

## Allgemeine bauaufsichtliche Zulassung

### **bautechnisches Forum**

Eine vom Bund und den Ländern  
gemeinsam getragene Anstalt des öffentlichen Rechts  
Mitglied der EOTA, der UEAtc und der WFTAO

Datum:

Geschäftszeichen:

03.05.2017

II 24-1.40.22-39/16

**Zulassungsnummer:**  
**Z-40.22-398**

### **Geltungsdauer**

vom: **3 May 2017**

bis: **3 May 2022**

### **Antragsteller:**

**Romold Ltd**

4 Maxwell Square / Brucefield Industry Park  
LIVINGSTON, WEST LoTHIAN EH54 9BL  
GREAT BRITAIN

### **Zulassungsgegenstand:**

**Polyethylene collecting devices**

The building authorities hereby generally approve the aforementioned object of approval. This general building permit comprises 8 pages and 4 appendices with 31 pages. The object was first generally approved by the building authorities on 15 November 2006.

DIBt

## I GENERAL PROVISIONS

- 1 With the general building permit, the usability and applicability of the object of approval is demonstrated in accordance with the regional building regulations.
- 2 As far as the general building supervisory approval lays down requirements for the special expertise and experience of the persons entrusted with the manufacture of construction products and building elements in accordance with the corresponding state-level regulations of the § 17 (5) of the German Model Building Regulation, it should be noted that this expertise and experience can also be verified with equivalent proofs from other member states of the European Union. This also applies to any other equivalent proofs that are presented within the context of the Agreement on the European Economic Area (EEA) or another bilateral agreement.
- 3 The general building permit does not replace the legally required permits, authorisations or certificates required for executing the construction project.
- 4 The general building permit is issued irrespective of the rights of third parties, particularly private property rights.
- 5 The manufacturer and distributor of the object of approval must provide the user of the object of approval with copies of the general building permit regardless of any further regulations in the "Special Provisions" as well as instruct the user to store the general building permit on-site. If requested, copies of the general building permit must be made available to the participating authorities.
- 6 The general building permit may only be copied in its entirety. Publication of excerpts requires the approval of the Deutsches Institut für Bautechnik (The German Institute for Structural Engineering - DIBt) Texts and drawings in promotional materials may not contradict the general building permit. Translations of the general building permit must contain the note "This translation of the original German document has not been reviewed by the Deutsches Institut für Bautechnik."
- 7 The general building permit is revocable. The provisions of the general building permit may be supplemented and amended subsequently, in particular if new technical findings so require.

## II SPECIAL PROVISIONS

### 1 Object of approval and scope of application

(1) The object of this general building permit are stationary, rectangular collecting devices manufactured of polyethylene (PE rotation material) in accordance with Appendix 1 using a rotational moulding method. The collecting devices are equipped with profiled bottoms and walls and are used, if applicable, with insertable PE grating (as setting level). Types BB3 and BB4 are only used without setting level and the types BB1FW, BB2FW and ST70 are only used with setting level.

(2) The type designations and the associated dimensions and collection volumes are listed in Table 1.

Table 1: Type designations, dimensions, collection volumes, normal loads

| Type designation               | Dimensions<br>(L x W x H)<br>[mm] | Collection<br>volume<br>[l] | Max.<br>load [kg] |
|--------------------------------|-----------------------------------|-----------------------------|-------------------|
| BF2                            | 1260 x 860 x 150                  | 150                         | 1000              |
| BF4                            | 1660 x 1260 x 150                 | 300                         | 2000              |
| BF4S                           | 2610 x 895 x 150                  | 300                         | 2000              |
| BP1                            | 900 x 700 x 525                   | 225                         | 300               |
| BP2                            | 1230 x 825 x 340                  | 200                         | 650               |
| BP2FW                          | 1222 x 817 x 524                  | 220                         | 400               |
| BP4                            | 1310 x 1310 x 370                 | 410                         | 1250              |
| BP4FW                          | 1222 x 1222 x 388                 | 250                         | 800               |
| BP4L                           | 1280 x 1280 x 275                 | 230                         | 1250              |
| BP2HD                          | 1290 x 875 x 345                  | 240                         | 2400              |
| BT230                          | 1600 x 740 x 640                  | 230                         | 460               |
| BB1                            | 1770 x 1350 x 700                 | 1000                        | 1000              |
| BB2 / BP8                      | 2545 x 1355 x 500                 | 1000                        | 2000              |
| BB3 <sup>*)</sup>              | 1490 x 1460 x 710                 | 1000                        | 1000              |
| BB4 <sup>*)</sup>              | 2340 x 1370 x 505                 | 1000                        | 2000              |
| ST20                           | 595 x 395 x 170                   | 20                          | 55                |
| ST30                           | 805 x 405 x 170                   | 30                          | 55                |
| ST40                           | 800 x 605 x 170                   | 40                          | 105               |
| ST60                           | 1000 x 605 x 200                  | 60                          | 205               |
| ST100                          | 1195 x 795 x 185                  | 100                         | 205               |
| ST66                           | 800 x 600 x 215                   | 66                          | 150               |
| ST70 <sup>**) )</sup>          | 800 x 605 x 310                   | 66                          | 150               |
| BB1FW <sup>**) )</sup>         | 1226x 1220 x 1085                 | 1000                        | 1000              |
| BB2FW / BP8FW <sup>**) )</sup> | 2350x 1255 x 610                  | 1000                        | 2000              |

<sup>\*)</sup> Use only permitted without setting level

<sup>\*\*) )</sup> Use only permitted with setting level

(3) The collecting devices may be installed indoors and outdoors, but not in potentially explosive atmospheres of zone 0 or 1. They must be protected against damage caused by moving vehicles, for example, through a protected mounting arrangement or impact protection. In earthquake zones 1 through 3 as per DIN 41491, the container/vessel should be sufficiently secured in position so that concentrated individual loads do not impact the container/vessel in the event of an earthquake.

(4) When installing indoors, the collecting devices must be protected against precipitation and direct UV radiation, that is, the installation site must be adequately covered. When installing in areas where external protection against UV radiation is not possible, the collecting devices may only be used in conjunction with UV-resistant material (e.g., black colouration).

(5) The collecting devices may be used in containers and vessels utilised for storing liquids hazardous to water with flashpoints exceeding 100°C.

(6) Liquids on the media list 40-1.1<sup>2,3</sup> of the DIBt with an A<sub>2</sub> reduction factor of  $\leq 1.1$  as well as liquids that fall into the groups listed below do not require special proof of the impermeability and resistance of the PE rotation material of the collecting device:

- aqueous, organic acid solutions up to 10%
- mineral acids up to 20% as well as acidic hydrolysing salts in aqueous solution (pH <6), excluding hydrofluoric acid and oxidizing acids and their salts
- inorganic alkalis as well as alkaline hydrolysing salts in aqueous solution (pH > 8), excluding oxidising solutions of salts (e.g., hypochlorite)
- Solutions of inorganic, non-oxidizing salts with a pH value between 6 and 8

(7) Observe TRGS 510<sup>4</sup> when storing media as per (5) and (6) that falls under the German Ordinance on Hazardous Substances.

(8) The general building permit is issued regardless of the provisions and/or testing and approval reservations from other legal domains.

(9) This general building permit removes the requirement for a suitability review of legal water rights according to § 63 of the WHG<sup>5</sup> for the object of approval. However, the user is responsible for verifying in accordance with the systems ordinance whether the entire system requires a suitability review, although this requirement is eliminated for the object of approval.

(10) The period of validity of this general building permit (see page 1) refers to its use in the context of set-up or installation of the object of approval and not its later use.

## 2 Provisions for the construction products

### 2.1 General

The collecting devices and their parts must comply with the special provisions and appendices of this notice as well as the specifications on file with the Deutsches Institut für Bautechnik.

- |   |  |  |
|---|--|--|
| 1 | DIN 4149:2005-04   | Buildings in German earthquake areas - Design loads, analysis and structural design of buildings   |
| 2 | Media list 40-1.1  | March 2016 Edition; available from the Deutsches Institut für Bautechnik (DIBt)  |
| 3 | Note:  | The list referring to PE-HD in the media list 40-1.1 may also be expressly applied to the PE rotation material in the preceding case under the aforementioned conditions |
| 4 | TRGS 510:2013-01   | Storage of hazardous substances in transportable containers  |
| 5 | German Federal Water Act (Wasserhaushaltsgesetz – WHG), 31 July 2009 (German Federal Law Gazette, p. 2585) |  |

## 2.2 Properties and composition

### 2.2.1 Materials

The materials specified in Appendix 2 shall be used to manufacture the rotation-moulded base bodies of the collecting devices and the grating.

### 2.2.2 Design details

The design details must comply with Appendices 1.1 through 1.18. The minimum wall thicknesses and minimum dimensions of the collecting devices are listed in Appendix 4, section 1.4.

### 2.2.3 Certificate of Static Stability

The collecting devices are stable in the application range specified in section 1 at operating temperatures of up to 30°C (short-term 40°C).

### 2.2.4 Fire behaviour

The flammability of the material polyethylene is considered "normal" in the thickness used (building material class B2 according to DIN 4102-1<sup>6</sup>).

### 2.2.5 Safety in use

Changes to detail designs and materials require the general building permit to be updated.

### 2.2.6 Collecting devices and grating

Collecting devices and grating must be constructed of materials as per section 2.2.1 and comply with the construction details in section 2.2.1.

## 2.3 Manufacturing, packaging, transport, storage and identification

### 2.3.1 Manufacturing

(1) Manufacturing must be executed in accordance with the manufacturing description filed with the DIBt.

(2) Apart from the stipulations listed in the manufacturing description, compliance with the requirements of Appendix 3, section 1 is mandatory.

(3) The collecting devices may only be manufactured at the Romold Ltd factory located at 4 Maxwell Square/Brucefield Industry Park, Livingston, West Lothian EH54 9BL Great Britain

### 2.3.2 Packaging, transport, storage

Packaging, transport and storage must take place in accordance with Appendix 3, section 2.

### 2.3.3 Identification

(1) The manufacturer must mark the collecting devices with the German Mark of Conformity (Ü) in accordance with German conformity labelling regulations. Labelling may only take place if the requirements of section 2.4 (certification of conformity) are met.

(2) The manufacturer must also label the collecting devices with the following information in a clearly visible and permanent manner:

- serial number,
- year of manufacture,
- collecting volumes (according to the table in section 1 (2)),
- material (PE rotation material),
- load capacity of the grating,
- "Storage media according to general building permit no. Z-40.22-398".

## **2.4 Certification of conformity**

### **2.4.1 General**

(1) An accredited testing centre must confirm the conformity of the collecting devices with the provisions of this general building permit for each manufacturing plant with a manufacturer's declaration of confirmation based on internal production controls and an initial test (see Appendix 4, section 2).

(2) The manufacturer shall deliver the declaration of conformity by marking the collecting devices with the German Mark of Conformity (Ü), indicating the intended use.

(3) The manufacturer shall provide the Deutsches Institut für Bautechnik with a copy of the initial test report.

### **2.4.2 Internal production controls**

(1) Internal production controls must be established and implemented in the factory. Internal production controls imply the continuous monitoring of production by the manufacturer to ensure the collecting devices it manufactures comply with the provisions of this general building permit.

(2) Internal production controls must include at least the measures listed in Appendix 4, section 1.

(3) The results of the internal production controls must be recorded and evaluated. The records must include the following minimum information.

- designation of the construction product/starting material
- type of control or test,
- date of manufacture and testing of the construction product/starting material
- result of the controls and tests and comparison with the requirements,
- signature of the person responsible in the company for production controls.

(4) The records should be retained for at least five years. If requested, they must be presented to the Deutsches Institut für Bautechnik and the highest building authority.

(5) If test results are insufficient, the manufacturer must take immediate measures to repair the defects. Collecting devices that do not meet requirements should be handled so they are unable to be confused with compliant collecting devices. If technically possible and to prove the effectiveness of the corrective action, the respective test must be repeated immediately after repairing the defect.

### **2.4.3 Initial testing of the collecting devices by an accredited testing centre**

The tests listed in Appendix 4, section 2 shall be conducted as part of the initial testing.

## **3 Design and dimensioning provisions**

(1) Because the collecting devices are not designed in accordance with this general building permit for exposure to fire for longer than 30 minutes without leaking, suitable measures should be taken in the design and dimensioning of the system to prevent the spread of fire from neighbouring areas or the start of fire in the system itself. The measures should be defined in agreement with the building supervisory authority and the fire department.

(2) The setting levels should be selected on the basis of sufficient resistance to the material intended for storage; the specifications in Appendix 4 also apply.

(3) Refer to the water conservation, occupational safety and building regulations regarding additional installation conditions for the collecting devices.

(4) Rainwater may not enter the collecting devices.

(5) The collecting devices must be protected against damage caused by moving vehicles, for example, with a protected mounting arrangement or impact protection or installing in special rooms.

#### **4 Execution provisions**

(1) The operator of the system must commission competent personnel to install and bring the collecting devices into operation (they do not necessarily have to be from a specialist company).

(2) The collecting devices must be installed on a level, even and rigid base or a carefully compacted and paved bearing surface (e.g., continuous concrete or asphalt approx. 5 cm thick).

#### **5 Provisions for use, maintenance, preventative maintenance, testing**

##### **5.1 Use**

##### **5.1.1 General**

(1) The collecting devices should only be used for the designated purpose.

(2) When using the collecting devices, it should be ensured that the collection volumes permitted in accordance with Table 1 are not exceeded if the containers/vessels leak into or onto the collecting device. In the case of collecting vessels which cannot be used without setting levels, the remaining residual volume in the collecting device shall be considered by means of adjusted containers and a freeboard of 2 cm.

(3) The contents of the largest container may not be greater than the permissible collection volume and the total contents of the containers stored on the collecting device may not be greater than ten times the permissible collection volume. If the storage of liquids hazardous to water is permissible in the outer protection zone of water conservation areas, the collecting device must be able to accommodate the total contents of the containers stored there.

(4) See section 1 (2) for the permissible loads of the individual collecting devices.

(5) Containers/vessels containing liquids hazardous to water of differing compositions and qualities may only be installed in a common collecting device if it can be established or proven that the substances do not pose a risk of dangerous reactions should they leak out and become mixed.

(6) If containers/vessels containing materials of differing natures are stored together, it must be ensured that leaking materials are unable to damage neighbouring containers/vessels.

(7) For containers/vessels used for filling (e.g., barrel with tap), the handling area must also be secured by the collecting device. Filling devices may not protrude beyond the edge of the collecting device.



(8) For containers/vessels that stand on bases or with bearing surfaces that cause a high surface pressure, load distributing measures must be undertaken as needed.

(9) Containers/vessels must be installed in such a way that the collecting device remains easily accessible and is manageable.

(10) If permitted by licensing processes under traffic law, vessels may be stacked in multiple layers. However, the stack height may not exceed 1.20 m.

(11) External loads may not impact the walls of the collecting devices (except for loads from the setting level that is part of this general building permit and the fluid pressure in the event of a leak).

(12) Collecting devices may only be driven beneath and moved using industrial trucks (pallet trucks or forklifts) when empty. Moving the collecting devices with containers/vessels installed is prohibited.

#### 5.1.2 Liquids storage

The collecting devices may only be used for containers/vessels for storing liquids in accordance with sections 1 (5) and 1 (6).

#### 5.2 Maintenance, preventative maintenance

(1) The operator of the storage facility is obligated to only commission the repair and maintenance of the collecting devices from companies considered to be specialized in the field in the sense of §3 of the German Ordinance on Installations for the Handling of Substances Hazardous to Water (VAwS) from 31 March 2010 (German Federal Law Gazette, p. 377), unless the activities are excluded from this obligation in accordance with state laws or the manufacturer executes the activities using its own competent personnel.

(2) Damaged collecting devices with impaired functionality because of the damage must be discarded.

#### 5.3 Testing

(1) The operator must visually inspect the collecting device regularly, at least once a week, to ensure that liquids are not leaking out. Escaped liquid must be cleaned up immediately and the collecting device inspected regarding its continued use; it must be replaced if necessary.

(2) The condition of the collecting device should be thoroughly inspected once a year. The containers/vessels must be removed from the collecting device in the process and the collecting device should be cleaned if needed.

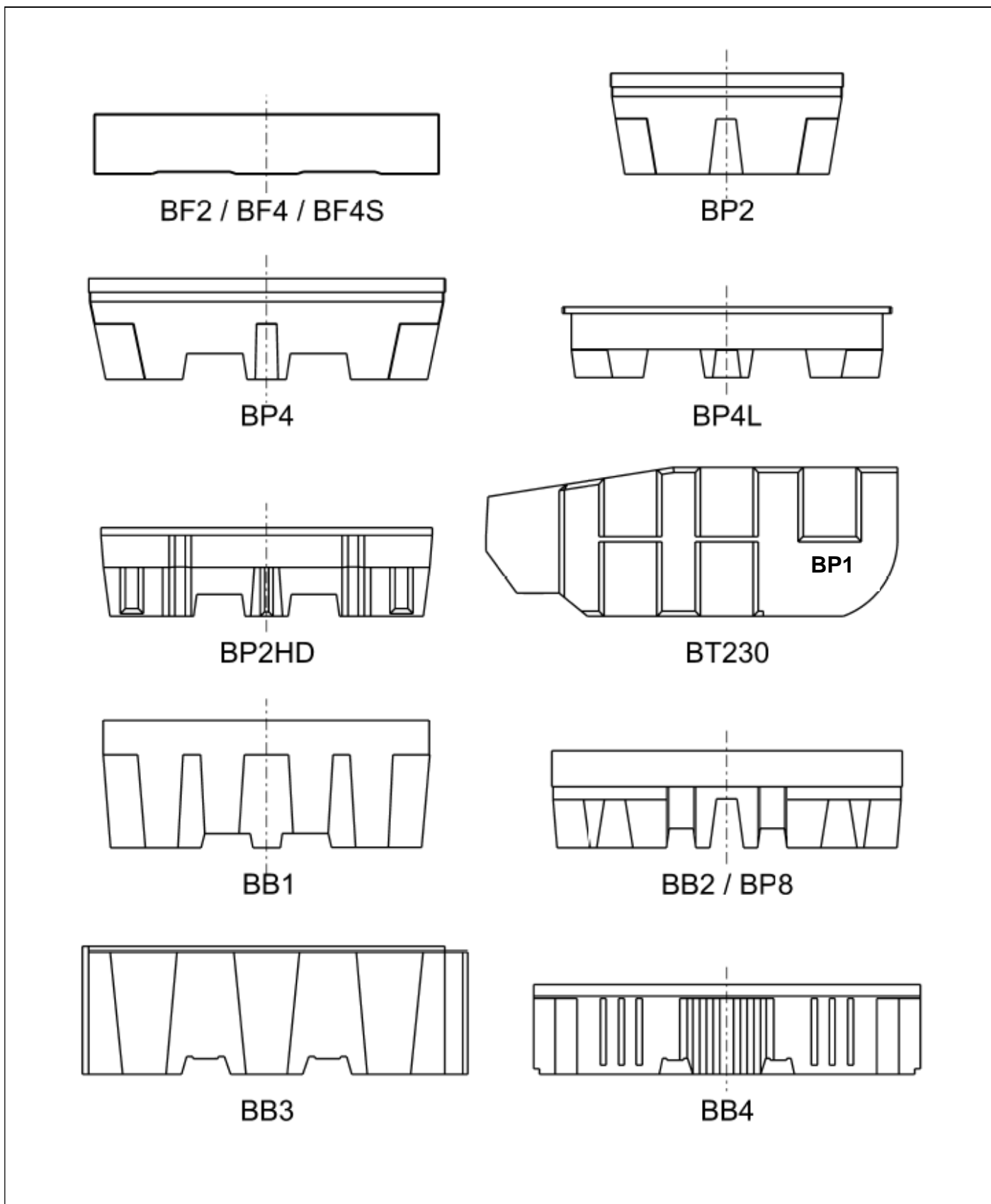
(3) The results of the test as per (2) must be documented and submitted to the Deutsches Institut für Bautechnik upon request.

(4) Tests from other legal domains remain unaffected.

Holger Eggert  
Division Head

Notarised

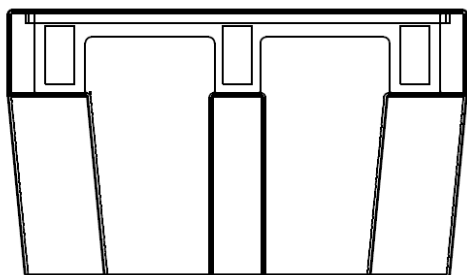




Polyethylene collecting devices

Overview 1 of 3  
Surface elements and collecting trays

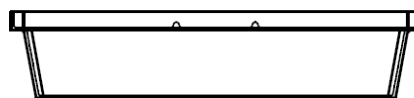
Appendix 1



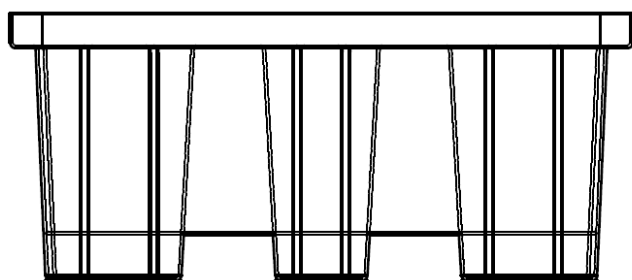
BP1



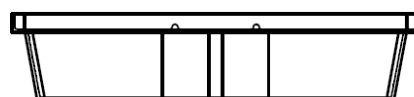
ST20



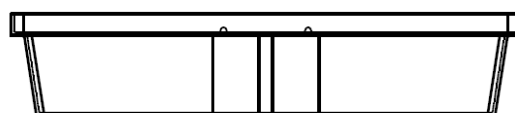
ST30



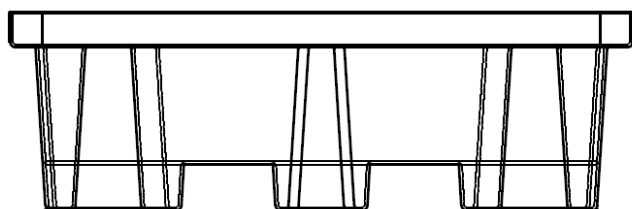
BP2FW



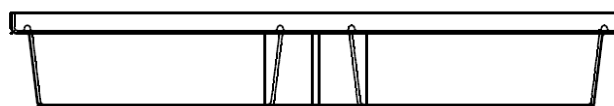
ST40



ST60



BP4FW

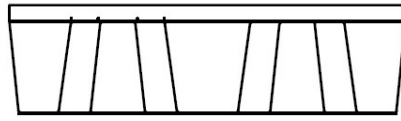


ST100

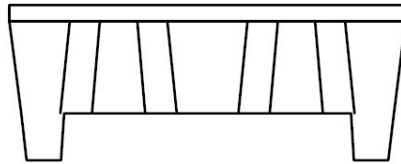
Polyethylene collecting devices

Overview 2 of 3  
Surface elements and collecting trays

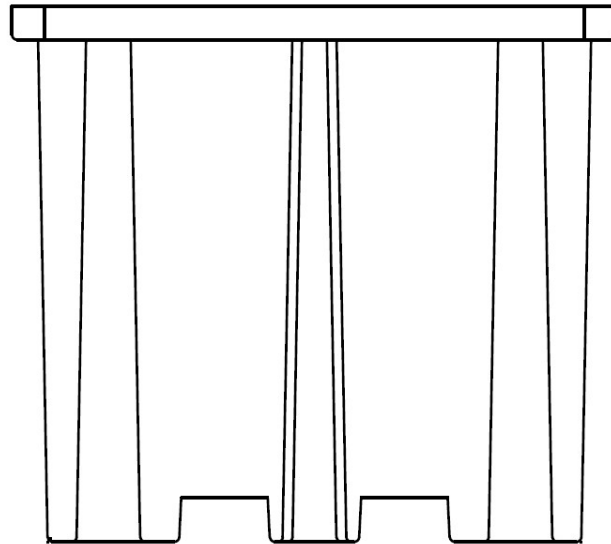
Appendix 1.1



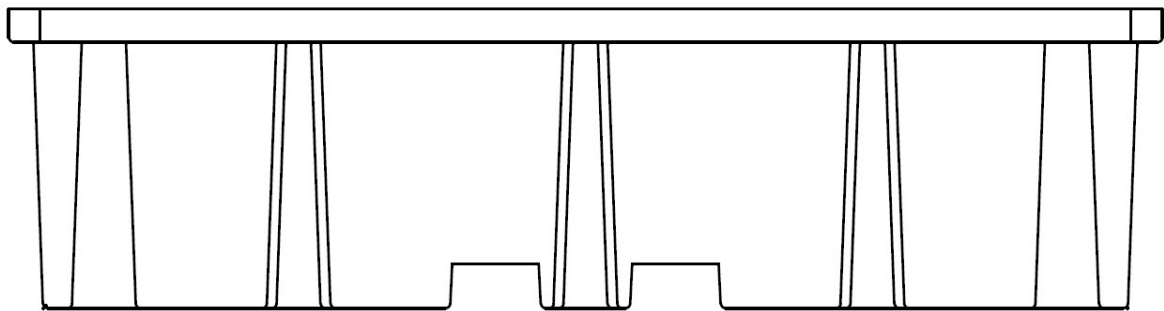
ST66



ST70



BB1FW

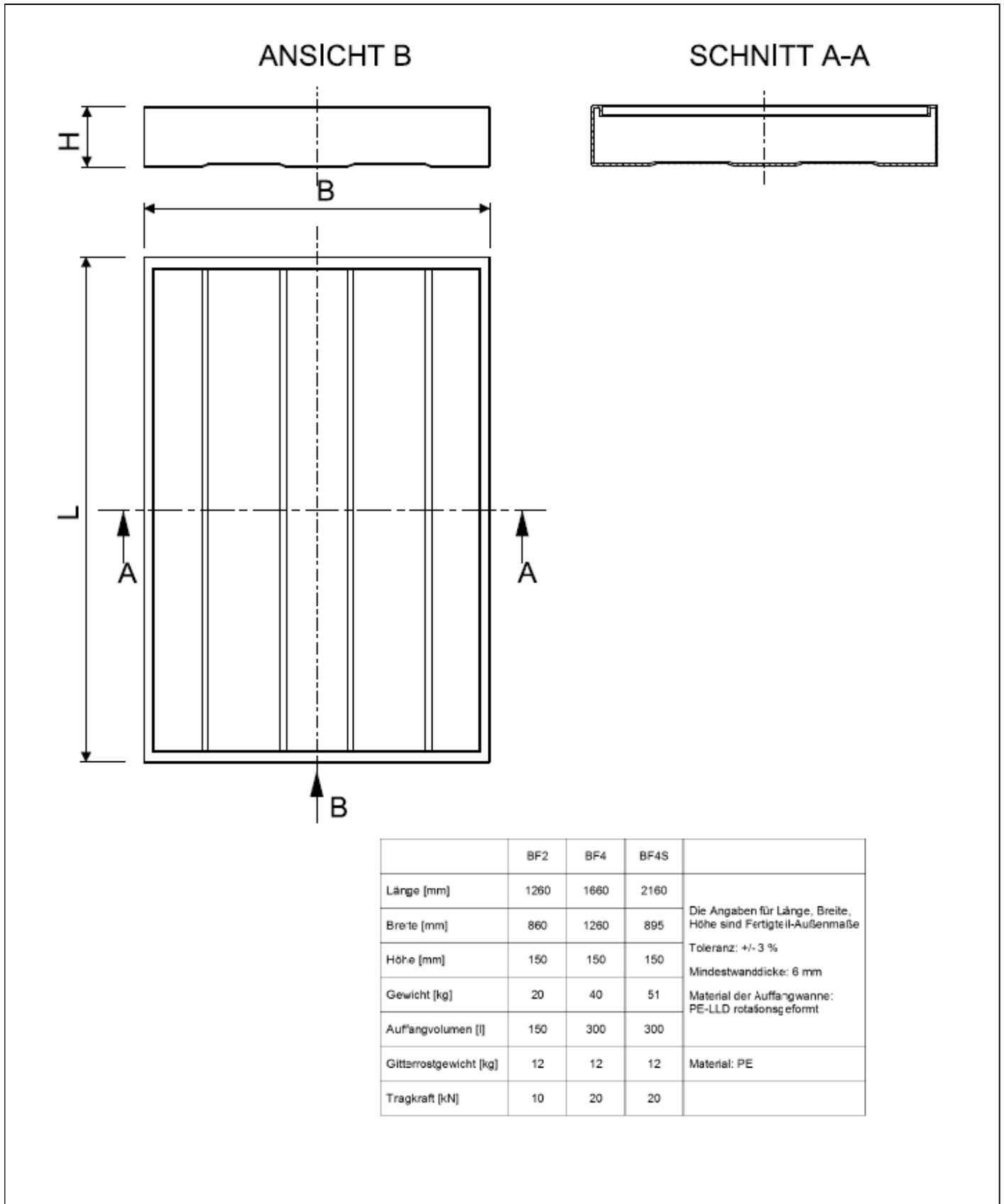


BB2FW

Polyethylene collecting devices

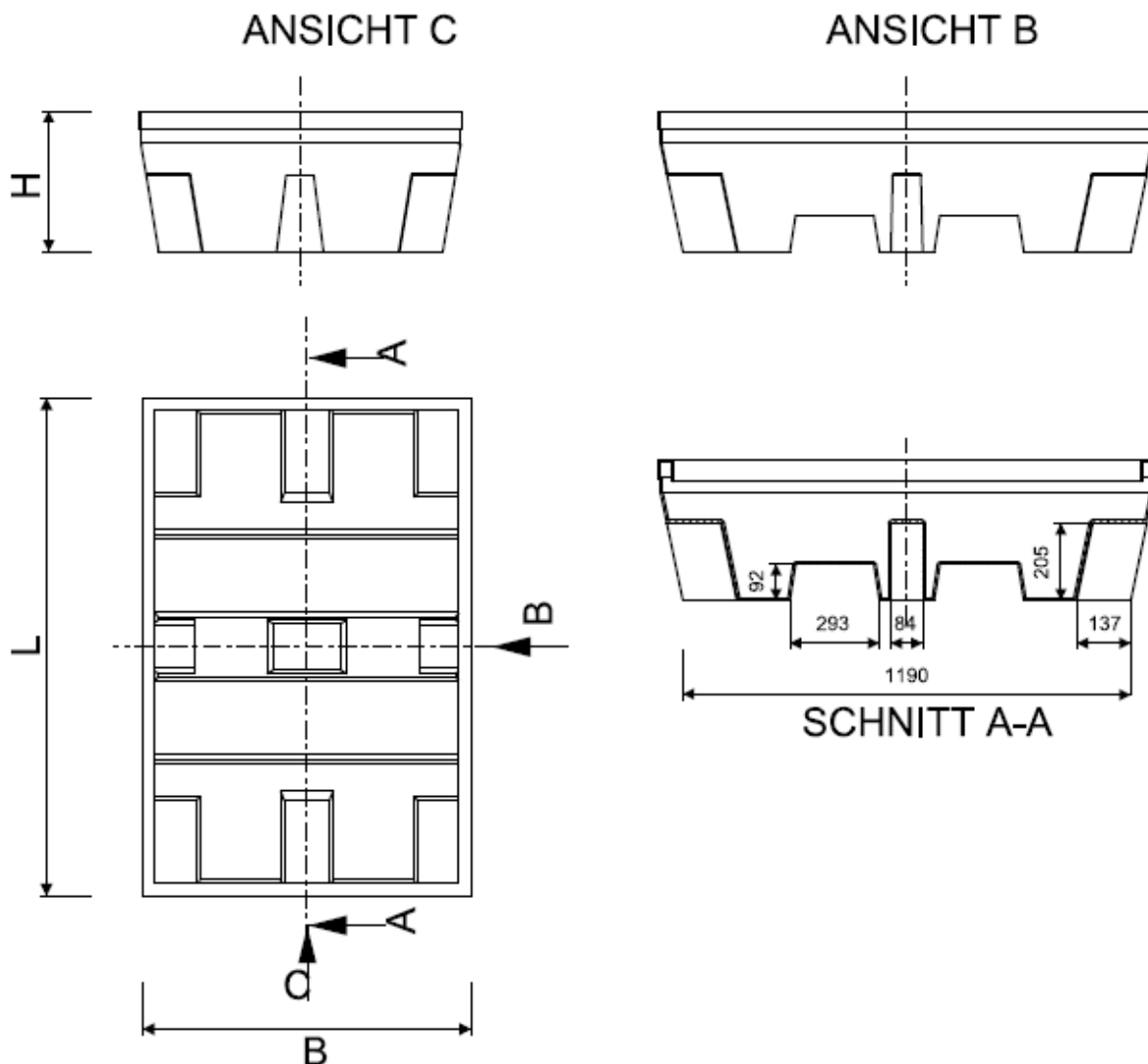
Overview 3 of 3  
Surface elements and collecting trays

Appendix 1.2



|                        | BF2  | BF4  | BF4S |  |
|------------------------|------|------|------|--|
| Länge [mm]             | 1260 | 1660 | 2160 | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße<br>Toleranz: +/- 3 %<br>Mindestwanddicke: 6 mm |
| Breite [mm]            | 860  | 1260 | 895  |  |
| Höhe [mm]              | 150  | 150  | 150  |  |
| Gewicht [kg]           | 20   | 40   | 51   | Material der Auffangwanne:<br>PE-LLD rotationsg eformt   |
| Auffangvolumen [l]     | 150  | 300  | 300  |  |
| Gitterrostgewicht [kg] | 12   | 12   | 12   | Material: PE   |
| Tragkraft [kN]         | 10   | 20   | 20   |  |

|                                 |              |
|---------------------------------|--------------|
| Polyethylene collecting devices | Appendix 1.3 |
| Surface elements BF2, BF4, BF4S |              |

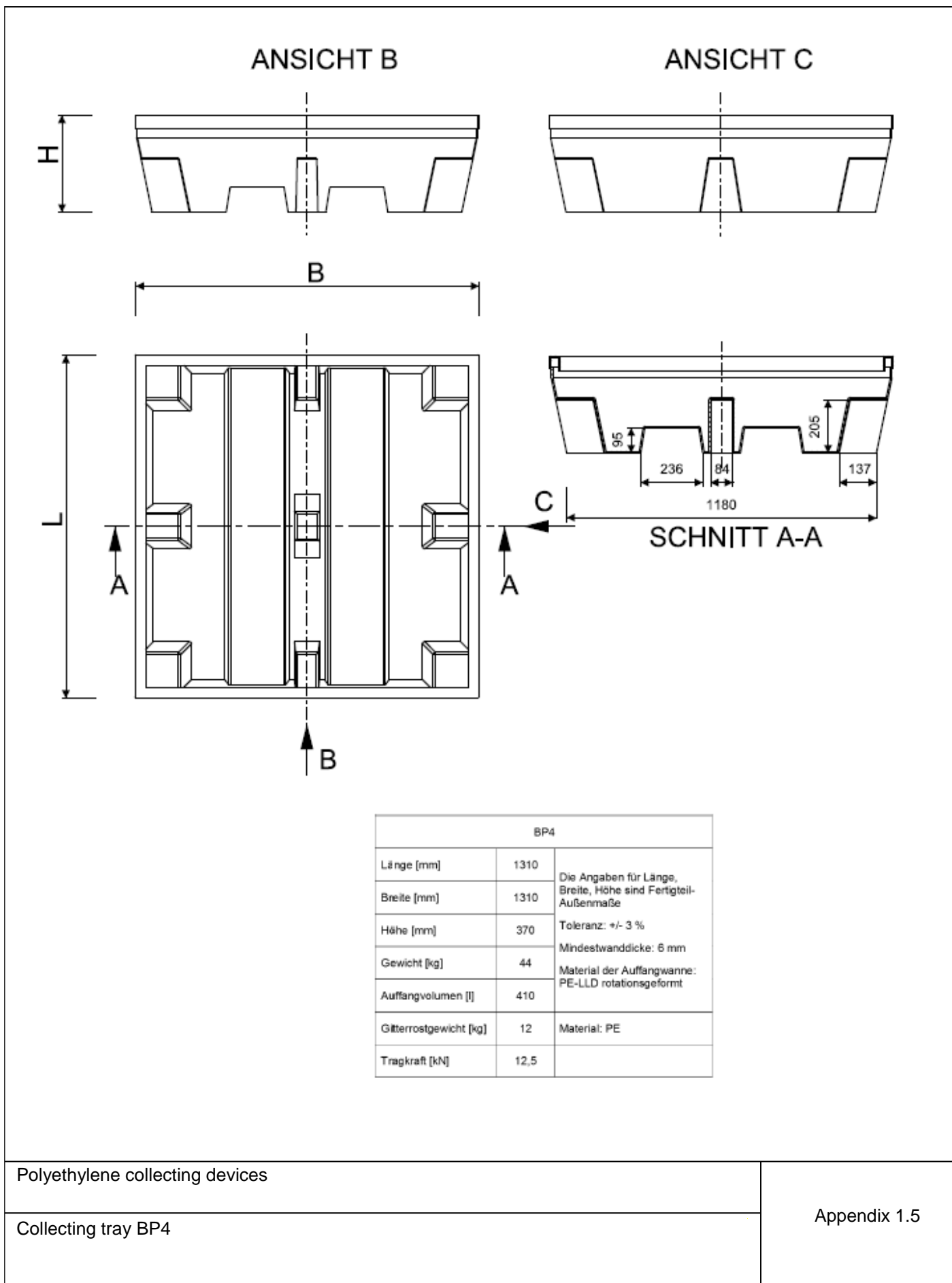


| BP2                    |      |  |              |
|------------------------|------|--|--------------|
| Länge [mm]             | 1230 | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße<br>Toleranz: +/- 3 %<br>Mindestwanddicke: 4 mm<br>Material der Auffangwanne: PE-LLD rotationsgeformt |              |
| Breite [mm]            | 825  |  |              |
| Höhe [mm]              | 340  |  |              |
| Gewicht [kg]           | 17,1 |  |              |
| Auffangvolumen [l]     | 200  |  |              |
| Gitterrostgewicht [kg] | 6,7  |  | Material: PE |
| Tragkraft [kN]         | 6,5  |  |              |

Polyethylene collecting devices

Collecting tray BP2

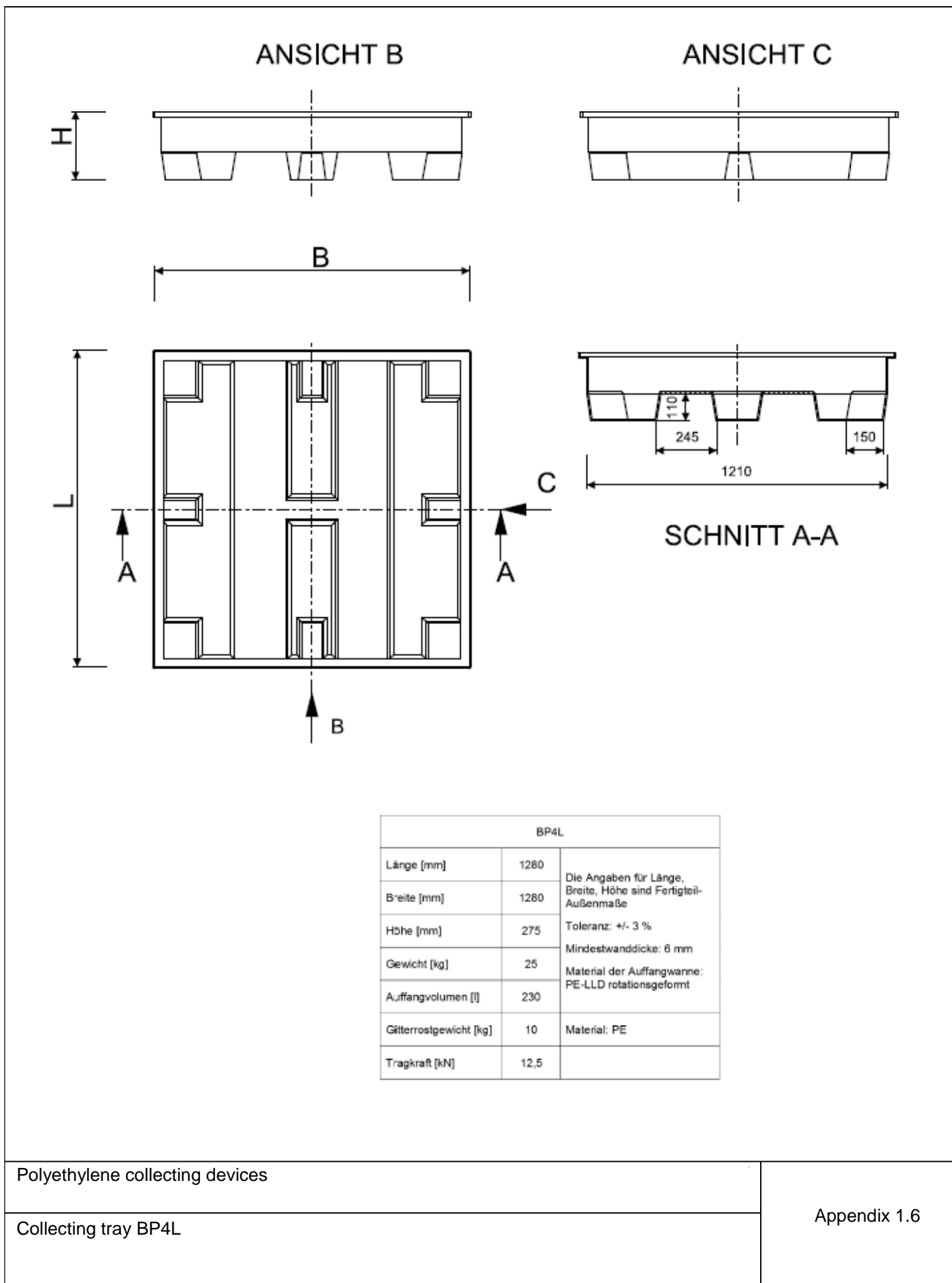
Appendix 1.4



Polyethylene collecting devices

Collecting tray BP4

Appendix 1.5

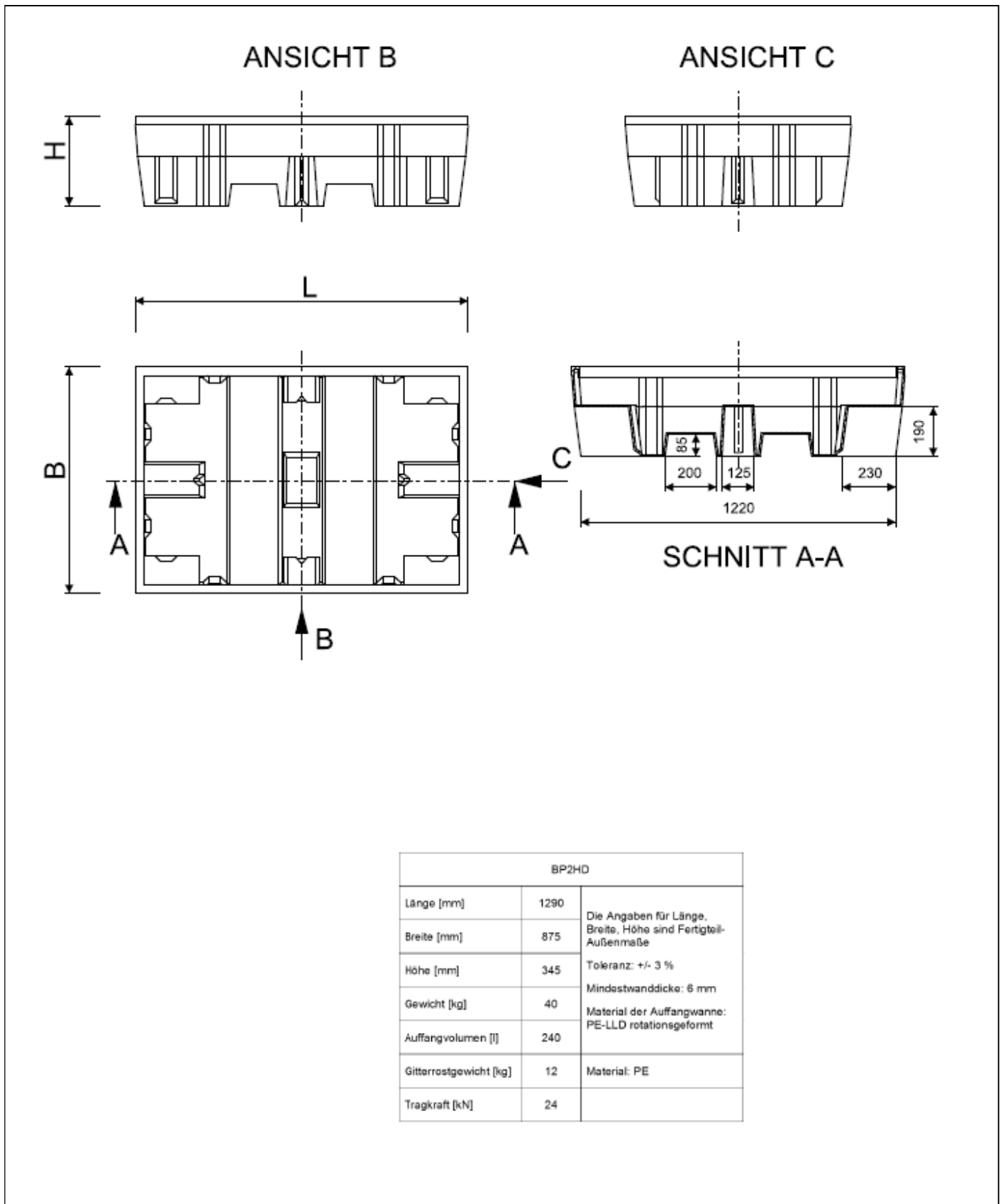


Polyethylene collecting devices

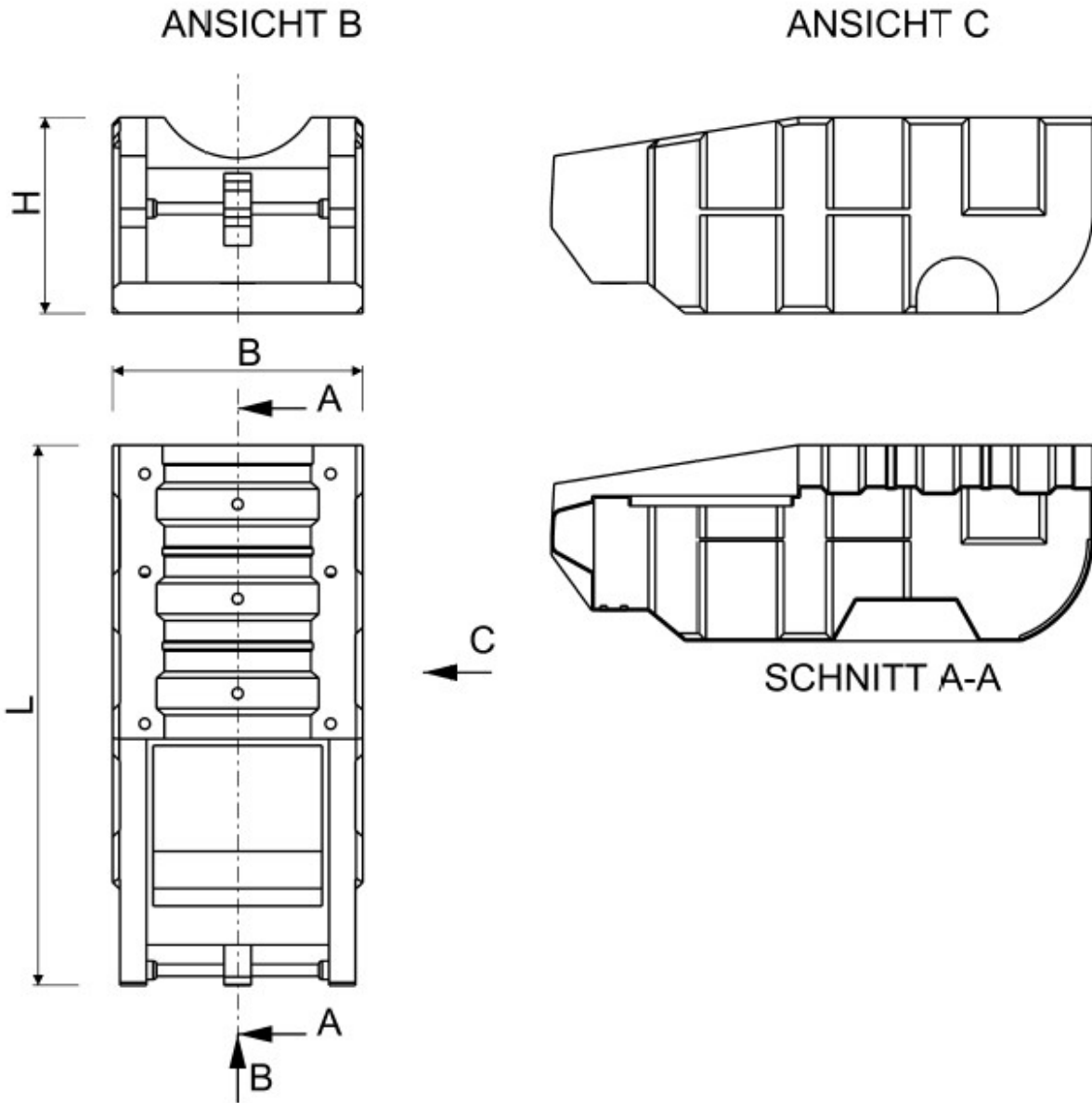
Collecting tray BP4L

Appendix 1.6





|                                 |              |
|---------------------------------|--------------|
| Polyethylene collecting devices | Appendix 1.7 |
| Collecting tray BP2HD           |              |

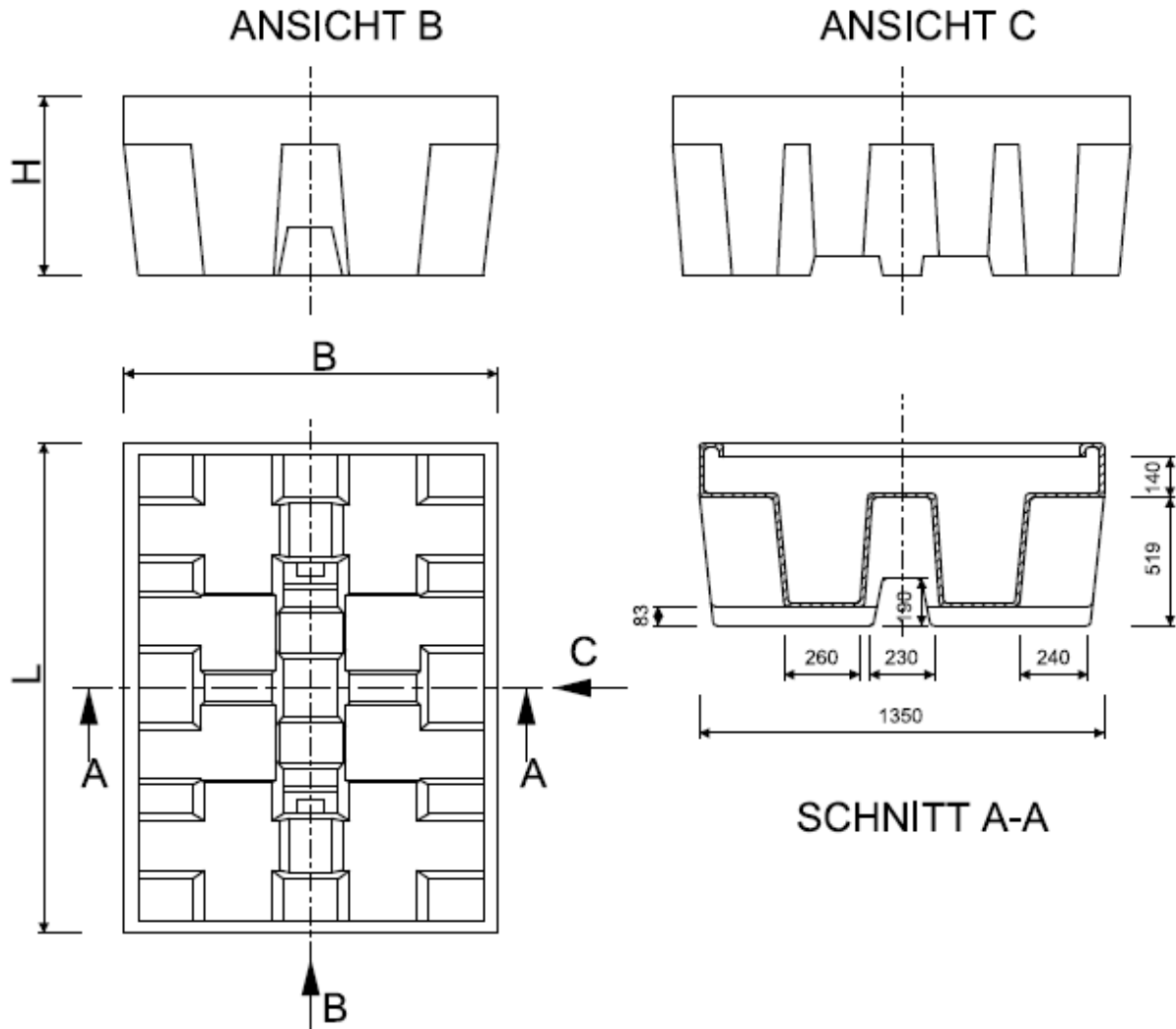


| BT230              |      |  |
|--------------------|------|--|
| Länge [mm]         | 1600 | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße<br>Toleranz: +/- 3 %<br>Mindestwanddicke: 6 mm |
| Breite [mm]        | 740  |  |
| Höhe [mm]          | 640  |  |
| Gewicht [kg]       | 44   | Material der Auffangwanne: PE-LLD rotationsgeformt   |
| Auffangvolumen [l] | 230  |  |
| Tragkraft [kN]     | 4,6  |  |

Polyethylene collecting devices

Collecting tray BT230

Appendix 1.8

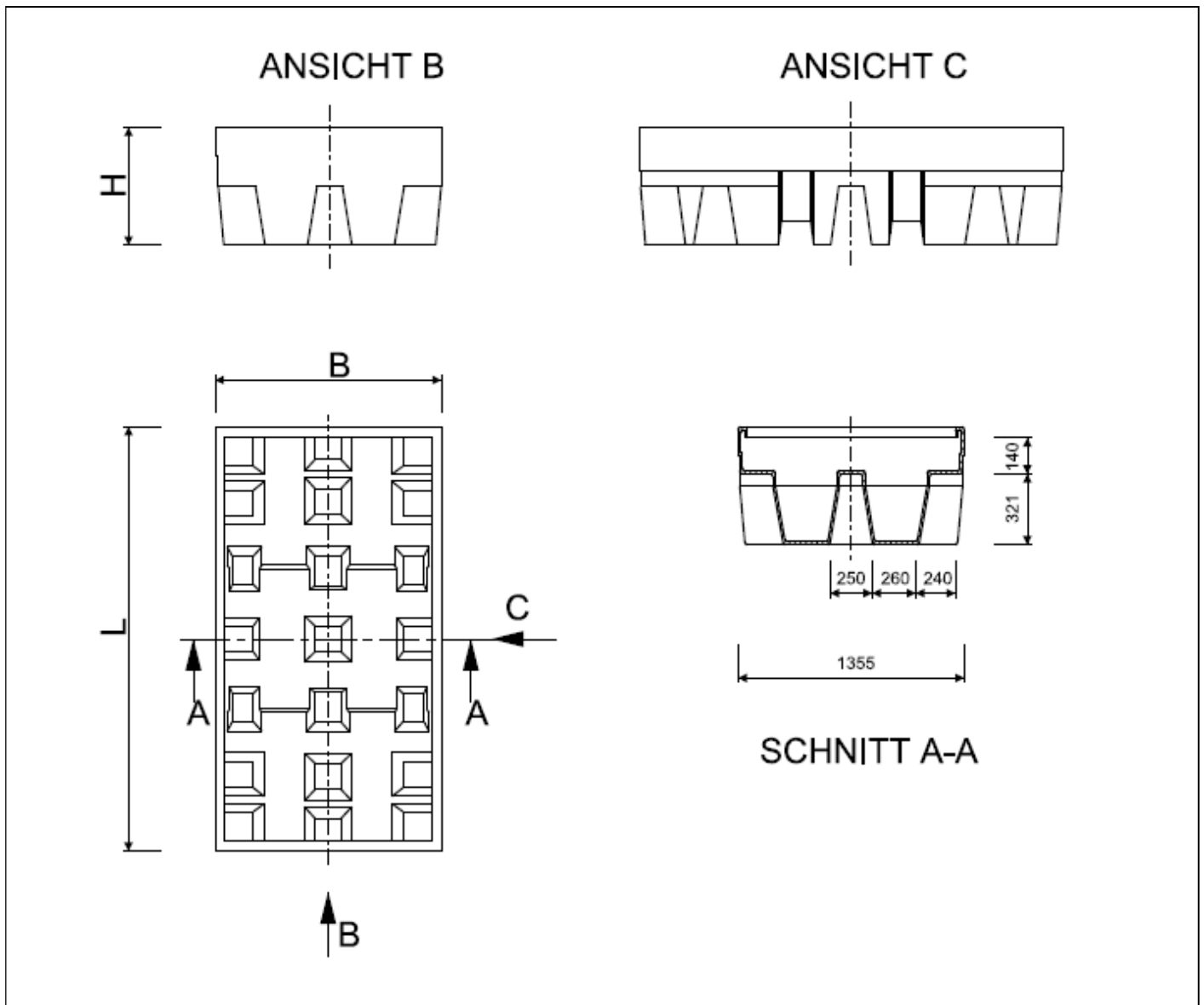


| BB1                    |          |   |
|------------------------|----------|---|
| Länge [mm]             | 1770     | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]            | 1350     |   |
| Höhe [mm]              | 700      |   |
| Gewicht [kg]           | 67       | Toleranz: +/- 3 %   |
| Auffangvolumen [l]     | 1100     | Mindestwanddicke: 6 mm  |
| Gitterrostgewicht [kg] | 2 x 11,2 | Material der Auffangwanne: PE-LLD rotationsgeformt            |
| Tragkraft [kN]         | 10       | Material: PE  |

Polyethylene collecting devices

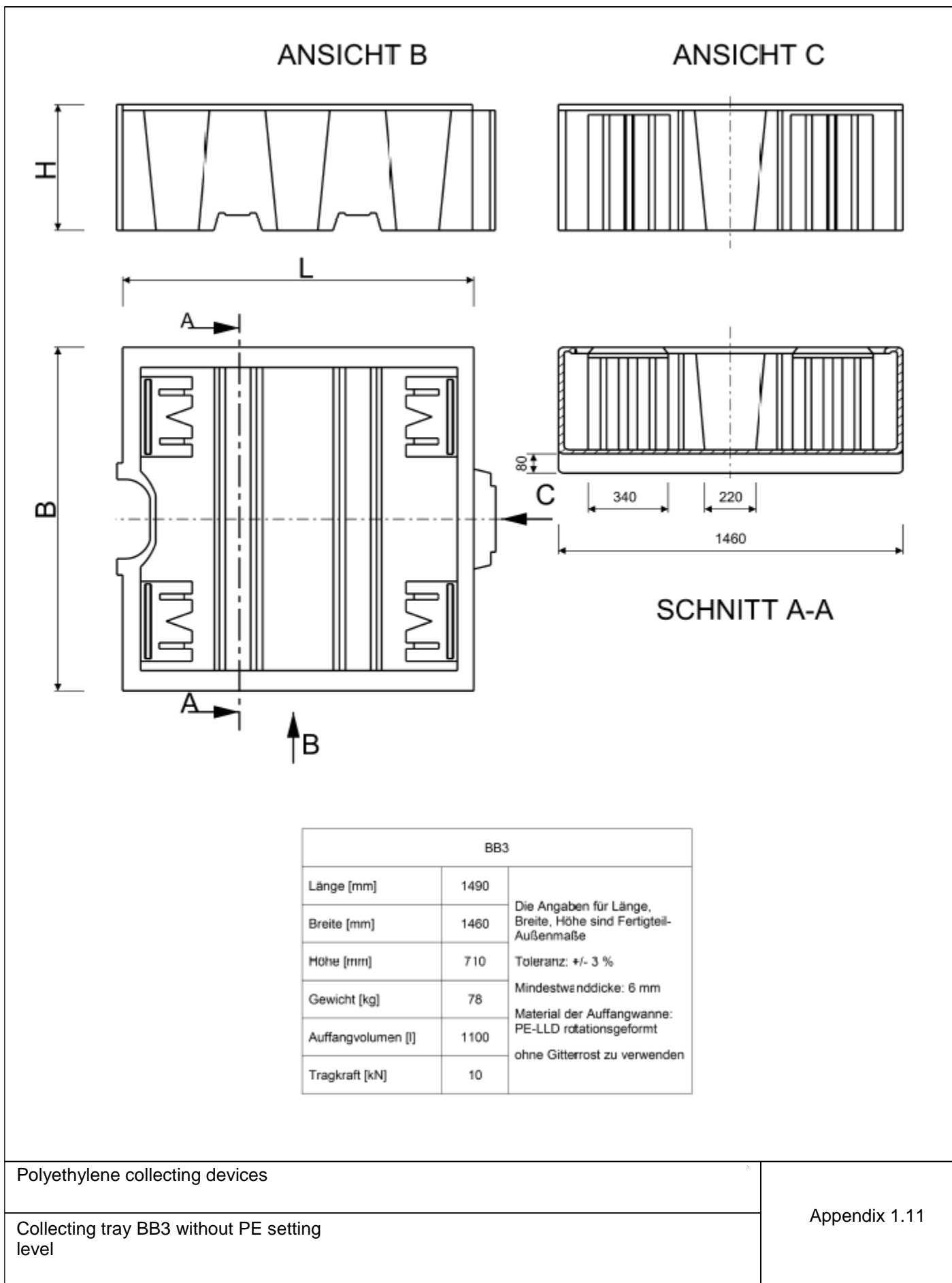
Collecting tray BB1

Appendix 1.9



| BB2 / BP8              |          |   |
|------------------------|----------|---|
| Länge [mm]             | 2545     | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]            | 1355     |   |
| Höhe [mm]              | 500      | Toleranz: +/- 3 %   |
| Gewicht [kg]           | 82       | Mindestwanddicke: 6 mm  |
| Auffangvolumen [l]     | 1100     | Material der Auffangwanne: PE-LLD rotationsgeformt            |
| Gitterrostgewicht [kg] | 3 x 11,2 | Material: PE  |
| Tragkraft [kN]         | 20       |   |

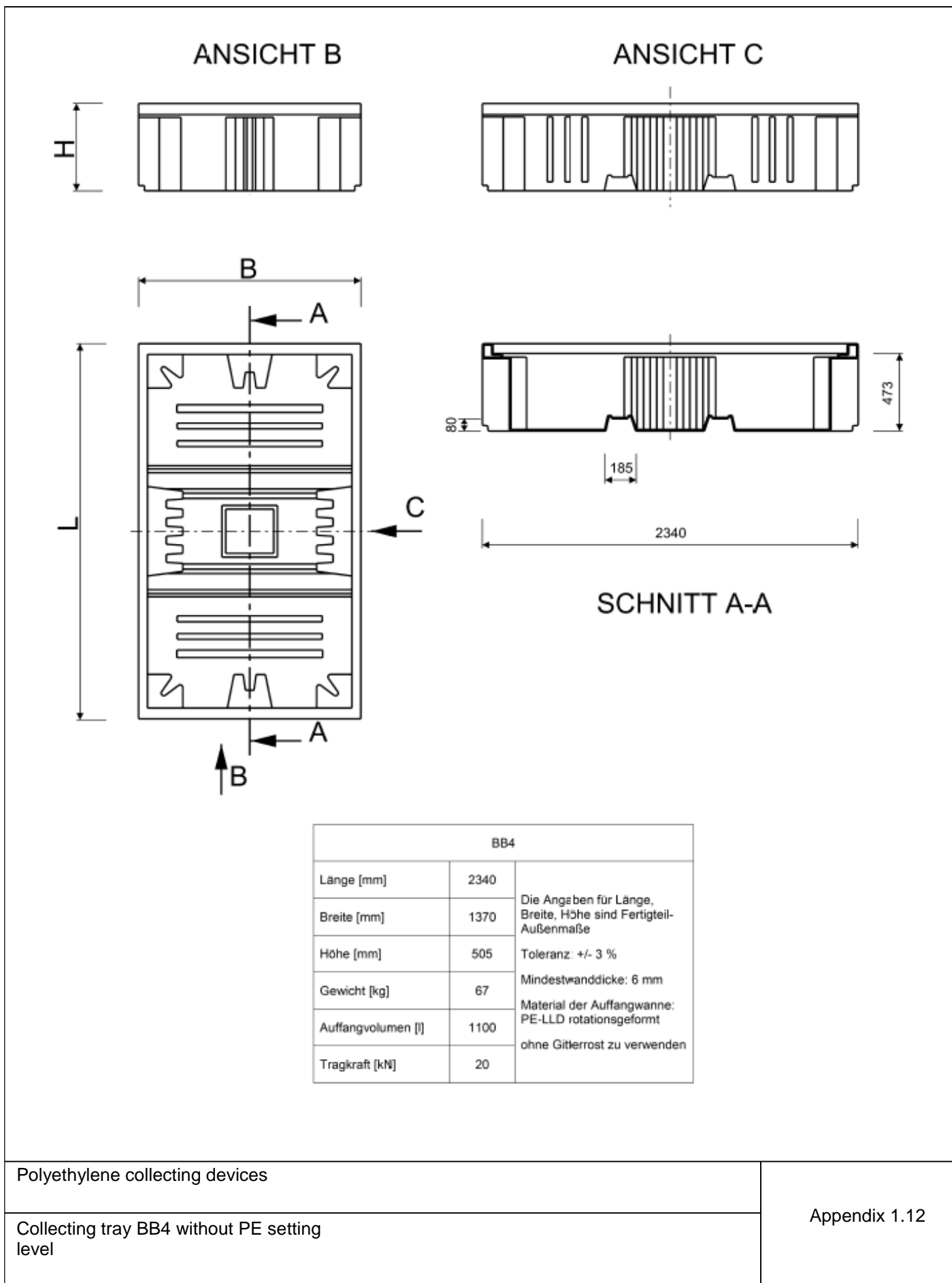
|                                 |               |
|---------------------------------|---------------|
| Polyethylene collecting devices | Appendix 1.10 |
| Collecting trays BB2 / BP8      |               |



Polyethylene collecting devices

Collecting tray BB3 without PE setting level

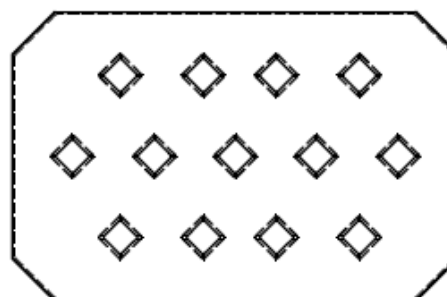
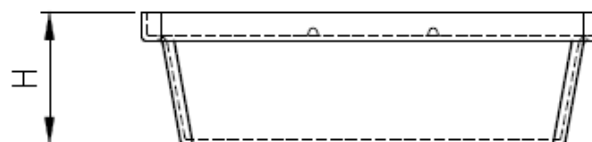
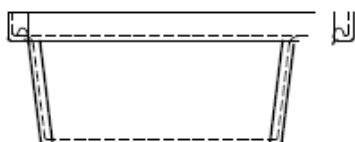
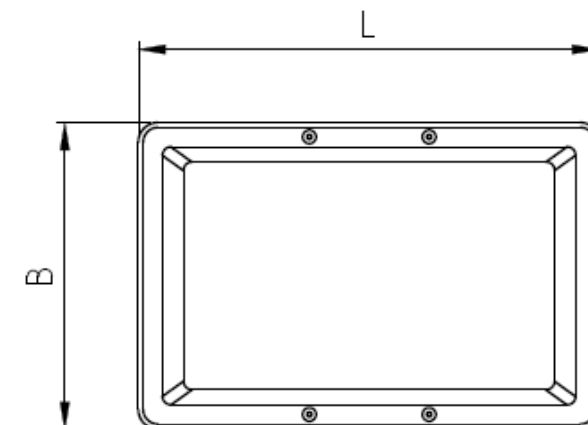
Appendix 1.11



Polyethylene collecting devices

Collecting tray BB4 without PE setting level

Appendix 1.12



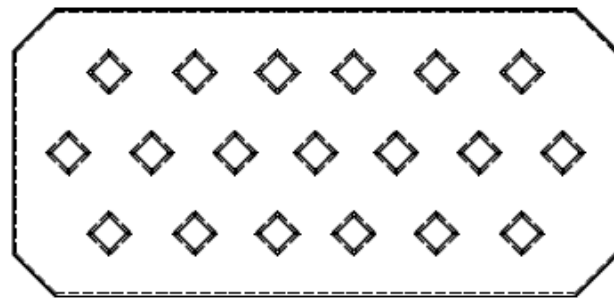
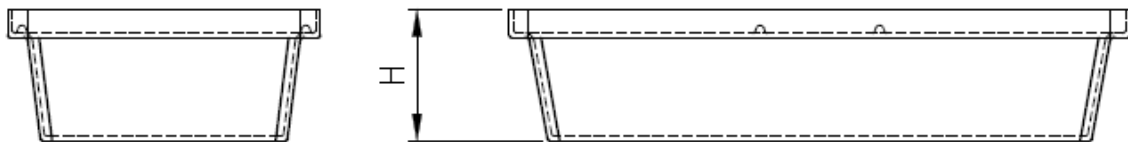
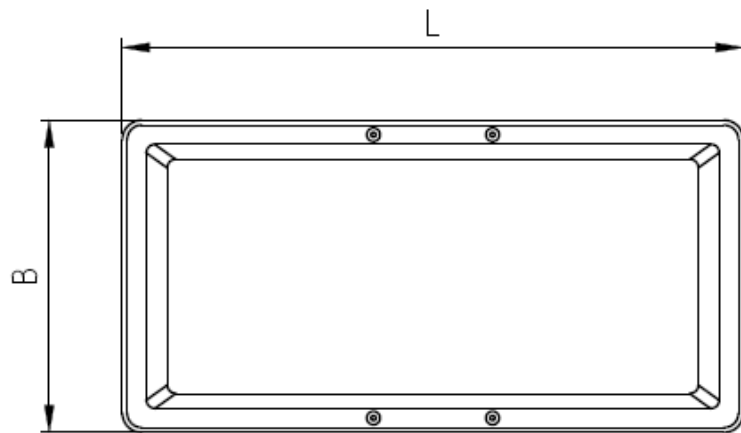
| ST20                 |      |   |
|----------------------|------|---|
| Länge [mm]           | 595  | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 395  |   |
| Höhe [mm]            | 170  |   |
| Gewicht [kg]         | 3,60 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 1,50 |   |
| Stellebene(n)        | 1    |   |
| Stärke [mm]          | 25   |   |
| Tragkraft [kN]       | 0,55 |   |

Polyethylene collecting devices

Collecting device ST 20 with/without PE setting level

Appendix 1.13



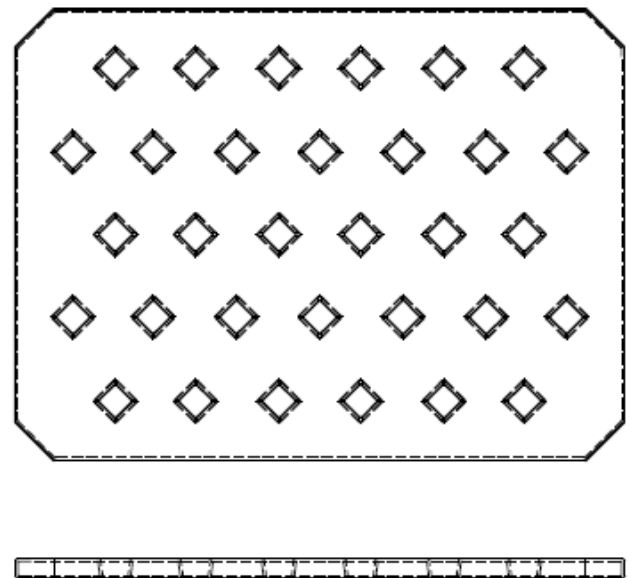
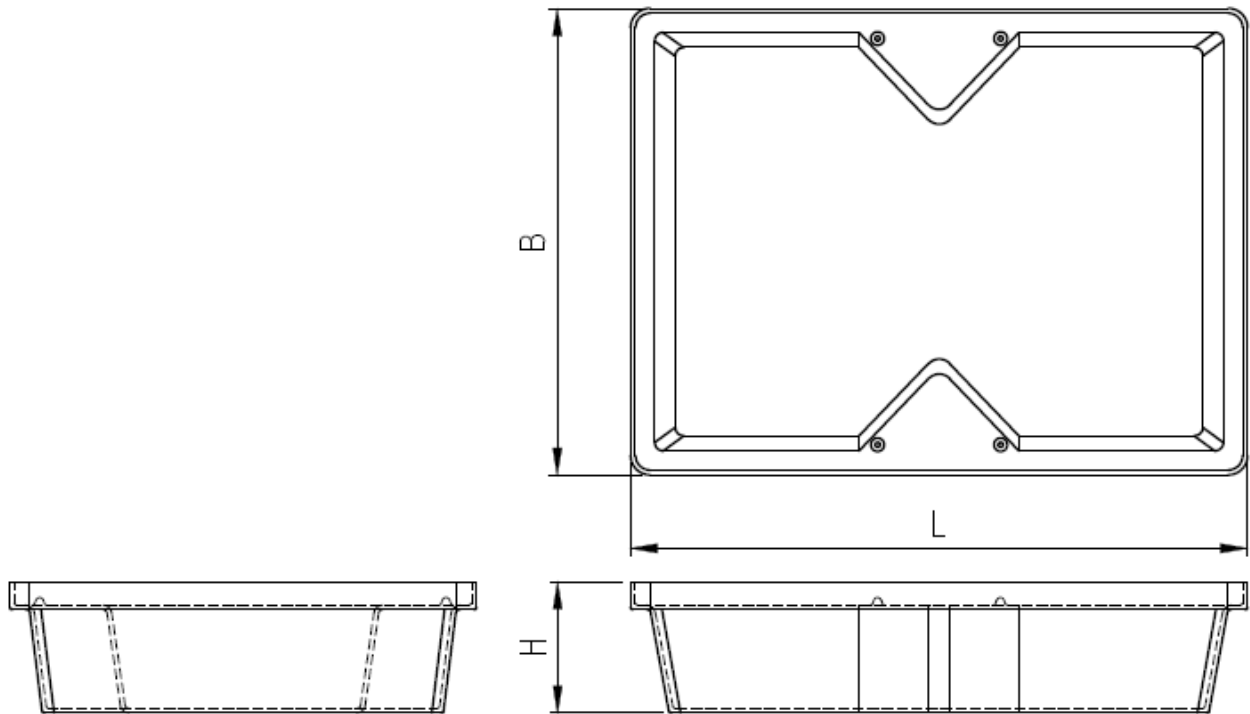


| ST30                 |      |   |
|----------------------|------|---|
| Länge [mm]           | 805  | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 405  |   |
| Höhe [mm]            | 170  |   |
| Gewicht [kg]         | 5,00 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 2,10 |   |
| Stellebene(n)        | 1    |   |
| Stärke [mm]          | 25   |   |
| Tragkraft [kN]       | 0,55 |   |

Polyethylene collecting devices

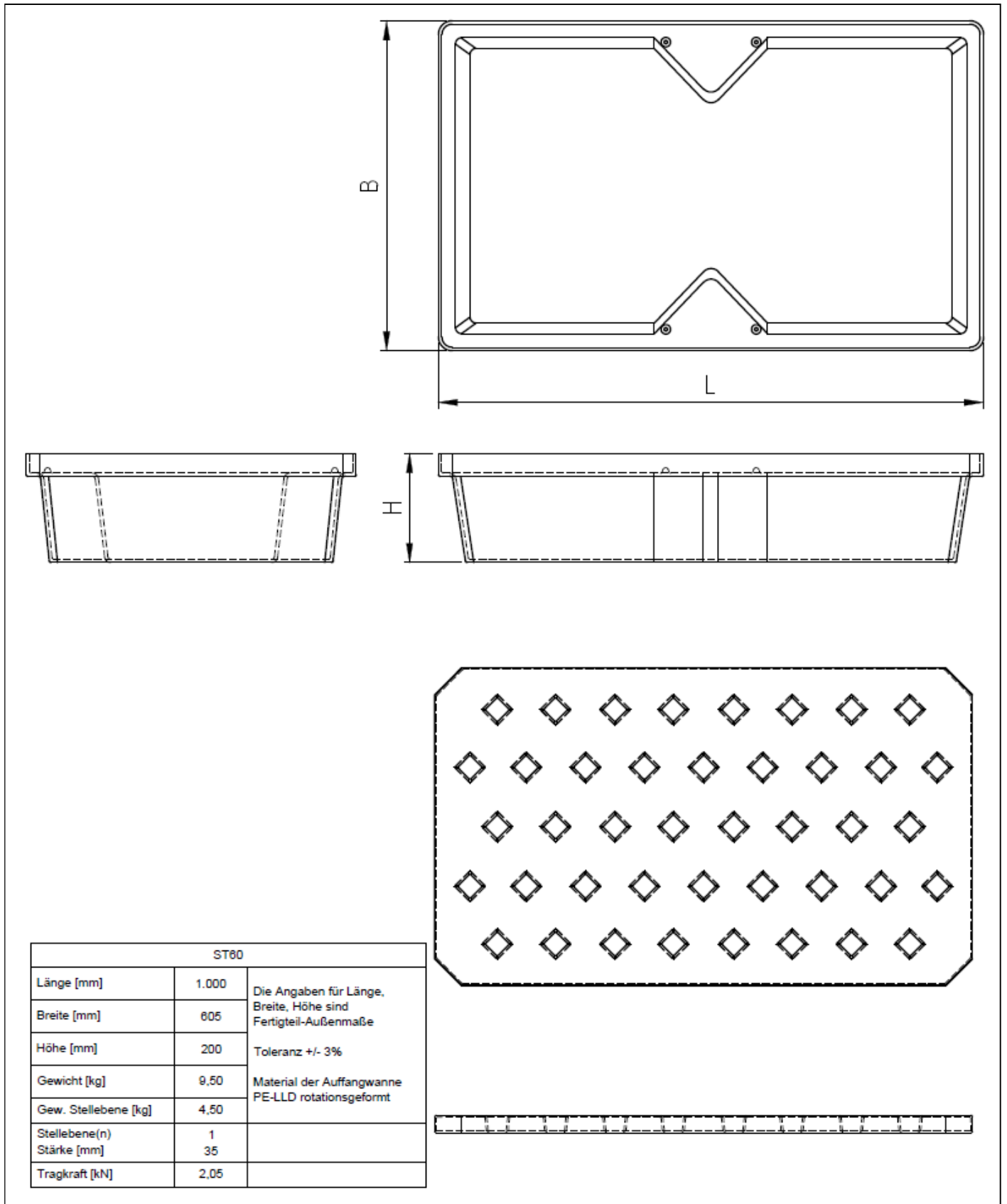
Collecting device ST30 with/without PE setting level

Appendix 1.14



| ST40                 |      |   |
|----------------------|------|---|
| Länge [mm]           | 800  | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 605  |   |
| Höhe [mm]            | 170  |   |
| Gewicht [kg]         | 7,00 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 3,10 |   |
| Stellebene(n)        | 1    |   |
| Stärke [mm]          | 25   |   |
| Tragkraft [kN]       | 1,05 |   |

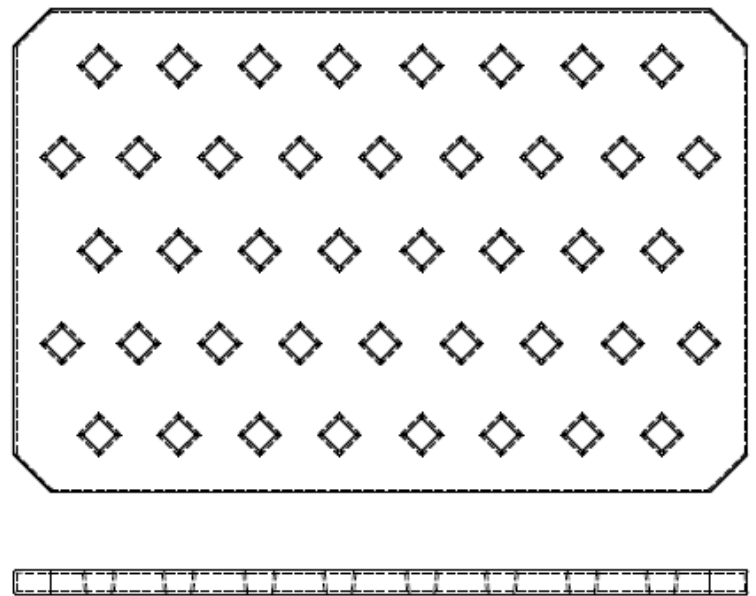
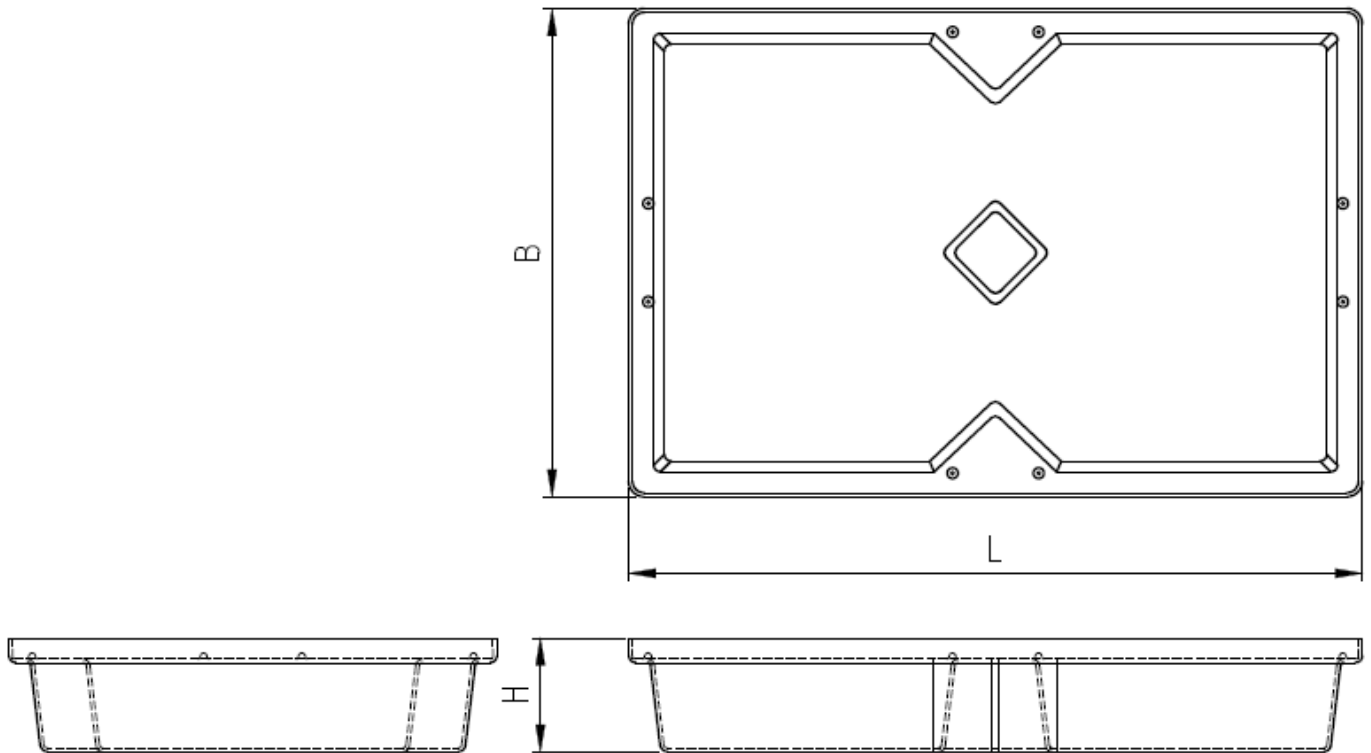
|  |               |
|--|---------------|
| Polyethylene collecting devices                      | Appendix 1.15 |
| Collecting device ST40 with/without PE setting level |               |



Polyethylene collecting devices

Collecting device ST60 with/without PE setting level

Appendix 1.16

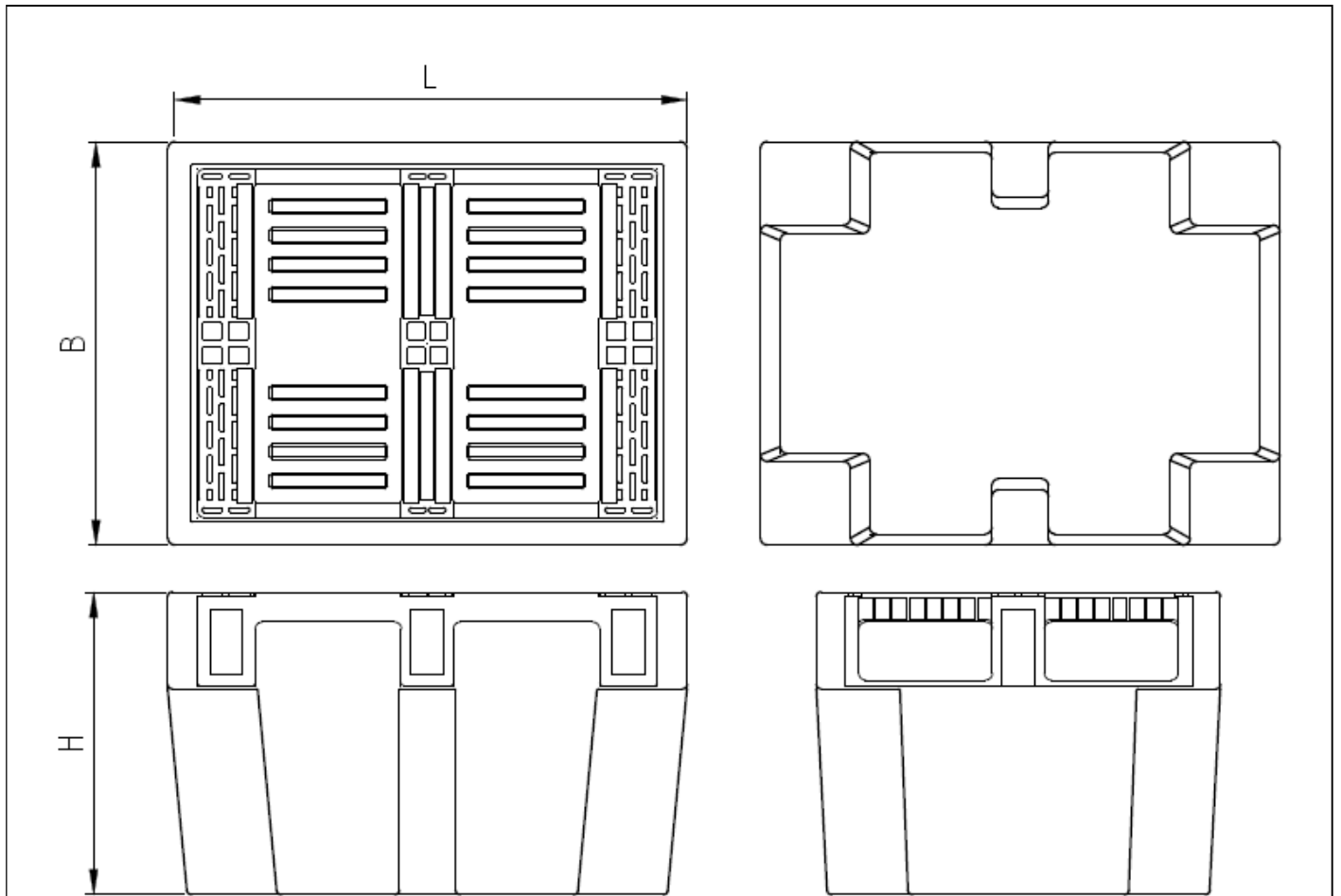


| ST100                |       |   |
|----------------------|-------|---|
| Länge [mm]           | 1.195 | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 795   |   |
| Höhe [mm]            | 185   | Toleranz +/- 3%   |
| Gewicht [kg]         | 13,90 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 3,10  |   |
| Stellebene(n)        | 2     |   |
| Stärke [mm]          | 25    |   |
| Tragkraft [kN]       | 2,05  |   |

Polyethylene collecting devices

Collecting device ST100 with/without PE setting level

Appendix 1.17

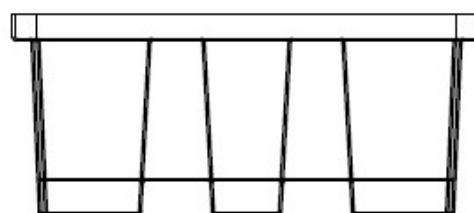
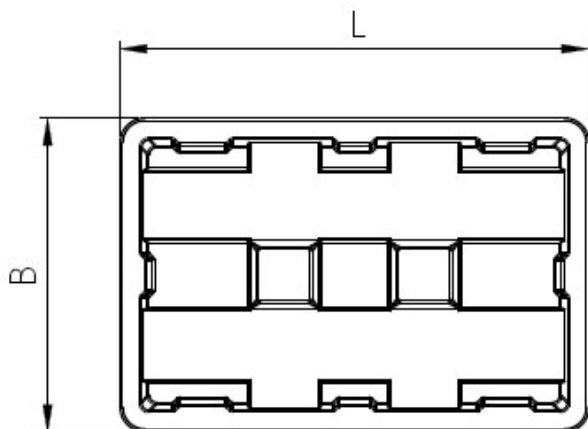


| BP1                  |       |   |
|----------------------|-------|---|
| Länge [mm]           | 900   | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 700   |   |
| Höhe [mm]            | 525   |   |
| Gewicht [kg]         | 21,20 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 7,50  |   |
| Stellebene(n)        | 1     |   |
| Tragkraft [kN]       | 3,00  |   |

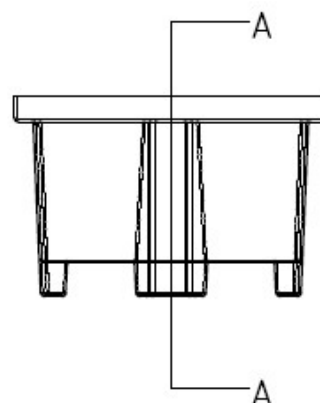
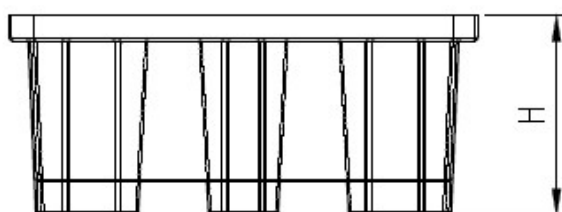
Polyethylene collecting devices

Collecting device BP1 with setting level

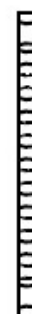
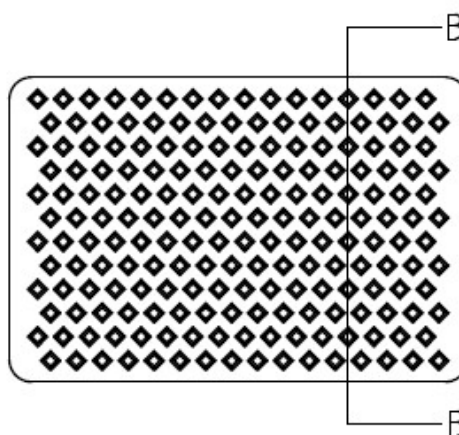
Appendix 1.18



Schnitt A-A



| BP2FW                |       |   |
|----------------------|-------|---|
| Länge [mm]           | 1.222 | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße |
| Breite [mm]          | 817   |   |
| Höhe [mm]            | 524   |   |
| Gewicht [kg]         | 25,00 | Material der Auffangwanne PE-LLD rotationsgeformt             |
| Gew. Stellebene [kg] | 9,00  |   |
| Stellebene(n)        | 1     |   |
| Stärke [mm]          | 60    |   |
| Tragkraft [kN]       | 4,00  |   |

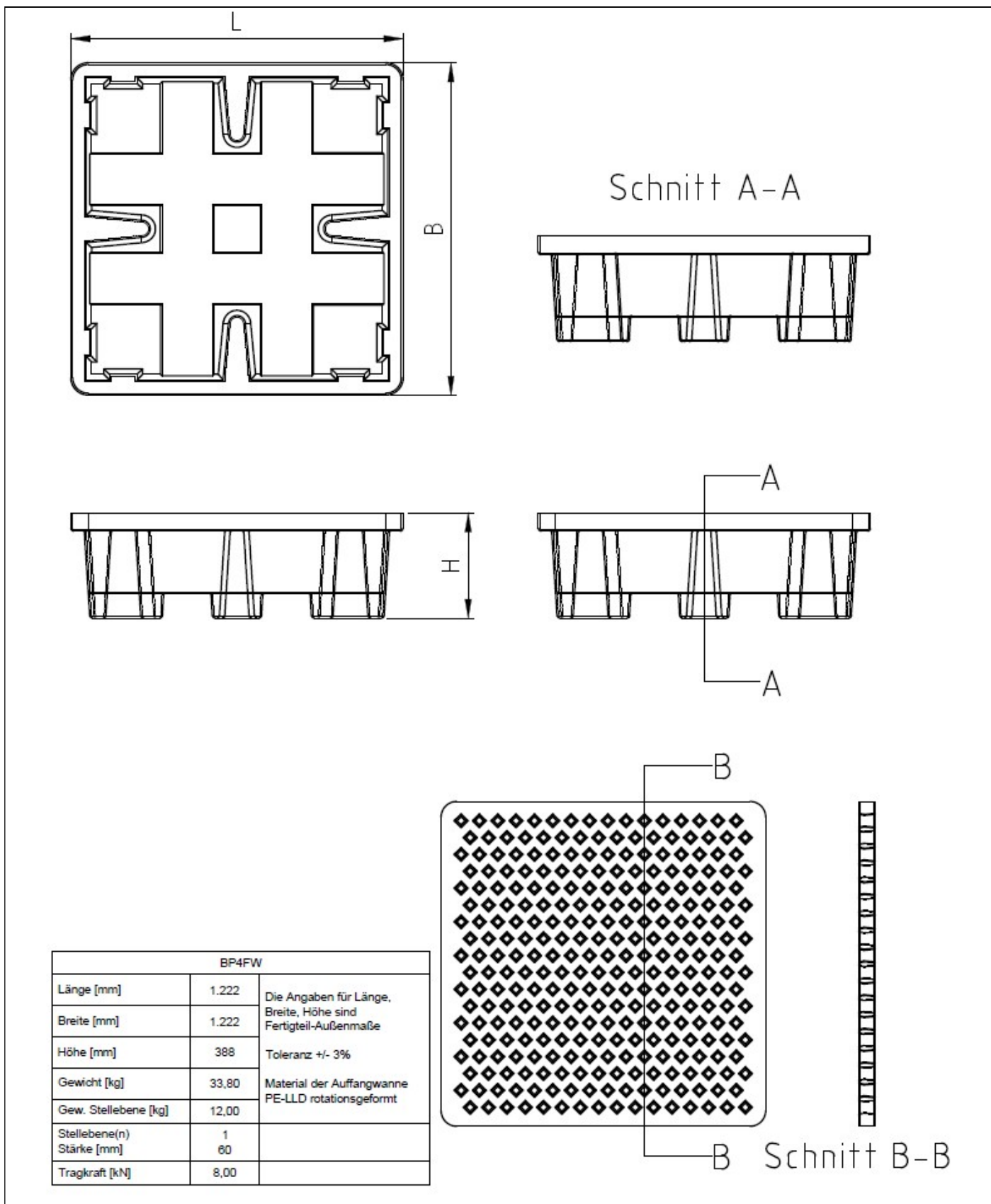


Schnitt B-B

Polyethylene collecting devices

Collecting device BP2FW with setting level

Appendix 1.19

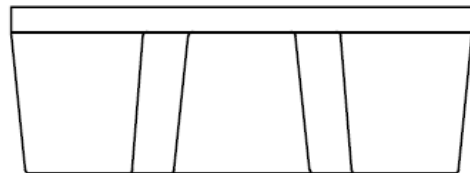
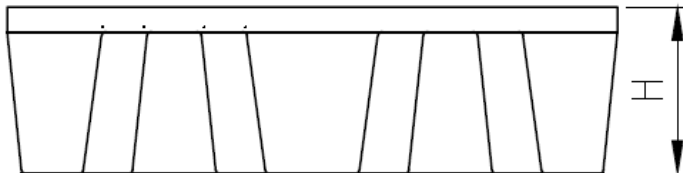
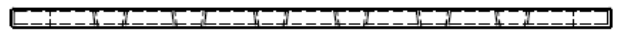
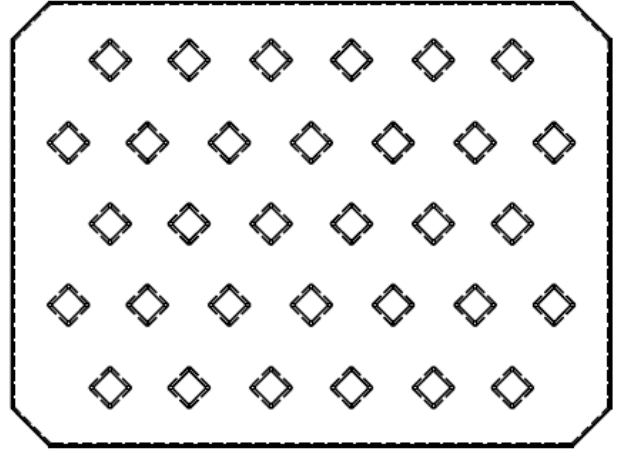
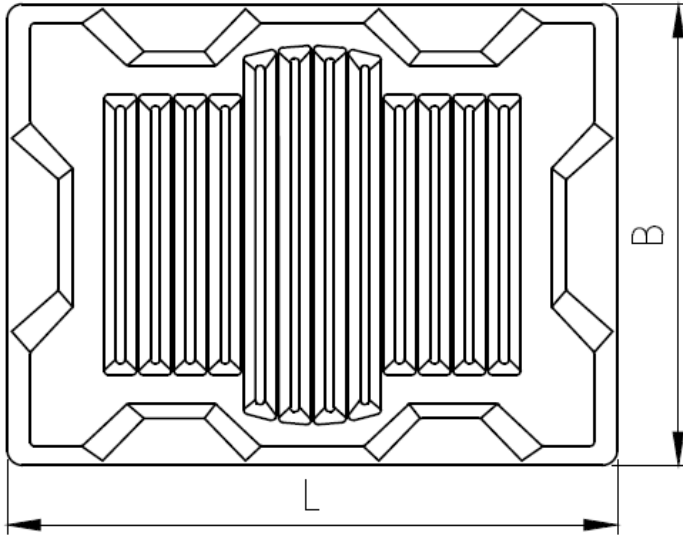


Polyethylene collecting devices

Collecting device BP4FW with setting level

Appendix 1.20



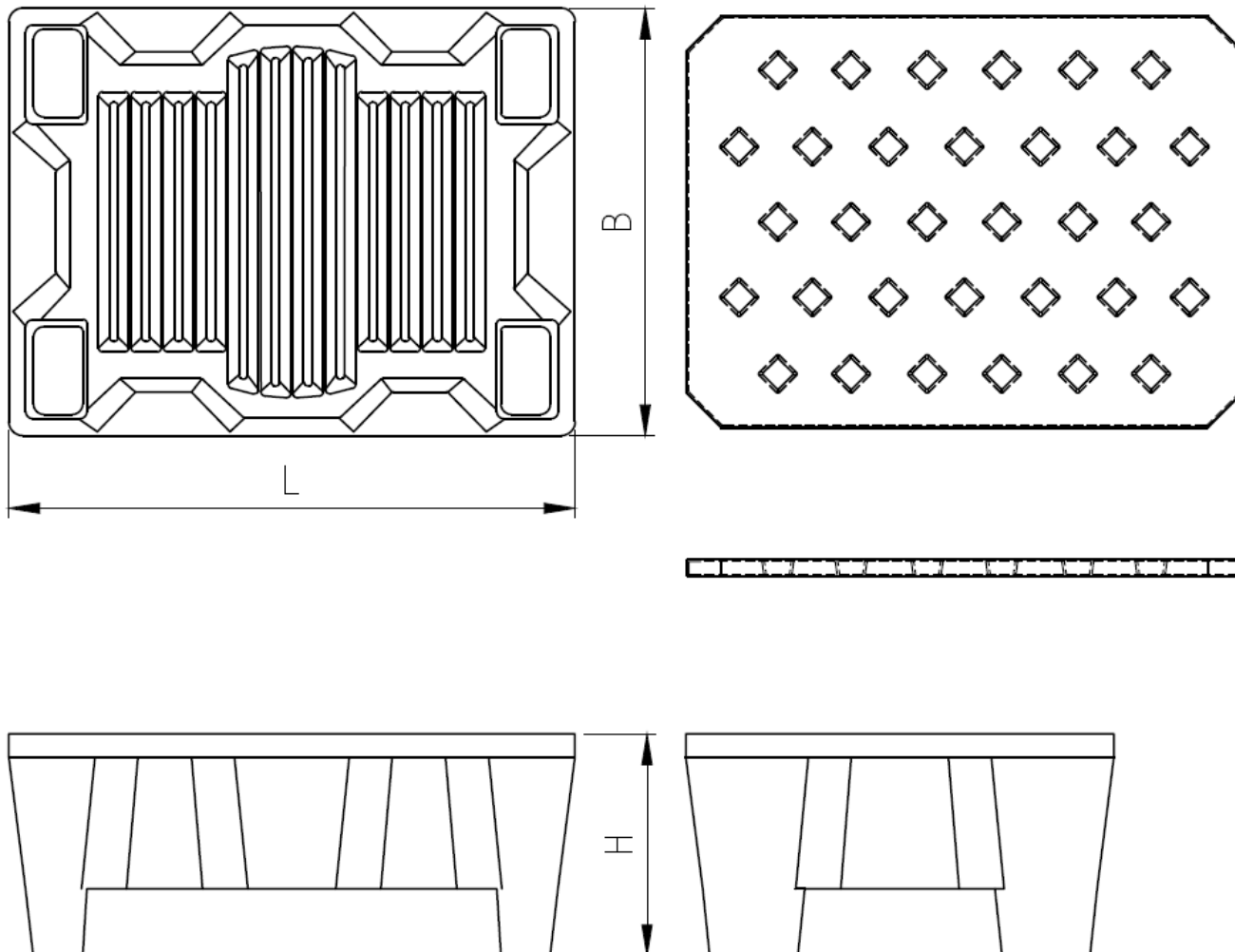


| ST66                 |      |  |
|----------------------|------|--|
| Länge [mm]           | 804  | Die Angaben für Länge, Breite, Höhe sind Fertigteile-Außenmaße |
| Breite [mm]          | 608  |  |
| Höhe [mm]            | 220  | Toleranz +/- 3%  |
| Gewicht [kg]         | 8,50 | Material der Auffangwanne PE-LLD rotatonsgeformt               |
| Gew. Stellebene [kg] | 2,05 |  |
| Stellebene(n)        | 1    |  |
| Stärke [mm]          | 25   |  |
| Tragkraft [kN]       | 1,50 |  |

Polyethylene collecting devices

Collecting device ST66 with/without PE setting level

Appendix 1.21

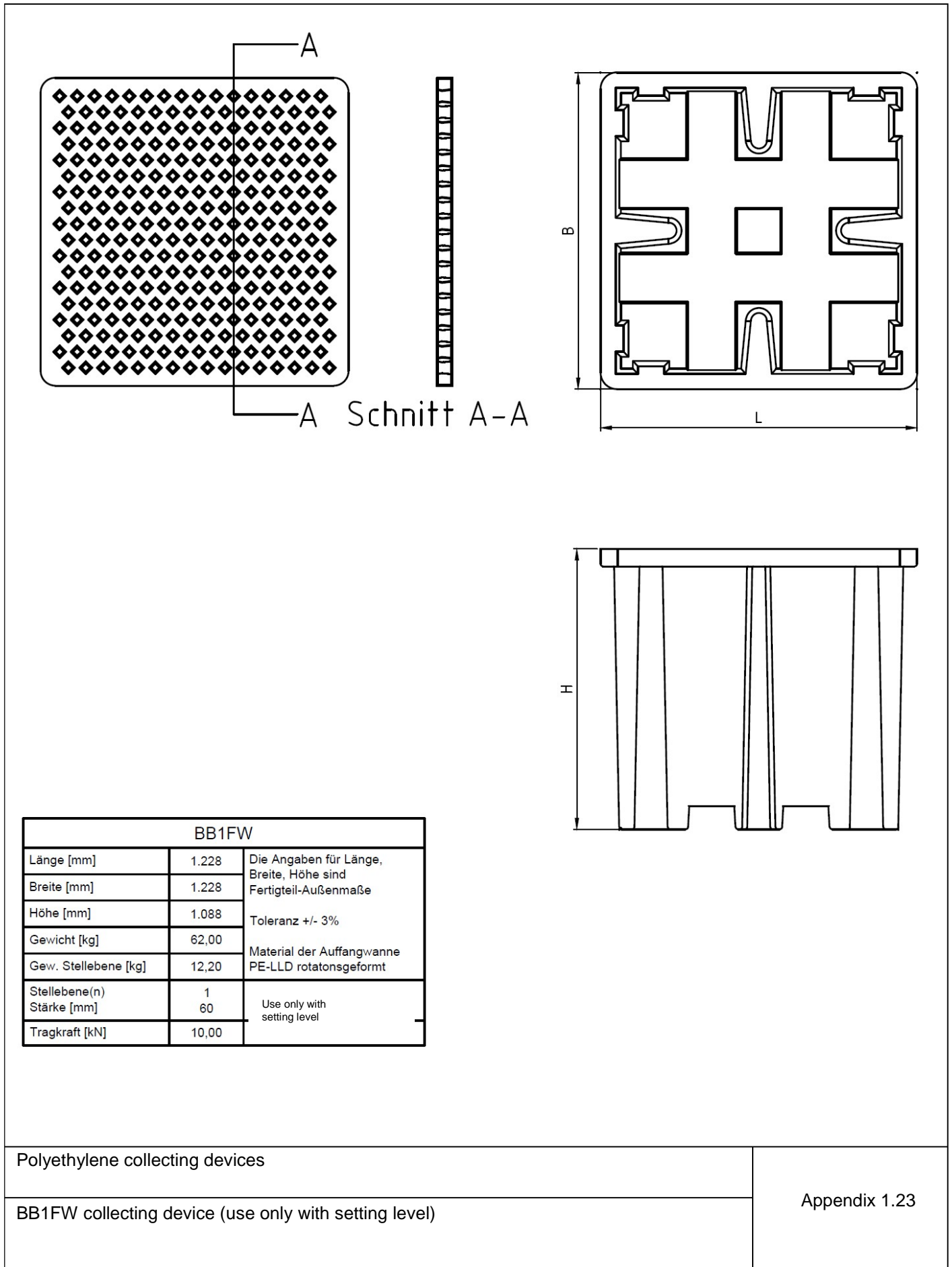


| ST70                         |         |  |
|------------------------------|---------|--|
| Länge [mm]                   | 804     | Die Angaben für Länge, Breite, Höhe sind Fertigteil-Außenmaße<br>Toleranz +/- 3% |
| Breite [mm]                  | 608     |  |
| Höhe [mm]                    | 315     |  |
| Gewicht [kg]                 | 9,50    | Material der Auffangwanne<br>PE-LLD rotatonsgeformt                              |
| Gew. Stellebene [kg]         | 2,05    |  |
| Stellebene(n)<br>Stärke [mm] | 1<br>25 | Use only with setting level  |
| Tragkraft [kN]               | 1,50    |  |

Polyethylene collecting devices

ST70 collecting device (use only with setting level)

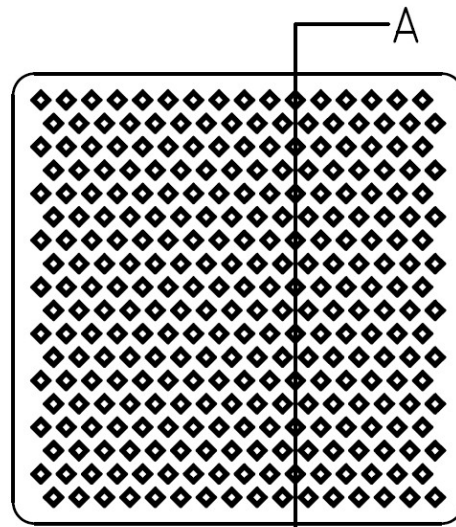
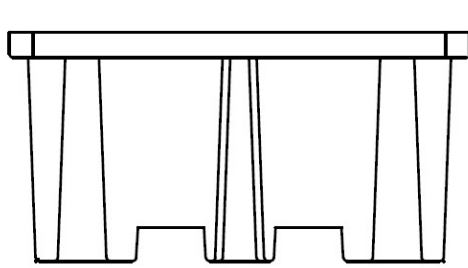
Appendix 1.22



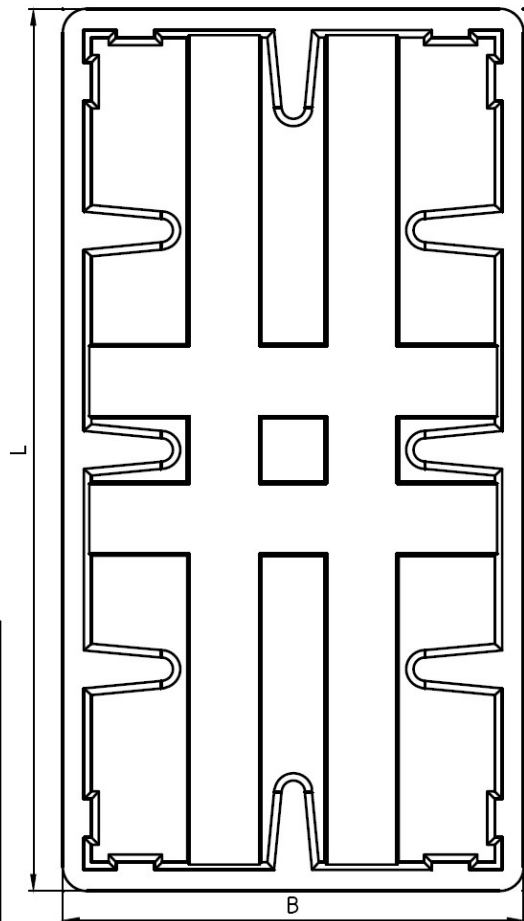
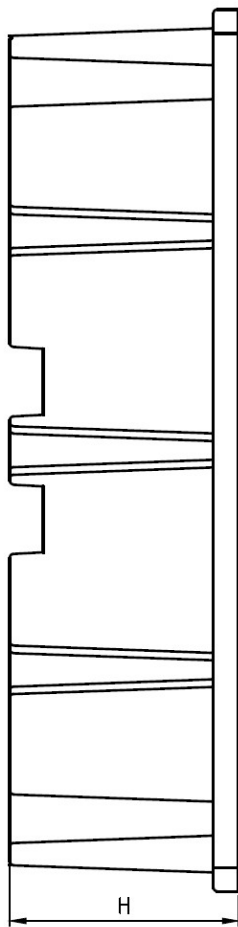
Polyethylene collecting devices

BB1FW collecting device (use only with setting level)

Appendix 1.23



A Schnitt A-A



| BB2FW                        |          |  |
|------------------------------|----------|--|
| Länge [mm]                   | 2340.000 | Die Angaben für Länge, Breite, Höhe sind Fertigteile-Außenmaße |
| Breite [mm]                  | 1222.000 |  |
| Höhe [mm]                    | 608.00   | Toleranz +/- 3%  |
| Gewicht [kg]                 | 91       | Material der Auffangwanne PE-LLD rotatonsgeformt               |
| Gew. Stellebene [kg]         | 24       |  |
| Stellebene(n)<br>Stärke [mm] | 2<br>60  | Use only with setting levels                                   |
| Tragkraft [kN]               | 20       |  |

Polyethylene collecting devices

BB2FW/BP8FW collecting device (use only with setting level)

Appendix 1.24

## Materials

### 1 Collecting devices

(1) Only the moulding compound DOWLEX NG 2432 UE or RESINEX RX103 from Dow Chemical Company may be used to manufacture the rotation-moulded base bodies in accordance with general building permit no. Z-40.25-384.

(2) Regranulate of this material is excluded from use. The moulding compound must be processed with at least 70% new material and 30% single-origin recoil compound.

(3) The pigments Resinex blue or Resinex yellow may be added to the moulding compounds, whereby the maximum percentage of pigment is 0.5% and the maximum carbon black percentage is 2.5%.

### 2 Setting levels

(1) To manufacture the polyethylene grating (setting levels), the moulding compounds HDPE KS 10100 UE and RESINEX RX103 from Dow Chemical Company should be used for the collecting devices BF2, BF4, BF4S, BP2HD, BP4L, BT230, BB1, BB2/BB8, BP2 and BP2FW, BP4FW, ST20, ST30, ST40, ST60, ST100, ST66, ST70, BB1FW and BB2FW, respectively.

(2) The setting level for the BP1 type collecting device is manufactured of HDPE by the company Paul Craemer GmbH.

(3) A mixture of different moulding compounds is prohibited.

## Manufacturing, packaging, transport and storage

### 1 Manufacturing

The rotational sintering process must be controlled so that the moulding compound melts completely without sustaining any thermal damage. The formation of flaws, impermissible accumulations of material and cavities must be avoided.

### 2 Packaging, transport, storage

#### 2.1 Packaging

Packing the collecting devices for transport or (interim) storage is not required when observing the requirements of section 2.2.

#### 2.2 Transport, storage

##### 2.2.1 General

Transport should only be executed by companies with the necessary expertise, devices, equipment and means of transport as well as sufficiently trained personnel.

The relevant accident prevention regulations must be observed to avoid risks for employees and third parties.

##### 2.2.2 Transport preparation

The collecting devices should be prepared for transport in such a way that damage is not incurred when loading, transporting and unloading.

The loading surface of the transport vehicle must be furnished so that damage to the collecting devices resulting from punctiform impact or pressure loads are ruled out.

##### 2.2.3 Loading and unloading

Impact loads must be avoided when lifting, moving or setting down the collecting devices.

##### 2.2.4 Moving

The collecting devices must be secured against shifting while moving. The fixing devices must not cause damage to the collecting devices.

##### 2.2.5 Storage

If interim storage is required, collecting devices may only be placed on an even surface free of objects with sharp edges. The collecting devices must be protected against damage and weather when stored outside. Collecting devices without UV-resistant material (e.g., black colouration) must be protected against UV radiation.

##### 2.2.6 Damage

Damaged collecting devices with impaired functionality because of the damage must be discarded.

## Certification of conformity

### 1 Internal production controls

#### 1.1 Materials

As part of receiving inspections for the moulding compounds (starting materials) used to manufacture the collecting devices and setting levels, the processor must prove to the manufacturer of the starting materials in the form of certificates (acceptance test certificate 3.1) according to DIN EN 10204<sup>1</sup> that the materials comply with the building materials defined in the special provisions, section 2.2.1. For starting materials with a general building permit, the Mark of Conformity replaces the acceptance test certificate 3.1 according to DIN EN 10204.

Table 1: Certificates

| Object            | Property  | Test basis   | Documentation   | Frequency                          |
|-------------------|---|--|---|------------------------------------|
| Moulding compound | Brand name<br>Type designation according to DIN EN ISO 17855-1 <sup>2</sup> | Special provisions, section 2.2.1                    | Ü Mark of Conformity                                      | every delivery                     |
|                   | Melt index, density   |  |   |                                    |
| Moulding material | Melt index, yield stress, yield strain, elasticity module                   | Section 1.2 of this appendix                         | Record  | After start-up, after batch change |
| Setting levels    | Brand name, geometry, material  | Section 2 of Appendix 2 as well as on file with DIBt | acceptance test certificate 3.1 according to DIN EN 10204 | every delivery                     |

<sup>1</sup> DIN EN 10204:2005-01 Metallic products - Types of inspection documents; German version EN 10204:2004

<sup>2</sup> DIN EN ISO 17855-1:2015-02 Plastics – Polyethylene (PE) moulding and extrusion materials – Part 1: Designation system and basis for specifications (ISO 17855-1:2014); German version EN ISO 17855-1:2014



## Certification of conformity

### 1.2 Test basis for moulding material

The requirements of Table 2 apply to rotation-moulded parts from moulding compounds section 2.2.1 of the special provisions.

Table 2: Requirements

| Property, unit                         | Test basis   | Monitoring value                                 |
|--|--|--|
| Melt index<br>[g/(10 min)]             | DIN EN ISO 1133 <sup>3</sup><br>MFR (190/2.16)                           | max. MFR =<br>MFR(190/2.16) <sup>(a)</sup> + 15% |
| Yield stress<br>[N/mm <sup>2</sup> ]   | DIN EN ISO 527-1 and -2 <sup>4</sup><br>(at 50 mm/min<br>haul-off speed) | ≥ 19.0   |
| Yield strain [%]                       |  | ≥ 8.0  |
| Secant modulus<br>[N/mm <sup>2</sup> ] | DIN EN ISO 527-1 and -2<br>(at 1 mm/min<br>haul-off speed)               | ≥ 730  |

Index (a): Initial value according to the general building permit for the moulding compound

### 1.3 Collecting devices

The tests listed in Table 3 must be executed on the collecting devices. Table 3: Test basis for parts testing

| Property                        | Test basis  | Documentation                           | Frequency                         |
|---------------------------------|---|---|-----------------------------------|
| Surfaces<br>mould<br>Dimensions | based on<br>DVS 2206-1 <sup>5</sup>                                   | Record<br>(manufacturer<br>certificate) | each collecting<br>device         |
| Wall thickness,<br>inert masses | Section 1.4<br>of this  |   | (Wall thickness<br>random sample) |
| Impermeability                  | Water filling or other<br>similar non-destructive<br>material testing |   |                                   |

- 3 DIN EN ISO 1133:2012-03 Plastics – Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics (ISO 1133-1:2011); German version EN ISO 1133-1:2011
- 4 DIN EN ISO 527-1:2012-06 Plastics – Determination of tensile properties – Part 1: General principles (ISO 527-1:2012); German version EN ISO 527-1:2012  
DIN EN ISO 527-2:2012-06 Plastics – Determination of tensile properties – Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2:2012); German version EN ISO 527-2:2012
- 5 DVS 2206-1:2011-09 Non-destructive tests on tanks, apparatus and piping made of thermoplastics – Dimensional checking and visual inspection

## Certification of conformity

### 1.4 Test basis for dimensions, wall thickness and inert masses

Dimensions and collection volumes: see section 1 (2) of the special provisions Table 4:  
Minimum wall thickness and minimum weight of the collecting trays

| Type designation | Minimum wall thickness | Minimum weight |
|------------------|------------------------|----------------|
| BF2              | 6                      | 20             |
| BF4              | 6                      | 40             |
| BF4S             | 6                      | 51             |
| BP1              | 5.1                    | 13.7           |
| BP2              | 5.15                   | 17.1           |
| BP2FW            | 5.3                    | 16.6           |
| BP4              | 6                      | 44             |
| BP4FW            | 5.5                    | 21.8           |
| BP4L             | 6                      | 25             |
| BP2HD            | 6                      | 40             |
| BT230            | 6                      | 44             |
| BB1              | 6                      | 66.6           |
| BB2 / BP8        | 6                      | 81.2           |
| BB3              | 6                      | 78             |
| BB4              | 6                      | 67.3           |
| ST20             | 4.2                    | 2.1            |
| ST30             | 4.5                    | 2.9            |
| ST40             | 4.5                    | 3.9            |
| ST60             | 4.4                    | 5.0            |
| ST100            | 4.6                    | 7.7            |
| ST66             | 3.9                    | 5.4            |
| ST70             | 4.58                   | 6.2            |
| BB1FW            | 4.4                    | 48.2           |
| BB2FW / BP8FW    | 5.56                   | 60.3           |

## Certification of conformity

### 1.5 Setting levels

The requirements of Table 5 apply to polyethylene setting levels.

Table 5: Requirements for setting levels

| Property, unit            | Test basis   | Monitoring value    |
|---------------------------|--|---------------------|
| Melt index<br>[g/(10min)] | DIN EN ISO 1133 <sub>3</sub> and<br>manufacturer specifications <sup>6</sup> | MFR(190/2.16) < 4.0 |
| Weight [kg]               | Appendix 1.3 – 1.24  | Appendix 1.3 – 1.24 |

### 2 Initial testing

(1) Before beginning ongoing production in the manufacturer's factory, a corresponding collecting device must be checked by the testing centre for compliance with this general building permit from the inspected production quantity at the discretion of the sampler.

(2) Samples for the initial testing are usually taken and marked by the representative from the testing centre during the initial inspection of the factory. The samples must meet the provisions of Appendices 1 and 2 and section 1 of this Appendix. The sampler must make a record of the sampling procedure. The sample report must confirm compliance with the provisions of Appendices 1 and 2 and section 1 of this Appendix.

### 3 Documentation

See section 2.4.2 of the special provisions for information about documentation.

<sup>6</sup> Information about the manufacturer and materials is on file with the Deutsches Institut für Bautechnik