

# Inquiry clarification - sludge piling technology

# 1. General project information

| a) | Contact details  |  | _ |
|----|--|--|---|
|    | Inquiry number:  |  |   |
|    | Project name/number:   |  |   |
|    | Company name:  |  |   |
|    | Address:   |  |   |
|    | Tel:   |  |   |
|    | Fax:   |  |   |
|    | Email:   |  |   |
|    |  |  | - |
| b) | Inquiry for Information  | Planning<br>Advice   |   |
| c) | Application case   |  | ] |
| d) | Drawings & images  |  |   |
|    | Are construction drawings available?<br>(Ideally in dxf, dwg or step format) | Are construction site images available?                    |   |
|    | Please enclose availa  | able documents, images, also hand sketches as attachments. |   |
| e) | Quotation information  |  |   |
| -, | As follows:  | Your inquiry pertains to:                                  | _ |
|    | End customer<br>Reseller   | An existing project     Inquiry for a tender               |   |
|    | Engineering office   |  |   |
|    |  |  |   |
|    | Planned project<br>realisation time frame:                                   |  |   |
|    |  |  |   |
|    | Installation site:   |  |   |
|    | Special requirements re. the electrics:                                      |  |   |
|    | Voltage:   |  |   |
|    | Frequency:   |  | 1 |
|    |  |  |   |

|    | Special local execution specifications:         |   |                  |    |
|----|---|---|------------------|----|
|    | specifications.                                 |   |                  |    |
| f) | How did you hear about H                        | uning?                                  |                  |    |
|    | Existing customer relationship                  |   | Trade fair visit |    |
| g) | Characteristics of the slud                     | e to be conveyed:                       |                  |    |
|    | Designation:                                    |   |                  |    |
|    | Origin of the sludge:                           |   |                  |    |
|    | Density:  | kg/                                     | ′m³ kg/r         | n³ |
|    | Dry matter content:                             | %                                       | %                |    |
|    | pH value:                                       |   |                  |    |
|    | Remarks re. the sludge:                         |   |                  |    |
|    |   |   |                  |    |
|    | Does the sludge contain free user?              |   |                  |    |
| h) | Extraneous materials                            |   |                  |    |
|    | Type of extraneous materials (e.g. stones):     |   |                  |    |
|    | Size of extraneous materials:                   | mn                                      | nmm              |    |
|    | Estimated mass fraction of extraneous materials | %                                       | %                |    |
|    |   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                  |    |
|    | Is extraneous material separation requi         | ed?                                     |                  |    |
|    | Separation required from what size:             |   | mm               |    |
| i) | Run-times & throughput ca                       | pacity                                  |                  |    |
|    | Throughput capacity per year:                   | t/y                                     | ear              |    |
|    | Run-time in days per year:                      | h/y                                     | ear              |    |

h/day

Run-time in days per year: Run-time in hours per day:

### 2. Reception systems

#### a) Reception container in steel construction (type SBCI)



Steel reception container, Bremen power station



Extraneous material grate and folding cover, Ibbenbüren power station

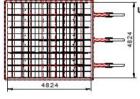


Hydr. folding cover

#### Reception system 3,2 x 4,8m



69m<sup>3</sup> with 3,0m height 57m<sup>3</sup> with 2,5m height 46m<sup>3</sup> with 2,0m height

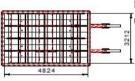


Discharge capacity:

up to 50m<sup>3</sup>/h



46m<sup>3</sup> with 3,0m height 38m<sup>3</sup> with 2,5m height 30m<sup>3</sup> with 2,0m height



Discharge capacity: up to 50m³/h

Huning reception containers are equipped with extended piston rods in the sludge area, so that the parts in contact with sludge do not drive into the hydraulic cylinder. The container can be fitted with an extraneous material grate and covers of different designs (including walkable folding roof). The inner sliding frames are driven by a hydraulic unit and convey the input substance to the discharge screw(s) positioned

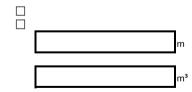
centrally.

Discharge capacity: up to approx.  $50m^3/h - 60m^3/h$  in the standard version.

### **Reception container**

Reception version:

| Top floor                |
|--------------------------|
| Bottom floor             |
| Max. bottom floor depth: |



Utilisable volume

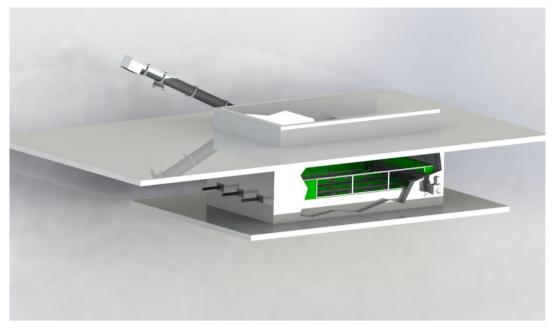
Reception system 4,8 x 4,8m

| Loading via:               | Wheel loaderImage: Constraint of the second sec |                         |
|----------------------------|---|-------------------------|
|                            | Other:  |                         |
|                            | Batch size filling/HGV:   | m³                      |
| Discharge capacity:        | Discharge capacity required:  | m³/h<br>and / or<br>t/h |
| Extraneous material grate: | Is an extraneous material grate with a mesh<br>size of approx.<br>400x400mm intended above the reception<br>container?  |                         |
| Container cover:           | Single part, hydr. folding cover  |                         |
|                            | Walkable, single part, hydr.<br>folding cover<br>Walkable, two-part, hydr. folding<br>cover   |                         |
| Weighing mechanism:        | Loss in weight solution (mounted on scale feet)   |                         |

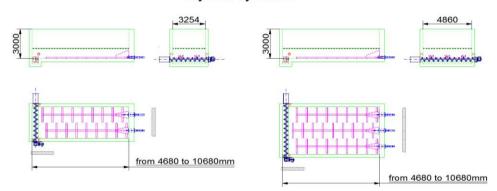
## **Conveyance after reception**

| Pump                                      |  |
|---|--|
| Туре:                                     |  |
| Mechanical conveyance systems:            |  |
| Туре:                                     |  |
| e.g. spiral, chain, bucket, belt conveyor |  |

b) Reception container in concrete construction (type hybrid)



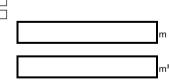
Hybrid systems



Huning hybrid-concrete reception bunkers are an alternative to steel containers. The installation parts required for the sludge discharge are integrated directly in a concrete container. The bunker can be fitted with an extraneous material grate and covers of different designs. The hydraulically-driven discharge equipment conveys the sludge into a discharge spiral conveyor located on the front, or directly into a pump. Discharge capacity: up to approx. 25m<sup>3</sup>/h in the standard version.

#### Reception container Reception version: Top floor Bottom floor





Utilisable volume

| 3          |
|------------|
| ı³/h<br>′h |
|            |
|            |
|            |

# Conveyance after the reception container

Pump

Type:

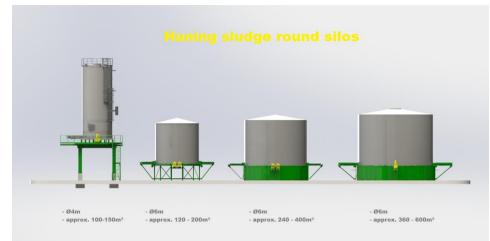
Mechanical conveyance systems:

Type:

e.g. spiral, chain, bucket, belt conveyor

### 3. Storage and silo systems

### a) Sludge round silos



Huning sludge silos can be supplied in a range of different diameters. Filling can take place with continuous conveyors (e.g. spiral conveyors) or pumps. Hydraulically driven discharge mechanisms convey the sludge into discharge conveyors (spiral conveyors), which are usually positioned centrally.

The clad, head-high maintenance room beneath the silo can be heated during frosty periods and therefore guarantees fault-free operation all year round.

Discharge capacity depending on application and design: up to 100 m<sup>3</sup>/h in the standard version.

| Sludge silo             |  | _ |   |      |
|-------------------------|--|---|---|------|
| Desired silo version:   | Ground level installation<br>Elevated installation for HGV<br>under-running                                  |   | (Silo floor height as standard approx<br>(only available for Ø4m, Ø6m and Ø |      |
|                         | Clearance beneath discharge:   |   |   | m    |
|                         | Utilisable volume required   |   |   | m³   |
|                         | Preferred silo diameter  |   |   | m    |
|                         | Silo floor heating   |   |   |      |
|                         | Silo jacket insulation   |   | (Height from silo floor)  | m    |
|                         | Desired roof access:<br>Stair tower<br>Tank jacket steps<br>Access ladder<br>Catwalk with roof edge railings |   | (negrit rom and neer)   |      |
| Preferred filling with: | Spiral worm<br>Pump<br>Other:  |   |   |      |
|                         | Filling capacity required:   |   | and / or  | m³/h |
|                         |  |   |   | t/h  |

| Discharge capacity:       | Discharge capacity required:                    |                       | m³/h |
|---------------------------|---|-----------------------|------|
|                           |   | and / or              | _    |
|                           |   |                       | t/h  |
| Weighing mechanism:       | Loss in weight solution<br>(silo on scale feet) | ] (only for Ø4, Ø6 m) |      |
| Conveyance after the slud | ge silo   |                       |      |

| Pullip                                    |  |
|---|--|
| Туре:                                     |  |
|   |  |
| Mechanical conveyance systems:            |  |
| Туре:                                     |  |
| e.g. spiral, chain, bucket, belt conveyor |  |

#### b) Sludge container for HGV loading in compact rectangular design (type SBCI)



Huning sludge containers can be supplied in a range of different sizes, with two or three sliding frames. These are usually filled via conveyor screws, which press the sludge into the silo body and therefore almost completely utilise the storage volume. The internal hydraulically-driven sliding frames convey the sludge to the discharge screw(s) positioned centrally.

The steel structure beneath the container can be insulated and heated during frosty periods and therefore guarantees fault-free operation all

year round. Discharge capacity: up to 50 -60 m<sup>3</sup>/h

**Sludge container** Container version: Floor installation (Height of steel substructure approx. 0.8m) Elevated installation for HGV under-running, centrally or from the side Utilisable volume required m<sup>3</sup> Preferred container dimensions (L x W) m **Container version:** Insulation and heating planned? Container roof access: Access stairs Access ladder Roof edge railings Preferred filling via: Spiral worm Pump Other: m³/h Filling capacity required: and / or t/h Discharge capacity: Discharge capacity required: m³/h and / or t/h Weighing mechanism: Loss in weight solution (on scale feet)

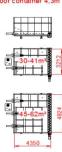
| Conveyance | after the | container |
|------------|-----------|-----------|
|------------|-----------|-----------|

Direct to HGV Via inclined spiral conveyor, etc. to HGV (only possible from 4.5m elevation)

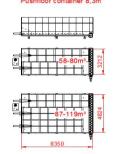
| Discharge into other conveyor path/container:<br>with pump |  |  |  |
|--|--|--|--|
| Туре:  |  |  |  |
| other conveyance systems:                                  |  |  |  |
| Туре:  |  |  |  |
| e.g. spiral, chain, bucket, belt conveyor                  |  |  |  |

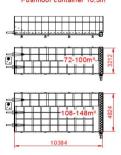
c) Sludge container as dryer store (type SBCK)



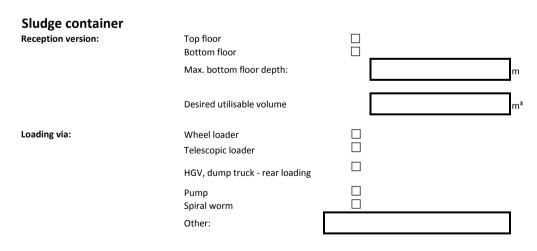








Huning sludge containers can be designed in a range of different sizes, with two or three sliding frames. A hydraulically-driven discharge mechanism conveys the sludge into a discharge spiral conveyor located on the front, or directly into a pump. Discharge capacity: up to approx. 25m<sup>3</sup>/h



|  | Batch size per filling   |                               |     |
|--|--|-------------------------------|-----|
|  | process/HGV:   |                               | m³  |
| Discharge capacity:  | Discharge capacity required:   |                               | m³/ |
|  |  | and / or                      | t/h |
| Extraneous material grate:   | Is an extraneous material grate with a m<br>size of approx.<br>400x400mm required above the receptic<br>container? |                               |     |
| Container roof:  | Single part, hydr. folding cover   |                               |     |
|  | Walkable, single part, hydr.<br>folding cover  |                               |     |
|  | Walkable, two-part, hydr. folding  |                               |     |
|  | cover<br>Permanently mounted roof  |                               |     |
| Scales equipment required?:  | Loss in weight solution (mounted on sca feet, only for steel construction)   | le 🗌                          |     |
| Direct to HGV<br>Via inclined spiral conveyor to HGV<br>Discharge into other conveyor path<br>Pump |  | oossible from 4.5m elevation) |     |
| Pump<br>Type:  |  |                               |     |
| Mechanical conveyance systems:<br>Type:<br>e.g. spiral, chain, bucket, belt convey                 | <br>Jor  |                               |     |
| Further notes  |  |                               |     |

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