

Advantages of FAHRION Collets

DIN ISO 15488 - GERC-B and GERC-HP (ER/ESX)

FAHRION provides the largest range of forms and executions of collets DIN ISO 15488 (ER/ESX) for different applications

Precise

FAHRION collets DIN ISO 15488-B (ER/ESX) set the standard of concentricity and repeatability, which is 5 µm for the types GERC11-B up to GERC40-B and 2 µm for the types GERC11-HP up to GERC40-HP

Rigid

12 slots are sufficient in order to reach the required collapse to DIN ISO 15488. This is possible because of a special steel produced for us and a particular harmonized heat treatment. Compared to 16 slot collets, our collets have less tendency to distort

Saving

all edges are not only deburred, but additionally rounded, which is a prerequisite to protect the inner cone of the collet chuck from marks. This process is important to guarantee a consistent repeatable high accuracy

Increased rigidity and clamping forces, improved grip, higher precision and system concentricity, enhanced resistance to corrosion for GERC-B and GERC-HP due to super-finished execution with FAHRION|Protect!

In addition to slots being deburred, finish of operating surfaces ≤ 1,6 µm



Features of FAHRION Collets DIN ISO 15488 (ER/ESX)

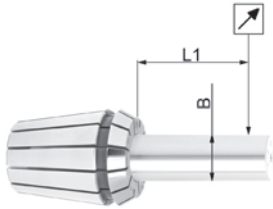
Form/Application	GERC-B	GERC-BD	GERC-HP	GERC-HPD	GERC-HPDD	GERC-GBD	GERC-GBDD
DIN ISO 15488 - form	B	A ¹	B	A ¹	A ¹	A ¹	A ¹
Standard Collet Chucks	X	X	X	X	X	X	X
FAHRION Precision Collet Chucks CENTRO P	X ²	X ²	X	X	X	X	X
FAHRION Protect	X	X	X	X	X	X	X
Concentricity e.g. Ø 12,0 mm	5 µm	5 µm	2 µm	2 µm	2 µm	10 µm	10 µm
Repeatability	5 µm	5 µm	2 µm	2 µm	2 µm	6 µm	6 µm
Concentricity important	X	X	X	X	X	-	-
Concentricity very important for HSC	-	-	X	X	X	-	-
Concentricity/tool life unimportant	-	-	-	-	-	-	-
Collapse	0,5-1 mm	h8	h10 ³	h8	h8	h8	h8
Sealing for IC (inner coolant supply)	-	X	-	X	X	X	X
Jet holes for Inner Coolant Supply	-	-	-	-	X	-	X
For tapping with internal square drive	-	-	-	-	-	X	X
With incorporated axial compensation	-	-	-	-	-	-	-
Details to be found on page	11	12	13	14	15	16	17

¹ similar to DIN ISO 15488 form A, fit in Standard Collet Chucks as well as in the Precision Collet Chucks CENTRO|P

² can be used, but the concentricity of the complete system is influenced

³ highest concentricity of the complete system when clamping nominal size Ø h10, collapse 0,5-1 mm in standard collet chucks can be achieved (remove blue recognition ring)

Concentricity Charts



Concentricity DIN ISO 15488 (ER/ESX) resp. FAHRION Quality

B mm		L1 mm	DIN Class 2	Class 1	FAHRION Quality	
from	to				B	HP*
1,0	1,6	2-3	0,015	0,010	0,005	0,002
1,6	3,0	10				
3,0	7,0	16				
7,0	10,0	25	0,020	0,015	-	-
10,0	18,0	40				
18,0	26,0	50				
26,0	34,0	60	0,025	0,020	-	-

* checked with HPplus chuck in three equi-spaced positions (moved clockwise by 120°) at a distance of 3xD (max. 50 mm)

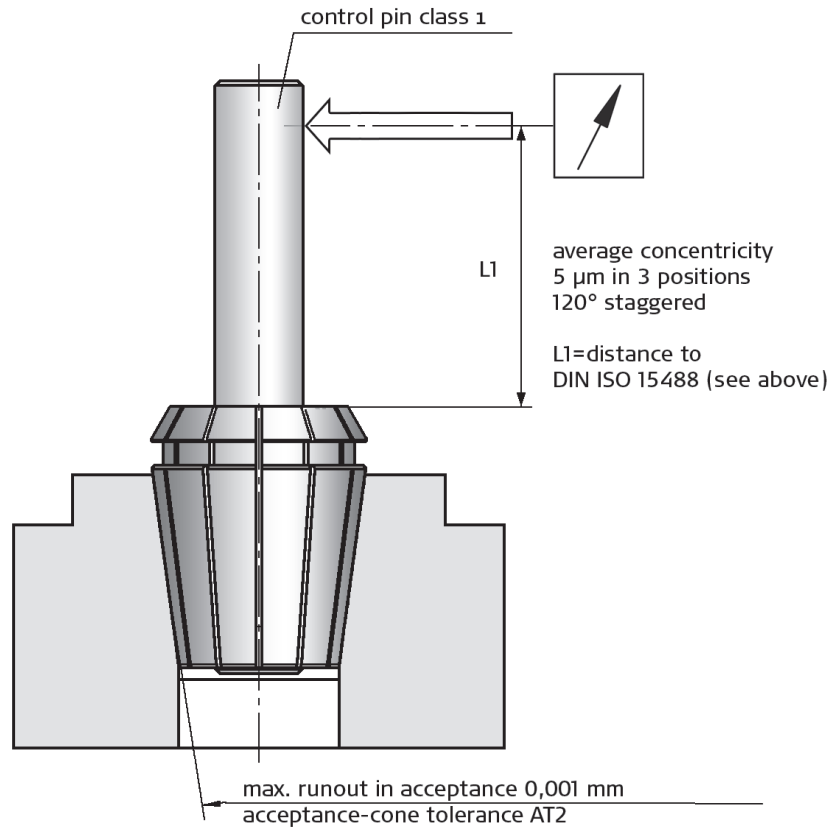
Concentricity for collets DIN ISO 15488 (ER/ESX) on pages 11 to 17.

The tolerances are classified to DIN into two classes:

= 10 µm (higher TIR) is our standard for GERC-GBD and GERC-GBDD (on pages 16 and 17)

= FAHRION quality is our standard (average concentricity with a repeatability of 5 µm resp. 2 µm) for GERC-B / -BD resp. GERC-HP / -HPD / -HPDD – details see ☒ at the respective description (on pages 11 and 15)

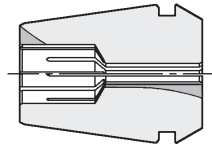
Test method (except for GERC-HP / -HPD / -HPDD) see below



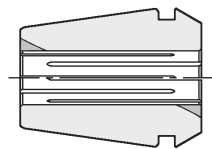
For applications which require highest concentricity, it is absolutely necessary to pay attention to the complete system (machine spindle, collet acceptance, clamping nut, collet and cutting tool).

Tightening Torque

Picture 1



Picture 2



Tightening Torque for Clamping Nuts DIN ISO 15488 (ER/ESX)

Collets type	Clamping Nuts	with short bore (Picture 1)		with through bore (Picture 2)				
		Clamping-Ø	max. torque	Clamping-Ø	max. torque			
GERC8	STM8M	1,0-2,5	5 Nm	3,0-5,0	8 Nm			
	STM11D		13 Nm		3,0-7,0	25 Nm		
GERC11	STM11M	1,0-2,5	11 Nm	3,0-7,0		18 Nm		
	STM11A		13 Nm		24 Nm			
	GERC16		STM16D		1,0-4,5	30 Nm	5,0-10,0	50 Nm
STM16E		18 Nm	28 Nm					
STM16E-DI				22 Nm				35 Nm
STM16M								
STM16M-DI	1,0-6,5	22 Nm	35 Nm					
STM16A				24 Nm	40 Nm			
GERC20						STM20D	1,0-6,5	55 Nm
	STM20E	24 Nm	40 Nm					
	STM20E-DI			28 Nm	46 Nm			
	STM20M					70 Nm		
STM20M-DI	1,0-6,5	24 Nm	40 Nm					
STM20A				28 Nm	46 Nm			
GERC25						STM25E	2,0-6,5	36 Nm
	STM25E-DI	70 Nm	105 Nm					
	STM25M			100 Nm	150 Nm			
STM25M-DI	3,0-7,5	100 Nm	8,0-26,0			150 Nm		
STM25A				70 Nm	105 Nm			
STM32E							70 Nm	105 Nm
GERC32	STM32E-DI	2,0-6,5	36 Nm	7,0-20,0	60 Nm			
	STM32A					100 Nm	150 Nm	
GERC40	STM40E	3,0-7,5	100 Nm	8,0-26,0	150 Nm			
	STM40E-DI					100 Nm	150 Nm	

Remark: The tables below show the maximum tightening torque values in relation to the clamping-Ø of the collet with short bore or through bore (see pictures 1 and 2) • the smaller the clamping-Ø the lower the necessary torque value • high torque leads to damage of clamping nut resp. collet closing taper

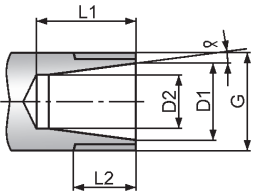
Conversion Table

Conversion of inch to metric, which is in accordance with the last 4 digits of the order number:

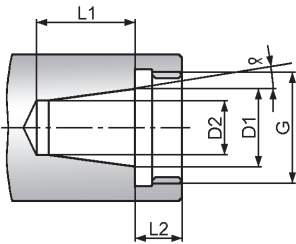
1/16" = 0159	3/32" = 0238	1/8" = 0318	5/32" = 0397	3/16" = 0476	7/32" = 0556	1/4" = 0635	9/32" = 0714
5/16" = 0794	11/32" = 0873	3/8" = 0953	13/32" = 1032	7/16" = 1111	1/2" = 1270	9/16" = 1429	5/8" = 1588
11/16" = 1746	3/4" = 1905	13/16" = 2064	7/8" = 2223	1" = 2540			

Build-in Dimensions

Picture 1



Picture 2



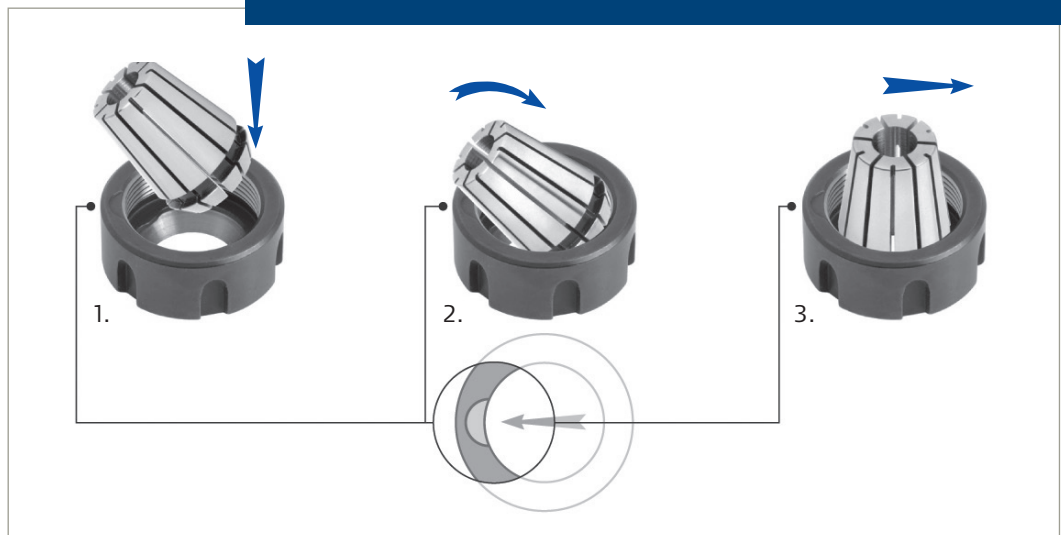
Precision Collets and Clamping Nuts DIN ISO 15488 (ER/ESX)

Description	Pic.	L1	L2	D1	D2	G	a	Collets	Range		
STM11D	1	17	10	11	7,5	M14x0,75	8°	4008E	0,5-7,0		
STM16D+E		22	13	16	10,5	M22x1,5		426E	0,5-10,0		
STM20D+E		26,5	13,5	20	13,5	M25x1,5		428E	0,5-3,0		
STM25E		30	14	25	17,5	M32x1,5		430E	0,5-16,0		
STM32E		35	16	32	23,5	M40x1,5		470E	1,0-20,0		
STM40E		40	17	40	30,5	M50x1,5		472E	2,0-26,0		
STM50E		48	24	50	38	M64x2		477E	4,0-34,0		
STM8M	1	13	7,5	8	5,2	M10x0,75	8°	4004E	0,5-5,0		
STM11M		17	10	11	7,5	M13x0,75		4008E	0,5-7,0		
STM16M		22	13	16	10,5	M19x1		426E	0,5-10,0		
STM20M		26,5	13,5	20	13,5	M24x1		428E	0,5-13,0		
STM25M		30	14	25	17,5	M30x1		430E	0,5-16,0		
STM11A		2	23	7	11	7,5		M18x1	8°	4008E	0,5-7,0
STM16A			32	10	16	10,5		M24x1		426E	0,5-10,0
STM20A	37,5		11	20	13,5	M28x1,5	428E	0,5-13,0			
STM25A	41		12	25	18	M32x1,5	430E	0,5-16,0			
STM32A	48		14	32	23,5	M40x1,5	470E	1,0-20,0			

Remark: The exact tolerances for the manufacture of your spindle are available upon request

Assembly

Assembly Instruction for Precision Collets DIN ISO 15488 (ER/ESX)



Assembly: For Clamping nuts with EasyClick: see photos • for Mini Clamping Nuts only: feed the collet into the nut and turn until the eccentric ring of the nut engages in the groove of the collet

Remark: Fit the assembly into the collet chuck or the machine spindle • do not clamp shanks larger than the nominal size indicated!

DIN Tap Shank Dimensions

DIN Tap Shank Dimensions											
Ø x □	DIN 352	DIN5156 DIN5157	DIN 371	DIN 374	DIN 376	BSW DIN 2183	BSW reinforce DIN 2182	UNC DIN 376	UNC reinforce DIN 371	UNF DIN 374	UNF reinforce DIN 371
2,5x2,1	M1		M1		M3,5		1/16"				
	M1,1		M1,1	M3,5							
	M1,2		M1,2								
	M1,4		M1,4								
	M1,6		M1,6								No.2-64
	M1,8		M1,8							No.6-32	No.6-40
2,8x2,1	M2		M2	M4	M4	5/32"	3/32"	No.8-32			
	M2,2		M2,2						No.2-56		
	M2,5		M2,5+M2,6						No.3-48	No.8-36	
3,5x2,7	M3	M3	M5	M5+M4,5		1/8"		No.5-40		No.5-44	
4x3	M3,5		M3,5	M5,5			7/32"	No.12-24	No.6-32	No.12-28	No.6-40
4,5x3,4	M4		M4	M6	M6	1/4"	5/32"	1/4"-20	No.8-32	1/4"-28	No.8-36
5,5x4,5				M7	M7						
6x4,9	M5	G1/16"	M4,5					5/16"-18			No.10-32
	M6		M5						No.10-24		No.12-28
	M8		M6	M8	M8				No.12-28		
7x5,5	M10	G1/8"	M7	M9+M10	M9+M10	3/8"	1/4"	3/8"-16	1/4"-20	3/8"-24	1/4"-28
8x6,2			M8	M11		7/16"	5/16"		5/16"-18		5/16"-24
9x7	M12		M9	M12	M12	1/4"	3/8"	1/2"-13	3/8"-16	1/2"-20	3/8"-24
10x8			M10								
11x9	M14			M14	M14	G1/4"	9/16"				
12x9	M16	G3/8"	M12	M16	M16	5/8"		5/8"-11		5/8"-18	
14x11	M18			M18	M18	11/16"		3/4"-10		3/4"-16	
16x12	M20	G1/2"		M20	M20	13/16"					
18x14,5	M22	M5/8"		M22	M22	7/8"					
	M24			M24	M24	15/16"					
20x16	M27	G3/4"		M27	M27	1"					
22x18	M30	G7/8"		M30	M30	1.1/8"					
25x20	M33	G1"		M33	M33	1.1/4"					
28x22	M36	G1.1/8"		M36	M36	1.3/8"					
32x24	M39	G1.1/4"		M39	M39	1.1/2"					
	M42			M42	M42	1.5/8"					
36x29	M45	G1.3/8"		M45	M45	1.3/4"					
	M48	G1.1/2"		M48	M48	1.7/8"					
		G1.3/4"									
		G2"									
40x32	M52	G2.1/4"		M52	M52	2"					
45x35	M56	G2.1/2"			M56	2.1/4"					
	M60				M60						
50x39	M64	G2.3/4"			M64						
		G3"									
56x44	M68	G3.1/4"			M68	2.3/4"					
						3"					

ISO Tap Shank Dimensions

ISO Tap Shank Dimensions

Ø x □	ISO 529-1975										
	Metric reinforce		UNC reinforce		UNF reinforce		BSW reinforce		BSF reinforce		BA reinforce
2,24x1,8	M3		No.5-40		No.5-44		1/8"-40				No.5
2,5x2,0	M3,5	M2	No.6-32	No.1-64	No.6-40	No.0-80					No.11
						No.1-72					No.10
											No.9
2,8x2,24		M2,2		No.2-56		No.2-64					No.8
		M2,5		No.3-48		No.3-56					No.7
3,15x2,5											No.6
	M4	M3		No.4-40		No.4-48					No.5
3,55x2,8	M4,5	M3,5	No.8-32	No.5-40	No.8-36	No.5-44					No.3
4x3,15	M4,5	M3,5	No.10-24	No.6-32	No.10-32	No.6-40	3/16"-24		3/16"-32		No.2
4x3,15	M5	M4	No.12-24		No.12-28				7/32"-24		No.1
4,5x3,55	M6		1/4"-20	No.8-32	1/4"-28	No.3-36	1/4"-20		1/4"-26		No.0
5x4		M5		No.10-24		No.10-32		3/16"-24		3/16"-32	No.2
5,6x4,5				No.12-24		No.12-28			9/32"-26	7/32"-28	No.1
6,3x5	M8	M6	5/16"-18	1/4"-20	5/16"-24	1/4"-28	5/16"-18	1/4"-20	5/16"-32	1/4"-26	No.0
7,1x5,6			3/8"-16		3/8"-24		3/8"-16		3/8"-20	9/32"-26	
8x6,3	M10	M8	7/16"-14	5/16"-18	7/16"-20		3/8"-16	5/16"-18	7/16"-18	5/16"-22	
9x7,1	M12		1/2"-13		1/2"-20		1/2"-13		1/2"-12		
10x8		M10		3/8"-16		3/8"-24		3/8"-16		3/8"-20	
11,2x9	M14		9/16"-12		9/16"-18		9/16"-12		9/16"-16		
12,5x10	M16		5/8"-11		5/8"-18		5/8"-11		3/8"-14		
14x11,2	M18		3/4"-10		3/4"-16		11/16"-14		11/16"-14		
	M20						3/4"-10		3/4"-12		
16x12,5	M22		7/8"-9		7/8"-14		7/8"-9		7/8"-11		
18x14	M24		1"-8		1"-12		1"-8		1"-10		
20x16	M27		1.1/8"-7		1.1/8"-12		1.1/8"-7		1.1/8"-9		
	M30										
22,4x18	M33		1.1/4"-7		1.1/4"-12		1.1/4"-7		1.1/4"-9		
25x20	M36		1.3/8"-6		1.3/8"-12				1.3/8"-8		
28x22,4	M39		1.1/2"-6		1.1/2"-12		1.1/2"-6		1.1/2"-8		
	M42								1.5/8"-8		
31,5x25	M45		1.3/4"-5				1.3/4"-5		1.3/4"-7		
	M48										
35,5x28	M52		2"-4.1/2				2"-4.1/2		2"-7		
	M56										
40x31,5	M60		2.1/4"-4.1/2				2.1/4"-4		2.1/4"-6		
	M64		2.1/2"-4				2.1/2"-4		2.1/2"-6		
45x35,5	M68		2.3/4"-4				2.3/4"-3.1/2		2.3/4"-6		
50x40			3"-4				3"-3.1/2		3"-5		
			3.1/4"-4				3.1/4"-3.1/4		3.1/4"-5		
			3.1/2"-4				3.1/2"-3.1/4		3.1/2"-4.1/2		
56x45			3.3/4"-4				3.3/4"-3		3.3/4"-4.1/2		
			4"-4				4"-3		4"-4.1/2		