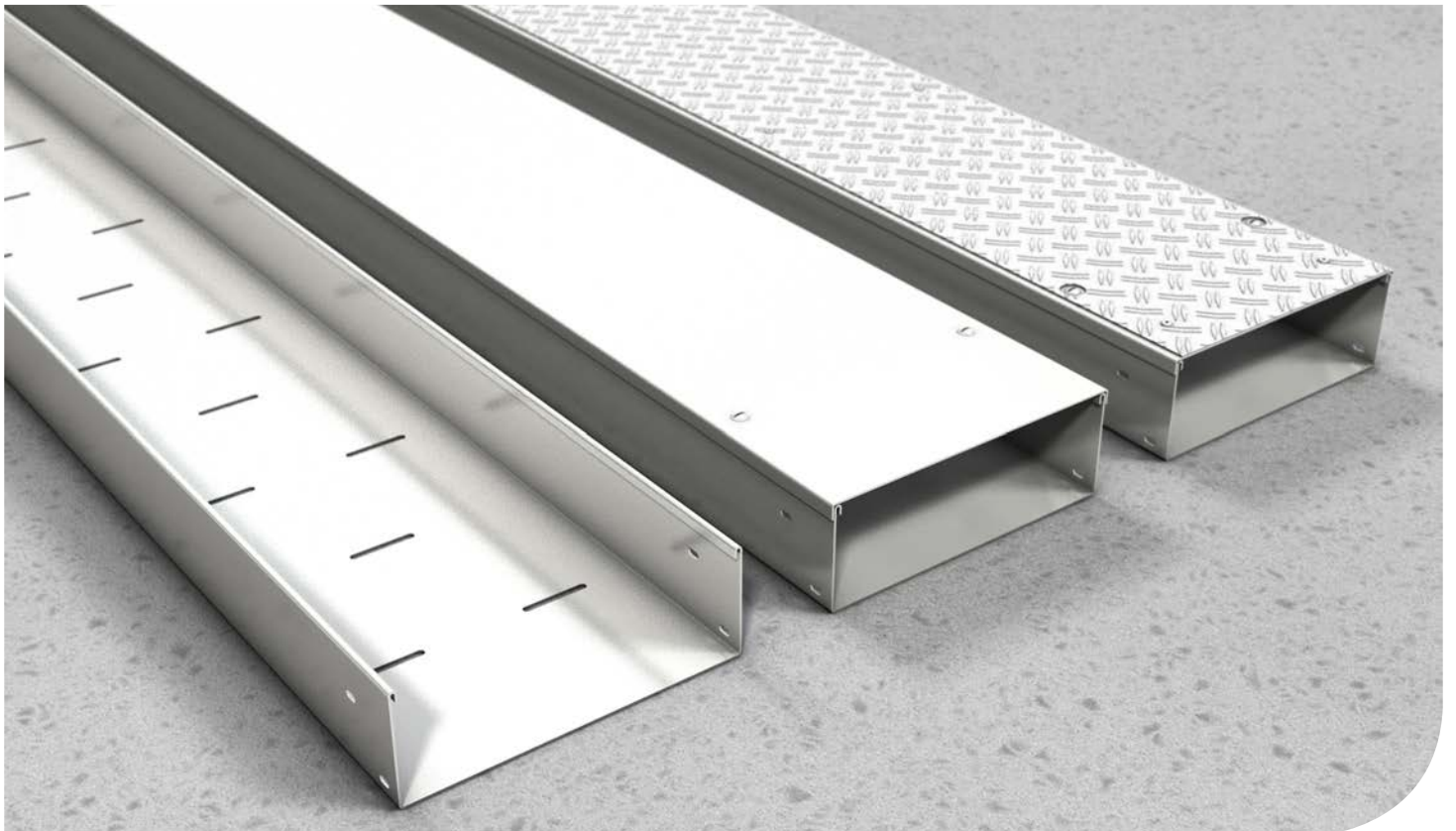




Floor ducts Installation instructions



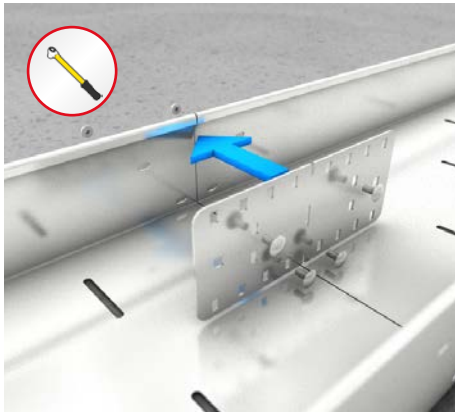
Floor ducts

Installation instructions



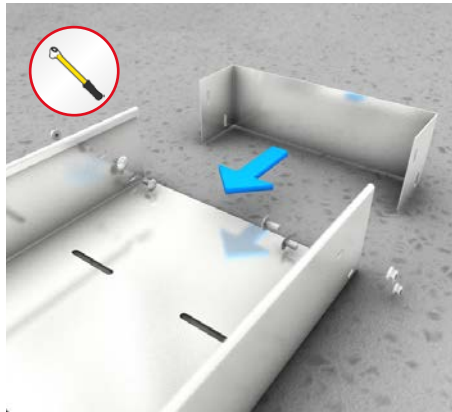
Floor ducts are intended for laying cable harnesses on the floor or at a slightly raised level. They are used for routing cables, hoses and tubes through industrial facilities in the proximity of the power consuming equipment and for protecting them, in particular against potential damage caused by mechanical impacts and flying sparks (emitted by robot welders), for example. Well-engineered support spacing layout and the use of covers with certified anti-slip classes ensure good walk-on stability of the system.

Attention – All screws must be fitted with the screw head inside the floor ducts!



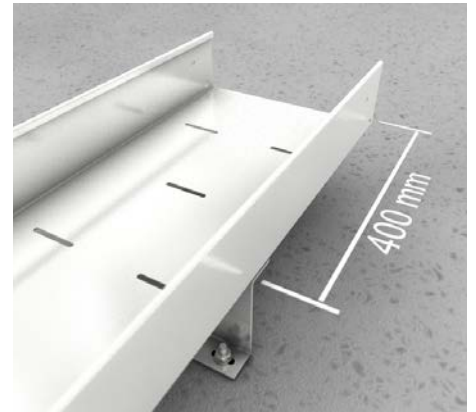
1 | Coupler

Slide the coupler into the side beam of the floor duct and secure it using two clamping screws per side beam. Insert the connecting duct and mount it with two screws per side beam.



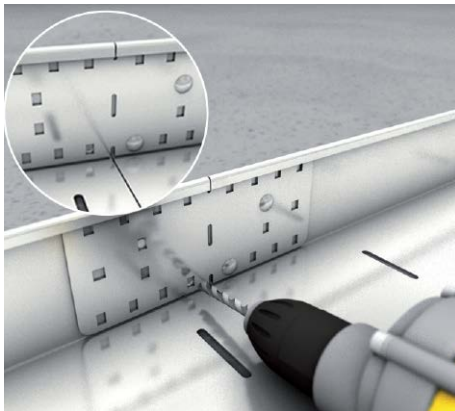
2 | Floor duct end plate

Lock the floor duct at the end as required using the floor duct end plate and secure it with 2 clamping screws per side beam.



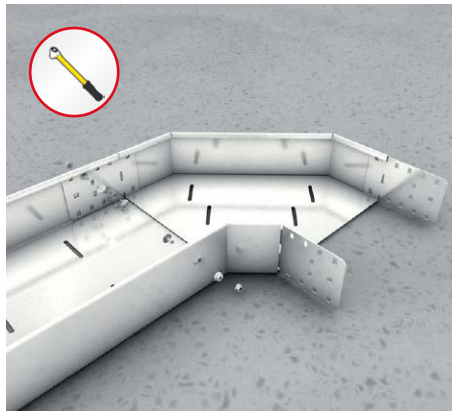
3 | Distance of the supports from the end of the fitting

The maximum distance between the last support and the end of the duct piece should not exceed 400 mm.



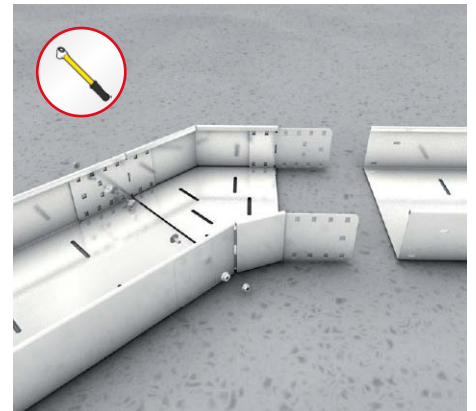
4 | Drilling of screw holes

If the floor duct is shortened, drill two new screw holes in each side beam. Drill $2 \times D = 6.5\text{mm}$ through the holes in the pre-assembled floor duct coupler, as shown.



5 | Horizontal 90° change in direction

If there is a 90° change in direction, push the floor duct bend into the side beams of the floor duct using the pre-assembled couplers, and secure it using two clamping screws per side beam.

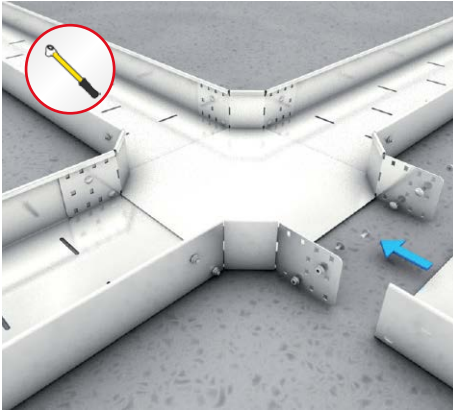


6 | Horizontal 45° change in direction

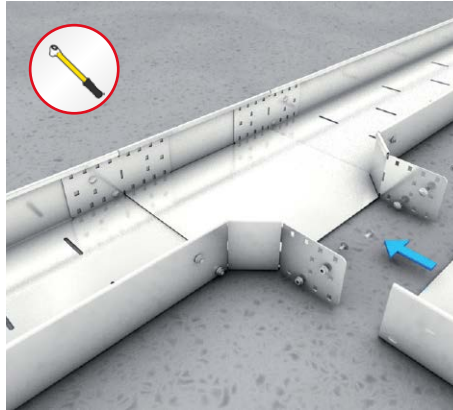
For a 45° change in direction, use the 45° degree floor duct bend and secure it using 2 clamping screws per side beam.

Floor ducts

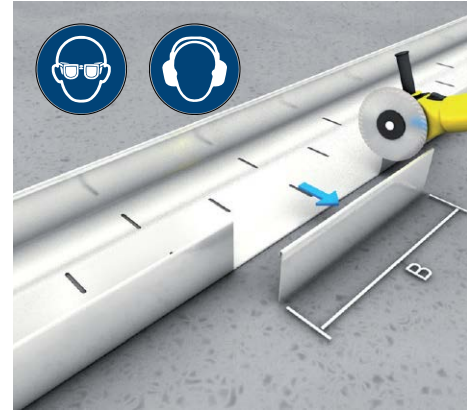
Installation instructions



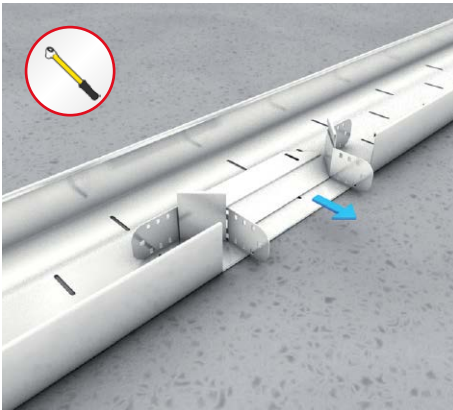
7 | Floor duct cross-piece
Slide the floor ducts onto the coupler of the floor duct cross-piece and secure it using 2 clamping screws per side beam



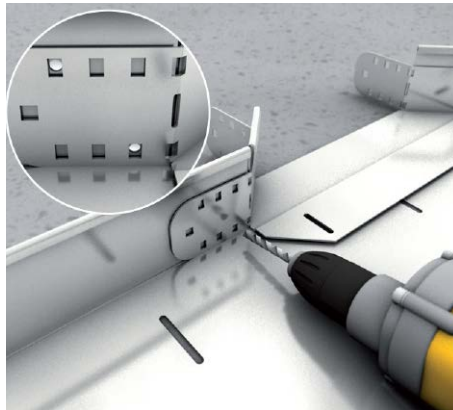
8 | Branch-piece
Slide the floor ducts onto the couplers of the floor duct branch piece and secure them using 2 clamping screws per side beam.



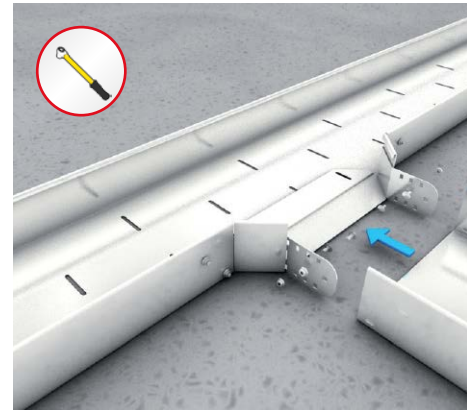
9 | Floor duct attachment branch-piece
While installing additional floor duct branch pieces produced on-site, cut out the side beam of the floor duct at a width $B =$ width of the connecting duct + 120mm (flush to the floor), deburr and cold-galvanise.



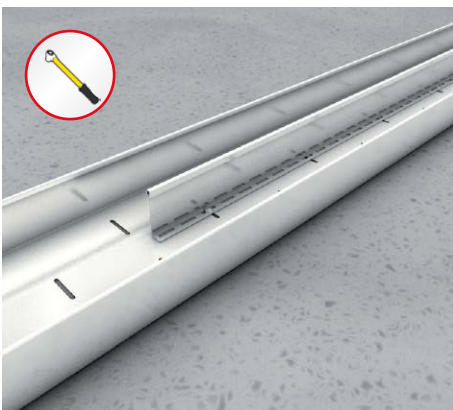
10 | Floor duct attachment branch-piece
Insert an additional floor duct branch-piece into the floor duct neck.



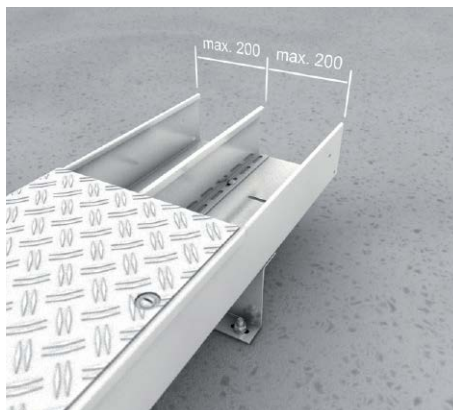
11 | Floor duct attachment branch-piece
On the section, drill two holes on each side beam for securing the screws. Drill $2 \times D = 6.5\text{mm}$ through the holes in the pre-assembled couplers, as shown.



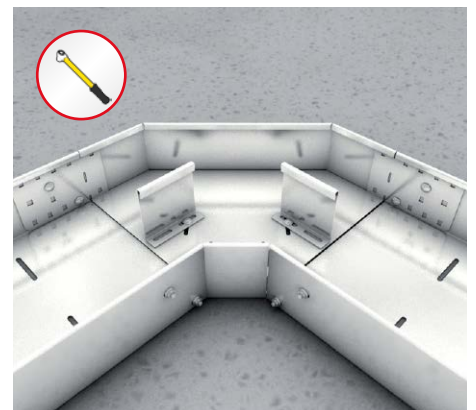
12 | Floor duct attachment branch-piece
Slide the floor duct attachment branch-piece on the floor duct to be connected and secure it using 2 clamping screws per side beam.



13 | Barrier strip
Cut the barrier strip to length, deburr and cold-galvanise. For fastening the barrier strip, position and secure it in the elongated holes in the bottom plate using 3 clamping screws (each approx. 100mm from both barrier strip ends in the centre). The rounded head is located in the floor duct, the nut is mounted from the outside.



14 | Distance between the supports on the floor duct cover
To prevent a deflection of the cover during inspection, the maximum distance of 200mm between the supports through the barrier strips in the floor duct may not be exceeded. The number and arrangement of the barrier strips is configured according to the width of the floor duct and the installation layout of the cables.



15 | Floor duct support profile
For partial support of the floor duct cover, e.g., for cable routing in the fittings, the floor duct support profile is fastened to the bottom plate using the clamping screws.

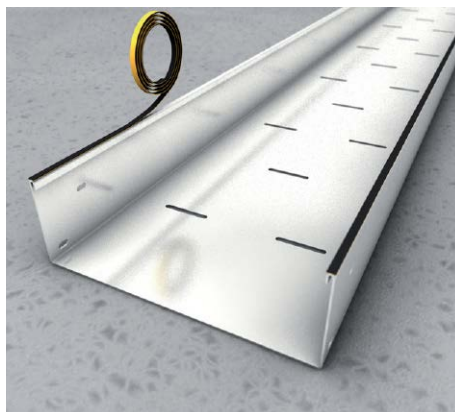
Floor ducts

Installation instructions



16 | Floor duct cover support

To ensure additional support for the cover, the floor duct cover support can be mounted in the floor duct with the open end downwards. To do this, first select the width that is suitable for the floor duct used.



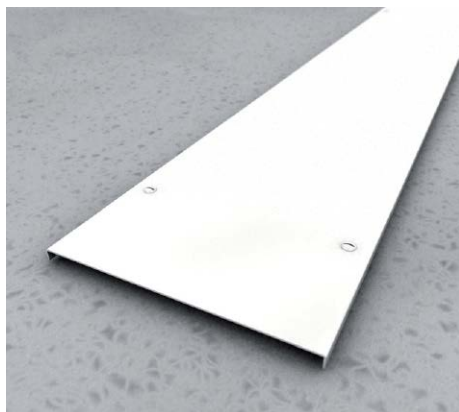
17 | Anti-slipping tape

To reduce the risk of slipping between the accessible covers and the floor ducts, stick the anti-slipping tape on the upper side of both side bars.



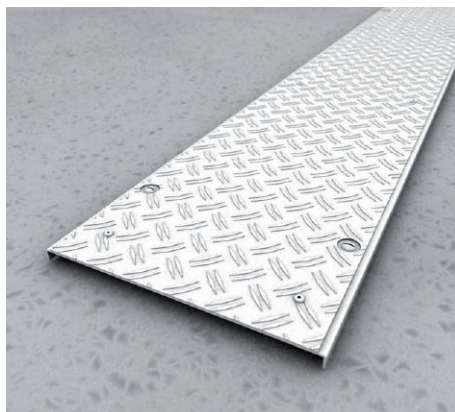
18 | Z duct

To lay additional pipes directly on the side wall of the floor duct, the Z duct is fitted above the holes in the side walls using clamping screws.



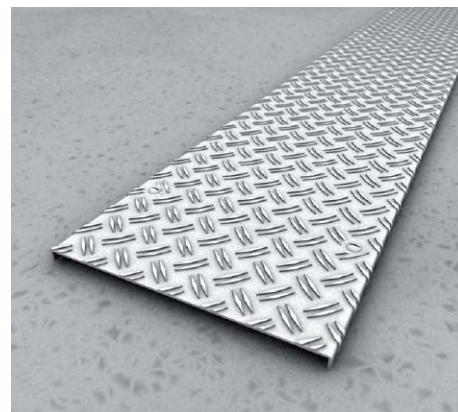
19 | Floor duct cover

Because of the varied requirements for accessing the floor ducts, covers without a structure or, alternatively, floor duct covers with a non-slip chequered plate surface can be used.



20 | Floor duct cover with a chequered plate

In this model, an aluminium chequered plate of anti-slip class R10 (DIN 51130) is riveted on the floor duct covers using turning bolts.



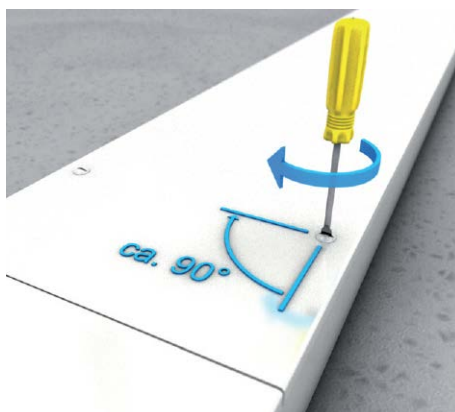
21 | Aluminium floor duct cover

This model has a pure aluminium cover with turning bolts and belongs to anti-slip class R10 (DIN 51130). All covers are prefabricated with the turning bolts to ensure secure seating.



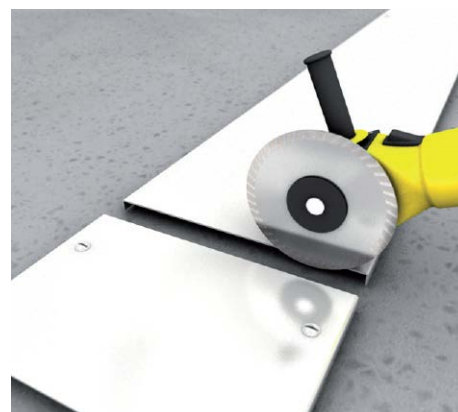
22 | Cover assembly

The covers are fitted with turning bolts. Before mounting the covers on the floor duct, ensure that the turning bolts are parallel to the edge of the cover and aligned to the left.



23 | Turning bolts

To close the cover, press the cover firmly right next to the closure and turn the turning bolts in a clockwise direction using a slot screwdriver with a suitable blade size of 10 x 1.6 mm and close it with a maximum rotation of 90°. To ensure proper alignment, lift the cover on the edge slightly to the height of the turning bolt and check for secure seating. If the cover can be lifted, repeat the previous step.

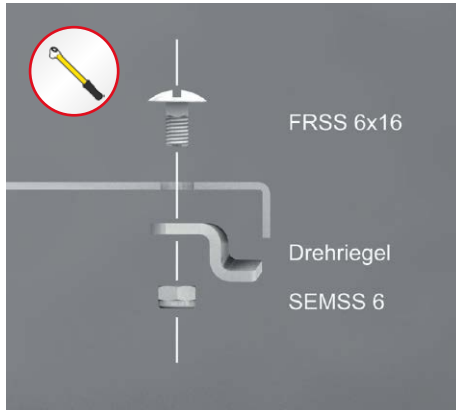


24 | Cover shortening

If the turning bolts on the floor duct covers have been removed while shortening, fit two new turning bolts opposite to each other, if the distance between the last turning bolt and the cover end exceeds 150mm.

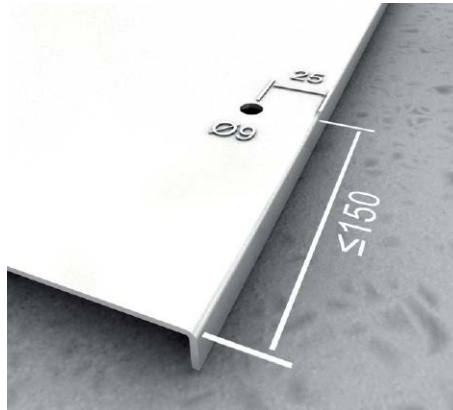
Floor ducts

Installation instructions



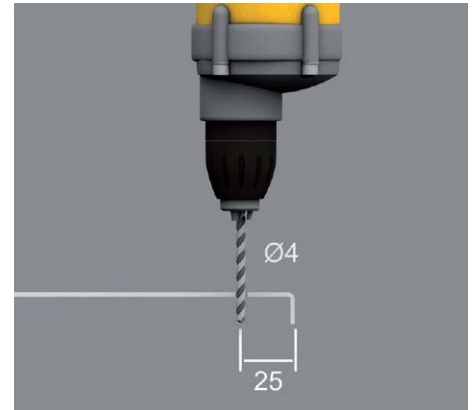
25 | Assembly of turning bolts

Ensure that the turning bolts are always mounted at the correct distance from the edge of the cover and on a flat surface as described below. The cover model must be taken into account.



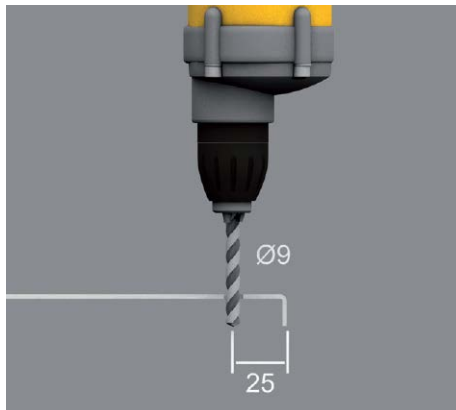
26 | Positioning of the turning bolts

Floor duct covers without anti-slip structure require preliminary drilling for new turning bolts.



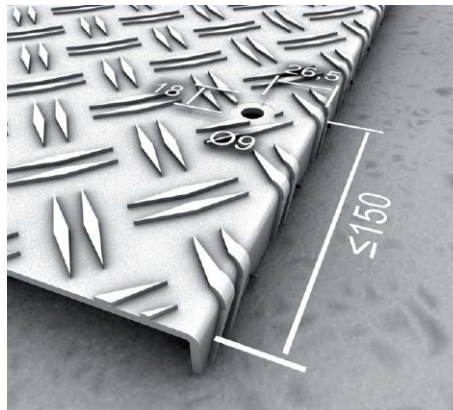
27 | Preliminary drilling

A hole with D = 4mm each is pre-drilled for assembling turning bolts.



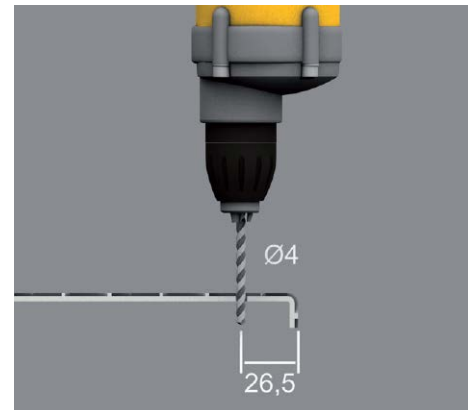
28 | Drilling

After preliminary drilling, the corresponding holes are drilled with D= 9mm and deburred.



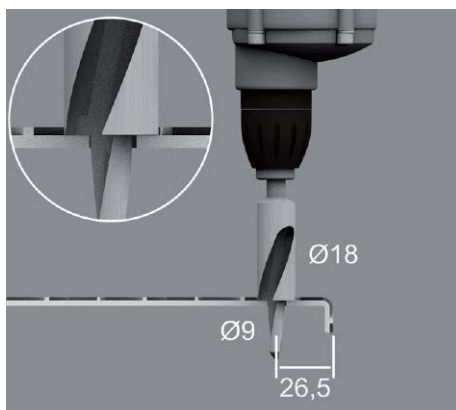
29 | Positioning of the turning bolts

Floor duct covers with an anti-slip structure require preliminary drilling for new turning bolts. The turning bolts can be pre-machined with a step drill.



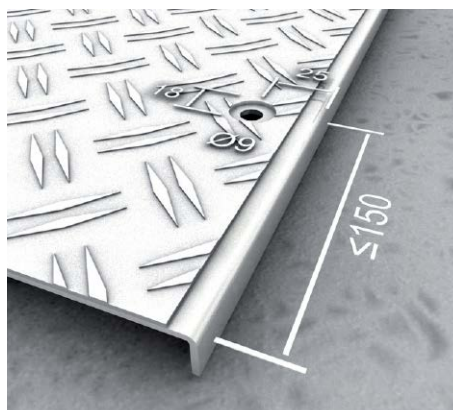
30 | Preliminary drilling

A hole with D = 4mm each is pre-drilled for the floor duct cover with chequered plate.



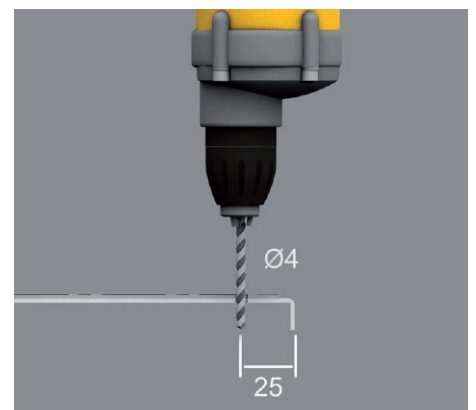
31 | Drilling

After preliminary drilling, the corresponding holes are drilled with D = 9mm and the chequered pattern removed up to a plate surface level of D= 18mm. This provides a flat bearing surface for the turning bolt screw head. The turning bolts can be pre-machined with a step drill.



32 | Positioning of the turning bolts

Floor duct covers with an aluminium chequered plate require preliminary drilling for the new turning bolt. The turning bolts can be pre-machined with the step drill.

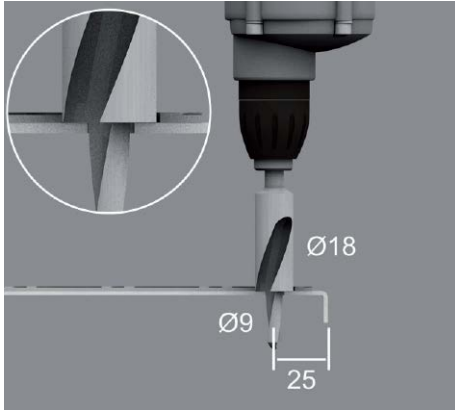


33 | Preliminary drilling

A hole with D = 4 mm each is pre-drilled for the floor duct cover with chequered plate.

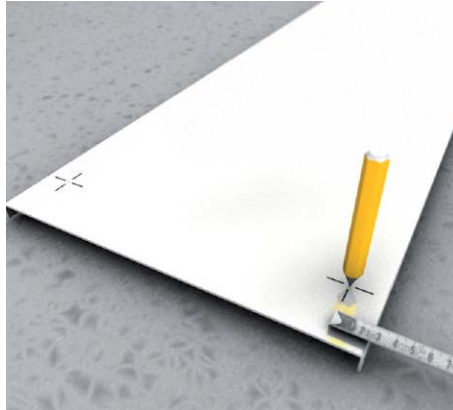
Floor ducts

Installation instructions



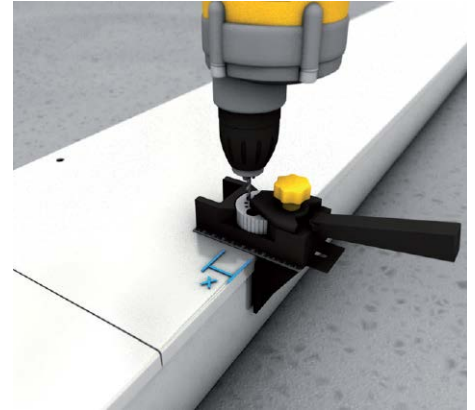
34 | Drilling

After preliminary drilling, the corresponding holes are drilled with $D = 9\text{mm}$ and the riveted aluminium plate is completely drilled through with a diameter of $D = 18\text{mm}$. The underlying surface of the floor duct cover is not sunk in and an even bearing surface remains on the plate for the turning bolt screw head. The turning bolts can be pre-machined with the step drill.



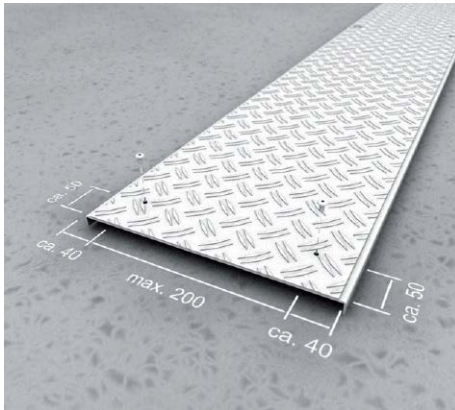
35 | Centre-punching before drilling the turning bolt position

Mark the distance b precisely suitable for the floor duct cover used and then centre-punch. Always make a preliminary hole using a small drilling machine, $D=4\text{mm}$, for example. If you drill directly with a 9mm drilling machine, there is a risk that the drill goes off centre and the turning bolt will no longer function properly



36 | Working with the drilling jig

Optionally, the holes can be pre-drilled with a drilling jig.



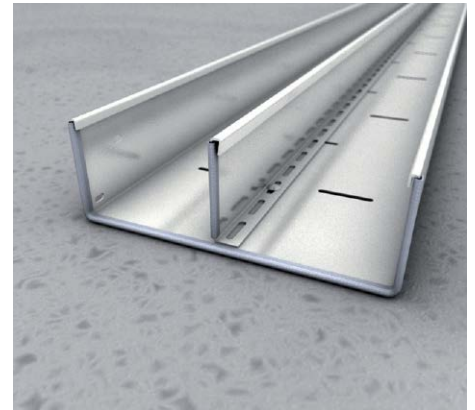
37 | Note the following: when shortening the floor duct cover with chequered plate

If the floor duct cover is shortened, the chequered plate must be once again riveted with the cover in the end zone. At least two rivets ($d = 5\text{mm}$) are used, depending on the width of the floor duct. The maximum distance between them should not exceed 200 mm.

BK Breite	Anzahl Niete
100 mm	2 Stk.
200 mm	2 Stk.
300 mm	3 Stk.
400 mm	3 Stk.
500 mm	4 Stk.
600 mm	4 Stk.

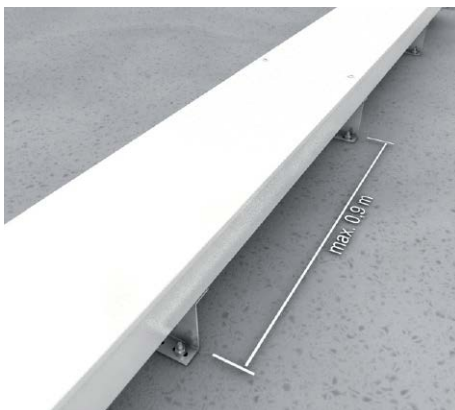
38 | Recommended number of rivets after shortening

The recommended number of rivets is determined based on the width of the floor duct.



39 | Edge protective strip

Detached edges (e.g., on floor ducts, covers, barrier strips etc.) may damage cables if they come into contact with them. To protect the cables, select the appropriate edge protective strip for the given material thickness, cut to size and slide onto the edge to be protected. Example: Apply edge protective strip at the end of the floor duct and barrier strip.



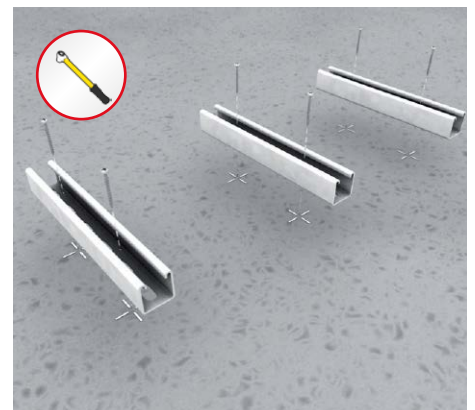
40 | Fixing the floor ducts

Floor ducts can be installed either directly on the floor or at a slightly raised level, using special supports. If support brackets or profiles are used for lifting the floor ducts, a maximum distance of 0.9m must be maintained between the supports to ensure compliance with the pre-defined load limits.



41 | Installation on the floor

Installation can be carried out directly on the floor. For this purpose, select the appropriate fastener ($D_{\text{max}} = 6\text{mm}$) for the base provided. Then lay the floor duct on the floor. Mark the drilling position through the openings on the bottom plate or drill it directly. After drilling, remove the bore dust completely and mount the fastener.

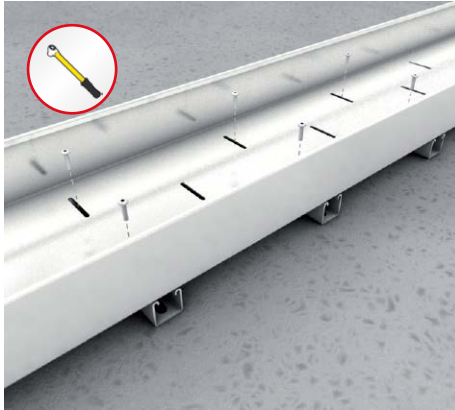


42 | Elevated installation on C profile

C profile is used for installation at a raised level. For this purpose, select the appropriate fastener ($D_{\text{max}} = 8\text{mm}$) for the base provided. Then lay the C profile with the closed side on the floor. In doing so, ensure that the maximum distance between the supports is not exceeded. Mark the drilling position through the openings or drill directly. After drilling, remove the bore dust completely and mount the fastener.

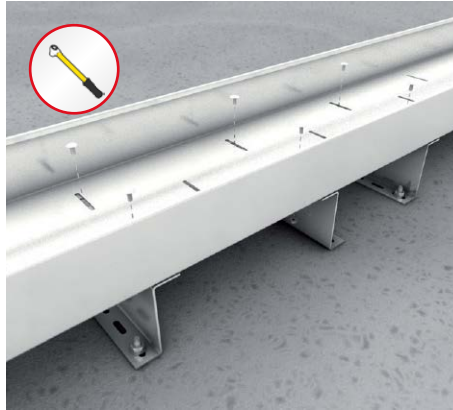
Floor ducts

Installation instructions



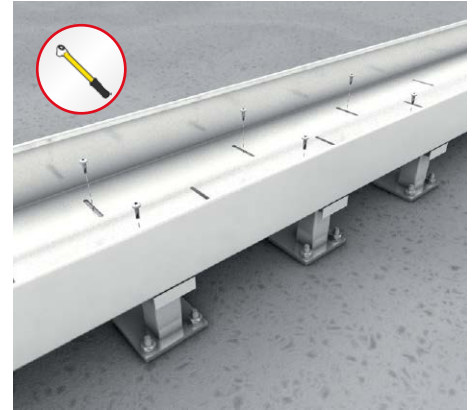
43 | Continued installation on C profile

To mount the fastener, use channel nuts with M6 threading and insert in the profile. Screw-fit the floor duct with a M6 flat head screw.



44 | Elevated installation on Z profile

The Z profile is used for installation at a raised level. For this purpose, select the appropriate fastener (Dmax = 8mm) for the base provided. Mark the drilling holes and drill directly. Ensure that the strap on the floor is arranged on alternate sides and the maximum distance between the supports is not exceeded. After drilling, remove the bore dust completely and mount the fastener. Screw-fit the floor duct.



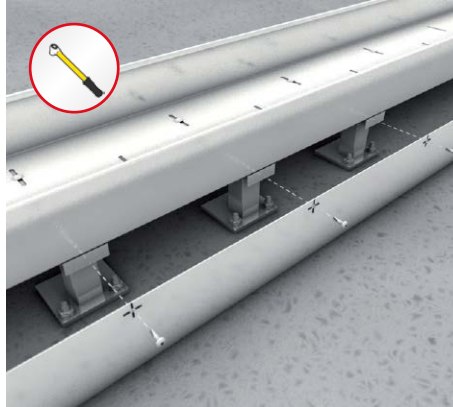
45 | Elevated installation on floor duct bracket

The BKH floor duct bracket is used for installation at a raised level. Ensure that the maximum distance between supports is not exceeded. For this purpose, select the appropriate fastener (Dmax = 10mm) for the base provided. For assembly, mark the drilling position and drill directly. Then remove the bore dust completely and mount the floor duct bracket using the fastener. Fasten the floor duct on the floor duct bracket using appropriate connecting elements.



46 | Installation of cable clamps

Floor duct brackets are suitable not only for routing floor ducts but also for laying cables with the help of cable clamps below the existing structure, for example. Select the cable clamps suitable for the C profile used. The cable diameters and other layouts should be taken into account.



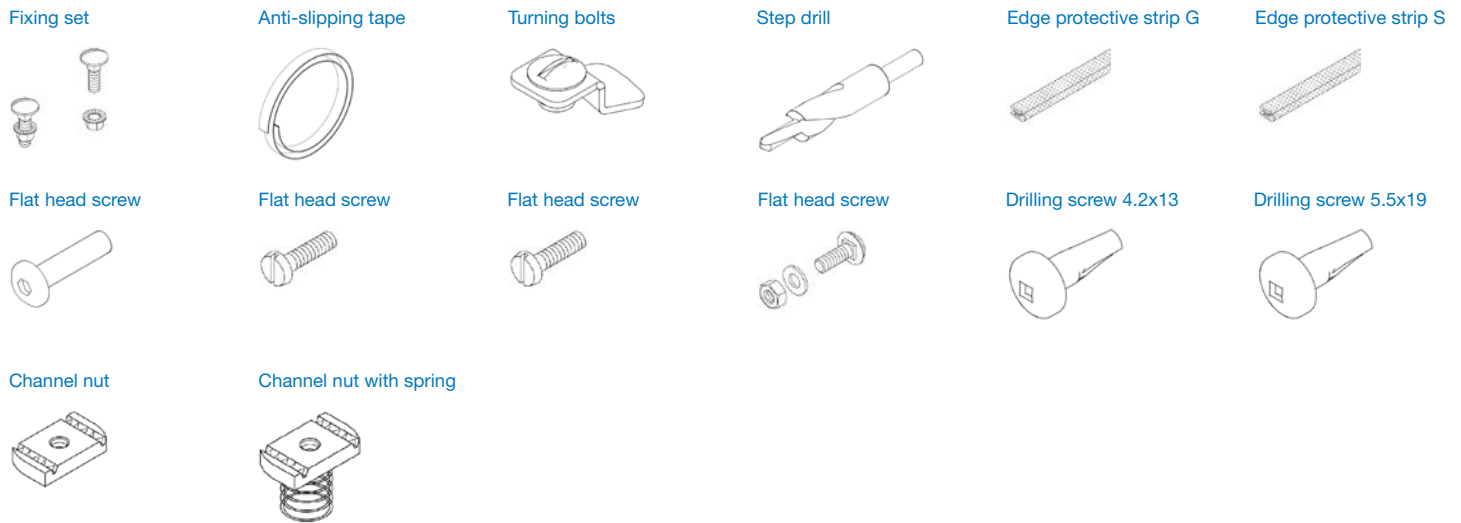
47 | Fastening a side panel

Select a side panel with an appropriate lateral height. Use a floor bracket or floor duct bracket with an appropriate mounting plane. Hold the side panel and fasten with appropriate connecting elements.

Floor ducts

Installation instructions

Legend Accessories



Legend Symbols



Wear protective goggles



Wear earmuffs



Observe the tightening torque for fastening elements

S

Sendzimir fire-galvanised as per DIN EN 10346

F

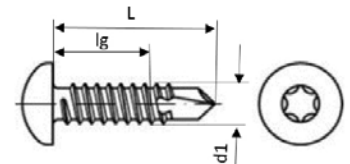
Hot-dip galvanised as per DIN EN ISO 1461

Selection Screw tightening torque (recommended)

Bolt diameter	Strength class Screw (DIN 267 Part 3)	Strength class Nut (DIN 267 Part 4)	Screw tightening torque As per VDI 2230 (Nm)
M6	4.6	5	4
M8	4.6	5	4
M6	8.8	8	14
M8	8.8	8	34

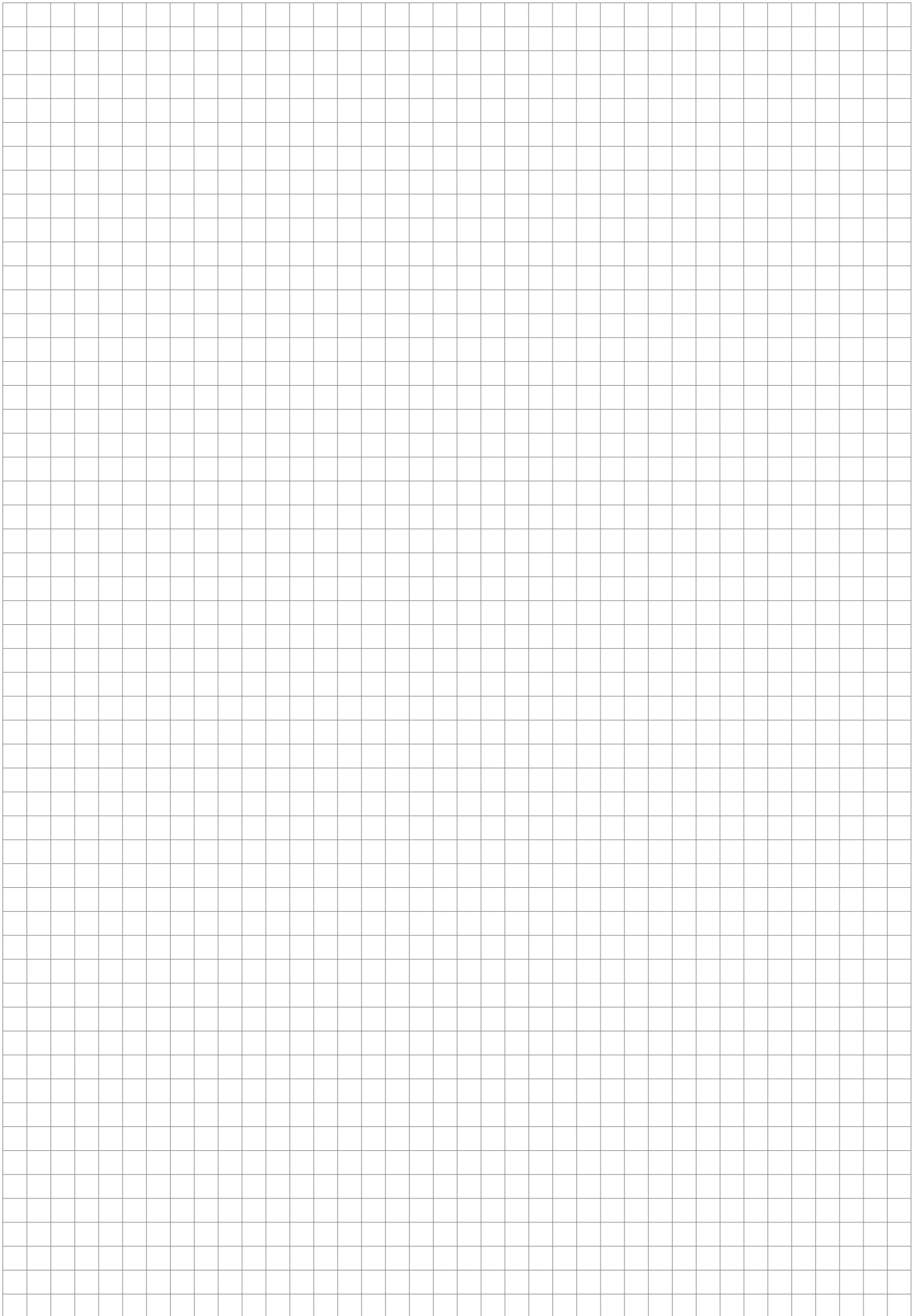
Drilling screws DIN 7504

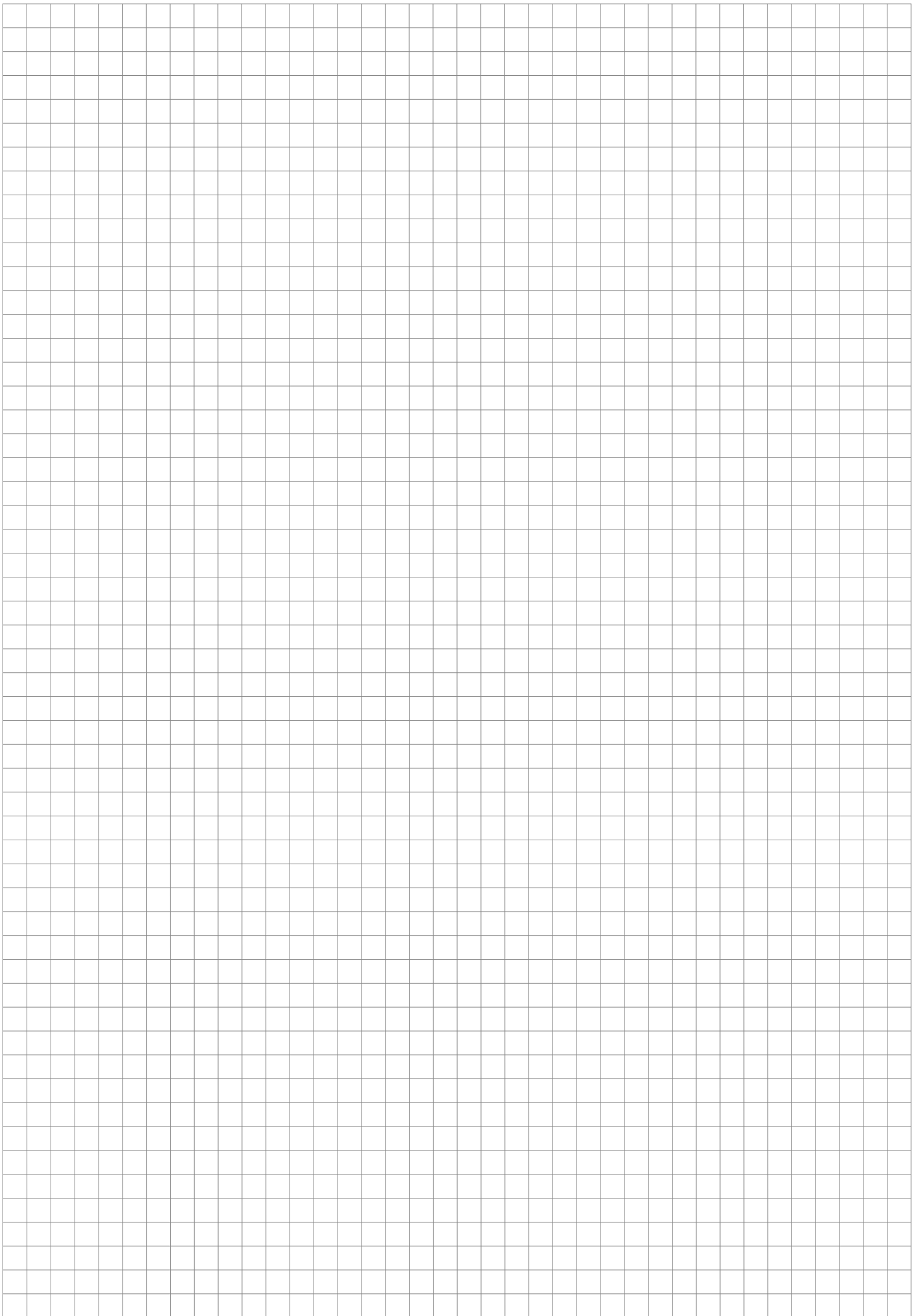
Screw	4.2 x 13	5.5 x 19
Thread Ø (d1)	4,2	5,5
For plate thickness	1.75 bis 3.0	1.75 bis 5.25
Thread length (L)	13	19
Usable thread length (lg)	4.3	8,0
ISR size	T20	T25
Surface	Galvanised steel	

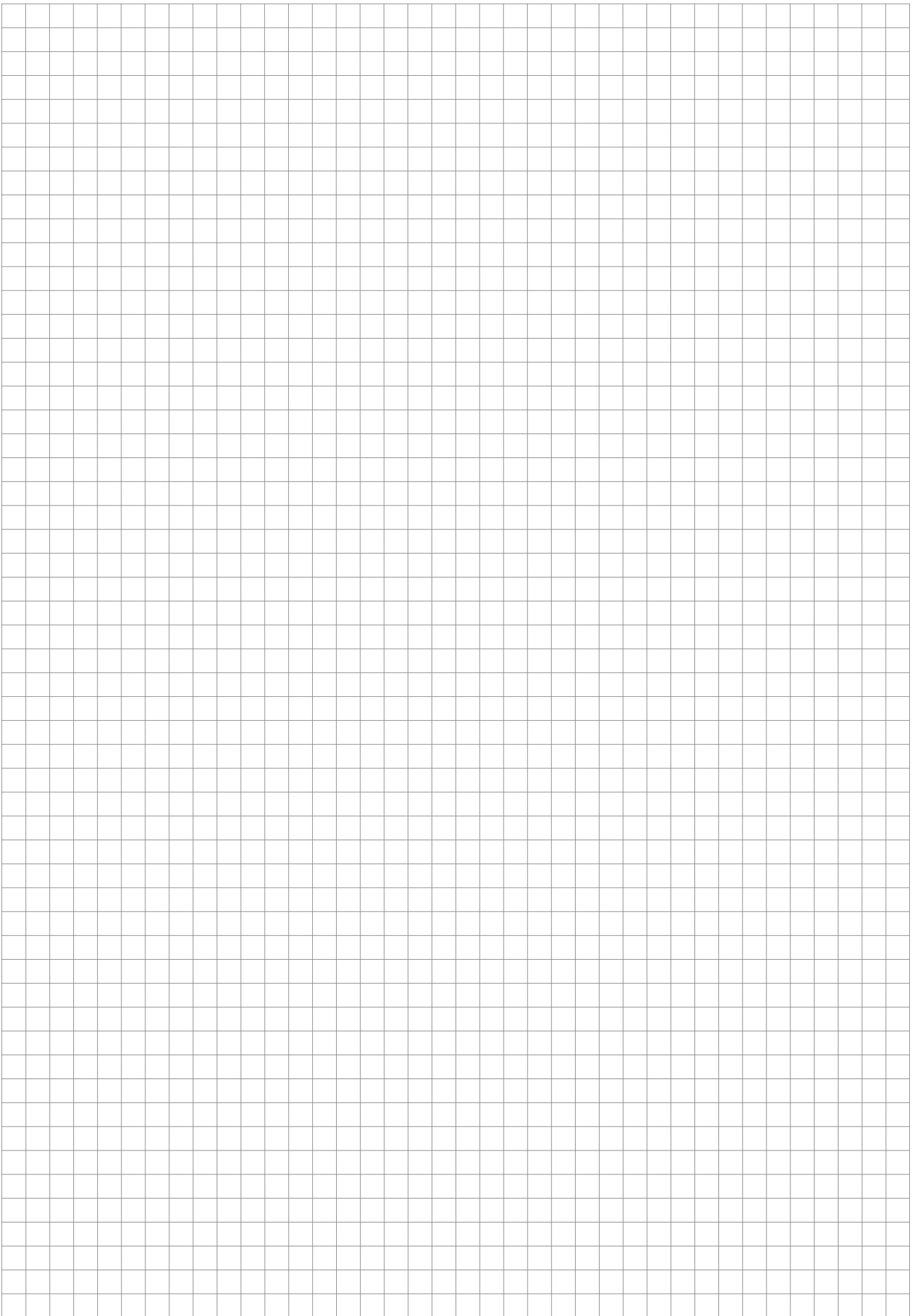


Source: DIN 7504 Shape M(N) Drilling screws with pan head and TX drive

Note: The "plate thickness" is based on the total of all material thicknesses to be drilled by the drilling screw.









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