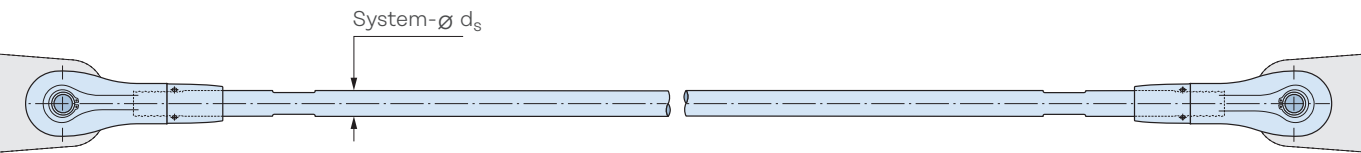


Halfen Detan Tension rod system

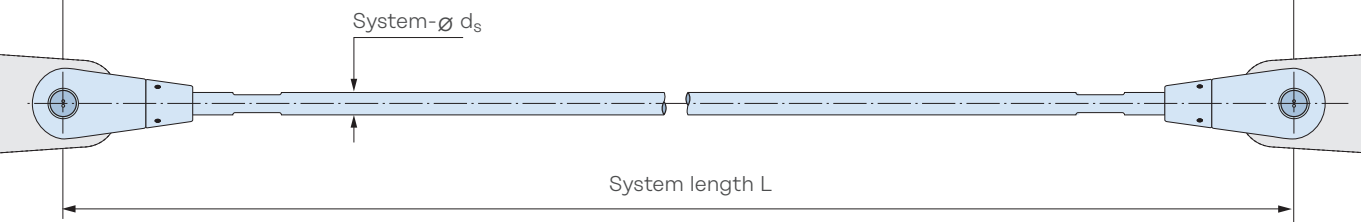
Basic system without couplers

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_  
Customer address: \_\_\_\_\_  
Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_  
Project: \_\_\_\_\_ Project address: \_\_\_\_\_  
Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

Tension rod system Halfen Detan-S (steel):



Tension rod system Halfen Detan-D (stainless):



Choice of material:    Halfen Detan-S (steel) – FV (hot-dip galvanized) ETA-05/0207; EN1993    Halfen Detan-S (steel) – WB (mill finish) ETA-05/0207; EN1993    Halfen Detan-D (stainless) ETA-23/0276

| Item.   | Qty | d <sub>s</sub><br>[mm] | Z <sub>Ed,max</sub> ①<br>[kN] | System length<br>L<br>[mm] | Material choice |                       |           |
|---------|-----|------------------------|-------------------------------|----------------------------|-----------------|-----------------------|-----------|
|         |     |                        |                               |                            | mill finish     | hot-dip<br>galvanized | stainless |
| Example | 3   | 30                     |                               | 5600                       |                 | x                     |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |
|         |     |                        |                               |                            |                 |                       |           |

① maximum tension load required if diameter is unknown

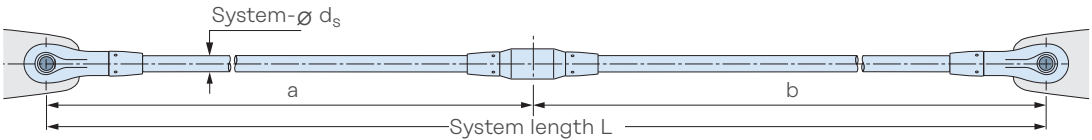
Halfen Detan Tension rod system

Basic system with couplers

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_  
Customer address: \_\_\_\_\_  
Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_  
Project: \_\_\_\_\_ Project address: \_\_\_\_\_  
Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

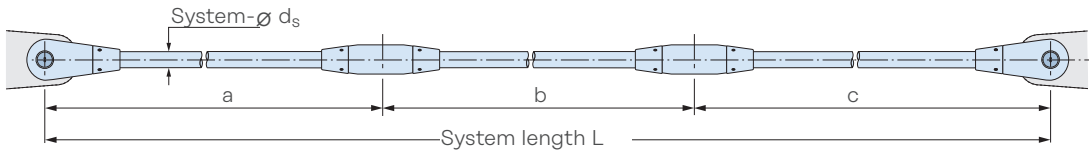
One coupler:

Example  
Halfen Detan-S (steel)



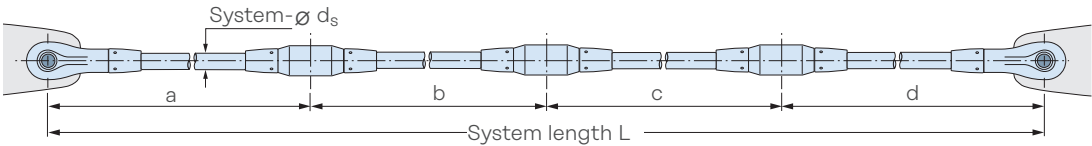
Two couplers:

Example  
Halfen Detan-D (stainless)



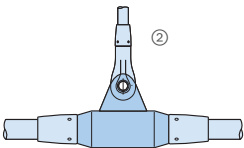
Three couplers:

Example  
Halfen Detan-S (stainless)



Coupler (MO)

Example Halfen Detan-D (stainless)



Coupler with hanger (MS)

Example Halfen Detan-S (steel)

**i** If more than three couplers are required, informative drawings showing the couplers locations shall be submitted. Couplers with or without hanger are available for both systems Halfen Detan-S and Halfen Detan-D.

Choice of material:    **Halfen Detan-S (steel)** – FV (hot-dip galvanized) ETA-05/0207; EN1993    **Halfen Detan-S (steel)** – WB (mill finish) ETA-05/0207; EN1993    **Halfen Detan-D (stainless)** ETA-23/0276

| Item.   | Qty | d <sub>s</sub><br>[mm] | Z <sub>Ed,max</sub><br>① [kN] | System length<br>L [mm] | <div><div>1 </div><div>2 </div><div>3 </div></div> |                     |                |                     |                |                     |                |                  | Material choice |                    |           |
|---------|-----|------------------------|-------------------------------|-------------------------|----------------------------------------------------|---------------------|----------------|---------------------|----------------|---------------------|----------------|------------------|-----------------|--------------------|-----------|
|         |     |                        |                               |                         | Qty of cou-<br>plers<br>[max.3]                    | Length<br>a<br>[mm] | MO<br>or<br>MS | Length<br>b<br>[mm] | MO<br>or<br>MS | Length<br>c<br>[mm] | MO<br>or<br>MS | Length d<br>[mm] | mill finish     | hot-dip galvanized | stainless |
| Example | 3   | 30                     |                               | 5600                    |                                                    |                     |                |                     |                |                     |                |                  |                 | x                  |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |
|         |     |                        |                               |                         |                                                    |                     |                |                     |                |                     |                |                  |                 |                    |           |

① maximum tension load required if diameter is unknown  
② suspended systems at couplers with hanger can be recorded in our order form: basic system without couplers

## Halfen Detan Cross bracings

## Double-symmetric fields (rectangular or square)

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_

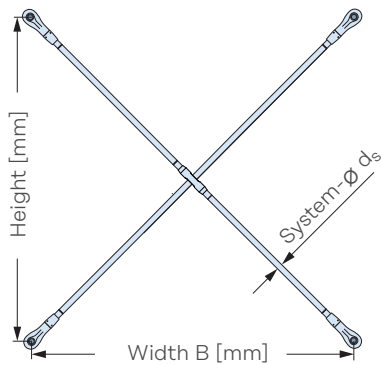
Customer address: \_\_\_\_\_

Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

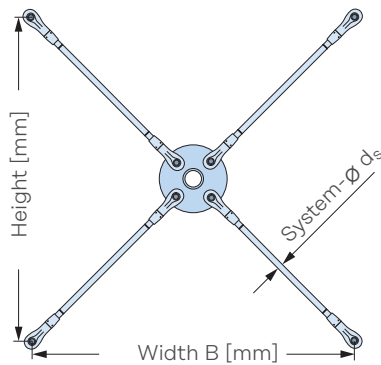
Project: \_\_\_\_\_ Project address: \_\_\_\_\_

Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

### Cross bracing



with cross couplere ②



with anchor disc ②

Choice of material:

**Halfen Detan-S (steel) –**  
FV (hot-dip galvanized)  
ETA-05/0207; EN1993

**Halfen Detan-S (steel) – WB (mill finish)**  
ETA-05/0207; EN1993

Halfen Detan-D (stainless)  
ETA-23/0276

[illegible]

① maximum tension load required if diameter is unknown

② smallest installation angle  $\alpha = 40^\circ$

## Halfen Detan Cross bracings

Asymmetric fields (e.g. trapezoidal or diamond-shaped)

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_

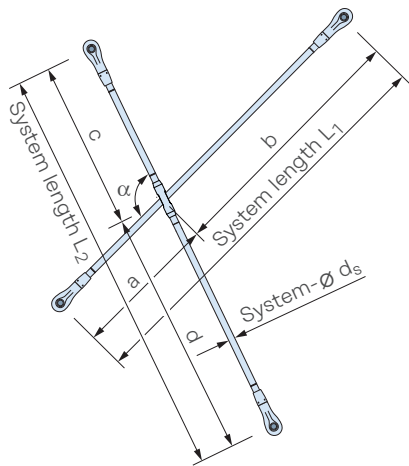
Customer address: \_\_\_\_\_

Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

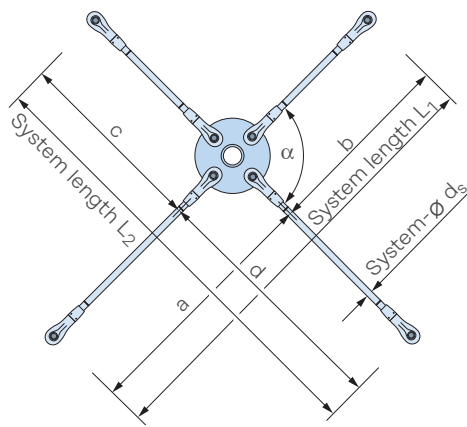
Project: \_\_\_\_\_ Project address: \_\_\_\_\_

Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

### Cross bracing



with cross coupler ②



with anchor disc ②

Choice of material:

**Halfen Detan-S (steel) –**  
FV (hot-dip galvanized)  
ETA-05/0207; EN1993

**Halfen Detan-S (steel) – WB (mill finish)**  
ETA-05/0207; EN1993

Halfen Detan-D (stainless)  
ETA-23/0276

| Item    | Qty | d <sub>s</sub><br>[mm] | Z <sub>Ed,max</sub> <sup>①</sup><br>[kN] | System<br>length<br>L1<br>[mm] | System<br>length<br>L2<br>[mm] | Length<br>a<br>[mm] | Length<br>b<br>[mm] | Length<br>c<br>[mm] | Length<br>d<br>[mm] | Opening<br>angle ②<br>[°] | Material choice |                            |                |
|---------|-----|------------------------|------------------------------------------|--------------------------------|--------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------------|-----------------|----------------------------|----------------|
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           | mill<br>finish  | hot-dip<br>galva-<br>nized | stain-<br>less |
| Example | 3   | 30                     |                                          | 5600                           | 4200                           | x                   |                     |                     |                     |                           |                 | x                          |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |
|         |     |                        |                                          |                                |                                |                     |                     |                     |                     |                           |                 |                            |                |

Plausibility check: L<sub>1</sub> = a + b and L<sub>2</sub> = c + d

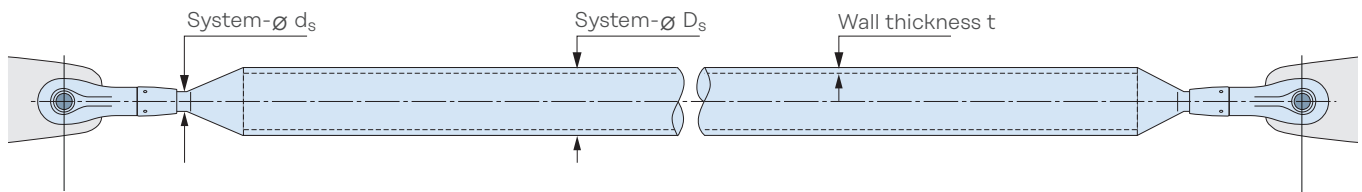
① maximum tension load required if diameter is unknown

② smallest installation angle  $\alpha = 40^\circ$

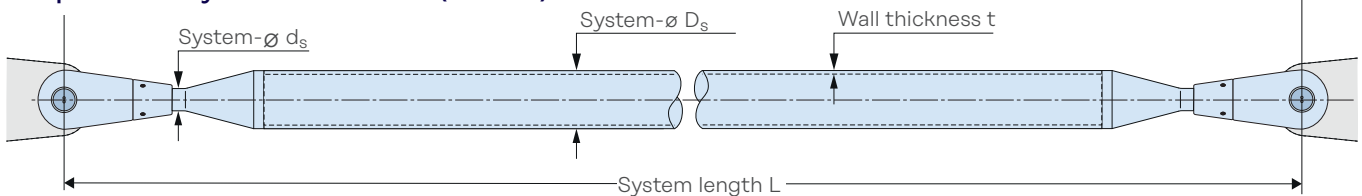
## Halfen Detan Compression rod system

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_  
 Customer address: \_\_\_\_\_  
 Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_  
 Project: \_\_\_\_\_ Project address: \_\_\_\_\_  
 Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

### Compression rod system Halfen Detan-S (steel):



### Compression rod system Halfen Detan-D (stainless):



Choice of material: **Halfen Detan-S (steel)** – FV (hot-dip galvanized) ETA-05/0207; EN1993 **Halfen Detan-S (steel)** – WB (mill finish) ETA-05/0207; EN1993 **Halfen Detan-D (stainless)** ETA-23/0276

| Item    | Qty | d <sub>s</sub><br>[mm] | D <sub>s</sub> ③<br>[mm] | t ③<br>[mm] | N <sub>Ed,max</sub> ①<br>[kN] | Z <sub>Ed,max</sub> ②<br>[kN] | System length<br>L<br>[mm] | Material choice |                       |                |
|---------|-----|------------------------|--------------------------|-------------|-------------------------------|-------------------------------|----------------------------|-----------------|-----------------------|----------------|
|         |     |                        |                          |             |                               |                               |                            | mill<br>finish  | hot-dip<br>galvanized | stain-<br>less |
| Example | 5   | 16                     | 54                       | 2.6         |                               |                               | 1250                       |                 | x                     |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |
|         |     |                        |                          |             |                               |                               |                            |                 |                       |                |

- ① for unknown geometry maximum compression stress is required  
 ② for unknown geometry maximum tension stress is required (only if present)  
 ③ shorter delivery periods if standard lengths from table below will be selected (see ① note):

| Standard cross sections [mm]; only for steel S355 |     |     |     |     |     |     |     |  |
|---------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|--|
| System-Ø D <sub>s</sub>                           | 42  | 54  | 60  | 76  | 89  | 114 | 139 |  |
| Wall thickness                                    | 2.6 | 2.6 | 2.9 | 2.9 | 3.2 | 3.6 | 4.0 |  |

**Note:** Halfen Detan Compression rods are also available with other diameters as shown in the table.

## Halfen Detan Tension rod special design

Customer: \_\_\_\_\_ Contact name: \_\_\_\_\_

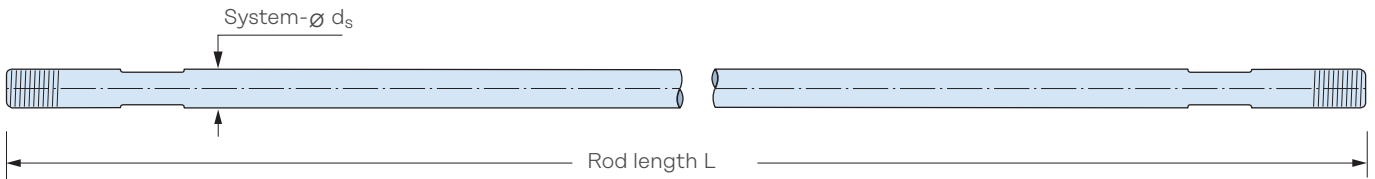
Customer address: \_\_\_\_\_

Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Project: \_\_\_\_\_ Project address: \_\_\_\_\_

Date: \_\_\_\_\_ Customer no.: \_\_\_\_\_ Enquiry ☐ Estimate ☐ Order ☐

### Special design rod ③



Choice of material: **Halfen Detan-S (steel)** – FV (hot-dip galvanized) ETA-05/0207; EN1993

**Halfen Detan-S (steel) –**  
WB (mill finish) ETA-05/0207; EN1993

**Halfen Detan-D (stainless)**  
ETA-23/0276

| Item         | Qty | d <sub>s</sub> ③<br>[mm] | System<br>length<br>L [mm] | Thread design incl. indication ①②<br>of thread-length [mm] |  |     |    | Fork connection<br>single ended with<br>thread direction ③ |  | Material choice |   |                |                       |
|--------------|-----|--------------------------|----------------------------|------------------------------------------------------------|--|-----|----|------------------------------------------------------------|--|-----------------|---|----------------|-----------------------|
|              |     |                          |                            | r/r                                                        |  | l/l |    | r/l                                                        |  | r               | l | mill<br>finish | hot-dip<br>galvanized |
| Exam-<br>ple | 3   | 30                       | 2500                       |                                                            |  | x   |    |                                                            |  | x               |   |                |                       |
|              |     |                          |                            |                                                            |  | 125 | 80 |                                                            |  |                 |   | x              |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |
|              |     |                          |                            |                                                            |  |     |    |                                                            |  |                 |   |                |                       |

① r/r = right-hand/right-hand - thread; l/l = left-hand/left-hand - thread; r/l = right-hand/left-hand - thread

② thread lengths up to 195 mm possible

③ not part of European Technical Assessment