

## Annex C – Installing VOLT BOLT®

### Identification of the product

VOLT BOLT® is available in standard models, which are identified by the steel grade (8.8 or 10.9) followed by the M-thread diameter of the bolt. The model of VOLT BOLT® can be identified by the name in the label on the product.

### Forming a bolt group

When VOLT BOLT®s are applied as anchor bolts, they can be collected into bolt groups using the PPL Installation Template. The installation template enables bolt groups to be centralized on the horizontal plane in exactly the right place and easily adjusted to the correct casting level.

### Ordering PPL Installation Templates

When PPL Installation Templates are ordered the thread diameter of bolts, the number of bolts and the center-to-center dimensions must be specified.

Examples of installation plates:

1. **PPL42-4** 360×360: 4 pieces M42 bolts in square form.
2. **PPL39-4** 500×400: 4 pieces M39 bolts in rectangular form.
3. **PPL60-6** 280×(190+190): 6 pieces M60 bolts rectangular form.
4. **PPL36-8** (190+190)×(190+190): 8 pieces M36 bolts in the form of a square.
5. **PPL52-3** 300×300: 3 pieces M52 bolts in the form of rectangular triangles.
6. **PPL30-8** D400: 8 pieces M30 bolts in the form of circles with diameter of 400 mm.

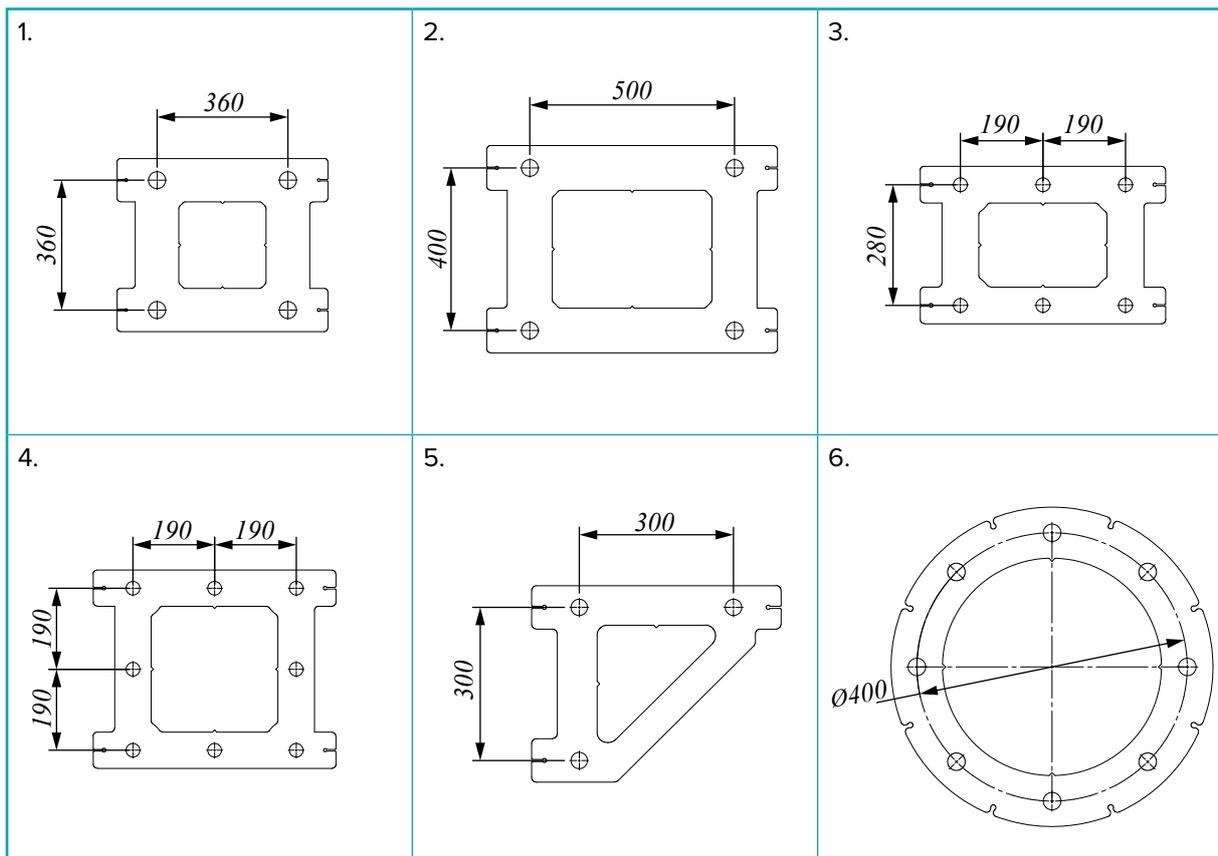


Figure 9. PPL Installation Templates – examples.

PPL Installation Templates can also be manufactured according to drawings that present the location of the bolts and thread diameters.

## INSTALLING

### Bending the bolts

VOLTBOLT® are intended to work always in straight position and cannot be bent.

### Welding the bolts

10.9 grade steel VOLTBOLT®s are not weldable. Weldability of 8.8 grade steel VOLTBOLT®s must be confirmed with Peikko.

### Securing the connection

To secure enough tightening of the nut in situations where preloading of the bolt is not needed, adequate torque can be achieved typically by 10 – 15 impacts of a slogging ring wrench (DIN 7444) or open-ended slogging wrench (DIN 133) and a 1.5 kg sledgehammer.

### Preloading the bolt

VOLTBOLT®s may be preloaded to restrict structural movement due to bolt steel elongation, to achieve post-tensioning in a structural element, or to apply compression force in a structural element for repair and strengthening purposes. In situations where preloading is required due to cyclic or dynamic loads it is recommended to use FATBAR®, which has greater resistance to fatigue.

Table below shows the design preload specified according to EN 1993-1-8 for each VOLTBOLT®.

Table 8. Design preload [kN] for each VOLTBOLT® according to EN 1993-1-8

VOLTBOLT® 8.8							
M30	M36	M39		M45		M52	M60
285.6	415.9	496.9		664.9		895.0	1202.5
VOLTBOLT® 10.9							
M30	M36	M39	M42	M45	M48	M52	M60
357.0	519.9	621.1	710.8	831.1	934.2	1118.7	1503.1