



### 1) Materials for KBS Adapter Sleeves, Withdrawal Sleeves, Lock Nuts and Lock Washers

1.1) The high quality low carbon steel 20F is adopted for gaining a better fitting with bearings and shafts. Its chemical composition please refer to below Table 1.1

Table 1.1

Name	Standard	Chemical Composition (%)					
		C	Mn	Si	Cr	S≤	P≤
20F	KBS	0.14~0.23	0.20~0.40	0.15~0.35	1.30~1.65	0.02	0.027

Note: We supply KBS Adapter Sleeves, Withdrawal Sleeves, Lock Nuts and Lock Washers produced in 20F steel as normal products, unless other wise specified before ordering.

### 2) Tolerances

2.1) Tolerance for dimensional, shape and positional of the adapter sleeves please refer to Table 2.1 and Table 2.2

Table 2.1 Tolerance for width of the sleeve(Bi), length of its thread(a) and width of its locking gap ( b①, f② )

Bi, a, b, f (mm)		Tolerance (μm)							
		ΔBi <sub>s</sub>		Δa <sub>s</sub>		Δb <sub>s</sub>		Δf <sub>s</sub>	
over	incl.	high	low	high	low	high	low	high	low
-	3	+200	-200	+200	-200	+140	0	+140	0
3	6	+240	-240	+240	-240	+180	0	+180	0
6	10	+290	-290	+290	-290	+220	0	+220	0
10	18	+350	-350	+350	-350	+270	0	-	-
18	30	+420	-420	+420	-420	+330	0	-	-
30	50	+500	-500	+500	-500	+390	0	-	-
50	80	+600	-600	+600	-600	+460	0	-	-
80	120	+700	-700	+700	-700	-	-	-	-
120	180	+800	-800	-	-	-	-	-	-
180	250	+925	-925	-	-	-	-	-	-
250	315	+1050	-1050	-	-	-	-	-	-
315	400	+1150	-1150	-	-	-	-	-	-
400	500	+1250	-1250	-	-	-	-	-	-
500	630	+1400	-1400	-	-	-	-	-	-
630	800	+1600	-1600	-	-	-	-	-	-

Note: ① b indicate wide gap. ② f indicate narrow gap



Table 2.2 Tolerance for internal diameter of the sleeve (d1mp), for thread, for diameter of taper (D1s) and the run-out (Kdo) of the tapered surface.

d1 (mm)		Tolerance (μm)									
		Δd1mp		Vd1mp	ΔD1s		Vdop	ΔD1mp-Δd1mp		Tolerance for thread	Kdo max.
over	incl.	high	low	max.	high	low	max.	high	low		
-	18	+35	-35	27	+33	0	10	+18	0	For general	20
18	30	+42	-42	33	+39	0	13	+21	0	thread 6g	25
30	50	+50	-50	39	+46	0	15	+25	0	tolerance is	30
50	80	+60	-60	46	+54	0	20	+30	0	adopted	40
80	120	+70	-70	54	+63	0	25	+35	0		40
120	180	+80	-80	63	+72	0	31	+40	0	For T type	50
180	250	+92	-92	72	+81	0	38	+46	0	thread 6e	50
250	315	+105	-105	81	+89	0	44	+52	0	tolerance is	60
315	400	+115	-115	89	+97	0	50	+57	0	adopted	60
400	500	+125	-125	97	+110	0	56	+63	0		60
500	630	+140	-140	110	+125	0	63	+70	0		80
630	800	+160	-160	125	+140	0	94	+80	0		80
800	1000	+180	-180	140	+165	0	125	+90	0		100

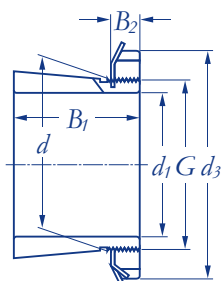
Note: The items d1mp、Vd1mp、Vdop are checked before

3. Roughness of the surface

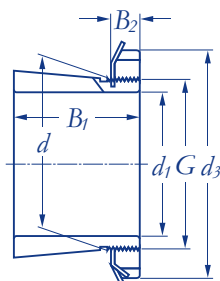
d1 (mm)		Roughness			
Over	incl.	Internal surface	Taper surface	Thread	Other surface
-	120	1.6	0.80	5	6.3
120	500	2.5	1.25	5	6.3
500	-	3.2	1.60	5	6.3

4. Checking method

- 4.1) The outer appearance of the adapter sleeve is checked by sight.
- 4.2) Roughness of the main surfaces of the adapter sleeve is slightly checked by comparing with a sample adapter sleeve confirmed by both sides.
- 4.3) Thread is checked by standard thread stop-through gage.



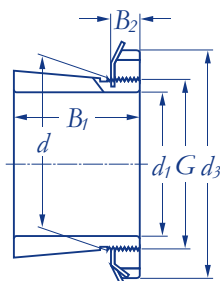
Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
20	H 205	25	38	26	8	M 25 X 1.5	KM 5	MB 5		0.070
25	H 206	30	45	27	8	M 30 X 1.5	KM 6	MB 6		0.099
30	H 207	35	52	29	9	M 35 X 1.5	KM 7	MB 7		0.125
35	H 208	40	58	31	10	M 40 X 1.5	KM 8	MB 8		0.174
40	H 209	45	65	33	11	M 45 X 1.5	KM 9	MB 9		0.226
45	H 210	50	70	35	12	M 50 X 1.5	KM 10	MB 10	HMV 10	0.274
50	H 211	55	75	37	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.308
55	H 212	60	80	38	13	M 60 X 2.0	KM 12	MB 12	HMV 12	0.346
60	H 213	65	85	40	14	M 65 X 2.0	KM 13	MB 13	HMV 13	0.401
65	H 215	75	98	43	15	M 75 X 2.0	KM 15	MB 15	HMV 15	0.708
70	H 216	80	105	46	17	M 80 X 2.0	KM 16	MB 16	HMV 16	0.881
75	H 217	85	110	50	18	M 85 X 2.0	KM 17	MB 17	HMV 17	1.020
80	H 218	90	120	52	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.180
100	H 222	110	145	63	21	M 110X2.0	KM 22	MB 22	HMV 22	1.930

**H 23 SERIES**


Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
20	H 2305	25	38	35	8	M 25 X 1.5	KM 5	MB 5		0.087
25	H 2306	30	45	38	8	M 30 X 1.5	KM 6	MB 6		0.126
30	H 2307	35	52	43	8	M 35 X 1.5	KM 7	MB 7		0.165
35	H 2308	40	58	46	9	M 40 X 1.5	KM 8	MB 8		0.224
40	H 2309	45	65	50	10	M 45 X 1.5	KM 9	MB 9		0.280
45	H 2310	50	70	55	11	M 50 X 1.5	KM 10	MB 10	HMV 10	0.362
50	H 2311	55	75	59	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.420
55	H 2312	60	80	62	12	M 60 X 2.0	KM 12	MB 12	HMV 12	0.481
60	H 2313	65	85	65	13	M 65 X 2.0	KM 13	MB 13	HMV 13	0.557
60	H 2314	70	92	68	14	M 70 X 2.0	KM 14	MB 14	HMV 14	0.897
65	H 2315	75	98	73	14	M 75 X 2.0	KM 15	MB 15	HMV 15	1.050
70	H 2316	80	105	78	15	M 80 X 2.0	KM 16	MB 16	HMV 16	1.280
75	H 2317	85	110	82	17	M 85 X 2.0	KM 17	MB 17	HMV 17	1.450
80	H 2318	90	120	86	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.690
85	H 2319	95	125	90	18	M 95 X 2.0	KM 19	MB 19	HMV 19	1.920
90	H 2320	100	130	97	19	M 100X2.0	KM 20	MB 20	HMV 20	2.150
100	H 2322	110	145	105	20	M 110X2.0	KM 22	MB 22	HMV 22	2.740
110	H 2324	120	155	112	21	M 120X2.0	KM 24	MB 24	HMV 24	3.190
115	H 2326	130	165	121	22	M 130X2.0	KM 26	MB 26	HMV 26	4.600
125	H 2328	140	180	131	23	M 140X2.0	KM 28	MB 28	HMV 28	5.550
135	H 2330	150	195	139	24	M 150X2.0	KM 30	MB 30	HMV 30	6.630
140	H 2332	160	210	147	26	M 160X3.0	KM 32	MB 32	HMV 32	9.140
170	H 2338	190	240	169	30	M 190X3.0	KM 38	MB 38	HMV 38	12.600
220	H 2344	220	280	183	32	M 220X4.0	KM 44	MB 44	HMV 44	16.700



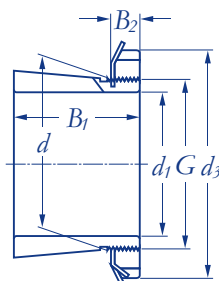
### H 3 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
20	H 305	25	38	29	8	M 25 X 1.5	KM 5	MB 5		0.075
25	H 306	30	45	31	8	M 30 X 1.5	KM 6	MB 6		0.109
30	H 307	35	52	35	9	M 35 X 1.5	KM 7	MB 7		0.142
35	H 308	40	58	36	10	M 40 X 1.5	KM 8	MB 8		0.189
40	H 309	45	65	39	11	M 45 X 1.5	KM 9	MB 9		0.248
45	H 310	50	70	42	12	M 50 X 1.5	KM 10	MB 10	HMV 10	0.302
50	H 311	55	75	45	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.345
55	H 312	60	80	47	13	M 60 X 2.0	KM 12	MB 12	HMV 12	0.393
60	H 313	65	85	50	14	M 65 X 2.0	KM 13	MB 13	HMV 13	0.459
60	H 314	70	92	52	14	M 70 X 2.0	KM 14	MB 14	HMV 14	0.723
65	H 315	75	98	55	15	M 75 X 2.0	KM 15	MB 15	HMV 15	0.830
70	H 316	80	105	59	17	M 80 X 2.0	KM 16	MB 16	HMV 16	1.000
75	H 317	85	110	63	18	M 85 X 2.0	KM 17	MB 17	HMV 17	1.180
80	H 318	90	120	65	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.370
85	H 319	95	125	68	19	M 95 X 2.0	KM 19	MB 19	HMV 19	1.560
90	H 320	100	130	71	20	M 100X2.0	KM 20	MB 20	HMV 20	1.690
100	H 222	110	145	77	21	M 110X2.0	KM 22	MB 22	HMV 22	2.180



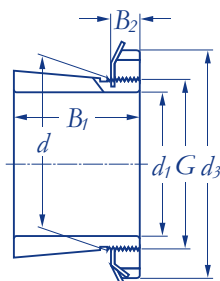
## H 31 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
100	H 3122	110	145	81	21	M 110 X 2	KM 22	MB 22	HMV 22	2.250
110	H 3124	120	155	88	22	M 120 X 2	KM 24	MB 24	HMV 24	2.650
115	H 3126	130	165	92	23	M 130 X 2	KM 26	MB 26	HMV 26	3.650
125	H 3128	140	180	97	24	M 140 X 2	KM 28	MB 28	HMV 28	4.350
135	H 3130	150	195	111	26	M 150 X 2	KM 30	MB 30	HMV 30	5.500
140	H 3132	160	210	119	28	M 160 X 3	KM 32	MB 32	HMV 32	7.650
150	H 3134	170	220	122	29	M 170 X 2	KM 34	MB 34	HMV 34	8.400
160	H 3136	180	230	131	30	M 180 X 2	KM 36	MB 36	HMV 36	9.500
170	H 3138	190	240	141	31	M 190 X 2	KM 38	MB 38	HMV 38	11.000
180	H 3140	200	250	150	32	M 200 X 2	KM 40	MB 40	HMV 40	12.000
200	H 3144	220	280	158	32	M 220 X 2	KM 44	MB 44	HMV 44	14.500
220	H 3148	240	300	169	34	M 240 X 2	KM 48	MB 48	HMV 48	17.500
240	H 3152	260	330	187	36	M 260 X 2	KM 52	MB 52	HMV 52	22.000
260	H 3156	280	350	192	38	M 280 X 2	KM 56	MB 56	HMV 56	24.500
280	H 3160	300	380	208	40	M 300 X 2	KM 60	MB 60	HMV 60	30.000



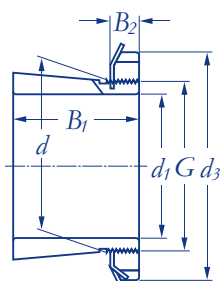
## HA 2 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
13/16	HA 205	25	38	26	8	M 25 X 1.5	<b>KM 5</b>	<b>MB 5</b>		0.070
15/16	HA 206	30	45	27	8	M 30 X 1.5	<b>KM 6</b>	<b>MB 6</b>		0.099
1 3/16	HA 207	35	52	29	9	M 35 X 1.5	<b>KM 7</b>	<b>MB 7</b>		0.125
1 5/16	HA 208	40	58	31	10	M 40 X 1.5	<b>KM 8</b>	<b>MB 8</b>		0.174
1 7/16	HA 209	45	65	33	11	M 45 X 1.5	<b>KM 9</b>	<b>MB 9</b>		0.226
1 11/16	HA 210	50	70	35	12	M 50 X 1.5	<b>KM 10</b>	<b>MB 10</b>	<b>HMV 10</b>	0.274
1 15/16	HA 211	55	75	37	12	M 55 X 2.0	<b>KM 11</b>	<b>MB 11</b>	<b>HMV 11</b>	0.308
2 1/16	HA 212	60	80	38	13	M 60 X 2.0	<b>KM 12</b>	<b>MB 12</b>	<b>HMV 12</b>	0.346
2 3/16	HA 213	65	85	40	14	M 65 X 2.0	<b>KM 13</b>	<b>MB 13</b>	<b>HMV 13</b>	0.401
2 7/16	HA 215	75	98	43	15	M 75 X 2.0	<b>KM 15</b>	<b>MB 15</b>	<b>HMV 15</b>	0.708
2 11/16	HA 216	80	105	46	17	M 80 X 2.0	<b>KM 16</b>	<b>MB 16</b>	<b>HMV 16</b>	0.881
2 15/16	HA 217	85	110	50	18	M 85 X 2.0	<b>KM 17</b>	<b>MB 17</b>	<b>HMV 17</b>	1.020
3 3/16	HA 218	90	120	52	18	M 90 X 2.0	<b>KM 18</b>	<b>MB 18</b>	<b>HMV 18</b>	1.180
3 15/16	HA 222	110	145	63	21	M 110X2.0	<b>KM 22</b>	<b>MB 22</b>	<b>HMV 22</b>	1.930



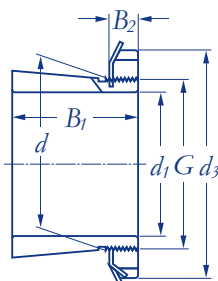
## HA 23 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
13/16	HA 2305	25	38	35	8	M 25 X 1.5	KM 5	MB 5		0.087
15/16	HA 2306	30	45	38	8	M 30 X 1.5	KM 6	MB 6		0.126
1 3/16	HA 2307	35	52	43	8	M 35 X 1.5	KM 7	MB 7		0.165
1 5/16	HA 2308	40	58	46	9	M 40 X 1.5	KM 8	MB 8		0.224
1 7/16	HA 2309	45	65	50	10	M 45 X 1.5	KM 9	MB 9		0.280
1 11/16	HA 2310	50	70	55	11	M 50 X 1.5	KM 10	MB 10	HMV 10	0.362
1 15/16	HA 2311	55	75	59	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.420
2 1/16	HA 2312	60	80	62	12	M 60 X 2.0	KM 12	MB 12	HMV 12	0.481
2 3/16	HA 2313	65	85	65	13	M 65 X 2.0	KM 13	MB 13	HMV 13	0.557
	HA 2314	70	92	68	14	M 70 X 2.0	KM 14	MB 14	HMV 14	0.897
2 7/16	HA 2315	75	98	73	14	M 75 X 2.0	KM 15	MB 15	HMV 15	1.050
2 11/16	HA 2316	80	105	78	15	M 80 X 2.0	KM 16	MB 16	HMV 16	1.280
2 15/16	HA 2317	85	110	82	17	M 85 X 2.0	KM 17	MB 17	HMV 17	1.450
3 3/16	HA 2318	90	120	86	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.690
3 5/16	HA 2319	95	125	90	18	M 95 X 2.0	KM 19	MB 19	HMV 19	1.920
3 7/16	HA 2320	100	130	97	19	M 100X2.0	KM 20	MB 20	HMV 20	2.150
3 15/16	HA 2322	110	145	105	20	M 110X2.0	KM 22	MB 22	HMV 22	2.740
4 3/16	HA 2324	120	155	112	21	M 120X2.0	KM 24	MB 24	HMV 24	3.190
4 7/16	HA 2326	130	165	121	22	M 130X2.0	KM 26	MB 26	HMV 26	4.600
4 15/16	HA 2328	140	180	131	23	M 140X2.0	KM 28	MB 28	HMV 28	5.550
5 3/16	HA 2330	150	195	139	24	M 150X2.0	KM 30	MB 30	HMV 30	6.630
5 7/16	HA 2332	160	210	147	26	M 160X3.0	KM 32	MB 32	HMV 32	9.140
6 15/16	HA 2338	190	240	169	30	M 190X3.0	KM 38	MB 38	HMV 38	12.600
	HA 2344	220	280	183	32	M 220X4.0	KM 44	MB 44	HMV 44	16.700



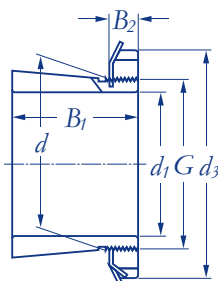
### HA 3 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
	HA 305	25	38	29	8	M 25 X 1.5	KM 5	MB 5		0.075
15/16	HA 306	30	45	31	8	M 30 X 1.5	KM 6	MB 6		0.109
1 3/16	HA 307	35	52	35	9	M 35 X 1.5	KM 7	MB 7		0.142
1 5/16	HA 308	40	58	36	10	M 40 X 1.5	KM 8	MB 8		0.189
1 7/16	HA 309	45	65	39	11	M 45 X 1.5	KM 9	MB 9		0.248
1 11/16	HA 310	50	70	42	12	M 50 X 1.5	KM 10	MB 10	HMV 10	0.302
115/16	HA 311	55	75	45	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.345
2 1/16	HA 312	60	80	47	13	M 60 X 2.0	KM 12	MB 12	HMV 12	0.393
2 3/16	HA 313	65	85	50	14	M 65 X 2.0	KM 13	MB 13	HMV 13	0.459
	HA 314	70	92	52	14	M 70 X 2.0	KM 14	MB 14	HMV 14	0.723
2 7/16	HA 315	75	98	55	15	M 75 X 2.0	KM 15	MB 15	HMV 15	0.830
2 11/16	HA 316	80	105	59	17	M 80 X 2.0	KM 16	MB 16	HMV 16	1.000
2 15/16	HA 317	85	110	63	18	M 85 X 2.0	KM 17	MB 17	HMV 17	1.180
3 3/16	HA 318	90	120	65	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.370
3 5/16	HA 319	95	125	68	19	M 95 X 2.0	KM 19	MB 19	HMV 19	1.560
3 7/16	HA 320	100	130	71	20	M 100X2.0	KM 20	MB 20	HMV 20	1.690
3 15/16	HA 322	110	145	77	21	M 110X2.0	KM 22	MB 22	HMV 22	2.180

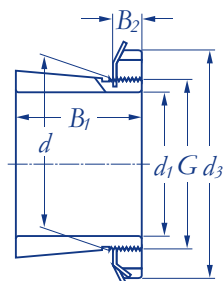


### HA 31 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
3 15/16	HA 3122	110	145	81	21	M 110 X 2	KM 22	MB 22	HMV 22	2.250
4 3/16	HA 3124	120	155	88	22	M 120 X 2	KM 24	MB 24	HMV 24	2.650
4 7/16	HA 3126	130	165	92	23	M 130 X 2	KM 26	MB 26	HMV 26	3.650
4 15/16	HA 3128	140	180	97	24	M 140 X 2	KM 28	MB 28	HMV 28	4.350
5 3/16	HA 3130	150	195	111	26	M 150 X 2	KM 30	MB 30	HMV 30	5.500
5 7/16	HA 3132	160	210	119	28	M 160 X 3	KM 32	MB 32	HMV 32	7.650
5 15/16	HA 3134	170	220	122	29	M 170 X 2	KM 34	MB 34	HMV 34	8.400
6 7/16	HA 3136	180	230	131	30	M 180 X 2	KM 36	MB 36	HMV 36	9.500
6 15/16	HA 3138	190	240	141	31	M 190 X 2	KM 38	MB 38	HMV 38	11.000
7 3/16	HA 3140	200	250	150	32	M 200 X 2	KM 40	MB 40	HMV 40	12.000
7 15/16	HA 3144	220	280	158	32	M 220 X 2	KM 44	MB 44	HMV 44	14.500
	HA 3148	240	300	169	34	M 240 X 2	KM 48	MB 48	HMV 48	17.500
	HA 3152	260	330	187	36	M 260 X 2	KM 52	MB 52	HMV 52	22.000
	HA 3156	280	350	192	38	M 280 X 2	KM 56	MB 56	HMV 56	24.500
	HA 3160	300	380	208	40	M 300 X 2	KM 60	MB 60	HMV 60	30.000

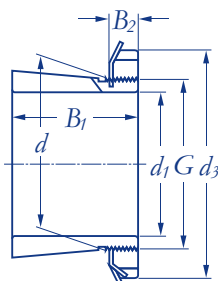
## HE 2 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
3/4	HE 205	25	38	26	8	M 25 X 1.5	KM 5	MB 5		0.070
1	HE 206	30	45	27	8	M 30 X 1.5	KM 6	MB 6		0.099
1 1/4	HE 207	35	52	29	9	M 35 X 1.5	KM 7	MB 7		0.125
1 1/4	HE 208	40	58	31	10	M 40 X 1.5	KM 8	MB 8		0.174
1 1/2	HE 209	45	65	33	11	M 45 X 1.5	KM 9	MB 9		0.226
1 3/4	HE 210	50	70	35	12	M 50 X 1.5	KM 10	MB 10	HMV 10	0.274
2	HE 211	55	75	37	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.308
2 1/4	HE 212	60	80	38	13	M 60 X 2.0	KM 12	MB 12	HMV 12	0.346
2 1/4	HE 213	65	85	40	14	M 65 X 2.0	KM 13	MB 13	HMV 13	0.401
2 1/2	HE 215	75	98	43	15	M 75 X 2.0	KM 15	MB 15	HMV 15	0.708
2 3/4	HE 216	80	105	46	17	M 80 X 2.0	KM 16	MB 16	HMV 16	0.881
3	HE 217	85	110	50	18	M 85 X 2.0	KM 17	MB 17	HMV 17	1.020
3 1/4	HE 218	90	120	52	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.180
4	HE 222	110	145	63	21	M 110X2.0	KM 22	MB 22	HMV 22	1.930

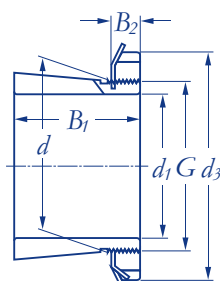


## HE 23 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
3/4	HE 2305	25	38	35	8	M 25 X 1.5	KM 5	MB 5		0.087
1	HE 2306	30	45	38	8	M 30 X 1.5	KM 6	MB 6		0.126
1 1/4	HE 2307	35	52	43	8	M 35 X 1.5	KM 7	MB 7		0.165
1 1/4	HE 2308	40	58	46	9	M 40 X 1.5	KM 8	MB 8		0.224
1 1/2	HE 2309	45	65	50	10	M 45 X 1.5	KM 9	MB 9		0.280
1 3/4	HE 2310	50	70	55	11	M 50 X 1.5	KM 10	MB 10	HMV 10	0.362
2	HE 2311	55	75	59	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.420
2 1/4	HE 2312	60	80	62	12	M 60 X 2.0	KM 12	MB 12	HMV 12	0.481
2 1/4	HE 2313	65	85	65	13	M 65 X 2.0	KM 13	MB 13	HMV 13	0.557
2 1/2	HE 2315	75	98	73	14	M 75 X 2.0	KM 15	MB 15	HMV 15	1.050
2 3/4	HE 2316	80	105	78	15	M 80 X 2.0	KM 16	MB 16	HMV 16	1.280
3	HE 2317	85	110	82	17	M 85 X 2.0	KM 17	MB 17	HMV 17	1.450
3 1/4	HE 2318	90	120	86	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.690
3 1/4	HE 2319	95	125	90	18	M 95 X 2.0	KM 19	MB 19	HMV 19	1.920
3 1/2	HE 2320	100	130	97	19	M 100X2.0	KM 20	MB 20	HMV 20	2.150
4	HE 2322	110	145	105	20	M 110X2.0	KM 22	MB 22	HMV 22	2.740
4 1/4	HE 2324	120	155	112	21	M 120X2.0	KM 24	MB 24	HMV 24	3.190
4 1/2	HE 2326	130	165	121	22	M 130X2.0	KM 26	MB 26	HMV 26	4.600
5	HE 2328	140	180	131	23	M 140X2.0	KM 28	MB 28	HMV 28	5.550
5 1/4	HE 2330	150	195	139	24	M 150X2.0	KM 30	MB 30	HMV 30	6.630
5 1/2	HE 2332	160	210	147	26	M 160X3.0	KM 32	MB 32	HMV 32	9.140
6 3/4	HE 2338	190	240	169	30	M 190X3.0	KM 38	MB 38	HMV 38	12.600

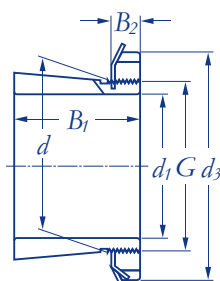
### HE 3 SERIES



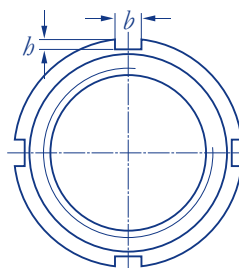
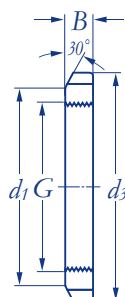
Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
3/4	HE 305	25	38	29	8	M 25 X 1.5	KM 5	MB 5		0.075
1	HE 306	30	45	31	8	M 30 X 1.5	KM 6	MB 6		0.109
1 1/4	HE 307	35	52	35	9	M 35 X 1.5	KM 7	MB 7		0.142
1 1/4	HE 308	40	58	36	10	M 40 X 1.5	KM 8	MB 8		0.189
1 1/2	HE 309	45	65	39	11	M 45 X 1.5	KM 9	MB 9		0.248
1 3/4	HE 310	50	70	42	12	M 50 X 1.5	KM 10	MB 10	HMV 10	0.302
2	HE 311	55	75	45	12	M 55 X 2.0	KM 11	MB 11	HMV 11	0.345
2 1/4	HE 312	60	80	47	13	M 60 X 2.0	KM 12	MB 12	HMV 12	0.393
2 1/4	HE 313	65	85	50	14	M 65 X 2.0	KM 13	MB 13	HMV 13	0.459
2 1/2	HE 315	75	98	55	15	M 75 X 2.0	KM 15	MB 15	HMV 15	0.830
2 3/4	HE 316	80	105	59	17	M 80 X 2.0	KM 16	MB 16	HMV 16	1.000
3	HE 317	85	110	63	18	M 85 X 2.0	KM 17	MB 17	HMV 17	1.180
3 1/4	HE 318	90	120	65	18	M 90 X 2.0	KM 18	MB 18	HMV 18	1.370
3 1/4	HE 319	95	125	68	19	M 95 X 2.0	KM 19	MB 19	HMV 19	1.560
3 1/2	HE 320	100	130	71	20	M 100X2.0	KM 20	MB 20	HMV 20	1.690
4	HE 322	110	145	77	21	M 110X2.0	KM 22	MB 22	HMV 22	2.180



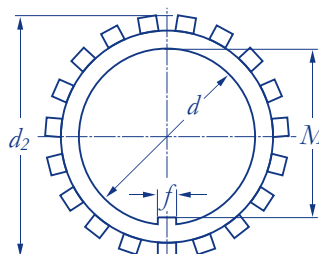
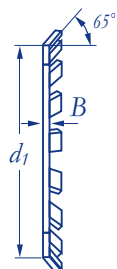
## HE 31 SERIES



Inner bore $d_1$ mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		$d$	$d_3$	$B_1$ mm	$B_2$	$G$				
4	HE 3122	110	145	81	21	M 110 X 2	KM 22	MB 22	HMV 22	2.250
4 1/4	HE 3124	120	155	88	22	M 120 X 2	KM 24	MB 24	HMV 24	2.650
4 1/2	HE 3126	130	165	92	23	M 130 X 2	KM 26	MB 26	HMV 26	3.650
5	HE 3128	140	180	97	24	M 140 X 2	KM 28	MB 28	HMV 28	4.350
5 1/4	HE 3130	150	195	111	26	M 150 X 2	KM 30	MB 30	HMV 30	5.500
5 1/2	HE 3132	160	210	119	28	M 160 X 3	KM 32	MB 32	HMV 32	7.650
6	HE 3134	170	220	122	29	M 170 X 2	KM 34	MB 34	HMV 34	8.400
6 1/2	HE 3136	180	230	131	30	M 180 X 2	KM 36	MB 36	HMV 36	9.500
6 3/4	HE 3138	190	240	141	31	M 190 X 2	KM 38	MB 38	HMV 38	11.000
7	HE 3140	200	250	150	32	M 200 X 2	KM 40	MB 40	HMV 40	12.000
	HE 3144	220	280	158	32	M 220 X 2	KM 44	MB 44	HMV 44	14.500
	HE 3148	240	300	169	34	M 240 X 2	KM 48	MB 48	HMV 48	17.500
	HE 3152	260	330	187	36	M 260 X 2	KM 52	MB 52	HMV 52	22.000
	HE 3156	280	350	192	38	M 280 X 2	KM 56	MB 56	HMV 56	24.500
	HE 3160	300	380	208	40	M 300 X 2	KM 60	MB 60	HMV 60	30.000



Inner bore <i>G</i> mm	Bearing number	Principal dimensions					Lock nut	Locking device	Appropriate hydraulic nut	Mass kg
		<i>d</i> <sub>1</sub>	<i>d</i> <sub>3</sub>	<i>B</i> mm	<i>b</i>	<i>b</i>				
M 10 X 0.75	KM 00	13.5	18	4	3	2.0	KM 0	MB 0	HN 1	0.004
M 12 X 1.00	KM 01	17.0	22	4	3	2.0	KM 1	MB 1	HN 2	0.007
M 15 X 1.00	KM 02	21.0	25	5	4	2.0	KM 2	MB 2	HN 3	0.010
M 17 X 1.00	KM 03	24.0	28	5	4	2.0	KM 3	MB 3	HN 4	0.013
M 20 X 1.00	KM 04	26.0	32	6	4	2.0	KM 4	MB 4	HN 5	0.019
M 25 X 1.50	KM 05	32.0	38	7	5	2.0	KM 5	MB 5	HN 6	0.025
M 30 X 1.50	KM 06	38.0	45	7	5	2.0	KM 6	MB 6	HN 7	0.043
M 35 X 1.50	KM 07	44.0	52	8	5	2.0	KM 7	MB 7	HN 8	0.053
M 40 X 1.50	KM 08	50.0	58	9	6	2.5	KM 8	MB 8	HN 9	0.085
M 45 X 1.50	KM 09	56.0	65	10	6	2.5	KM 9	MB 9	HN 10	0.119
M 50 X 1.50	KM 10	61.0	70	11	6	2.5	KM 10	MB 10	HN 11	0.148
M 55 X 2.00	KM 11	67.0	75	11	7	3.0	KM 11	MB 11	HN 12	0.158
M 60 X 2.00	KM 12	73.0	80	11	7	3.0	KM 12	MB 12	HN 13	0.174
M 65 X 2.00	KM 13	79.0	85	12	7	3.0	KM 13	MB 13	HN 14	0.203
M 70 X 2.00	KM 14	85.0	92	12	8	3.5	KM 14	MB 14	HN 15	0.242
M 75 X 2.00	KM 15	90.0	98	13	8	3.5	KM 15	MB 15	HN 16	0.287
M 80 X 2.00	KM 16	95.0	105	15	8	3.5	KM 16	MB 16	HN 17	0.397
M 85 X 2.00	KM 17	102.0	110	16	8	3.5	KM 17	MB 17	HN 18	0.451
M 90 X 2.00	KM 18	108.0	120	16	10	4.0	KM 18	MB 18	HN 19	0.556
M 95 X 2.00	KM 19	113.0	125	17	10	4.0	KM 19	MB 19	HN 20	0.658
M 100X2.00	KM 20	120.0	130	18	10	4.0	KM 20	MB 20	HN 21	0.698
M 105X2.00	KM 21	126.0	140	18	12	5.0	KM 21	MB 21	HN 22	0.846
M 110X2.00	KM 22	133.0	145	19	12	5.0	KM 22	MB 22	718909	0.965
M 115X2.00	KM 23	137.0	150	19	12	5.0	KM 23	MB 23	718909	1.010
M 120X2.00	KM 24	138.0	155	20	12	5.0	KM 24	MB 24	718909	1.080
M 125X2.00	KM 25	148.0	160	21	12	5.0	KM 25	MB 25	718909	1.190
M 130X2.00	KM 26	149.0	165	21	12	5.0	KM 26	MB 26	718909	1.250
M 135X2.00	KM 27	160.0	175	22	14	6.0	KM 27	MB 27	718909	1.550
M 140X2.00	KM 28	160.0	180	22	14	6.0	KM 28	MB 28	718909	1.560
M 145X2.00	KM 29	171.0	190	24	14	6.0	KM 29	MB 29	718909	1.800
M 150X2.00	KM 30	171.0	195	24	14	6.0	KM 30	MB 30		2.030


**MB SERIES**


Inner bore <i>d</i> mm	Bearing number	Principal dimensions					Appropriate locking washer	Mass kg
		<i>d</i> <sub>1</sub>	<i>d</i> <sub>2</sub>	<i>B</i> mm	<i>f</i>	<i>M</i>		
10	MB 00	13.5	21	1.00	3	8.5	MB 0	0.131
12	MB 01	17.0	25	1.00	3	10.5	MB 1	0.192
15	MB 02	21.0	28	1.00	4	13.5	MB 2	0.253
17	MB 03	24.0	32	1.00	4	15.5	MB 3	0.313
20	MB 04	26.0	36	1.00	4	18.5	MB 4	0.35
25	MB 05	32.0	42	1.25	5	23.0	MB 5	0.64
30	MB 06	38.0	49	1.25	5	27.5	MB 6	0.78
35	MB 07	44.0	57	1.25	6	32.5	MB 7	1.04
40	MB 08	50.0	62	1.25	6	37.5	MB 8	1.23
45	MB 09	56.0	69	1.25	6	42.5	MB 9	1.52
50	MB 10	61.0	74	1.25	6	47.5	MB 10	1.60
55	MB 11	67.0	81	1.50	8	52.5	MB 11	1.96
60	MB 12	73.0	86	1.50	8	57.5	MB 12	2.53
65	MB 13	79.0	92	1.50	8	62.5	MB 13	2.90
70	MB 14	85.0	98	1.50	8	66.5	MB 14	3.34
75	MB 15	90.0	104	1.50	8	71.5	MB 15	3.56
80	MB 16	95.0	112	1.80	10	76.5	MB 16	4.64
85	MB 17	102.0	119	1.80	10	81.5	MB 17	5.24
90	MB 18	108.0	126	1.80	10	86.5	MB 18	4.23
95	MB 19	113.0	133	1.80	10	91.5	MB 19	6.70
100	MB 20	120.0	142	1.80	12	96.5	MB 20	7.65
105	MB 21	126.0	145	1.80	12	100.5	MB 21	8.26
110	MB 22	133.0	154	1.80	12	105.5	MB 22	9.40
115	MB 23	137.0	159	2.00	12	110.5	MB 23	10.30
120	MB 24	138.0	164	2.00	14	115.0	MB 24	10.50
125	MB 25	148.0	170	2.00	14	120.0	MB 25	11.80
130	MB 26	149.0	175	2.00	14	125.0	MB 26	11.30
135	MB 27	160.0	185	2.00	14	130.0	MB 27	14.40
140	MB 28	160.0	192	2.00	16	135.0	MB 28	14.20
145	MB 29	171.0	202	2.00	16	140.0	MB 29	16.80
150	MB 30	171.0	205	2.00	16	145.0	MB 30	15.50





**1. Materials for SLB Adapter Sleeves, Withdrawal Sleeves, Lock Nuts and Lock Washers**

1.1) The high quality low carbon steel 20F is adopted for gaining a better fitting with bearings and shafts. Its chemical composition please refer to below Table 1.1

**Table 1.1**

Name	Standard	Chemical Composition (%)					
		C	Mn	Si	Cr	S ≤	P ≤
20F	SLB	0.14~0.23	0.20~0.40	0.15~0.35	1.30~1.65	0.02	0.027

Note: We supply **SLB** Adapter Sleeves, Withdrawal Sleeves, Lock Nuts and Lock Washers produced in 20F steel as normal products, unless other wise specified before ordering.

**2 Tolerance**

2.1) Tolerance for dimensional, shape and positional of the adapter sleeves please refer to Table 2.1 and Table 2.2

**Table 2.1** Tolerance for width of the sleeve (**Bi**), length of its thread (**a**) and width of its locking gap (**b**①, **f**②)

Bi, a, b, f (mm)		Tolerance (μm)							
over	incl.	ΔBi <sub>s</sub>		Δa <sub>s</sub>		Δb <sub>s</sub>		Δf <sub>s</sub>	
		high	low	high	low	high	low	high	low
-	3	+200	-200	+200	-200	+140	0	+140	0
3	6	+240	-240	+240	-240	+180	0	+180	0
6	10	+290	-290	+290	-290	+220	0	+220	0
10	18	+350	-350	+350	-350	+270	0	-	-
18	30	+420	-420	+420	-420	+330	0	-	-
30	50	+500	-500	+500	-500	+390	0	-	-
50	80	+600	-600	+600	-600	+460	0	-	-
80	120	+700	-700	+700	-700	-	-	-	-
120	180	+800	-800	-	-	-	-	-	-
180	250	+925	-925	-	-	-	-	-	-
250	315	+1050	-1050	-	-	-	-	-	-
315	400	+1150	-1150	-	-	-	-	-	-
400	500	+1250	-1250	-	-	-	-	-	-
500	630	+1400	-1400	-	-	-	-	-	-
630	800	+1600	-1600	-	-	-	-	-	-

Note: ① **b** indicate wide gap. ② **f** indicate narrow gap



**Table 2.2** Tolerance for internal diameter of the sleeve (**d1mp**), for thread, for diameter of taper (**D1s**) and the run-out (**KDo**) of the tapered surface.

d1 (mm)		Tolerance (μm)									
		Δd1mp		Vd1mp	ΔD1s		Vdop	ΔD1mp-Δd1mp		Tolerance for thread	KDo max.
over	incl.	high	low	max.	high	low	max.	high	low		
-	18	+35	-35	27	+33	0	10	+18	0	For general	20
18	30	+42	-42	33	+39	0	13	+21	0	thread <b>6g</b>	25
30	50	+50	-50	39	+46	0	15	+25	0	tolerance is	30
50	80	+60	-60	46	+54	0	20	+30	0	adopted	40
80	120	+70	-70	54	+63	0	25	+35	0		40
120	180	+80	-80	63	+72	0	31	+40	0	For T type	50
180	250	+92	-92	72	+81	0	38	+46	0	thread <b>6e</b>	50
250	315	+105	-105	81	+89	0	44	+52	0	tolerance is	60
315	400	+115	-115	89	+97	0	50	+57	0	adopted	60
400	500	+125	-125	97	+110	0	56	+63	0		60
500	630	+140	-140	110	+125	0	63	+70	0		80
630	800	+160	-160	125	+140	0	94	+80	0		80
800	1000	+180	-180	140	+165	0	125	+90	0		100

Note: The items d1mp、Vd1mp、Vdop are checked before

### 3. Roughness of the surface

d1 (mm)		Roughness			
over	incl.	Internal surface	Taper surface	Thread	Other surface
-	120	1.6	0.80	5	6.3
120	500	2.5	1.25	5	6.3
500	-	3.2	1.60	5	6.3

### 4. Checking method

- 4.1) The outer appearance of the adapter sleeve is checked by sight.
- 4.2) Roughness of the main surfaces of the adapter sleeve is slightly checked by comparing with a sample adapter sleeve confirmed by both sides.
- 4.3) Thread is checked by standard thread stop-through gage.