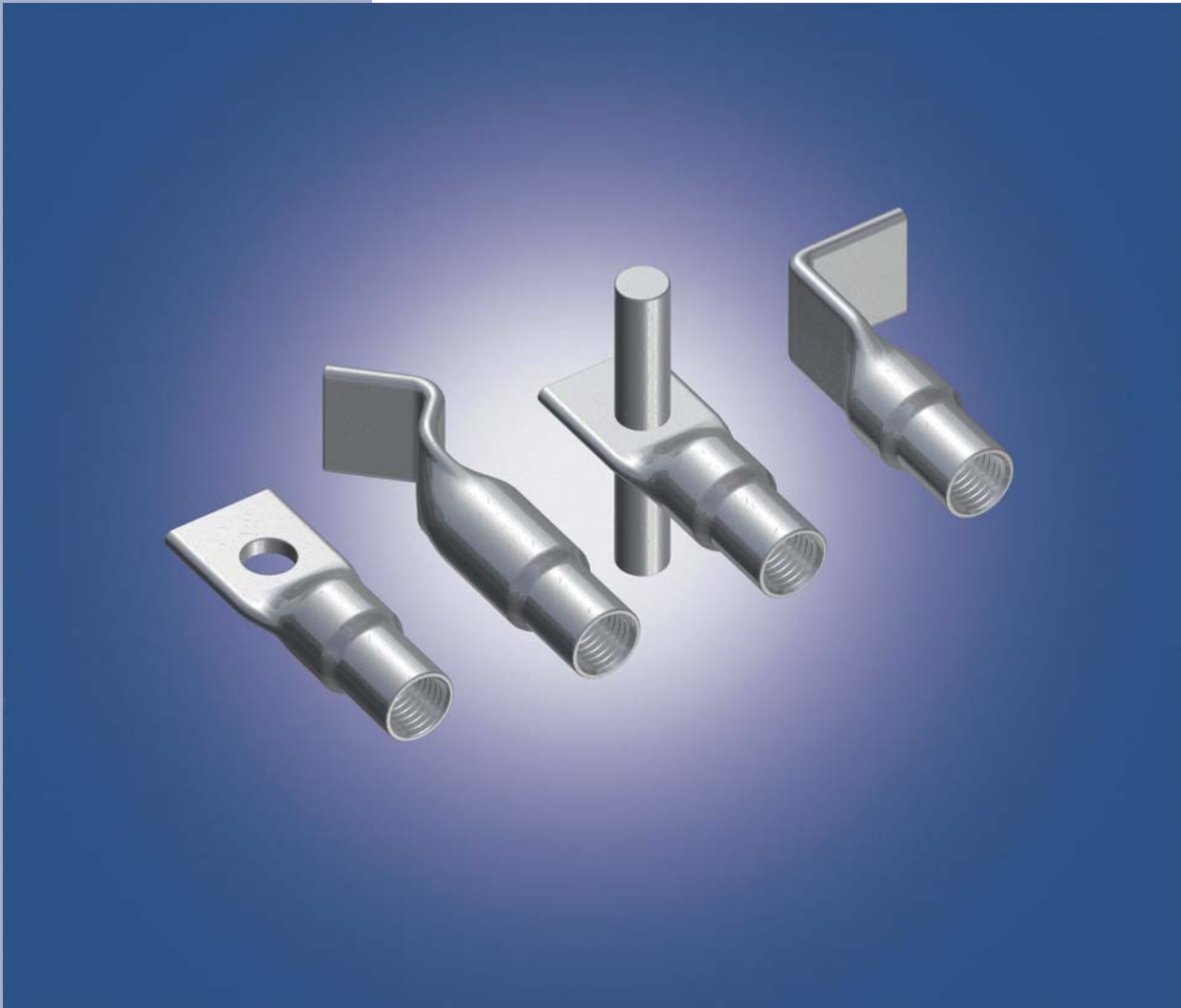




# PHILIPP Fixing Systems

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## Installation Instruction



## Transport and mounting systems for precast units

- ▲ **Technical department** – our staff would be happy to support you during your design process with suggestions for installation and of our transport and mounting systems for precast units.
- ▲ **Special constructions** – individual for your special application.
- ▲ **Practical tests in plant** – we ensure that our concepts are customized.
- ▲ **Test reports** – for documentation and your safety.
- ▲ **Service** – our engineers would be happy to train your technicians and staff at plant, consult during installation of precast units and help to optimize the production process.
- ▲ **High application safety of our products** – close cooperation with federal institute for material testing and – where required – German approvals of our products.
- ▲ **Software solutions** – design software for our sandwich anchor system.

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## 1. General Advice

The **PHILIPP Fixing System** is suitable for all fixations where an approval is not required. It is therefore not appropriate and inadmissible to use it for the transport of precast units. (For the transport of precast units we recommend **PHILIPP Transport Anchor Systems**.)

The installation instructions are necessary to determine the forces which act on the **PHILIPP Fixing System** in precast concrete units and hence the particular **PHILIPP Fixing Socket**.

**PHILIPP Fixing Sockets** are used for the fixation of mounting braces for precast units.

All given loads are valid for a minimum concrete strength of **25N/mm<sup>2</sup>**.

### 1.1 System Description

The **PHILIPP Fixing System** consists of 4 different fixing sockets:

- **PHILIPP Fixing Socket with Cross Pin**  
The load transmission into the concrete is ensured by the cross pin
- **PHILIPP Fixing Socket with Cross Hole**  
The load transmission into the concrete is ensured by a rebar which is installed by the customer
- **PHILIPP Fixing Socket with Wavy End**  
The load transmission into the concrete is ensured by the wavy end
- **PHILIPP Fixing Socket with Angular End**  
The load transmission to the concrete is ensured by the angular end

### 1.2 Specification of PHILIPP Fixing Sockets

- **PHILIPP Fixing Sockets** are made of steel tube
- **PHILIPP Fixing Sockets** are galvanized (b.z.p.)
- Stainless steel versions are also available
- **PHILIPP Fixing Sockets** are made with metric thread

Special types are available at any time.

## 2. PHILIPP Fixing Socket with Cross Pin

### 2.1 Dimensions

**Table 1: Load Bearing Capacities and Dimensions**

Art.-No. galvanized	Type	Load Rate	allow. $F_z$ [kN]	Dimensions [mm]				Weight [kg/100 pcs.]	
	M			dia.D	h	e	d		f
6807212062	12	5.0	5.0	17.0	62	13.0	50.0	10	7.5
6807216080	16	8.0	8.0	22.5	80	19.0	50.0	12	14.6
6807216100	16	10.0	10.0	22.5	100	19.0	50.0	12	16.5
6807220095	20	12.5	12.0	27.0	95	20.0	85.0	14	27.3
6807220115	20	14.0	13.0	27.0	115	20.0	85.0	14	30.8
6807224120	24	18.0	18.0	32.0	120	24.0	85.0	14	46.0

The weight of 1.0ton results in 10kN.

### 2.2. Minimum Center Distance

When the **PHILIPP Fixing Sockets** are installed the center distance must be  $2 \times \min.a_r$  or  $\min.b_r$  respectively (Table 2). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 2 and 3).

### 2.3. Edge Distance

**PHILIPP Fixing Sockets** can be installed with the distance  $\min.a_r$  or  $\min.b_r$  from the edge (Table 2). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 2 and 3).

### 2.4 Minimum Unit Thicknesses

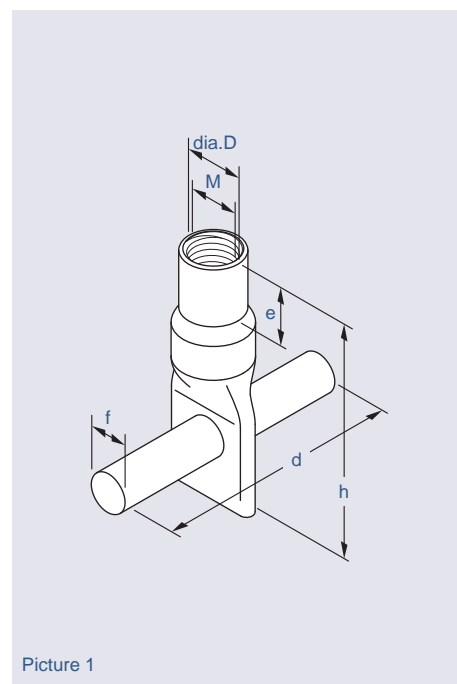
**Table 2: Center Distances, Edge Distances and Unit Thicknesses**

Type	Edge Distance min. $a_r$ [mm]	Edge Distance min. $b_r$ [mm]	Unit Thickness d [mm]
6807212062	90	120	85
6807216080	120	160	105
6807216100	150	200	125
6807220095	150	200	125
6807220115	180	240	145
6807224120	180	240	145

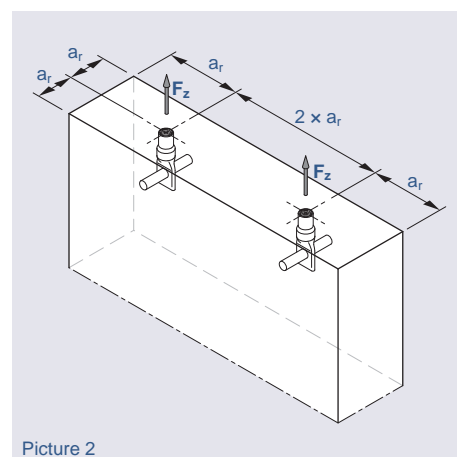
To ensure a safe load transfer it is inadmissible to undergo the edge distances given in Table 2. If a higher concrete cover is required the unit dimensions must be corrected.

On use of **PHILIPP Fixing Sockets** it must be taken into account that the concrete has a minimum concrete strength of **25N/mm<sup>2</sup>** at first time of loading.

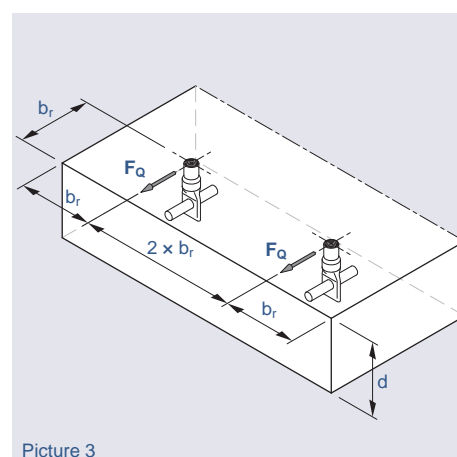
If interaction of  $F_z$  and  $F_Q$  occurs the **PHILIPP Fixing Sockets** are loaded by axial and lateral tension. In that case the adjoining equation must be fulfilled. That means that the same force is admissible for an inclination of  $0^\circ$  till  $90^\circ$ .



Picture 1



Picture 2



Picture 3

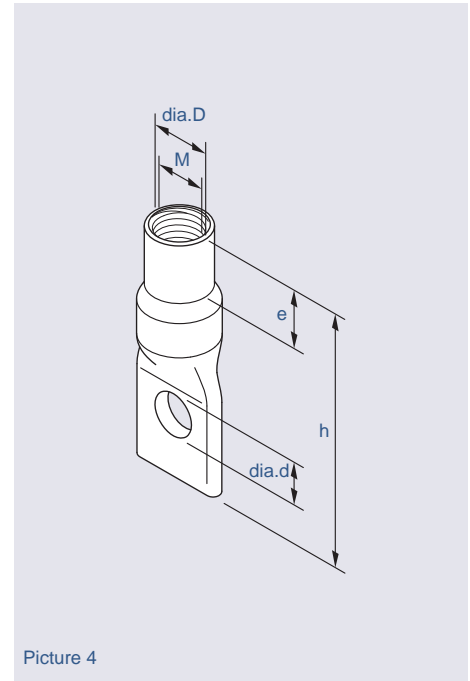
$$\sqrt{F_z^2 + F_Q^2} \leq \text{allow. } F_z$$

## 3. PHILIPP Fixing Socket with Cross Hole

### 3.1. Dimensions

**Table 3: Load Bearing Capacities and Dimensions**

Art.-Nr. galvanized	Type	Load Rate	allow. F <sub>z</sub> [kN]	Dimensions [mm]				Weight [kg/100 pcs.]
	M			dia.D	h	e	dia.d	
6801206040	6	1.5	1.5	9.0	40	8	6.3	1.0
6801208040	8	2.0	2.0	11.0	40	10	8.3	1.0
6801208050	8	2.5	2.5	11.0	50	10	8.3	1.4
6801210050	10	3.5	3.5	13.5	50	11	8.3	1.9
6801212060	12	5.0	5.0	17.0	60	13	10.2	3.8
6801212070	12	6.0	6.0	17.0	70	13	10.2	4.3
6801216070	16	7.0	7.0	22.5	70	19	12.2	9.4
6801216080	16	8.0	8.0	22.5	80	19	12.2	10.8
6801216100	16	10.0	10.0	22.5	100	19	12.2	12.4
6801216120	16	12.0	12.0	22.5	120	19	12.2	14.4
6801220100	20	12.5	12.5	27.0	100	20	14.3	17.0
6801220120	20	14.0	14.0	27.0	120	20	14.3	21.3
6801224120	24	18.0	18.0	32.0	120	24	14.3	28.0
6801230150	30	27.5	27.5	42.0	150	30	17.2	66.0



The weight of 1.0ton results in 10kN.

### 3.2. Minimum Center Distance

When the **PHILIPP Fixing Sockets** are installed the center distance must be  $2 \times \min a_r$  or  $\min b_r$  respectively (Table 4). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 5 and 6).

### 3.3. Edge Distance

**PHILIPP Fixing Sockets** can be installed with the distance  $\min a_r$  or  $\min b_r$  from the edge (Table 4). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 5 and 6).

## 3.4. Minimum Unit Thicknesses

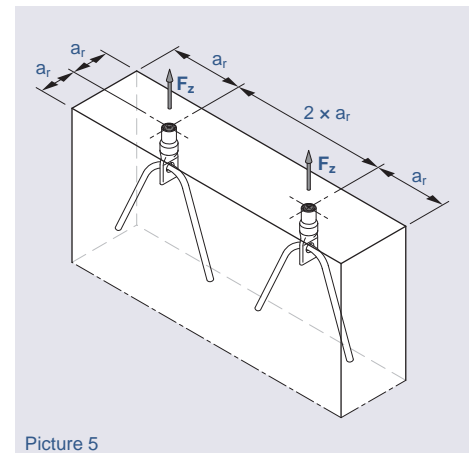
**Table 4: Center Distances, Edge Distances and Unit Thicknesses**

Art.-No. galvanized	Edge Distance min. $a_r$ [mm]	Edge Distance min. $b_r$ [mm]	Unit Thickness $d$ [mm]
6801206040	60	80	65
6801208040	60	80	65
6801208050	75	100	75
6801210050	75	100	75
6801212060	90	120	85
6801212070	105	140	95
6801216070	105	140	95
6801216080	120	160	105
6801216100	150	200	125
6801216120	180	240	145
6801220100	150	200	125
6801220120	180	240	145
6801224120	180	240	145
6801230150	225	300	175

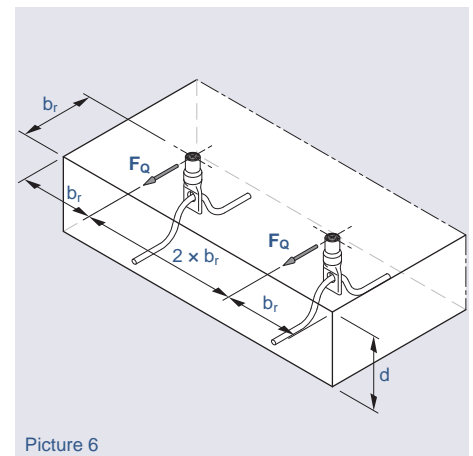
To ensure a safe load transfer it is inadmissible to undergo the edge distances given in Table 4. If a higher concrete cover is required the unit dimensions must be corrected.

On use of **PHILIPP Fixing Sockets** it must be taken into account that the concrete has a minimum concrete strength of **25N/mm<sup>2</sup>** at first time of loading.

If interaction of  $F_z$  and  $F_Q$  occurs the **PHILIPP Fixing Sockets** are loaded by axial and lateral tension. In that case the adjoining equation must be fulfilled. That means that the same force is admissible for an inclination of 0° till 90°.



Picture 5



Picture 6

$$\sqrt{F_z^2 + F_Q^2} \leq \text{allow. } F_z$$

## 4. PHILIPP Fixing Socket with Waved End

### 4.1. Dimensions

**Table 5: Load Bearing Capacities and Dimensions**

Art.-No. galvanized	Type	Load rate	allow. $F_z$ [kN]	Dimensions [mm]			Weight [kg/100 pcs.]
	M			dia.D	h	e	
6803210040	10	3.0	3.0	13.5	40	11.0	1.7
6803210060	10	4.0	4.0	13.5	60	11.0	3.2
6803212050	12	4.0	4.0	17.0	50	13.0	3.8
6803212070	12	6.0	6.0	17.0	70	13.0	4.3
6803216070	16	7.0	7.0	22.5	70	19.0	8.1
6803216100	16	10.0	10.0	22.5	100	19.0	14.7
6803220100	20	12.5	12.5	27.0	100	20.0	17.5
6803224100	24	16.0	16.0	32.0	100	24.0	25.8

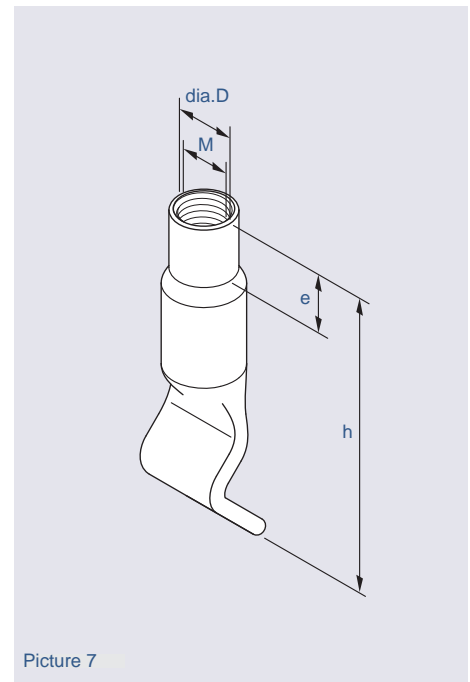
The weight of 1.0ton results in 10kN.

### 4.2. Minimum Center Distance

When the **PHILIPP Fixing Sockets** are installed the center distance must be  $2 \times \min.a_r$  or  $\min.b_r$ , respectively (Table 6). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 8 and 9).

### 4.3. Edge Distance

**PHILIPP Fixing Sockets** can be installed with the distance  $\min.a_r$  or  $\min.b_r$  from the edge (Table 6). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 8 and 9).





## 4.4. Minimum Unit Thicknesses

**Table 6: Load Bearing Capacities and Dimensions**

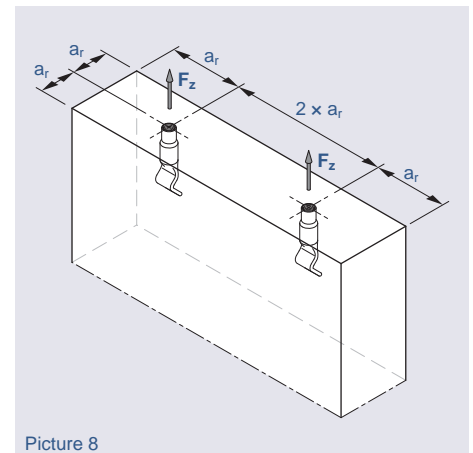
Art.-No. galvanized	Edge Distance min. $a_r$ [mm]	Edge Distance min. $b_r$ [mm]	Unit Thickness $d$ [mm]
6803210040	75	100	75
6803210060	90	120	85
6803212050	75	120	75
6803212070	105	140	95
6803216070	105	140	95
6803216100	150	200	125
6803220100	150	200	125
6803224100	180	240	145

To ensure a safe load transfer it is inadmissible to undergo the edge distances given in Table 6. If a higher concrete cover is required the unit dimensions must be corrected.

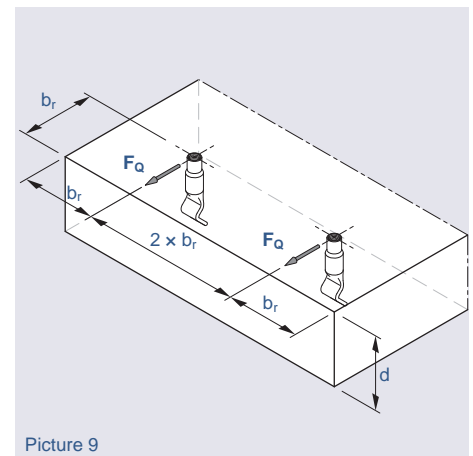
On use of **PHILIPP Fixing Sockets** it must be taken into account that the concrete has a minimum concrete strength of **25N/mm<sup>2</sup>** at first time of loading.

If interaction of  $F_Z$  and  $F_Q$  occurs the **PHILIPP Fixing Sockets** are loaded by axial and lateral tension. In that case the adjoining equation must be fulfilled. That means that the same force is admissible for an inclination of 0° till 90°.

$$\sqrt{F_Z^2 + F_Q^2} \leq \text{allow. } F_Z$$



Picture 8



Picture 9

## 5. PHILIPP Fixing Socket with Angular End

### 5.1. Dimensions

**Table 7: Load Bearing Capacities and Dimensions**

Art.-Nr. galvanized	Type	Load rate	allow. $F_z$ [kN]	Dimensions [mm]				Weight [kg/100 pcs.]
	M			dia.D	h	e	d	
6805208035	8	2.3	2.3	11.0	45	10	25	1.9
6805210060	10	4.0	4.0	13.5	60	11	25	4.6
6805212045	12	3.5	3.5	17.0	45	13	25	4.8
6805212070	12	6.0	6.0	17.0	70	13	25	7.4
6805216060	16	6.0	6.0	22.5	60	19	35	10.1
6805216100	16	10.0	10.0	22.5	100	19	35	14.8
6805216130	16	12.0	12.0	22.5	130	19	35	17.9
6805220100	20	12.5	12.5	27.0	100	20	35	24.0

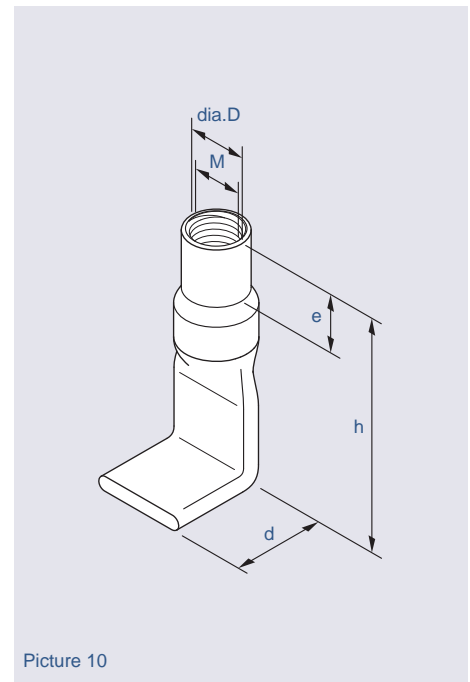
The weight of 1.0ton results in 10kN.

### 5.2. Minimum Center Distance

When the **PHILIPP Fixing Sockets** are installed the center distance must be  $2 \times \min.a_r$  or  $\min.b_r$  respectively. The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 11 and 12).

### 5.3. Edge Distance

**PHILIPP Fixing Sockets** can be installed with the distance  $\min.a_r$  or  $\min.b_r$  from the edge (Table 8). The minimum center distances have to be chosen depending on the application in slabs or walls (Picture 11 and 12).



## 5.4. Minimum Unit Thicknesses

**Table 8: Center Distances, Edge Distances and Unit Thicknesses**

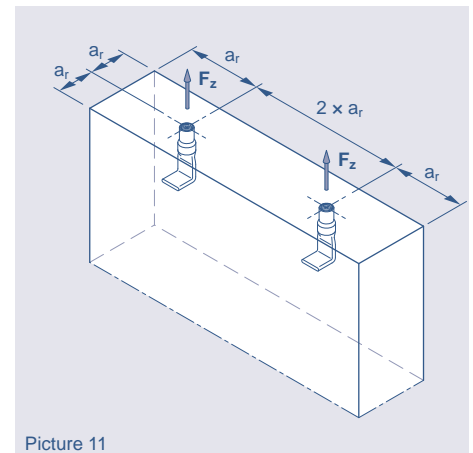
Art.-Nr. galvanized	Edge Distance min. $a_r$ [mm]	Edge Distance min. $b_r$ [mm]	Unit Thickness $d$ [mm]
6805208035	60	80	55
6805210060	75	120	85
6805212045	90	120	65
6805212070	105	140	95
6805216060	105	140	85
6805216100	150	200	125
6805216130	200	250	155
6805220100	150	200	125

To ensure a safe load transfer it is inadmissible to undergo the edge distances given in Table 8. If a higher concrete cover is required the unit dimensions must be corrected.

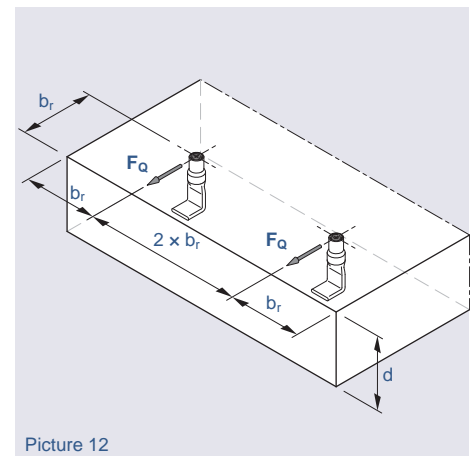
On use of **PHILIPP Fixing Sockets** it must be taken into account that the concrete has a minimum concrete strength of **25N/mm<sup>2</sup>** at first time of loading.

If interaction of  $F_Z$  and  $F_Q$  occurs the **PHILIPP Fixing Sockets** are loaded by axial and lateral tension. In that case the adjoining equation must be fulfilled. That means that the same force is admissible for an inclination of 0° till 90°.

$$\sqrt{F_Z^2 + F_Q^2} \leq \text{allow. } F_Z$$



Picture 11



Picture 12

## Ropes

- ▲ wire rope slings
- ▲ crane and forest ropes
- ▲ wire, hemp and polyamide ropes
- ▲ hoisting and special ropes
- ▲ polypropylene ropes
- ▲ rope connections



## Lifting, attachment and lashing equipment

- ▲ load restraint systems
- ▲ RUD sling chains
- ▲ load suspension devices
- ▲ round slings, sling bands and lifting equipment
- ▲ rope and chain accessories
- ▲ lifting beams



## Transport and mounting systems for prefabricated units

- ▲ transport anchors
- ▲ spherical-head anchor system
- ▲ fixing sockets
- ▲ connecting technique



## Hydraulic, pneumatics and conveyor technique

- ▲ hydraulic units and components
- ▲ pneumatic, connector systems and accessories
- ▲ Hoses, fittings and accessories
- ▲ machines, tools, machinery systems and accessories

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