

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-09/0346
of 29 June 2018

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

KOELNER Flat Roof Fasteners

Product family
to which the construction product belongs

Fasteners for flexible roof waterproofing membrane
systems

Manufacturer

RAWLPLUG S.A.
Kwidzynska 6
51-416 WROCLAW
POLEN

Manufacturing plant

RAWLPLUG S.A.
Kwidzynska 6
51-416 WROCLAW
POLEN

This European Technical Assessment
contains

59 pages including 54 annexes which form an integral
part of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

ETAG 006,
used as EAD according to Article 66 Paragraph 3 of
Regulation (EU) No 305/2011.

This version replaces

ETA-09/0346 issued on 21 June 2013

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Specific Part

1 Technical description of the product

The construction products are mechanical fasteners.

The fasteners comprise a screw made of galvanic coated carbon steel and a washer with or without integrated sleeve. The washers without integrated sleeve are made of galvanic coated carbon steel whereas the washers with integrated sleeve are made of plastic materials (polyamide or polypropylene).

The fasteners shall correspond to the information given in Annexes 1 to 53 of this ETA.

The material properties, dimensions and tolerances not indicated in Annexes 1 to 53 shall correspond to the information laid down in the technical information¹ to this European technical assessment.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The fasteners are intended to be used for the fastening of flexible roof waterproofing membranes according to ETAG 006. The possible substructures are steel decks, timber or concrete.

The performances given in Section 3 are only valid if the fasteners are used in compliance with the specifications and conditions given in the Annexes to this ETA and if the installation is carried out according to the manufacturer's assembly instructions.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fasteners of at least 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

In order to use the fasteners for systems of mechanically fastened flexible roof waterproofing membranes according to ETAG 006 a separate ETA is necessary for the entire roof waterproofing system. The system ETA covers the wind uplift resistance of the entire system as well as the product characteristics of the components of the system.

¹ The technical documentation is deposited with Deutsches Institut für Bautechnik and as far as relevant for the tasks of the approved bodies involved in the implementation of the AVCP system is handed over to the approved bodies.

English translation prepared by DIBt

3 Performance of the product and references to the methods used for its assessment

3.1 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic tensile loading	See Annex 54
Resistance to unwinding	pass
Resistance to corrosion of metallic fasteners	pass; ≤ 15 % surface corrosion
Impact resistance and brittleness of plastic fasteners (before and after heat ageing)	pass; drop height > 1,0 m
Requirements for results of Charpy tests for plastic materials (before and after heat ageing)	pass; not any significant decline compared to the results before heat ageing

The characteristic values of the axial load resistance of the fasteners are given in Annex 54. The values were determined by axial loading tests according to ETAG 006.

The fasteners are deemed to satisfy the requirements of ETAG 006 concerning unwinding. This was evaluated on the basis of the existing field experience of the manufacturer.

The durability requirements of ETAG 006 (resistance to corrosion of metallic fasteners, impact resistance and brittleness of plastic fasteners before and after heat ageing, requirements for results of Charpy tests for plastic materials before and after heat ageing) are satisfied for the galvanic coated carbon steel, polyamide or polypropylene components of the fasteners.

All coated carbon steel components resisted to 15 cycles of the test procedure described in ETAG 006 (Kesternich test) and did not show more than 15 % surface corrosion.

The test results of the tests to check the impact resistance and brittleness of the plastic components showed a drop height of more than 1,0 m before and after heat ageing of these components. Furthermore the results of the corresponding Charpy tests after heat ageing did not show any significant decline compared to the results before heat ageing.

English translation prepared by DIBt

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with ETAG 006 the applicable European legal act is: 1998/143/EC.

The system to be applied is: 2+

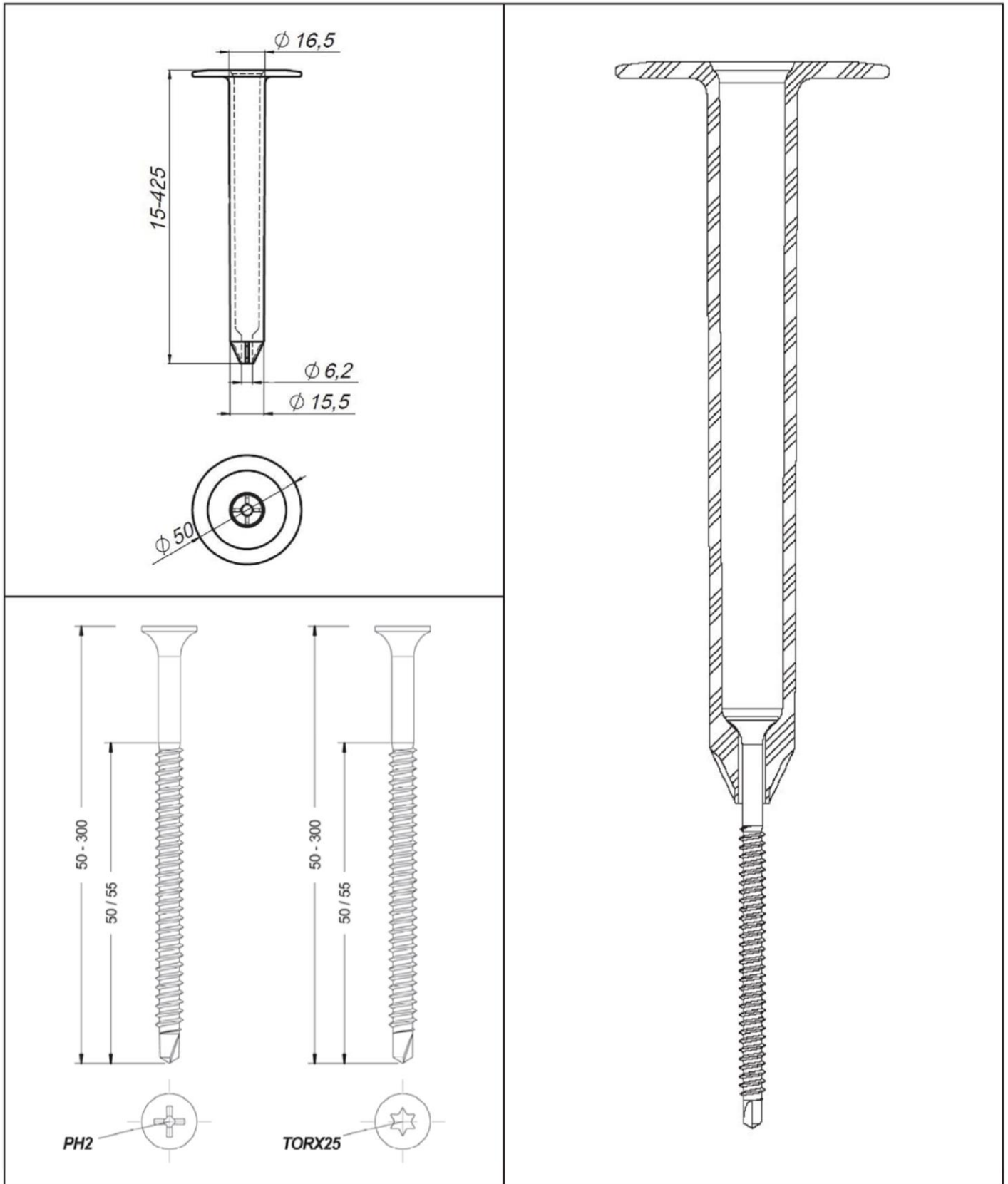
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 29 June 2018 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Reimuth

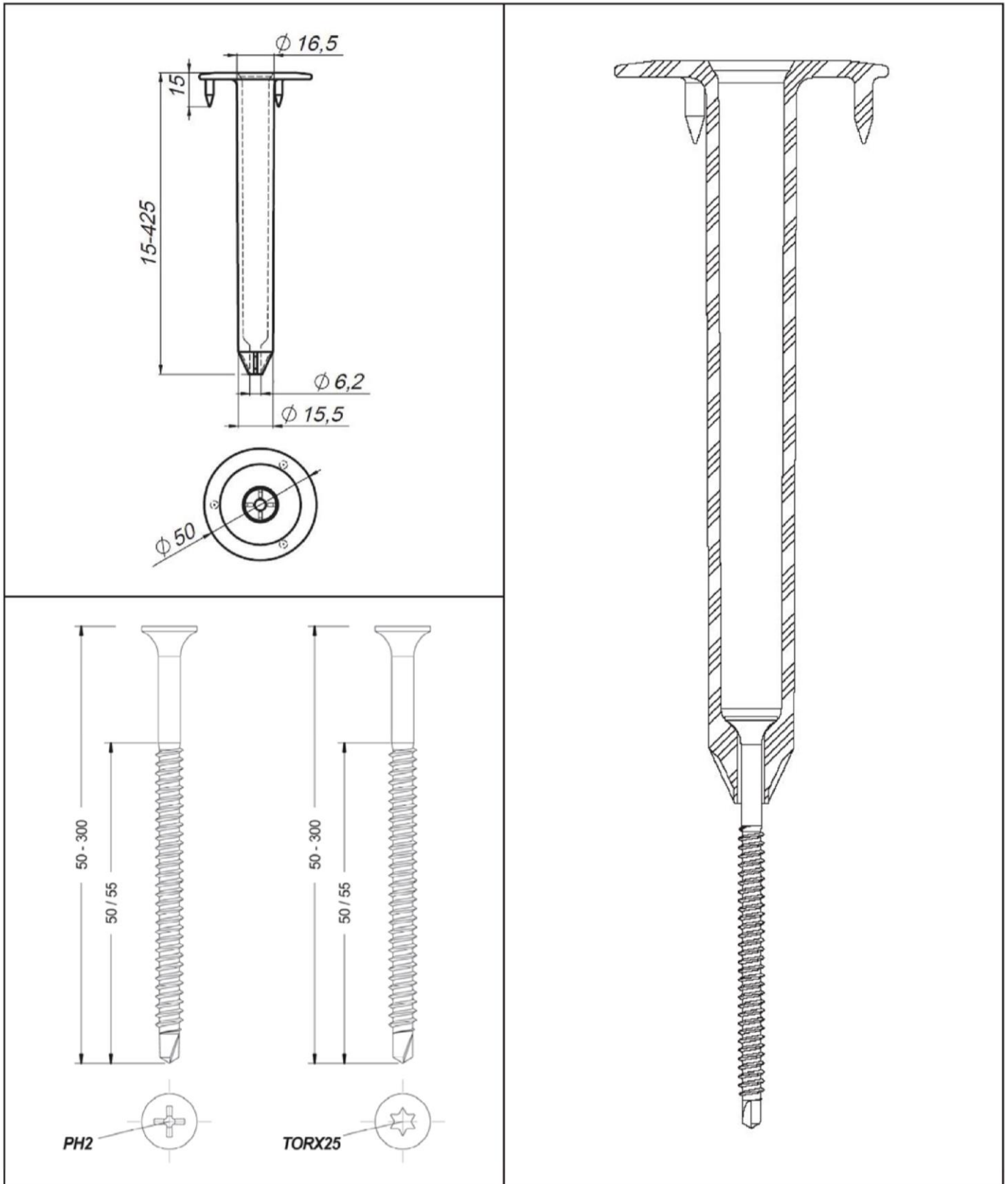


KOELNER Flat Roof Fasteners

Combination 1

Mount: GOK
Fastener: WX (PH2- or Torx25-Drive)

Annex 1

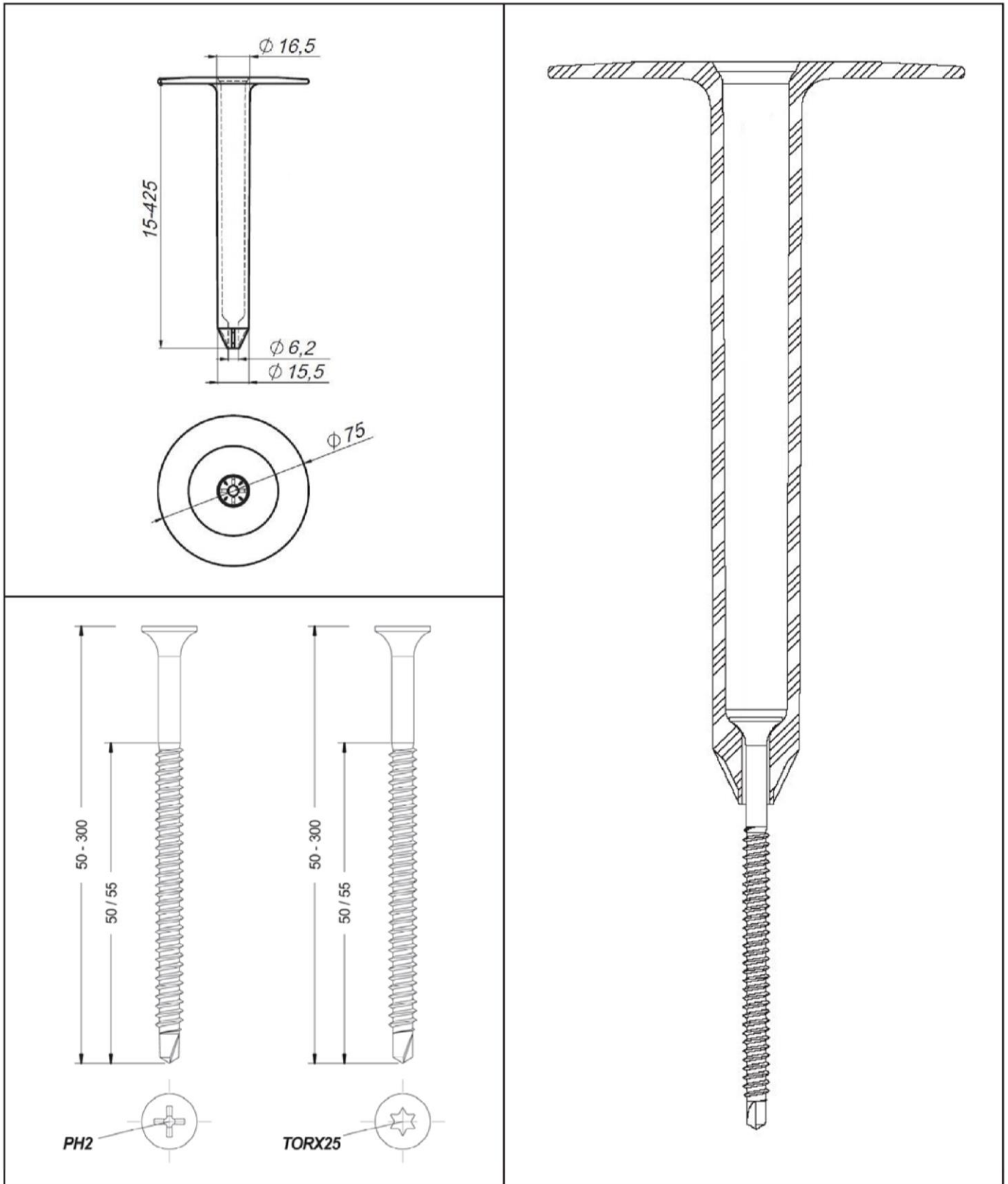


KOELNER Flat Roof Fasteners

Combination 2

Mount: GOK-PLUS
Fastener: WX (PH2- or Torx25-Drive)

Annex 2

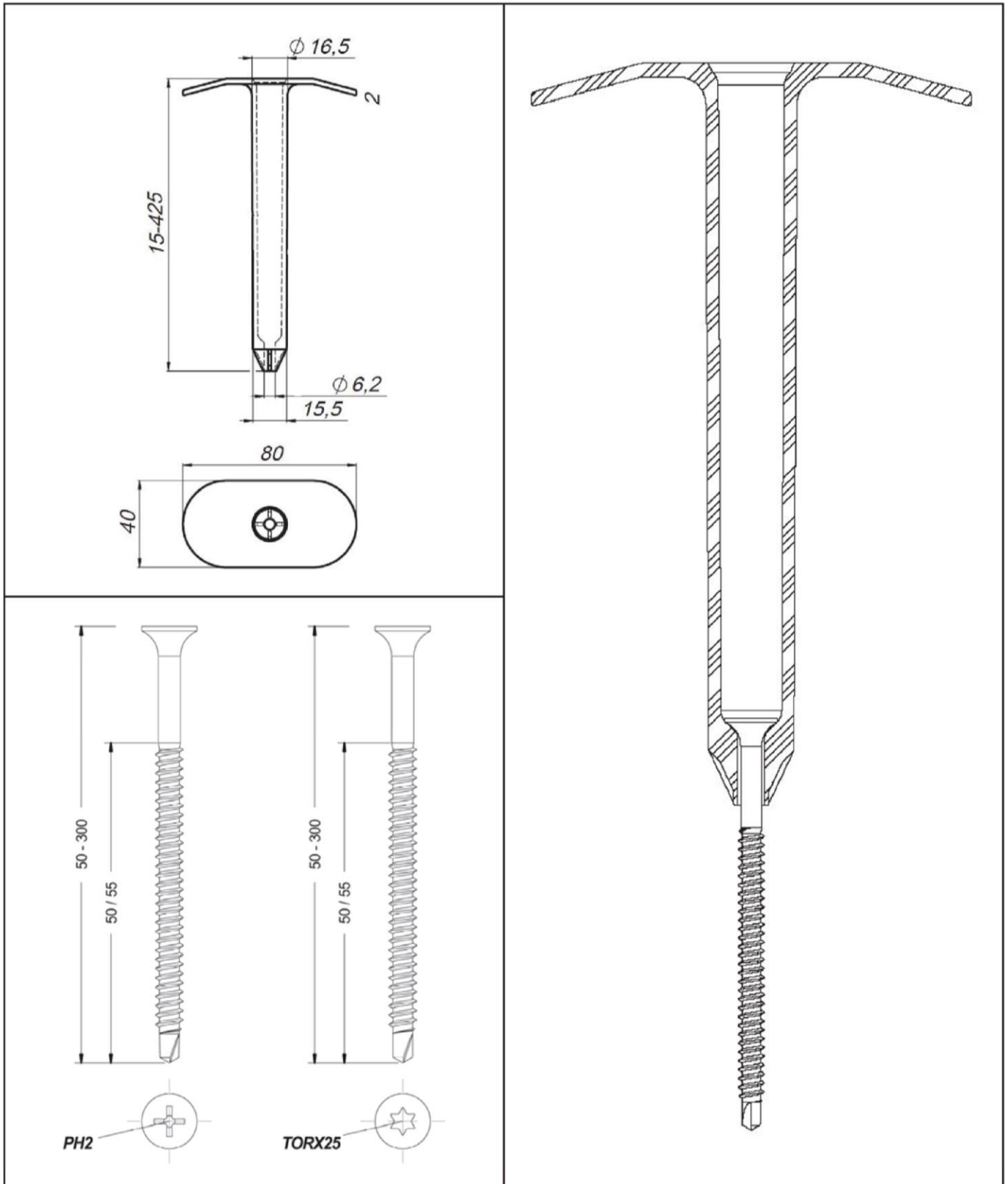


KOELNER Flat Roof Fasteners

Combination 3

Mount: GOK75
Fastener: WX (PH2- or Torx25-Drive)

Annex 3

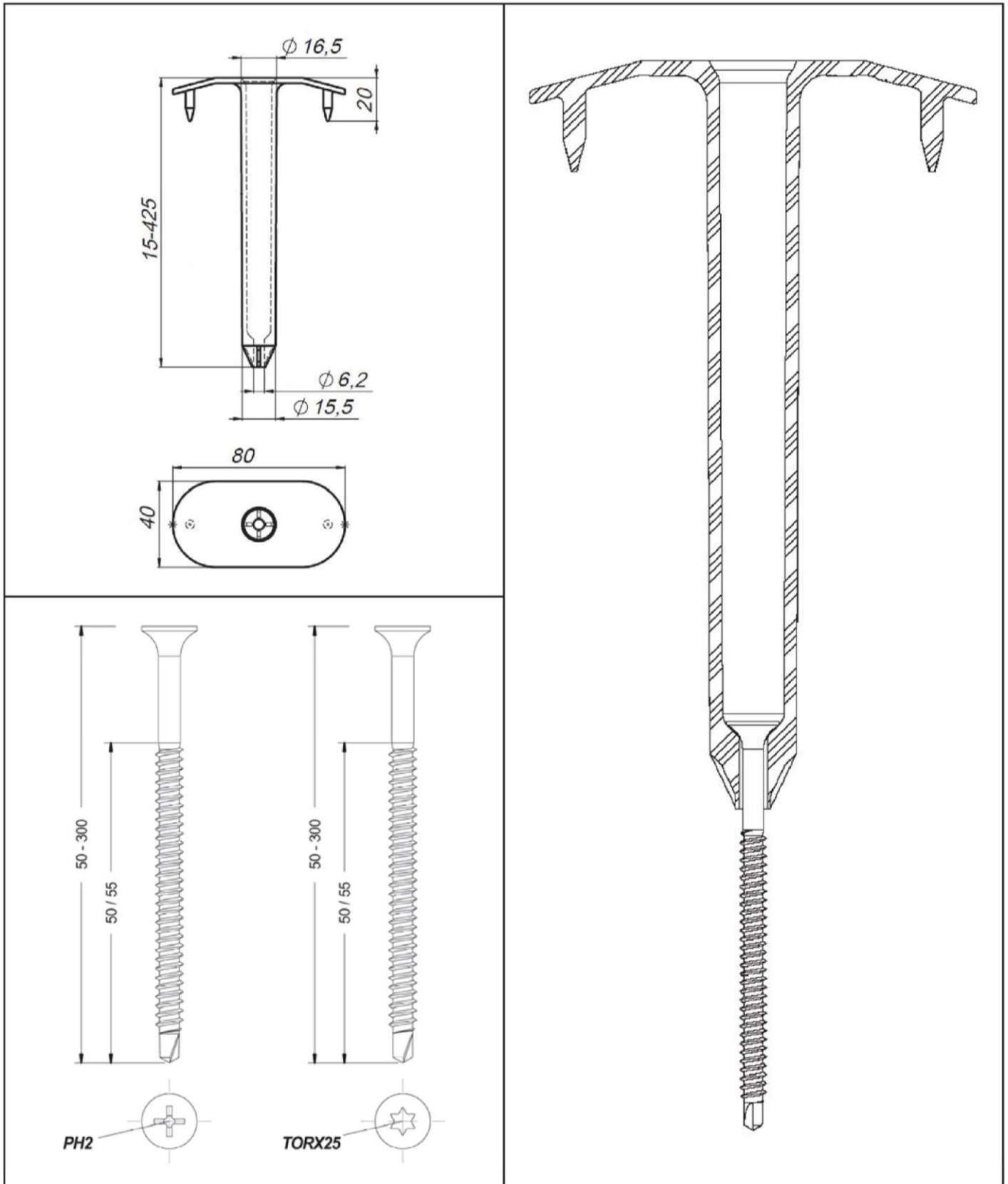


KOELNER Flat Roof Fasteners

Combination 4

Mount: GOW
Fastener: WX (PH2- or Torx25-Drive)

Annex 4

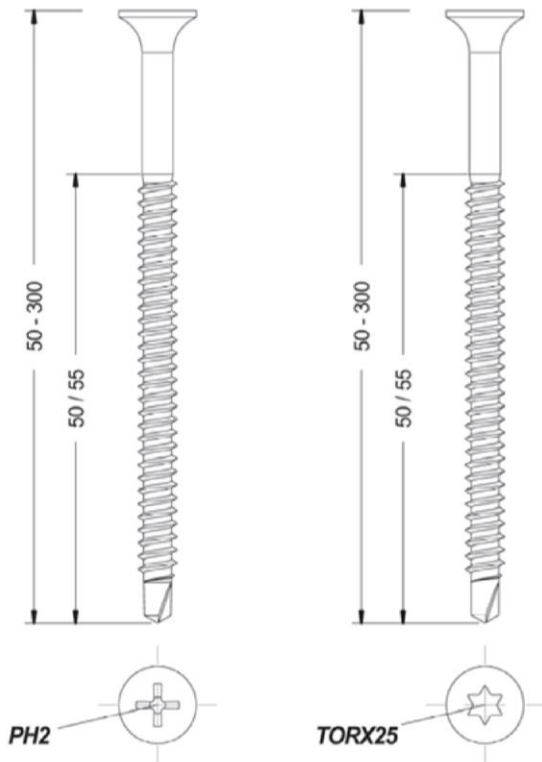
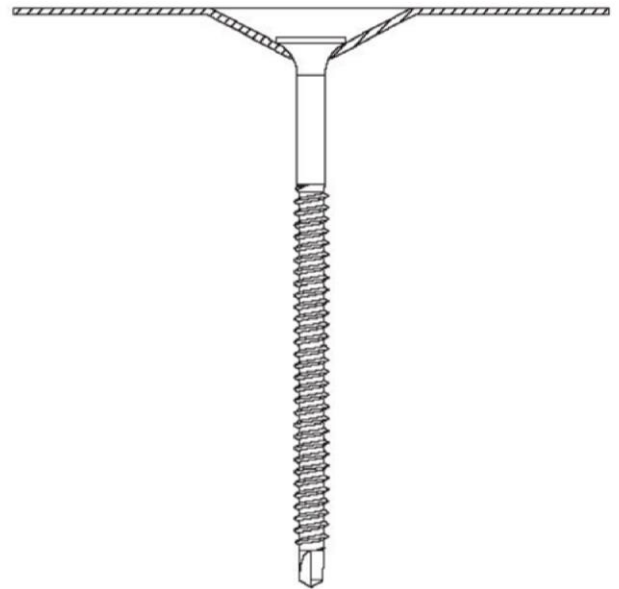
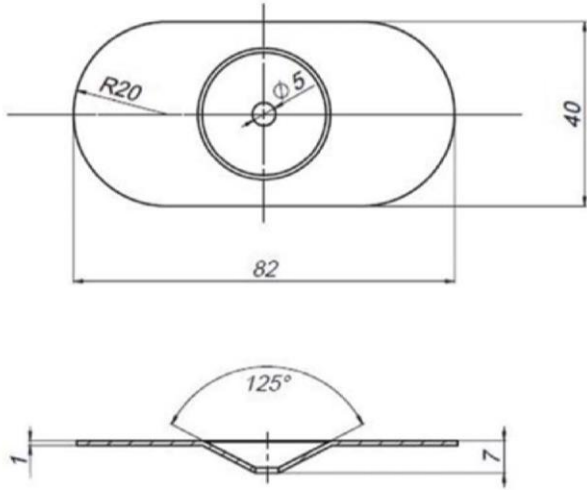


KOELNER Flat Roof Fasteners

Combination 5

Mount: GOW-PLUS
Fastener: WX (PH2- or Torx25-Drive)

Annex 5

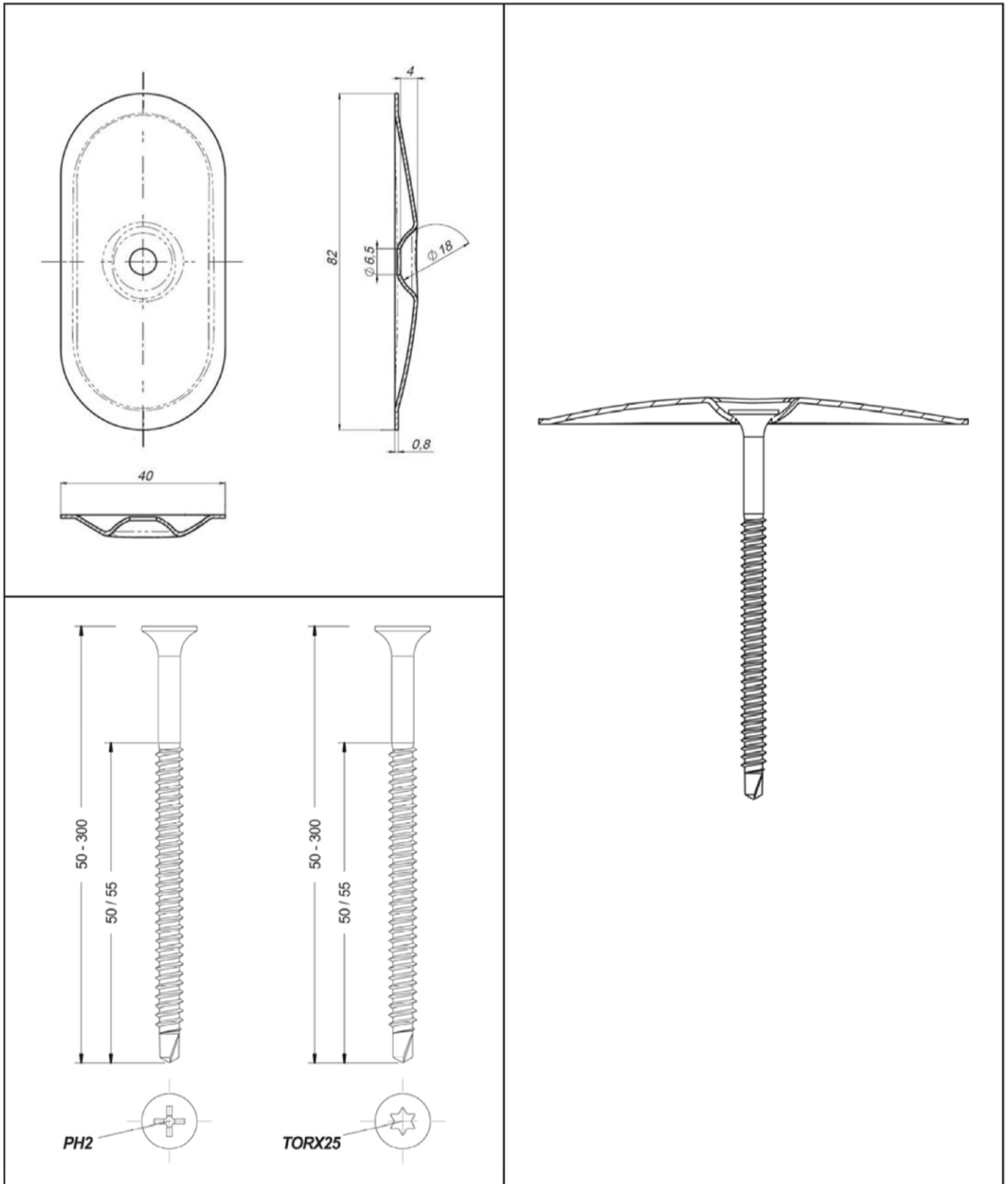


KOELNER Flat Roof Fasteners

Combination 6

Mount: POW-05-AlZn
Fastener: WX (PH2- or Torx25-Drive)

Annex 6

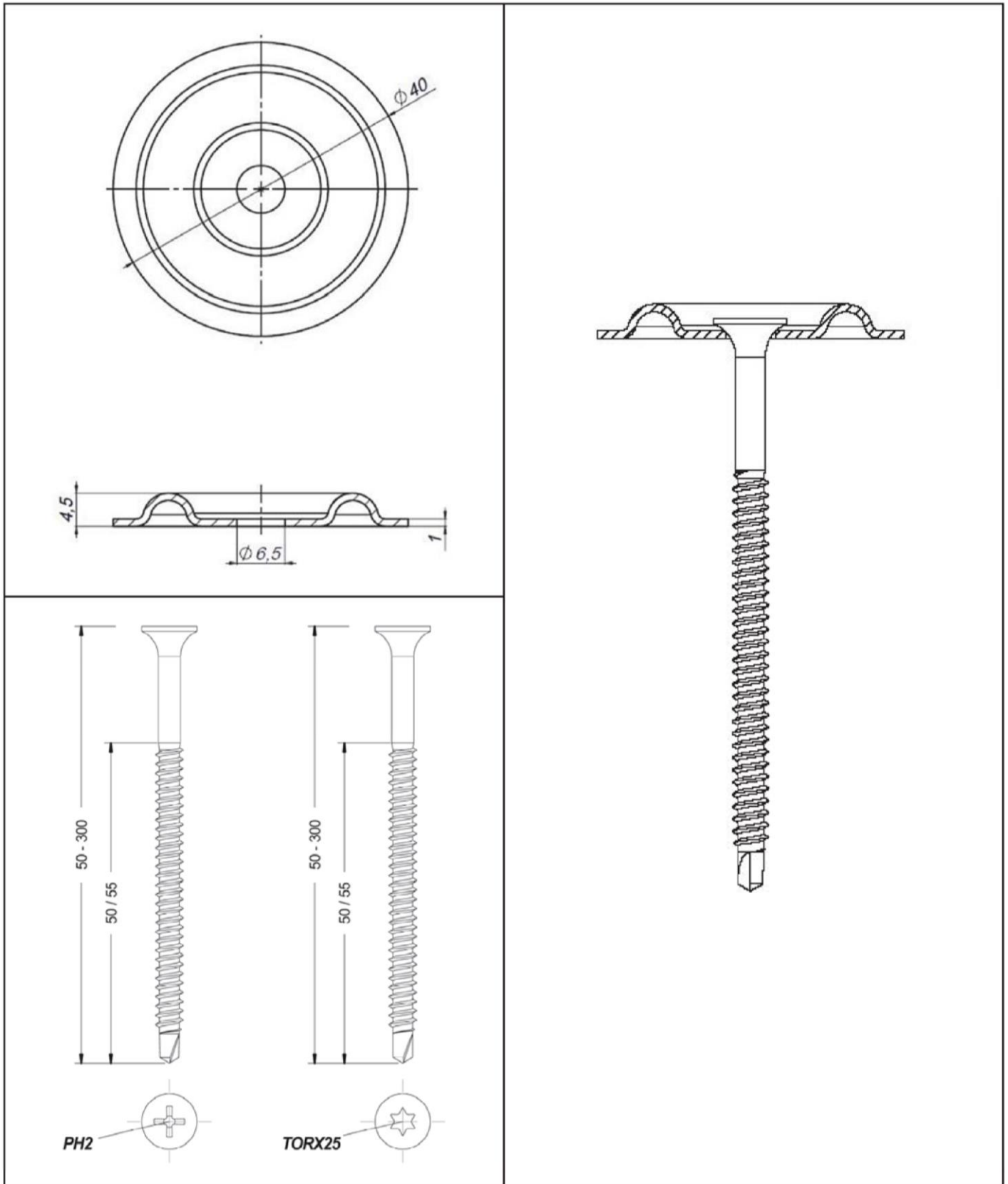


KOELNER Flat Roof Fasteners

Combination 7

Mount: POW-07-AlZn
Fastener: WX (PH2- or Torx25-Drive)

Annex 7

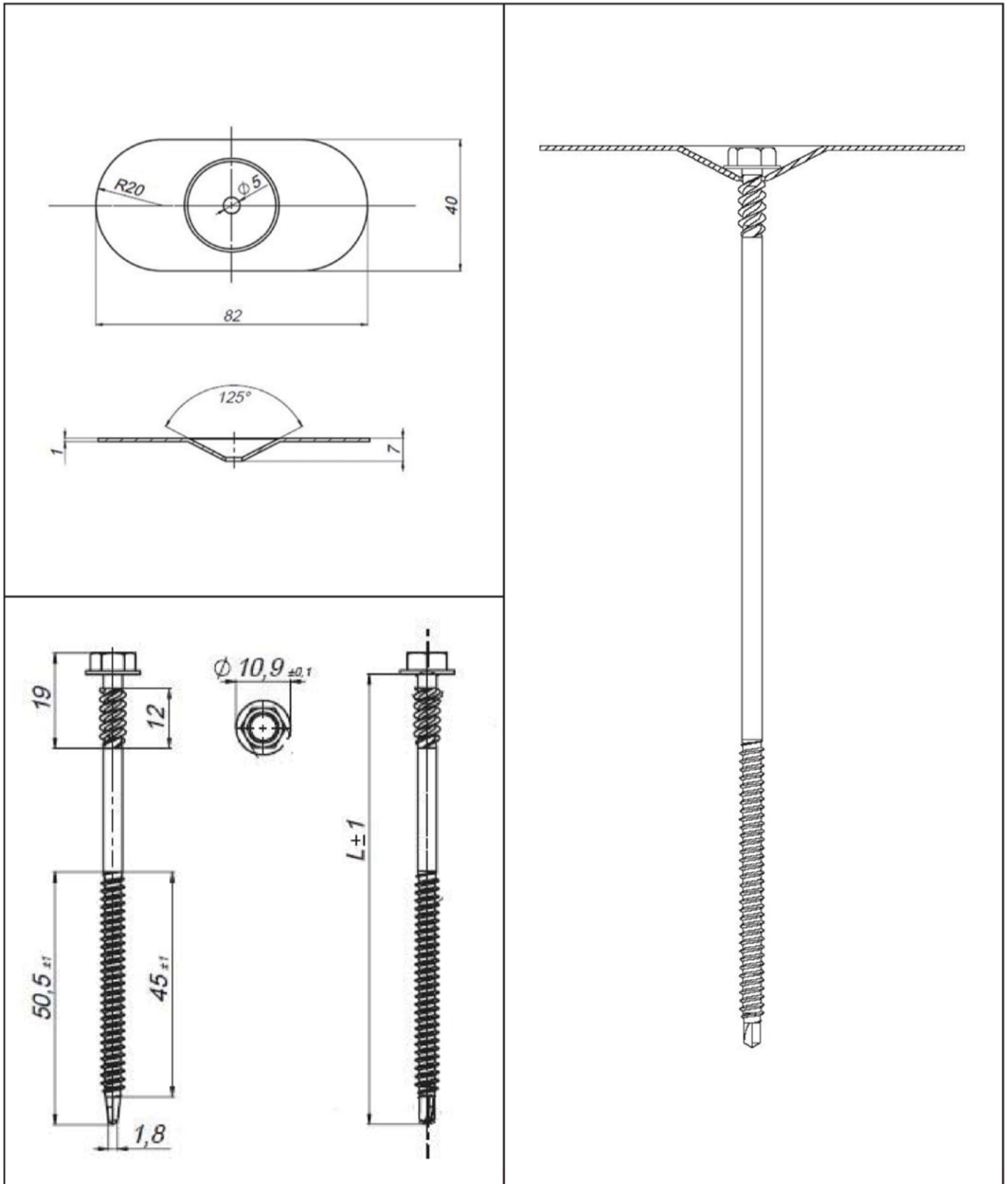


KOELNER Flat Roof Fasteners

Combination 8

Mount: POK-041-AlZn
Fastener: WX (PH2- or Torx25-Drive)

Annex 8

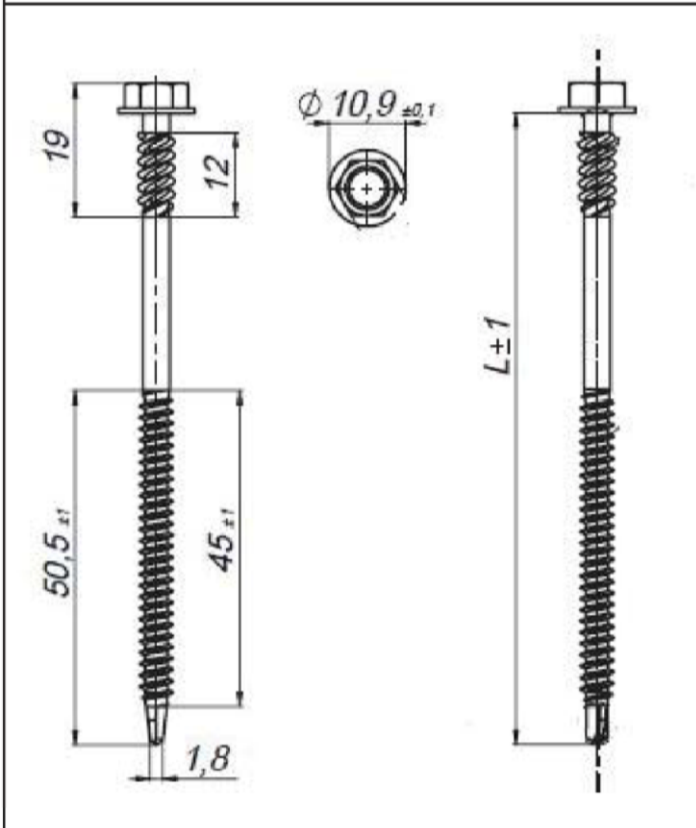
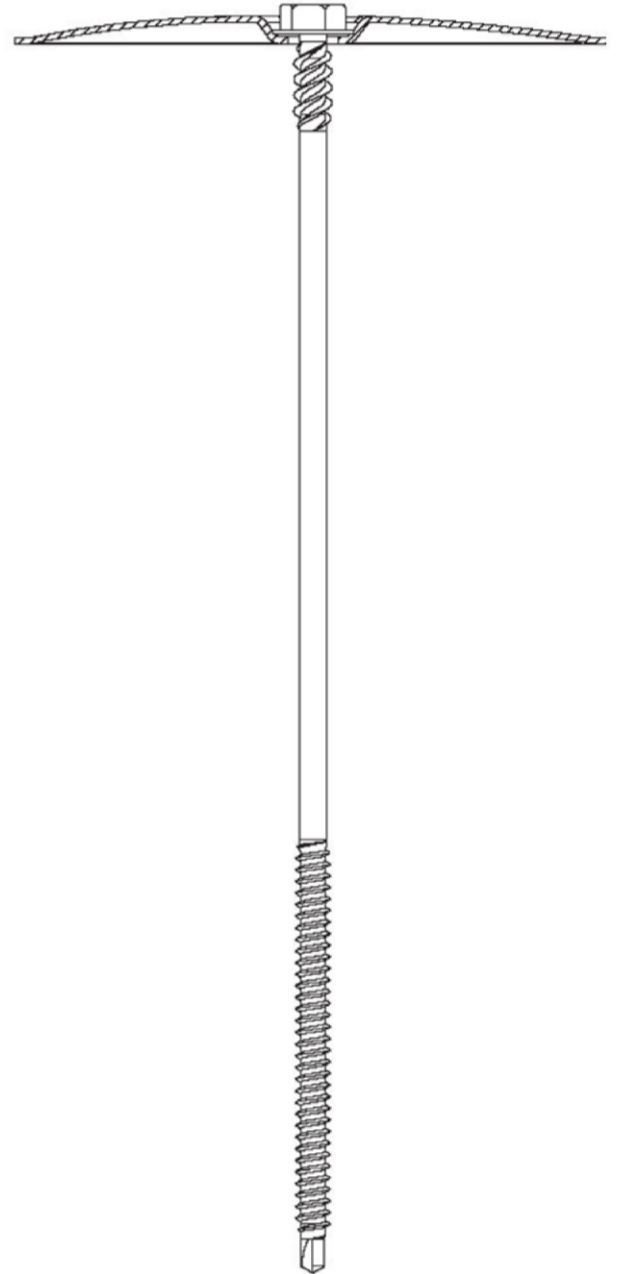
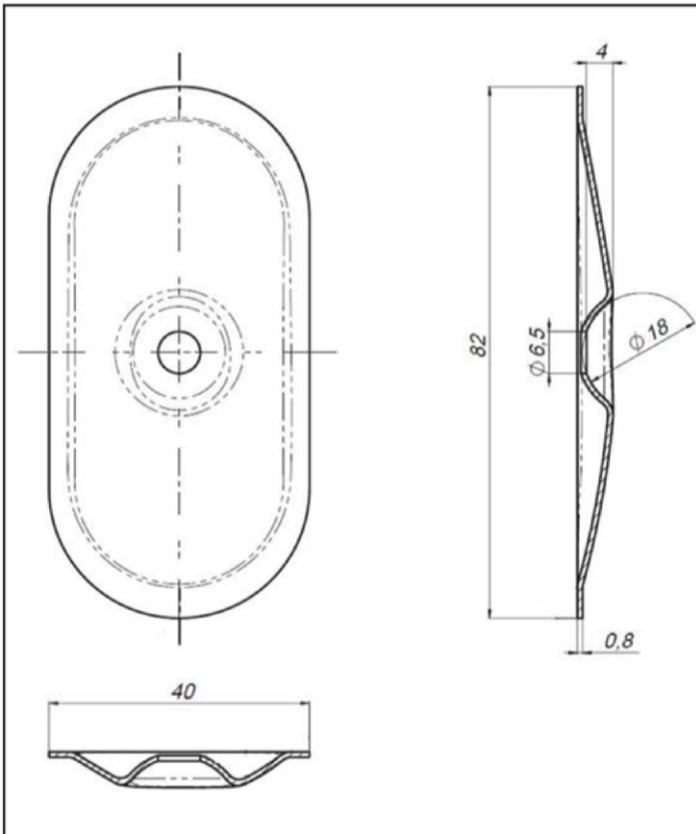


KOELNER Flat Roof Fasteners

Combination 9

Mount: POW-05-AlZn
Fastener: WB

Annex 9

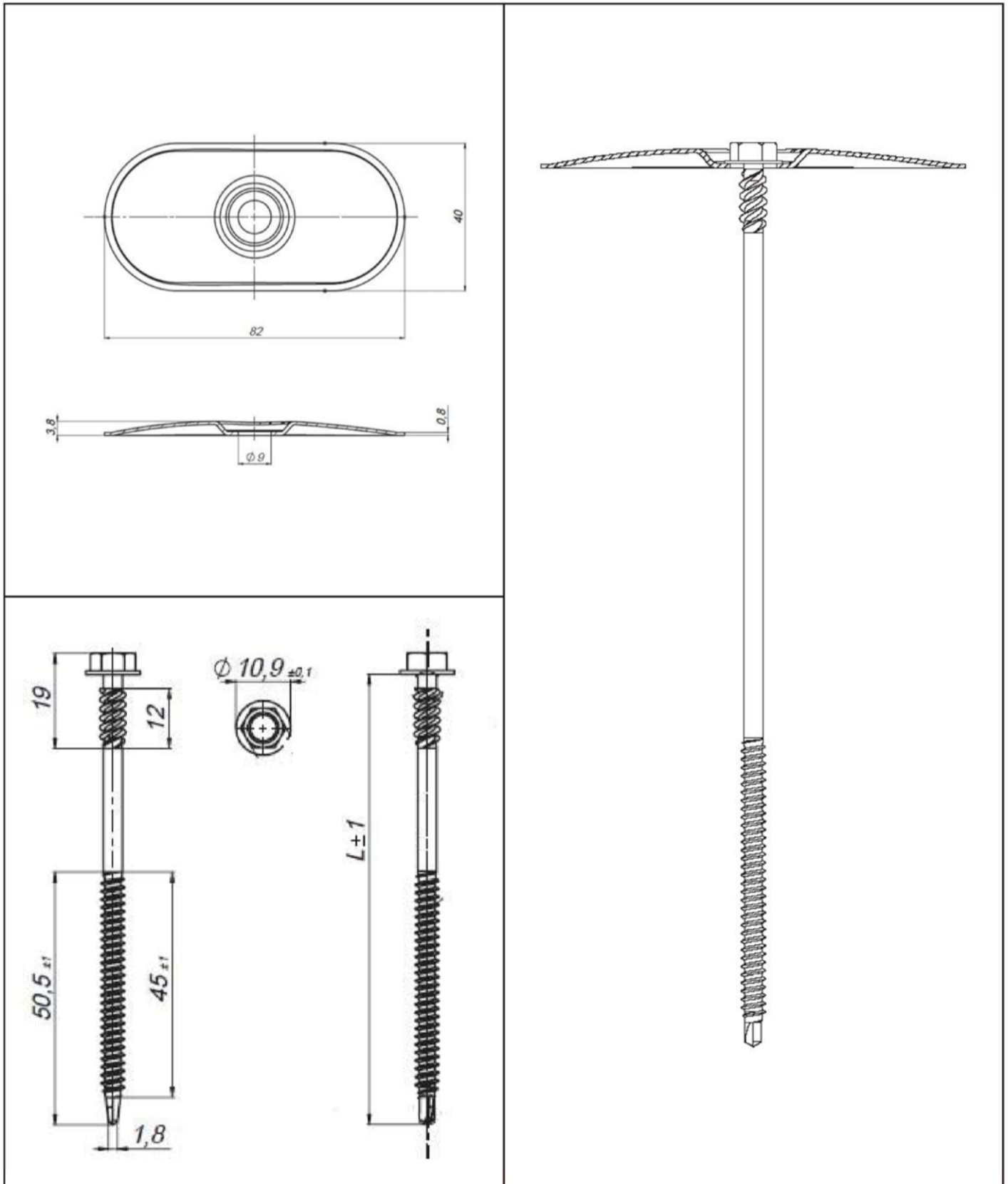


KOELNER Flat Roof Fasteners

Combination 10

Mount: POW-07-AlZn
Fastener: WB

Annex 10

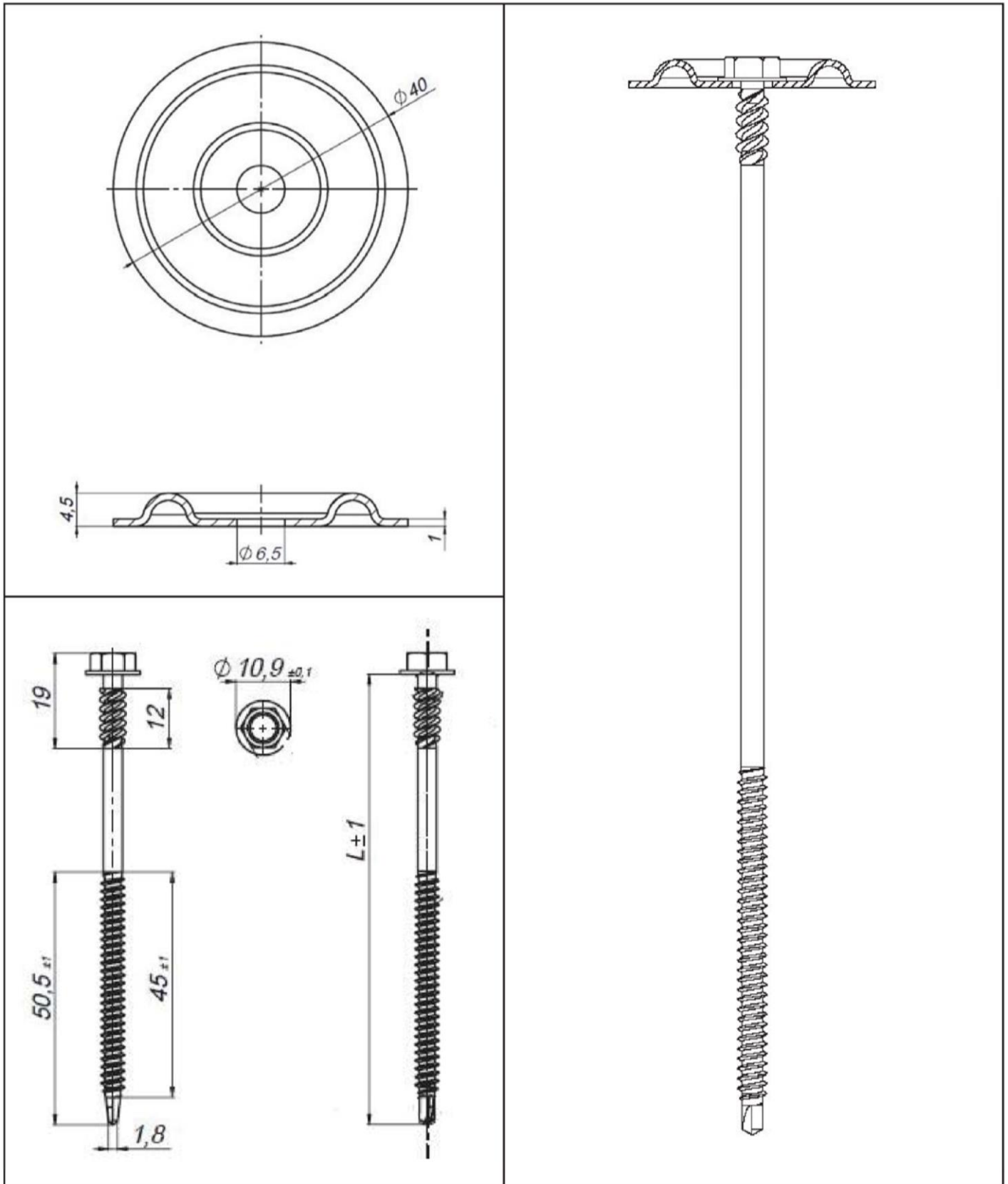


KOELNER Flat Roof Fasteners

Combination 11

Mount: POW-09-AlZn
Fastener: WB

Annex 11

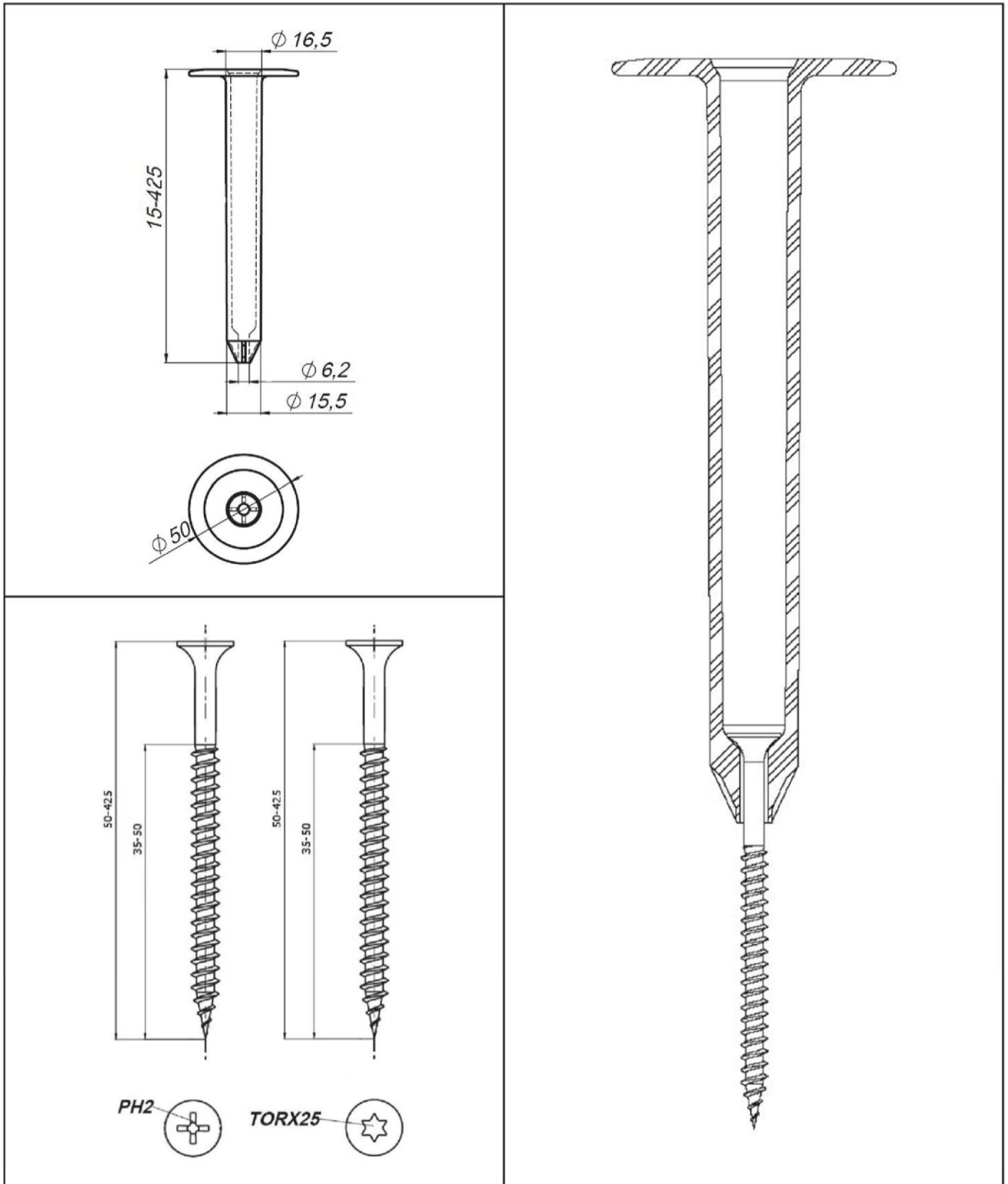


KOELNER Flat Roof Fasteners

Combination 12

Mount: POK-041-AlZn
Fastener: WB

Annex 12

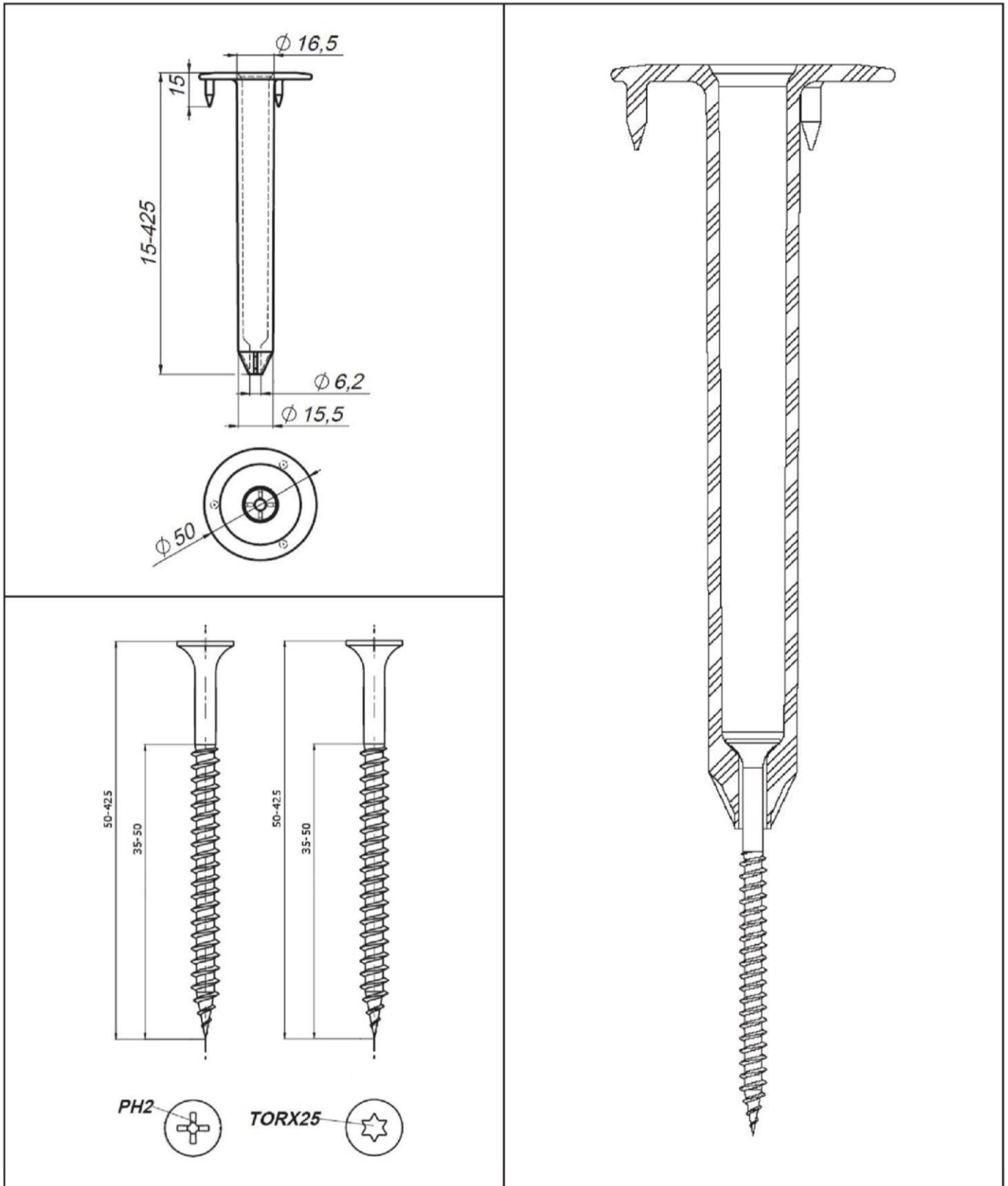


KOELNER Flat Roof Fasteners

Combination 13

Mount: GOK
Fastener: WO (PH2- or Torx25-Drive)

Annex 13

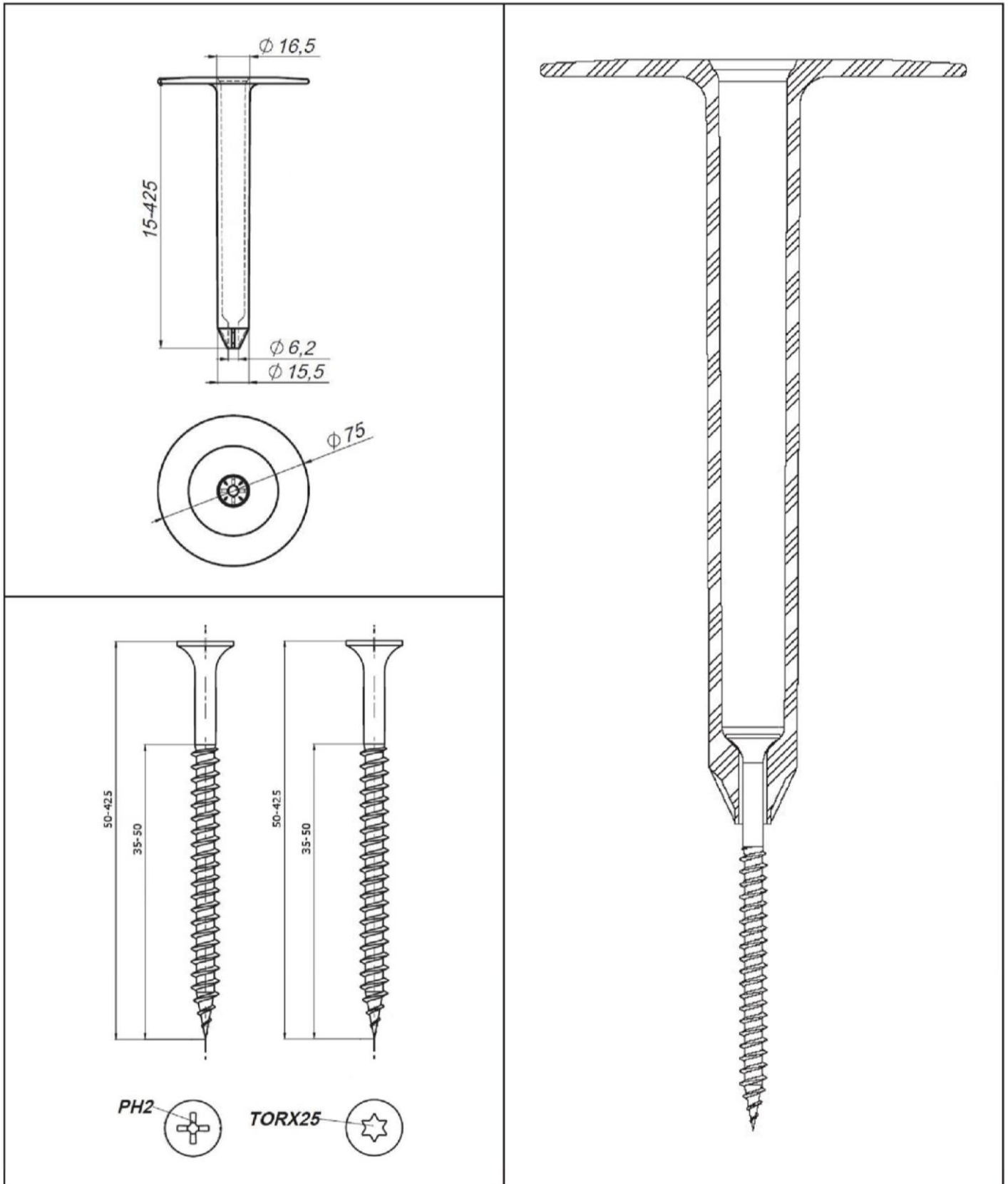


KOELNER Flat Roof Fasteners

Combination 14

Mount: GOK-PLUS
Fastener: WO (PH2- or Torx25-Drive)

Annex 14

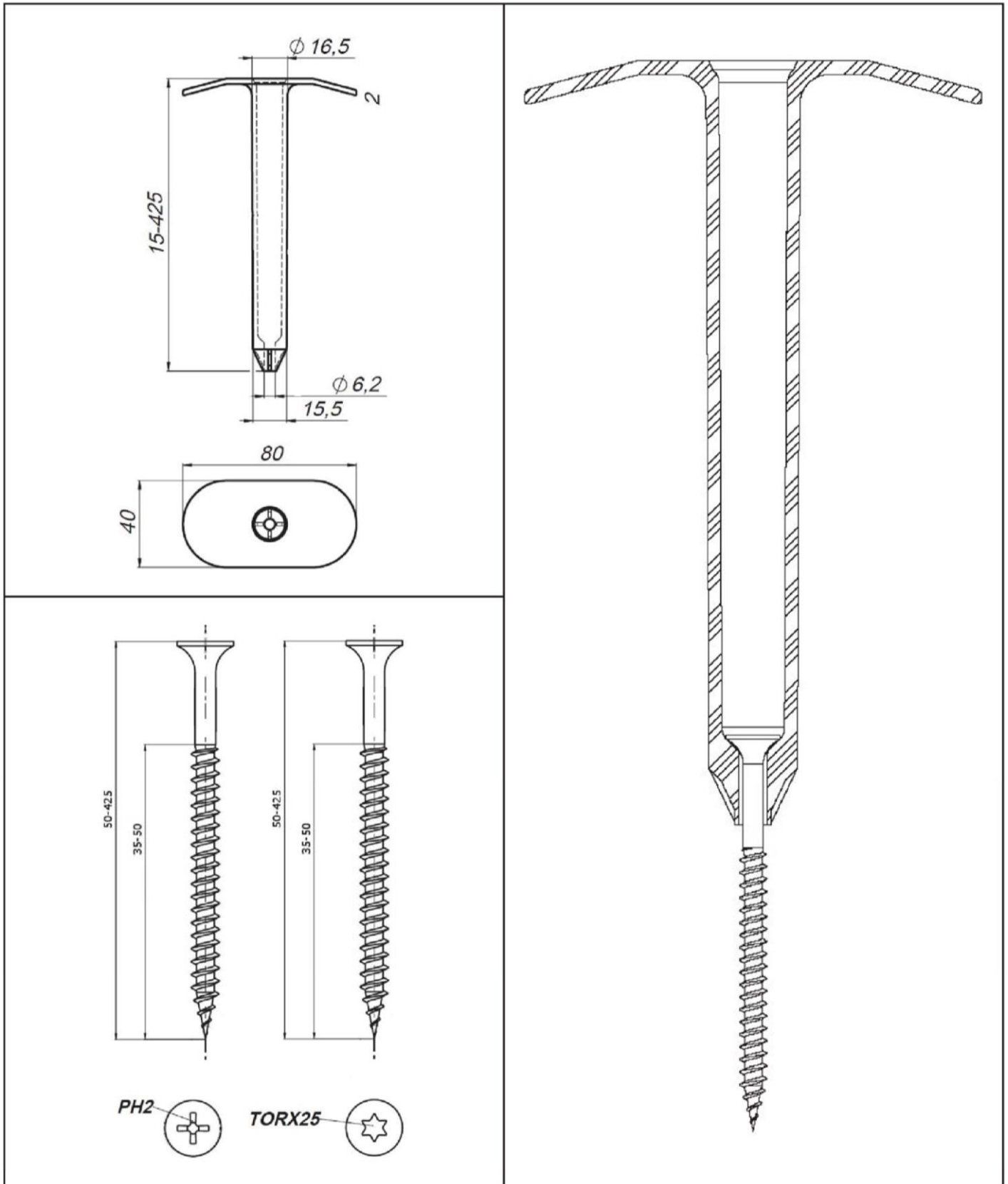


KOELNER Flat Roof Fasteners

Combination 15

Mount: GOK75
Fastener: WO (PH2- or Torx25-Drive)

Annex 15

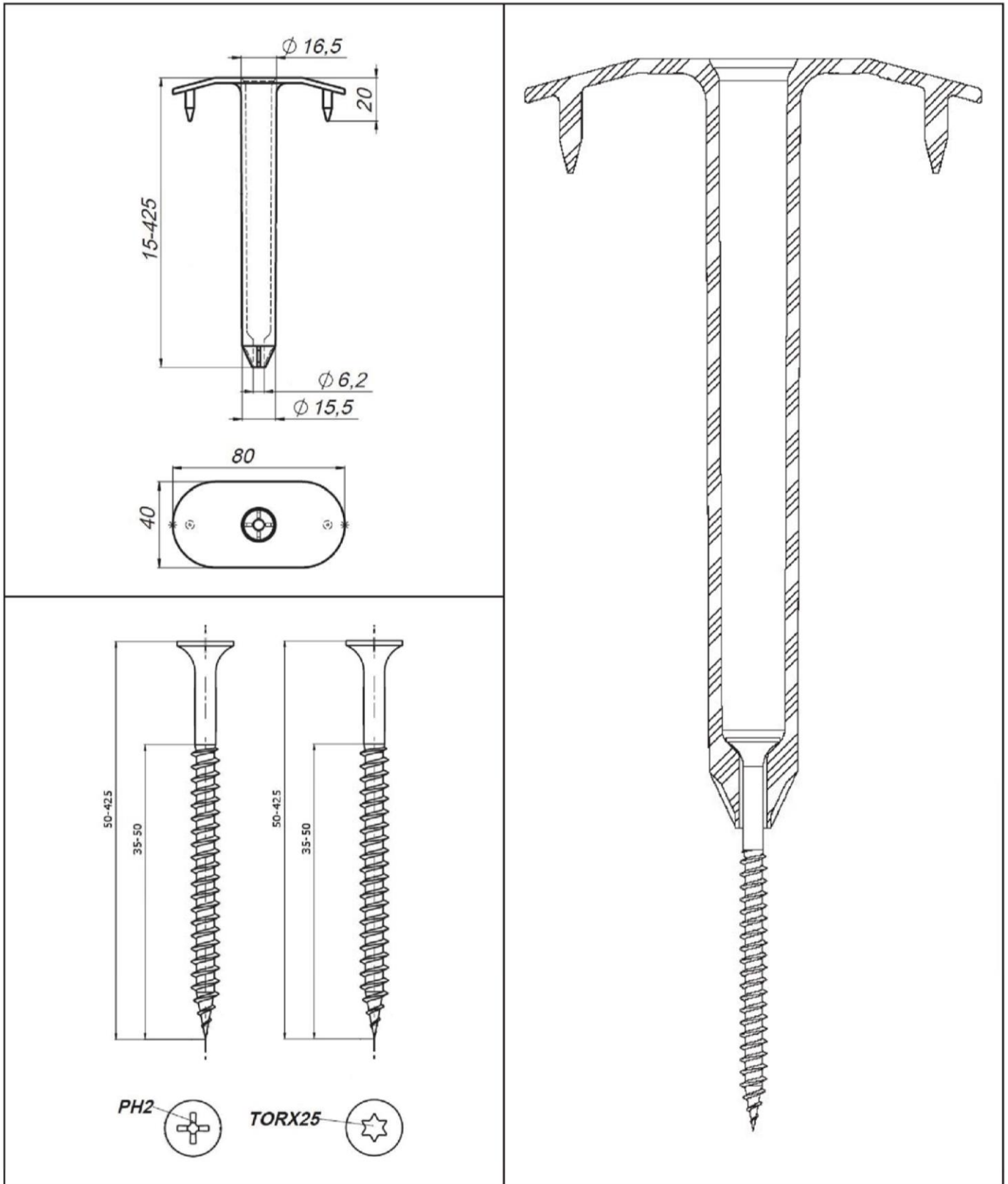


KOELNER Flat Roof Fasteners

Combination 16

Mount: GOW
Fastener: WO (PH2- or Torx25-Drive)

Annex 16

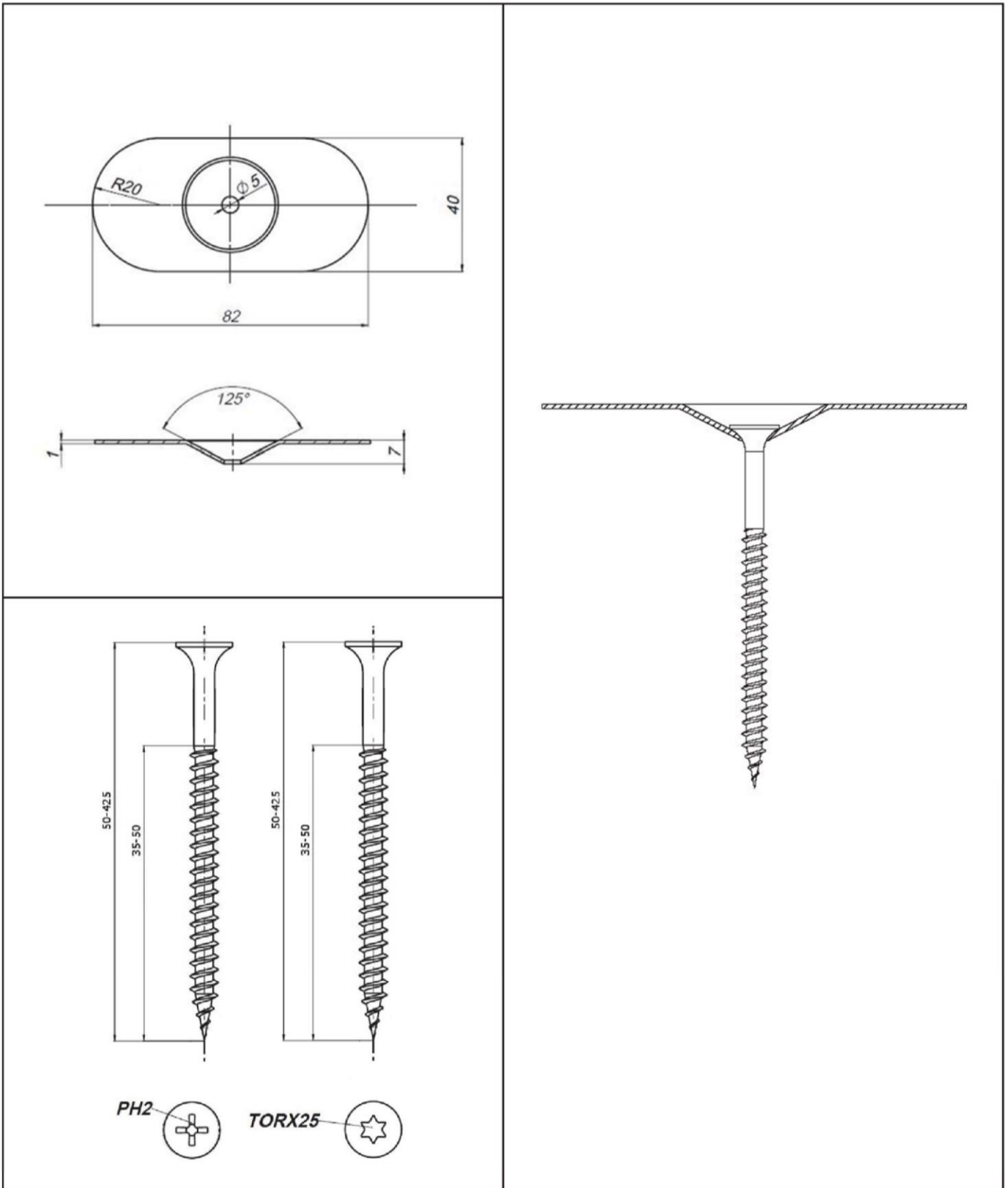


KOELNER Flat Roof Fasteners

Combination 17

Mount: GOW-PLUS
Fastener: WO (PH2- or Torx25-Drive)

Annex 17

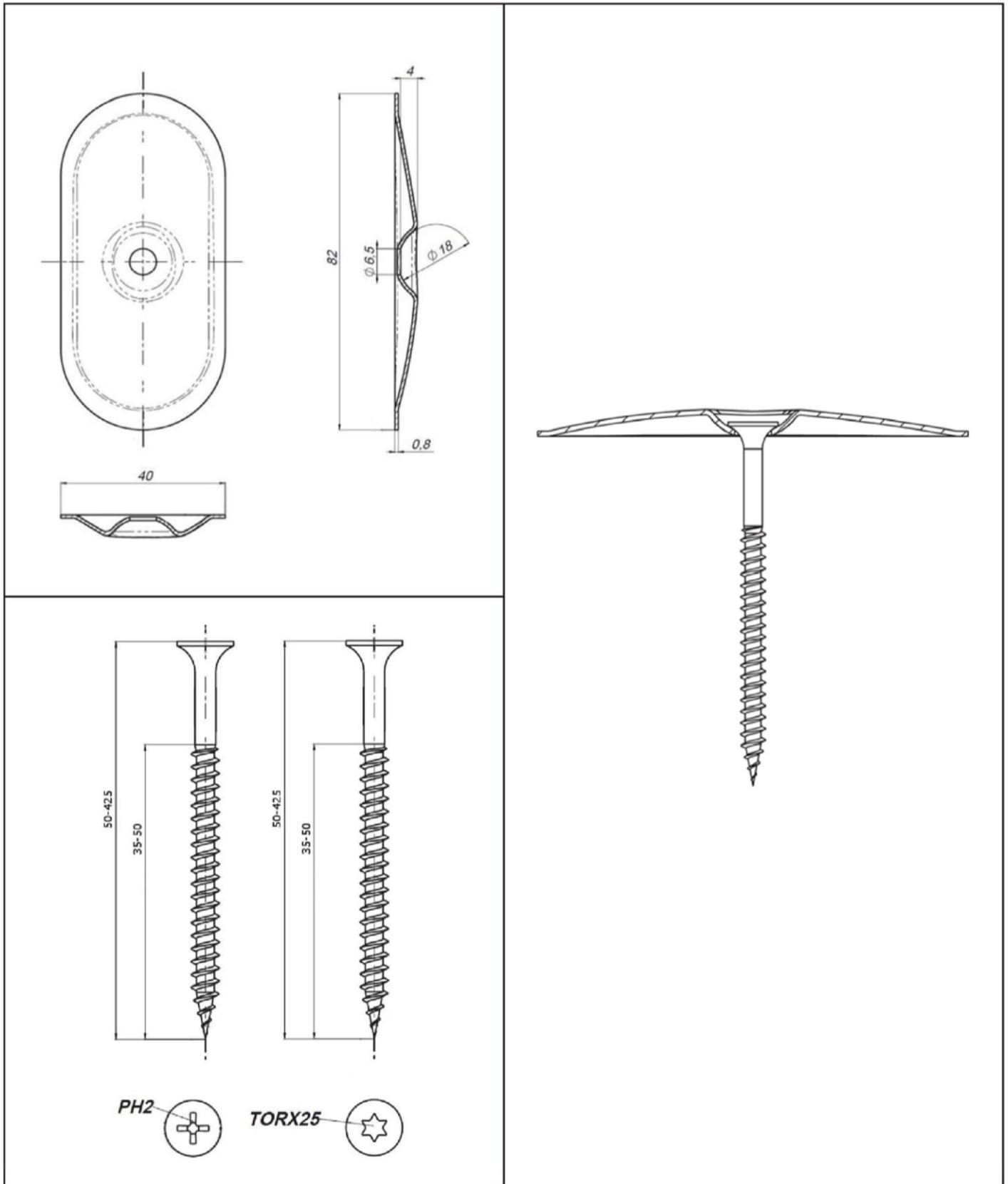


KOELNER Flat Roof Fasteners

Combination 18

Mount: POW-05-AlZn
Fastener: WO (PH2- or Torx25-Drive)

Annex 18

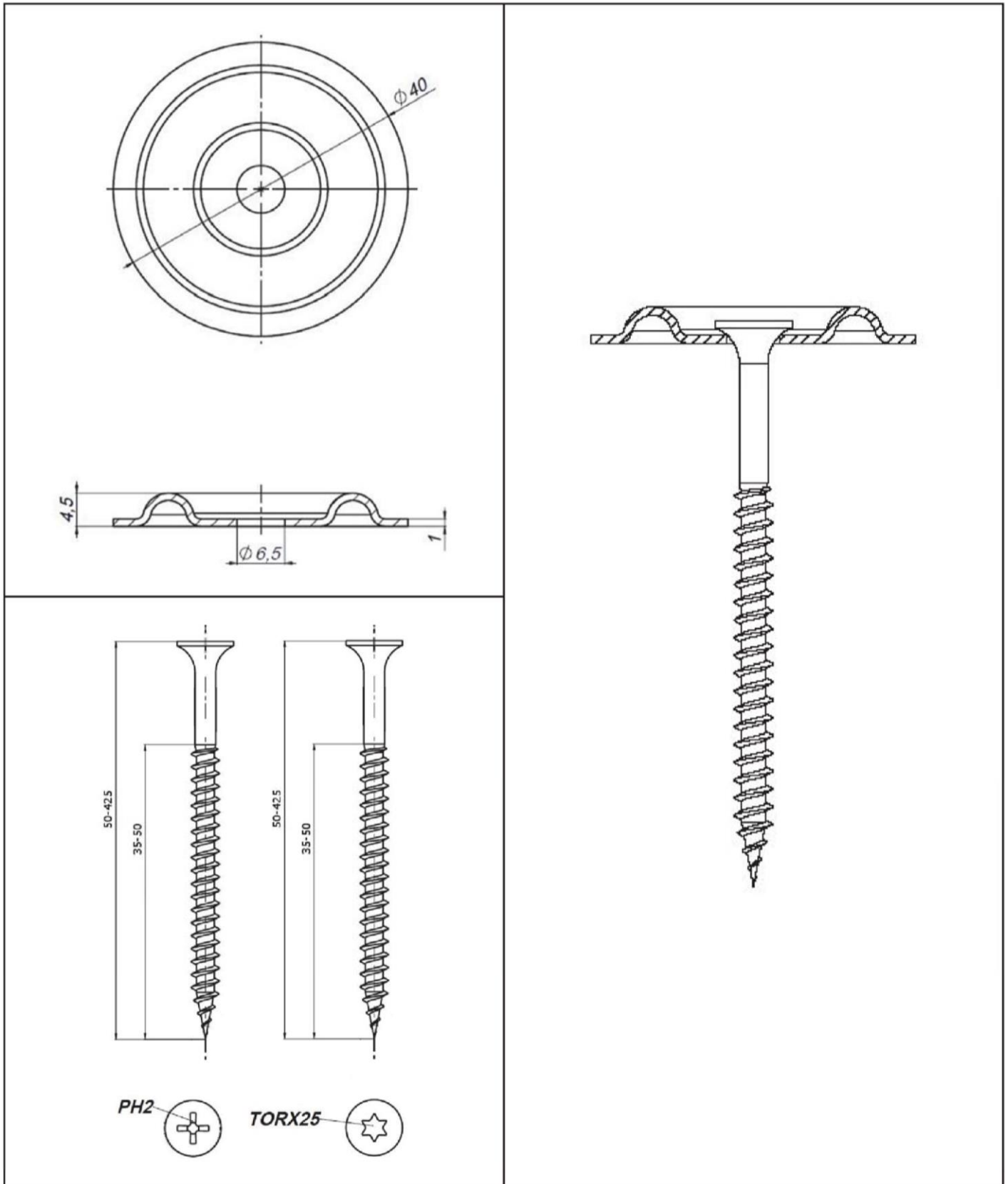


KOELNER Flat Roof Fasteners

Combination 19

Mount: POW-07-AlZn
Fastener: WO (PH2- or Torx25-Drive)

Annex 19

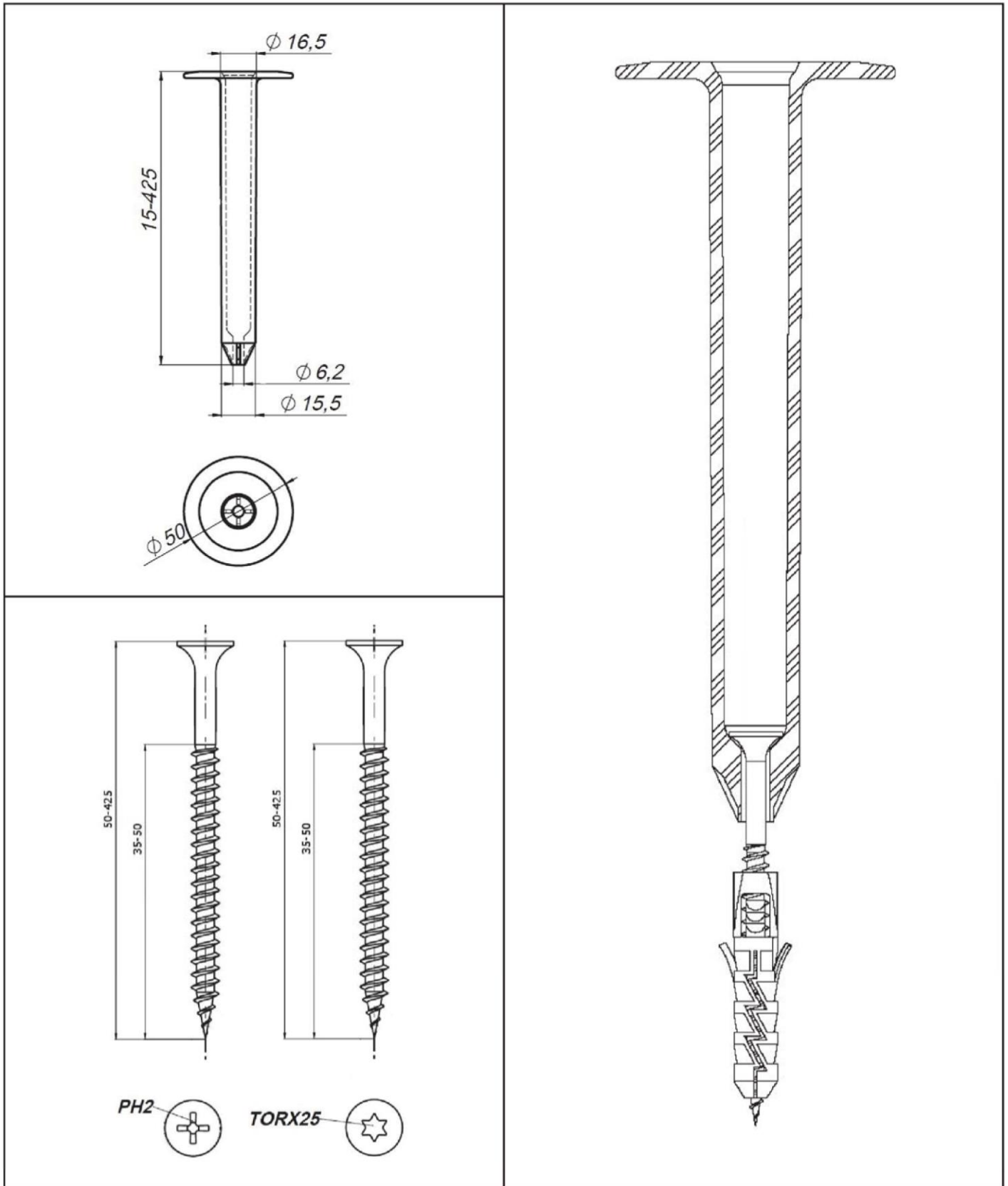


KOELNER Flat Roof Fasteners

Combination 20

Mount: POK-041-AlZn
Fastener: WO (PH2- or Torx25-Drive)

Annex 20

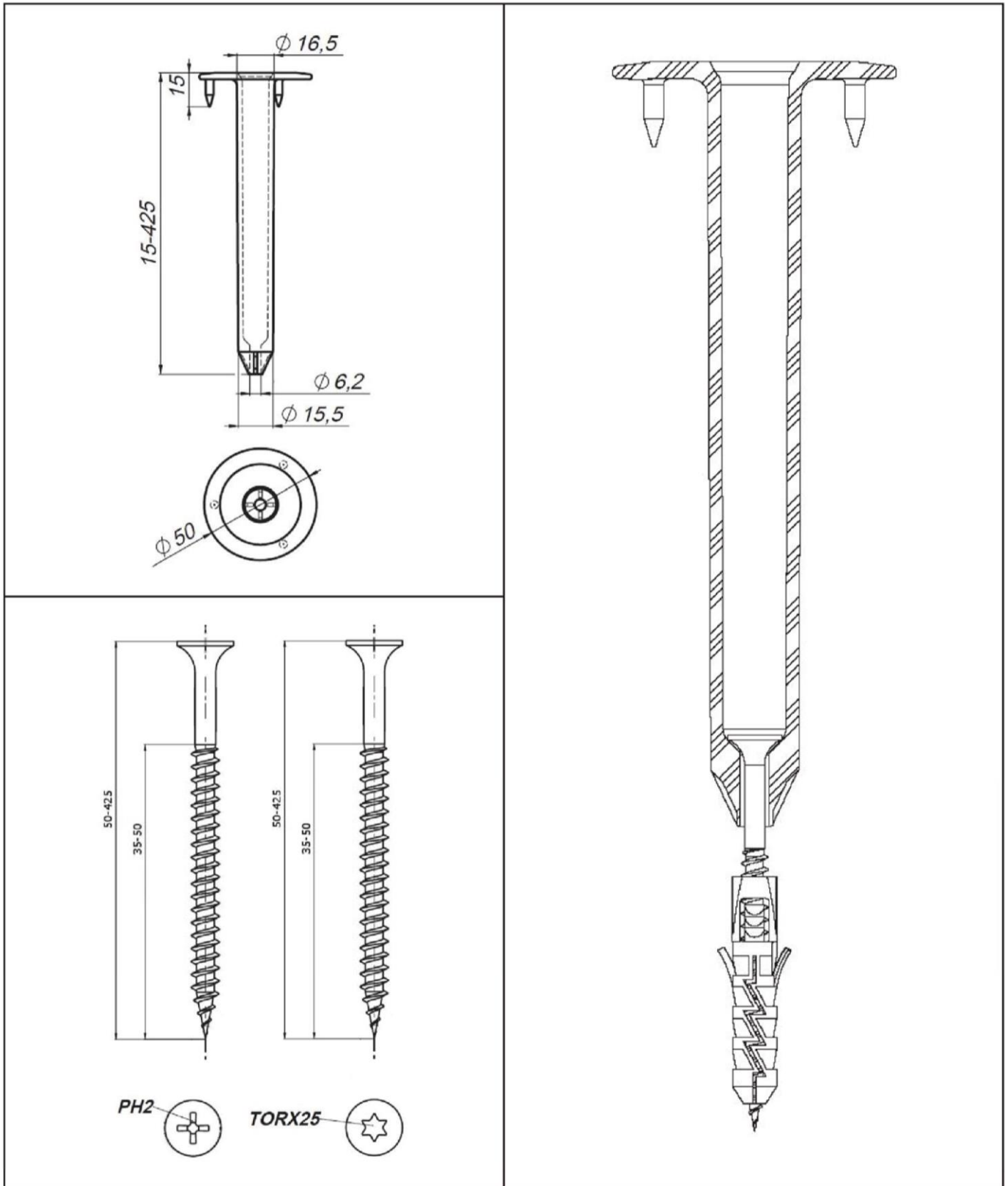


KOELNER Flat Roof Fasteners

Combination 21

Mount: GOK
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 21

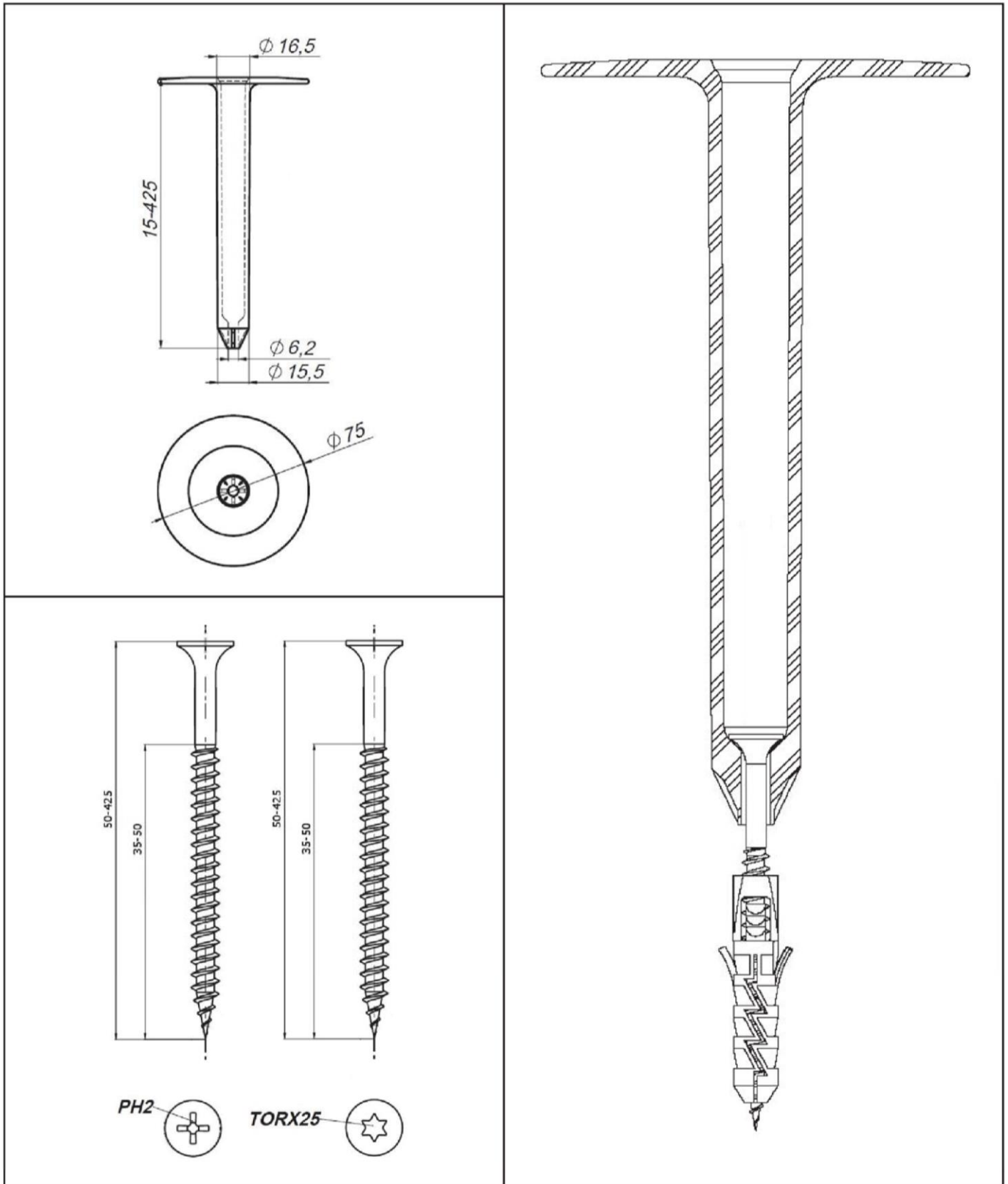


KOELNER Flat Roof Fasteners

Combination 22

Mount: GOK-PLUS
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 22

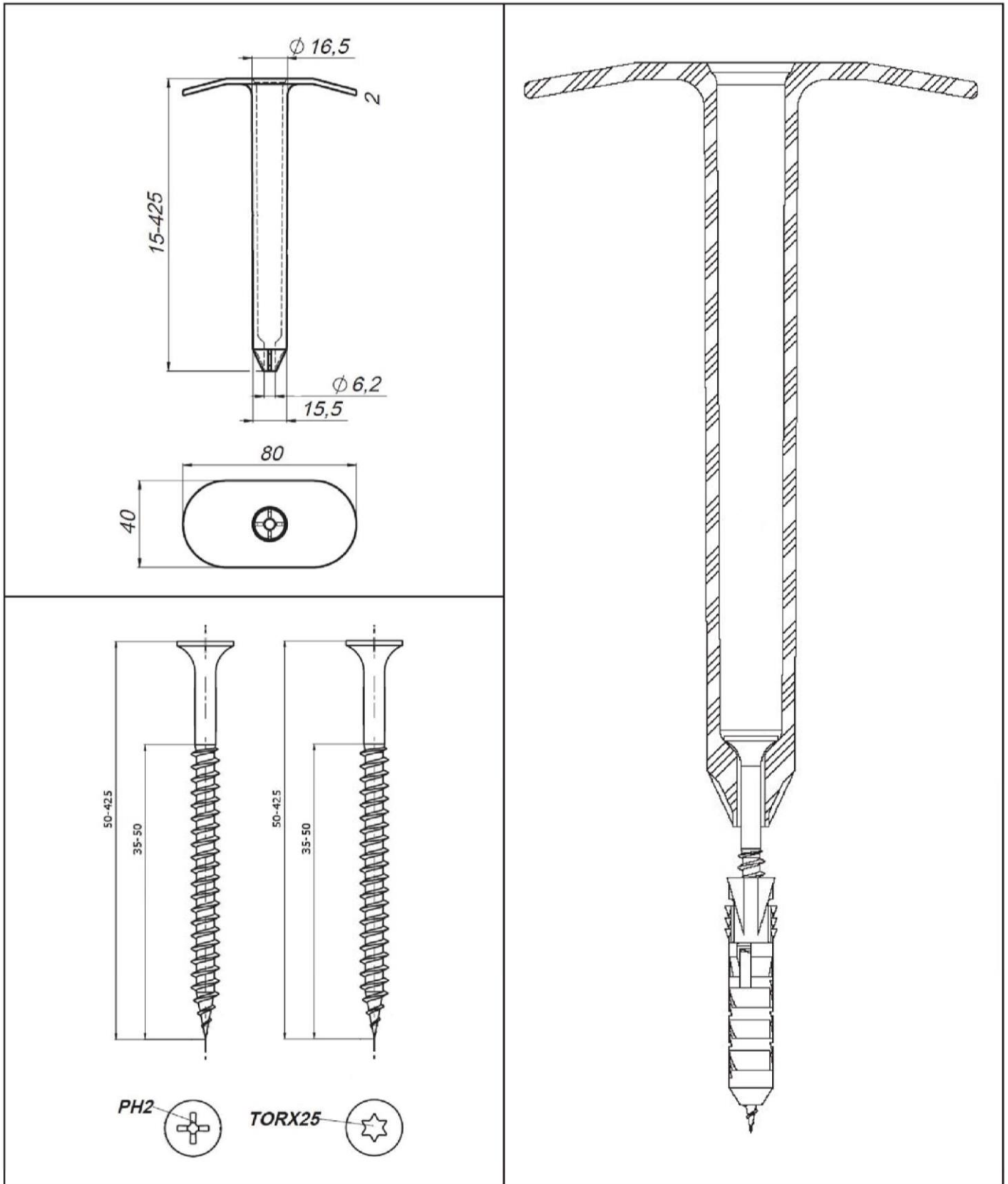


KOELNER Flat Roof Fasteners

Combination 23

Mount: GOK75
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 23

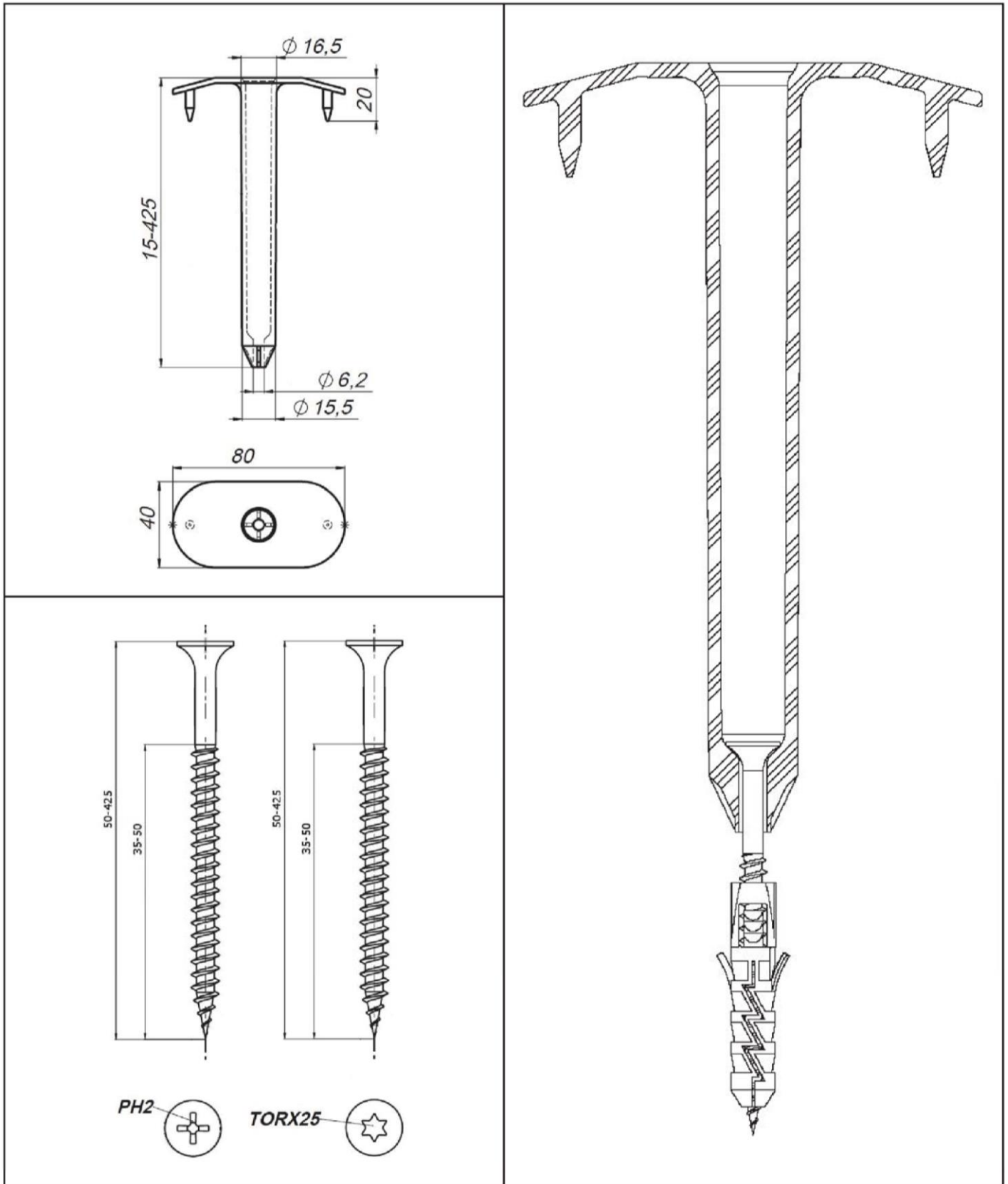


KOELNER Flat Roof Fasteners

Combination 24

Mount: GOW
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 24

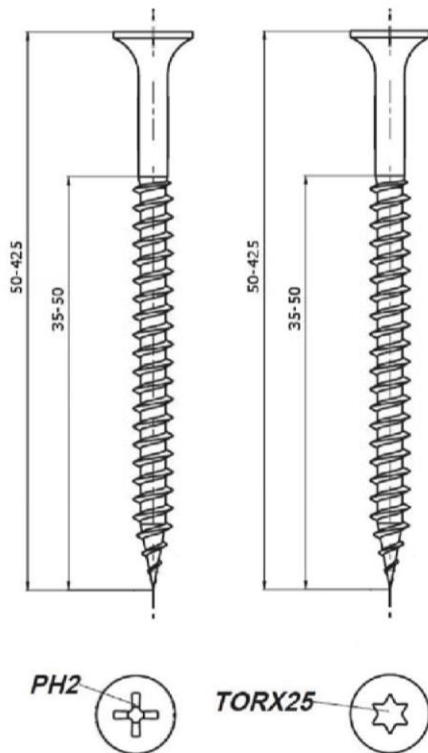
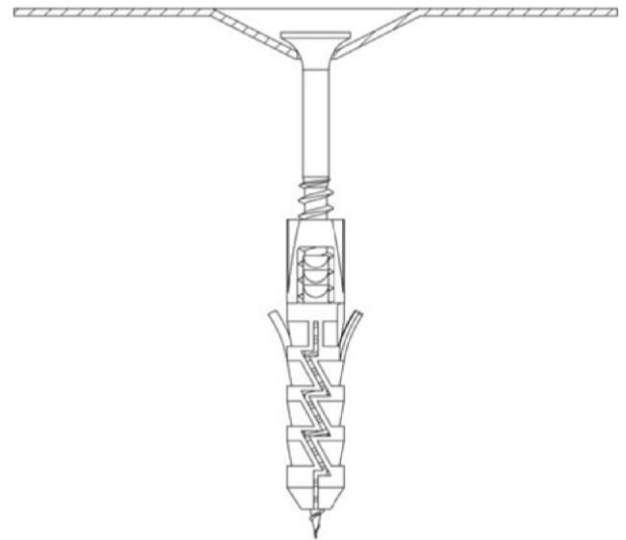
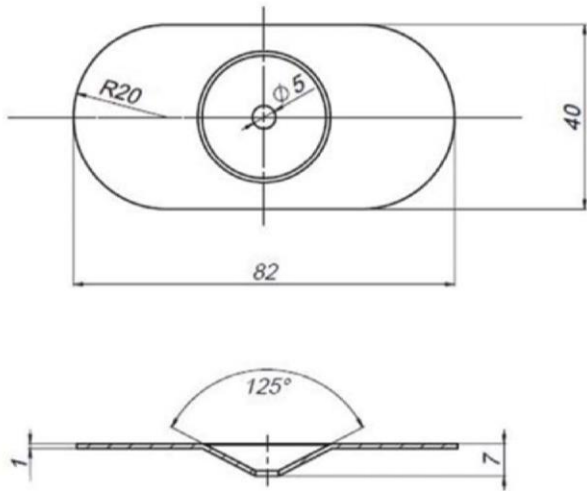


KOELNER Flat Roof Fasteners

Combination 25

Mount: GOW-PLUS
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 25

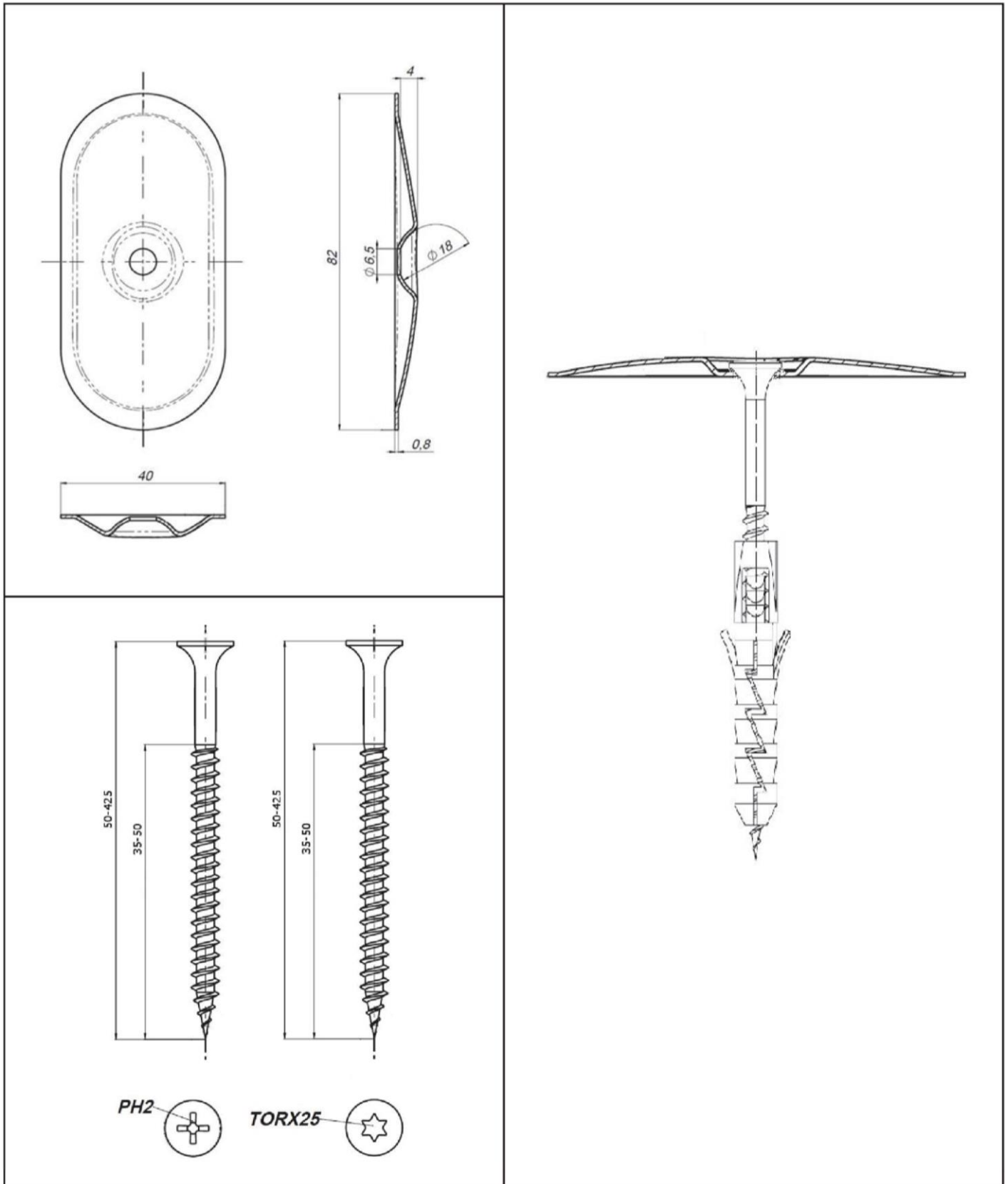


KOELNER Flat Roof Fasteners

Combination 26

Mount: POW-05-AlZn
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 26

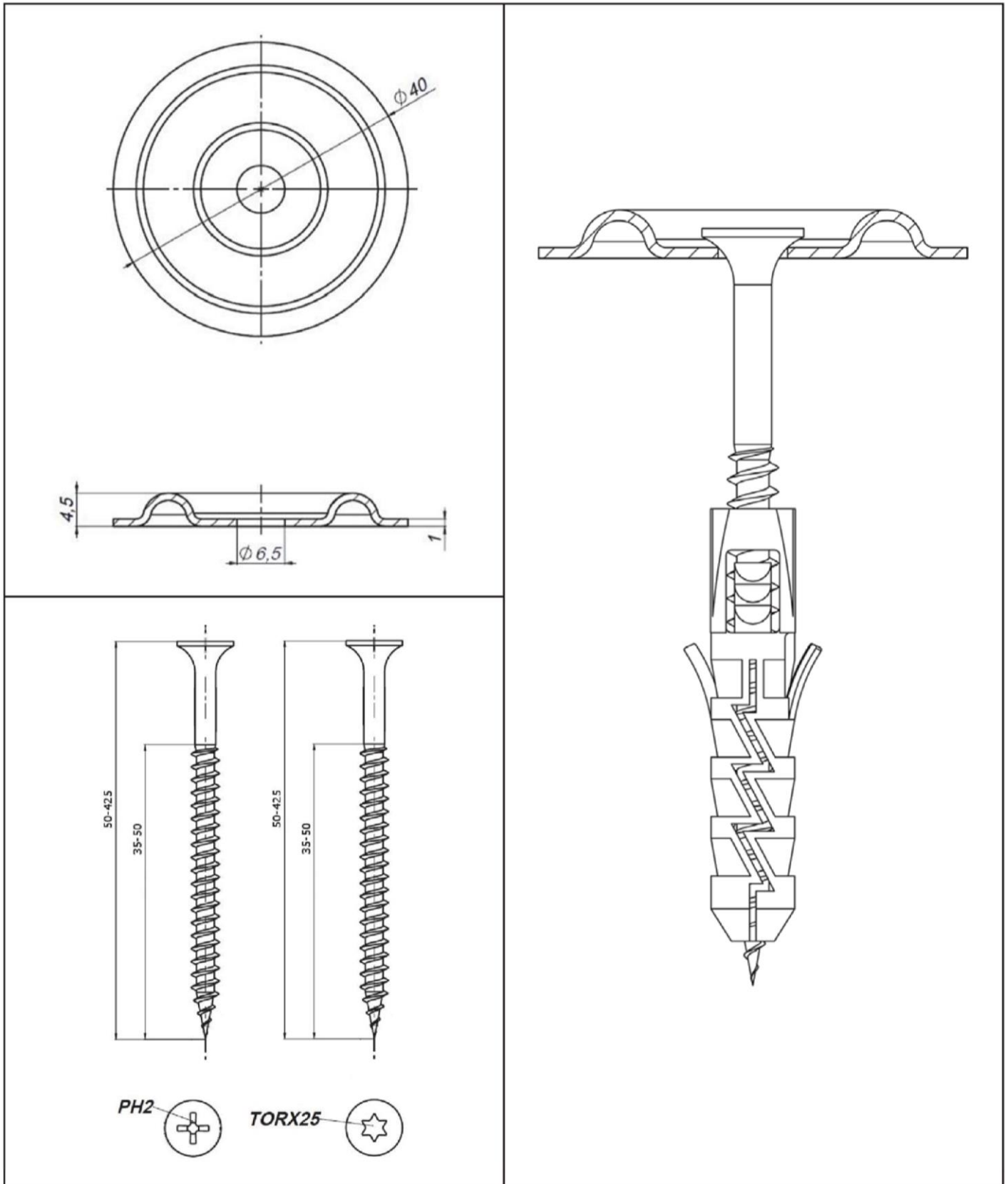


KOELNER Flat Roof Fasteners

Combination 27

Mount: POW-07-AlZn
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 27

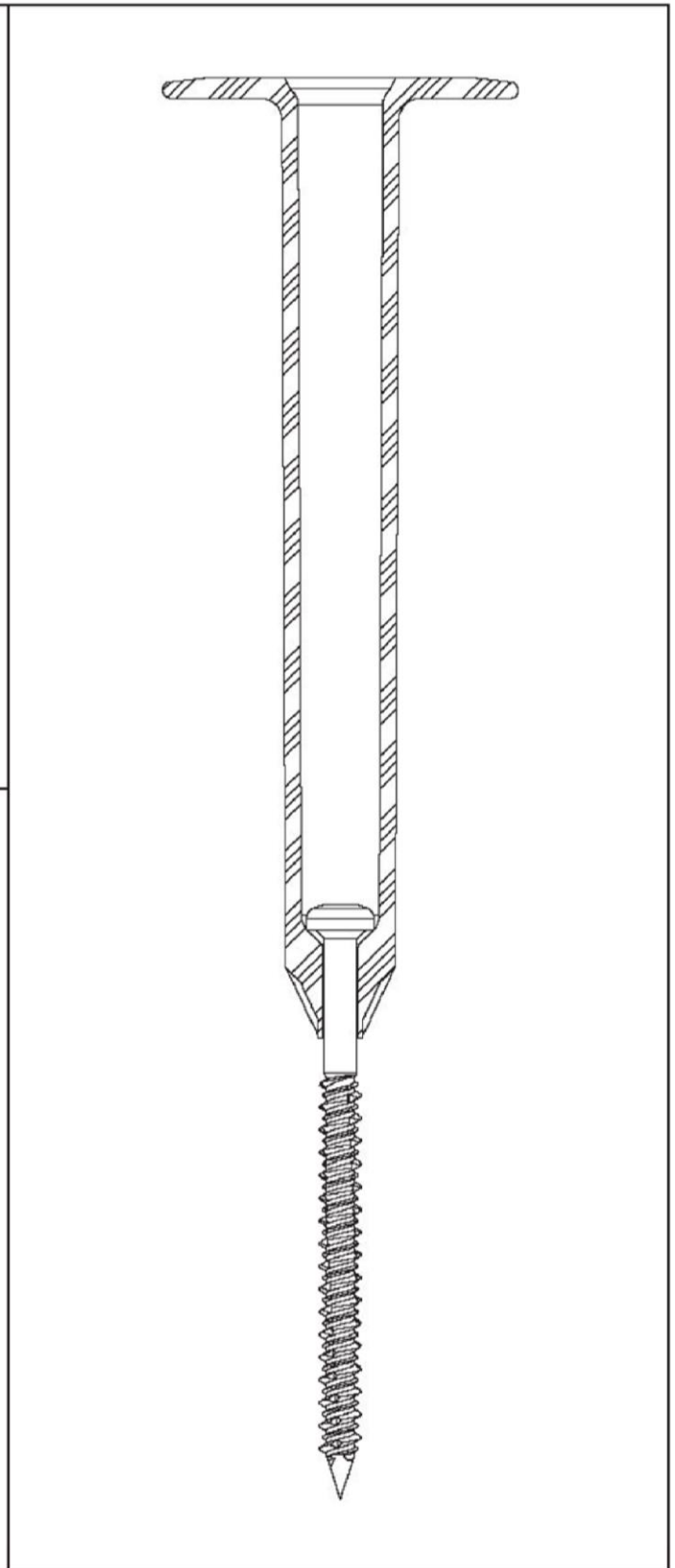
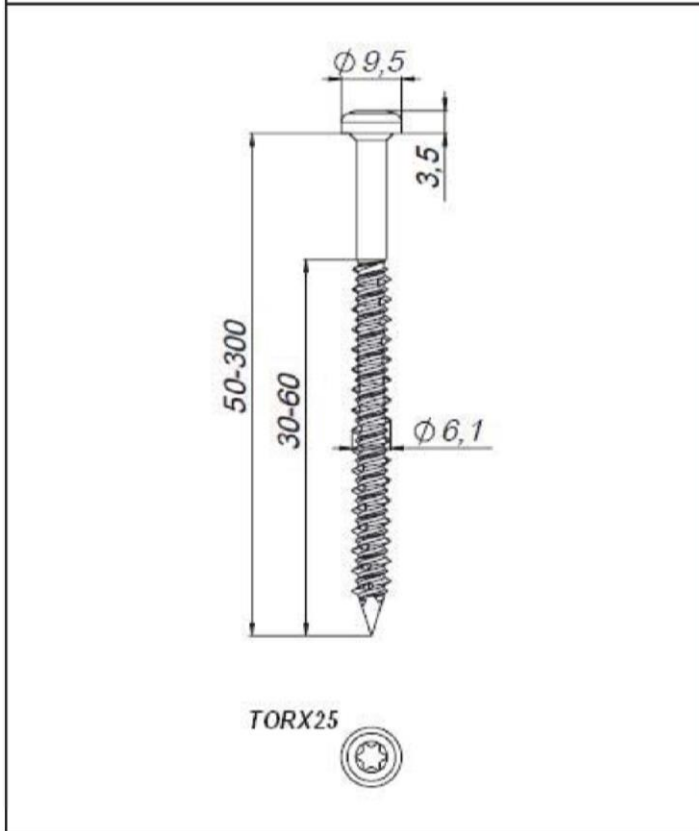
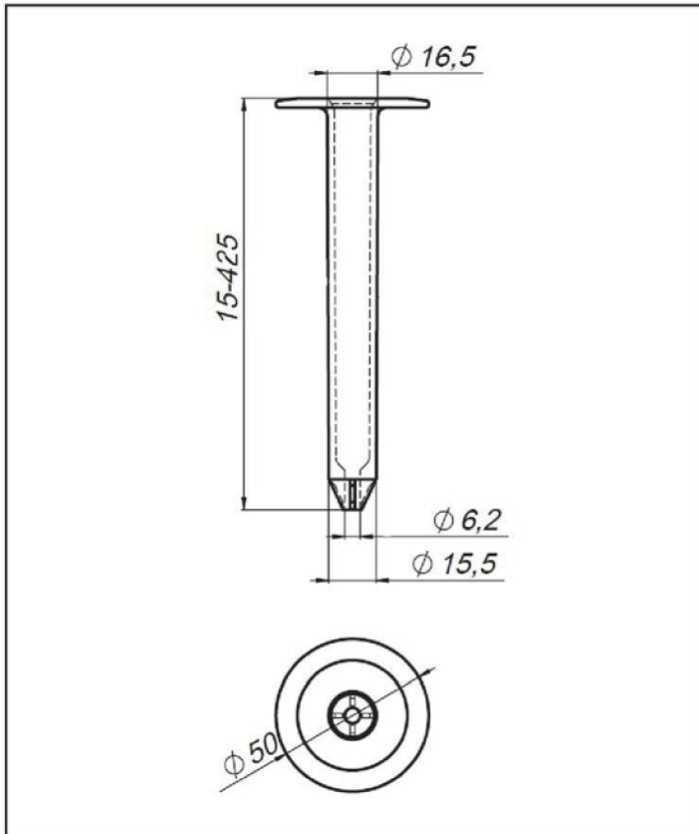


KOELNER Flat Roof Fasteners

Combination 28

Mount: POK-041-AlZn
Fastener: WO (PH2- or Torx25-Drive) with K08

Annex 28

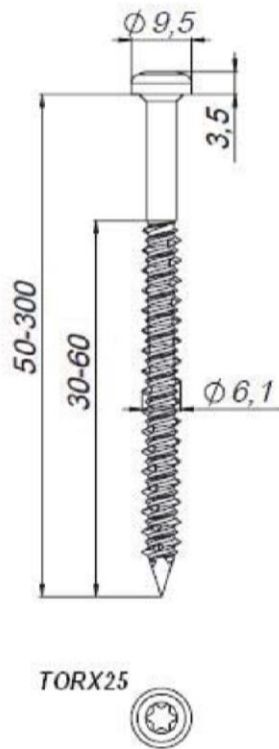
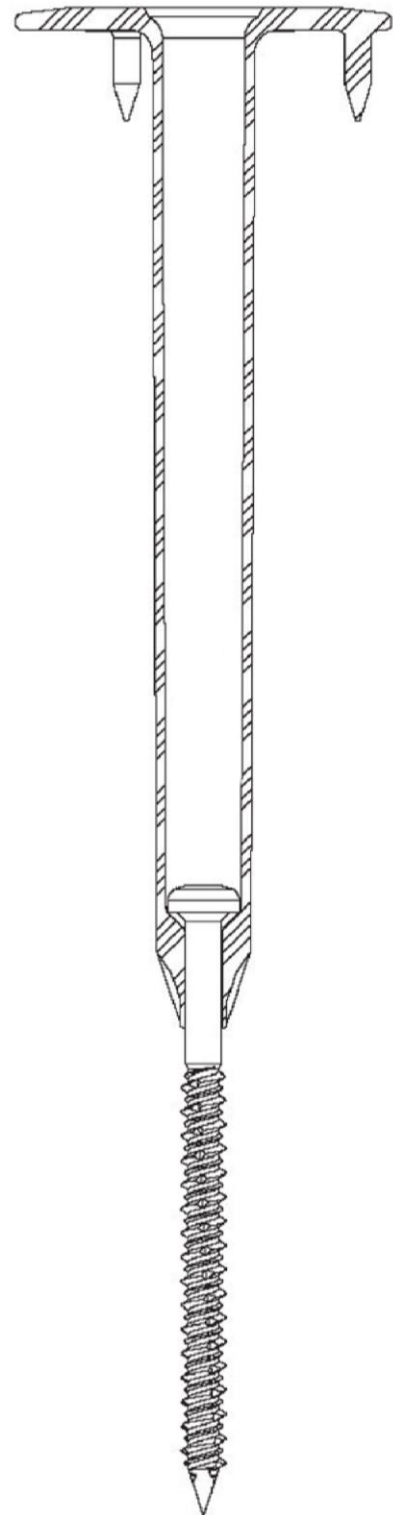
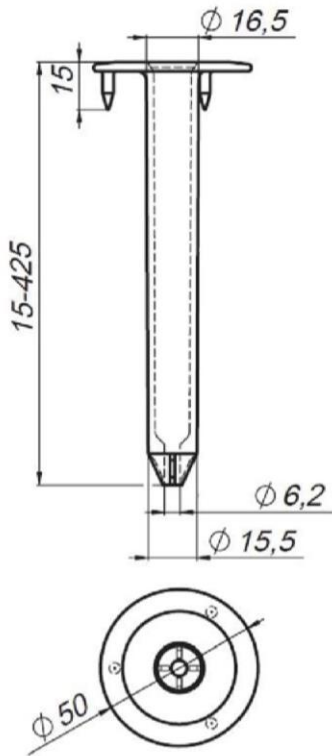


KOELNER Flat Roof Fasteners

Combination 29

Mount: GOK
Fastener: WBT

Annex 29

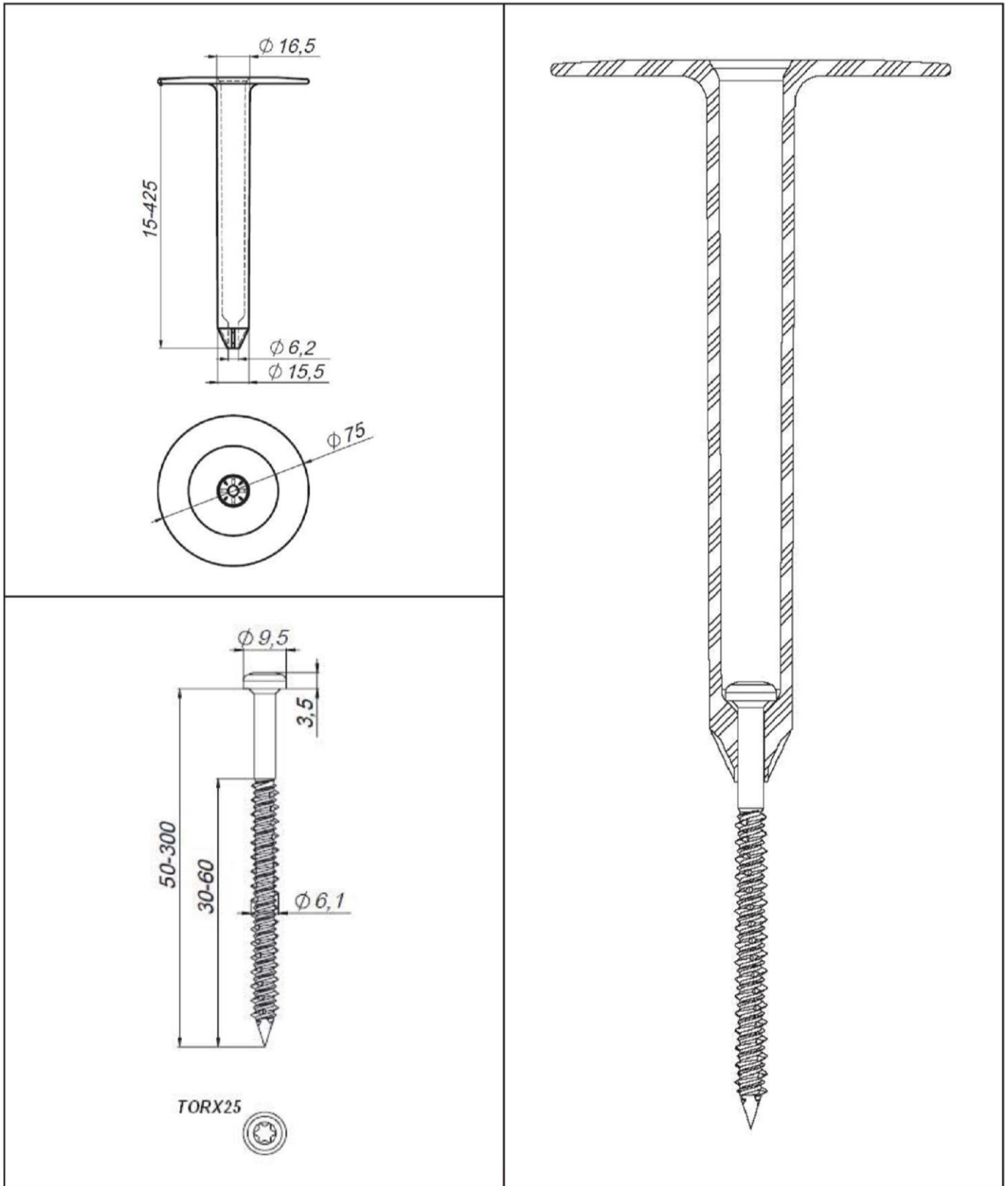


KOELNER Flat Roof Fasteners

Combination 30

Mount: GOK-PLUS
Fastener: WBT

Annex 30

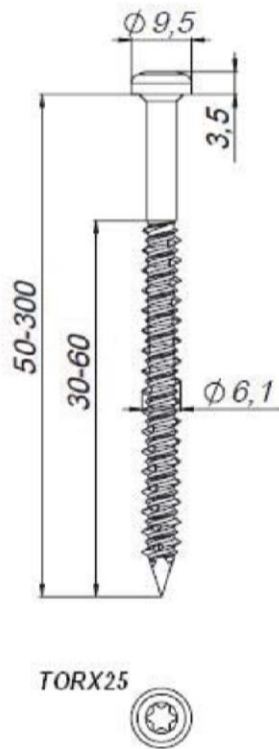
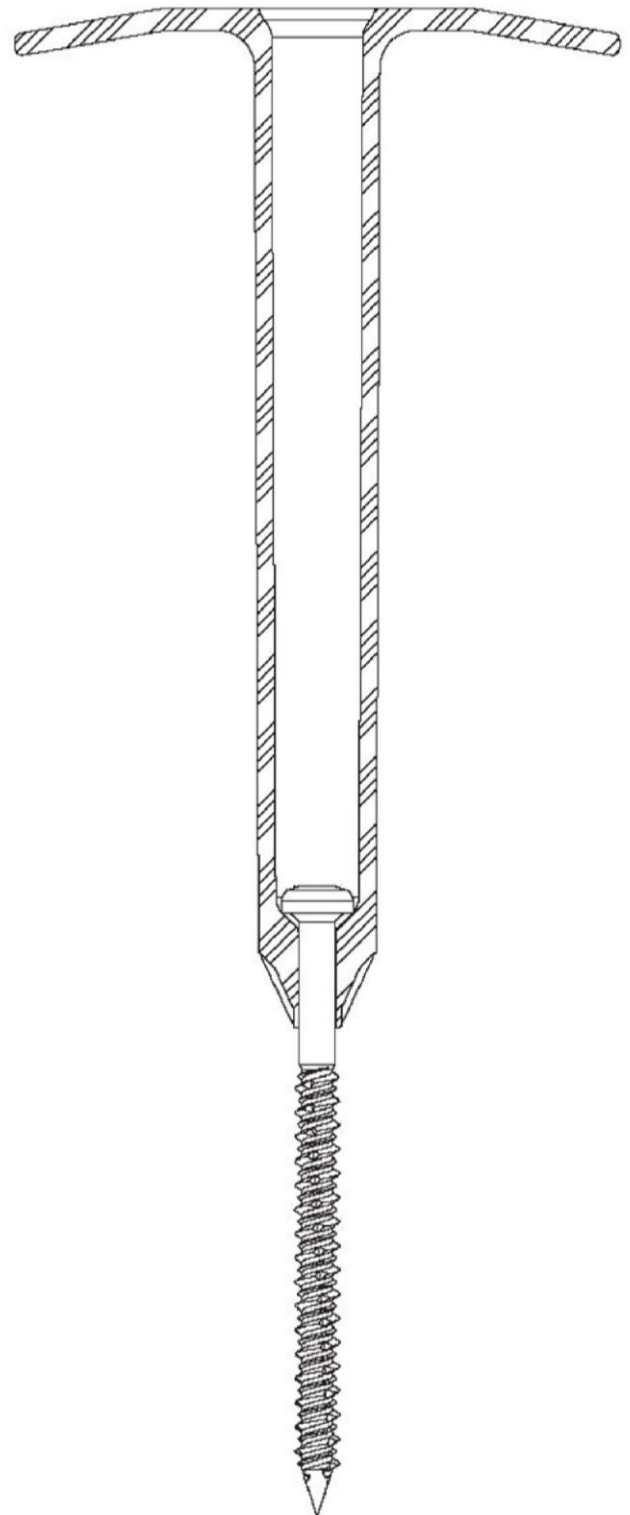
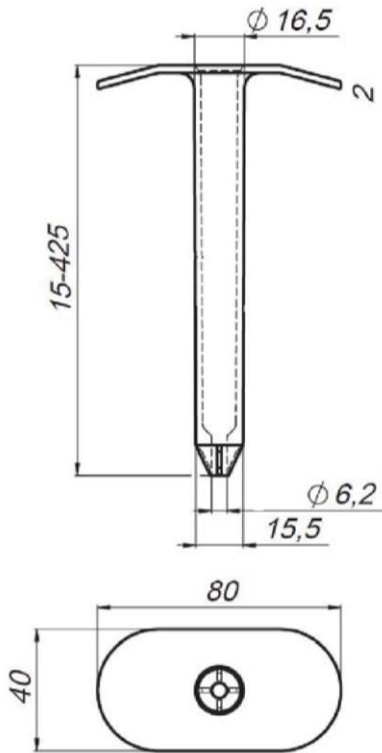


KOELNER Flat Roof Fasteners

Combination 31

Mount: GOK75
Fastener: WBT

Annex 31

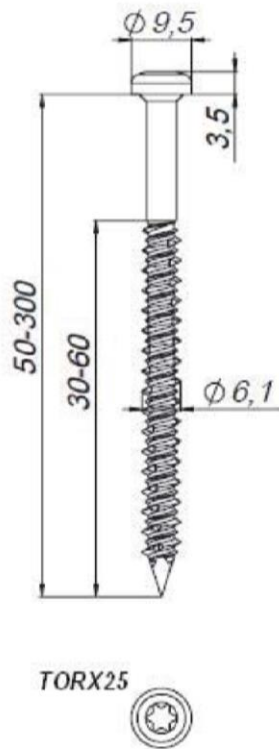
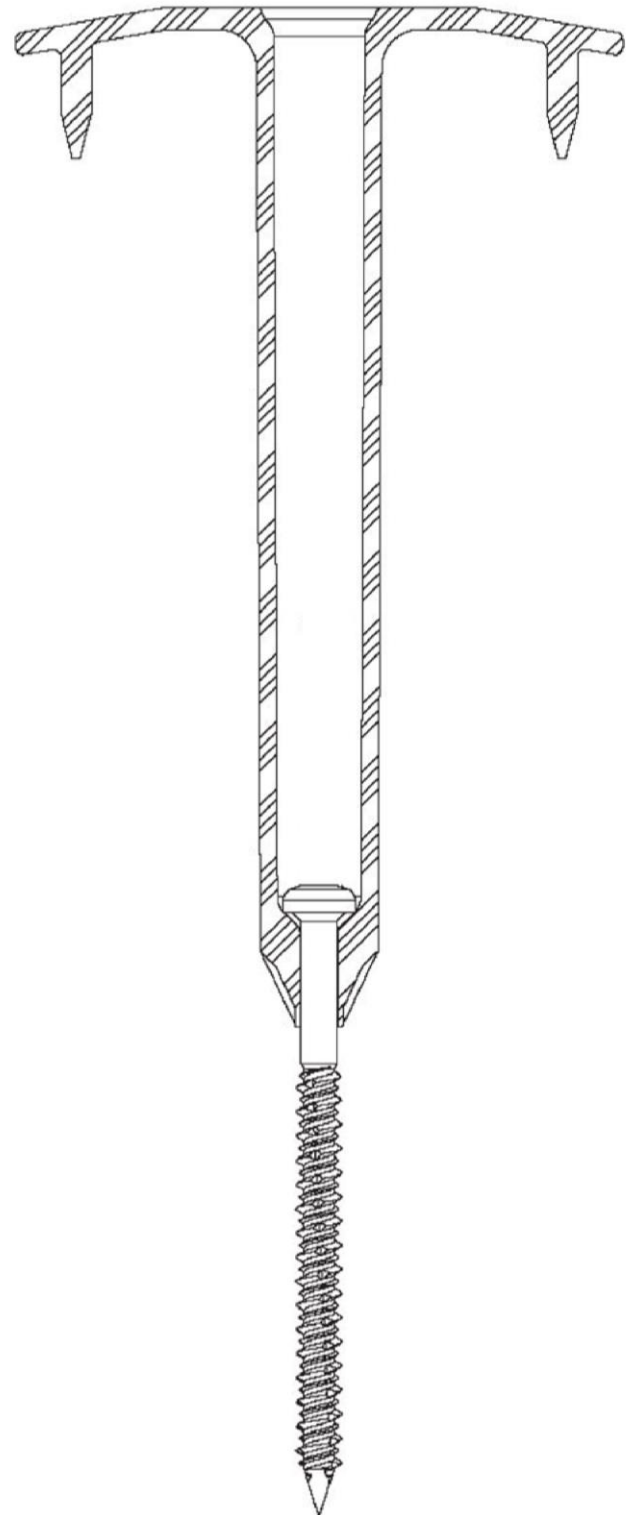
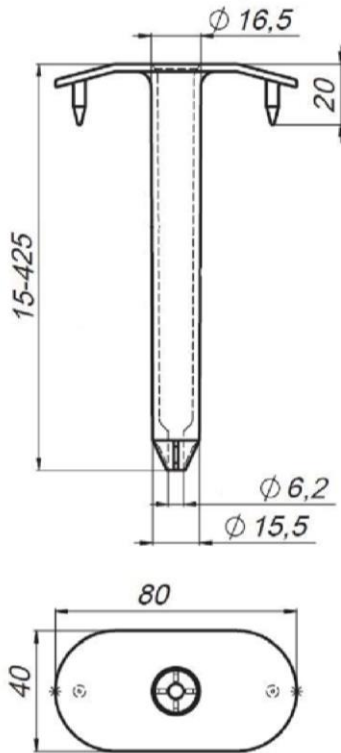


KOELNER Flat Roof Fasteners

Combination 32

Mount: GOW
Fastener: WBT

Annex 32

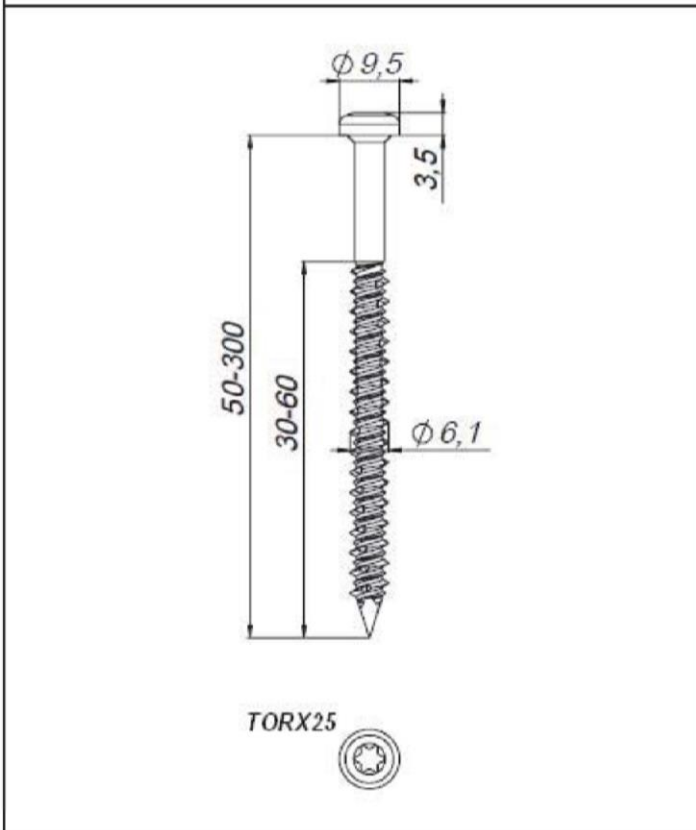
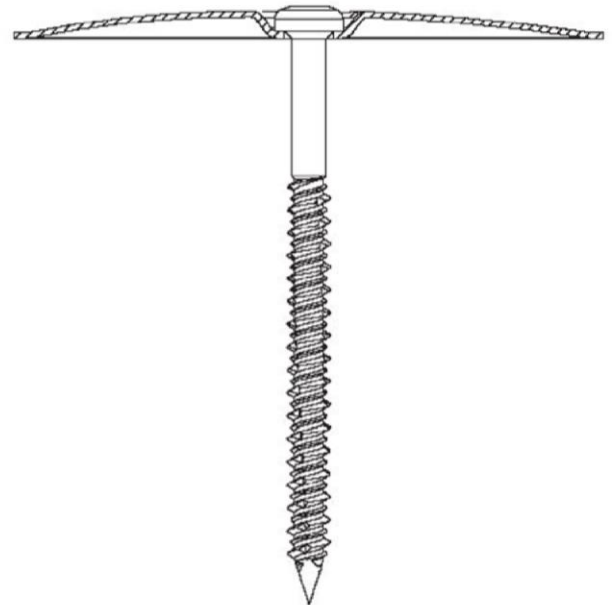
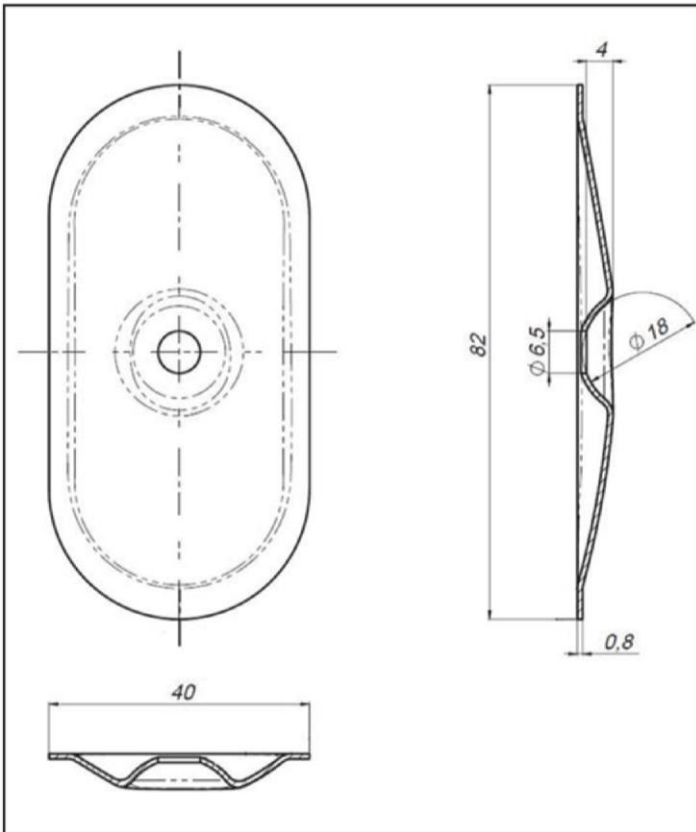


KOELNER Flat Roof Fasteners

Combination 33

Mount: GOW-PLUS
Fastener: WBT

Annex 33

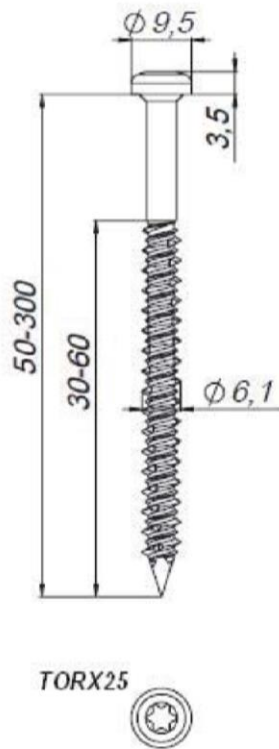
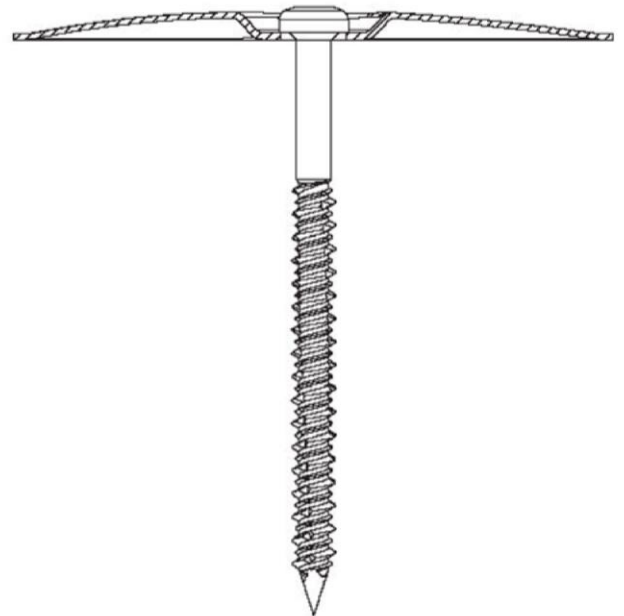
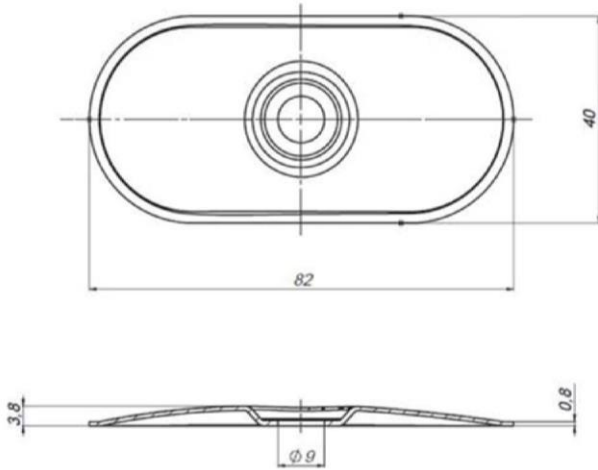


KOELNER Flat Roof Fasteners

Combination 34

Mount: POW-07-AlZn
Fastener: WBT

Annex 34

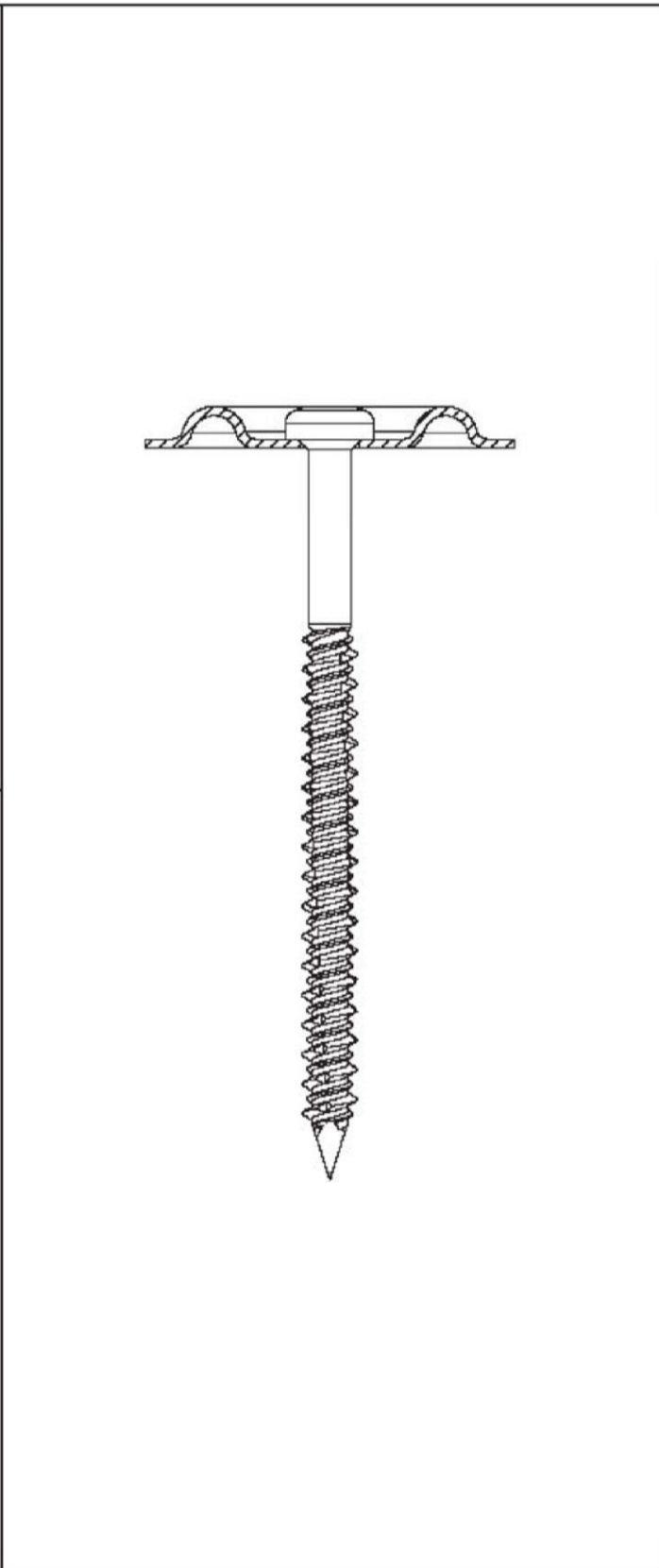
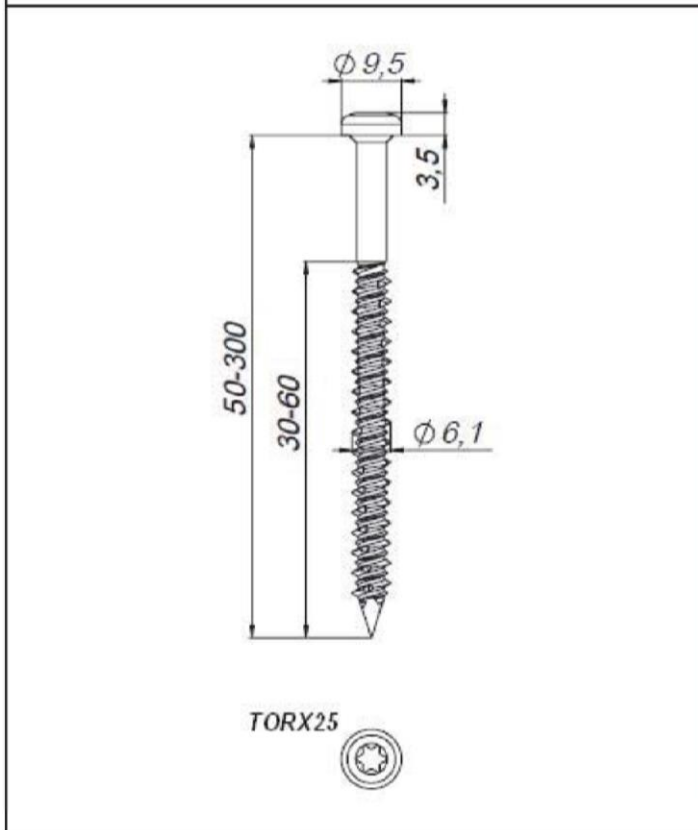
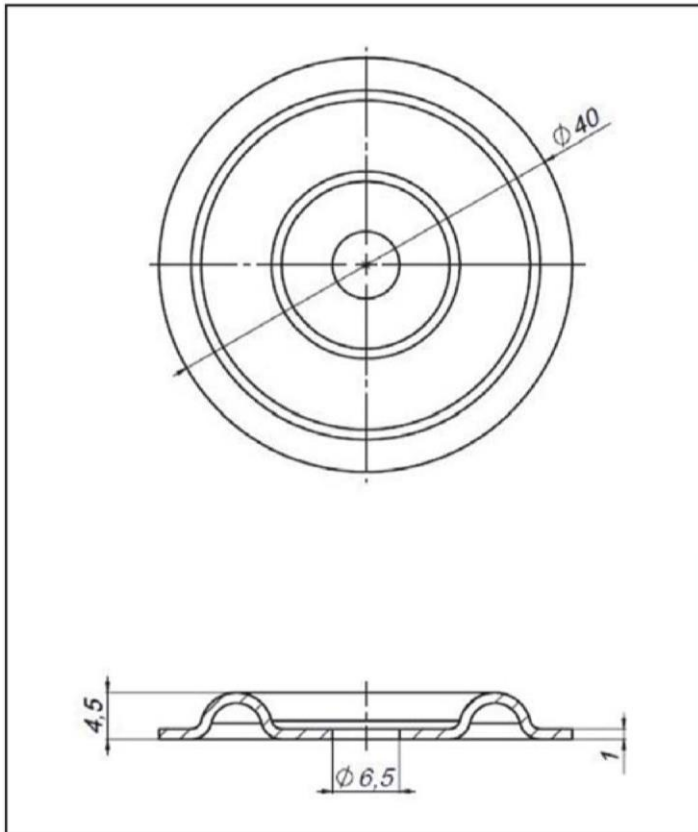


KOELNER Flat Roof Fasteners

Combination 35

Mount: POW-09-AlZn
 Fastener: WBT

Annex 35

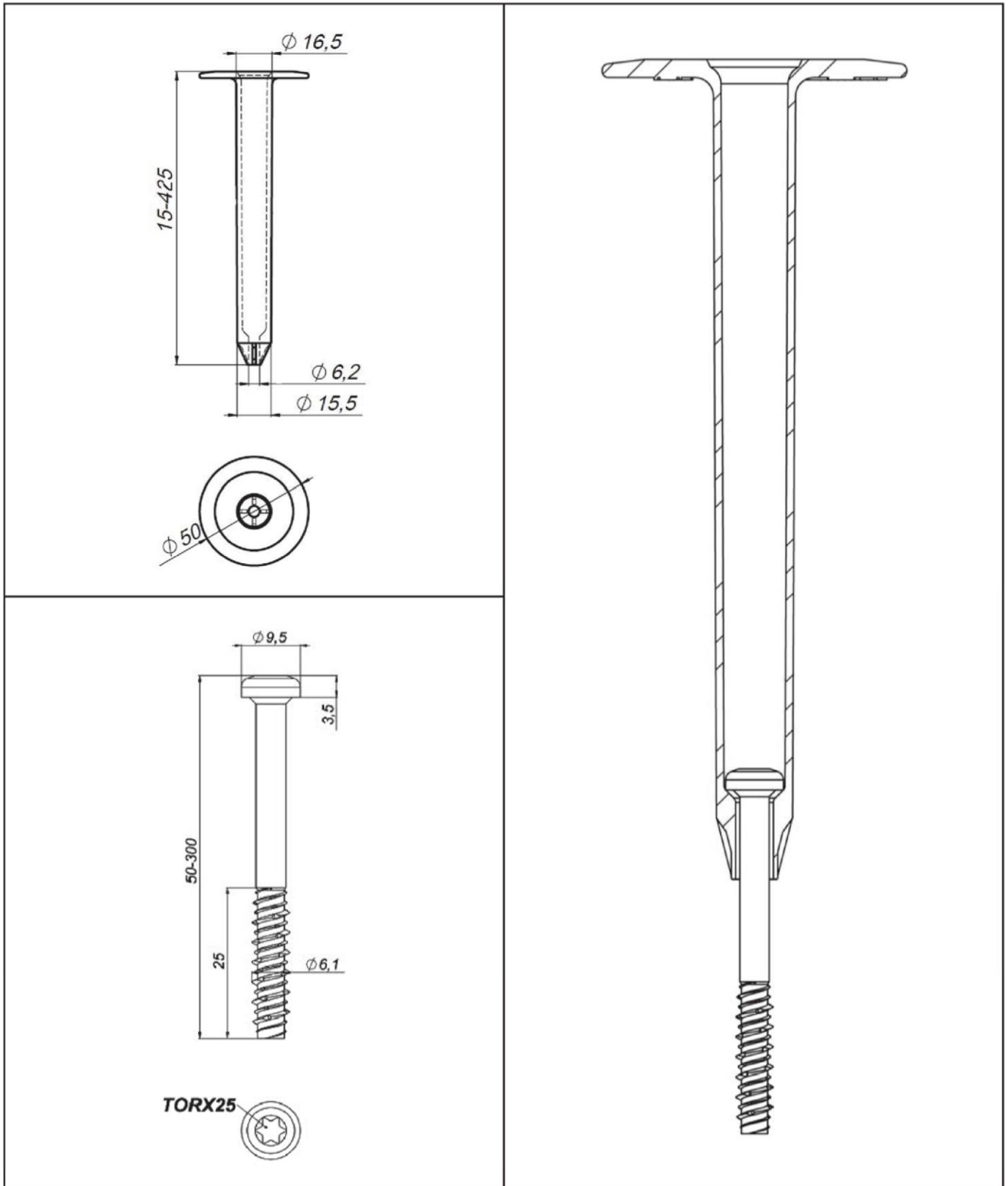


KOELNER Flat Roof Fasteners

Combination 36

Mount: POK-041-AlZn
Fastener: WBT

Annex 36

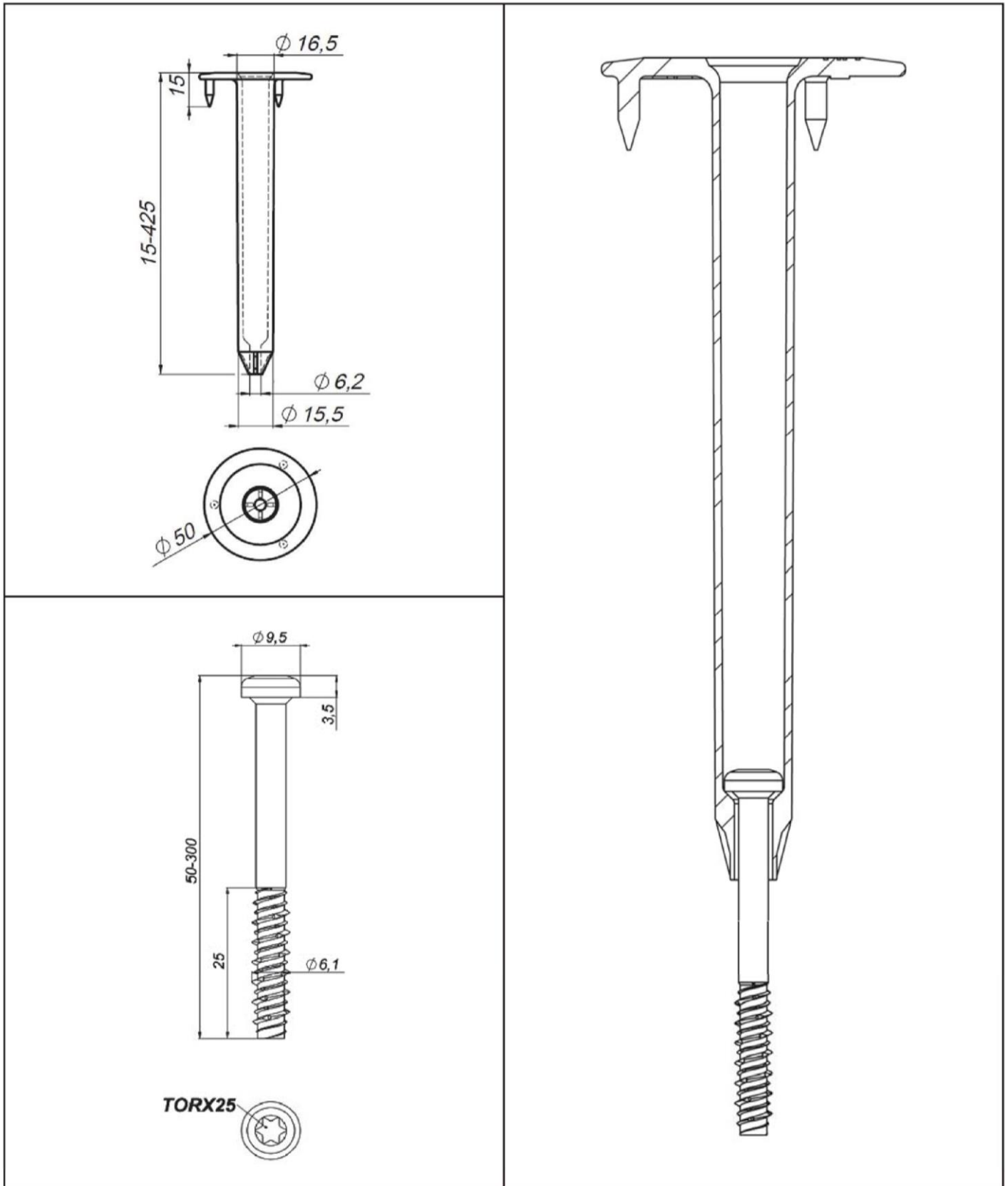


KOELNER Flat Roof Fasteners

Combination 37

Mount: GOK
Fastener: WBT-A

Annex 37

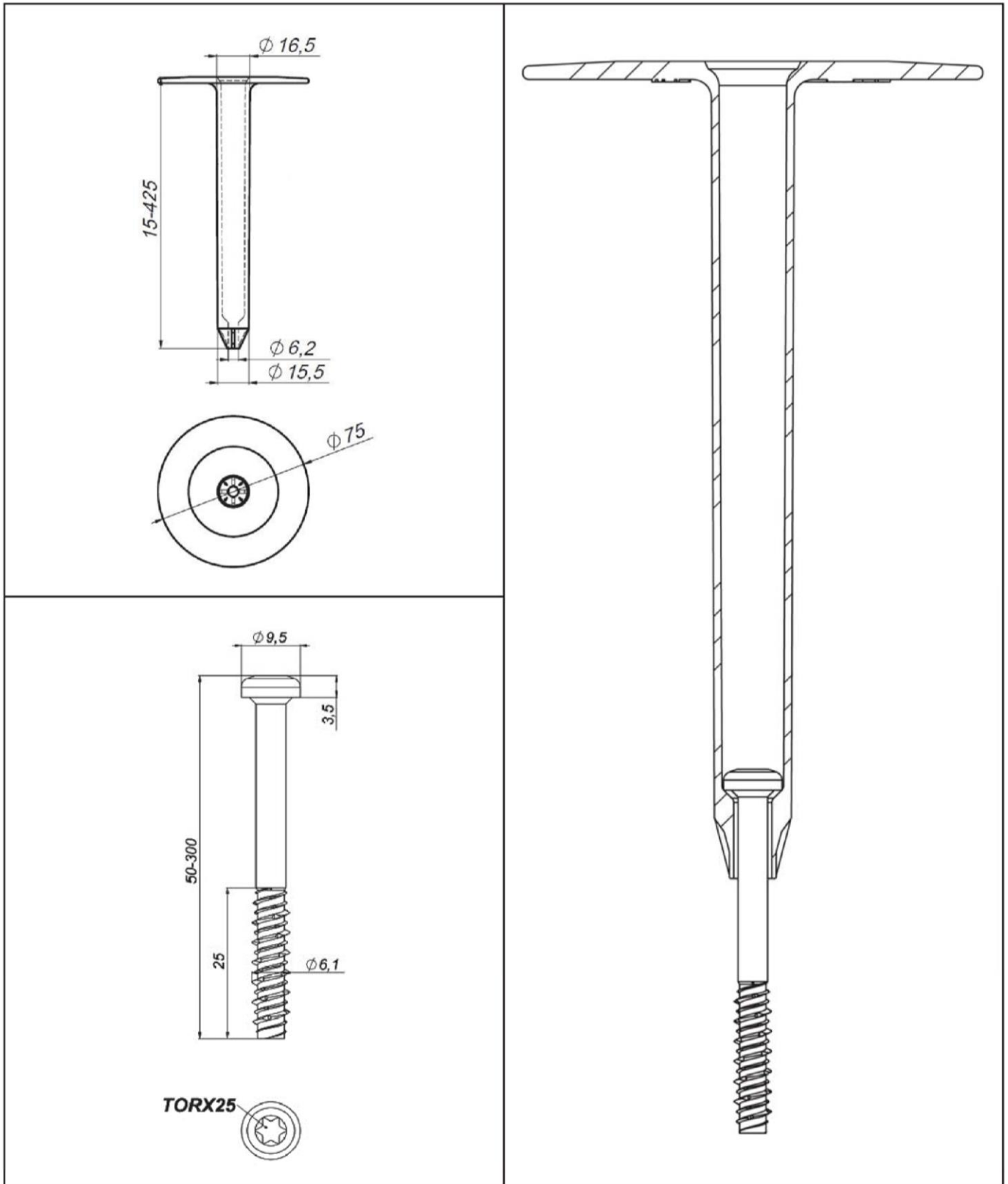


KOELNER Flat Roof Fasteners

Combination 38

Mount: GOK-PLUS
Fastener: WBT-A

Annex 38

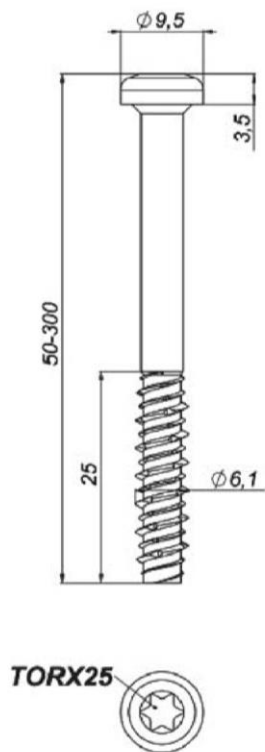
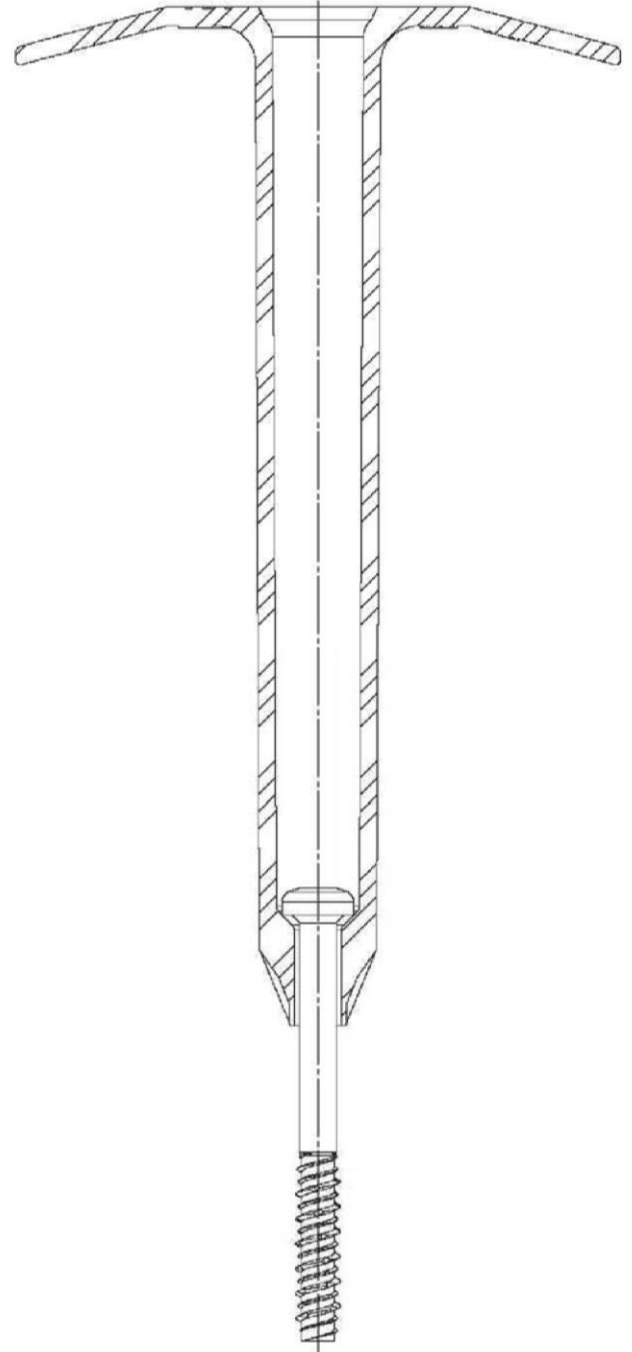
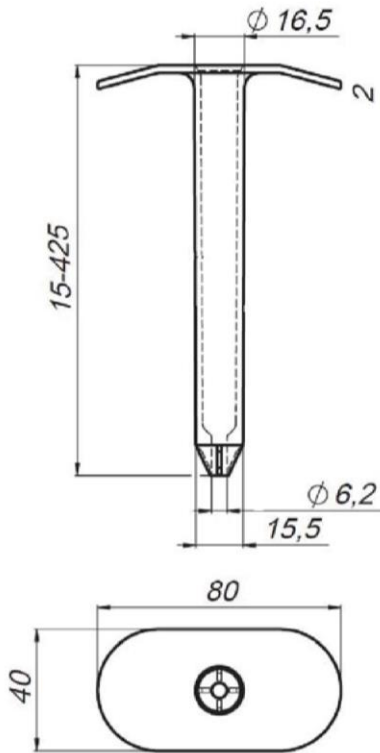


KOELNER Flat Roof Fasteners

Combination 39

Mount: GOK75
Fastener: WBT-A

Annex 39

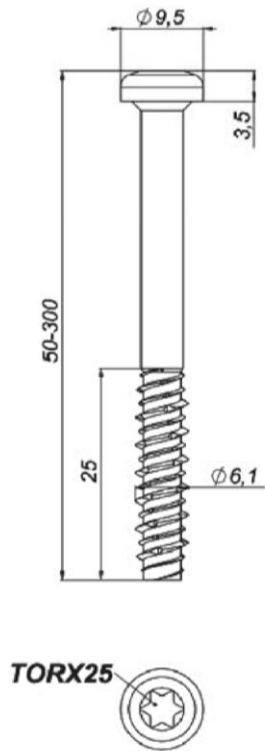
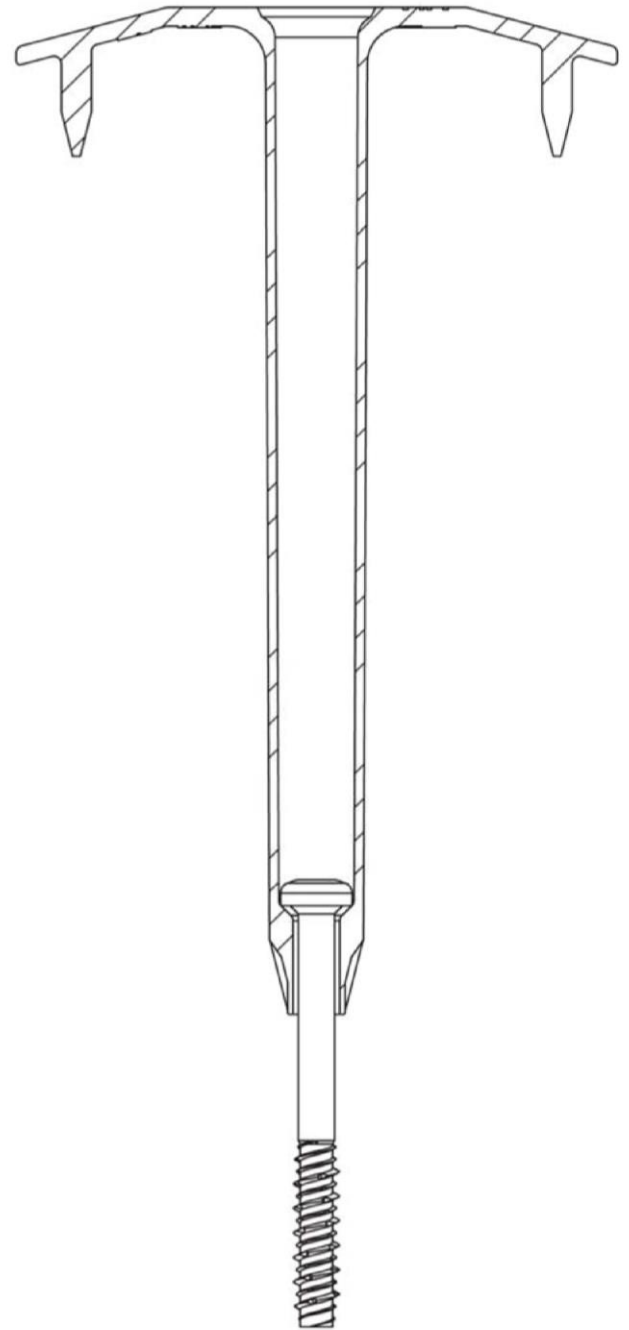
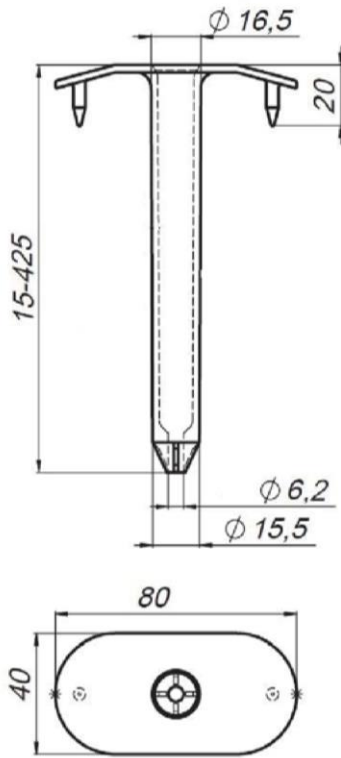


KOELNER Flat Roof Fasteners

Combination 40

Mount: GOW
Fastener: WBT-A

Annex 40

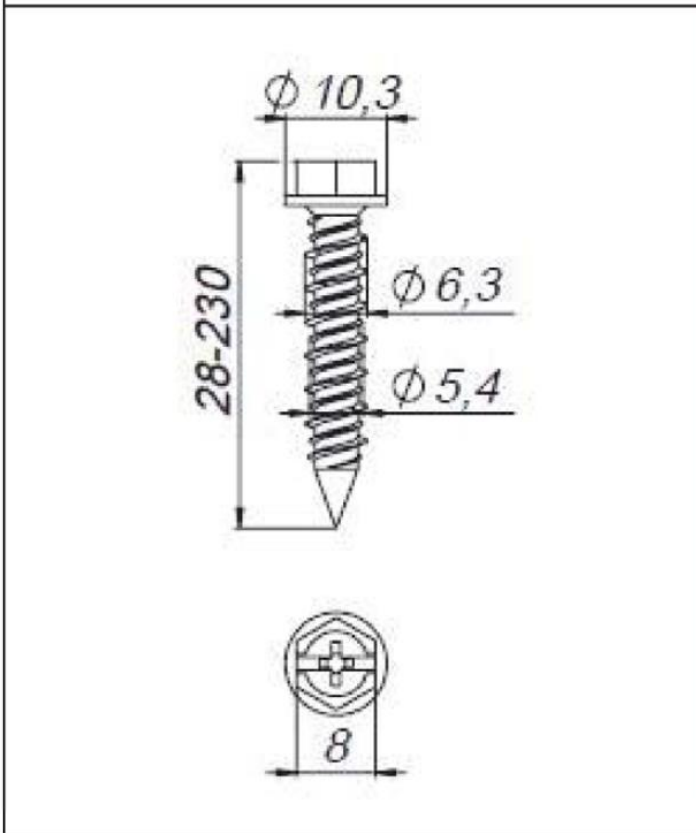
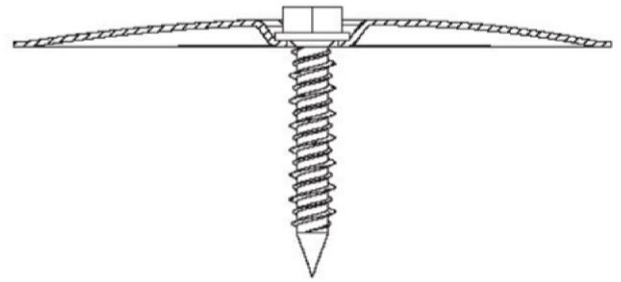
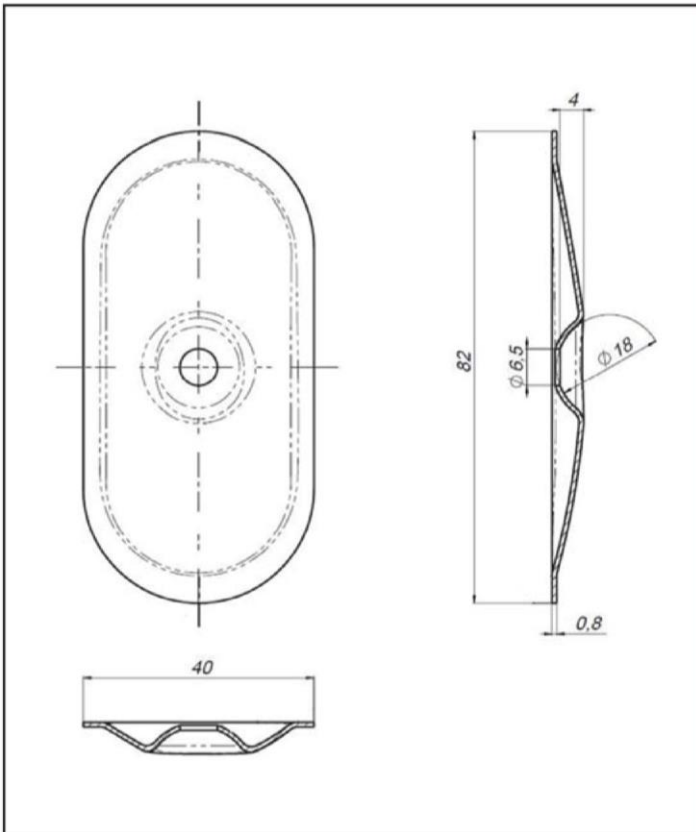


KOELNER Flat Roof Fasteners

Combination 41

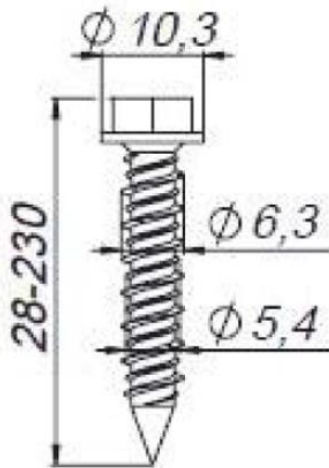
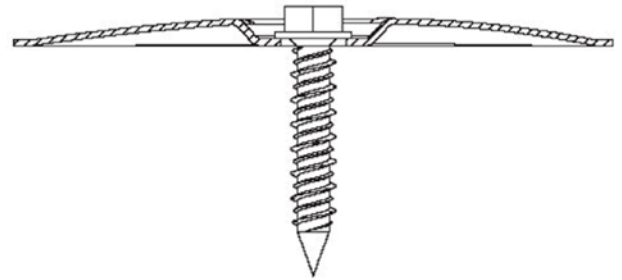
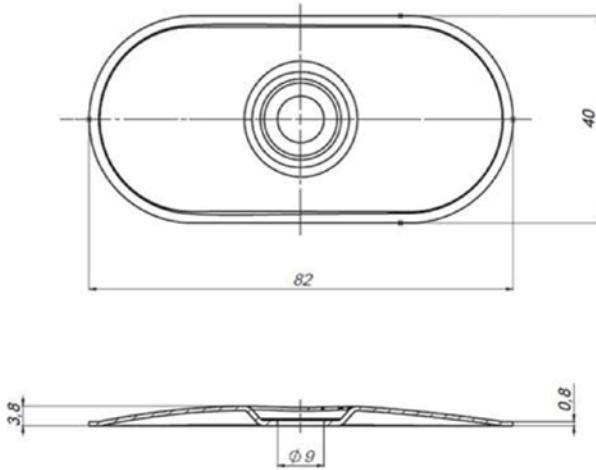
Mount: GOW-PLUS
Fastener: WBT-A

Annex 41



KOELNER Flat Roof Fasteners	
Combination 42	
Mount:	POW-07-AlZn
Fastener:	WCS

Annex 42

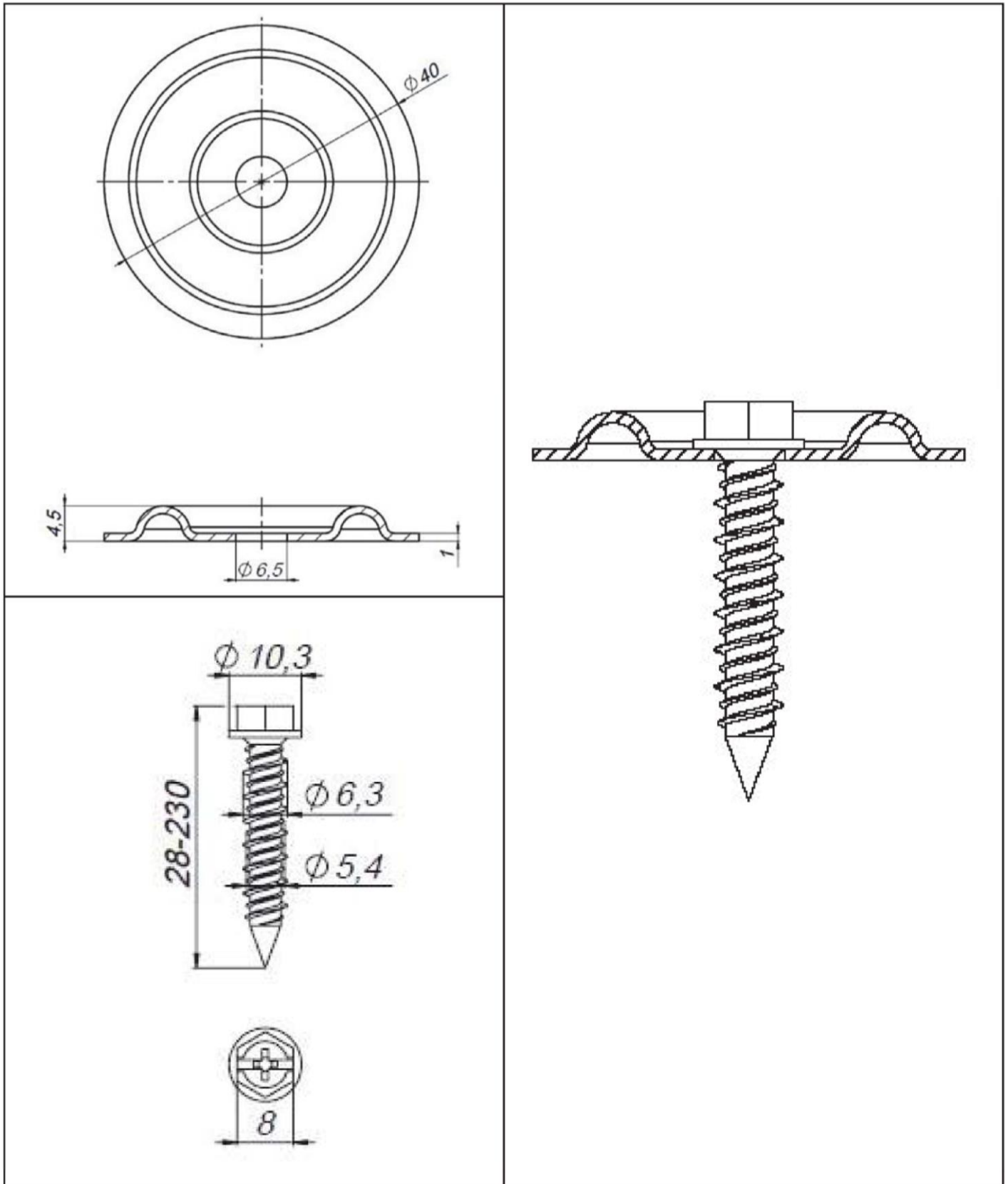


KOELNER Flat Roof Fasteners

Combination 43

Mount: POW-09-AlZn
Fastener: WCS

Annex 43

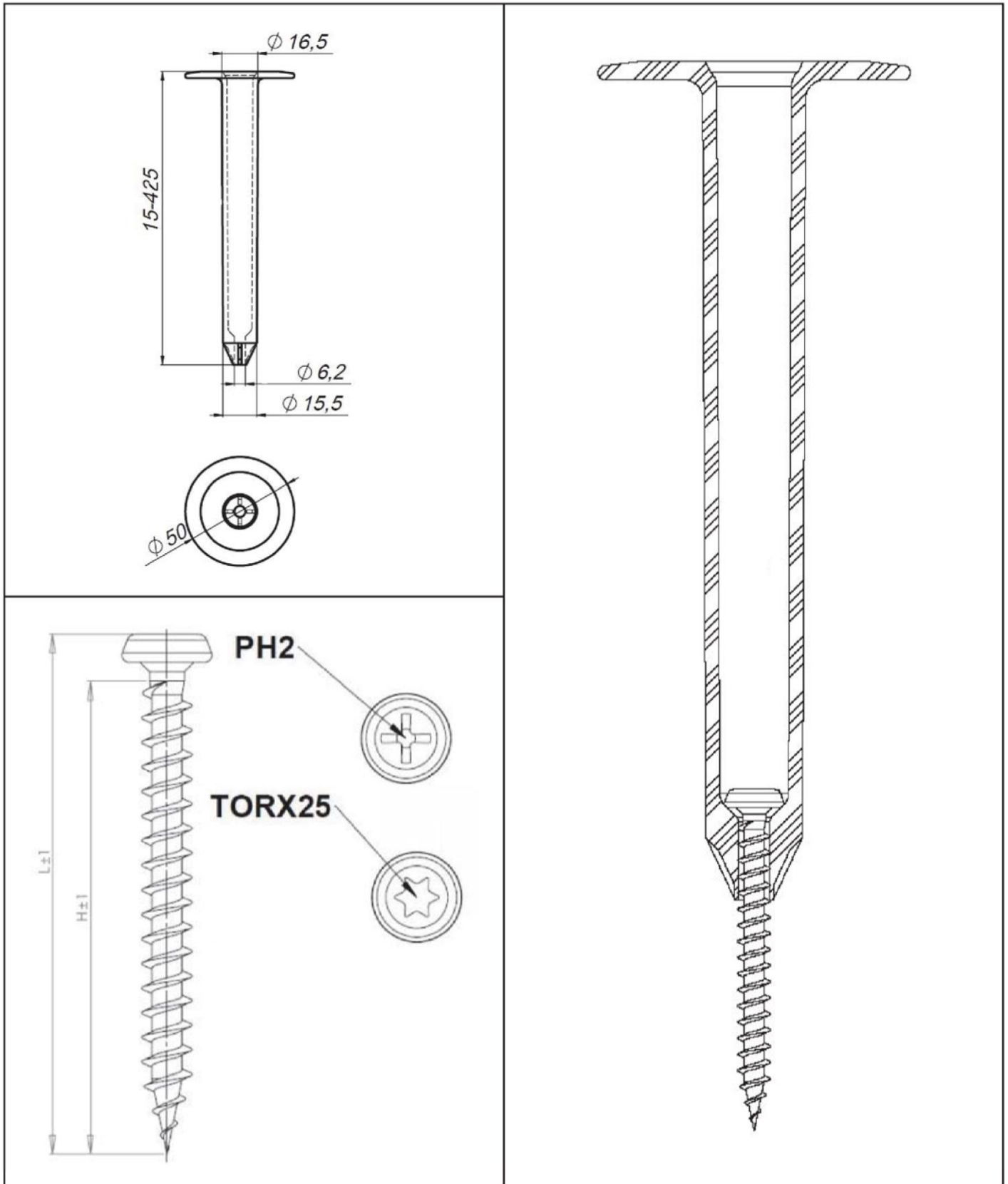


KOELNER Flat Roof Fasteners

Combination 44

Mount: POK-041-AlZn
Fastener: WCS

Annex 44

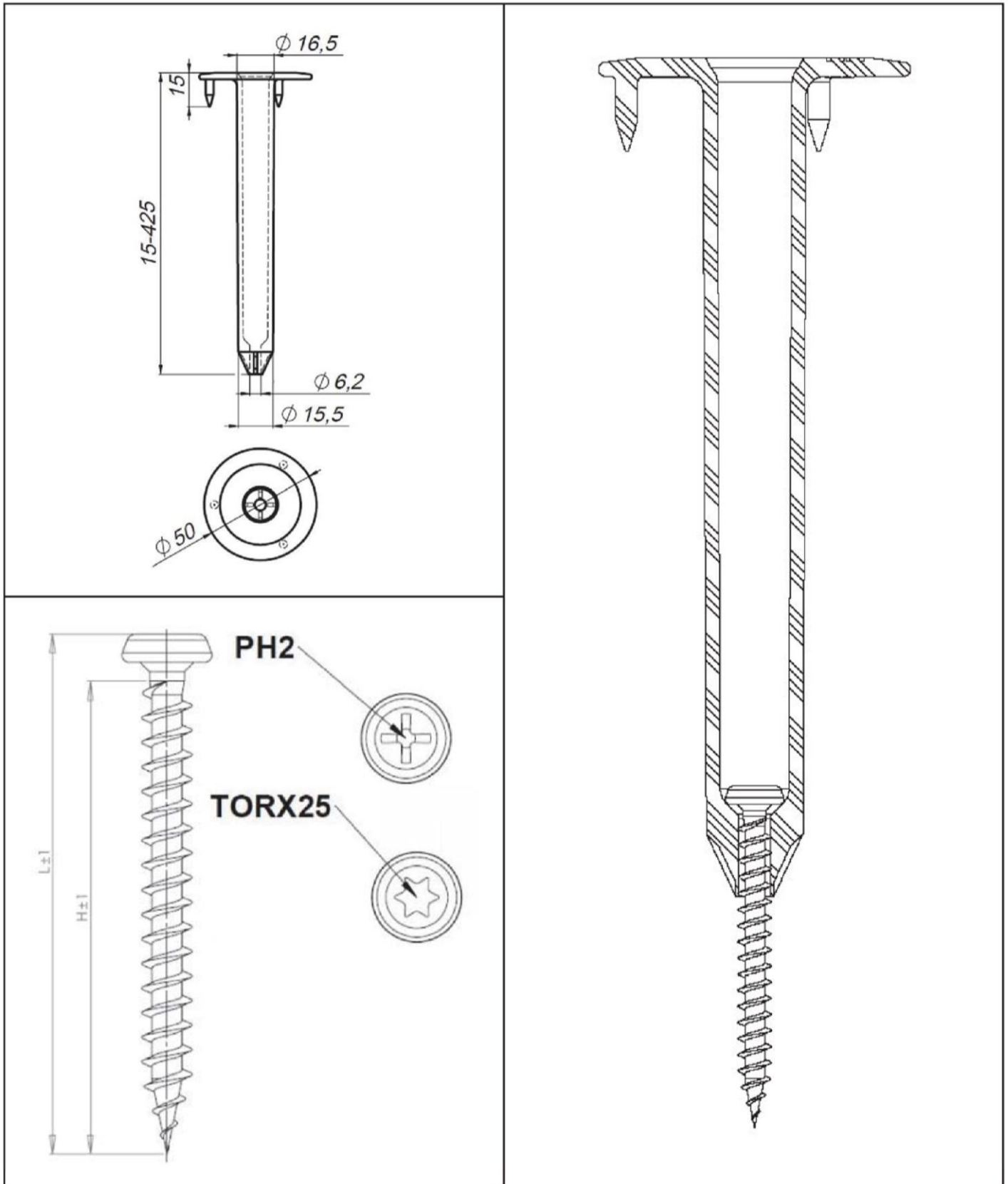


KOELNER Flat Roof Fasteners

Combination 45

Mount: GOK
Fastener: WW (PH2- or Torx25-Drive)

Annex 45

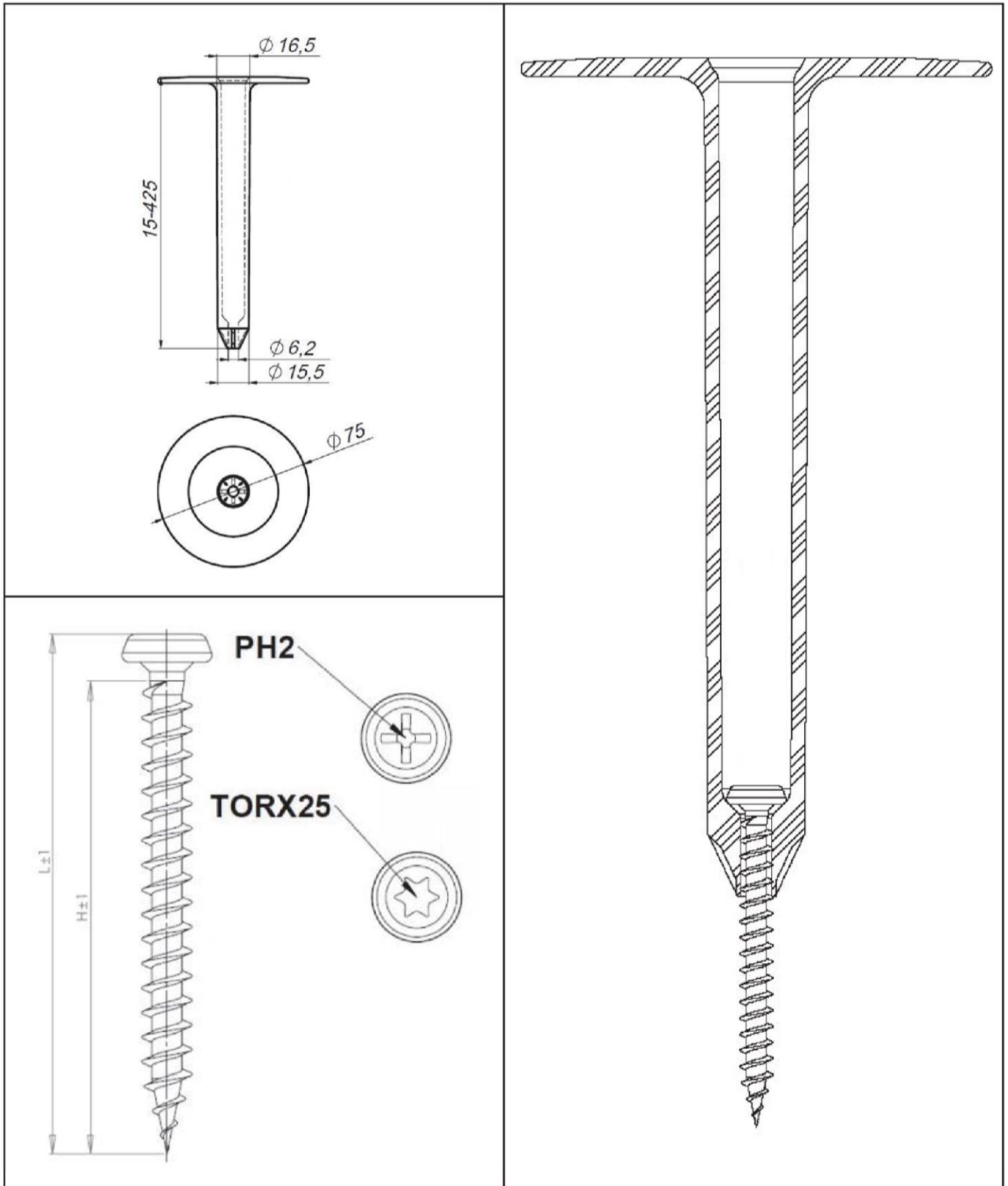


KOELNER Flat Roof Fasteners

Combination 46

Mount: GOK-PLUS
Fastener: WW (PH2- or Torx25-Drive)

Annex 46

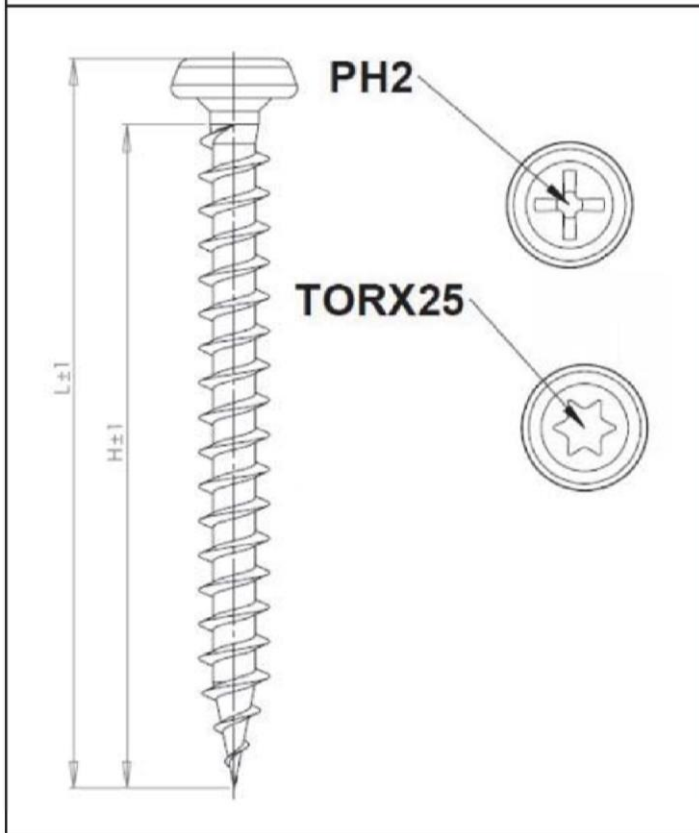
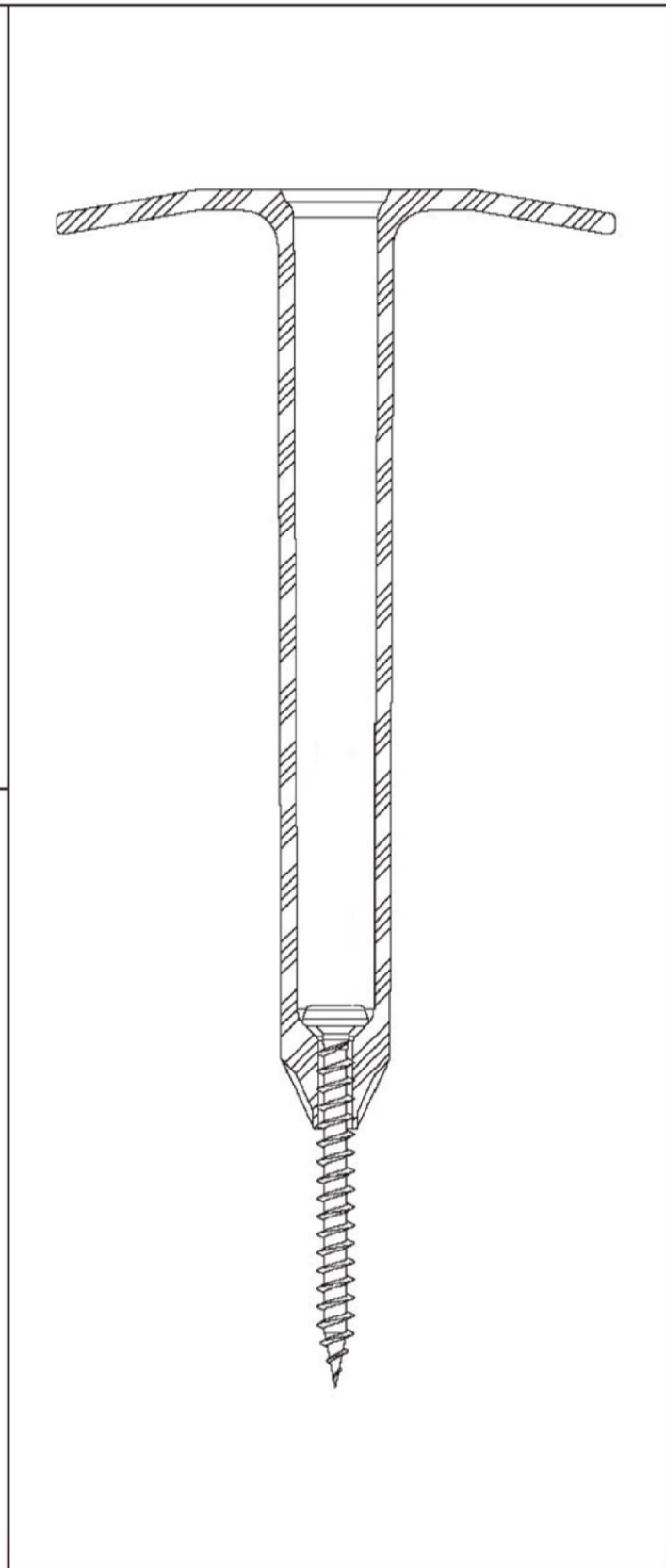
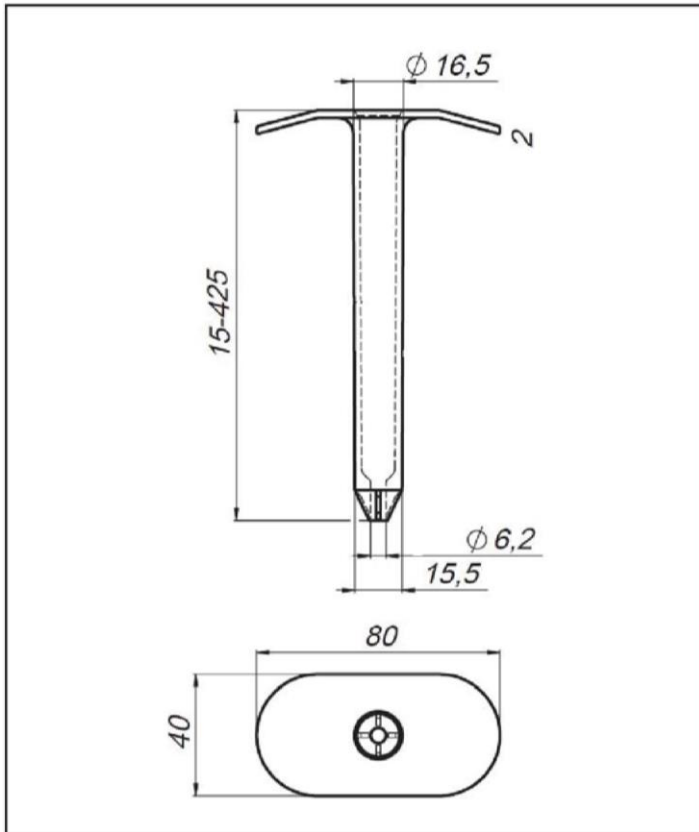


KOELNER Flat Roof Fasteners

Combination 47

Mount: GOK75
Fastener: WW (PH2- or Torx25-Drive)

Annex 47

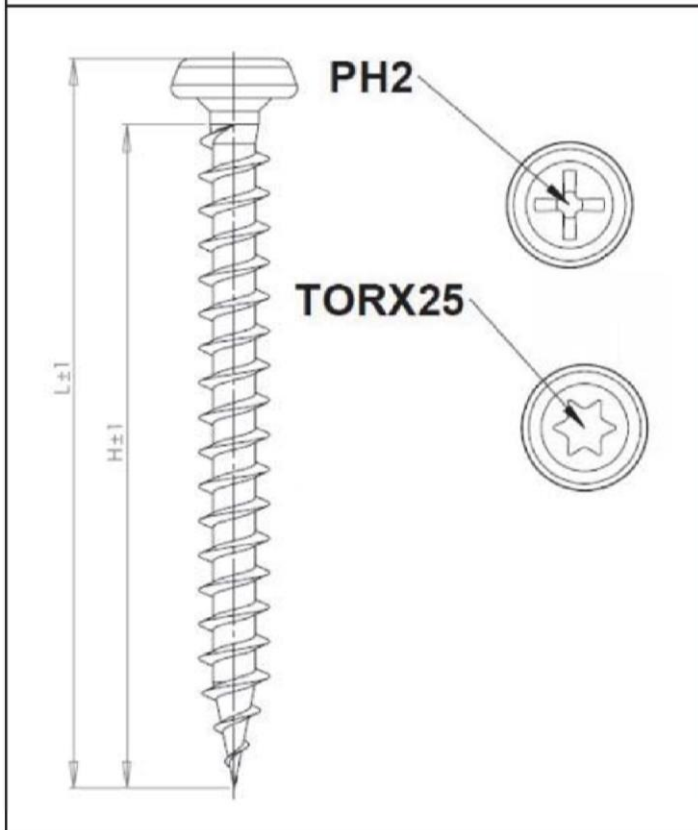
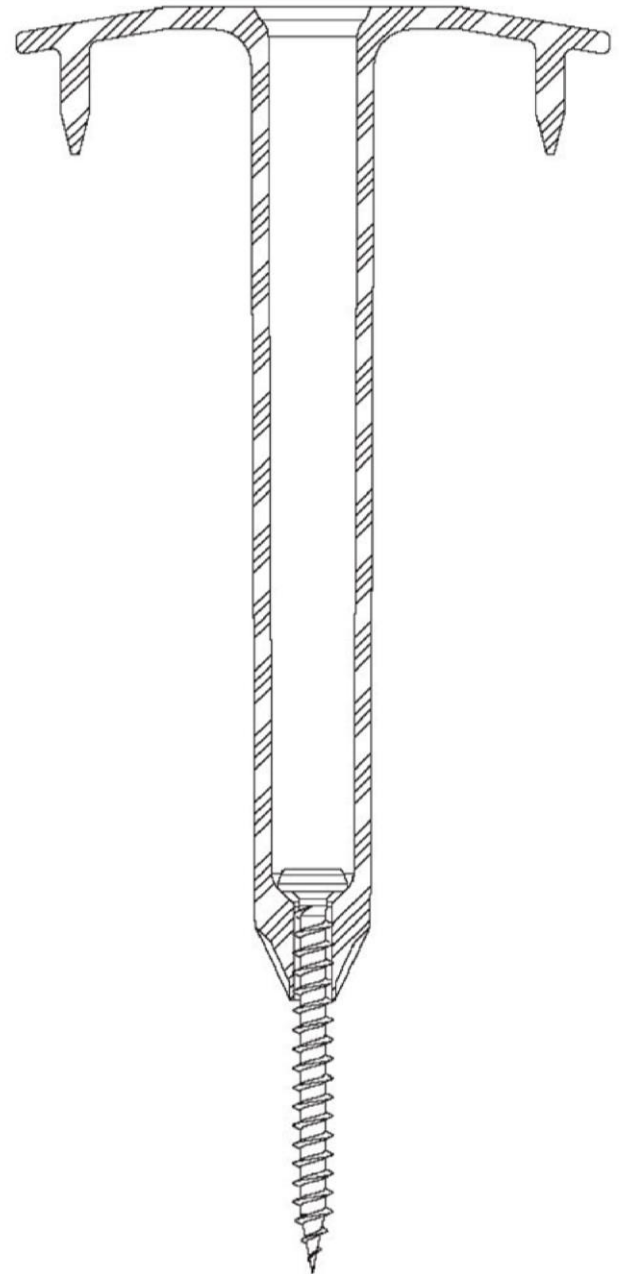
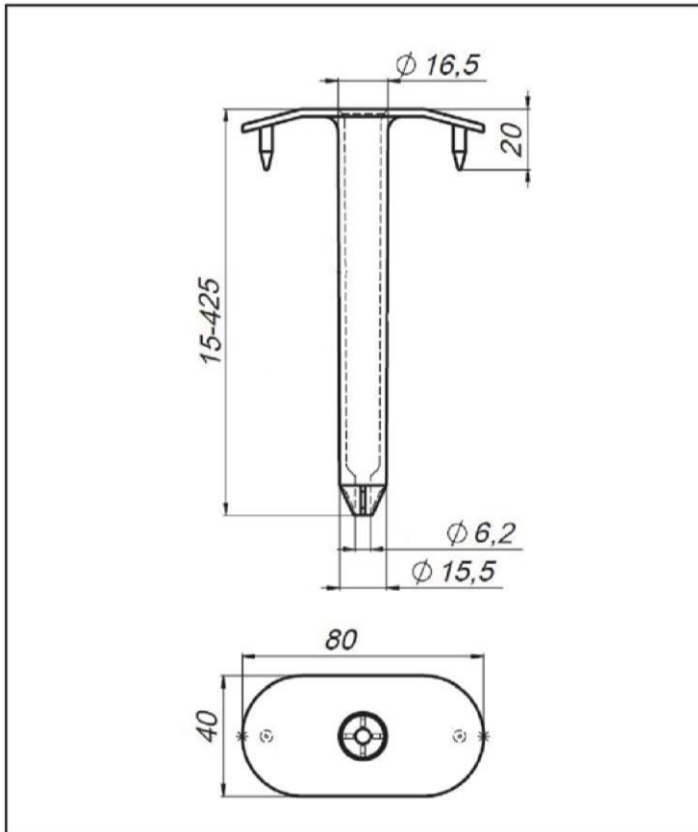


KOELNER Flat Roof Fasteners

Combination 48

Mount: GOW
Fastener: WW (PH2- or Torx25-Drive)

Annex 48

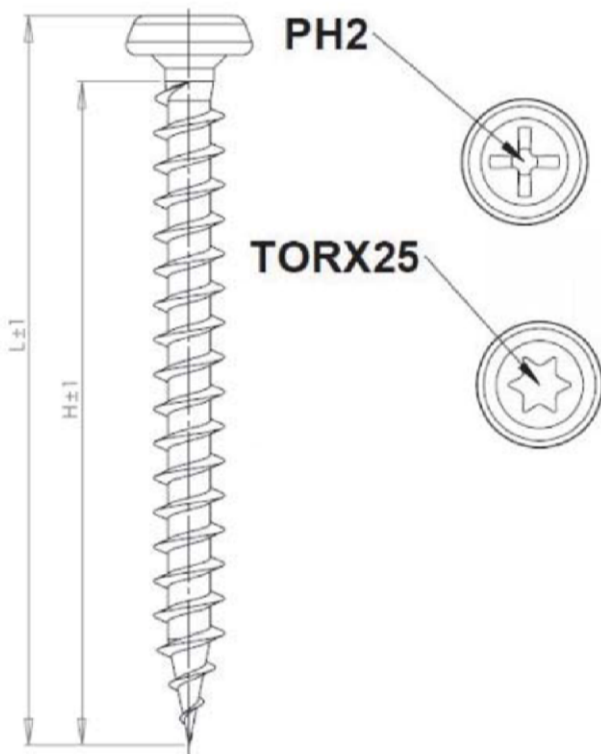
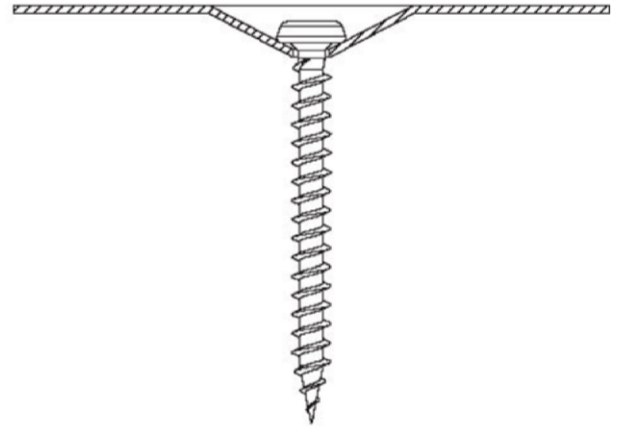
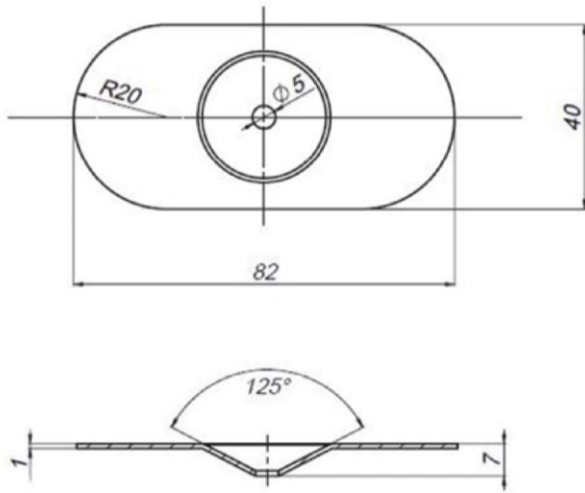


KOELNER Flat Roof Fasteners

Combination 49

Mount: GOW-PLUS
Fastener: WW (PH2- or Torx25-Drive)

Annex 49

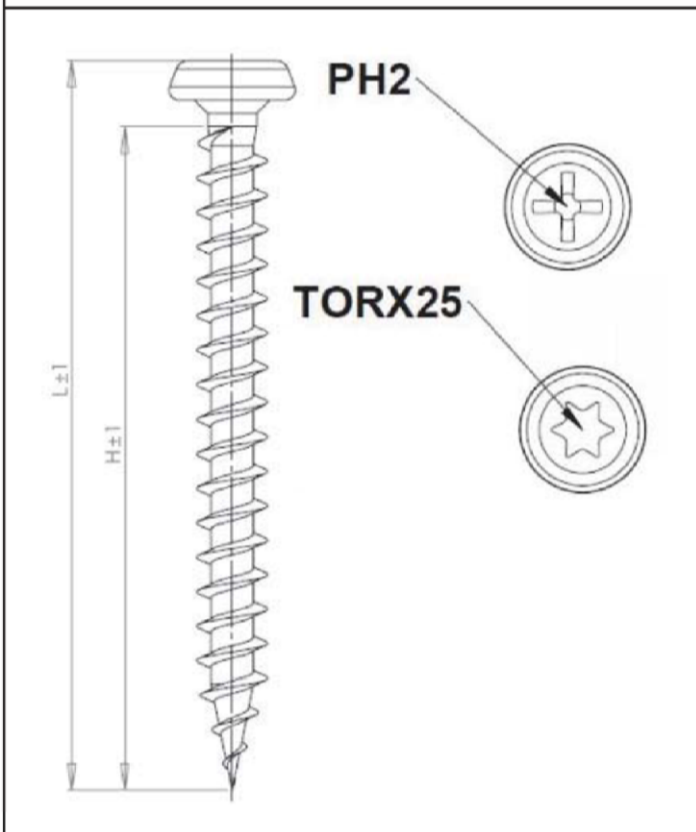
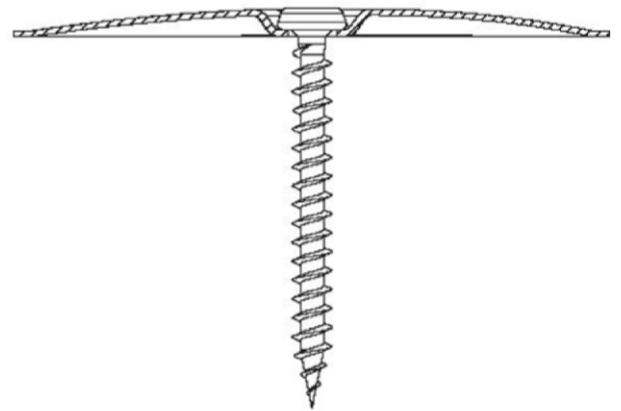
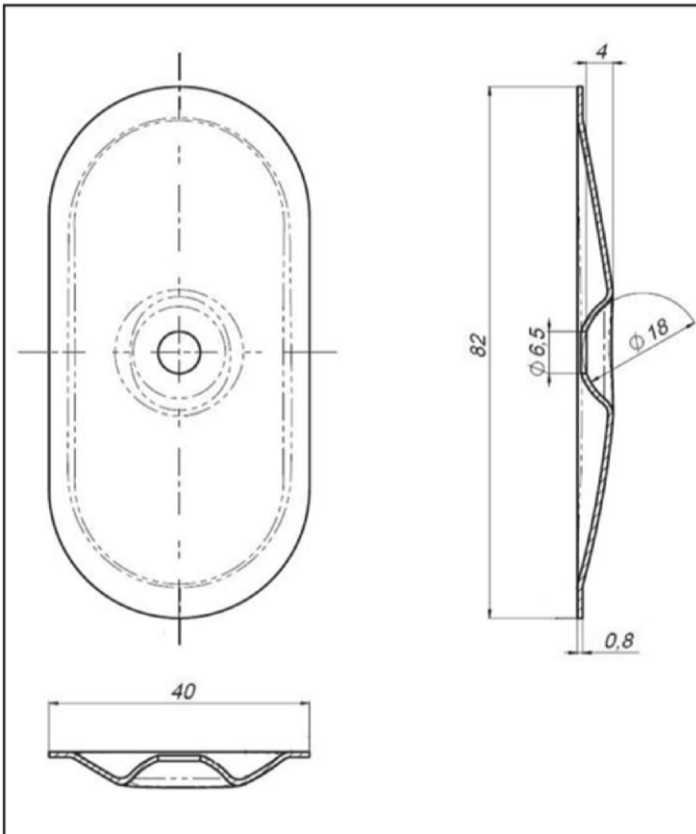


KOELNER Flat Roof Fasteners

Combination 50

Mount: POW-05-AlZn
Fastener: WW (PH2- or Torx25-Drive)

Annex 50

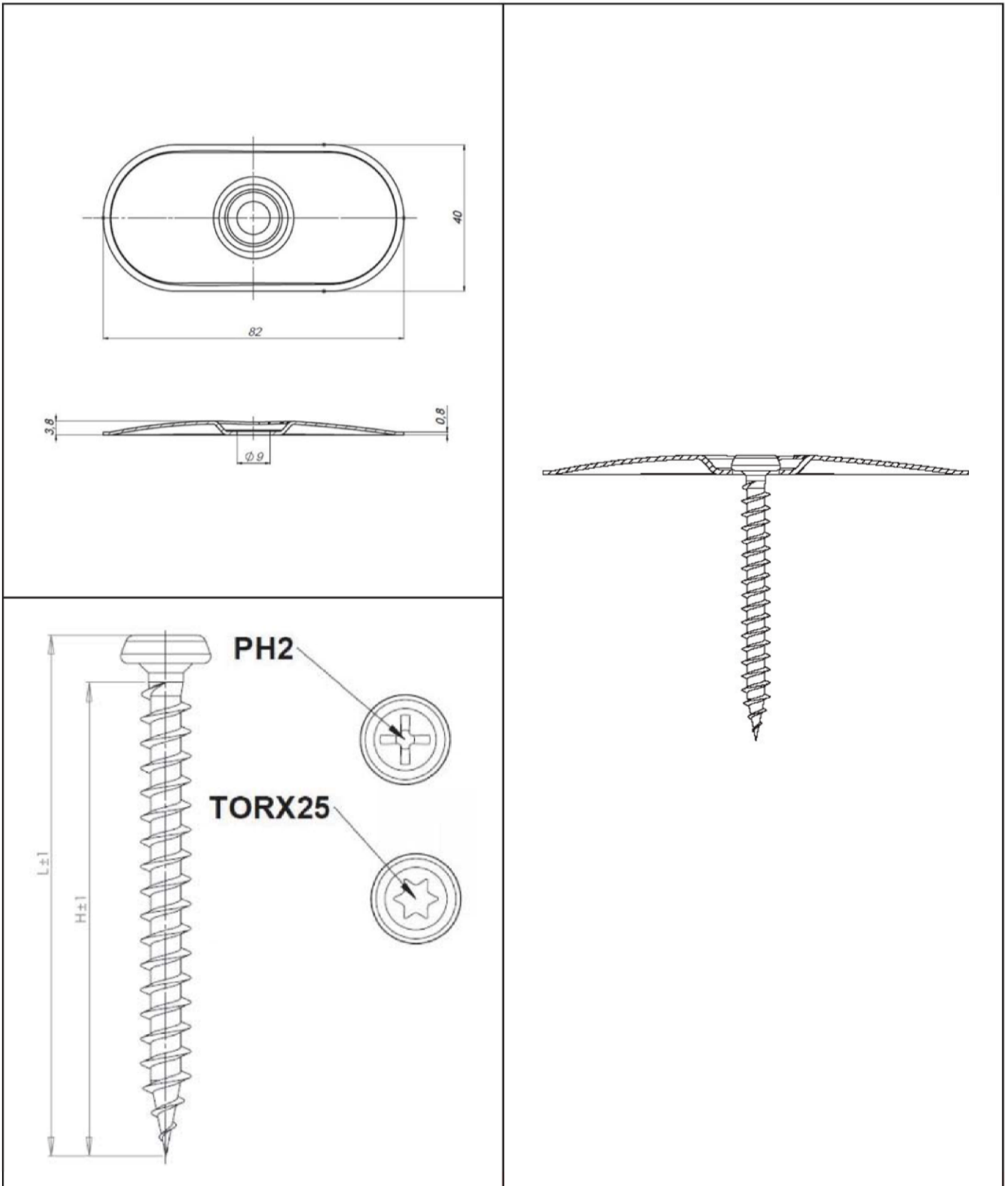


KOELNER Flat Roof Fasteners

Combination 51

Mount: POW-07-AlZn
Fastener: WW (PH2- or Torx25-Drive)

Annex 51

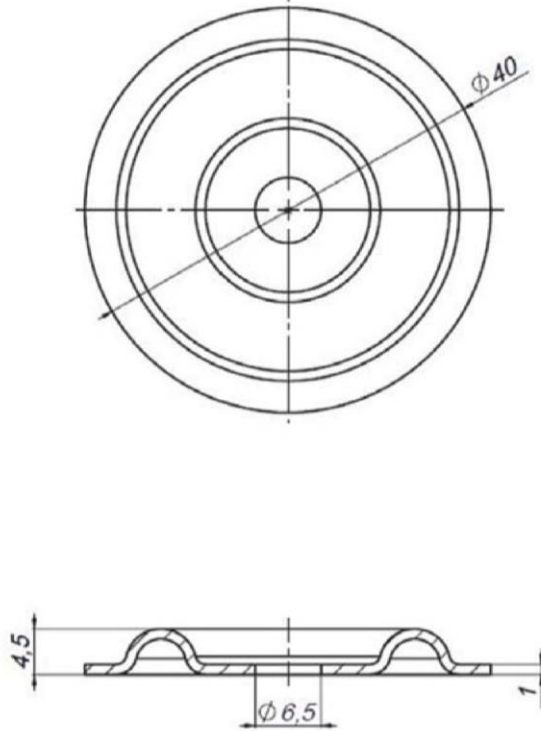
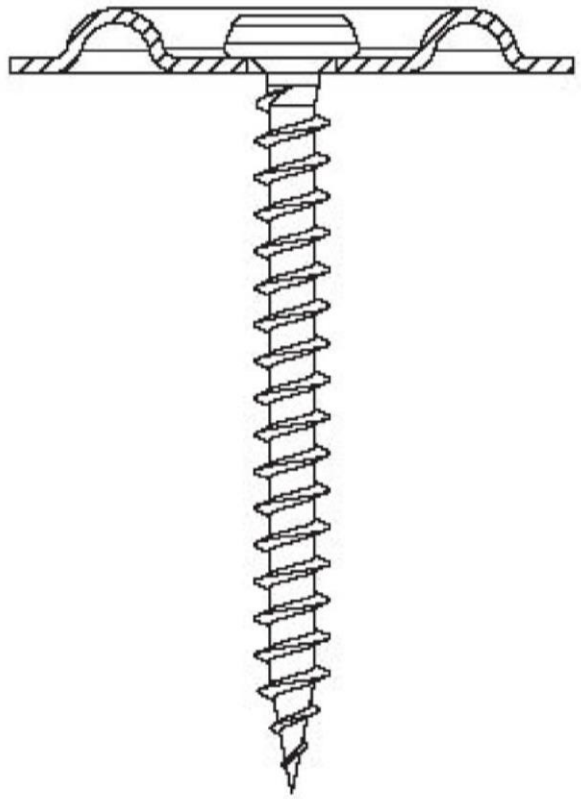
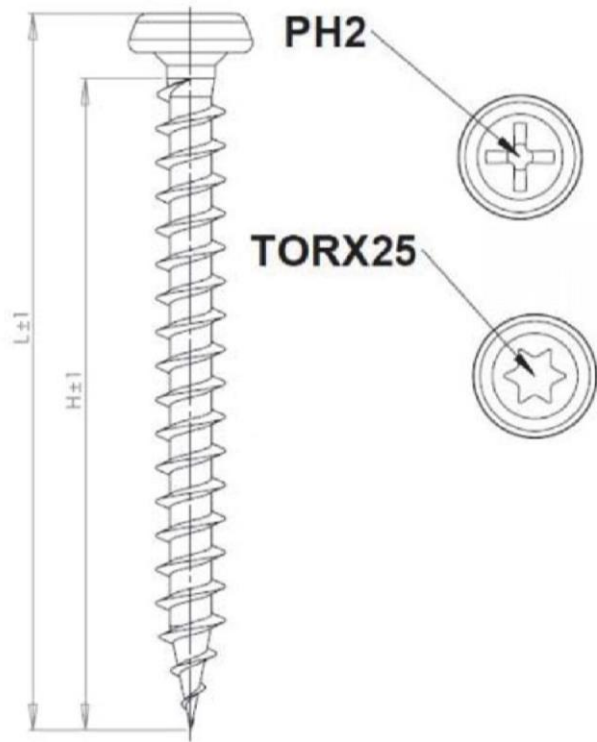


KOELNER Flat Roof Fasteners

Combination 52

Mount: POW-09-AlZn
 Fastener: WW (PH2- or Torx25-Drive)

Annex 52

	
	
<p>KOELNER Flat Roof Fasteners</p>	
<p>Combination 53</p> <p>Mount: POK-041-AlZn</p> <p>Fastener: WW (PH2- or Torx25-Drive)</p>	<p>Annex 53</p>

English translation prepared by DIBt

No.	Screw	Mount	Metal sheetings ¹⁾							Structural Timber ²⁾	Plywood ³⁾	OSB ⁴⁾	Concrete ⁵⁾ Light-concrete ⁶⁾
			0,50	0,63	0,75	0,88	1,00	1,25	1,50				
1	WX (T25 / PH2)	GOK	—	0,76	1,01	1,28	1,53	1,66	1,66	—	—	—	—
2		GOK-PLUS											
3		GOK75											
4		GOW											
5		GOW-PLUS											
6		POW-05-AIZn											
7		POW-07-AIZn											
8		POK-041-AIZn											
9	WB	POW-05-AIZn	—	0,68	0,96	1,25	1,53	2,10	2,68	—	—	—	—
10		POW-07-AIZn											
11		POW-09-AIZn											
12		POK-041-AIZn											
13	WO (T25 / PH2)	GOK	0,40	0,68	0,93	1,20	1,45	1,66	1,66	1,45	1,57	1,08	—
14		GOK-PLUS											
15		GOK75											
16		GOW											
17		GOW-PLUS											
18		POW-05-AIZn											
19		POW-07-AIZn											
20	POK-041-AIZn												
21	WO (T25 / PH2) with Dowel K08	GOK	—	—	—	—	—	—	—	—	—	—	1,66
22		GOK-PLUS											
23		GOK75											
24		GOW											
25		GOW-PLUS											
26		POW-05-AIZn											
27		POW-07-AIZn											
28	POK-041-AIZn												
29	WBT	GOK	—	—	—	—	—	—	—	1,59	1,47	0,98	1,66
30		GOK-PLUS											
31		GOK75											
32		GOW											
33		GOW-PLUS											
34		POW-07-AIZn											
35		POW-09-AIZn											
36	POK-041-AIZn												
37	WBT-A	GOK	—	—	—	—	—	—	—	—	—	—	1,66
38		GOK-PLUS											
39		GOK75											
40		GOW											
41	GOW-PLUS	1,71											
42	WCS	POW-07-AIZn	—	—	—	—	—	—	—	—	—	—	4,71
43		POW-09-AIZn											
44		POK-041-AIZn											
45	WW	GOK	—	—	—	—	—	—	—	1,66	1,66	1,32	—
46		GOK-PLUS											
47		GOK75											
48		GOW											
49		GOW-PLUS											
50		POW-05-AIZn											
51		POW-07-AIZn											
52		POW-09-AIZn											
53	POK-041-AIZn												

¹⁾ Steel S280GD - EN 10346, nominal thickness t_n in mm
²⁾ Structural Timber / C24 - EN 338, $\rho_{min} = 350\text{kg/m}^3$, effective embedment depth (penetration length of threaded part) $l_{ef} \geq 24\text{mm}$
³⁾ Plywood - EN 12369-2, $\rho_{min} = 400\text{kg/m}^3$, effective embedment depth (penetration length of threaded part) $l_{ef} \geq 20\text{mm}$
⁴⁾ OSB/3 - EN 12369-1, $\rho_{min} = 550\text{kg/m}^3$, effective embedment depth (penetration length of threaded part) $l_{ef} \geq 18\text{mm}$
⁵⁾ Concrete C25/30 - EN 206-1, for WO with K08, $d_{pd} = \varnothing 8,0\text{mm}$ and $l_{ef} \geq 40\text{mm}$, for WBT / WBT-A / WCS, $d_{pd} = \varnothing 5,0\text{mm}$ and $l_{ef} \geq 30\text{mm}$
⁶⁾ Lightconcrete C12/15 - EN 206-1, for WO with K08, $d_{pd} = \varnothing 8,0\text{mm}$ and $l_{ef} \geq 40\text{mm}$, for WBT / WBT-A / WCS, $d_{pd} = \varnothing 5,0\text{mm}$ and $l_{ef} \geq 30\text{mm}$

<p>KOELNER Flat Roof Fasteners</p> <p>Characteristic Values of Axial Load Resistance in kN</p>	<p>Annex 54</p>
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