RED HEAD®
CONCRETE ANCHORING SPECIALISTS

Prima
High Expansion Sleeve Anchors

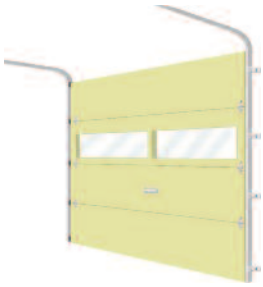
Concrete & Masonry Fastening

ADVANTAGES

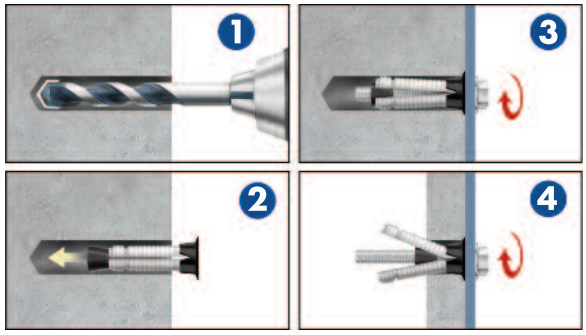
- Removable
- Finished hex head
- Grade 5 bolt
- Easy to install
- Solid and hollow base material

APPLICATIONS

- Industrial doors
- Storage racking
- Signs
- Security shutters
- Gate & fence posts, and Spiral staircase
- Hand rail



INSTALLATION STEPS



1. Drill a hole with the proper drill bit diameter (see selection chart). Clean hole thoroughly.
2. Insert the Prima sleeve entirely in the hole without the fixture.
3. Position the fixture to be anchored, twist the Prima bolt until it is flush with the fixture.
4. Tighten the Prima bolt to the specified installation torque (see performance table).

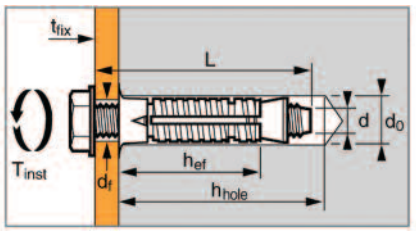
MATERIALS

SELECTION CHART

Prima Sleeve Anchors

PART NUMBER	BOLT DIA.	SOCKET SIZE	FIXTURE HOLE DIA.	DRILL BIT DIA.	EFFECTIVE EMBEDMENT DEPTH	DRILLED HOLE DEPTH[1]	MAXIMUM FIXTURE THICKNESS	BOLT LENGTH	QTY/WT PER BOX	QTY/WT PER MASTER
	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	Lbs.	Lbs.
	d		d_f	d_o	h_{ef}	h_{hole}	t_{fix}	L		
RHPA-1423	1/4 (6)	7/16 (12)	5/16 (8)	7/16 (12)	1-1/2 (38)	2-1/2 (64)	3/8 (10)	2-3/8 (60)	50 / 2.8	300 / 17.0
RHPA-1426	1/4 (6)	7/16 (12)	5/16 (8)	7/16 (12)	1-1/2 (38)	2-3/4 (70)	1 (25)	2-3/4 (70)	50 / 4.3	300 / 25.9
RHPA-3830	3/8 (10)	9/16 (14)	1/2 (12)	5/8 (16)	2 (51)	3 (76)	3/8 (10)	3 (76)	25 / 5.0	150 / 29.7
RHPA-3834	3/8 (10)	9/16 (14)	1/2 (12)	5/8 (16)	2 (51)	3 (76)	1 (25)	3-1/2 (89)	25 / 5.4	150 / 32.5
RHPA-3844	3/8 (10)	9/16 (14)	1/2 (12)	5/8 (16)	2 (51)	3 (76)	2 (51)	4-1/2 (114)	25 / 6.2	150 / 37.3
RHPA-1234	1/2 (12)	3/4 (19)	9/16 (14)	13/16 (20)	2-1/2 (64)	3-1/2 (89)	3/8 (10)	3-1/2 (89)	20 / 8.1	120 / 48.5

[1] Drilled hole depth is based on maximum fixture thickness; if fixture thickness is less than the maximum, the Prima bolt might reach the bottom of the hole prior to proper installation. $h_{hole} > L - t_{fix}$ (the drilled hole depth must be larger than the difference of the bolt length and the fixture thickness)



PERFORMANCE TABLE

Prima Sleeve Anchors — Ultimate Tension and Shear Values in Concrete (Lbs/kN)[1-3]

BOLT DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	ANCHOR DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	f'c = 2000 PSI (13.8 MPa)		f'c = 3000 PSI (20.7 MPa)		f'c = 4000 PSI (27.6 MPa)	
				TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6)	10 (14)	7/16 (12)	1-1/2 (38)	2,404 (10.7)	2,141 (9.5)	3,400 (15.1)	2,650 (11.8)	4,164 (18.5)	3,159 (14.1)
3/8 (10)	40 (54)	5/8 (16)	2 (51)	4,758 (21.2)	5,812 (25.9)	6,729 (29.9)	6,408 (28.5)	8,242 (36.7)	7,004 (31.2)
1/2 (12)	60 (81)	13/16 (20)	2-1/2 (63)	6,027 (26.8)	8,872 (39.5)	8,524 (37.9)	9,381 (41.7)	10,440 (46.4)	9,889 (44.0)

[1] Mean ultimate loads are derived from test results in admissible service conditions [2] Minimum slab thickness is 4" for 1/4" and 3/8" bolt diameters [3] Minimum slab thickness is 5" for 1/2" bolt diameter

Prima Sleeve Anchors — Allowable Tension and Shear Values in Concrete (Lbs/kN)[1-3]

BOLT DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	ANCHOR DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	f'c = 2000 PSI (13.8 MPa)		f'c = 3000 PSI (20.7 MPa)		f'c = 4000 PSI (27.6 MPa)	
				TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6)	10 (14)	7/16 (12)	1-1/2 (38)	601 (2.7)	535 (2.4)	850 (3.8)	663 (2.9)	1,041 (4.6)	790 (3.5)
3/8 (10)	40 (54)	5/8 (16)	2 (51)	1,190 (5.3)	1,453 (6.5)	1,682 (7.5)	1,602 (7.1)	2,060 (9.2)	1,751 (7.8)
1/2 (12)	60 (81)	13/16 (20)	2-1/2 (63)	1,507 (6.7)	2,218 (9.9)	2,131 (9.5)	2,345 (10.4)	2,610 (11.6)	2,472 (11.0)

[1] Allowable load values are based on a 4 to 1 safety factor to the ultimate loads. [2] Minimum slab thickness is 4" for 1/4" and 3/8" bolt diameters [3] Minimum slab thickness is 5" for 1/2" bolt diameter

Prima Sleeve Anchors — Ultimate Tension and Shear Values in Concrete Block (Lbs/kN)[1, 2]

BOLT DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	ANCHOR DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	HOLLOW		GROUT FILLED	
				TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6)	5 (7)	7/16 (12)	1-1/2 (38)	996 (4.4)	1,894 (8.4)	3,162 (14.1)	2,459 (10.9)
3/8 (10)	10 (13)	5/8 (16)	2 (51)	1,035 (4.6)	1,914 (8.5)	4,803 (21.4)	6,579 (29.3)
1/2 (12)	17 (23)	13/16 (20)	2-1/2 (63)	1,379 (6.1)	2,390 (10.6)	6,209 (27.6)	8,711 (38.7)

[1] Data was obtained from ASTM C 90 normal weight load bearing concrete masonry units. [2] Grout data is based on a 28-day compressive strength of 2,500 psi.

Prima Sleeve Anchors — Allowable Tension and Shear Values in Concrete Block (Lbs/kN)[1]

BOLT DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	ANCHOR DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	HOLLOW		GROUT FILLED	
				TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6)	5 (7)	7/16 (12)	1-1/2 (38)	249 (1.1)	474 (2.1)	791 (3.5)	615 (2.7)
3/8 (10)	10 (13)	5/8 (16)	2 (51)	259 (1.2)	479 (2.1)	1,201 (5.4)	1,645 (7.3)
1/2 (12)	17 (23)	13/16 (20)	2-1/2 (63)	345 (1.5)	598 (2.7)	1,552 (6.9)	2,178 (9.7)

[1] Allowable load values are based on a 4 to 1 safety factor to the ultimate loads.

See web site for brick data.