

Application

Herculon Type D Sliding Guided (HLD/SG) Bearings (see Fig 3-5) have been developed to fulfil the need for a low friction bearing on corbels and columns where a continuous slipjoint is inappropriate. 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.

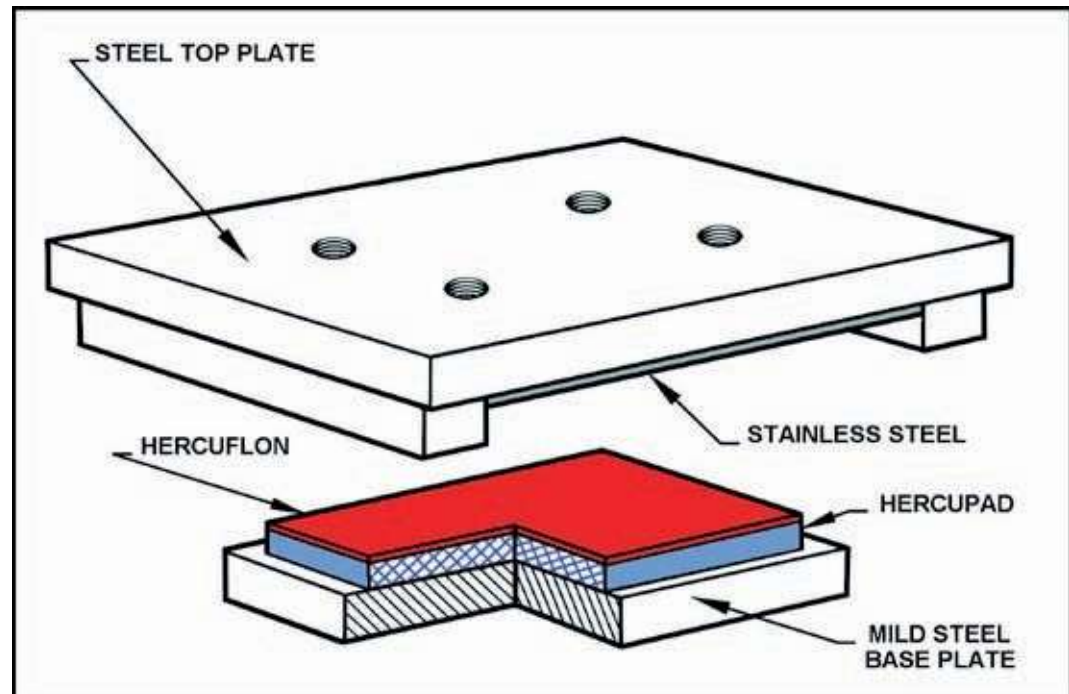


Fig 3-5 Herculon Type D Sliding Guided Bearing

Materials

HLD/SG bearing consists of a mild steel top plate to which is welded a polished stainless steel facing plate. This plate slides against a *Hercuflon* coated *Hercupad*. This in turn is bonded to a mild steel base plate.

Design

The following design limitations are recommended:

- Coefficient of friction 0.05 - 0.08 depending on stress.
- Expansion capacity up to ± 40 mm.
- 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 3-6 shows a *HLD/SG* 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/SG* bearing should be installed in a concrete structure as shown in Fig 3-6 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.

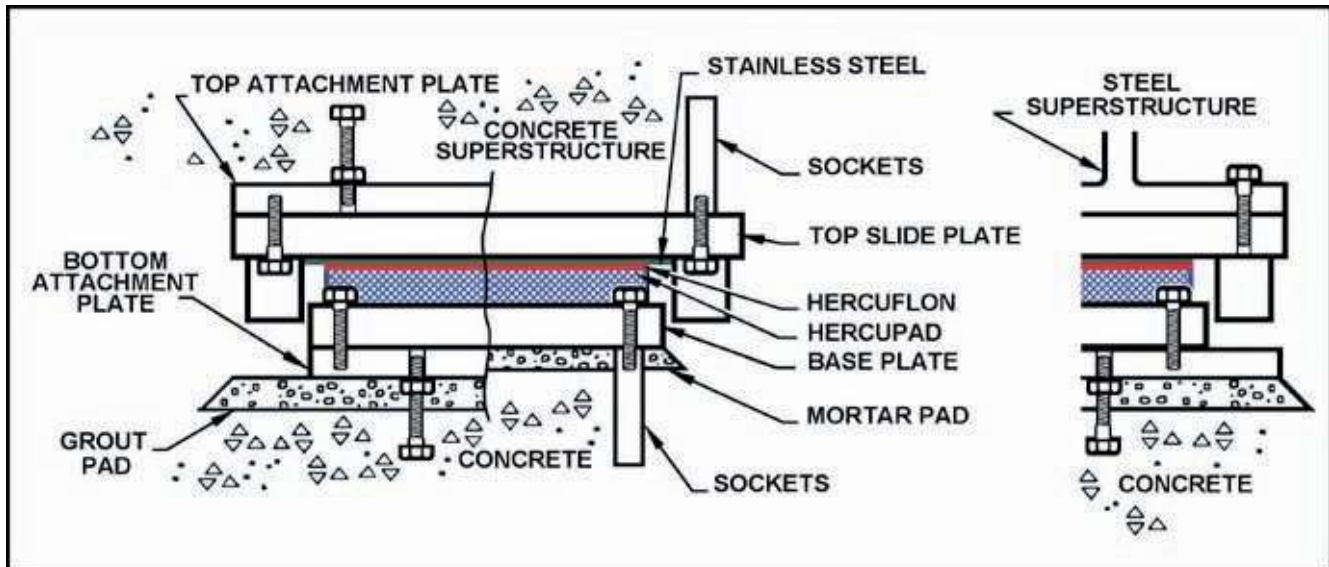


Fig 3-6 Installation of HLD/SG Bearing in a Concrete Structure

Installation**In Steel Structures**

Figure 3-7 shows a *HLD/SG* bearing 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/SG* bearing should be installed in a steel structure as shown in Fig 3-7 and in accordance with the following instructions:

1. Ensure that the top plate is positioned so that it covers the *Hercuflon* pad at all conditions of expansion.

! NOTE

The top plate should not be allowed to uncover the *Hercuflon* in service as this will cause major damage.

2. Base plates should be placed so that the *Hercuflon* and stainless steel faces come together as evenly as possible. Pad thickness is normally chosen to accommodate a certain amount of rotation due to the fabricational and constructional tolerances, but excessive misalignments should be investigated at an early stage in erection.
3. Bearings are usually supplied with the top plate and lower pad assembly taped together to protect the *Hercuflon* in transit. It may be necessary to remove this tape during installation, in which case ensure that the *Hercuflon* and stainless steel surfaces are kept scrupulously clean.
4. Some bearing assemblies are supplied with steel straps holding the top and base plates together. This is done to protect the bearing surfaces during transit and erection and/or to provide a particular preset between the two plates. Ensure that the preset bearings are installed as shown on the plans and remember to remove the straps after installation.

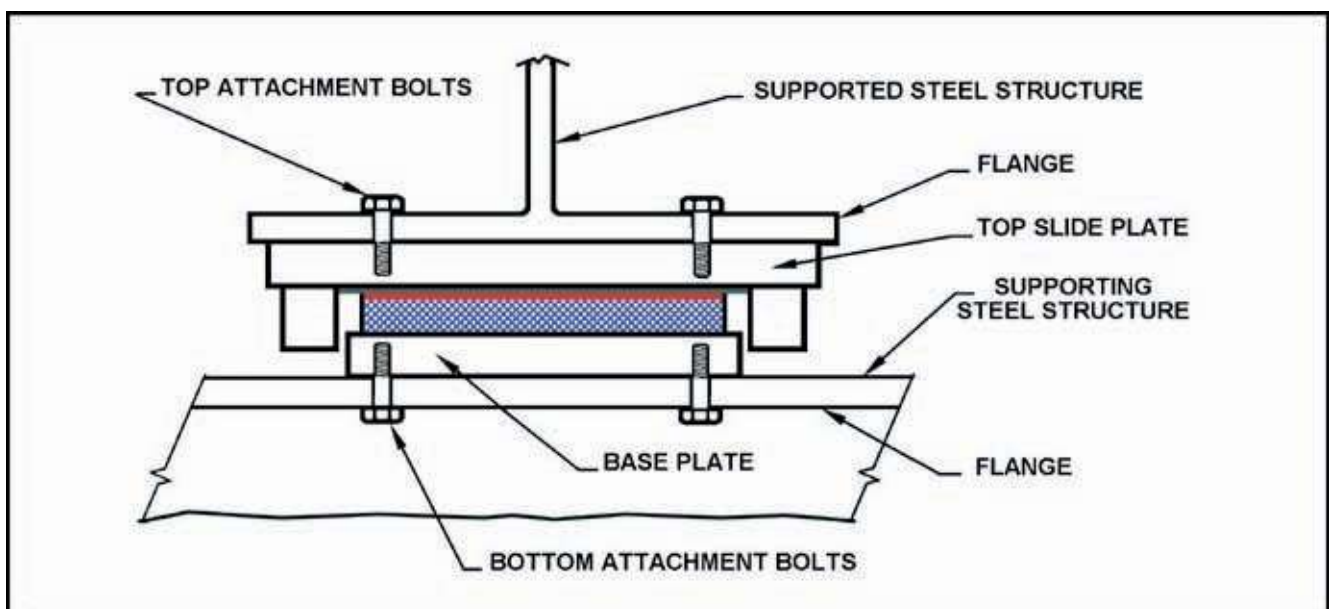


Fig 3-7 Installation of a HLD/SG Bearing in a Steel Structure

Ordering

The bearing part number is made up of groups of letters and numbers HLD/SG 175. This part number equates to:


HLD - *Herculon Type D*

SG - *Sliding Guided*

175 - Capacity in kN

Table 3-2 HLD/SG 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/SG 100	M16	40 x 100	40 x 100
HLD/SG 200	M16	90 x 125	90 x 125
HLD/SG 300	M16	105 x 180	105 x 180
HLD/SG 400	M20	115 x 205	115 x 205
HLD/SG 500	M20	130 x 245	130 x 245
HLD/SG 600	M20	160 x 255	160 x 255

 **NOTE**

Refer to Fig 3-8 for dimension reference points

Table 3-3 Part Numbers for Herculon Type D Sliding Guided Bearing (Steel Connections)

Part Number	Working Load (kN)		Top Plate (±40 mm Expansion) C x D (mm)	Pad Dimensions 0.02 rads E x F (mm)	Base Plate Dimensions A x B (mm)	Bearing Overall Dimensions C x D x H (mm)
	Vmax	Hmax				
HLD/SG 100	100	30	160 x 225	75 x 135 x 17	90 x 150	160 x 225 x 59
HLD/SG 200	200	60	210 x 265	125 x 160 x 17	140 x 175	210 x 265 x 59
HLD/SG 300	300	90	240 x 320	140 x 215 x 23	155 x 230	240 x 320 x 65
HLD/SG 400	400	120	245 x 370	160 x 250 x 23	175 x 265	245 x 370 x 75
HLD/SG 500	500	150	260 x 410	175 x 290 x 29	190 x 305	260 x 410 x 81
HLD/SG 600	600	180	290 x 420	205 x 300 x 29	220 x 315	290 x 420 x 81

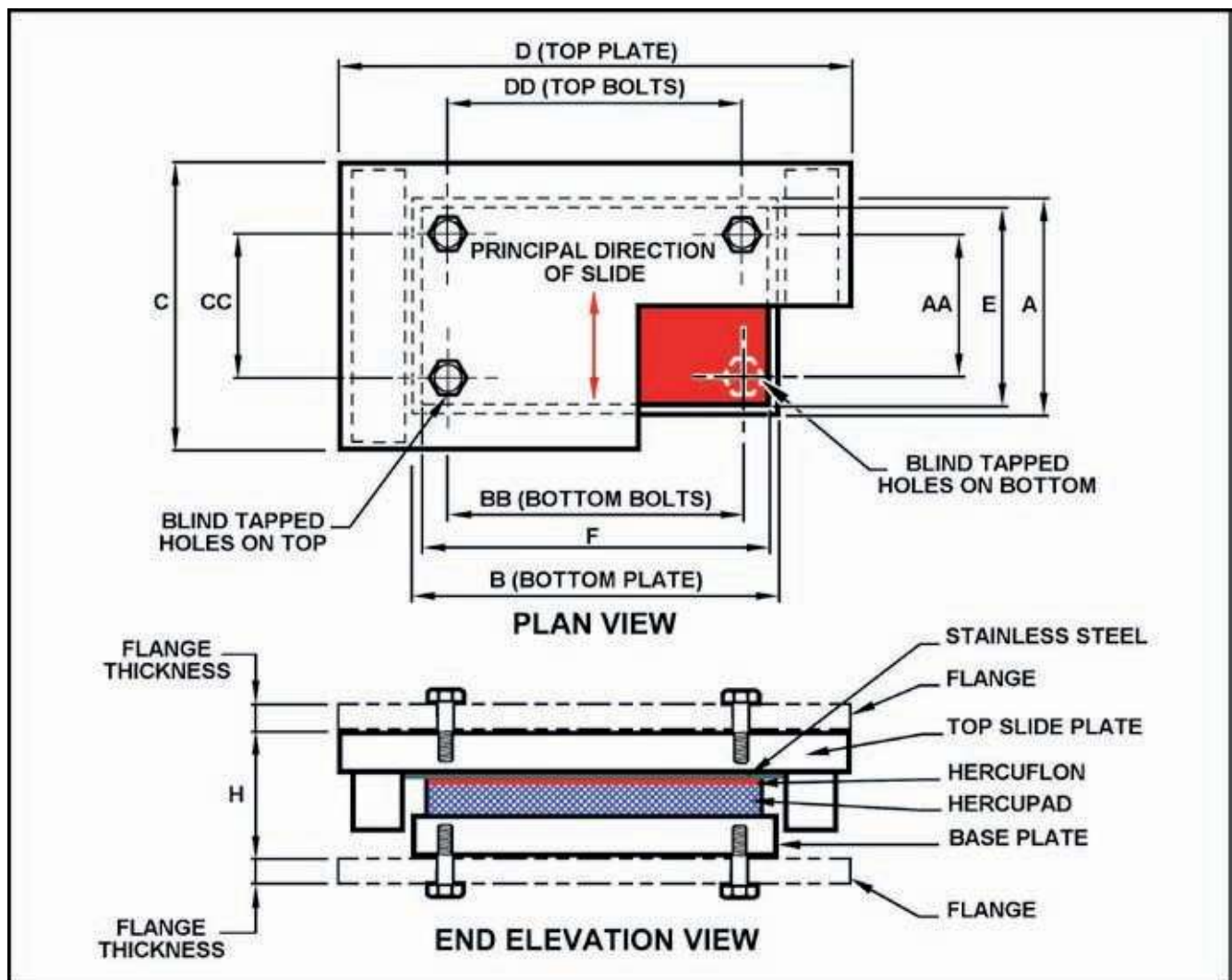


Fig 3-8 Dimension Reference Points (Steel Connections)

Table 3-4 Part Numbers for Herculon Type D Sliding Guided Bearing (for Concrete Structures)

Part Number	Working Load Capacity		Top Attachment Plate PC x PD x t2 (mm)	Top Plate (±40 mm Expansion) PC x PD (mm)	Pad Dimensions 0.02 rads E x F (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/SG 100 (C)	100	30	175 x 240 x 20	175 x 240	75 x 135 x 17	185 x 150	185 x 150 x 20	185 x 240 x 99
HLD/SG 200 (C)	200	60	215 x 265 x 20	215 x 265	125 x 160 x 17	230 x 175	230 x 175 x 20	230 x 265 x 99
HLD/SG 300 (C)	300	90	230 x 320 x 20	230 x 320	140 x 215 x 23	245 x 230	245 x 230 x 20	245 x 320 x 105
HLD/SG 400 (C)	400	120	265 x 370 x 25	265 x 370	160 x 250 x 23	280 x 265	280 x 265 x 25	280 x 370 x 125
HLD/SG 500 (C)	500	150	280 x 410 x 25	280 x 410	175 x 290 x 29	295 x 305	295 x 305 x 25	295 x 410 x 131
HLD/SG 600 (C)	600	180	330 x 420 x 25	330 x 420	205 x 300 x 29	325 x 315	325 x 315 x 25	325 x 420 x 131

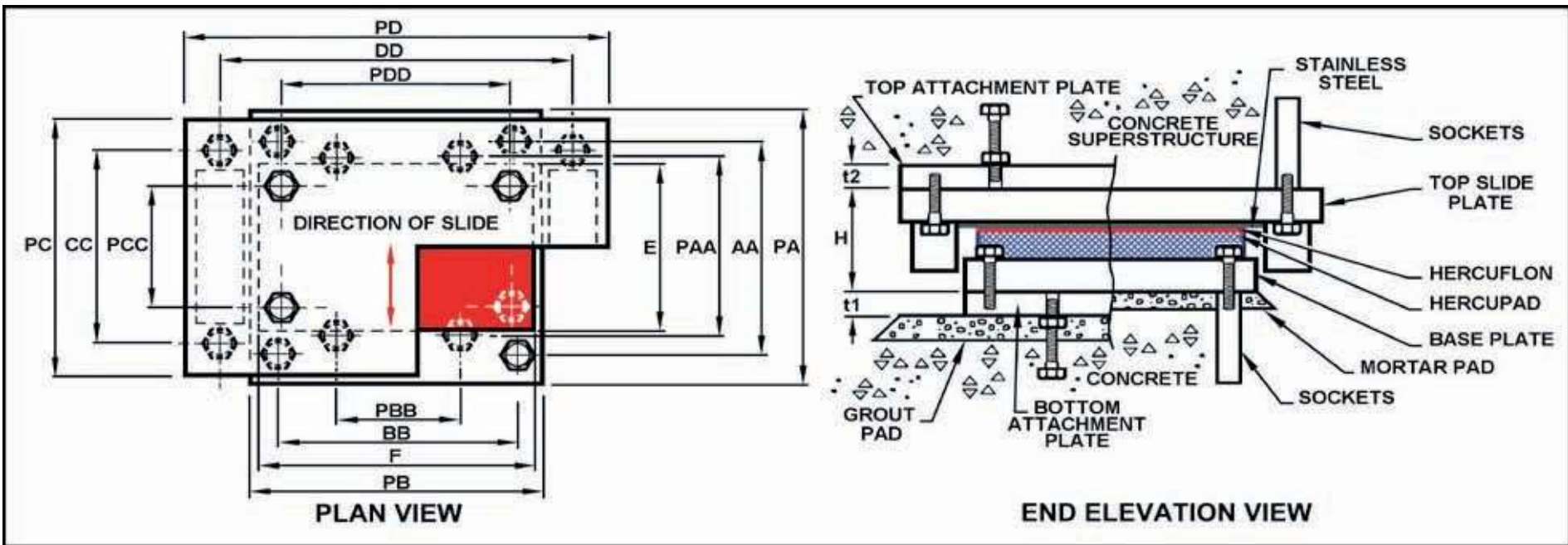


Fig 3-9 Dimension Reference Points (for Concrete Structures)

Attachment Bolts

Table 3-5 lists the various bearing attachment bolt details shown in Fig 3-9 and Fig 3-10 shows an alternate bottom cast-in bolt detail.

Table 3-5 HLD/SG 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/SG 100 (C)	M16	125 x 190	135 x 100	M16 x 120	65 x 130	75 x 40
HLD/SG 200 (C)	M16	165 x 215	180 x 125	M16 x 120	105 x 155	120 x 65
HLD/SG 300 (C)	M16	180 x 270	195 x 180	M16 x 120	120 x 210	135 x 120
HLD/SG 400 (C)	M20	205 x 310	220 x 205	M20 x 150	135 x 240	150 x 135
HLD/SG 500 (C)	M20	220 x 350	235 x 245	M20 x 150	150 x 280	165 x 175
HLD/SG 600 (C)	M20	270 x 360	265 x 255	M20 x 150	200 x 290	195 x 185

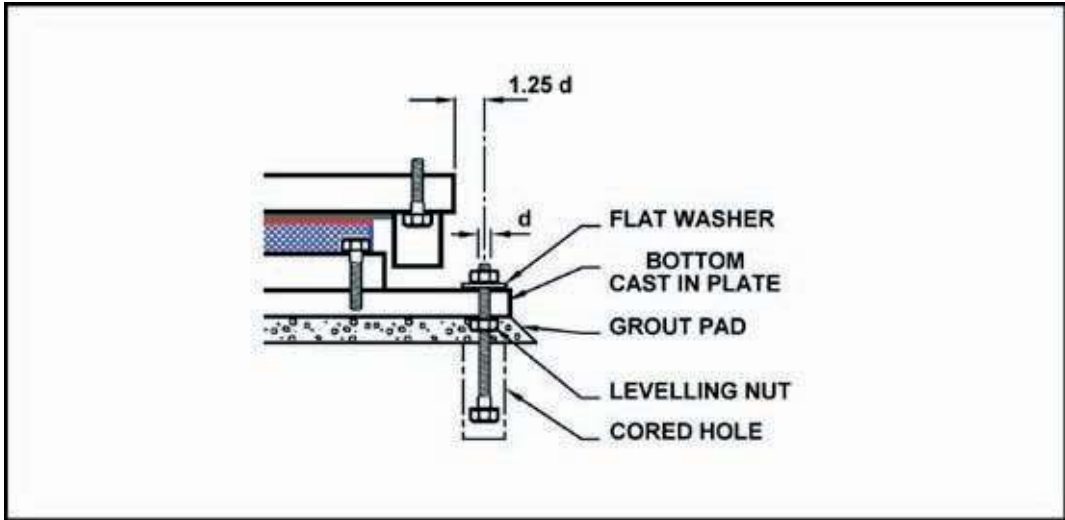


Fig 3-10 Alternate Bottom Cast-in Bolt Detail