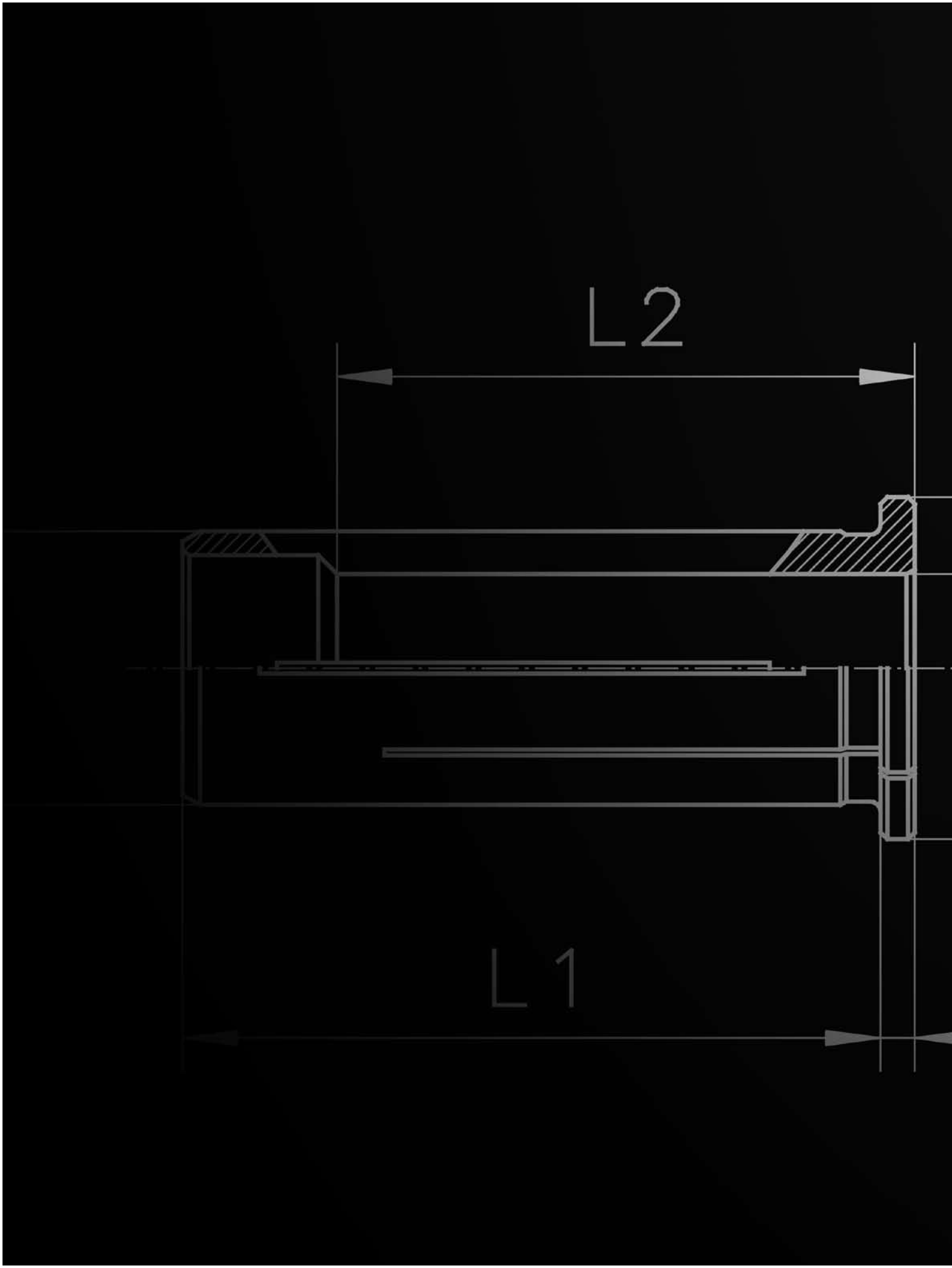
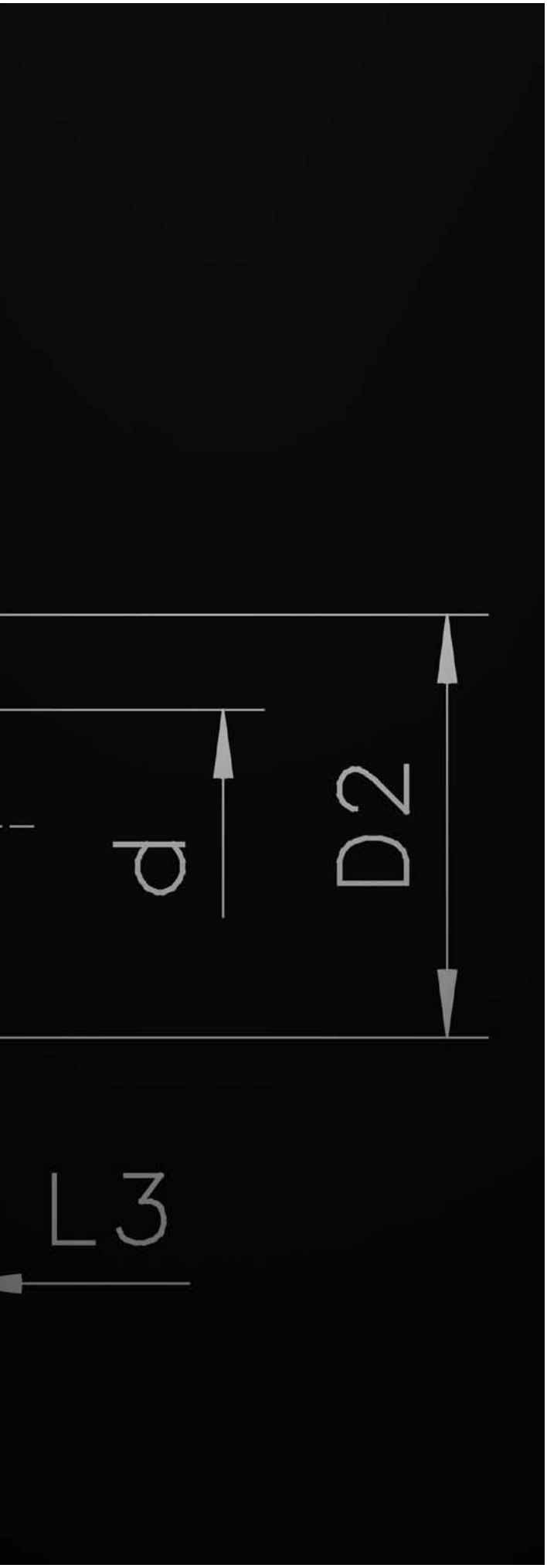

L2
L1



Technical Information 14

ER SYSTEM

powRgrip SYSTEM

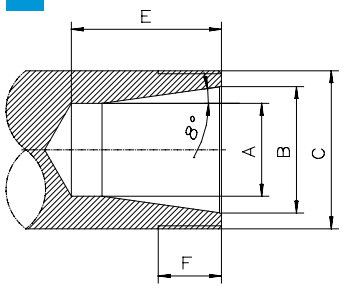
Other Information

Collet Cavity Dimensions

Dimensions for ER Collet Cavities in Machine Spindles

Size	Clamping Range	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	Drawing
Standard Nut Threads							
ER 11	0.5 – 07.00	7.5	11	M14 x 0.75	17.0	10.0	1
ER 16	0.5 – 10.00	10.5	16	M22 x 1.50	22.0	13.0	1
ER 20	0.5 – 13.00	13.5	20	M25 x 1.50	26.5	13.5	1
ER 25	0.5 – 16.00	18.0	25	M32 x 1.50	29.0	14.0	1
ER 32	1.0 – 20.00	23.5	32	M40 x 1.50	34.0	16.0	1
ER 40	2.0 – 30.00	30.5	40	M50 x 1.50	38.0	17.0	1
ER 50	4.0 – 34.00	38.0	50	M64 x 2.00	48.0	24.0	1
Mini-Nut Threads							
ER 8	0.5 – 05.00	5.2	8	M10 x 0.75	13.0	8.0	1
ER 11	0.5 – 07.00	7.5	11	M13 x 0.75	17.0	8.5	1
ER 16	0.5 – 10.00	10.5	16	M19 x 1.00	22.0	13.0	1
ER 20	0.5 – 13.00	13.5	20	M24 x 1.00	26.5	13.5	1
ER 25	0.5 – 16.00	18.0	25	M30 x 1.00	29.0	14.0	1
Extrenally Threaded Nut Threads							
ER 11	0.5 – 07.00	7.5	11	M18 x 1.00	23.0	7.0	2
ER 16	0.5 – 10.00	10.5	16	M24 x 1.00	32.0	10.0	2
ER 20	0.5 – 13.00	13.5	20	M28 x 1.50	37.5	11.0	2
ER 25	0.5 – 16.00	18.0	25	M32 x 1.50	41.0	12.0	2
ER 32	1.0 – 20.00	23.5	32	M40 x 1.50	48.0	14.0	2
ER 40	2.0 – 30.00	30.5	40	M50 x 1.50	54.0	16.0	2

1



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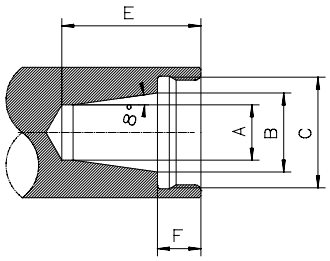


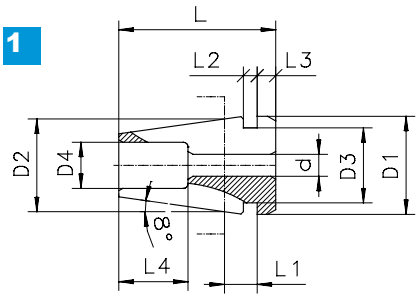
Collets

DIN 6499/ISO15488

Dimensions of ER Collets

Size	d [mm]	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Drawing
ER 8	1.0 – 2.50	8.5	8.0	6.5	4.0	13.6	2.98	1.2	1.5	6.0	1
ER 8	3.0 – 5.00	8.5	8.0	6.5	–	13.6	2.98	1.2	1.5	–	2
ER 11	1.0 – 2.50	11.5	11.0	9.5	5.0	18.0	3.80	2.0	2.5	9.0	3
ER 11	3.0 – 7.00	11.5	11.0	9.5	–	18.0	3.80	2.0	2.5	–	4
ER 16	1.0 – 1.59	17.0	16.0	13.8	7.5	27.5	6.26	2.7	4.0	13.0	3
ER 16	2.0 – 4.76	17.0	16.0	13.8	7.5	27.5	6.26	2.7	4.0	10.0	3
ER 16	5.0 – 10.00	17.0	16.0	13.8	–	27.5	6.26	2.7	4.0	–	4
ER 20	1.0 – 1.59	21.0	20.0	17.4	9.0	31.5	6.36	2.8	4.8	16.0	3
ER 20	2.0 – 6.50	21.0	20.0	17.4	9.0	31.5	6.36	2.8	4.8	13.0	3
ER 20	7.0 – 13.00	21.0	20.0	17.4	–	31.5	6.36	2.8	4.8	–	4
ER 25	1.0 – 1.59	26.0	25.0	22.0	12.0	34.0	6.66	3.1	5.0	18.0	3
ER 25	2.0 – 7.50	26.0	25.0	22.0	12.0	34.0	6.66	3.1	5.0	15.0	3
ER 25	8.0 – 16.00	26.0	25.0	22.0	–	34.0	6.66	3.1	5.0	–	4
ER 32	2.0 – 4.76	33.0	32.0	29.2	15.0	40.0	7.16	3.6	5.5	20.0	3
ER 32	5.0 – 7.50	33.0	32.0	29.2	15.0	40.0	7.16	3.6	5.5	15.0	3
ER 32	8.0 – 20.00	33.0	32.0	29.2	–	40.0	7.16	3.6	5.5	–	4
ER 40	3.0 – 4.76	41.0	40.0	36.2	20.0	46.0	7.66	4.1	7.0	24.0	3
ER 40	5.0 – 8.50	41.0	40.0	36.2	20.0	46.0	7.66	4.1	7.0	18.0	3
ER 40	9.0 – 30.00	41.0	40.0	36.2	–	46.0	7.66	4.1	7.0	–	4
ER 50	6.0 – 10.00	52.0	50.0	46.0	20.0	60.0	12.60	5.5	8.5	32.0	3
ER 50	12.0 – 34.00	52.0	50.0	46.0	–	60.0	12.60	5.5	8.5	–	4

1



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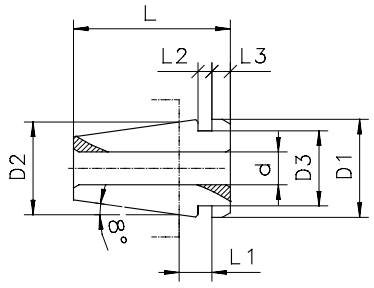

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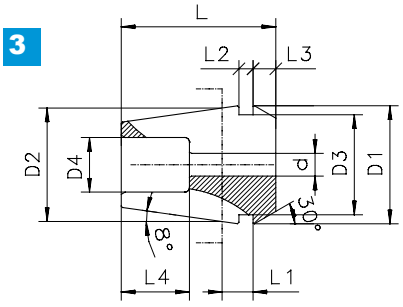

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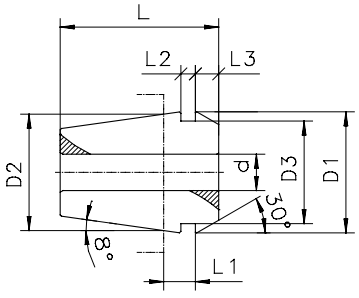


Clamping Nuts Tightening Torque

Recommended Tightening Torque

Nut Torque (ft-lbs)									
Collet Size	ø mm	ø inch	Hi-Q & Hi-QC		Hi-QB & Hi-QBC		AX & AXC		Recommended Torque Wrench
			ER	ER-GB	ER	ER-GB	ER	ER-GB	
ER 11 MB	0.2 – 0.9	0.0078 – 0.035	6				6		Small
ER 11	1.0 – 2.5	0.0390 – 0.098	6	6			6	6	
	3.0 – 7.0	0.1180 – 0.256	20	12			20	15	
ER 16 MB	0.2 – 0.9	0.0078 – 0.035	6				6		Small
ER 16	1	0.039	6		5		6		
	1.5 – 3.5	0.059 – 0.138	15		12		15		
	4.0 – 4.5	0.157 – 0.177	30	30	25	25	30	30	
	5.0 – 10.0	0.197 – 0.394	40	32	40	32	30	30	
ER 20	1	0.039	12		10		12		Small
	1.5 – 6.5	0.059 – 0.256	25	25	20	20	25	25	Medium
	7.0 – 13.0	0.276 – 0.512	60	26	60	60	40	26	
ER 25	1.0 – 3.5	0.039 – 0.138	20		15		20		Medium
	4.0 – 4.5	0.157 – 0.177	40	40	35	35	40	40	
	5.0 – 7.5	0.196 – 0.295	60	60	55	55	60	60	
	8.0 – 16.0	0.315 – 0.630	80	80	80	60	60	60	
ER 32	2.0 – 2.5	0.078 – 0.098	20		15		20		Small
	3.0 – 7.5	0.118 – 0.291	100	100	95	80	80	80	Large
	8.0 – 20.0	0.315 – 0.787	100	110	100	85	80	80	
ER 40	3.0 – 8.5	0.118 – 0.335	130	130	130	130	95	95	Large
	9.0 – 26.0	0.354 – 1.023	130	130	130	140	95	95	
ER 50	6.0 – 34.0	0.236 – 1.338	180	220	180	220			Large

! The maximum torque must not be more than 25% above the recommended tightening torque. Higher tightening torque may result in the damage of the toolholder.

! Higher clamping force of the clamping nut means higher stress on the toolholder. We recommend the use of REGO-FIX® torque wrench. REGO-FIX® will not be responsible for damage to toolholders or spindles of other manufacturers.

Torque wrenches and matching products see page 13.03/13.04

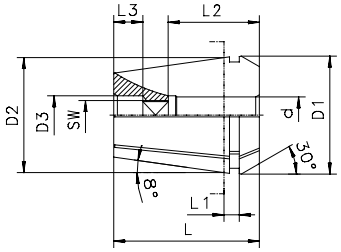
Clamping Nuts Tightening Torque

Recommended Tightening Torque

Nut Torque (ft-lbs)							
Collet Size	ø mm	ø inch	Hi-QM & Hi-QMC		MS		Recommended Torque Wrench
			ER	ER-GB	ER	ER-GB	
ER 8 MB	0.2 – 0.9	0.0078 – 0.035	4		4		Micro
ER 8	1.0 – 1.5	0.039 – 0.060	4		4		
	2.0 – 2.5	0.079 – 0.197	4		4		
	3.0 – 5.0	0.118 – 0.197	4		4		
ER 11 MB	0.2 – 0.9	0.0078 – 0.035	6		6		Small
ER 11	1.0 – 2.5	0.039 – 0.098	6	6	7		
	3.0 – 7.0	0.118 – 0.256	12	10	7		
ER 16 MB	0.2 – 0.9	0.0078 – 0.035	9		9		Small
ER 16	1	0.039	9		9		
	1.5 – 3.5	0.059 – 0.138	18		15		
	4.0 – 4.5	0.157 – 0.177	18	18	15		
	5.0 – 10.0	0.197 – 0.394	18	18	15		
ER 20	1	0.039	12		9		Small
	1.5 – 6.5	0.059 – 0.256	21	21	14		
	7.0 – 13.0	0.276 – 0.512	21	21	14		
ER 25	1.0 –3.5	0.039 – 0.138	18				Small
	4.0 – 7.5	0.157 – 0.295	24	24			
	5.0 – 16.0	0.196 – 0.630	24	24			

! The maximum torque must not be more than 25% above the recommended tightening torque. Higher clamping force of the clamping nut at the same time means higher stress on the toolholder.

Torque wrenches and matching products see page 13.03/13.04



ER | GB
DIN 6499

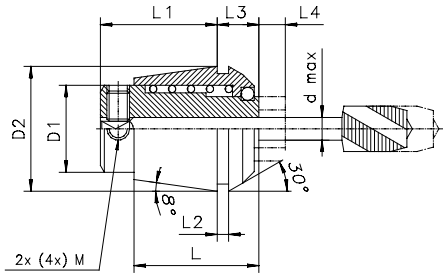
Rigid Tap Collets

d [mm]	SW [mm]	L2 [mm]	D3 [mm]	ER 11-GB L = 18.0 L1 = 2.0 D1 = 11.3 D2 = 11.0 L3 [mm]	ER 16-GB L = 27.5 L1 = 2.7 D1 = 16.8 D2 = 16.0 L3 [mm]	ER 20-GB L = 31.5 L1 = 2.8 D1 = 20.8 D2 = 20.0 L3 [mm]	ER 25-GB L = 34.0 L1 = 3.1 D1 = 25.8 D2 = 25.0 L3 [mm]	ER 32-GB L = 40.0 L1 = 3.6 D1 = 32.8 D2 = 32.0 L3 [mm]	ER 40-GB L = 46.0 L1 = 4.1 D1 = 40.8 D2 = 40.0 L3 [mm]	ER 50-GB L = 60.0 L1 = 8.75 D1 = 51.8 D2 = 51.0 L3 [mm]
2.8	2.1	12	–	0	–	–	–	–	–	–
3.5	2.7	14	–	0	–	–	–	–	–	–
4	3	14	–	0	–	–	–	–	–	–
4	3.15 / 3.2	ER 11 = 14 ER 16–32 = 18	4.5	0	5.5	9.5	12	18	–	–
4.5	3.4	ER 11 = 14 ER 16–32 = 18	ER 11 = N/A ER 16–32 = 5.0	0	5.5	9.5	12	18	–	–
5	4	ER 11 = 14 ER 16–32 = 18	5.5	0	5.5	9.5	12	18	–	–
5.5	4.3	18	6	–	5.5	9.5	12	18	–	–
5.5	4.5	18	6	–	5.5	9.5	12	18	–	–
6	4.5	18	6.5	–	4.5	8.5	11	18	23	–
6	4.9	ER 11 = 14 ER 16–40 = 18	ER 11 = N/A ER 16–40 = 6.5	0	4.5	8.5	11	17	23	–
6.2	5	18	6.7	–	4.5	8.5	11	17	23	–
6.3	5	18	6.8	–	4.5	8.5	11	17	23	–
7	5.5	18	7.5	–	3.5	7.5	10	16	22	–
7.1	5.6	18	7.6	–	3.5	7.5	10	16	22	–
8	6.2 / 6.3	22	8.6	–	–	2.5	5	11	17	–
8.5	6.5	22	9	–	–	2.5	5	11	17	–
9	7.0 / 7.1	22	9.6	–	–	2.5	4	10	16	–
10	8	25	10.5	–	–	–	–	7	13	–
10.5	8	25	11	–	–	–	–	7	13	–
11	9	25	11.5	–	–	–	–	6	12	–
11.2	9	25	11.7	–	–	–	–	6	12	–
12	9	25	12.5	–	–	–	–	6	12	–
12.5	10	25	13	–	–	–	–	5	11	–
14	11.0 / 11.2	25	14.7	–	–	–	–	4	10	–
15	12	25	15.5	–	–	–	–	4	10	–
16	12	25	16.5	–	–	–	–	3	9	–
17	13	25	17.5	–	–	–	–	3	9	–
18	14.5	25	18.5	–	–	–	–	3	8	–
20	16	28	20.5	–	–	–	–	3	4	–
22	18	ER 40 = 28 ER 50 = 41	ER 40 = 22.5 ER 50 = 25.5	–	–	–	–	–	4	–
25	20	41	28.5	–	–	–	–	–	–	–
28	22	41	31.5	–	–	–	–	–	–	–
32	24	41	34.5	–	–	–	–	–	–	–

ET1

PCM Axial Compensating Tapping Collets

Type	Range	d [mm]	D1 [mm]	D2 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	M [mm]
ET1-12	M 0.5 – M 4	3.55	7	11.5	18	16.5	2.5	5	5.5	2 x M 2.5
ET1-16	M 0.7 – M 6	6.3	11	17	22	20	2.8	7	7	2 x M 4 4 x M 4
ET1-20	M 1 – M 8 (M 10)	7.1	14	21	24	23	2.8	8	7	2 x M 4 4 x M 4 4 x M 5
ET1-25	M 1 – M 10 (M 12)	10	19	26	26	24	3	10	8	2 x M 5 4 x M 5 4 x M 6
ET1-32	M 4 – M 12 (M 16)	12.5	23	33	33	32	3	11	10	2 x M 5 4 x M 5 4 x M 6 4 x M 8
ET1-40	M 6 ... M 16 (M 20)	17	28	41	42	42	3	12	13	4 x M 6 4 x M 6

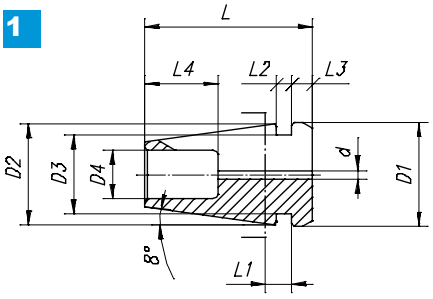


ER | MB
DIN 6499

Microbore Collets

Size	d [mm]	D1 [mm]	D2 [mm]	D3 [mm]	D4 [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	Drawing
ER 8-MB	0.2 – 0.9	8.5	8.0	6.5	4.0	13.5	1.2	1.2	1.5	6.0	1
ER 11-MB	0.2 – 0.9	11.5	11.0	9.5	5.0	18.0	2.0	2.0	2.5	9.0	2
ER 16-MB	0.2 – 0.9	17.0	16.0	13.8	7.5	27.5	6.3	2.7	4.0	13.0	2

1



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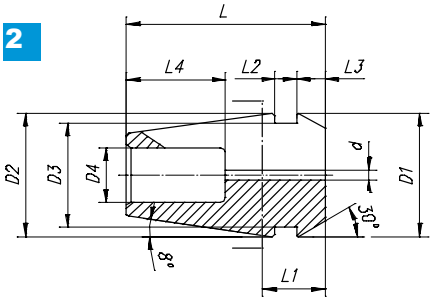
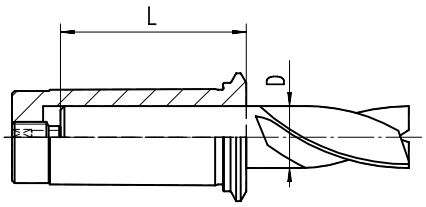


! The ER-MB collets are only available in the above mentioned ER series. They do not have a clamping range! Only nominal diameters with h7 tolerance shanks can be clamped!



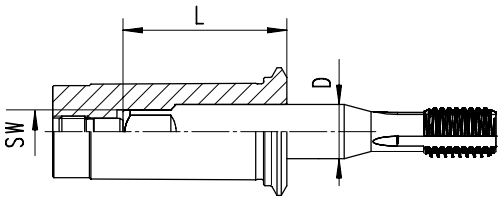
Presetting Range

Presetting Range of powRgrip® Collets

D [mm]	PG 10			PG 15			PG 25			PG 32		
	L* [mm]	L min. [mm]	L max. [mm]	L* [mm]	L min. [mm]	L max. [mm]	L* [mm]	L min. [mm]	L max. [mm]	L* [mm]	L min. [mm]	L max. [mm]
0.20/1.00	–	19.0	22.0	–	–	–	–	–	–	–	–	–
1.50	–	15.0	18.0	–	–	–	–	–	–	–	–	–
2.00/2.50	28.0	24.0	30.0	–	–	–	–	–	–	–	–	–
3.00/4.00/5.00	28.0	24.0	30.0	28.0	25.0	32.0	28.0	25.0	32.0	–	–	–
6.00	33.5	30.0	35.5	36.0	33.0	40.0	36.0	33.0	40.0	36.0	33.6	42.5
7.00/8.00/9.00	–	–	–	36.0	33.0	40.0	36.0	33.0	40.0	36.0	33.6	42.5
10.00	–	–	–	40.0	37.0	40.5	40.0	37.0	44.0	40.0	37.6	46.5
11.00	–	–	–	–	–	–	40.0	37.0	44.0	40.0	37.6	46.5
12.00/14.00	–	–	–	–	–	–	45.0	42.0	49.0	45.0	42.6	51.5
16.00/18.00	–	–	–	–	–	–	48.0	45.0	50.0	48.0	45.6	54.5
20.00	–	–	–	–	–	–	50.0	47.0	50.0	50.0	47.6	56.5
22.00*	–	–	–	–	–	–	–	–	–	50.0	47.6	56.5
25.00	–	–	–	–	–	–	–	–	–	56.0	53.6	62.5

L* : Please insure proper shank length of cutter

! Never clamp a powRgrip® collet without a tool. Collet will be damaged!



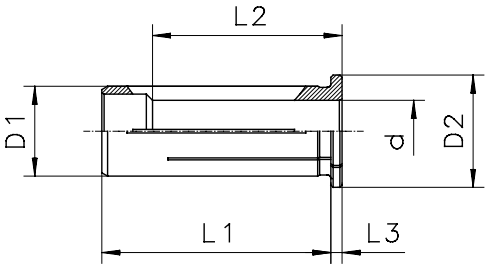
Presetting Range TAP

Presetting Range of powRgrip® Tapping Collets

D [mm]	SW [mm]	PG 15		PG 25	
		L* [mm]	L min. [mm]	L* [mm]	L min. [mm]
3.5	2.7	29	27	–	–
4.5	3.4	29	27	–	–
6	4.9	31	29	–	–
7	5.5	31	29	–	–
8	6.2	36	33.5	36	33.5
9	7	37	34.5	37	34.5
10	8	38	35.5	41	38.5
11	9	–	–	42	39.5
12	9	–	–	42	39.5
14	11	–	–	44	41.5
16	12	–	–	45	42.5

L* : Please insure proper shank length of tap

! Never clamp a powRgrip® tap collet without a tool. Collet will be damaged!



HS 12 | HS 20

Hydraulic Sleeves HS 12

Type	d [mm]	d [Inch]	D1 [mm]	D2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]
HS 12 / ∅ 3.00	3.000		12	16	40	29	4
HS 12 / ∅ 1/8"	3.175	1/8"	12	16	40	29	4
HS 12 / ∅ 4.00	4.000		12	16	40	29	4
HS 12 / ∅ 3/16"	4.763	3/16"	12	16	40	29	4
HS 12 / ∅ 5.00	5.000		12	16	40	29	4
HS 12 / ∅ 6.00	6.000		12	16	40	36	4
HS 12 / ∅ 1/4"	6.350	1/4"	12	16	40	36	4
HS 12 / ∅ 7.00	7.000		12	16	40	37	4
HS 12 / ∅ 5/16"	7.938	5/16"	12	16	40	37	4
HS 12 / ∅ 8.00	8.000		12	16	40	37	4
HS 12 / ∅ 9.00	9.000		12	16	40	37	4
HS 12 / ∅ 3/8"	9.525	3/8"	12	16	40	40	4
HS 12 / ∅ 10.00	10.000		12	16	40	40	4

Hydraulic Sleeves HS 20

Type	d [mm]	d [Inch]	D1 [mm]	D2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]
HS 20 / ∅ 3.00	3.000		20	25	50	28	4
HS 20 / ∅ 1/8"	3.175	1/8"	20	25	50	28	4
HS 20 / ∅ 4.00	4.000		20	25	50	28	4
HS 20 / ∅ 3/16"	4.763	3/16"	20	25	50	28	4
HS 20 / ∅ 5.00	5.000		20	25	50	28	4
HS 20 / ∅ 6.00	6.000		20	25	50	36	4
HS 20 / ∅ 1/4"	6.350	1/4"	20	25	50	36	4
HS 20 / ∅ 7.00	7.000		20	25	50	38	4
HS 20 / ∅ 5/16"	7.938	5/16"	20	25	50	37	4
HS 20 / ∅ 8.00	8.000		20	25	50	37	4
HS 20 / ∅ 9.00	9.000		20	25	50	38	4
HS 20 / ∅ 3/8"	9.525	3/8"	20	25	50	38	4
HS 20 / ∅ 10.00	10.000		20	25	50	40	4
HS 20 / ∅ 11.00	11.000		20	25	50	40	4
HS 20 / ∅ 12.00	12.000		20	25	50	45	4
HS 20 / ∅ 1/2"	12.700	1/2"	20	25	50	45	4
HS 20 / ∅ 13.00	13.000		20	25	50	45	4
HS 20 / ∅ 14.00	14.000		20	25	50	45	4
HS 20 / ∅ 15.00	15.000		20	25	50	45	4
HS 20 / ∅ 5/8"	15.875	5/8"	20	25	50	48	4
HS 20 / ∅ 16.00	16.000		20	25	50	48	4

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! Never clamp a reduction sleeve without a tool. Sleeve will be damaged!

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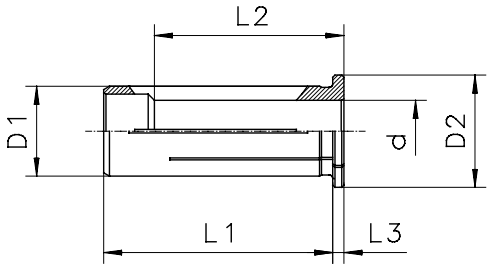

HS 25 | HS 32

Hydraulic Sleeves HS 25

Type	d [mm]	d [Inch]	D1 [mm]	D2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]
HS 25 / ∅ 3.00	3.000		25	30	56	29	4
HS 25 / ∅ 1/8"	3.175	1/8"	25	30	56	29	4
HS 25 / ∅ 4.00	4.000		25	30	56	29	4
HS 25 / ∅ 3/16"	4.763	3/16"	25	30	56	29	4
HS 25 / ∅ 5.00	5.000		25	30	56	29	4
HS 25 / ∅ 6.00	6.000		25	30	56	37	4
HS 25 / ∅ 1/4"	6.350	1/4"	25	30	56	37	4
HS 25 / ∅ 7.00	7.000		25	30	56	37	4
HS 25 / ∅ 5/16"	7.938	5/16"	25	30	56	37	4
HS 25 / ∅ 8.00	8.000		25	30	56	37	4
HS 25 / ∅ 9.00	9.000		25	30	56	38	4
HS 25 / ∅ 3/8"	9.525	3/8"	25	30	56	38	4
HS 25 / ∅ 10.00	10.000		25	30	56	40	4
HS 25 / ∅ 7/16"	11.112	7/16"	25	30	56	40	4
HS 25 / ∅ 12.00	12.000		25	30	56	46	4
HS 25 / ∅ 1/2"	12.700	1/2"	25	30	56	46	4
HS 25 / ∅ 14.00	14.000		25	30	56	47	4
HS 25 / ∅ 9/16"	14.288	9/16"	25	30	56	47	4
HS 25 / ∅ 5/8"	15.875	5/8"	25	30	56	48	4
HS 25 / ∅ 16.00	16.000		25	30	56	48	4
HS 25 / ∅ 11/16"	17.461	11/16"	25	30	56	48	4
HS 25 / ∅ 18.00	18.000		25	30	56	48	4
HS 25 / ∅ 3/4"	19.050	3/4"	25	30	56	48	4
HS 25 / ∅ 20.00	20.000		25	30	56	50	4
HS 25 / ∅ 13/16"	20.638	13/16"	25	30	56	50	4

! Never clamp a reduction sleeve without a tool. Sleeve will be damaged!

Hydraulic Sleeves HS 32

Type	d [mm]	d [Inch]	D1 [mm]	D2 [mm]	L1 [mm]	L2 [mm]	L3 [mm]
HS 32 / ∅ 3/16"	4.763	3/16"	32	36	60	29	4
HS 32 / ∅ 5.00	5.000		32	36	60	29	4
HS 32 / ∅ 6.00	6.000		32	36	60	36	4
HS 32 / ∅ 1/4"	6.350	1/4"	32	36	60	36	4
HS 32 / ∅ 7.00	7.000		32	36	60	37	4
HS 32 / ∅ 5/16"	7.938	5/16"	32	36	60	36	4
HS 32 / ∅ 8.00	8.000		32	36	60	36	4
HS 32 / ∅ 9.00	9.000		32	36	60	37	4
HS 32 / ∅ 3/8"	9.525	3/8"	32	36	60	37	4
HS 32 / ∅ 10.00	10.000		32	36	60	40	4
HS 32 / ∅ 11.00	11.000		32	36	60	40	4
HS 32 / ∅ 7/16"	11.112	7/16"	32	36	60	45	4
HS 32 / ∅ 12.00	12.000		32	36	60	45	4
HS 32 / ∅ 1/2"	12.700	1/2"	32	36	60	45	4
HS 32 / ∅ 13.00	13.000		32	36	60	45	4
HS 32 / ∅ 14.00	14.000		32	36	60	46	4
HS 32 / ∅ 9/16"	14.288	9/16"	32	36	60	46	4
HS 32 / ∅ 15.00	15.000		32	36	60	46	4
HS 32 / ∅ 5/8"	15.875	5/8"	32	36	60	46	4
HS 32 / ∅ 16.00	16.000		32	36	60	48	4
HS 32 / ∅ 17.00	17.000		32	36	60	48	4
HS 32 / ∅ 11/16"	17.461	11/16"	32	36	60	48	4
HS 32 / ∅ 18.00	18.000		32	36	60	49	4
HS 32 / ∅ 19.00	19.000		32	36	60	49	4
HS 32 / ∅ 3/4"	19.050	3/4"	32	36	60	50	4
HS 32 / ∅ 20.00	20.000		32	36	60	50	4
HS 32 / ∅ 13/16"	20.638	13/16"	32	36	60	50	4
HS 32 / ∅ 22.00	22.000		32	36	60	50	4
HS 32 / ∅ 7/8"	22.225	7/8"	32	36	60	50	4
HS 32 / ∅ 15/16"	23.813	15/16"	32	36	60	52	4
HS 32 / ∅ 25.00	25.000		32	36	60	56	4
HS 32 / ∅ 1"	25.400	1"	32	36	60	56	4

TAP Dimensions

Shank Diameter of Taps

Thread		ISO 529*		ISO 2283		DIN 371		DIN 357 DIN 376		DIN 352		JIS B 4430 1998 Annex		ANSI B 94.9 1999	
[mm]	[Inch]	[Ø]	[→]	[Ø]	[→]	[Ø]	[→]	[Ø]	[→]	[Ø]	[→]	[Ø]	[→]	[Ø]	[→]
M 1.0		2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	–	–
M 1.1		2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	–	–
M 1.2		2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	–	–
M 1.4	#0-6	2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	–	–
M 1.6	1/16	2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	0.141"	0.110"
M 1.7		–	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	–	–
M 1.8		2.50	2.00	–	–	2.50	2.10	–	–	2.50	2.10	3.00	2.50	0.141"	0.110"
M 2.0		2.50	2.00	–	–	2.80	2.10	–	–	2.80	2.10	3.00	2.50	0.141"	0.110"
M 2.2		2.80	2.24	–	–	2.80	2.10	–	–	2.80	2.10	3.00	2.50	0.141"	0.110"
M 2.3		–	–	–	–	2.80	2.10	–	–	2.80	2.10	3.00	2.50	–	–
M 2.5	3/32	2.80	2.24	–	–	2.80	2.10	–	–	2.80	2.10	3.00	2.50	0.141"	0.110"
M 2.6		–	–	–	–	2.80	2.10	–	–	2.80	2.10	3.00	2.50	–	–
M 3.0	1/8	3.15	2.50	2.24	1.80	3.50	2.70	2.20	–	3.50	2.70	4.00	3.20	0.141"	0.110"
M 3.5		3.55	2.80	2.50	2.00	4.00	3.00	2.50	2.10	4.00	3.00	4.00	3.20	0.141"	0.110"
M 4.0	5/32	4.00	3.15	3.15	2.50	4.50	3.40	2.80	2.10	4.50	3.40	5.00	4.00	0.168"	0.131"
M 4.5	3/16	4.50	3.55	3.55	2.80	6.00	4.90	3.50	2.70	6.00	4.90	5.00	4.00	0.194"	0.152"
M 5.0		5.00	4.00	4.00	3.15	6.00	4.90	3.50	2.70	6.00	4.90	5.50	4.50	0.194"	0.152"
M 6.0	1/4	6.30	5.00	4.50	3.55	6.00	4.90	4.50	3.40	6.00	4.90	6.00	4.50	0.255"	0.191"
M 7.0	5/16	7.10	5.60	5.60	4.50	7.00	5.50	5.50	4.30	6.00	4.90	6.20	5.00	0.318"	0.238"
M 8.0		8.00	6.30	6.30	5.00	8.00	6.20	6.00	4.90	6.00	4.90	6.20	5.00	0.318"	0.238"
M 9.0		9.00	7.10	7.10	5.60	9.00	7.00	7.00	5.50	7.00	5.50	7.00	5.50	–	–
M 10.0	3/8	10.00	8.00	8.00	6.30	10.00	8.00	7.00	5.50	7.00	5.50	7.00	5.50	0.381"	0.286"
M 11.0		8.00	6.30	8.00	6.30	–	–	8.00	6.20	8.00	6.20	8.00	6.00	–	–
M 12.0	1/2	9.00	7.10	9.00	7.10	–	–	9.00	7.00	9.00	7.00	8.50	6.50	0.367"	0.275"
M 14.0	9/16	11.20	9.00	11.20	9.00	–	–	11.00	9.00	11.00	9.00	10.50	8.00	0.429"	0.322"
M 16.0	5/8	12.50	10.00	12.50	10.00	–	–	12.00	9.00	12.00	9.00	12.50	10.00	0.480"	0.360"
M 18.0	11/16	14.00	11.20	14.00	11.20	–	–	14.00	11.00	14.00	11.00	14.00	11.00	0.542"	0.406"
M 20.0	13/16	14.00	11.20	14.00	11.20	–	–	16.00	12.00	16.00	12.00	15.00	12.00	0.652"	0.489"
M 22.0	7/8	16.00	12.50	16.00	12.50	–	–	18.00	14.50	18.00	14.50	17.00	13.00	0.697"	0.523"
M 24.0	15/16	18.00	14.00	18.00	14.00	–	–	18.00	14.50	18.00	14.50	19.00	15.00	0.760"	0.570"
M 27.0	1/16	20.00	16.00	–	–	–	–	20.00	16.00	20.00	16.00	20.00	15.00	0.896"	0.672"
M 30.0	3/16	20.00	16.00	–	–	–	–	22.00	18.00	22.00	18.00	23.00	17.00	1.021"	0.766"

*M3 - M10 with reinforced shank

All dimensions in mm (except US Standard ANSI B 94.9 in Inch)

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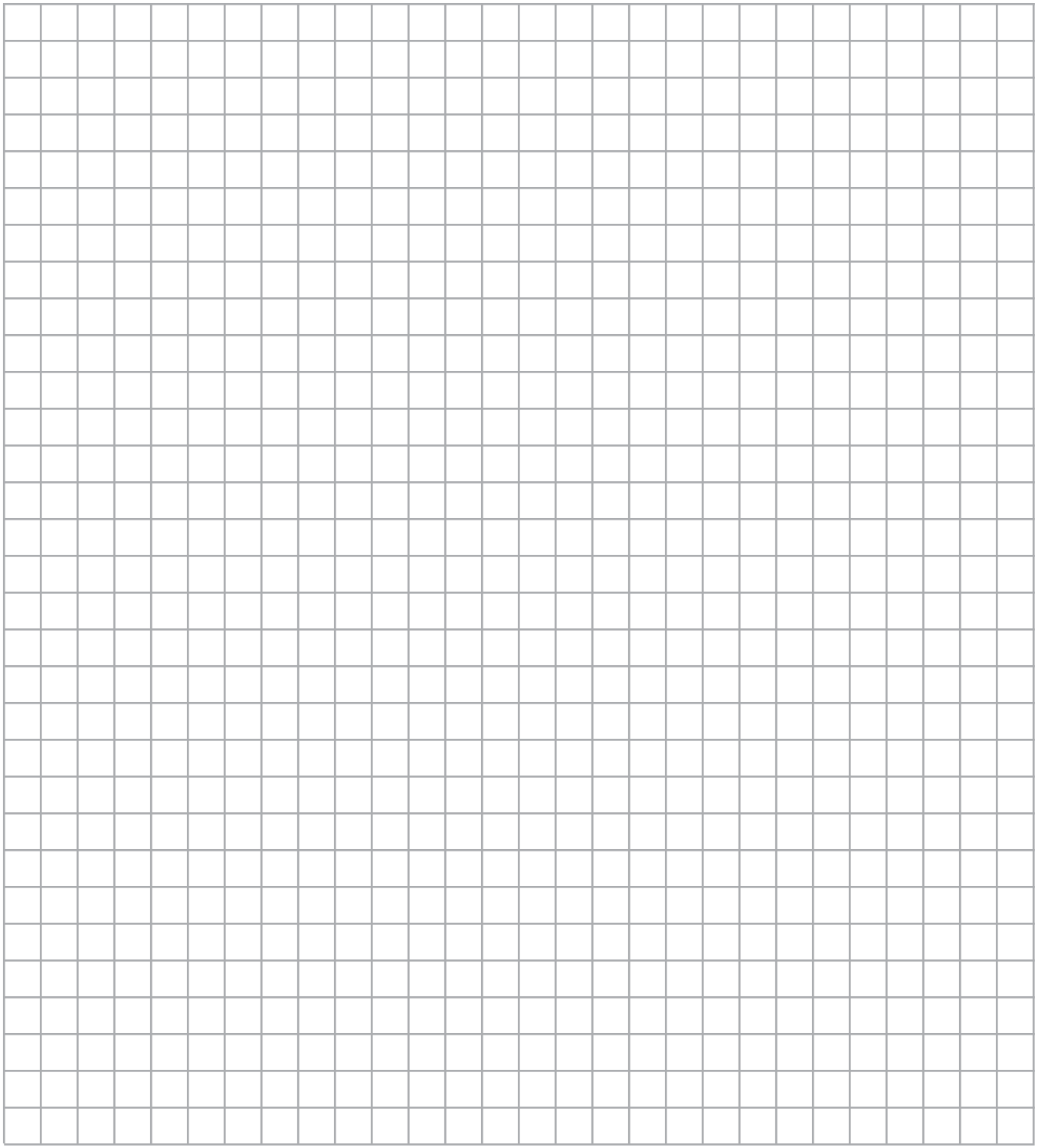
Notes



Edition 9/2009

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