

Application

Herculon Type D Free Float Bearings (HLD/FF) 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.

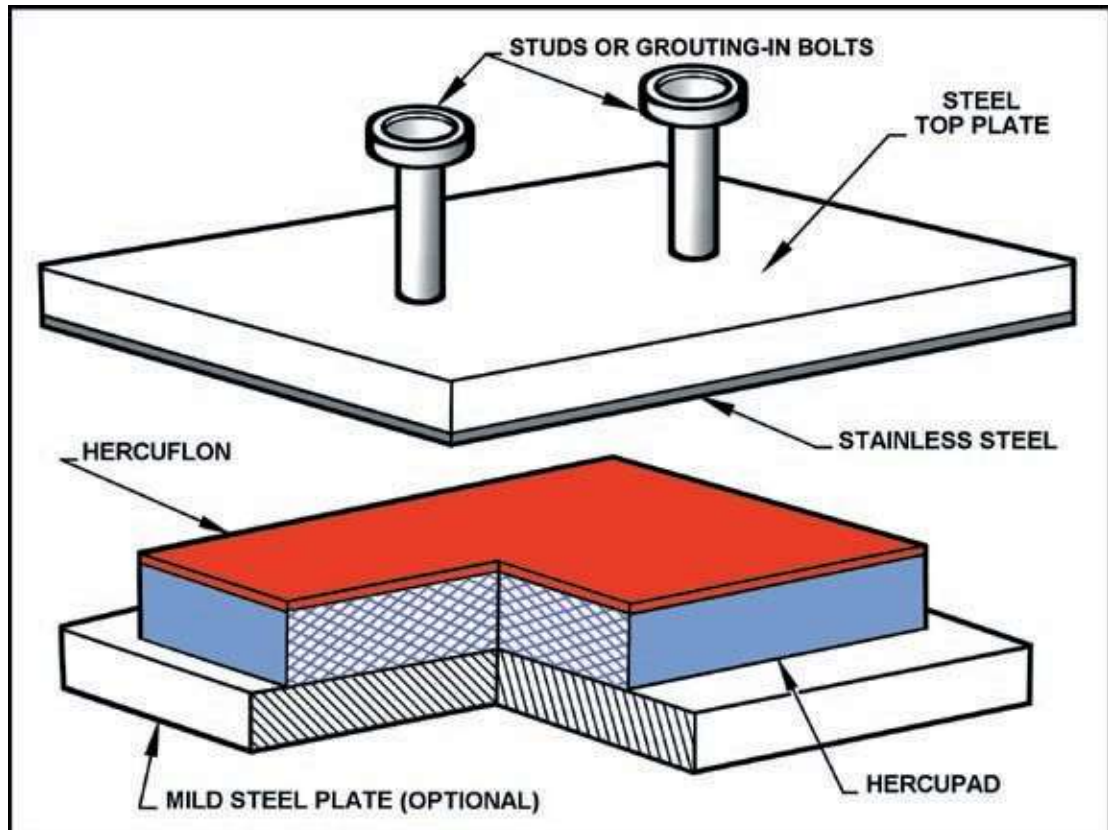


Fig 3-1 Herculon Type D Free Float Bearing

Materials

HLD/FF consist of a mild steel top plate to which is attached a polished stainless steel facing plate. This plate slides against a *Hercuflon* coated *Hercupad* which in turn is bonded to a mild steel base plate (optional).

Design

The following design limitations are recommended:

- Coefficient of friction 0.05 - 0.08 depending on stress.
- Expansion capacity up to ± 30 mm.
- Maximum contact stress 10 MPa.
- Maximum rotation up to 0.02 radians.
- Maximum temperature 80°C.

Standard top slide plates have been designed to accommodate up to ± 30 mm design expansion in the principle direction of movement and ± 7.5 mm in transverse direction. If extra expansion or rotation capacity is required please contact our Technical Department.

Table 3-1 Part Numbers for Herculon Type D Free Float Bearings

Part Number	Maximum Vertical Working Load	Top Plate Dimensions (mm) C x D x H for the Following Expansions: (mm)			Pad Dimensions (mm) G x F x E for the Following Rotations: (rads)			Base Plate Dimensions A x B x J (mm)
		A (± 10)	B (± 20)	C (± 30)	D (0.010)	E (0.015)	F (0.02)	
HLD/FF 75	75	95 x 125 x 16	115 x 125 x 16	135 x 125 x 16	70 x 110 x 10	70 x 110 x 17	70 x 110 x 17	85 x 125 x 16
HLD/FF 100	100	100 x 150 x 16	120 x 150 x 16	140 x 150 x 16	75 x 135 x 10	75 x 135 x 17	75 x 135 x 17	90 x 150 x 16
HLD/FF 125	125	110 x 165 x 16	130 x 165 x 16	150 x 165 x 16	85 x 150 x 10	85 x 150 x 17	85 x 150 x 17	100 x 165 x 16
HLD/FF 150	150	125 x 165 x 16	145 x 165 x 16	165 x 165 x 16	100 x 150 x 10	100 x 150 x 17	100 x 150 x 23	115 x 165 x 16
HLD/FF 175	175	135 x 175 x 16	155 x 175 x 16	175 x 175 x 16	110 x 160 x 10	110 x 160 x 17	110 x 160 x 23	125 x 175 x 16
HLD/FF 200	200	150 x 175 x 16	170 x 175 x 16	190 x 175 x 16	125 x 160 x 10	125 x 160 x 17	125 x 160 x 23	140 x 175 x 16
HLD/FF 225	225	150 x 195 x 16	170 x 195 x 16	190 x 195 x 16	125 x 180 x 10	125 x 180 x 17	125 x 180 x 23	140 x 195 x 16
HLD/FF 250	250	160 x 205 x 16	180 x 205 x 16	200 x 205 x 16	135 x 190 x 10	135 x 190 x 17	135 x 190 x 23	150 x 205 x 16
HLD/FF 275	275	165 x 215 x 16	185 x 215 x 16	205 x 215 x 16	140 x 200 x 10	140 x 200 x 17	140 x 200 x 23	155 x 215 x 16
HLD/FF 300	300	165 x 230 x 16	185 x 230 x 16	205 x 230 x 16	140 x 215 x 10	140 x 215 x 23	140 x 215 x 23	155 x 230 x 16
HLD/FF 325	325	170 x 240 x 16	190 x 240 x 16	210 x 240 x 16	145 x 225 x 10	145 x 225 x 23	145 x 225 x 29	160 x 240 x 16
HLD/FF 350	350	175 x 250 x 16	195 x 250 x 16	215 x 250 x 16	150 x 235 x 10	150 x 235 x 23	150 x 235 x 29	165 x 250 x 16
HLD/FF 375	375	185 x 255 x 16	205 x 255 x 16	225 x 255 x 16	160 x 240 x 10	160 x 240 x 23	160 x 240 x 29	175 x 255 x 16
HLD/FF 400	400	185 x 265 x 16	205 x 265 x 16	225 x 265 x 16	160 x 250 x 10	160 x 250 x 23	160 x 250 x 29	175 x 265 x 16
HLD/FF 425	425	190 x 275 x 16	210 x 275 x 16	230 x 275 x 16	165 x 260 x 17	165 x 260 x 23	165 x 260 x 29	180 x 275 x 16
HLD/FF 450	450	195 x 285 x 16	215 x 285 x 16	235 x 285 x 16	170 x 270 x 17	170 x 270 x 23	170 x 270 x 29	185 x 285 x 16
HLD/FF 475	475	200 x 295 x 16	220 x 295 x 16	240 x 295 x 16	175 x 280 x 17	175 x 280 x 29	175 x 280 x 29	190 x 295 x 16
HLD/FF 500	500	200 x 305 x 16	220 x 305 x 16	240 x 305 x 16	175 x 290 x 17	175 x 290 x 29	175 x 290 x 29	190 x 305 x 16

Part Number	Maximum Vertical Working Load kN	Top Plate Dimensions (mm) C x D x H for the Following Expansions: (mm)			Pad Dimensions (mm) G x F x E for the Following Rotations: (rads)			Base Plate Dimensions A x B x J (mm)
		A (±10)	B (±20)	C (±30)	D (0.010)	E (0.015)	F (0.02)	
HLD/FF 525	525	205 x 310 x 16	225 x 310 x 16	245 x 310 x 16	180 x 295 x 17	180 x 295 x 29	180 x 295 x 29	195 x 310 x 16
HLD/FF 550	550	215 x 310 x 16	235 x 310 x 16	255 x 310 x 16	190 x 295 x 17	190 x 295 x 29	190 x 295 x 29	205 x 310 x 16
HLD/FF 575	575	220 x 315 x 16	240 x 315 x 16	260 x 315 x 16	195 x 300 x 17	195 x 300 x 29	195 x 300 x 29	210 x 315 x 16
HLD/FF 600	600	230 x 315 x 16	250 x 315 x 16	270 x 315 x 16	205 x 300 x 17	205 x 300 x 29	205 x 300 x 29	220 x 315 x 16

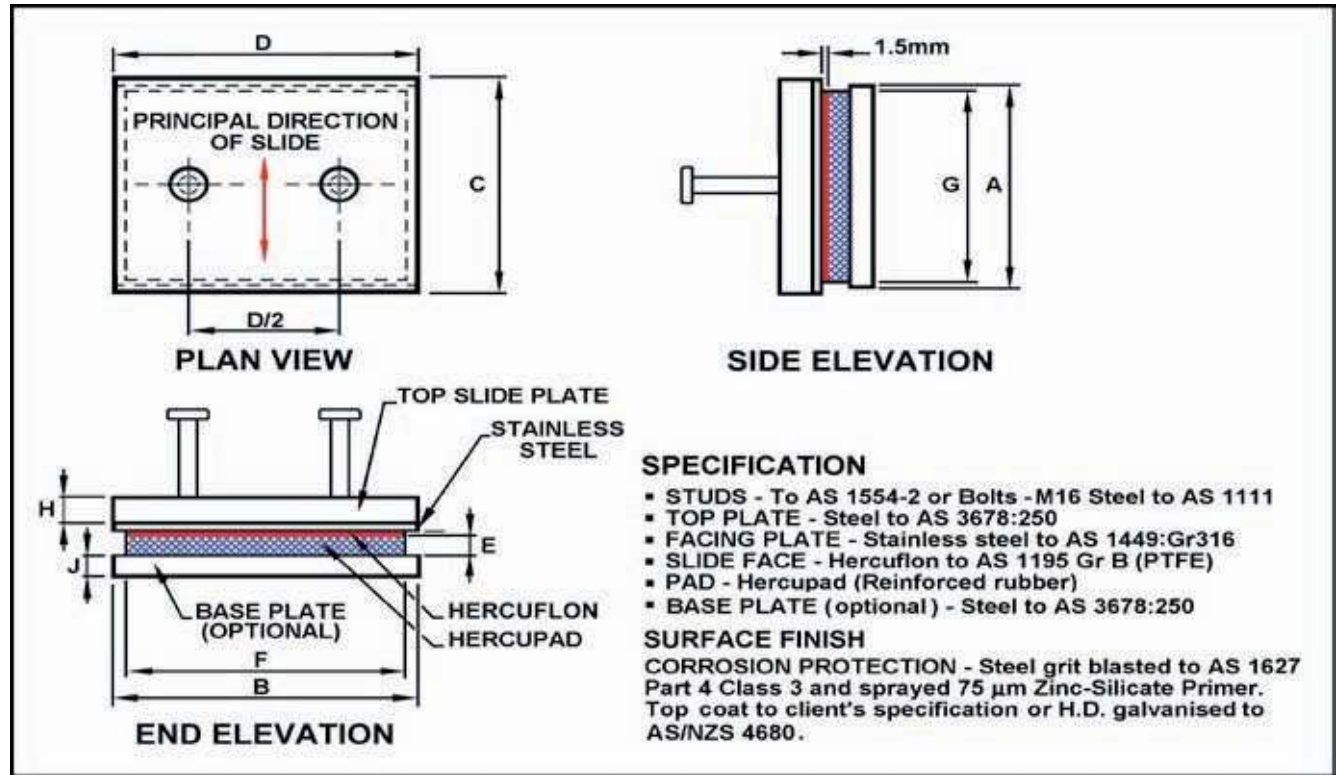


Fig 3-2 Dimension Reference Points

Installation

In Concrete Structures

Fig 3-3 shows a *HLD/FF* bearing being cast into an in-situ roof slab. Before leaving our factory the bearing pad is blocked with polystyrene strips and the whole bearing assembly is sealed with paper tape. This tape excludes dirt and dust from the *Hercuflon* face and should not be removed. Welded shear connectors are normally supplied with the top plate. In some cases grouting-in bolts may be provided to screw into the tapped holes provided in the top plate.

The *HLD/FF* bearing should be installed in a concrete structure as shown in Fig 3-3 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 cut any strips of expanded polystyrene required for blocking out around the bearing.
3. Remove the bearing and the loose polystyrene strips and brush off any dust or grit.
4. Apply *Hercules Adhesive* and bond into position. In some case it may be better touse Grout, especially if the seatings are rough.
5. Cover the joints between the bearing and polystyrene strips with polythene sheet or masking tape to prevent the ingress of concrete during the pour.
6. Pour concrete directly onto the top surface of the mild steel top plate.

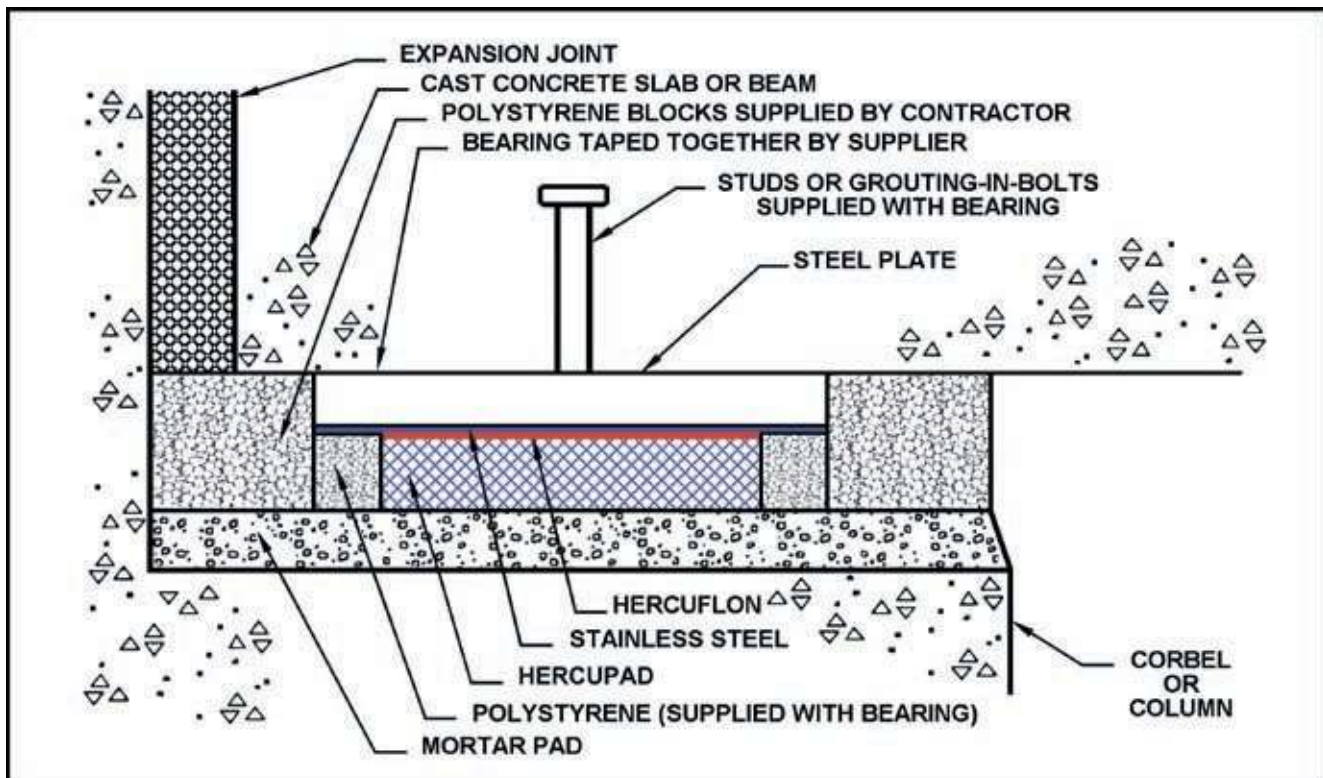


Fig 3-3 Installation of HLD/FF Bearing in a Concrete Structure

Installation**In Steel Structures**

Fig 3-4 shows a HLD/FF bearing installed in a steel structure. With 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 no 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/FF* bearing should be installed in a steel structure as shown in Fig 3-4 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.

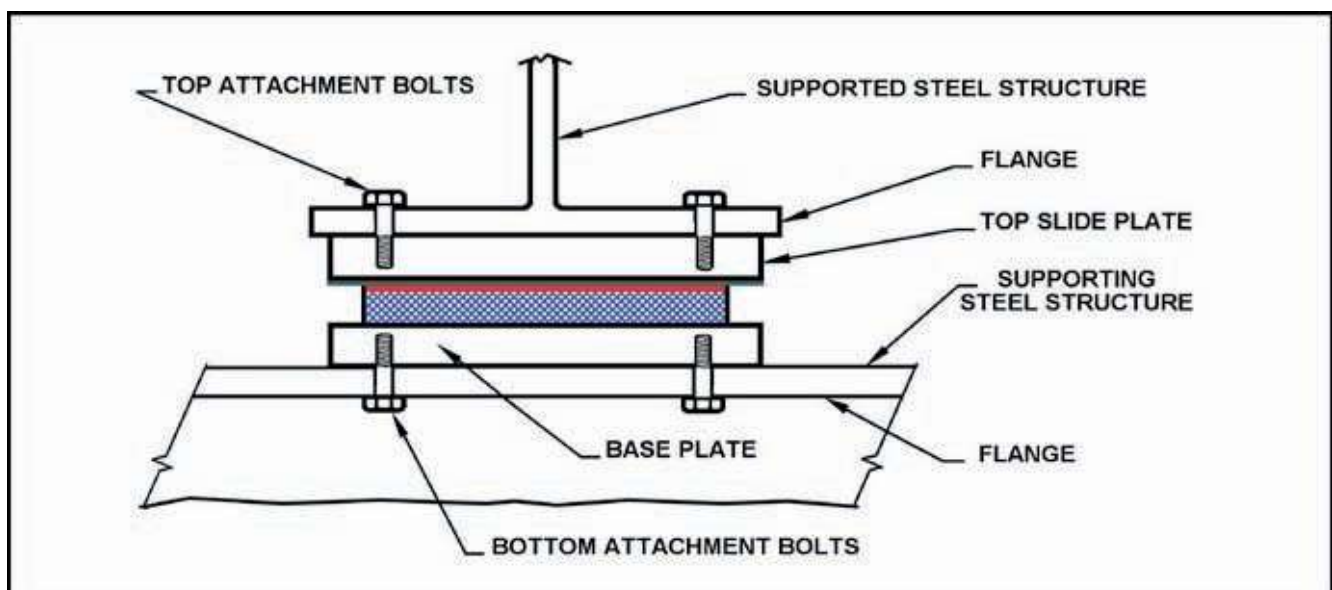


Fig 3-4 Installation of HLD/FF Bearing in a Steel Structure

Ordering

The part number is made up of groups of letters and numbers - HLD/FF/175/A/E/G . This part number equates to:

HLD - *Herculon Type D*

FF - Free Float

175 - Capacity in kN

A - Expansion capacity

E - Rotational capacity

G - Base plate (optional)