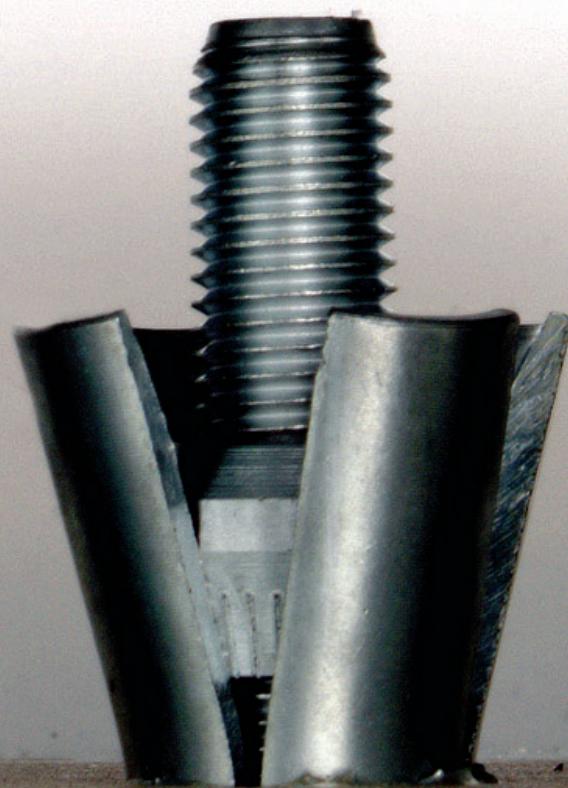


| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506112 30 | M12 | 30 mm | M12X30 (pack 50 pcs) | 12 mm | 54.400 g |
| 506112 35 | M12 | 35 mm | M12X35 (pack 50 pcs) | 12 mm | 58.200 g |
| 506112 40 | M12 | 40 mm | M12X40 (pack 50 pcs) | 12 mm | 58.000 g |

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506112 45 | M12 | 45 mm | M12X45 (pack 50 pcs) | 12 mm | 68.100 g |
| 506112 50 | M12 | 50 mm | M12X50 (pack 50 pcs) | 12 mm | 65.000 g |
| 506112 60 | M12 | 60 mm | M12X60 (pack 50 pcs) | 12 mm | 72.000 g |
| 506112 70 | M12 | 70 mm | M12X70 (pack 50 pcs) | 12 mm | 80.000 g |
| 506112 80 | M12 | 80 mm | M12X80 (pack 50 pcs) | 12 mm | 85.000 g |
| 506112 90 | M12 | 90 mm | M12X90 (pack 50 pcs) | 12 mm | 94.000 g |
| 506112 100 | M12 | 100 mm | M12X100 (pack 50 pcs) | 12 mm | 101.000 g |
| 506112 120 | M12 | 120 mm | M12X120 (pack 50 pcs) | 12 mm | 112.000 g |
| 506116 30 | M16 | 30 mm | M16X30 (pack 25 pcs) | 16 mm | 110.800 g |
| 506116 35 | M16 | 35 mm | M16X35 (pack 25 pcs) | 16 mm | 117.800 g |
| 506116 40 | M16 | 40 mm | M16X40 (pack 25 pcs) | 16 mm | 124.800 g |
| 506116 45 | M16 | 45 mm | M16X45 (pack 25 pcs) | 16 mm | 131.800 g |
| 506116 50 | M16 | 50 mm | M16X50 (pack 25 pcs) | 16 mm | 136.800 g |
| 506116 55 | M16 | 55 mm | M16X55 (pack 25 pcs) | 16 mm | 142.600 g |
| 506116 60 | M16 | 60 mm | M16X60 (pack 25 pcs) | 16 mm | 149.600 g |
| 506116 70 | M16 | 70 mm | M16X70 (pack 50 pcs) | 16 mm | 163.600 g |
| 506116 80 | M16 | 80 mm | M16X80 (pack 25 pcs) | 16 mm | 181.000 g |
| 506116 90 | M16 | 90 mm | M16X90 (pack 25 pcs) | 16 mm | 191.000 g |
| 506116 100 | M16 | 100 mm | M16X100 (pack 25 pcs) | 16 mm | 201.000 g |
| 506116 110 | M16 | 110 mm | M16X110 (pack 25 pcs) | 16 mm | 212.000 g |
| 506116 120 | M16 | 120 mm | M16X120 (pack 25 pcs) | 16 mm | 226.000 g |
| 506116 140 | M16 | 140 mm | M16X140 (pack 25 pcs) | 16 mm | 300.000 g |
| 506120 30 | M20 | 30 mm | M20X30 (pack 25 pcs) | 20 mm | 203.000 g |
| 506120 35 | M20 | 35 mm | M20X35 (pack 25 pcs) | 20 mm | 214.000 g |
| 506120 40 | M20 | 40 mm | M20X40 (pack 25 pcs) | 20 mm | 224.000 g |
| 506120 45 | M20 | 45 mm | M20X45 (pack 25 pcs) | 20 mm | 234.000 g |
| 506120 50 | M20 | 50 mm | M20X50 (pack 25 pcs) | 20 mm | 245.000 g |
| 506120 55 | M20 | 55 mm | M20X55 (pack 25 pcs) | 20 mm | 255.000 g |
| 506120 60 | M20 | 60 mm | M20X60 (pack 25 pcs) | 20 mm | 266.000 g |
| 506120 70 | M20 | 70 mm | M20X70 (pack 25 pcs) | 20 mm | 277.000 g |
| 506120 80 | M20 | 80 mm | M20X80 (pack 25 pcs) | 20 mm | 294.000 g |
| 506120 90 | M20 | 90 mm | M20X90 (pack 25 pcs) | 20 mm | 320.000 g |
| 506120 100 | M20 | 100 mm | M20X100 (pack 25 pcs) | 20 mm | 341.000 g |
| 506120 110 | M20 | 110 mm | M20X110 (pack 25 pcs) | 20 mm | 362.000 g |
| 506120 120 | M20 | 120 mm | M20X120 (pack 25 pcs) | 20 mm | 383.000 g |
| 506120 130 | M20 | 130 mm | M20X130 (pack 25 pcs) | 20 mm | 400.000 g |
| 506120 140 | M20 | 140 mm | M20X140 (pack 25 pcs) | 20 mm | 430.000 g |
| 506120 150 | M20 | 150 mm | M20X150 (pack 25 pcs) | 20 mm | 461.000 g |
| 506124 50 | M24 | 50 mm | M24X50 (pack 10 pcs) | 24 mm | 396.000 g |
| 506124 60 | M24 | 60 mm | M24X60 (pack 10 pcs) | 24 mm | 426.000 g |
| 506124 70 | M24 | 70 mm | M24X70 (pack 10 pcs) | 24 mm | 435.000 g |
| 506124 80 | M24 | 80 mm | M24X80 (pack 10 pcs) | 24 mm | 456.000 g |
| 506124 90 | M24 | 90 mm | M24X90 (pack 25 pcs) | 24 mm | 486.000 g |
| 506124 100 | M24 | 100 mm | M24X100 (pack 25 pcs) | 24 mm | 536.000 g |
| 506124 110 | M24 | 110 mm | M24X110 (pack 25 pcs) | 24 mm | 557.000 g |
| 506124 120 | M24 | 120 mm | M24X120 (pack 20 pcs) | 24 mm | 583.000 g |
| 506124 130 | M24 | 130 mm | M24X130 (pack 20 pcs) | 24 mm | 628.000 g |
| 506124 140 | M24 | 140 mm | M24X140 (pack 20 pcs) | 24 mm | 644.000 g |
| 506130 70 | M30 | 70 mm | M30X70 (pack 10 pcs) | 30 mm | 852.000 g |
| 506130 80 | M30 | 80 mm | M30X80 (pack 10 pcs) | 30 mm | 860.000 g |
| 506130 90 | M30 | 90 mm | M30X90 (pack 10 pcs) | 30 mm | 912.000 g |
| 506130 110 | M30 | 110 mm | M30X110 (pack 10 pcs) | 30 mm | 982.000 g |
| 506130 120 | M30 | 120 mm | M30X120 (pack 10 pcs) | 30 mm | 1022.000 g |
| 506130 130 | M30 | 130 mm | M30X130 (pack 10 pcs) | 30 mm | 1160.000 g |

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506130 140 | M30 | 140 mm | M30X140 (pack 10 pcs) | 30 mm | 1130.000 g |
| 506130 150 | M30 | 150 mm | M30X150 (pack 10 pcs) | 30 mm | 1164.000 g |
| 506130 160 | M30 | 160 mm | M30X160 (pack 10 pcs) | 30 mm | 1219.000 g |
| 506130 180 | M30 | 180 mm | M30X180 (pack 5 pcs) | 30 mm | 1371.000 g |
| 506130 200 | M30 | 200 mm | M30X200 (pack 5 pcs) | 30 mm | 300.000 g |

3. Cavity connection Box Bolt®



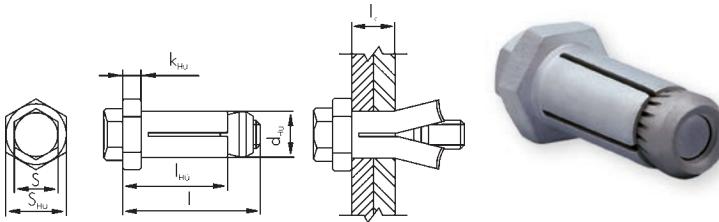
3.1 Cavity connection Box Bolt®

Zinc plated steel

Hot dip galvanised steel

Stainless steel A4

Fastened to profile tubes or other tube sections that are difficult to access. The fastener is suitable for locations where the installation site is only accessible from one side.



Bolt property class is 8.8 (EN ISO 898-1) or A4-70 (EN ISO 3506-1).

| Nominal diameter \varnothing | Bolt length | Width across flats, bolt | Width across flats, socket | socket \varnothing | Collar thickness | Socket length | Thickness of connected material I_k | | Zinc plated steel | | Hot dip galvanised steel | | Stainless steel A4 | |
|--------------------------------|-------------|--------------------------|----------------------------|----------------------|------------------|---------------|---------------------------------------|------|-------------------|-------|--------------------------|------|--------------------|------|
| | | | | | | | min. | max. | Product no. | pcs | Product no. | pcs | Product | pcs |
| M6¹ | 45 | 10 | 18 | 10.5 | 5 | 35 | 4 | 29 | 0485 806 1 | 100/1 | - | - | - | - |
| M8 | 50 | 13 | 22 | 13.5 | 6 | 40 | 5 | 26 | 0485 808 1 | 50/1 | 0485 908 1 | 50/1 | 0487 908 1 | 50/1 |
| | 70 | | | | | 60 | 18 | 46 | 0485 808 2 | 50/1 | 0485 908 2 | 50/1 | - | - |
| | 90 | | | | | 80 | 30 | 66 | 0485 808 3 | 40/1 | 0485 908 3 | 40/1 | - | - |
| | 50 | | | | | 40 | 5 | 23 | 0485 810 1 | 25/1 | 0485 910 1 | 25/1 | 0487 910 1 | 20/1 |
| M10 | 70 | 16 | 24 | 17.5 | 7 | 60 | 19 | 43 | 0485 810 2 | 25/1 | 0485 910 2 | 25/1 | - | - |
| | 90 | | | | | 80 | 35 | 63 | 0485 810 3 | 25/1 | 0485 910 3 | 25/1 | - | - |
| | 55 | | | | | 45 | 5 | 25 | 0485 812 1 | 25/1 | 0485 912 1 | 25/1 | 0487 912 1 | 20/1 |
| M12 | 80 | 18 | 26 | 19.5 | 8 | 70 | 22 | 50 | 0485 812 2 | 20/1 | 0485 912 2 | 20/1 | - | - |
| | 100 | | | | | 90 | 40 | 70 | 0485 812 3 | 20/1 | 0485 912 3 | 20/1 | - | - |
| | 75 | | | | | 61 | 6 | 35 | 0485 816 1 | 10/1 | 0485 916 1 | 10/1 | 0487 916 1 | 10/1 |
| M16 | 100 | 24 | 36 | 25.5 | 9 | 85 | 30 | 60 | 0485 816 2 | 10/1 | 0485 916 2 | 10/1 | - | - |
| | 120 | | | | | 105 | 55 | 80 | 0485 816 3 | 10/1 | 0485 916 3 | 10/1 | - | - |
| | 100 | | | | | 78 | 8 | 42 | 0485 820 1 | 5/1 | 0485 920 1 | 5/1 | 0487 920 1 | 5/1 |
| M20 | 120 | 30 | 46 | 32.5 | 11 | 108 | 36 | 72 | 0485 820 2 | 5/1 | 0485 920 2 | 5/1 | - | - |
| | 150 | | | | | 133 | 66 | 102 | 0485 820 3 | 5/1 | 0485 920 3 | 5/1 | - | - |

¹ without DIBt approval

The connection is executed by rotating the bolt while holding the socket collar in place in order to open the socket flanges. Tightening is done with a torque wrench.

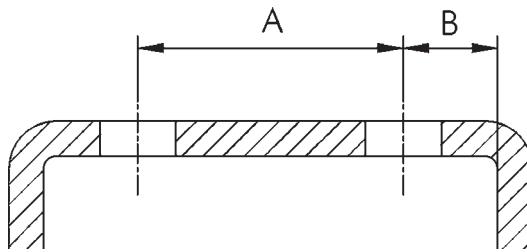
Cavity connections are single-use only!

General building inspection approval document DIBt Z-14.4-482.

Hint: We recommend the use of the Box Sok™ tightening socket for installation.

Security guidance:

Do not exceed the maximum load indication. Ensure that the steel structure is able to bear the required load before installing the Box Bolt.



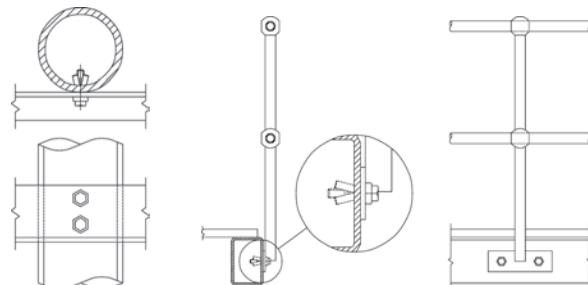
Instructions for use and operating loads

| Nominal diameter \varnothing | Drilling diameter \varnothing (Tolerance +1/-0.25) | Assembly | Edge and hole distances pursuant to the structure | | Maximum operating load kN ¹ | | | |
|--------------------------------|---|----------|---|----|--|--------------------|---------------------------------------|--|
| | | | Minimum distances mm | | Zinc plated and hot dip galvanised steel | | Stainless steel A4 | |
| | | | mm | Nm | A | B | Permitted tensile load N_{zul}^{-1} | Permitted shearing load V_{zul}^{-1} |
| M6² | 11 | 19 | 30 | 11 | 5.71 ² | 16.21 ² | - | - |
| M8 | 14 | 25 | 35 | 13 | 12.86 | 21.07 | 13.29 | 26.14 |
| M10 | 18 | 45 | 40 | 15 | 24.07 | 37.0 | 21.07 | 47.07 |
| M12 | 20 | 80 | 50 | 18 | 29.43 | 48.29 | 30.64 | 59.86 |
| M16 | 26 | 190 | 55 | 20 | 52.29 | 88.21 | 57.07 | 108.57 |
| M20 | 33 | 300 | 70 | 25 | 92.0 | 145.36 | 89.07 | 181.79 |

1 $N_{zul} = N_{R,d} / \gamma_f$ bzw. $V_{zul} = V_{o,R,d} / \gamma_f$ (partial factor $\gamma_f = 1.4$).

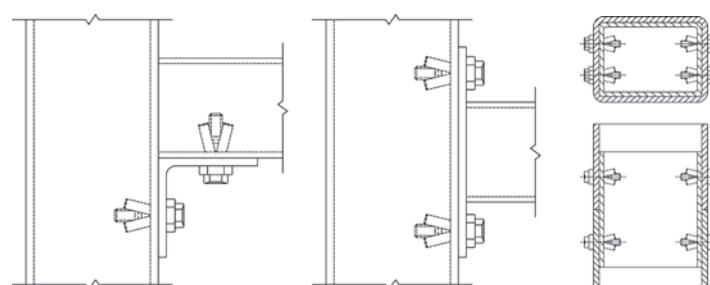
2 Nominal diameter M6 without DIBt approval

Application examples



Corner profile fastened to a tube pole

Stanchion fastened to a profile tube



Fastening with a corner girder and flange joints

Connection with two interlocking profile tubes

3.2 Installation tool Box Sok™

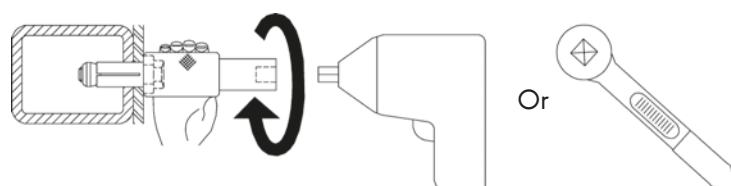


Box Bolt® installation socket for profile tube installation

| Installation socket, bolt diameter | Width across flats, bolt | Grip socket outer diameter, mm | Drive no. | Product no. | Retail unit/pcs |
|------------------------------------|--------------------------|--------------------------------|-----------|-------------|-----------------|
| M8 | 13 mm | 34 mm | 3/8" | 0714 13 50 | 1 |
| M10 | 16 mm | 38 mm | | 0714 13 51 | |
| M12 | 18 mm | 42 mm 3/8" | | 0714 13 52 | |
| M16 | 24 mm | 50 mm | | 0714 13 53 | |
| M20 | 30 mm | 59 mm | | 0714 13 54 | |

The tool keeps the collar of the flanged socket locked while rotating the hexagonal bolt, rotating the conical tip inwards and opening the flanges of the Box Bolt. The tool helps to significantly reduce the installation of Box Bolt, particularly in serial installation.

The special tool features a 3/8" drive.



Place the installation tool on the Box Bolt so that the tool is pressed against the profile tube.

Make sure the socket is securely on the head of the bolt. Keeping the installation tool straight, tighten the bolt to the indicated torque with a torque wrench or another type of wrench.

4. Beam clamp system



4.1 Application and installation

Benefits

- Easy and quick installation
- Flexibility for on-site operations → adjustable on-site as necessary
- No welding or drilling → can be installed in Zone 0 (a place in which an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapour or mist is present continuously or for long periods or frequently)
- Installation does not result in coating damage
- Tested load values (tractive and transverse load), 5:1 safety factor for static load
- Clamp types BA and BB (including spacers BH, BF1, BG1) have DIBt approval

Application

Clamps form a force-conducting connection between interlocking girders and beams of various sizes and shapes. Clamps are also used for safely fastening steel components to existing structures. Overlapping beams can also be fastened with clamps, if their flange width is identical. Clamps are selected according to the steel beams.

Bolt property class is 8.8 or 10.9 (EN ISO 898-1) and nut class is 8 or 10 (EN ISO 898-2). Can be installed in aggressive environments. The zinc coating of the beam clamps and spacers must not be damaged, otherwise the steel structure must be inspected for damages as well. If corrosion is detected, the clamps must be partially or completely recoated.

Example of the connection between two steel beams

Figure 9 (right) is an example of a typical connection of two steel beams by beam clamps.

The mounting plate (4) is a key part of the connection, ensuring accurate placing of the clamps and appropriate fastening to the beam or profile. The locations of the mounting plate holes are indicated in Table 1.

1. Hexagonal bolt ISO 4017 8.8 or 10.9, nut ISO 4032 8 or 10, washer ISO 7089
2. Clamp type BB, BW, BE2, BD or BK
3. Spacer type BF1, BG1, BH, BF2 or BG2 (according to clamp type)
4. Mounting plate (structural steel S275 or stronger, pursuant to EN 10025)
5. Clamp type BA, BT, BE1, BC or BK

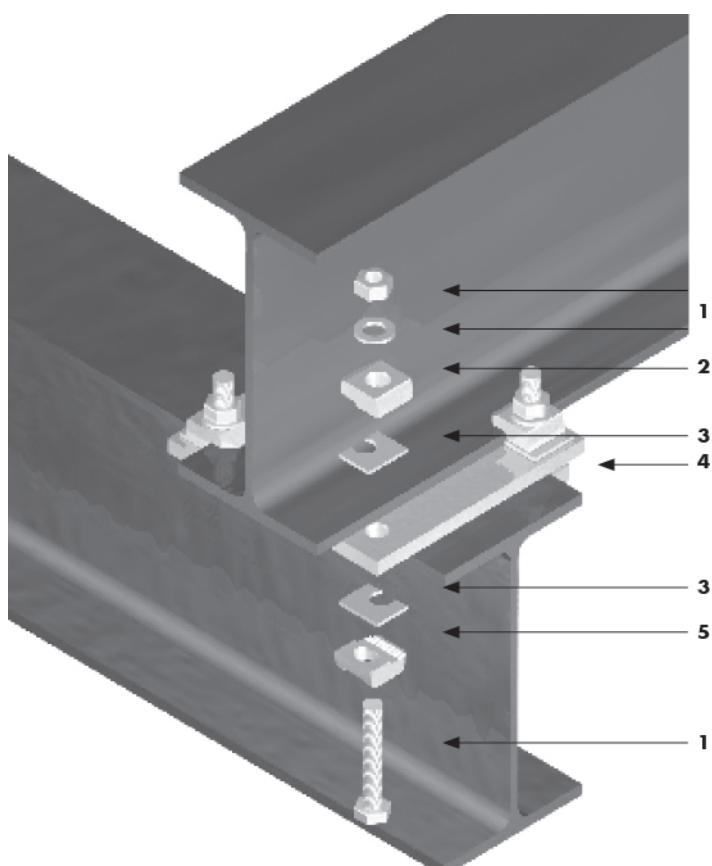
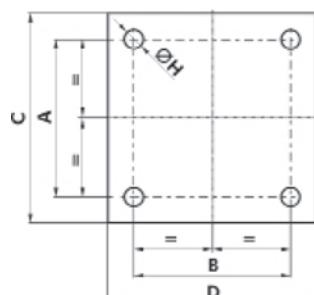


Figure 9

Mounting plate for clamps

BA, BB, BC, BD, BT and BW



BK and BE

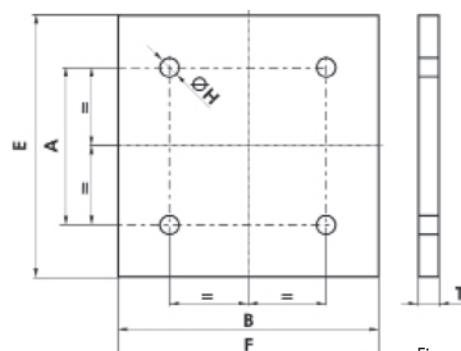


Figure 10

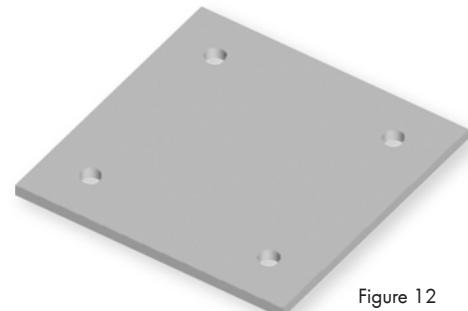


Figure 12

Mounting plates (executed by the client) must be made of structural steel with strength grade S275 or higher (according to EN 10025).

| Bolt | A | B | C | D | E | F | $\varnothing H$ | min. T |
|-------------------------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-----------------|--------|
| Nominal diameter \varnothing [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| M8 | 10+F ₁ | 10+F ₂ | 40+F ₁ | 40+F ₂ | 60+F ₁ | 60+F ₂ | 10 | 8 |
| M10 | 12+F ₁ | 12+F ₂ | 48+F ₁ | 48+F ₂ | 72+F ₁ | 72+F ₂ | 12 | 8 |
| M12 | 14+F ₁ | 14+F ₂ | 56+F ₁ | 56+F ₂ | 84+F ₁ | 84+F ₂ | 14 | 8 |
| M16 | 18+F ₁ | 18+F ₂ | 72+F ₁ | 72+F ₂ | 108+F ₁ | 108+F ₂ | 18 | 10 |
| M20 | 22+F ₁ | 22+F ₂ | 88+F ₁ | 88+F ₂ | 132+F ₁ | 132+F ₂ | 22 | 12 |
| M24 | 26+F ₁ | 26+F ₂ | 104+F ₁ | 104+F ₂ | 156+F ₁ | 156+F ₂ | 26 | 15 |

F_1, F_2 – flange widths of two connected profiles, mm

Table 1

Examples

Bushing mount plates (executed by the client)

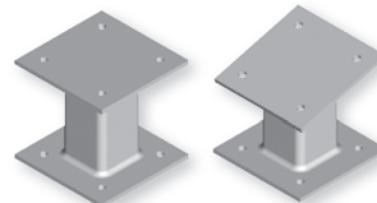


Figure 13

Bolt length

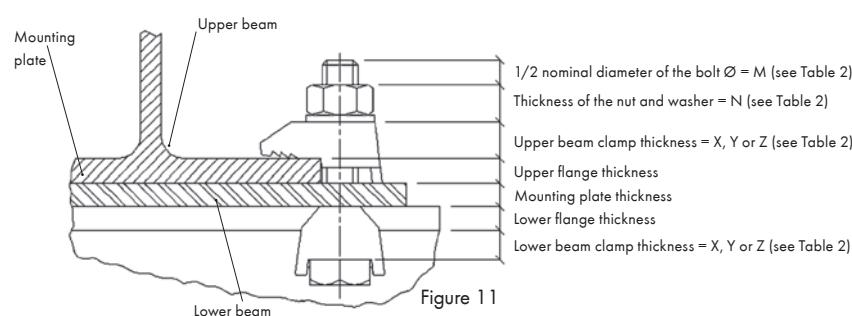


Figure 11

| Bolt nominal diameter \varnothing | Beam clamp type | | | N [mm] | M [mm] |
|-------------------------------------|-----------------|--------|-----------------|--------|--------|
| | BA, BE1, BC, BT | | BB, BE2, BD, BW | | |
| | X [mm] | Y [mm] | Z [mm] | | |
| M8 | 5 | 9 | 18 | 9 | 4 |
| M10 | 6 | 11 | 22 | 10 | 5 |
| M12 | 7 | 13 | 25 | 13 | 6 |
| M16 | 9 | 17 | 28 | 18 | 8 |
| M20 | 11 | 21 | 35 | 21 | 10 |
| M24 | 13 | 25 | 46 | 25 | 12 |

Table 12

General information regarding installation

When using clamps with recesses (types BA, BT, BC, BE1), make sure that the head of the hexagonal bolt or nut rests evenly against the clamp and locks into the recess (Figure 14). The beam clamp must also be perpendicular to the bolt. Use spacers if necessary.

Make sure the clamp sits tightly on the beam and the beam flange during the installation. When using clamp types BA, BB, BT, BW and BE, observe the angle of the contact area between the flange and the clamp (Figure 15) and select the clamp accordingly. The torque values indicated in Tables 3 and 4 must be observed!

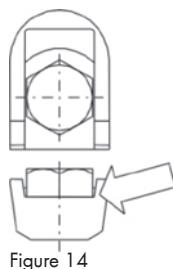
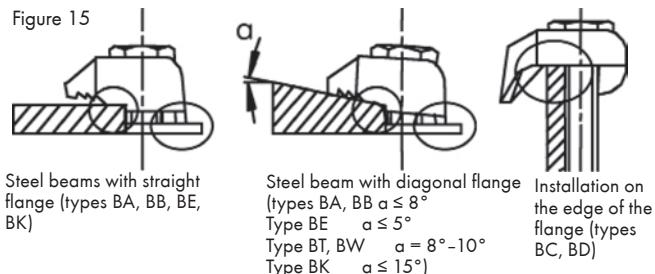
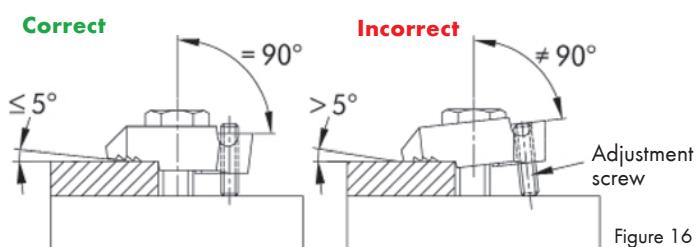


Figure 14



Only types BE1 and BE2:

The clamp must always be perpendicular to the bolt (Figure 16). Clamp thickness can be adjusted with an adjustment screw. Types BE1 and BE2 should only be used with steel beams with a flange angle under 5 degrees.



Only types BC and BD:

Clamp types BC and BD should not be used in structures that are subjected to frictional loads. Make sure that you select the clamp size according to flange thickness C (see Figure 17 and Table 4).

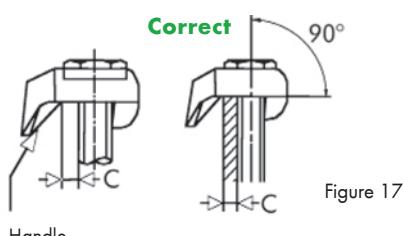


Figure 17

Spacers:

When using thick flanges, the height difference must be compensated with spacers (Figure 18).

The type label of the spacers must face upwards (not applicable to types BC and BD). Beam flange and the clamp cantilever contact area should be located at the root, not the tip, of the cantilever.

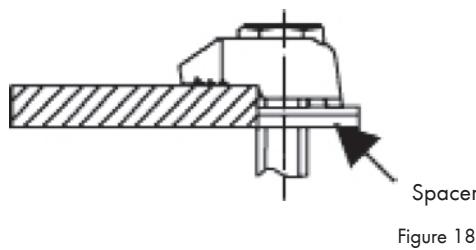


Figure 18

Torques

| Beam clamps | | | | | | | Bolt Ø | Torque [Nm] |
|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|--------|----------------|
| Type BA Product no. | Type BB Product no. | Type BT Product no. | Type BW Product no. | Type BK Product no. | Type BE1 Product no. | Type BE2 Product no. | | |
| 0485 010 8.. | 0485 020 8.. | | | 0485 080 8 | | | M8 | 6 |
| 0485 011 0.. | 0485 021 0.. | | | 0485 081 0 | 0485 091 0 | | M10 | 20 |
| 0485 011 2.. | 0485 021 2.. | 0485 031 2.. | 0485 041 2.. | 0485 081 2 | 0485 091 2 | 0485 101 2 | M12 | 70 |
| 0485 011 6.. | 0485 021 6.. | 0485 031 6.. | 0485 041 6.. | 0485 081 6 | 0485 091 6 | 0485 101 6 | M16 | 150 |
| 0485 012 0.. | 0485 022 0.. | 0485 032 0.. | 0485 042 0.. | 0485 082 0 | 0485 092 0 | | M20 | 290 |
| 0485 012 4.. | 0485 022 4.. | | | 0485 082 4 | 0485 092 4 | | M24 | 490 |

Table 3

| Beam clamps | | Bolt Ø | Torque [Nm] |
|---------------------|---------------------|--------|-------------|
| Type BC Product no. | Type BD Product no. | | |
| 0485 130 8 | 0485 140 8 | M8 | 3 |
| 0485 131 0 | 0485 141 0 | M10 | 10 |
| 0485 131 2 | 0485 141 2 | M12 | 35 |
| 0485 131 6 | 0485 141 6 | M16 | 75 |
| 0485 132 0 | 0485 142 0 | M20 | 145 |
| 0485 132 4 | 0485 142 4 | M24 | 245 |

Table 4

Security guidance:
If the connection is made with clamps of different sizes, the maximum operating load of the smallest clamp must be applied.

Tractive and transverse loads

| Beam clamps | maximum permitted tractive load for 4 bolts kN ¹ | | | | | |
|-----------------------|---|-------|-------|-------|-------|-------|
| | M8 | M10 | M12 | M16 | M20 | M24 |
| BA, BB ² | 3.57 | 13.57 | 18.86 | 34.21 | 67.64 | 91.43 |
| BT, BW ³ | / | / | 23.00 | 39.48 | 65.88 | / |
| BE1, BE2 ³ | / | 10.00 | 14.88 | 33.00 | 64.48 | 84.40 |
| BC, BD ³ | 5.00 | 10.00 | 17.30 | 30.00 | 44.00 | 68.70 |
| BK ³ | 5.00 | 10.00 | 24.48 | 41.00 | 88.24 | 51.00 |

Table 5

| Beam clamps | maximum permitted transverse load for 4 bolts kN ¹ | | | | | |
|-------------------------------|---|------|------|------|-------|-------|
| | M8 | M10 | M12 | M16 | M20 | M24 |
| BA, BB ² , | / | / | 1.86 | 3.43 | 6.79 | 9.14 |
| BT, BW, BE1, BE2 ³ | / | / | 1.30 | 3.90 | 11.00 | 18.00 |
| BK ³ | 0.26 | 0.58 | 1.41 | 3.39 | 5.63 | 18.00 |
| BC, BD | Not suitable for situations where the load is directed perpendicularly against the bolt shaft (transverse load) | | | | | |

Table 6

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² $N_{zul} = N_{R,d} \cdot \gamma_F$ (partial factor $\gamma_F = 1.4$),
Pursuant to DIBt approval Z-14 4-483

³ Load recommendations with the safety factor 5:1 for static load (no DIBt approval)

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² $V_{zul} = V_{a,R,d} / \gamma_F$ (partial safety factor $\gamma_F = 1.4$),
DIBt approval Z-14 4-483

³ Load recommendations with the safety factor 5:1 for static load (no DIBt approval)

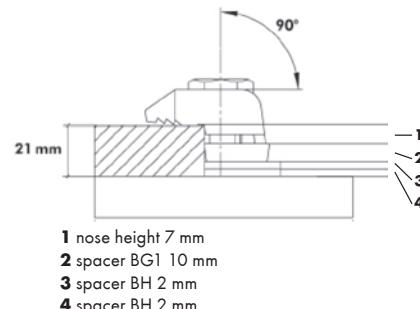
4.2 Selecting a clamp

The correct clamp, nose height (value [...] mm in tables 7–9) and spacers must be selected for each installation.

The thickness of the bracket clamp and spacer combination should match the flange to which the tensioner is intended to be fastened.

The following should be taken into account in the selection:

- flange type (straight or slanted)
- clamp size → selected according to working load (M8, M10, ...)
- type of bracket clamp (BA, BK, ...)
- flange thickness e.g.



Example of a straight flange with a thickness of 21 mm (see Figure 19):

Clamp type BA should be used here.

According to the probable load (working load), bolt size M10 is used (note the load values in Tables 5 and 6).

In Table 7, select a combination from the clamp type column that matches the flange thickness of 21 mm. → [7] + 2xBH + BG1

Requirements of this fastening:

- [7] → **1 pc** product no. 0485 011 007 clamp type BA, bolt diameter M10, nose height **7 mm**
 + 2xBH → **2 pcs** product no. 0485 071 02 spacer BH (thickness **2 mm**) for bracket clamp BA (bolt diameter M10)
 + BG1 → **1 pc** product no. 0845 061 010 spacer BG1 (thickness **10 mm**) for bracket clamp BA (bolt diameter M10)

For steel beams equipped with straight and slanted flanges $\alpha = 0\text{--}5^\circ$ (see Figure 15)

| Bolt Ø | M8 | | M10 | | | M12 | | |
|--------|------------------|------------|---------------|---------|----------|----------------|---------|------|
| | BA/BH | BK | BA/BH | BE1/BE2 | BK | BA/BH | BE1/BE2 | BK |
| 4 | [4] | OK | [4] | n.g. | OK | n.g. | n.g. | OK |
| 5 | [4] | OK | [5] | OK | OK | [4.5] | OK | OK |
| 6 | [4]+BH | OK | [4]+BH | OK | OK | [6] | OK | OK |
| 7 | [4]+BH | OK | [7] | OK | OK | [4.5]+BH | OK | OK |
| 8 | [4]+BF1 | OK | [4]+2xBH | OK | OK | [6]+BH | OK | OK |
| 9 | [4]+BF1 | OK | [4]+BF1 | OK | OK | [6]+BH | OK | OK |
| 10 | [4]+BH+BF1 | OK | [5]+BF1 | OK | OK | [9.5] | OK | OK |
| 11 | [4]+BH+BF1 | OK | [7]+2xBH | OK | OK | [6]+2xBH | OK | OK |
| 12 | [4]+BG1 | OK | [7]+BF1 | OK | OK | [9.5]+BH | OK | OK |
| 13 | [4]+BG1 | +BF2 | [7]+3xBH | OK | OK | [4.5]+BH+BF1 | OK | OK |
| 14 | [4]+BH+BG1 | +BF2 | [4]+BG1 | OK | OK | [6]+BH+BF1 | OK | OK |
| 15 | [4]+BH+BG1 | +BF2 | [5]+BG1 | OK | OK | [6]+BH+BF1 | OK | OK |
| 16 | [4]+BF1+BG1 | +BF2 | [4]+BH+BG1 | OK | +BF2 | [9.5]+BF1 | OK | OK |
| 17 | [4]+BF1+BG1 | +BG2 | [7]+BG1 | OK | +BF2 | [6]+2xBH+BF1 | OK | OK |
| 18 | [4]+BH+BF1+BG1 | +BG2 | [4]+2xBH+BG1 | OK | +BF2 | [6]+BG1 | OK | OK |
| 19 | [4]+BH+BF1+BG1 | +BG2 | [4]+BF1+BG1 | OK | +BF2 | [4.5]+BH+BG1 | OK | +BF2 |
| 20 | [4]+2xBG1 | +BG2 | [5]+BF1+BG1 | OK | +BF2 | [4.5]+BH+BG1 | OK | +BF2 |
| 21 | [4]+2xBG1 | +BF2+BG2 | [7]+2xBH+BG1 | +BF2 | +BG2 | [9.5]+BF1+2xBH | OK | +BF2 |
| 22 | [4]+BH+2xBG1 | +BF2+BG2 | [7]+BF1+BG1 | +BF2 | +BG2 | [9.5]+BG1 | OK | +BF2 |
| 23 | [4]+BH+2xBG1 | +BF2+BG2 | [7]+BF1+BG1 | +BF2 | +BG2 | [6]+2xBH+BG1 | +BF2 | +BF2 |
| 24 | [4]+BF1+2xBG1 | +BF2+BG2 | [4]+2xBG1 | +BF2 | +BG2 | [6]+BF1+BG1 | +BF2 | +BF2 |
| 26 | [4]+BH+BF1+2xBG1 | +2xBG2 | [4]+BH+2xBG1 | +BG2 | +BF2+BG2 | [9.5]+2xBH+BG1 | +BF2 | +BG2 |
| 28 | [4]+3xBG1 | +2xBG2 | [7]+2xBG1 | +BG2 | +BF2+BG2 | [9.5]+BF1+BG1 | +BF2 | +BG2 |
| 30 | [4]+BH+3xBG1 | +BF2+2xBG2 | [5]+BF1+2xBG1 | +BG2 | +BF2+BG2 | [6]+2xBG1 | +BG2 | +BG2 |

| Bolt Ø | M16 | | | M20 | | | M24 | | |
|--------|----------------|---------|------|---------------|---------|----|------------|---------|----|
| | BA/BB | BE1/BE2 | BK | BA/BB | BE1/BE2 | BK | BA/BB | BE1/BE2 | BK |
| 4 | n.g. | n.g. | OK | n.g. | n.g. | OK | n.g. | n.g. | OK |
| 5 | [5.5] | n.g. | OK | n.g. | n.g. | OK | n.g. | n.g. | OK |
| 6 | [5.5] | n.g. | OK | [7] | n.g. | OK | n.g. | n.g. | OK |
| 7 | [5.5] | OK | OK | [7] | n.g. | OK | n.g. | n.g. | OK |
| 8 | [8] | OK | OK | [7] | n.g. | OK | [9] | n.g. | OK |
| 9 | [5.5]+BH | OK | OK | [10] | OK | OK | [9] | n.g. | OK |
| 10 | [5.5]+BH | OK | OK | [10] | OK | OK | [9] | n.g. | OK |
| 11 | [11] | OK | OK | [7]+BH | OK | OK | [12] | OK | OK |
| 12 | [5.5]+2xBH | OK | OK | [12.5] | OK | OK | [12] | OK | OK |
| 13 | [5.5]+BF1 | OK | OK | [12.5] | OK | OK | [9]+BH | OK | OK |
| 14 | [11]+BH | OK | OK | [10]+BH | OK | OK | [9]+BH | OK | OK |
| 15 | [5.5]+3xBH | OK | OK | [7]+2xBH | OK | OK | [16] | OK | OK |
| 16 | [8]+BF1 | OK | OK | [12.5]+BH | OK | OK | [16] | OK | OK |
| 17 | [11]+2xBH | OK | OK | [7]+BF1 | OK | OK | [9]+2xBH | OK | OK |
| 18 | [11]+2xBH | OK | OK | [10]+2xBH | OK | OK | [9]+2xBH | OK | OK |
| 19 | [11]+BF1 | OK | OK | [7]+3xBH | OK | OK | [16]+BH | OK | OK |
| 20 | [11]+3xBH | OK | OK | [10]+BF1 | OK | OK | [16]+BH | OK | OK |
| 21 | [11]+3xBH | OK | OK | [7]+BH+BF1 | OK | OK | [9]+BF1 | OK | OK |
| 22 | [11]+BH+BF1 | OK | OK | [10]+3xBH | OK | OK | [9]+BF1 | OK | OK |
| 23 | [11]+BH+BF1 | OK | OK | [12.5]+BF1 | OK | OK | [12]+BF1 | OK | OK |
| 24 | [8]+BG1 | +BF2 | OK | [10]+BH+BF1 | OK | OK | [12]+BF1 | OK | OK |
| 26 | [11]+2xBH+BF1 | +BF2 | +BF2 | [7]+2xBH+BF1 | +BF2 | OK | [9]+BH+BF1 | OK | OK |
| 28 | [5.5]+2xBH+BG1 | +BF2 | +BF2 | [10]+2xBH+BF1 | +BF2 | OK | [16]+BF1 | OK | OK |
| 30 | [11]+BH+BG1 | +BF2 | +BF2 | [10]+BG1 | +BF2 | OK | [16]+BF1 | OK | OK |

Steel beams with a slanted flange $\alpha = 6-8^\circ$ (see Figure 15)

| Bolt Ø | M8 | | M10 | | M12 | | M16 | |
|--------|------------------|------------|------------------|----------|------------------|------|----------------|------|
| | BA/BB | BK | BA/BB | BK | BA/BB | BK | BA/BB | BK |
| 4 | n.g. | OK | n.g. | OK | n.g. | OK | n.g. | OK |
| 5 | [4] | OK | [4] | OK | n.g. | OK | n.g. | OK |
| 6 | [4] | OK | [5] | OK | [4.5] | OK | n.g. | OK |
| 7 | [4]+BH | OK | [4]+BH | OK | [6] | OK | [5.5] | OK |
| 8 | [4]+BH | OK | [7] | OK | [4.5]+BH | OK | [5.5] | OK |
| 9 | [4]+BF1 | OK | [4]+2xBH | OK | [6]+BH | OK | [8] | OK |
| 10 | [4]+BF1 | OK | [7]+BH | OK | [6]+BH | OK | [5.5]+BH | OK |
| 11 | [4]+BH+BF1 | OK | [5]+BF1 | OK | [9.5] | OK | [5.5]+BH | OK |
| 12 | [4]+BH+BF1 | OK | [7]+2xBH | OK | [6]+2xBH | OK | [11] | OK |
| 13 | [4]+BG1 | +BF2 | [7]+BF1 | OK | [9.5]+BH | OK | [5.5]+2xBH | OK |
| 14 | [4]+BG1 | +BF2 | [7]+3xBH | OK | [4.5]+BH+BF1 | OK | [5.5]+2xBH | OK |
| 15 | [4]+BH+BG1 | +BF2 | [4]+BG1 | OK | [9.5]+2xBH | OK | [5.5]+BF1 | OK |
| 16 | [4]+BH+BG1 | +BF2 | [5]+BG1 | +BF2 | [6]+BH+BF1 | OK | [5.5]+3xBH | OK |
| 17 | [4]+BF1+BG1 | +BG2 | [4]+BH+BG1 | +BF2 | [4.5]+BG1 | OK | [5.5]+3xBH | OK |
| 18 | [4]+BF1+BG1 | +BG2 | [7]+BG1 | +BF2 | [6]+2xBH+BF1 | OK | [5.5]+BH+BF1 | OK |
| 19 | [4]+BH+BF1+BG1 | +BG2 | [4]+2xBH+BG1 | +BF2 | [6]+BG1 | +BF2 | [11]+2xBH | OK |
| 20 | [4]+BH+BF1+BG1 | +BG2 | [7]+BH+BG1 | +BF2 | [4.5]+BH+BG1 | +BF2 | [11]+2xBH | OK |
| 21 | [4]+2xBG1 | +BF2+BG2 | [5]+BF1+BG1 | +BG2 | [4.5]+BH+BG1 | +BF2 | [5.5]+2xBH+BF1 | OK |
| 22 | [4]+2xBG1 | +BF2+BG2 | [7]+2xBH+BG1 | +BG2 | [6]+BH+BG1 | +BF2 | [11]+3xBH | OK |
| 23 | [4]+BH+2xBG1 | +BF2+BG2 | [7]+BF1+BG1 | +BG2 | [9.5]+BG1 | +BF2 | [5.5]+BG1 | OK |
| 24 | [4]+BH+2xBG1 | +BF2+BG2 | [4]+2xBH+BF1+BG1 | +BG2 | [6]+2xBH+BG1 | +BF2 | [11]+BH+BF1 | OK |
| 26 | [4]+BF1+2xBG1 | +2xBG2 | [5]+2xBG1 | +BF2+BG2 | [4.5]+BH+BF1+BG1 | +BG2 | [5.5]+BH+BG1 | +BF2 |
| 28 | [4]+BH+BF1+2xBG1 | +2xBG2 | [7]+2xBG1 | +BF2+BG2 | [9.5]+2xBH+BG1 | +BG2 | [11]+2xBH+BF1 | +BF2 |
| 30 | [4]+3BG1 | +BF2+2xBG2 | [7]+BH+2xBG1 | +BF2+BG2 | [9.5]+3xBH+BG1 | +BG2 | [11]+2xBH+BG1 | +BF2 |

| Bolt Ø | M20 | | M24 | |
|--------|---------------|----|------------|----|
| | BA/BB | BK | BA/BB | BK |
| 4 | n.g. | OK | n.g. | OK |
| 5 | n.g. | OK | n.g. | OK |
| 6 | n.g. | OK | n.g. | OK |
| 7 | n.g. | OK | n.g. | OK |
| 8 | n.g. | OK | n.g. | OK |
| 9 | [7] | OK | n.g. | OK |
| 10 | [7] | OK | [9] | OK |
| 11 | [10] | OK | [9] | OK |
| 12 | [10] | OK | [9] | OK |
| 13 | [7]+BH | OK | [9] | OK |
| 14 | [12.5] | OK | [12] | OK |
| 15 | [12.5] | OK | [12] | OK |
| 16 | [10]+BH | OK | [9]+BH | OK |
| 17 | [7]+2xBH | OK | [9]+BH | OK |
| 18 | [12.5]+BH | OK | [16] | OK |
| 19 | [7]+BF1 | OK | [16] | OK |
| 20 | [10]+2xBH | OK | [9]+2xBH | OK |
| 21 | [7]+3xBH | OK | [9]+2xBH | OK |
| 22 | [10]+BF1 | OK | [16]+BH | OK |
| 23 | [7]+BH+BF1 | OK | [16]+BH | OK |
| 24 | [10]+3xBH | OK | [16]+BF1 | OK |
| 26 | [10]+BH+BF1 | OK | [12]+BF1 | OK |
| 28 | [7]+2xBH+BF1 | OK | [9]+BH+BF1 | OK |
| 30 | [10]+2xBH+BF1 | OK | [16]+BF1 | OK |

Steel beams with a slanted flange $\alpha = 8-10^\circ$ (see Figure 25)

| Bolt Ø | M12 | M16 | M20 |
|--------|----------------|--------------|---------------|
| | BT/BW | BT/BW | BT/BW |
| 4 | [4] | n.g. | n.g. |
| 5 | [4] | n.g. | n.g. |
| 6 | [6] | [6] | n.g. |
| 7 | [6] | [6] | [7] |
| 8 | [6]+BH | [8] | [7] |
| 9 | [4]+2xBH | [6]+BH | [10] |
| 10 | [4]+BF1 | [6]+BH | [10] |
| 11 | [6]+2xBH | [8]+BH | [7]+BH |
| 12 | [6]+BF1 | [6]+2xBH | [7]+BH |
| 13 | [4]+BH+BF1 | [6]+2xBH | [10]+BH |
| 14 | [6]+3xBH | [6]+BF1 | [10]+BH |
| 15 | [6]+BH+BF1 | [6]+3xBH | [10]+BH |
| 16 | [4]+BG1 | [8]+BF1 | [7]+BF1 |
| 17 | [6]+2xBH+BF1 | [6]+BH+BF1 | [7]+BF1 |
| 18 | [6]+BG1 | [6]+4xBH | [10]+2xBH |
| 19 | [4]+BH+BG1 | [8]+BH+BF1 | [10]+2xBH |
| 20 | [6]+BH+BG1 | [8]+4xBH | [10]+BF1 |
| 21 | [6]+BH+BG1 | [8]+4xBH | [7]+BH+BF1 |
| 22 | [4]+BF1+BG1 | [6]+2xBF1 | [10]+3xBH |
| 23 | [6]+2xBH+BG1 | [6]+2xBF1 | [10]+3xBH |
| 24 | [6]+BF1+BG1 | [6]+BG1 | [10]+BH+BF1 |
| 26 | [6]+BH+BF1+BG1 | [8]+BH+BG1 | [7]+2xBG1 |
| 28 | [4]+2xBG1 | [6]+2xBH+BG1 | [10]+2xBH+BF1 |
| 30 | [6]+2xBG1 | [6]+BF1+BG1 | [10]+BG1 |

Symbol legend:

OK = Clamps are suitable for use without spacers.

e.s.= not suitable

[...]= nose height in millimetres

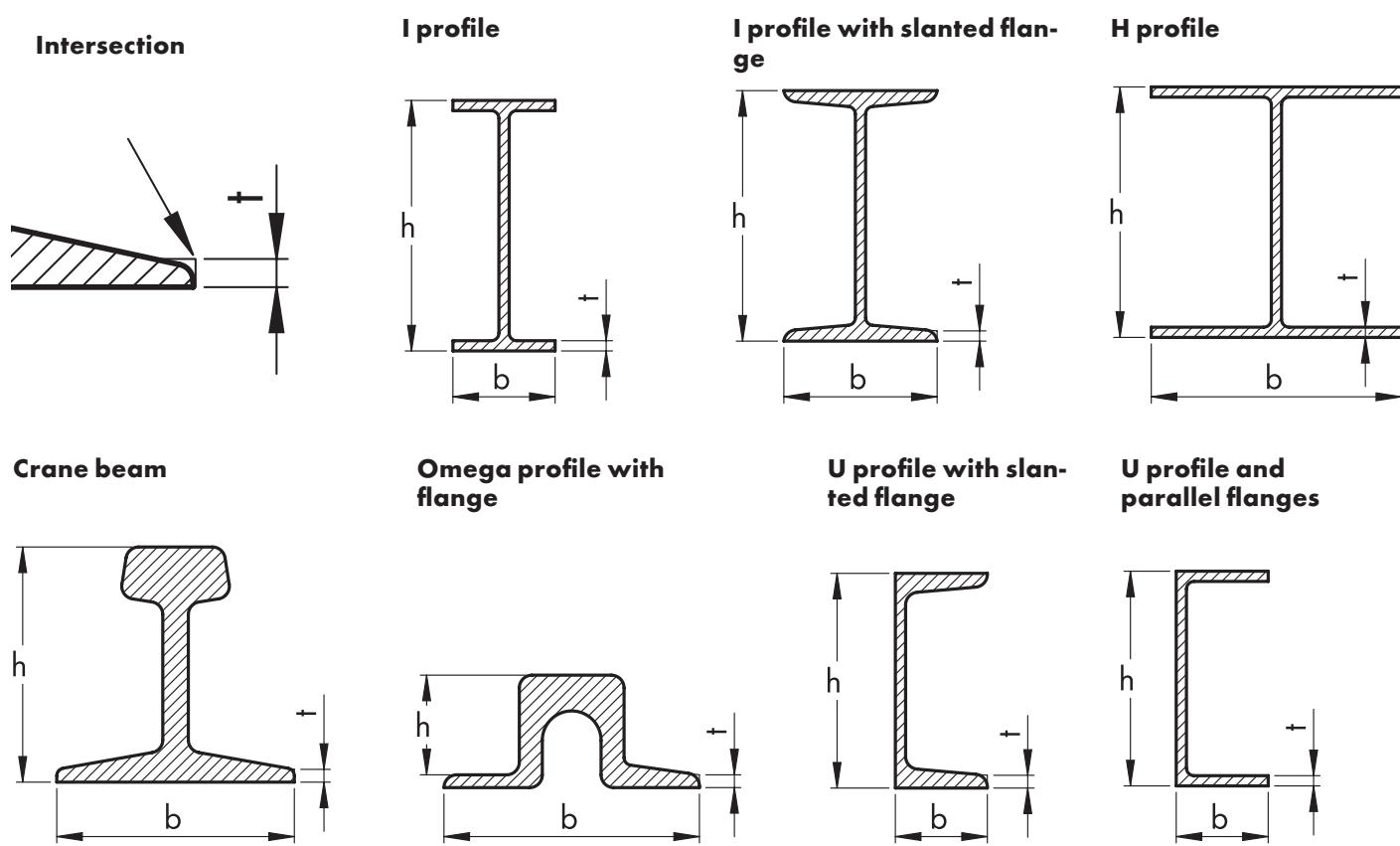
Example [7] → nose height of bracket clamp = 7 mm

+ = More than one product is required

4.3 Dimensions of steel profile beams

The following pages contain a brief account of the most important dimensions of the steel beams, which are required to select the correct bracket clamps.

The letter "s" refers to the flange thickness, which is a critical value, even for slanted flanges.



I profiles and parallel flanges (types IPEA/IPE/IPEO/IPE AA)

| IPE AA 80 | 4.9 | 78 | 46 | 4.2 |
|-------------|------|-------|----|-----|
| IPE A 80 | 5.0 | 78 | 46 | 4.2 |
| IPE 80 | 6.0 | 80 | 46 | 5.2 |
| IPE AA 100 | 6.7 | 97.6 | 55 | 4.5 |
| IPE A 100 | 6.9 | 98 | 55 | 4.7 |
| IPE 100 | 8.1 | 100 | 55 | 5.7 |
| IPE AA 120 | 8.4 | 117 | 64 | 4.8 |
| IPE A 120 | 8.7 | 117.6 | 64 | 5.1 |
| IPE 120 | 10.4 | 120 | 64 | 6.3 |
| IPE AA 140 | 10.1 | 136.6 | 73 | 5.2 |
| IPE A 140 | 10.5 | 137.4 | 73 | 5.6 |
| IPE 140 | 12.9 | 140 | 73 | 6.9 |
| IPE AA 160 | 12.1 | 156.4 | 82 | 5.6 |
| IPE A 160 | 12.7 | 157 | 82 | 5.9 |
| IPE 160 | 15.8 | 160 | 82 | 7.4 |
| IPE AA 180 | 14.9 | 176.4 | 91 | 6.2 |
| IPE A 180 | 15.4 | 177 | 91 | 6.5 |
| IPE 180 | 18.8 | 180 | 91 | 8.0 |
| IPE O 180 + | 21.3 | 182 | 92 | 9.0 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|-------------|---------------|----------|----------|----------|
| IPE AA 200 | 18.0 | 196.4 | 100 | 6.7 |
| IPE A 200 | 18.4 | 197 | 100 | 7.0 |
| IPE 200 | 22.4 | 200 | 100 | 8.5 |
| IPE O 200 + | 25.1 | 202 | 102 | 9.5 |
| IPE AA 220 | 21.2 | 216.4 | 110 | 7.4 |
| IPE A 220 | 22.2 | 217 | 110 | 7.7 |
| IPE 220 | 26.2 | 220 | 110 | 9.2 |
| IPE O 220 + | 29.4 | 222 | 112 | 10.2 |
| IPE AA 240 | 24.9 | 236.4 | 120 | 8.0 |
| IPE A 240 | 26.2 | 237 | 120 | 8.3 |
| IPE 240 | 30.7 | 240 | 120 | 9.8 |
| IPE O 240 + | 34.3 | 242 | 122 | 10.8 |
| IPE A 270 | 30.7 | 267 | 135 | 8.7 |
| IPE 270 | 36.1 | 270 | 135 | 10.2 |
| IPE O 270 + | 42.3 | 274 | 136 | 12.2 |

I profiles and parallel flanges (types IPEA/IPE/IPEO/IPE AA)

| | | | | |
|--------------------|------|-------|-----|------|
| IPE A 300 | 36.5 | 297 | 150 | 9.2 |
| IPE 300 | 42.2 | 300 | 150 | 10.7 |
| IPE O 300 + | 49.3 | 304 | 152 | 12.7 |
| IPE A 330 | 43.0 | 327 | 160 | 10.0 |
| IPE 330 | 49.1 | 330 | 160 | 11.5 |
| IPE O 330 + | 57.0 | 334 | 162 | 13.5 |
| IPE A 360 + | 50.2 | 357.6 | 170 | 11.5 |
| IPE 360 | 57.1 | 360 | 170 | 12.7 |
| IPE O 360 + | 66.0 | 364 | 172 | 14.7 |
| IPE A 400 | 57.4 | 397 | 180 | 12.0 |
| IPE 400 | 66.3 | 400 | 180 | 13.5 |
| IPE O 400 + | 75.7 | 404 | 182 | 15.5 |
| IPE A 450 | 67.2 | 447 | 190 | 13.1 |
| IPE 450 | 77.6 | 450 | 190 | 14.6 |
| IPE O 450 + | 92.4 | 456 | 192 | 17.6 |
| IPE A 500 | 79.4 | 497 | 200 | 14.5 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|--------------------|------------------|-----------|-----------|-----------|
| IPE 500 | 90.7 | 500 | 200 | 16.0 |
| IPE O 500 | 107 | 506 | 202 | 19.0 |
| IPE A 550 | 92.1 | 547 | 210 | 15.7 |
| IPE 550 | 106 | 550 | 210 | 17.2 |
| IPE O 550 + | 123 | 556 | 212 | 20.2 |
| IPE A 600 | 108 | 597 | 220 | 17.5 |
| IPE 600 | 122 | 600 | 220 | 19.0 |
| IPE O 600 + | 154 | 610 | 224 | 24.0 |
| IPE 750x137 | 137 | 753 | 263 | 17.0 |
| IPE 750x147 | 147 | 753 | 265 | 17.0 |
| IPE 750x173 | 173 | 762 | 267 | 21.6 |
| IPE 750x196 | 196 | 770 | 268 | 25.4 |

H profile (types HE/HD/HL/HP)

| | | | | |
|------------------|------|-----|-----|-----|
| HE 100 AA | 12.2 | 91 | 100 | 5.5 |
| HE 100 A | 16.7 | 96 | 100 | 8 |
| HE 100 B | 20.4 | 100 | 100 | 10 |
| HE 100 C | 30.9 | 110 | 103 | 15 |
| HE 100 M | 41.8 | 120 | 106 | 20 |
| HE 120 AA | 14.6 | 109 | 120 | 5.5 |
| HE 120 A | 19.9 | 114 | 120 | 8 |
| HE 120 B | 26.7 | 120 | 120 | 11 |
| HE 120 C | 39.2 | 130 | 123 | 16 |
| HE 120 M | 52.1 | 140 | 126 | 21 |
| HE 140 AA | 18.1 | 128 | 140 | 6 |
| HE 140 A | 24.7 | 133 | 140 | 8.5 |
| HE 140 B | 33.7 | 140 | 140 | 12 |
| HE 140 C | 48.2 | 150 | 143 | 17 |
| HE 140 M | 63.2 | 160 | 146 | 22 |
| HE 160 AA | 23.8 | 148 | 160 | 7 |
| HE 160 A | 30.4 | 152 | 160 | 9 |
| HE 160 B | 42.6 | 160 | 160 | 13 |
| HE 160 C | 59.2 | 170 | 163 | 18 |
| HE 160 M | 76.2 | 180 | 166 | 23 |
| HE 180 AA | 28.7 | 167 | 180 | 7.5 |
| HE 180 A | 35.5 | 171 | 180 | 9.5 |
| HE 180 B | 51.2 | 180 | 180 | 14 |
| HE 180 C | 69.8 | 190 | 183 | 19 |
| HE 180 M | 88.9 | 200 | 186 | 24 |
| HE 200 AA | 34.6 | 186 | 200 | 8 |
| HE 200 A | 42.3 | 190 | 200 | 10 |
| HE 200 B | 61.3 | 200 | 200 | 15 |
| HE 200 C | 81.9 | 210 | 203 | 20 |
| HE 200 M | 103 | 220 | 206 | 25 |
| HE 220 AA | 40.4 | 205 | 220 | 8.5 |
| HE 220 A | 50.5 | 210 | 220 | 11 |
| HE 220 B | 71.5 | 220 | 220 | 16 |
| HE 220 C | 94.1 | 230 | 223 | 21 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|------------------|------------------|-----------|-----------|-----------|
| HE 220 M | 117 | 240 | 226 | 26 |
| HE 240 AA | 47.4 | 224 | 240 | 9 |
| HE 240 A | 60.3 | 230 | 240 | 12 |
| HE 240 B | 83.2 | 240 | 240 | 17 |
| HE 240 C | 119 | 255 | 244 | 24.5 |
| HE 240 M | 157 | 270 | 248 | 32 |
| HE 260 AA | 54.1 | 244 | 260 | 9.5 |
| HE 260 A | 68.2 | 250 | 260 | 12.5 |
| HE 260 B | 93.0 | 260 | 260 | 17.5 |
| HE 260 C | 132 | 275 | 264 | 25 |
| HE 260 M | 172 | 290 | 268 | 32.5 |
| HE 280 AA | 61.2 | 264 | 280 | 10 |
| HE 280 A | 76.4 | 270 | 280 | 13 |
| HE 280 B | 103 | 280 | 280 | 18 |
| HE 280 C | 145 | 295 | 284 | 25.5 |
| HE 280 M | 189 | 310 | 288 | 33 |
| HE 300 AA | 69.8 | 283 | 300 | 10.5 |
| HE 300 A | 88.3 | 290 | 300 | 14 |
| HE 300 B | 117 | 300 | 300 | 19 |
| HE 300 C | 177 | 320 | 305 | 29 |
| HE 300 M | 238 | 340 | 310 | 39 |
| HE 320 AA | 74.2 | 301 | 300 | 11 |
| HE 320 A | 97.6 | 310 | 300 | 15.5 |
| HE 320 B | 127 | 320 | 300 | 20.5 |
| HE 320 C | 186 | 340 | 305 | 30.5 |
| HE 320 M | 245 | 359 | 309 | 40 |
| HE 340 AA | 78.9 | 320 | 300 | 11.5 |
| HE 340 A | 105 | 330 | 300 | 16.5 |
| HE 340 B | 134 | 340 | 300 | 21.5 |
| HE 340 M | 248 | 377 | 309 | 40 |

H profile (types HE/HD/HL/HP)

| | | | | |
|----------------------|------|------|-----|------|
| HE 360 AA | 83.7 | 339 | 300 | 12 |
| HE 360 A | 112 | 350 | 300 | 17.5 |
| HE 360 B | 142 | 360 | 300 | 22.5 |
| HE 360 M | 250 | 395 | 308 | 40 |
| HE 400 AA | 92.4 | 378 | 300 | 13 |
| HE 400 A | 125 | 390 | 300 | 19 |
| HE 400 B | 155 | 400 | 300 | 24 |
| HE 400 M | 256 | 432 | 307 | 40 |
| HE 450 AA | 99.7 | 425 | 300 | 13.5 |
| HE 450 A | 140 | 440 | 300 | 21 |
| HE 450 B | 171 | 450 | 300 | 26 |
| HE 450 M | 263 | 478 | 307 | 40 |
| HE 500 AA | 107 | 472 | 300 | 14 |
| HE 500 A | 155 | 490 | 300 | 23 |
| HE 500 B | 187 | 500 | 300 | 28 |
| HE 500 M | 270 | 524 | 306 | 40 |
| HE 550 AA | 120 | 522 | 300 | 15 |
| HE 550 A | 166 | 540 | 300 | 24 |
| HE 550 B | 199 | 550 | 300 | 29 |
| HE 550 M | 278 | 572 | 306 | 40 |
| HE 600 AA | 129 | 571 | 300 | 15.5 |
| HE 600 A | 178 | 590 | 300 | 25 |
| HE 600 B | 212 | 600 | 300 | 30 |
| HE 600 M | 285 | 620 | 305 | 40 |
| HE 600 x 337 | 337 | 632 | 310 | 46 |
| HE 600 x 399 | 399 | 648 | 315 | 54 |
| HE 650 AA | 138 | 620 | 300 | 16 |
| HE 650 A | 190 | 640 | 300 | 26 |
| HE 650 B | 225 | 650 | 300 | 31 |
| HE 650 M | 293 | 668 | 305 | 40 |
| HE 650 x 343 | 343 | 680 | 309 | 46 |
| HE 650 x 407 | 407 | 696 | 314 | 54 |
| HE 700 AA | 150 | 670 | 300 | 17 |
| HE 700 A | 204 | 690 | 300 | 27 |
| HE 700 B | 241 | 700 | 300 | 32 |
| HE 700 M | 301 | 716 | 304 | 40 |
| HE 700 x 352 | 352 | 728 | 308 | 46 |
| HE 700 x 418 | 418 | 744 | 313 | 54 |
| HE 800 AA | 172 | 770 | 300 | 18 |
| HE 800 A | 224 | 790 | 300 | 28 |
| HE 800 B | 262 | 800 | 300 | 33 |
| HE 800 M | 317 | 814 | 303 | 40 |
| HE 800 x 373 | 373 | 826 | 308 | 46 |
| HE 800 x 444 | 444 | 842 | 313 | 54 |
| HE 900 AA | 198 | 870 | 300 | 20 |
| HE 900 A | 252 | 890 | 300 | 30 |
| HE 900 B | 291 | 900 | 300 | 35 |
| HE 900 M | 333 | 910 | 302 | 40 |
| HE 900 x 391 | 391 | 922 | 307 | 46 |
| HE 900 x 466 | 466 | 938 | 312 | 54 |
| HE 1000 AA | 222 | 970 | 300 | 21 |
| HE 1000 x 249 | 249 | 980 | 300 | 26 |
| HE 1000 A | 272 | 990 | 300 | 31 |
| HE 1000 B | 314 | 1000 | 300 | 36 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|----------------------|------------------|-----------|-----------|-----------|
| HE 1000 M | 349 | 1008 | 302 | 40 |
| HE 1000 x 393 | 393 | 1016 | 303 | 43.9 |
| HE 1000 x 415 | 415 | 1020 | 304 | 46 |
| HE 1000 x 438 | 438 | 1026 | 305 | 49 |
| HE 1000 x 494 | 494 | 1036 | 309 | 54 |
| HE 1000 x 584 | 584 | 1056 | 314 | 64 |
| HL 920 x 342 | 342 | 912 | 418 | 32.0 |
| HL 920 x 365 | 365 | 916 | 419 | 34.3 |
| HL 920 x 387 | 387 | 921 | 420 | 36.6 |
| HL 920 x 417 | 417 | 928 | 422 | 39.9 |
| HL 920 x 446 | 446 | 933 | 423 | 42.7 |
| HL 920 x 488 | 488 | 942 | 422 | 47.0 |
| HL 920 x 534 | 534 | 950 | 425 | 51.1 |
| HL 920 x 585 | 585 | 960 | 427 | 55.9 |
| HL 920 x 653 | 653 | 972 | 431 | 62.0 |
| HL 920 x 784 | 784 | 996 | 437 | 73.9 |
| HL 920 x 967 | 967 | 1028 | 446 | 89.9 |
| HL 920 x 344 | 344 | 927 | 418 | 32.0 |
| HL 920 x 368 | 368 | 931 | 419 | 34.3 |
| HL 920 x 390 | 390 | 936 | 420 | 36.6 |
| HL 920 x 420 | 420 | 943 | 422 | 39.9 |
| HL 920 x 449 | 449 | 948 | 423 | 42.7 |
| HL 920 x 491 | 491 | 957 | 422 | 47.0 |
| HL 920 x 537 | 537 | 965 | 425 | 41.1 |
| HL 920 x 588 | 588 | 975 | 427 | 55.9 |
| HL 920 x 656 | 656 | 987 | 431 | 62.0 |
| HL 920 x 725 | 725 | 999 | 434 | 68.1 |
| HL 920 x 787 | 787 | 1011 | 437 | 73.9 |
| HL 920 x 970 | 970 | 1043 | 446 | 89.9 |
| HE 1000 AA | 296 | 982 | 400 | 27.1 |
| HL 1000 A | 321 | 990 | 400 | 31.0 |
| HL 1000 B | 371 | 1000 | 400 | 36.1 |
| HL 1000 M | 412 | 1008 | 402 | 40.0 |
| HL 1000 x 443 | 443 | 1012 | 402 | 41.9 |
| HL 1000 x 483 | 483 | 1020 | 404 | 46.0 |
| HL 1000 x 539 | 539 | 1030 | 407 | 51.1 |
| HL 1000 x 554 | 554 | 1032 | 408 | 52.0 |
| HL 1000 x 591 | 591 | 1040 | 409 | 55.9 |
| HL 1000 x 642 | 642 | 1048 | 412 | 60.0 |
| HL 1000 x 748 | 748 | 1068 | 417 | 70.0 |
| HL 1000 x 883 | 883 | 1092 | 424 | 82.0 |
| HL 1100 A | 343 | 1090 | 400 | 31.0 |
| HL 1100 B | 390 | 1100 | 400 | 36.0 |
| HL 1100 M | 433 | 1108 | 402 | 40.0 |
| HL 1100 R | 499 | 1118 | 405 | 45.0 |
| HD 260 x 54.1 | 54.1 | 244 | 260 | 9.5 |
| HD 260 x 68.2 | 68.2 | 250 | 260 | 12.5 |
| HD 260 x 93.0 | 93.0 | 260 | 260 | 17.5 |
| HD 260 x 114 | 114 | 268 | 262 | 21.5 |
| HD 260 x 142 | 142 | 278 | 265 | 26.5 |

H profile (types HE/HD/HL/HP)

| | | | | |
|----------------------|------|-------|-------|------|
| HD 260 x 172 | 172 | 290 | 268 | 32.5 |
| HD 320 x 74.2 | 74.2 | 301 | 300 | 11.0 |
| HD 320 x 97.6 | 97.6 | 310 | 300 | 15.5 |
| HD 320 x 127 | 127 | 320 | 300 | 20.5 |
| HD 320 x 158 | 158 | 330 | 303 | 25.5 |
| HD 320 x 198 | 198 | 343 | 306 | 32.0 |
| HD 320 x 245 | 245 | 359 | 309 | 40.0 |
| HD 320 x 300 | 300 | 375 | 313 | 48.0 |
| HD 360 x 134 | 134 | 356 | 369 | 18.0 |
| HD 360 x 147 | 147 | 360 | 370 | 19.8 |
| HD 360 x 162 | 162 | 364 | 371 | 21.8 |
| HD 360 x 179 | 179 | 368 | 373 | 23.9 |
| HD 360 x 196 | 196 | 372 | 374 | 26.2 |
| HD 400 x 187 | 187 | 368 | 391 | 24.0 |
| HD 400 x 216 | 216 | 375 | 394 | 27.7 |
| HD 400 x 237 | 237 | 380 | 395 | 30.2 |
| HD 400 x 262 | 262 | 387 | 398 | 33.3 |
| HD 400 x 287 | 287 | 393 | 399 | 36.6 |
| HD 400 x 314 | 314 | 399 | 401 | 39.6 |
| HD 400 x 347 | 347 | 407 | 404 | 43.7 |
| HD 400 x 382 | 382 | 416 | 406 | 48.0 |
| HD 400 x 421 | 421 | 425 | 409 | 52.6 |
| HD 400 x 463 | 463 | 435 | 412 | 57.4 |
| HD 400 x 509 | 509 | 446 | 416 | 62.7 |
| HD 400 x 551 | 551 | 455 | 418 | 67.6 |
| HD 400 x 592 | 592 | 465 | 421 | 72.3 |
| HD 400 x 634 | 634 | 474 | 424 | 77.1 |
| HD 400 x 677 | 677 | 483 | 428 | 81.5 |
| HD 400 x 744 | 744 | 498 | 432 | 88.9 |
| HD 400 x 818 | 818 | 514 | 437 | 97.0 |
| HP 200 x 43 | 42.5 | 200.0 | 205.0 | 9.0 |
| HP 200 x 53 | 53.5 | 204.0 | 207.0 | 11.3 |
| HP 220 x 57 | 57.2 | 210.0 | 224.5 | 11.0 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|---------------------|------------------|-----------|-----------|-----------|
| HP 260 x 75 | 75.0 | 249.0 | 265.0 | 12.0 |
| HP 260 x 87 | 87.3 | 253.0 | 267.0 | 14.0 |
| HP 305 x 79 | 78.9 | 299.3 | 396.4 | 11.1 |
| HP 305 x 88 | 88.0 | 301.7 | 307.8 | 12.3 |
| HP 305 x 95 | 94.9 | 303.7 | 308.7 | 13.3 |
| HP 305 x 110 | 110 | 307.9 | 310.7 | 15.4 |
| HP 305 x 126 | 126 | 312.3 | 312.9 | 17.6 |
| HP 305 x 149 | 149 | 318.5 | 316.0 | 20.7 |
| HP 305 x 180 | 180 | 326.7 | 319.7 | 24.8 |
| HP 305 x 186 | 186 | 328.3 | 320.9 | 25.6 |
| HP 305 x 223 | 223 | 337.9 | 325.7 | 30.4 |
| HP 320 x 88 | 88.5 | 303.0 | 304.0 | 12.0 |
| HP 320 x 103 | 103 | 307.0 | 306.0 | 14.0 |
| HP 320 x 117 | 117 | 311.0 | 308.0 | 16.0 |
| HP 320 x 147 | 147 | 319.0 | 312.0 | 20.0 |
| HP 320 x 184 | 184 | 329.0 | 317.0 | 25.0 |
| HP 360 x 109 | 109 | 346.4 | 371.0 | 12.9 |
| HP 360 x 133 | 133 | 352.0 | 373.8 | 15.7 |
| HP 360 x 152 | 152 | 356.4 | 376.0 | 17.9 |
| HP 360 x 174 | 174 | 361.4 | 378.5 | 20.4 |
| HP 360 x 180 | 180 | 362.9 | 378.8 | 21.1 |
| HP 400 x 122 | 122 | 348.0 | 390.0 | 14.0 |
| HP 400 x 140 | 140 | 352.0 | 392.0 | 16.0 |
| HP 400 x 158 | 158 | 356.0 | 394.0 | 18.0 |
| HP 400 x 176 | 176 | 360.0 | 396.0 | 20.0 |
| HP 400 x 194 | 194 | 364.0 | 398.0 | 22.0 |
| HP 400 x 213 | 213 | 368.0 | 400.0 | 24.0 |
| HP 400 x 231 | 231 | 372.0 | 402.0 | 26.0 |

I profile and cone flange (type IPN)

| | | | | |
|----------------|------|-----|-----|------|
| IPN 80 | 5.94 | 80 | 42 | 5.9 |
| IPN 100 | 8.34 | 100 | 50 | 6.8 |
| IPN 120 | 11.1 | 120 | 58 | 7.7 |
| IPN 140 | 14.3 | 140 | 66 | 8.6 |
| IPN 160 | 17.9 | 160 | 74 | 9.5 |
| IPN 180 | 21.9 | 180 | 82 | 10.4 |
| IPN 200 | 26.2 | 200 | 90 | 11.3 |
| IPN 220 | 31.3 | 220 | 98 | 12.2 |
| IPN 240 | 36.2 | 240 | 106 | 13.1 |
| IPN 260 | 41.9 | 260 | 113 | 14.1 |
| IPN 280 | 47.9 | 280 | 119 | 15.2 |
| IPN 300 | 54.2 | 300 | 125 | 16.2 |
| IPN 320 | 61.0 | 320 | 131 | 17.3 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|----------------|------------------|-----------|-----------|-----------|
| IPN 340 | 68.0 | 340 | 137 | 18.3 |
| IPN 360 | 76.1 | 360 | 143 | 19.5 |
| IPN 380 | 84.0 | 380 | 149 | 20.5 |
| IPN 400 | 92.4 | 400 | 155 | 21.6 |
| IPN 450 | 115 | 450 | 170 | 24.3 |
| IPN 500 | 141 | 500 | 185 | 27 |
| IPN 550 | 166 | 550 | 200 | 30 |
| IPN 600 | 199 | 600 | 215 | 32.4 |

U profile with a slanted flange (types UPN/U)

| | | | | |
|----------------|------|-----|----|------|
| UPN 50 | 5.59 | 50 | 38 | 7.0 |
| UPN 65 | 7.09 | 65 | 42 | 7.5 |
| UPN 80 | 8.64 | 80 | 45 | 8.0 |
| UPN 100 | 10.6 | 100 | 50 | 8.5 |
| UPN 120 | 13.4 | 120 | 55 | 9.0 |
| UPN 140 | 16.0 | 140 | 60 | 10.0 |
| UPN 160 | 18.8 | 160 | 65 | 10.5 |
| UPN 180 | 22.0 | 180 | 70 | 11.0 |
| UPN 200 | 25.3 | 200 | 75 | 11.5 |
| UPN 220 | 29.4 | 220 | 80 | 12.5 |
| UPN 240 | 33.2 | 240 | 85 | 13.0 |

| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|----------------|------------------|-----------|-----------|-----------|
| UPN 260 | 37.9 | 260 | 90 | 14.0 |
| UPN 280 | 41.8 | 280 | 95 | 15.0 |
| UPN 300 | 46.2 | 300 | 100 | 16.0 |
| UPN 320 | 59.5 | 320 | 100 | 17.5 |
| UPN 350 | 60.6 | 350 | 100 | 16.0 |
| UPN 380 | 63.1 | 380 | 102 | 16.0 |
| UPN 400 | 71.8 | 400 | 110 | 18.0 |

U profiles and parallel flanges (type UPE)

| | | | | |
|----------------|------|-----|----|------|
| UPE 80 | 7.90 | 80 | 50 | 7.0 |
| UPE 100 | 9.82 | 100 | 55 | 7.5 |
| UPE 120 | 12.1 | 120 | 60 | 8.0 |
| UPE 140 | 14.5 | 140 | 65 | 9.0 |
| UPE 160 | 17.0 | 160 | 70 | 9.5 |
| UPE 180 | 19.7 | 180 | 75 | 10.5 |
| UPE 200 | 22.8 | 200 | 80 | 11.0 |
| UPE 220 | 26.6 | 220 | 85 | 12.0 |
| UPE 240 | 30.2 | 240 | 90 | 12.5 |

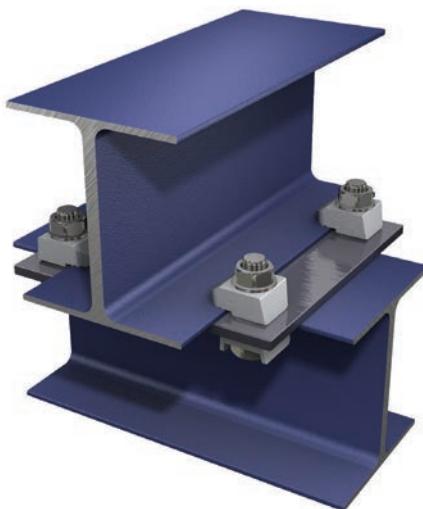
| Name | Weight (kg/m) | h (mm) | b (mm) | t (mm) |
|----------------|------------------|-----------|-----------|-----------|
| UPE 270 | 35.2 | 270 | 95 | 13.5 |
| UPE 300 | 44.4 | 300 | 100 | 15.0 |
| UPE 330 | 53.2 | 330 | 105 | 16.0 |
| UPE 360 | 61.2 | 360 | 110 | 17.0 |
| UPE 400 | 72.2 | 400 | 115 | 18.0 |

Crane profiles

| | | | | |
|-------------|-------|-----|-----|----|
| A45 | 22.1 | 55 | 125 | 8 |
| A55 | 31.8 | 65 | 150 | 9 |
| A65 | 43.1 | 75 | 175 | 10 |
| A75 | 56.2 | 85 | 200 | 11 |
| A100 | 74.3 | 95 | 200 | 12 |
| A120 | 100 | 105 | 220 | 14 |
| A150 | 150.3 | 150 | 220 | 14 |



4.4 Examples of use



Crossing profile beams



Profile beams connected in parallel



Crossing profile beams and sloping installation support



U profile beam crossed against the beam



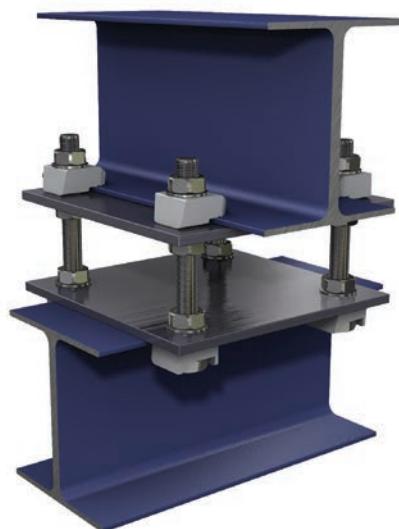
Crossing U profile beam and beam, U beam under the beam



Connecting a horizontal beam with a perforated end plate to the vertical beam



Crossing beams with an installation support



Profile beam cross joint where installation plates and threaded rods are used to form a space



Angle profile against an angle profile



U profile beam crossed against the beam



Angle profile serving as a support to the cable duct against a steel beam



Square plate with an end plate against a steel beam

4.5 Bracket clamps

Bracket clamps, type BA

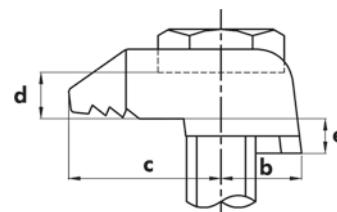
Hot dip galvanised steel
Material: Spheroidal graphite cast iron

Usage:

- straight and slanted flange $\leq 8^\circ$
- suitable spacers: type BH, BF1, BG1
- the BA type features a niche where the hex bolt head locks in place when the nut is tightened

ÜZ

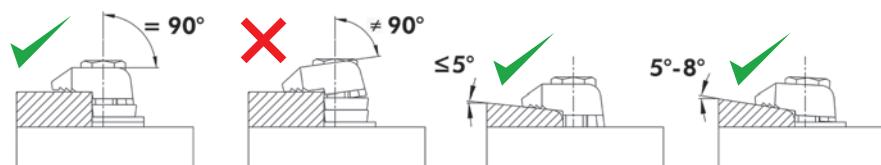
**General building
control approval DIBt
Z-14.4-483**



| Bolt Ø | b mm | c mm | d mm | Nose height e mm | Width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recom- mendation ² kN | Product number | pcs |
|------------|---------|---------|---------|---------------------|-------------|-------------------------|---|---|---------------------|------|
| M8 | 9 | 16 | 5 | 4 | 20 | 6 | 3.57 | - | 0485 010 804 | 75/1 |
| M10 | 12 | 20 | 6 | 4 | 26 | 20 | 13.57 | - | 0485 011 004 | 50/1 |
| | | | | 5 | | | | | 0485 011 005 | |
| | | | | 7 | | | | | 0485 011 007 | |
| | | | | 4.5 | | | | | 0485 011 204 | |
| M12 | 15 | 25.5 | 7 | 6 | 28.5 | 70 | 18.86 | 1.86 | 0485 011 206 | 40/1 |
| | | | | 9.5 | | | | | 0485 011 209 | |
| | | | | 5.5 | | | | | 0485 011 605 | |
| M16 | 17 | 31 | 9 | 8 | 36 | 150 | 34.21 | 3.43 | 0485 011 608 | 25/1 |
| | | | | 11 | | | | | 0485 011 611 | |
| | | | | 7 | | | | | 0485 012 007 | |
| M20 | 21 | 35 | 11 | 10 | 44 | 290 | 67.64 | 6.79 | 0485 012 010 | 15/1 |
| | | | | 12.5 | | | | | 0485 012 012 | |
| | | | | 9 | | | | | 0485 012 409 | |
| M24 | 26 | 49 | 13 | 12 | 53 | 490 | 91.43 | 9.14 | 0485 012 412 | 8/1 |
| | | | | 16 | | | | | 0485 012 416 | |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft $N_{zul} = N_{R,d} / \gamma_f$ (Partial safety factor $\gamma_f = 1.4$)

² The values are applied to the screw fastening (4 bolts), load per bolt shaft $V_{zul} = N_{R,d} / \gamma_f$ (Partial safety factor $\gamma_f = 1.4$)



Installation on a straight flange

Installation on a slanted flange

Bracket clamps, type BT and BW

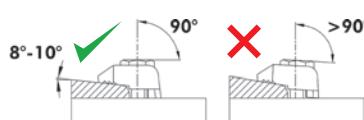
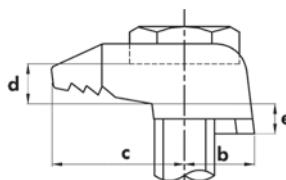
Type BT

Hot dip galvanised steel

Material: Spheroidal graphite cast iron

Usage:

- Slanted flange 8–10°
- suitable spacers: type BH, BF1, BG1
- The BT type features a niche where the hex bolt head locks in place when the nut is tightened



Installation on a slanted flange



| Bolt Ø | b mm | c mm | d mm | Nose height e mm | Width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recommendation ² kN | Product number | pcs |
|------------|------|------|------|------------------|----------|----------------------|--|--|----------------|------|
| M12 | 15 | 25.5 | 7 | 4 | 28.5 | 70 | 23.00 | 1.3 | 0485 031 204 | 40/1 |
| | | | | 6 | | | | | 0485 031 206 | |
| M16 | 17 | 31 | 9 | 6 | 36 | 150 | 39.48 | 3.9 | 0485 031 606 | 25/1 |
| | | | | 8 | | | | | 0485 031 608 | |
| M20 | 21 | 35 | 11 | 7 | 44 | 290 | 65.88 | 11 | 0485 032 007 | 15/1 |
| | | | | 10 | | | | | 0485 032 010 | |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² The values are applied to the screw fastening (4 bolts), load per bolt shaft

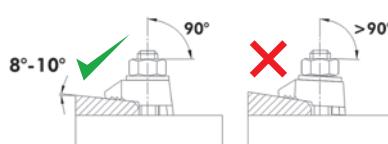
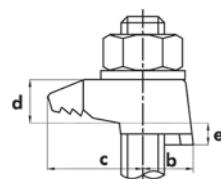
Type BW

Hot dip galvanised steel

Material: Spheroidal graphite cast iron

Usage:

- slanted flange 8–10°
- suitable spacers: type BH, BF1, BG1
- the BW clamp features a flat surface to ensure that the bolt head can be tightened all the way.



Installation on a slanted flange



| Bolt Ø | b mm | c mm | d mm | Nose height e mm | Width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recommendation ² kN | Product number | pcs |
|------------|------|------|------|------------------|----------|----------------------|--|--|----------------|------|
| M12 | 15 | 25.5 | 13 | 4 | 28.5 | 70 | 23.00 | 1.3 | 0485 041 204 | 40/1 |
| | | | | 6 | | | | | 0485 041 206 | |
| M16 | 17 | 31 | 17 | 6 | 36 | 150 | 39.48 | 3.9 | 0485 041 606 | 25/1 |
| | | | | 8 | | | | | 0485 041 608 | |
| M20 | 21 | 35 | 21 | 7 | 44 | 290 | 65.88 | 11 | 0485 042 007 | 15/1 |
| | | | | 10 | | | | | 0485 042 010 | |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² The values are applied to the screw fastening (4 bolts), load per bolt shaft

Spacers BH BH/BF1/BG1

Type BH

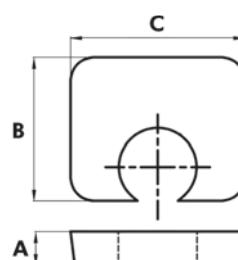
GEOMET® 321 coated steel

Type BF1, BG1

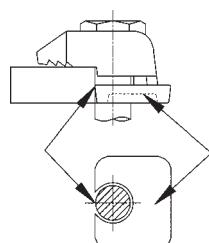
Hot dip galvanised steel

Material: Spheroidal graphite cast iron

- The type BH, BF1 and BG1 spacers are intended to be used with type BA, BB, BT and BW bracket clamps.
- They increase the length of the clamp and ensure that the clamp settles firmly on the flange
- The spacers can be joined together.
- The spacers are attached on the bolt between the clamp and installation plate or structural component.



| Spacer type | Bolt Ø | A mm | B mm | C mm | Product num- | pcs |
|-------------|--------|------|------|------|---------------------|-------|
| BH | M8 | 2 | 15 | 22 | 0485 070 82 | 150/1 |
| | M10 | 2 | 20 | 28 | 0485 071 02 | |
| | M12 | 2.5 | 24 | 31 | 0485 071 225 | |
| | M16 | 3 | 29 | 38 | 0485 071 63 | |
| | M20 | 4 | 33 | 44 | 0485 072 04 | |
| | M24 | 4 | 45 | 55 | 0485 072 44 | |
| BF1 | M8 | 4 | 14 | 22 | 0485 050 804 | 250/1 |
| | M10 | 5 | 18 | 28 | 0485 051 005 | 125/1 |
| | M12 | 6 | 22 | 30 | 0485 051 206 | 100/1 |
| | M16 | 8 | 29 | 35 | 0485 051 608 | 50/1 |
| | M20 | 10 | 33 | 43 | 0485 052 010 | 50/1 |
| | M24 | 12 | 45 | 55 | 0485 052 412 | 25/1 |
| BG1 | M8 | 8 | 14 | 22 | 0485 060 808 | 100/1 |
| | M10 | 10 | 18 | 28 | 0485 061 010 | 50/1 |
| | M12 | 12 | 22 | 30 | 0485 061 212 | 100/1 |
| | M16 | 16 | 29 | 35 | 0485 061 616 | 50/1 |
| | M20 | 20 | 43 | 43 | 0485 062 020 | 20/1 |
| | M24 | 24 | 45 | 55 | 0485 062 424 | 10/1 |



Spacer installation:

- Open side down as shown in the figure so that the contact surface between the bracket clamp and spacer is even.
- The opening must be placed on the bolt, facing the bracket.

Bracket clamp type BK

Hot dip galvanised steel

Material: Spheroidal graphite cast iron

M8, M10, M12

M16, M20, M24

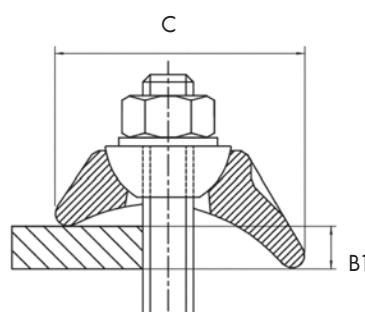


Usage:

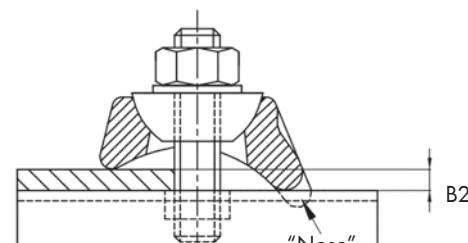
- straight and slanted flange $\leq 15^\circ$
- suitable spacers: type BF2, BG2
- self-adjusting

Instructions:

- The use of a BK clamp is recommended when the exact thickness of the flange cannot be determined or the thickness varies inside the structure.
- Thanks to the wide rear section, the bracket is perfect for narrowing oval holes and for use at the open end of a C rail.

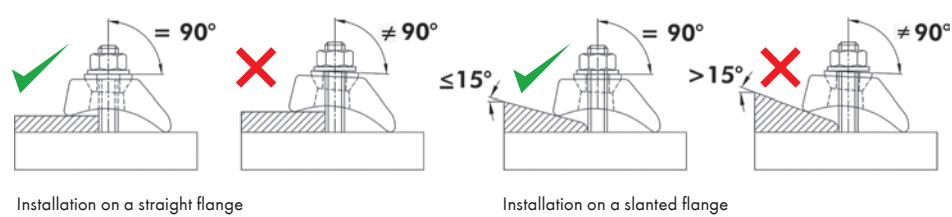


M8-M24 on flat surface



M8-M12 for oval holes or C rails

- Clamps for bolt diameters M8, M10 and M12 feature a protrusion that fits in the opening in the C rail. This is to prevent the clamp from turning during installation.
- The BK clamp features a flat surface to ensure that the bolt head can be tightened all the way.



| Bolt Ø | B1 mm | B2 mm | C mm | Width mm | "Nose" width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recommendation ² kN | Product number | pcs |
|------------|-------|-------|------|----------|-----------------|----------------------|--|--|-------------------|------|
| M8 | 3-12 | 3-9 | 42 | 41 | 22 | 6 | 5.00 | 0.26 | 0485 080 8 | 20/1 |
| M10 | 3-15 | 3-12 | 54 | 41 | 22 | 20 | 10.00 | 0.58 | 0485 081 0 | |
| M12 | 3-18 | 3-15 | 48 | 41 | 22 | 70 | 24.48 | 1.41 | 0485 081 2 | |
| M16 | 3-24 | - | 61 | 47 | - | 150 | 41.00 | 3.39 | 0485 081 6 | |
| M20 | 3-30 | - | 73 | 58 | - | 290 | 88.24 | 5.63 | 0485 082 0 | 10/1 |
| M24 | 3-36 | - | 86 | 75 | - | 490 | 51.00 | 18.00 | 0485 082 4 | |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² The values are applied to the screw fastening (4 bolts), load per bolt shaft

Bracket clamps, type BE1 and BE2

Hot dip galvanised steel

Material: Spheroidal graphite cast iron

Usage:

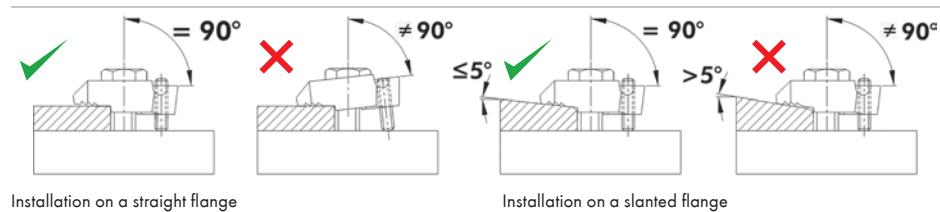
- straight and slanted flange $\leq 5^\circ$
- suitable spacers: type BF2, BG2
- the adjustment screw in the back of the clamp can be used to fit the clamp to the flange.

Instructions:

The use of BE1 and BE2 clamps is recommended when the exact thickness of the flange cannot be determined or the thickness varies inside the structure.

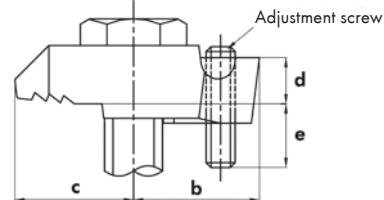
Type BE1

The BE1 type features a niche where the hex bolt head locks in place when the nut is tightened



Installation on a straight flange

Installation on a slanted flange



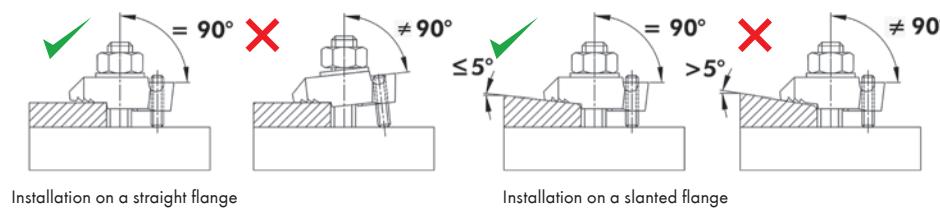
| Bolt Ø | b mm | c mm | d mm | Width mm | Threaded pin Ø | Adjustment screw key size mm | e mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recommendation ² kN | Product no. | pcs |
|------------|------|------|------|----------|----------------|------------------------------|-------|----------------------|--|--|-------------------|------|
| M10 | 20 | 20 | 6 | 26 | M6 | 3 | 5-20 | 20 | 10.00 | - | 0485 091 0 | 50/1 |
| M12 | 26 | 25.5 | 7 | 28.5 | M6 | 3 | 6-22 | 70 | 14.88 | 1.3 | 0485 091 2 | 40/1 |
| M16 | 30 | 31 | 9 | 36 | M8 | 4 | 7-23 | 150 | 33.00 | 3.9 | 0485 091 6 | 20/1 |
| M20 | 35 | 34 | 11 | 44 | M10 | 5 | 8-24 | 290 | 64.48 | 11 | 0485 092 0 | 10/1 |
| M24 | 49 | 49 | 13 | 53 | M12 | 6 | 10-30 | 490 | 84.40 | 18 | 0485 092 4 | 5/1 |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² The values are applied to the screw fastening (4 bolts), load per bolt shaft

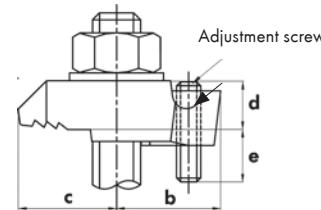
Type BE2

The BE2 clamp features a flat surface to ensure that the bolt head can be tightened all the way.



Installation on a straight flange

Installation on a slanted flange



| Bolt Ø | b mm | c mm | d mm | Width mm | Threaded pin Ø | Adjustment screw key size | e mm | Tightening torque Nm | Traction load recommendation ¹ kN | Transverse load recommendation ² kN | Product no. | pcs |
|------------|------|------|------|----------|----------------|---------------------------|------|----------------------|--|--|-------------------|------|
| M12 | 26 | 25.5 | 13 | 28.5 | M6 | 3 | 6-22 | 70 | 14.88 | 1.3 | 0485 101 2 | 40/1 |
| M16 | 30 | 31 | 17 | 36 | M8 | 4 | 7-23 | 150 | 33.00 | 3.9 | 0485 101 6 | 20/1 |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

² The values are applied to the screw fastening (4 bolts), load per bolt shaft

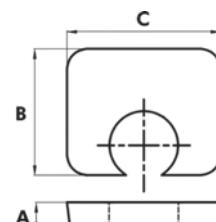
Spacers, type BF2/BG2

Hot dip galvanised steel

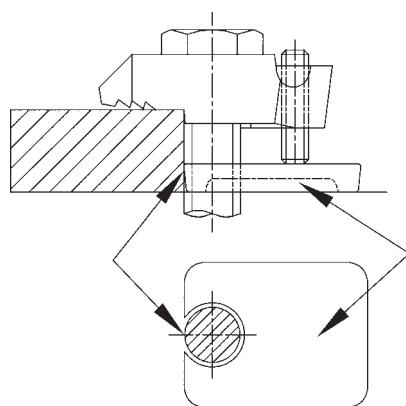
Material: Spheroidal graphite cast iron

Usage:

- Usable with **types BK, BE1 and BE2**
- The spacers can be joined together.
- They increase the length of the clamp and ensure that the clamp settles firmly on the flange
- The spacers are attached on the bolt between the clamp and installation plate or structural component.



| Spacer type | Bolt Ø | A mm | B mm | C mm | Product no. | pcs |
|-------------|--------|------|------|------|--------------|------|
| BF2 | M8 | 4 | 24 | 22 | 0485 110 804 | 75/1 |
| | M10 | 5 | 30 | 28 | 0485 111 005 | 75/1 |
| | M12 | 6 | 39 | 30 | 0485 111 206 | 50/1 |
| | M16 | 8 | 49 | 35 | 0485 111 608 | 50/1 |
| | M20 | 10 | 58 | 43 | 0485 112 010 | 20/1 |
| | M24 | 12 | 77 | 55 | 0485 112 412 | 10/1 |
| BG2 | M8 | 8 | 24 | 22 | 0485 120 808 | 50/1 |
| | M10 | 10 | 30 | 28 | 0485 121 010 | 50/1 |
| | M12 | 12 | 39 | 30 | 0485 121 212 | 50/1 |
| | M16 | 16 | 49 | 35 | 0485 121 616 | 25/1 |
| | M20 | 20 | 58 | 43 | 0485 122 020 | 12/1 |
| | M24 | 24 | 77 | 55 | 0485 122 424 | 10/1 |



Spacer installation:

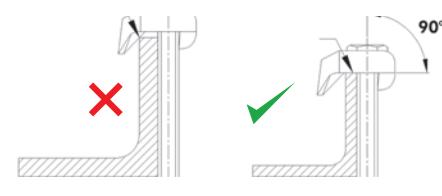
- Open side down as shown in the figure so that the contact surface between the bracket clamp and spacer is even.
- The opening must be placed on the bolt, facing the bracket.

Bracket clamps, types BC and BD

Hot dip galvanised steel

Instructions:

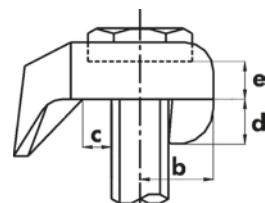
- The BC/BD bracket clamp is intended to be used for edge installation. The clamp fastens to the flange edge of profiles and beams.



Note! BC and BD are not suitable for transverse loading!

Type BC

- The BC type features a niche where the hex bolt head locks in place when the nut is tightened

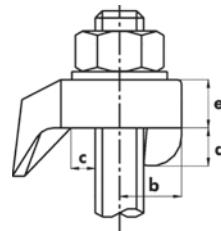


| Bolt Ø | b mm | c mm | d mm | e mm | Width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Product number | pcs |
|------------|------|------|------|------|----------|----------------------|--|-------------------|------|
| M8 | 9 | 5 | 6 | 5 | 22 | 3 | 5 | 0485 130 8 | 50/1 |
| M10 | 12 | 4 | 7.5 | 6 | 29 | 10 | 10 | 0485 131 0 | 50/1 |
| M12 | 15 | 6.5 | 9.5 | 7 | 31.5 | 35 | 17.3 | 0485 131 2 | 20/1 |
| M16 | 17 | 8 | 11.5 | 9 | 41 | 75 | 30 | 0485 131 6 | 15/1 |
| M20 | 21 | 9 | 13.5 | 11 | 49.5 | 145 | 44 | 0485 132 0 | 10/1 |
| M24 | 26 | 13 | 17 | 13 | 60 | 245 | 68.7 | 0485 132 4 | 5/1 |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft

Type BD

- the BD clamp features a flat surface to ensure that the bolt head can be tightened all the way.



| Bolt Ø | b mm | c mm | d mm | e mm | Width mm | Tightening torque Nm | Traction load recommendation ¹ kN | Product number | pcs |
|------------|------|------|------|------|----------|----------------------|--|-------------------|------|
| M8 | 9 | 5 | 6 | 9 | 22 | 3 | 5 | 0485 140 8 | 50/1 |
| M10 | 12 | 4 | 7.5 | 11 | 29 | 10 | 10 | 0485 141 0 | 50/1 |
| M12 | 15 | 6.5 | 9.5 | 12 | 31.5 | 35 | 17.3 | 0485 141 2 | 20/1 |
| M16 | 17 | 8 | 11.5 | 17 | 41 | 75 | 30 | 0485 141 6 | 15/1 |
| M20 | 21 | 9 | 13.5 | 21 | 49.5 | 145 | 44 | 0485 142 0 | 10/1 |
| M24 | 26 | 13 | 17 | 25 | 60 | 245 | 68.7 | 0485 142 4 | 5/1 |

¹ The values are applied to the screw fastening (4 bolts), load per bolt shaft



FASTENERS FOR STEEL CONSTRUCTION



SB screw assembly, partial thread For non-pretensioned connections in steel structures

EN 15048-1, steel 8.8, hot dip galvanised

- **Material :** Steel
- **Surface :** Hot-dip galvanised
- **EN standard :** 15048-1

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506012 45 | M12 | 45 mm | M12X45 (pack 50 pcs) | 12 mm | 68.100 g |
| 506012 50 | M12 | 50 mm | M12X50 (pack 50 pcs) | 12 mm | 70.000 g |
| 506012 55 | M12 | 55 mm | M12X55 (pack 100 pcs) | 12 mm | 73.000 g |
| 506012 60 | M12 | 60 mm | M12X60 (pack 50 pcs) | 12 mm | 78.000 g |
| 506012 65 | M12 | 65 mm | M12X65 (pack 50 pcs) | 12 mm | 82.000 g |
| 506012 70 | M12 | 70 mm | M12X70 (pack 50 pcs) | 12 mm | 85.000 g |
| 506012 80 | M12 | 80 mm | M12X80 (pack 50 pcs) | 12 mm | 93.000 g |
| 506012 90 | M12 | 90 mm | M12X90 (pack 50 pcs) | 12 mm | 104.500 g |
| 506012 100 | M12 | 100 mm | M12X100 (pack 50 pcs) | 12 mm | 100.000 g |
| 506012 110 | M12 | 110 mm | M12X110 (pack 50 pcs) | 12 mm | 131.000 g |
| 506012 120 | M12 | 120 mm | M12X120 (pack 50 pcs) | 12 mm | 127.000 g |
| 506012 130 | M12 | 130 mm | M12X130 (pack 50 pcs) | 12 mm | 138.800 g |
| 506012 140 | M12 | 140 mm | M12X140 (pack 50 pcs) | 12 mm | 149.000 g |
| 506016 55 | M16 | 55 mm | M16X55 (pack 25 pcs) | 16 mm | 143.000 g |
| 506016 60 | M16 | 60 mm | M16X60 (pack 25 pcs) | 16 mm | 150.000 g |
| 506016 65 | M16 | 65 mm | M16X65 (pack 25 pcs) | 16 mm | 161.000 g |
| 506016 70 | M16 | 70 mm | M16X70 (pack 25 pcs) | 16 mm | 170.000 g |
| 506016 75 | M16 | 75 mm | M16X75 (pack 25 pcs) | 16 mm | 173.000 g |
| 506016 80 | M16 | 80 mm | M16X80 (pack 25 pcs) | 16 mm | 184.000 g |
| 506016 90 | M16 | 90 mm | M16X90 (pack 25 pcs) | 16 mm | 202.000 g |
| 506016 100 | M16 | 100 mm | M16X100 (pack 25 pcs) | 16 mm | 220.000 g |
| 506016 110 | M16 | 110 mm | M16X110 (pack 25 pcs) | 16 mm | 235.000 g |
| 506016 120 | M16 | 120 mm | M16X120 (pack 25 pcs) | 16 mm | 249.000 g |
| 506016 130 | M16 | 130 mm | M16X130 (pack 25 pcs) | 16 mm | 260.000 g |
| 506016 140 | M16 | 140 mm | M16X140 (pack 25 pcs) | 16 mm | 278.500 g |
| 506016 150 | M16 | 150 mm | M16X150 (pack 25 pcs) | 16 mm | 289.000 g |
| 506016 160 | M16 | 160 mm | M16X160 (pack 25 pcs) | 16 mm | 309.000 g |
| 506016 180 | M16 | 180 mm | M16X180 (pack 25 pcs) | 16 mm | 338.000 g |
| 506016 200 | M16 | 200 mm | M16X200 (pack 25 pcs) | 16 mm | 369.000 g |
| 506020 60 | M20 | 60 mm | M20X60 (pack 25 pcs) | 20 mm | 262.000 g |
| 506020 65 | M20 | 65 mm | M20X65 (pack 25 pcs) | 20 mm | 281.000 g |
| 506020 70 | M20 | 70 mm | M20X70 (pack 25 pcs) | 20 mm | 287.000 g |
| 506020 75 | M20 | 75 mm | M20X75 (pack 25 pcs) | 20 mm | 298.000 g |
| 506020 80 | M20 | 80 mm | M20X80 (pack 25 pcs) | 20 mm | 312.000 g |
| 506020 90 | M20 | 90 mm | M20X90 (pack 25 pcs) | 20 mm | 326.000 g |
| 506020 100 | M20 | 100 mm | M20X100 (pack 25 pcs) | 20 mm | 365.000 g |
| 506020 110 | M20 | 110 mm | M20X110 (pack 25 pcs) | 20 mm | 389.000 g |
| 506020 120 | M20 | 120 mm | M20X120 (pack 25 pcs) | 20 mm | 409.000 g |
| 506020 130 | M20 | 130 mm | M20X130 (pack 25 pcs) | 20 mm | 437.000 g |
| 506020 140 | M20 | 140 mm | M20X140 (pack 25 pcs) | 20 mm | 452.000 g |
| 506020 160 | M20 | 160 mm | M20X160 (pack 25 pcs) | 20 mm | 497.000 g |
| 506020 180 | M20 | 180 mm | M20X180 (pack 10 pcs) | 20 mm | 560.000 g |

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|------------|--------------------------------|--------|-----------------------|------------------|---------------------------|
| 506020 200 | M20 | 200 mm | M20X200 (pack 10 pcs) | 20 mm | 607.000 g |
| 506024 70 | M24 | 70 mm | M24X70 (pack 10 pcs) | 24 mm | 436.000 g |
| 506024 75 | M24 | 75 mm | M24X75 (pack 10 pcs) | 24 mm | 465.000 g |
| 506024 80 | M24 | 80 mm | M24X80 (pack 10 pcs) | 24 mm | 487.000 g |
| 506024 90 | M24 | 90 mm | M24X90 (pack 10 pcs) | 24 mm | 521.000 g |
| 506024 100 | M24 | 100 mm | M24X100 (pack 10 pcs) | 24 mm | 555.000 g |
| 506024 110 | M24 | 110 mm | M24X110 (pack 10 pcs) | 24 mm | 589.000 g |
| 506024 120 | M24 | 120 mm | M24X120 (pack 10 pcs) | 24 mm | 623.000 g |
| 506024 130 | M24 | 130 mm | M24X130 (pack 10 pcs) | 24 mm | 657.000 g |
| 506024 140 | M24 | 140 mm | M24X140 (pack 10 pcs) | 24 mm | 694.000 g |
| 506024 150 | M24 | 150 mm | M24X150 (pack 10 pcs) | 24 mm | 720.000 g |
| 506024 160 | M24 | 160 mm | M24X160 (pack 10 pcs) | 24 mm | 765.000 g |
| 506024 180 | M24 | 180 mm | M24X180 (pack 10 pcs) | 24 mm | 784.000 g |
| 506024 200 | M24 | 200 mm | M24X200 (pack 15 pcs) | 24 mm | 891.400 g |
| 506030 90 | M30 | 90 mm | M30X90 (pack 10 pcs) | 30 mm | 932.000 g |
| 506030 100 | M30 | 100 mm | M30X100 (pack 10 pcs) | 30 mm | 987.000 g |
| 506030 110 | M30 | 110 mm | M30X110 (pack 10 pcs) | 30 mm | 1043.000 g |
| 506030 120 | M30 | 120 mm | M30X120 (pack 10 pcs) | 30 mm | 1100.000 g |
| 506030 130 | M30 | 130 mm | M30X130 (pack 10 pcs) | 30 mm | 1140.000 g |
| 506030 140 | M30 | 140 mm | M30X140 (pack 10 pcs) | 30 mm | 1195.000 g |
| 506030 150 | M30 | 150 mm | M30X150 (pack 10 pcs) | 30 mm | 1250.000 g |
| 506030 160 | M30 | 160 mm | M30X160 (pack 10 pcs) | 30 mm | 1310.000 g |
| 506030 180 | M30 | 180 mm | M30X180 (pack 10 pcs) | 30 mm | 1420.000 g |
| 506030 200 | M30 | 200 mm | M30X200 (pack 5 pcs) | 30 mm | 1524.000 g |
| 506030 220 | M30 | 220 mm | M30X220 (pack 5 pcs) | 30 mm | 1599.600 g |
| 506030 240 | M30 | 240 mm | M30X240 (pack 5 pcs) | 30 mm | 1850.000 g |
| 506030 260 | M30 | 260 mm | M30X260 (pack 5 pcs) | 30 mm | 1820.000 g |
| 506036 110 | M36 | 110 mm | M36X110 (pack 5 pcs) | 36 mm | 1569.800 g |
| 506036 120 | M36 | 120 mm | M36X120 (pack 5 pcs) | 36 mm | 1705.000 g |
| 506036 130 | M36 | 130 mm | M36X130 (pack 5 pcs) | 36 mm | 1786.000 g |
| 506036 140 | M36 | 140 mm | M36X140 (pack 5 pcs) | 36 mm | 1864.000 g |
| 506036 160 | M36 | 160 mm | M36X160 (pack 5 pcs) | 36 mm | 2021.000 g |



SB screw assembly, full thread For non-pretensioned connections in steel structures

EN 15048-1, steel 8.8, hot dip galvanised

- **Material:** Steel
- **Surface:** Hot-dip galvanised
- **EN standard:** 15048-1

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------|--------------------------------|--------|----------------------|------------------|---------------------------|
| 506112 30 | M12 | 30 mm | M12X30 (pack 50 pcs) | 12 mm | 54.400 g |
| 506112 35 | M12 | 35 mm | M12X35 (pack 50 pcs) | 12 mm | 58.200 g |
| 506112 40 | M12 | 40 mm | M12X40 (pack 50 pcs) | 12 mm | 58.000 g |
| 506112 45 | M12 | 45 mm | M12X45 (pack 50 pcs) | 12 mm | 68.100 g |

SB screw assembly, full thread For non-pretensioned connections in steel structures

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506112 50 | M12 | 50 mm | M12X50 (pack 50 pcs) | 12 mm | 65.000 g |
| 506112 60 | M12 | 60 mm | M12X60 (pack 50 pcs) | 12 mm | 72.000 g |
| 506112 70 | M12 | 70 mm | M12X70 (pack 50 pcs) | 12 mm | 80.000 g |
| 506112 80 | M12 | 80 mm | M12X80 (pack 50 pcs) | 12 mm | 85.000 g |
| 506112 90 | M12 | 90 mm | M12X90 (pack 50 pcs) | 12 mm | 94.000 g |
| 506112 100 | M12 | 100 mm | M12X100 (pack 50 pcs) | 12 mm | 101.000 g |
| 506112 120 | M12 | 120 mm | M12X120 (pack 50 pcs) | 12 mm | 112.000 g |
| 506116 30 | M16 | 30 mm | M16X30 (pack 25 pcs) | 16 mm | 110.800 g |
| 506116 35 | M16 | 35 mm | M16X35 (pack 25 pcs) | 16 mm | 117.800 g |
| 506116 40 | M16 | 40 mm | M16X40 (pack 25 pcs) | 16 mm | 124.800 g |
| 506116 45 | M16 | 45 mm | M16X45 (pack 25 pcs) | 16 mm | 131.800 g |
| 506116 50 | M16 | 50 mm | M16X50 (pack 25 pcs) | 16 mm | 136.800 g |
| 506116 55 | M16 | 55 mm | M16X55 (pack 25 pcs) | 16 mm | 142.600 g |
| 506116 60 | M16 | 60 mm | M16X60 (pack 25 pcs) | 16 mm | 149.600 g |
| 506116 70 | M16 | 70 mm | M16X70 (pack 50 pcs) | 16 mm | 163.600 g |
| 506116 80 | M16 | 80 mm | M16X80 (pack 25 pcs) | 16 mm | 181.000 g |
| 506116 90 | M16 | 90 mm | M16X90 (pack 25 pcs) | 16 mm | 191.000 g |
| 506116 100 | M16 | 100 mm | M16X100 (pack 25 pcs) | 16 mm | 201.000 g |
| 506116 110 | M16 | 110 mm | M16X110 (pack 25 pcs) | 16 mm | 212.000 g |
| 506116 120 | M16 | 120 mm | M16X120 (pack 25 pcs) | 16 mm | 226.000 g |
| 506116 140 | M16 | 140 mm | M16X140 (pack 25 pcs) | 16 mm | 300.000 g |
| 506120 30 | M20 | 30 mm | M20X30 (pack 25 pcs) | 20 mm | 203.000 g |
| 506120 35 | M20 | 35 mm | M20X35 (pack 25 pcs) | 20 mm | 214.000 g |
| 506120 40 | M20 | 40 mm | M20X40 (pack 25 pcs) | 20 mm | 224.000 g |
| 506120 45 | M20 | 45 mm | M20X45 (pack 25 pcs) | 20 mm | 234.000 g |
| 506120 50 | M20 | 50 mm | M20X50 (pack 25 pcs) | 20 mm | 245.000 g |
| 506120 55 | M20 | 55 mm | M20X55 (pack 25 pcs) | 20 mm | 255.000 g |
| 506120 60 | M20 | 60 mm | M20X60 (pack 25 pcs) | 20 mm | 266.000 g |
| 506120 70 | M20 | 70 mm | M20X70 (pack 25 pcs) | 20 mm | 277.000 g |
| 506120 80 | M20 | 80 mm | M20X80 (pack 25 pcs) | 20 mm | 294.000 g |
| 506120 90 | M20 | 90 mm | M20X90 (pack 25 pcs) | 20 mm | 320.000 g |
| 506120 100 | M20 | 100 mm | M20X100 (pack 25 pcs) | 20 mm | 341.000 g |
| 506120 110 | M20 | 110 mm | M20X110 (pack 25 pcs) | 20 mm | 362.000 g |
| 506120 120 | M20 | 120 mm | M20X120 (pack 25 pcs) | 20 mm | 383.000 g |
| 506120 130 | M20 | 130 mm | M20X130 (pack 25 pcs) | 20 mm | 400.000 g |
| 506120 140 | M20 | 140 mm | M20X140 (pack 25 pcs) | 20 mm | 430.000 g |
| 506120 150 | M20 | 150 mm | M20X150 (pack 25 pcs) | 20 mm | 461.000 g |
| 506124 50 | M24 | 50 mm | M24X50 (pack 10 pcs) | 24 mm | 396.000 g |
| 506124 60 | M24 | 60 mm | M24X60 (pack 10 pcs) | 24 mm | 426.000 g |
| 506124 70 | M24 | 70 mm | M24X70 (pack 10 pcs) | 24 mm | 435.000 g |
| 506124 80 | M24 | 80 mm | M24X80 (pack 10 pcs) | 24 mm | 456.000 g |
| 506124 90 | M24 | 90 mm | M24X90 (pack 25 pcs) | 24 mm | 486.000 g |
| 506124 100 | M24 | 100 mm | M24X100 (pack 25 pcs) | 24 mm | 536.000 g |
| 506124 110 | M24 | 110 mm | M24X110 (pack 25 pcs) | 24 mm | 557.000 g |
| 506124 120 | M24 | 120 mm | M24X120 (pack 20 pcs) | 24 mm | 583.000 g |
| 506124 130 | M24 | 130 mm | M24X130 (pack 20 pcs) | 24 mm | 628.000 g |
| 506124 140 | M24 | 140 mm | M24X140 (pack 20 pcs) | 24 mm | 644.000 g |
| 506130 70 | M30 | 70 mm | M30X70 (pack 10 pcs) | 30 mm | 852.000 g |
| 506130 80 | M30 | 80 mm | M30X80 (pack 10 pcs) | 30 mm | 860.000 g |
| 506130 90 | M30 | 90 mm | M30X90 (pack 10 pcs) | 30 mm | 912.000 g |
| 506130 110 | M30 | 110 mm | M30X110 (pack 10 pcs) | 30 mm | 982.000 g |
| 506130 120 | M30 | 120 mm | M30X120 (pack 10 pcs) | 30 mm | 1022.000 g |
| 506130 130 | M30 | 130 mm | M30X130 (pack 10 pcs) | 30 mm | 1160.000 g |

| Art. No. | Thread type x nominal diameter | Length | Type description | Nominal diameter | Product weight (per item) |
|-----------------|---------------------------------------|---------------|-------------------------|-------------------------|----------------------------------|
| 506130 140 | M30 | 140 mm | M30X140 (pack 10 pcs) | 30 mm | 1130.000 g |
| 506130 150 | M30 | 150 mm | M30X150 (pack 10 pcs) | 30 mm | 1164.000 g |
| 506130 160 | M30 | 160 mm | M30X160 (pack 10 pcs) | 30 mm | 1219.000 g |
| 506130 180 | M30 | 180 mm | M30X180 (pack 5 pcs) | 30 mm | 1371.000 g |
| 506130 200 | M30 | 200 mm | M30X200 (pack 5 pcs) | 30 mm | 300.000 g |



Flat washer for hexagonal screws and nuts

DIN 126, steel, hot dip galvanised

- **Material :** Steel
- **DIN :** 126
- **ISO :** 7091
- **Vickers hardness, HV :** 100 HV

| Art. No. | Type description | Product weight (per item) | Nominal diameter | Suitable for screw thread | Internal diameter x external diameter x thickness |
|-----------------|-------------------------|----------------------------------|-------------------------|----------------------------------|--|
| 54076 | M6 | 1.140 g | 6.6 mm | M6 | 6.6 x 12 x 1.6 mm |
| 54078 | M8 | 2.140 g | 9 m | M8 | 9 x 16 x 1.6 mm |
| 540710 | M10 | 4.080 g | 11 mm | M10 | 11 x 20 x 2 mm |
| 540712 | M12 | 4.450 g | 13.5 mm | M12 | 13.5 x 24 x 2.5 mm |
| 540714 | M14 | 8.600 g | 15.5 mm | M14 | 15.5 x 28 x 2.5 mm |
| 540716 | M16 | 11.300 g | 17.5 mm | M16 | 17.5 x 30 x 3 mm |
| 540720 | M20 | 17.200 g | 22 mm | M20 | 22 x 37 x 3 mm |
| 540722 | M22 | 12.600 g | 24 mm | M22 | 24 x 39 x 3 mm |
| 540724 | M24 | 32.300 g | 28 mm | M24 | 28 x 44 x 4 mm |
| 540727 | M27 | 42.300 g | 30 mm | M27 | 30 x 50 x 4 mm |
| 540730 | M30 | 53.600 g | 33 mm | M30 | 33 x 56 x 4 mm |
| 540733 | M33 | 75.400 g | 36 mm | M33 | 36 x 60 x 5 mm |
| 540736 | M36 | 92.000 g | 39 mm | M36 | 39 x 66 x 5 mm |
| 540739 | M39 | 133.000 g | 42 mm | M39 | 42 x 72 x 5 mm |
| 540742 | M42 | 183.000 g | 45 mm | M42 | 43 x 78 x 7 mm |
| 540745 | M45 | 220.000 g | 48 mm | M45 | 48 x 85 x 7 mm |
| 540748 | M48 | 255.000 g | 52 mm | M48 | 52 x 92 x 8 mm |



Flat washer for hexagonal screws and nuts

DIN 125, acid-proof steel A4

- **Material:** Stainless steel A4
- **DIN:** 125
- **ISO:** 7089
- **Vickers hardness, HV:** 140 HV

| Art. No. | Type description | Product weight (per item) | Nominal diameter | Suitable for screw thread | Internal diameter x external diameter x thickness |
|-----------------|-------------------------|----------------------------------|-------------------------|----------------------------------|--|
| 10092 | M2 | 0.010 g | 2.200 mm | M2 | 2.2 x 5 x 0.3 mm |
| 100925 | M2,5 | 0.100 g | 2.700 mm | M2,5 | 2.7 x 6 x 0.5 mm |
| 10093 | M3 | 0.120 g | 3.200 mm | M3 | 3.2 x 7 x 0.5 mm |
| 10094 | M4 | 0.310 g | 4.300 mm | M4 | 4.3 x 9 x 0.8 mm |
| 10095 | M5 | 0.440 g | 5.300 mm | M5 | 5.3 x 10 x 1 mm |
| 10096 | M6 | 1.140 g | 6.400 mm | M6 | 6.4 x 12 x 1.6 mm |
| 10098 | M8 | 2.140 g | 8.400 mm | M8 | 8.4 x 16 x 1.6 mm |
| 100910 | M10 | 4.080 g | 10.500 mm | M10 | 10.5 x 20 x 2 mm |
| 100912 | M12 | 6.270 g | 13.000 mm | M12 | 13 x 24 x 2.5 mm |
| 100914 | M14 | 8.600 g | 15.000 mm | M14 | 15 x 28 x 2.5 mm |
| 100916 | M16 | 11.300 g | 17.000 mm | M16 | 17 x 30 x 3 mm |
| 100918 | M18 | 14.700 g | 19.000 mm | M18 | 19 x 34 x 3 mm |
| 100920 | M20 | 17.200 g | 21.000 mm | M20 | 21 x 37 x 3 mm |
| 100922 | M22 | 18.400 g | 23.000 mm | M22 | 23 x 39 x 3 mm |
| 100924 | M24 | 32.300 g | 25.000 mm | M24 | 25 x 44 x 4 mm |
| 100927 | M27 | 42.300 g | 28.000 mm | M27 | 28 x 50 x 4 mm |
| 100930 | M30 | 53.600 g | 31.000 mm | M30 | 31 x 56 x 4 mm |
| 100933 | M33 | 75.400 g | 34.000 mm | M33 | 34 x 60 x 5 mm |
| 100936 | M36 | 92.000 g | 37.000 mm | M36 | 37 x 66 x 5 mm |
| 100939 | M39 | 133.000 g | 40.000 mm | M39 | 40 x 72 x 6 mm |
| 100942 | M42 | 183.000 g | 43.000 mm | M42 | 43 x 78 x 7 mm |
| 100945 | M45 | 188.000 g | 46.000 mm | M45 | 46 x 85 x 7 mm |



Threaded rod

DIN 975, steel 8.8, hot dip galvanized

- **Length:** 2000 mm
- **Material:** Steel
- **Surface:** Hot-dip galvanised
- **DIN:** 975

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|-----------------|---------------------------------------|-------------------------|----------------------------------|
| 095780 | M8 | M8X2000 | 628.000 g |
| 0957100 | M10 | M10X2000 | 1000.000 g |
| 0957120 | M12 | M12X2000 | 1450.000 g |
| 0957160 | M16 | M16X2000 | 2660.000 g |
| 0957200 | M20 | M20X2000 | 4160.000 g |
| 0957240 | M24 | M24X2000 | 6000.000 g |
| 0957270 | M27 | M27X2000 | 7630.000 g |
| 0957300 | M30 | M30X2000 | 9500.000 g |
| 0957330 | M33 | M33X2000 | 12000.000 g |
| 0957360 | M36 | M36X2000 | 13800.000 g |
| 0957390 | M39 | M39X2000 | 16242.000 g |



Threaded rod

DIN 975, stainless steel A4

- **Length:** 2000 mm
- **Material:** Stainless steel A4
- **Surface:** Bare
- **DIN:** 975
- **Identification colour:** Red

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|-----------------|---------------------------------------|-------------------------|----------------------------------|
| 095360 | M6 | M6X2000 | 354.000 g |
| 095380 | M8 | M8X2000 | 638.000 g |
| 0953100 | M10 | M10X2000 | 1000.000 g |
| 0953120 | M12 | M12X2000 | 1450.000 g |
| 0953160 | M16 | M16X2000 | 2660.000 g |

Threaded rod

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 0953200 | M20 | M20X2000 | 4160.000 g |
| 0953240 | M24 | M24X2000 | 6000.000 g |
| 0953300 | M30 | M30X2000 | 9500.000 g |
| 0953360 | M36 | M36X2000 | 13800.000 g |



Threaded rod

DIN 975, steel 8.8, zinc plated

- **Length :** 2000 mm
- **Material :** Steel
- **Surface :** Galvanised
- **DIN :** 975
- **Identification colour :** Yellow

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095960 | M6 | M6X2000 | 354.000 g |
| 095980 | M8 | M8X2000 | 550.000 g |
| 0959100 | M10.000 | M10X2000 | 970.000 g |
| 0959120 | M12 | M12X2000 | 1428.000 g |
| 0959160 | M16 | M16X2000 | 2660.000 g |
| 0959200 | M20 | M20X2000 | 4160.000 g |
| 0959240 | M24 | M24X2000 | 5934.000 g |
| 0959270 | M27 | M27X2000 | 7700.000 g |
| 0959300 | M30 | M30X2000 | 9500.000 g |
| 0959360 | M36 | M36X2000 | 13800.000 g |



Threaded rod

DIN 975, steel 4.6, zinc plated

- **Length :** 2000 mm
- **Material :** Steel
- **Surface :** Galvanised
- **DIN :** 975

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095850 | M5 | M5X2000 | 240.000 g |
| 095860 | M6 | M6X2000 | 330.000 g |
| 095880 | M8 | M8X2000 | 616.000 g |
| 0958100 | M10 | M10X2000 | 976.000 g |
| 0958120 | M12 | M12X2000 | 1275.000 g |
| 0958160 | M16 | M16X2000 | 2660.000 g |
| 0958200 | M20 | M20X2000 | 4160.000 g |
| 0958240 | M24 | M24X2000 | 6000.000 g |
| 0958270 | M27 | M27X2000 | 3850.000 g |
| 0958300 | M30 | M30X2000 | 9500.000 g |
| 0958360 | M36 | M36X2000 | 13800.000 g |



Fix master

Hexagon nut

DIN 934-8, strength class 8, hot dip galvanised

- **Material :** Steel
- **Surface :** Hot-dip galvanised
- **DIN :** 934
- **ISO :** 4032
- **Property class :** I8I

| Art. No. | Thread type x nominal diameter | Pitch | External drive | Height | Type description | Product weight (per item) | Width across corners |
|----------|--------------------------------|---------|----------------|--------|------------------|---------------------------|----------------------|
| 53176 | M6 | 1 mm | WS10 | 4.9 mm | M6 | 2.200 g | 11.05 mm |
| 53178 | M8 | 1.25 mm | WS13 | 6.5 mm | M8 | 4.800 g | 14.38 mm |
| 531710 | M10 | 1.5 mm | WS17 | 8 mm | M10 | 11.600 g | 18.9 mm |
| 531712 | M12 | 1.75 mm | WS19 | 10 mm | M12 | 17.300 g | 21.1 mm |
| 531716 | M16 | 2 mm | WS24 | 13 mm | M16 | 33.300 g | 26.75 mm |

Hexagon nut

| Art. No. | Thread type x nominal diameter | Pitch | External drive | Height | Type description | Product weight (per item) | Width across corners |
|----------|--------------------------------|--------|----------------|---------|------------------|---------------------------|----------------------|
| 531720 | M20 | 2.5 mm | WS30 | 16 mm | M20 | 54.300 g | 32.95 mm |
| 531724 | M24 | 3 mm | WS36 | 19 mm | M24 | 110.000 g | 39.55 mm |
| 531727 | M27 | 3 mm | WS41 | 22 mm | M27 | 148.000 g | 45.2 mm |
| 531730 | M30 | 3.5 mm | WS46 | 24.3 mm | M30 | 223.000 g | 50.85 mm |
| 531733 | M33 | 3.5 mm | WS50 | 27.4 mm | M33 | 288.000 g | 55.37 mm |
| 531736 | M36 | 4 mm | WS55 | 29.4 mm | M36 | 393.000 g | 60.79 mm |
| 531739 | M39 | 4 mm | WS60 | 31.8 mm | M39 | 502.000 g | 66.96 mm |
| 531742 | M42 | 4.5 mm | WS65 | 32.4 mm | M42 | 584.200 g | 72.09 mm |
| 531745 | M45 | 4.5 mm | WS70 | 34.4 mm | M45 | 800.000 g | 76.95 mm |
| 531748 | M48 | 5 mm | WS75 | 36.4 mm | M48 | 977.000 g | 82.6 mm |



Fix master

Hexagon nut

DIN 934 (~ISO 4032), A4-80, acid-proof

- **Material:** Stainless steel A4
- **Surface:** Bare
- **DIN:** 934
- **ISO:** 4032
- **Property class:** 80

| Art. No. | Thread type x nominal diameter | Pitch | Height | Type description | Product weight (per item) |
|-----------|--------------------------------|---------|--------|------------------|---------------------------|
| 100804 | M4 | 0.7 mm | 3.2 mm | M4 | 0.670 g |
| 100805 | M5 | 0.8 mm | 4 mm | M5 | 1.100 g |
| 100806 | M6 | 1 mm | 5 mm | M6 | 2.200 g |
| 100808 | M8 | 1.25 mm | 6.5 mm | M8 | 4.800 g |
| 1008010 | M10 | 1.5 mm | 8 mm | M10 | 10.400 g |
| 1008012 | M12 | 1.75 mm | 10 mm | M12 | 15.500 g |
| 1008016 | M16 | 2 mm | 13 mm | M16 | 30.290 g |
| 100802015 | M20 | 1.5 mm | 16 mm | M20X1,5 | 57.000 g |
| 1008020 | M20 | 2.5 mm | 16 mm | M20 | 56.500 g |
| 1008024 | M24 | 3 mm | 19 mm | M24 | 110.000 g |
| 1008030 | M30 | 3.5 mm | 24 mm | M30 | 223.000 g |
| 1008036 | M36 | 4 mm | 29 mm | M36 | 371.000 g |



Hexagon nut

DIN 934 (~ISO4032), strength class 8, zinc-electroplated

- **Material:** Steel
- **Surface:** Galvanised
- **DIN:** 934
- **ISO:** 4032

| Art. No. | Thread type x nominal diameter | Pitch | External drive | Height | Type description | Product weight (per item) | Width across corners | Property class |
|------------|--------------------------------|---------|----------------|--------|------------------|---------------------------|----------------------|----------------|
| 03172 | M2 | 0.4 mm | WS4 | 1.6 mm | M2 | 0.140 g | 4.38 mm | I8I |
| 031725 | M2.5 | 0.45 mm | WS5 | 2 mm | M2,5 | 0.280 g | 5.45 mm | I6I |
| 03173 | M3 | 0.5 mm | WS5.5 | 2.4 mm | M3 | 0.380 g | 6.01 mm | I8I |
| 031735 | M3.5 | 0.6 mm | WS6 | 2.8 mm | M3,5 | 0.510 g | 6.58 mm | I8I |
| 03174 | M4 | 0.7 mm | WS7 | 3.2 mm | M4 | 0.700 g | 7.66 mm | I8I |
| 03175 | M5 | 0.8 mm | WS8 | 4 mm | M5 | 1.230 g | 8.79 mm | I8I |
| 03176 | M6 | 1 mm | WS10 | 5 mm | M6 | 2.500 g | 11.05 mm | I8I |
| 03178 1 | M8 | 1 mm | WS13 | 6.5 mm | M8/1,0 | 5.200 g | 14.38 mm | I8I |
| 03178 | M8 | 1.25 mm | WS13 | 6.5 mm | M8 | 4.800 g | 14.38 mm | I8I |
| 031710 1 | M10 | 1 mm | WS17 | 8 mm | M10/1 | 10.900 g | 18.9 mm | I8I |
| 031710 | M10 | 1.5 mm | WS17 | 8 mm | M10 | 11.600 g | 18.9 mm | I8I |
| 031712 1 | M12 | 1 mm | WS19 | 10 mm | M12/1,0 | 17.300 g | 21.1 mm | I8I |
| 031712 125 | M12 | 1.25 mm | WS19 | 10 mm | M12/1,25 | 17.300 g | 21.1 mm | I8I |
| 031712 15 | M12 | 1.5 mm | WS19 | 10 mm | M12/1,5 | 17.300 g | 21.1 mm | I8I |
| 031712 | M12 | 1.75 mm | WS19 | 10 mm | M12 | 16.000 g | 21.1 mm | I8I |
| 031714 15 | M14 | 1.5 mm | WS22 | 11 mm | M14/1,5 | 25.000 g | 24.49 mm | I8I |
| 031714 | M14 | 2 mm | WS22 | 11 mm | M14 | 25.000 g | 24.49 mm | I8I |
| 031716 15 | M16 | 1.5 mm | WS24 | 13 mm | M16/1,5 | 23.300 g | 26.75 mm | I8I |
| 031716 | M16 | 2 mm | WS24 | 13 mm | M16 | 33.300 g | 26.75 mm | I8I |
| 031718 15 | M18 | 1.5 mm | WS27 | 15 mm | M18/1,5 | 49.400 g | 29.56 mm | I8I |
| 031718 | M18 | 2.5 mm | WS27 | 15 mm | M18 | 49.400 g | 29.56 mm | I8I |
| 031720 15 | M20 | 1.5 mm | WS30 | 16 mm | M20/1,5 | 64.400 g | 32.95 mm | I8I |
| 031720 | M20 | 2.5 mm | WS30 | 16 mm | M20 | 56.000 g | 32.95 mm | I8I |
| 031722 15 | M22 | 1.5 mm | WS32 | 18 mm | M22/1,5 | 67.000 g | 35.03 mm | I8I |
| 031722 | M22 | 2.5 mm | WS32 | 18 mm | M22 | 79.000 g | 35.03 mm | I8I |
| 031724 15 | M24 | 1.5 mm | WS36 | 19 mm | M24/1,5 | 100.000 g | 39.55 mm | I8I |
| 031724 2 | M24 | 2 mm | WS36 | 19 mm | M24/2,0 | 89.000 g | 39.55 mm | I8I |
| 031724 | M24 | 3 mm | WS36 | 19 mm | M24 | 110.000 g | 39.55 mm | I8I |
| 031727 2 | M27 | 2 mm | WS41 | 22 mm | M27/2,0 | 165.000 g | 45.2 mm | I8I |
| 031727 | M27 | 3 mm | WS41 | 22 mm | M27 | 146.500 g | 45.2 mm | I8I |
| 031730 15 | M30 | 1.5 mm | WS46 | 24 mm | M30/1,5 | 190.000 g | 50.85 mm | I8I |
| 031730 2 | M30 | 2 mm | WS46 | 24 mm | M30/2 | 195.400 g | 50.85 mm | I8I |
| 031730 | M30 | 3.5 mm | WS46 | 24 mm | M30 | 223.000 g | 50.85 mm | I8I |
| 031733 | M33 | 3.5 mm | WS50 | 26 mm | M33 | 288.000 g | 55.37 mm | I8I |
| 031736 15 | M36 | 1.5 mm | WS55 | 29 mm | M36/1,5 | 334.000 g | 60.79 mm | I8I |
| 031736 3 | M36 | 3 mm | WS55 | 29 mm | M36/3 | 347.000 g | 60.79 mm | I8I |

Hexagon nut

| Art. No. | Thread type x nominal diameter | Pitch | External drive | Height | Type description | Product weight (per item) | Width across corners | Property class |
|----------|--------------------------------|--------|----------------|---------|------------------|---------------------------|----------------------|----------------|
| 031736 | M36 | 4 mm | WS55 | 29 mm | M36 | 350.000 g | 60.79 mm | I8I |
| 031739 | M39 | 4 mm | WS60 | 31 mm | M39 | 455.000 g | 66.96 mm | I8I |
| 031742 3 | M42 | 3 mm | WS65 | 34 mm | M42/3,0 | 584.200 g | 72.09 mm | I8I |
| 031742 | M42 | 4.5 mm | WS65 | 34 mm | M42 | 584.200 g | 72.09 mm | I8I |
| 031745 3 | M45 | 3 mm | WS70 | 34.3 mm | M45/3,0 | 739.000 g | 76.95 mm | I8I |
| 031745 | M45 | 4.5 mm | WS70 | 34.3 mm | M45 | 800.000 g | 76.95 mm | I8I |
| 031748 3 | M48 | 3 mm | WS75 | 38 mm | M48X3 | 977.000 g | 82.6 mm | I8I |
| 031748 | M48 | 5 mm | WS75 | 38 mm | M48 | 977.000 g | 82.6 mm | I8I |



Hexagon screw, full thread

DIN 933, steel 8.8U, hot dip galvanised

- Manufactured in the tolerance range 6AZ for undersize thread (thread clearance) prior to any surface treatment (EN ISO 10684).
- Bolts comply with the requirements set forth in the ISO standard for products after hot dip galvanisation.
- The bolts must not be used with nuts that have oversize threads. It could cause problems in the bolt connections and ultimately lead to the connection failing.

- Material:** Steel
- Surface:** Hot-dip galvanised
- DIN:** 933
- ISO:** 4017
- Drive type:** Outer hexagon
- Property class:** 8.8
- Head type:** Hexagon head
- Tensile strength:** 800 N/mm²

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------|--------------------------------|--------|--------------------|-------------|------------------|---------------------------|
| 50576 12 | M6 | 12 mm | 10 mm | 4 mm | M6X12 | 4.400 g |
| 50576 16 | M6 | 16 mm | 10 mm | 4 mm | M6X16 | 5.000 g |
| 50576 20 | M6 | 20 mm | 10 mm | 4 mm | M6X20 | 5.800 g |
| 50576 25 | M6 | 25 mm | 10 mm | 4 mm | M6X25 | 6.000 g |
| 50576 30 | M6 | 30 mm | 10 mm | 4 mm | M6X30 | 7.510 g |
| 50576 35 | M6 | 35 mm | 10 mm | 4 mm | M6X35 | 8.370 g |
| 50576 40 | M6 | 40 mm | 10 mm | 4 mm | M6X40 | 9.000 g |
| 50578 12 | M8 | 12 mm | 13 mm | 5.3 mm | M8X12 | 9.800 g |
| 50578 16 | M8 | 16 mm | 13 mm | 5.3 mm | M8X16 | 11.100 g |
| 50578 20 | M8 | 20 mm | 13 mm | 5.3 mm | M8X20 | 12.300 g |
| 50578 22 | M8 | 22 mm | 13 mm | 5.3 mm | M8X22 | 12.900 g |
| 50578 25 | M8 | 25 mm | 13 mm | 5.3 mm | M8X25 | 13.900 g |
| 50578 30 | M8 | 30 mm | 13 mm | 5.3 mm | M8X30 | 15.500 g |
| 50578 35 | M8 | 35 mm | 13 mm | 5.3 mm | M8X35 | 17.100 g |
| 50578 36 | M8 | 36 mm | 13 mm | 5.3 mm | M8X36 | 17.100 g |
| 50578 40 | M8 | 40 mm | 13 mm | 5.3 mm | M8X40 | 18.700 g |
| 50578 45 | M8 | 45 mm | 13 mm | 5.3 mm | M8X45 | 20.000 g |
| 50578 50 | M8 | 50 mm | 13 mm | 5.3 mm | M8X50 | 21.800 g |
| 50578 55 | M8 | 55 mm | 13 mm | 5.3 mm | M8X55 | 22.000 g |
| 50578 56 | M8 | 56 mm | 13 mm | 5.3 mm | M8X56 | 23.400 g |
| 50578 60 | M8 | 60 mm | 13 mm | 5.3 mm | M8X60 | 25.000 g |
| 50578 70 | M8 | 70 mm | 13 mm | 5.3 mm | M8X70 | 28.200 g |
| 50578 80 | M8 | 80 mm | 13 mm | 5.3 mm | M8X80 | 31.400 g |
| 50578 100 | M8 | 100 mm | 13 mm | 5.3 mm | M8X100 | 37.700 g |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 50578 120 | M8 | 120 mm | 13 mm | 5.3 mm | M8X120 | 150.000 g |
| 505710 10 | M10 | 10 mm | 17 mm | 6.4 mm | M10X10 | 18.200 g |
| 505710 12 | M10 | 12 mm | 17 mm | 6.4 mm | M10X12 | 17.200 g |
| 505710 16 | M10 | 16 mm | 17 mm | 6.4 mm | M10X16 | 21.200 g |
| 505710 20 | M10 | 20 mm | 17 mm | 6.4 mm | M10X20 | 23.200 g |
| 505710 25 | M10 | 25 mm | 17 mm | 6.4 mm | M10X25 | 25.700 g |
| 505710 30 | M10 | 30 mm | 17 mm | 6.4 mm | M10X30 | 28.200 g |
| 505710 35 | M10 | 35 mm | 17 mm | 6.4 mm | M10X35 | 30.000 g |
| 505710 40 | M10 | 40 mm | 17 mm | 6.4 mm | M10X40 | 33.200 g |
| 505710 45 | M10 | 45 mm | 17 mm | 6.4 mm | M10X45 | 35.700 g |
| 505710 50 | M10 | 50 mm | 17 mm | 6.4 mm | M10X50 | 38.200 g |
| 505710 60 | M10 | 60 mm | 17 mm | 6.4 mm | M10X60 | 43.300 g |
| 505710 70 | M10 | 70 mm | 17 mm | 6.4 mm | M10X70 | 48.300 g |
| 505710 80 | M10 | 80 mm | 17 mm | 6.4 mm | M10X80 | 53.300 g |
| 505710 90 | M10 | 90 mm | 17 mm | 6.4 mm | M10X90 | 69.000 g |
| 505710 100 | M10 | 100 mm | 17 mm | 6.4 mm | M10X100 | 63.300 g |
| 505710 120 | M10 | 120 mm | 17 mm | 6.4 mm | M10X120 | 73.400 g |
| 505712 16 | M12 | 16 mm | 19 mm | 7.5 mm | M12X16 | 28.000 g |
| 505712 20 | M12 | 20 mm | 19 mm | 7.5 mm | M12X12 | 33.000 g |
| 505712 25 | M12 | 25 mm | 19 mm | 7.5 mm | M12X25 | 36.600 g |
| 505712 30 | M12 | 30 mm | 19 mm | 7.5 mm | M12X30 | 40.000 g |
| 505712 35 | M12 | 35 mm | 19 mm | 7.5 mm | M12X35 | 43.800 g |
| 505712 40 | M12 | 40 mm | 19 mm | 7.5 mm | M12X40 | 47.400 g |
| 505712 45 | M12 | 45 mm | 19 mm | 7.5 mm | M12X45 | 51.000 g |
| 505712 50 | M12 | 50 mm | 19 mm | 7.5 mm | M12X50 | 54.500 g |
| 505712 60 | M12 | 60 mm | 19 mm | 7.5 mm | M12X60 | 59.950 g |
| 505712 65 | M12 | 65 mm | 19 mm | 7.5 mm | M12X65 | 64.000 g |
| 505712 70 | M12 | 70 mm | 19 mm | 7.5 mm | M12X70 | 68.900 g |
| 505712 80 | M12 | 80 mm | 19 mm | 7.5 mm | M12X80 | 76.100 g |
| 505712 90 | M12 | 90 mm | 19 mm | 7.5 mm | M12X90 | 83.300 g |
| 505712 100 | M12 | 100 mm | 19 mm | 7.5 mm | M12X100 | 90.000 g |
| 505712 120 | M12 | 120 mm | 19 mm | 7.5 mm | M12X120 | 105.000 g |
| 505712 140 | M12 | 140 mm | 19 mm | 7.5 mm | M12X140 | 125.000 g |
| 505716 20 | M16 | 20 mm | 24 mm | 10 mm | M16X20 | 63.500 g |
| 505716 25 | M16 | 25 mm | 24 mm | 10 mm | M16X25 | 71.000 g |
| 505716 30 | M16 | 30 mm | 24 mm | 10 mm | M16X30 | 77.000 g |
| 505716 35 | M16 | 35 mm | 24 mm | 10 mm | M16X35 | 84.000 g |
| 505716 40 | M16 | 40 mm | 24 mm | 10 mm | M16X40 | 91.000 g |
| 505716 45 | M16 | 45 mm | 24 mm | 10 mm | M16X45 | 98.000 g |
| 505716 50 | M16 | 50 mm | 24 mm | 10 mm | M16X50 | 103.000 g |
| 505716 55 | M16 | 55 mm | 24 mm | 10 mm | M16X55 | 110.000 g |
| 505716 60 | M16 | 60 mm | 24 mm | 10 mm | M16X60 | 117.000 g |
| 505716 65 | M16 | 65 mm | 24 mm | 10 mm | M16X65 | 123.000 g |
| 505716 70 | M16 | 70 mm | 24 mm | 10 mm | M16X70 | 130.000 g |
| 505716 75 | M16 | 75 mm | 24 mm | 10 mm | M16X75 | 137.000 g |
| 505716 80 | M16 | 80 mm | 24 mm | 10 mm | M16X80 | 144.000 g |
| 505716 90 | M16 | 90 mm | 24 mm | 10 mm | M16X90 | 157.000 g |
| 505716 100 | M16 | 100 mm | 24 mm | 10 mm | M16X100 | 170.000 g |
| 505716 120 | M16 | 120 mm | 24 mm | 10 mm | M16X120 | 197.000 g |
| 505716 140 | M16 | 140 mm | 24 mm | 10 mm | M16X140 | 224.000 g |
| 505716 150 | M16 | 150 mm | 24 mm | 10 mm | M16X150 | 234.000 g |
| 505716 160 | M16 | 160 mm | 24 mm | 10 mm | M16X160 | 230.000 g |
| 505716 180 | M16 | 180 mm | 24 mm | 10 mm | M16X180 | 50.000 g |
| 505720 20 | M20 | 20 mm | 30 mm | 12.5 mm | M20X20 | 50.000 g |

Hexagon screw, full thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505720 30 | M20 | 30 mm | 30 mm | 12.5 mm | M20X30 | 136.000 g |
| 505720 35 | M20 | 35 mm | 30 mm | 12.5 mm | M20X35 | 147.000 g |
| 505720 40 | M20 | 40 mm | 30 mm | 12.5 mm | M20X40 | 157.000 g |
| 505720 45 | M20 | 45 mm | 30 mm | 12.5 mm | M20X45 | 167.000 g |
| 505720 50 | M20 | 50 mm | 30 mm | 12.5 mm | M20X50 | 178.000 g |
| 505720 55 | M20 | 55 mm | 30 mm | 12.5 mm | M20X55 | 188.000 g |
| 505720 60 | M20 | 60 mm | 30 mm | 12.5 mm | M20X60 | 199.000 g |
| 505720 65 | M20 | 65 mm | 30 mm | 12.5 mm | M20X65 | 208.200 g |
| 505720 70 | M20 | 70 mm | 30 mm | 12.5 mm | M20X70 | 219.000 g |
| 505720 75 | M20 | 75 mm | 30 mm | 12.5 mm | M20X75 | 229.000 g |
| 505720 80 | M20 | 80 mm | 30 mm | 12.5 mm | M20X80 | 240.000 g |
| 505720 90 | M20 | 90 mm | 30 mm | 12.5 mm | M20X90 | 260.000 g |
| 505720 100 | M20 | 100 mm | 30 mm | 12.5 mm | M20X100 | 281.000 g |
| 505720 110 | M20 | 110 mm | 30 mm | 12.5 mm | M20X110 | 294.500 g |
| 505720 120 | M20 | 120 mm | 30 mm | 12.5 mm | M20X120 | 330.000 g |
| 505720 130 | M20 | 130 mm | 30 mm | 12.5 mm | M20X130 | 355.000 g |
| 505720 140 | M20 | 140 mm | 30 mm | 12.5 mm | M20X140 | 364.000 g |
| 505720 150 | M20 | 150 mm | 30 mm | 12.5 mm | M20X150 | 384.000 g |
| 505720 160 | M20 | 160 mm | 30 mm | 12.5 mm | M20X160 | 404.000 g |
| 505720 200 | M20 | 200 mm | 30 mm | 12.5 mm | M20X200 | 484.000 g |
| 505720 240 | M20 | 240 mm | 30 mm | 12.5 mm | M20X240 | 650.000 g |
| 505720 250 | M20 | 250 mm | 30 mm | 12.5 mm | M20X250 | 495.000 g |
| 505720 260 | M20 | 260 mm | 30 mm | 12.5 mm | M20X260 | 680.000 g |
| 505724 40 | M24 | 40 mm | 36 mm | 15 mm | M24X40 | 250.000 g |
| 505724 50 | M24 | 50 mm | 36 mm | 15 mm | M24X50 | 274.000 g |
| 505724 55 | M24 | 55 mm | 36 mm | 15 mm | M24X55 | 290.000 g |
| 505724 60 | M24 | 60 mm | 36 mm | 15 mm | M24X60 | 299.000 g |
| 505724 65 | M24 | 65 mm | 36 mm | 15 mm | M24X65 | 319.000 g |
| 505724 70 | M24 | 70 mm | 36 mm | 15 mm | M24X70 | 340.000 g |
| 505724 75 | M24 | 75 mm | 36 mm | 15 mm | M24X75 | 360.000 g |
| 505724 80 | M24 | 80 mm | 36 mm | 15 mm | M24X80 | 370.000 g |
| 505724 90 | M24 | 90 mm | 36 mm | 15 mm | M24X90 | 393.000 g |
| 505724 100 | M24 | 100 mm | 36 mm | 15 mm | M24X100 | 423.000 g |
| 505724 110 | M24 | 110 mm | 36 mm | 15 mm | M24X110 | 445.000 g |
| 505724 120 | M24 | 120 mm | 36 mm | 15 mm | M24X120 | 483.000 g |
| 505724 130 | M24 | 130 mm | 36 mm | 15 mm | M24X130 | 513.000 g |
| 505724 140 | M24 | 140 mm | 36 mm | 15 mm | M24X140 | 543.000 g |
| 505724 150 | M24 | 150 mm | 36 mm | 15 mm | M24X150 | 572.000 g |
| 505724 160 | M24 | 160 mm | 36 mm | 15 mm | M24X160 | 602.000 g |
| 505724 180 | M24 | 180 mm | 36 mm | 15 mm | M24X180 | 733.000 g |
| 505724 200 | M24 | 200 mm | 36 mm | 15 mm | M24X200 | 722.000 g |
| 505724 240 | M24 | 240 mm | 36 mm | 15 mm | M24X240 | 842.000 g |
| 505727 60 | M27 | 60 mm | 41 mm | 17 mm | M27X60 | 420.000 g |
| 505727 70 | M27 | 70 mm | 41 mm | 17 mm | M27X70 | 454.000 g |
| 505727 80 | M27 | 80 mm | 41 mm | 17 mm | M27X80 | 492.000 g |
| 505727 140 | M27 | 140 mm | 41 mm | 17 mm | M27X140 | 910.000 g |
| 505727 250 | M27 | 250 mm | 41 mm | 17 mm | M27X250 | 1400.000 g |
| 505730 60 | M30 | 60 mm | 46 mm | 18.7 mm | M30X60 | 543.000 g |
| 505730 70 | M30 | 70 mm | 46 mm | 18.7 mm | M30X70 | 590.000 g |
| 505730 80 | M30 | 80 mm | 46 mm | 18.7 mm | M30X80 | 640.000 g |
| 505730 90 | M30 | 90 mm | 46 mm | 18.7 mm | M30X90 | 685.000 g |
| 505730 100 | M30 | 100 mm | 46 mm | 18.7 mm | M30X100 | 732.000 g |
| 505730 110 | M30 | 110 mm | 46 mm | 18.7 mm | M30X110 | 775.000 g |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505730 120 | M30 | 120 mm | 46 mm | 18.7 mm | M30X120 | 827.000 g |
| 505730 130 | M30 | 130 mm | 46 mm | 18.7 mm | M30X130 | 858.000 g |
| 505730 140 | M30 | 140 mm | 46 mm | 18.7 mm | M30X140 | 836.000 g |
| 505730 150 | M30 | 150 mm | 46 mm | 18.7 mm | M30X150 | 1030.000 g |
| 505730 160 | M30 | 160 mm | 46 mm | 18.7 mm | M30X160 | 1020.000 g |
| 505730 180 | M30 | 180 mm | 46 mm | 18.7 mm | M30X180 | 1110.000 g |
| 505730 200 | M30 | 200 mm | 46 mm | 18.7 mm | M30X200 | 1200.000 g |
| 505730 220 | M30 | 220 mm | 46 mm | 18.7 mm | M30X220 | 1269.000 g |
| 505730 240 | M30 | 240 mm | 46 mm | 18.7 mm | M30X240 | 1364.000 g |
| 505736 70 | M36 | 70 mm | 55 mm | 22.5 mm | M36X70 | 930.000 g |
| 505736 80 | M36 | 80 mm | 55 mm | 22.5 mm | M36X80 | 1000.000 g |
| 505736 90 | M36 | 90 mm | 55 mm | 22.5 mm | M36X90 | 1070.000 g |
| 505736 100 | M36 | 100 mm | 55 mm | 22.5 mm | M36X100 | 1150.000 g |
| 505736 110 | M36 | 110 mm | 55 mm | 22.5 mm | M36X110 | 1250.000 g |
| 505736 120 | M36 | 120 mm | 55 mm | 22.5 mm | M36X120 | 1270.000 g |
| 505736 130 | M36 | 130 mm | 55 mm | 22.5 mm | M36X130 | 1322.000 g |
| 505736 180 | M36 | 180 mm | 55 mm | 22.5 mm | M36X180 | 1690.000 g |
| 505742 100 | M42 | 100 mm | 65 mm | 26 mm | M42X100 | 1650.000 g |
| 505742 110 | M42 | 110 mm | 65 mm | 26 mm | M42X110 | 1760.000 g |



Hexagon screw, partial thread

DIN 931, steel 8.8U, hot dip galvanised

- Manufactured in the tolerance range 6AZ for undersize thread prior to hot dip galvanisation (EN ISO 10684)
- Screw complies with the requirements set forth in the ISO standard for products after hot dip galvanisation
- Must not be used with nuts that have oversize threads under no circumstances. It could cause problems in the bolt connections and ultimately lead to the connection failing.

- Material :** Steel
- Surface :** Hot-dip galvanised
- DIN :** 931
- ISO :** 4014
- Drive type :** Outer hexagon
- Property class :** 8.8
- Head type :** Hexagon head
- Tensile strength :** 800 N/mm²

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 50538 40 | M8 | 40 mm | 13 mm | 5.3 mm | M8X40 | 21.000 g |
| 50538 50 | M8 | 50 mm | 13 mm | 5.3 mm | M8X50 | 24.500 g |
| 50538 60 | M8 | 60 mm | 13 mm | 5.3 mm | M8X60 | 28.000 g |
| 50538 65 | M8 | 65 mm | 13 mm | 5.3 mm | M8X65 | 29.800 g |
| 50538 70 | M8 | 70 mm | 13 mm | 5.3 mm | M8X70 | 32.000 g |
| 50538 80 | M8 | 80 mm | 13 mm | 5.3 mm | M8X80 | 36.000 g |
| 50538 90 | M8 | 90 mm | 13 mm | 5.3 mm | M8X90 | 38.000 g |
| 50538 100 | M8 | 100 mm | 13 mm | 5.3 mm | M8X100 | 44.000 g |
| 50538 110 | M8 | 110 mm | 13 mm | 5.3 mm | M8X110 | 47.500 g |
| 50538 130 | M8 | 130 mm | 13 mm | 5.3 mm | M8X130 | 56.000 g |
| 505310 40 | M10 | 40 mm | 17 mm | 6.4 mm | M10X40 | 35.000 g |
| 505310 45 | M10 | 45 mm | 17 mm | 6.4 mm | M10X45 | 34.800 g |
| 505310 50 | M10 | 50 mm | 17 mm | 6.4 mm | M10X50 | 41.000 g |
| 505310 60 | M10 | 60 mm | 17 mm | 6.4 mm | M10X60 | 47.000 g |

Hexagon screw, partial thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505310 70 | M10 | 70 mm | 17 mm | 6.4 mm | M10X70 | 53.000 g |
| 505310 75 | M10 | 75 mm | 17 mm | 6.4 mm | M10X75 | 56.000 g |
| 505310 80 | M10 | 80 mm | 17 mm | 6.4 mm | M10X80 | 62.000 g |
| 505310 90 | M10 | 90 mm | 17 mm | 6.4 mm | M10X90 | 69.000 g |
| 505310 100 | M10 | 100 mm | 17 mm | 6.4 mm | M10X100 | 68.100 g |
| 505310 110 | M10 | 110 mm | 17 mm | 6.4 mm | M10X110 | 78.000 g |
| 505310 120 | M10 | 120 mm | 17 mm | 6.4 mm | M10X120 | 84.000 g |
| 505310 130 | M10 | 130 mm | 17 mm | 6.4 mm | M10X130 | 96.200 g |
| 505310 140 | M10 | 140 mm | 17 mm | 6.4 mm | M10X140 | 102.000 g |
| 505310 160 | M10 | 160 mm | 17 mm | 6.4 mm | M10X160 | 120.000 g |
| 505310 180 | M10 | 180 mm | 17 mm | 6.4 mm | M10X180 | 126.000 g |
| 505312 45 | M12 | 45 mm | 19 mm | 7.5 mm | M12X45 | 53.600 g |
| 505312 50 | M12 | 50 mm | 19 mm | 7.5 mm | M12X50 | 58.000 g |
| 505312 55 | M12 | 55 mm | 19 mm | 7.5 mm | M12X55 | 63.000 g |
| 505312 60 | M12 | 60 mm | 19 mm | 7.5 mm | M12X60 | 67.000 g |
| 505312 65 | M12 | 65 mm | 19 mm | 7.5 mm | M12X65 | 71.000 g |
| 505312 70 | M12 | 70 mm | 19 mm | 7.5 mm | M12X70 | 75.000 g |
| 505312 75 | M12 | 75 mm | 19 mm | 7.5 mm | M12X75 | 84.000 g |
| 505312 80 | M12 | 80 mm | 19 mm | 7.5 mm | M12X80 | 84.000 g |
| 505312 90 | M12 | 90 mm | 19 mm | 7.5 mm | M12X90 | 93.000 g |
| 505312 100 | M12 | 100 mm | 19 mm | 7.5 mm | M12X100 | 100.000 g |
| 505312 110 | M12 | 110 mm | 19 mm | 7.5 mm | M12X110 | 110.000 g |
| 505312 120 | M12 | 120 mm | 19 mm | 7.5 mm | M12X120 | 120.000 g |
| 505312 130 | M12 | 130 mm | 19 mm | 7.5 mm | M12X130 | 130.000 g |
| 505312 140 | M12 | 140 mm | 19 mm | 7.5 mm | M12X140 | 140.000 g |
| 505312 150 | M12 | 150 mm | 19 mm | 7.5 mm | M12X150 | 150.000 g |
| 505312 160 | M12 | 160 mm | 19 mm | 7.5 mm | M12X160 | 155.000 g |
| 505312 170 | M12 | 170 mm | 19 mm | 7.5 mm | M12X170 | 162.000 g |
| 505312 180 | M12 | 180 mm | 19 mm | 7.5 mm | M12X180 | 175.000 g |
| 505312 200 | M12 | 200 mm | 19 mm | 7.5 mm | M12X200 | 190.000 g |
| 505312 220 | M12 | 220 mm | 19 mm | 7.5 mm | M12X220 | 207.000 g |
| 505312 240 | M12 | 240 mm | 19 mm | 7.5 mm | M12X240 | 225.000 g |
| 505312 260 | M12 | 260 mm | 19 mm | 7.5 mm | M12X260 | 243.000 g |
| 505312 280 | M12 | 280 mm | 19 mm | 7.5 mm | M12X280 | 260.000 g |
| 505312 300 | M12 | 300 mm | 19 mm | 7.5 mm | M12X300 | 279.000 g |
| 505316 55 | M16 | 55 mm | 24 mm | 10 mm | M16X55 | 115.000 g |
| 505316 60 | M16 | 60 mm | 24 mm | 10 mm | M16X60 | 125.000 g |
| 505316 65 | M16 | 65 mm | 24 mm | 10 mm | M16X65 | 135.000 g |
| 505316 70 | M16 | 70 mm | 24 mm | 10 mm | M16X70 | 140.000 g |
| 505316 75 | M16 | 75 mm | 24 mm | 10 mm | M16X75 | 147.000 g |
| 505316 80 | M16 | 80 mm | 24 mm | 10 mm | M16X80 | 155.000 g |
| 505316 90 | M16 | 90 mm | 24 mm | 10 mm | M16X90 | 171.000 g |
| 505316 100 | M16 | 100 mm | 24 mm | 10 mm | M16X100 | 186.000 g |
| 505316 110 | M16 | 110 mm | 24 mm | 10 mm | M16X110 | 205.000 g |
| 505316 120 | M16 | 120 mm | 24 mm | 10 mm | M16X120 | 220.000 g |
| 505316 130 | M16 | 130 mm | 24 mm | 10 mm | M16X130 | 230.000 g |
| 505316 140 | M16 | 140 mm | 24 mm | 10 mm | M16X140 | 250.000 g |
| 505316 150 | M16 | 150 mm | 24 mm | 10 mm | M16X150 | 265.000 g |
| 505316 160 | M16 | 160 mm | 24 mm | 10 mm | M16X160 | 280.000 g |
| 505316 180 | M16 | 180 mm | 24 mm | 10 mm | M16X180 | 310.000 g |
| 505316 200 | M16 | 200 mm | 24 mm | 10 mm | M16X200 | 342.000 g |
| 505316 220 | M16 | 220 mm | 24 mm | 10 mm | M16X220 | 361.000 g |
| 505316 240 | M16 | 240 mm | 24 mm | 10 mm | M16X240 | 406.000 g |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505316 260 | M16 | 260 mm | 24 mm | 10 mm | M16X260 | 438.000 g |
| 505316 280 | M16 | 280 mm | 24 mm | 10 mm | M16X280 | 470.000 g |
| 505316 300 | M16 | 300 mm | 24 mm | 10 mm | M16X300 | 502.000 g |
| 505316 301 | M16 | 300 mm | 24 mm | 10 mm | M16X300 - thread 125 mm | 502.000 g |
| 505316 320 | M16 | 320 mm | 24 mm | 10 mm | M16X320 | 534.000 g |
| 505316 355 | M16 | 355 mm | 24 mm | 10 mm | M16X355 | 398.000 g |
| 505316 360 | M16 | 360 mm | 24 mm | 10 mm | M16X360 | 598.000 g |
| 505316 380 | M16 | 380 mm | 24 mm | 10 mm | M16X380 | 660.000 g |
| 505316 400 | M16 | 400 mm | 24 mm | 10 mm | M16X400 | 662.000 g |
| 505320 60 | M20 | 60 mm | 30 mm | 12.5 mm | M20X60 | 207.000 g |
| 505320 65 | M20 | 65 mm | 30 mm | 12.5 mm | M20X65 | 208.200 g |
| 505320 70 | M20 | 70 mm | 30 mm | 12.5 mm | M20X70 | 235.000 g |
| 505320 75 | M20 | 75 mm | 30 mm | 12.5 mm | M20X75 | 245.000 g |
| 505320 80 | M20 | 80 mm | 30 mm | 12.5 mm | M20X80 | 255.000 g |
| 505320 90 | M20 | 90 mm | 30 mm | 12.5 mm | M20X90 | 280.000 g |
| 505320 100 | M20 | 100 mm | 30 mm | 12.5 mm | M20X100 | 305.000 g |
| 505320 110 | M20 | 110 mm | 30 mm | 12.5 mm | M20X110 | 330.000 g |
| 505320 120 | M20 | 120 mm | 30 mm | 12.5 mm | M20X120 | 350.000 g |
| 505320 130 | M20 | 130 mm | 30 mm | 12.5 mm | M20X130 | 365.000 g |
| 505320 140 | M20 | 140 mm | 30 mm | 12.5 mm | M20X140 | 390.000 g |
| 505320 150 | M20 | 150 mm | 30 mm | 12.5 mm | M20X150 | 425.000 g |
| 505320 160 | M20 | 160 mm | 30 mm | 12.5 mm | M20X160 | 450.000 g |
| 505320 180 | M20 | 180 mm | 30 mm | 12.5 mm | M20X180 | 495.000 g |
| 505320 200 | M20 | 200 mm | 30 mm | 12.5 mm | M20X200 | 545.000 g |
| 505320 220 | M20 | 220 mm | 30 mm | 12.5 mm | M20X220 | 590.000 g |
| 505320 240 | M20 | 240 mm | 30 mm | 12.5 mm | M20X240 | 635.000 g |
| 505320 260 | M20 | 260 mm | 30 mm | 12.5 mm | M20X260 | 680.000 g |
| 505320 280 | M20 | 280 mm | 30 mm | 12.5 mm | M20X280 | 725.000 g |
| 505320 300 | M20 | 300 mm | 30 mm | 12.5 mm | M20X300 | 770.000 g |
| 505320 320 | M20 | 320 mm | 30 mm | 12.5 mm | M20X320 | 815.000 g |
| 505320 340 | M20 | 340 mm | 30 mm | 12.5 mm | M20X340 | 860.000 g |
| 505320 360 | M20 | 360 mm | 30 mm | 12.5 mm | M20X360 | 905.000 g |
| 505320 380 | M20 | 380 mm | 30 mm | 12.5 mm | M20X380 | 950.000 g |
| 505320 400 | M20 | 400 mm | 30 mm | 12.5 mm | M20X400 | 995.000 g |
| 505324 75 | M24 | 75 mm | 36 mm | 15 mm | M24X75 | 364.000 g |
| 505324 80 | M24 | 80 mm | 36 mm | 15 mm | M24X80 | 385.000 g |
| 505324 85 | M24 | 85 mm | 36 mm | 15 mm | M24X85 | 395.000 g |
| 505324 90 | M24 | 90 mm | 36 mm | 15 mm | M24X90 | 430.000 g |
| 505324 100 | M24 | 100 mm | 36 mm | 15 mm | M24X100 | 423.000 g |
| 505324 110 | M24 | 110 mm | 36 mm | 15 mm | M24X110 | 500.000 g |
| 505324 120 | M24 | 120 mm | 36 mm | 15 mm | M24X120 | 535.000 g |
| 505324 130 | M24 | 130 mm | 36 mm | 15 mm | M24X130 | 560.000 g |
| 505324 140 | M24 | 140 mm | 36 mm | 15 mm | M24X140 | 600.000 g |
| 505324 150 | M24 | 150 mm | 36 mm | 15 mm | M24X150 | 630.000 g |
| 505324 160 | M24 | 160 mm | 36 mm | 15 mm | M24X160 | 665.000 g |
| 505324 180 | M24 | 180 mm | 36 mm | 15 mm | M24X180 | 733.000 g |
| 505324 200 | M24 | 200 mm | 36 mm | 15 mm | M24X200 | 805.000 g |
| 505324 210 | M24 | 210 mm | 36 mm | 15 mm | M24X210 | 850.000 g |
| 505324 220 | M24 | 220 mm | 36 mm | 15 mm | M24X220 | 870.000 g |
| 505324 240 | M24 | 240 mm | 36 mm | 15 mm | M24X240 | 930.000 g |
| 505324 260 | M24 | 260 mm | 36 mm | 15 mm | M24X260 | 1000.000 g |
| 505324 280 | M24 | 280 mm | 36 mm | 15 mm | M24X280 | 1065.000 g |
| 505324 300 | M24 | 300 mm | 36 mm | 15 mm | M24X300 | 1130.000 g |

Hexagon screw, partial thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505324 310 | M24 | 310 mm | 36 mm | 15 mm | M24X310 | 900.000 g |
| 505324 320 | M24 | 320 mm | 36 mm | 15 mm | M24X320 | 1195.000 g |
| 505324 340 | M24 | 340 mm | 36 mm | 15 mm | M24X340 | 1260.000 g |
| 505324 350 | M24 | 350 mm | 36 mm | 15 mm | M24X350 | 1.300 g |
| 505324 360 | M24 | 360 mm | 36 mm | 15 mm | M24X360 | 1325.000 g |
| 505324 380 | M24 | 380 mm | 36 mm | 15 mm | M24X380 | 1376.000 g |
| 505324 400 | M24 | 400 mm | 36 mm | 15 mm | M24X400 | 1455.000 g |
| 505327 80 | M27 | 80 mm | 41 mm | 17 mm | M27X80 | 496.000 g |
| 505327 90 | M27 | 90 mm | 41 mm | 17 mm | M27X90 | 536.000 g |
| 505327 100 | M27 | 100 mm | 41 mm | 17 mm | M27X100 | 605.000 g |
| 505327 110 | M27 | 110 mm | 41 mm | 17 mm | M27X110 | 650.000 g |
| 505327 120 | M27 | 120 mm | 41 mm | 17 mm | M27X120 | 700.000 g |
| 505327 130 | M27 | 130 mm | 41 mm | 17 mm | M27X130 | 710.000 g |
| 505327 140 | M27 | 140 mm | 41 mm | 17 mm | M27X140 | 765.000 g |
| 505327 150 | M27 | 150 mm | 41 mm | 17 mm | M27X150 | 810.000 g |
| 505327 160 | M27 | 160 mm | 41 mm | 17 mm | M27X160 | 855.000 g |
| 505327 180 | M27 | 180 mm | 41 mm | 17 mm | M27X180 | 945.000 g |
| 505327 200 | M27 | 200 mm | 41 mm | 17 mm | M27X200 | 1030.000 g |
| 505327 220 | M27 | 220 mm | 41 mm | 17 mm | M27X220 | 1130.000 g |
| 505327 240 | M27 | 240 mm | 41 mm | 17 mm | M27X240 | 1260.000 g |
| 505327 250 | M27 | 250 mm | 41 mm | 17 mm | M27X240 | 2000.000 g |
| 505327 260 | M27 | 260 mm | 41 mm | 17 mm | M27X260 | 1285.000 g |
| 505327 280 | M27 | 280 mm | 41 mm | 17 mm | M27X280 | 1430.000 g |
| 505327 300 | M27 | 300 mm | 41 mm | 17 mm | M27X300 | 1530.000 g |
| 505327 320 | M27 | 320 mm | 41 mm | 17 mm | M27X320 | 1000.000 g |
| 505327 340 | M27 | 340 mm | 41 mm | 17 mm | M27X340 | 165.000 g |
| 505327 360 | M27 | 360 mm | 41 mm | 17 mm | M27X360 | 1670.000 g |
| 505330 80 | M30 | 80 mm | 46 mm | 18.7 mm | M30X80 | 550.000 g |
| 505330 90 | M30 | 90 mm | 46 mm | 18.7 mm | M30X90 | 712.000 g |
| 505330 100 | M30 | 100 mm | 46 mm | 18.7 mm | M30X100 | 767.000 g |
| 505330 110 | M30 | 110 mm | 46 mm | 18.7 mm | M30X110 | 823.000 g |
| 505330 120 | M30 | 120 mm | 46 mm | 18.7 mm | M30X120 | 880.000 g |
| 505330 130 | M30 | 130 mm | 46 mm | 19 mm | M30X130 | 901.600 g |
| 505330 140 | M30 | 140 mm | 46 mm | 18.7 mm | M30X140 | 975.000 g |
| 505330 150 | M30 | 150 mm | 46 mm | 18.7 mm | M30X150 | 1030.000 g |
| 505330 160 | M30 | 160 mm | 46 mm | 18.7 mm | M30X160 | 1090.000 g |
| 505330 170 | M30 | 170 mm | 46 mm | 18.7 mm | M30X170 | 1.000 g |
| 505330 180 | M30 | 180 mm | 46 mm | 18.7 mm | M30X180 | 1200.000 g |
| 505330 200 | M30 | 200 mm | 46 mm | 18.7 mm | M30X200 | 1310.000 g |
| 505330 220 | M30 | 220 mm | 46 mm | 18.7 mm | M30X220 | 1420.000 g |
| 505330 240 | M30 | 240 mm | 46 mm | 18.7 mm | M30X240 | 1530.000 g |
| 505330 250 | M30 | 250 mm | 46 mm | 18.7 mm | M30X250 | 1590.000 g |
| 505330 260 | M30 | 260 mm | 46 mm | 18.7 mm | M30X260 | 1640.000 g |
| 505330 280 | M30 | 280 mm | 46 mm | 18.7 mm | M30X280 | 1750.000 g |
| 505330 300 | M30 | 300 mm | 46 mm | 18.7 mm | M30X300 | 1860.000 g |
| 505330 320 | M30 | 320 mm | 46 mm | 18.7 mm | M30X320 | 1970.000 g |
| 505330 340 | M30 | 340 mm | 46 mm | 18.7 mm | M30X340 | 2041.000 g |
| 505330 360 | M30 | 360 mm | 46 mm | 18.7 mm | M30X360 | 2180.000 g |
| 505330 380 | M30 | 380 mm | 46 mm | 18.7 mm | M30X380 | 2300.000 g |
| 505330 400 | M30 | 400 mm | 46 mm | 18.7 mm | M30X400 | 2290.000 g |
| 505333 110 | M33 | 110 mm | 50 mm | 21 mm | M33X110 | 1020.000 g |
| 505333 120 | M33 | 120 mm | 50 mm | 21 mm | M33X120 | 1090.000 g |
| 505333 130 | M33 | 130 mm | 50 mm | 21 mm | M33X130 | 1150.000 g |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|
| 505333 140 | M33 | 140 mm | 50 mm | 21 mm | M33X140 | 1220.000 g |
| 505333 150 | M33 | 150 mm | 50 mm | 21 mm | M33X150 | 1.000 g |
| 505333 160 | M33 | 160 mm | 50 mm | 21 mm | M33X160 | 1350.000 g |
| 505333 180 | M33 | 180 mm | 50 mm | 21 mm | M33X180 | 1480.000 g |
| 505333 200 | M33 | 200 mm | 50 mm | 21 mm | M33X200 | 1610.000 g |
| 505333 220 | M33 | 220 mm | 50 mm | 21 mm | M33X220 | 1750.000 g |
| 505333 240 | M33 | 240 mm | 50 mm | 21 mm | M33X240 | 1.000 g |
| 505333 280 | M33 | 280 mm | 50 mm | 21 mm | M33X280 | 1.000 g |
| 505333 300 | M33 | 300 mm | 50 mm | 21 mm | M33X300 | 1.000 g |
| 505333 320 | M33 | 320 mm | 50 mm | 21 mm | M33X320 | 1.000 g |
| 505333 360 | M33 | 360 mm | 50 mm | 21 mm | M33X360 | 2720.000 g |
| 505333 440 | M33 | 440 mm | 50 mm | 21 mm | M33X440 | 3195.000 g |
| 505336 280 | M36 | 80 mm | 55 mm | 22.5 mm | M36X280 | 2510.000 g |
| 505336 100 | M36 | 100 mm | 55 mm | 22.5 mm | M36X100 | 1128.000 g |
| 505336 110 | M36 | 110 mm | 55 mm | 22.5 mm | M36X110 | 1250.000 g |
| 505336 120 | M36 | 120 mm | 55 mm | 22.5 mm | M36X120 | 1330.000 g |
| 505336 130 | M36 | 130 mm | 55 mm | 22.5 mm | M36X130 | 1400.000 g |
| 505336 140 | M36 | 140 mm | 55 mm | 22.5 mm | M36X140 | 1480.000 g |
| 505336 150 | M36 | 150 mm | 55 mm | 22.5 mm | M36X150 | 1495.000 g |
| 505336 160 | M36 | 160 mm | 55 mm | 22.5 mm | M36X160 | 1640.000 g |
| 505336 180 | M36 | 180 mm | 55 mm | 22.5 mm | M36X180 | 1746.000 g |
| 505336 200 | M36 | 200 mm | 55 mm | 22.5 mm | M36X200 | 2060.000 g |
| 505336 220 | M36 | 220 mm | 55 mm | 22.5 mm | M36X220 | 2100.000 g |
| 505336 230 | M36 | 230 mm | 55 mm | 22.5 mm | M36X230 | 1000.000 g |
| 505336 240 | M36 | 240 mm | 55 mm | 22.5 mm | M36X240 | 2380.000 g |
| 505336 260 | M36 | 260 mm | 55 mm | 22.5 mm | M36X260 | 2540.000 g |
| 505336 300 | M36 | 300 mm | 55 mm | 22.5 mm | M36X300 | 2860.000 g |
| 505336 320 | M36 | 320 mm | 55 mm | 22.5 mm | M36X320 | 3000.000 g |
| 505336 370 | M36 | 370 mm | 55 mm | 22.5 mm | M36X370 | 1000.000 g |
| 505336 400 | M36 | 400 mm | 55 mm | 22.5 mm | M36X400 | 1.000 g |
| 505336 460 | M36 | 460 mm | 55 mm | 22.5 mm | M36X460 | 2835.000 g |



Hexagon screw, full thread

DIN 933, steel 8.8, zinc-electroplated

- **Material :** Steel
- **Surface :** Galvanised
- **DIN :** 933
- **ISO :** 4017
- **Drive type :** Outer hexagon
- **Head type :** Hexagon head
- **Tensile strength :** 800 N/mm²

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|----------------------------------|-----------------------|
| 10573 8 | M3 | 8 mm | 5.5 mm | 2 mm | M3X8 | 0.660 g | 8.8 |
| 10573 12 | M3 | 12 mm | 5.5 mm | 2 mm | M3X12 | 0.840 g | 8.8 |
| 10573 14 | M3 | 14 mm | 5.5 mm | 2 mm | M3X14 | 0.020 g | 8.8 |
| 10573 16 | M3 | 16 mm | 5.5 mm | 2 mm | M3X16 | 1.100 g | 8.8 |

Hexagon screw, full thread

| Art. No. | Thread type x no- minal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|---|---------------|---------------------------|--------------------|-------------------------|--------------------------------------|-----------------------|
| 10573 20 | M3 | 20 mm | 5.5 mm | 2 mm | M3X20 | 1.180 g | 8.8 |
| 10573 35 | M3 | 35 mm | 5.5 mm | 2 mm | M3X35 | 1.840 g | |
| 10574 6 | M4 | 6 mm | 7 mm | 2.8 mm | M4X6 | 2.000 g | 8.8 |
| 10574 8 | M4 | 8 mm | 7 mm | 2.8 mm | M4X8 | 1.560 g | 8.8 |
| 10574 10 | M4 | 10 mm | 7 mm | 2.8 mm | M4X10 | 1.600 g | 8.8 |
| 10574 12 | M4 | 12 mm | 7 mm | 2.8 mm | M4X12 | 1.800 g | 8.8 |
| 10574 16 | M4 | 16 mm | 7 mm | 2.8 mm | M4X16 | 2.100 g | 8.8 |
| 10574 20 | M4 | 20 mm | 7 mm | 2.8 mm | M4X20 | 2.400 g | 8.8 |
| 10574 25 | M4 | 25 mm | 7 mm | 2.8 mm | M4X25 | 2.800 g | 8.8 |
| 10574 30 | M4 | 30 mm | 7 mm | 2.8 mm | M4X30 | 3.200 g | 8.8 |
| 10574 35 | M4 | 35 mm | 7 mm | 2.8 mm | M4X35 | 3.580 g | 8.8 |
| 10574 40 | M4 | 40 mm | 7 mm | 2.8 mm | M4X40 | 4.030 g | 8.8 |
| 10574 50 | M4 | 50 mm | 7 mm | 2.8 mm | M4X50 | 4.730 g | 8.8 |
| 10574 70 | M4 | 70 mm | 7 mm | 2.8 mm | M4X70 | 6.000 g | 8.8 |
| 10575 6 | M5 | 6 mm | 8 mm | 3.5 mm | M5X6 | 2.000 g | 8.8 |
| 10575 8 | M5 | 8 mm | 8 mm | 3.5 mm | M5X8 | 2.380 g | 8.8 |
| 10575 10 | M5 | 10 mm | 8 mm | 3.5 mm | M5X10 | 2.630 g | 8.8 |
| 10575 12 | M5 | 12 mm | 8 mm | 3.5 mm | M5X12 | 2.900 g | 8.8 |
| 10575 14 | M5 | 14 mm | 8 mm | 3.5 mm | M5X14 | 3.000 g | 8.8 |
| 10575 16 | M5 | 16 mm | 8 mm | 3.5 mm | M5X16 | 3.300 g | 8.8 |
| 10575 20 | M5 | 20 mm | 8 mm | 3.5 mm | M5X20 | 3.800 g | 8.8 |
| 10575 25 | M5 | 25 mm | 8 mm | 3.5 mm | M5X25 | 4.500 g | 8.8 |
| 10575 30 | M5 | 30 mm | 8 mm | 3.5 mm | M5X30 | 5.100 g | 8.8 |
| 10575 35 | M5 | 35 mm | 8 mm | 3.5 mm | M5X35 | 5.700 g | 8.8 |
| 10575 40 | M5 | 40 mm | 8 mm | 3.5 mm | M5X40 | 6.300 g | 8.8 |
| 10575 45 | M5 | 45 mm | 8 mm | 3.5 mm | M5X45 | 6.990 g | 8.8 |
| 10575 50 | M5 | 50 mm | 8 mm | 3.5 mm | M5X50 | 7.590 g | 8.8 |
| 10575 60 | M5 | 60 mm | 8 mm | 3.5 mm | M5X60 | 8.830 g | 8.8 |
| 10575 80 | M5 | 80 mm | 8 mm | 3.5 mm | M5X80 | 10.800 g | 8.8 |
| 10576 8 | M6 | 8 mm | 10 mm | 4 mm | M6X8 | 3.740 g | 8.8 |
| 10576 10 | M6 | 10 mm | 10 mm | 4 mm | M6X10 | 4.000 g | 8.8 |
| 10576 12 | M6 | 12 mm | 10 mm | 4 mm | M6X12 | 4.400 g | 8.8 |
| 10576 14 | M6 | 14 mm | 10 mm | 4 mm | M6X14 | 4.770 g | 8.8 |
| 10576 16 | M6 | 16 mm | 10 mm | 4 mm | M6X16 | 5.100 g | 8.8 |
| 10576 18 | M6 | 18 mm | 10 mm | 4 mm | M6X18 | 5.600 g | 8.8 |
| 10576 20 | M6 | 20 mm | 10 mm | 4 mm | M6X20 | 5.800 g | 8.8 |
| 10576 22 | M6 | 22 mm | 10 mm | 4 mm | M6X22 | 6.260 g | 8.8 |
| 10576 25 | M6 | 25 mm | 10 mm | 4 mm | M6X25 | 6.600 g | 8.8 |
| 10576 30 | M6 | 30 mm | 10 mm | 4 mm | M6X30 | 7.500 g | 8.8 |
| 10576 35 | M6 | 35 mm | 10 mm | 4 mm | M6X35 | 8.300 g | 8.8 |
| 10576 40 | M6 | 40 mm | 10 mm | 4 mm | M6X40 | 9.200 g | 8.8 |
| 10576 45 | M6 | 45 mm | 10 mm | 4 mm | M6X45 | 10.100 g | 8.8 |
| 10576 50 | M6 | 50 mm | 10 mm | 4 mm | M6X50 | 11.000 g | 8.8 |
| 10576 55 | M6 | 55 mm | 10 mm | 4 mm | M6X55 | 11.800 g | 8.8 |
| 10576 60 | M6 | 60 mm | 10 mm | 4 mm | M6X60 | 12.700 g | 8.8 |
| 10576 70 | M6 | 70 mm | 10 mm | 4 mm | M6X70 | 14.400 g | 8.8 |
| 10576 80 | M6 | 80 mm | 10 mm | 4 mm | M6X80 | 16.200 g | 8.8 |
| 10576 85 | M6 | 85 mm | 10 mm | 4 mm | M6X85 | 17.000 g | 8.8 |
| 10576 90 | M6 | 90 mm | 10 mm | 4 mm | M6X90 | 17.600 g | 8.8 |
| 10576 100 | M6 | 100 mm | 10 mm | 4 mm | M6X100 | 20.000 g | 8.8 |
| 10576 120 | M6 | 120 mm | 10 mm | 4 mm | M6X120 | 28.000 g | 8.8 |
| 10576 120 | M6 | 120 mm | 10 mm | 4 mm | M6X120 | 28.000 g | 8.8 |
| 10576 130 | M6 | 130 mm | 10 mm | 4 mm | M6X130 | 24.000 g | 8.8 |

| Art. No. | Thread type x no-nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|--|---------------|---------------------------|--------------------|-------------------------|----------------------------------|-----------------------|
| 10578 8 | M8 | 8 mm | 13 mm | 5.3 mm | M8X8 | 9.000 g | 8.8 |
| 10578 10 | M8 | 10 mm | 13 mm | 5.3 mm | M8X10 | 9.100 g | 8.8 |
| 10578 12 | M8 | 12 mm | 13 mm | 5.3 mm | M8X12 | 9.800 g | 8.8 |
| 10578 14 | M8 | 14 mm | 13 mm | 5.3 mm | M8X14 | 10.200 g | 8.8 |
| 10578 16 | M8 | 16 mm | 13 mm | 5.3 mm | M8X16 | 11.100 g | 8.8 |
| 10578 18 | M8 | 18 mm | 13 mm | 5.3 mm | M8X18 | 11.600 g | 8.8 |
| 10578 20 | M8 | 20 mm | 13 mm | 5.3 mm | M8X20 | 12.300 g | 8.8 |
| 10578 22 | M8 | 22 mm | 13 mm | 5.3 mm | M8X22 | 12.000 g | 8.8 |
| 10578 25 | M8 | 25 mm | 13 mm | 5.3 mm | M8X25 | 13.900 g | 8.8 |
| 10578 30 | M8 | 30 mm | 13 mm | 5.3 mm | M8X30 | 15.500 g | 8.8 |
| 10578 35 | M8 | 35 mm | 13 mm | 5.3 mm | M8X35 | 17.100 g | 8.8 |
| 10578 40 | M8 | 40 mm | 13 mm | 5.3 mm | M8X40 | 18.700 g | 8.8 |
| 10578 45 | M8 | 45 mm | 13 mm | 5.3 mm | M8X45 | 20.000 g | 8.8 |
| 10578 50 | M8 | 50 mm | 13 mm | 5.3 mm | M8X50 | 21.800 g | 8.8 |
| 10578 55 | M8 | 55 mm | 13 mm | 5.3 mm | M8X55 | 23.400 g | 8.8 |
| 10578 60 | M8 | 60 mm | 13 mm | 5.3 mm | M8X60 | 25.000 g | 8.8 |
| 10578 65 | M8 | 65 mm | 13 mm | 5.3 mm | M8X65 | 26.600 g | 8.8 |
| 10578 70 | M8 | 70 mm | 13 mm | 5.3 mm | M8X70 | 28.200 g | 8.8 |
| 10578 75 | M8 | 75 mm | 13 mm | 5.3 mm | M8X75 | 28.800 g | 8.8 |
| 10578 80 | M8 | 80 mm | 13 mm | 5.3 mm | M8X80 | 31.400 g | 8.8 |
| 10578 90 | M8 | 90 mm | 13 mm | 5.3 mm | M8X90 | 34.600 g | 8.8 |
| 10578 100 | M8 | 100 mm | 13 mm | 5.3 mm | M8X100 | 37.700 g | 8.8 |
| 10578 110 | M8 | 110 mm | 13 mm | 5.3 mm | M8X110 | 40.900 g | 8.8 |
| 10578 120 | M8 | 120 mm | 13 mm | 5.3 mm | M8X120 | 44.100 g | 8.8 |
| 10578 140 | M8 | 140 mm | 13 mm | 5.3 mm | M8X140 | 48.400 g | 8.8 |
| 10578 160 | M8 | 160 mm | 13 mm | 5.3 mm | M8X160 | 67.000 g | 8.8 |
| 10578 180 | M8 | 180 mm | 13 mm | 5.3 mm | M8X180 | 70.000 g | 8.8 |
| 105710 10 | M10 | 10 mm | 17 mm | 6.4 mm | M10X10 | 16.400 g | 8.8 |
| 105710 12 | M10 | 12 mm | 17 mm | 6.4 mm | M10X120 | 19.200 g | 8.8 |
| 105710 16 | M10 | 16 mm | 17 mm | 6.4 mm | M10X16 | 21.200 g | 8.8 |
| 105710 20 | M10 | 20 mm | 17 mm | 6.4 mm | M10X20 | 23.200 g | 8.8 |
| 105710 22 | M10 | 22 mm | 17 mm | 6.4 mm | M10X22 | 1.000 g | 8.8 |
| 105710 25 | M10 | 25 mm | 17 mm | 6.4 mm | M10X25 | 24.000 g | 8.8 |
| 105710 30 | M10 | 30 mm | 17 mm | 6.4 mm | M10X30 | 28.200 g | 8.8 |
| 105710 35 | M10 | 35 mm | 17 mm | 6.4 mm | M10X35 | 30.000 g | 8.8 |
| 105710 40 | M10 | 40 mm | 17 mm | 6.4 mm | M10X40 | 33.200 g | 8.8 |
| 105710 45 | M10 | 45 mm | 17 mm | 6.4 mm | M10X45 | 35.700 g | 8.8 |
| 105710 50 | M10 | 50 mm | 17 mm | 6.4 mm | M10X50 | 38.200 g | 8.8 |
| 105710 55 | M10 | 55 mm | 17 mm | 6.4 mm | M10X55 | 40.700 g | 8.8 |
| 105710 60 | M10 | 60 mm | 17 mm | 6.4 mm | M10X60 | 43.300 g | 8.8 |
| 105710 65 | M10 | 65 mm | 17 mm | 6.4 mm | M10X65 | 45.800 g | 8.8 |
| 105710 70 | M10 | 70 mm | 17 mm | 6.4 mm | M10X70 | 48.300 g | 8.8 |
| 105710 75 | M10 | 75 mm | 17 mm | 6.4 mm | M10X75 | 48.800 g | 8.8 |
| 105710 80 | M10 | 80 mm | 17 mm | 6.4 mm | M10X80 | 53.300 g | 8.8 |
| 105710 85 | M10 | 85 mm | 17 mm | 6.4 mm | M10X85 | 55.800 g | 8.8 |
| 105710 90 | M10 | 90 mm | 17 mm | 6.4 mm | M10X90 | 58.300 g | 8.8 |
| 105710 100 | M10 | 100 mm | 17 mm | 6.4 mm | M10X100 | 63.300 g | 8.8 |
| 105710 110 | M10 | 110 mm | 17 mm | 6.4 mm | M10X110 | 68.400 g | 8.8 |
| 105710 120 | M10 | 120 mm | 17 mm | 6.4 mm | M10X120 | 73.400 g | 8.8 |
| 105710 130 | M10 | 130 mm | 17 mm | 6.4 mm | M10X130 | 74.479 g | 8.8 |
| 105710 140 | M10 | 140 mm | 17 mm | 6.4 mm | M10X140 | 82.000 g | 8.8 |
| 105710 150 | M10 | 150 mm | 17 mm | 6.4 mm | M10X150 | 10.000 g | 8.8 |
| 105710 160 | M10 | 160 mm | 17 mm | 6.4 mm | M10X160 | 93.400 g | 8.8 |
| 105710 180 | M10 | 180 mm | 17 mm | 6.4 mm | M10180 | 100.000 g | 8.8 |

Hexagon screw, full thread

| Art. No. | Thread type x no- minal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|---|---------------|---------------------------|--------------------|-------------------------|--------------------------------------|-----------------------|
| 105710 200 | M10 | 200 mm | 17 mm | 6.4 mm | M10X200 | 113.400 g | 8.8 |
| 105712 12 | M12 | 12 mm | 19 mm | 7.5 mm | M12X12 | 27.030 g | 8.8 |
| 105712 16 | M12 | 16 mm | 19 mm | 7.5 mm | M12X16 | 30.200 g | 8.8 |
| 105712 20 | M12 | 20 mm | 19 mm | 7.5 mm | M12X20 | 33.000 g | 8.8 |
| 105712 25 | M12 | 25 mm | 19 mm | 7.5 mm | M12X25 | 36.600 g | 8.8 |
| 105712 30 | M12 | 30 mm | 19 mm | 7.5 mm | M12X30 | 40.000 g | 8.8 |
| 105712 35 | M12 | 35 mm | 19 mm | 7.5 mm | M12X35 | 43.800 g | 8.8 |
| 105712 40 | M12 | 40 mm | 19 mm | 7.5 mm | M12X40 | 47.400 g | 8.8 |
| 105712 45 | M12 | 45 mm | 19 mm | 7.5 mm | M12X45 | 51.000 g | 8.8 |
| 105712 50 | M12 | 50 mm | 19 mm | 7.5 mm | M12X50 | 54.500 g | 8.8 |
| 105712 55 | M12 | 55 mm | 19 mm | 7.5 mm | M12X55 | 58.100 g | 8.8 |
| 105712 60 | M12 | 60 mm | 19 mm | 7.5 mm | M12X60 | 61.700 g | 8.8 |
| 105712 65 | M12 | 65 mm | 19 mm | 7.5 mm | M12X65 | 63.560 g | 8.8 |
| 105712 70 | M12 | 70 mm | 19 mm | 7.5 mm | M12X70 | 68.900 g | 8.8 |
| 105712 75 | M12 | 75 mm | 19 mm | 7.5 mm | M12X75 | 72.500 g | 8.8 |
| 105712 80 | M12 | 80 mm | 19 mm | 7.5 mm | M12X80 | 76.100 g | 8.8 |
| 105712 85 | M12 | 85 mm | 19 mm | 7.5 mm | M12X85 | 78.000 g | 8.8 |
| 105712 90 | M12 | 90 mm | 19 mm | 7.5 mm | M12X90 | 83.300 g | 8.8 |
| 105712 100 | M12 | 100 mm | 19 mm | 7.5 mm | M12X100 | 90.000 g | 8.8 |
| 105712 110 | M12 | 110 mm | 19 mm | 7.5 mm | M12X110 | 97.700 g | 8.8 |
| 105712 120 | M12 | 120 mm | 19 mm | 7.5 mm | M12X120 | 105.000 g | 8.8 |
| 105712 125 | M12 | 125 mm | 19 mm | 7.5 mm | M12X125 | 120.000 g | 8.8 |
| 105712 130 | M12 | 130 mm | 19 mm | 7.5 mm | M12X130 | 112.000 g | 8.8 |
| 105712 140 | M12 | 140 mm | 19 mm | 7.5 mm | M12X140 | 119.000 g | 8.8 |
| 105712 150 | M12 | 150 mm | 19 mm | 7.5 mm | M12X150 | 150.000 g | 8.8 |
| 105712 160 | M12 | 160 mm | 19 mm | 7.5 mm | M12X160 | 133.000 g | 8.8 |
| 105712 180 | M12 | 180 mm | 19 mm | 7.5 mm | M12X180 | 147.900 g | 8.8 |
| 105712 200 | M12 | 200 mm | 19 mm | 7.5 mm | M12X200 | 161.000 g | 8.8 |
| 105712 250 | M12 | 250 mm | 19 mm | 7.5 mm | M12X250 | 216.000 g | 8.8 |
| 105712 260 | M12 | 260 mm | 19 mm | 7.5 mm | M12X260 | 230.000 g | 8.8 |
| 105714 20 | M14 | 20 mm | 22 mm | 8.8 mm | M14X20 | 71.000 g | 8.8 |
| 105714 25 | M14 | 25 mm | 22 mm | 8.8 mm | M14X25 | 53.000 g | 8.8 |
| 105714 30 | M14 | 30 mm | 22 mm | 8.8 mm | M14X30 | 58.000 g | 8.8 |
| 105714 35 | M14 | 35 mm | 22 mm | 8.8 mm | M14X35 | 63.000 g | 8.8 |
| 105714 40 | M14 | 40 mm | 22 mm | 8.8 mm | M14X40 | 68.000 g | 8.8 |
| 105714 45 | M14 | 45 mm | 22 mm | 8.8 mm | M14X45 | 73.000 g | 8.8 |
| 105714 50 | M14 | 50 mm | 22 mm | 8.8 mm | M14X50 | 78.000 g | 8.8 |
| 105714 60 | M14 | 60 mm | 22 mm | 8.8 mm | M14X60 | 88.000 g | 8.8 |
| 105714 70 | M14 | 70 mm | 22 mm | 8.8 mm | M14X70 | 97.800 g | 8.8 |
| 105714 80 | M14 | 80 mm | 22 mm | 8.8 mm | M14X80 | 107.000 g | 8.8 |
| 105714 100 | M14 | 100 mm | 22 mm | 8.8 mm | M14X100 | 127.000 g | 8.8 |
| 105714 150 | M14 | 150 mm | 22 mm | 8.8 mm | M14X150 | 300.000 g | 8.8 |
| 105716 16 | M16 | 16 mm | 24 mm | 10 mm | M16X160 | 58.300 g | 8.8 |
| 105716 20 | M16 | 20 mm | 24 mm | 10 mm | M16X20 | 64.000 g | 8.8 |
| 105716 25 | M16 | 25 mm | 24 mm | 10 mm | M16X25 | 71.000 g | 8.8 |
| 105716 30 | M16 | 30 mm | 24 mm | 10 mm | M16X30 | 77.000 g | 8.8 |
| 105716 35 | M16 | 35 mm | 24 mm | 10 mm | M16X35 | 84.000 g | 8.8 |
| 105716 40 | M16 | 40 mm | 24 mm | 10 mm | M16X40 | 91.000 g | 8.8 |
| 105716 45 | M16 | 45 mm | 24 mm | 10 mm | M16X45 | 98.000 g | 8.8 |
| 105716 50 | M16 | 50 mm | 24 mm | 10 mm | M16X50 | 103.000 g | 8.8 |
| 105716 55 | M16 | 55 mm | 24 mm | 10 mm | M16X55 | 110.000 g | 8.8 |
| 105716 60 | M16 | 60 mm | 24 mm | 10 mm | M16X60 | 117.000 g | 8.8 |
| 105716 65 | M16 | 65 mm | 24 mm | 10 mm | M16X65 | 123.500 g | 8.8 |

| Art. No. | Thread type x no-nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|--|---------------|---------------------------|--------------------|-------------------------|----------------------------------|-----------------------|
| 105716 70 | M16 | 70 mm | 24 mm | 10 mm | M16X70 | 130.000 g | 8.8 |
| 105716 75 | M16 | 75 mm | 24 mm | 10 mm | M16X75 | 134.840 g | 8.8 |
| 105716 80 | M16 | 80 mm | 24 mm | 10 mm | M16X80 | 144.000 g | 8.8 |
| 105716 90 | M16 | 90 mm | 24 mm | 10 mm | M16X90 | 157.000 g | 8.8 |
| 105716 100 | M16 | 100 mm | 24 mm | 10 mm | M16X100 | 170.000 g | 8.8 |
| 105716 110 | M16 | 110 mm | 24 mm | 10 mm | M16X110 | 183.500 g | 8.8 |
| 105716 120 | M16 | 120 mm | 24 mm | 10 mm | M16X120 | 197.000 g | 8.8 |
| 105716 130 | M16 | 130 mm | 24 mm | 10 mm | M16X130 | 100.000 g | 8.8 |
| 105716 140 | M16 | 140 mm | 24 mm | 10 mm | M16X140 | 224.000 g | 8.8 |
| 105716 150 | M16 | 150 mm | 24 mm | 10 mm | M16X150 | 237.000 g | 8.8 |
| 105716 160 | M16 | 160 mm | 24 mm | 10 mm | M16X160 | 250.000 g | 8.8 |
| 105716 180 | M16 | 180 mm | 24 mm | 10 mm | M16X180 | 280.000 g | 8.8 |
| 105716 200 | M16 | 200 mm | 24 mm | 10 mm | M16X200 | 302.000 g | 8.8 |
| 105716 220 | M16 | 220 mm | 24 mm | 10 mm | M26X220 | 100.000 g | 8.8 |
| 105716 240 | M16 | 240 mm | 24 mm | 10 mm | M16X240 | 350.440 g | 8.8 |
| 105716 250 | M16 | 250 mm | 24 mm | 10 mm | M16X250 | 367.000 g | 8.8 |
| 105716 260 | M16 | 260 mm | 24 mm | 10 mm | M16X260 | 400.000 g | 8.8 |
| 105716 350 | M16 | 350 mm | 24 mm | 10 mm | M16X350 | 600.000 g | 8.8 |
| 105718 40 | M18 | 40 mm | 27 mm | 11.5 mm | M18X40 | 119.400 g | 8.8 |
| 105718 45 | M18 | 45 mm | 27 mm | 11.5 mm | M18X45 | 130.000 g | 8.8 |
| 105718 50 | M18 | 50 mm | 27 mm | 11.5 mm | M18X50 | 137.000 g | 8.8 |
| 105718 60 | M18 | 60 mm | 27 mm | 11.5 mm | M18X60 | 154.000 g | 8.8 |
| 105718 70 | M18 | 70 mm | 27 mm | 11.5 mm | M18X70 | 170.000 g | 8.8 |
| 105718 80 | M18 | 80 mm | 27 mm | 11.5 mm | M18X80 | 187.000 g | 8.8 |
| 105718 120 | M18 | 120 mm | 27 mm | 11.5 mm | M18X120 | 30.000 g | 8.8 |
| 105720 20 | M20 | 20 mm | 30 mm | 12.5 mm | M20X20 | 114.000 g | 8.8 |
| 105720 25 | M20 | 25 mm | 30 mm | 12.5 mm | M20X25 | 126.000 g | 8.8 |
| 105720 30 | M20 | 30 mm | 30 mm | 12.5 mm | M20X30 | 136.000 g | 8.8 |
| 105720 35 | M20 | 35 mm | 30 mm | 12.5 mm | M20X35 | 147.000 g | 8.8 |
| 105720 40 | M20 | 40 mm | 30 mm | 12.5 mm | M20X40 | 157.000 g | 8.8 |
| 105720 45 | M20 | 45 mm | 30 mm | 12.5 mm | M20X45 | 167.000 g | 8.8 |
| 105720 50 | M20 | 50 mm | 30 mm | 12.5 mm | M20X50 | 178.000 g | 8.8 |
| 105720 55 | M20 | 55 mm | 30 mm | 12.5 mm | M20X55 | 188.000 g | 8.8 |
| 105720 60 | M20 | 60 mm | 30 mm | 12.5 mm | M20X60 | 199.000 g | 8.8 |
| 105720 65 | M20 | 65 mm | 30 mm | 12.5 mm | M20X65 | 209.000 g | 8.8 |
| 105720 70 | M20 | 70 mm | 30 mm | 12.5 mm | M20X70 | 219.000 g | 8.8 |
| 105720 75 | M20 | 75 mm | 30 mm | 12.5 mm | M20X75 | 229.000 g | 8.8 |
| 105720 80 | M20 | 80 mm | 30 mm | 12.5 mm | M20X80 | 240.000 g | 8.8 |
| 105720 90 | M20 | 90 mm | 30 mm | 12.5 mm | M20X90 | 260.000 g | 8.8 |
| 105720 100 | M20 | 100 mm | 30 mm | 12.5 mm | M20X100 | 281.000 g | 8.8 |
| 105720 110 | M20 | 110 mm | 30 mm | 12.5 mm | M20X110 | 302.000 g | 8.8 |
| 105720 120 | M20 | 120 mm | 30 mm | 12.5 mm | M20X120 | 330.000 g | 8.8 |
| 105720 130 | M20 | 130 mm | 30 mm | 12.5 mm | M20X130 | 375.100 g | 8.8 |
| 105720 140 | M20 | 140 mm | 30 mm | 12.5 mm | M20X140 | 364.000 g | 8.8 |
| 105720 150 | M20 | 150 mm | 30 mm | 12.5 mm | M20X150 | 384.000 g | 8.8 |
| 105720 160 | M20 | 160 mm | 30 mm | 12.5 mm | M20X160 | 404.000 g | 8.8 |
| 105720 180 | M20 | 180 mm | 30 mm | 12.5 mm | M20X180 | 444.000 g | 8.8 |
| 105720 200 | M20 | 200 mm | 30 mm | 12.5 mm | M20X200 | 484.000 g | 8.8 |
| 105720 220 | M20 | 220 mm | 30 mm | 12.5 mm | M20X220 | 528.000 g | 8.8 |
| 105720 240 | M20 | 240 mm | 30 mm | 12.5 mm | M20X240 | 600.000 g | 8.8 |
| 105720 250 | M20 | 250 mm | 30 mm | 12.5 mm | M20X250 | 590.000 g | 8.8 |
| 105720 260 | M20 | 260 mm | 30 mm | 12.5 mm | M20X260 | 100.000 g | 8.8 |
| 105720 300 | M20 | 300 mm | 30 mm | 12.5 mm | M20X300 | 780.000 g | 8.8 |
| 105722 40 | M22 | 40 mm | | 14 mm | M22X40 | 185.000 g | 8.8 |

Hexagon screw, full thread

| Art. No. | Thread type x no- minal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|-----------------|---|---------------|---------------------------|--------------------|-------------------------|--------------------------------------|-----------------------|
| 105722 50 | M22 | 50 mm | | 14 mm | M22X50 | 217.000 g | 8.8 |
| 105722 60 | M22 | 60 mm | | 14 mm | M22X60 | 244.000 g | 8.8 |
| 105722 70 | M22 | 70 mm | | 14 mm | M22X70 | 269.000 g | 8.8 |
| 105722 80 | M22 | 80 mm | | 14 mm | M22X80 | 297.000 g | 8.8 |
| 105722 100 | M22 | 100 mm | | 14 mm | M22X100 | 346.000 g | 8.8 |
| 105724 35 | M24 | 5 mm | 36 mm | 15 mm | M24X35 | 229.000 g | 8.8 |
| 105724 30 | M24 | 30 mm | 36 mm | 15 mm | M24X30 | 215.900 g | 8.8 |
| 105724 40 | M24 | 40 mm | 36 mm | 15 mm | M24X40 | 244.000 g | 8.8 |
| 105724 45 | M24 | 45 mm | 36 mm | 15 mm | M24X45 | 259.000 g | 8.8 |
| 105724 50 | M24 | 50 mm | 36 mm | 15 mm | M24X50 | 280.000 g | 8.8 |
| 105724 55 | M24 | 55 mm | 36 mm | 15 mm | M24X55 | 283.200 g | 8.8 |
| 105724 60 | M24 | 60 mm | 36 mm | 15 mm | M24X60 | 310.000 g | 8.8 |
| 105724 65 | M24 | 65 mm | 36 mm | 15 mm | M24X65 | 318.000 g | 8.8 |
| 105724 70 | M24 | 70 mm | 36 mm | 15 mm | M24X70 | 340.000 g | 8.8 |
| 105724 80 | M24 | 80 mm | 36 mm | 15 mm | M24X80 | 363.000 g | 8.8 |
| 105724 90 | M24 | 90 mm | 36 mm | 15 mm | M24X90 | 393.000 g | 8.8 |
| 105724 100 | M24 | 100 mm | 36 mm | 15 mm | M24X100 | 423.000 g | 8.8 |
| 105724 110 | M24 | 110 mm | 36 mm | 15 mm | M24X110 | 449.000 g | 8.8 |
| 105724 120 | M24 | 120 mm | 36 mm | 15 mm | M24X120 | 483.000 g | 8.8 |
| 105724 130 | M24 | 130 mm | 36 mm | 15 mm | M24X130 | 500.000 g | 8.8 |
| 105724 140 | M24 | 140 mm | 36 mm | 15 mm | M24X140 | 550.000 g | 8.8 |
| 105724 160 | M24 | 160 mm | 36 mm | 15 mm | M24X160 | 602.000 g | 8.8 |
| 105724 180 | M24 | 180 mm | 36 mm | 15 mm | M24X180 | 662.000 g | 8.8 |
| 105724 200 | M24 | 200 mm | 36 mm | 15 mm | M24X200 | 722.000 g | 8.8 |
| 105724 240 | M24 | 240 mm | 36 mm | 15 mm | M24X240 | 842.000 g | 8.8 |
| 105724 260 | M24 | 260 mm | 36 mm | 15 mm | M24X260 | 890.000 g | 8.8 |
| 105724 350 | M24 | 350 mm | 36 mm | 15 mm | M24X350 | 1400.000 g | 8.8 |
| 105727 50 | M27 | 50 mm | 41 mm | 17 mm | M27X50 | 385.000 g | 8.8 |
| 105727 60 | M27 | 60 mm | 41 mm | 17 mm | M27X60 | 416.000 g | 8.8 |
| 105727 70 | M27 | 70 mm | 41 mm | 17 mm | M27X70 | 454.000 g | 8.8 |
| 105727 80 | M27 | 80 mm | 41 mm | 17 mm | M27X80 | 492.000 g | 8.8 |
| 105727 90 | M27 | 90 mm | 41 mm | 17 mm | M27X90 | 530.000 g | 8.8 |
| 105727 100 | M27 | 100 mm | 41 mm | 17 mm | M27X100 | 550.000 g | 8.8 |
| 105727 200 | M27 | 200 mm | 41 mm | 17 mm | M27X200 | 947.000 g | 8.8 |
| 105730 30 | M30 | 30 mm | 46 mm | 18.7 mm | M30X30 | 0.010 g | 8.8 |
| 105730 40 | M30 | 40 mm | 46 mm | 18.7 mm | M30X40 | 448.000 g | 8.8 |
| 105730 45 | M30 | 45 mm | 46 mm | 18.7 mm | M30X45 | 472.000 g | 8.8 |
| 105730 50 | M30 | 50 mm | 46 mm | 18.7 mm | M30X50 | 496.000 g | 8.8 |
| 105730 60 | M30 | 60 mm | 46 mm | 18.7 mm | M30X60 | 543.000 g | 8.8 |
| 105730 70 | M30 | 70 mm | 46 mm | 18.7 mm | M30X70 | 590.000 g | 8.8 |
| 105730 80 | M30 | 80 mm | 46 mm | 18.7 mm | M30X80 | 637.000 g | 8.8 |
| 105730 90 | M30 | 90 mm | 46 mm | 18.7 mm | M30X90 | 685.000 g | 8.8 |
| 105730 100 | M30 | 100 mm | 46 mm | 18.7 mm | M30X100 | 732.000 g | 8.8 |
| 105730 110 | M30 | 110 mm | 46 mm | 18.7 mm | M30X110 | 800.000 g | 8.8 |
| 105730 120 | M30 | 120 mm | 46 mm | 18.7 mm | M30X120 | 827.000 g | 8.8 |
| 105730 130 | M30 | 130 mm | 46 mm | 18.7 mm | M30X130 | 874.000 g | 8.8 |
| 105730 140 | M30 | 140 mm | 46 mm | 18.7 mm | M30X140 | 921.000 g | 8.8 |
| 105730 150 | M30 | 150 mm | 46 mm | 18.7 mm | M30X150 | 969.000 g | 8.8 |
| 105730 160 | M30 | 160 mm | 46 mm | 18.7 mm | M30X160 | 1020.000 g | 8.8 |
| 105730 180 | M30 | 180 mm | 46 mm | 18.7 mm | M30X180 | 1110.000 g | 8.8 |
| 105730 200 | M30 | 200 mm | 46 mm | 18.7 mm | M30X200 | 1210.000 g | 8.8 |
| 105730 220 | M30 | 220 mm | 46 mm | 18.7 mm | M30X220 | 1300.000 g | 8.8 |
| 105730 240 | M30 | 240 mm | 46 mm | 18.7 mm | M30X240 | 1375.000 g | 8.8 |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Product weight (per item) | Property class |
|------------|--------------------------------|--------|--------------------|-------------|------------------|---------------------------|----------------|
| 105730 260 | M30 | 260 mm | 46 mm | 18.7 mm | M30X260 | 1.470 g | 8.8 |
| 105730 320 | M30 | 320 mm | 46 mm | 18.7 mm | M30X320 | 500.000 g | 8.8 |
| 105736 50 | M36 | 50 mm | 55 mm | 22.5 mm | M36X50 | 802.300 g | 8.8 |
| 105736 60 | M36 | 60 mm | 55 mm | 22.5 mm | M36X60 | 850.000 g | 8.8 |
| 105736 70 | M36 | 70 mm | 55 mm | 22.5 mm | M36X70 | 930.000 g | 8.8 |
| 105736 80 | M36 | 80 mm | 55 mm | 22.5 mm | M36X80 | 1000.000 g | 8.8 |
| 105736 90 | M36 | 90 mm | 55 mm | 22.5 mm | M36X90 | 1070.000 g | 8.8 |
| 105736 100 | M36 | 100 mm | 55 mm | 22.5 mm | M36X100 | 1122.000 g | 8.8 |
| 105736 110 | M36 | 110 mm | 55 mm | 22.5 mm | M36X110 | 1230.000 g | 8.8 |
| 105736 120 | M36 | 120 mm | 55 mm | 22.5 mm | M36X120 | 1246.000 g | 8.8 |
| 105736 130 | M36 | 130 mm | 55 mm | 22.5 mm | M36X130 | 1340.000 g | 8.8 |
| 105736 140 | M36 | 140 mm | 55 mm | 22.5 mm | M36X140 | 1410.000 g | 8.8 |
| 105736 160 | M36 | 160 mm | 55 mm | 22.5 mm | M36X160 | 1630.000 g | 8.8 |
| 105736 165 | M36 | 165 mm | 55 mm | 22.5 mm | M36X165 | 100.000 g | 8.8 |
| 105736 180 | M36 | 180 mm | 55 mm | 22.5 mm | M36X180 | 1690.000 g | 8.8 |
| 105736 200 | M36 | 200 mm | 55 mm | 22.5 mm | M36X200 | 1810.000 g | 8.8 |
| 105736 220 | M36 | 220 mm | 55 mm | 22.5 mm | M36X220 | 2110.000 g | 8.8 |



Hexagon screw, partial thread

DIN 931, steel 8.8, zinc-electroplated

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|------------|--------------------------------|--------|--------------------|-------------|------------------|----------|------------|-----|
| 105316 340 | | | | | | | | |
| 105320 340 | | | | | | | | |
| 105330 170 | | | | | | | | |
| 10534 40 | M4 | 40 mm | 7 mm | 2.8 mm | M4X40 | Steel | Galvanised | 931 |
| 10534 50 | M4 | 50 mm | 7 mm | 2.8 mm | M4X50 | Steel | Galvanised | 931 |
| 10534 60 | M4 | 60 mm | 7 mm | 2.8 mm | M4X60 | Steel | Galvanised | 931 |
| 10535 25 | M5 | 25 mm | 8 mm | 3.5 mm | M5X25 | Steel | Galvanised | 931 |
| 10535 30 | M5 | 30 mm | 8 mm | 3.5 mm | M5X30 | Steel | Galvanised | 931 |
| 10535 35 | M5 | 35 mm | 8 mm | 3.5 mm | M5X35 | Steel | Galvanised | 931 |
| 10535 40 | M5 | 40 mm | 8 mm | 3.5 mm | M5X40 | Steel | Galvanised | 931 |
| 10535 45 | M5 | 45 mm | 8 mm | 3.5 mm | M5X45 | Steel | Galvanised | 931 |
| 10535 50 | M5 | 50 mm | 8 mm | 3.5 mm | M5X50 | Steel | Galvanised | 931 |
| 10535 55 | M5 | 55 mm | 8 mm | 3.5 mm | M5X55 | Steel | Galvanised | 931 |
| 10535 60 | M5 | 60 mm | 8 mm | 3.5 mm | M5X60 | Steel | Galvanised | 931 |
| 10535 65 | M5 | 65 mm | 8 mm | 3.5 mm | M5X65 | Steel | Galvanised | 931 |
| 10535 70 | M5 | 70 mm | 8 mm | 3.5 mm | M5X70 | Steel | Galvanised | 931 |
| 10535 80 | M5 | 80 mm | 8 mm | 3.5 mm | M5X80 | Steel | Galvanised | 931 |
| 10536 25 | M6 | 25 mm | 10 mm | 4 mm | M6X25 | Steel | Galvanised | 931 |
| 10536 30 | M6 | 30 mm | 10 mm | 4 mm | M6X30 | Steel | Galvanised | 931 |
| 10536 35 | M6 | 35 mm | 10 mm | 4 mm | M6X35 | Steel | Galvanised | 931 |
| 10536 40 | M6 | 40 mm | 10 mm | 4 mm | M6X40 | Steel | Galvanised | 931 |
| 10536 45 | M6 | 45 mm | 10 mm | 4 mm | M6X45 | Steel | Galvanised | 931 |
| 10536 50 | M6 | 50 mm | 10 mm | 4 mm | M6X50 | Steel | Galvanised | 931 |
| 10536 55 | M6 | 55 mm | 10 mm | 4 mm | M6X55 | Steel | Galvanised | 931 |
| 10536 60 | M6 | 60 mm | 10 mm | 4 mm | M6X60 | Steel | Galvanised | 931 |

Hexagon screw, partial thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---|---------------|-------------------------------|--------------------|-----------------------------|-----------------|----------------|------------|
| 10536 65 | M6 | 65 mm | 10 mm | 4 mm | M6X65 | Steel | Galvanised | 931 |
| 10536 70 | M6 | 70 mm | 10 mm | 4 mm | M6X70 | Steel | Galvanised | 931 |
| 10536 75 | M6 | 75 mm | 10 mm | 4 mm | M6X75 | Steel | Galvanised | 931 |
| 10536 80 | M6 | 80 mm | 10 mm | 4 mm | M6X80 | Steel | Galvanised | 931 |
| 10536 85 | M6 | 85 mm | 10 mm | 4 mm | M6X85 | Steel | Galvanised | 931 |
| 10536 90 | M6 | 90 mm | 10 mm | 4 mm | M6X90 | Steel | Galvanised | 931 |
| 10536 100 | M6 | 100 mm | 10 mm | 4 mm | M6X100 | Steel | Galvanised | 931 |
| 10536 110 | M6 | 110 mm | 10 mm | 4 mm | M6X110 | Steel | Galvanised | 931 |
| 10536 120 | M6 | 120 mm | 10 mm | 4 mm | M6X120 | Steel | Galvanised | 931 |
| 10536 130 | M6 | 130 mm | 10 mm | 4 mm | M6X130 | Steel | Galvanised | 931 |
| 10536 160 | M6 | 160 mm | 10 mm | 4 mm | M6X160 | Steel | Galvanised | 931 |
| 10536 230 | M6 | 230 mm | 10 mm | 4 mm | M6X230 | Steel | Galvanised | 931 |
| 10536 290 | M6 | 290 mm | 10 mm | 4 mm | M6X290 | Steel | Galvanised | 931 |
| 10536 320 | M6 | 320 mm | 10 mm | 4 mm | M6X320 | Steel | Galvanised | 931 |
| 10538 30 | M8 | 30 mm | 13 mm | 5.3 mm | M8X30 | Steel | Galvanised | 931 |
| 10538 35 | M8 | 35 mm | 13 mm | 5.3 mm | M8X35 | Steel | Galvanised | 931 |
| 10538 40 | M8 | 40 mm | 13 mm | 5.3 mm | M8X40 | Steel | Galvanised | 931 |
| 10538 45 | M8 | 45 mm | 13 mm | 5.3 mm | M8X45 | Steel | Galvanised | 931 |
| 10538 50 | M8 | 50 mm | 13 mm | 5.3 mm | M8X50 | Steel | Galvanised | 931 |
| 10538 55 | M8 | 55 mm | 13 mm | 5.3 mm | M8X55 | Steel | Galvanised | 931 |
| 10538 60 | M8 | 60 mm | 13 mm | 5.3 mm | M8X60 | Steel | Galvanised | 931 |
| 10538 65 | M8 | 65 mm | 13 mm | 5.3 mm | M8X65 | Steel | Galvanised | 931 |
| 10538 70 | M8 | 70 mm | 13 mm | 5.3 mm | M8X70 | Steel | Galvanised | 931 |
| 10538 75 | M8 | 75 mm | 13 mm | 5.3 mm | M8X75 | Steel | Galvanised | 931 |
| 10538 80 | M8 | 80 mm | 13 mm | 5.3 mm | M8X80 | Steel | Galvanised | 931 |
| 10538 85 | M8 | 85 mm | 13 mm | 5.3 mm | M8X85 | Steel | Galvanised | 931 |
| 10538 90 | M8 | 90 mm | 13 mm | 5.3 mm | M8X90 | Steel | Galvanised | 931 |
| 10538 95 | M8 | 95 mm | 13 mm | 5.3 mm | M8X95 | Steel | Galvanised | 931 |
| 10538 100 | M8 | 100 mm | 13 mm | 5.3 mm | M8X100 | Steel | Galvanised | 931 |
| 10538 105 | M8 | 105 mm | 13 mm | 5.3 mm | M8X105 | Steel | Galvanised | 931 |
| 10538 110 | M8 | 110 mm | 13 mm | 5.3 mm | M8X110 | Steel | Galvanised | 931 |
| 10538 115 | M8 | 115 mm | 13 mm | 5.3 mm | M8X115 | Steel | Galvanised | 931 |
| 10538 120 | M8 | 120 mm | 13 mm | 5.3 mm | M8X120 | Steel | Galvanised | 931 |
| 10538 125 | M8 | 125 mm | 13 mm | 5.3 mm | M8X125 | Steel | Galvanised | 931 |
| 10538 130 | M8 | 130 mm | 13 mm | 5.3 mm | M8X130 | Steel | Galvanised | 931 |
| 10538 140 | M8 | 140 mm | 13 mm | 5.3 mm | M8X140 | Steel | Galvanised | 931 |
| 10538 150 | M8 | 150 mm | 13 mm | 5.3 mm | M8X150 | Steel | Galvanised | 931 |
| 10538 160 | M8 | 160 mm | 13 mm | 5.3 mm | M8X160 | Steel | Galvanised | 931 |
| 10538 180 | M8 | 180 mm | 13 mm | 5.3 mm | M8X180 | Steel | Galvanised | 931 |
| 10538 200 | M8 | 200 mm | 13 mm | 5.3 mm | M8X200 | Steel | Galvanised | 931 |
| 10538 220 | M8 | 220 mm | 13 mm | 5.3 mm | M8X220 | Steel | Galvanised | 931 |
| 10538 230 | M8 | 230 mm | 13 mm | 5.3 mm | M8X230 | Steel | Galvanised | 931 |
| 10538 240 | M8 | 240 mm | 13 mm | 5.3 mm | M8X240 | Steel | Galvanised | 931 |
| 105310 35 | M10 | 35 mm | 17 mm | 7 mm | M10X35 | Steel | Galvanised | 931 |
| 105310 40 | M10 | 40 mm | 17 mm | 7 mm | M10X40 | Steel | Galvanised | 931 |
| 105310 45 | M10 | 45 mm | 17 mm | 7 mm | M10X45 | Steel | Galvanised | 931 |
| 105310 50 | M10 | 50 mm | 17 mm | 7 mm | M10X50 | Steel | Galvanised | 931 |
| 105310 55 | M10 | 55 mm | 17 mm | 7 mm | M10X55 | Steel | Galvanised | 931 |
| 105310 60 | M10 | 60 mm | 17 mm | 7 mm | M10X60 | Steel | Galvanised | 931 |
| 105310 65 | M10 | 65 mm | 17 mm | 7 mm | M10X65 | Steel | Galvanised | 931 |
| 105310 70 | M10 | 70 mm | 17 mm | 7 mm | M10X70 | Steel | Galvanised | 931 |
| 105310 75 | M10 | 75 mm | 17 mm | 7 mm | M10X75 | Steel | Galvanised | 931 |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---|---------------|-------------------------------|--------------------|-----------------------------|-----------------|----------------|------------|
| 105310 80 | M10 | 80 mm | 17 mm | 7 mm | M10X80 | Steel | Galvanised | 931 |
| 105310 85 | M10 | 85 mm | 17 mm | 7 mm | M10X85 | Steel | Galvanised | 931 |
| 105310 90 | M10 | 90 mm | 17 mm | 7 mm | M10X90 | Steel | Galvanised | 931 |
| 105310 100 | M10 | 100 mm | 17 mm | 7 mm | M10X100 | Steel | Galvanised | 931 |
| 105310 110 | M10 | 110 mm | 17 mm | 7 mm | M10X110 | Steel | Galvanised | 931 |
| 105310 120 | M10 | 120 mm | 17 mm | 7 mm | M10X120 | Steel | Galvanised | 931 |
| 105310 125 | M10 | 125 mm | 17 mm | 7 mm | M10X125 | Steel | Galvanised | 931 |
| 105310 130 | M10 | 130 mm | 17 mm | 7 mm | M10X130 | Steel | Galvanised | 931 |
| 105310 140 | M10 | 140 mm | 17 mm | 7 mm | M10X140 | Steel | Galvanised | 931 |
| 105310 150 | M10 | 150 mm | 17 mm | 7 mm | M10X150 | Steel | Galvanised | 931 |
| 105310 160 | M10 | 160 mm | 17 mm | 7 mm | M10X160 | Steel | Galvanised | 931 |
| 105310 170 | M10 | 170 mm | 17 mm | 7 mm | M10X170 | Steel | Galvanised | 931 |
| 105310 180 | M10 | 180 mm | 17 mm | 7 mm | M10X180 | Steel | Galvanised | 931 |
| 105310 200 | M10 | 200 mm | 17 mm | 7 mm | M10X200 | Steel | Galvanised | 931 |
| 105310 220 | M10 | 220 mm | 17 mm | 7 mm | M10X220 | Steel | Galvanised | 931 |
| 105310 240 | M10 | 240 mm | 17 mm | 7 mm | M10X240 | Steel | Galvanised | 931 |
| 105310 300 | M10 | 300 mm | 17 mm | 7 mm | M10X300 | Steel | Galvanised | 931 |
| 105312 40 | M12 | 40 mm | 19 mm | 7.5 mm | M12X40 | Steel | Galvanised | 931 |
| 105312 45 | M12 | 45 mm | 19 mm | 7.5 mm | M12X45 | Steel | Galvanised | 931 |
| 105312 50 | M12 | 50 mm | 19 mm | 7.5 mm | M12X50 | Steel | Galvanised | 931 |
| 105312 55 | M12 | 55 mm | 19 mm | 7.5 mm | M12X55 | Steel | Galvanised | 931 |
| 105312 60 | M12 | 60 mm | 19 mm | 7.5 mm | M12X60 | Steel | Galvanised | 931 |
| 105312 65 | M12 | 65 mm | 19 mm | 7.5 mm | M12X65 | Steel | Galvanised | 931 |
| 105312 70 | M12 | 70 mm | 19 mm | 7.5 mm | M12X70 | Steel | Galvanised | 931 |
| 105312 75 | M12 | 75 mm | 19 mm | 7.5 mm | M12X75 | Steel | Galvanised | 931 |
| 105312 80 | M12 | 80 mm | 19 mm | 7.5 mm | M12X80 | Steel | Galvanised | 931 |
| 105312 85 | M12 | 85 mm | 19 mm | 7.5 mm | M12X85 | Steel | Galvanised | 931 |
| 105312 90 | M12 | 90 mm | 19 mm | 7.5 mm | M12X90 | Steel | Galvanised | 931 |
| 105312 100 | M12 | 100 mm | 19 mm | 7.5 mm | M12X100 | Steel | Galvanised | 931 |
| 105312 110 | M12 | 110 mm | 19 mm | 7.5 mm | M12X110 | Steel | Galvanised | 931 |
| 105312 120 | M12 | 120 mm | 19 mm | 7.5 mm | M12X120 | Steel | Galvanised | 931 |
| 105312 130 | M12 | 130 mm | 19 mm | 7.5 mm | M12X130 | Steel | Galvanised | 931 |
| 105312 140 | M12 | 140 mm | 19 mm | 7.5 mm | M12X140 | Steel | Galvanised | 931 |
| 105312 150 | M12 | 150 mm | 19 mm | 7.5 mm | M12X150 | Steel | Galvanised | 931 |
| 105312 160 | M12 | 160 mm | 19 mm | 7.5 mm | M12X160 | Steel | Galvanised | 931 |
| 105312 180 | M12 | 180 mm | 19 mm | 7.5 mm | M12X180 | Steel | Galvanised | 931 |
| 105312 200 | M12 | 200 mm | 19 mm | 7.5 mm | M12X200 | Steel | Galvanised | 931 |
| 105312 210 | M12 | 210 mm | 19 mm | 7.5 mm | M12X210 | Steel | Galvanised | 931 |
| 105312 220 | M12 | 220 mm | 19 mm | 7.5 mm | M12X220 | Steel | Galvanised | 931 |
| 105312 240 | M12 | 240 mm | 19 mm | 7.5 mm | M12X240 | Steel | Galvanised | 931 |
| 105312 260 | M12 | 260 mm | 19 mm | 7.5 mm | M12X260 | Steel | Galvanised | 931 |
| 105312 280 | M12 | 280 mm | 19 mm | 7.5 mm | M12X280 | Steel | Galvanised | 931 |
| 105312 300 | M12 | 300 mm | 19 mm | 7.5 mm | M12X300 | Steel | Galvanised | 931 |
| 105312 320 | M12 | 320 mm | 19 mm | 7.5 mm | M12X320 | Steel | Galvanised | 931 |
| 105312 400 | M12 | 400 mm | 19 mm | 7.5 mm | M12X400 | Steel | Galvanised | 931 |
| 105314 45 | M14 | 45 mm | 22 mm | 8.8 mm | M14X45 | Steel | Galvanised | 931 |
| 105314 50 | M14 | 50 mm | 22 mm | 8.8 mm | M14X50 | Steel | Galvanised | 931 |
| 105314 55 | M14 | 55 mm | 22 mm | 8.8 mm | M14X55 | Steel | Galvanised | 931 |
| 105314 60 | M14 | 60 mm | 22 mm | 8.8 mm | M14X60 | Steel | Galvanised | 931 |
| 105314 65 | M14 | 65 mm | 22 mm | 8.8 mm | M14X65 | Steel | Galvanised | 931 |
| 105314 70 | M14 | 70 mm | 22 mm | 8.8 mm | M14X70 | Steel | Galvanised | 931 |
| 105314 75 | M14 | 75 mm | 22 mm | 8.8 mm | M14X75 | Steel | Galvanised | 931 |
| 105314 80 | M14 | 80 mm | 22 mm | 8.8 mm | M14X80 | Steel | Galvanised | 931 |

Hexagon screw, partial thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|-----------------|----------------|------------|
| 105314 90 | M14 | 90 mm | 22 mm | 8.8 mm | M14X90 | Steel | Galvanised | 931 |
| 105314 100 | M14 | 100 mm | 22 mm | 8.8 mm | M14X100 | Steel | Galvanised | 931 |
| 105314 110 | M14 | 110 mm | 22 mm | 8.8 mm | M14X110 | Steel | Galvanised | 931 |
| 105314 120 | M14 | 120 mm | 22 mm | 8.8 mm | M14X120 | Steel | Galvanised | 931 |
| 105314 130 | M14 | 130 mm | 22 mm | 8.8 mm | M14X130 | Steel | Galvanised | 931 |
| 105314 140 | M14 | 140 mm | 22 mm | 8.8 mm | M14X140 | Steel | Galvanised | 931 |
| 105314 150 | M14 | 150 mm | 22 mm | 8.8 mm | M14X150 | Steel | Galvanised | 931 |
| 105314 160 | M14 | 160 mm | 22 mm | 8.8 mm | M14X160 | Steel | Galvanised | 931 |
| 105314 180 | M14 | 180 mm | 22 mm | 8.8 mm | M14X180 | Steel | Galvanised | 931 |
| 105314 240 | M14 | 240 mm | 22 mm | 8.8 mm | M14X240 | Steel | Galvanised | 931 |
| 105316 50 | M16 | 50 mm | 24 mm | 10 mm | M16X50 | Steel | Galvanised | 931 |
| 105316 55 | M16 | 55 mm | 24 mm | 10 mm | M16X55 | Steel | Galvanised | 931 |
| 105316 60 | M16 | 60 mm | 24 mm | 10 mm | M16X60 | Steel | Galvanised | 931 |
| 105316 65 | M16 | 65 mm | 24 mm | 10 mm | M16X65 | Steel | Galvanised | 931 |
| 105316 70 | M16 | 70 mm | 24 mm | 10 mm | M16X70 | Steel | Galvanised | 931 |
| 105316 75 | M16 | 75 mm | 24 mm | 10 mm | M16X75 | Steel | Galvanised | 931 |
| 105316 80 | M16 | 80 mm | 24 mm | 10 mm | M16X80 | Steel | Galvanised | 931 |
| 105316 85 | M16 | 85 mm | 24 mm | 10 mm | M16X85 | Steel | Galvanised | 931 |
| 105316 90 | M16 | 90 mm | 24 mm | 10 mm | M16X90 | Steel | Galvanised | 931 |
| 105316 95 | M16 | 95 mm | 24 mm | 10 mm | M16X95 | Steel | Galvanised | 931 |
| 105316 100 | M16 | 100 mm | 24 mm | 10 mm | M16X100 | Steel | Galvanised | 931 |
| 105316 110 | M16 | 110 mm | 24 mm | 10 mm | M16X110 | Steel | Galvanised | 931 |
| 105316 120 | M16 | 120 mm | 24 mm | 10 mm | M16X120 | Steel | Galvanised | 931 |
| 105316 130 | M16 | 130 mm | 24 mm | 10 mm | M16X130 | Steel | Galvanised | 931 |
| 105316 140 | M16 | 140 mm | 24 mm | 10 mm | M16X140 | Steel | Galvanised | 931 |
| 105316 150 | M16 | 150 mm | 24 mm | 10 mm | M16X150 | Steel | Galvanised | 931 |
| 105316 160 | M16 | 160 mm | 24 mm | 10 mm | M16X160 | Steel | Galvanised | 931 |
| 105316 170 | M16 | 170 mm | 24 mm | 10 mm | M16X170 | Steel | Galvanised | 931 |
| 105316 180 | M16 | 180 mm | 24 mm | 10 mm | M16X180 | Steel | Galvanised | 931 |
| 105316 185 | M16 | 185 mm | 24 mm | 10 mm | M16X185 | Steel | Galvanised | 931 |
| 105316 190 | M16 | 190 mm | 24 mm | 10 mm | M16X190 | Steel | Galvanised | 931 |
| 105316 200 | M16 | 200 mm | 24 mm | 10 mm | M16X200 | Steel | Galvanised | 931 |
| 105316 220 | M16 | 220 mm | 24 mm | 10 mm | M16X220 | Steel | Galvanised | 931 |
| 105316 230 | M16 | 230 mm | 24 mm | 10 mm | M16X230 | Steel | Galvanised | 931 |
| 105316 240 | M16 | 240 mm | 24 mm | 10 mm | M16X240 | Steel | Galvanised | 931 |
| 105316 260 | M16 | 260 mm | 24 mm | 10 mm | M16X260 | Steel | Galvanised | 931 |
| 105316 280 | M16 | 280 mm | 24 mm | 10 mm | M16X280 | Steel | Galvanised | 931 |
| 105316 300 | M16 | 300 mm | 24 mm | 10 mm | M16X300 | Steel | Galvanised | 931 |
| 105316 320 | M16 | 320 mm | 24 mm | 10 mm | M16X320 | Steel | Galvanised | 931 |
| 105316 360 | M16 | 360 mm | 24 mm | 10 mm | M16X360 | Steel | Galvanised | 931 |
| 105316 380 | M16 | 380 mm | 24 mm | 10 mm | M16X380 | Steel | Galvanised | 931 |
| 105316 400 | M16 | 400 mm | 24 mm | 10 mm | M16X400 | Steel | Galvanised | 931 |
| 105316 450 | M16 | 450 mm | 24 mm | 10 mm | M16X450 | Steel | Galvanised | 931 |
| 105318 60 | M18 | 60 mm | 27 mm | 11.5 mm | M18X60 | Steel | Galvanised | 931 |
| 105318 65 | M18 | 65 mm | 27 mm | 11.5 mm | M18X65 | Steel | Galvanised | 931 |
| 105318 70 | M18 | 70 mm | 27 mm | 11.5 mm | M18X70 | Steel | Galvanised | 931 |
| 105318 75 | M18 | 75 mm | 27 mm | 11.5 mm | M18X75 | Steel | Galvanised | 931 |
| 105318 80 | M18 | 80 mm | 27 mm | 11.5 mm | M18X80 | Steel | Galvanised | 931 |
| 105318 90 | M18 | 90 mm | 27 mm | 11.5 mm | M18X90 | Steel | Galvanised | 931 |
| 105318 100 | M18 | 100 mm | 27 mm | 11.5 mm | M18X100 | Steel | Galvanised | 931 |
| 105318 120 | M18 | 120 mm | 27 mm | 11.5 mm | M18X120 | Steel | Galvanised | 931 |
| 105318 140 | M18 | 140 mm | 27 mm | 11.5 mm | M18X140 | Steel | Galvanised | 931 |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---|---------------|-------------------------------|--------------------|-----------------------------|-----------------|----------------|------------|
| 105318 150 | M18 | 150 mm | 27 mm | 11.5 mm | M18X150 | Steel | Galvanised | 931 |
| 105318 200 | M18 | 200 mm | 27 mm | 11.5 mm | M18X200 | Steel | Galvanised | 931 |
| 105320 60 | M20 | 60 mm | 30 mm | 12.5 mm | M20X60 | Steel | Galvanised | 931 |
| 105320 65 | M20 | 65 mm | 30 mm | 12.5 mm | M20X65 | Steel | Galvanised | 931 |
| 105320 70 | M20 | 70 mm | 30 mm | 12.5 mm | M20X70 | Steel | Galvanised | 931 |
| 105320 75 | M20 | 75 mm | 30 mm | 12.5 mm | M20X75 | Steel | Galvanised | 931 |
| 105320 80 | M20 | 80 mm | 30 mm | 12.5 mm | M20X80 | Steel | Galvanised | 931 |
| 105320 85 | M20 | 85 mm | 30 mm | 12.5 mm | M20X85 | Steel | Galvanised | 931 |
| 105320 90 | M20 | 90 mm | 30 mm | 12.5 mm | M20X90 | Steel | Galvanised | 931 |
| 105320 100 | M20 | 100 mm | 30 mm | 12.5 mm | M20X100 | Steel | Galvanised | 931 |
| 105320 110 | M20 | 110 mm | 30 mm | 12.5 mm | M20X110 | Steel | Galvanised | 931 |
| 105320 120 | M20 | 120 mm | 30 mm | 12.5 mm | M20X120 | Steel | Galvanised | 931 |
| 105320 130 | M20 | 130 mm | 30 mm | 12.5 mm | M20X130 | Steel | Galvanised | 931 |
| 105320 140 | M20 | 140 mm | 30 mm | 12.5 mm | M20X140 | Steel | Galvanised | 931 |
| 105320 150 | M20 | 150 mm | 30 mm | 12.5 mm | M20X150 | Steel | Galvanised | 931 |
| 105320 160 | M20 | 160 mm | 30 mm | 12.5 mm | M20X160 | Steel | Galvanised | 931 |
| 105320 170 | M20 | 170 mm | 30 mm | 12.5 mm | M20X170 | Steel | Galvanised | 931 |
| 105320 180 | M20 | 180 mm | 30 mm | 12.5 mm | M20X180 | Steel | Galvanised | 931 |
| 105320 188 | M20 | 180 mm | 30 mm | 12.5 mm | M20X180 | Steel | Galvanised | 931 |
| 105320 190 | M20 | 190 mm | 30 mm | 12.5 mm | M20X190 | Steel | Galvanised | 931 |
| 105320 200 | M20 | 200 mm | 30 mm | 12.5 mm | M20X200 | Steel | Galvanised | 931 |
| 105320 210 | M20 | 210 mm | 30 mm | 12.5 mm | M20X210 | Steel | Galvanised | 931 |
| 105320 220 | M20 | 220 mm | 30 mm | 12.5 mm | M20X220 | Steel | Galvanised | 931 |
| 105320 230 | M20 | 230 mm | 30 mm | 12.5 mm | M20X230 | Steel | Galvanised | 931 |
| 105320 240 | M20 | 240 mm | 30 mm | 12.5 mm | M20X240 | Steel | Galvanised | 931 |
| 105320 260 | M20 | 260 mm | 30 mm | 12.5 mm | M20X260 | Steel | Galvanised | 931 |
| 105320 280 | M20 | 280 mm | 30 mm | 12.5 mm | M20X280 | Steel | Galvanised | 931 |
| 105320 300 | M20 | 300 mm | 30 mm | 12.5 mm | M20X300 | Steel | Galvanised | 931 |
| 105320 320 | M20 | 320 mm | 30 mm | 12.5 mm | M20X320 | Steel | Galvanised | 931 |
| 105330 350 | M20 | 350 mm | 46 mm | 18.7 mm | M20X350 | Steel | Galvanised | 931 |
| 105320 360 | M20 | 360 mm | 30 mm | 12.5 mm | M20X360 | Steel | Galvanised | 931 |
| 105320 400 | M20 | 400 mm | 30 mm | 12.5 mm | M20X400 | Steel | Galvanised | 931 |
| 105320 420 | M20 | 420 mm | 30 mm | 12.5 mm | M20X420 | Steel | Galvanised | 931 |
| 105320 440 | M20 | 440 mm | 30 mm | 12.5 mm | M20X440 | Steel | Galvanised | 931 |
| 105322 70 | M22 | 70 mm | 32 mm | 14 mm | M22X70 | Steel | Galvanised | 931 |
| 105322 75 | M22 | 75 mm | 32 mm | 14 mm | M22X75 | Steel | Galvanised | 931 |
| 105322 80 | M22 | 80 mm | 32 mm | 14 mm | M22X80 | Steel | Galvanised | 931 |
| 105322 90 | M22 | 90 mm | 32 mm | 14 mm | M22X90 | Steel | Galvanised | 931 |
| 105322 100 | M22 | 100 mm | 32 mm | 14 mm | M22X100 | Steel | Galvanised | 931 |
| 105322 120 | M22 | 120 mm | 32 mm | 14 mm | M22X120 | Steel | Galvanised | 931 |
| 105322 140 | M22 | 140 mm | 32 mm | 14 mm | M22X140 | Steel | Galvanised | 931 |
| 105322 150 | M22 | 150 mm | 32 mm | 14 mm | M22X150 | Steel | Galvanised | 931 |
| 105322 200 | M22 | 200 mm | 32 mm | 14 mm | M22X200 | Steel | Galvanised | 931 |
| 105322 220 | M22 | 220 mm | 32 mm | 14 mm | M22X220 | Steel | Galvanised | 931 |
| 105322 240 | M22 | 240 mm | 32 mm | 14 mm | M22X240 | Steel | Galvanised | 931 |
| 105322 260 | M22 | 260 mm | 32 mm | 14 mm | M22X260 | Steel | Galvanised | 931 |
| 105324 70 | M24 | 70 mm | 36 mm | 15 mm | M24X70 | Steel | Galvanised | 931 |
| 105324 75 | M24 | 75 mm | 36 mm | 15 mm | M24X75 | Steel | Galvanised | 931 |
| 105324 80 | M24 | 80 mm | 36 mm | 15 mm | M24X80 | Steel | Galvanised | 931 |
| 105324 85 | M24 | 85 mm | 36 mm | 15 mm | M24X85 | Steel | Galvanised | 931 |
| 105324 90 | M24 | 90 mm | 36 mm | 15 mm | M24X90 | Steel | Galvanised | 931 |
| 105324 100 | M24 | 100 mm | 36 mm | 15 mm | M24X100 | Steel | Galvanised | 931 |
| 105324 110 | M24 | 110 mm | 36 mm | 15 mm | M24X110 | Steel | Galvanised | 931 |

Hexagon screw, partial thread

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---------------------------------------|---------------|---------------------------|--------------------|-------------------------|-----------------|----------------|------------|
| 105324 120 | M24 | 120 mm | 36 mm | 15 mm | M24X120 | Steel | Galvanised | 931 |
| 105324 130 | M24 | 130 mm | 36 mm | 15 mm | M24X130 | Steel | Galvanised | 931 |
| 105324 140 | M24 | 140 mm | 36 mm | 15 mm | M24X140 | Steel | Galvanised | 931 |
| 105324 150 | M24 | 150 mm | 36 mm | 15 mm | M24X150 | Steel | Galvanised | 931 |
| 105324 160 | M24 | 160 mm | 36 mm | 15 mm | M24X160 | Steel | Galvanised | 931 |
| 105324 170 | M24 | 170 mm | 36 mm | 15 mm | M24X170 | Steel | Galvanised | 931 |
| 105324 180 | M24 | 180 mm | 36 mm | 15 mm | M24X180 | Steel | Galvanised | 931 |
| 105324 190 | M24 | 190 mm | 36 mm | 15 mm | M24X190 | Steel | Galvanised | 931 |
| 105324 200 | M24 | 200 mm | 36 mm | 15 mm | M24X200 | Steel | Galvanised | 931 |
| 105324 220 | M24 | 220 mm | 36 mm | 15 mm | M24X220 | Steel | Galvanised | 931 |
| 105324 240 | M24 | 240 mm | 36 mm | 15 mm | M24X240 | Steel | Galvanised | 931 |
| 105324 250 | M24 | 250 mm | 36 mm | 15 mm | M24X250 | Steel | Galvanised | 931 |
| 105324 260 | M24 | 260 mm | 36 mm | 15 mm | M24X260 | Steel | Galvanised | 931 |
| 105324 280 | M24 | 280 mm | 36 mm | 15 mm | M24X280 | Steel | Galvanised | 931 |
| 105324 300 | M24 | 300 mm | 36 mm | 15 mm | M24X300 | Steel | Galvanised | 931 |
| 105324 320 | M24 | 320 mm | 36 mm | 15 mm | M24X320 | Steel | Galvanised | 931 |
| 105324 360 | M24 | 360 mm | 36 mm | 15 mm | M24X360 | Steel | Galvanised | 931 |
| 105324 380 | M24 | 380 mm | 36 mm | 15 mm | M24X380 | Steel | Galvanised | 931 |
| 105324 440 | M24 | 440 mm | 36 mm | 15 mm | M24X440 | Steel | Galvanised | 931 |
| 105324 500 | M24 | 500 mm | 36 mm | 15 mm | M24X500 | Steel | Galvanised | 931 |
| 105327 60 | M27 | 60 mm | 41 mm | 17 mm | M27X60 | Steel | Galvanised | 931 |
| 105327 80 | M27 | 80 mm | 41 mm | 17 mm | M27X80 | Steel | Galvanised | 931 |
| 105327 90 | M27 | 90 mm | 41 mm | 17 mm | M27X90 | Steel | Galvanised | 931 |
| 105327 100 | M27 | 100 mm | 41 mm | 17 mm | M27X100 | Steel | Galvanised | 931 |
| 105327 110 | M27 | 110 mm | 41 mm | 17 mm | M27X110 | Steel | Galvanised | 931 |
| 105327 120 | M27 | 120 mm | 41 mm | 17 mm | M27X120 | Steel | Galvanised | 931 |
| 105327 140 | M27 | 140 mm | 41 mm | 17 mm | M27X140 | Steel | Galvanised | 931 |
| 105327 150 | M27 | 150 mm | 41 mm | 17 mm | M27X150 | Steel | Galvanised | 931 |
| 105327 160 | M27 | 160 mm | 41 mm | 17 mm | M27X160 | Steel | Galvanised | 931 |
| 105327 180 | M27 | 180 mm | 41 mm | 17 mm | M27X180 | Steel | Galvanised | 931 |
| 105327 200 | M27 | 200 mm | 41 mm | 17 mm | M27X200 | Steel | Galvanised | 931 |
| 105327 220 | M27 | 220 mm | 41 mm | 17 mm | M27X220 | Steel | Galvanised | 931 |
| 105327 240 | M27 | 240 mm | 41 mm | 17 mm | M27X240 | Steel | Galvanised | 931 |
| 105330 80 | M30 | 80 mm | 46 mm | 18.7 mm | M30X80 | Steel | Galvanised | 931 |
| 105330 90 | M30 | 90 mm | 46 mm | 18.7 mm | M30X90 | Steel | Galvanised | 931 |
| 105330 100 | M30 | 100 mm | 46 mm | 18.7 mm | M30X100 | Steel | Galvanised | 931 |
| 105330 110 | M30 | 110 mm | 46 mm | 18.7 mm | M30X110 | Steel | Galvanised | 931 |
| 105330 120 | M30 | 120 mm | 46 mm | 18.7 mm | M30X120 | Steel | Galvanised | 931 |
| 105330 130 | M30 | 130 mm | 46 mm | 18.7 mm | M30X130 | Steel | Galvanised | 931 |
| 105330 140 | M30 | 140 mm | 46 mm | 18.7 mm | M30X140 | Steel | Galvanised | 931 |
| 105330 150 | M30 | 150 mm | 46 mm | 18.7 mm | M30X150 | Steel | Galvanised | 931 |
| 105330 160 | M30 | 160 mm | 46 mm | 18.7 mm | M30X160 | Steel | Galvanised | 931 |
| 105330 180 | M30 | 180 mm | 46 mm | 18.7 mm | M30X180 | Steel | Galvanised | 931 |
| 105330 190 | M30 | 190 mm | 46 mm | 18.7 mm | M30X190 | Steel | Galvanised | 931 |
| 105330 200 | M30 | 200 mm | 46 mm | 18.7 mm | M30X200 | Steel | Galvanised | 931 |
| 105330 220 | M30 | 220 mm | 46 mm | 18.7 mm | M30X220 | Steel | Galvanised | 931 |
| 105330 240 | M30 | 240 mm | 46 mm | 18.7 mm | M30X240 | Steel | Galvanised | 931 |
| 105330 260 | M30 | 260 mm | 46 mm | 18.7 mm | M30X260 | Steel | Galvanised | 931 |
| 105330 280 | M30 | 280 mm | 46 mm | 18.7 mm | M30X280 | Steel | Galvanised | 931 |
| 105330 300 | M30 | 300 mm | 46 mm | 18.7 mm | M30X300 | Steel | Galvanised | 931 |
| 105330 320 | M30 | 320 mm | 46 mm | 18.7 mm | M30X320 | Steel | Galvanised | 931 |
| 105330 360 | M30 | 360 mm | 46 mm | 18.7 mm | M30X360 | Steel | Galvanised | 931 |

| Art. No. | Thread type x nominal diameter | Length | Width across flats | Head height | Type description | Material | Surface | DIN |
|-----------------|---|---------------|-------------------------------|--------------------|-----------------------------|-----------------|----------------|------------|
| 105330 380 | M30 | 380 mm | 46 mm | 18.7 mm | M30X380 | Steel | Galvanised | 931 |
| 105330 400 | M30 | 400 mm | 46 mm | 18.7 mm | M30X400 | Steel | Galvanised | 931 |
| 105330 410 | M30 | 410 mm | 46 mm | 18.7 mm | M30X410 | Steel | Galvanised | 931 |
| 105330 420 | M30 | 420 mm | 46 mm | 18.7 mm | M30X420 | Steel | Galvanised | 931 |
| 105330 640 | M30 | 640 mm | 46 mm | 18.7 mm | M30X640 | Steel | Galvanised | 931 |
| 105330 700 | M30 | 700 mm | 46 mm | 18.7 mm | M30X700 | Steel | Galvanised | 931 |
| 105336 100 | M36 | 100 mm | 55 mm | 22.5 mm | M36X100 | Steel | Galvanised | 931 |
| 105336 110 | M36 | 110 mm | 55 mm | 22.5 mm | M36X110 | Steel | Galvanised | 931 |
| 105336 120 | M36 | 120 mm | 55 mm | 22.5 mm | M36X120 | Steel | Galvanised | 931 |
| 105336 130 | M36 | 130 mm | 55 mm | 22.5 mm | M36X130 | Steel | Galvanised | 931 |
| 105336 140 | M36 | 140 mm | 55 mm | 22.5 mm | M36X140 | Steel | Galvanised | 931 |
| 105336 150 | M36 | 150 mm | 55 mm | 22.5 mm | M36X150 | Steel | Galvanised | 931 |
| 105336 160 | M36 | 160 mm | 55 mm | 22.5 mm | M36X160 | Steel | Galvanised | 931 |
| 105336 180 | M36 | 180 mm | 55 mm | 22.5 mm | M36X180 | Steel | Galvanised | 931 |
| 105336 190 | M36 | 190 mm | 55 mm | 22.5 mm | M36X190 | Steel | Galvanised | 931 |
| 105336 200 | M36 | 200 mm | 55 mm | 22.5 mm | M36X200 | Steel | Galvanised | 931 |
| 105336 210 | M36 | 210 mm | 55 mm | 22.5 mm | M36X210 | Steel | Galvanised | 931 |
| 105336 220 | M36 | 220 mm | 55 mm | 22.5 mm | M36X220 | Steel | Galvanised | 931 |
| 105336 240 | M36 | 240 mm | 55 mm | 22.5 mm | M36X240 | Steel | Galvanised | 931 |
| 105336 260 | M36 | 260 mm | 55 mm | 22.5 mm | M36X260 | Steel | Galvanised | 931 |
| 105336 280 | M36 | 280 mm | 55 mm | 22.5 mm | M36X280 | Steel | Galvanised | 931 |
| 105336 300 | M36 | 300 mm | 55 mm | 22.5 mm | M36X300 | Steel | Galvanised | 931 |
| 105336 320 | M36 | 320 mm | 55 mm | 22.5 mm | M36X320 | Steel | Galvanised | 931 |
| 105336 340 | M36 | 340 mm | 55 mm | 22.5 mm | M36X340 | Steel | Galvanised | 931 |
| 105336 350 | M36 | 350 mm | 55 mm | 22.5 mm | M36X350 | Steel | Galvanised | 931 |
| 105336 380 | M36 | 380 mm | 55 mm | 22.5 mm | M36X380 | Steel | Galvanised | 931 |
| 105336 400 | M36 | 400 mm | 55 mm | 22.5 mm | M36X400 | Steel | Galvanised | 931 |
| 105342 130 | M42 | 130 mm | 65 mm | 26 mm | M42X130 | Steel | Galvanised | 931 |
| 105342 140 | M42 | 140 mm | 65 mm | 26 mm | M42X140 | Steel | Galvanised | 931 |
| 105342 150 | M42 | 150 mm | 65 mm | 26 mm | M42X150 | Steel | Galvanised | 931 |
| 105342 160 | M42 | 160 mm | 65 mm | 26 mm | M42X160 | Steel | Galvanised | 931 |
| 105342 170 | M42 | 170 mm | 65 mm | 26 mm | M42X170 | Steel | Galvanised | 931 |
| 105342 180 | M42 | 180 mm | 65 mm | 26 mm | M42X180 | Steel | Galvanised | 931 |
| 105342 200 | M42 | 200 mm | 65 mm | 26 mm | M42X200 | Steel | Galvanised | 931 |
| 105342 220 | M42 | 220 mm | 65 mm | 26 mm | M42X220 | Steel | Galvanised | 931 |
| 105342 240 | M42 | 240 mm | 65 mm | 26 mm | M42X240 | Steel | Galvanised | 931 |
| 105342 300 | M42 | 300 mm | 65 mm | 26 mm | M42X300 | Steel | Galvanised | 931 |
| 105342 360 | M42 | 360 mm | 65 mm | 26 mm | M42X360 | Steel | Galvanised | 931 |



Façade construction screw to metal frame

Stainless A2, Ruspert coating

For fastening façade boards to metal frame without pre-drilled holes.

Drill tip and first two threads made of hardened carbon steel.

Head and shank made of stainless steel A2 (1.4301)

Ruspert-coated.

Drilling capacity 1.2 mm min./1.8 mm max.

- **Nominal diameter :** 4.2 mm
- **Length :** 32 mm
- **Min./max. material thickness for steel :** 1.2-1.8 mm
- **Head diameter :** 10 mm
- **Internal drive :** TX20
- **Head height :** 2.8 mm
- **Head type :** Pan head
- **Material :** Bimetal
- **Surface :** Flake zinc silver
- **Product weight (per item):** 3.190 g
- **Drive type :** Internal TX
- **Max. attachment thickness :** 15 mm
- **Screw-thread length with drill tip :** 32 mm

| | |
|-----------|--|
| Art. No. | |
| 761842 32 | |


PIAS™

Element screw, carbon steel + RUSPERT coating PIAS

DIN7504-K RUSPERT, with seal, long drill tip

For fastening insulation elements to steel structures.

Drilling length 12 mm. AV 8

Carbon steel, Ruspert-coated

Screw :

- Hardened carbon steel
- Ruspert-coated
- Head DIN 7504 K
- Washer Ø 19mm
- Stainless steel A2 and vulcanised EPDM rubber seal

- **Material :** Hardened steel
- **Surface :** Flake zinc
- **DIN :** 7504
- **Min. material thickness for steel :** 3 mm
- **Max. material thickness for steel :** 12 mm
- **Min./max. material thickness for steel :** 3-12 mm
- **Outside diameter of the sealing washer :** 19 mm
- **Width across flats :** 8 mm

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) |
|------------|------------------|---------------------------|
| 0200063110 | 6,3X110 | 22.700 g |
| 0200063120 | 6,3X120 | 23.500 g |
| 0200063130 | 6,3X130 | 26.000 g |
| 0200063141 | 6,3X140/5 | 28.000 g |
| 0200063151 | 6,3X150/5 | 29.500 g |
| 0200063190 | 6,3X190 | 35.790 g |
| 0200063235 | 6,3X235 | 42.000 g |
| 0200063285 | 6,3X285 | 52.000 g |


PIASTA™
Drilling screw, round pan head, PH head with Phillips groove PIASTA stainless A2 + RUSPERT coating
Drilling, threading and screwing all in one step
Stainless steel A2

- A2 (AISI 304) - screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability
-

- **Material :** Bimetal
- **Surface :** Flake zinc
- **Internal drive :** H2
- **Drive type :** Crosshead

Precise bore diameter in each screw connection

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min. material thickness for steel | Max. material thickness for steel | Min./max. material thickness for steel | Effective length | Product weight (per item) |
|-----------------|-------------------------|--|--|---|-------------------------|----------------------------------|
| 721135 16 | 3,5X16 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 11 mm | 1.100 g |
| 721142 16 | 4,2X16 | 1.75 mm | 3.0 mm | 1.75-3.0 mm | 10 mm | 1.570 g |
| 721142 19 | 4,2X19 | 1.75 mm | 3.0 mm | 1.75-3.0 mm | 13 mm | 1.810 g |
| 721142 25 | 4,2X25 | 1.75 mm | 3.0 mm | 1.75-3.0 mm | 19 mm | 2.270 g |
| 721142 32 | 4,2X32 | 1.75 mm | 3.0 mm | 1.75-3.0 mm | 26 mm | 3.000 g |
| 721142 38 | 4,2X38 | 1.75 mm | 3.0 mm | 1.75-3.0 mm | 32 mm | 3.200 g |
| 721148 19 | 4,8X19 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 9 mm | 3.000 g |
| 721148 25 | 4,8X25 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 15 mm | 3.150 g |
| 721148 32 | 4,8X32 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 22 mm | 3.750 g |
| 721148 38 | 4,8X38 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 28 mm | 4.350 g |


PIAS™

Drilling screw, round pan head, PH head with Phillips groove PIAS stainless AISI410 + RUSPERT coating

Drilling, threading and screwing all in one step

Stainless steel AISI410

- AISI 410 – stainless steel, which can be hardened, magnetic

- **Material :** Stainless steel AISI 410
- **Surface :** Flake zinc
- **Min. material thickness for steel :** 1 mm
- **Max. material thickness for steel :** 2 mm
- **Min./max. material thickness for steel :** 1-2 mm
- **Internal drive :** H2
- **Drive type :** Crosshead

Precise bore diameter in each screw connection

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | Type description | Effective length | Product weight (per item) |
|-----------|------------------|------------------|---------------------------|
| 021114213 | 4,2X13 | 7 mm | 1.370 g |
| 021114216 | 4,2X16 | 10 mm | 1.570 g |
| 021114219 | 4,2X19 | 13 mm | 1.810 g |
| 021114225 | 4,2X25 | 19 mm | 2.200 g |


PIAS™

Drilling screw, round pan head, PH head with Phillips groove PIAS carbon steel + RUSPERT coating

Drilling, threading and screwing all in one step

Less time and effort

- **Material :** Steel
- **Surface :** Flake zinc
- **Internal drive :** H2
- **Drive type :** Crosshead

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min. material thickness for steel | Max. material thickness for steel | Min./max. material thickness for steel | Effective length | Product weight (per item) |
|-----------|------------------|-----------------------------------|-----------------------------------|--|------------------|---------------------------|
| 621135 13 | 3,5X13 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 8 mm | 1.010 g |
| 621135 19 | 3,5X19 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 14 mm | 1.250 g |
| 621142 25 | 4,2X25 | 1.75 mm | 3 mm | 1.75-3 mm | 19 mm | 2.200 g |
| 621148 16 | 4,8X16 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 6 mm | 2.250 g |
| 621148 19 | 4,8X19 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 9 mm | 2.550 g |
| 621148 38 | 4,8X38 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 28 mm | 4.300 g |
| 621148 50 | 4,8X50 | 1.75 mm | 4.4 mm | 1.75-4.4 mm | 40 mm | 5.400 g |


PIAS™

Drilling screw, round pan head, PH head with Phillips groove PIAS zinc-electroplated

Drilling, threading and screwing all in one step

Less time and effort

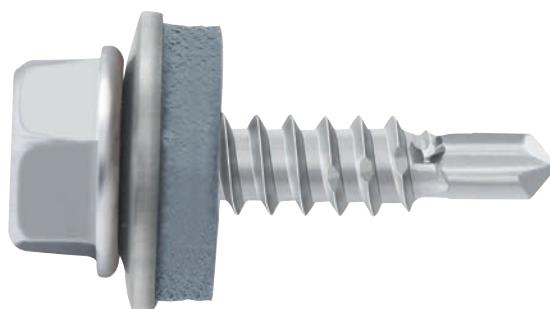
- **Material :** Steel
- **Surface :** Galvanised
- **Drive type :** Crosshead

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min. material thickness for steel | Max. material thickness for steel | Min./max. material thickness for steel | Effective length | Internal drive | Product weight (per item) |
|-----------|------------------|-----------------------------------|-----------------------------------|--|------------------|----------------|---------------------------|
| 021129 95 | 2,9X9,5 | 1.20 mm | 1.90 mm | 1.20-1.90 mm | 4 mm | H1 | 0.520 g |
| 021129 13 | 2,9X13 | 1.20 mm | 1.90 mm | 1.20-1.90 mm | 6 mm | H1 | 0.650 g |
| 021129 19 | 2,9X19 | 1.20 mm | 1.90 mm | 1.20-1.90 mm | 12 mm | H1 | 0.850 g |
| 021129 25 | 2,9X25 | 1.20 mm | 1.90 mm | 1.20-1.90 mm | 18 mm | H1 | 1.100 g |
| 021135 95 | 3,5X9,5 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 4 mm | H2 | 0.790 g |
| 021135 13 | 3,5X13 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 6 mm | H2 | 1.100 g |
| 021135 16 | 3,5X16 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 11 mm | H2 | 1.100 g |
| 021135 19 | 3,5X19 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 12 mm | H2 | 1.250 g |
| 021135 25 | 3,5X25 | 0.7 mm | 2.25 mm | 0.7-2.25 mm | 18 mm | H2 | 1.500 g |
| 021139 16 | 3,9X16 | 0.7 mm | 2.40 mm | 0.7-2.40 mm | 9 mm | H2 | 1.460 g |
| 021139 19 | 3,9X19 | 0.7 mm | 2.40 mm | 0.7-2.40 mm | 10 mm | H2 | 1.500 g |
| 021142 13 | 4,2X13 | 1.75 mm | 3 mm | 1.75-3 mm | 7 mm | H2 | 1.370 g |
| 021142 16 | 4,2X16 | 1.75 mm | 3 mm | 1.75-3 mm | 10 mm | H2 | 1.570 g |
| 021142 19 | 4,2X19 | 1.75 mm | 3 mm | 1.75-3 mm | 13 mm | H2 | 1.810 g |
| 021142 25 | 4,2X25 | 1.75 mm | 3 mm | 1.75-3 mm | 19 mm | H2 | 2.200 g |
| 021142 32 | 4,2X32 | 1.75 mm | 3 mm | 1.75-3 mm | 26 mm | H2 | 2.800 g |
| 021142 38 | 4,2X38 | 1.75 mm | 3 mm | 1.75-3 mm | 32 mm | H2 | 2.750 g |
| 021142 45 | 4,2X45 | 1.75 mm | 3 mm | 1.75-3 mm | 39 mm | H2 | 3.950 g |
| 021148 13 | 4,8X13 | 1.75 mm | 4 mm | 1.75-4 mm | 3 mm | H2 | 2.220 g |
| 021148 16 | 4,8X16 | 1.75 mm | 4 mm | 1.75-4 mm | 6 mm | H2 | 2.250 g |
| 021148 19 | 4,8X19 | 1.75 mm | 4 mm | 1.75-4 mm | 9 mm | H2 | 2.550 g |
| 021148 22 | 4,8X22 | 1.75 mm | 4 mm | 1.75-4 mm | 12 mm | H2 | 3.100 g |
| 021148 25 | 4,8X25 | 1.75 mm | 4 mm | 1.75-4 mm | 15 mm | H2 | 3.150 g |
| 021148 32 | 4,8X32 | 1.75 mm | 4 mm | 1.75-4 mm | 22 mm | H2 | 3.750 g |
| 021148 38 | 4,8X38 | 1.75 mm | 4 mm | 1.75-4 mm | 28 mm | H2 | 4.300 g |
| 021148 50 | 4,8X50 | 1.75 mm | 4 mm | 1.75-4 mm | 40 mm | H2 | 5.400 g |


PIASTA™

Self-drilling screw, hexagon head, includes seal PIASTA A2 + RUSPERT

DIN7504-K A2 + seal

Drilling, threading and screwing all in one step

- **Material :** Bimetal
- **DIN :** 7504

Stainless steel A2

- A2 (AISI 304) - screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability
- Sealing washer : stainless steel A2 + EPDM rubber

Precise bore diameter in each screw connection

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 421448 25 | 4,8X25 | 5.320 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 421448 32 | 4,8X32 | 6.300 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 421448 38 | 4,8X38 | 5.380 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 421455 25 | 5,5X25 | 5.940 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 421455 38 | 5,5X38 | 7.550 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 421455 50 | 5,5X50 | 9.050 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 421455 60 | 5,5X60 | 10.100 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 421455 80 | 5,5X80 | 12.500 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 421463 25 | 6,3X25 | 6.860 g | 2-6 mm | 10 mm | 16 mm |
| 421463 38 | 6,3X38 | 10.400 g | 2-6 mm | 10 mm | 16 mm |
| 421463 60 | 6,3X60 | 14.450 g | 2-6 mm | 10 mm | 16 mm |


PIASTA™

Self-drilling screw, hexagon head, includes seal PIASTA A2 + RUSPERT, long drill tip

DIN7504-K A2 + seal, long drill tip

Drilling, threading and screwing all in one step

Stainless steel A2

- A2 (AISI 304) – screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability
- Sealing washer : stainless steel A2 + EPDM rubber

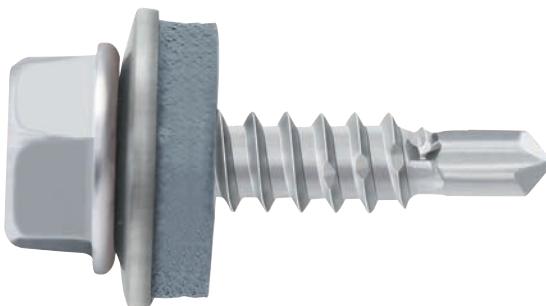
- **Type description :** 5/5,5X40
- **Material :** Bimetal
- **Product weight (per item):** 8.000 g
- **Min./max. material thickness :** 3-12 mm
- **Width across flats :** 8 mm
- **Outside diameter of the sealing washer :** 16 mm

Long drill tip : drilling depth min. 3mm - max. 12mm

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | |
|-----------|--|
| 421455 40 | |


PIAS™

Self-drilling screw, hexagon head, includes seal PIAS AISI 410 + RUSPERT

DIN 7504-K + seal

Drill, tap and screw – all in one go

- **Material :** Stainless steel AISI 410

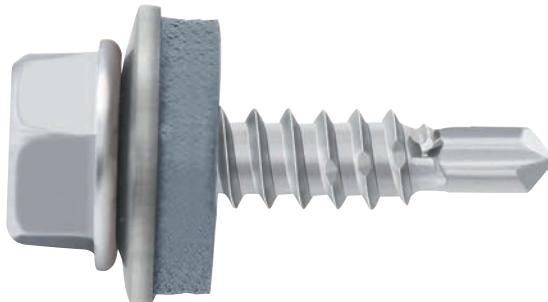
Less time and effort

Exact hole diameter for each screw

- Minimum thread tolerance
- Optimal mounting, every time

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 821448 16 | 4,8X16 | 3.410 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 821448 19 | 4,8X19 | 3.620 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 821448 25 | 4,8X25 | 4.260 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 821463 19 | 6,3X19 | 5.800 g | 2-6 mm | 10 mm | 16 mm |
| 821463 25 | 6,3X25 | 6.860 g | 2-6 mm | 10 mm | 16 mm |

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 821463 32 | 6,3X32 | 7.920 g | 2-6 mm | 10 mm | 16 mm |
| 821463 38 | 6,3X38 | 8.820 g | 2-6 mm | 10 mm | 16 mm |
| 821463 50 | 6,3X50 | 10.730 g | 2-6 mm | 10 mm | 16 mm |


PIAS™

Self-drilling screw, hexagon head, includes seal PIAS carbon steel + RUSPERT

DIN7504-K RUSPERT + seal

Drilling, threading and screwing all in one step

Less time and effort

- **Material:** Steel

- **DIN:** 7504

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 621474825 | 4,8X25 | 4.340 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 621475525 | 5,5X25 | 5.940 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 621476325 | 6,3X25 | 8.610 g | 2-6 mm | 10 mm | 16 mm |



Self-drilling screw, hexagon head, includes seal PIAS carbon steel + RUSPERT, long drill tip

DIN7504-K RUSPERT + seal, long drill tip

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min. 3mm - max. 12mm

Exact drilling diameter for each screw-mounting

- **Type description :** 5,5X32/5
- **Material :** Steel
- **DIN :** 7504
- **Product weight (per item):** 6.860 g
- **Min./max. material thickness :** 3-12 mm
- **Width across flats :** 8 mm
- **Outside diameter of the sealing washer :** 16 mm

| Art. No. | |
|-----------|--|
| 621495533 | |



Self-drilling screw, hexagon head, includes seal PIAS zinc-electroplated

DIN7504-K ZN + seal

Drilling, threading and screwing all in one step

- **Material :** Steel
- **DIN :** 7504

With sealing washer, washer material : aluminium + EPMD rubber

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 321448 19 | 4,8X19 | 3.620 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 321448 25 | 4,8X25 | 4.260 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 321448 32 | 4,8X32 | 7.000 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 321448 38 | 4,8X38 | 5.380 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 321448 50 | 4,8X50 | 6.200 g | 1.75-4.4 mm | 8 mm | 14 mm |
| 321455 19 | 5,5X19 | 5.580 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 321455 25 | 5,5X25 | 5.940 g | 1.75-5.25 mm | 8 mm | 16 mm |

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness | Width across flats | Outside diameter of the sealing washer |
|-----------|------------------|---------------------------|------------------------------|--------------------|--|
| 321455 32 | 5,5X32 | 6.740 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 321455 38 | 5,5X38 | 6.150 g | 1.75-5.25 mm | 8 mm | 16 mm |
| 321463 25 | 6,3X25 | 6.860 g | 2-6 mm | 10 mm | 16 mm |
| 321463 32 | 6,3X32 | 7.920 g | 2-6 mm | 10 mm | 16 mm |
| 321463 50 | 6,3X50 | 10.860 g | 2-6 mm | 10 mm | 16 mm |


PIAS™

Self-drilling screw, hexagon head, includes seal PIAS zinc-electroplated, long drill tip

DIN7504-K ZN + seal, long drill tip

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min. 3mm - max. 12mm

With sealing washer, washer material : aluminium + EPMD rubber

- **Material :** Steel
- **DIN :** 7504
- **Min./max. material thickness :** 3-12 mm
- **Width across flats :** 8 mm
- **Outside diameter of the sealing washer :** 16 mm

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 321455 33 | 5/5,5X32 | 6.920 g |
| 321455 77 | 5/5,5X76 | 13.000 g |


Fix master

Drilling screw, hexagon head, long drill tip

DIN7504-K, zinc-coated steel, blue passivated (A3K)

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min 3mm – max 12mm

- **Material :** Steel
- **DIN :** 7504

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 921415532 | 5,5X32 | 5.330 g |
| 921415538 | 5,5X38 | 6.000 g |
| 921415550 | 5,5X50 | 8.000 g |


PIASTA™

Drilling screw, hexagon head PIASTA

DIN 7504-K, stainless A2 + RUSPERT coating

Drilling, threading and screwing all in one step

- **Material:** Bimetal
- **DIN:** 7504

Stainless steel A2

- A2 (AISI 304) – screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability

Precise bore diameter in each screw connection

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness for steel | Width across flats | Flange diameter |
|-----------------|-------------------------|----------------------------------|---|---------------------------|------------------------|
| 721448 16 | 4,8X16 | 3.150 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 721448 19 | 4,8X19 | 3.600 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 721448 25 | 4,8X25 | 4.150 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 721448 32 | 4,8X32 | 4.600 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 721448 38 | 4,8X38 | 5.290 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 721455 25 | 5,5X25 | 4.350 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 721455 38 | 5,5X38 | 6.000 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 721455 50 | 5,5X50 | 7.500 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 721455 60 | 5,5X60 | 9.000 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 721463 25 | 6,3X25 | 7.150 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 721463 32 | 6,3X32 | 6.440 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 721463 38 | 6,3X38 | 7.340 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 721463 50 | 6,3X50 | 11.500 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 721463 60 | 6,3X60 | 1.000 g | 2.0-6.0 mm | 10 mm | 12.19 mm |


PIASTA™

Drilling screw, hexagon head, long drill tip PIASTA

DIN 7504-K, stainless A2 + RUSPERT coating

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min 3mm – max 12mm

Stainless steel A2

- A2 (AISI 304) – screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability

- **Type description :** 5/5,5X40
- **Material :** Bimetal
- **DIN :** 7504
- **Product weight (per item):** 6.500 g
- **Min./max. material thickness for steel :** 3.0-12.0 mm
- **Width across flats :** 8 mm
- **Flange diameter :** 10.5 mm

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | |
|-----------|--|
| 721455 40 | |


PIAS™

Drilling screw, hexagon head PIAS

DIN 7504-K, stainless AISI410 + RUSPERT coating

Drilling, threading and screwing all in one step

- **Material :** Stainless steel AISI 410
- **DIN :** 7504

Stainless steel AISI410

- AISI 410 – stainless steel, which can be hardened, magnetic

Precise bore diameter in each screw connection

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness for steel | Width across flats | Flange diameter |
|-----------|------------------|---------------------------|--|--------------------|-----------------|
| 021414219 | 4,2X19 | 2.140 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 021414816 | 4,8X16 | 2.720 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021414819 | 4,8X19 | 2.970 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021414825 | 4,8X25 | 3.510 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021416319 | 6,3X19 | 4.170 g | 2.0-6.0 mm | 10 mm | 13 mm |
| 021416325 | 6,3X25 | 6.900 g | 2.0-6.0 mm | 10 mm | 13 mm |
| 021416338 | 6,3X38 | 9.200 g | 2.0-6.0 mm | 10 mm | 13 mm |
| 021416350 | 6,3X50 | 11.000 g | 2.0-6.0 mm | 10 mm | 13 mm |


PIAS™

Drilling screw, hexagon head PIAS

DIN 7504-K, carbon steel + RUSPERT coating

Drilling, threading and screwing all in one step

Less time and effort

- **Material:** Steel

- **DIN:** 7504

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness for steel | Width across flats | Flange diameter |
|-----------|------------------|---------------------------|--|--------------------|-----------------|
| 621442 25 | 4,2X25 | 2.310 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 621448 16 | 4,8X16 | 2.770 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 19 | 4,8X19 | 3.030 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 25 | 4,8X25 | 3.570 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 32 | 4,8X32 | 4.200 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 38 | 4,8X38 | 4.330 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 50 | 4,8X50 | 5.800 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621448 65 | 4,8X65 | 6.780 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 621455 19 | 5,5X19 | 3.600 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 621455 25 | 5,5X25 | 4.350 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 621455 32 | 5,5X32 | 5.160 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 621463 19 | 6,3X19 | 6.360 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 621463 25 | 6,3X25 | 7.000 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 621463 38 | 6,3X38 | 9.370 g | 2.0-6.0 mm | 10 mm | 12.19 mm |


PIAS™

Drilling screw, hexagon head, long drill tip PIAS

DIN 7504-K, carbon steel + RUSPERT coating

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min. 3mm - max. 12mm

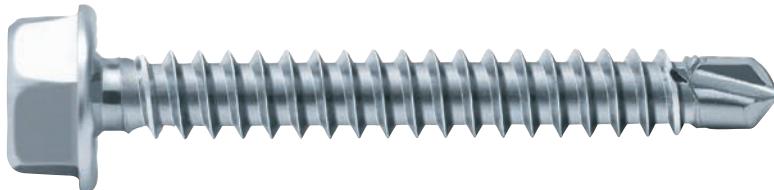
Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

- **Type description :** 5/5,5X32
- **Material :** Steel
- **Product weight (per item):** 5.330 g
- **Min./max. material thickness for steel :** 3.0-12.0 mm
- **Width across flats :** 8 mm
- **Flange diameter :** 10.1 mm

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | |
|-----------|--|
| 621495532 | |


PIAS™

Drilling screw, hexagon head PIAS

DIN7504-K, zinc-coated steel, blue passivated (A3K)

Drilling, threading and screwing all in one step

Less time and effort

- **Material :** Steel
- **DIN :** 7504

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness for steel | Width across flats | Flange diameter |
|-----------|------------------|---------------------------|--|--------------------|-----------------|
| 021435 95 | 3,5X9,5 | 1.010 g | 0.7-2.25 mm | 7 mm | 7.67 mm |
| 021435 13 | 3,5X13 | 1.150 g | 0.7-2.25 mm | 7 mm | 7.67 mm |
| 021435 16 | 3,5X16 | 1.360 g | 0.7-2.25 mm | 7 mm | 7.67 mm |
| 021435 19 | 3,5X19 | 1.420 g | 0.7-2.25 mm | 7 mm | 7.67 mm |
| 021435 25 | 3,5X25 | 1.720 g | 0.7-2.25 mm | 7 mm | 7.67 mm |
| 021442 13 | 4,2X13 | 1.500 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 021442 16 | 4,2X16 | 2.160 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 021442 19 | 4,2X19 | 2.050 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 021442 25 | 4,2X25 | 2.700 g | 0.7-3.0 mm | 7 mm | 8.18 mm |
| 021442 32 | 4,2X32 | 2.850 g | 0.7-3.0 mm | 7 mm | 8.18 mm |

Drilling screw, hexagon head PIAS

| Art. No. | Type description | Product weight (per item) | Min./max. material thickness for steel | Width across flats | Flange diameter |
|-----------|------------------|---------------------------|--|--------------------|-----------------|
| 021448 13 | 4,8X13 | 2.850 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 16 | 4,8X16 | 2.700 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 19 | 4,8X19 | 3.030 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 22 | 4,8X22 | 3.400 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 25 | 4,8X25 | 3.570 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 32 | 4,8X32 | 4.200 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 38 | 4,8X38 | 4.330 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 50 | 4,8X50 | 5.800 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021448 65 | 4,8X65 | 6.780 g | 1.75-4.4 mm | 8 mm | 9.75 mm |
| 021455 19 | 5,5X19 | 3.600 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 021455 25 | 5,5X25 | 4.350 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 021455 32 | 5,5X32 | 5.160 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 021455 38 | 5,5X38 | 6.050 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 021455 50 | 5,5X50 | 9.500 g | 1.75-5.25 mm | 8 mm | 10.1 mm |
| 021463 16 | 6,3X16 | 5.600 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 021463 19 | 6,3X19 | 6.360 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 021463 25 | 6,3X25 | 7.150 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 021463 32 | 6,3X32 | 8.400 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 021463 38 | 6,3X38 | 9.370 g | 2.0-6.0 mm | 10 mm | 12.19 mm |
| 021463 50 | 6,3X50 | 9.340 g | 2.0-6.0 mm | 10 mm | 12.19 mm |



PIAS™

Drilling screw, hexagon head, long drill tip PIAS

DIN7504-K, zinc-coated steel, blue passivated (A3K)

Drilling, threading and screwing all in one step

Long drill tip : drilling depth min. 3mm - max. 12mm

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

- **Material :** Steel
- **Min./max. material thickness for steel :** 3.0-12.0 mm
- **Width across flats :** 8 mm
- **Flange diameter :** 10.1 mm

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 121455 32 | 5,5X32/5 | 5.330 g |
| 121455 75 | 5,5X75/5 | 11.640 g |

| Art. No. | |
|----------|--|
| | |



Pan head drilling screw (KFR), PH head with Phillips groove

Zinc-coated steel, blue passivated (A2K)

Drilling, threading and screwing all in one step

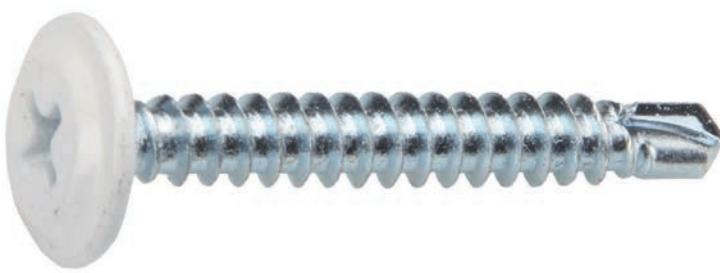
Requires clearly less time and effort

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

- **Material :** Steel
- **Surface :** Galvanised
- **Min. material thickness for steel :**
1.75 mm
- **Max. material thickness for steel :**
3.0 mm
- **Min./max. material thickness for steel :**
1.75-3.0 mm
- **Head diameter :** 10 mm
- **Internal drive :** H2
- **Drive type :** Crosshead

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 913142 13 | 4,2X13 | 1.690 g |
| 913142 16 | 4,2X16 | 1.880 g |
| 913142 19 | 4,2X19 | 2.140 g |
| 913142 25 | 4,2X25 | 2.560 g |
| 913142 32 | 4,2X32 | 2.780 g |
| 913142 38 | 4,2X38 | 3.350 g |
| 913142 50 | 4,2X50 | 3.950 g |



Fix master

Pan head drilling screw (KFR), painted, PH head with Phillips groove

Steel, painted white

Drilling, threading and screwing all in one step

Requires clearly less time and effort

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

- **Material :** Steel
- **Surface :** Powder-coated
- **Min. material thickness for steel :**
1.75 mm
- **Max. material thickness for steel :**
3.0 mm
- **Min./max. material thickness for steel :**
1.75-3.0 mm
- **Head diameter :** 10 mm
- **Internal drive :** H2
- **Drive type :** Crosshead

| Art. No. | Type description | Product weight (per item) |
|------------|------------------|---------------------------|
| 9131421320 | 4,2X13 | 1.800 g |
| 9131421620 | 4,2X16 | 2.100 g |
| 9131421920 | 4,2X19 | 2.200 g |
| 9131422520 | 4,2X25 | 2.600 g |
| 9131423220 | 4,2X32 | 2.600 g |
| 9131423820 | 4,2X38 | 2.800 g |



Pan head drilling screw (KFR), PH head with Phillips groove PIAS stainless AISI410

Stainless AISI410 + RUSPERT coating

The flat head is unobtrusive and wide enough to fasten and hold on to soft or thin materials.

The point drills into metal quickly and effectively without a pilot hole, saving time.

Material stainless steel AISI410

- **Material :** Stainless steel AISI 410
- **Surface :** Flake zinc
- **Min. material thickness for steel :** 1.0 mm
- **Max. material thickness for steel :** 2.5 mm
- **Min./max. material thickness for steel :** 1.0-2.5 mm
- **Head diameter :** 11 mm
- **Internal drive :** H2
- **Drive type :** Crosshead
- **Flange diameter :** 11 mm

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 513104216 | 4,2X16 | 1.990 g |
| 513104219 | 4,2X19 | 2.220 g |
| 513104225 | 4,2X25 | 2.700 g |



Pan head drilling screw (KFR), PH head with Phillips groove PIAS

Black passivated steel (A2S)

Drilling, threading and screwing all in one step

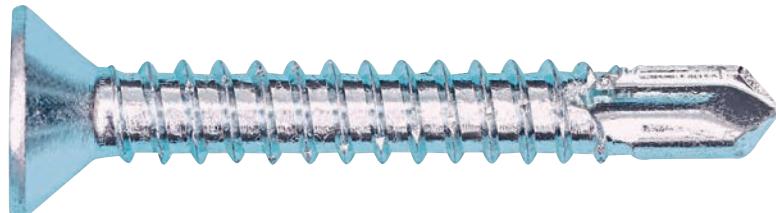
Less time and effort

- **Material :** Steel
- **Surface :** Black, galvanised
- **Min. material thickness for steel :** 1.75 mm
- **Max. material thickness for steel :** 3 mm
- **Min./max. material thickness for steel :** 1.75-3 mm
- **Head diameter :** 11.0 mm
- **Internal drive :** H2
- **Drive type :** Crosshead

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 213114213 | 4,2X13 | 1.740 g |
| 213114216 | 4,2X16 | 1.990 g |

Pan head drilling screw (KFR), PH head with Phillips groove PIAS

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 213114219 | 4,2X19 | 2.180 g |
| 213114225 | 4,2X25 | 2.500 g |



PIAS™

Drilling screw, countersunk head, PH head with Phillips groove PIAS

DIN 7504-P, zinc-coated, blue passivated, A3K, Phillips head with groove, H

Drilling, threading and screwing all in one step

- **Material:** Steel
- **DIN:** 7504
- **Drive type:** Crosshead
- **Internal drive:** H2

Exact drilling diameter for each screw-mounting

- Minimum thread tolerance
- Always optimum mounting

| Art. No. | Type description | Min./max. material thickness for steel | Product weight (per item) | Head diameter |
|-----------|------------------|--|---------------------------|---------------|
| 021235 13 | 3,5X13 | 1.40-2.25 mm | 0.600 g | 6.8 mm |
| 021235 16 | 3,5X16 | 1.40-2.25 mm | 0.900 g | 6.8 mm |
| 021235 19 | 3,5X19 | 1.40-2.25 mm | 1.060 g | 6.8 mm |
| 021235 25 | 3,5X25 | 1.40-2.25 mm | 1.340 g | 6.8 mm |
| 021239 16 | 3,9X16 | 1.40-2.40 mm | 1.080 g | 7.5 mm |
| 021239 25 | 3,9X25 | 1.40-2.40 mm | 1.540 g | 7.5 mm |
| 021239 32 | 3,9X32 | 1.40-2.40 mm | 1.980 g | 7.5 mm |
| 021242 13 | 4,2X13 | 1.40-3 mm | 1.020 g | 8.1 mm |
| 021242 16 | 4,2X16 | 1.40-3 mm | 1.340 g | 8.1 mm |
| 021242 19 | 4,2X19 | 1.40-3 mm | 1.500 g | 8.1 mm |
| 021242 25 | 4,2X25 | 1.40-3 mm | 1.860 g | 8.1 mm |
| 021242 32 | 4,2X32 | 1.40-3 mm | 2.360 g | 8.1 mm |
| 021242 38 | 4,2X38 | 1.40-3 mm | 2.750 g | 8.1 mm |
| 021248 16 | 4,8X16 | 1.75-4 mm | 1.920 g | 9.5 mm |
| 021248 19 | 4,8X19 | 1.75-4 mm | 2.190 g | 9.5 mm |
| 021248 25 | 4,8X25 | 1.75-4 mm | 2.650 g | 9.5 mm |
| 021248 32 | 4,8X32 | 1.75-4 mm | 3.290 g | 9.5 mm |
| 021248 38 | 4,8X38 | 1.75-4 mm | 3.880 g | 9.5 mm |
| 021248 50 | 4,8X50 | 1.75-4 mm | 4.880 g | 9.5 mm |


PIAS™

Drilling screw, countersunk head with wings, PH head with Phillips groove PIAS Flygel

DIN7504, zinc-electroplated

Fixing wood to steel frame in one step.

- The wings of the Flygel screw make a clearance hole into the wood and break of during drilling.

- **Material :** Steel
- **DIN :** 7504
- **Drive type :** Crosshead
- **Internal drive :** H2

Precise bore diameter in each screw connection

- Always an optimum fixing

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min./max. material thickness for steel | Product weight (per item) | Head diameter |
|-----------|------------------|---|---------------------------|---------------|
| 021542 25 | 4,2X25 | 1.75-3 mm | 1.960 g | 7.8 mm |
| 021542 32 | 4,2X32 | 1.75-3 mm | 2.420 g | 7.8 mm |
| 021542 38 | 4,2X38 | 1.75-3 mm | 2.800 g | 7.8 mm |
| 021548 25 | 4,8X25 | 1.75-4.4 mm | 2.700 g | 9.3 mm |
| 021548 32 | 4,8X32 | 1.75-4.4 mm | 3.310 g | 9.3 mm |
| 021548 38 | 4,8X38 | 1.75-4.4 mm | 3.840 g | 9.3 mm |
| 021548 50 | 4,8X50 | 1.75-4.4 mm | 4.920 g | 9.3 mm |
| 021548 70 | 4,8X70 | 1.75-4.4 mm | 6.670 g | 9.3 mm |


PIAS™

Drilling screw, countersunk head with wings, TX head with groove PIAS Flygel

DIN 7504, RUSPERT-coated

Fixing wood to steel frame in one step.

- The wings of the Flygel screw make a clearance hole into the wood and break of during drilling.

- **Material :** Steel
- **DIN :** 7504
- **Drive type :** Internal hexalobular
- **Internal drive :** TX30

Carbon steel with RUSPERT coating

Precise bore diameter in each screw connection

- Always an optimum fixing

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min./max. material thickness for steel | Product weight (per item) | Head diameter |
|-----------|------------------|---|---------------------------|---------------|
| 021915538 | 5,5X38 | 1.75-5.25 mm | 5.560 g | 13.8 mm |
| 021915550 | 5,5X50 | 1.75-5.25 mm | 7.300 g | 13.8 mm |

Drilling screw, countersunk head with wings, TX head with groove PIAS Flygel

| Art. No. | Type description | Min./max. material thickness for steel | Product weight (per item) | Head diameter |
|------------|------------------|--|---------------------------|---------------|
| 0219155651 | 5,5X65 | 1.75-5.25 mm | 8.630 g | 13.8 mm |
| 021916350 | 6,3X50 | 2-6 mm | 8.900 g | 14.9 mm |
| 021916385 | 6,3X85 | 2-6 mm | 15.810 g | 14.9 mm |
| 0219163110 | 6,3X110 | 2-6 mm | 18.750 g | 14.9 mm |



PIASTA™

Drilling screw, countersunk head with wings, PH head with groove PIASTA Flygel

DIN7504, stainless A2 + RUSPERT coating

Fixing wood to steel frame in one step.

- The wings of the Flygel screw make a clearance hole into the wood and break off during drilling.

• **Material :** Bimetal

• **DIN :** 7504

• **Drive type :** Crosshead

Stainless steel A2

- A2 (AISI 304) – screw head and screw shaft made of stainless steel
- Drill tip and first threads from hardened steel ensure good drilling capability

Precise bore diameter in each screw connection

- Always an optimum fixing

Technical brochure : https://www.ferrometal.fi/fi/ferrometal/products/product_catalogue_and_brochures/brochures_catalogues.php

| Art. No. | Type description | Min./max. material thickness for steel | Product weight (per item) | Internal drive | Head diameter |
|-----------|------------------|--|---------------------------|----------------|---------------|
| 721548 44 | 4,8X44 | 1.75-4.4 mm | 4.500 g | H2 | 9.5 mm |
| 721555 55 | 5,5X55 | 1.75-5.25 mm | 7.000 g | H3 | 10.6 mm |
| 721555 65 | 5,5X65 | 1.75-5.25 mm | 8.300 g | H3 | 10.6 mm |
| 721555 90 | 5,5X90 | 1.75-5.25 mm | 11.800 g | H3 | 10.6 mm |



Fix master

Plumber's sealing screw, sharp tip

Stainless AISI410

Painted 8 mm hexagon head

Aluminium washer 14 mm, non-corrosive

Durable EPDM seal

- Watertight
- Corrosion resistant
- Secure fastening

- **Surface :** Bare

| Art. No. | Type description | Material |
|-----------|------------------|--------------------------|
| 520048 25 | 4,8X25 | Stainless steel AISI 410 |
| 520048 32 | 4,8X32 | Stainless steel AISI 410 |
| 520048 38 | 4,8X38 | Stainless steel AISI 410 |
| 520048 45 | 4,8X45 | Stainless steel AISI 410 |
| 520048 50 | 4,8X50 | Stainless steel AISI 410 |
| 520048 60 | 4,8X60 | Stainless steel AISI 410 |
| 520048 70 | 4,8X70 | Stainless steel A2 |



Fix master

Plumber's sealing screw, sharp tip

Painted, zinc-electroplated

Painted 8 mm hexagon head

- **Material :** Steel
- **Surface :** Galvanised

Aluminium washer 14 mm

EPDM seal

- Watertight
- Corrosion resistant
- Secure fastening

Durable powder coating up to the screw threads.

Aluminium washer ; non-corrosive

Durable EPDM seal

| Art. No. | Type description | Colour |
|-----------|------------------|-------------|
| 120033 25 | 4,8X25 | Black |
| 120035 25 | 4,8X25 | Blue RR 35 |
| 120031 25 | 4,8X25 | Brown RR 31 |
| 120032 25 | 4,8X25 | Dark brown |

Plumber's sealing screw, sharp tip

| Art. No. | Type description | Colour |
|-----------------|-------------------------|----------------------------|
| 120023 25 | 4,8X25 | Dark grey RR 23 |
| 120028 25 | 4,8X25 | Dark red RR 28 |
| 120037 25 | 4,8X25 | Green RR 37 |
| 120022 25 | 4,8X25 | Grey RR 22 |
| 120030 25 | 4,8X25 | Light brown RR 30 |
| 120036 25 | 4,8X25 | Light green |
| 120034 25 | 4,8X25 | Ligh blue RR 34 |
| 120021 25 | 4,8X25 | Ligh grey RR 21 |
| 120024 25 | 4,8X25 | Ligh yellow RR 24 |
| 120041 25 | 4,8X25 | Metallic dark silver RR 41 |
| 120040 25 | 4,8X25 | Metallic silver RR 40 |
| 120027 25 | 4,8X25 | Red RR 27 |
| 120029 25 | 4,8X25 | Red RR 29 |
| 120011 25 | 4,8X25 | Spruce green RR 11 |
| 120075025 | 4,8X25 | Tile red RR 750 |
| 120020 25 | 4,8X25 | White |
| 120025 25 | 4,8X25 | Yellow RR 25 |
| 120032 32 | 4,8X32 | Dark brown |
| 120028 32 | 4,8X32 | Dark red RR 28 |
| 120029 32 | 4,8X32 | Red RR 29 |
| 120033 38 | 4,8X38 | Black |
| 120035 38 | 4,8X38 | Blue RR 35 |
| 120031 38 | 4,8X38 | Brown RR 31 |
| 120032 38 | 4,8X38 | Dark brown |
| 120023 38 | 4,8X38 | Dark grey RR 23 |
| 120028 38 | 4,8X38 | Dark red RR 28 |
| 120037 38 | 4,8X38 | Green RR 37 |
| 120022 38 | 4,8X38 | Grey RR 22 |
| 120030 38 | 4,8X38 | Light brown RR 30 |
| 120036 38 | 4,8X38 | Light green |
| 120034 38 | 4,8X38 | Ligh blue RR 34 |
| 120021 38 | 4,8X38 | Ligh grey RR 21 |
| 120041 38 | 4,8X38 | Metallic dark silver RR 41 |
| 120040 38 | 4,8X38 | Metallic silver RR 40 |
| 120027 38 | 4,8X38 | Red RR 27 |
| 120029 38 | 4,8X38 | Red RR 29 |
| 120011 38 | 4,8X38 | Spruce green RR 11 |
| 120075038 | 4,8X38 | Tile red RR 750 |
| 120020 38 | 4,8X38 | White |
| 120033 50 | 4,8X50 | Black |
| 120035 50 | 4,8X50 | Blue RR 35 |
| 120031 50 | 4,8X50 | Brown RR 31 |
| 120032 50 | 4,8X50 | Dark brown |
| 120023 50 | 4,8X50 | Dark grey RR 23 |
| 120028 50 | 4,8X50 | Dark red RR 28 |
| 120037 50 | 4,8X50 | Green RR 37 |
| 120022 50 | 4,8X50 | Grey RR 22 |
| 120030 50 | 4,8X50 | Light brown RR 30 |
| 120021 50 | 4,8X50 | Ligh grey RR 21 |
| 120075050 | 4,8X50 | Metallic dark silver RR 41 |
| 120027 50 | 4,8X50 | Red RR 27 |
| 120029 50 | 4,8X50 | Red RR 29 |
| 120011 50 | 4,8X50 | Spruce green RR 11 |

| Art. No. | Type description | Colour |
|-----------------|-------------------------|----------------------------|
| 120020 50 | 4,8X50 | White |
| 120033 65 | 4,8X65 | Black |
| 120035 65 | 4,8X65 | Blue RR 35 |
| 120031 65 | 4,8X65 | Brown RR 31 |
| 120032 65 | 4,8X65 | Dark brown |
| 120023 65 | 4,8X65 | Dark grey RR 23 |
| 120028 65 | 4,8X65 | Dark red RR 28 |
| 120037 65 | 4,8X65 | Green RR 37 |
| 120022 65 | 4,8X65 | Grey RR 22 |
| 120030 65 | 4,8X65 | Light brown RR 30 |
| 120021 65 | 4,8X65 | Ligh grey RR 21 |
| 120075065 | 4,8X65 | Metallic dark silver RR 41 |
| 120027 65 | 4,8X65 | Red RR 27 |
| 120029 65 | 4,8X65 | Red RR 29 |
| 120011 65 | 4,8X65 | Spruce green RR 11 |
| 120020 65 | 4,8X65 | White |
| 120033 80 | 4,8X80 | Black |
| 120035 80 | 4,8X80 | Blue RR 35 |
| 120031 80 | 4,8X80 | Brown RR 31 |
| 120032 80 | 4,8X80 | Dark brown |
| 120023 80 | 4,8X80 | Dark grey RR 23 |
| 120028 80 | 4,8X80 | Dark red RR 28 |
| 120037 80 | 4,8X80 | Green RR 37 |
| 120022 80 | 4,8X80 | Grey RR 22 |
| 120030 80 | 4,8X80 | Light brown RR 30 |
| 120021 80 | 4,8X80 | Ligh grey RR 21 |
| 120075080 | 4,8X80 | Metallic dark silver RR 41 |
| 120027 80 | 4,8X80 | Red RR 27 |
| 120029 80 | 4,8X80 | Red RR 29 |
| 120011 80 | 4,8X80 | Spruce green RR 11 |
| 120020 80 | 4,8X80 | White |
| 120033 105 | 4,8X105 | Graphite black RAL 9011 |



Plumber's sealing screw, drill tip

Painted, zinc-electroplated

Painted 8 mm hexagon head

Aluminium washer 14 mm

EPDM seal

- Watertight
 - Corrosion resistant
 - Secure fastening
- Durable powder coating up to the screw threads.**

Aluminium washer ; non-corrosive

Durable EPDM seal

- **Type description :** 4,8X28
- **Material :** Steel
- **Surface :** Lacquered

| Art. No. | Colour |
|-----------|----------------------------|
| 220033 28 | Black |
| 220035 28 | Blue RR 35 |
| 220031 28 | Brown |
| 220032 28 | Dark brown |
| 220023 28 | Dark grey RR 23 |
| 220028 28 | Dark red RR 28 |
| 220037 28 | Green |
| 220022 28 | Grey RR 22 |
| 220030 28 | Light brown RR 30 |
| 220036 28 | Light green |
| 220034 28 | Ligth blue RR 34 |
| 220021 28 | Ligth grey RR 21 |
| 220024 28 | Ligth yellow RR 24 |
| 220041 28 | Metallic dark silver RR 41 |
| 220040 28 | Metallic silver RR 40 |
| 220027 28 | Red RR 27 |
| 220029 28 | Red RR 29 |
| 220011 28 | Spruce green RR 11 |
| 220075028 | Tile red RR 750 |
| 220020 28 | White |
| 220025 28 | Yellow RR 25 |



Plumber's sealing screw, drill tip

Zinc-electroplated

Painted 8 mm hexagon head

Aluminium washer 14 mm

EPDM seal

- Watertight
- Secure fastening

Aluminium washer ; non-corrosive

Durable EPDM seal

Fix master

- **Material :** Steel
- **Surface :** Galvanised

| Art. No. | Type description |
|-----------|------------------|
| 220048 20 | 4,8X20 |
| 220048125 | 4,8X28 |
| 220048 27 | 4,8X28 |
| 220048 35 | 4,8 X 35 |



Fix master

Plumber's sealing screw, sharp tip

Zinc-electroplated

Painted 8 mm hexagon head

- **Material :** Steel

Aluminium washer 14 mm

- **Surface :** Galvanised

EPDM seal

- Watertight
- Secure fastening

Aluminium washer ; non-corrosive

Durable EPDM seal

| Art. No. | Type description |
|------------|------------------|
| 120048 19 | 4,8X19 |
| 120048 25 | 4,8X25 |
| 120048 32 | 4,8X32 |
| 120048 105 | 4,8X105 |
| 120048 38 | 4,8 X 38 |
| 120048 50 | 4,8 X 50 |
| 120048 65 | 4,8 X 65 |

Plumber's sealing screw, sharp tip

| Art. No. | Type description |
|-----------|------------------|
| 120048 80 | 4,8 X 80 |
| 120055 25 | 5,5X25 |
| 120055 32 | 5,5X32 |
| 120055 50 | 5,5X50 |
| 120063 50 | 6,3X50 |


Fix master
EPDM seal washer, aluminium

| Art. No. | Type description | Product weight (per item) |
|-----------|------------------|---------------------------|
| 020020 12 | 12/5,1 | 0.910 g |
| 020030 14 | 14/5,2 | 0.770 g |
| 020015 16 | 16/6,8 | 1.520 g |


Fix master
EPDM seal washer, A2 stainless

- **Material:** Stainless steel A2

| Art. No. | Type description | Product weight (per item) |
|------------|------------------|---------------------------|
| 0200115162 | 2X16X5 | 1.500 g |
| 020011796 | 9,6/5,7/1,7 | 1.150 g |
| 020012012 | 12/5,1/2,0 | 0.850 g |
| 020011714 | 14/5,7 | 1.270 g |
| 020011516 | 16X6,8X0,8 | 1.650 g |
| 02001197 | 19/7,0 | 2.410 g |
| 020012019 | 19/8,34/2,0 | 1.800 g |
| 02001298 | 29/8,5/3 | 7.000 g |
| 020013817 | 38/7,0/1,7 | 9.980 g |



Raptor mounting screw, drill tip with male thread zinc-electroplated

Raptor ST drill tip screw with male thread. Extremely fast drilling in 2-6 mm steels.

| Art. No. | Type description |
|-----------|------------------|
| 750126 6 | M6x6 SW10 |
| 750128 10 | M8x10 SW13 |
| 750108 15 | M8X15 |
| 750128 15 | M8x15 SW13 |



Blind rivet, round head

Aluminium rivet, steel shank

- **Surface of the sleeve:** Plain
- **Surface of the mandrel:** Galvanised
- **Material of the mandrel:** Steel

| Art. No. | Type description | Product weight (per item) | Mandrel diameter | Max. grip range | Min. grip range | Min./max. grip range | Shear-fracture load | Material of the sleeve |
|-----------|------------------|---------------------------|------------------|-----------------|-----------------|----------------------|---------------------|------------------------|
| 830124 6 | 2,4X6 | 0.540 g | 1.4 mm | 4.0 mm | 2.0 mm | 2.0-4.0 mm | 315 N | Aluminium, AlMg 3.5 |
| 830124 8 | 2,4X8 | 0.550 g | 5.0 mm | 6.0 mm | 4.0 mm | 4.0-6.0 mm | 315 N | Aluminium, AlMg 3.5 |
| 830124 10 | 2,4X10 | 2.000 g | 1.4 mm | 8.0 mm | 6.0 mm | 6.0-8.0 mm | 315 N | Aluminium, AlMg 3.5 |
| 830132 6 | 3,2X6 | 0.350 g | 1.78 mm | 3.5 mm | 1.0 mm | 1.0-3.5 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 8 | 3,2X8 | 0.950 g | 1.78 µm | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 10 | 3,2X10 | 0.900 g | 1.78 mm | 7.0 mm | 5.5 mm | 5.5-7.0 mm | 670 N | Steel |
| 830132 12 | 3,2X12 | 1.000 g | 1.78 mm | 9.0 mm | 7.0 mm | 7.0-9.0 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 14 | 3,2X14 | 1.200 g | 1.78 mm | 11 mm | 9 mm | 9-11 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 18 | 3,2X18 | 1.200 g | 1.78 mm | 15.0 mm | 13.0 mm | 13.0-15.0 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 20 | 3,2X20 | 1.500 g | 1.78 mm | 17.0 mm | 15.0 mm | 15.0-17.0 mm | 670 N | Aluminium, AlMg 3.5 |
| 830132 25 | 3,2X25 | 2.000 g | 1.78 mm | 22.0 mm | 17.0 mm | 17.0-22.0 mm | 670 N | Aluminium, AlMg 3.5 |
| 830148 8 | 4,8X8 | 2.400 g | 2.7 mm | 4.0 mm | 2.5 mm | 2.5-4.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 10 | 4,8X10 | 1.600 g | 2.7 mm | 6.0 mm | 4.0 mm | 4.0-6.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 12 | 4,8X12 | 2.400 g | 2.7 mm | 8 mm | 6 mm | 6-8 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 14 | 4,8X14 | 3.000 g | 2.7 mm | 10.0 mm | 8.0 mm | 8.0-10.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 16 | 4,8X16 | 3.000 g | 2.7 mm | 12.0 mm | 10.0 mm | 10.0-12.0 mm | 1700 N | Aluminium, AlMg 3.5 |

Blind rivet, round head

| Art. No. | Type description | Product weight (per item) | Mandrel diameter | Max. grip range | Min. grip range | Min./max. grip range | Shear-fracture load | Material of the sleeve |
|-----------------|-------------------------|----------------------------------|-------------------------|------------------------|------------------------|-----------------------------|----------------------------|-------------------------------|
| 830148 18 | 4,8X18 | 3.200 g | 2.7 mm | 14.0 mm | 12.0 mm | 12.0-14.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 20 | 4,8X20 | 3.500 g | 2.7 mm | 16.0 mm | 14.0 mm | 14.0-16.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 25 | 4,8X25 | 3.000 g | 2.7 mm | 21.0 mm | 16.0 mm | 16.0-21.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 30 | 4,8X30 | 4.310 g | 2.7 mm | 25.0 mm | 21.0 mm | 21.0-25.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 830148 35 | 4,8X35 | 4.000 g | 2.7 mm | 30.0 mm | 25.0 mm | 25.0-30.0 mm | 1700 N | Aluminium, AlMg 3.5 |
| 83014 6 | 4X6 | 1.400 g | 2.18 mm | 3.0 mm | 1.0 mm | 1.0-3.0 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 8 | 4X8 | 1.600 g | 2.18 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 10 | 4X10 | 1.650 g | 2.18 mm | 6.5 mm | 5.0 mm | 5.0-6.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 12 | 4X12 | 1.600 g | 2.18 mm | 8.5 mm | 6.5 mm | 6.5-8.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 14 | 4X14 | 1.800 g | 2.18 mm | 10.5 mm | 8.5 mm | 8.5-10.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 16 | 4X16 | 2.000 g | 2.18 mm | 12.5 mm | 10.5 mm | 10.5-12.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 18 | 4X18 | 2.170 g | 2.18 mm | 14.5 mm | 12.5 mm | 12.5-14.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 83014 20 | 4X20 | 2.200 g | 2.18 mm | 16.5 mm | 14.5 mm | 14.5-16.5 mm | 1050 N | Aluminium, AlMg 3.5 |
| 830164 12 | 6,4X12 | 6.300 g | 3.7 mm | 6.0 mm | 4.0 mm | 4.0-6.0 mm | 2800 N | Aluminium, AlMg 3.5 |
| 83016 10 | 6X10 | 4.000 g | 3.7 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 2550 N | Aluminium, AlMg 3.5 |
| 83016 15 | 6X15 | 5.000 g | 3.7 mm | 10.0 mm | 8.0 mm | 8.0-10.0 mm | 2550 N | Aluminium, AlMg 3.5 |
| 83016 18 | 6X18 | 5.200 g | 3.7 mm | 13.0 mm | 11.0 mm | 11.0-13.0 mm | 2550 N | Aluminium, AlMg 3.5 |



Fix master

Blind rivet, round head, painted

Aluminium rivet, steel shank

- **Surface of the sleeve :** Lacquered
- **Mandrel diameter :** 1.78 mm
- **Surface of the mandrel :** Galvanised
- **Shear-fracture load :** 670 N
- **Material of the sleeve :** Aluminium, AlMg 3.5
- **Material of the mandrel :** Steel
- **Nominal diameter :** 3.2 mm
- **Max. drill hole diameter :** 3.3 mm
- **Head diameter :** 6.5 mm
- **Head height :** 0.8 mm
- **Head type :** Pan head
- **RoHS-compliant :** Yes
- **Tensile fracture load :** 900 N

| Art. No. | Type description | Product weight (per item) | Max. grip range | Min. grip range | Min./max. grip range | Nominal diameter x length | Length | Colour |
|------------|------------------|---------------------------|-----------------|-----------------|----------------------|---------------------------|---------|--------------------------------------|
| 831532 620 | 3,2X6 RR20 | 0.800 g | 3.5 mm | 1.0 mm | 1.0-3.5 mm | 3.2 x 6.0 mm | 6.0 mm | White, similar to RAL 9003 |
| 831532 811 | 3,2X8 RR11 | 1.100 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Green |
| 831532 820 | 3,2X8 RR20 | 1.100 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | White, similar to RAL 9003 |
| 831532 821 | 3,2X8 RR21 | 0.950 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Light grey |
| 831532 822 | 3,2X8 RR22 | 1.150 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Grey |
| 831532 823 | 3,2X8 RR23 | 2.000 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Dark grey RR 23 |
| 831532 828 | 3,2X8 RR28 | 1.150 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Dark red RR 28 |
| 831532 829 | 3,2X8 RR29 | 1.070 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Red RR 29 |
| 831532 830 | 3,2X8 RR30 | 1.120 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Light brown RR 30 |
| 831532 831 | 3,2X8 RR31 | 1.100 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Brown |
| 831532 832 | 3,2X8 RR32 | 0.900 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Brown, similar to RAL 8019 |
| 831532 833 | 3,2X8 RR33 | 0.950 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8 mm | 8 mm | Black, similar to RAL 9004 |
| 831532 837 | 3,2X8 RR37 | 1.100 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Green RR 37 |
| 831532 840 | 3,2X8 RR40 | 0.950 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | White aluminium, similar to RAL 9006 |
| 831532 841 | 3,2X8 RR41 | 1.000 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Dark silver |
| 8315328750 | 3,2X8 RR750 | 0.950 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 8.0 mm | 8.0 mm | Brick red |
| 8315321020 | 3,2X10 RR20 | 0.970 g | 7.0 mm | 5.5 mm | 5.5-7.0 mm | 3.2 x 10.0 mm | 10.0 mm | White, similar to RAL 9003 |
| 8315321033 | 3,2X10 RR33 | 1.000 g | 5.5 mm | 3.5 mm | 3.5-5.5 mm | 3.2 x 10.0 mm | 10.0 mm | Black, similar to RAL 9004 |



Fix master

Blind rivet, round head

Steel rivet, steel shank

- **Surface of the sleeve :** Galvanised
- **Surface of the mandrel :** Galvanised
- **Material of the sleeve :** Steel
- **Material of the mandrel :** Steel
- **Head type :** Pan head

| Art. No. | Type description | Product weight (per item) | Mandrel diameter | Max. grip range | Min. grip range | Min./max. grip range | Shear-fracture load | Nominal diameter |
|-----------|------------------|---------------------------|------------------|-----------------|-----------------|----------------------|---------------------|------------------|
| 832132 6 | 3,2X6 | 1.200 g | 1.92 mm | 3.0 mm | 1.0 mm | 1.0-3.0 mm | 1160 N | 3.2 mm |
| 832132 8 | 3,2X8 | 1.350 g | 1.92 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 1160 N | 3.2 mm |
| 832132 10 | 3,2X10 | 1.400 g | 1.92 mm | 7 mm | 5 mm | 5-7 mm | 1160 N | 3.2 mm |
| 832132 12 | 3,2X12 | 1.700 g | 1.92 mm | 9 mm | 7 mm | 7-9 mm | 1160 N | 3.2 mm |
| 832132 16 | 3,2X16 | 1.860 g | 1.92 mm | 13.0 mm | 11.0 mm | 11.0-13.0 mm | 1160 N | 3.2 mm |
| 83214 6 | 4,0X6,0 | 2.300 g | 2.42 mm | 3.0 mm | 1.0 mm | 1.0-3.0 mm | 1700 N | 4 mm |
| 832148 6 | 4,8X6,0 | 3.300 g | 2.92 mm | 2.5 mm | 1.5 mm | 1.5-2.5 mm | 2400 N | 4.8 mm |
| 832148 8 | 4,8X8,0 | 3.500 g | 2.92 mm | 4.0 mm | 2.5 mm | 2.5-4.0 mm | 2400 N | 4.8 mm |
| 832148 10 | 4,8X10 | 3.800 g | 2.92 mm | 6 mm | 4 mm | 4-6 mm | 2400 N | 4.8 mm |
| 832148 12 | 4,8X12 | 4.000 g | 2.92 mm | 8.0 mm | 6.0 mm | 6.0-8.0 mm | 2400 N | 4.8 mm |
| 832148 14 | 4,8X14 | 4.500 g | 2.92 mm | 10 mm | 8 mm | 8-10 mm | 2400 N | 4.8 mm |
| 832148 16 | 4,8X16 | 4.500 g | 2.92 mm | 11.5 mm | 10.0 mm | 10.0-11.5 mm | 2400 N | 4.8 mm |
| 832148 18 | 4,8X18 | 5.000 g | 2.92 mm | 13.5 mm | 11.5 mm | 11.5-13.5 mm | 2400 N | 4.8 mm |
| 832148 20 | 4,8X20 | 4.900 g | 2.92 mm | 15.0 mm | 13.5 mm | 13.5-15.0 mm | 2400 N | 4.8 mm |
| 832148 25 | 4,8X25 | 6.000 g | 2.92 mm | 20.0 mm | 17 mm | 17-20.0 mm | 2400 N | 4.8 mm |
| 832148 30 | 4,8X30 | 6.550 g | 2.92 mm | 25.0 mm | 20.0 mm | 20.0-25.0 mm | 2400 N | 4.8 mm |
| 83214 8 | 4X8 | 2.250 g | 2.42 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 1700 N | 4 mm |
| 83214 10 | 4X10 | 2.400 g | 2.42 mm | 6.5 mm | 5.0 mm | 5.0-6.5 mm | 1700 N | 4 mm |
| 83214 12 | 4X12 | 2.400 g | 2.42 mm | 8.5 mm | 6.5 mm | 6.5-8.5 mm | 1700 N | 4 mm |
| 83214 16 | 4X16 | 2.800 g | 2.42 mm | 12.5 mm | 10.5 mm | 10.5-12.5 mm | 1700 N | 4 mm |
| 832164 8 | 6,4X8,0 | 7.000 g | 3.8 mm | 3.0 mm | 1.5 mm | 1.5-3.0 mm | 4500 N | 6.4 mm |
| 832164 12 | 6,4X12 | 7.800 g | 3.8 mm | 6.0 mm | 3.0 mm | 3.0-6.0 mm | 4500 N | 6.4 mm |
| 832164 15 | 6,4X15 | 8.800 g | 3.8 mm | 9.0 mm | 6.0 mm | 6.0-9.0 mm | 4500 N | 6.4 mm |
| 83216 10 | 6X10 | 6.000 g | 3.7 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 4300 N | 6 mm |



Blind rivet, round head

A2 stainless rivet, A2 stainless steel shank

Fix master

- **Surface of the sleeve :** Plain
- **Surface of the mandrel :** Plain
- **Material of the sleeve :** Stainless steel A2
- **Material of the mandrel :** Stainless steel A2
- **Head type :** Pan head
- **RoHS-compliant :** Yes

| Art. No. | Type description | Product weight (per item) | Mandrel diameter | Max. grip range | Min. grip range | Min./max. grip range | Shear-fracture load | Nominal diameter |
|-----------|------------------|---------------------------|------------------|-----------------|-----------------|----------------------|---------------------|------------------|
| 83413 8 | 3,0X8 | 1.320 g | 1.95 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 1800 N | 3.0 mm |
| 834132 6 | 3,2X6 | 1.350 g | 1.95 mm | 3.0 mm | 1.0 mm | 1.0-3.0 mm | 1900 N | 3.2 mm |
| 834132 8 | 3,2X8 | 1.400 g | 1.95 mm | 5.0 mm | 3.0 mm | 3.0-5.0 mm | 1900 N | 3.2 mm |
| 834132 10 | 3,2X10 | 1.480 g | 1.95 mm | 7.0 mm | 5.0 mm | 5.0-7.0 mm | 1900 N | 3.2 mm |
| 834132 12 | 3,2X12 | 1.500 g | 1.95 mm | 9.0 mm | 7.0 mm | 7.0-9.0 mm | 1900 N | 3.2 mm |
| 834132 15 | 3,2X15 | 1.800 g | 1.95 mm | 12 mm | 10 mm | 10-12 mm | 1900 N | 3.2 mm |
| 83414 6 | 4,0X6,0 | 2.300 g | 2.42 mm | 3 mm | 2 mm | 2-3 mm | 2900 N | 4 mm |
| 83414 16 | 4,0X16 | 3.000 g | 2.42 mm | 12.0 mm | 10.0 mm | 10.0-12.0 mm | 2900 N | 4 mm |
| 83414 18 | 4,0X18 | 3.000 g | 2.42 mm | 14.0 mm | 12.0 mm | 12.0-14.0 mm | 2900 N | 4 mm |
| 83414 20 | 4,0X20 | 3.000 g | 2.42 mm | 16.0 mm | 14.0 mm | 14.0-16.0 mm | 2900 N | 4 mm |
| 834148 8 | 4,8X8 | 3.500 g | 2.9 mm | 4.0 mm | 1.5 mm | 1.5-4.0 mm | 4230 N | 4.8 mm |
| 834148 10 | 4,8X10 | 3.700 g | 2.9 mm | 6 mm | 4 mm | 4-6 mm | 4230 N | 4.8 mm |
| 834148 12 | 4,8X12 | 3.900 g | 2.42 mm | 8.0 mm | 6.0 mm | 6.0-8.0 mm | 4230 N | 4.8 mm |
| 834148 14 | 4,8X14 | 4.400 g | 2.9 mm | 9.5 mm | 8.0 mm | 8.0-9.5 mm | 4230 N | 4.8 mm |
| 834148 16 | 4,8X16 | 4.600 g | 2.9 mm | 11.0 mm | 9.5 mm | 9.5-11.0 mm | 4230 N | 4.8 mm |
| 834148 20 | 4,8X20 | 5.000 g | 2.9 mm | 16.0 mm | 13.0 mm | 13.0-16.0 mm | 4230 N | 4.8 mm |
| 834148 22 | 4,8X22 | 5.400 g | 2.9 mm | 17.0 mm | 15.0 mm | 15.0-17.0 mm | 4230 N | 4.8 mm |
| 834148 25 | 4,8X25 | 5.800 g | 2.9 mm | 20.0 mm | 17.0 mm | 17.0-20.0 mm | 4230 N | 4.8 mm |
| 834148 30 | 4,8X30 | 5.800 g | 2.9 mm | 25.0 mm | 20.0 mm | 20.0-25.0 mm | 4230 N | 4.8 mm |
| 834148 35 | 4,8X35 | 7.000 g | 2.9 mm | 30.0 mm | 25.0 mm | 25.0-30.0 mm | 4230 N | 4.8 mm |
| 83414 8 | 4X8 | 2.000 g | 2.42 mm | 4.5 mm | 2.5 mm | 2.5-4.5 mm | 2900 N | 4 mm |
| 83414 10 | 4X10 | 2.000 g | 2.42 mm | 6.5 mm | 4.5 mm | 4.5-6.5 mm | 2900 N | 4 mm |
| 83414 12 | 4X12 | 2.600 g | 2.42 mm | 8.5 mm | 6.5 mm | 6.5-8.5 mm | 2900 N | 4 mm |
| 83414 14 | 4X14 | 2.800 g | 2.42 mm | 10.0 mm | 8.5 mm | 8.5-10.0 mm | 2900 N | 4 mm |
| 83415 8 | 5X8 | 3.410 g | 2.9 mm | 4 mm | 1.5 mm | 1.5-4 mm | 4700 N | 5 mm |
| 83415 12 | 5X12 | 4.040 g | 2.9 mm | 8 mm | 6 mm | 6-8 mm | 4700 N | 5 mm |
| 834164 12 | 6,4X12 | 1.000 g | 3.85 mm | 6.0 mm | 4.0 mm | 4.0-6.0 mm | 7570 N | 6.4 mm |



Two-way drill bit, HSS

Assembly drill bit for working in thin-sheet steel, tip angle 118°

Precise drilling

The sturdy twist drill with its extra-short design ensures precise drilling.

Self-centring

The crosswise grinding ensures an excellent centring effect even on round materials, eliminating the need for centre-punching or piloting.

| Art. No. | |
|----------|--|
| 0636325 | |
| 063641 | |
| 063649 | |
| 063651 | |



Two-way drill bit, HSCO

Assembly drill bit for working in thin-sheet steel, tip angle 118°

Precise drilling

The sturdy twist drill with its extra-short design ensures precise drilling.

Self-centring

The crosswise grinding ensures an excellent centring effect even on round materials, eliminating the need for centre-punching or piloting.

| Art. No. | |
|----------|--|
| 0636326 | |
| 0636410 | |
| 0636490 | |



Screwdriver bit PH,

For Phillips heads

- **Drive type :** Outer hexagon
- **Tip type :** PH

| Art. No. | Type description | Tip size | Drive | Length |
|------------|------------------|----------|------------------|--------|
| 0614176739 | NO 2 110 MM | PH2 | E 6.3 (1/4 inch) | 110 mm |
| 0614176737 | PH 2/50 | PH2 | E 6.3 (1/4 inch) | 50 mm |
| 0614176775 | PH 2/73 | PH2 | E 6.3 (1/4 inch) | 73 mm |

| Art. No. | Type description | Tip size | Drive | Length |
|-----------------|-------------------------|-----------------|------------------|---------------|
| 0614176274 | PH1/25 | PH1 | C 6.3 (1/4 inch) | 25 mm |
| 0614176461 | PH2/25 | PH2 | C 6.3 (1/4 inch) | 25 mm |
| 0614176736 | PH2/50 | PH2 | E 6.3 (1/4 inch) | 50 mm |
| 0614176648 | PH3/25 | PH3 | C 6.3 (1/4 inch) | 25 mm |



Screwdriver bit PZ,

For Pozidriv heads

- **Drive type :** Outer hexagon
- **Tip type :** PZ

| Art. No. | Type description | Tip size | Drive | Length |
|-----------------|-------------------------|-----------------|------------------|---------------|
| 0614176738 | NO 2 110 MM | PZ2 | E 6.3 (1/4 inch) | 110 mm |
| 0614176651 | PZ1/25 | PZ1 | C 6.3 (1/4 inch) | 25 mm |
| 0614176652 | PZ2/25 | PZ2 | C 6.3 (1/4 inch) | 25 mm |
| 0614176660 | PZ2/50 | PZ2 | E 6.3 (1/4 inch) | 50 mm |
| 0614176653 | PZ3/25 | PZ3 | C 6.3 (1/4 inch) | 25 mm |
| 0614176661 | PZ3/50 | PZ3 | E 6.3 (1/4 inch) | 50 mm |

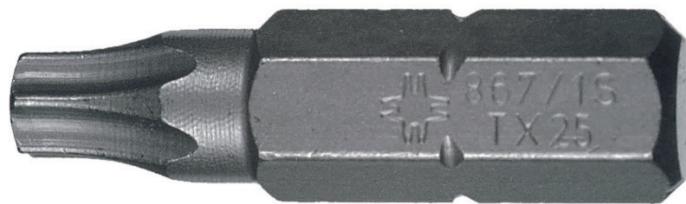


Screwdriver bit PH, narrow

For Phillips heads, narrow type

- **Type description :** 1/4"
- **Tip size :** PH2
- **Drive type :** Crosshead
- **Drive :** C 6.3 (1/4 inch)
- **Tip type :** PH
- **Length :** 25 mm

| Art. No. | |
|-----------------|--|
| 16144612 | |



Screwdriver bit TX

For Torx heads

- **Drive type :** Outer hexagon
- **Drive :** C 6.3 (1/4 inch)

| Art. No. | Type description | Tip size | Length |
|----------|------------------|----------|--------|
| 06143110 | 10 | TX10 | 25 mm |
| 06143115 | 15 | TX15 | 25 mm |
| 06143120 | 20 | TX20 | 25 mm |
| 06143125 | 25 | TX25 | 25 mm |
| 06143150 | 25MM X 1/4" | TX50 | 25 mm |
| 06143130 | 30 | TX30 | 25 mm |
| 06143140 | 40 | TX40 | 25 mm |
| 06143315 | TX15 70 MM | TX15 | 70 mm |
| 06143320 | TX20 70 MM | TX20 | 70 mm |
| 06143325 | TX25 70MM | TX25 | 70 mm |
| 06143330 | TX30 70 MM | TX30 | 70 mm |



Magnetic chuck

| Art. No. | Type description | Width across flats | Drive |
|------------|------------------|--------------------|------------------|
| 16140 141 | 1/4" | 1/4 inch | C 6.3 (1/4 inch) |
| 16140 14 | AV 1/4" | 1/4 inch | C 6.3 (1/4 inch) |
| 0614176716 | AV 3/8" | 3/8 inch | E 6.3 (1/4 inch) |
| 0614176712 | AV 5,5 MM | 5,5 mm | E 6.3 (1/4 inch) |
| 0614176714 | AV 7 MM | 7 mm | E 6.3 (1/4 inch) |
| 0614176715 | AV 8 MM | 8 mm | E 6.3 (1/4 inch) |
| 16140 10 | AV 10 MM | 10 mm | C 6.3 (1/4 inch) |
| 0614176718 | AV 13 MM | 13 mm | E 6.3 (1/4 inch) |



Adjustable magnetic chuck

- **Type description :** 1/4"
- **Width across flats :** 1/4 inch
- **Drive :** C 6.3 (1/4 inch)

| | |
|-----------------|--|
| Art. No. | |
| 0614811361 | |



Magnetic holder

1/4" x 60 mm

- **Type description :** 1/4"X60
- **Width across flats :** 1/4 inch
- **Drive :** C 6.3 (1/4 inch)

| | |
|-----------------|--|
| Art. No. | |
| 161414 60 | |



Spring chuck

For fastening cladding screws and stainless screws

- **Type description :** AV 8 MM
- **Width across flats :** 8 mm
- **Drive :** C 6.3 (1/4 inch)

| | |
|-----------------|--|
| Art. No. | |
| 16140 825 | |



FixMaster FIT-Ve 200 Vinylester

Approved chemical anchor for concrete and natural stone

- CE-market and ETA-approved anchor resin
- ETA option 1 approval for cracked concrete
- ETA Option 7 approval for un-cracked concrete
- Structural rebar approval according Eurocode 2
- For threaded rods M8-M30, classes 4.6-8.8
- Rebars 8 mm-32mm

Base materials :

- Cracked concrete
- Un-cracked concrete
- Natural stone

Benefits :

- Tested for fire resistance up to 240 minutes
- Fast curing time
- Small edge distances and anchor spacing
- LEED tested, A+ emission class
- Styren free

| Art. No. | Type description | Product weight (per item) |
|----------|------------------|---------------------------|
| 7571300 | 300ml | 558.000 g |
| 7571420 | 420ml | 680.000 g |

Fix master



FixMaster FIT-Wi 200 Vinylester

Winter resin for concrete and natural stone

- CE-market and ETA-approved anchor resin
- ETA option 1 approval for cracked concrete
- ETA Option 7 approval for un-cracked concrete
- For threaded rods M8-M30, classes 4.6-8.8
- Rebars 8 mm-32mm

Base materials :

- Cracked concrete
- Un-cracked concrete
- Natural stone

Benefits :

- Fast curing time
- Small edge distances and anchor spacing
- LEED tested, A+ emission class
- Styren free

| Art. No. | Product weight (per item) |
|----------|---------------------------|
| 7572300 | 552.000 g |
| 7572420 | 810.000 g |



FixMaster FIT-Pe 270 Polyester

Approved chemical anchor for masonry and concrete base materials

- CE-market and ETA-approved anchor resin
- 18 different bricks and stones tested for the approval
- ETA option 7 approval for un-cracked concrete
- For threaded rods M8-M24, classes 4.6-8.8
- Installation to hollow base material together with sleeve

Base materials :

- Solid and hollow clay bricks
- Aerated concrete blocks
- Solid and hollow light expanded clay aggregate blocks
- Solid and hollow sand-lime bricks
- Non-cracked concrete

Benefits :

- Suitable for use in all masonry base materials
- Fast curing time
- Small edge distances and anchor spacing
- LEED tested, A+ emission class
- Styren free

| Art. No. | Type description | Product weight (per item) |
|-----------------|-------------------------|----------------------------------|
| 7570280 | 280 ml (pack 12 pcs) | 532.000 g |
| 7570300 | 300 ml (pack 12 pcs) | 545.000 g |
| 7570420 | 420 ml (pack 12 pcs) | 838.000 g |



SORMAT 

SORMAT KEM-VE Vinyl ester

Vinyl ester glass capsule : clean and strong bonding in non-cracked concrete

- The glass capsule contains just the right amount of vinyl ester resin for anchoring studs and re-bars into pre-drilled holes.
- The single-use capsule is economical for individual applications and quick for multiple installations. Enables a clean finish to be achieved.
- The chemical anchor can bear dynamic loads.
- Precise dosing. Holes are guaranteed to be 100 % filled. The capsule is more economical than injection resin with larger hole diameters.
- Resistance to high and low temperatures in the range -40 °C to +80 °C.
- The quality of the stud or re-bar material defines the suitable operating conditions : ZN for dry indoor and temporary outdoor use ; KZN and RST A2 for dry and humid indoor use, as well as outdoor use in inland rural areas ; HST A4 for indoor, outdoor and industrial use ; HCR for extremely harsh and corrosive conditions.

| Art. No. | Type description | Product weight (per item) |
|----------|------------------|---------------------------|
| 773108 | 8 (pack 10 pcs) | 11.800 g |
| 7731010 | 10 (pack 10 pcs) | 14.600 g |
| 7731012 | 12 (pack 10 pcs) | 25.000 g |
| 7731016 | 16 (pack 10 pcs) | 35.000 g |
| 7731020 | 20 (pack 6 pcs) | 121.700 g |
| 7731024 | 24 (pack 6 pcs) | 161.600 g |
| 7731030 | 30 (pack 6 pcs) | 400.000 g |



Threaded rod

DIN 975, steel 8.8, hot dip galvanized

- Length :** 2000 mm
- Material :** Steel
- Surface :** Hot-dip galvanised
- DIN :** 975

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095780 | M8 | M8X2000 | 628.000 g |
| 0957100 | M10 | M10X2000 | 1000.000 g |
| 0957120 | M12 | M12X2000 | 1450.000 g |
| 0957160 | M16 | M16X2000 | 2660.000 g |
| 0957200 | M20 | M20X2000 | 4160.000 g |
| 0957240 | M24 | M24X2000 | 6000.000 g |
| 0957270 | M27 | M27X2000 | 7630.000 g |
| 0957300 | M30 | M30X2000 | 9500.000 g |
| 0957330 | M33 | M33X2000 | 12000.000 g |

Threaded rod

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 0957360 | M36 | M36X2000 | 13800.000 g |
| 0957390 | M39 | M39X2000 | 16242.000 g |



Threaded rod

DIN 975, stainless steel A4

- **Length :** 2000 mm
- **Material :** Stainless steel A4
- **Surface :** Bare
- **DIN :** 975
- **Identification colour :** Red

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095360 | M6 | M6X2000 | 354.000 g |
| 095380 | M8 | M8X2000 | 638.000 g |
| 0953100 | M10 | M10X2000 | 1000.000 g |
| 0953120 | M12 | M12X2000 | 1450.000 g |
| 0953160 | M16 | M16X2000 | 2660.000 g |
| 0953200 | M20 | M20X2000 | 4160.000 g |
| 0953240 | M24 | M24X2000 | 6000.000 g |
| 0953300 | M30 | M30X2000 | 9500.000 g |
| 0953360 | M36 | M36X2000 | 13800.000 g |



Threaded rod

DIN 975, steel 8.8, zinc plated

- **Length :** 2000 mm
- **Material :** Steel
- **Surface :** Galvanised
- **DIN :** 975
- **Identification colour :** Yellow

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095960 | M6 | M6X2000 | 354.000 g |
| 095980 | M8 | M8X2000 | 550.000 g |
| 0959100 | M10.000 | M10X2000 | 970.000 g |
| 0959120 | M12 | M12X2000 | 1428.000 g |
| 0959160 | M16 | M16X2000 | 2660.000 g |
| 0959200 | M20 | M20X2000 | 4160.000 g |
| 0959240 | M24 | M24X2000 | 5934.000 g |
| 0959270 | M27 | M27X2000 | 7700.000 g |
| 0959300 | M30 | M30X2000 | 9500.000 g |
| 0959360 | M36 | M36X2000 | 13800.000 g |



Threaded rod

DIN 975, steel 4.6, zinc plated

- **Length :** 2000 mm
- **Material :** Steel
- **Surface :** Galvanised
- **DIN :** 975

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 095850 | M5 | M5X2000 | 240.000 g |
| 095860 | M6 | M6X2000 | 330.000 g |
| 095880 | M8 | M8X2000 | 616.000 g |
| 0958100 | M10 | M10X2000 | 976.000 g |
| 0958120 | M12 | M12X2000 | 1275.000 g |
| 0958160 | M16 | M16X2000 | 2660.000 g |

Threaded rod

| Art. No. | Thread type x nominal diameter | Type description | Product weight (per item) |
|----------|--------------------------------|------------------|---------------------------|
| 0958200 | M20 | M20X2000 | 4160.000 g |
| 0958240 | M24 | M24X2000 | 6000.000 g |
| 0958270 | M27 | M27X2000 | 3850.000 g |
| 0958300 | M30 | M30X2000 | 9500.000 g |
| 0958360 | M36 | M36X2000 | 13800.000 g |



Chemical anchor stud, zinc-electroplated

- Anchor stud with bevelled tip
- Includes nuts and washers
- Material: Zinc

| Art. No. | Type description | Product weight (per item) |
|------------|----------------------|---------------------------|
| 77348 110 | 8X110 (pack 10 pcs) | 44.500 g |
| 773410 130 | 10X130 (pack 10 pcs) | 82.000 g |
| 773412 160 | 12X160 (pack 10 pcs) | 130.000 g |
| 773416 190 | 16X190 (pack 10 pcs) | 280.000 g |
| 773420 260 | 20X260 (pack 6 pcs) | 570.000 g |
| 773424 300 | 24X300 (pack 6 pcs) | 995.000 g |
| 773530 360 | 30X360 (pack 6 pcs) | 1965.000 g |
| 7735030360 | 30X360 (pack 6 pcs) | 1978.000 g |



Chemical anchor stud, hot dip galvanised

- Anchor stud with bevelled tip
- Includes nuts and washers

| Art. No. | Type description | Product weight (per item) |
|------------|----------------------|---------------------------|
| 773510 130 | 10X130 (pack 10 pcs) | 0.010 g |
| 773512 160 | 12X160 (pack 10 pcs) | 140.000 g |
| 773516 190 | 16X190 (pack 10 pcs) | 300.000 g |
| 773520 260 | 20X260 (pack 6 pcs) | 600.000 g |
| 773524 300 | 24X300 (pack 6 pcs) | 1020.000 g |



Chemical anchor stud, acid-proof

- Anchor stud with bevelled tip
- Includes nuts and washers
- **Material:** Stainless steel A4

| Art. No. | Type description | Product weight (per item) |
|------------|----------------------|---------------------------|
| 77368 110 | 8X110 (pack 10 pcs) | 42.300 g |
| 773610 130 | 10X130 (pack 10 pcs) | 82.300 g |
| 773612 160 | 12X160 (pack 10 pcs) | 130.000 g |
| 773616 190 | 16X190 (pack 10 pcs) | 280.000 g |
| 773620 260 | 20X260 (pack 6 pcs) | 0.010 g |
| 773624 300 | 24X300 (pack 6 pcs) | 1027.000 g |
| 773630 360 | 30X360 (pack 6 pcs) | 1933.000 g |



Detachable nozzle for chemical mass cartridges

| Art. No. | Type description | Product weight (per item) |
|----------|-----------------------------|---------------------------|
| 7730100 | ISL normaali (pack 10 pcs) | 13.000 g |
| 7730103 | ISL pitkä 0,2m | 5.000 g |
| 77301031 | ISL pitkä 1,0m (pack 1 pcs) | 22.000 g |



Fix master

Battery powered gun for chemical composite mortar

- The delivery includes gun, battery and charger packed in a durable plastic case.
- Adjustable compression speed
- Compression force 750 kg
- Battery Li-ion 3Ah, with charge status display
- Fast charging

| Art. No. | Type description | Product weight (per item) |
|----------|------------------|---------------------------|
| 7505300 | 280-300 ML | 5790.000 g |
| 7505410 | 410-420 ML | 6090.000 g |
| 7505585 | 585 ML | 7104.000 g |



Fix master

Extra battery for PowerMax guns

- Suitable for all battery powered PowerMax guns
- Battery Li-ion 3Ah, with charge status display

- **Type description :** 3 Ah Li-ion
- **Product weight (per item):** 592.000 g

| Art. No. | |
|----------|--|
| 7506144 | |



Air pump

For cleaning the chemical mass' borehole

- **Type description :** IPUM ILMAPUMPPU
(pack 1 pcs)
- **Product weight (per item):** 236.000 g

| Art. No. | |
|----------|--|
| 7730101 | |



Cleaning brush

For cleaning the chemical mass' borehole

| Art. No. | Type description | Product weight (per item) |
|----------|---------------------|---------------------------|
| 7730113 | 13X300 (pack 1 pcs) | 41.000 g |
| 7730118 | 18X300 (pack 1 pcs) | 43.000 g |
| 7730128 | 28X300 (pack 1 pcs) | 55.000 g |



Plastic sleeve IOV

Sleeves are designed to control the amount of chemical mass in anchoring to perforated brick and other hollow base materials.

| Art. No. | Type description | Product weight (per item) |
|------------|-----------------------|---------------------------|
| 773041250 | M6-M8 (pack 50 pcs) | 0.900 g |
| 7730415135 | M10-M12 (pack 20 pcs) | 3.200 g |
| 773041585 | M10-M12 (pack 20 pcs) | 6.500 g |
| 773042085 | M16 (pack 20 pcs) | 3.500 g |




Nylon plug GRIPPER

The robust GRIPPERTM is a Finnish wall plug that is suitable for the most common wall fixings in construction, renovation and decoration.

- The GripEdge friction surface ensures a secure hold in all wall materials and structures.
- The mechanical locking of the hinge holds, even if the screw has not been tightened thoroughly.
- The Gripper plug can be used with the most common screw types and diameters.
- The quality of the screw material defines the suitable operating conditions : ZN is suitable for dry indoor use ; KZN and A2 for humid indoor use, as well as outdoor use in inland rural areas ; A4 is suitable for outdoor use.

| Art. No. | Type description | Product weight (per item) |
|-----------|--------------------------|---------------------------|
| 77841005 | GRIPPER 5 (pack 100 pcs) | 0.640 g |
| 77841006 | GRIPPER 6 (pack 100 pcs) | 1.110 g |
| 77841008 | GRIPPER 8 (pack 50 pcs) | 2.280 g |
| 778410010 | GRIPPER 10 (pack 50 pcs) | 3.000 g |
| 778491 | LAJITELMA (pack 1 pcs) | 2369.000 g |



Fixing bolt anchor SORMAT S-KA, zinc-electroplated

High-quality ETA Option 1 approved and zinc-electroplated fixing bolt anchors for dry conditions

- The only fixing bolt anchors made in Finland !
- High-quality torque-controlled expansion anchors for pre-, push-through and distance installations.
- When torque is applied, the expansion clip expands developing frictional grip with the drill hole walls. The friction generated keeps the anchor securely in place.
- The size of the anchor and the maximum thickness of the attached element is marked on the anchor body.
- The S-KA setting tool improves the safety of multiple installations and makes installation faster.
- ZN for dry indoor and temporary outdoor use.

• **Material:** Steel

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|-----------------|---------------------------|-------------------------|---------------|-----------------------------|----------------------------------|-------------------------------|----------------------|
| 77016 65 | 6/15 L65 (pack 100 pcs) | 6 mm | 65 mm | 15 mm | 15.400 g | 50 mm | 38 mm |
| 77016 40 | 6/40 L40 (pack 150 pcs) | 6 mm | 40 mm | 2 mm | 10.400 g | 35 mm | 18 mm |
| 77016 100 | 6/50 L100 (pack 100 pcs) | 6 mm | 100 mm | 50 mm | 22.700 g | 50 mm | 60 mm |
| 770118 72 | 8/10 L72 (pack 50 pcs) | 8 mm | 72 mm | 10 mm | 29.500 g | 60 mm | 32 mm |
| 770118 92 | 8/30 L92 (pack 50 pcs) | 8 mm | 92 mm | 30 mm | 36.100 g | 60 mm | 52 mm |
| 77018 50 | 8/50 L52 (pack 100 pcs) | 8 mm | 52 mm | 2 mm | 22.200 g | 45 mm | 23 mm |
| 770118 112 | 8/50 L112 (pack 40 pcs) | 8 mm | 112 mm | 50 mm | 43.500 g | 60 mm | 72 mm |
| 770118 147 | 8/85 L147 (pack 40 pcs) | 8 mm | 147 mm | 85 mm | 52.800 g | 60 mm | 107 mm |
| 770111092 | 10/10 L92 (pack 40 pcs) | 10 mm | 92 mm | 10 mm | 60.000 g | 75 mm | 47 mm |
| 7701110102 | 10/20 L102 (pack 25 pcs) | 10 mm | 102 mm | 20 mm | 66.400 g | 75 mm | 57 mm |
| 7701110112 | 10/30 L112 (pack 25 pcs) | 10 mm | 112 mm | 30 mm | 69.100 g | 75 mm | 67 mm |
| 7701110132 | 10/50 L132 (pack 25 pcs) | 10 mm | 132 mm | 50 mm | 75.900 g | 75 mm | 87 mm |
| 770110 60 | 10/60 L62 (pack 50 pcs) | 10 mm | 62 mm | 3 mm | 44.400 g | 50 mm | 26 mm |
| 7701110162 | 10/80 L162 (pack 25 pcs) | 10 mm | 162 mm | 80 mm | 88.300 g | 75 mm | 115 mm |
| 7701112103 | 12/5 L103 (pack 20 pcs) | 5 mm | 103 mm | 5 mm | 95.000 g | 90 mm | 53 mm |
| 7701112118 | 12/20 L118 (pack 20 pcs) | 12 mm | 118 mm | 20 mm | 106.000 g | 90 mm | 68 mm |
| 7701112128 | 12/30 L128 (pack 20 pcs) | 12 mm | 128 mm | 30 mm | 113.000 g | 90 mm | 78 mm |
| 7701112148 | 12/50 L148 (pack 20 pcs) | 12 mm | 148 mm | 50 mm | 128.000 g | 90 mm | 98 mm |
| 7701112163 | 12/65 L163 (pack 20 pcs) | 12 mm | 163 mm | 65 mm | 124.700 g | 90 mm | 113 mm |
| 7701112178 | 12/80 L178 (pack 20 pcs) | 12 mm | 178 mm | 80 mm | 150.100 g | 90 mm | 115 mm |
| 770112 235 | 12/155 L253 (pack 10 pcs) | 12 mm | 253 mm | 155 mm | 219.500 g | 90 mm | 46 mm |
| 7701116123 | 16/5 L123 (pack 10 pcs) | 16 mm | 123 mm | 5 mm | 185.700 g | 110 mm | 65 mm |
| 7701116138 | 16/20 L138 (pack 10 pcs) | 16 mm | 138 mm | 20 mm | 204.600 g | 110 mm | 80 mm |
| 7701116168 | 16/50 L168 (pack 10 pcs) | 16 mm | 168 mm | 50 mm | 239.000 g | 110 mm | 110 mm |

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|------------|--------------------------|------------------|--------|----------------------|---------------------------|------------------------|---------------|
| 7701116178 | 16/60 L178 (pack 5 pcs) | 16 mm | 178 mm | 60 mm | 296.200 g | 110 mm | 115 mm |
| 770116 90 | 16/90 L90 (pack 10 pcs) | 16 mm | 90 mm | 3 mm | 159.400 g | 80 mm | 43 mm |
| 770116 200 | 16/95 L213 (pack 5 pcs) | 16 mm | 213 mm | 95 mm | 328.200 g | 110 mm | 55 mm |
| 770120 170 | 20/20 L170 (pack 5 pcs) | 20 mm | 170 mm | 20 mm | 448.300 g | 135 mm | 55 mm |
| 770120 220 | 20/70 L220 (pack 5 pcs) | 20 mm | 220 mm | 70 mm | 570.200 g | 135 mm | 55 mm |
| 770120 280 | 20/130 L280 (pack 5 pcs) | 20 mm | 280 mm | 130 mm | 717.800 g | 135 mm | 55 mm |



SORMAT 

Fixing bolt anchor SORMAT S-KAK, hot-dip galvanised

High-quality ETA Option 1 approved and hot-dip galvanised fixing bolt anchors

- The only fixing bolt anchors made in Finland !
- High-quality torque-controlled expansion anchors for pre-, push-through and distance installations.
- When torque is applied, the expansion clip expands developing frictional grip with the drill hole walls. The friction generated keeps the anchor securely in place.
- The size of the anchor and the maximum thickness of the attached element is marked on the anchor body. Short fixing bolt anchor sizes are marked as drilling hole diameter x total length of the anchor.
- The S-KA setting tool improves the safety of multiple installations and makes installation faster.
- KZN for dry and humid indoor use, as well as outdoor use in inland rural areas

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|------------|--------------------------|------------------|--------|----------------------|---------------------------|------------------------|---------------|
| 77026 65 | 6/15 L65 (pack 100 pcs) | 6 mm | 65 mm | 15 mm | 16.500 g | 50 mm | 38 mm |
| 77026 40 | 6/40 L40 (pack 150 pcs) | 6 mm | 40 mm | 2 mm | 10.400 g | 35 mm | 18 mm |
| 77026 100 | 6/50 L100 (pack 100 pcs) | 6 mm | 100 mm | 50 mm | 22.700 g | 50 mm | 60 mm |
| 770208 72 | 8/10 L72 (pack 50 pcs) | 8 mm | 72 mm | 10 mm | 31.000 g | 60 mm | 32 mm |
| 770208 92 | 8/30 L92 (pack 50 pcs) | 8 mm | 92 mm | 30 mm | 36.100 g | 60 mm | 52 mm |
| 770208 112 | 8/50 L112 (pack 40 pcs) | 8 mm | 112 mm | 50 mm | 43.000 g | 60 mm | 72 mm |
| 77028 50 | 8/50 L52 (pack 100 pcs) | 8 mm | 52 mm | 2 mm | 22.200 g | 45 mm | 23 mm |
| 770208 147 | 8/85 L147 (pack 40 pcs) | 8 mm | 147 mm | 85 mm | 54.000 g | 60 mm | 107 mm |
| 770201092 | 10/10 L92 (pack 40 pcs) | 10 mm | 92 mm | 10 mm | 62.750 g | 75 mm | 47 mm |
| 7702010102 | 10/20 L102 (pack 25 pcs) | 10 mm | 102 mm | 20 mm | 66.000 g | 75 mm | 57 mm |
| 7702010112 | 10/30 L112 (pack 25 pcs) | 10 mm | 112 mm | 30 mm | 72.000 g | 75 mm | 67 mm |
| 7702010132 | 10/50 L132 (pack 25 pcs) | 10 mm | 132 mm | 50 mm | 84.000 g | 75 mm | 87 mm |
| 770210 60 | 10/62 L62 (pack 50 pcs) | 10 mm | 62 mm | 3 mm | 44.400 g | 50 mm | 26 mm |
| 7702010162 | 10/80 L162 (pack 25 pcs) | 10 mm | 162 mm | 80 mm | 96.000 g | 75 mm | 115 mm |
| 7702012103 | 12/5 L103 (pack 20 pcs) | 12 mm | 103 mm | 5 mm | 100.000 g | 90 mm | 53 mm |

Fixing bolt anchor SORMAT S-KAK, hot-dip galvanised

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|------------|---------------------------|------------------|--------|----------------------|---------------------------|------------------------|---------------|
| 7702012118 | 12/20 L118 (pack 20 pcs) | 12 mm | 118 mm | 20 mm | 110.000 g | 90 mm | 68 mm |
| 7702012128 | 12/30 L128 (pack 20 pcs) | 12 mm | 128 mm | 30 mm | 120.000 g | 90 mm | 78 mm |
| 7702012148 | 12/50 L148 (pack 20 pcs) | 12 mm | 148 mm | 50 mm | 132.000 g | 90 mm | 98 mm |
| 7702012163 | 12/65 L163 (pack 20 pcs) | 12 mm | 163 mm | 65 mm | 143.000 g | 90 mm | 113 mm |
| 7702012178 | 12/80 L178 (pack 20 pcs) | 12 mm | 178 mm | 80 mm | 152.000 g | 90 mm | 115 mm |
| 770212 235 | 12/155 L235 (pack 10 pcs) | 12 mm | 253 mm | 155 mm | 219.500 g | 90 mm | 46 mm |
| 7702016123 | 16/5 L123 (pack 10 pcs) | 16 mm | 123 mm | 5 mm | 205.000 g | 110 mm | 65 mm |
| 7702016138 | 16/20 L138 (pack 10 pcs) | 16 mm | 138 mm | 20 mm | 230.000 g | 110 mm | 80 mm |
| 7702016168 | 16/50 L168 (pack 10 pcs) | 16 mm | 168 mm | 50 mm | 280.000 g | 110 mm | 110 mm |
| 7702016178 | 16/60 L178 (pack 10 pcs) | 16 mm | 178 mm | 60 mm | 278.000 g | 110 mm | 115 mm |
| 770220 170 | 20/20 L170 (pack 5 pcs) | 20 mm | 170 mm | 20 mm | 448.300 g | 135 mm | 55 mm |
| 770220 220 | 20/70 L220 (pack 5 pcs) | 20 mm | 220 mm | 70 mm | 570.200 g | 135 mm | 55 mm |
| 770220 280 | 20/130 L280 (pack 5 pcs) | 20 mm | 280 mm | 130 mm | 717.800 g | 135 mm | 55 mm |



SORMAT 

Fixing bolt anchor SORMAT S-KAH, acid-proof

High-quality ETA Option 1 approved and acid-proof fixing bolt anchors

- The only fixing bolt anchors made in Finland !
- High-quality torque-controlled expansion anchors for pre-, push-through and distance installations.
- When torque is applied, the expansion clip expands developing frictional grip with the drill hole walls. The friction generated keeps the anchor securely in place.
- The size of the anchor and the maximum thickness of the attached element is marked on the anchor body. Short fixing bolt anchor sizes are marked as drilling hole diameter x total length of the anchor.
- The S-KA setting tool improves the safety of multiple installations and makes installation faster.
- HST A4 for indoor, outdoor and industrial use.

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|------------|--------------------------|------------------|--------|----------------------|---------------------------|------------------------|---------------|
| 77036 65 | 6/15 L65 (pack 100 pcs) | 6 mm | 65 mm | 15 mm | 15.000 g | 50 mm | 28 mm |
| 77036 40 | 6/40 (pack 150 pcs) | 6 mm | 40 mm | 2 mm | 10.400 g | 35 mm | 18 mm |
| 770318 72 | 8/10 L72 (pack 50 pcs) | 8 mm | 72 mm | 10 mm | 29.500 g | 60 mm | 32 mm |
| 770318 92 | 8/30 L92 (pack 50 pcs) | 8 mm | 92 mm | 30 mm | 36.100 g | 60 mm | 52 mm |
| 77038 50 | 8/54 (pack 100 pcs) | 8 mm | 52 mm | 2 mm | 22.200 g | 45 mm | 23 mm |
| 770311092 | 10/10 L92 (pack 40 pcs) | 10 mm | 92 mm | 10 mm | 61.000 g | 75 mm | 47 mm |
| 7703110102 | 10/20 L102 (pack 25 pcs) | 10 mm | 102 mm | 20 mm | 64.000 g | 75 mm | 57 mm |
| 7703110112 | 10/30 L112 (pack 25 pcs) | 10 mm | 112 mm | 30 mm | 62.800 g | 75 mm | 67 mm |

| Art. No. | Type description | Nominal diameter | Length | Attachment thickness | Product weight (per item) | Drill hole depth (h 1) | Thread length |
|-----------------|--------------------------|-------------------------|---------------|-----------------------------|----------------------------------|-------------------------------|----------------------|
| 7703110132 | 10/55 L132 (pack 25 pcs) | 10 mm | 132 mm | 50 mm | 75.900 g | 75 mm | 87 mm |
| 770310 60 | 10/62 (pack 50 pcs) | 10 mm | 62 mm | 3 mm | 44.400 g | 50 mm | 26 mm |
| 7703112103 | 12/5 L103 (pack 20 pcs) | 12 mm | 103 mm | 5 mm | 81.700 g | 90 mm | 53 mm |
| 7703112118 | 12/20 L118 (pack 20 pcs) | 12 mm | 118 mm | 20 mm | 92.300 g | 90 mm | 68 mm |
| 7703112128 | 12/30 L128 (pack 20 pcs) | 12 mm | 128 mm | 30 mm | 103.800 g | 90 mm | 78 mm |
| 7703112148 | 12/50 L148 (pack 20 pcs) | 12 mm | 148 mm | 50 mm | 112.900 g | 90 mm | 98 mm |
| 7703112163 | 12/65 L163 (pack 20 pcs) | 12 mm | 163 mm | 65 mm | 124.700 g | 90 mm | 113 mm |
| 7703116123 | 16/5 L123 (pack 10 pcs) | 16 mm | 123 mm | 5 mm | 185.700 g | 110 mm | 65 mm |
| 7703116138 | 16/20 L138 (pack 10 pcs) | 16 mm | 138 mm | 20 mm | 225.000 g | 110 mm | 80 mm |
| 7703116168 | 16/50 L168 (pack 10 pcs) | 16 mm | 168 mm | 50 mm | 239.000 g | 110 mm | 110 mm |
| 770320 170 | 20/20 L170 (pack 5 pcs) | 20 mm | 170 mm | 20 mm | 448.300 g | 135 mm | 55 mm |
| 770320 220 | 20/70 L220 (pack 5 pcs) | 20 mm | 220 mm | 70 mm | 570.200 g | 135 mm | 55 mm |



Screw anchor with hexagon head Acid-proof steel A4, TSM

- Quick and safe installation
- High load resistance in cracked and non-cracked concrete
- Transfers loads via threading to hole walls
- Can be removed without residue
- Can be instantly loaded
- **Material :** Stainless steel A4

| Art. No. | Type description | Drill hole diameter | Nominal diameter | Length | Width across flats | Product weight (per item) |
|------------|-------------------------------|---------------------|------------------|--------|--------------------|---------------------------|
| 78406 50 | 6X50/15/10/- (pack 100 pcs) | 6 mm | 7.5 mm | 50 mm | 13 mm | 19.000 g |
| 78406 60 | 6X60/25/20/5 (pack 100 pcs) | 6 mm | 7.5 mm | 60 mm | 13 mm | 21.200 g |
| 78408 70 | 8X70/25/15/5 (pack 50 pcs) | 8 mm | 10 mm | 70 mm | 13 mm | 39.600 g |
| 78408 80 | 8X70/25/15/5 (pack 50 pcs) | 8 mm | 10 mm | 80 mm | 13 mm | 42.300 g |
| 784010 90 | 8X80/35/25/15 (pack 50 pcs) | 10 mm | 12 mm | 90 mm | 15 mm | 74.000 g |
| 784010 100 | 10X100/45/25/15 (pack 50 pcs) | 10 mm | 12 mm | 100 mm | 15 mm | 78.900 g |
| 784010 120 | 10X120/65/45/35 (pack 50 pcs) | 10 mm | 12 mm | 120 mm | 15 mm | 93.100 g |



Screw anchor with hexagon head Zinc flake coated steel, TSM

- Quick and safe installation
- High load resistance in cracked and non-cracked concrete
- Transfers loads via threading to hole walls
- Can be removed without residue
- Can be instantly loaded
- **Material :** Steel
- **Surface :** Flake zinc

| Art. No. | Type description | Drill hole diameter | Nominal diameter | Length | Width across flats | Product weight (per item) |
|----------|------------------------------|---------------------|------------------|--------|--------------------|---------------------------|
| 78205 40 | 5X40/5/-/ (pack 100 pcs) | 5 mm | 6 mm | 40 mm | 10 mm | 9.000 g |
| 78205 50 | 5X50/15/-/ (pack 100 pcs) | 5 mm | 6 mm | 50 mm | 10 mm | 10.000 g |
| 78205 60 | 5X60/25/-/ (pack 100 pcs) | 5 mm | 6 mm | 60 mm | 10 mm | 12.000 g |
| 78206 40 | 6X40/5/-/ (pack 100 pcs) | 6 mm | 7.5 mm | 40 mm | 13 mm | 11.600 g |
| 78206 50 | 6X50/15//10/- (pack 100 pcs) | 6 mm | 7.5 mm | 50 mm | 13 mm | 17.400 g |
| 78206 60 | 6X60/25/20/5 (pack 100 pcs) | 6 mm | 7.5 mm | 60 mm | 13 mm | 19.500 g |
| 78206 80 | 6X80/45/40/25 (pack 100 pcs) | 6 mm | 7.5 mm | 80 mm | 13 mm | 12.000 g |

| Art. No. | Type description | Drill hole diameter | Nominal diameter | Length | Width across flats | Product weight (per item) |
|-----------------|----------------------------------|----------------------------|-------------------------|---------------|---------------------------|----------------------------------|
| 78206 100 | 6X100/65/60/45 (pack 100 pcs) | 6 mm | 7.5 mm | 100 mm | 13 mm | 27.700 g |
| 78208 50 | 8X50/5/-/- (pack 50 pcs) | 8 mm | 10 mm | 50 mm | 13 mm | 30.000 g |
| 78208 60 | 8X60/15/5/- (pack 50 pcs) | 8 mm | 10 mm | 60 mm | 13 mm | 34.600 g |
| 78208 70 | 8X70/25/15/5 (pack 50 pcs) | 8 mm | 10 mm | 70 mm | 13 mm | 38.000 g |
| 78208 80 | 8X80/35/25/15 (pack 50 pcs) | 8 mm | 10 mm | 80 mm | 13 mm | 42.000 g |
| 78208 90 | 8X90/45/35/25 (pack 50 pcs) | 8 mm | 10 mm | 90 mm | 13 mm | 46.000 g |
| 78208 100 | 8X100/55/45/35 (pack 50 pcs) | 8 mm | 10 mm | 100 mm | 13 mm | 48.900 g |
| 78208 120 | 8X120/75/65/55 (pack 50 pcs) | 8 mm | 10 mm | 120 mm | 13 mm | 56.500 g |
| 78208 140 | 8X140/95/85/75 (pack 50 pcs) | 8 mm | 10 mm | 140 mm | 13 mm | 63.700 g |
| 782010 60 | 10X60/5/-/- (pack 50 pcs) | 10 mm | 12 mm | 60 mm | 15 mm | 53.000 g |
| 782010 70 | 10X70/15/-/- (pack 50 pcs) | 10 mm | 12 mm | 70 mm | 15 mm | 59.000 g |
| 782010 80 | 10X80/25/25/5/- (pack 50 pcs) | 10 mm | 12 mm | 80 mm | 15 mm | 65.800 g |
| 782010 90 | 10X90/35/15/5 (pack 50 pcs) | 10 mm | 12 mm | 90 mm | 15 mm | 71.500 g |
| 782010 100 | 10X100/45/25/15 (pack 50 pcs) | 10 mm | 12 mm | 100 mm | 15 mm | 77.400 g |
| 782010 120 | 10X120/65/45/35 (pack 50 pcs) | 10 mm | 12 mm | 120 mm | 15 mm | 90.000 g |
| 782010 140 | 10X140/85/65/55 (pack 50 pcs) | 10 mm | 12 mm | 140 mm | 15 mm | 104.000 g |
| 782010 150 | 10X150/95/75/65 (pack 50 pcs) | 10 mm | 12 mm | 150 mm | 15 mm | 109.000 g |
| 782010 160 | 10X160/105/85/75 (pack 50 pcs) | 10 mm | 12 mm | 160 mm | 15 mm | 113.800 g |
| 782010 180 | 10X180/125/105/95 (pack 25 pcs) | 10 mm | 12 mm | 180 mm | 15 mm | 165.100 g |
| 782010 200 | 10X200/145/125/115 (pack 25 pcs) | 10 mm | 12 mm | 200 mm | 15 mm | 178.000 g |
| 782010 240 | 10X240/185/165/155 (pack 25 pcs) | 10 mm | 12 mm | 240 mm | 15 mm | 203.000 g |
| 782010 360 | 10X260/305/285/275 (pack 25 pcs) | 10 mm | 12 mm | 360 mm | 15 mm | 280.000 g |
| 782010 280 | 10X280/225/205/195 (pack 25 pcs) | 10 mm | 12 mm | 280 mm | 15 mm | 231.000 g |
| 782010 320 | 10X320/265/245/235 (pack 25 pcs) | 10 mm | 12 mm | 320 mm | 15 mm | 272.800 g |
| 782010 400 | 10X400/345/325/315 (pack 25 pcs) | 10 mm | 12 mm | 400 mm | 15 mm | 14.800 g |
| 782012 80 | 12X80/15/-/- (pack 25 pcs) | 12 mm | 14 mm | 80 mm | 17 mm | 92.000 g |
| 782012 110 | 12X10/45/25/10 (pack 25 pcs) | 12 mm | 14 mm | 110 mm | 17 mm | 116.000 g |
| 782012 130 | 12X130/65/45/30 (pack 25 pcs) | 12 mm | 14 mm | 130 mm | 17 mm | 134.000 g |
| 782012 150 | 12X150/85/65/50 (pack 25 pcs) | 12 mm | 14 mm | 150 mm | 17 mm | 144.000 g |
| 782014 80 | 14X80/5/-/- (pack 25 pcs) | 14 mm | 16 mm | 80 mm | 21 mm | 136.000 g |
| 782014 110 | 14X110/55/30/15 (pack 25 pcs) | 14 mm | 16 mm | 110 mm | 21 mm | 171.000 g |
| 782014 130 | 14X130/55/30/15 (pack 25 pcs) | 14 mm | 16 mm | 130 mm | 21 mm | 195.400 g |
| 782014 150 | 14X150/75/50/35 (pack 25 pcs) | 14 mm | 16 mm | 150 mm | 21 mm | 217.000 g |



Screw anchor with round pan head Acid-proof steel A4, TSM-P

- Quick and safe installation
- High load resistance in cracked and non-cracked concrete
- Transfers loads via threading to hole walls
- Can be removed without residue
- Can be instantly loaded
- **Material :** Stainless steel A4
- **Drill hole diameter :** 6 mm
- **Nominal diameter :** 7.5 mm
- **Internal drive :** TX30

| Art. No. | Type description | Length | Product weight (per item) |
|-----------|-------------------------------|--------|---------------------------|
| 78426 50 | 6X50/15/10/- (pack 100 pcs) | 50 mm | 13.800 g |
| 78426 60 | 6X60/25/20/5 (pack 100 pcs) | 60 mm | 15.000 g |
| 78426 80 | 6X80/45/40/25 (pack 100 pcs) | 80 mm | 20.000 g |
| 78426 100 | 6X100/65/60/45 (pack 100 pcs) | 100 mm | 23.000 g |



Screw anchors with round pan head Zinc-electroplated, TSM-P

- Quick and safe installation
- High load resistance in cracked and non-cracked concrete
- Transfers loads via threading to hole walls
- Can be removed without residue
- Can be instantly loaded
- **Material :** Steel
- **Internal drive :** TX30
- **Surface :** Galvanised

| Art. No. | Type description | Drill hole diameter | Nominal diameter | Length | Product weight (per item) |
|-----------|-------------------------------|---------------------|------------------|--------|---------------------------|
| 78225 40 | 5X40/5/-/- (pack 100 pcs) | 5 mm | 6 mm | 40 mm | 8.100 g |
| 78225 50 | 5X50/15/-/- (pack 100 pcs) | 5 mm | 6 mm | 50 mm | 9.400 g |
| 78225 60 | 5X60/25/-/- (pack 100 pcs) | 5 mm | 6 mm | 60 mm | 10.800 g |
| 78226 40 | 6X40/5/-/- (pack 100 pcs) | 6 mm | 7.5 mm | 40 mm | 11.000 g |
| 78226 50 | 6X50/15/10/- (pack 100 pcs) | 6 mm | 7.5 mm | 50 mm | 13.500 g |
| 78226 60 | 6X60/25/20/5 (pack 100 pcs) | 6 mm | 7.5 mm | 60 mm | 15.200 g |
| 78226 80 | 6X80/45/40/25 (pack 100 pcs) | 6 mm | 7.5 mm | 80 mm | 19.600 g |
| 78226 100 | 6X100/65/60/45 (pack 100 pcs) | 6 mm | 7.5 mm | 100 mm | 23.000 g |



Screw anchor with round pan head Zinc-electroplated, TSM-L

- Approved for installation
 - High load resistance in cracked and non-cracked concrete
 - Small boreholes
 - Quick and safe installation
 - Low anchor depth
- **Type description :** 6(7,5)X28/3
 - **Material :** Steel
 - **Drill hole diameter :** 6 mm
 - **Nominal diameter :** 7.5 mm
 - **Length :** 28 mm
 - **Internal drive :** TX30
 - **Product weight (per item):** 8.000 g
 - **Surface :** Galvanised

| Art. No. | |
|------------|--|
| 5929506028 | |



Screw anchors with wide round pan head Zinc-electroplated, TSM-LP

- Quick and safe installation
 - High load resistance in cracked and non-cracked concrete
 - Transfers loads via threading to hole walls
 - Can be removed without residue
 - Can be instantly loaded
- **Material :** Steel
 - **Drill hole diameter :** 6 mm
 - **Nominal diameter :** 7.5 mm
 - **Internal drive :** TX30
 - **Surface :** Galvanised

| Art. No. | Type description | Length | Product weight (per item) |
|----------|-----------------------------|--------|---------------------------|
| 78236 40 | 6X40/5/-/- (pack 100 pcs) | 40 mm | 12.700 g |
| 78236 60 | 6X60/25/20/5 (pack 100 pcs) | 60 mm | 17.000 g |



Screw anchor with countersunk head Acid-proof steel A4, TSM-C

- Quick and safe installation
 - High load resistance in cracked and non-cracked concrete
 - Transfers loads via threading to hole walls
 - Can be removed without residue
 - Can be instantly loaded
- **Material :** Stainless steel A4

| Art. No. | Type description | Product weight (per item) | Nominal diameter | Length | Internal drive |
|-----------|-------------------------------|---------------------------|------------------|--------|----------------|
| 78416 50 | 6X50/15/10/- (pack 100 pcs) | 12.000 g | 7.5 mm | 50 mm | TX30 |
| 78416 65 | 6X65/30/25/10 (pack 100 pcs) | 15.300 g | 7.5 mm | 65 mm | TX30 |
| 78416 85 | 6X85/50/45/30 (pack 100 pcs) | 19.100 g | 7.5 mm | 85 mm | TX30 |
| 78416 105 | 6X105/50/45/30 (pack 100 pcs) | 15.000 g | 7.5 mm | 105 mm | TX30 |
| 78418 80 | 8X80/35/25/15 (pack 50 pcs) | 37.300 g | 7.5 mm | 80 mm | TX40 |
| 784110 90 | 10X90/35/15/5 | 60.000 g | 12 mm | 90 mm | TX50 |
| 78410 90 | 10X90/35/15/5 (pack 50 pcs) | 63.000 g | 12 mm | 90 mm | TX50 |



Screw anchor with countersunk head Zinc-electroplated steel, TSM-C

- Quick and safe installation
 - High load resistance in cracked and non-cracked concrete
 - Transfers loads via threading to hole walls
 - Can be removed without residue
 - Can be instantly loaded
- **Surface :** Galvanised

| Art. No. | Type description | Material | Product weight (per item) | Nominal diameter | Length | Internal drive |
|-----------|---------------------------------|----------|---------------------------|------------------|--------|----------------|
| 78215 40 | 5X40/5/-/- (pack 100 pcs) | Zinc | 6.900 g | 6 mm | 40 mm | TX25 |
| 78215 50 | 5X50/15/-/- (pack 100 pcs) | Zinc | 7.900 g | 6 mm | 50 mm | TX25 |
| 78215 60 | 5X60/25/-/- (pack 100 pcs) | Zinc | 9.200 g | 6 mm | 60 mm | TX25 |
| 78216 40 | 6X40/5/-/- (pack 100 pcs) | Zinc | 9.600 g | 7.5 mm | 40 mm | TX30 |
| 78216 50 | 6X50/15/10/- (pack 100 pcs) | Zinc | 11.000 g | 7.5 mm | 50 mm | TX30 |
| 78216 60 | 6X60/25/20/5 (pack 100 pcs) | Zinc | 13.300 g | 7.5 mm | 60 mm | TX30 |
| 78216 80 | 6X80/45/40/25 (pack 100 pcs) | Zinc | 17.500 g | 7.5 mm | 80 mm | TX30 |
| 78216 100 | 6X100/65/60/45 (pack 100 pcs) | Zinc | 21.600 g | 7.5 mm | 100 mm | TX30 |
| 78216 120 | 6X120/85/80/65 (pack 100 pcs) | Zinc | 26.000 g | 7.5 mm | 120 mm | TX30 |
| 78216 140 | 6X140/105/100/85 (pack 100 pcs) | Zinc | 30.000 g | 7.5 mm | 140 mm | TX30 |

| Art. No. | Type description | Material | Product weight (per item) | Nominal diameter | Length | Internal drive |
|-----------------|-----------------------------|-----------------|----------------------------------|-------------------------|---------------|-----------------------|
| 78218 80 | 8X80/35/25/15 (pack 50 pcs) | Zinc | 37.000 g | 10 mm | 80 mm | TX40 |
| 782110 90 | 10X90/35/15/5 (pack 50 pcs) | Steel | 59.700 g | 6 mm | 90 mm | TX50 |



Screw anchor with male thread Acid-proof steel A4, TSM

- Quick and safe to install
 - High load resistance in cracked and non-cracked concrete
 - Transfers loads via threading to hole walls
 - Can be removed without residue
 - Can be instantly loaded
- **Material:** Stainless steel A4

| Art. No. | Type description | Product weight (per item) |
|-----------------|--|----------------------------------|
| 78468 105 | 8X105 M10X30 ULKOKIERRE (pack 50 pcs) | 43.000 g |
| 784610 140 | 10X140 M12X35 ULKOKIERRE (pack 50 pcs) | 1.000 g |
| 784610 160 | 10X160 M12X55 ULKOKIERRE (pack 50 pcs) | 102.000 g |
| 784614 220 | 14X220 M16X80 ULKOKIERRE (pack 25 pcs) | 1.000 g |



Screw anchor with male thread Zinc-electroplated steel, TSM

- Quick and safe installation
- High load resistance in cracked and non-cracked concrete
- Transfers loads via threading to hole walls
- Can be removed without residue
- Can be instantly loaded

| Art. No. | Type description | Material | Product weight (per item) |
|-----------------|--|-----------------|----------------------------------|
| 78256 35 | 6X35 M8X16 ULKOKIERRE (pack 100 pcs) | Zinc | 13.900 g |
| 78256 55 | 6X55 M8X16 ULKOKIERRE (pack 100 pcs) | Zinc | 19.000 g |
| 78256 75 | 6X75 M8X16 ULKOKIERRE (pack 100 pcs) | Zinc | 22.000 g |
| 78256 95 | 6X95 M8X16 ULKOKIERRE (pack 100 pcs) | Zinc | 26.000 g |
| 78268 105 | 8X105 M10X30 ULKOKIERRE (pack 50 pcs) | Zinc | 1.000 g |
| 782610 120 | 10X120 M12X20 ULKOKIERRE (pack 50 pcs) | Zinc | 1.000 g |
| 782612 165 | 10X165 M12X45 ULKOKIERRE (pack 50 pcs) | Zinc | 1.000 g |
| 782612 145 | 12X145 M14X35 ULKOKIERRE (pack 25 pcs) | Zinc | 1.000 g |
| 782610 165 | M12x45 | | 1.000 g |



Screw anchor with a female thread zinc-electroplated, TSM-IM

- Quick and safe installation
 - High load resistance in cracked and non-cracked concrete
 - Transfers loads via threading to hole walls
 - Can be removed without residue
 - Can be instantly loaded
- **Material :** Steel
 - **Drill hole diameter :** 6 mm
 - **Nominal diameter :** 7.5 mm
 - **Width across flats :** 13 mm
 - **Female thread :** 8 mm
 - **Female thread 2 :** 10 mm
 - **Surface :** Galvanised

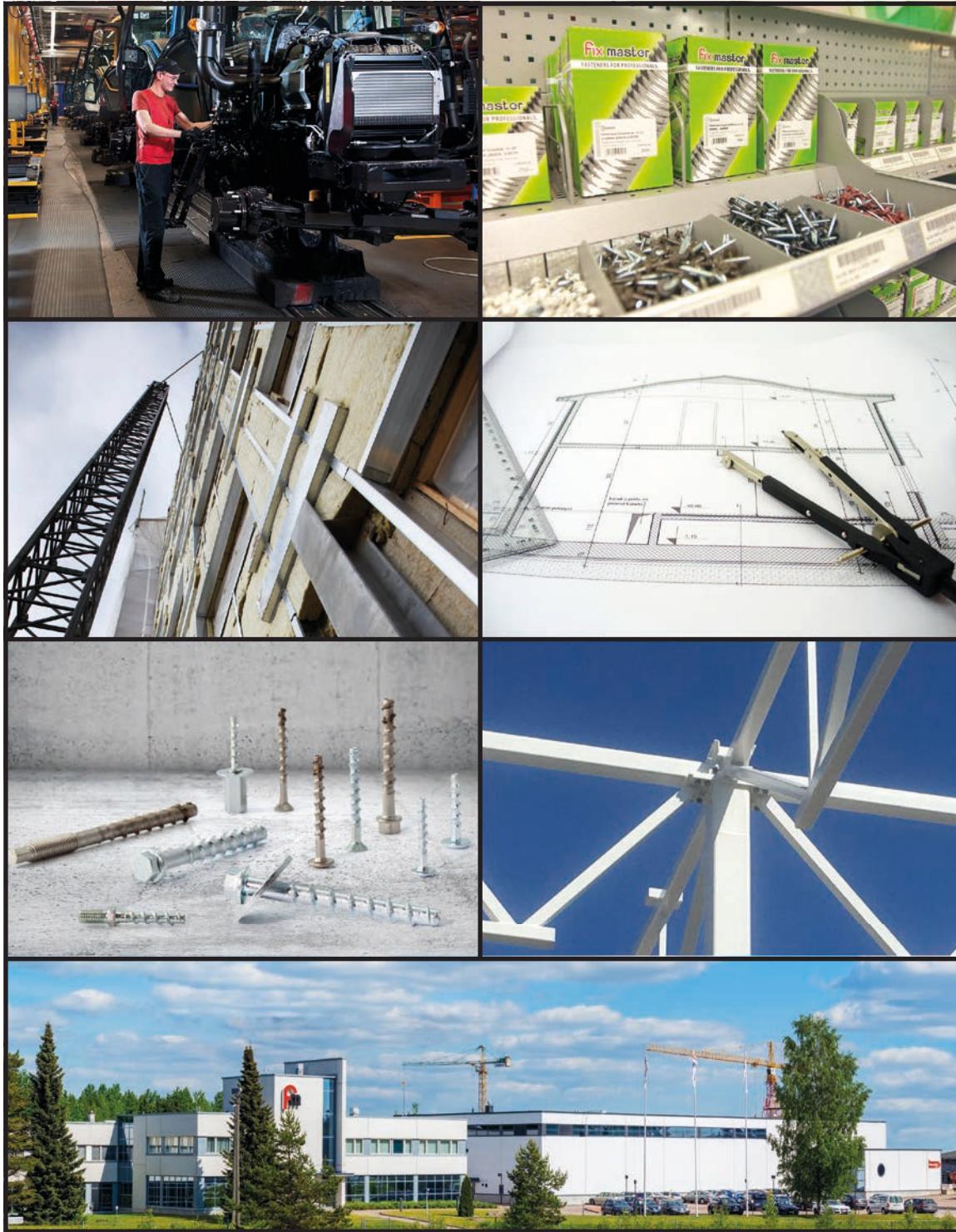
| Art. No. | Type description | Length | Product weight (per item) |
|----------|--------------------------------------|--------|---------------------------|
| 78246 35 | 6X35 M8/M10 SISÄKIERRE (pack 50 pcs) | 35 mm | 33.920 g |
| 78246 55 | 6X55 M8/M10 SISÄKIERRE (pack 50 pcs) | 55 mm | 38.000 g |



Ferrometal Oy
Karhutie 9
01900 Nurmijärvi
Finland
tel. +358 10 308 11
www.ferrometal.fi

fm ferrometal

FASTENERS FOR PROFESSIONALS.



Ferrometal Oy - Suomi

Karhutie 9
01900 Nurmijärvi

Tel. +358 10 308 11
myynti@ferrometal.fi

Ferrometal - Estonia

Laki 14 A
10621 Tallinn

Tel. +372 699 0470
eesti@ferrometal.fi

Ferrometal - Latvia

Ganibu dambis 17a,
Office No: 308
LV-1045 Riga

Tel. +371 2666 5158
latvia@ferrometal.fi