



kuso relock®



KUSO - USA

www.kuso-usa.com



kuso relock®

Dear Customer,

Precision lock nuts have many different applications. Whether in machine construction, in drive motors, linear translation mechanisms, or for tensioning spindle or ball bearings - everywhere that components on shafts have to be secured against lateral movements, you can depend on the quality and reliability of KUSO lock nuts.

KUSO lock nuts are produced in various designs. Depending on your requirements, you can choose between axial or radial clamping. The lock nuts are also available with 3-way clamping, and in extra-wide or stainless steel versions. Our patented MRA axial locknut can be locked and unlocked with its cam design, allowing the fine tuning of machines during assembly, after break-in, and throughout the lifetime of the machine.

KUSO nuts are manufactured in high-quality steel to strict quality measures. Our locknuts are ground in a single fixturing, which guarantees our 2 micron axial run out. This way, we can make sure that an even distribution of the load is achieved across the thread pitch, and clamped elements. This leads to improved stability and a longer service life of units.

To make the installation of KUSO lock nuts easier and to prevent any damage, we recommend our extensive range of accessories. Using a socket wrench and torque adapter, the forces acting on units can be defined and regulated as needed.

Thread and face surfaces ground in a single chuck setting. Axial run out 0,002 mm

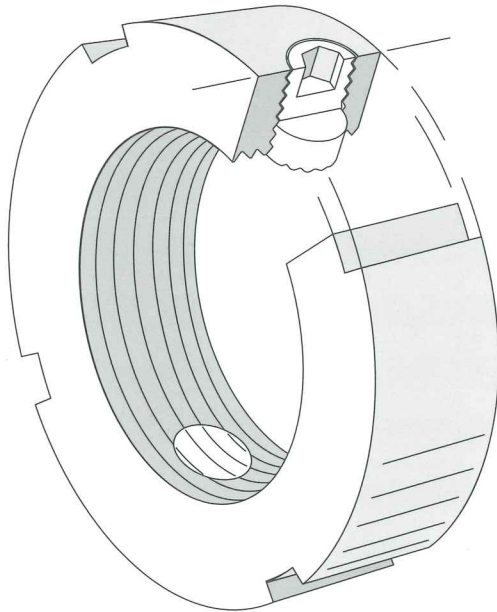
Thread quality: 4H

Right-hand threads (clockwise) standard. Left-hand threads on request.

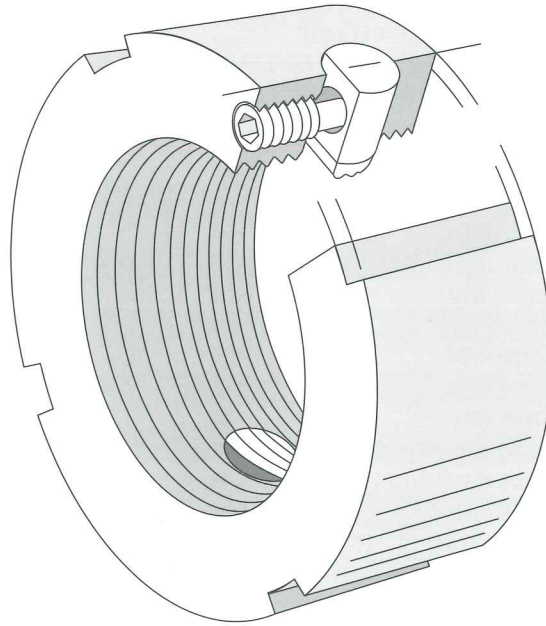
Other dimensions on request.

Data subject to change.

kuso relock® radial MRR



kuso relock® axial MRA



kuso relock® Force Calculation

$$M = 0.17 \cdot F \cdot d$$

M = Torque on lock nut (Nmm)

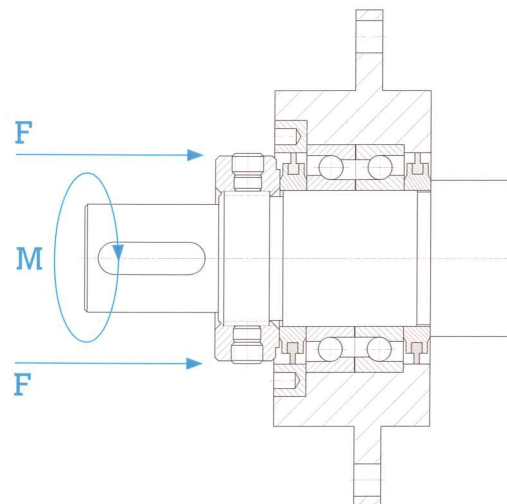
F = Axial force given by lock nut (N)

d = nominal thread diameter (mm)

The resultant force F should not exceed the force

$$F < 255 \cdot m \cdot d$$

m = Axial length of the lock nut (mm)





kuso relock®

Lock nuts radial MRR

(These are made from two different materials depending on the size)

Material:

To OD = 60mm

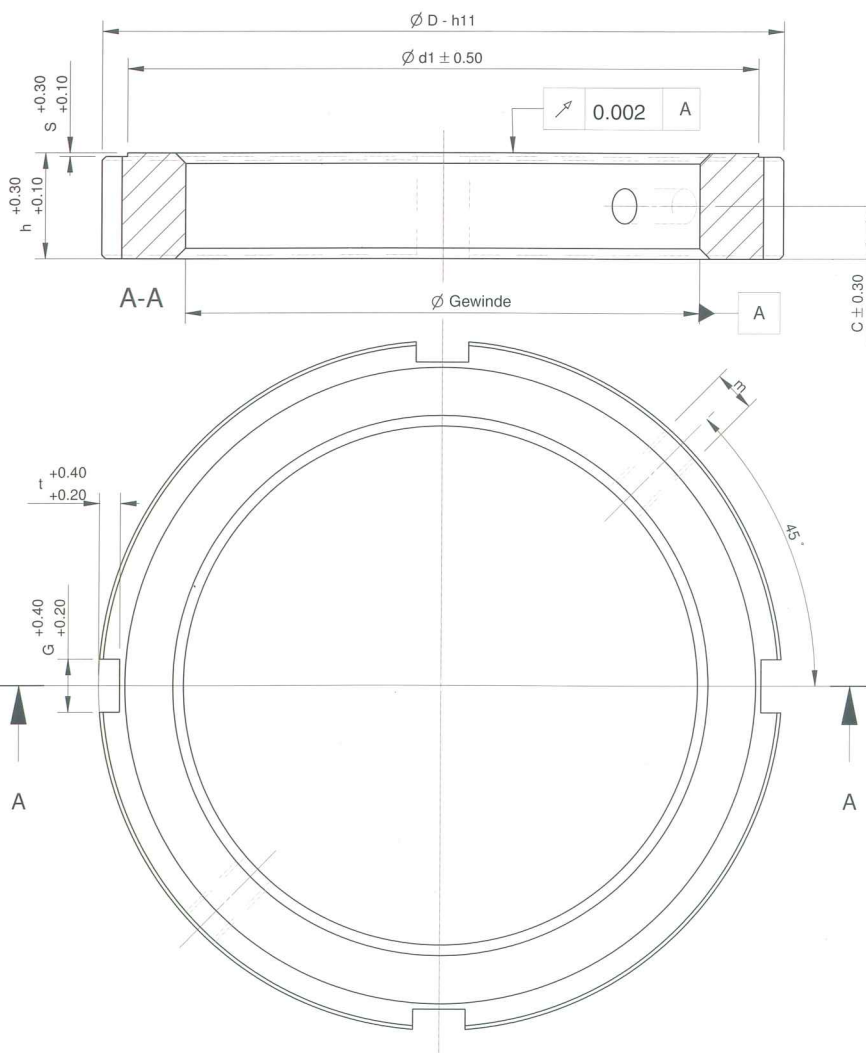
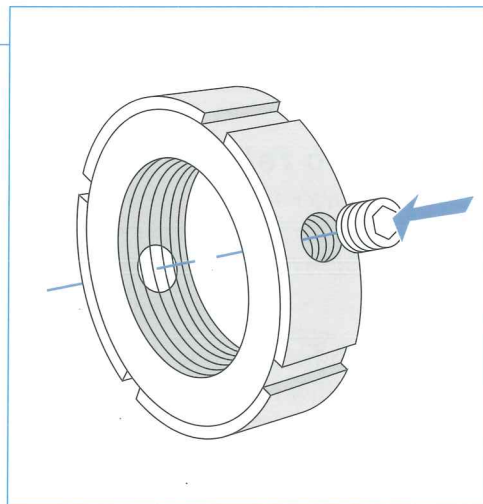
Material Nr: AISI 1146

Tensile Strength: . 960 N/mm2

OD > 60mm

Material Nr: AISI A381

Tensile Strength: 540 N/mm2



Dimensions

Size	D	h	G	t	d1	C	m	s	Order NR.
M6x0.5	16	8	3	2	12	4	M4	0.5	MRR 6x0.5
M8x0.75	16	8	3	2	11	4	M4	0.5	MRR 8x0.75
M8x1	16	8	3	2	11	4	M4	0.5	MRR 8x1
M10x0.75	18	8	3	2	13	4	M4	0.5	MRR 10x0.75
M10x1	18	8	3	2	13	4	M4	0.5	MRR 10x1
M12x1	22	8	3	2	18	4	M4	0.5	MRR 12x1
M15x1	25	8	3	2	21	4	M4	0.5	MRR 15x1
M17x1	28	10	4	2	23	5	M5	0.5	MRR 17x1
M20x1	32	10	4	2	27	5	M5	0.5	MRR 20x1
M20x1.5	32	10	4	2	27	5	M5	0.7	MRR 20x1.5
M25x1	38	12	5	2	33	6	M6	0.7	MRR 25x1
M25x1.5	38	12	5	2	33	6	M6	0.7	MRR 25x1.5
M30x1.5	45	12	5	2	40	6	M6	0.7	MRR 30x1.5
M35x1.5	52	12	5	2	47	6	M6	0.7	MRR 35x1.5
M40x1.5	58	14	6	2.5	52	7	M6	0.7	MRR 40x1.5
M45x1.5	65	14	6	2.5	59	7	M6	0.7	MRR 45x1.5
M50x1.5	70	14	6	2.5	64	7	M6	0.7	MRR 50x1.5
M55x2	75	16	7	3	68	8	M6	0.7	MRR 55x2
M60x2	80	16	7	3	73	8	M6	0.7	MRR 60x2
M65x2	85	16	7	3	78	8	M6	0.7	MRR 65x2
M70x2	92	18	8	3.5	85	9	M8	0.7	MRR 70x2
M75x2	98	18	8	3.5	90	9	M8	0.7	MRR 75x2
M80x2	105	18	8	3.5	95	9	M8	0.7	MRR 80x2
M85x2	110	18	8	3.5	102	9	M8	0.7	MRR 85x2
M90x2	120	20	10	4	108	10	M8	0.7	MRR 90x2
M95x2	125	20	10	4	113	10	M8	0.7	MRR 95x2
M100x2	130	20	10	4	120	10	M8	0.7	MRR 100x2
M105x2	140	22	12	5	126	11	M10	0.7	MRR 105x2
M110x2	145	22	12	5	133	11	M10	0.7	MRR 110x2
M115x2	150	22	12	5	137	11	M10	0.7	MRR 115x2
M120x2	155	24	12	5	138	12	M10	0.7	MRR 120x2
M125x2	160	24	12	5	148	12	M10	0.7	MRR 125x2
M130x2	165	24	12	5	149	12	M10	0.7	MRR 130x2
M135x2	175	26	14	6	160	13	M12	0.7	MRR 135x2
M140x2	180	26	14	6	160	13	M12	0.7	MRR 140x2
M145x2	190	26	14	6	172	13	M12	0.7	MRR 145x2
M150x2	195	26	14	6	171	13	M12	0.7	MRR 150x2
M155x3	200	28	16	7	182	14	M12	1	MRR 155x3
M160x3	210	28	16	7	182	14	M12	1	MRR 160x3
M165x3	210	28	16	7	193	14	M12	1	MRR 165x3
M170x3	220	28	16	7	193	14	M12	1	MRR 170x3
M180x3	230	30	18	8	203	15	M12	1	MRR 180x3
M190x3	240	30	18	8	214	15	M12	1	MRR 190x3
M200x3	250	32	18	8	226	16	M12	1	MRR 200x3

Lock nuts axial MRA-A

(These are made from two different materials depending on the size)

Material:

To OD = 60mm

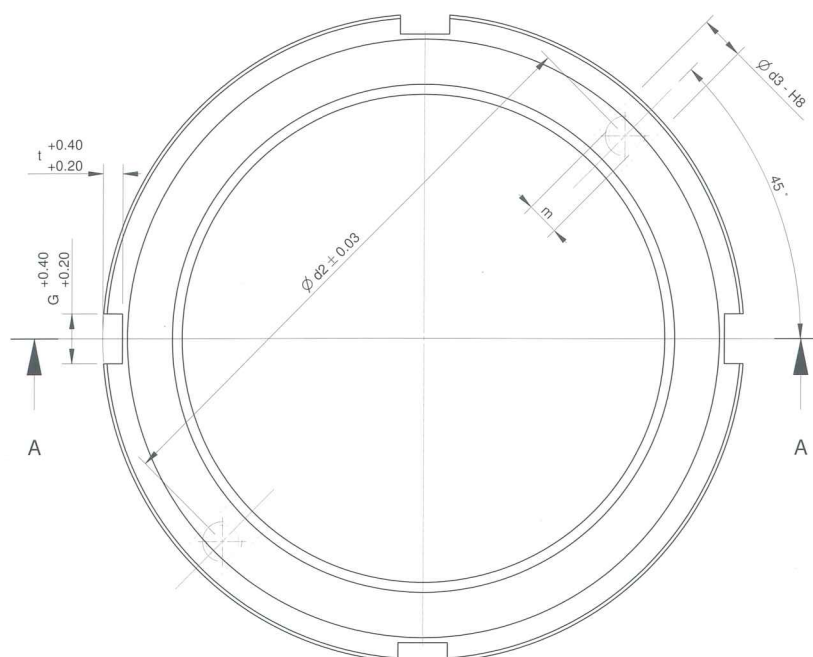
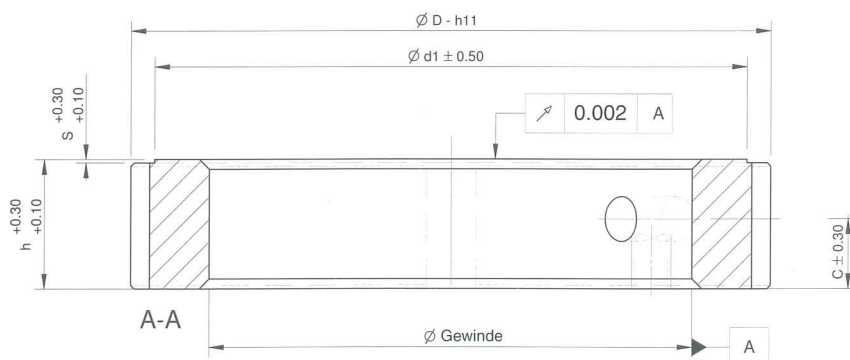
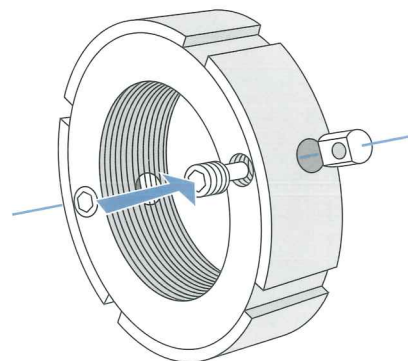
Material Nr: AISI 1146

Tensile Strength: . 960 N/mm2

OD > 60mm

Material Nr: AISI A381

Tensile Strength: 540 N/mm2



Dimensions										
Size	D	h	G	t	d1	d2	C	m	s	Order NR.
M17x1	28	16	4	2	23	22.5	10	M4	0.5	MRA 17x1
M20x1	32	16	4	2	27	26	10	M4	0.5	MRA 20x1
M20x1.5	32	16	4	2	27	26	10	M4	0.7	MRA 20x1.5
M25x1	38	18	5	2	33	32	11	M5	0.7	MRA 25x1
M25x1.5	38	18	5	2	33	31.5	11	M5	0.7	MRA 25x1.5
M30x1.5	45	18	5	2	40	37.5	11	M5	0.7	MRA 30x1.5
M35x1.5	52	18	5	2	47	43.5	11	M5	0.7	MRA 35x1.5
M40x1.5	58	20	6	2.5	52	49	12	M6	0.7	MRA 40x1.5
M45x1.5	65	20	6	2.5	59	55	12	M6	0.7	MRA 45x1.5
M50x1.5	70	20	6	2.5	64	60	12	M6	0.7	MRA 50x1.5
M55x2	75	22	7	3	68	65	12	M6	0.7	MRA 55x2
M60x2	80	22	7	3	73	70	12	M6	0.7	MRA 60x2
M65x2	85	22	7	3	78	75	12	M6	0.7	MRA 65x2
M70x2	92	24	8	3.5	85	81	14	M8	0.7	MRA 70x2
M75x2	98	24	8	3.5	90	87	14	M8	0.7	MRA 75x2
M80x2	105	24	8	3.5	95	93	14	M8	0.7	MRA 80x2
M85x2	110	24	8	3.5	102	98	14	M8	0.7	MRA 85x2
M90x2	120	26	10	4	108	105	14	M8	0.7	MRA 90x2
M95x2	125	26	10	4	113	110	14	M8	0.7	MRA 95x2
M100x2	130	26	10	4	120	115	14	M8	0.7	MRA 100x2
M105x2	140	28	12	5	126	123	16	M10	0.7	MRA 105x2
M110x2	145	28	12	5	133	128	16	M10	0.7	MRA 110x2
M115x2	150	28	12	5	137	133	16	M10	0.7	MRA 115x2
M120x2	155	30	12	5	138	138	16	M10	0.7	MRA 120x2
M125x2	160	30	12	5	148	143	16	M10	0.7	MRA 125x2
M130x2	165	30	12	5	149	148	16	M10	0.7	MRA 130x2
M135x2	175	32	14	6	160	155	18	M12	0.7	MRA 135x2
M140x2	180	32	14	6	160	160	18	M12	0.7	MRA 140x2
M145x2	190	32	14	6	172	168	18	M12	0.7	MRA 145x2
M150x2	195	32	14	6	171	173	18	M12	0.7	MRA 150x2
M155x3	200	34	16	7	182	178	18	M12	1	MRA 155x3
M160x3	210	34	16	7	182	185	18	M12	1	MRA 160x3
M165x3	210	34	16	7	193	188	18	M12	1	MRA 165x3
M170x3	220	34	16	7	193	195	18	M12	1	MRA 170x3
M180x3	230	36	18	8	203	205	18	M12	1	MRA 180x3
M190x3	240	36	18	8	214	215	18	M12	1	MRA 190x3
M200x3	250	38	18	8	226	225	18	M12	1	MRA 200x3



kuso relock®

Lock nuts radial MRR-A

(These are made from two different materials depending on the size)

Material:

To OD = 60mm

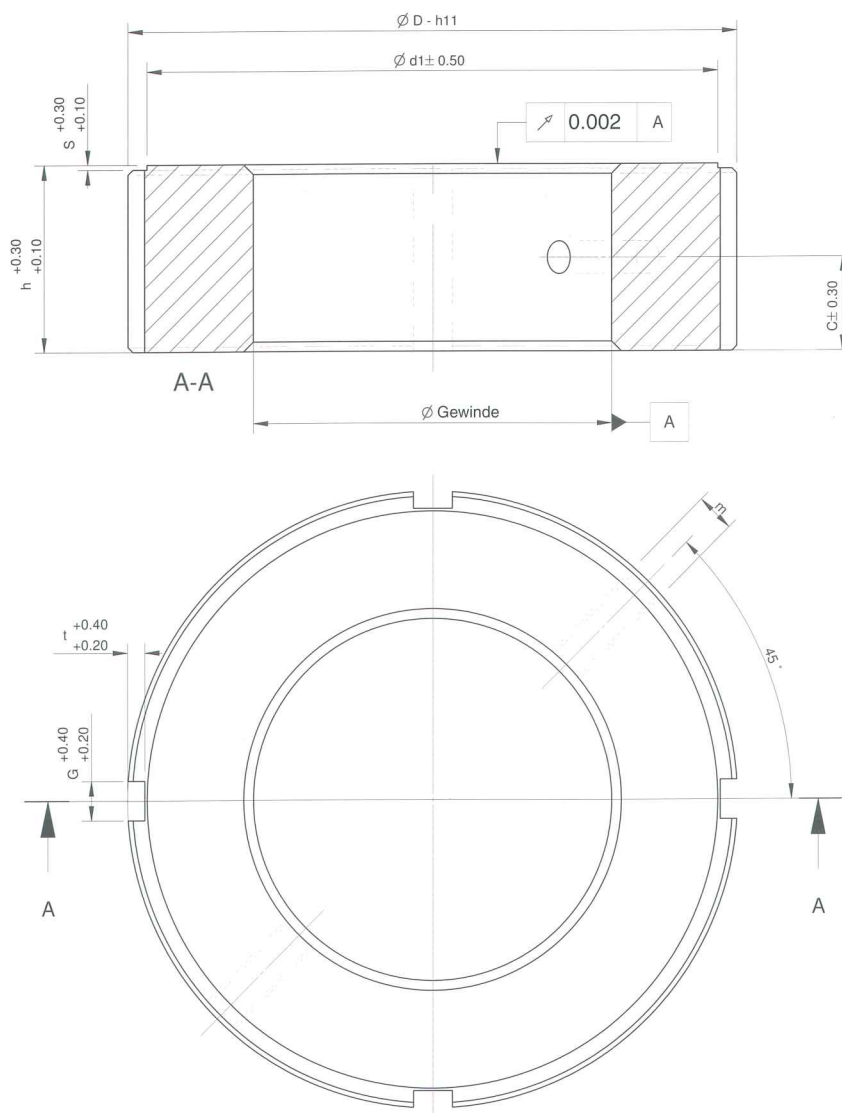
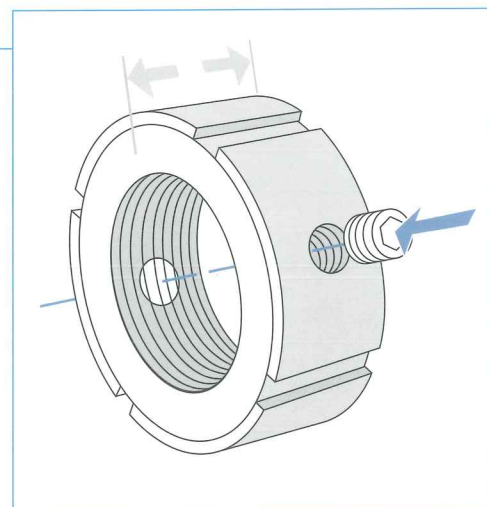
Material Nr: AISI 1146

Tensile Strength: . 960 N/mm2

OD > 60mm

Material Nr: AISI A381

Tensile Strength: 540 N/mm2



Dimensions									
Size	D	h	G	t	d1	C	m	s	Order NR.
M15x1	32	20	4	2	27	10	M5	0.5	MRR-A 15/32x1
M17x1	38	20	5	2	33	10	M5	0.5	MRR-A 17/38x1
M20x1	38	20	5	2	33	10	M5	0.5	MRR-A 20/38x1
M20x1	52	25	5	2	47	12.5	M5	0.5	MRR-A 20/52x1
M20x1.5	38	20	5	2	33	10	M5	0.7	MRR-A 20/38x1.5
M20x1.5	52	25	5	2	47	12.5	M5	0.7	MRR-A 20/52x1.5
M25x1.5	45	20	5	5	40	10	M6	0.7	MRR-A 25/45x1.5
M25x1.5	58	24	6	2.5	52	14	M6	0.7	MRR-A 25/58x1.5
M30x1.5	52	22	5	2	47	11	M6	0.7	MRR-A 30/52x1.5
M30x1.5	65	30	6	2.5	59	15	M6	0.7	MRR-A 30/65x1.5
M35x1.5	58	22	6	2.5	52	11	M6	0.7	MRR-A 35/58x1.5
M35x1.5	70	30	6	2.5	64	15	M6	0.7	MRR-A 35/70x1.5
M40x1.5	62	22	6	2.5	56	11	M8	0.5	MRR-A 40/62x1.5
M40x1.5	75	30	6	2.5	69	15	M8	0.7	MRR-A 40/75x1.5
M45x1.5	68	24	6	2.5	62	12	M8	0.7	MRR-A 45/68x1.5
M45x1.5	85	32	7	3	78	16	M8	0.7	MRR-A 45/85x1.5
M50x1.5	75	25	6	2.5	68	12.5	M8	0.7	MRR-A 50/75x1.5
M50x1.5	92	32	8	3.5	84	16	M8	0.7	MRR-A 50/92x1.5
M55x2	98	32	8	3.5	90	16	M8	1	MRR-A 55/98x2
M60x2	98	32	8	3.5	90	16	M8	1	MRR-A 60/98x2
M65x2	105	32	8	3.5	97	16	M8	1	MRR-A 65/105x2
M70x2	110	35	8	3.5	102	17.5	M8	1	MRR-A 70/110x2
M75x2	125	38	8	3.5	117	19	M8	1	MRR-A 75/125x2
M90x2	155	38	10	4	146	19	M8	1	MRR-A 90/155x2
M110x2	180	40	14	6	167	20	M10	1	MRR-A 110/180x2
M130x2	210	40	16	7	205	20	M10	1	MRR-A 130/210x2
M150x2	230	42	18	8	215	21	M12	1	MRR-A 150/230x2



kuso relock®

Lock nuts axial MRA-A

(These are made from two different materials depending on the size)

Material:

To OD = 60mm

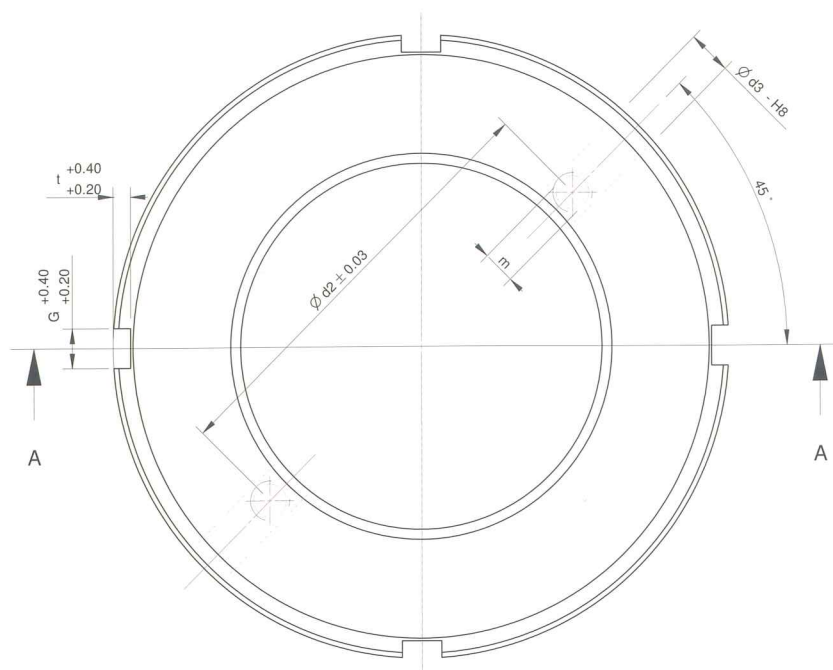
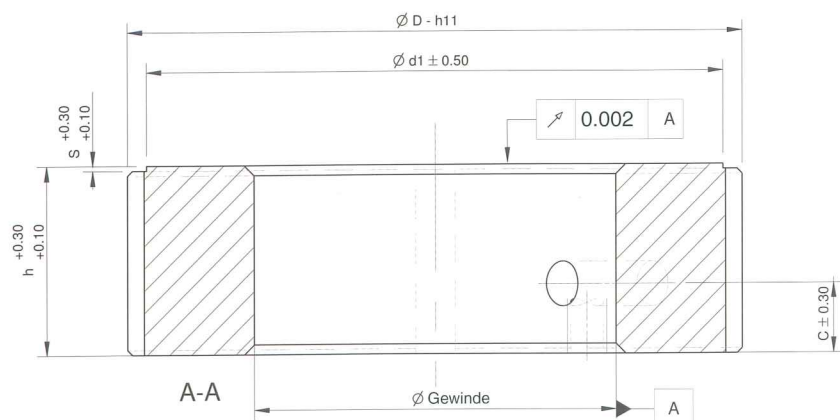
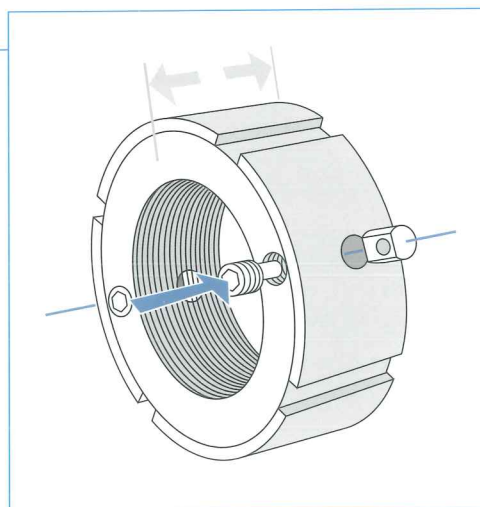
Material Nr: AISI 1146

Tensile Strength: . 960 N/mm²

OD > 60mm

Material Nr: AISI A381

Tensile Strength: 540 N/mm²



Dimensions										
Size	D	h	G	t	d1	d2	C	m	s	Order NR.
M17x1	38	20	5	2	33	24	10	M4	0.5	MRA-A 17/38x1
M20x1	38	20	5	2	33	29	11	M5	0.5	MRA-A 20/38x1
M20x1	52	25	5	2	47	29	11	M5	0.5	MRA-A 20/52x1
M20x1.5	38	20	5	2	33	29	11	M6	0.7	MRA-A 20/38x1.5
M20x1.5	52	25	5	2	47	29	11	M6	0.7	MRA-A 20/52x1.5
M25x1.5	45	20	5	2	40	35	12	M6	0.7	MRA-A 25/45x1.5
M25x1.5	58	28	6	2.5	52	35	12	M6	0.7	MRA-A 25/58x1.5
M30x1.5	52	22	5	2	47	40	12	M6	0.7	MRA-A 30/52x1.5
M30x1.5	62	30	6	2.5	59	40	12	M6	0.7	MRA-A 30/62x1.5
M35x1.5	58	22	6	2.5	52	45	12	M6	0.7	MRA-A 35/58x1.5
M35x1.5	70	30	6	2.5	64	45	12	M6	0.7	MRA-A 35/70x1.5
M40x1.5	62	22	6	2.5	56	52	14	M8	0.7	MRA-A 40/62x1.5
M40x1.5	75	30	6	2.5	69	52	14	M8	0.7	MRA-A 40/75x1.5
M45x1.5	68	24	6	2.5	62	57	14	M8	0.7	MRA-A 45/68x1.5
M45x1.5	85	32	7	3	78	57	14	M8	0.7	MRA-A 45/85x1.5
M50x1.5	75	25	6	2.5	68	62	14	M8	0.7	MRA-A 50/75x1.5
M50x1.5	92	32	8	3.5	84	62	14	M8	0.7	MRA-A 50/92x1.5
M55x2	98	32	8	3.5	90	67	14	M8	1	MRA-A 55/98x2
M60x2	98	32	8	3.5	90	72	14	M8	1	MRA-A 60/98x2
M65x2	105	32	8	3.5	97	77	14	M8	1	MRA-A 65/105x2
M70x2	110	35	8	3.5	102	82	14	M8	1	MRA-A 70/110x2
M75x2	125	38	8	3.5	117	87	14	M8	1	MRA-A 75/125x2
M90x2	155	38	10	4	146	102	14	M8	1	MRA-A 90/155x2
M110x2	180	40	14	6	167	128	16	M10	1	MRA-A 110/180x2
M130x2	210	40	16	7	205	148	16	M10	1	MRA-A 130/210x2
M150x2	230	42	18	8	215	170	18	M12	1	MRA-A 150/230x2



kuso relock®

Lock nuts radial 3 MRR

(These are made from two different materials depending on the size)

Material:

To OD = 60mm

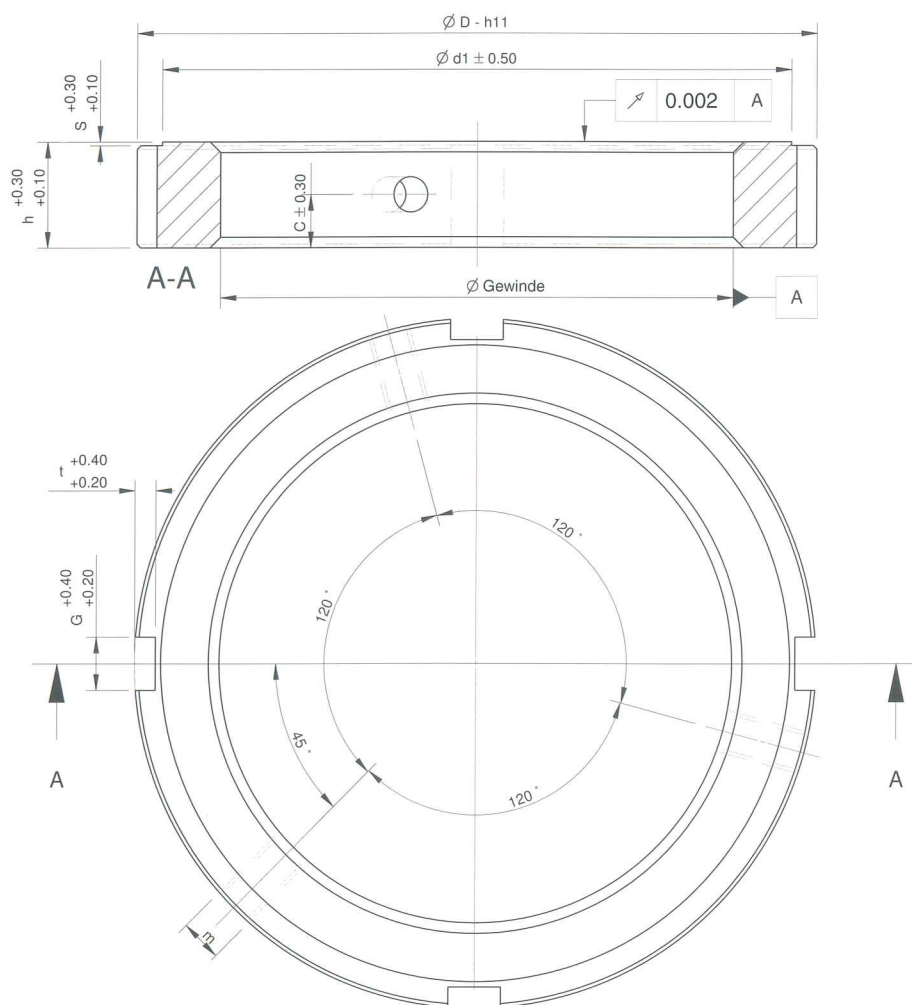
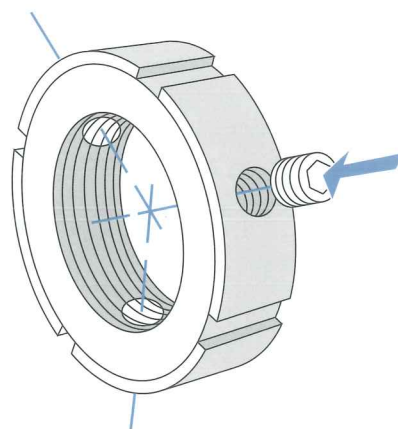
Material Nr: AISI 1146

Tensile Strength: . 960 N/mm2

OD > 60mm

Material Nr: AISI A381

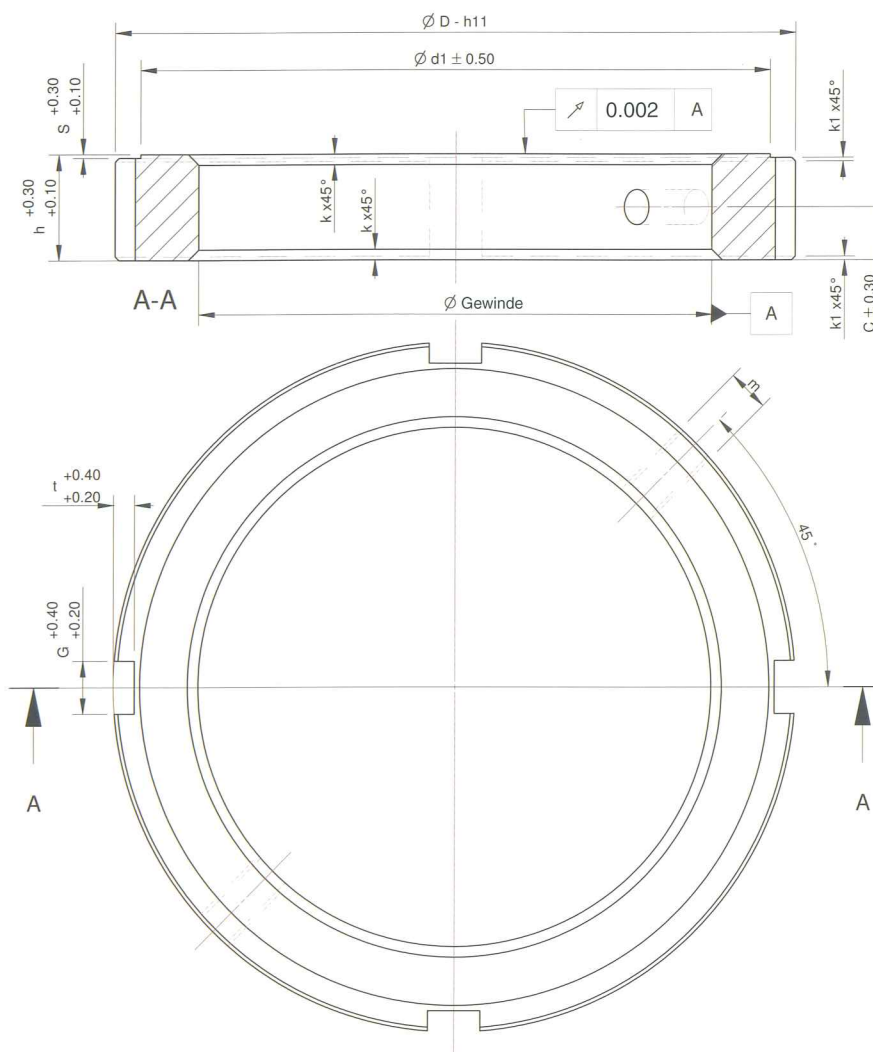
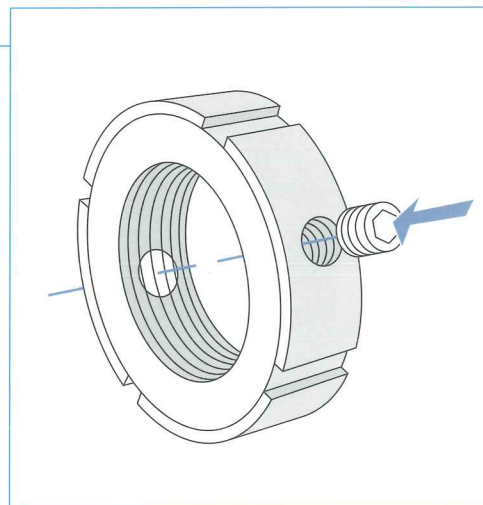
Tensile Strength: 540 N/mm2



Dimensions									
Size	D	h	G	t	d1	C	m	s	Order NR.
M17x1	28	10	4	2	23	5	M5	0.5	3 MRR 17x1
M20x1	32	10	4	2	27	5	M5	0.5	3 MRR 20x1
M20x1.5	32	10	4	2	27	5	M5	0.7	3 MRR 20x1.5
M25x1	38	12	5	2	33	6	M6	0.7	3 MRR 25x1
M25x1.5	38	12	5	2	33	6	M6	0.7	3 MRR 25x1.5
M30x1.5	45	12	5	2	40	6	M6	0.7	3 MRR 30x1.5
M35x1.5	52	12	5	2	47	6	M6	0.7	3 MRR 35x1.5
M40x1.5	58	14	6	2.5	52	7	M6	0.7	3 MRR 40x1.5
M45x1.5	65	14	6	2.5	59	7	M6	0.7	3 MRR 45x1.5
M50x1.5	70	14	6	2.5	64	7	M6	0.7	3 MRR 50x1.5
M55x2	75	16	7	3	68	8	M6	0.7	3 MRR 55x2
M60x2	80	16	7	3	73	8	M6	0.7	3 MRR 60x2
M65x2	85	16	7	3	78	8	M6	0.7	3 MRR 65x2
M70x2	92	18	8	3.5	85	9	M8	0.7	3 MRR 70x2
M75x2	98	18	8	3.5	90	9	M8	0.7	3 MRR 75x2
M80x2	105	18	8	3.5	95	9	M8	0.7	3 MRR 80x2
M85x2	110	18	8	3.5	102	9	M8	0.7	3 MRR 85x2
M90x2	120	20	10	4	108	10	M8	0.7	3 MRR 90x2
M95x2	125	20	10	4	113	10	M8	0.7	3 MRR 95x2
M100x2	130	20	10	4	120	10	M8	0.7	3 MRR 100x2
M105x2	140	22	12	5	126	11	M10	0.7	3 MRR 105x2
M110x2	145	22	12	5	133	11	M10	0.7	3 MRR 110x2
M115x2	150	22	12	5	137	11	M10	0.7	3 MRR 115x2
M120x2	155	24	12	5	138	12	M10	0.7	3 MRR 120x2
M125x2	160	24	12	5	148	12	M10	0.7	3 MRR 125x2
M130x2	165	24	12	5	149	12	M10	0.7	3 MRR 130x2
M135x2	175	26	14	6	160	13	M12	0.7	3 MRR 135x2
M140x2	180	26	14	6	160	13	M12	0.7	3 MRR 140x2
M145x2	190	26	14	6	172	13	M12	0.7	3 MRR 145x2
M150x2	195	26	14	6	171	13	M12	0.7	3 MRR 150x2
M155x3	200	28	16	7	182	14	M12	1	3 MRR 155x3
M160x3	210	28	16	7	182	14	M12	1	3 MRR 160x3
M165x3	210	28	16	7	193	14	M12	1	3 MRR 165x3
M170x3	220	28	16	7	193	14	M12	1	3 MRR 170x3
M180x3	230	30	18	8	203	15	M12	1	3 MRR 180x3
M190x3	240	30	18	8	214	15	M12	1	3 MRR 190x3
M200x3	250	32	18	8	226	16	M12	1	3 MRR 200x3

Lock nuts radial MRR-INOX

Material:
Description: INOX
Material Nr: AISI 303
Tensile Strength: 500 N/mm²

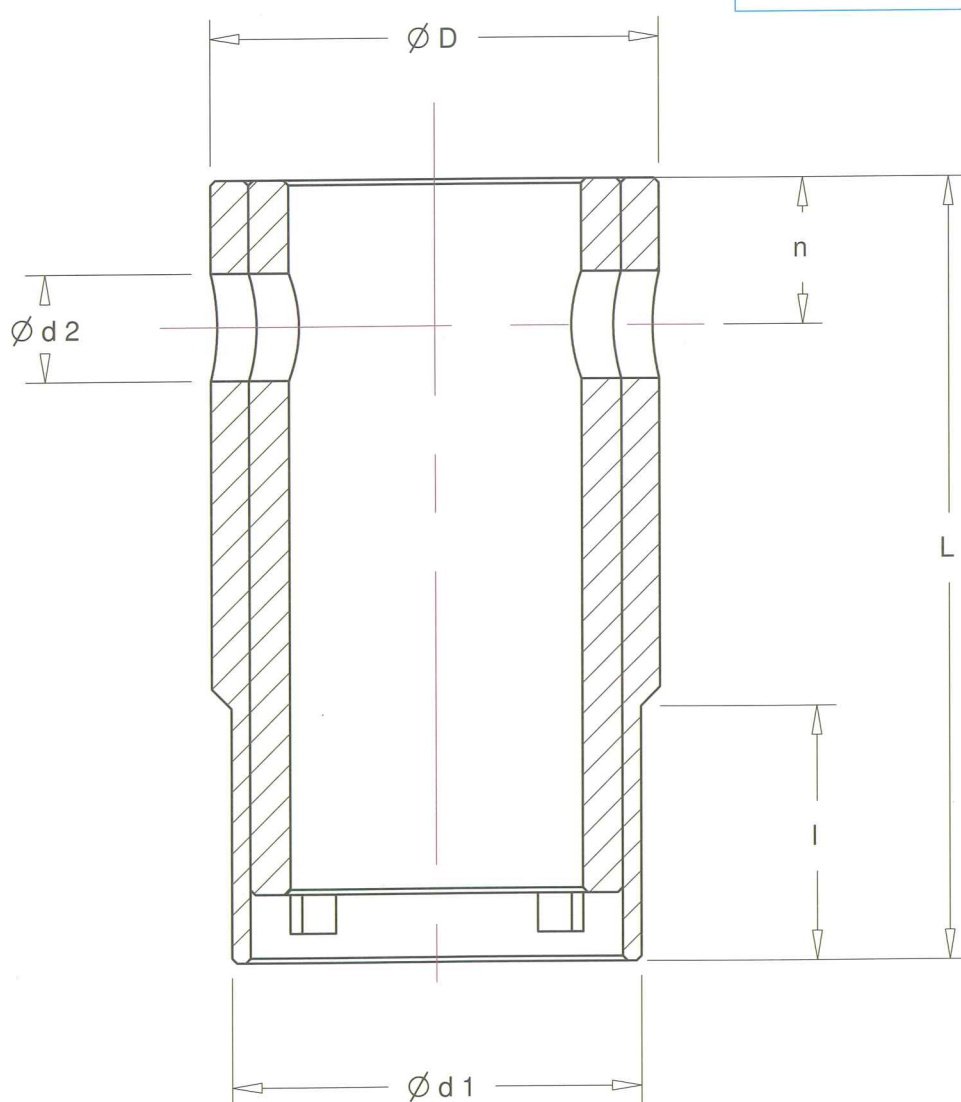
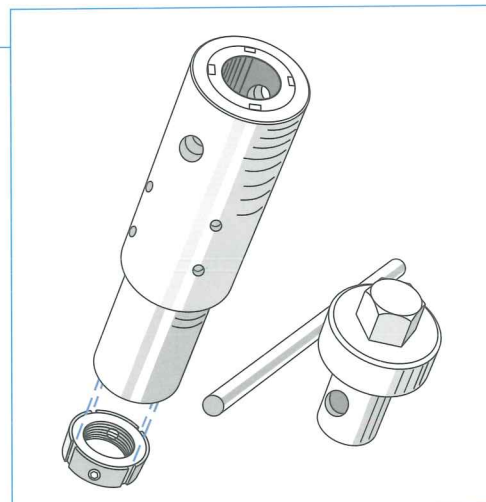


Dimensions									
Size	D	h	G	t	d1	C	m	s	Order NR.
M10x0.75	18	8	3	2	13	4	M4	0.5	MRR-INOX 10x0.75
M10x1	18	8	3	2	13	4	M4	0.5	MRR-INOX 10x1
M12x1	22	8	3	2	18	4	M4	0.5	MRR-INOX 12
M15x1	25	8	3	2	21	4	M4	0.5	MRR-INOX 15
M17x1	28	10	4	2	23	5	M5	0.5	MRR-INOX 17
M20x1	32	10	4	2	27	5	M5	0.5	MRR-INOX 20x1
M20x1.5	32	10	4	2	27	5	M5	0.7	MRR-INOX 20x1.5
M25x1	38	12	5	2	33	6	M6	0.7	MRR-INOX 25x1
M25x1.5	38	12	5	2	33	6	M6	0.7	MRR-INOX 25x1.5
M30x1.5	45	12	5	2	40	6	M6	0.7	MRR-INOX 30
M35x1.5	52	12	5	2	47	6	M6	0.7	MRR-INOX 35
M40x1.5	58	14	6	2.5	52	7	M6	0.7	MRR-INOX 40
M45x1.5	65	14	6	2.5	59	7	M6	0.7	MRR-INOX 45
M50x1.5	70	14	6	2.5	64	7	M6	0.7	MRR-INOX 50
M55x2	75	16	7	3	68	8	M6	0.7	MRR-INOX 55
M60x2	80	16	7	3	73	8	M6	0.7	MRR-INOX 60
M65x2	85	16	7	3	78	8	M6	0.7	MRR-INOX 65
M70x2	92	18	8	3.5	85	9	M8	0.7	MRR-INOX 70
M75x2	98	18	8	3.5	90	9	M8	0.7	MRR-INOX 75
M80x2	105	18	8	3.5	95	9	M8	0.7	MRR-INOX 80
M85x2	110	18	8	3.5	102	9	M8	0.7	MRR-INOX 85
M90x2	120	20	10	4	108	10	M8	0.7	MRR-INOX 90
M95x2	125	20	10	4	113	10	M8	0.7	MRR-INOX 95
M100x2	130	20	10	4	120	10	M8	0.7	MRR-INOX 100
M105x2	140	22	12	5	126	11	M10	0.7	MRR-INOX 105
M110x2	145	22	12	5	133	11	M10	0.7	MRR-INOX 110
M115x2	150	22	12	5	137	11	M10	0.7	MRR-INOX 115
M120x2	155	24	12	5	138	12	M10	0.7	MRR-INOX 120
M125x2	160	24	12	5	148	12	M10	0.7	MRR-INOX 125
M130x2	165	24	12	5	149	12	M10	0.7	MRR-INOX 130
M135x2	175	26	14	6	160	13	M12	0.7	MRR-INOX 135
M140x2	180	26	14	6	160	13	M12	0.7	MRR-INOX 140
M145x2	190	26	14	6	172	13	M12	0.7	MRR-INOX 145
M150x2	195	26	14	6	171	13	M12	0.7	MRR-INOX 150



kuso relock®

Socket wrench

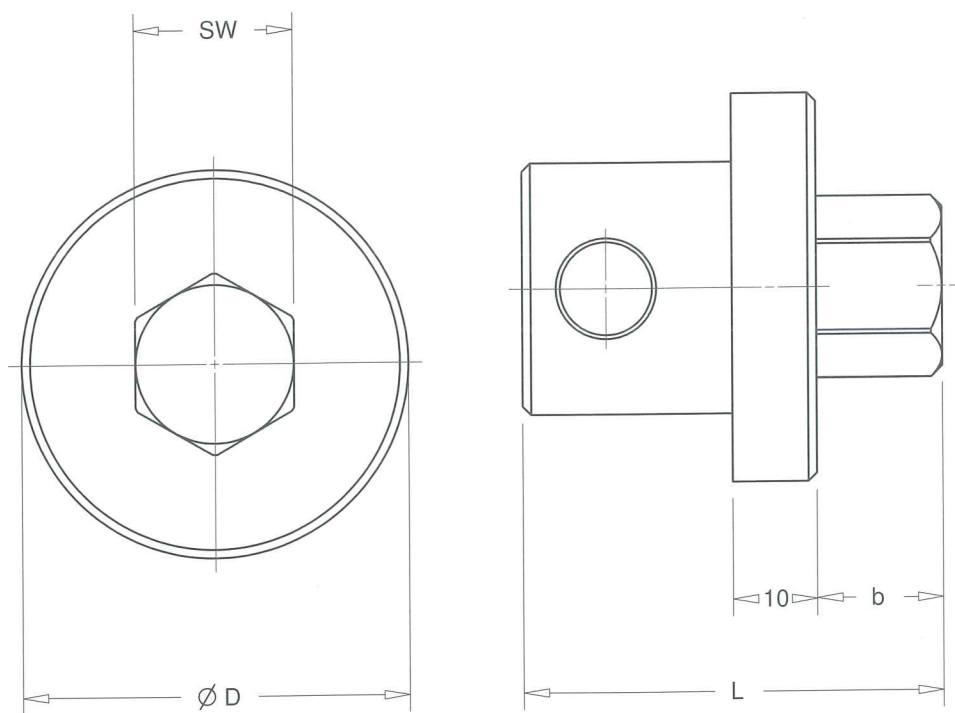


Socket wrench

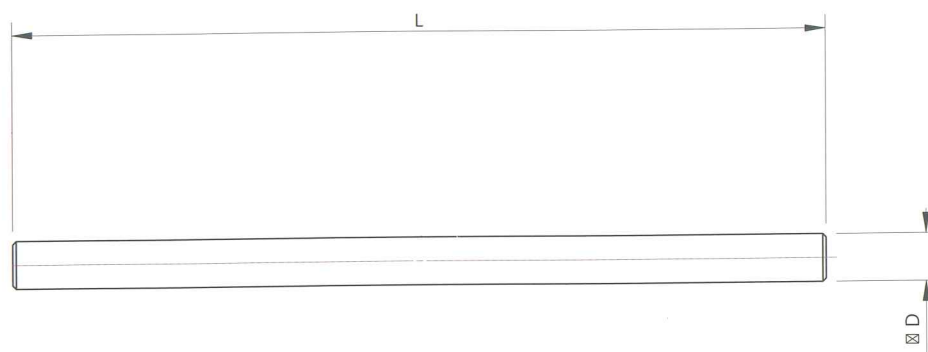
Size	D	L	I	d1	d2	n
S-M8	22	80	26	19	7	15
S-M10	26	80	26	23	7	15
S-M12	30	80	26	26	7	15
S-M15	33	80	26	29	9	15
S-M17	36	80	26	32	9	15
S-M20	40	80	26	36	9	15
S-M25	46	80	26	42	11	15
S-M30	53	80	26	49	11	15
S-M35	60	80	26	56	11	15
S-M40	68	80	26	62	11	15
S-M45	75	80	26	71	13	15
S-M50	80	100	26	76	13	15
S-M55	87	100	26	81	13	15
S-M60	92	100	26	86	13	15
S-M65	97	100	26	91	13	15
S-M70	104	100	26	98	15	18
S-M75	110	100	26	104	15	18
S-M80	118	100	26	112	15	18
S-M85	124	100	26	117	15	18
S-M95	145	100	26	136	15	18
S-M100	145	100	26	138	15	18
S-M120	170	108	26	163	15	18



Torque adapter



Rod



<i>Torque adapter</i>				
Size	D	L	b	SW
A-M8	22	43	10	13.9
A-M10	26	43	10	13.9
A-M12	30	45	12	15.9
A-M15	33	47	12	16.9
A-M17	36	47	12	17.9
A-M20	40	50	15	18.9
A-M25	46	51	15	18.9
A-M30	53	51	15	19.9
A-M35	60	51	15	20.9
A-M40	68	51	15	21.9
A-M45	75	53	15	21.9
A-M50	80	53	15	23.9
A-M55	87	53	15	23.9
A-M60	92	53	15	23.9
A-M65	97	56	18	26.9
A-M70	104	60	18	26.9
A-M75	110	60	18	26.9
A-M80	118	60	18	26.9
A-M85	124	60	18	26.9
A-M95	145	60	18	29.9
A-M100	145	60	18	29.9
A-M120	170	60	18	29.9

<i>Rod</i>		
Size	D	L
HS-M8-12	6	155
HS-M15-20	8	180
HS-M25-40	10	220
HS-M50-65	12	260
HS-M70-120	14	350

