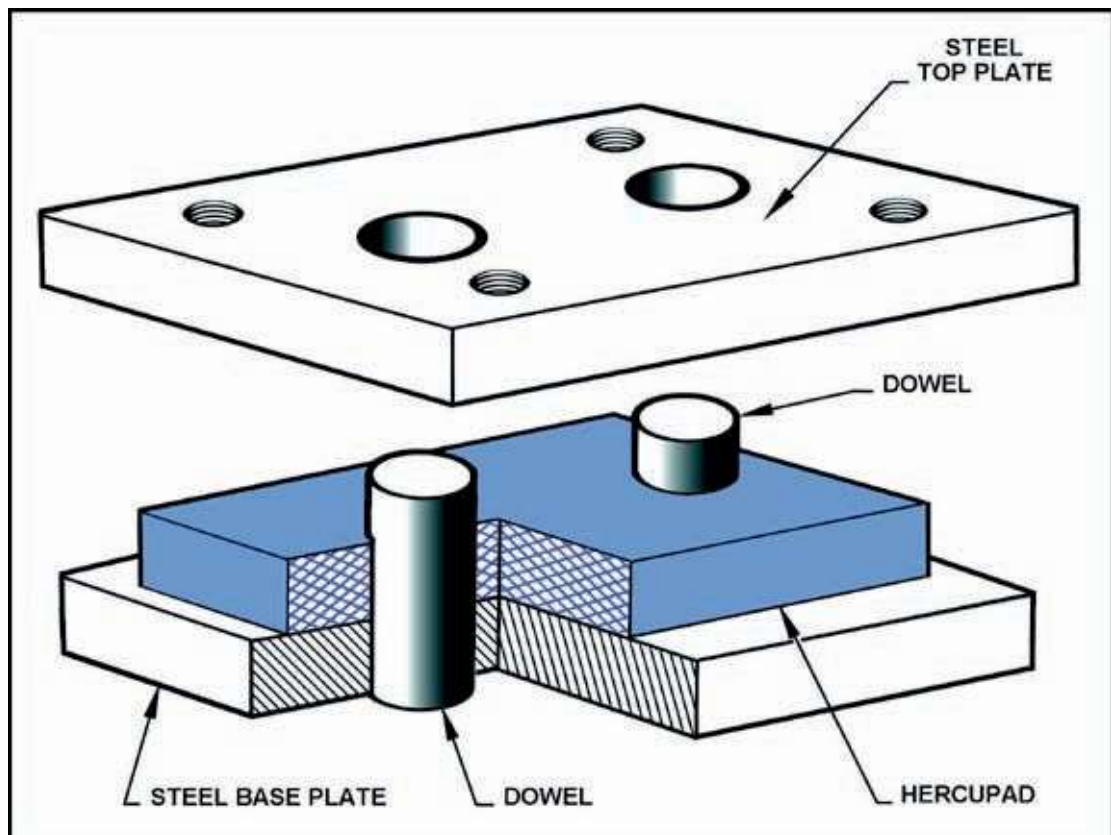


**Application**

*Herculon Type D Fixed (HLD/FX) Bearings* (see Fig 3-11) have been developed to fulfil the need for a rotation only bearing on corbels and columns. They can be used under beams and slabs and also under pipes, ducts, conveyors, pressure vessels and small span bridges. These bearings are designed to be removable and to accept a lateral load of 30% of the vertical rated load.



**Fig 3-11 Herculon Type D Fixed Bearing**

**Materials**

The *HLD/FX* bearing consists of a mild steel top plate bonded to a fixed *Hercupad*, which in turn is bonded to a mild steel base plate. Two shear pins are provided to transfer the lateral loads.

**Design**

The following design limitations are recommended:

- Maximum contact stress 10 MPa.
- Maximum rotation up to 0.02 radians.
- Maximum temperature 80°C.

**!** **NOTE**

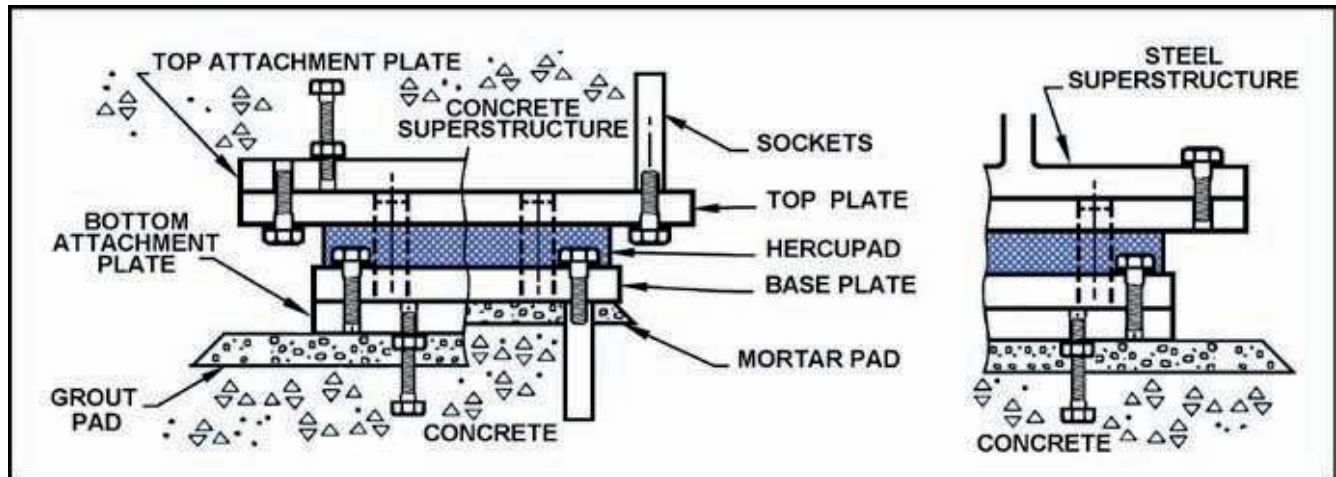
**Higher temperatures can be accommodated by thermally insulating the bearings or by using high temperature materials. Please contact our Technical Department for further information.**

**Installation****In Concrete Structures**

Fig 3-12 shows a *HLD/FX* bearing being cast into an in-situ roof slab. Grouting-in bolts are provided to screw into the tapped holes in the top and base plates.

The *HLD/FX* bearing should be installed in a concrete structure as shown in Fig 3-12 and in accordance with the following instructions:

1. Prepare concrete seatings with a nominal 10 mm thick mortar pad with a wood float finish so that the level does not vary more than 2 mm from a straight edge placed in any direction across the seating. The horizontal plane of the seating should vary no more than 3 mm from the elevations shown on the plans.
2. Place the bearing in the position shown on the plans and fit formwork around the bearing.
3. Cover the joints between the bearing and formwork with polythene sheet or masking tape to prevent the ingress of concrete during the pour.
4. Pour concrete directly onto the top surface of the mild steel top attachment plate.



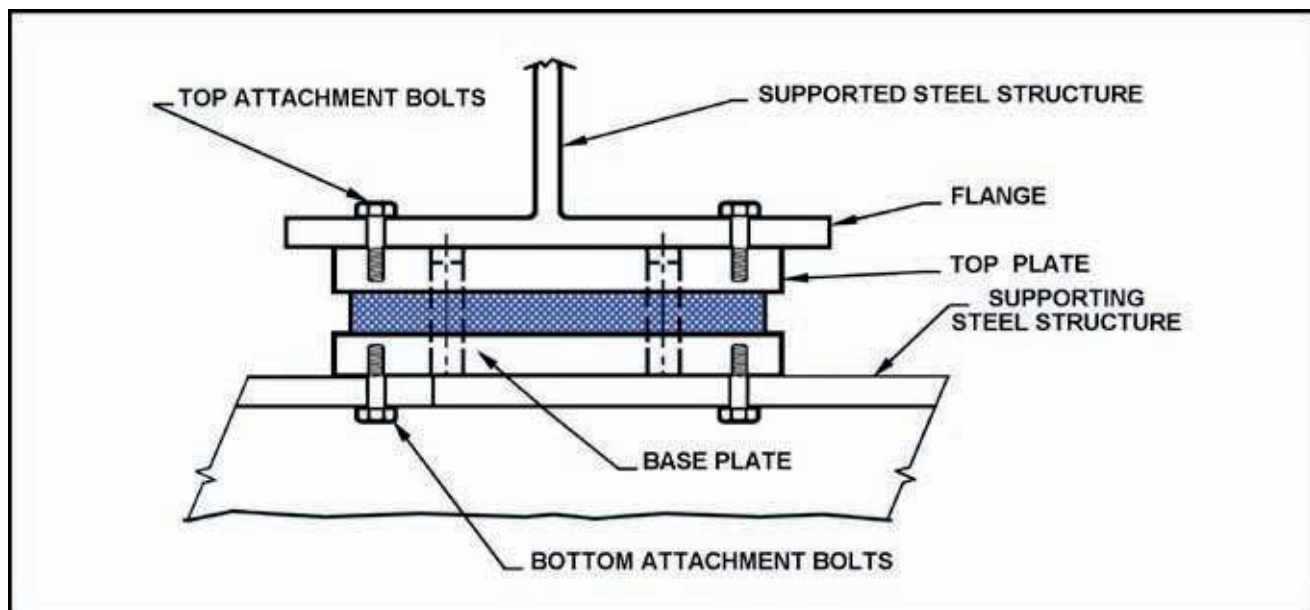
**Fig 3-12 Installation of HLD/FX Bearing in a Concrete Structure**

**Installation****In Steel Structures**

Figure 3-13 shows a *HLD/FX* bearing being installed in a steel structure. In this type of installation, bolts are provided to screw into the tapped holes in the top and base plates.

Bolted or dowelled connections are preferable to welded ones because of the possible damage to the epoxy bonds used on *Herculon* bearings. If welded connections are unavoidable then the top plate and base plate should be thicker than normal and tack welding only should be employed. Fabricated steel structures are likely to be distorted and should be checked for flatness at the bearing seats. A straight edge placed from corner to corner across the seating should show more than 0.25 mm gap along its length. If this is exceeded the seats may require machining or the bearings chocking up. Alternatively, the gap can be filled with high strength grout.

The *HLD/FX* bearing should be installed in a steel structure as shown in Fig 3-13.



**Fig 3-13 Installation of a HLD/FX Bearing in a Steel Structure**

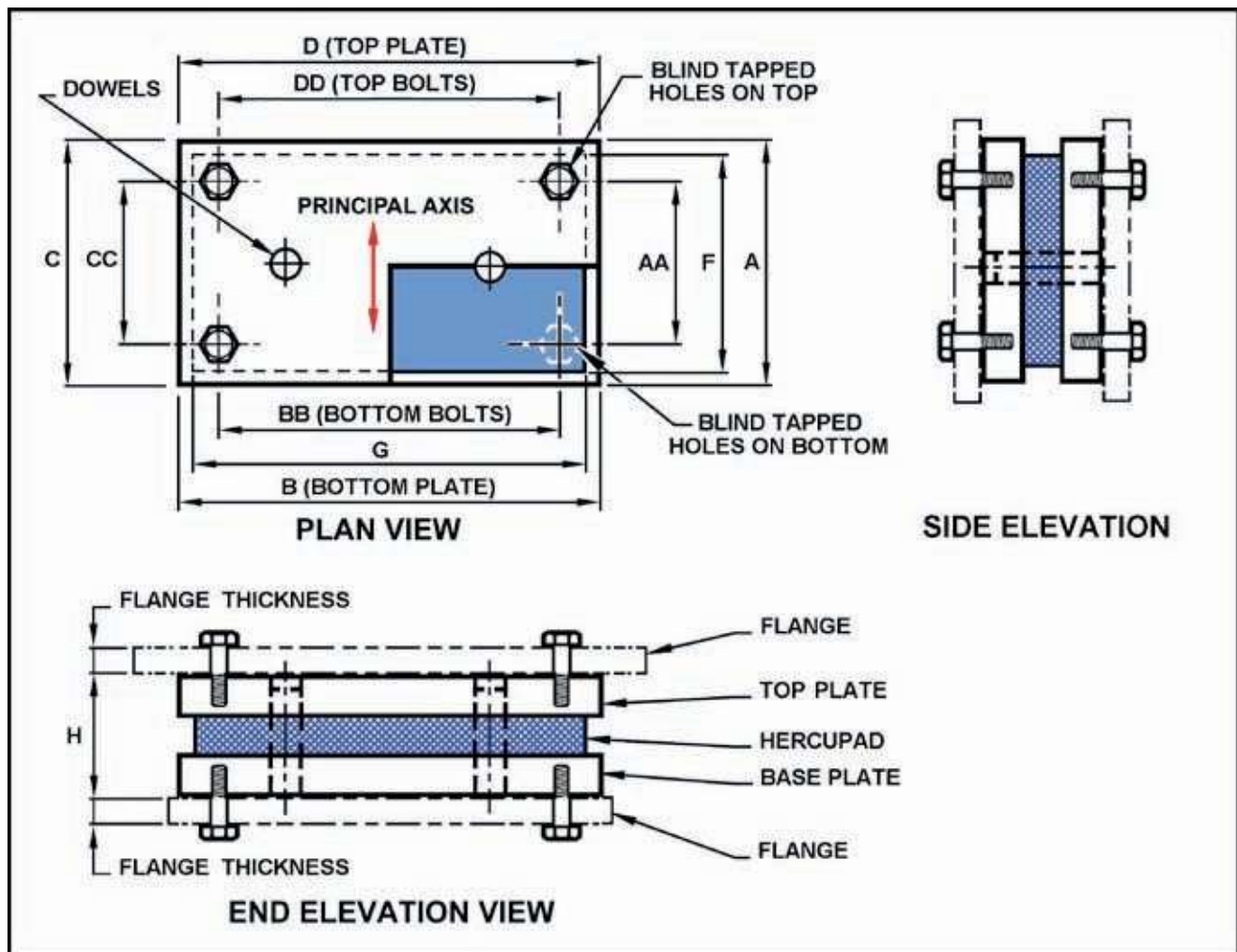
**Ordering**

**Steel Structures**

Table 3-6 details the range of sizes available for steel connections and Fig 3-14 provides the dimension reference points reflected in Table 3-6.

**Table 3-6 Part Numbers for Herculon Type D Fixed Bearing (Steel Structures)**

Part Number	Working Load (kN)		Top Plate C x D (mm)	Pad Dimensions 0.02 rads F x G (mm)	Base Plate Dimensions A x B (mm)	Bearing Overall Dimensions C x D x H (mm)
	Vmax	Hmax				
HLD/FX 100	100	30	90 x 150	75 x 135 x 13	90 x 150	90 x 150 x 53
HLD/FX 200	200	60	140 x 175	125 x 160 x 19	140 x 175	140 x 175 x 59
HLD/FX 300	300	90	155 x 230	140 x 215 x 19	155 x 230	155 x 230 x 59
HLD/FX 400	400	120	175 x 265	160 x 250 x 19	175 x 265	175 x 265 x 69
HLD/FX 500	500	150	190 x 305	175 x 290 x 25	190 x 305	190 x 305 x 75
HLD/FX 600	600	180	220 x 315	205 x 300 x 25	220 x 315	220 x 315 x 75



**Fig 3-14 Dimension Reference Points (Steel Structures)**

## Concrete Structures

Table 3-7 details the part numbers of the *HLD/FX* bearings used on concrete structures. Table 3-8 details the attachment bolts that are used on the *HLD/FX* bearings when they are attached to concrete structures.

**Table 3-7 Part Numbers for Herculon Type D Fixed Bearing (Concrete Structures)**

Part Number	Working Load Capacity		Top Attachment Plate PC x PD x t2 (mm)	Top Plate C x D (mm)	Pad Dimensions 0.02 rads F x G (mm)	Base Plate Dimensions PA x PB (mm)	Cast-in Plate Dimensions PA x PB x t1 (mm)	Bearing Overall Dimensions PA x PD x H+t1+t2 (mm)
	Vmax (kN)	Hmax (kN)						
HLD/FX 100 (C)	100	30	90 x 240 x 20	90 x 240	75 x 135 x 13	185 x 150	185 x 150 x 20	185 x 240 x 93
HLD/FX 200 (C)	200	60	140 x 265 x 20	140 x 265	125 x 160 x 19	230 x 175	230 x 175 x 20	230 x 265 x 99
HLD/FX 300 (C)	300	90	155 x 320 x 20	155 x 320	140 x 215 x 19	245 x 230	245 x 230 x 20	245 x 320 x 99
HLD/FX 400 (C)	400	120	175 x 370 x 25	175 x 370	160 x 250 x 19	280 x 265	280 x 265 x 25	280 x 370 x 119
HLD/FX 500 (C)	500	150	190 x 410 x 25	190 x 410	175 x 290 x 25	295 x 305	295 x 305 x 25	295 x 410 x 125
HLD/FX 600 (C)	600	180	220 x 420 x 25	220 x 420	205 x 300 x 25	325 x 315	325 x 315 x 25	325 x 420 x 125

**Table 3-8 Herculon Type D Fixed Bearing Attachment Bolts (Concrete Structures)**

Bearing Part Number	Top & Bottom Attachment Bolts			Top & Bottom Cast-in Bolts		
	Size Grade 8.8	Centres		Size Grade 8.8 x Length	Centres	
		Top (CC x DD)	Bottom (AA x BB)		Top (PCC x PDD)	Bottom (PAA x PBB)
HLD/FX 100 (C)	M16	45 x 190	135 x 100	M16 x 120	40 x 60	70 x 40
HLD/FX 200 (C)	M16	90 x 215	180 x 125	M16 x 120	90 x 135	120 x 65
HLD/FX 300 (C)	M16	105 x 270	195 x 180	M16 x 120	105 x 160	135 x 120
HLD/FX 400 (C)	M20	115 x 310	220 x 205	M20 x 150	115 x 175	150 x 135
HLD/FX 500 (C)	M20	130 x 350	235 x 245	M20 x 150	130 x 195	165 x 175
HLD/FX 600 (C)	M20	160 x 360	265 x 255	M20 x 150	160 x 240	195 x 185

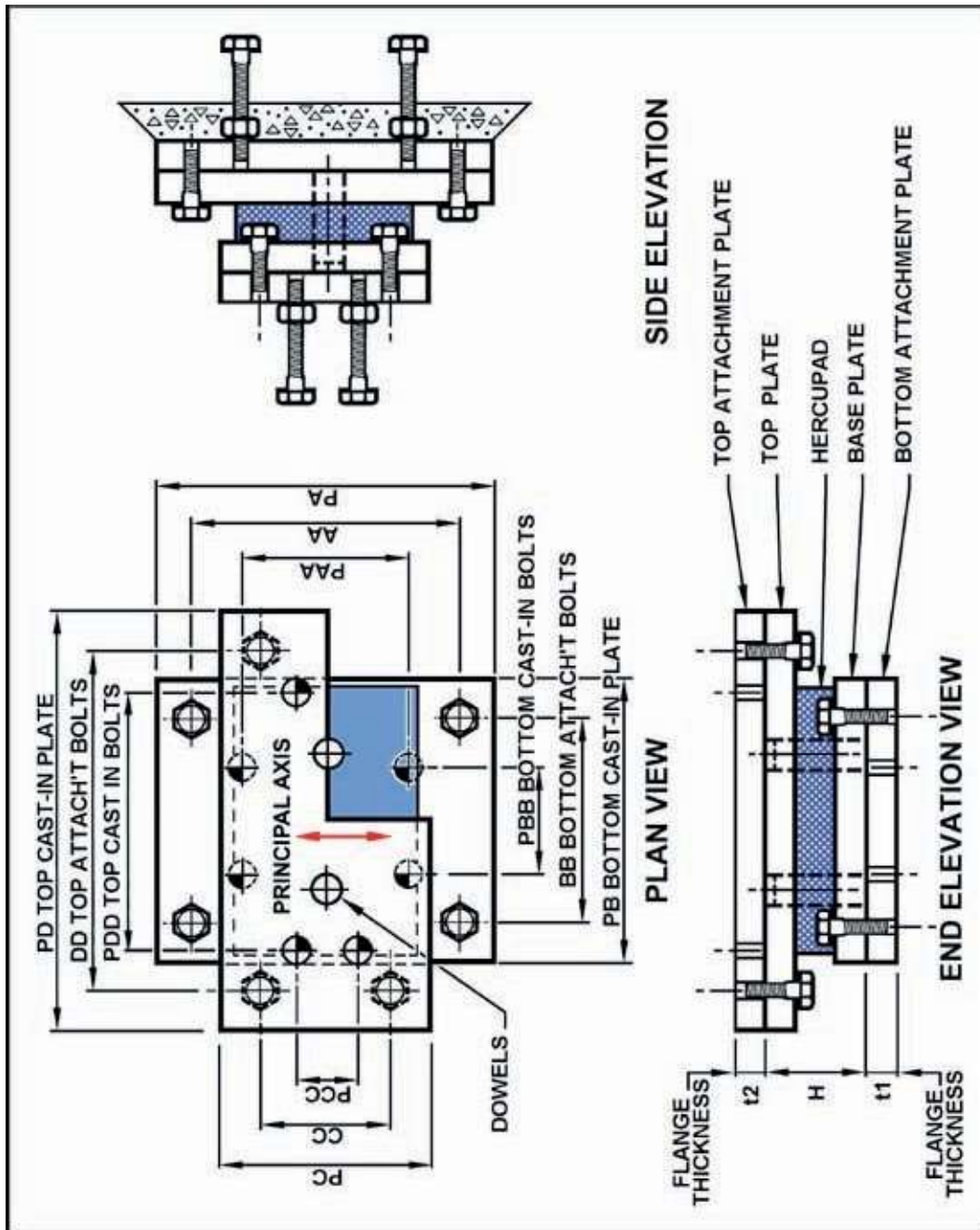


Fig 3-15 Dimension Reference Points (Concrete Structures)

The bearing part number is made up of groups of letters and numbers HLD/FX 100. This part number equates to:

HLD - *Herculon Type D*

FX - *Fixed*

100 - Capacity in kN

**Table 3-9 Herculon Type D Fixed Bearing Attachment Bolts (Steel Connections)**

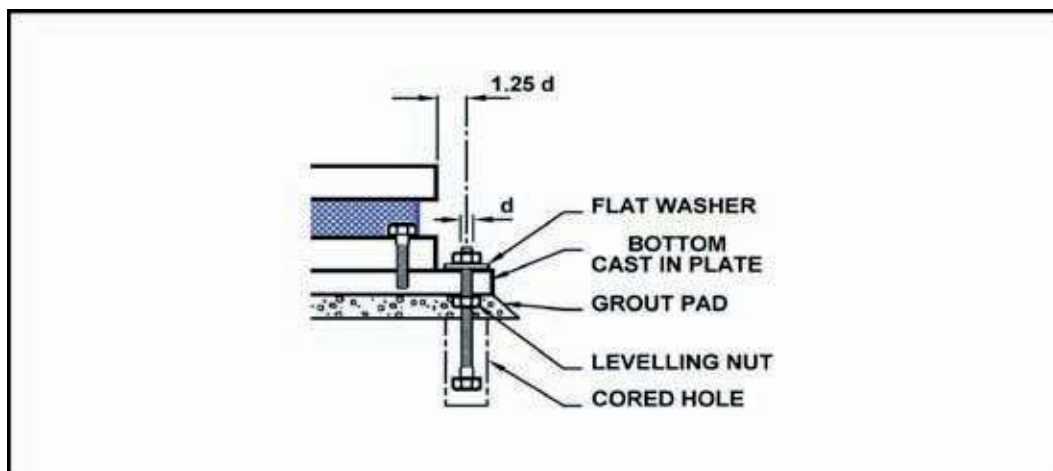
Bearing Part Number	Top and Bottom Bolts		
	Size (Gr 8.8)	Centres	
		Top CC x DD	Bottom AA x BB
HLD/FX 100	M16	40 x 100	40 x 100
HLD/FX 200	M16	90 x 125	90 x 125
HLD/FX 300	M16	105 x 180	105 x 180
HLD/FX 400	M20	115 x 205	115 x 205
HLD/FX 500	M20	130 x 245	130 x 245
HLD/FX 600	M20	160 x 255	160 x 255

**NOTE**

Refer to Fig 3-14 for dimension reference points (AA, BB, CC & DD)

#### Alternate Bottom Cast-in Bolt Detail

An alternate bottom cast-in bolt detail can be designed with a drilled hole through the bottom cast-in plate as shown in Fig 3-16.



**Fig 3-16 Alternate Bottom Cast-in Bolt Detail**