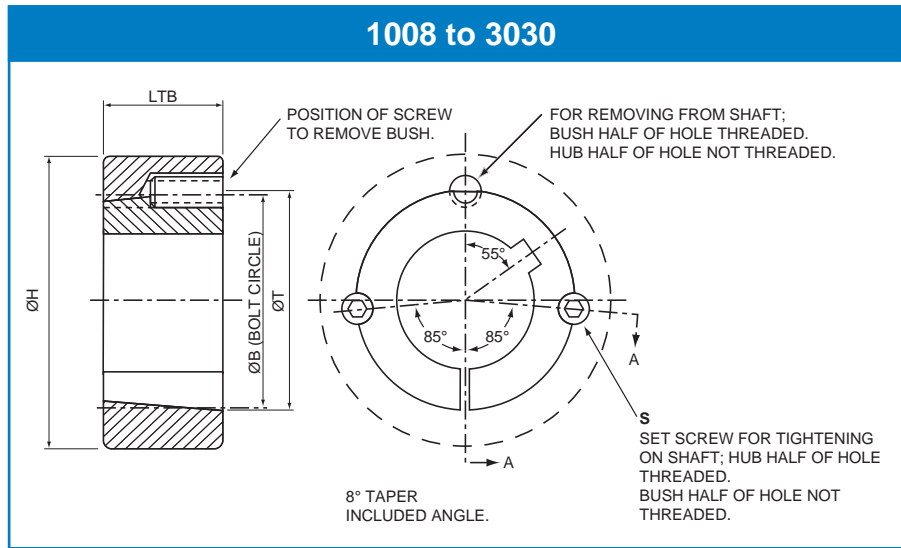


Taper Bushes

Range and Material Specifications:

Challenge Taper Bushes are manufactured to the highest quality standards using GG22 - 25 cast iron depending on size. Thin wall bushes are produced either from C45 steel or GGG close grain cast iron. All surfaces are carefully machined to provide maximum contact area and transmission of torque.

In excess of 700 sizes of Challenge Taper Bushes are manufactured and stocked making this one of the most comprehensive ranges available today.

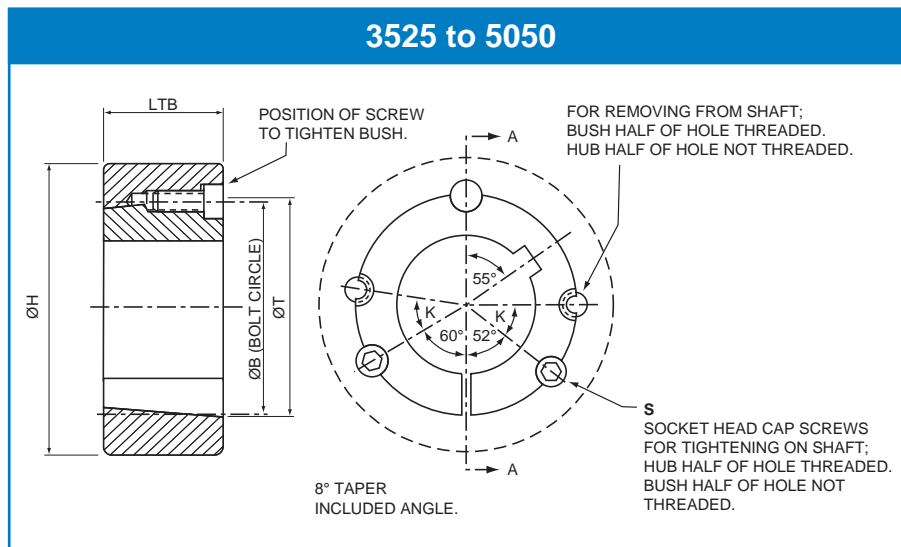


Taper Bush 1008 to 3030

Bush Size	T	LTB	Minimum hub Dia H			B	Set Screws S	
			200 N/mm ² GG Iron	250 N/mm ² GG Iron	420 N/mm ² Steel		Quantity	Size (BSW)
1008	35.20	22.3	59	54	51	33.73	2	1/4" x 1/2"
1108	38.38	22.3	61	57	54	36.92	2	1/4" x 1/2"
1210	47.62	25.4	99	86	78	44.44	2	3/8" x 5/8"
1215	47.62	38.1	79	73	68	44.44	2	3/8" x 5/8"
1310	50.80	25.4	100	88	80	47.63	2	3/8" x 5/8"
1610	57.15	25.4	102	92	85	53.97	2	3/8" x 5/8"
1615	57.15	38.1	86	81	77	53.97	2	3/8" x 5/8"
2012	69.85	31.8	115	106	99	66.68	2	7/16" x 7/8"
2517	85.73	44.5	125	119	113	82.55	2	1/2" x 1"
2525	85.73	63.5	115	111	108	82.56	2	1/2" x 1"
3020	107.96	50.8	154	146	140	101.60	2	5/8" x 1.1/4"
3030	107.96	76.2	141	136	132	101.60	2	5/8" x 1.1/4"

Severe operating conditions may require the use of a larger diameter hub.

Taper Bushes



Taper Bush 3525 to 5050

Bush Size	T	LTB	Minimum hub Dia H			B	Cap Screws S		K
			200 N/mm ² GG Iron	250 N/mm ² GG Iron	420 N/mm ² Steel		Quantity	Size (BSW)	
3525	127.00	63.5	206	191	178	122.68	3	1/2" x 1.1/2"	40°
3535	127.00	89.0	185	176	168	122.68	3	1/2" x 1.1/2"	40°
4030	146.05	76.2	220	207	197	140.72	3	5/8" x 1.3/4"	40°
4040	146.05	101.5	203	195	188	140.72	3	5/8" x 1.1/4"	40°
4535	161.93	89.0	221	212	205	155.70	3	3/4" x 2"	40°
4545	161.93	114.3	211	205	200	155.70	3	3/4" x 2"	40°
5040	177.80	101.6	236	229	223	170.69	3	7/8" x 2.1/4"	37°
5050	177.80	127.0	230	223	219	170.69	3	7/8" x 2.1/4"	37°

Severe operating conditions may require the use of a larger diameter hub.

Taper Bushes

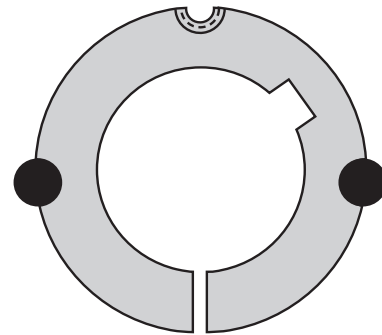
To Install

- 1 Ensure the mating surfaces are clean and free from oil and dirt. Insert the bush into the hub so that the securing holes are aligned
- 2 Lightly oil the thread of the screws and place them loosely into the threaded holes of the hub as shown in the diagram
- 3 Clean the shaft and fit the hub and bush to the shaft as one unit in the desired position. Remember that the bush will nip the shaft first and the hub will then be drawn slightly on to the bush
- 4 Using a hexagon wrench, gradually tighten the screws alternately until tight
- 5 Hammer against the large end of the bush using a block to avoid damaging the bush. The screws can now be tightened more. Repeat this procedure until the correct wrench tightening torque is achieved from the table below
- 6 To achieve the best balance, if a key is not used, position the keyways in the bush and hub diametrically opposite to each other
- 7 If a key is to be fitted, locate it in the shaft keyway before fitting the bush. It is essential that a parallel key with top clearance be fitted. Under no circumstances should taper or top fitting keys be used
- 8 After the drive has been running for a short time, check the tightness of the screws
- 9 Finally, fill all empty holes with grease to exclude dirt and prevent corrosion

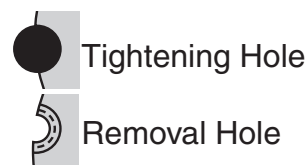
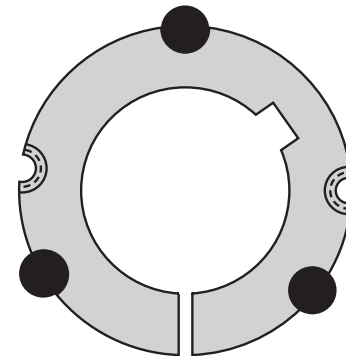
To Remove

- 1 Slacken all screws and remove one or two screws, according to the number of removal holes (see diagrams)
- 2 Lightly oil the screw(s) and insert it or them into the removal hole(s) and tighten down until the assembly loosens. If the bush does not loosen immediately, lightly tap the hub
- 3 Remove the assembly from the shaft

1008 to 3030



3525 to 5050



Recommended Wrench Torque

Bush Size	Screws	Tightening Torque (Nm)	Bush Size	Screws	Tightening Torque (Nm)	Bush Size	Screws	Tightening Torque (Nm)
1008	1/4" Set Screws	6	2012	7/16" Set Screws	30	4030	5/8" Cap Screws	170
1108	1/4" Set Screws	6	2517	1/2" Set Screws	50	4040	5/8" Cap Screws	170
1210	3/8" Set Screws	20	2525	1/2" Set Screws	50	4535	3/4" Cap Screws	190
1215	3/8" Set Screws	20	3020	5/8" Set Screws	90	4545	3/4" Cap Screws	190
1310	3/8" Set Screws	20	3030	5/8" Set Screws	90	5040	7/8" Cap Screws	270
1610	3/8" Set Screws	20	3525	1/2" Cap Screws	105	5050	7/8" Cap Screws	270
1615	3/8" Set Screws	20	3535	1/2" Cap Screws	105			

Every effort has been taken to ensure that the data listed in this catalogue is correct. Challenge accepts no liability for any inaccuracies or damage caused.

Taper Bushes - Metric

1008

Bore	Weight kg †	Keyseat	
		Bush	Shaft
9	0.13	3 x 1.4	3 x 1.8
10	0.13	3 x 1.4	3 x 1.8
11	0.12	4 x 1.8	4 x 2.5
12	0.12	4 x 1.8	4 x 2.5
14	0.11	5 x 2.3	5 x 3.0
15	0.11	5 x 2.3	5 x 3.0
16	0.10	5 x 2.3	5 x 3.0
18	0.10	6 x 2.8	6 x 3.5
19	0.09	6 x 2.8	6 x 3.5
20	0.09	6 x 2.8	6 x 3.5
22	0.08	6 x 2.8	6 x 3.5
24*	0.07	8 x 1.3*	8 x 4.0
25*	0.06	8 x 1.3*	8 x 4.0

1108

Bore	Weight kg †	Keyseat	
		Bush	Shaft
9	0.15	3 x 1.4	3 x 1.8
10	0.15	3 x 1.4	3 x 1.8
11	0.15	4 x 1.8	4 x 2.5
12	0.14	4 x 1.8	4 x 2.5
14	0.14	5 x 2.3	5 x 3.0
15	0.13	5 x 2.3	5 x 3.0
16	0.13	5 x 2.3	5 x 3.0
17	0.12	5 x 2.3	5 x 3.0
18	0.12	6 x 2.8	6 x 3.5
19	0.11	6 x 2.8	6 x 3.5
20	0.11	6 x 2.8	6 x 3.5
22	0.10	6 x 2.8	6 x 3.5
24	0.09	8 x 3.3	8 x 4.0
25	0.08	8 x 3.3	8 x 4.0
28*	0.06	8 x 1.3*	8 x 4.0

1210

Bore	Weight kg †	Keyseat	
		Bush	Shaft
11	0.26	4 x 1.8	4 x 2.5
12	0.26	4 x 1.8	4 x 2.5
14	0.25	5 x 2.3	5 x 3.0
15	0.25	5 x 2.3	5 x 3.0
16	0.24	5 x 2.3	5 x 3.0
18	0.23	6 x 2.8	6 x 3.5
19	0.23	6 x 2.8	6 x 3.5
20	0.22	6 x 2.8	6 x 3.5
22	0.21	6 x 2.8	6 x 3.5
24	0.19	8 x 3.3	8 x 4.0
25	0.19	8 x 3.3	8 x 4.0
28	0.16	8 x 3.3	8 x 4.0
30	0.15	8 x 3.3	8 x 4.0
32	0.14	10 x 3.3	10 x 5.0

1215

Bore	Weight kg †	Keyseat	
		Bush	Shaft
11	0.39	4 x 1.8	4 x 2.5
12	0.39	4 x 1.8	4 x 2.5
14	0.37	5 x 2.3	5 x 3.0
16	0.36	5 x 2.3	5 x 3.0
18	0.34	6 x 2.8	6 x 3.5
19	0.34	6 x 2.8	6 x 3.5
20	0.33	6 x 2.8	6 x 3.5
22	0.31	6 x 2.8	6 x 3.5
24	0.29	8 x 3.3	8 x 4.0
25	0.28	8 x 3.3	8 x 4.0
28	0.24	8 x 3.3	8 x 4.0
30	0.22	8 x 3.3	8 x 4.0
32	0.20	10 x 3.3	10 x 5.0

1310

Bore	Weight kg †	Keyseat	
		Bush	Shaft
14	0.31	5 x 2.3	5 x 3.0
16	0.30	5 x 2.3	5 x 3.0
18	0.29	6 x 2.8	6 x 3.5
19	0.28	6 x 2.8	6 x 3.5
20	0.28	6 x 2.8	6 x 3.5
22	0.26	5 x 2.8	6 x 3.5
24	0.25	8 x 3.3	8 x 4.0
25	0.25	8 x 3.3	8 x 4.0
28	0.22	8 x 3.3	8 x 4.0
30	0.20	8 x 3.3	8 x 4.0
32	0.18	10 x 3.3	10 x 5.0
35	0.16	10 x 3.3	10 x 5.0

1610

Bore	Weight kg †	Keyseat	
		Bush	Shaft
14	0.38	5 x 2.3	5 x 3.0
15	0.37	5 x 2.3	5 x 3.0
16	0.37	5 x 2.3	5 x 3.0
18	0.36	6 x 2.8	6 x 3.5
19	0.35	6 x 2.8	6 x 3.5
20	0.35	6 x 2.8	6 x 3.5
22	0.33	6 x 2.8	6 x 3.5
24	0.32	8 x 3.3	8 x 4.0
25	0.31	8 x 3.3	8 x 4.0
28	0.29	8 x 3.3	8 x 4.0
30	0.27	8 x 3.3	8 x 4.0
32	0.26	10 x 3.3	10 x 5.0
35	0.22	10 x 3.3	10 x 5.0
38	0.19	10 x 3.3	10 x 5.0
40	0.18	12 x 3.3	12 x 5.0
42	0.16	12 x 3.3	12 x 5.0

† Net weight including screws.

Keyways are in accordance with BS4235, Part 1, 1972, DIN6885 and conform to ISO recommendations with the exception of those marked* which are shallower.

Depth of key measured at centre.

Taper Bushes - Metric

1615

Bore	Weight kg †	Keyseat	
		Bush	Shaft
14	0.57	5 x 2.3	5 x 3.0
16	0.56	5 x 2.3	5 x 3.0
18	0.54	6 x 2.8	6 x 3.5
19	0.54	6 x 2.8	6 x 3.5
20	0.53	6 x 2.8	6 x 3.5
22	0.51	6 x 2.8	6 x 3.5
24	0.49	8 x 3.3	8 x 4.0
25	0.48	8 x 3.3	8 x 4.0
28	0.44	8 x 3.3	8 x 4.0
30	0.42	8 x 3.3	8 x 4.0
32	0.39	10 x 3.3	10 x 5.0
35	0.34	10 x 3.3	10 x 5.0
38	0.30	10 x 3.3	10 x 5.0
40	0.28	12 x 3.3	12 x 5.0
42*	0.24	12 x 2.2*	12 x 5.0

2012

Bore	Weight kg †	Keyseat	
		Bush	Shaft
14	0.76	5 x 2.3	5 x 3.0
16	0.75	5 x 2.3	5 x 3.0
18	0.74	6 x 2.8	6 x 3.5
19	0.73	6 x 2.8	6 x 3.5
20	0.73	6 x 2.8	6 x 3.5
22	0.71	6 x 2.8	6 x 3.5
24	0.69	8 x 3.3	8 x 4.0
25	0.69	8 x 3.3	8 x 4.0
28	0.66	8 x 3.3	8 x 4.0
30	0.63	8 x 3.3	8 x 4.0
32	0.61	10 x 3.3	10 x 5.0
35	0.57	10 x 3.3	10 x 5.0
38	0.53	10 x 3.3	10 x 5.0
40	0.51	12 x 3.3	12 x 5.0
42	0.48	12 x 3.3	12 x 5.0
45	0.43	14 x 3.8	14 x 5.5
48	0.38	14 x 3.8	14 x 5.5
50	0.34	14 x 3.8	14 x 5.5

2517

Bore	Weight kg †	Keyseat	
		Bush	Shaft
16	1.67	5 x 2.3	5 x 3.0
18	1.65	6 x 2.8	6 x 3.5
19	1.64	6 x 2.8	6 x 3.5
20	1.63	6 x 2.8	6 x 3.5
22	1.61	6 x 2.8	6 x 3.5
24	1.59	8 x 3.3	8 x 4.0
25	1.57	8 x 3.3	8 x 4.0
28	1.53	8 x 3.3	8 x 4.0
30	1.50	8 x 3.3	8 x 4.0
32	1.47	10 x 3.3	10 x 5.0
35	1.42	10 x 3.3	10 x 5.0
38	1.36	10 x 3.3	10 x 5.0
40	1.32	12 x 3.3	12 x 5.0
42	1.28	12 x 3.3	12 x 5.0
45	1.21	14 x 3.8	14 x 5.5
48	1.14	14 x 3.8	14 x 5.5
50	1.09	14 x 3.8	14 x 5.5
55	0.96	16 x 4.3	16 x 6.0
60	0.81	18 x 4.4	18 x 7.0
65	0.65	18 x 4.4	18 x 7.0

2525

Bore	Weight kg †	Keyseat	
		Bush	Shaft
18	2.18	6 x 2.8	6 x 3.5
19	2.17	6 x 2.8	6 x 3.5
20	2.16	6 x 2.8	6 x 3.5
22	2.13	6 x 2.8	6 x 3.5
24	2.09	8 x 3.3	8 x 4.0
25	2.07	8 x 3.3	8 x 4.0
28	2.02	8 x 3.3	8 x 4.0
30	1.97	8 x 3.3	8 x 4.0
32	1.93	10 x 3.3	10 x 5.0
35	1.85	10 x 3.3	10 x 5.0
38	1.77	10 x 3.3	10 x 5.0
40	1.71	12 x 3.3	12 x 5.0
42	1.65	12 x 3.3	12 x 5.0
45	1.56	14 x 3.8	14 x 5.5
48	1.46	14 x 3.8	14 x 5.5
50	1.38	14 x 3.8	14 x 5.5
55	1.19	16 x 4.3	16 x 6.0
60	0.98	18 x 4.4	18 x 7.0

3020

Bore	Weight kg †	Keyseat	
		Bush	Shaft
20	2.93	8 x 3.3	8 x 4.0
25	2.87	8 x 3.3	8 x 4.0
28	2.82	8 x 3.3	8 x 4.0
30	2.79	8 x 3.3	8 x 4.0
32	2.75	10 x 3.3	10 x 5.0
35	2.69	10 x 3.3	10 x 5.0
38	2.63	10 x 3.3	10 x 5.0
40	2.58	12 x 3.3	12 x 5.0
42	2.53	12 x 3.3	12 x 5.0
45	2.46	14 x 3.8	14 x 5.5
48	2.37	14 x 3.8	14 x 5.5
50	2.32	14 x 3.8	14 x 5.5
55	2.16	16 x 4.3	16 x 6.0
60	1.99	18 x 4.4	18 x 7.0
65	1.81	18 x 4.4	18 x 7.0
70	1.61	20 x 4.9	20 x 7.5
75	1.39	20 x 4.9	20 x 7.5

3030

Bore	Weight kg †	Keyseat	
		Bush	Shaft
25	4.04	8 x 3.3	8 x 4.0
35	3.77	10 x 3.3	10 x 5.0
38	3.67	10 x 3.3	10 x 5.0
40	3.60	12 x 3.3	12 x 5.0
42	3.53	12 x 3.3	12 x 5.0
45	3.42	14 x 3.8	14 x 5.5
48	3.29	14 x 3.8	14 x 5.5
50	3.21	14 x 3.8	14 x 5.5
55	2.98	16 x 4.3	16 x 6.0
60	2.72	18 x 4.4	18 x 7.0
65	2.44	18 x 4.4	18 x 7.0
70	2.15	20 x 4.9	20 x 7.5
75	1.83	20 x 4.9	20 x 7.5

† Net weight including screws.

Keyways are in accordance with BS4235, Part 1, 1972, DIN6885 and conform to ISO recommendations with the exception of those marked* which are shallower. Depth of key measured at centre.

Taper Bushes - Metric

3525

Bore	Weight kg †	Keyseat	
		Bush	Shaft
35	4.91	10 x 3.3	10 x 5.0
38	4.83	10 x 3.3	10 x 5.0
40	4.77	12 x 3.3	12 x 5.0
42	4.71	12 x 3.3	12 x 5.0
45	4.62	14 x 3.8	14 x 5.5
48	4.52	14 x 3.8	14 x 5.5
50	4.44	14 x 3.8	14 x 5.5
55	4.25	16 x 4.3	16 x 6.0
60	4.04	18 x 4.4	18 x 7.0
65	3.81	18 x 4.4	18 x 7.0
70	3.56	20 x 4.9	20 x 7.5
75	3.29	20 x 4.9	20 x 7.5
80	3.01	22 x 5.4	22 x 9.0
85	2.70	22 x 5.4	22 x 9.0
90	2.38	25 x 5.4	25 x 9.0
95	2.17	25 x 5.4	25 x 9.0
100*	1.79	28 x 5.4*	28 x 10.0

3535

Bore	Weight kg †	Keyseat	
		Bush	Shaft
32	6.65	10 x 3.3	10 x 5.0
35	6.55	10 x 3.3	10 x 5.0
38	6.43	10 x 3.3	10 x 5.0
40	6.35	12 x 3.3	12 x 5.0
42	6.27	12 x 3.3	12 x 5.0
45	6.13	14 x 3.8	14 x 5.5
48	5.99	14 x 3.8	14 x 5.5
50	5.89	14 x 3.8	14 x 5.5
55	5.62	16 x 4.3	16 x 6.0
60	5.32	18 x 4.4	18 x 7.0
65	5.00	18 x 4.4	18 x 7.0
70	4.65	20 x 4.9	20 x 7.5
75	4.28	20 x 4.9	20 x 7.5
80	3.88	22 x 5.4	22 x 9.0
85	3.45	22 x 5.4	22 x 9.0
90	3.00	25 x 5.4	25 x 9.0

4030

Bore	Weight kg †	Keyseat	
		Bush	Shaft
40	7.55	12 x 3.3	12 x 5.0
42	7.48	12 x 3.3	12 x 5.0
45	7.36	14 x 3.8	14 x 5.5
48	7.24	14 x 3.8	14 x 5.5
50	7.15	14 x 3.8	14 x 5.5
55	6.92	16 x 4.3	16 x 6.0
60	6.67	18 x 4.4	18 x 7.0
65	6.39	18 x 4.4	18 x 7.0
70	6.09	20 x 4.9	20 x 7.5
75	5.77	20 x 4.9	20 x 7.5
80	5.43	22 x 5.4	22 x 9.0
85	5.06	22 x 5.4	22 x 9.0
90	4.68	25 x 5.4	25 x 9.0
95	4.27	25 x 5.4	25 x 9.0
100	3.84	28 x 6.4	28 x 10.0
105	3.59	28 x 6.4	28 x 10.0
110	3.09	28 x 6.4	28 x 10.0
115*	2.56	32 x 5.4*	32 x 11.0

4040

Bore	Weight kg †	Keyseat	
		Bush	Shaft
40	9.83	12 x 3.3	12 x 5.0
42	9.73	12 x 3.3	12 x 5.0
45	9.58	14 x 3.8	14 x 5.5
48	9.41	14 x 3.8	14 x 5.5
50	9.30	14 x 3.8	14 x 5.5
55	8.99	16 x 4.3	16 x 6.0
60	8.65	18 x 4.4	18 x 7.0
65	8.28	18 x 4.4	18 x 7.0
70	7.88	20 x 4.9	20 x 7.5
75	7.46	20 x 4.9	20 x 7.5
80	7.00	22 x 5.4	22 x 9.0
85	6.51	22 x 5.4	22 x 9.0
90	6.00	25 x 5.4	25 x 9.0
95	5.45	25 x 5.4	25 x 9.0
100	4.88	28 x 6.4	28 x 10.0

† Net weight including screws.

Bold italic type indicates bushes made of **GGG cast iron**.

Keyways are in accordance with BS4235, Part 1, 1972, DIN6885 and conform to ISO recommendations with the exception of those marked* which are shallower.

Depth of key measured at centre.

Taper Bushes - Metric

4535

Bore	Weight kg †	Keyseat	
		Bush	Shaft
55	10.33	16 x 4.3	10 x 6.0
60	10.03	18 x 4.4	18 x 7.0
65	9.71	18 x 4.4	18 x 7.0
70	9.36	20 x 4.9	20 x 7.5
75	8.99	20 x 4.9	20 x 7.5
80	8.59	22 x 5.4	22 x 9.0
85	8.16	22 x 5.4	22 x 9.0
90	7.71	25 x 5.4	25 x 9.0
95	7.23	25 x 5.4	25 x 9.0
100	6.73	28 x 6.4	28 x 10.0
105	6.20	28 x 6.4	28 x 10.0
110	5.65	28 x 6.4	28 x 10.0
115	5.38	32 x 7.4	32 x 11.0
120	4.73	32 x 7.4	32 x 11.0
125	4.06	32 x 7.4	32 x 11.0

4545

Bore	Weight kg †	Keyseat	
		Bush	Shaft
55	13.72	16 x 4.3	16 x 6.0
60	13.34	18 x 4.4	18 x 7.0
65	12.93	18 x 4.4	18 x 7.0
70	12.48	20 x 4.9	20 x 7.5
75	12.00	20 x 4.9	20 x 7.5
80	11.49	22 x 5.4	22 x 9.0
85	10.94	22 x 5.4	22 x 9.0
90	10.36	25 x 5.4	25 x 9.0
95	9.75	25 x 5.4	25 x 9.0
100	9.10	28 x 6.4	28 x 10.0
105	8.42	28 x 6.4	28 x 10.0
110	7.71	28 x 6.4	28 x 10.0

5040

Bore	Weight kg †	Keyseat	
		Bush	Shaft
70	13.42	20 x 4.9	20 x 7.5
75	12.99	20 x 4.9	20 x 7.5
80	12.53	22 x 5.4	22 x 9.0
85	12.05	22 x 5.4	22 x 9.0
90	11.53	25 x 5.4	25 x 9.0
95	10.99	25 x 5.4	25 x 9.0
100	10.41	28 x 6.4	28 x 10.0
105	9.81	28 x 6.4	28 x 10.0
110	9.17	28 x 6.4	28 x 10.0
115	8.51	32 x 7.4	32 x 11.0
120	7.82	32 x 7.4	32 x 11.0
125	7.10	32 x 7.4	32 x 11.0

5050

Bore	Weight kg †	Keyseat	
		Bush	Shaft
70	16.33	20 x 4.9	20 x 7.5
75	15.80	20 x 4.9	20 x 7.5
80	15.23	22 x 5.4	22 x 9.0
85	14.62	22 x 5.4	22 x 9.0
90	13.97	25 x 5.4	25 x 9.0
95	13.29	25 x 5.4	25 x 9.0
100	12.58	28 x 6.4	28 x 10.0
105	11.82	28 x 6.4	28 x 10.0
110	11.03	28 x 6.4	28 x 10.0
115	10.20	32 x 7.4	32 x 11.0
120	9.33	32 x 7.4	32 x 11.0
125	8.43	32 x 7.4	32 x 11.0

† Net weight including screws.

Bold italic type indicates bushes made of **GGG cast iron**.

Keyways are in accordance with BS4235, Part 1, 1972, DIN6885 and conform to ISO recommendations with the exception of those marked* which are shallower.

Depth of key measured at centre.

NOTE

CHALLENGE can manufacture larger taper bush sizes including 6050, 7060 and 8065. These are available to order with the following maximum bores:

6050 150 mm or 6"

7060 175 mm or 7"

8065 200 mm or 8"

Pilot bore taper bushes in these sizes are also available.