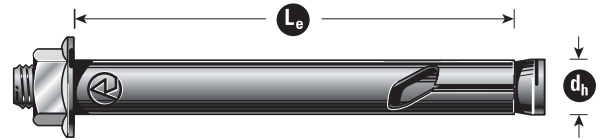


## 31.1 GENERAL INFORMATION

PERFORMANCE RELATED	MATERIAL SPECIFICATION	INSTALLATION RELATED

### Product

The DynaBolt™ Plus Sleeve Anchor is a medium duty, torque setting expansion anchor.



### Benefits, Advantages and Features

#### Improved security:

- Patented sleeve crushes to close gaps up to 5 mm and pulls down to induce clamp load.

#### Fast installation:

- Through fixing eliminates marking out and repositioning of fixtures.

#### Versatile:

- Choice of head styles.

#### Superior corrosion resistance:

- From AISI 316(A4) Stainless Steel.

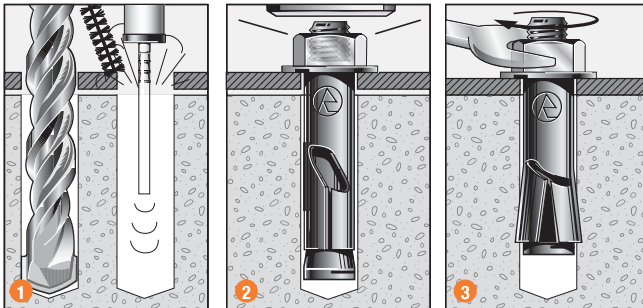
#### Outstanding exterior durability:

- 42 micron Hot Dip Galvanised coating.

### Principal Applications

- Bottom plate and batten fixing
- Installing signs, handrails and gates
- Installing duct work, pipe brackets and suspended ceilings
- Corner guards

### Installation



- Use fixture as a template, drill a hole to the correct diameter and depth. Clean hole thoroughly with brush.
- Remove debris by way of a vacuum or hand pump, compressed air, etc. Insert anchor tightly against fixture and tighten with spanner.
- Continue tightening, allowing the sleeve to twist and pull down the fixture firmly onto the base material.

### Installation and performance details

Anchor size, $d_h$ (mm)	Installation details				Optimum dimensions*		Reduced Characteristic Capacity			
	Drilled hole diameter, $d_h$ (mm)	Fixture hole diameter, $d_f$ (mm)	Anchor effective depth, $h$ (mm)	Tightening torque, $T_r$ (Nm)	Edge distance, $e_c$ (mm)	Anchor spacing, $a_c$ (mm)	Shear (steel)	Tension (Pull-Through), $\phi N_{up}$ (kN)**		
							$\phi V_{us}$ (kN)***	Concrete compressive strength, $f'_c$		
								20 MPa	32 MPa	40 MPa
6	6	8	20	10	55	60	5.0	2.9	3.7	4.1
			25		55	75	5.0	2.9	3.7	4.1
8	8	10	30	15	60	90	8.0	4.1	5.2	5.8
			35		60	105	8.0	4.1	5.2	5.8
10	10	12	35	35	70	105	12.7	5.2	6.6	7.4
			45		70	135	12.7	5.2	6.6	7.4
12	12	15	40	55	70	120	15.8	7.2	9.1	10.2
			50		75	150	15.8	7.2	9.1	10.2
16	16	19	55	85	85	165	20.9	11.3	14.3	16.0
			65		100	195	20.9	11.3	14.3	16.0
20	20	24	70	165	105	210	31.1	15.3	19.4	21.7
			85		130	255	31.1	15.3	19.4	21.7

\* Note: For shear loads acting towards an edge or where these optimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity.

\*\*Note: Reduced characteristic ultimate Pull-Through tensile capacity =  $\phi N_{up}$  where  $\phi = 0.65$  and  $N_{up}$  = Characteristic ultimate Pull-Through tensile capacity.

For conversion to Working Load Limit MULTIPLY  $\phi N_{up}$  x 0.51

\*\*\*Note: Values for shear limited by steel - Reduced characteristic ultimate steel shear capacity =  $\phi V_{us}$  where  $\phi = 0.80$  and  $V_{us}$  = Characteristic ultimate steel shear capacity.

### 31.2 DESCRIPTION AND PART NUMBERS

Anchor size, $d_h$ (mm)	Effective length, $L_e$ (mm)	Part No.		
		Zn	Gal	S/S
6	23	DP6026	—	—
	34	DP06040	—	DP06040SS
	53	DP06060	—	DP06060SS
8	34	DP08040	—	DP08040SS
	60	DP08065	—	DP08065SS
	86	DP08090	—	—
10	34	DP10040	DP10040GH	—
	42	DP10050	DP10050GH	DP10050SS
	69	DP10075	DP10075GH	DP10075SS
	96	DP10100	DP10100GH	DP10100SS
	117	DP10125	—	—

Anchor size, $d_h$ (mm)	Effective length, $L_e$ (mm)	Part No.		
		Zn	Gal	S/S
12	47	DP12060	DP12060GH	DP12060SS
	62	DP12070	DP12070GH	DP12070SS
	90	DP12100	DP12100GH	DP12100SS
	118	DP12125	DP12125GH	DP12125SS
16	51	DP16065	DP16065GH	—
	95	DP16110	DP16110GH	—
	129	DP16140	DP16140GH	—
20	70	DP20080	DP20080GH	—
	102	DP20115	DP20115GH	—
	146	DP20160	—	—

Effective depth,  $h$  (mm)

$$h = \text{lesser of } L_e - t, 5 * d_h$$

$t$  = total thickness of material(s) being fixed

Substrate thickness,  $b_m$  (mm)

$$b_m = 2 * h$$

Drilled hole depth,  $h_1$  (mm)

$$h_1 = h + d_h$$

$h$  = Effective depth

### 31.3 ENGINEERING PROPERTIES

Anchor size, $d_h$ (mm)	Thread size, $d_b$	Stress area, $A_s$ (mm <sup>2</sup> )	Carbon steel		Stainless steel		Section modulus $Z$ (mm <sup>3</sup> )
			Yield strength, $f_y$ (MPa)	UTS, $f_u$ (MPa)	Yield strength, $f_y$ (MPa)	UTS, $f_u$ (MPa)	
6	M4.5	11.3	720	900	480	600	5.4
8	M6	20.1	640	800	480	600	12.7
10	M8	36.6	560	700	480	600	31.2
12	M10	58.0	440	550	480	600	62.3
16	M12	84.3	400	500	—	—	109.2
20	M16	157.0	320	400	—	—	277.5