

| Wall  |                     |                          |                        |  |                             |                       |  |
|---|---------------------|--------------------------|------------------------|--|-----------------------------|-----------------------|--|
| Wall thickness ≥ 100 mm, CLT layers: 30/40/30 |                     |                          |                        |  |                             |                       |  |
| Pipe material                                 | Outer diameter [mm] | Pipe wall thickness [mm] | Insulation<br>material | Insulation length L [mm]               | Insulation thickness S [mm] | Fire resistance class |  |
| Copper, steel, stainless steel, cast iron     | ≤ 60.0              | 0.6–14.2                 | pipe shell             | > 1000 or protruding ≥ 450             | 50                          | EI 90 U/C*            |  |
|   | ≤ 28.0              | 1.0–14.2                 | lamella mat            | from both sides of the wall            | 20                          |                       |  |
| Steel, stainless<br>steel, cast iron          | ≤ 28.0              | 1.0–14.2                 | pipe shell             | > 500 or protruding<br>≥ 200 from both | 20–40                       | EI 90 U/C**           |  |
|   | ≤ 42.0              | 1.5–14.2                 | pipe shell             | sides of the wall                      |                             |                       |  |
|   | ≤ 114.3 1.0–14.2    | 10 140                   | pipe shell             | entire length<br>of pipe               | ≥ 30                        |                       |  |
|   |                     | 1.0-14.2                 | lamella mat            |  | ≥ 60                        |                       |  |

| Floor  |                     |                          |                        |   |                             |                       |  |
|--|---------------------|--------------------------|------------------------|---|-----------------------------|-----------------------|--|
| Floor thickness: ≥ 100 mm, CLT layers: 40/20/20/40 |                     |                          |                        |   |                             |                       |  |
| Pipe material                                      | Outer diameter [mm] | Pipe wall thickness [mm] | Insulation<br>material | Insulation length L [mm]  | Insulation thickness S [mm] | Fire resistance class |  |
| Copper, steel,<br>stainless steel,<br>cast iron    | ≤ 54.0              | 1.0–14.2                 |                        | > 1000 or<br>protruding<br>≥ 430 from both<br>sides of the wall | 20–50                       | EI 90 U/C*            |  |
| Steel, stainless<br>steel, cast iron               | ≤ 54.0              | 1.0–14.2                 | pipe shell             |   | 20–100                      | EI 90 U/C**           |  |
|  | > 54.0 - ≤ 114.3    |                          |                        |   | 30–100                      |                       |  |

<sup>\*</sup> In CLT walls and floors with the fire resistance class EI 120 these pipes can also attain EI 120 at a diameter of  $\leq$  54 mm. \*\*In CLT walls and floors with the fire resistance class EI 120 these pipes can also attain EI 120 at a diameter of  $\leq$  114 mm.

## **Zero Distances**

## Possible zero distances for single pipe penetrations

| Wall   |                                   |                     |                          |                     |                        |
|--------|-----------------------------------|---------------------|--------------------------|---------------------|------------------------|
|        | Pipe material                     | Outer diameter [mm] | Pipe wall thickness [mm] | Type of insulation  | Insulation length [mm] |
| Pipe 1 | Steel, stainless steel, cast iron | ≤ 28                | 1.0–14.2                 | aluminium laminated | 1000<br>sustained (LS) |
| Pipe 2 |                                   | ≤ 42                | 1.5–14.2                 | mineral wool        |                        |

| Floor         |                                 |                     |                          |   |  |                           |
|---------------|---------------------------------|---------------------|--------------------------|---|--|---------------------------|
|               | Pipe material / type            | Outer diameter [mm] | Pipe wall thickness [mm] | Type of insulation  | Insulation length<br>[mm]  | Insulation thickness [mm] |
| Pipe 1        | Copper, steel, stainless steel, | ≤ 28                | 1.0–14.2                 | aluminium laminated<br>mineral wool or<br>Rockwool RS 800 | 1000<br>sustained (LS)   | 20                        |
| Pipe 2        | cast iron                       | ≤ 54                | 1.5–14.2                 |   |  |                           |
| Pipe 3        | Geberit Silent-db20             | ≤ 110               | 3.2–6.0                  | PE soundproofing tube<br>≤ 5 mm<br>+ AWM II               | 50 from pipe collar<br>or 50 from building<br>element (upper side<br>of floor) | 5                         |
| Pipe 1        | Copper, steel,                  | ≤ 28                | 1.0–14.2                 | aluminium laminated<br>mineral wool or<br>Rockwool RS 800 | 1000<br>sustained (LS)   | 20                        |
| Pipe 2        | stainless steel, cast iron      | ≤ 42                | 1.5–14.2                 |   |  |                           |
| Pipe 3        | POLOPLAST<br>POLO-KAL NG        | ≤ 110               | 2.0–3.4                  | PE soundproofing tube<br>≤ 5 mm<br>+ AWM II               | 50 from pipe collar<br>or 50 from building<br>element (upper side<br>of floor) | 5                         |
| D' 4          |                                 | 100                 | 4.0.44.0                 | aluminium laminated                                       |  |                           |
| Pipe 1        | Steel, stainless steel,         | ≤ 28                | 1.0–14.2                 | mineral wool or   | 1000<br>sustained (LS)   | 20                        |
| Pipe 2        | cast iron                       | ≤ 48                | 1.5–14.2                 | Rockwool RS 800   |  |                           |
| Pipe 3        | Geberit Silent-db20             | ≤ 110               | 3.2–6.0                  | PE soundproofing tube<br>≤ 5 mm<br>+ AWM II               | 50 from pipe collar<br>or 50 from building<br>element (upper side<br>of floor) | 5                         |
| Pipe 1 Pipe 2 | Geberit Silent-db20             | ≤ 110               | 3.2–6.0                  | PE soundproofing<br>tube ≤ 5 mm<br>+ AWM II               | 50 from pipe collar<br>or 50 from building<br>element (upper side<br>of floor) | 5                         |