

CNR

®

Rulman Adaptörleri LTD. ŞTİ.
Bearing Adapters Company Limited



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Hakkımızda

Foreword

C.N.R. Rulman Adaptörleri 30 yılı aşan üretimi boyunca sahip olduğu bilgi ve tecrübeyi, siz değerli müşterilerimiz ile paylaşmanın heyecanını duyar. Kurulduğu günden itibaren rulman adaptörleri konusunda üretim yapan uzman kadroya sahip olan şirketimiz; Germe manşon, Çakma manşon Hidrolik yağ kanallı manşonlar çeşitli tiplerde somunlar (KM, KML, KMT, KMTA, KMFE, KM FİBERLİ, HM, HML, HMV) yapmaktadır. Orta ölçekli bir işletme olmasına rağmen kurulduğu ilk andan itibaren kaliteye verdiği önem ve zoru başarma azmi sayesinde kısa sürede rulman adaptörü sektöründe tanınmış ve bu ilkelerinden asla vazgeçmemiştir.

Firmanın değişmez prensipleri daima kalite, hizmet, zamanında teslim ve uygun fiyat olmuştur. Üretimde başarı ve sürekliliğin teminatı hizmette dürüstlük ve kalitedir prensibiyle çalışan C.N.R. rulman adaptörleri, gösterdiğiniz yakın ilgi ve desteğinizden ötürü teşekkür ederek sizlere bugün ve gelecekte hizmet vermeye devam edecektir.

C.N.R. Bearing Adapters are pleased to share our knowledge and experience with our valued customers during its production life over 30 years. From the day of assembly, with our professional staff we are able to produce following bearing accessories ; adapter sleeves , withdrawal sleeve, hydraulic sleeves, various types of lock nuts and lock washers. (KM , KML , KMT , KMT , KMF , HM , HML , HMV) . As a well known SME on its business , from the first moment it was established; the importance given to quality and service, has never been given up . Our principles are, to offer our customers good quality, service, short delivery times and competitive prices. CNR Bearing Adapters assures; high level of product quality, sustainability of production. We thank to your attention and support. We promise to give best product and service in the future .



Adapter Sleeves for metric Shafts

Adapter sleeves are the most commonly used components for locating bearings with a tapered bore onto a cylindrical shaft as they can be used on smooth or stepped shafts (-> fig 1). They are easy to mount and require no additional location on the shaft. When adapter sleeves are used on smooth shafts, the bearing can be located at any position on the shaft. When used on stepped shafts, together with a stepped ring, bearings can be accurately positioned axially and bearing dismounting is also facilitated.

Basic design

CNR adapter sleeves are supplied complete with lock nut and locking device (-> fig 2). Smaller sizes use a lock nut with a locking washer (a), larger sizes use a nut with locking clip (b). The sleeves are slotted and have an external taper of 1:12. Up to size 40, the sleeves are phosphated. Larger sizes are untreated and oiled. CNR supplies adapter sleeves for metric and inch-size shafts. This catalogue contains metric adapter sleeves that fit both metric and inch shafting.

Designs for oil injection

To enable the oil injection method to be used to ease mounting and dismounting, CNR adapter sleeves having a bore diameter of 140 mm up to 600 mm can be supplied to special order already prepared for oil injection (-> fig 3). This feature is standard for sleeves having a bore diameter of 200 mm and above. These adapter sleeves (a) have an oil duct at the threaded side and an oil distributor groove on the outside surface. If oil is injected through this duct and groove, an oil film is formed between the mating surfaces of the bearing and sleeve and the force required to mount the bearing is reduced considerably.

Details of the thread for attaching the oil supply lead to the duct as well as of appropriate hydraulic nuts will be found in the product tables. In addition to these standard sleeves which are designated

OH .. H and shown in the product tables, CNR produces three other designs which differ in the number and arrangement of the oil ducts and distributor grooves. Details can be supplied on request.

OH design (b)

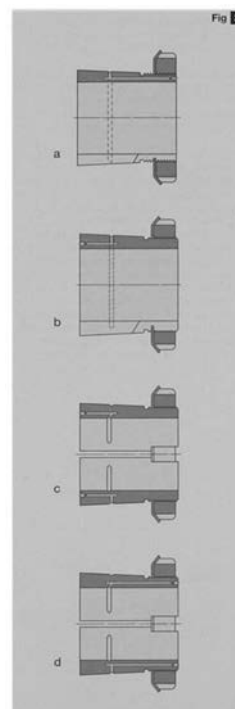
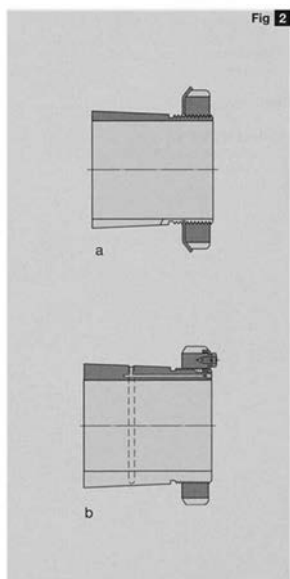
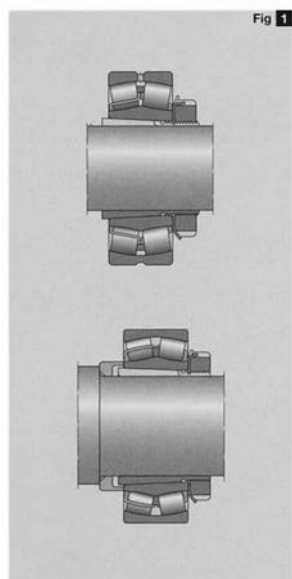
The oil supply duct is at the side opposite to the threaded section and there is a distributor groove in the outside surface.

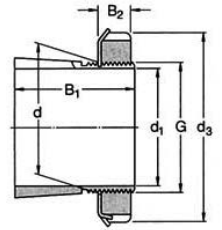
OH ..B design (c)

The oil supply duct (or ducts) is at the side opposite to the threaded section and there are distributor grooves in the bore as well as the outside surface. Sleeves up to and including size 40 have one supply duct, larger sleeves have two.

OH .. HB design (d)

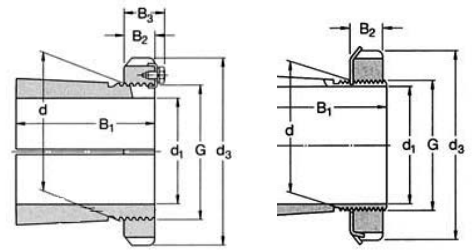
These sleeves have an oil supply duct (or ducts) at the threaded side of the sleeve and distributor grooves in the bore as well as the outside surface. Sleeves up to and including size 40 have one supply duct, larger sleeves have two. The equipment required for the oil injection method is also supplied by CNR. The use of hydraulic nuts can considerably facilitate





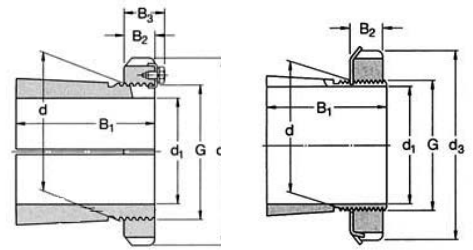
Adapter Sleeves for metric Shafts

d ₁ mm	d mm	d ₃ mm	B ₁ mm	B ₂ mm	B ₃ mm	Thread G mm	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
20	25	38	26	8	-	M25x1,5	0,064	H 205	KM 5	MB 5	-
	25	38	29	8	-	M25x1,5	0,071	H 305	KM 5	MB 5	-
	25	38	35	8	-	M25x1,5	0,085	H 2305	KM 5	MB 5	-
25	30	45	27	8	-	M30x1,5	0,086	H 206	KM 6	MB 6	-
	30	45	31	8	-	M30x1,5	0,095	H 306	KM 6	MB 6	-
	30	45	38	8	-	M30x1,5	0,11	H 2306	KM 6	MB 6	-
30	35	52	29	9	-	M35x1,5	0,12	H 207	KM 7	MB 7	-
	35	52	35	9	-	M35x1,5	0,14	H 307	KM 7	MB 7	-
	35	52	43	9	-	M35x1,5	0,16	H 2307	KM 7	MB 7	-
35	40	58	31	10	-	M40x1,5	0,16	H 208	KM 8	MB 8	-
	40	58	36	10	-	M40x1,5	0,17	H 308	KM 8	MB 8	-
	40	58	46	10	-	M40x1,5	0,22	H 2308	KM 8	MB 8	-
40	45	65	33	11	-	M45x1,5	0,21	H 209	KM 9	MB 9	-
	45	65	39	11	-	M45x1,5	0,23	H 309	KM 9	MB 9	-
	45	65	50	11	-	M45x1,5	0,27	H 2309	KM 9	MB 9	-
45	50	70	35	12	-	M50x1,5	0,24	H 210	KM 10	MB 10	HMV 10 E
	50	70	42	12	-	M50x1,5	0,27	H 310	KM 10	MB 10	HMV 10 E
	50	70	55	12	-	M50x1,5	0,34	H 2310	KM 10	MB 10	HMV 10 E
50	55	75	37	12,5	-	M55x2	0,28	H 211	KM 11	MB 11	HMV 11 E
	55	75	45	12,5	-	M55x2	0,34	H 311	KM 11	MB 11	HMV 11 E
	55	75	59	12,5	-	M55x2	0,39	H 2311	KM 11	MB 11	HMV 11 E
55	60	80	38	12,5	-	M60x2	0,31	H 212	KM 12	MB 12	HMV 12 E
	60	80	47	12,5	-	M60x2	0,36	H 312	KM 12	MB 12	HMV 12 E
	60	80	62	12,5	-	M60x2	0,45	H 2312	KM 12	MB 12	HMV 12 E
60	65	85	40	13,5	-	M65x2	0,36	H 213	KM 13	MB 13	HMV 13 E
	65	85	50	13,5	-	M65x2	0,42	H 313	KM 13	MB 13	HMV 13 E
	65	85	65	13,5	-	M65x2	0,52	H 2313	KM 13	MB 13	HMV 13 E
	70	92	45	13,5	-	M70x2	0,59	H 214	KM 14	MB 14	HMV 14 E
70	70	92	41	13,5	-	M70x2	0,67	H 314	KM 14	MB 14	HMV 14 E
	70	92	68	13,5	-	M70x2	0,88	H 2314	KM 14	MB 14	HMV 14 E
	75	98	43	14,5	-	M75x2	0,66	H 215	KM 15	MB 15	HMV 15 E
75	75	98	55	14,5	-	M75x2	0,78	H 315	KM 15	MB 15	HMV 15 E
	75	98	73	14,5	-	M75x2	1,1	H 2315	KM 15	MB 15	HMV 15 E
	80	105	46	17	-	M80x2	0,81	H 216	KM 16	MB 16	HMV 16 E
80	80	105	59	17	-	M80x2	0,95	H 316	KM 16	MB 16	HMV 16 E
	80	105	78	17	-	M80x2	1,2	H 2316	KM 16	MB 16	HMV 16 E
	85	110	50	18	-	M85x2	0,94	H 217	KM 17	MB 17	HMV 17 E
85	85	110	63	18	-	M85x2	1,1	H 317	KM 17	MB 17	HMV 17 E
	85	110	82	18	-	M85x2	1,35	H 2317	KM 17	MB 17	HMV 17 E
	90	120	52	18	-	M90x2	1,1	H 218	KM 18	MB 18	HMV 18 E
90	90	120	65	18	-	M90x2	1,3	H 318	KM 18	MB 18	HMV 18 E
	90	120	86	18	-	M90x2	1,6	H 2318	KM 18	MB 18	HMV 18 E
	95	125	55	19	-	M95x2	1,25	H 219	KM 19	MB 19	HMV 19 E
95	95	125	68	19	-	M95x2	1,4	H 319	KM 19	MB 19	HMV 19 E
	95	125	90	19	-	M95x2	1,8	H 2319	KM 19	MB 19	HMV 19 E
	100	130	58	20	-	M100x2	1,4	H 220	KM 20	MB 20	HMV 20 E
100	100	130	71	20	-	M100x2	1,6	H 320	KM 20	MB 20	HMV 20 E
	100	130	76	20	-	M100x2	1,8	H 3120	KM 20	MB 20	HMV 20 E
	100	130	97	20	-	M100x2	2	H 2320	KM 20	MB 20	HMV 20 E



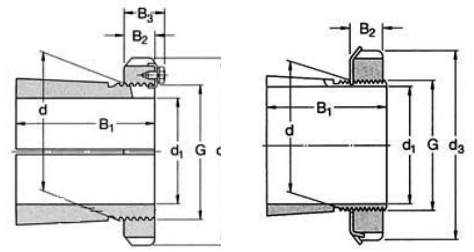
Adapter Sleeves for metric Shafts

d_1 mm	d mm	d_3 mm	B_1 mm	B_2 mm	B_3 mm	Thread G mm	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
100	110	145	63	21	-	M110x2	1,8	H 222	KM 22	MB 22	HMV 22 E
	110	145	77	21	-	M110x2	2,04	H 322	KM 22	MB 22	HMV 22 E
	110	145	81	21	-	M110x2	2,1	H 3122	KM 22	MB 22	HMV 22 E
	110	145	105	21	-	M110x2	2,75	H 2322	KM 22	MB 22	HMV 22 E
110	120	145	60	22	-	M120x2	1,7	H 3924	KML 24	MBL 24	HMV 24 E
	120	145	72	22	-	M120x2	1,8	H 3024	KML 24	MBL 24	HMV 24 E
	120	155	88	22	-	M120x2	2,5	H 3124	KM 24	MB 24	HMV 24 E
	120	155	112	22	-	M120x2	3	H 2324	KM 24	MB 24	HMV 24 E
115	130	155	65	23	-	M130x2	2,4	H 3926	KML 26	MBL 26	HMV 26 E
	130	155	80	23	-	M130x2	2,8	H 3026	KML 26	MBL 26	HMV 26 E
	130	165	92	23	-	M130x2	3,45	H 3126	KM 26	MB 26	HMV 26 E
	130	165	121	23	-	M130x2	4,45	H 2326	KM 26	MB 26	HMV 26 E
125	140	165	66	24	-	M140x2	2,7	H 3928	KML 28	MBL 28	HMV 28 E
	140	165	82	24	-	M140x2	3,05	H 3028	KML 28	MBL 28	HMV 28 E
	140	180	97	24	-	M140x2	4,1	H 3128	KM 28	MB 28	HMV 28 E
	140	180	131	24	-	M140x2	5,4	H 2328	KM 28	MB 28	HMV 28 E
135	150	180	76	26	-	M150x2	3,6	H 3930	KML 30	MBL 30	HMV 30 E
	150	180	87	26	-	M150x2	3,75	H 3030	KML 30	MBL 30	HMV 30 E
	150	195	111	26	-	M150x2	5,25	H 3130	KM 30	MB 30	HMV 30 E
	150	195	139	26	-	M150x2	6,4	H 2330	KM 30	MB 30	HMV 30 E
140	160	190	78	27,5	-	M160x3	4,6	H 3932	KML 32	MBL 32	HMV 32 E
	160	190	93	27,5	-	M160x3	5,1	H 3032	KML 32	MBL 32	HMV 32 E
	160	210	119	28	-	M160x3	7,25	H 3132	KM 32	MB 32	HMV 32 E
	160	210	147	28	-	M160x3	8,8	H 2332	KM 32	MB 32	HMV 32 E
150	170	200	79	28,5	-	M170x3	5	H 3934	KML 34	MBL 34	HMV 34 E
	170	200	101	28,5	-	M170x3	5,8	H 3034	KML 34	MBL 34	HMV 34 E
	170	220	122	29	-	M170x3	8,1	H 3134	KM 34	MB 34	HMV 34 E
	170	220	154	29	-	M170x3	9,9	H 2334	KM 34	MB 34	HMV 34 E
160	180	210	87	29,5	-	M180x3	5,7	H 3936	KML 36	MBL 36	HMV 36 E
	180	210	109	29,5	-	M180x3	6,7	H 3036	KML 36	MBL 36	HMV 36 E
	180	230	131	30	-	M180x3	9,15	H 3136	KM 36	MB 36	HMV 36 E
	180	230	161	30	-	M180x3	11	H 2336	KM 36	MB 36	HMV 36 E
170	190	220	89	30,5	-	M190x3	6,2	H 3938	KML 38	MBL 38	HMV 38 E
	190	220	112	30,5	-	M190x3	7,25	H 3038	KML 38	MBL 38	HMV 38 E
	190	240	141	31	-	M190x3	10,5	H 3138	KM 38	MB 38	HMV 38 E
	190	240	169	31	-	M190x3	12	H 2338	KM 38	MB 38	HMV 38 E
180	200	240	98	31,5	-	M200x3	7,9	H 3940	KML 40	MBL 40	HMV 40 E
	200	240	120	31,5	-	M200x3	8,9	H 3040	KML 40	MBL 40	HMV 40 E
	200	250	150	32	-	M200x3	12	H 3140	KM 40	MB 40	HMV 40 E
	200	250	176	32	-	M200x3	13,5	H 2340	KM 40	MB 40	HMV 40 E
200	220	260	96	30	41	Tr220x4	7,96	H 3944	HM 3044	MS 3044	HMV 44 E
	220	260	126	30	41	Tr220x4	9,9	H 3044	HM 3044	MS 3044	HMV 44 E
	220	280	161	35	-	Tr220x4	15	H 3144	HM 44 T	MB 44	HMV 44 E
	220	280	186	35	-	Tr220x4	17	H 2344	HM 44 T	MB 44	HMV 44 E
220	240	290	101	34	46	Tr240x4	11	H 3948	HM 3048	MS 3052-48	HMV 48 E
	240	290	133	34	46	Tr240x4	12	H 3048	HM 3048	MS 3052-48	HMV 48 E
	240	300	172	37	-	Tr240x4	16,5	H 3148	HM 48 T	MB 48	HMV 48 E
	240	300	199	37	-	Tr240x4	19	H 2348	HM 48 T	MB 48	HMV 48 E
240	260	310	116	34	46	Tr260x4	11,7	H 3952	HM 3052	MS 3052-48	HMV 52 E



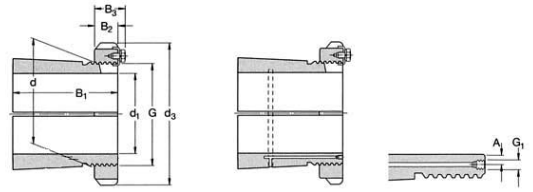
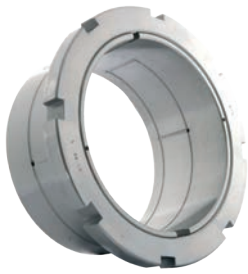
Adapter Sleeves for metric Shafts

d_1 mm	d mm	d_3 mm	B_1 mm	B_2 mm	B_3 mm	Thread G mm	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
	260	310	145	34	46	Tr260x4	13,5	H 3052	HM 3052	MS 3052-48	HMV 52 E
	260	330	190	39	-	Tr260x4	21	H 3152	HM 52 T	MB-52	HMV 52 E
	260	330	211	39	-	Tr260x4	23	H 2352	HM 52 T	MB-52	HMV 52 E
260	280	330	121	38	50	Tr280x4	15,3	H 3956	HM 3056	MS 3056	HMV 56 E
	280	330	152	38	50	Tr280x4	16	H 3056	HM 3056	MS 3056	HMV 56 E
	280	350	195	41	-	Tr280x4	23	H 3156	HM 56 T	MB 56	HMV 56 E
	280	350	224	41	-	Tr280x4	27	H 2356	HM 56 T	MB 56	HMV 56 E
280	300	360	140	42	54	Tr300x4	20	H 3960	HM 3060	MS 3060	HMV 60 E
	300	360	168	42	54	Tr300x4	20,5	H 3060	HM 3060	MS 3060	HMV 60 E
	300	380	208	40	53	Tr300x4	29	H 3160	HM 3160	MS 3160	HMV 60 E
	300	380	240	40	53	Tr300x4	32	H 3260	HM 3160	MS 3160	HMV 60 E
300	320	380	140	42	55	Tr320x5	21,5	H 3964	HM 3064	MS 3068-64	HMV 64 E
	320	380	171	42	55	Tr320x5	22	H 3064	HM 3064	MS 3068-64	HMV 64 E
	320	400	226	42	56	Tr320x5	32	H 3164	HM 3164	MS 3164	HMV 64 E
	320	400	258	42	56	Tr320x5	35	H 3264	HM 3164	MS 3164	HMV 64 E
320	340	400	144	45	58	Tr340x5	24,5	H 3968	HM 3068	MS 3068-64	HMV 68 E
	340	400	187	45	58	Tr340x5	27	H 3068	HM 3068	MS 3068-64	HMV 68 E
	340	440	254	55	72	Tr340x5	50	H 3168	HM 3168	MS 3172-68	HMV 68 E
	340	440	288	55	72	Tr340x5	51,5	H 3268	HM 3168	MS 3172-68	HMV 68 E
340	360	420	144	45	58	Tr360x5	25,2	H 3972	HM 3072	MS 3072	HMV 72 E
	360	420	188	45	58	Tr360x5	29	H 3072	HM 3072	MS 3072	HMV 72 E
	360	460	259	58	75	Tr360x5	56	H 3172	HM 3172	MS 3172-68	HMV 72 E
	360	460	299	58	75	Tr360x5	60,5	H 3272	HM 3172	MS 3172-68	HMV 72 E
360	380	450	164	48	62	Tr380x5	31,5	H 3976	HM 3076	MS 3080-76	HMV 76 E
	380	450	193	48	62	Tr380x5	35,5	H 3076	HM 3076	MS 3080-76	HMV 76 E
	380	490	264	60	77	Tr380x5	61,5	H 3176	HM 3176	MS 3176	HMV 76 E
	380	490	310	60	77	Tr380x5	69,5	H 3276	HM 3176	MS 3176	HMV 76 E
380	400	470	168	52	66	Tr400x5	35	H 3980	HM 3080	MS 3080-76	HMV 80 E
	400	470	210	52	66	Tr400x5	40	H 3080	HM 3080	MS 3080-76	HMV 80 E
	400	520	272	62	82	Tr400x5	73	H 3180	HM 3180	MS 3184-80	HMV 80 E
	400	520	328	62	82	Tr400x5	87	H 3280	HM 3180	MS 3184-80	HMV 80 E
400	420	490	168	52	66	Tr420x5	36	H 3984	HM 3084	MS 3084	HMV 84 E
	420	490	212	52	66	Tr420x5	47	H 3084	HM 3084	MS 3084	HMV 84 E
	420	540	304	70	90	Tr420x5	80	H 3184	HM 3184	MS 3184-80	HMV 84 E
	420	540	352	70	90	Tr420x5	96	H 3284	HM 3184	MS 3184-80	HMV 84 E
410	440	520	189	60	77	Tr440x5	58	H 3988	HM 3088	MS 3092-88	HMV 88 E
	440	520	228	60	77	Tr440x5	65	H 3088	HM 3088	MS 3092-88	HMV 88 E
	440	560	307	70	90	Tr440x5	95	H 3188	HM 3188	MS 3192-88	HMV 88 E
	440	560	361	70	90	Tr440x5	117	H 3288	HM 3188	MS 3192-88	HMV 88 E
430	460	540	189	60	77	Tr460x5	60	H 3992	HM 3092	MS 3092-88	HMV 92 E
	460	540	234	60	77	Tr460x5	71	H 3092	HM 3092	MS 3092-88	HMV 92 E
	460	580	326	75	95	Tr460x5	119	H 3192	HM 3192	MS 3192-88	HMV 92 E
	460	580	382	75	95	Tr460x5	134	H 3292	HM 3192	MS 3192-88	HMV 92 E
450	480	560	200	60	77	Tr480x5	66	H 3996	HM 3096	MS 30/500-96	HMV 96 E
	480	560	237	60	77	Tr480x5	75	H 3096	HM 3096	MS 30/500-96	HMV 96 E
	480	620	335	75	95	Tr480x5	135	H 3196	HM 3196	MS 3196	HMV 96 E
	480	620	397	75	95	Tr480x5	153	H 3296	HM 3196	MS 3196	HMV 96 E
470	500	580	247	68	85	Tr500x5	82	H 30/500	HM 30/500	MS 30/500-96	HMV 100 E
	500	580	208	68	85	Tr500x5	74,3	H 39/500	HM 30/500	MS 30/500-96	HMV 100 E



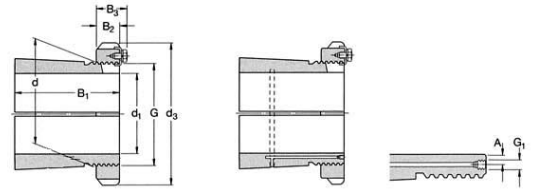
Adapter Sleeves for metric Shafts

d_1 mm	d mm	d_3 mm	B_1 mm	B_2 mm	B_3 mm	Thread G mm	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
	500	630	356	80	100	Tr500x5	145	H 31/500	HM 31/500	MS 31/500	HMV 100 E
	500	630	428	80	100	Tr500x5	170	H 32/500	HM 31/500	MS 31/500	HMV 100 E
500	530	630	216	68	90	Tr530x6	87,9	H 39/530	HM 30/530	MS 30/600-530	HMV 106 E
	530	630	265	68	90	Tr530x6	105	H 30/530	HM 30/530	MS 30/600-530	HMV 106 E
	530	670	364	80	105	Tr530x6	161	H 31/530	HM 31/530	MS 31/530	HMV 106 E
	530	670	447	80	105	Tr530x6	192	H 32/530	HM 31/530	MS 31/530	HMV 106 E
530	560	650	227	75	97	Tr560x6	95	H 39/560	HM 30/560	MS 30/560	HMV 112 E
	560	650	282	75	97	Tr560x6	112	H 30/560	HM 30/560	MS 30/560	HMV 112 E
	560	710	377	85	110	Tr560x6	185	H 31/560	HM 31/560	MS 31/600-560	HMV 112 E
	560	710	462	85	110	Tr560x6	219	H 32/560	HM 31/560	MS 31/600-560	HMV 112 E
560	600	700	239	75	97	Tr600x6	127	H 39/600	HM 30/600	MS 30/600-530	HMV 120 E
	600	700	289	75	97	Tr600x6	147	H 30/600	HM 30/600	MS 30/600-530	HMV 120 E
	600	750	399	85	110	Tr600x6	234	H 31/600	HM 31/600	MS 31/600-560	HMV 120 E
	600	750	487	85	110	Tr600x6	278	H 32/600	HM 31/600	MS 31/600-560	HMV 120 E
600	630	730	254	75	97	Tr630x6	124	H 39/630	HM 30/630	MS 30/630	HMV 126 E
	630	730	301	75	97	Tr630x6	138	H 30/630	HM 30/630	MS 30/630	HMV 126 E
	630	800	424	95	120	Tr630x6	254	H 31/630	HM 31/630	MS 31/630	HMV 126 E
630	670	780	264	80	102	Tr670x6	162	H 39/670	HM 30/670	MS 30/670	HMV 134 E
	670	780	324	80	102	Tr670x6	190	H 30/670	HM 30/670	MS 30/670	HMV 134 E
	670	850	456	106	131	Tr670x6	340	H 31/670	HM 31/670	MS 31/670	HMV 134 E
	670	850	558	106	131	Tr670x6	401	H 32/670	HM 31/670	MS 31/670	HMV 134 E
670	710	830	286	90	112	Tr710x7	183	H 39/710	HM 30/710	MS 30/710	HMV 142 E
	710	830	342	90	112	Tr710x7	228	H 30/710	HM 30/710	MS 30/710	HMV 142 E
	710	900	467	106	135	Tr710x7	392	H 31/710	HM 31/710	MS 31/710	HMV 142 E
	710	900	572	106	135	Tr710x7	459	H 32/710	HM 31/710	MS 31/710	HMV 142 E
710	750	870	291	90	112	Tr750x7	213	H 39/750	HM 30/750	MS 30/800-750	HMV 150 E
	750	870	356	90	112	Tr750x7	248	H 30/750	HM 30/750	MS 30/800-750	HMV 150 E
	750	950	493	112	141	Tr750x7	432	H 31/750	HM 31/750	MS 31/800-750	HMV 150 E
	750	950	603	112	141	Tr750x7	508	H 32/750	HM 31/750	MS 31/800-750	HMV 150 E
750	800	920	303	90	112	Tr800x7	263	H 39/800	HM 30/800	MS 30/800-750	HMV 160 E
	800	920	366	90	112	Tr800x7	305	H 30/800	HM 30/800	MS 30/800-750	HMV 160 E
	800	1000	505	112	141	Tr800x7	515	H 31/800	HM 31/800	MS 31/800-750	HMV 160 E
	800	1000	618	112	141	Tr800x7	611	H 32/800	HM 31/800	MS 31/800-750	HMV 160 E
800	850	980	308	90	115	Tr850x7	292	H 39/850	HM 30/850	MS 30/900-850	HMV 170 E
	850	980	380	90	115	Tr850x7	344	H 30/850	HM30/850	MS 30/900-850	HMV 170 E
	850	1060	536	118	147	Tr850x7	590	H 31/850	HM 31/850	MS 31/850	HMV 170 E
	850	1060	651	118	147	Tr850x7	696	H 32/850	HM 31/850	MS 31/850	HMV 170 E
850	900	1030	326	100	125	Tr900x7	335	H 39/900	HM 30/900	MS 30/900-850	HMV 180 E
	900	1030	400	100	125	Tr900x7	392	H 30/900	HM 30/900	MS 30/900-850	HMV 180 E
	900	1120	557	125	154	Tr900x7	674	H 31/900	HM 31/900	MS 31/900	HMV 180 E
	900	1120	660	125	154	Tr900x7	775	H 32/900	HM 31/900	MS 31/900	HMV 180 E



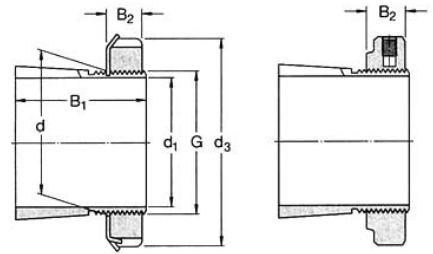
Adapter Sleeves with Hydraulic

d ₁	d	d ₃	B ₁	B ₂	B ₃	G ₁	A	Thread G	Mass	Designations	Lock nut	Locking Device	Hydraulic Nut
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg				
200	220	260	96	30	41	M6	4,2	Tr220x4	7,96	OH 3944 H	HM 3044	MS 3044	HMV 44 E
	220	260	126	30	41	M6	4,2	Tr220x4	9,9	OH 3044 H	HM 3044	MS 3044	HMV 44 E
	220	280	161	35	-	M6	4,2	Tr220x4	15	OH 3144 H	HM 44 T	MB 44	HMV 44 E
	220	280	186	35	-	M6	4,2	Tr220x4	17	OH 2344 H	HM 44 T	MB 44	HMV 44 E
220	240	290	101	34	46	M6	4,2	Tr240x4	11	OH 3948 H	HM 3048	MS 3052-48	HMV 48 E
	240	290	133	34	46	M6	4,2	Tr240x4	12	OH 3048 H	HM 3048	MS 3052-48	HMV 48 E
	240	300	172	37	-	M6	4,2	Tr240x4	15,1	OH 3148 H	HM 48 T	MB 48	HMV 48 E
	240	300	199	37	-	M6	4,2	Tr240x4	19	OH 2348 H	HM 48 T	MB 48	HMV 48 E
240	260	310	116	34	46	M6	4,2	Tr260x4	11,7	OH 3952 H	HM 3052	MS 3052-48	HMV 52 E
	260	310	145	34	46	M6	4,2	Tr260x4	13,5	OH 3052 H	HM 3052	MS 3052-48	HMV 52 E
	260	330	190	39	-	M6	4,2	Tr260x4	17,7	OH 3152 H	HM 52 T	MB-52	HMV 52 E
	260	330	211	39	-	M6	4,2	Tr260x4	23	OH 2352 H	HM 52 T	MB-52	HMV 52 E
260	280	330	121	38	50	M6	4,2	Tr280x4	15,3	OH 3956 H	HM 3056	MS 3056	HMV 56 E
	280	330	152	38	50	M6	4,2	Tr280x4	16	OH 3056 H	HM 3056	MS 3056	HMV 56 E
	280	350	195	41	-	M6	4,2	Tr280x4	23	OH 3156 H	HM 56 T	MB 56	HMV 56 E
	280	350	224	41	-	M6	4,2	Tr280x4	27	OH 2356 H	HM 56 T	MB 56	HMV 56 E
280	300	360	140	42	54	M6	4,2	Tr300x4	20	OH 3960 H	HM 3060	MS 3060	HMV 60 E
	300	360	168	42	54	M6	4,2	Tr300x4	20,5	OH 3060 H	HM 3060	MS 3060	HMV 60 E
	300	380	208	40	53	M6	4,2	Tr300x4	29	OH 3160 H	HM 3160	MS 3160	HMV 60 E
	300	380	240	40	53	M6	4,2	Tr300x4	32	OH 3260 H	HM 3160	MS 3160	HMV 60 E
300	320	380	140	42	55	M6	4	Tr320x5	21,5	OH 3964 H	HM 3064	MS 3068-64	HMV 64 E
	320	380	171	42	55	M6	4	Tr320x5	22	OH 3064 H	HM 3064	MS 3068-64	HMV 64 E
	320	400	226	42	56	M6	4	Tr320x5	32	OH 3164 H	HM 3164	MS 3164	HMV 64 E
	320	400	258	42	56	M6	4	Tr320x5	35	OH 3264 H	HM 3164	MS 3164	HMV 64 E
320	340	400	144	45	58	M6	4	Tr340x5	24,5	OH 3968 H	HM 3068	MS 3068-64	HMV 68 E
	340	400	187	45	58	M6	4	Tr340x5	27	OH 3068 H	HM 3068	MS 3068-64	HMV 68 E
	340	440	254	55	72	M6	4	Tr340x5	50	OH 3168 H	HM 3168	MS 3172-68	HMV 68 E
	340	440	288	55	72	M6	4	Tr340x5	51,5	OH 3268 H	HM 3168	MS 3172-68	HMV 68 E
340	360	420	144	45	58	M6	4	Tr360x5	25,2	OH 3972 H	HM 3072	MS 3072	HMV 72 E
	360	420	188	45	58	M6	4	Tr360x5	29	OH 3072 H	HM 3072	MS 3072	HMV 72 E
	360	460	259	58	75	M6	4	Tr360x5	56	OH 3172 H	HM 3172	MS 3172-68	HMV 72 E
	360	460	299	58	75	M6	4	Tr360x5	60,5	OH 3272 H	HM 3172	MS 3172-68	HMV 72 E
360	380	450	164	48	62	M6	4	Tr380x5	31,5	OH 3976 H	HM 3076	MS 3080-76	HMV 76 E
	380	450	193	48	62	M6	4	Tr380x5	35,5	OH 3076 H	HM 3076	MS 3080-76	HMV 76 E
	380	490	264	60	77	M6	4	Tr380x5	61,5	OH 3176 H	HM 3176	MS 3176	HMV 76 E
	380	490	310	60	77	M6	4	Tr380x5	69,5	OH 3276 H	HM 3176	MS 3176	HMV 76 E
380	400	470	168	52	66	M6	4	Tr400x5	35	OH 3980 H	HM 3080	MS 3080-76	HMV 80 E
	400	470	210	52	66	M6	4	Tr400x5	40	OH 3080 H	HM 3080	MS 3080-76	HMV 80 E
	400	520	272	62	82	M6	4	Tr400x5	73	OH 3180 H	HM 3180	MS 3184-80	HMV 80 E
	400	520	328	62	82	M6	4	Tr400x5	87	OH 3280 H	HM 3180	MS 3184-80	HMV 80 E
400	420	490	168	52	66	M6	4	Tr420x5	36	OH 3984 H	HM 3084	MS 3084	HMV 84 E
	420	490	212	52	66	M6	4	Tr420x5	47	OH 3084 H	HM 3084	MS 3084	HMV 84 E
	420	540	304	70	90	M6	4	Tr420x5	80	OH 3184 H	HM 3184	MS 3184-80	HMV 84 E
	420	540	352	70	90	M6	4	Tr420x5	96	OH 3284 H	HM 3184	MS 3184-80	HMV 84 E
410	440	520	189	60	77	M8	6,5	Tr440x5	58	OH 3988 H	HM 3088	MS 3092-88	HMV 88 E
	440	520	228	60	77	M8	6,5	Tr440x5	65	OH 3088 H	HM 3088	MS 3092-88	HMV 88 E
	440	560	307	70	90	M8	6,5	Tr440x5	95	OH 3188 H	HM 3188	MS 3192-88	HMV 88 E
	440	560	361	70	90	M8	6,5	Tr440x5	117	OH 3288 H	HM 3188	MS 3192-88	HMV 88 E
430	460	540	189	60	77	M8	6,5	Tr460x5	60	OH 3992 H	HM 3092	MS 3092-88	HMV 92 E



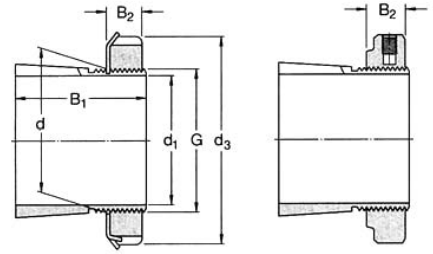
Adapter Sleeves with Hydraulic

d_1	d	d_3	B_1	B_2	B_3	G_1	A	Thread G	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
mm	mm	mm	mm	mm	mm	mm	mm	mm					
	460	540	234	60	77	M8	6,5	Tr460x5	71	OH 3092 H	HM 3092	MS 3092-88	HMV 92 E
	460	580	326	75	95	M8	6,5	Tr460x5	119	OH 3192 H	HM 3192	MS 3192-88	HMV 92 E
	460	580	382	75	95	M8	6,5	Tr460x5	134	OH 3292 H	HM 3192	MS 3192-88	HMV 92 E
450	480	560	200	60	77	M8	6,5	Tr480x5	66	OH 3996 H	HM 3096	MS 30/500-96	HMV 96 E
	480	560	237	60	77	M8	6,5	Tr480x5	75	OH 3096 H	HM 3096	MS 30/500-96	HMV 96 E
	480	620	335	75	95	M8	6,5	Tr480x5	135	OH 3196 H	HM 3196	MS 3196	HMV 96 E
	480	620	397	75	95	M8	6,5	Tr480x5	153	OH 3296 H	HM 3196	MS 3196	HMV 96 E
470	500	580	247	68	85	M8	6,5	Tr500x5	82	OH 30/500 H	HM 30/500	MS 30/500-96	HMV 100 E
	500	580	208	68	85	M8	6,5	Tr500x5	74,3	OH 39/500 H	HM 30/500	MS 30/500-96	HMV 100 E
	500	630	356	80	100	M8	6,5	Tr500x5	145	OH 31/500 H	HM 31/500	MS 31/500	HMV 100 E
	500	630	428	80	100	M8	6	Tr500x5	170	OH 32/500 H	HM 31/500	MS 31/500	HMV 100 E
500	530	630	216	68	90	M8	6	Tr530x6	87,9	OH 39/530 H	HM 30/530	MS 30/600-530	HMV 106 E
	530	630	265	68	90	M8	6	Tr530x6	105	OH 30/530 H	HM 30/530	MS 30/600-530	HMV 106 E
	530	670	364	80	105	M8	6	Tr530x6	161	OH 31/530 H	HM 31/530	MS 31/530	HMV 106 E
	530	670	447	80	105	M8	6	Tr530x6	192	OH 32/530 H	HM 31/530	MS 31/530	HMV 106 E
530	560	650	227	75	97	M8	6	Tr560x6	95	OH 39/560 H	HM 30/560	MS 30/560	HMV 112 E
	560	650	282	75	97	M8	6	Tr560x6	112	OH 30/560 H	HM 30/560	MS 30/560	HMV 112 E
	560	710	377	85	110	M8	6	Tr560x6	185	OH 31/560 H	HM 31/560	MS 31/600-560	HMV 112 E
	560	710	462	85	110	M8	6	Tr560x6	219	OH 32/560 H	HM 31/560	MS 31/600-560	HMV 112 E
560	600	700	239	75	97	1/8"	8	Tr600x6	127	OH 39/600 H	HM 30/600	MS 30/600-530	HMV 120 E
	600	700	289	75	97	1/8"	8	Tr600x6	147	OH 30/600 H	HM 30/600	MS 30/600-530	HMV 120 E
	600	750	399	85	110	1/8"	8	Tr600x6	234	OH 31/600 H	HM 31/600	MS 31/600-560	HMV 120 E
	600	750	487	85	110	1/8"	8	Tr600x6	278	OH 32/600 H	HM 31/600	MS 31/600-560	HMV 120 E
600	630	730	254	75	97	M8	6	Tr630x6	124	OH 39/630 H	HM 30/630	MS 30/630	HMV 126 E
	630	730	301	75	97	M8	6	Tr630x6	138	OH 30/630 H	HM 30/630	MS 30/630	HMV 126 E
	630	800	424	95	120	M8	6	Tr630x6	254	OH 31/630 H	HM 31/630	MS 31/630	HMV 126 E
630	670	780	264	80	102	1/8"	8	Tr670x6	162	OH 39/670 H	HM 30/670	MS 30/670	HMV 134 E
	670	780	324	80	102	1/8"	8	Tr670x6	190	OH 30/670 H	HM 30/670	MS 30/670	HMV 134 E
	670	850	456	106	131	1/8"	8	Tr670x6	340	OH 31/670 H	HM 31/670	MS 31/670	HMV 134 E
	670	850	558	106	131	1/8"	8	Tr670x6	401	OH 32/670 H	HM 31/670	MS 31/670	HMV 134 E
670	710	830	286	90	112	1/8"	8	Tr710x7	183	OH 39/710 H	HM 30/710	MS 30/710	HMV 142 E
	710	830	342	90	112	1/8"	8	Tr710x7	228	OH 30/710 H	HM 30/710	MS 30/710	HMV 142 E
	710	900	467	106	135	1/8"	8	Tr710x7	392	OH 31/710 H	HM 31/710	MS 31/710	HMV 142 E
	710	900	572	106	135	1/8"	8	Tr710x7	459	OH 32/710 H	HM 31/710	MS 31/710	HMV 142 E
710	750	870	291	90	112	1/8"	8	Tr750x7	213	OH 39/750 H	HM 30/750	MS 30/800-750	HMV 150 E
	750	870	356	90	112	1/8"	8	Tr750x7	248	OH 30/750 H	HM 30/750	MS 30/800-750	HMV 150 E
	750	950	493	112	141	1/8"	8	Tr750x7	432	OH 31/750 H	HM 31/750	MS 31/800-750	HMV 150 E
	750	950	603	112	141	1/8"	8	Tr750x7	508	OH 32/750 H	HM 31/750	MS 31/800-750	HMV 150 E
750	800	920	303	90	112	1/8"	10	Tr800x7	263	OH 39/800 H	HM 30/800	MS 30/800-750	HMV 160 E
	800	920	366	90	112	1/8"	10	Tr800x7	305	OH 30/800 H	HM 30/800	MS 30/800-750	HMV 160 E
	800	1000	505	112	141	1/8"	10	Tr800x7	515	OH 31/800 H	HM 31/800	MS 31/800-750	HMV 160 E
	800	1000	618	112	141	1/8"	10	Tr800x7	611	OH 32/800 H	HM 31/800	MS 31/800-750	HMV 160 E
800	850	980	308	90	115	1/8"	10	Tr850x7	292	OH 39/850 H	HM 30/850	MS 30/900-850	HMV 170 E
	850	980	380	90	115	1/8"	10	Tr850x7	344	OH 30/850 H	HM30/850	MS 30/900-850	HMV 170 E
	850	1060	536	118	147	1/8"	10	Tr850x7	590	OH 31/850 H	HM 31/850	MS 31/850	HMV 170 E
	850	1060	651	118	147	1/8"	10	Tr850x7	696	OH 32/850 H	HM 31/850	MS 31/850	HMV 170 E
850	900	1030	326	100	125	1/8"	10	Tr900x7	335	OH 39/900 H	HM 30/900	MS 30/900-850	HMV 180 E
	900	1030	400	100	125	1/8"	10	Tr900x7	392	OH 30/900 H	HM 30/900	MS 30/900-850	HMV 180 E
	900	1120	557	125	154	1/8"	10	Tr900x7	674	OH 31/900 H	HM 31/900	MS 31/900	HMV 180 E
	900	1120	660	125	154	1/8"	10	Tr900x7	775	OH 32/900 H	HM 31/900	MS 31/900	HMV 180 E



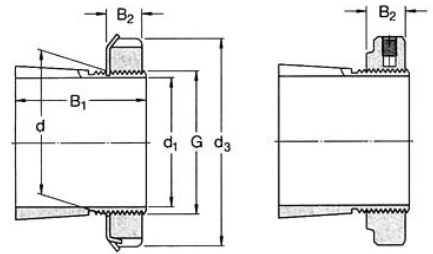
Adapter Sleeves for inch Shafts

d ₁ mm	d mm	d ₃ mm	B ₁ mm	Thread G mm	d ₁ inch	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
19,050	25	38	26	M 25x1.5	3/8	0,07	HE 205	KM 5	MB 5	-
	25	38	29	M 25x1.5	3/8	0,08	HE 305	KM 5	MB 5	-
	25	38	35	M 25x1.5	3/8	0,09	HE 2305	KM 5	MB 5	-
22,225	30	45	27	M 30x1.5	7/8	0,11	HS 206	KM 6	MB 6	-
	30	45	31	M 30x1.5	7/8	0,12	HS 306	KM 6	MB 6	-
23,813	30	45	27	M 30x1.5	15/16	0,1	HA 206	KM 6	MB 6	-
	30	45	31	M 30x1.5	15/16	0,12	HA 306	KM 6	MB 6	-
	30	45	38	M 30x1.5	15/16	0,13	HA 2306	KM 6	MB 6	-
25,400	30	45	27	M 30x1.5	1	0,08	HE 206	KM 6	MB 6	-
	30	45	31	M 30x1.5	1	0,1	HE 306	KM 6	MB 6	-
	30	45	38	M 30x1.5	1	0,11	HE 2306	KM 6	MB 6	-
28,575	35	52	29	M 35x1.5	1 1/8	0,14	HS 207	KM 7	MB 7	-
	35	52	35	M 35x1.5	1 1/8	0,16	HS 307	KM 7	MB 7	-
30,163	35	52	29	M 35x1.5	1 3/16	0,12	HA 207	KM 7	MB 7	-
	35	52	35	M 35x1.5	1 3/16	0,14	HA 307	KM 7	MB 7	-
	35	52	43	M 35x1.5	1 3/16	0,16	HA 2307	KM 7	MB 7	-
31,750	40	58	31	M 40x1.5	1 1/4	0,19	HE 208	KM 8	MB 8	-
	40	58	36	M 40x1.5	1 1/4	0,22	HE 308	KM 8	MB 8	-
	40	58	46	M 40x1.5	1 1/4	0,28	HE 2308	KM 8	MB 8	-
34,925	40	58	31	M 40x1.5	1 3/8	0,16	HS 208	KM 8	MB 8	-
	40	58	36	M 40x1.5	1 3/8	0,17	HS 308	KM 8	MB 8	-
36,513	45	65	33	M 45x1.5	1 7/16	0,26	HA 209	KM 9	MB 9	-
	45	65	39	M 45x1.5	1 7/16	0,29	HA 309	KM 9	MB 9	-
	45	65	50	M 45x1.5	1 7/16	0,35	HA 2309	KM 9	MB 9	-
38,100	45	65	33	M 45x1.5	1 1/2	0,2	HE 209	KM 9	MB 9	-
	45	65	39	M 45x1.5	1 1/2	0,24	HE 309	KM 9	MB 9	-
	45	65	50	M 45x1.5	1 1/2	0,31	HE 2309	KM 9	MB 9	-
41,275	50	70	35	M 50x1.5	1 5/8	0,31	HS 210	KM 10	MB 10	HMV 10 E
	50	70	42	M 50x1.5	1 5/8	0,36	HS 310	KM 10	MB 10	HMV 10 E
	50	70	55	M 50x1.5	1 5/8	0,4	HS 2310	KM 10	MB 10	HMV 10 E
42,862	50	70	35	M 50x1.5	1 11/16	0,28	HA 210	KM 10	MB 10	HMV 10 E
	50	70	42	M 50x1.5	1 11/16	0,32	HA 310	KM 10	MB 10	HMV 10 E
	50	70	55	M 50x1.5	1 11/16	0,4	HA 2310	KM 10	MB 10	HMV 10 E
44,450	50	70	35	M 50x1.5	1 3/4	0,26	HE 210	KM 10	MB 10	HMV 10 E
	50	70	42	M 50x1.5	1 3/4	0,29	HE 310	KM 10	MB 10	HMV 10 E
	50	70	55	M 50x1.5	1 3/4	0,36	HE 2310	KM 10	MB 10	HMV 10 E
47,625	55	75	37	M 55x2	1 7/8	0,33	HS 211	KM 11	MB 11	HMV 11 E
	55	75	45	M 55x2	1 7/8	0,38	HS 311	KM 11	MB 11	HMV 11 E
49,212	55	75	37	M 55x2	1 15/16	0,3	HA 211	KM 11	MB 11	HMV 11 E
	55	75	45	M 55x2	1 15/16	0,34	HA 311	KM 11	MB 11	HMV 11 E
	55	75	59	M 55x2	1 15/16	0,42	HA 2311	KM 11	MB 11	HMV 11 E
53,975	60	80	38	M 60x2	2 1/8	0,35	HS 212	KM 12	MB 12	HMV 12 E
	60	80	47	M 60x2	2 1/8	0,4	HS 312	KM 12	MB 12	HMV 12 E
	60	80	62	M 60x2	2 1/8	0,49	HS 2312	KM 12	MB 12	HMV 12 E
55,563	65	85	40	M 65x2	2 3/16	0,49	HA 213	KM 13	MB 13	HMV 13 E
	65	85	50	M 65x2	2 3/16	0,58	HA 313	KM 13	MB 13	HMV 13 E
	65	85	65	M 65x2	2 3/16	0,75	HA 2313	KM 13	MB 13	HMV 13 E
57,150	65	85	40	M 65x2	2 1/4	0,44	HE 213	KM 13	MB 13	HMV 13 E
	65	85	50	M 65x2	2 1/4	0,52	HE 313	KM 13	MB 13	HMV 13 E
	65	85	65	M 65x2	2 1/4	0,65	HE 2313	KM 13	MB 13	HMV 13 E



Adapter Sleeves for inch Shafts

d_1 mm	d mm	d_3 mm	B_1 mm	Thread G mm	d_1 inch	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
60,325	65	85	40	M 65x2	2 3/8	0,44	HS 213	KM 13	MB 13	HMV 13 E
	65	85	50	M 65x2	2 3/8	0,71	HS 313	KM 13	MB 13	HMV 13 E
	65	85	65	M 65x2	2 3/8	0,8	HS 2313	KM 13	MB 13	HMV 13 E
61,913	75	98	43	M 75x2	2 7/16	0,75	HA 215	KM 15	MB 15	HMV 15 E
	75	98	55	M 75x2	2 7/16	0,91	HA 315	KM 15	MB 15	HMV 15 E
	75	98	73	M 75x2	2 7/16	1,15	HA 2315	KM 15	MB 15	HMV 15 E
63,500	75	98	43	M 75x2	2 1/2	0,7	HE 215	KM 15	MB 15	HMV 15 E
	75	98	55	M 75x2	2 1/2	0,85	HE 315	KM 15	MB 15	HMV 15 E
	75	98	73	M 75x2	2 1/2	1,09	HE 2315	KM 15	MB 15	HMV 15 E
66,675	75	98	43	M 75x2	2 5/8	0,7	HS 215	KM 15	MB 15	HMV 15 E
	75	98	55	M 75x2	2 5/8	0,71	HS 315	KM 15	MB 15	HMV 15 E
	75	98	73	M 75x2	2 5/8	0,9	HS 2315	KM 15	MB 15	HMV 15 E
68,263	80	105	46	M 80x2	2 11/16	0,87	HA 216	KM 16	MB 16	HMV 16 E
	80	105	59	M 80x2	2 11/16	1,05	HA 316	KM 16	MB 16	HMV 16 E
	80	105	78	M 80x2	2 11/16	1,3	HA 2316	KM 16	MB 16	HMV 16 E
69,850	80	105	46	M 80x2	2 3/4	0,81	HE 216	KM 16	MB 16	HMV 16 E
	80	105	59	M 80x2	2 3/4	0,97	HE 316	KM 16	MB 16	HMV 16 E
	80	105	78	M 80x2	2 3/4	1,2	HE 2316	KM 16	MB 16	HMV 16 E
74,612	85	110	50	M 85x2	2 15/16	0,94	HA 217	KM 17	MB 17	HMV 17 E
	85	110	63	M 85x2	2 15/16	1,1	HA 317	KM 17	MB 17	HMV 17 E
	85	110	82	M 85x2	2 15/16	1,4	HA 2317	KM 17	MB 17	HMV 17 E
76,200	85	110	50	M 85x2	3	0,87	HE 217	KM 17	MB 17	HMV 17 E
	85	110	63	M 85x2	3	1	HE 317	KM 17	MB 17	HMV 17 E
	85	110	82	M 85x2	3	1,3	HE 2317	KM 17	MB 17	HMV 17 E
80,963	90	120	52	M 90x2	3 3/16	1,05	HA 218	KM 18	MB 18	HMV 18 E
	90	120	65	M 90x2	3 3/16	1,25	HA 318	KM 18	MB 18	HMV 18 E
	90	120	86	M 90x2	3 3/16	1,5	HA 2318	KM 18	MB 18	HMV 18 E
82,550	90	120	52	M 90x2	3 1/4	0,97	HE 218	KM 18	MB 18	HMV 18 E
	90	120	65	M 90x2	3 1/4	1,1	HE 318	KM 18	MB 18	HMV 18 E
	90	120	86	M 90x2	3 1/4	1,4	HE 2318	KM 18	MB 18	HMV 18 E
	95	125	55	M 95x2	3 1/4	1,35	HE 219	KM 19	MB 19	HMV 19 E
	95	125	68	M 95x2	3 1/4	1,6	HE 319	KM 19	MB 19	HMV 19 E
87,313	95	125	90	M 95x2	3 1/4	2	HE 2319	KM 19	MB 19	HMV 19 E
	100	130	58	M 100x2	3 7/16	1,55	HA 220	KM 20	MB 20	HMV 20 E
	100	130	71	M 100x2	3 7/16	1,8	HA 320	KM 20	MB 20	HMV 20 E
	100	130	97	M 100x2	3 7/16	2,35	HA 2320	KM 20	MB 20	HMV 20 E
	88,900	100	130	58	M 100x2	3 1/2	1,45	HE 220	KM 20	MB 20
101,600	100	130	71	M 100x2	3 1/2	1,75	HE 320	KM 20	MB 20	HMV 20 E
	100	130	76	M 100x2	3 1/2	1,8	HE 3120	KM 20	MB 20	HMV 20 E
	100	130	97	M 100x2	3 1/2	2,2	HE 2320	KM 20	MB 20	HMV 20 E
	110	145	63	M 110x2	4	1,65	HE 222	KM 22	MB 22	HMV 22 E
	110	145	77	M 110x2	4	1,9	HE 322	KM 22	MB 22	HMV 22 E
106,362	110	145	81	M 110x2	4	2,25	HE 3122	KM 22	MB 22	HMV 22 E
	110	145	105	M 110x2	4	2,4	HE 2322	KM 22	MB 22	HMV 22 E
	120	145	72	M 120x2	4 3/16	2,25	HA 3024	KML 24	MBL 24	HMV 24 E
	120	155	88	M 120x2	4 3/16	2,9	HA 3124	KM 24	MB 24	HMV 24 E
	120	155	112	M 120x2	4 3/16	3,6	HA 2324	KM 24	MB 24	HMV 24 E
107,950	120	145	72	M 120x2	4 1/4	2	HE 3024	KML 24	MBL 24	HMV 24 E
	120	155	88	M 120x2	4 1/4	2,8	HE 3124	KM 24	MB 24	HMV 24 E
	120	155	112	M 120x2	4 1/4	3,35	HE 2324	KM 24	MB 24	HMV 24 E



Adapter Sleeves for inch Shafts

d_1 mm	d mm	d_3 mm	B_1 mm	Thread G mm	d_1 inch	Mass kg	Designations	Lock nut	Locking Device	Hydraulic Nut
112,713	130	155	80	M 130x2	4 7/16	3,05	HA 3026	KML 26	MBL 26	HMV 26 E
	130	165	92	M 130x2	4 7/16	3,75	HA 3126	KM 26	MB 26	HMV 26 E
	130	165	121	M 130x2	4 7/16	4,74	HA 2326	KM 26	MB 26	HMV 26 E
114,300	130	155	80	M 130x2	4 1/2	2,9	HE 3026	KML 26	MBL 26	HMV 26 E
	130	165	92	M 130x2	4 1/2	3,6	HE 3126	KM 26	MB 26	HMV 26 E
	130	165	121	M 130x2	4 1/2	4,55	HE 2326	KM 26	MB 26	HMV 26 E
125,412	140	165	82	M 140x2	4 15/16	3	HA 3028	KML 28	MBL 28	HMV 28 E
	140	180	97	M 140x2	4 15/16	4,1	HA 3128	KM 28	MB 28	HMV 28 E
	140	180	131	M 140x2	4 15/16	5,3	HA 2328	KM 28	MB 28	HMV 28 E
127,000	140	165	82	M 140x2	5	2,8	HE 3028	KML 28	MBL 28	HMV 28 E
	140	180	97	M 140x2	5	3,8	HE 3128	KM 28	MB 28	HMV 28 E
	140	180	131	M 140x2	5	5	HE 2328	KM 28	MB 28	HMV 28 E
131,762	150	180	87	M 150x2	5 3/16	4,2	HA 3030	KML 30	MBL 30	HMV 30 E
	150	195	111	M 150x2	5 3/16	5,8	HA 3130	KM 30	MB 30	HMV 30 E
	150	195	139	M 150x2	5 3/16	7,1	HA 2330	KM 30	MB 30	HMV 30 E
133,350	150	180	87	M 150x2	5 1/4	4	HE 3030	KML 30	MBL 30	HMV 30 E
	150	195	111	M 150x2	5 1/4	5,5	HE 3130	KM 30	MB 30	HMV 30 E
	150	195	139	M 150x2	5 1/4	6,8	HE 2330	KM 30	MB 30	HMV 30 E
138,113	160	190	93	M 160x3	5 7/16	5,4	HA 3032	KML 32	MBL 32	HMV 32 E
	160	210	119	M 160x3	5 7/16	7,55	HA 3132	KM 32	MB 32	HMV 32 E
	160	210	147	M 160x3	5 7/16	9,4	HA 2332	KM 32	MB 32	HMV 32 E
139,700	160	190	93	M 160x3	5 1/2	5,1	HE 3032	KML 32	MBL 32	HMV 32 E
	160	210	119	M 160x3	5 1/2	7,3	HE 3132	KM 32	MB 32	HMV 32 E
	160	210	147	M 160x3	5 1/2	8,8	HE 2332	KM 32	MB 32	HMV 32 E
150,813	170	200	101	M 170x3	5 15/16	5,7	HA 3034	KML 34	MBL 34	HMV 34 E
	170	220	122	M 170x3	5 15/16	7,8	HA 3134	KM 34	MB 34	HMV 34 E
	170	220	154	M 170x3	5 15/16	9,6	HA 2334	KM 34	MB 34	HMV 34 E
152,400	170	200	101	M 170x3	6	5,4	HE 3034	KML 34	MBL 34	HMV 34 E
	170	220	122	M 170x3	6	7,55	HE 3134	KM 34	MB 34	HMV 34 E
	170	220	154	M 170x3	6	9,2	HE 2334	KM 34	MB 34	HMV 34 E
163,512	180	210	109	M 180x3	6 7/16	6	HA 3036	KML 36	MBL 36	HMV 36 E
	180	230	131	M 180x3	6 7/16	8,15	HA 3136	KM 36	MB 36	HMV 36 E
	180	230	161	M 180x3	6 7/16	9,9	HA 2336	KM 36	MB 36	HMV 36 E
165,100	180	210	109	M 180x3	6 1/2	5,55	HE 3036	KML 36	MBL 36	HMV 36 E
	180	230	131	M 180x3	6 1/2	7,8	HE 3136	KM 36	MB 36	HMV 36 E
	180	230	161	M 180x3	6 1/2	9,35	HE 2336	KM 36	MB 36	HMV 36 E
171,450	190	220	112	M 190x3	6 3/4	7,2	HE 3038	KML 38	MBL 38	HMV 38 E
	190	240	141	M 190x3	6 3/4	10,2	HE 3138	KM 38	MB 38	HMV 38 E
	190	240	169	M 190x3	6 3/4	11,7	HE 2338	KM 38	MB 38	HMV 38 E
176,213	190	220	112	M 190x3	6 15/16	5,8	HA 3038	KML 38	MBL 38	HMV 38 E
	190	240	141	M 190x3	6 15/16	8,5	HA 3138	KM 38	MB 38	HMV 38 E
	190	240	169	M 190x3	6 15/16	10	HA 2338	KM 38	MB 38	HMV 38 E
177,800	200	240	120	M 200x3	7	9,35	HE 3040	KML 40	MBL 40	HMV 40 E
	200	250	150	M 200x3	7	12,3	HE 3140	KM 40	MB 40	HMV 40 E
	200	250	176	M 200x3	7	14,2	HE 2340	KM 40	MB 40	HMV 40 E
182,563	200	240	120	M 200x3	7 3/16	8,25	HA 3040	KML 40	MBL 40	HMV 40 E
	200	250	150	M 200x3	7 3/16	11,2	HA 3140	KM 40	MB 40	HMV 40 E
	200	250	176	M 200x3	7 3/16	12,6	HA 2340	KM 40	MB 40	HMV 40 E

Withdrawal sleeves

Designs

Withdrawal sleeves can be used to mount bearings with a tapered bore on cylindrical seatings of stepped shafts (-> fig 1). The sleeve is pressed into the bore of the bearing that abuts a shaft shoulder or similar fixed component. The sleeve is located on the shaft by a nut or an end plate. Lock nuts or endplates are not supplied with the withdrawal sleeves. KM or HM lock nuts are suitable but must be ordered separately. To secure the bearing to the shaft, press the withdrawal sleeve into the bearing bore. To do this, particularly where larger bearings are concerned, considerable force is required to overcome the friction between the mating surfaces of the bearing and sleeve and of the sleeve and shaft. Mounting and dismounting of bearings on withdrawal sleeves can be facilitated considerably by using a hydraulic nut (-> fig 2).

Basic design

CNR withdrawal sleeves (-> fig 3) are coated with a preservative. They are slotted and have an external taper of 1:12 except for those in the AH 240 and AH 241 series which have an external taper of 1:30 and are intended for use with wide bearings in the 40 and, 41 Dimension Series. The nuts required for dismounting the withdrawal sleeve are not supplied with the sleeve and must be ordered separately. Appropriate sizes are listed in the product table. Appropriate hydraulic nuts for mounting are listed there as well.

Design for oil injection

To enable the oil injection method to be used for mounting and dismounting, CNR withdrawal sleeves with bore diameters of 200 mm and above are produced as standard with oil supply ducts and distributor grooves (-> fig 4). These AOH sleeves have two oil supply ducts at the threaded side as well as oil distributor grooves in the circumferential and axial directions, both in the outside surface and the sleeve bore. If oil is injected through these ducts and grooves, an oil film

is formed between the mating surfaces of the bearing and sleeve and between the shaft and sleeve, and the force required to mount the bearing is considerably reduced. Details of the thread for attaching the oil supply lead to the ducts as well as of appropriate hydraulic nuts will be found in the product table.

General data

Dimensions

The dimensions of CNR withdrawal sleeves are in accordance with ISO 2982-1:1995.

Tolerances

The bore diameter of CNR withdrawal sleeves is to tolerance js9, the width to hi3.

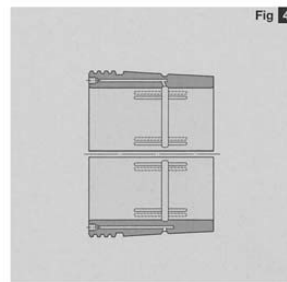
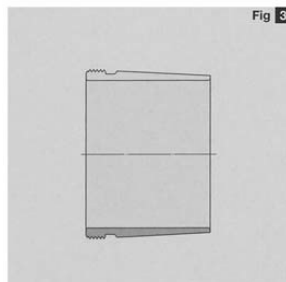
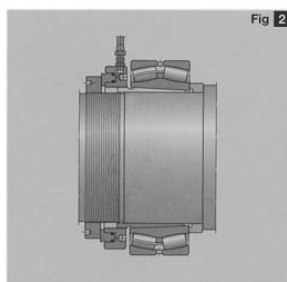
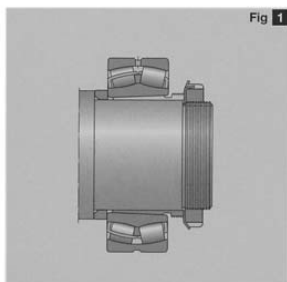
Thread

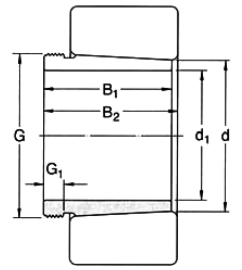
CNR withdrawal sleeves up to size 38 have metric threads with 6g tolerances according to ISO 965-3:1998. Larger withdrawal sleeves have metric trapezoidal threads with 7e tolerance according to ISO 2903:1993.

If standard nuts are not used, the threads of nuts for withdrawal sleeves up to size 38 should correspond to tolerance 5H according to ISO 965-3:1998. The threads of nuts for larger withdrawal sleeves should correspond to tolerance 7H according to ISO 2903:1993.

Shaft tolerances

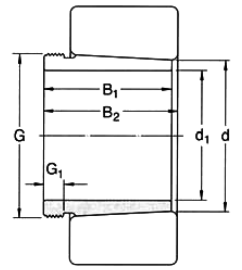
As withdrawal sleeves adapt themselves to the shaft diameter, wider diameter tolerances can be permitted than for the seating of a bearing with a cylindrical bore. However, the form tolerances must be kept within narrow limits as the accuracy of form directly affects the running accuracy of the bearing. Generally, shafts should be machined to an h9 tolerance but the cylindricity should be to IT5/2 according to ISO 1101:1983.





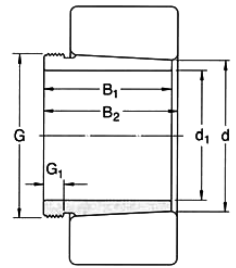
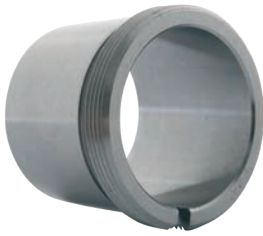
Withdrawal sleeves

d_1 mm	d mm	B_1 mm	B_2 mm	Thread G mm	G_1 mm	Mass kg	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft
35	40	29	32	M45x1,5	6	0,09	AH 308	KM 9	-	KM 7 + MB 7
	40	40	43	M45x1,5	7	0,13	AH 2308	KM 9	-	KM 7 + MB 7
40	45	31	34	M50x1,5	6	0,12	AH 309	KM 10	HMV 10 E	KM 8 + MB 8
	45	44	47	M50x1,5	7	0,16	AH 2309	KM 10	HMV 10 E	KM 8 + MB 8
45	50	35	38	M55x2	7	0,13	AHX 310	KM 11	HMV 11 E	KM 9 + MB 9
	50	50	53	M55x2	9	0,19	AHX 2310	KM 11	HMV 11 E	KM 9 + MB 9
50	55	37	40	M60x2	7	0,16	AHX 311	KM 12	HMV 12 E	KM 10 + MB 10
	55	54	57	M60x2	10	0,26	AHX 2311	KM 12	HMV 12 E	KM 10 + MB 10
55	60	40	43	M65x2	8	0,19	AHX 312	KM 13	HMV 13 E	KM 11 + MB 11
	60	58	61	M65x2	11	0,3	AHX 2312	KM 13	HMV 13 E	KM 11 + MB 11
60	65	42	45	M70x2	8	0,35	AH 313	KM 14	HMV 14 E	KM 12 + MB 12
	65	61	64	M70x2	12	0,39	AH 2313	KM 14	HMV 14 E	KM 12 + MB 12
65	70	43	47	M75x2	8	0,24	AH 314	KM 15	HMV 15 E	KM 13 + MB 13
	70	64	68	M75x2	12	0,42	AH 2314	KM 15	HMV 15 E	KM 13 + MB 13
70	75	45	49	M80x2	8	0,29	AH 315	KM 16	HMV 16 E	KM 14 + MB 14
	75	68	72	M80x2	12	0,48	AHX 2315	KM 16	HMV 16 E	KM 14 + MB 14
75	80	48	52	M90x2	8	0,37	AH 316	KM 18	HMV 18 E	KM 15 + MB 15
	80	71	75	M90x2	12	0,57	AHX 2316	KM 18	HMV 18 E	KM 15 + MB 15
80	85	52	56	M95x2	9	0,43	AHX 317	KM 19	HMV 19 E	KM 16 + MB 16
	85	74	78	M95x2	13	0,65	AHX 2317	KM 19	HMV 19 E	KM 16 + MB 16
85	90	53	57	M100x2	9	0,46	AHX 318	KM 20	HMV 20 E	KM 17 + MB 17
	90	63	67	M100x2	10	0,57	AHX 3218	KM 20	HMV 20 E	KM 17 + MB 17
	90	79	83	M100x2	14	0,76	AHX 2318	KM 20	HMV 20 E	KM 17 + MB 17
90	95	57	61	M105x2	10	0,54	AHX 319	KM 21	HMV 21 E	KM 18 + MB 18
	95	85	89	M105x2	16	0,9	AHX 2319	KM 21	HMV 21 E	KM 18 + MB 18
95	100	59	63	M110x2	10	0,58	AHX 320	KM 22	HMV 22 E	KM 19 + MB 19
	100	64	68	M110x2	11	0,66	AHX 3120	KM 22	HMV 22 E	KM 19 + MB 19
	100	73	77	M110x2	11	0,76	AHX 3220	KM 22	HMV 22 E	KM 19 + MB 19
	100	90	94	M110x2	16	1	AHX 2320	KM 22	HMV 22 E	KM 19 + MB 19
105	110	63	67	M120x2	11	0,77	AHX 322	KM 24	HMV 24 E	KM 21 + MB 21
	110	68	72	M120x2	11	0,76	AHX 3122	KM 24	HMV 24 E	KM 21 + MB 21
	110	82	91	M115x2	13	0,71	AH 24122	KM 23	HMV 23 E	KM 21 + MB 21
	110	82	86	M120x2	11	1	AHX 3222	KM 24	HMV 24 E	KM 21 + MB 21
	110	98	102	M120x2	16	1,3	AHX 2322	KM 24	HMV 24 E	KM 21 + MB 21
115	120	60	64	M130x2	13	0,73	AHX 3024	KM 26	HMV 26 E	KM 23 + MB 23
	120	75	79	M130x2	12	0,94	AHX 3124	KM 26	HMV 26 E	KM 23 + MB 23
	120	90	94	M130x2	13	1,7	AHX 3224	KM 26	HMV 26 E	KM 23 + MB 23
	120	105	109	M130x2	17	1,55	AHX 2324	KM 26	HMV 26 E	KM 23 + MB 23
	120	73	82	M125x2	13	0,7	AH 24024	KM 25	HMV 25 E	KM 23 + MB 23
	120	93	102	M130x2	13	1	AH 24124	KM 26	HMV 26 E	KM 23 + MB 23
125	130	67	71	M140x2	14	0,91	AHX 3026	KM 28	HMV 28 E	KM 25 + MB 25
	130	78	82	M140x2	12	1,1	AHX 3126	KM 28	HMV 28 E	KM 25 + MB 25
	130	98	102	M140x2	15	1,5	AHX 3226	KM 28	HMV 28 E	KM 25 + MB 25
	130	115	119	M140x2	19	1,85	AHX 2326	KM 28	HMV 28 E	KM 25 + MB 25
	130	83	93	M135x2	14	0,88	AH 24026	KM 27	HMV 27 E	KM 25 + MB 25
	130	94	104	M140x2	14	1,15	AH 24126	KM 28	HMV 28 E	KM 25 + MB 25
135	140	68	73	M150x2	14	1	AHX 3028	KM 30	HMV 30 E	KM 27 + MB 27
	140	83	88	M150x2	14	1,3	AHX 3128	KM 30	HMV 30 E	KM 27 + MB 27
	140	104	109	M150x2	15	1,75	AHX 3228	KM 30	HMV 30 E	KM 27 + MB 27
	140	125	130	M150x2	20	2,55	AHX 2328	KM 30	HMV 30 E	KM 27 + MB 27
	140	83	93	M145x2	14	0,95	AH 24028	KM 29	HMV 29 E	KM 27 + MB 27



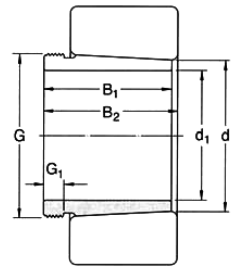
Withdrawal sleeves

d ₁ mm	d mm	B ₁ mm	B ₂ mm	Thread G mm	G ₁ mm	Mass kg	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft
145	140	99	109	M150x2	14	1,3	AH 24128	KM 30	HMV 30 E	KM 27 + MB 27
	150	72	77	M160x3	15	1,15	AHX 3030	KM 32	HMV 32 E	KM 29 + MB 29
	150	96	101	M160x3	15	1,7	AHX 3130	KM 32	HMV 32 E	KM 29 + MB 29
	150	114	119	M160x3	17	2,1	AHX 3230	KM 32	HMV 32 E	KM 29 + MB 29
	150	135	140	M160x3	24	2,75	AHX 2330	KM 32	HMV 32 E	KM 29 + MB 29
150	150	90	101	M155x3	15	1,5	AH 24030	KM 31	HMV 31 E	KM 29 + MB 29
	150	115	126	M160x3	15	1,55	AH 24130	KM 32	HMV 32 E	KM 29 + MB 29
	160	77	82	M170x3	16	2	AH 3032	KM 34	HMV 34 E	KM 30 + MB 30
	160	95	106	M170x3	15	2,3	AH 24032	KM 34	HMV 34 E	KM 30 + MB 30
	160	103	108	M170x3	16	3	AH 3132	KM 34	HMV 34 E	KM 30 + MB 30
	160	124	135	M170x3	15	3	AH 24132	KM 34	HMV 34 E	KM 30 + MB 30
	160	124	130	M170x3	20	3,7	AH 3232	KM 34	HMV 34 E	KM 30 + MB 30
	160	140	146	M170x3	24	4,35	AH 2332	KM 34	HMV 34 E	KM 30 + MB 30
	170	85	90	M180x3	17	2,45	AH 3034	KM 36	HMV 36 E	KM 32 + MB 32
	170	104	109	M180x3	16	3,2	AH 3134	KM 36	HMV 36 E	KM 32 + MB 32
170	170	106	117	M180x3	16	2,7	AH 24034	KM 36	HMV 36 E	KM 32 + MB 32
	170	125	136	M180x3	16	3,25	AH 24134	KM 36	HMV 36 E	KM 32 + MB 32
	170	134	140	M180x3	24	4,35	AH 3234	KM 36	HMV 36 E	KM 32 + MB 32
	170	146	152	M180x3	24	4,85	AH 2334	KM 36	HMV 36 E	KM 32 + MB 32
	180	92	98	M190x3	17	2,8	AH 3036	KM 38	HMV 38 E	KM 34 + MB 34
	180	105	110	M190x3	17	3,4	AH 2236	KM 38	HMV 38 E	KM 34 + MB 34
	180	116	127	M190x3	16	3,3	AH 24036	KM 38	HMV 38 E	KM 34 + MB 34
	180	116	122	M190x3	19	3,9	AH 3136	KM 38	HMV 38 E	KM 34 + MB 34
	180	134	145	M190x3	16	3,75	AH 24136	KM 38	HMV 38 E	KM 34 + MB 34
	180	140	146	M190x3	24	4,85	AH 3236	KM 38	HMV 38 E	KM 34 + MB 34
180	180	154	160	M190x3	26	5,5	AH 2336	KM 38	HMV 38 E	KM 34 + MB 34
	190	96	102	M200x3	18	3,3	AH 3038	KM 40	HMV 40 E	KM 36 + MB 36
	190	112	117	M200x3	18	3,9	AH 2238	KM 40	HMV 40 E	KM 36 + MB 36
	190	118	131	M200x3	20	3,55	AH 24038	KM 40	HMV 40 E	KM 36 + MB 36
	190	125	131	M200x3	25	4,5	AH 3138	KM 40	HMV 40 E	KM 36 + MB 36
	190	145	152	M200x3	26	5,9	AH 3238	KM 40	HMV 40 E	KM 36 + MB 36
	190	146	159	M200x3	18	4,45	AH 24138	KM 40	HMV 40 E	KM 36 + MB 36
	190	160	167	M200x3	26	6,1	AH 2338	KM 40	HMV 40 E	KM 36 + MB 36
	200	102	108	Tr210x4	19	3,7	AH 3040	HM 42 T	HMV 42 E	KM 38 + MB 28
	200	118	123	Tr220x4	19	4,7	AH 2240	HM 3044	HMV 42 E	KM 38 + MB 28
200	200	127	140	Tr210x4	18	4	AH 24040	HM 42 T	HMV 42 E	KM 38 + MB 28
	200	134	140	Tr220x4	21	5,65	AH 3140	HM 3044	HMV 44 E	KM 38 + MB 28
	200	153	160	Tr220x4	25	6,6	AH 3240	HM 3044	HMV 44 E	KM 38 + MB 28
	200	158	171	Tr210x4	18	5,05	AH 24140	HM 42 T	HMV 42 E	KM 38 + MB 28
	200	170	177	Tr220x4	30	7,6	AH 2340	HM 3044	HMV 44 E	KM 38 + MB 28
	220	111	117	Tr230x4	20	7,3	AH 3044	HM 46 T	HMV 46 E	KM 40 + MB 40
	220	130	136	Tr240x4	20	9,4	AH 2244	HM 3048	HMV 48 E	KM 40 + MB 40
	220	138	152	Tr230x4	20	8,2	AH 24044	HM 46 T	HMV 46 E	KM 40 + MB 40
	220	145	151	Tr240x4	23	9,3	AH 3144	HM 3048	HMV 48 E	KM 40 + MB 40
	220	170	184	Tr230x4	20	10	AH 24144	HM 46 T	HMV 46 E	KM 40 + MB 40
220	220	181	189	Tr240x4	30	13,5	AH 2344	HM 3048	HMV 48 E	KM 40 + MB 40
	240	116	123	Tr260x4	21	7,95	AH 3048	HM 3052	HMV 52 E	HM 3044 + MS 3044
	240	138	153	Tr250x4	20	8,05	AH 24048	HM 50 T	HMV 50 E	HM 3044 + MS 3044
	240	144	150	Tr260x4	20	11,5	AH 2248	HM 3052	HMV 52 E	HM 3044 + MS 3044
	240	154	161	Tr260x4	25	12	AH 3148	HM 3052	HMV 52 E	HM 3044 + MS 3044
	240	180	195	Tr260x4	20	11,5	AH 24148	HM 3052	HMV 52 E	HM 3044 + MS 3044



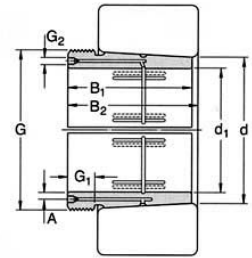
Withdrawal sleeves

d_1 mm	d mm	B_1 mm	B_2 mm	Thread G mm	G_1 mm	Mass kg	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft
240	240	189	197	Tr260x4	30	14	AH 2348	HM 3052	HMV 52 E	HM 3044 + MS 3044
	260	128	135	Tr280x4	23	9,6	AH 3052	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
	260	155	161	Tr280x4	23	13,5	AH 2252	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
	260	162	178	Tr280x4	22	12,5	AH 24052	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
260	260	172	179	Tr280x4	26	15,5	AH 3152	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
	260	202	218	Tr280x4	22	14	AH 24152	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
	260	205	213	Tr280x4	30	19	AH 2352	HM 3056	HMV 56 E	HM 3048 + MS 3052-48
	280	131	139	Tr300x4	24	11	AH 3056	HM 3060	HMV 60 E	HM 3052 + MS 3052-48
	280	155	163	Tr300x4	24	15	AH 2256	HM 3160	HMV 60 E	HM 3052 + MS 3052-48
	280	162	179	Tr300x4	22	13,5	AH 24056	HM 3160	HMV 60 E	HM 3052 + MS 3052-48
	280	175	183	Tr300x4	28	17	AH 3156	HM 3160	HMV 60 E	HM 3052 + MS 3052-48
	280	202	219	Tr300x4	22	15	AH 24156	HM 3160	HMV 60 E	HM 3052 + MS 3052-48
	280	212	220	Tr300x4	30	21,5	AH 2356	HM 3160	HMV 60 E	HM 3052 + MS 3052-48
	300	145	153	Tr320x5	26	13	AH 3060	HM 3064	HMV 64 E	HM 3056 + MS 3056
300	300	170	178	Tr320x5	26	18	AH 2260	HM 3164	HMV 64 E	HM 3056 + MS 3056
	300	184	202	Tr320x5	24	17	AH 24060	HM 3164	HMV 64 E	HM 3056 + MS 3056
	300	192	200	Tr320x5	30	20,5	AH 3160	HM 3164	HMV 64 E	HM 3056 + MS 3056
	300	224	242	Tr320x5	24	18,5	AH 24160	HM 3164	HMV 64 E	HM 3056 + MS 3056
	300	228	236	Tr320x5	34	23,5	AH 3260	HM 3164	HMV 64 E	HM 3056 + MS 3056
	320	149	157	Tr340x5	27	17	AH 3064	HM 3068	HMV 68 E	HM 3060 + MS 3060
	320	180	190	Tr340x5	27	20	AH 2264	HM 3168	HMV 68 E	HM 3060 + MS 3060
	320	184	202	Tr340x5	24	18	AH 24064	HM 3168	HMV 68 E	HM 3060 + MS 3060
	320	209	217	Tr340x5	31	24,5	AH 3164	HM 3168	HMV 68 E	HM 3060 + MS 3060
	320	242	260	Tr340x5	24	20,5	AH 24164	HM 3168	HMV 68 E	HM 3060 + MS 3060
320	320	246	254	Tr340x5	36	27,5	AH 3264	HM 3168	HMV 68 E	HM 3060 + MS 3060
	340	162	171	Tr360x5	28	19	AH 3068	HM 3072	HMV 72 E	HM 3064 + MS 3068-64
	340	206	225	Tr360x5	26	21,5	AH 24068	HM 3172	HMV 72 E	HM 3064 + MS 3068-64
	340	225	234	Tr360x5	33	28,5	AH 3168	HM 3172	HMV 72 E	HM 3064 + MS 3068-64
	340	264	273	Tr360x5	38	32	AH 3268	HM 3172	HMV 72 E	HM 3064 + MS 3068-64
	340	269	288	Tr360x5	26	25,5	AH 24168	HM 3172	HMV 72 E	HM 3064 + MS 3068-64
340	360	167	176	Tr380x5	30	21	AH 3072	HM 3076	HMV 76 E	HM 3068 + MS 3068-64
	360	206	226	Tr380x5	26	23	AH 24072	HM 3176	HMV 76 E	HM 3068 + MS 3068-64
	360	229	238	Tr380x5	35	30,5	AH 3172	HM 3176	HMV 76 E	HM 3068 + MS 3068-64
	360	269	289	Tr380x5	26	26	AH 24172	HM 3176	HMV 76 E	HM 3068 + MS 3068-64
	360	274	283	Tr380x5	40	35,5	AH 3272	HM 3176	HMV 76 E	HM 3068 + MS 3068-64
	360	380	170	Tr400x5	31	22,5	AH 3076	HM 3080	HMV 80 E	HM 3072 + MS 3072
360	380	208	228	Tr400x5	28	25	AH 24076	HM 3180	HMV 80 E	HM 3072 + MS 3072
	380	232	242	Tr400x5	36	33	AH 3176	HM 3180	HMV 80 E	HM 3072 + MS 3072
	380	271	291	Tr400x5	28	31	AH 24176	HM 3180	HMV 80 E	HM 3072 + MS 3072
	380	284	294	Tr400x5	42	42	AH 3276	HM 3180	HMV 80 E	HM 3072 + MS 3072
	380	400	183	Tr400x5	33	26	AH 3080	HM 3080	HMV 84 E	HM 3076 + MS 3076
	400	228	248	Tr420x5	28	27	AH 24080	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
400	400	240	250	Tr420x5	38	36	AH 3180	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	400	278	298	Tr420x5	28	35	AH 24180	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	400	302	312	Tr420x5	44	48	AH 3280	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	420	186	196	Tr440x5	34	28	AH 3084	HM 3088	HMV 88 E	HM 3080 + MS 3080-76
	420	230	252	Tr440x5	30	29	AH 24084	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	266	276	Tr440x5	40	43	AH 3184	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	310	332	Tr440x5	30	39	AH 24184	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	321	331	Tr440x5	46	54,5	AH 3284	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
420	440	194	205	Tr460x5	35	31	AHX 3088	HM 3092	HMV 92 E	HM 3084 + MS 3084



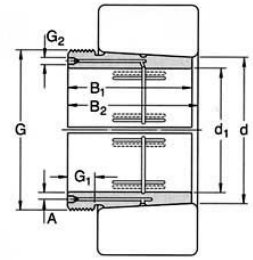
Withdrawal sleeves

d_1 mm	d mm	B_1 mm	B_2 mm	Thread G mm	G_1 mm	Mass kg	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft
	440	242	264	Tr460x5	32	34	AH 24088	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	270	281	Tr460x5	42	46	AHX 3188	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	310	332	Tr460x5	30	45,5	AH 24188	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	330	341	Tr460x5	48	64,5	AHX 3288	HM 3192	HMV 92 E	HM 3084 + MS 3084
440	460	202	213	Tr480x5	37	34	AHX 3092	HM 3096	HMV 96 E	HM 3088 + MS 3092-88
	460	250	273	Tr480x5	32	34,7	AH 24092	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	285	296	Tr480x5	43	51,5	AHX 3192	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	332	355	Tr480x5	32	50	AH 24192	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	349	360	Tr480x5	50	80	AHX 3292	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
460	480	205	217	Tr500x5	38	34	AHX 3096	HM 30/500	HMV 100 E	HM 3092 + MS 3092-88
	480	250	273	Tr500x5	32	36,5	AH 24096	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	295	307	Tr500x5	45	63	AHX 3196	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	340	363	Tr500x5	32	51,5	AH 24196	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	364	376	Tr500x5	52	81	AHX 3296	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
480	500	209	221	Tr530x6	40	41	AHX 30/500	HM 30/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	253	276	Tr530x6	35	43	AH 240/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	313	325	Tr530x6	47	66,5	AHX 31/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	360	383	Tr530x6	35	63	AH 241/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	393	405	Tr530x6	54	89,5	AHX 32/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
500	530	230	242	Tr560x6	45	63,5	AH 30/530	HM 30/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	285	309	Tr560x6	35	64,5	AH 240/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	325	337	Tr560x6	53	93,5	AH 31/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	370	394	Tr560x6	35	92	AH 241/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
530	530	412	424	Tr560x6	57	127	AH 32/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	560	240	252	Tr600x6	45	73,5	AHX 30/560	HM 30/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	296	320	Tr600x6	38	70	AH 240/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	335	347	Tr600x6	55	107	AH 31/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	393	417	Tr600x6	38	107	AH 241/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	422	434	Tr600x6	57	143	AHX 32/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
570	600	245	259	Tr630x6	45	77	AH 30/600	HM 30/630	HMV 126 E	HM 30/560 + MS 30/560
	600	310	336	Tr630x6	38	86,5	AH 240/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	355	369	Tr630x6	55	120	AH 31/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	413	439	Tr630x6	38	120	AH 241/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	445	459	Tr630x6	57	159	AH 32/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
600	630	258	272	Tr670x6	46	88,5	AH 30/630	HM 30/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	330	356	Tr670x6	40	101	AH 240/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	375	389	Tr670x6	60	139	AH 31/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	440	466	Tr670x6	40	139	AH 241/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	475	489	Tr670x6	63	188	AH 32/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
630	670	280	294	Tr710x7	50	125	AH 30/670	HM 30/710	HMV 142 E	HM 30/630 + MS 30/630
	670	395	409	Tr710x7	59	189	AHX 31/670	HM 31/710	HMV 142 E	HM 30/630 + MS 30/630
	670	500	514	Tr710x7	62	252	AH 32/670	HM 31/710	HMV 142 E	HM 30/630 + MS 30/630
	670	348	374	Tr710x7	40	140	AH 240/670	HM 31/710	HMV 142 E	HM 30/630 + MS 30/630
	670	452	478	Tr710x7	40	180	AH 241/670	HM 31/710	HMV 142 E	HM 30/630 + MS 30/630
670	710	286	302	Tr750x7	50	135	AHX 30/710	HM 30/750	HMV 150 E	HM 30/670 + MS 30/670
	710	405	421	Tr750x7	60	202	AHX 31/710	HM 31/750	HMV 150 E	HM 30/670 + MS 30/670
	710	515	531	Tr750x7	65	275	AH 32/710	HM 31/750	HMV 150 E	HM 30/670 + MS 30/670
	710	360	386	Tr750x7	45	152	AH 240/710	HM 31/750	HMV 150 E	HM 30/670 + MS 30/670
	710	483	509	Tr750x7	45	209	AH 241/710	HM 31/750	HMV 150 E	HM 30/670 + MS 30/670
710	750	300	316	Tr800x7	50	155	AH 30/750	HM 30/800	HMV 160 E	HM 30/710 + MS 30/710
	750	425	441	Tr800x7	60	232	AH 31/750	HM 31/800	HMV 160 E	HM 30/710 + MS 30/710



Withdrawal Sleeves With Hydraulic

d ₁ mm	d mm	B ₁ mm	B ₂ mm	Thread G mm	G ₁ mm	G ₂ inch	A mm	Mass kg	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft	
200	220	111	117	Tr230x4	20	G 1/8	6,5	7,3	A0H 3044	HM 46 T	HMV 46 E	KM 40 + MB 40	
	220	130	136	Tr240x4	20	-	9	9,4	A0H 2244	HM 3048	HMV 48 E	KM 40 + MB 40	
	220	138	152	Tr230x4	20	G 1/8	6,5	8,2	A0H 24044	HM 46 T	HMV 46 E	KM 40 + MB 40	
	220	145	151	Tr240x4	23	G 1/4	9	9,3	A0H 3144	HM 3048	HMV 48 E	KM 40 + MB 40	
	220	170	184	Tr230x4	20	G 1/8	6,5	10	A0H 24144	HM 46 T	HMV 46 E	KM 40 + MB 40	
	220	181	189	Tr240x4	30	G 1/4	9	13,5	A0H 2344	HM 3048	HMV 48 E	KM 40 + MB 40	
220	240	116	123	Tr260x4	21	G 1/4	9	7,95	A0H 3048	HM 3052	HMV 52 E	HM 3044 + MS 3044	
	240	138	153	Tr250x4	20	G 1/8	6,5	8,05	A0H 24048	HM 50 T	HMV 50 E	HM 3044 + MS 3044	
	240	144	150	Tr260x4	20	-	9	11,5	A0H 2248	HM 3052	HMV 52 E	HM 3044 + MS 3044	
	240	154	161	Tr260x4	25	G 1/4	9	12	A0H 3148	HM 3052	HMV 52 E	HM 3044 + MS 3044	
	240	180	195	Tr260x4	20	G 1/4	9	11,5	A0H 24148	HM 3052	HMV 52 E	HM 3044 + MS 3044	
	240	189	197	Tr260x4	30	G 1/4	9	14	A0H 2348	HM 3052	HMV 52 E	HM 3044 + MS 3044	
240	260	128	135	Tr280x4	23	G 1/4	9	9,6	A0H 3052	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
	260	155	161	Tr280x4	23	G 1/4	9	13,5	A0H 2252	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
	260	162	178	Tr280x4	22	G 1/8	6,5	12,5	A0H 24052	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
	260	172	179	Tr280x4	26	G 1/4	9	15,5	A0H 3152	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
	260	202	218	Tr280x4	22	G 1/4	9	14	A0H 24152	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
	260	205	213	Tr280x4	30	G 1/4	9	19	A0H 2352	HM 3056	HMV 56 E	HM 3048 + MS 3052-48	
260	280	131	139	Tr300x4	24	G 1/4	9	11	A0H 3056	HM 3060	HMV 60 E	HM 3052 + MS 3052-48	
	280	155	163	Tr300x4	24	G 1/4	9,5	15	A0H 2256	HM 3160	HMV 60 E	HM 3052 + MS 3052-48	
	280	162	179	Tr300x4	22	G 1/8	6,5	13,5	A0H 24056	HM 3160	HMV 60 E	HM 3052 + MS 3052-48	
	280	175	183	Tr300x4	28	G 1/4	9,5	17	A0H 3156	HM 3160	HMV 60 E	HM 3052 + MS 3052-48	
	280	202	219	Tr300x4	22	G 1/4	9	15	A0H 24156	HM 3160	HMV 60 E	HM 3052 + MS 3052-48	
	280	212	220	Tr300x4	30	G 1/4	9	21,5	A0H 2356	HM 3160	HMV 60 E	HM 3052 + MS 3052-48	
280	300	145	153	Tr320x5	26	G 1/4	9	13	A0H 3060	HM 3064	HMV 64 E	HM 3056 + MS 3056	
	300	170	178	Tr320x5	26	G 1/4	9	18	A0H 2260	HM 3164	HMV 64 E	HM 3056 + MS 3056	
	300	184	202	Tr320x5	24	G 1/8	6,5	17	A0H 24060	HM 3164	HMV 64 E	HM 3056 + MS 3056	
	300	192	200	Tr320x5	30	G 1/4	9	20,5	A0H 3160	HM 3164	HMV 64 E	HM 3056 + MS 3056	
	300	224	242	Tr320x5	24	G 1/4	9	18,5	A0H 24160	HM 3164	HMV 64 E	HM 3056 + MS 3056	
	300	228	236	Tr320x5	34	G 1/4	9	23,5	A0H 3260	HM 3164	HMV 64 E	HM 3056 + MS 3056	
300	320	149	157	Tr340x5	27	G 1/4	9	17	A0H 3064	HM 3068	HMV 68 E	HM 3060 + MS 3060	
	320	180	190	Tr340x5	27	G 1/4	9	20	A0H 2264	HM 3168	HMV 68 E	HM 3060 + MS 3060	
	320	184	202	Tr340x5	24	G 1/8	6,5	18	A0H 24064	HM 3168	HMV 68 E	HM 3060 + MS 3060	
	320	209	217	Tr340x5	31	G 1/4	9	24,5	A0H 3164	HM 3168	HMV 68 E	HM 3060 + MS 3060	
	320	242	260	Tr340x5	24	G 1/4	9	20,5	A0H 24164	HM 3168	HMV 68 E	HM 3060 + MS 3060	
	320	246	254	Tr340x5	36	G 1/4	9	27,5	A0H 3264	HM 3168	HMV 68 E	HM 3060 + MS 3060	
320	340	162	171	Tr360x5	28	G 1/4	9	19	A0H 3068	HM 30472	HMV 72 E	HM 3064 + MS 3068-64	
	340	206	225	Tr360x5	26	G 1/4	9	21,5	A0H 24068	HM 3172	HMV 72 E	HM 3064 + MS 3068-64	
	340	225	234	Tr360x5	33	G 1/4	9	28,5	A0H 3168	HM 3172	HMV 72 E	HM 3064 + MS 3068-64	
	340	264	273	Tr360x5	38	G 1/4	9	32	A0H 3268	HM 3172	HMV 72 E	HM 3064 + MS 3068-64	
	340	269	288	Tr360x5	26	G 1/4	9	25,5	A0H 24168	HM 3172	HMV 72 E	HM 3064 + MS 3068-64	
	340	360	167	176	Tr380x5	30	G 1/4	9	21	A0H 3072	HM 3076	HMV 76 E	HM 3068 + MS 3068-64
340	360	206	226	Tr380x5	26	G 1/4	9	23	A0H 24072	HM 3176	HMV 76 E	HM 3068 + MS 3068-64	
	360	229	238	Tr380x5	35	G 1/4	9	30,5	A0H 3172	HM 3176	HMV 76 E	HM 3068 + MS 3068-64	
	360	269	289	Tr380x5	26	G 1/4	9	26	A0H 24172	HM 3176	HMV 76 E	HM 3068 + MS 3068-64	
	360	274	283	Tr380x5	40	G 1/4	9	35,5	A0H 3272	HM 3176	HMV 76 E	HM 3068 + MS 3068-64	
	360	380	170	180	Tr400x5	31	G 1/4	9	22,5	A0H 3076	HM 3080	HMV 80 E	HM 3072 + MS 3072
	360	380	208	228	Tr400x5	28	G 1/4	9	25	A0H 24076	HM 3180	HMV 80 E	HM 3072 + MS 3072
380	380	232	242	Tr400x5	36	G 1/4	9	33	A0H 3176	HM 3180	HMV 80 E	HM 3072 + MS 3072	
	380	271	291	Tr400x5	28	G 1/4	9	31	A0H 24176	HM 3180	HMV 80 E	HM 3072 + MS 3072	
	380	284	294	Tr400x5	42	G 1/4	9	42	A0H 3276	HM 3180	HMV 80 E	HM 3072 + MS 3072	



Withdrawal Sleeves With Hydraulic

d_1	d	B_1	B_2	Thread G	G_1	G_2	A	Mass	Designations	Nut For Dismounting	Hydraulic Nut	Nut+Locking device for locking on the shaft
mm	mm	mm	mm	mm	mm	inch	mm	kg				
380	400	183	193	Tr420x5	33	G 1/4	9	26	AOH 3080	HM 3080	HMV 84 E	HM 3076 + MS 3076
	400	228	248	Tr420x5	28	G 1/4	9	27	AOH 24080	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	400	240	250	Tr420x5	38	G 1/4	9	36	AOH 3180	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	400	278	298	Tr420x5	28	G 1/4	9	35	AOH 24180	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
	400	302	312	Tr420x5	44	G 1/4	9	48	AOH 3280	HM 3184	HMV 84 E	HM 3076 + MS 3080-76
400	420	186	196	Tr440x5	34	G 1/4	9	28	AOH 3084	HM 3088	HMV 88 E	HM 3080 + MS 3080-76
	420	230	252	Tr440x5	30	G 1/4	9	29	AOH 24084	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	266	276	Tr440x5	40	G 1/4	9	43	AOH 3184	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	310	332	Tr440x5	30	G 1/4	9	39	AOH 24184	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
	420	321	331	Tr440x5	46	G 1/4	9	54,5	AOH 3284	HM 3188	HMV 88 E	HM 3080 + MS 3080-76
420	440	194	205	Tr460x5	35	G 1/4	9	31	AOHX 3088	HM 3092	HMV 92 E	HM 3084 + MS 3084
	440	242	264	Tr460x5	32	G 1/4	9	34	AOH 24088	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	270	281	Tr460x5	42	G 1/4	9	46	AOHX 3188	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	310	332	Tr460x5	30	G 1/4	9	45,5	AOH 24188	HM 3192	HMV 92 E	HM 3084 + MS 3084
	440	330	341	Tr460x5	48	G 1/4	9	64,5	AOHX 3288	HM 3192	HMV 92 E	HM 3084 + MS 3084
440	460	202	213	Tr480x5	37	G 1/4	9	34	AOHX 3092	HM 3096	HMV 96 E	HM 3088 + MS 3092-88
	460	250	273	Tr480x5	32	G 1/4	9	34,7	AOH 24092	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	285	296	Tr480x5	43	G 1/4	9	51,5	AOHX 3192	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	332	355	Tr480x5	32	G 1/4	9	50	AOH 24192	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
	460	349	360	Tr480x5	50	G 1/4	9	80	AOHX 3292	HM 3196	HMV 96 E	HM 3088 + MS 3092-88
460	480	205	217	Tr500x5	38	G 1/4	9	34	AOHX 3096	HM 30/500	HMV 100 E	HM 3092 + MS 3092-88
	480	250	273	Tr500x5	32	G 1/4	9	36,5	AOH 24096	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	295	307	Tr500x5	45	G 1/4	9	63	AOHX 3196	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	340	363	Tr500x5	32	G 1/4	9	51,5	AOH 24196	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
	480	364	376	Tr500x5	52	G 1/4	9	81	AOHX 3296	HM 31/500	HMV 100 E	HM 3092 + MS 3092-88
480	500	209	221	Tr530x6	40	G 1/4	9	41	AOHX 30/500	HM 30/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	253	276	Tr530x6	35	G 1/4	9	43	AOH 240/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	313	325	Tr530x6	47	G 1/4	9	66,5	AOHX 31/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	360	383	Tr530x6	35	G 1/4	9	63	AOH 241/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
	500	393	405	Tr530x6	54	G 1/4	9	89,5	AOHX 32/500	HM 31/530	HMV 106 E	HM 3096 + MS 30/500-96
500	530	230	242	Tr560x6	45	G 1/4	10	63,5	AOH 30/530	HM 30/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	285	309	Tr560x6	35	G 1/4	9	64,5	AOH 240/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	325	337	Tr560x6	53	G 1/4	10	93,5	AOH 31/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	370	394	Tr560x6	35	G 1/4	9	92	AOH 241/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
	530	412	424	Tr560x6	57	G 1/4	10	127	AOH 32/530	HM 31/560	HMV 112 E	HM 30/500 + MS 30/500-96
530	560	240	252	Tr600x6	45	G 1/4	11	73,5	AOHX 30/560	HM 30/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	296	320	Tr600x6	38	G 1/4	9	70	AOH 240/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	335	347	Tr600x6	55	G 1/4	11	107	AOH 31/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	393	417	Tr600x6	38	G 1/4	9	107	AOH 241/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
	560	422	434	Tr600x6	57	G 1/4	11	143	AOHX 32/560	HM 31/600	HMV 120 E	HM 30/530 + MS 30/600-530
570	600	245	259	Tr630x6	45	G 1/4	11	77	AOH 30/600	HM 30/630	HMV 126 E	HM 30/560 + MS 30/560
	600	310	336	Tr630x6	38	G 1/4	9	86,5	AOH 240/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	355	369	Tr630x6	55	G 1/4	11	120	AOH 31/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	413	439	Tr630x6	38	G 1/4	9	120	AOH 241/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
	600	445	459	Tr630x6	57	G 1/4	11	159	AOH 32/600	HM 31/630	HMV 126 E	HM 30/560 + MS 30/560
600	630	258	272	Tr670x6	46	G 1/4	11	88,5	AOH 30/630	HM 30/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	330	356	Tr670x6	40	G 1/4	9	101	AOH 240/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	375	389	Tr670x6	60	G 1/4	11	139	AOH 31/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	440	466	Tr670x6	40	G 1/4	9	139	AOH 241/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
	630	475	489	Tr670x6	63	G 1/4	11	188	AOH 32/630	HM 31/670	HMV 134 E	HM 30/600 + MS 30/600-530
630	670	280	294	Tr710x7	50	G 1/4	12	125	AOH 30/670	HM 30/710	HMV 142 E	HM 30/630 + MS 30/630

KM(L) Lock nuts with locking washer

CNR supplies lock nuts in a wide range of sizes; they are also referred to as shaft or withdrawal nuts, depending on their use. They are used to locate bearings and other components onto a shaft as well as to facilitate mounting bearings on tapered journals and dismounting bearings from withdrawal sleeves. CNR lock nuts offer five different ways of locking on the shaft, as described below.

Locking washer

Locking washers are simple, stable and reliable fastening elements. The washer engages a keyway in the shaft and locks the nut in position if one of the tabs is bent over into one of the slots around the circumference of the nut. Locking washers are used with lock nuts in the KM and KML series (-> fig 1).

Locking clip

Locking clips are attached to the nut using a bolt to engage a slot in the nut and a key-way in the shaft. This locking device is used with lock nuts in the HM 30 and 31 series (-> fig 2).

Locking screw

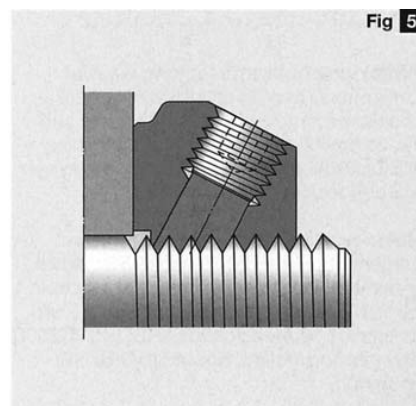
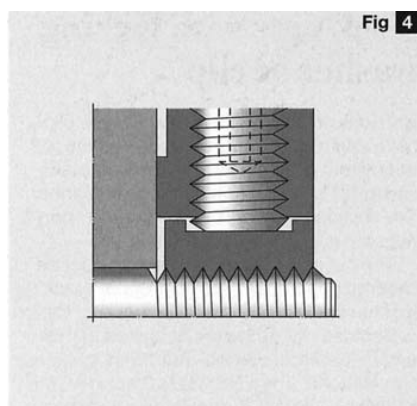
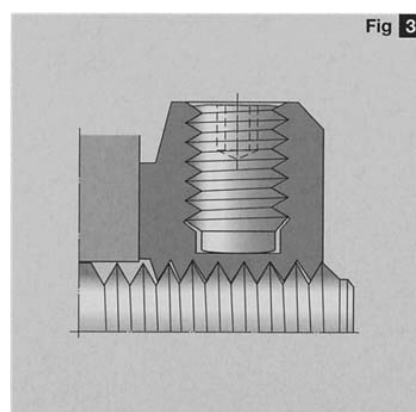
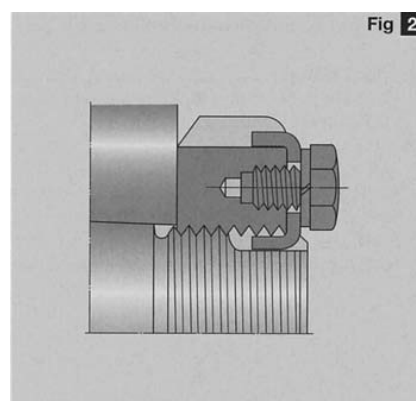
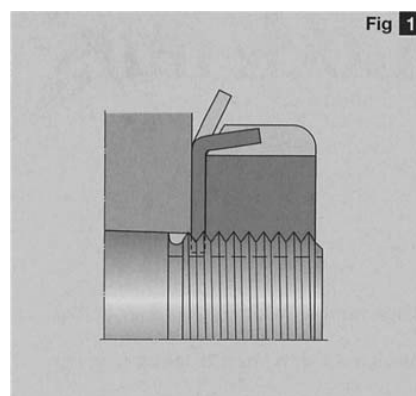
A small part of the nut thread is pressed into the shaft thread by a locking screw to prevent the nut from turning. Neither additional locking washer nor a keyway in the shaft is required. Lock nuts with locking screw (->fig 3) are designated KMFE.

Locking device

A steel insert, an integral part of the nut thread, can be pressed against the shaft thread by a grub screw to prevent the nut from turning. Neither additional locking washer nor keyway in the shaft is required. Lock nuts with this kind of locking device (->fig 4) are designated KMK.

Locking pins

Three locking pins are equally spaced around the circumference of the nut. The pins are arranged at the same angle as the thread flanks and can be pressed into the shaft thread by grub screws. The pins not only lock the nut but also accurately locate it at right angles to the shaft. No keyway in the shaft is required. Locking pins are used with the precision lock nuts in the KMT and KMTA series (-> fig 5).



Lock nuts with locking washer or clip

CNR lock nuts with a locking washer or clip have four or eight equally spaced slots respectively, around the outside diameter (-> fig 6) to take a hook or impact spanner. The designations of the appropriate spanners are given in the product tables.

The nut and the locking device must be ordered separately. The appropriate locking washer or clip is shown in the product tables.

KM(L) lock nuts with locking washer

Lock nuts in the KM and KML series are available for metric ISO threads up to and including 200 mm and are locked with an MB(L) washer (-> fig 7)

HM lock nuts with locking clip

Larger nuts in the HM 30 and HM 31 series with metric trapezoidal threads are locked by an MS locking clip consisting of the clip, a hexagon headed bolt to EN ISO 4017:2000 and a spring locking washer to DIN 128 (->fig 8).

Dimensions

The dimensions and the thread of the nuts are in accordance with ISO 2982-2:2001. The dimensions of the locking washers and locking clips also follow this standard.

Tolerances

The metric ISO thread of KM and KML lock nuts is machined to tolerance 5H according to ISO 965-3:1998, and the metric trapezoidal thread of HM lock nuts to tolerance 7H, ISO 2903:1993.

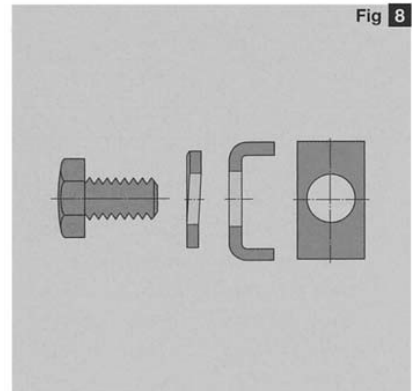
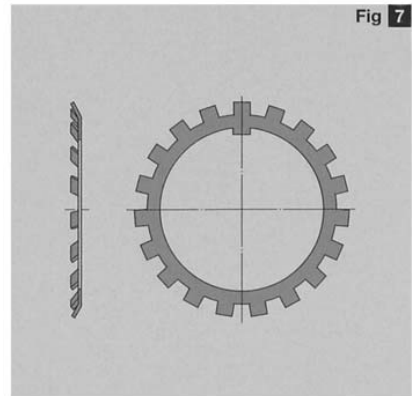
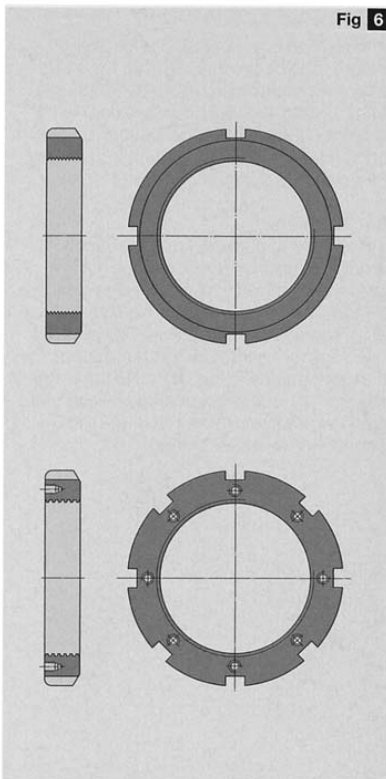
The maximum runout between the thread and the locating face is between 0,04 and 0,06 mm depending on the size of the lock nut.

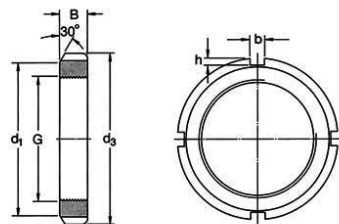
Materials

CNR nuts are made of steel and are oiled. The locking washers and locking clips are made of deep drawn steel strip.

Mating shaft threads

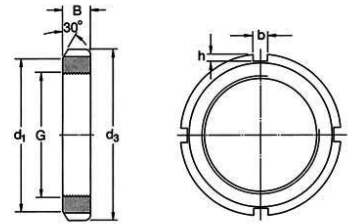
CNR recommends that the mating thread on the shaft be made to 6g according to ISO 965-3:1998 for the smaller nuts and to tolerance 7e according to ISO 2903:1993 for those with a trapezoidal thread.





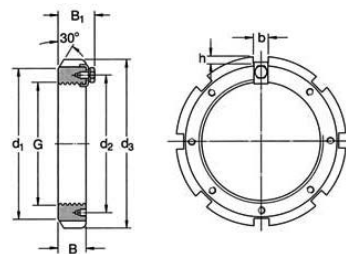
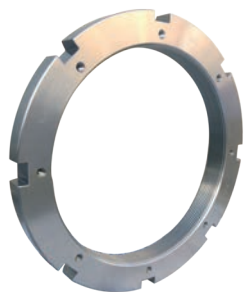
KM(L) lock nuts with locking washer

Thread size mm	d ₁ mm	d ₃ mm	B mm	b mm	h mm	Mass kg	Designations	Locking
							lock nut	washer
							-	
M 10x0.75	13.5	18	4	3	2	0.00	KM 0	MB 0
M 12x1	17	22	4	3	2	0.01	KM 1	MB 1
M 15x1	21	25	5	4	2	0.01	KM 2	MB 2
M 17x1	24	28	5	4	2	0.02	KM 3	MB 3
M 20x1	26	32	6	4	2	0.03	KM 4	MB 4
M 25x1.5	32	38	7	5	2	0.03	KM 5	MB 5
M 30x1.5	38	45	7	5	2	0.04	KM 6	MB 6
M 35x1.5	44	52	8	5	2	0.06	KM 7	MB 7
M 40x1.5	50	58	9	6	2.5	0.08	KM 8	MB 8
M 45x1.5	56	65	10	6	2.5	0.11	KM 9	MB 9
M 50x1.5	61	70	11	6	2.5	0.14	KM 10	MB 10
M 55x2	67	75	11	7	3	0.15	KM 11	MB 11
M 60x2	73	80	11	7	3	0.16	KM 12	MB 12
M 65x2	79	85	12	7	3	0.19	KM 13	MB 13
M 70x2	85	92	12	8	3.5	0.23	KM 14	MB 14
M 75x2	90	98	13	8	3.5	0.27	KM 15	MB 15
M 80x2	95	105	15	8	3.5	0.36	KM 16	MB 16
M 85x2	102	110	16	8	3.5	0.41	KM 17	MB 17
M 90x2	108	120	16	10	4	0.51	KM 18	MB 18
M 95x2	113	125	17	10	4	0.55	KM 19	MB 19
M 100x2	120	130	18	10	4	0.64	KM 20	MB 20
M 105x2	126	140	18	12	5	0.79	KM 21	MB 21
M 110x2	133	145	19	12	5	0.87	KM 22	MB 22
M 115x2	137	150	19	12	5	0.91	KM 23	MB 23
M 120x2	135	145	20	12	5	0.69	KML 24	MBL 24
M 120x2	138	155	20	12	5	0.97	KM 24	MB 24
M 125x2	148	160	21	12	5	1.09	KM 25	MB 25
M 130x2	145	155	21	12	5	0.80	KML 26	MBL 26
M 130x2	149	165	21	12	5	1.09	KM 26	MB 26
M 135x2	160	175	22	14	6	1.39	KM 27	MB 27
M 140x2	155	165	22	14	5	0.92	KML 28	MBL 28
M 140x2	160	180	22	14	6	1.40	KM 28	MB 28
M 145x2	171	190	24	14	6	1.80	KM 29	MB 29
M 150x2	170	180	24	14	5	1.25	KML 30	MBL 30
M 150x2	171	195	24	14	6	1.88	KM 30	MB 30
M 155x3	182	200	25	16	7	2.09	KM 31	MB 31
M 160x3	180	190	25	14	6	1.39	KML 32	MBL 32
M 160x3	182	210	25	16	7	2.29	KM 32	MB 32
M 165x3	193	210	26	16	7	2.31	KM 33	MB 33
M 170x3	190	200	26	16	5	1.56	KML 34	MBL 34
M 170x3	193	220	26	16	7	2.54	KM 34	MB 34
M 180x3	200	210	27	16	5	1.78	KML 36	MBL 36
M 180x3	203	230	27	18	8	2.78	KM 36	MB 36
M 190x3	210	220	28	16	5	1.84	KML 38	MBL 38
M 190x3	214	240	28	18	8	3.05	KM 38	MB 38
M 200x3	222	240	29	18	8	2.61	KML 40	MBL 40
M 200x3	226	250	29	18	8	3.37	KM 40	MB 40
Tr 205x4	232	250	30	18	8	3.20	HML 41 T	-
Tr 210x4	238	270	30	20	10	5.10	HM 42 T	-
Tr 215x4	242	260	30	20	9	3.30	HML 43 T	-
Tr 220x4	250	280	32	20	10	4.75	HM 44 T	MB 44



KM(L) lock nuts with locking washer

Thread size mm	d ₁ mm	d ₃ mm	B mm	b mm	h mm	Mass kg	Designations lock nut -	Locking washer
Tr 230x4	260	290	34	20	10	5.45	HM 46 T	-
Tr 235x4	262	280	34	20	9	4.10	HML 47 T	-
Tr 240x4	270	300	34	20	10	5.60	HM 48 T	MB 48
Tr 250x4	290	320	36	20	10	7.45	HM 50 T	-
Tr 260x4	300	330	36	24	12	7.55	HM 52 T	MB 52
Tr 270x4	310	340	38	24	12	8.30	HM 54 T	-
Tr 280x4	320	350	38	24	12	8.65	HM 56 T	MB 56
Tr 290x4	330	370	40	24	12	10.50	HM 58 T	-
Tr 300x4	340	380	40	24	12	12.00	HM 60 T	-
Tr 310x5	350	390	42	24	12	13.00	HM 62 T	-
Tr 320x5	356	380	42	24	12	10.50	HML 64 T	-
Tr 330x5	380	420	52	28	15	20.00	HM 66 T	-
Tr 345x5	384	410	45	28	13	13.00	HML 69 T	-
Tr 350x5	410	450	55	28	15	25.00	HM 70 T	-
Tr 360x5	420	460	58	28	15	27.50	HM 72 T	-
Tr 365x5	404	430	48	28	13	14.00	HML 73 T	-
Tr 370x5	430	470	58	28	15	28.00	HM 74 T	-
Tr 385x5	422	450	48	28	14	15.00	HM 77 T	-
Tr 400x5	470	520	62	32	18	40.00	HM 80 T	-
Tr 410x5	452	480	52	32	14	19.00	HML 82 T	-
Tr 420x5	490	540	70	32	18	47.00	HM 84 T	-
Tr 430x5	472	500	52	32	14	20.00	HML 86 T	-
Tr 440x5	510	560	70	36	20	48.50	HM 88 T	-
Tr 450x5	490	520	60	32	15	24.00	HML 90 T	-
Tr 460x5	510	540	60	32	15	28.00	HML 92 T	-
Tr 480x5	530	560	60	36	15	29.50	HML 96 T	-
Tr 490x5	550	580	60	36	15	34.00	HML 98 T	-
Tr 500x5	550	580	68	36	15	35.00	HML100 T	-
Tr 510x6	570	600	68	36	15	41.00	HML102 T	-
Tr 520x6	570	600	68	36	15	37.00	HML104 T	-
Tr 550x6	640	700	85	40	23	79.50	HM 110 T	-
Tr 580x6	670	730	85	45	25	83.50	HM 116 T	-

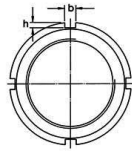
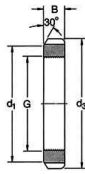


HM lock nuts with locking

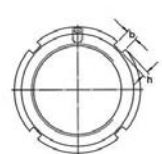
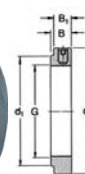
Thread size mm	d ₁ mm	d ₂ mm	d ₃ mm	B mm	b ₁ mm	b mm	h mm	Mass kg	Designations lock nut -	Locking clip
Tr220x4	242	229	260	30	41	20	9	2,75	HM 3044	MS 3044
Tr240x4	270	253	290	34	46	20	10	4,5	HM 3048	MS 3052-48
Tr260x4	290	273	310	34	46	20	10	4,8	HM 3052	MS 3052-48
Tr280x4	310	293	330	38	50	24	10	5,75	HM 3056	MS 3056
Tr300x4	336	316	360	42	54	24	12	8,35	HM 3060	MS 3060
Tr300x4	340	326	380	40	53	24	12	11,5	HM 3160	MS 3160
Tr320x5	356	336	380	42	55	24	12	9	HM 3064	MS 3068-64
Tr320x5	360	346	400	42	56	24	12	13	HM 3164	MS 3164
Tr340x5	376	356	400	45	58	24	12	11	HM 3068	MS 3068-64
Tr340x5	400	373	440	55	72	28	15	24	HM 3168	MS 3172-68
Tr360x5	394	375	420	45	58	28	13	11,5	HM 3072	MS 3072
Tr360x5	420	393	460	58	75	28	15	26,5	HM 3172	MS 3172-68
Tr380x5	422	399	450	48	62	28	14	15	HM 3076	MS 3080-76
Tr380x5	450	415	490	60	77	32	18	32	HM 3176	MS 3176
Tr400x5	442	419	470	52	66	28	14	17	HM 3080	MS 3080-76
Tr400x5	470	440	520	62	82	32	18	38	HM 3180	MS 3184-80
Tr420x5	462	439	490	52	66	32	14	18,5	HM 3084	MS 3084
Tr420x5	490	460	540	70	90	32	18	45	HM 3184	MS 3184-80
Tr440x5	490	463	520	60	77	32	15	26	HM 3088	MS 3092-88
Tr440x5	510	478	560	70	90	36	20	46,5	HM 3188	MS 3192-88
Tr460x5	510	483	540	60	77	32	15	27	HM 3092	MS 3092-88
Tr460x5	540	498	580	75	95	36	20	50,5	HM 3192	MS 3192-88
Tr480x5	530	503	560	60	77	36	15	28	HM 3096	MS 30/500-96
Tr480x5	560	528	620	75	95	36	20	62	HM 3196	MS 3196
Tr500x5	550	523	580	68	85	36	15	33,5	HM 30/500	MS 30/500-96
Tr500x5	580	540	630	80	100	40	23	63,5	HM 31/500	MS 31/500
Tr530x6	590	558	630	68	90	40	20	42,5	HM 30/530	MS 30/600-530
Tr530x6	610	575	670	80	105	40	23	71,5	HM 31/530	MS 31/530
Tr560x6	610	583	650	75	97	40	20	44,5	HM 30/560	MS 30/560
Tr560x6	650	608	710	85	110	45	25	86,5	HM 31/560	MS 31/600-560
Tr600x6	660	628	700	75	97	40	20	52,5	HM 30/600	MS 30/600-530
Tr600x6	690	648	750	85	110	45	25	91,5	HM 31/600	MS 31/600-560
Tr630x6	690	658	730	75	97	45	20	55	HM 30/630	MS 30/630
Tr630x6	730	685	800	95	120	50	28	122	HM 31/630	MS 31/630
Tr670x6	740	703	780	80	102	45	20	73,8	HM 30/670	MS 30/670
Tr670x6	775	730	850	106	131	50	28	156	HM 31/670	MS 31/670
Tr710x7	780	742	830	90	112	50	25	94,8	HM 30/710	MS 30/710
Tr710x7	825	772	900	106	133	55	30	173	HM 31/710	MS 31/710
Tr750x7	820	782	870	90	112	55	25	99,5	HM 30/750	MS 30/800-750
Tr750x7	875	813	950	112	139	60	34	202	HM 31/750	MS 31/800-750
Tr800x7	870	832	920	90	112	55	25	106	HM 30/800	MS 30/800-750
Tr800x7	925	863	1000	112	139	60	34	215	HM 31/800	MS 31/800-750
Tr850x7	925	887	980	90	115	60	25	113	HM 30/850	MS 30/900-850
Tr850x7	975	914	1060	118	145	70	38	246	HM 31/850	MS 31/850
Tr900x7	975	937	1030	100	125	60	25	135	HM 30/900	MS 30/900-850
Tr900x7	1030	969	1120	125	154	70	38	293	HM 31/900	MS 31/900



KMK



KMFE

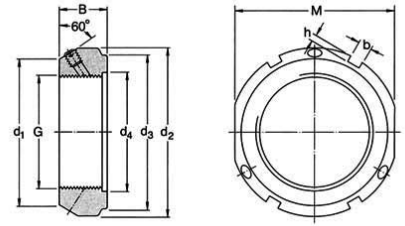
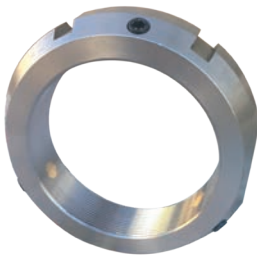


KMK lock nuts with locking device

Thread size mm	d ₁ mm	d ₃ mm	B mm	b mm	h mm	Mass kg	Designations -	Grub screw Size
M 10x0.75	16	20	9	3	2	0.016	KMK 0	M 4
M 12x1	18	22	9	3	2	0.018	KMK 1	M 4
M 15x1	21	25	9	4	2	0.021	KMK 2	M 4
M 17x1	24	28	9	4	2	0.027	KMK 3	M 4
M 20x1	28	32	9	4	2	0.03	KMK 4	M 4
M 25x1.5	34	38	9	5	2	0.03	KMK 5	M 5
M 30x1.5	41	45	9	5	2	0.06	KMK 6	M 5
M 35x1.5	48	52	9	5	2	0.07	KMK 7	M 5
M 40x1.5	53	58	11	6	2.5	0.11	KMK 8	M 6
M 45x1.5	60	65	11	6	2.5	0.14	KMK 9	M 6
M 50x1.5	65	70	13	6	2.5	0.18	KMK 10	M 6
M 55x2	69	75	13	7	3	0.19	KMK 11	M 8
M 60x2	74	80	13	7	3	0.2	KMK 12	M 8
M 65x2	79	85	14	7	3	0.24	KMK 13	M 8
M 70x2	85	92	14	8	3.5	0.28	KMK 14	M 8
M 75x2	91	98	14	8	3.5	0.33	KMK 15	M 8
M 80x2	98	105	18	8	3.5	0.45	KMK 16	M 8
M 85x2	103	110	18	8	3.5	0.52	KMK 17	M 10
M 90x2	112	120	18	10	4	0.65	KMK 18	M 10
M 95x2	117	125	20	10	4	0.76	KMK 19	M 10
M 100x2	122	130	20	10	4	0.8	KMK 20	M 10

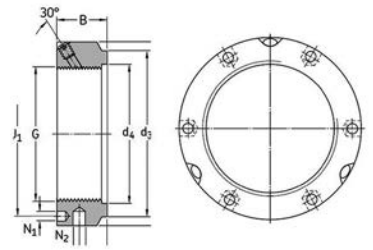
KMFE lock nuts with locking screw

G mm	d ₁ mm	d ₃ mm	B mm	b mm	h mm	Mass kg	Designations -	Grub screw Size
M 20x1	26	32	9.5	4	2	0.031	KMFE 4	M 5
M 25x1.5	31	38	10.5	5	2	0.042	KMFE 5	M 5
M 30x1.5	36	45	10.5	5	2	0.058	KMFE 6	M 5
M 35x1.5	42.5	52	11.5	5	2	0.08	KMFE 7	M 5
M 40x1.5	47	58	13	6	2.5	0.11	KMFE 8	M 6
M 45x1.5	53	65	13	6	2.5	0.14	KMFE 9	M 6
M 50x1.5	57.5	70	14	6	2.5	0.16	KMFE 10	M 6
M 55x2	64	75	14	7	3	0.18	KMFE 11	M 6
M 60x2	69	80	14	7	3	0.19	KMFE 12	M 6
M 65x2	76	85	15	7	3	0.23	KMFE 13	M 6
M 70x2	79	92	15	8	3.5	0.26	KMFE 14	M 6
M 75x2	85	98	16	8	3.5	0.32	KMFE 15	M 6
M 80x2	91.5	105	18	8	3.5	0.42	KMFE 16	M 8
M 85x2	98	110	19	8	3.5	0.46	KMFE 17	M 8
M 90x2	102	120	19	10	4	0.58	KMFE 18	M 8
M 95x2	110	125	20	10	4	0.66	KMFE 19	M 8
M 100x2	112	130	21	10	4	0.71	KMFE 20	M 8
M 105x2	112	140	21	12	5	0.85	KMFE 21	M 8
M 110x2	122	145	21.5	12	5	0.93	KMFE 22	M 8
M 115x2	126	150	25	12	5	1.11	KMFE 23	M 10
M 120x2	130	155	26	12	5	1.16	KMFE 24	M 10
M 125x2	136	160	27	12	5	1.26	KMFE 25	M 10
M 130x2	141	165	28	12	5	1.33	KMFE 26	M 10



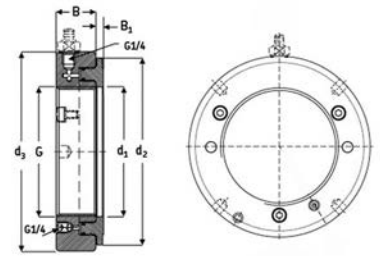
KMT precision lock nuts with locking pins

Thread size mm	d ₁ mm	d ₂ mm	d ₃ mm	d ₄ mm	B mm	b mm	h mm	M mm	Mass kg	Designations	Grub screw size
M 10x0.75	21	28	23	11	14	4	2	24	0,045	KMT 0	M 5
M 12x1	23	30	25	13	14	4	2	27	0,05	KMT 1	M 5
M 15x1	26	33	28	16	16	4	2	30	0,075	KMT 2	M 5
M 17x1	29	37	33	18	18	5	2	34	0,1	KMT 3	M 6
M 20x1	32	40	35	21	18	5	2	36	0,11	KMT 4	M 6
M 25x1.5	36	44	39	26	20	5	2	41	0,13	KMT 5	M 6
M 30x1.5	41	49	44	32	20	5	2	46	0,16	KMT 6	M 6
M 35x1.5	46	54	49	38	22	5	2	50	0,19	KMT 7	M 6
M 40x1.5	56	65	59	42	22	6	2,5	60	0,3	KMT 8	M 8
M 45x1.5	61	70	64	48	22	6	2,5	65	0,33	KMT 9	M 8
M 50x1.5	65	75	68	52	25	7	3	70	0,4	KMT 10	M 8
M 55x2	74	85	78	58	25	7	3	80	0,54	KMT 11	M 8
M 60x2	78	90	82	62	26	8	3,5	85	0,61	KMT 12	M 8
M 65x2	83	95	87	68	28	8	3,5	90	0,71	KMT 13	M 8
M 70x2	88	100	92	72	28	8	3,5	95	0,75	KMT 14	M 8
M 75x2	93	105	97	77	28	8	3,5	100	0,8	KMT 15	M 8
M 80x2	98	110	100	83	32	8	3,5	-	0,9	KMT 16	M 8
M 85x2	107	120	110	88	32	10	4	-	1,15	KMT 17	M 10
M 90x2	112	125	115	93	32	10	4	-	1,2	KMT 18	M 10
M 95x2	117	130	120	98	32	10	4	-	1,25	KMT 19	M 10
M 100x2	122	135	125	103	32	10	4	-	1,3	KMT 20	M 10
M 110x2	132	145	134	112	32	10	4	-	1,45	KMT 22	M 10
M 120x2	142	155	144	122	32	10	4	-	1,6	KMT 24	M 10
M 130x2	152	165	154	132	32	12	5	-	1,7	KMT 26	M 10
M 140x2	162	175	164	142	32	14	6	-	1,8	KMT 28	M 10
M 150x2	172	185	174	152	32	14	6	-	1,95	KMT 30	M 10
M 160x3	182	195	184	162	32	14	6	-	2,1	KMT 32	M 10
M 170x3	192	205	192	172	32	14	6	-	2,2	KMT 34	M 10
M 180x3	202	215	204	182	32	16	7	-	2,3	KMT 36	M 10
M 190x3	212	225	214	192	32	16	7	-	2,4	KMT 38	M 10
M 200x3	222	235	224	202	32	18	8	-	2,5	KMT 40	M 10
Tr220x4	256,5	265	254	222	36	20	10	-	2,8	KMT 44	M 10
Tr240x4	281	290	279	242	38	20	10	-	3,1	KMT 48	M 10



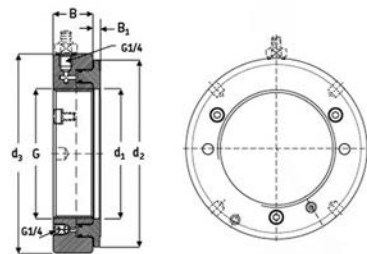
KMTA lock nuts with locking pins

Thread size mm	d_2 mm	d_3 mm	d_4 mm	B mm	G mm	J_1 mm	N_1 mm	N_2 mm	J_2 mm	Lock Nut	Grub screw size
25	42	35	26	20	M25x1.5	32.5	4.3	4	11	KMTA-5	M6
30	48	40	32	20	M30x1.5	40.5	4.3	5	11	KMTA-6	M6
35	53	47	38	20	M35x1.5	45.5	4.3	5	11	KMTA-7	M6
40	58	52	42	22	M40x1.5	50.5	4.3	5	12	KMTA-8	M6
45	68	58	48	22	M45x1.5	58	4.3	6	12	KMTA-9	M6
50	70	63	52	24	M50x1.5	61.5	4.3	6	13	KMTA-10	M6
55	75	70	58	24	M55x1.5	66.5	4.3	6	13	KMTA-11	M6
60	84	75	62	24	M60x1.5	74.5	5.3	6	13	KMTA-12	M8
65	88	80	68	25	M65x1.5	78.5	5.3	6	13	KMTA-13	M8
70	95	86	72	26	M70x1.5	85	5.3	8	14	KMTA-14	M8
75	100	91	77	26	M75x1.5	88	6.4	8	13	KMTA-15	M8
80	110	97	83	30	M80x2	95	6.4	8	16	KMTA-16	M8
85	115	102	88	32	M85x2	100	6.4	8	17	KMTA-17	M10
90	120	110	93	32	M90x2	108	6.4	8	17	KMTA-18	M10
95	125	114	98	32	M95x2	113	6.4	8	17	KMTA-19	M10
100	130	120	103	32	M100x2	118	6.4	8	17	KMTA-20	M10
110	140	132	112	32	M110x2	128	6.4	8	17	KMTA-22	M10
120	155	142	122	32	M120x2	140	6.4	8	17	KMTA-24	M10
130	165	156	132	32	M130x3	153	6.4	8	17	KMTA-26	M10
140	180	166	142	32	M140x3	165	6.4	10	17	KMTA-28	M10
150	190	180	152	32	M150x3	175	6.4	10	17	KMTA-30	M10
160	205	190	162	32	M160x3	185	8.4	10	17	KMTA-32	M10
170	215	205	172	32	M170x3	195	8.4	10	17	KMTA-34	M10
180	230	215	182	32	M180x3	210	8.4	10	17	KMTA-36	M10
190	240	225	192	32	M190x3	224	8.4	10	17	KMTA-38	M10
200	245	237	202	32	M200x3	229	8.4	10	17	KMTA-40	M10



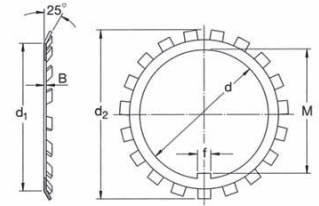
Hydraulic Nuts

Designation	G	d ₁	d ₂	d ₃	B	B ₁	Permitted piston displacement	Piston area	Weight
mm	mm	mm	mm	mm	mm	mm			kg
HMV 10E	M 50x1,5	50,5	104	114	38	4	5	2.900	2,7
HMV 11E	M 55x2	55,5	109	120	38	4	5	3.150	2,75
HMV 12E	M 60x2	60,5	115	125	38	5	5	3.300	2,8
HMV 13E	M 65x2	65,5	121	130	38	5	5	3.600	3
HMV 14E	M 70x2	70,5	127	135	38	5	5	3.800	3,2
HMV 15E	M 75x2	75,5	132	140	38	5	5	4.000	3,4
HMV 16E	M 80x2	80,5	137	146	38	5	5	4.200	3,7
HMV 17E	M 85x2	85,5	142	150	38	5	5	4.400	3,75
HMV 18E	M 90x2	90,5	147	156	38	5	5	4.700	4
HMV 19E	M 95x2	95,5	153	162	38	5	5	4.900	4,3
HMV 20E	M 100x2	100,5	158	166	38	6	5	5.100	4,4
HMV 21E	M 105x2	105,5	163	172	38	6	5	5.300	4,65
HMV 22E	M 110x2	110,5	169	178	38	6	5	5.600	4,95
HMV 23E	M 115x2	115,5	174	182	38	6	5	5.800	5
HMV 24E	M 120x2	120,5	179	188	38	6	5	6.000	5,25
HMV 25E	M 125x2	125,5	184	192	38	6	5	6.200	5,35
HMV 26E	M 130x2	130,5	190	198	38	6	5	6.400	5,65
HMV 27E	M 135x2	135,5	195	204	38	6	5	6.600	5,9
HMV 28E	M 140x2	140,5	200	208	38	7	5	6.800	6
HMV 29E	M 145x2	145,5	206	214	39	7	5	7.300	6,5
HMV 30E	M 150x2	150,5	211	220	39	7	5	7.500	6,6
HMV 31E	M 155x3	155,5	218	226	39	7	5	8.100	6,95
HMV 32E	M 160x3	160,5	224	232	40	7	6	8.600	7,6
HMV 33E	M 165x3	165,5	229	238	40	7	6	8.900	7,9
HMV 34E	M 170x3	170,5	235	244	41	7	6	9.400	8,4
HMV 36E	M 180x3	180,5	247	256	41	7	6	10.300	9,15
HMV 38E	M 190x3	191	259	270	42	8	7	11.500	10,5
HMV 40E	M 200x3	201	271	282	43	8	8	12.500	11,5
HMV 41E	Tr 205x4	207	276	288	43	8	8	12.800	12
HMV 42E	Tr 210x4	212	282	294	44	8	9	13.400	12,5
HMV 43E	Tr 215x4	217	287	300	44	8	9	13.700	13
HMV 44E	Tr 220x4	222	293	306	44	8	9	14.400	13,5
HMV 45E	Tr 225x4	227	300	312	45	8	9	15.200	14,5
HMV 46E	Tr 230x4	232	305	318	45	8	9	15.500	14,5
HMV 47E	Tr 235x4	237	311	326	46	8	10	16.200	16
HMV 48E	Tr 240x4	242	316	330	46	9	10	16.500	16
HMV 50E	Tr 250x4	252	329	342	46	9	10	17.600	17,5
HMV 52E	Tr 260x4	262	341	356	47	9	11	18.800	19
HMV 54E	Tr 270x4	272	352	368	48	9	12	19.800	20,5
HMV 56E	Tr 280x4	282	363	380	49	9	12	21.100	22
HMV 58E	Tr 290x4	292	375	390	49	9	13	22.400	22,5
HMV 60E	Tr 300x4	302	386	404	51	10	14	23.600	25,5
HMV 62E	Tr 310x5	312	397	416	52	10	14	24.900	27
HMV 64E	Tr 320x5	322	409	428	53	10	14	26.300	29,5
HMV 66E	Tr 330x5	332	419	438	53	10	14	27.000	30
HMV 68E	Tr 340x5	342	430	450	54	10	14	28.400	31,5
HMV 69E	Tr 345x5	347	436	456	54	10	14	29.400	32,5
HMV 70E	Tr 350x5	352	442	464	56	10	14	29.900	35
HMV 72E	Tr 360x5	362	455	472	56	10	15	31.300	35,5
HMV 73E	Tr 365x5	367	460	482	57	11	15	31.700	38,5
HMV 74E	Tr 370x5	372	466	486	57	11	16	32.800	39



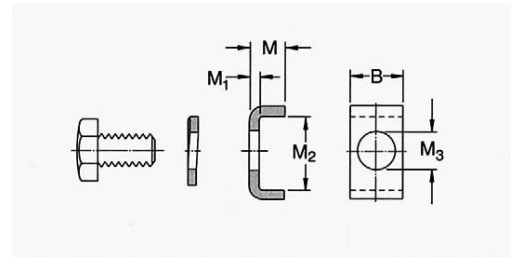
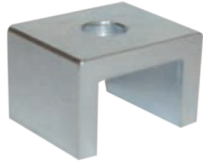
Hydraulic Nuts

Designation	G	d ₁	d ₂	d ₃	B	B ₁	Permitted piston dis-placement	Piston area	Weight
mm	mm	mm	mm	mm	mm	mm			kg
HMV 76E	Tr 380x5	382	476	498	58	11	16	33.500	40,5
HMV 77E	Tr 385x5	387	483	504	58	11	16	34.700	41
HMV 80E	Tr 400x5	402	499	522	60	11	17	36.700	45,5
HMV 82E	Tr 410x5	412	510	534	61	11	17	38.300	48
HMV 84E	Tr 420x5	422	522	546	61	11	17	40.000	50
HMV 86E	Tr 430x5	432	532	556	62	11	17	40.800	52,5
HMV 88E	Tr 440x5	442	543	566	62	12	17	42.500	54
HMV 90E	Tr 450x5	452	554	580	64	12	17	44.100	57,5
HMV 92E	Tr 460x5	462	565	590	64	12	17	45.100	60
HMV 94E	Tr 470x5	472	576	602	65	12	18	46.900	62
HMV 96E	Tr 480x5	482	587	612	65	12	19	48.600	63
HMV 98E	Tr 490x5	492	597	624	66	12	19	49.500	66
HMV 100E	Tr 500x5	502	609	636	67	12	19	51.500	70
HMV 102E	Tr 510x6	512	624	648	68	12	20	53.300	74
HMV 104E	Tr 520x6	522	634	658	68	13	20	54.300	75
HMV 106E	Tr 530x6	532	645	670	69	13	21	56.200	79
HMV 108E	Tr 540x6	542	657	682	69	13	21	58.200	81
HMV 110E	Tr 550x6	552	667	693	70	13	21	59.200	84
HMV 112E	Tr 560x6	562	678	704	71	13	22	61.200	88
HMV 114E	Tr 570x6	572	689	716	72	13	23	63.200	91
HMV 116E	Tr 580x6	582	699	726	72	13	23	64.200	94
HMV 120E	Tr 600x6	602	721	748	73	13	23	67.300	100
HMV 126E	Tr 630x6	632	754	782	74	14	23	72.900	110
HMV 130E	Tr 650x6	652	775	804	75	14	23	76.200	115
HMV 134E	Tr 670x6	672	796	826	76	14	24	79.500	120
HMV 138E	Tr 690x6	692	819	848	77	14	25	84.200	127
HMV 142E	Tr 710x7	712	840	870	78	15	25	87.700	135
HMV 150E	Tr 750x7	752	883	912	79	15	25	95.200	146
HMV 160E	Tr 800x7	802	936	965	80	16	25	103.900	161



MB(L) Locking washers

D	d ₁	d ₂	B	f	M	Mass	Designations
mm	mm	mm	mm	mm	mm	kg	
10	13.5	21	1	3	8.5	1	MB 0
12	17	25	1	3	10.5	2	MB 1
15	21	28	1	4	13.5	3	MB 2
17	24	32	1	4	15.5	3	MB 3
20	26	36	1	4	18.5	4	MB 4
25	32	42	1.25	5	23	6	MB 5
30	38	49	1.25	5	27.5	8	MB 6
35	44	57	1.25	6	32.5	11	MB 7
40	50	62	1.25	6	37.5	13	MB 8
45	56	69	1.25	6	42.5	15	MB 9
50	51	74	1.25	6	47.5	16	MB 10
55	67	81	1.5	8	52.5	22	MB 11
60	73	86	1.5	8	57.5	24	MB 12
65	79	92	1.5	8	62.5	30	MB 13
70	85	98	1.5	8	66.5	32	MB 14
75	90	104	1.5	8	71.5	35	MB 15
80	95	112	1.75	10	76.5	46	MB 16
85	102	119	1.75	10	81.5	53	MB 17
90	108	126	1.75	10	86.5	61	MB 18
95	113	133	1.75	10	91.5	66	MB 19
100	120	142	1.75	12	96.5	77	MB 20
105	126	145	1.75	12	100.5	83	MB 21
110	133	154	1.75	12	105.5	91	MB 22
115	137	159	2	12	110.5	110	MB 23
120	135	152	2	14	115	70	MBL 24
	138	164	2	14	115	110	MB 24
125	148	170	2	14	120	120	MB 25
130	145	161	2	14	125	80	MBL 26
	149	175	2	14	125	120	MB 26
135	160	185	2	14	130	140	MB 27
140	155	172	2	16	135	90	MBL 28
	160	192	2	16	135	140	MB 28
145	172	202	2	16	140	170	MB 29
150	170	189	2	16	145	100	MBL 30
	171	205	2	16	145	180	MB 30
155	182	212	2.5	16	147.5	200	MB 31
160	180	199	2.5	18	154	140	MBL 32
	182	217	2.5	18	154	220	MB 32
165	193	222	2.5	18	157.5	240	MB 33
170	190	211	2.5	18	164	150	MBL 34
	193	232	2.5	18	164	240	MB 34
180	200	222	2.5	20	174	160	MBL 36
	203	242	2.5	20	174	260	MB 36
190	210	232	2.5	20	184	170	MBL 38
	214	252	2.5	20	184	260	MB 38
200	222	245	2.5	20	194	220	MBL 40
	226	262	2.5	20	194	280	MB 40
220	250	292	3	24	213	350	MB 44
240	270	312	3	24	233	450	MB 48
260	300	342	3	28	253	650	MB 52
280	320	362	3	28	273	740	MB 56



MS Locking clips

B mm	M mm	M ₁ mm	M ₂ mm	M ₃ mm	Mass kg	Designations	Hexagon headed bolt	Appropriate lock nut	Appropriate lock nut
20	12	4	13,5	7	22	MS 3044	M6x12	HM 3044	-
20	12	4	17,5	9	24	MS 3052-48	M8x16	HM 3048	HM 3052
24	12	4	17,5	9	30	MS 3056	M8x16	HM 3056	-
24	12	4	20,5	9	33	MS 3060	M8x16	HM 3060	-
24	12	4	30,5	12	40	MS 3160	M10x20	HM 3160	-
24	15	5	21	9	46	MS 3068-64	M8x16	HM 3064	HM 3068
24	15	5	31	12	55	MS 3164	M10x20	HM 3164	-
28	15	5	20	9	51	MS 3072	M8x16	HM 3072	-
28	15	5	24	12	55	MS 3080-76	M10x20	HM 3076	HM 3080
28	15	5	38	14	69	MS 3172-68	M12x25	HM 3168	HM 3172
32	15	5	24	12	63	MS 3084	M10x20	HM 3084	-
32	15	5	28	14	67	MS 3092-88	M12x25	HM 3088	HM 3092
32	15	5	40	14	83	MS 3176	M12x25	HM 3176	-
32	15	5	45	18	89	MS 3184-80	M16x30	HM 3180	HM 3184
36	15	5	28	14	76	MS 30/500-96	M12x25	HM 3096	HM 30/500
36	15	5	43	18	97	MS 3192-88	M16x30	HM 3188	HM 3192
36	15	5	53	18	110	MS 3196	M16x30	HM 3196	-
40	15	5	45	18	110	MS 31/500	M16x30	HM 31/500	-
40	21	7	29	18	150	MS 30/560	M16x30	HM 30/560	-
40	21	7	34	18	140	MS 30/600-530	M16x30	HM 30/530	HM 30/600
40	21	7	51	22	190	MS 31/530	M20x40	HM 31/530	-
45	21	7	34	18	170	MS 30/630	M16x30	HM 30/630	-
45	21	7	39	18	190	MS 30/670	M16x30	HM 30/670	-
45	21	7	54	22	220	MS 31/600-560	M20x40	HM 31/560	HM 31/600
50	21	7	39	18	210	MS 30/710	M16x30	HM 30/710	-
50	21	7	61	22	270	MS 31/630	M20x40	HM 31/630	HM 31/630
50	21	7	66	22	280	MS 31/670	M20x40	HM 31/670	-
55	21	7	39	18	230	MS 30/800-750	M16x30	HM 30/750	HM 30/800
55	21	7	69	26	320	MS 31/710	M24x50	HM 31/710	-
60	21	7	44	22	260	MS 30/900-850	M20x40	HM 30/850	HM 30/900
60	21	7	46	22	280	MS 30/950	M20x40	HM 30/950	-
60	21	7	51	22	300	MS 30/1000	M20x40	HM 30/1000	HM 30/1060
60	21	7	70	26	350	MS 31/800-750	M24x50	HM 31/750	HM 31/800
70	21	7	71	26	410	MS 31/850	M24x50	HM 31/850	-
70	21	7	78	26	430	MS 31/950	M24x50	HM 31/950	-
70	21	7	88	26	450	MS 31/1000	M24x50	HM 31/1000	HM 31/1060



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14.02.2014 tarihinde
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