

mexin
2008

DIN 2080	10	A.01
DIN 69871-B	11 13	B.01
DIN 69893-1 FORM A	16	C.01
JIS B 6339-BT	20 23	D.01
CHIRON	25	E.01
CABEZALES MANDRILADORES <i>BORING HEADS</i>	60..97	F.01
COMPLEMENTOS Y ACCESORIOS <i>COMPLEMENTS AND ACCESSORIES</i>	35..89	G.01

FABRICADO CON MATERIAL FORJADO

MATERIAL:

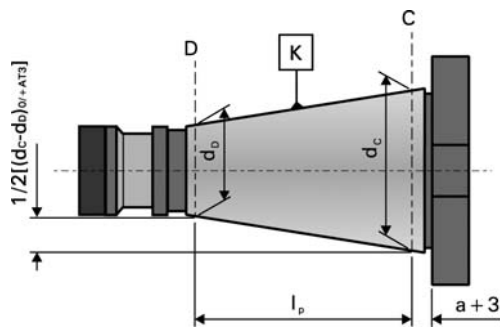
- Acero de cementación al Cromo-Manganeso 1.7131 (16MnCr5).

EJECUCION:

- Cementado, templado y revenido.
 - Dureza superficial HRC 58±2 (670±40 HV30)
 - Profundidad capa cementada mínimo 0,5 mm.
 - Resistencia en el núcleo mínimo 800 N/mm² después del cementado.

PRECISION:

- Cono según DIN 254.
 - Angulo del cono:
 Tolerancia AT3 DIN 7178 T Ap 1 y DIN 2080 T Ap 1.
 - Otras tolerancias según DIN 7160 y 7168.
 - Rugosidad superficial del cono R_z < 0,001 mm.



MANUFACTURED FROM FORGED PARTS

MATERIAL:

- Alloyed carburized steel at chrome-manganese 1.7131 (16MnCr5).

EXECUTION:

- Carburized, hardness.
 - Surface hardness HRC 58±2 (670±40 HV30)
 - Depth minimum 0,5 mm.
 - Tensile strength in core minimum 800 N/mm² after carburizing.

ACCURACY:

- Taper according to DIN 254
 - Taper angle:
 tolerance AT 3 DIN 7178 part 1 and DIN 2080 part 1.
 - Other tolerances according to DIN 7160 and 7168.
 - Taper surface roughness R_z < 0,001 mm.

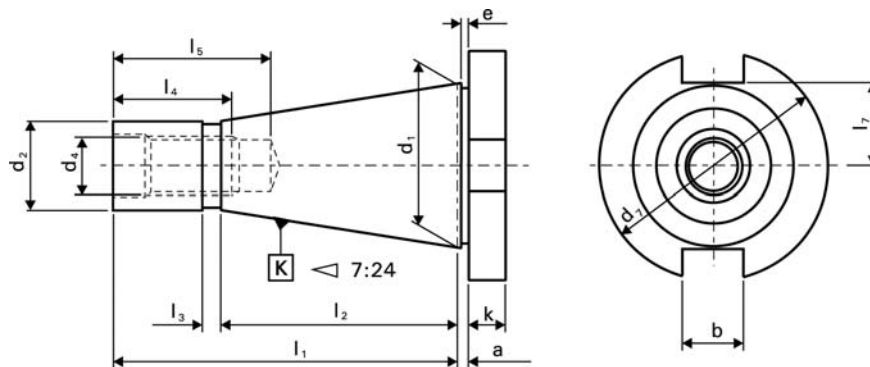
K	AT 3 mm
ISO 30	0,002
ISO 40	0,003
ISO 45	0,003
ISO 50	0,004
ISO 60	0,005

TOLERANCIA AT:

- Indica la tolerancia en el plano de medida D entre el valor real de la conicidad del cono y el valor teórico.
 - Este valor en el plano D debe ser siempre menos (negativo), nunca mas (positivo), para así poder GARANTIZAR una buena sujeción del Mandrino en el diámetro mayor del cono.

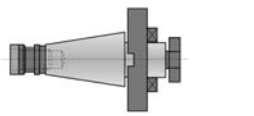
TOLERANCE AT:

- Indicates the tolerance of size D surface between the real and the theoretical value of the taper conicity.
 - This value of surface D must always be less (negative), never more (positive) in order to GUARANTEE a good toolholder fixation at the bigger taper diameter.

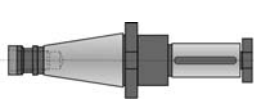


K ISO	a±0,2 mm	b H12 mm	d ₁ mm	d ₂ mm	d ₄ mm	d ₇ mm	k mm
30	1,6	16,1	31,75	17,4	M 12	50	8
40	1,6	16,1	44,45	25,3	M 16	63	10
45	3,2	19,3	57,15	32,4	M 20	80	12
50	3,2	25,7	69,85	39,6	M 24	97,5	12
60	3,2	25,7	107,95	60,2	M 30	156	16

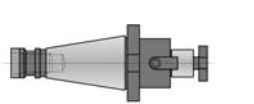
K ISO	l ₁ mm	l ₂ mm	l ₃ mm	l ₄ mm	l ₅ min mm	l ₇ max mm
30	68,4	48,4	3	24	33,5	16,2
40	93,4	65,4	5	32	42,5	22,5
45	106,8	82,8	6	40	52,5	29
50	126,8	101,8	8	47	61,5	35,3

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ORDER NR. - PAGE**10.100**

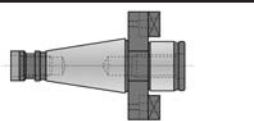
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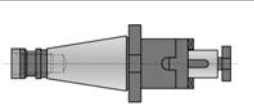
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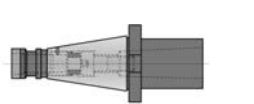
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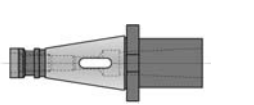
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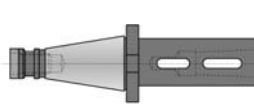
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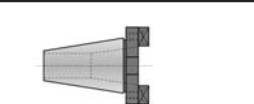
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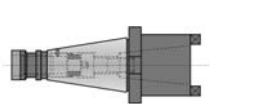
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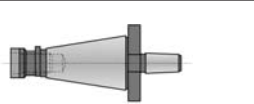
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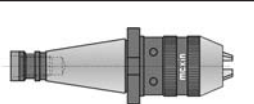
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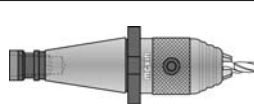
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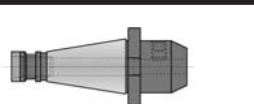
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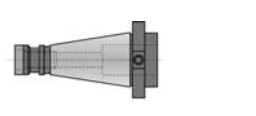
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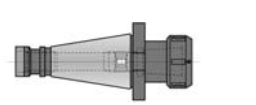
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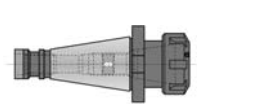
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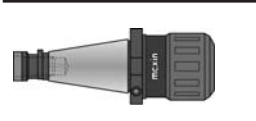
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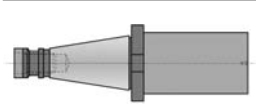
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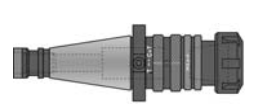
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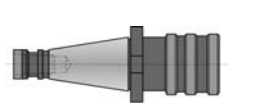
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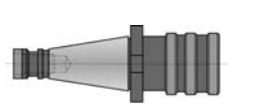
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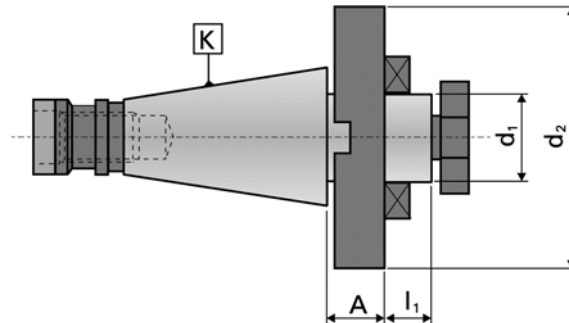
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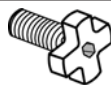
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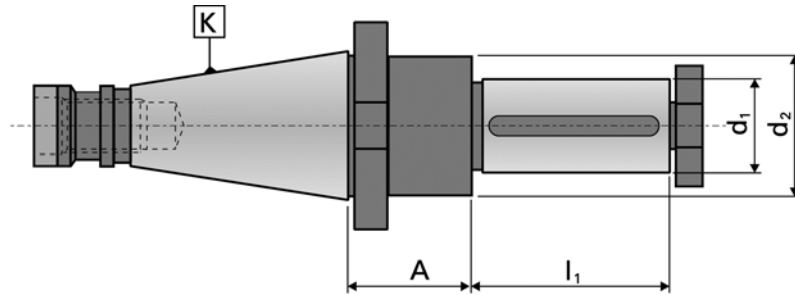


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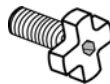


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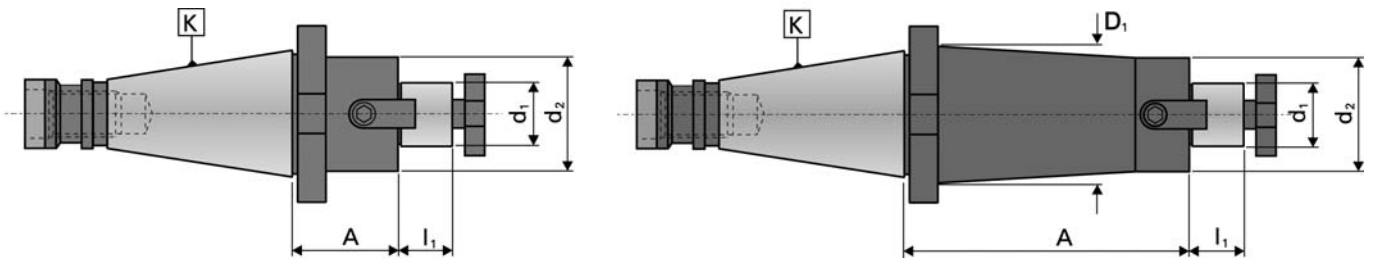


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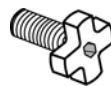


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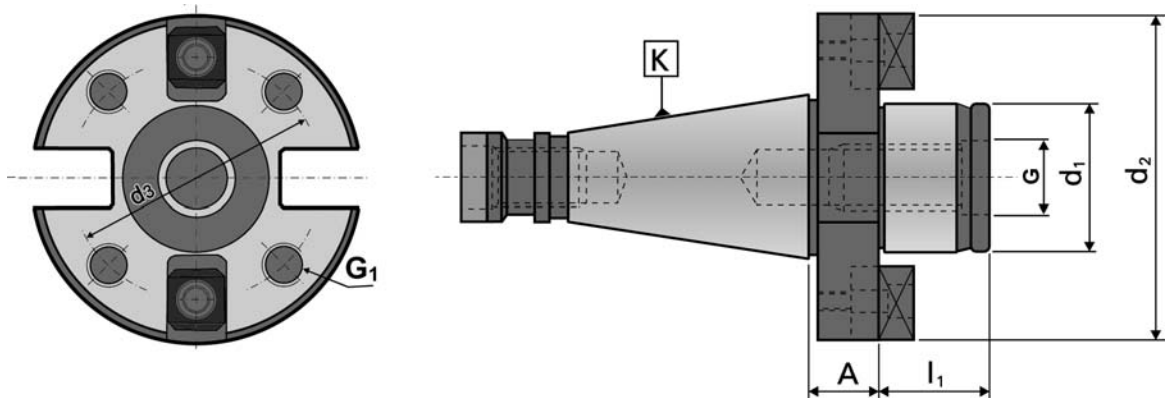


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10.160.40.32		32	30	24	78	
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REF. 10.160



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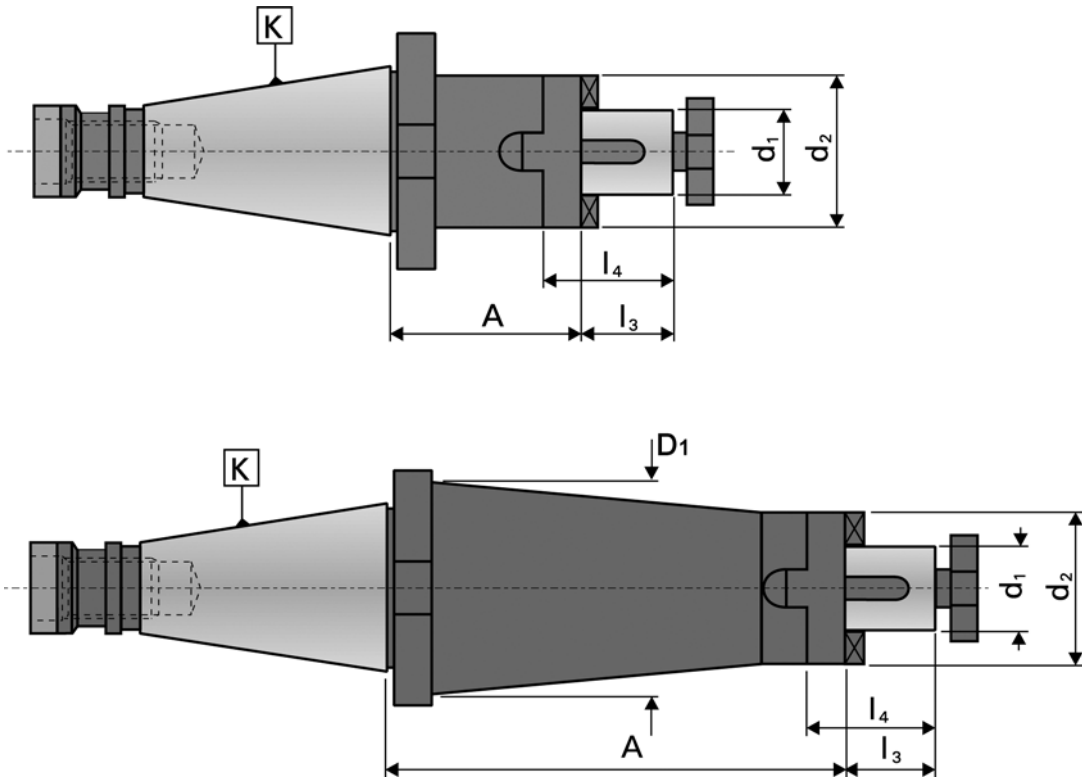


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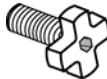


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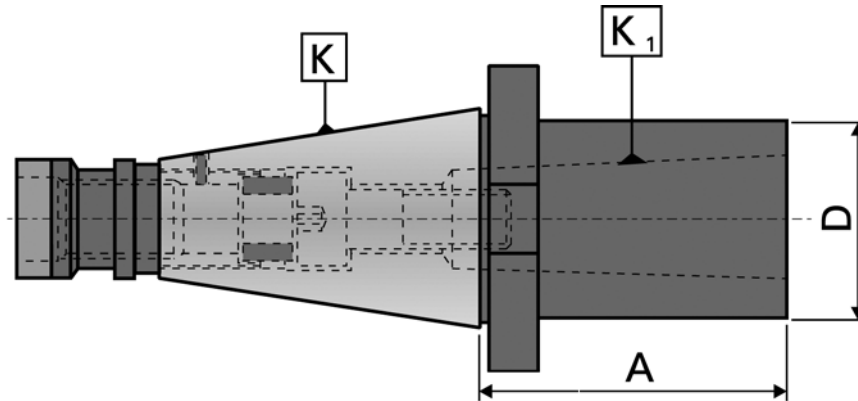


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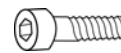


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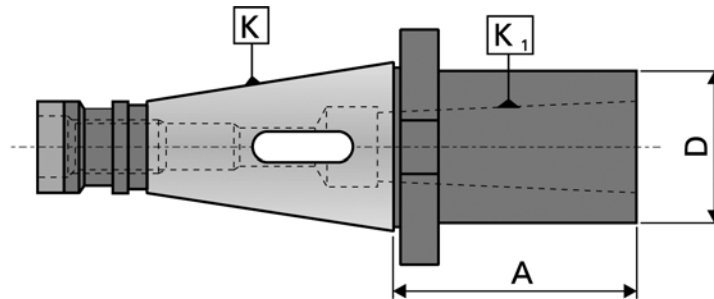
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10.180.50.50		50	55	30	46	90		89.100.50	89.161.40	89.141.50



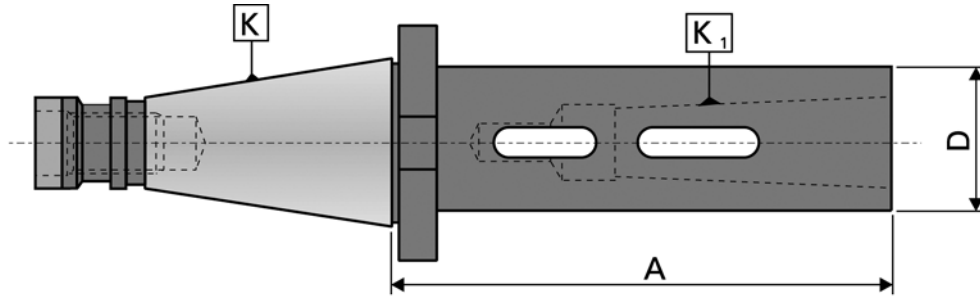
REF. 10.210	K ISO	K ₁ MORSE	A mm	D mm
10.210.30.01	30	1	50	25
10.210.30.02		2	50	32
10.210.30.03		3	76	40
10.210.40.01	40	1	50	25
10.210.40.02		2	50	32
10.210.40.03		3	65	40
10.210.40.04		4	95	48
10.210.50.01	50	1	60	25
10.210.50.02		2	60	32
10.210.50.03		3	65	40
10.210.50.04		4	65	48
10.210.50.05		5	100	63

REF. 10.210


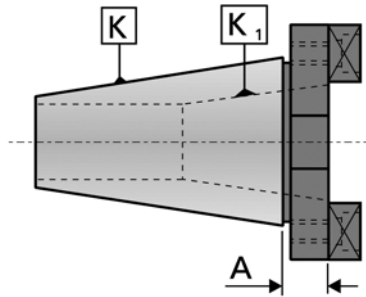
10.210.30.01	89.195.31	89.120.26
10.210.30.02	89.195.32	89.124.18
10.210.30.03	89.195.33	89.124.29
10.210.40.01	89.195.41	89.120.28
10.210.40.02	89.195.42	89.120.52
10.210.40.03	89.195.43	89.120.69
10.210.40.04	89.195.44	89.124.35
10.210.50.01	89.195.51	89.120.36
10.210.50.02	89.195.52	89.120.61
10.210.50.03	89.195.53	89.120.75
10.210.50.04	89.195.54	89.120.82
10.210.50.05	89.195.55	89.120.90




REF. 10.215	K ISO	K ₁ MORSE	A mm	D mm
10.215.30.01	30	1	50	25
10.215.30.02		2	50	32
10.215.30.03		3	76	40
10.215.40.01	40	1	50	25
10.215.40.02		2	50	32
10.215.40.03		3	65	40
10.215.40.04		4	95	48
10.215.50.01	50	1	45	25
10.215.50.02		2	60	32
10.215.50.03		3	65	40
10.215.50.04		4	70	48
10.215.50.05		5	105	63

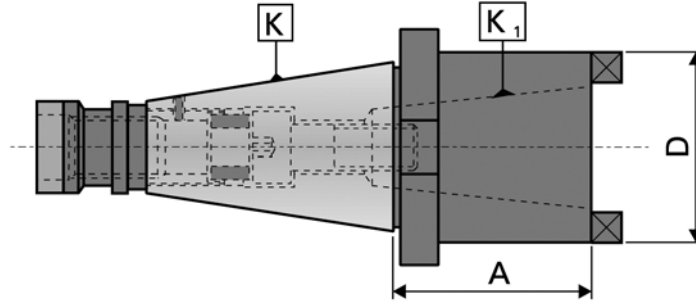


REF. 10.216	K ISO	K ₁ MORSE	A mm	D mm
10.216.40.02	40	2	110	32
10.216.40.03		3	135	40
10.216.40.04		4	160	48
10.216.50.02	50	2	115	32
10.216.50.03		3	140	40
10.216.50.04		4	165	48
10.216.50.05		5	215	63


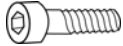


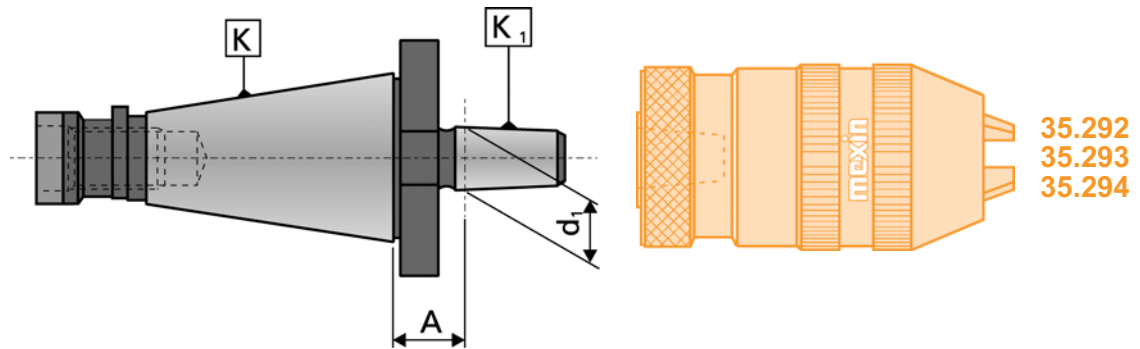
REF. 10.220	K ISO	K ₁ ISO	A mm
10.220.40.30	40	30	19
10.220.50.30	50	30	23
10.220.50.40		40	23

REF. 10.220		
10.220.40.30		89.174.40
10.220.50.30		89.174.40
10.220.50.40		89.174.40



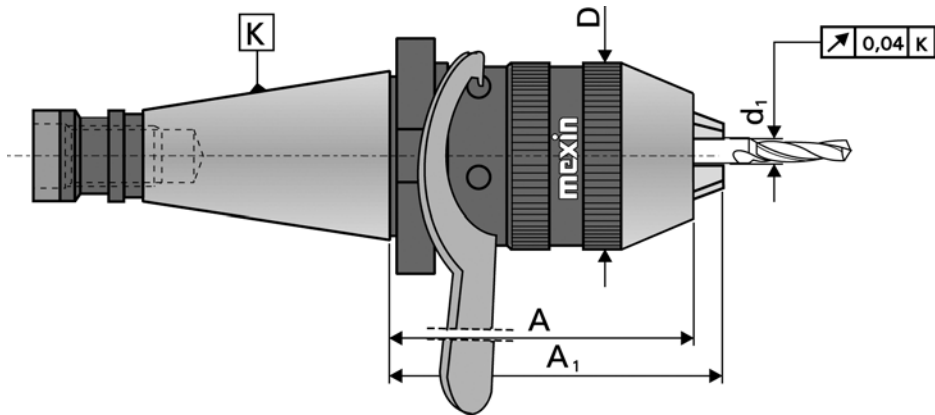
REF. 10.225	K ISO	K ₁ ISO	A mm	D mm
10.225.40.30	40	30	50	50
10.225.50.30	50	30	50	50
10.225.50.40		40	50	63

REF. 10.225		
10.225.40.30	89.195.43	89.120.69
10.225.50.30	89.195.53	89.120.76
10.225.50.40	89.195.54	89.120.81





REF. 10.290	K ISO	K ₁ DIN 238	A mm	d ₁ mm
10.290.30.12	30	B-12	15	12,065
10.290.30.16		B-16	15	15,733
10.290.40.12	40	B-12	17	12,065
10.290.40.16		B-16	17	15,733
10.290.40.18		B-18	17	17,437
10.290.50.16	50	B-16	20	15,733
10.290.50.18		B-18	20	17,437

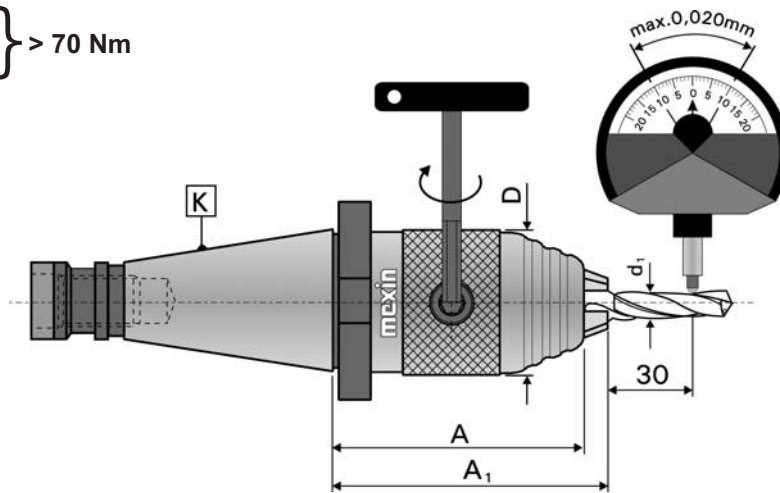
PAR DE SUJECI3N } > 70 Nm
 TIGHTENING TORQUE }



REF. 10.295	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
10.295.30.08	30	0-08	36,0	66,0	74,5
10.295.40.08	40	0-08	36,0	60,0	68,0
10.295.40.13		0-13	50,5	86,5	97,5
10.295.40.16		3-16	56,0	94,0	107,0
10.295.50.13	50	0-13	50,5	81,0	92,0
10.295.50.16		3-16	56,0	86,0	99,0
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					



REF. 10.295		
10.295.30.08	89.200.08	3 89.220.08
10.295.40.08	89.200.08	89.220.08
10.295.40.13	89.200.13	89.220.13
10.295.40.16	89.200.16	89.220.16
10.295.50.13	89.200.13	89.220.13
10.295.50.16	89.200.16	89.220.16

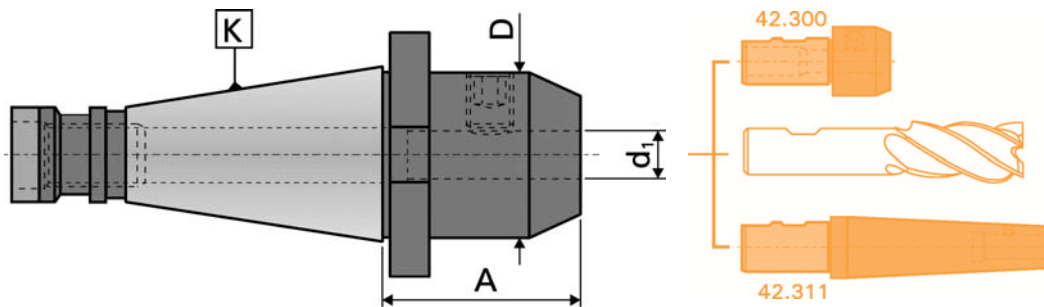
PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }




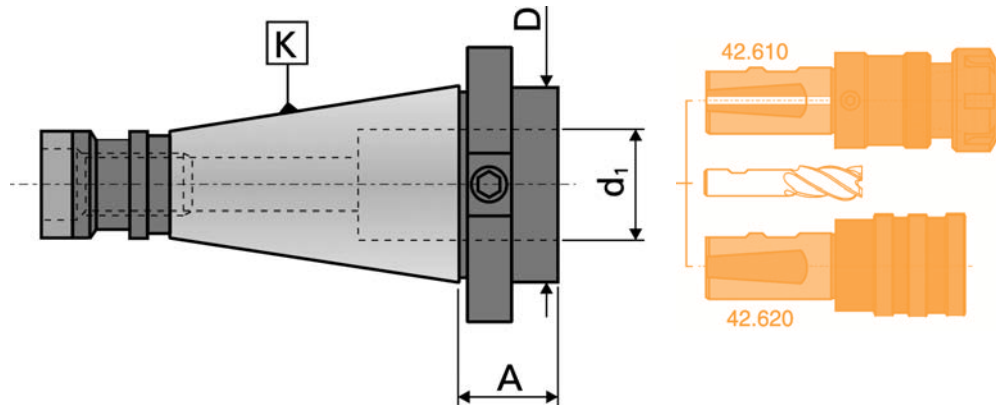
REF. 10.296	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
10.296.40.13	40	1-13	50	74	81
10.296.40.16		3-16	56	83	90
10.296.50.13	50	1-13	50	78	85
10.296.50.16		3-16	56	87	94

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

REF. 10.296		
10.296.40.13	89.206.06	89.220.13
10.296.40.16	89.206.06	89.220.13
10.296.50.13	89.206.06	89.220.13
10.296.50.16	89.206.06	89.220.13

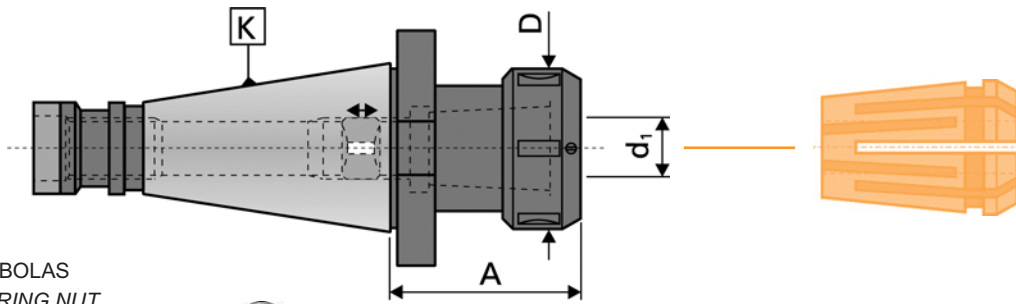


REF. 10.300	K ISO	d ₁ H4 mm	A mm	D mm	
10.300.30.06	30	6	40	25	89.122.20
10.300.30.08		8	40	28	89.122.35
10.300.30.10		10	40	35	89.122.40
10.300.30.12		12	40	42	89.122.50
10.300.30.14		14	40	44	89.122.50
10.300.30.16		16	50	48	89.122.60
10.300.30.18	18	50	50	89.122.60	
10.300.40.06	40	6	50	25	89.122.20
10.300.40.08		8	50	28	89.122.35
10.300.40.10		10	50	35	89.122.40
10.300.40.12		12	50	42	89.122.50
10.300.40.14		14	63	44	89.122.50
10.300.40.16		16	63	48	89.122.60
10.300.40.18		18	63	50	89.122.60
10.300.40.20		20	63	52	89.122.65
10.300.40.25		25	80	65	89.122.75
10.300.40.32		32	80	72	89.122.80
10.300.40.40	40	102	90	89.122.80	
10.300.50.06	50	6	63	25	89.122.20
10.300.50.08		8	63	28	89.122.35
10.300.50.10		10	63	35	89.122.40
10.300.50.12		12	63	42	89.122.50
10.300.50.14		14	63	44	89.122.50
10.300.50.16		16	63	48	89.122.60
10.300.50.18		18	63	50	89.122.60
10.300.50.20		20	63	52	89.122.65
10.300.50.25		25	80	65	89.122.70
10.300.50.32		32	80	72	89.122.80
10.300.50.40		40	90	90	89.122.80
10.300.50.50		50	100	98	89.122.85




REF. 10.302	K ISO	d ₁ H4 mm	A mm	D mm
10.302.30.16	30	16	20	32
10.302.30.20		20	34	36
10.302.40.16	40	16	22	44
10.302.40.20		20	22	44
10.302.40.25		25	22	44
10.302.50.16	50	16	16	-
10.302.50.20		20	16	-
10.302.50.25		25	16	-
10.302.50.32		32	16	-

REF. 10.302	
10.302.30.16	89.122.57
10.302.30.20	89.122.56
10.302.40.16	89.122.59
10.302.40.20	89.122.63
10.302.40.25	89.122.69
10.302.50.16	89.122.60
10.302.50.20	89.122.65
10.302.50.25	89.122.75
10.302.50.32	89.122.78



CON TUERCA A BOLAS
 WITH BALL BEARING NUT

REF. 10.351	A mm	 80.391	K ISO	d ₁ mm	D mm
10.351.30.16	43	80.391.16	30	2-16	43
10.351.30.25	70	80.391.25		3-25	60
10.351.40.16	50	80.391.16	40	2-16	43
10.351.40.25	63	80.391.25		3-25	60
10.351.40.32	90	80.391.32		4-32	72
10.351.50.25	63	80.391.25	50	3-25	60
10.351.50.32	70	80.391.32		4-32	72

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

REF. **10.351**




10.351.30.16		89.201.16		89.192.16
10.351.30.25		89.201.25		89.192.16
10.351.40.16		89.201.16		89.192.16
10.351.40.25		89.201.25		89.192.26
10.351.40.32		89.201.32		89.192.26
10.351.50.25		89.201.25		89.192.26
10.351.50.32		89.201.32		89.192.34

CON TUERCA NORMAL
 WITH NORMAL NUT

REF. **10.353**



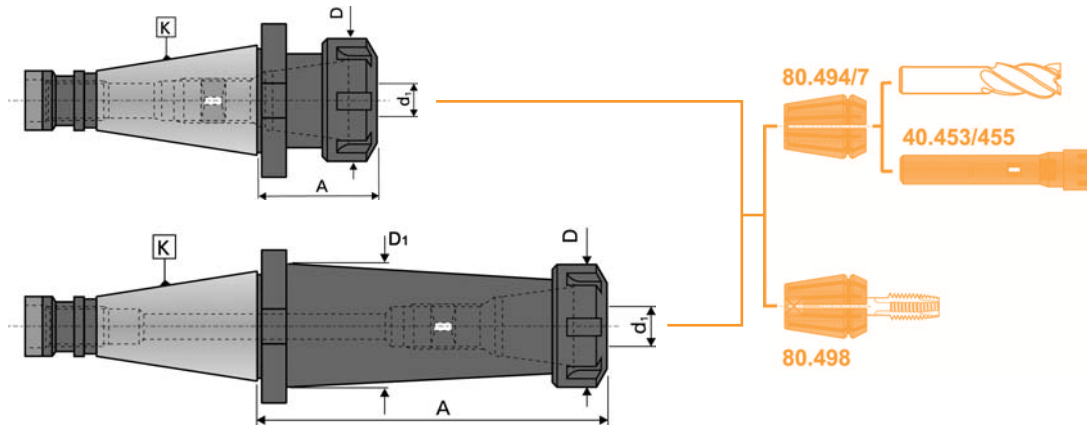
REF. 10.353	A mm	 80.393	K ISO	d ₁ mm	D mm
10.353.30.16	43	80.391.16	30	2-16	43
10.353.30.25	70	80.391.25		3-25	60
10.353.40.16	50	80.391.16	40	2-16	43
10.353.40.25	63	80.391.25		3-25	60
10.353.40.32	90	80.391.32		4-32	72
10.353.50.25	63	80.391.25	50	3-25	60
10.353.50.32	70	80.391.32		4-32	72

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH





REF. **10.353**







10.353.30.16		89.201.16		89.192.16
10.353.30.25		89.201.25		89.192.16
10.353.40.16		89.201.16		89.192.16
10.353.40.25		89.201.25		89.192.26
10.353.40.32		89.201.32		89.192.26
10.353.50.25		89.201.25		89.192.26
10.353.50.32		89.201.32		89.192.34

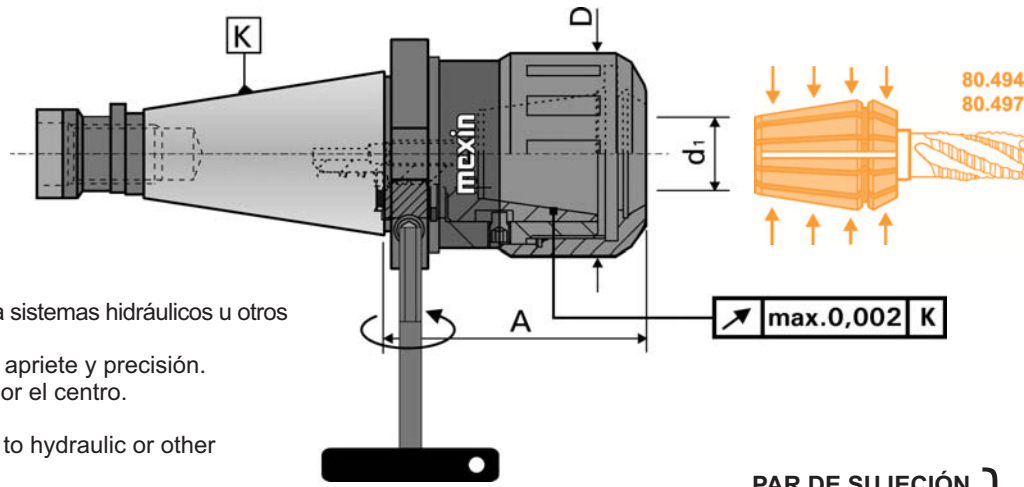


CON TUERCA A BOLAS
 WITH BALL BEARING NUT

REF. 10.451	A mm	 80.491	K ISO		d ₁ mm	D mm	D ₁ mm		
10.451.30.16	44,7	80.491.16	30	ER25	1-16	42		89.202.16	89.192.16
10.451.30.20	54,0	80.491.20		ER32	2-20	50		89.202.20	89.192.20
10.451.40.16	46,7	80.491.16	40	ER25	1-16	42		89.202.16	89.192.16
10.451.40.20	52,0	80.491.20		ER32	2-20	50		89.202.20	89.192.20
10.451.40.20/070	74,0	80.491.20		ER32	2-20	50		89.202.20	89.192.20
10.451.40.20/150	154,0	80.491.20		ER32	2-20	50	50	89.202.20	89.192.20
10.451.40.26	55,3	80.491.26		ER40	3-30	63		89.202.26	89.192.26
10.451.50.16	48,7	80.491.16	50	ER25	1-16	42		89.202.16	89.192.16
10.451.50.16/150	152,7	80.491.16		ER25	1-16	42	42	89.202.16	89.192.16
10.451.50.20	64,0	80.491.20		ER32	2-20	50		89.202.20	89.192.20
10.451.50.20/150	154,0	80.491.20		ER32	2-20	50	50	89.202.20	89.192.20
10.451.50.26	64,3	80.491.26		ER40	3-30	63		89.202.26	89.192.26
10.451.50.26/150	154,3	80.491.26		ER40	3-30	63	63	89.202.26	89.192.26
10.451.50.34	69,7	80.491.34		ER50	6-34	78		89.202.34	89.192.34
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH									

CON TUERCA A NORMAL
 WITH NORMAL NUT


REF. 10.453	A mm	 80.493	K ISO		d ₁ mm	D mm	D ₁ mm		
10.453.30.16	42	80.493.16	30	ER25	1-16	42		89.202.16	89.192.16
10.453.30.20	50	80.493.20		ER32	2-20	50		89.202.20	89.192.20
10.453.40.16	44	80.493.16	40	ER25	1-16	42		89.202.16	89.192.16
10.453.40.20	48	80.493.20		ER32	2-20	50		89.202.20	89.192.20
10.453.40.20/070	70	80.493.20		ER32	2-20	50		89.202.20	89.192.20
10.453.40.20/150		80.493.20		ER32	2-20	50	50	89.202.20	89.192.20
10.453.40.26	51	80.493.26		ER40	3-30	63		89.202.26	89.192.26
10.453.50.16	46	80.493.16	50	ER25	1-16	42		89.202.16	89.192.16
10.453.50.16/150	150	80.493.16		ER25	1-16	42	42	89.202.16	89.192.16
10.453.50.20	60	80.493.20		ER32	2-20	50		89.202.20	89.192.20
10.453.50.20/150	150	80.493.20		ER32	2-20	50	50	89.202.20	89.192.20
10.453.50.26	60	80.493.26		ER40	3-30	63		89.202.26	89.192.26
10.453.50.26/150	150	80.493.26		ER40	3-30	63	63	89.202.26	89.192.26
10.453.50.34	65	80.493.34		ER50	6-34	78		89.202.34	89.192.34
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH									





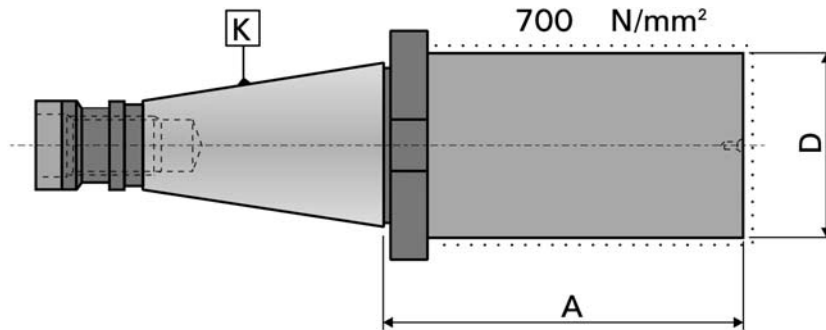
La alternativa a sistemas hidráulicos u otros sistemas.
 Gran fuerza de apriete y precisión.
 Refrigeración por el centro.

The alternative to hydraulic or other systems.
 High tightening and precision.
 Central coolant supply.

PAR DE SUJECIÓN } > 300 Nm Ø 20
TIGHTENING TORQUE }

REF. 10.457	K ISO		d ₁ mm	A mm	D mm
10.457.40.20	40	ER 32	2-20	80	54
10.457.50.20	50	ER 32	2-20	85	54
10.457.50.30		ER 40	3-30	97	65
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

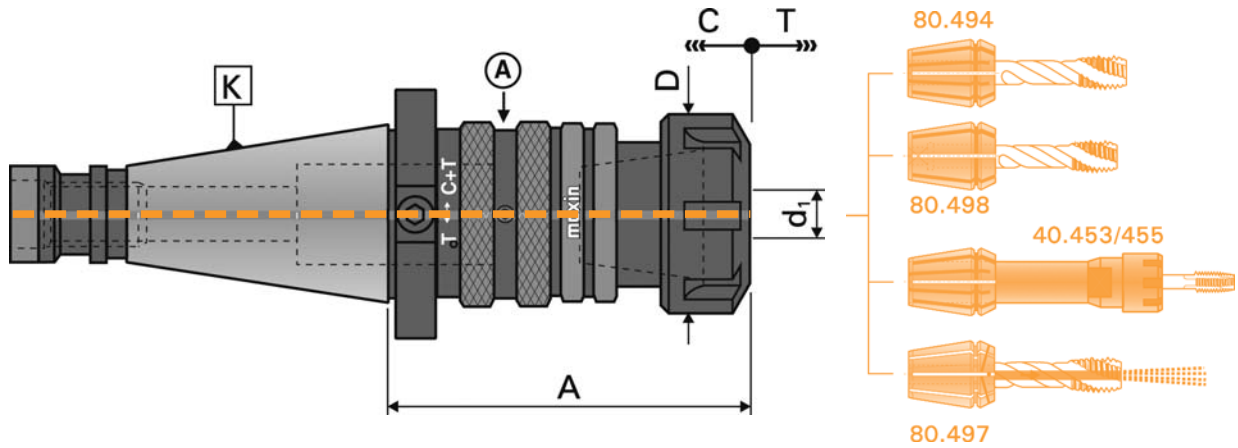
REF. 10.457		
10.457.40.20	89.190.19	89.206.04
10.457.50.20	89.190.19	89.206.04
10.457.50.30	89.190.41	89.206.06





REF. 10.470	K ISO	D mm	A mm
10.470.30.40	30	40,5	160
10.470.40.40	40	40,5	100
10.470.40.40/160		40,5	160
10.470.40.50		50,5	100
10.470.40.50/200		50,5	200
10.470.40.63		63,5	160
10.470.40.63/250		63,5	250
10.470.50.40	50	40,5	100
10.470.50.40/160		40,5	160
10.470.50.50		50,5	100
10.470.50.50/200		50,5	200
10.470.50.63		63,5	200
10.470.50.63/315		63,5	315
10.470.50.95		95,5	200
10.470.50.95/315		95,5	315



Compensación a la compresión (C) y a la tracción (T).
 Posibilidad de anular la compresión con el anillo (A).
 Control de la profundidad de roscado.
 Refrigeración por el centro.

Compensation in compression (C) and tension (T).
 Compression can be blocked by turning the rear ring (A).
 Control of threading depth.
 Central coolant supply.

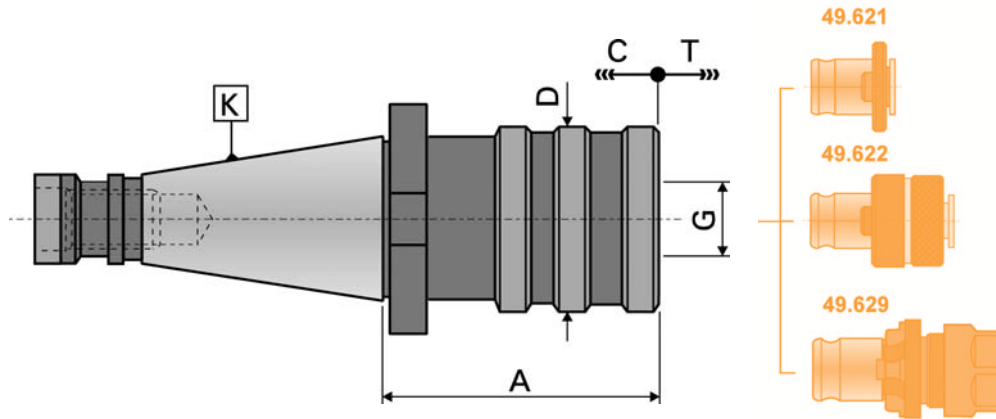



REF. 10.610	K ISO			A mm	D mm	C mm	T mm
10.610.30.12	30	ER 16	M3-M12	100,5	28	5,5	6,0
10.610.40.12	40	ER 16	M3-M12	88,5	28	5,5	6,0
10.610.40.20		ER 25	M4-M20	112,0	42	10,5	7,5
10.610.40.33		ER 40	M8-M33	128,0	63	10,0	10,0
10.610.50.12	50	ER 16	M3-M12	82,5	28	5,5	6,0
10.610.50.20		ER 25	M4-M20	106,0	42	10,5	7,5
10.610.50.33		ER 40	M8-M33	122,0	63	10,0	10,0



* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 10.610		
10.610.30.12	80.493.10	89.202.10
10.610.40.12	80.493.10	89.202.10
10.610.40.20	80.493.16	89.202.16
10.610.40.33	80.493.26	89.202.26
10.610.50.12	80.493.10	89.202.10
10.610.50.20	80.493.16	89.202.16
10.610.50.33	80.493.26	89.202.26

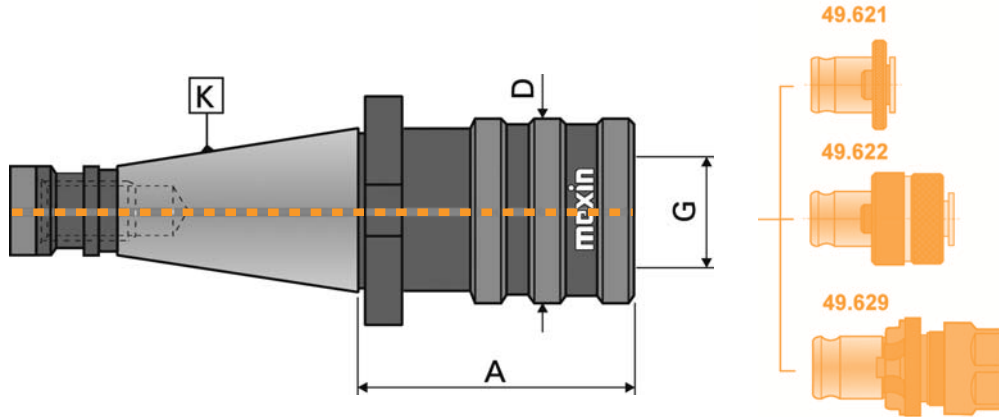
COMPENSACION DEL PASO A LA COMPRESION (C) Y A LA TRACCION (T)
COMPENSATION IN COMPRESSION (C) AND TENSION (T)






REF. 10.620	K ISO	G No.	Ø		A mm	D mm	C mm	T mm
10.620.30.12	30	1	19	M3-M12	41	38	9	9
10.620.40.12	40	1	19	M3-M12	41	38	9	9
10.620.40.20		2	31	M8-M20	63	55	15	15
10.620.40.33		3	48	M14-M33	97	79	24	24
10.620.50.12	50	1	19	M3-M12	41	38	9	9
10.620.50.20		2	31	M8-M20	20	55	15	15
10.620.50.33		3	48	M14-M33	97	79	24	24

REF. 10.620		
10.620.30.12	49.621.12xx	49.622.12xx
10.620.40.12	49.621.12xx	49.622.12xx
10.620.40.20	49.621.20xx	49.622.20xx
10.620.40.33	49.621.33xx	49.622.33xx
10.620.50.12	49.621.12xx	49.622.12xx
10.620.50.20	49.621.20xx	49.622.20xx
10.620.50.33	49.621.33xx	49.622.33xx

CON PASO DE REFRIGERANTE
WITH INNER COOLANT



REF. 10.630	K ISO	G No.	Ø		A mm	D mm
10.630.30.12	30	1	19	M3-M12	50	33
10.630.40.12	40	1	19	M3-M12	52	33
10.630.40.20		2	31	M8-M20	74	50
10.630.40.33		3	48	M14-M33	115	72
10.630.50.12	50	1	19	M3-M12	55	33
10.630.50.20		2	31	M8-M20	78	50
10.630.50.33		3	48	M14-M33	83	72

REF. 10.630		
10.630.30.12	49.621.12xx	49.622.12xx
10.630.40.12	49.621.12xx	49.622.12xx
10.630.40.20	49.621.20xx	49.622.20xx
10.630.40.33	49.621.33xx	49.622.33xx
10.630.50.12	49.621.12xx	49.622.12xx
10.630.50.20	49.621.20xx	49.622.20xx
10.630.50.33	49.621.33xx	49.622.33xx

FABRICADO CON MATERIAL FORJADO

MATERIAL:

- Acero de cementación al Cromo-Manganeso 1.7131 (16MnCr5).

EJECUCION:

- Cementado, templado y revenido.
 - Dureza superficial HRC 58±2 (670±40 HV30)
 - Profundidad capa cementada mínimo 0,5 mm.
 - Resistencia en el núcleo mínimo 800 N/mm² después del cementado.

PRECISION:

- Cono según DIN 254.
 - Angulo del cono:
 Tolerancia AT3 DIN 7178 T Ap 1 y DIN 2080 T Ap 1.
 - Otras tolerancias según DIN 7160 y 7168.
 - Rugosidad superficial del cono R_z < 0,001 mm.

MANUFACTURED FROM FORGED PARTS

MATERIAL:

- Alloyed carburized steel at chrome-manganese 1.7131 (16MnCr5).

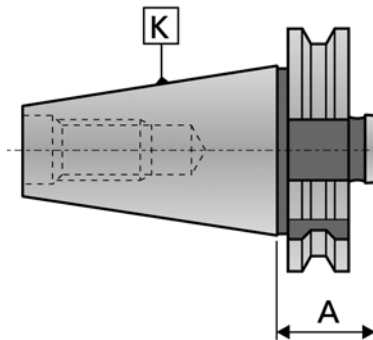
EXECUTION:

- Carburized, hardness.
 - Surface hardness HRC 58±2 (670±40 HV30)
 - Depth minimum 0,5 mm.
 - Tensile strength in core minimum 800 N/mm² after carburizing.

ACCURACY:

- Taper according to DIN 254
 - Taper angle:
 tolerance AT 3 DIN 7178 part 1 and DIN 2080 part 1.
 - Other tolerances according to DIN 7160 and 7168.
 - Taper surface roughness R_z < 0,001 mm.

K	AT 3 mm
ISO 30	0,002
ISO 40	0,003
ISO 45	0,003
ISO 50	0,004
ISO 60	0,005



PORTAHERRAMIENTAS PRE-EQUILIBRADOS
PREBALANCED TOOLHOLDERS

ISO 40 ▶ 8000 rpm ISO 50 ▶ 8000 rpm

TOLERANCIA AT:

- Indica la tolerancia en el plano de medida D entre el valor real de la conicidad del cono y el valor teórico.
 - Este valor en el plano D debe ser siempre menos (negativo), nunca mas (positivo), para así poder GARANTIZAR una buena sujeción del Mandrino en el diámetro mayor del cono.

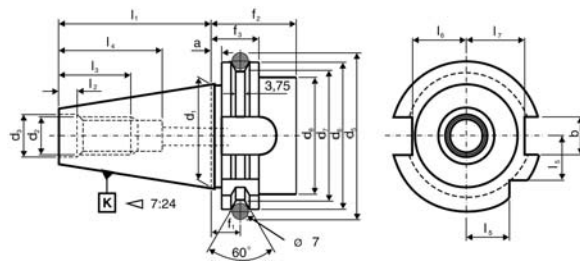
TOLERANCE AT:

- Indicates the tolerance of size D surface between the real and the theoretical value of the taper conicity.
 - This value of surface D must always be less (negative), never more (positive) in order to GUARANTEE a good toolholder fixation at the bigger taper diameter.

11 DIN 69871-A-AD

FORM A : SIMILAR DIN 69871 AD

SIN AGUJERO CENTRAL
 WITHOUT THROUGH HOLE



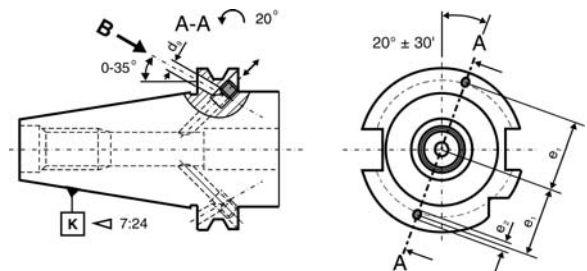
K ISO	a±0,1 mm	b H12 mm	d ₁ mm	d ₂ mm	d ₃ H7 mm	d ₅ ±0,05 mm	d ₆ 0/-0,1 mm	d ₇ 0/-0,5 mm	d ₈ max mm
30	3,2	16,1	31,75	M 12	13	59,30	50,00	44,30	45
40	3,2	16,1	44,45	M 16	17	72,30	63,55	56,25	50
50	3,2	25,7	69,85	M 24	25	107,25	97,50	91,25	80
60	3,2	25,7	107,95	M 30	32	164,75	155,00	147,70	130

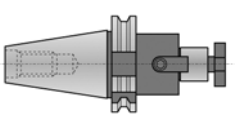
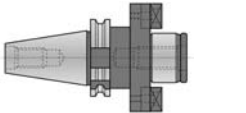
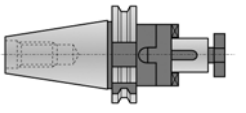
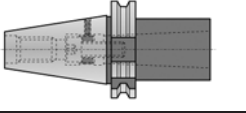
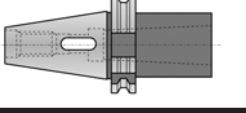
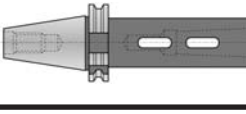
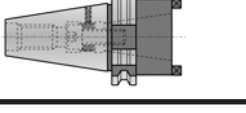
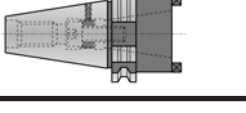
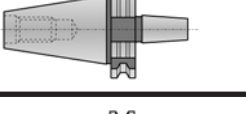
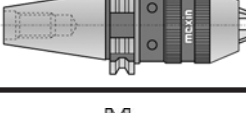
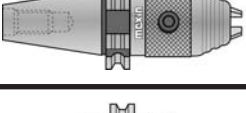
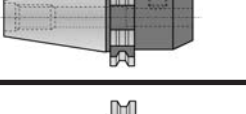
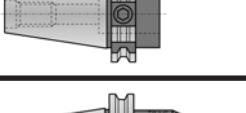
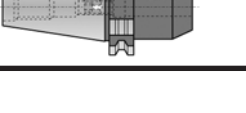
K ISO	f ₁ ±0,1 mm	f ₂ min mm	f ₃ 0/-0,1 mm	l ₁ mm	l ₂ mm	l ₃ min mm	l ₄ min mm	l ₅ 0/-0,3 mm	l ₆ 0/-0,4 mm	l ₇ 0/-0,4 mm	d ₉ mm	e ₁ ±0,1 mm	e ₂ max mm
30	11,1	35	19,1	47,80	5,5	24	33,5	15,0	16,4	19,0	4	21	5,0
40	11,1	35	19,1	68,40	8,2	32	42,5	18,5	22,8	25,0	4	27	5,0
50	11,1	35	19,1	101,75	11,5	47	61,5	30,0	35,5	37,7	6	42	7,0
50	11,1	38	19,1	161,80	14,0	59	76,0	49,0	54,2	59,3	8	66	9,2

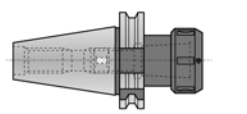
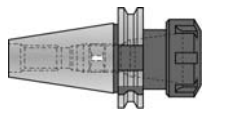
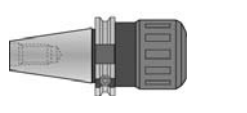
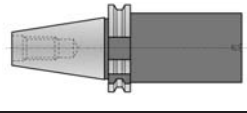
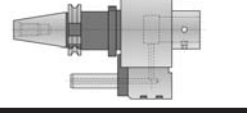
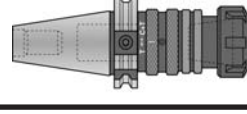
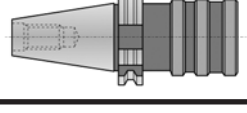
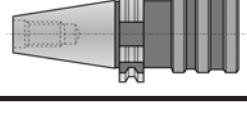


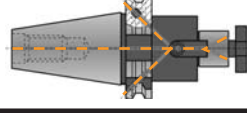
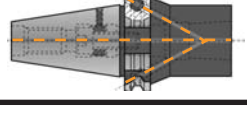
13 DIN 69871-B

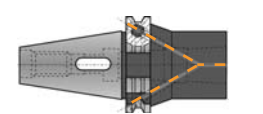
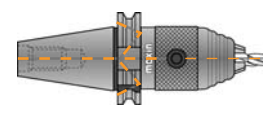
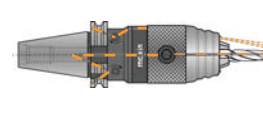
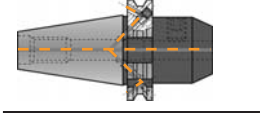
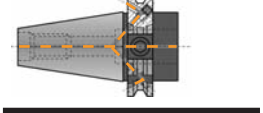
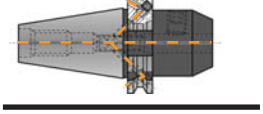
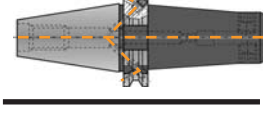
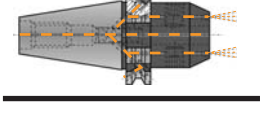
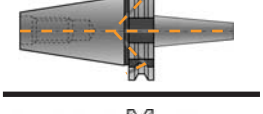
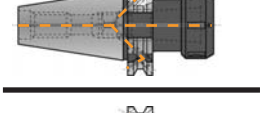
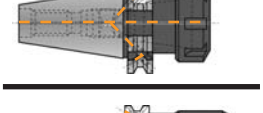

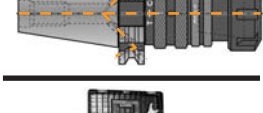

FORM B : SIMILAR DIN 69871 AD+B

CON REFRIGERACIÓN CENTRAL POR LA VALONA
 WITH CENTRAL COOLANT FEED THROUGH THE COLLAR

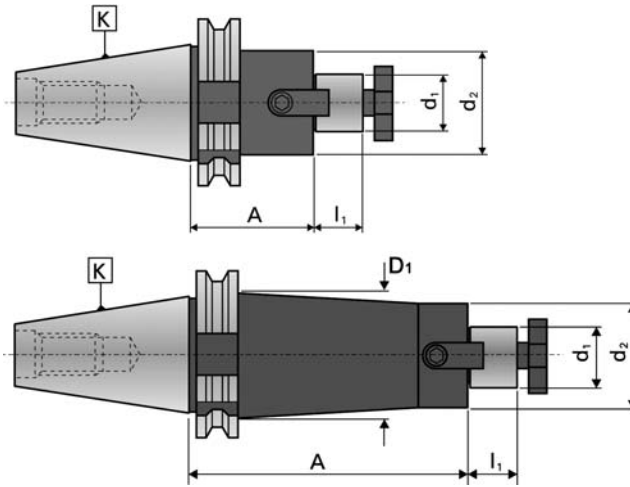


11.160	
B.01	
11.165	
B.03	
11.180	
B.04	
11.210	
B.05	
11.215	
B.06	
11.216	
B.07	
11.225	
B.08	
11.226	
B.08	
11.290	
B.09	
11.295	
B.10	
11.296	
B.11	
11.300	
B.13	
11.302	
B.14	
11.305	
B.15	

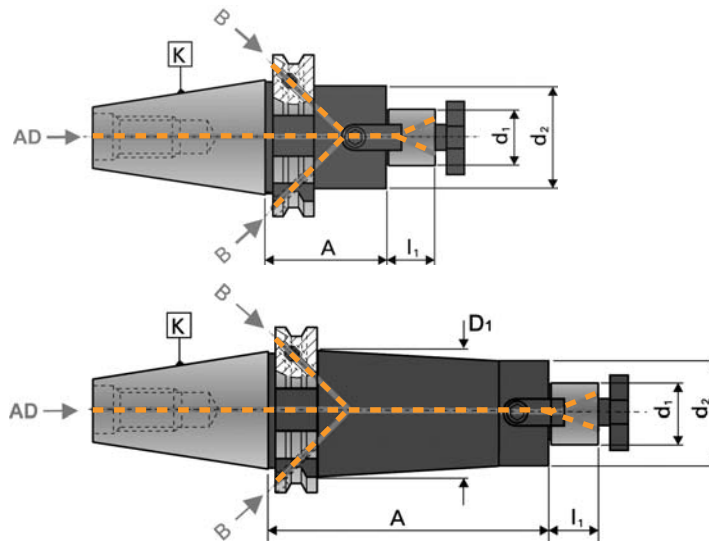
11.351/3	
B.21	
11.451/3	
B.22	
11.457	
B.23	
11.470	
B.24	
11.512	
B.25	
11.610	
B.26	
11.620	
B.27	
11.630	
B.28	
ANTIVIBRATORIO ANTIVIBRATORY	
A11.160	
B.02	
A11.315	
B.20	
FORM - B SIMILAR DIN 69871	
13.160	
B.01	
13.210	
B.05	

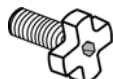

13.215	
B.06	
13.296	
B.11	
13.297	
B.12	
13.300	
B.13	
13.302	
B.14	
13.305	
B.15	
13.306	
B.17	
13.307	
B.18	
13.315	
B.19	
13.351/3	
B.21	
13.451/3	
B.22	
13.457	
B.23	
13.610	
B.26	
KIT	
B.16	

11.160



13.160

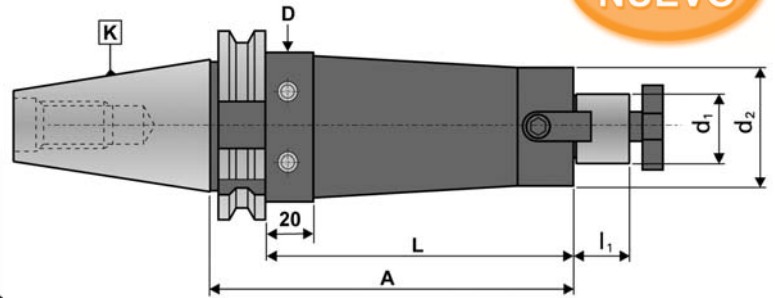


REF. 11.160	A mm	REF. 13.160	A mm	K ISO	d ₁ h6 mm	I ₁ mm	d ₂ mm	D ₁ mm		
11.160.30.16	40			30	16	17	38		89.100.16	89.171.16
11.160.30.22	40				22	19	48		89.100.22	89.171.22
11.160.30.27	40				27	21	58		89.100.27	89.171.28
11.160.40.16	35	13.160.40.16	35	40	16	17	38		89.100.16	89.171.16
11.160.40.16/100	100	13.160.40.16/100	100		16	17	32	35	89.100.16	89.171.16
11.160.40.22	35	13.160.40.22	35		22	19	48		89.100.22	89.171.22
11.160.40.22/100	100	13.160.40.22/100	100		22	19	40	48	89.100.22	89.171.22
11.160.40.27	40	13.160.40.27	40		27	21	58		89.100.27	89.171.27
11.160.40.27/100	100	13.160.40.27/100	100		27	21	48	48	89.100.27	89.171.27
11.160.40.32	50	13.160.40.32	50		32	24	78		89.100.32	89.171.32
11.160.40.32/125	125	13.160.40.32/125	125		32	24	58	58	89.100.32	89.171.32
11.160.40.40	50	13.160.40.40	50		40	27	88		89.100.40	89.171.41
11.160.50.16	35	13.160.50.16	35	50	16	17	38		89.100.16	89.171.16
11.160.50.16/150	150	13.160.50.16/150	150		16	17	32	35	89.100.16	89.171.16
11.160.50.22	35	13.160.50.22	35		22	19	48		89.100.22	89.171.22
11.160.50.22/150	150	13.160.50.22/150	150		22	19	40	48	89.100.22	89.171.22
11.160.50.27	40	13.160.50.27	40		27	21	58		89.100.27	89.171.27
11.160.50.27/150	150	13.160.50.27/150	150		27	21	48	60	89.100.27	89.171.27
11.160.50.32	50	13.160.50.32	50		32	24	78		89.100.32	89.171.32
11.160.50.32/150	150	13.160.50.32/150	150		32	24	58	78	89.100.32	89.171.32
11.160.50.40	50	13.160.50.40	50		40	27	88		89.100.40	89.171.40
11.160.50.40/150	150	13.160.50.40/150	150		40	27	70	78	89.100.40	89.171.40
11.160.50.50	50	13.160.50.50	50		50	30	90		89.100.50	89.171.51

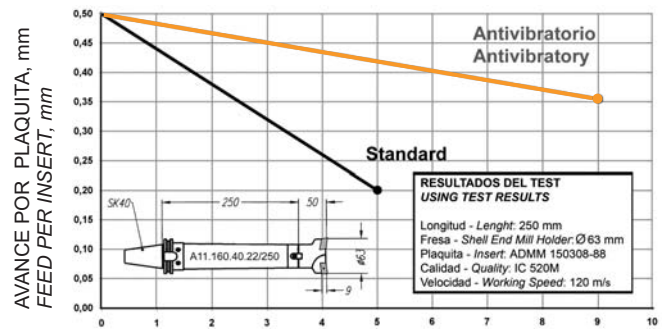


ESPECIAL PARA MOLDISTAS Y TROQUELISTAS
SPECIAL FOR MOULD AND DIE MAKERS

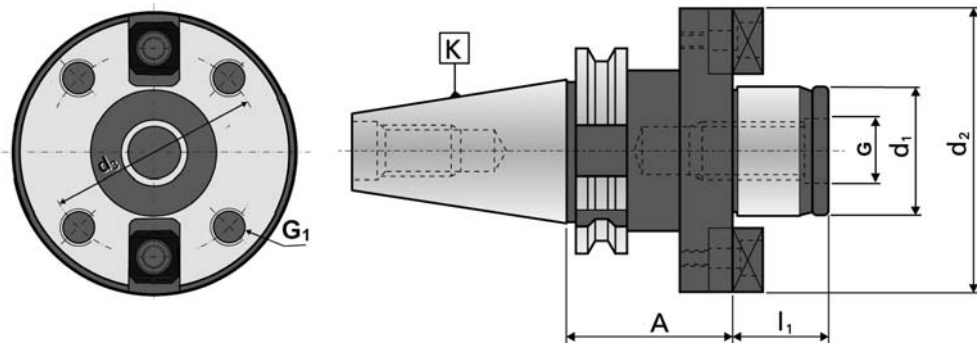
NEW
NUEVO



COMPARATIVA USANDO UN MANDRINO ANTIVIBRATORIO
COMPARISON WHEN USING AN ANTIVIBRATORY TOOLHOLDER



DIN 69871-A	K ISO	L mm	D mm	D ₁ mm	d ₁ h6 mm	A mm	l ₁ mm	d ₂ mm
A11.160.40.16/150	40	111	50	40	16	150	17	36
A11.160.40.16/200		161	50	42	16	200	17	36
A11.160.40.16/250		211	50	44	16	250	17	36
A11.160.40.16/300		261	50	46	16	300	17	36
A11.160.40.22/150	40	111	50	46	22	150	19	44
A11.160.40.22/200		161	50	48	22	200	19	44
A11.160.40.22/250		211	50	49	22	250	19	44
A11.160.40.22/300		261	50	49	22	300	19	44
A11.160.40.27/150	40	111	50	54	27	150	21	54
A11.160.40.27/200		161	50	54	27	200	21	54
A11.160.40.27/250		211	50	54	27	250	21	54
A11.160.40.27/300		261	50	54	27	300	21	54
A11.160.50.16/150	50	111	80	42	16	150	17	36
A11.160.50.16/200		161	80	46	16	200	17	36
A11.160.50.16/250		211	80	50	16	250	17	36
A11.160.50.16/300		261	80	54	16	300	17	36
A11.160.50.16/400	361	80	60	16	400	17	36	
A11.160.50.22/200	50	161	80	50	22	200	19	44
A11.160.50.22/250		211	80	52	22	250	19	44
A11.160.50.22/300		261	80	54	22	300	19	44
A11.160.50.22/400		361	80	58	22	400	19	44
A11.160.50.22/500	461	80	64	22	500	19	44	
A11.160.50.27/200	50	161	80	54	27	200	21	54
A11.160.50.27/250		211	80	56	27	250	21	54
A11.160.50.27/300		261	80	58	27	300	21	54
A11.160.50.27/400		361	80	62	27	400	21	54
A11.160.50.27/500	461	80	68	27	500	21	54	
A11.160.50.32/200	50	161	80	64	32	200	24	64
A11.160.50.32/250		211	80	66	32	250	24	64
A11.160.50.32/300		261	80	68	32	300	24	64
A11.160.50.32/400		361	80	74	32	400	24	64
A11.160.50.32/500	461	80	78	32	500	24	64	

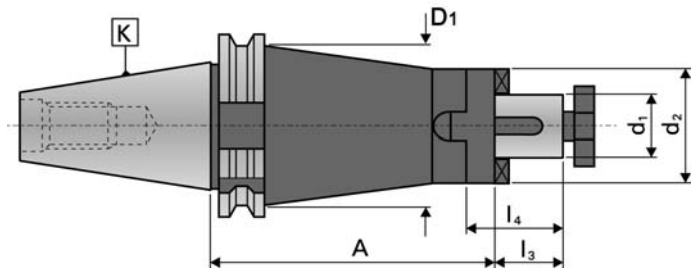
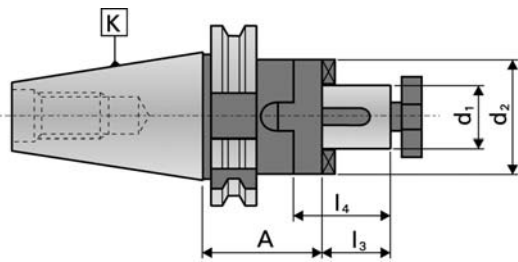


REF. 11.165	K ISO	d ₁ g5 mm	A mm	d ₂ mm	d ₃ mm	G mm	G ₁ mm	l ₁ mm
11.165.40.40	40	40	60	89	66,7	M-20	M-12	30
11.165.50.40	50	40	70	89	66,7	M-20	M-12	30
11.165.50.60		60	70	129	101,6	M-30	M-16	40

REF. 11.165

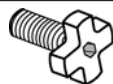


11.165.40.40	89.172.40
11.165.50.40	89.172.40
11.165.50.60	89.172.60

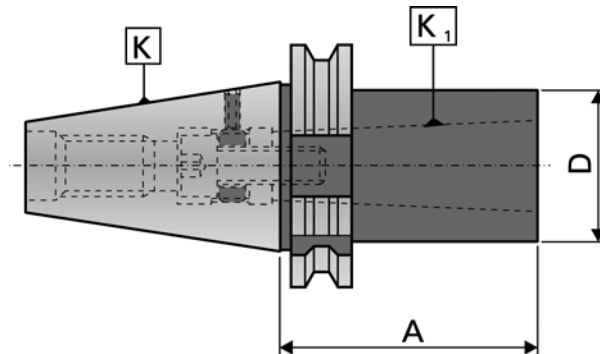





REF. 11.180	K ISO	d ₁ h6 mm	A mm	l ₃ mm	l ₄ mm	d ₂ mm	D ₁ mm
11.180.30.16	30	16	50	17	27	32	
11.180.30.22		22	50	19	31	40	
11.180.30.27		27	55	21	33	48	
11.180.40.16	40	16	55	17	27	32	
11.180.40.16/100		16	100	17	27	32	35
11.180.40.22		22	55	19	31	40	
11.180.40.22/100		22	100	19	31	40	48
11.180.40.27		27	55	21	33	48	
11.180.40.27/100		27	100	21	33	48	48
11.180.40.32		32	60	24	38	58	
11.180.40.32/100		32	100	24	38	58	58
11.180.40.40		40	60	27	41	70	
11.180.50.16	50	16	55	17	27	32	
11.180.50.16/100		16	100	17	27	32	35
11.180.50.22		22	55	19	31	40	
11.180.50.22/100		22	100	19	31	40	48
11.180.50.27		27	55	21	33	48	
11.180.50.27/100		27	100	21	33	48	60
11.180.50.32		32	55	24	38	58	
11.180.50.32/100		32	100	24	38	58	78
11.180.50.40		40	55	27	41	70	
11.180.50.40/100		40	100	27	41	70	78
11.180.50.50		50	70	30	46	90	

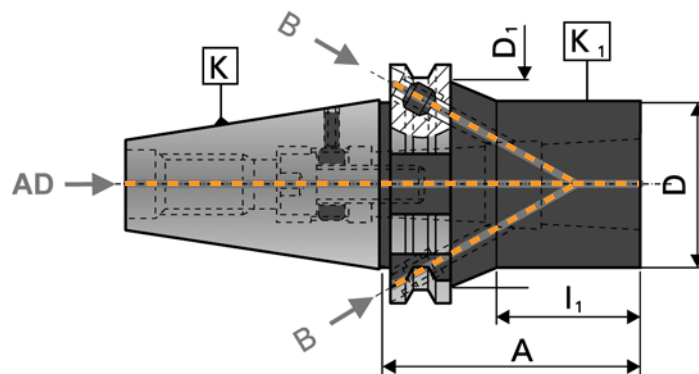
REF. 11.180






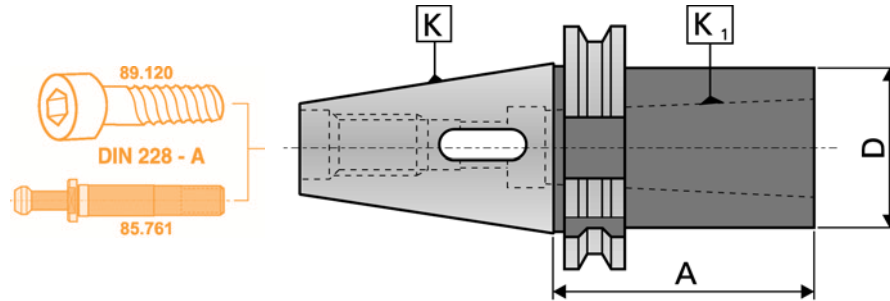
11.180.30.16	89.100.16	89.161.16	89.141.16
11.180.30.22	89.100.22	89.161.22	89.141.22
11.180.30.27	89.100.27	89.161.27	89.141.27
11.180.40.16	89.100.16	89.161.16	89.141.16
11.180.40.16/100	89.100.16	89.161.16	89.141.16
11.180.40.22	89.100.22	89.161.22	89.141.22
11.180.40.22/100	89.100.22	89.161.22	89.141.22
11.180.40.27	89.100.27	89.161.27	89.141.27
11.180.40.27/100	89.100.27	89.161.27	89.141.27
11.180.40.32	89.100.32	89.161.32	89.141.32
11.180.40.32/100	89.100.32	89.161.32	89.141.32
11.180.40.40	89.100.40	89.161.40	89.141.40
11.180.50.16	89.100.16	89.161.16	89.141.16
11.180.50.16/100	89.100.16	89.161.16	89.141.16
11.180.50.22	89.100.22	89.161.22	89.141.22
11.180.50.22/100	89.100.22	89.161.22	89.141.22
11.180.50.27	89.100.27	89.161.27	89.141.27
11.180.50.27/100	89.100.27	89.161.27	89.141.27
11.180.50.32	89.100.32	89.161.32	89.141.32
11.180.50.32/100	89.100.32	89.161.32	89.141.32
11.180.50.40	89.100.40	89.161.40	89.141.40
11.180.50.40/100	89.100.40	89.161.40	89.141.40
11.180.50.50	89.100.50	89.161.50	89.141.50




REF. 11.210

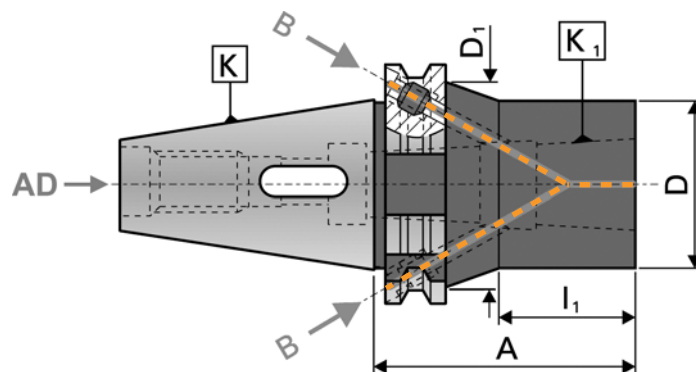
REF. 11.210	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	I ₁ mm		 20.210	 23.210
11.210.30.01	30	1	50	25			89.193.31	89.120.24	
11.210.30.02		2	70	32			89.193.32	89.120.19	
11.210.30.03		3	100	40			89.193.33	89.120.31	
11.210.40.01	40	1	50	25	45	16	89.193.41	89.120.25	89.128.08
11.210.40.02		2	50	32	50	19	89.193.42	89.120.18	89.128.20
11.210.40.03		3	70	40	50	42	89.193.43	89.120.69	89.128.30
11.210.40.04		4	95	48			89.193.44	89.120.44	89.128.40
11.210.50.01	50	1	45	25	80	16	89.193.51	89.120.26	89.128.08
11.210.50.02		2	60	32	80	23	89.193.52	89.120.53	89.128.23
11.210.50.03		3	65	40	80	28	89.193.53	89.120.70	89.128.32
11.210.50.04		4	70	48	80	37	89.193.54	89.120.44	89.128.44
11.210.50.05		5	100	63	80	66	89.193.55	89.120.90	89.128.60




REF. 13.210

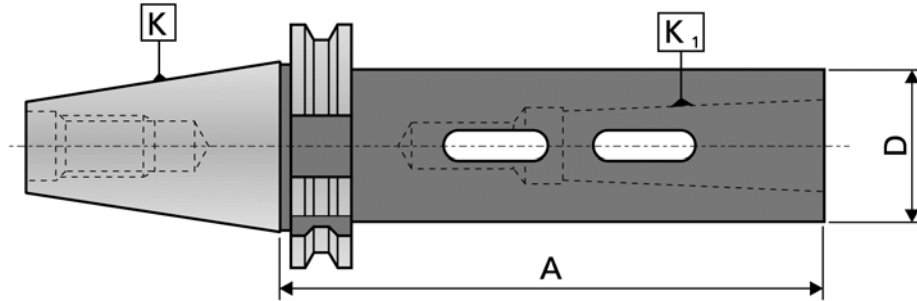
REF. 13.210	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	I ₁ mm		 20.210	 23.210
13.210.40.01	40	1	50	25	45	16	89.193.41	89.120.25	89.128.08
13.210.40.02		2	50	32	50	19	89.193.42	89.120.18	89.128.20
13.210.40.03		3	70	40	50	42	89.193.43	89.120.69	89.128.30
13.210.40.04		4	95	48			89.193.44	89.120.44	89.128.40
13.210.50.01	50	1	45	25	80	16	89.193.51	89.120.26	89.128.08
13.210.50.02		2	60	32	80	23	89.193.52	89.120.53	89.128.23
13.210.50.03		3	65	40	80	28	89.193.53	89.120.70	89.128.32
13.210.50.04		4	70	48	80	37	89.193.54	89.120.44	89.128.44
13.210.50.05		5	100	63	80	66	89.193.55	89.120.90	89.128.60



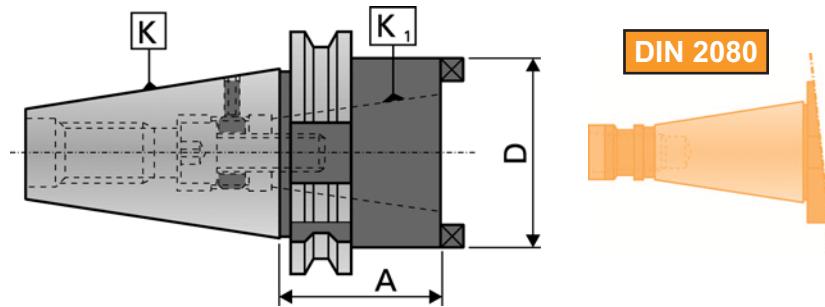
REF. 11.215	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	l ₁ mm		
11.215.30.01	30	1	50	25			89.120.27	
11.215.30.02		2	60	32				85.760.XX.30/02
11.215.30.03		3	80	40				85.760.XX.30/03
11.215.40.01	40	1	50	25	45	16	89.120.28	
11.215.40.02		2	50	32	50	18	89.124.21	
11.215.40.03		3	70	40	50	42		85.760.XX.40/03
11.215.40.04		4	95	48				85.760.XX.40/04
11.215.50.01	50	1	45	25	80	16	89.120.29	
11.215.50.02		2	60	32	80	23	89.120.58	
11.215.50.03		3	65	40	80	28	89.120.74	
11.215.50.04		4	95	48	80	49	89.124.40	
11.215.50.05		5	105	63	80	71		85.760.XX.50/55






REF. 13.215	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	l ₁ mm		
13.215.40.01	40	1	50	25	45	16	89.120.28	
13.215.40.02		2	50	32	50	18	89.124.21	
13.215.40.03		3	70	40	50	42		85.760.XX.40/03
13.215.40.04		4	95	48				85.760.XX.40/04
13.215.50.01	50	1	45	25	80	16	89.120.29	
13.215.50.02		2	60	32	80	23	89.120.58	
13.215.50.03		3	65	40	80	28	89.120.74	
13.215.50.04		4	95	48	80	49	89.124.40	
13.215.50.05		5	105	63	80	71		85.760.XX.50/55

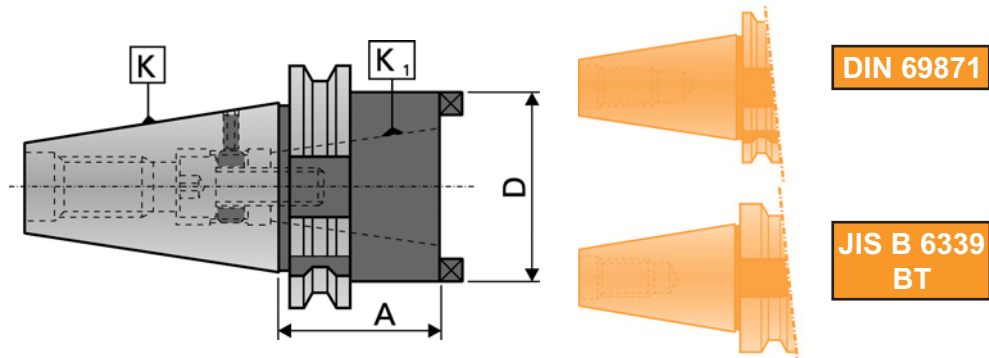


REF. 11.216	K ISO	K ₁ MORSE	A mm	D mm
11.216.30.01	30	1	115	25
11.216.30.02		2	125	32
11.216.30.03		3	145	40
11.216.40.01	40	1	115	25
11.216.40.02		2	125	32
11.216.40.03		3	145	40
11.216.40.04		4	165	48
11.216.50.01	50	1	120	25
11.216.50.02		2	135	32
11.216.50.03		3	155	40
11.216.50.04		4	180	48
11.216.50.05		5	215	63






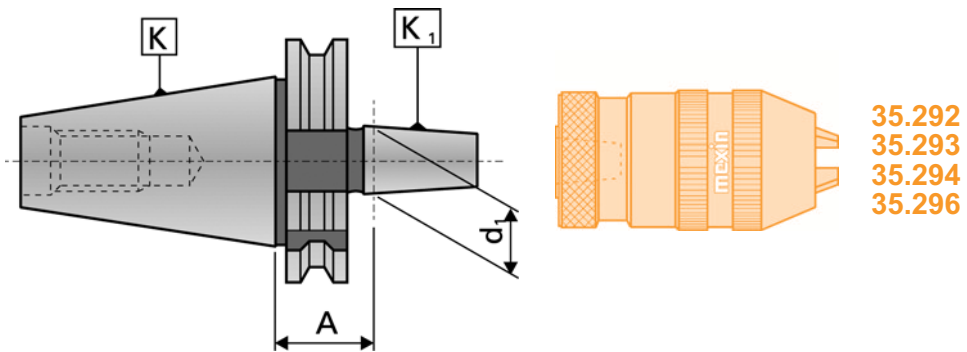
REF. 11.225	K ISO	K ₁ DIN 2080	A mm	D mm
11.225.40.30	40	30	50	50
11.225.40.40		40	100	63
11.225.50.30	50	30	50	50
11.225.50.40		40	70	63
11.225.50.50		50	120	97

REF. 11.225		 11.225	 11.226
11.225.40.30	89.193.45	89.124.28	89.124.33
11.225.40.40	89.193.44	89.124.44	89.124.45
11.225.50.30	89.193.53	89.120.69	89.120.73
11.225.50.40	89.193.54	89.124.44	89.124.45
11.225.50.50	89.193.56	89.124.56	89.124.57



REF. 11.226	K ISO	K ₁ DIN 2080	A mm	D mm
11.226.40.30	40	30	50	50
11.226.40.40		40	100	63
11.226.50.30	50	30	50	50
11.226.50.40		40	70	63
11.226.50.50		50	120	97

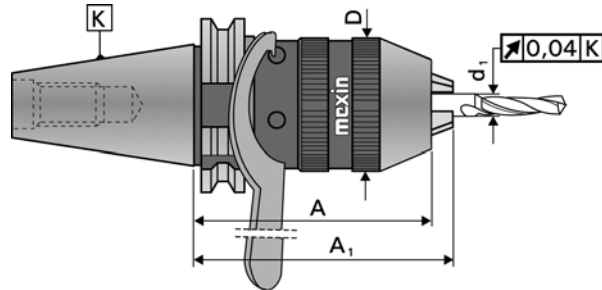
REF. 11.226		 11.225	 11.226
11.226.40.30	89.193.45	89.124.28	89.124.33
11.226.40.40	89.193.44	89.124.44	89.124.45
11.226.50.30	89.193.53	89.120.69	89.120.73
11.226.50.40	89.193.54	89.124.44	89.124.45
11.226.50.50	89.193.56	89.124.56	89.124.57





35.292
 35.293
 35.294
 35.296

REF. 11.290	K ISO	K ₁ DIN	A mm	d ₁ mm
11.290.30.12	30	B-12	25	12,065
11.290.30.16		B-16	25	15,733
11.290.40.12	40	B-12	25	12,065
11.290.40.16		B-16	25	15,733
11.290.40.18		B-18	25	17,780
11.290.50.16	50	B-16	25	15,733
11.290.50.18		B-18	25	17,780

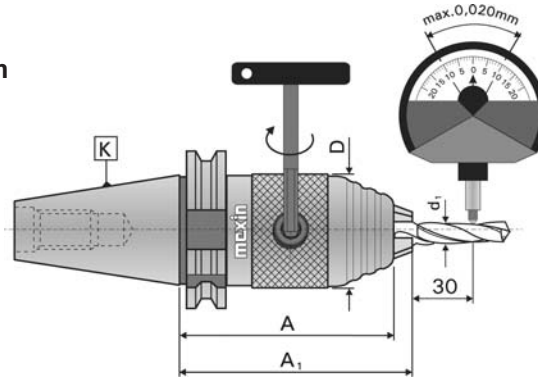
PAR DE SUJECIÓN } > 40 Nm
 TIGHTENING TORQUE }



REF. 11.295	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
11.295.30.08	30	0 - 8	36,0	76,5	84,5
11.295.40.08	40	0 - 8	36,0	67,5	75,0
11.295.40.13		0 - 13	50,5	89,0	100,0
11.295.40.16		3 - 16	56,0	105,0	118,0
11.295.50.13	50	0 - 13	50,5	85,0	96,0
11.295.50.16		3 - 16	56,0	90,0	103,0
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

REF. 11.295		
11.295.30.08	89.200.08	3 89.220.08
11.295.40.08	89.200.08	89.220.08
11.295.40.13	89.200.13	89.220.13
11.295.40.16	89.200.16	89.220.16
11.295.50.13	89.200.13	89.220.13
11.295.50.16	89.200.16	89.220.16

PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }



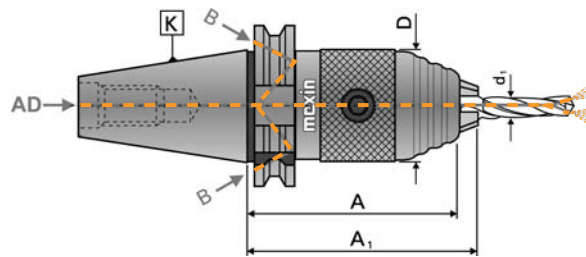
REF. 11.296	K ISO	d1 mm	D mm	A mm	A1 max mm
11.296.30.13	30	1-13	50	103,0	110,0
11.296.40.13	40	1-13	50	81,5	88,5
11.296.40.16		3-16	56	88,5	95,5
11.296.50.13	50	1-13	50	81,5	88,5
11.296.50.16		3-16	56	88,5	95,5

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 11.296



11.296.30.13	89.206.06	89.220.13
11.296.40.13	89.206.06	89.220.13
11.296.40.16	89.206.06	89.220.13
11.296.50.13	89.206.06	89.220.13
11.296.50.16	89.206.06	89.220.13



REF. 13.296	K ISO	d1 mm	D mm	A mm	A1 max mm
13.296.30.13	30	1-13	50	103,0	110,0
13.296.40.13	40	1-13	50	81,5	88,5
13.296.40.16		3-16	56	88,5	95,5
13.296.50.13	50	1-13	50	81,5	88,5
13.296.50.16		3-16	56	88,5	95,5

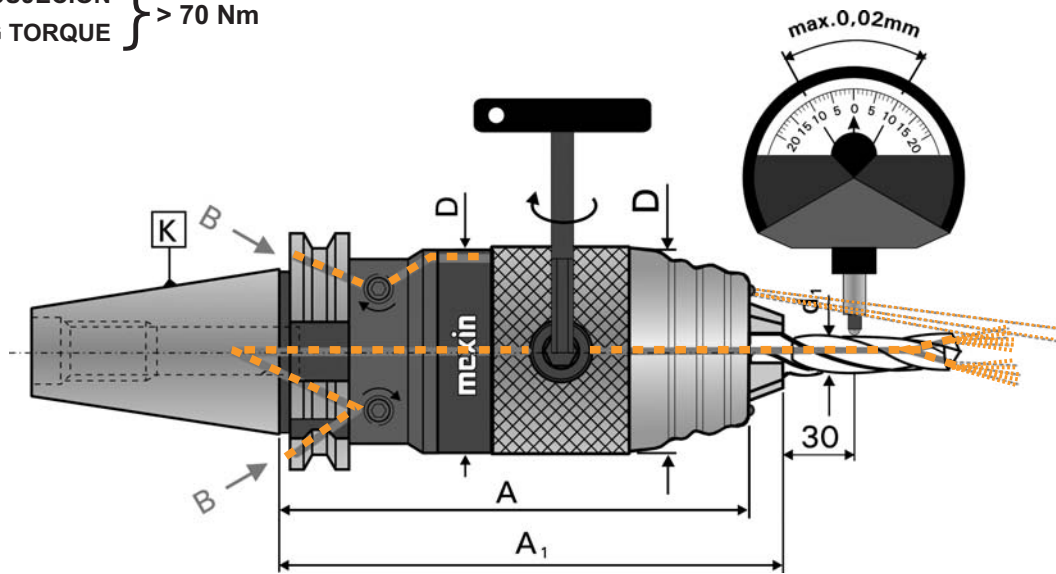
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 13.296



13.296.30.13	89.206.06	89.220.13
13.296.40.13	89.206.06	89.220.13
13.296.40.16	89.206.06	89.220.13
13.296.50.13	89.206.06	89.220.13
13.296.50.16	89.206.06	89.220.13

PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }





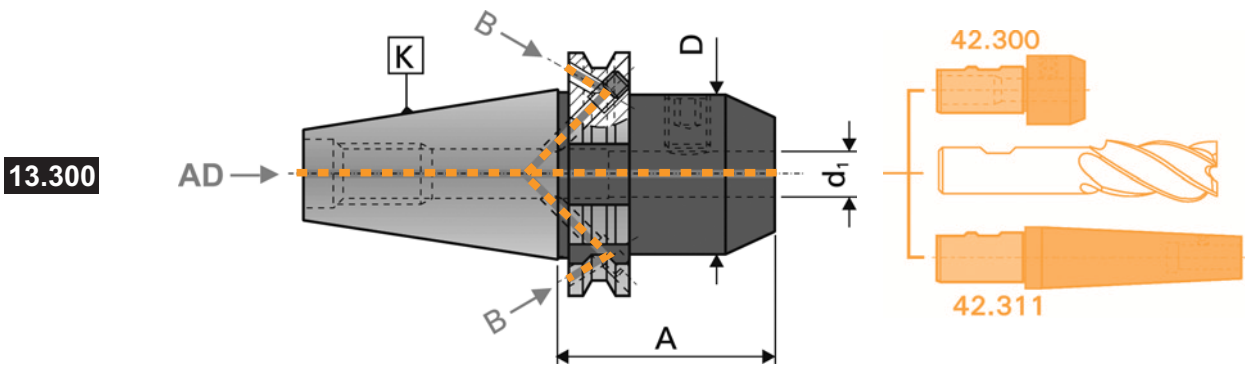
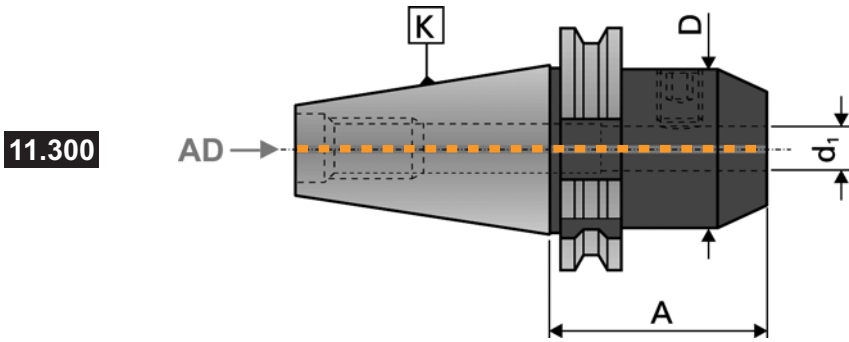
La refrigeración puede ser distribuida a voluntad: por el centro de la herramienta, por la parte frontal del portabrocas o por las dos simultáneamente.


The coolant can be supplied in different ways: through the coolant holes of the tool, through the front part of the drill chuck or through both parts simultaneously.

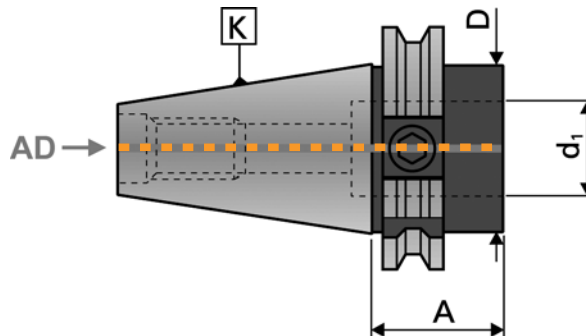
REF. 13.297	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
13.297.40.13	40	1-13	56	105	112
13.297.40.16		3-16	56	112	119
13.297.50.13	50	1-13	56	105	112
13.297.50.16		3-16	56	112	119


* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

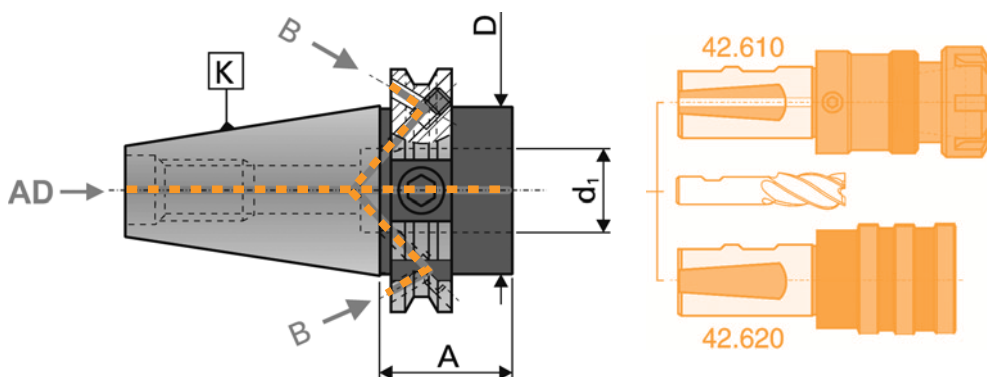
REF. 13.297		
13.297.40.13	89.206.06	89.220.13
13.297.40.16	89.206.06	89.220.13
13.297.50.13	89.206.06	89.220.13
13.297.50.16	89.206.06	89.220.13




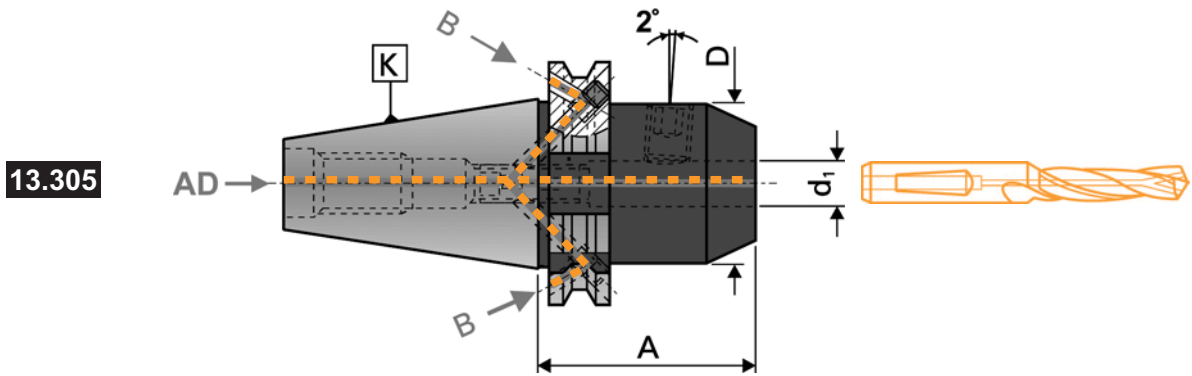
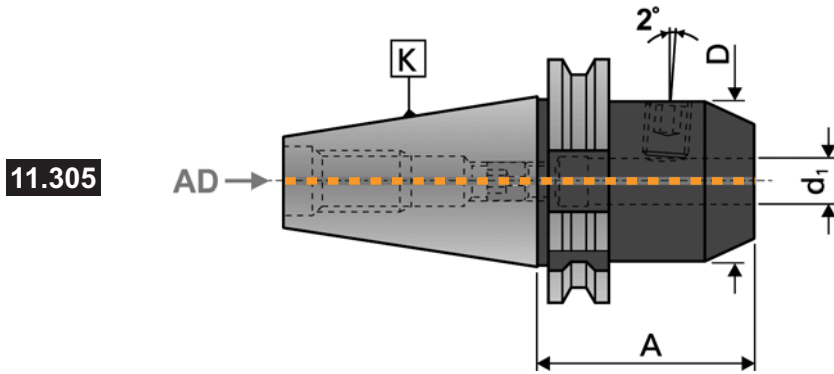
REF. 11.300	REF. 13.300	K ISO	d ₁ H4 mm	A mm	D mm	
11.300.30.06		30	6	50	25	89.122.20
11.300.30.08			8	50	28	89.122.35
11.300.30.10			10	50	35	89.122.40
11.300.30.12			12	50	42	89.122.50
11.300.30.14			14	50	44	89.122.50
11.300.30.16			16	63	48	89.122.60
11.300.30.18			18	63	50	89.122.60
11.300.40.06	13.300.40.06	40	6	50	25	89.122.20
11.300.40.08	13.300.40.08		8	50	28	89.122.35
11.300.40.10	13.300.40.10		10	50	35	89.122.40
11.300.40.12	13.300.40.12		12	50	42	89.122.50
11.300.40.14	13.300.40.14		14	50	44	89.122.50
11.300.40.16	13.300.40.16		16	63	48	89.122.60
11.300.40.18	13.300.40.18		18	63	50	89.122.60
11.300.40.20	13.300.40.20		20	63	52	89.122.65
11.300.40.25	13.300.40.25		25	100	65	89.122.75
11.300.40.32	13.300.40.32		32	100	72	89.122.80
11.300.40.40	13.300.40.40		40	120	90	89.122.80
11.300.50.06	13.300.50.06	50	6	63	25	89.122.20
11.300.50.08	13.300.50.08		8	63	28	89.122.35
11.300.50.10	13.300.50.10		10	63	35	89.122.40
11.300.50.12	13.300.50.12		12	63	42	89.122.50
11.300.50.14	13.300.50.14		14	63	44	89.122.50
11.300.50.16	13.300.50.16		16	63	48	89.122.60
11.300.50.18	13.300.50.18		18	63	50	89.122.60
11.300.50.20	13.300.50.20		20	63	52	89.122.65
11.300.50.25	13.300.50.25		25	80	65	89.122.75
11.300.50.32	13.300.50.32		32	100	72	89.122.80
11.300.50.40	13.300.50.40		40	120	90	89.122.80
11.300.50.50	13.300.50.50		50	120	98	89.122.85





REF. 11.302	K ISO	d ₁ H4 mm	A mm	D mm	
11.302.30.16	30	16	32	32	89.122.57
11.302.30.20		20	34	36	89.122.56
11.302.40.16	40	16	35	44	89.122.60
11.302.40.20		20	35	44	89.122.63
11.302.40.25		25	35	44	89.122.62
11.302.50.16	50	16	35	70	89.122.60
11.302.50.20		20	35	70	89.122.65
11.302.50.25		25	35	70	89.122.75
11.302.50.32		32	35	70	89.122.80



REF. 13.302	K ISO	d ₁ H4 mm	A mm	D mm	
13.302.40.16	40	16	35	44	89.122.60
13.302.40.20		20	35	44	89.122.63
13.302.40.25		25	35	44	89.122.62
13.302.50.16	50	16	35	70	89.122.60
13.302.50.20		20	35	70	89.122.65
13.302.50.25		25	35	70	89.122.75
13.302.50.32		32	35	70	89.122.80



REF. 11.305	REF. 13.305	K ISO	d ₁ H4 mm	A mm	D mm		
11.305.30.06		30	6	50	25	89.190.15	89.122.20
11.305.30.08			8	50	28	89.190.21	89.122.35
11.305.30.10			10	50	35	89.190.37	89.122.40
11.305.30.12			12	50	42	89.190.43	89.122.50
11.305.30.14			14	50	44	89.190.43	89.122.50
11.305.30.16			16	63	48	89.190.51	89.122.60
11.305.30.18			18	63	50	89.190.51	89.122.80
<hr/>							
11.305.40.06	13.305.40.06	40	6	50	25	89.190.15	89.122.20
11.305.40.08	13.305.40.08		8	50	28	89.190.21	89.122.35
11.305.40.10	13.305.40.10		10	50	35	89.190.37	89.122.40
11.305.40.12	13.305.40.12		12	50	42	89.190.43	89.122.50
11.305.40.14	13.305.40.14		14	50	44	89.190.43	89.122.50
11.305.40.16	13.305.40.16		16	63	48	89.190.51	89.122.60
11.305.40.18	13.305.40.18		18	63	50	89.190.51	89.122.60
11.305.40.20	13.305.40.20		20	63	52	89.190.66	89.122.65
11.305.40.25	13.305.40.25		25	100	65	89.190.82	89.122.75
11.305.40.32	13.305.40.32		32	100	72	89.190.82	89.122.80
<hr/>							
11.305.50.06	13.305.50.06	50	6	63	25	89.190.15	89.122.20
11.305.50.08	13.305.50.08		8	63	28	89.190.21	89.122.35
11.305.50.10	13.305.50.10		10	63	35	89.190.37	89.122.40
11.305.50.12	13.305.50.12		12	63	42	89.190.43	89.122.50
11.305.50.14	13.305.50.14		14	63	44	89.190.43	89.122.50
11.305.50.16	13.305.50.16		16	63	48	89.190.51	89.122.60
11.305.50.18	13.305.50.18		18	63	50	89.190.51	89.122.60
11.305.50.20	13.305.50.20		20	63	52	89.190.66	89.122.65
11.305.50.25	13.305.50.25		25	80	65	89.190.82	89.122.75
11.305.50.32	13.305.50.32		32	100	72	89.190.82	89.122.80
11.305.50.40	13.305.50.40		40	120	90	89.190.82	89.122.80

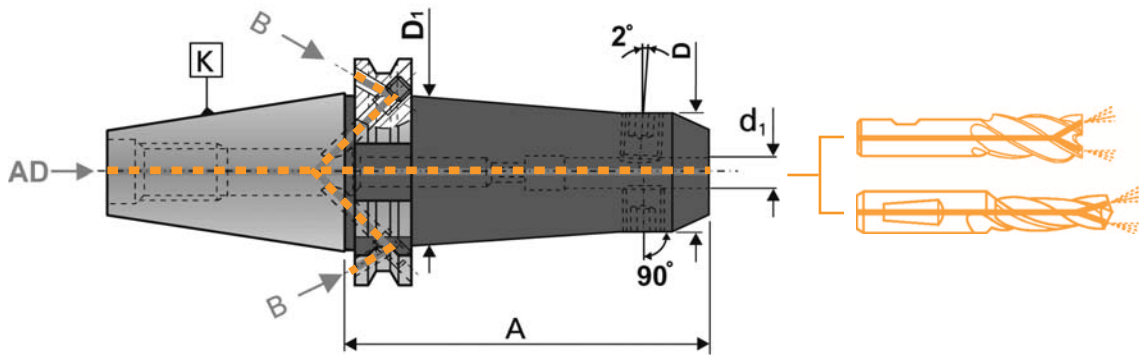



El Kit incluye mandrinos portafresas, conos reductores, portabrocas de precisión, mandrinos portapinzas, roscador y una gama de pinzas y tirantes listos para su utilización.

The Kit includes Shell Mill Adaptors, Reducing Adaptors, Self-Clamping Short Precision Drill Chucks, Collet Chucks, Tapping Head and a range of Collets and Pull Studs, everything ready to be used.

CONTENIDO DEL KIT - KIT CONTAINING

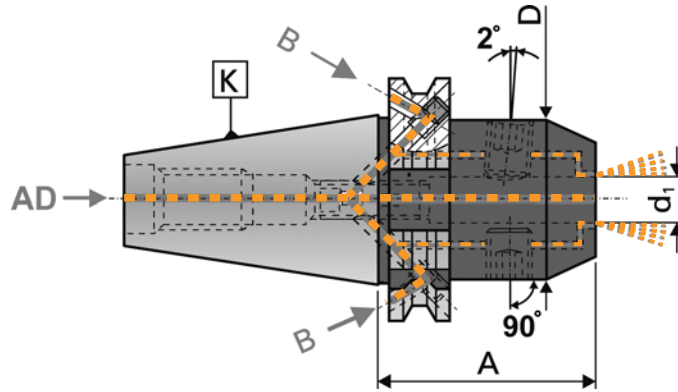
Num.	Ref.	Descripción / Description
1	11.160.40.22	Mandrino Portafresas Frontal Ø22 / Shell Mill Adaptor Ø22
1	11.160.40.27	Mandrino Portafresas Frontal Ø27 / Shell Mill Adaptor Ø27
1	11.215.40.02	Mandrino Portafresas para brocas Morse 2 / Reducing Adaptor with Morse Taper 2
1	11.215.40.03	Mandrino Portafresas para brocas Morse 3 / Reducing Adaptor with Morse Taper 3
1	11.295.40.13	Portabrocas Autoblocante Cap. 13 / Self-Clamping Drill Chuck Cap.13
1	11.300.40.06	Mandrino Portafresas Weldon Ø6 / End Mill Adaptor Weldon Ø6
1	11.300.40.08	Mandrino Portafresas Weldon Ø8 / End Mill Adaptor Weldon Ø8
1	11.300.40.10	Mandrino Portafresas Weldon Ø10 / End Mill Adaptor Weldon Ø10
1	11.300.40.12	Mandrino Portafresas Weldon Ø12 / End Mill Adaptor Weldon Ø12
1	11.300.40.16	Mandrino Portafresas Weldon Ø16 / End Mill Adaptor Weldon Ø16
1	11.300.40.20	Mandrino Portafresas Weldon Ø20 / End Mill Adaptor Weldon Ø20
4	11.453.40.20	Mandrino Portapinzas DIN 6499 (ER32) / CNC-Universal Drill Chuck DIN 6499 (ER32)
8	80.294.20.XX	Juego Pinzas DIN 6499 (ER32) / Set of Collets DIN 6499 (ER32) Ø 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 mm
1	89.200.13	Llave / Key
1	89.202.20	Llave / Key
15	85.XXX.XX.40	Tirantes. Indicar Modelo / Pull Studs. Please indicate Model.





REF. 13.306	K ISO	d ₁ H4 mm	A mm	D mm	D ₁ mm	2 x 
13.306.40.06 / 100	40	6	100	22	28	89.122.17
13.306.40.06 / 130		6	130	22	28	89.122.17
13.306.40.06 / 160		6	160	22	33	89.122.17
13.306.40.08 / 100		8	100	24	30	89.122.34
13.306.40.08 / 130		8	130	24	30	89.122.34
13.306.40.08 / 160		8	160	24	35	89.122.34
13.306.40.10 / 100		10	100	30	38	89.122.39
13.306.40.10 / 130		10	130	30	38	89.122.39
13.306.40.10 / 160		10	160	30	39	89.122.39
13.306.40.12 / 100		12	100	32	40	89.122.48
13.306.40.12 / 130		12	130	32	40	89.122.48
13.306.40.12 / 160		12	160	32	43	89.122.48
13.306.40.14 / 100		14	100	32	40	89.122.48
13.306.40.14 / 130		14	130	32	40	89.122.48
13.306.40.14 / 160		14	160	32	44	89.122.48
13.306.40.16 / 100		16	100	36	44	89.122.57
13.306.40.16 / 130		16	130	36	44	89.122.57
13.306.40.16 / 160		16	160	36	44	89.122.57
13.306.40.18 / 100		18	100	38	46	89.122.57
13.306.40.18 / 130		18	130	38	46	89.122.57
13.306.40.18 / 160		18	160	38	46	89.122.57
13.306.40.20 / 100		20	100	44	50	89.122.58
13.306.40.20 / 130		20	130	44	50	89.122.58
13.306.40.20 / 160		20	160	44	50	89.122.58
13.306.40.25 / 130		25	130	50	50	89.122.71
13.306.40.25 / 160		25	160	50	50	89.122.71
13.306.50.06 / 130	50	6	130	22	28	89.122.17
13.306.50.06 / 160		6	160	22	33	89.122.17
13.306.50.06 / 200		6	200	22	36	89.122.17
13.306.50.08 / 130		8	130	24	30	89.122.34
13.306.50.08 / 160		8	160	24	35	89.122.34
13.306.50.08 / 200		8	200	24	38	89.122.34
13.306.50.10 / 130		10	130	30	38	89.122.39
13.306.50.10 / 160		10	160	30	39	89.122.39
13.306.50.10 / 200		10	200	30	43	89.122.39
13.306.50.12 / 130		12	130	32	40	89.122.48
13.306.50.12 / 160		12	160	32	43	89.122.48
13.306.50.12 / 200		12	200	32	46	89.122.48
13.306.50.14 / 130		14	130	32	40	89.122.48
13.306.50.14 / 160		14	160	32	44	89.122.48
13.306.50.14 / 200		14	200	32	48	89.122.48
13.306.50.16 / 130		16	130	36	44	89.122.57
13.306.50.16 / 160		16	160	36	44	89.122.57
13.306.50.16 / 200		16	200	36	50	89.122.57
13.306.50.18 / 130		18	130	38	46	89.122.57
13.306.50.18 / 160		18	160	38	46	89.122.57
13.306.50.18 / 200		18	200	38	52	89.122.57
13.306.50.20 / 130		20	130	44	50	89.122.58
13.306.50.20 / 160		20	160	44	50	89.122.58
13.306.50.20 / 200		20	200	44	55	89.122.58
13.306.50.25 / 130		25	130	50	56	89.122.71
13.306.50.25 / 160		25	160	50	60	89.122.71
13.306.50.25 / 200		25	200	50	64	89.122.71
13.306.50.32 / 200		32	200	58	72	89.122.78

**SALIDA DE REFRIGERANTE POR EL CENTRO
 O POR EL LATERAL DE LA HERRAMIENTA.**

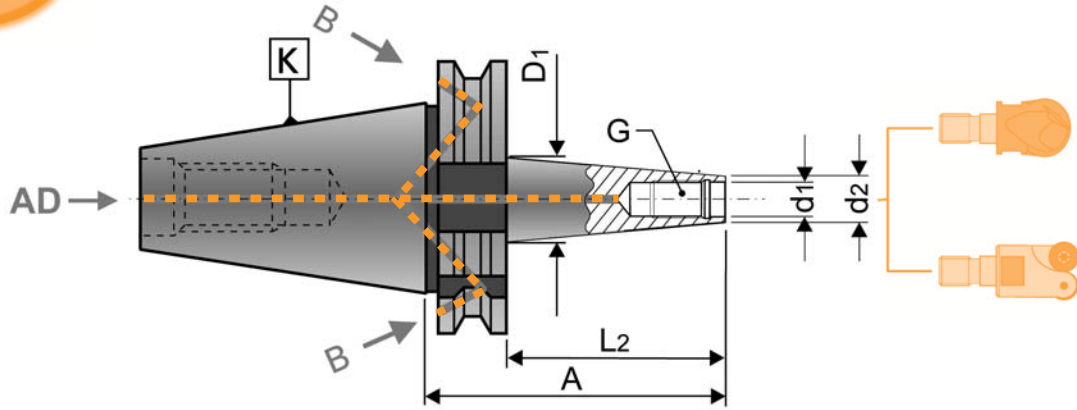
**COOLANT DISTRIBUTION TROUGH THE CENTRAL
 OR TROUGH LATERAL PART OF THE TOOL.**



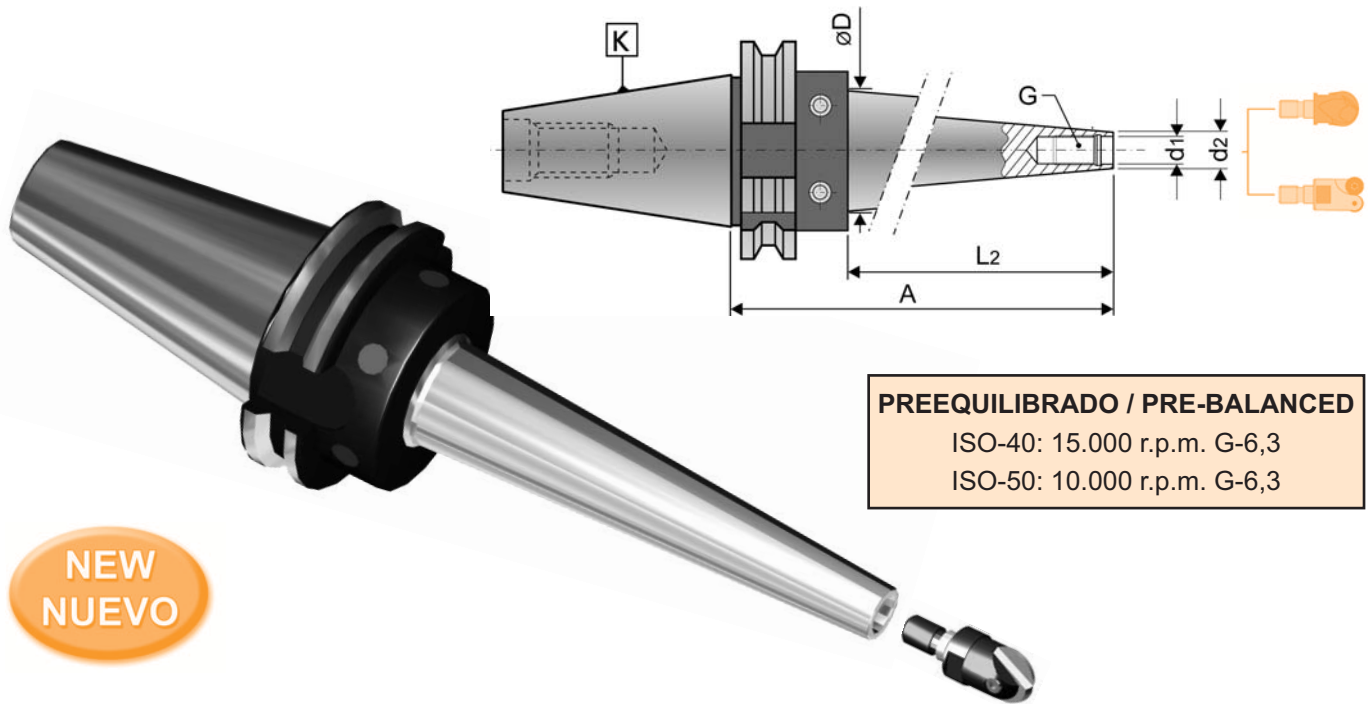
REF. 13.307

REF. 13.307	K ISO	d ₁ H4 mm	A mm	D mm		2 x 
13.307.40.06	40	6	50	25	89.190.15	89.122.20
13.307.40.08		8	50	28	89.190.21	89.122.35
13.307.40.10		10	50	35	89.190.37	89.122.40
13.307.40.12		12	50	42	89.190.43	89.122.50
13.307.40.14		14	50	44	89.190.43	89.122.50
13.307.40.16		16	63	48	89.190.51	89.122.60
13.307.40.18		18	63	50	89.190.51	89.122.60
13.307.40.20		20	63	52	89.190.66	89.122.65
13.307.40.25		25	100	65	89.190.82	89.122.75
13.307.40.32		32	100	72	89.190.82	89.122.80
13.307.50.06	50	6	63	25	89.190.15	89.122.20
13.307.50.08		8	63	28	89.190.21	89.122.35
13.307.50.10		10	63	35	89.190.37	89.122.40
13.307.50.12		12	63	42	89.190.43	89.122.50
13.307.50.14		14	63	44	89.190.43	89.122.50
13.307.50.16		16	63	48	89.190.51	89.122.60
13.307.50.18		18	63	50	89.190.51	89.122.60
13.307.50.20		20	63	52	89.190.66	89.122.65
13.307.50.25		25	80	65	89.190.82	89.122.75
13.307.50.32		32	100	72	89.190.82	89.122.80
13.307.50.40		40	120	90	89.190.82	89.122.80

**NEW
 NUEVO**



REF. 13.315	K ISO	A mm	d ₁ mm	G mm	d ₂ mm	L ₂ mm	D ₁ mm
13.315.40.10/045	40	45	10,5	M10	18	25	20
13.315.40.10/070		70	10,5	M10	18	50	23
13.315.40.10/120		120	10,5	M10	18	100	29
13.315.40.12/045	40	45	12,5	M12	21	25	24
13.315.40.12/070		70	12,5	M12	21	50	26
13.315.40.12/120		120	12,5	M12	21	100	32
13.315.40.16/045	40	45	17,0	M16	29	25	32
13.315.40.16/070		70	17,0	M16	29	50	35
13.315.40.16/120		120	17,0	M16	29	100	40
13.315.50.12/070	50	70	12,5	M12	21	50	26
13.315.50.12/120		120	12,5	M12	21	100	32
13.315.50.12/170		170	12,5	M12	21	150	37
13.315.50.16/070	50	70	17,0	M16	29	50	35
13.315.50.16/120		120	17,0	M16	29	100	40
13.315.50.16/170		170	17,0	M16	29	150	45



Portafresas Antivibratorios fabricados con materiales y mecanismos con propiedades antivibratorias. Longitudes estándar y extra largas, indicado para moldistas y fabricaciones especiales.

Antivibratory Shell Mill Adaptors manufactured with materials and mechanisms having antivibration properties. Standard and extra long lengths, suitable for moulding and special manufactures.

DIN 69871-A	K ISO	L mm	D ₁ mm	A mm	D mm	d ₁ mm	G mm	d ₂ mm
A11.315.40.10/200	40	165	35	200	50	10,5	M10	18
A11.315.40.10/250		215	41	250	50	10,5	M10	18
A11.315.40.10/300		265	46	300	50	10,5	M10	18
A11.315.40.12/200		165	38	200	50	12,5	M12	21
A11.315.40.12/250		215	44	250	50	12,5	M12	21
A11.315.40.12/300		265	49	300	50	12,5	M12	21
A11.315.40.16/200		165	46	200	50	17,0	M16	29
A11.315.40.16/250		215	48	250	50	17,0	M16	29
A11.315.40.16/300		265	50	300	50	17,0	M16	29
A11.315.50.12/250	50	215	44	250	80	12,5	M12	21
A11.315.50.12/300		265	49	300	80	12,5	M12	21
A11.315.50.12/400		365	60	400	80	12,5	M12	21
A11.315.50.16/250		215	52	250	80	17,0	M16	29
A11.315.50.16/300		265	57	300	80	17,0	M16	29
A11.315.50.16/400		365	68	400	80	17,0	M16	29
A11.315.50.16/500		465	78	500	80	17,0	M16	29

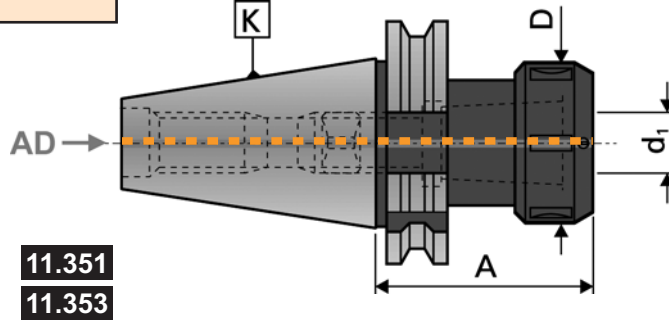
Los mandrinos antivibratorios DIN 69871 - JIS 6339-BT en ISO 50 pueden convertirse en acoplamiento DIN 2080 mediante un tirante especial.

ISO 50 Axial compensation Toolholders as per DIN 69871 and JIS 6339-BT could become DIN 2080 tapers by using the special pull stud.



Ref. A85.752.50.50

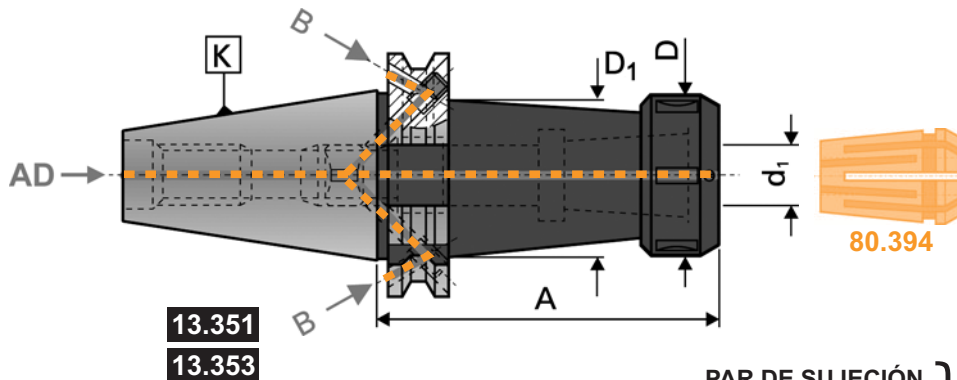
CON TUERCA A BOLAS REF. **XX.351**
 WITH BALL BEARING NUT REF. **XX.351**



11.351
11.353

REF. 11.353		80.393	K ISO	A mm	d₁ mm	D mm	D₁ mm		
11.353.30.16		80.393.16	30	65	2-16	43		89.201.16	89.192.16
11.353.30.25		80.393.25		70	3-25	60		89.201.25	89.192.16
11.353.40.16		80.393.16	40	70	2-16	43		89.201.16	89.192.16
11.353.40.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
11.353.40.25		80.393.25		70	3-25	60		89.201.25	89.192.26
11.353.40.25/120		80.393.25		120	3-25	60	50	89.201.25	89.192.26
11.353.40.32		80.393.32		90	4-32	72		89.201.32	89.192.26
11.353.50.16		80.393.16	50	70	2-16	43		89.201.16	89.192.16
11.353.50.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
11.353.50.25		80.393.25		85	3-25	60		89.201.25	89.192.26
11.353.50.25/120		80.393.25		140	3-25	60	60	89.201.25	89.192.26
11.353.50.32		80.393.32		90	4-32	72		89.201.32	89.192.34

*** SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH**



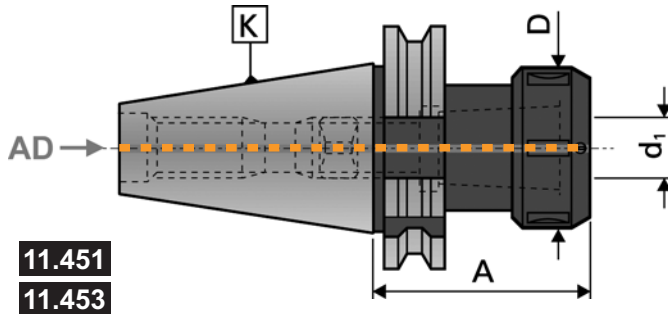
13.351
13.353

PAR DE SUJECIÓN } > 150 Nm - Ø20
TIGHTENING TORQUE }

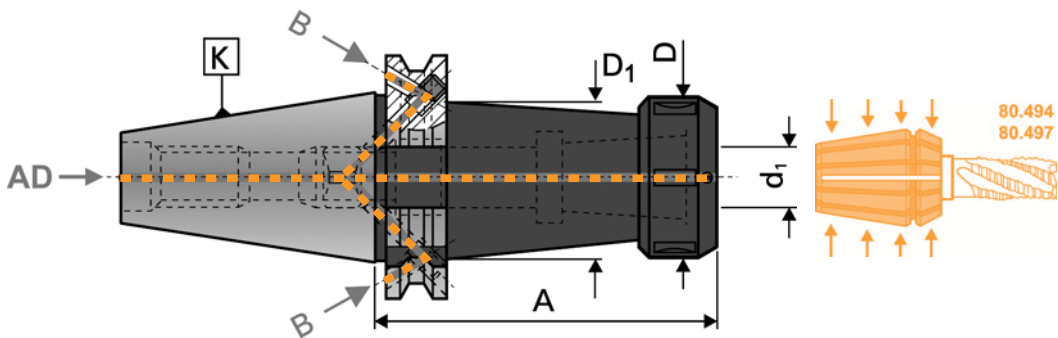
REF. 13.353		80.393	K ISO	A mm	d₁ mm	D mm	D₁ mm		
13.353.40.16		80.393.16	40	70	2-16	43		89.201.16	89.192.16
13.353.40.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
13.353.40.25		80.393.25		70	3-25	60		89.201.25	89.192.26
13.353.40.25/120		80.393.25		120	3-25	60	50	89.201.25	89.192.26
13.353.40.32		80.393.32		90	4-32	72		89.201.32	89.192.26
13.353.50.16		80.393.16	50	70	2-16	43		89.201.16	89.192.16
13.353.50.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
13.353.50.25		80.393.25		85	3-25	60		89.201.25	89.192.26
13.353.50.25/120		80.393.25		140	3-25	60	60	89.201.25	89.192.26
13.353.50.32		80.393.32		90	4-32	72		89.201.32	89.192.34

*** SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH**

CON TUERCA A BOLAS REF. **XX.451**
 WITH BALL BEARING NUT REF. **XX.451**



11.451
11.453

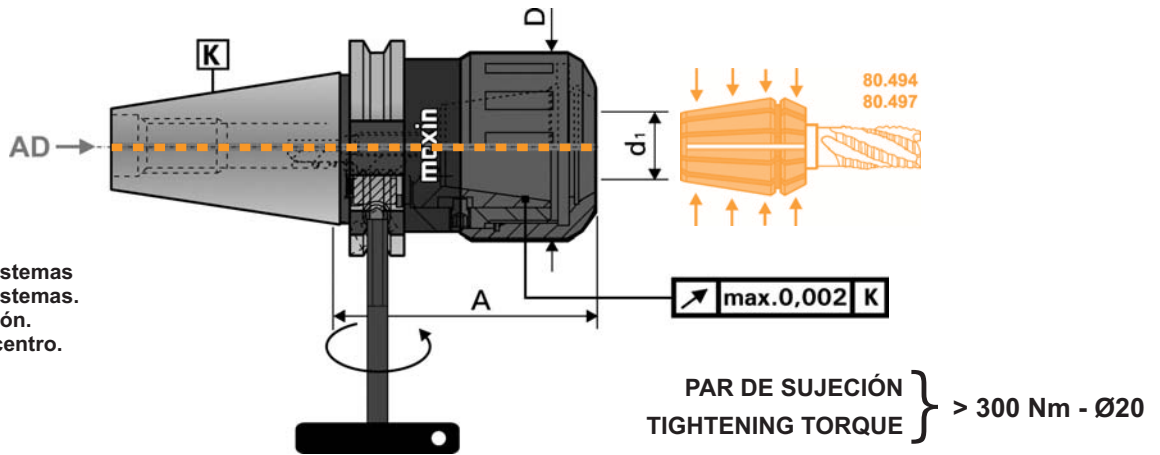


13.351
13.353

PAR DE SUJECIÓN } > 150 Nm - Ø20
 TIGHTENING TORQUE }

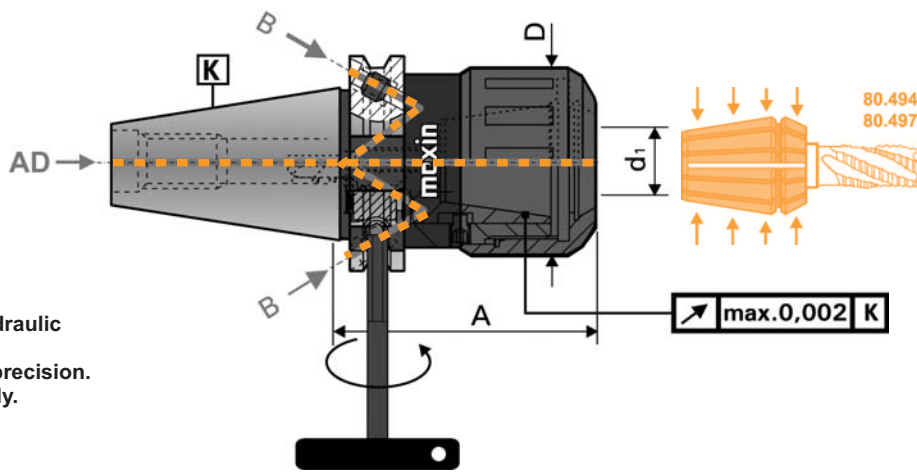
REF. 11.453	REF. 13.453	K ISO	80.493		A mm	d ₁ mm	D mm	D ₁ mm		
11.453.30.10		30	80.493.10	ER16	55	0,5-10	32		89.202.10	89.192.10
11.453.30.13			80.493.13	ER20	55	1-13	35		89.202.13	89.192.13
11.453.30.16			80.493.16	ER25	55	1-16	42		89.202.16	89.192.16
11.453.30.20			80.493.20	ER32	60	2-20	50		89.202.20	89.192.20
11.453.40.10	13.453.40.10	40	80.493.10	ER16	70	0,5-10	32		89.202.10	89.192.10
11.453.40.10/100	13.453.40.10/100		80.493.10	ER16	100	0,5-10	32	28	89.202.10	89.192.10
11.453.40.10/150	13.453.40.10/150		80.493.10	ER16	150	0,5-10	32	28	89.202.10	89.192.10
11.453.40.13	13.453.40.13		80.493.13	ER20	70	1-13	35		89.202.13	89.192.13
11.453.40.13/100	13.453.40.13/100		80.493.13	ER20	100	1-13	35	34	89.202.13	89.192.13
11.453.40.13/150	13.453.40.13/150		80.493.13	ER20	150	1-13	35	34	89.202.13	89.192.13
11.453.40.16	13.453.40.16		80.493.16	ER25	70	1-16	42		89.202.16	89.192.16
11.453.40.16/150	13.453.40.16/150		80.493.16	ER25	150	1-13	42	42	89.202.16	89.192.16
11.453.40.20	13.453.40.20		80.493.20	ER32	70	2-20	50		89.202.20	89.192.22
11.453.40.20/150	13.453.40.20/150		80.493.20	ER32	150	2-20	50	50	89.202.20	89.192.22
11.453.40.26	13.453.40.26		80.493.26	ER40	70	3-30	63		89.202.26	89.192.26
11.453.40.26/150	13.453.40.26/150		80.493.26	ER40	150	3-30	63	63	89.202.26	89.192.26
11.453.50.10/100	13.453.50.10/100	50	80.493.10	ER16	100	0,5-10	32	28	89.202.10	89.192.10
11.453.50.10/150	13.453.50.10/150		80.493.10	ER16	150	0,5-10	32	28	89.202.10	89.192.10
11.453.50.13/100	13.453.50.13/100		80.493.13	ER20	100	1-13	35	34	89.202.13	89.192.13
11.453.50.13/150	13.453.50.13/150		80.493.13	ER20	150	1-13	35	34	89.202.13	89.192.13
11.453.50.16	13.453.50.16		80.493.16	ER25	70	1-16	42		89.202.16	89.192.16
11.453.50.16/150	13.453.50.16/150		80.493.16	ER25	150	1-16	42	42	89.202.16	89.192.16
11.453.50.20	13.453.50.20		80.493.20	ER32	70	2-20	50		89.202.20	89.192.22
11.453.50.20/150	13.453.50.20/150		80.493.20	ER32	150	2-20	50	50	89.202.10	89.192.22
11.453.50.26	13.453.50.26		80.493.26	ER40	80	3-30	63		89.202.26	89.192.26
11.453.50.26/150	13.453.50.26/150		80.493.26	ER40	150	3-30	63	63	89.202.26	89.192.26
11.453.50.34	13.453.50.34		80.493.34	ER50	90	10-34	78		89.202.34	89.192.34

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH



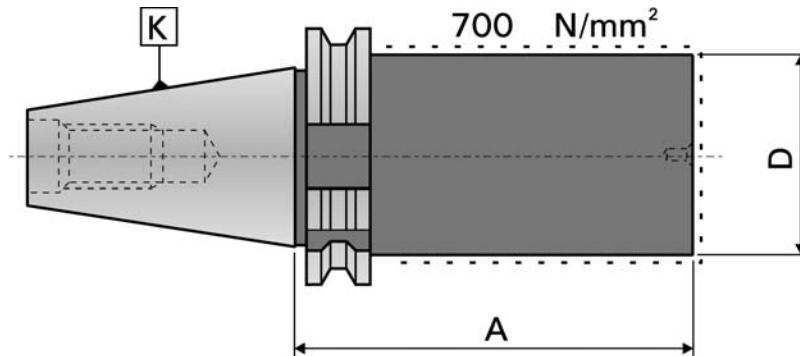
REF. 11.457	K ISO		A mm	d1 mm	D mm
11.457.40.20	40	ER32	80	2-20	54
11.457.50.20	50	ER32	110	2-20	54
11.457.50.30		ER40	120	3-30	65
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

REF. 11.457			
11.457.40.20	80.457.20	89.190.19	89.206.04
11.457.50.20	80.457.20	89.190.19	89.206.04
11.457.50.30	80.457.30	19.190.41	89.206.06



REF. 13.457	K ISO		A mm	d1 mm	D mm
13.457.40.20	40	ER32	80	2-20	54
13.457.50.20	50	ER32	110	2-20	54
13.457.50.30		ER40	120	3-30	65
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

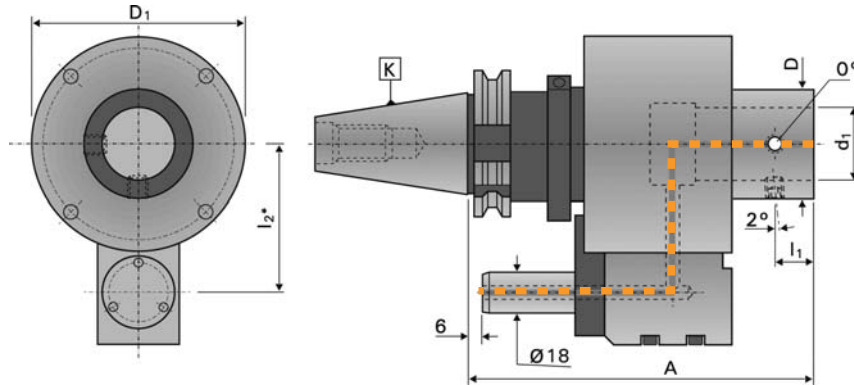
REF. 13.457			
13.457.40.20	80.457.20	89.190.19	89.206.04
13.457.50.20	80.457.20	89.190.19	89.206.04
13.457.50.30	80.457.30	19.190.41	89.206.06



REF. 11.470	K ISO	D mm	A mm
11.470.30.40	30	40,5	160
11.470.40.40	40	40,5	100
11.470.40.40/160		40,5	160
11.470.40.50		50,5	100
11.470.40.50/200		50,5	200
11.470.40.63		63,5	160
11.470.40.63/250		63,5	250
11.470.50.40	50	40,5	100
11.470.50.40/160		40,5	160
11.470.50.50		50,5	100
11.470.50.50/200		50,5	200
11.470.50.63		63,5	200
11.470.50.63/315		63,5	315
11.470.50.95		95,5	200
11.470.50.95/315		95,5	315

n_{max} 4.000 min.⁻¹ α p_{max} 25 bar

* Se fabrican otras medidas bajo pedido.
* Other sizes are manufactured under order.



REF. 11.512	K ISO	d ₁ G6 mm	A mm	D mm	D ₁ mm	l ₁ mm	l ₂ * mm
11.512.40.25	40	25	152	45	95	15	65
11.512.40.32		32	152	48	95	16	65
11.512.50.32	50	32	152	48	95	16	80
11.512.50.40		40	166	58	110	17	80

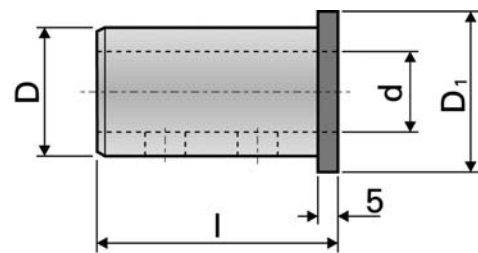
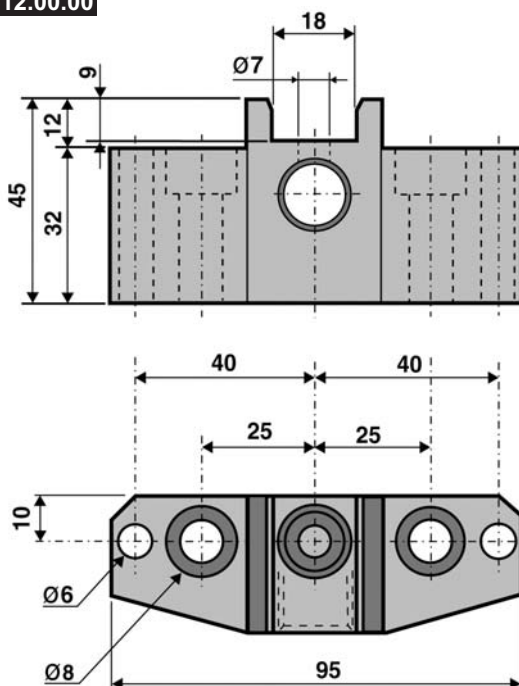
REF. 11.512



11.512.40.25	89.121.68
11.512.40.32	89.121.68
11.512.50.32	89.121.68
11.512.50.40	89.121.68

COMPLEMENTOS DEL GRUPO 512 - COMPLEMENTS OF 512 GROUP

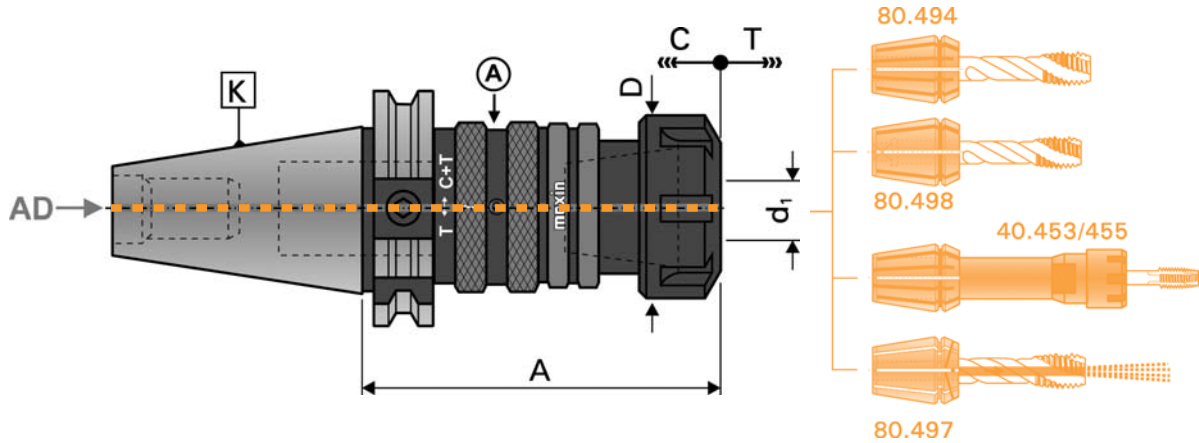
REF. 89.512.00.00



REF. 89.512	D mm	d mm	D ₁ mm	l mm
89.512.25.16	25	16	33	60
89.512.25.20		20	33	60
89.512.32.16	32	16	40	60
89.512.32.20		20	40	60
89.512.32.25		25	40	60
89.512.40.16	40	16	48	60
89.512.40.20		20	48	60
89.512.40.25		25	48	60
89.512.40.32		32	48	60

Compensación a la compresión (C) y a la tracción (T).
 Posibilidad de anular la compresión con el anillo (A).
 Control de la profundidad de roscado.
 Refrigeración por el centro.

Compensation in compression (C) and tension (T).
 Compression can be blocked by turning the rear ring (A).
 Control of threading depth.
 Central coolant supply.



REF. 11.610

REF. 11.610	K ISO			A mm	D mm	C mm	T mm		
11.610.30.12	30	ER 16	M3-M12	99	28	5,5	6,0	80.493.10	89.202.10
11.610.40.12	40	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
11.610.40.20		ER 25	M4-M20	125	42	10,5	7,5	80.493.16	89.202.16
11.610.40.33		ER 40	M8-M33	141	63	10,0	10,0	80.493.26	89.202.26
11.610.50.12	50	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
11.610.50.20		ER 25	M4-M20	134	42	10,5	7,5	80.493.16	89.202.16
11.610.50.33		ER 40	M8-M33	150	63	10,0	10,0	80.493.26	89.202.26

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

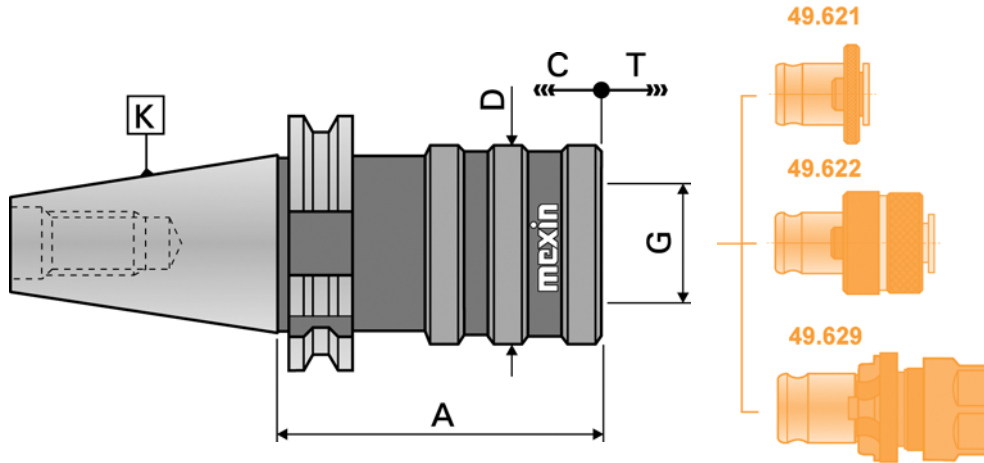
REF. 13.610


REF. 13.610	K ISO			A mm	D mm	C mm	T mm		
13.610.40.12	40	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
13.610.40.20		ER 25	M4-M20	125	42	10,5	7,5	80.493.16	89.202.16
13.610.40.33		ER 40	M8-M33	141	63	10,0	10,0	80.493.26	89.202.26
13.610.50.12	50	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
13.610.50.20		ER 25	M4-M20	134	42	10,5	7,5	80.493.16	89.202.16
13.610.50.33		ER 40	M8-M33	150	63	10,0	10,0	80.493.26	89.202.26

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

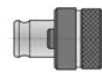
COMPENSACIÓN DEL PASO A LA COMPRESIÓN (C) Y A LA TRACCIÓN (T)

COMPENSATION IN COMPRESSION (C) AND TENSION (T)



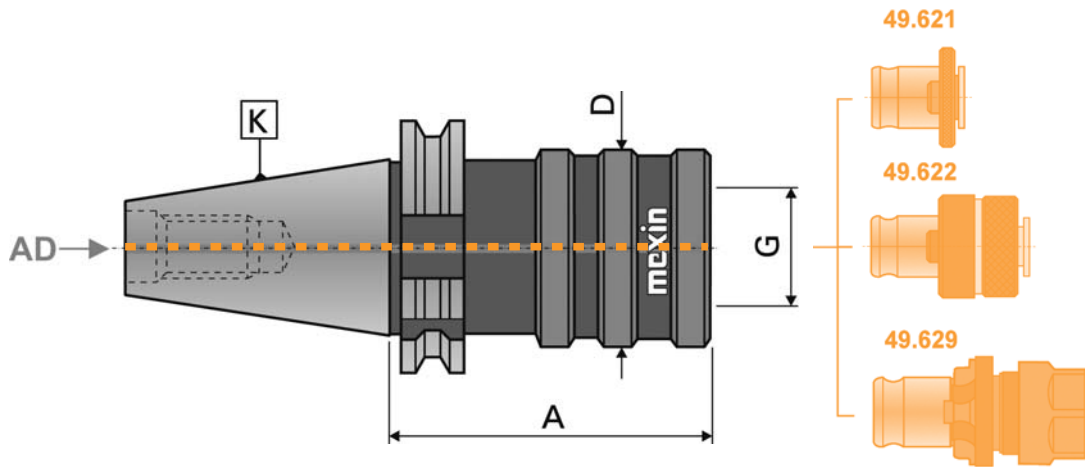
REF. 11.620	K ISO	G No.	Ø		A mm	D mm	C mm	T mm
11.620.30.12	30	1	19	M3-M12	63	38	9	9
11.620.40.12	40	1	19	M3-M12	68	38	9	9
11.620.40.20		2	31	M8-M20	93	55	15	15
11.620.40.33		3	48	M14-M33	138	79	24	24
11.620.50.12	50	1	19	M3-M12	80	38	9	9
11.620.50.20		2	31	M8-M20	102	55	15	15
11.620.50.33		3	48	M14-M33	135	79	24	24


REF. 11.620


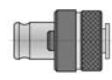


11.620.30.12	49.621.12xx	49.622.12xx
11.620.40.12	49.621.12xx	49.622.12xx
11.620.40.20	49.621.20xx	49.622.20xx
11.620.40.33	49.621.33xx	49.622.33xx
11.620.50.12	49.621.12xx	49.622.12xx
11.620.50.20	49.621.20xx	49.622.20xx
11.620.50.33	49.621.33xx	49.622.33xx

CON PASO DE REFRIGERANTE
 WITH INNER COOLANT



REF. 11.630	K ISO	G No.	Ø		A mm	D mm
11.630.30.12	30	1	19	M3-M12	60	33
11.630.40.12	40	1	19	M3-M12	67	33
11.630.40.20		2	31	M8-M20	90	50
11.630.40.33		3	48	M14-M33	117	72
11.630.50.12	50	1	19	M3-M12	78	33
11.630.50.20		2	31	M8-M20	101	50
11.630.50.33		3	48	M14-M33	125	72

REF. 11.630		
11.630.30.12	49.621.12xx	49.622.12xx
11.630.40.12	49.621.12xx	49.622.12xx
11.630.40.20	49.621.20xx	49.622.20xx
11.630.40.33	49.621.33xx	49.622.33xx
11.630.50.12	49.621.12xx	49.622.12xx
11.630.50.20	49.621.20xx	49.622.20xx
11.630.50.33	49.621.33xx	49.622.33xx



FABRICADO CON MATERIAL FORJADO

MATERIAL:

- Acero de cementación al Cromo-Manganeso 1.7131 (16MnCr5).

EJECUCION:

- Cementado, templado y revenido.
 - Dureza superficial HRC 58±2 (670±40 HV30)
 - Profundidad capa cementada mínimo 0,5 mm.
 - Resistencia en el núcleo mínimo 800 N/mm² después del cementado.

PRECISION:

- Cono según DIN 254.
 - Angulo del cono:
 Tolerancia AT3 DIN 7178 T Ap 1 y DIN 2080 T Ap 1.
 - Otras tolerancias según DIN 7160 y 7168.
 - Rugosidad superficial del cono R_z < 0,001 mm.

MANUFACTURED FROM FORGED PARTS

MATERIAL:

- Alloyed carburized steel at chrome-manganese 1.7131 (16MnCr5).

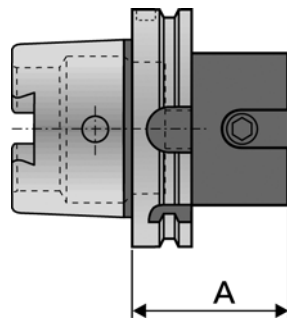
EXECUTION:

- Carburized, hardness.
 - Surface hardness HRC 58±2 (670±40 HV30)
 - Depth minimum 0,5 mm.
 - Tensile strength in core minimum 800 N/mm² after carburizing.

ACCURACY:

- Taper according to DIN 254
 - Taper angle:
 tolerance AT 3 DIN 7178 part 1 and DIN 2080 part 1.
 - Other tolerances according to DIN 7160 and 7168.
 - Taper surface roughness R_z < 0,001 mm.

K	AT 3 mm
ISO 30	0,002
ISO 40	0,003
ISO 45	0,003
ISO 50	0,004
ISO 60	0,005



**PORTAHERRAMIENTAS
PRE-EQUILIBRADOS**

**PREBALANCED
TOOLHOLDERS**



ISO 40 ▶ 8000 rpm ISO 50 ▶ 8000 rpm

TOLERANCIA AT:

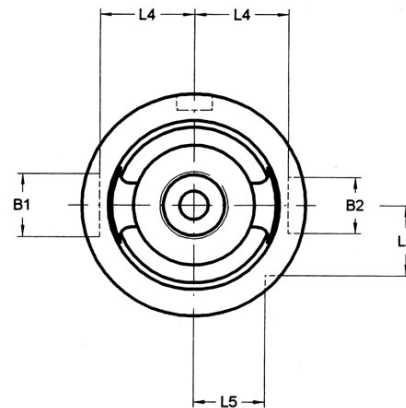
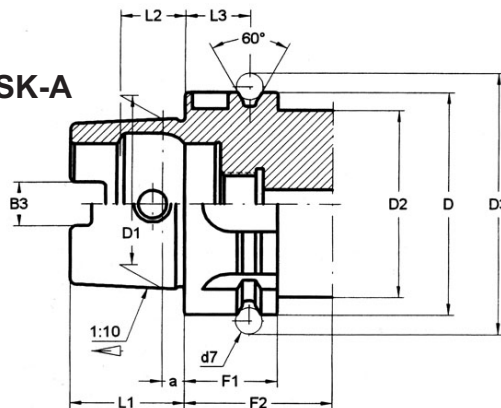
- Indica la tolerancia en el plano de medida D entre el valor real de la conicidad del cono y el valor teórico.
 - Este valor en el plano D debe ser siempre menos (negativo), nunca mas (positivo), para así poder GARANTIZAR una buena sujeción del Mandrino en el diámetro mayor del cono.

TOLERANCE AT:

- Indicates the tolerance of size D surface between the real and the theoretical value of the taper conicity.
 - This value of surface D must always be less (negative), never more (positive) in order to GUARANTEE a good toolholder fixation at the bigger taper diameter.

16

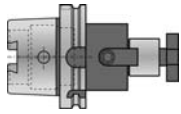
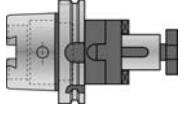
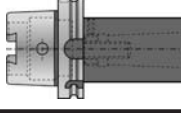
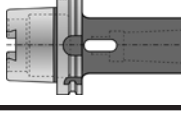
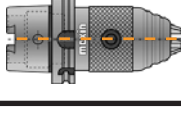
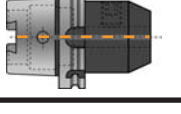
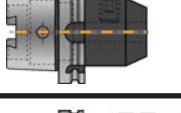
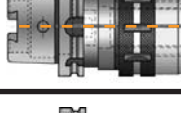
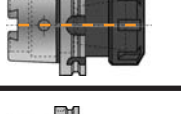
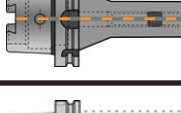
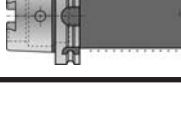
DIN 69893-HSK-A

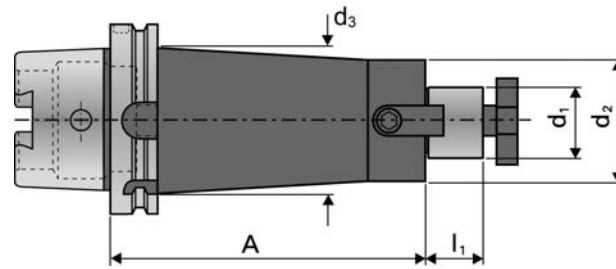
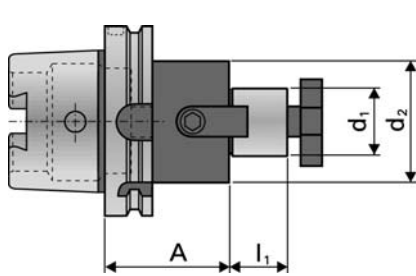


KSK	Dh10 mm	D ₁ mm	D ₂ max mm	D ₃ -0,1 mm	B ₁ H10 mm	B ₂ H10 mm	B ₃ ±0,04 mm	d ₇ mm
32	32	24	26	37,0	9	7	7,05	4
40	40	30	34	45,0	11	9	8,05	4
50	50	38	42	59,3	14	12	10,54	7
63	63	48	53	72,3	18	16	12,54	7
80	80	60	67	88,8	20	18	16,04	7
100	100	75	85	109,75	22	20	20,02	7

KSK	L ₁ -0,2 mm	L ₂ JS10 mm	L ₃ ±0,1 mm	L ₄ -0,2 mm	L ₅ -0,3 mm	F ₁ -0,1 mm	F ₂ min mm	a mm
32	16	8,92	16	13,0	9,5	20	35	3,2
40	20	11,42	16	17,0	12,0	20	35	4,0
50	25	14,13	18	21,0	15,5	26	42	5,0
63	32	18,13	18	26,5	20,0	26	42	3,3
80	40	22,85	18	34,0	25,0	26	42	8,0
100	50	28,56	20	44,0	31,5	29	45	10,0

REFERENCIA - PAGINA
ORDER NR. - PAGE

16.160					
C.01					
16.180					
C.02					
16.210					
C.03					
16.215					
C.04					
16.296					
C.05					
16.300					
C.07					
16.305					
C.08					
16.400					
C.06					
16.451/3					
C.09					
16.455					
C.10					
16.470					
C.11					

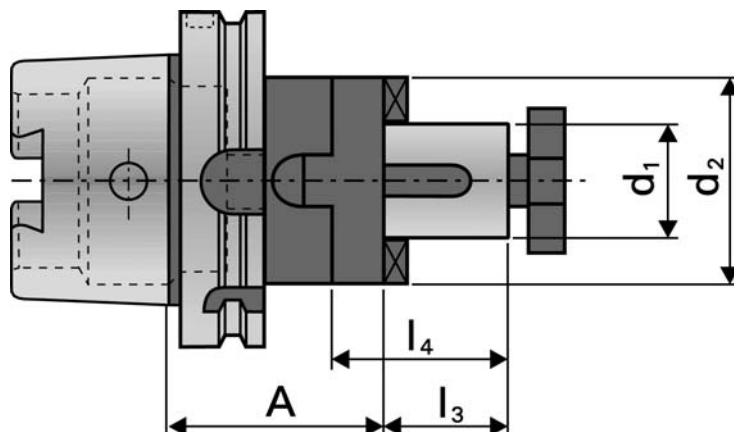


REF. 16.160	Cono HSK	d ₁ mm	d ₂ mm	A mm	l ₁ mm	d ₁ mm
16.160.050.16	50	16	38	50	17	
16.160.050.22		22	48	50	19	
16.160.050.27		27	58	60	21	
16.160.063.16	63	16	38	50	17	
16.160.063.16/100		16	38	100	17	46
16.160.063.16/160		16	38	160	17	46
16.160.063.22		22	48	50	19	
16.160.063.22/100		22	48	100	19	53
16.160.063.22/160		22	48	160	19	53
16.160.063.27		27	58	60	21	
16.160.063.27/100		27	58	100	21	
16.160.063.27/160		27	58	160	21	
16.160.063.32		32	64	60	24	
16.160.063.32/100		32	64	100	24	
16.160.063.32/160		32	64	160	24	
16.160.063.40		40	80	60	27	
16.160.063.40/100		40	80	100	27	
16.160.100.16	100	16	38	50	17	
16.160.100.22		22	48	50	19	
16.160.100.27		27	55	50	21	
16.160.100.32		32	64	50	24	
16.160.100.40		40	80	60	27	

REF. 16.160



16.160.050.16	89.100.16	89.176.16
16.160.050.22	89.100.22	89.176.22
16.160.050.27	89.100.27	89.176.27
16.160.063.16	89.100.16	89.176.16
16.160.063.16/100	89.100.16	89.176.16
16.160.063.16/160	89.100.16	89.176.16
16.160.063.22	89.100.16	89.176.16
16.160.063.22/100	89.100.16	89.176.16
16.160.063.22/160	89.100.16	89.176.16
16.160.063.27	89.100.22	89.176.22
16.160.063.27/100	89.100.22	89.176.22
16.160.063.27/160	89.100.22	89.176.22
16.160.063.32	89.100.22	89.176.22
16.160.063.32/100	89.100.22	89.176.22
16.160.063.32/160	89.100.22	89.176.22
16.160.063.40	89.100.27	89.176.27
16.160.063.40/100	89.100.27	89.176.27
16.160.100.16	89.100.16	89.176.16
16.160.100.22	89.100.32	89.176.32
16.160.100.27	89.100.32	89.176.32
16.160.100.32	89.100.40	89.176.40
16.160.100.40	89.100.16	89.176.16

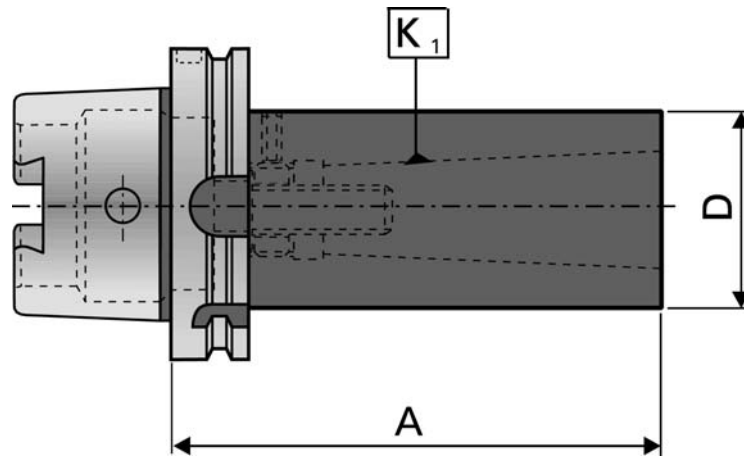


REF. 16.180	Cono HSK	d ₁ h6 mm	A mm	l ₃ mm	l ₄ mm	d ₂ mm
16.180.063.16	63	16	55	17	27	32
16.180.063.16/100		16	100	17	27	32
16.180.063.22		22	55	19	31	40
16.180.063.22/100		22	100	19	31	40
16.180.063.27		27	55	21	33	48
16.180.063.27/100		27	100	21	33	48
16.180.063.32		32	60	24	38	58
16.180.063.32/100		32	100	24	38	58
16.180.063.40		40	60	27	41	70
16.180.063.40/100		40	100	27	41	70
16.180.100.16	100	16	55	17	27	32
16.180.100.16/100		16	100	17	27	32
16.180.100.22		22	55	19	31	40
16.180.100.22/100		22	100	19	31	40
16.180.100.27		27	55	21	33	48
16.180.100.27/100		27	100	21	33	48
16.180.100.32		32	60	24	38	58
16.180.100.32/100		32	100	24	38	58
16.180.100.40		40	60	27	41	70
16.180.100.40/100		40	100	27	41	70

REF. 16.180



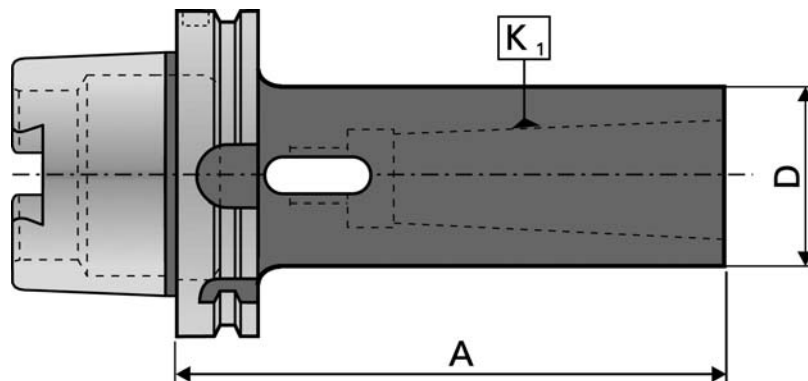
16.180.063.16	89.100.16	89.161.16	89.141.16
16.180.063.16/100	89.100.16	89.161.16	89.141.16
16.180.063.22	89.100.22	89.161.22	89.141.22
16.180.063.22/100	89.100.22	89.161.22	89.141.22
16.180.063.27	89.100.27	89.161.27	89.141.27
16.180.063.27/100	89.100.27	89.161.27	89.141.27
16.180.063.32	89.100.32	89.161.32	89.141.32
16.180.063.32/100	89.100.32	89.161.32	89.141.32
16.180.063.40	89.100.40	89.161.40	89.141.40
16.180.063.40/100	89.100.40	89.161.40	89.141.40
16.180.100.16	89.100.16	89.161.16	89.141.16
16.180.100.16/100	89.100.16	89.161.16	89.141.16
16.180.100.22	89.100.22	89.161.22	89.141.22
16.180.100.22/100	89.100.22	89.161.22	89.141.22
16.180.100.27	89.100.27	89.161.27	89.141.27
16.180.100.27/100	89.100.27	89.161.27	89.141.27
16.180.100.32	89.100.32	89.161.32	89.141.32
16.180.100.32/100	89.100.32	89.161.32	89.141.32
16.180.100.40	89.100.40	89.161.40	89.141.40
16.180.100.40/100	89.100.40	89.161.40	89.141.40



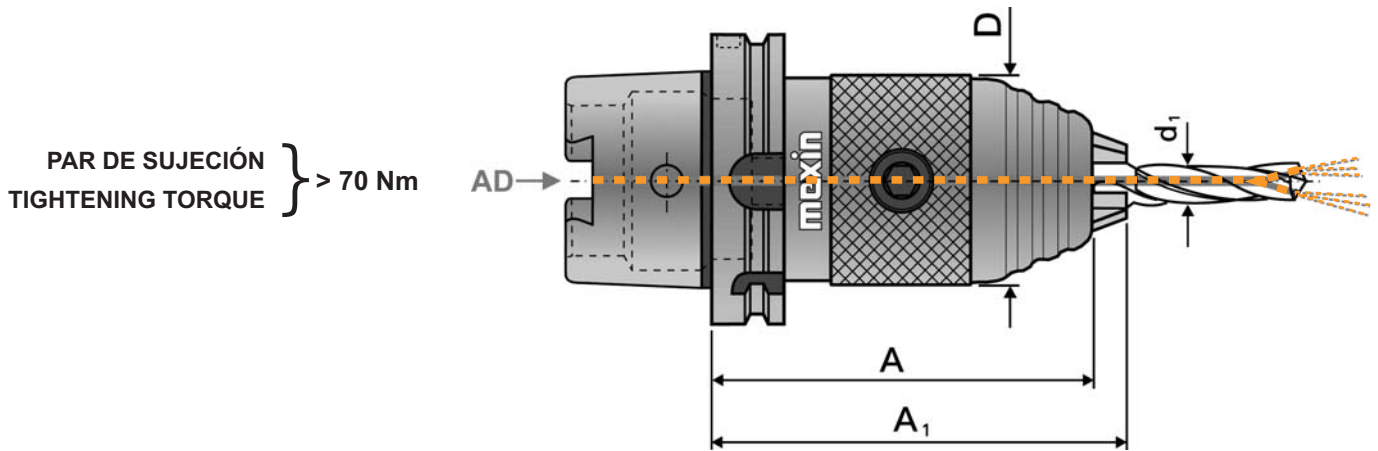
REF. 16.210	Cono HSK	A mm	D mm
16.210.050.01	50	100	25
16.210.050.02		120	32
16.210.050.03		140	40
16.210.063.01	63	100	25
16.210.063.02		120	32
16.210.063.03		140	40
16.210.063.04		160	48
16.210.100.02	100	120	32
16.210.100.03		150	40
16.210.100.04		170	48
16.210.100.05		200	63

REF. 16.210




16.210.050.01	89.127.51
16.210.050.02	89.127.52
16.210.050.03	89.127.53
16.210.063.01	89.127.61
16.210.063.02	89.127.62
16.210.063.03	89.127.63
16.210.063.04	89.127.64
16.210.100.02	89.127.12
16.210.100.03	89.127.13
16.210.100.04	89.127.14
16.210.100.05	89.127.15

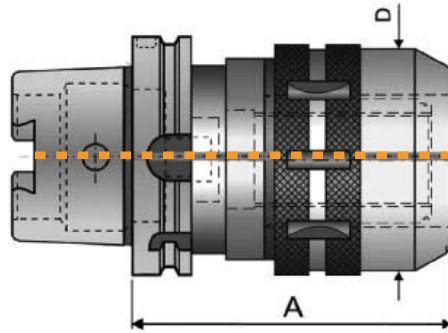


REF. 16.215	Cono HSK	K ₁ MORSE	A mm	D mm
16.215.050.01	50	1	100	25
16.215.050.02		2	120	32
16.215.050.03		3	140	40
16.215.063.01	63	1	100	25
16.215.063.02		2	120	32
16.215.063.03		3	140	40
16.215.063.04		4	160	48
16.215.100.02	100	2	120	32
16.215.100.03		3	150	40
16.215.100.04		4	170	48
16.215.100.05		5	200	63



REF. 16.296	Cono HSK	d ₁ mm	D mm	A mm	A ₁ max mm
16.296.050.13	50	1-13	50	86,4	93,4
16.296.050.16		3-16	56	96,4	103,4
16.296.063.13	63	1-13	50	89,4	96,4
16.296.063.16		3-16	56	96,4	103,4
16.296.100.13	100	1-13	50	100,4	107,4
16.296.100.16		3-16	56	107,4	114,4

REF. 16.296		
		3
16.296.050.13	89.206.06	89.220.13
16.296.050.16	89.206.06	89.220.13
16.296.063.13	89.206.06	89.220.13
16.296.063.16	89.206.06	89.220.13
16.296.100.13	89.206.06	89.220.13
16.296.100.16	89.206.06	89.220.13

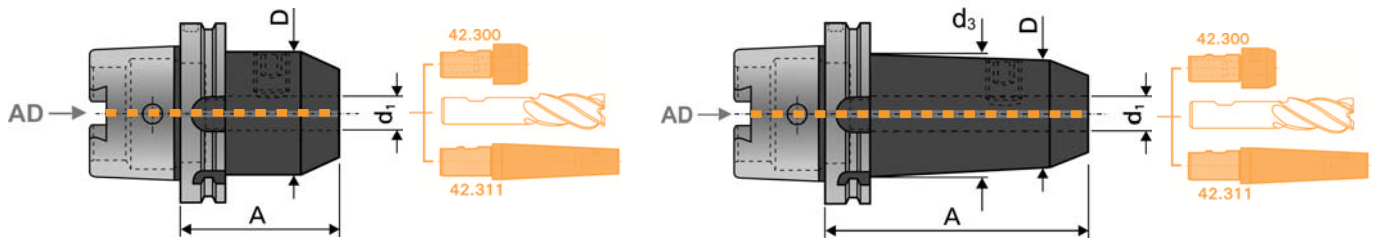



PAR DE SUJECIÓN } CAP 20 - Ø20 → 980 Nm
TIGHTENING TORQUE } CAP 32 - Ø32 → 3400 Nm

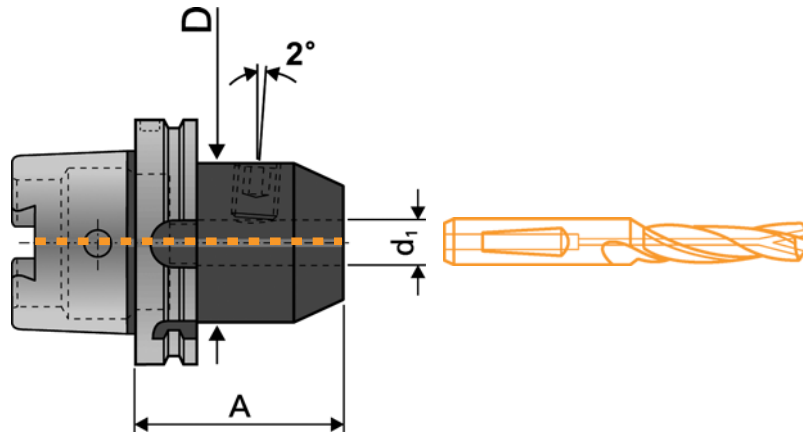
REF. 16.400



DIN 69893

	HSK-A	d mm	A mm	D mm	Precio / Price Euro
16.400.063.20	63	20	105	54	420
16.400.063.32		32	130	74	450
16.400.100.32	100	32	135	74	480

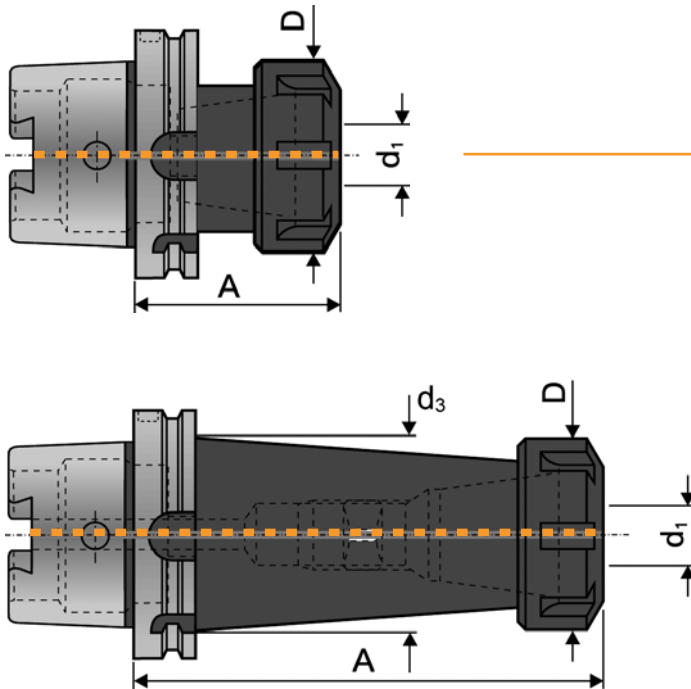


REF. 16.300	Cono HSK	d ₁ mm	A mm	D mm	d ₃ mm	
16.300.050.06	50	6	65	25		89.122.20
16.300.050.08		8	65	28		89.122.35
16.300.050.10		10	65	35		89.122.40
16.300.050.12		12	80	42		89.122.50
16.300.050.14		14	80	44		89.122.50
16.300.050.16		16	80	48		89.122.60
16.300.050.18		18	80	50		89.122.60
16.300.050.20		20	80	52		89.122.65
16.300.063.06	63	6	65	25		89.122.20
16.300.063.06/160		6	160	25	30	89.122.20
16.300.063.08		8	65	28		89.122.35
16.300.063.08/160		8	160	28	32	89.122.35
16.300.063.10		10	65	35		89.122.40
16.300.063.10/160		10	160	35	32	89.122.40
16.300.063.12		12	80	42		89.122.50
16.300.063.12/160		12	160	42	45	89.122.50
16.300.063.14		14	80	44		89.122.50
16.300.063.14/160		14	160	44	48	89.122.50
16.300.063.16		16	80	48		89.122.60
16.300.063.16/160		16	160	48	52	89.122.60
16.300.063.18		18	80	50		89.122.60
16.300.063.18/160		18	160	50	52	89.122.60
16.300.063.20		20	80	52		89.122.65
16.300.063.20/160		20	160	52		89.122.65
16.300.063.25		25	110	65		89.122.75
16.300.063.25/160		25	160	65		89.122.75
16.300.063.32		32	110	72		89.122.80
16.300.063.32/160		32	160	72		89.122.80
16.300.100.06	100	6	80	25		89.122.20
16.300.100.06/160		6	160	25	30	89.122.20
16.300.100.08		8	80	28		89.122.35
16.300.100.08/160		8	160	28	32	89.122.35
16.300.100.10		10	80	35		89.122.40
16.300.100.10/160		10	160	35	32	89.122.40
16.300.100.12		12	80	42		89.122.50
16.300.100.12/160		12	160	42	45	89.122.50
16.300.100.14		14	80	44		89.122.50
16.300.100.14/160		14	160	44	48	89.122.50
16.300.100.16		16	100	48		89.122.60
16.300.100.16/160		16	160	48	52	89.122.60
16.300.100.18		18	100	50		89.122.60
16.300.100.18/160		18	160	50	52	89.122.60
16.300.100.20		20	100	52		89.122.65
16.300.100.20/160		20	160	52		89.122.65
16.300.100.25		25	100	65		89.122.75
16.300.100.25/160		25	160	65		89.122.75
16.300.100.32		32	100	72		89.122.80
16.300.100.32/160		32	160	72		89.122.80
16.300.100.40		40	100	80		89.122.80
16.300.100.40/160		40	160	80		89.122.80

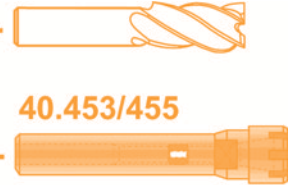

REF. 16.305

REF. 16.305	Cono HSK	d ₁ H4 mm	A mm	D mm		
16.305.050.06	50	6	65	25	89.190.15	89.122.20
16.305.050.08		8	65	28	89.190.21	89.122.35
16.305.050.10		10	65	35	89.190.37	89.122.40
16.305.050.12		12	80	42	89.190.43	89.122.50
16.305.050.14		14	80	44	89.190.43	89.122.50
16.305.050.16		16	80	48	89.190.51	89.122.60
16.305.050.18		18	80	50	89.190.51	89.122.60
16.305.050.20	20	80	52	89.190.66	89.122.65	
16.305.063.06	63	6	65	25	89.190.15	89.122.20
16.305.063.08		8	65	28	89.190.21	89.122.35
16.305.063.10		10	65	35	89.190.37	89.122.40
16.305.063.12		12	80	42	89.190.43	89.122.50
16.305.063.14		14	80	44	89.190.43	89.122.50
16.305.063.16		16	80	48	89.190.51	89.122.60
16.305.063.18		18	80	50	89.190.51	89.122.60
16.305.063.20	20	80	52	89.190.66	89.122.65	
16.305.063.25	25	110	65	89.190.82	89.122.75	
16.305.063.32	32	110	72	89.190.82	89.122.80	
16.305.100.06	100	6	80	25	89.190.15	89.122.20
16.305.100.08		8	80	28	89.190.21	89.122.35
16.305.100.10		10	80	35	89.190.37	89.122.40
16.305.100.12		12	80	42	89.190.43	89.122.50
16.305.100.14		14	80	44	89.190.43	89.122.50
16.305.100.16		16	100	48	89.190.51	89.122.60
16.305.100.18		18	100	50	89.190.51	89.122.60
16.305.100.20		20	100	52	89.190.66	89.122.65
16.305.100.25		25	100	65	89.190.82	89.122.75
16.305.100.32		32	100	72	89.190.82	89.122.80
16.305.100.40	40	100	80	89.190.82	89.122.80	

HSK
FORM A



80.494/7








40.453/455

80.498

PAR DE SUJECIÓN
TIGHTENING TORQUE } > 150 Nm - Ø20

CON TUERCA A BOLAS
WITH BALL BEARING NUT

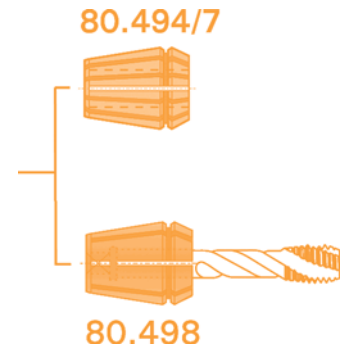
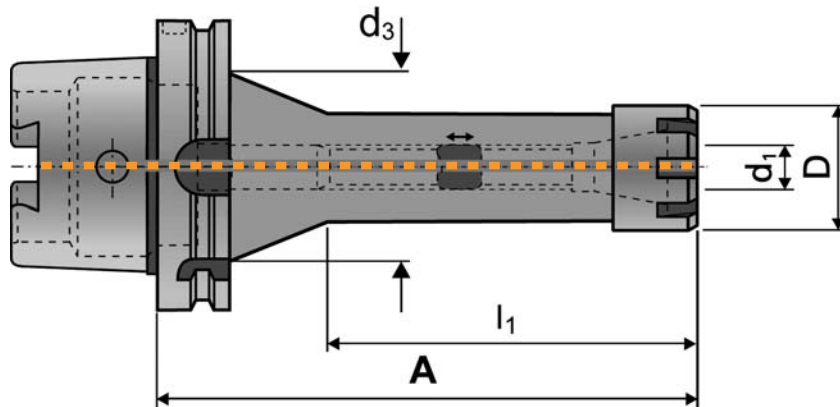
CON TUERCA NORMAL
WITH NORMAL NUT


REF. 16.451		REF. 16.453		Cono HSK	A mm		d ₁ mm	D mm	d ₃ mm		
	80.491		80.493								
16.451.050.10	80.491.10	16.453.050.10	80.493.10	50	100	ER16	0,5-10	32		89.202.10	89.192.10
16.451.050.13	80.491.13	16.453.050.13	80.493.13		100	ER20	1-13	35		89.202.13	89.192.13
16.451.050.16	80.491.16	16.453.050.16	80.493.16		100	ER25	1-16	42		89.202.16	89.192.16
16.451.050.16/160	80.491.16	16.453.050.16/160	80.493.16		160	ER25	1-16	42		89.202.16	89.192.16
16.451.050.20	80.491.20	16.453.050.20	80.493.20		100	ER32	2-20	50		89.202.20	89.192.20
16.451.050.20/160	80.491.20	16.453.050.20/160	80.493.20		160	ER32	2-20	50		89.202.20	89.192.20
16.451.050.26	80.491.26	16.453.050.26	80.493.26		100	ER40	3-30	63		89.202.26	89.192.26
16.451.063.10	80.491.10	16.453.063.10	80.493.10	63	100	ER16	0,5-10	32		89.202.10	89.192.10
16.451.063.10/160	80.491.10	16.453.063.10/160	80.493.10		160	ER16	0,5-10	32	32	89.202.10	89.192.10
16.451.063.13	80.491.13	16.453.063.13	80.493.13		100	ER20	1-13	35		89.202.13	89.192.13
16.451.063.13/160	80.491.13	16.453.063.13/160	80.493.13		160	ER20	1-13	35	35	89.202.13	89.192.13
16.451.063.16	80.491.16	16.453.063.16	80.493.16		100	ER25	1-16	42		89.202.16	89.192.16
16.451.063.16/160	80.491.16	16.453.063.16/160	80.493.16		160	ER25	1-16	42	42	89.202.16	89.192.16
16.451.063.20	80.491.20	16.453.063.20	80.493.20		100	ER32	2-20	50		89.202.20	89.192.20
16.451.063.20/160	80.491.20	16.453.063.20/160	80.493.20		160	ER32	2-20	50	50	89.202.20	89.192.20
16.451.063.26	80.491.26	16.453.063.26	80.493.26		100	ER40	3-30	63		89.202.26	89.192.26
16.451.063.26/160	80.491.26	16.453.063.26/160	80.493.26		160	ER40	3-30	63	63	89.202.26	89.192.26
16.451.100.10	80.491.10	16.453.100.10	80.493.10	100	100	ER16	0,5-10	32		89.202.10	89.192.10
16.451.100.13	80.491.13	16.453.100.13	80.493.13		100	ER20	1-13	35		89.202.13	89.192.13
16.451.100.16	80.491.16	16.453.100.16	80.493.16		100	ER25	1-16	42		89.202.16	89.192.16
16.451.100.16/160	80.491.16	16.453.100.16/160	80.493.16		160	ER25	1-16	42	42	89.202.16	89.192.16
16.451.100.20	80.491.20	16.453.100.20	80.493.20		100	ER32	2-20	50		89.202.20	89.192.20
16.451.100.20/160	80.491.20	16.453.100.20/160	80.493.20		160	ER32	2-20	50	50	89.202.20	89.192.20
16.451.100.26	80.491.26	16.453.100.26	80.493.26		100	ER40	3-30	63		89.202.26	89.192.26
16.451.100.26/160	80.491.26	16.453.100.26/160	80.493.26		160	ER40	3-30	63	63	89.202.26	89.192.26

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH




CON TUERCA "MINI"
 WITH "MINI" COLLET NUT

HSK
FORM A

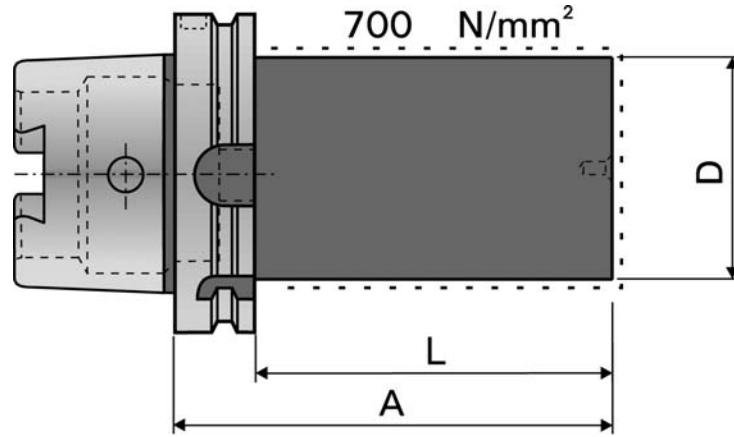


REF. 16.455	Cono HSK		d ₁ mm	A mm	D mm	l ₁ mm	d ₃ mm
16.455.050.10	50	ER16	0,5-10	100	22		
16.455.050.10/160		ER16	0,5-10	160	22	100	30
16.455.063.10	63	ER16	0,5-10	100	22		
16.455.063.10/160		ER16	0,5-10	160	22	100	30
16.455.063.13		ER20	1-13	100	28		
16.455.063.13/160		ER20	1-13	160	28	100	30
16.455.063.16		ER25	1-16	100	35		
16.455.063.16/160		ER25	1-16	160	35	100	30
16.455.100.10	100	ER16	0,5-10	100	22		
16.455.100.10/160		ER16	0,5-10	160	22	100	30

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

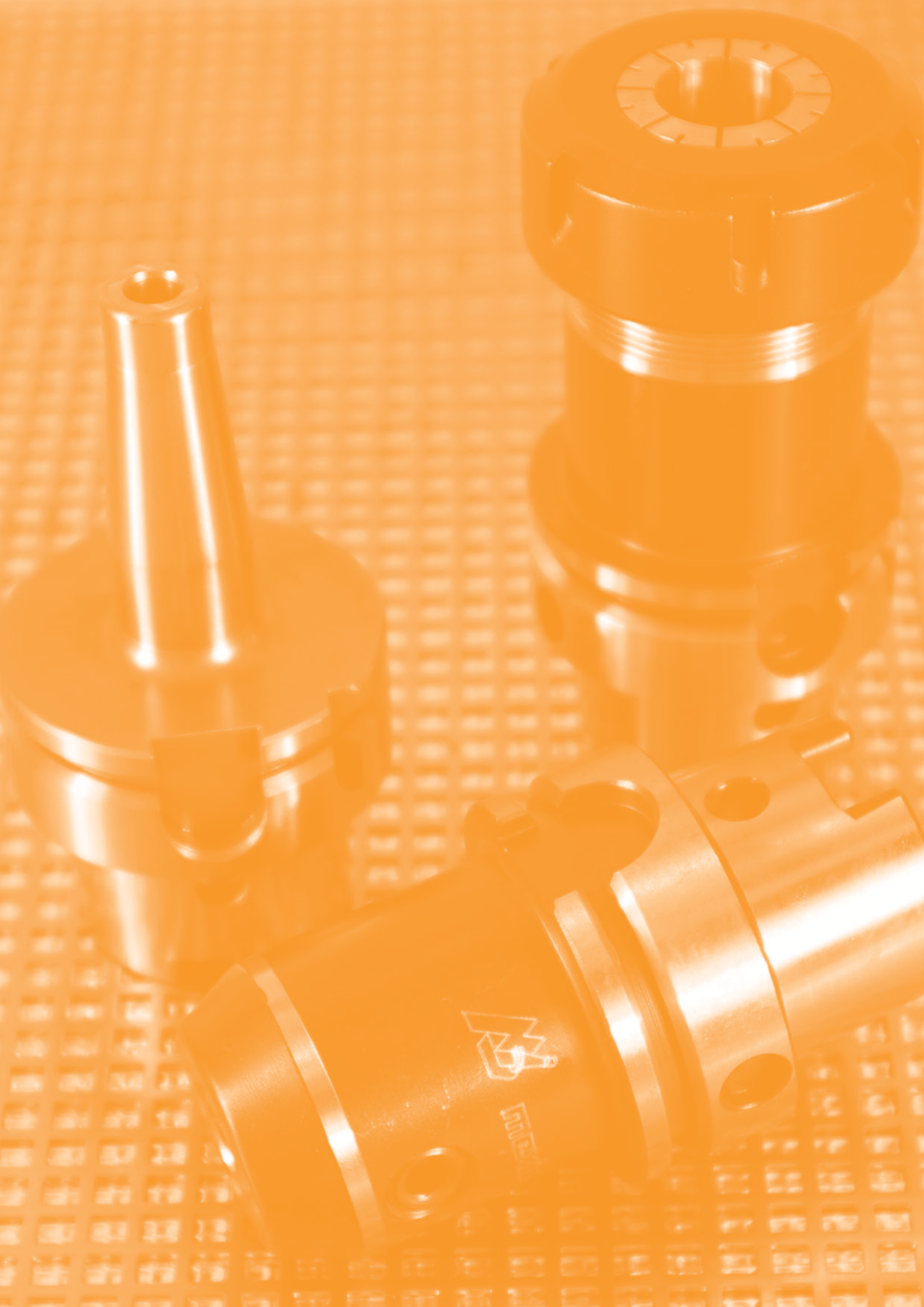
REF. 16.455			
16.455.050.10	80.495.10	89.205.10	89.192.10
16.455.050.10/160	80.495.10	89.205.10	89.192.10
16.455.063.10	80.495.10	89.205.10	89.192.10
16.455.063.10/160	80.495.10	89.205.10	89.192.10
16.455.063.13	80.495.13	89.205.13	89.192.13
16.455.063.13/160	80.495.13	89.205.13	89.192.13
16.455.063.16	80.495.16	89.205.16	89.192.16
16.455.063.16/160	80.495.16	89.205.16	89.192.16
16.455.100.10	80.495.10	89.205.10	89.192.10
16.455.100.10/160	80.495.10	89.205.10	89.192.10

HSK
FORM A



REF. 16.470	Cono HSK	D mm	L mm	A mm
16.470.050.50	50	50	200	226
16.470.050.63		63	200	226
16.470.063.63	63	63	200	226
16.470.063.80		80	250	276
16.470.100.63	100	63	200	229
16.470.100.80		80	250	279
16.470.100.90		90	300	329

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH



FABRICADO CON MATERIAL FORJADO

MATERIAL:

- Acero de cementación al Cromo-Manganeso 1.7131 (16MnCr5).

EJECUCION:

- Cementado, templado y revenido.
 - Dureza superficial HRC 58±2 (670±40 HV30)
 - Profundidad capa cementada mínimo 0,5 mm.
 - Resistencia en el núcleo mínimo 800 N/mm² después del cementado.

PRECISION:

- Cono según DIN 254.
 - Angulo del cono:
 Tolerancia AT3 DIN 7178 T Ap 1 y DIN 2080 T Ap 1.
 - Otras tolerancias según DIN 7160 y 7168.
 - Rugosidad superficial del cono R_z < 0,001 mm.

MANUFACTURED FROM FORGED PARTS

MATERIAL:

- Alloyed carburized steel at chrome-manganese 1.7131 (16MnCr5).

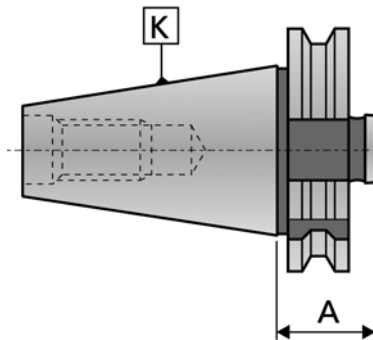
EXECUTION:

- Carburized, hardness.
 - Surface hardness HRC 58±2 (670±40 HV30)
 - Depth minimum 0,5 mm.
 - Tensile strength in core minimum 800 N/mm² after carburizing.

ACCURACY:

- Taper according to DIN 254
 - Taper angle:
 tolerance AT 3 DIN 7178 part 1 and DIN 2080 part 1.
 - Other tolerances according to DIN 7160 and 7168.
 - Taper surface roughness R_z < 0,001 mm.

K	AT 3 mm
ISO 30	0,002
ISO 40	0,003
ISO 45	0,003
ISO 50	0,004
ISO 60	0,005



PORTAHERRAMIENTAS PRE-EQUILIBRADOS
PREBALANCED TOOLHOLDERS



ISO 40 ▶ 8000 rpm ISO 50 ▶ 8000 rpm

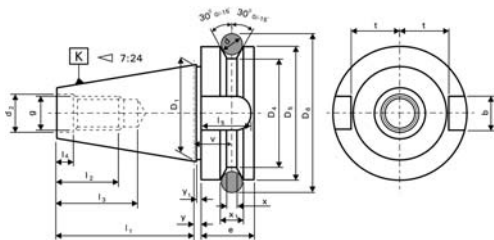
TOLERANCIA AT:

- Indica la tolerancia en el plano de medida D entre el valor real de la conicidad del cono y el valor teórico.
 - Este valor en el plano D debe ser siempre menos (negativo), nunca mas (positivo), para así poder GARANTIZAR una buena sujeción del Mandrino en el diámetro mayor del cono.

TOLERANCE AT:

- Indicates the tolerance of size D surface between the real and the theoretical value of the taper conicity.
 - This value of surface D must always be less (negative), never more (positive) in order to GUARANTEE a good toolholder fixation at the bigger taper diameter.

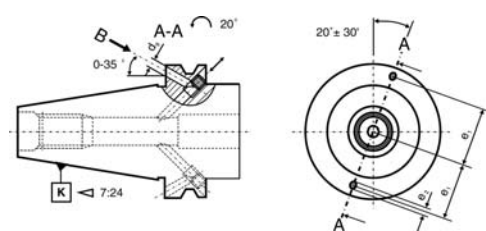
20 JIN B 6339 - BT
FORM A : SIMILAR DIN 69871 AD
 SIN AGUJERO CENTRAL
 WITHOUT THROUGH HOLE



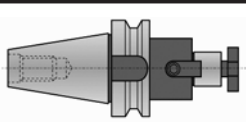
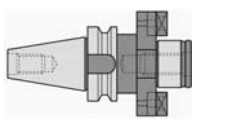
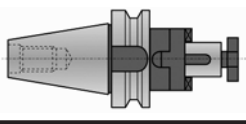
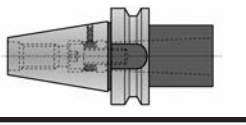
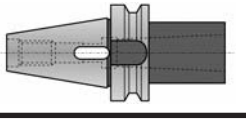
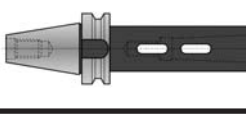
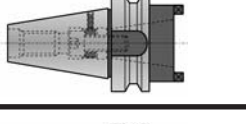
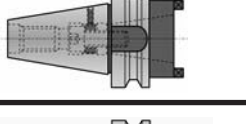
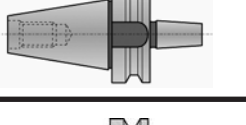

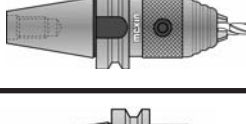
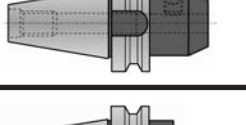
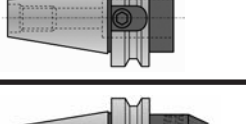
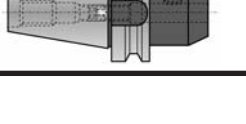
K ISO	D ₁ mm	l ₁ ±0,2 mm	d ₂ H8 mm	g 6H	l ₂ min mm	l ₃ min mm	l ₄ +0,5/0 mm	b H12 mm	l ₅ min mm	t _{0/-0,2} mm
30	31,75	48,4	12,5	M 12	24	34	7	16,1	17	16,3
35	38,10	56,4	12,5	M 12	24	34	7	16,1	20	19,6
40	44,45	65,4	17,0	M 16	30	43	9	16,1	21	22,6
45	57,15	82,8	21,0	M 20	38	53	11	19,3	26	29,1
50	69,85	101,8	25,0	M 24	45	62	13	25,7	31	35,1

K ISO	D ₄ mm	D ₅ h8 mm	e mm	v ±0,1 mm	x mm	x ₁ +0,1/0 mm	y ±0,4 mm	y ₁ +0,5/0 mm	d ₉ mm	e ₁ ±0,1 mm	e ₂ max mm
30	38	46	20	13,6	4	8	2	7	4	21	5
35	43	53	22	14,6	5	10	2	7	-	-	-
40	53	63	25	16,6	5	10	2	9	4	27	5
45	73	85	30	21,2	6	12	3	11	5	35	6
50	85	100	35	23,2	7	15	3	13	6	42	7

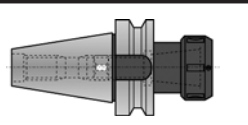
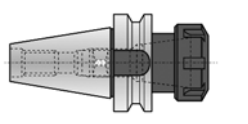
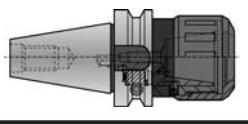
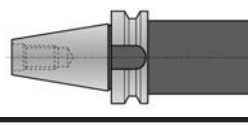
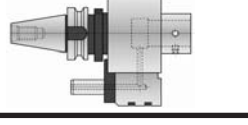
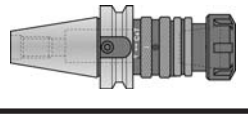
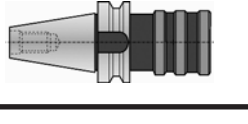
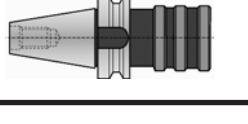


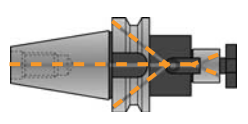
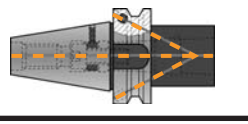
23 JIN B 6339 - BT
FORM B : SIMILAR DIN 69871 AD+B
 CON REFRIGERACIÓN CENTRAL POR LA VALONA
 WITH CENTRAL COOLANT FEED THROUGH THE COLLAR



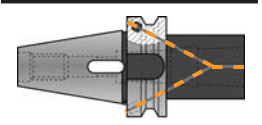
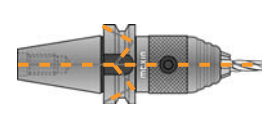
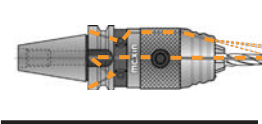
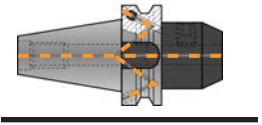
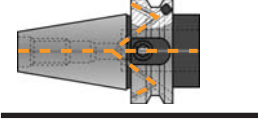
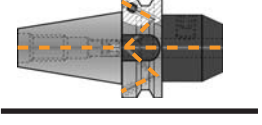
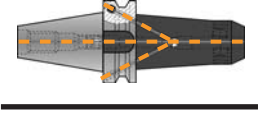
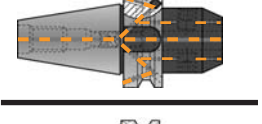
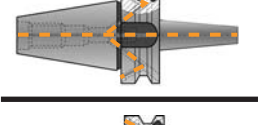
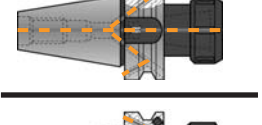
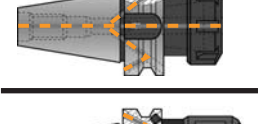
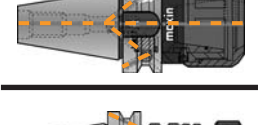
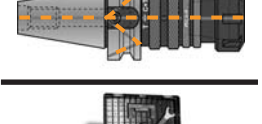

REFERENCIA - PAGINA
ORDER NR. - PAGE

20.160	
D.01	
20.165	
D.03	
20.180	
D.04	
20.210	
D.05	
20.215	
D.06	
20.216	
D.07	
20.225	
D.08	
20.226	
D.08	
20.290	
D.09	
20.295	
D.10	
20.296	
D.11	
20.300	
D.13	
20.302	
D.14	
20.305	
D.15	

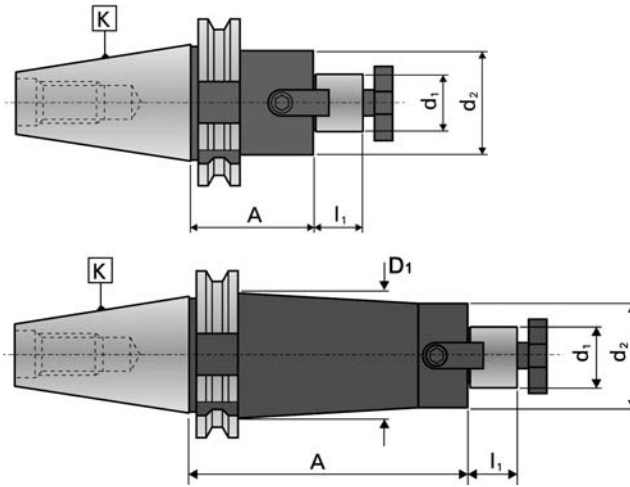
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20.351/3	
D.21	
20.451/3	
D.22	
20.457	
D.23	
20.470	
D.24	
20.512	
D.25	
20.610	
D.26	
20.620	
D.27	
20.630	
D.28	
ANTIVIBRATORIO ANTIVIBRATORY	
A20.160	
D.02	
A20.315	
D.20	
FORM - B SIMILAR DIN 69871	
23.160	
D.01	
23.210	
D.05	

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ORDER NR. - PAGE

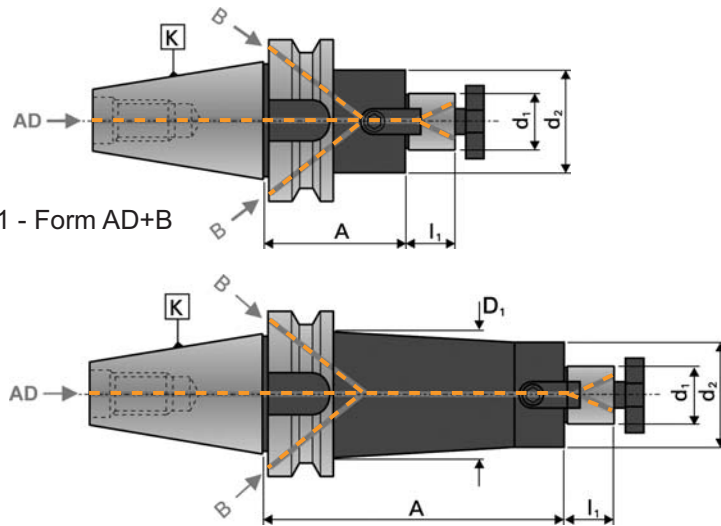
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23.302	
D.14	
23.305	
D.15	
23.306	
D.17	
23.307	
D.18	
23.315	
D.19	
23.351/3	
D.21	
23.451/3	
D.22	
23.457	
D.23	
23.610	
D.26	
KIT	
D.16	

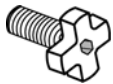

20.160



23.160

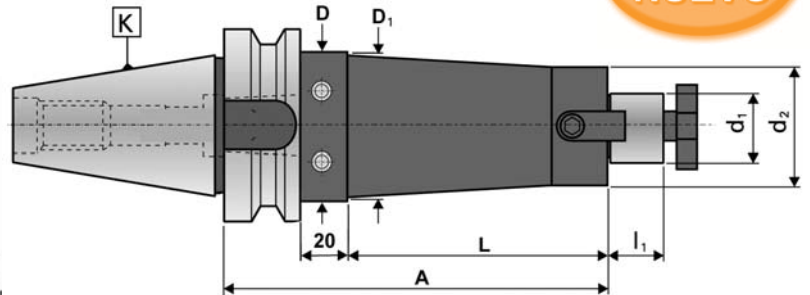
SIMILAR
 DIN 69871 - Form AD+B



REF. 20.160	A mm	REF. 23.160	A mm	K ISO	d ₁ h6 mm	I ₁ mm	d ₂ mm	D ₁ mm		
20.160.30.16	40			30	16	17	38		89.100.16	89.171.16
20.160.30.22	40				22	19	48		89.100.22	89.171.22
20.160.30.27	40				27	21	58		89.100.27	89.171.28
20.160.40.16	40	23.160.40.16	40	40	16	17	38		89.100.16	89.171.16
20.160.40.16/100	100	23.160.40.16/100	100		16	17	32	35	89.100.16	89.171.16
20.160.40.22	40	23.160.40.22	40		22	19	48		89.100.22	89.171.22
20.160.40.22/100	100	23.160.40.22/100	100		22	19	40	48	89.100.22	89.171.22
20.160.40.27	40	23.160.40.27	40		27	21	58		89.100.27	89.171.27
20.160.40.27/100	100	23.160.40.27/100	100		27	21	48	48	89.100.27	89.171.27
20.160.40.32	50	23.160.40.32	50		32	24	78		89.100.32	89.171.32
20.160.40.32/125	125	23.160.40.32/125	125		32	24	58	58	89.100.32	89.171.32
20.160.40.40	50	23.160.40.40	50		40	27	88		89.100.40	89.171.41
20.160.50.16	40	23.160.50.16	40	50	16	17	38		89.100.16	89.171.16
20.160.50.16/150	100	23.160.50.16/150	150		16	17	32	35	89.100.16	89.171.16
20.160.50.22	40	23.160.50.22	40		22	19	48		89.100.22	89.171.22
20.160.50.22/150	150	23.160.50.22/150	150		22	19	40	48	89.100.22	89.171.22
20.160.50.27	40	23.160.50.27	40		27	21	58		89.100.27	89.171.27
20.160.50.27/150	150	23.160.50.27/150	150		27	21	48	60	89.100.27	89.171.27
20.160.50.32	50	23.160.50.32	50		32	24	78		89.100.32	89.171.32
20.160.50.32/150	150	23.160.50.32/150	150		32	24	58	78	89.100.32	89.171.32
20.160.50.40	50	23.160.50.40	50		40	27	88		89.100.40	89.171.40
20.160.50.40/150	150	23.160.50.40/150	150		40	27	70	78	89.100.40	89.171.40
20.160.50.50	50	23.160.50.50	50		50	30	90		89.100.50	89.171.51

ESPECIAL PARA MOLDISTAS Y TROQUELISTAS
SPECIAL FOR MOULD AND DIE MAKERS

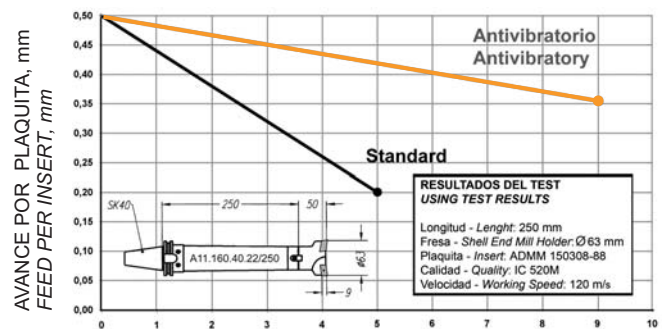
NEW
NUEVO



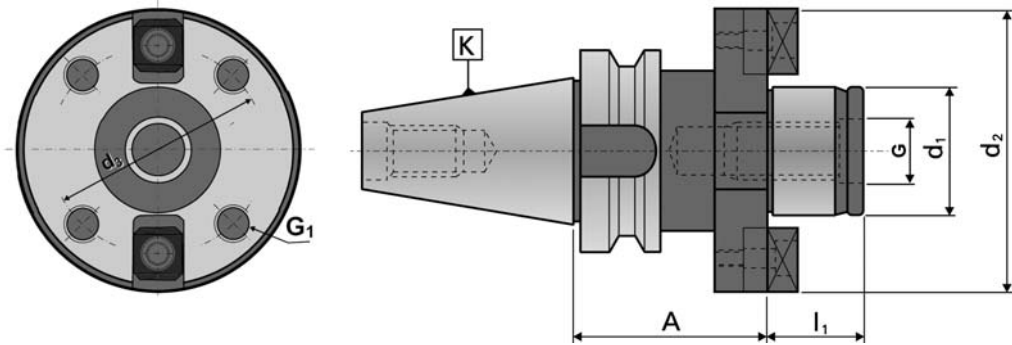
Reduce la vibración en un 60% respecto a los portafresas convencionales gracias al estar construido con materiales y mecanismos con propiedades antivibratorias.

Vibration reduced up to 60% compared to any other conventional shell mill adaptor, as they are manufactured with materials and mechanisms having antivibration properties.

COMPARATIVA USANDO UN MANDRINO ANTIVIBRATORIO
COMPARISON WHEN USING AN ANTIVIBRATORY TOOLHOLDER



JIS B 6339 - BT	K ISO	L mm	D mm	D ₁ mm	d ₁ h6 mm	A mm	I ₁ mm	d ₂ mm
A20.160.40.16/150	40	96	50	40	16	150	17	36
A20.160.40.16/200		146	50	42	16	200	17	36
A20.160.40.16/250		196	50	44	16	250	17	36
A20.160.40.16/300		246	50	46	16	300	17	36
A20.160.40.22/150	40	96	50	46	22	150	19	44
A20.160.40.22/200		146	50	48	22	200	19	44
A20.160.40.22/250		196	50	49	22	250	19	44
A20.160.40.22/300		246	50	49	22	300	19	44
A20.160.40.27/150	40	96	56	54	27	150	21	54
A20.160.40.27/200		146	56	54	27	200	21	54
A20.160.40.27/250		196	56	54	27	250	21	54
A20.160.40.27/300		246	56	54	27	300	21	54
A20.160.50.16/150	50	92	80	42	16	150	17	36
A20.160.50.16/200		142	80	46	16	200	17	36
A20.160.50.16/250		192	80	50	16	250	17	36
A20.160.50.16/300		242	80	54	16	300	17	36
A20.160.50.16/400		342	80	60	16	400	17	36
A20.160.50.22/200	50	142	80	50	22	200	19	44
A20.160.50.22/250		192	80	52	22	250	19	44
A20.160.50.22/300		242	80	54	22	300	19	44
A20.160.50.22/400		342	80	58	22	400	19	44
A20.160.50.22/500		442	80	64	22	500	19	44
A20.160.50.27/200	50	142	80	54	27	200	21	54
A20.160.50.27/250		192	80	56	27	250	21	54
A20.160.50.27/300		242	80	58	27	300	21	54
A20.160.50.27/400		342	80	62	27	400	21	54
A20.160.50.27/500		442	80	68	27	500	21	54
A20.160.50.32/200	50	142	80	64	32	200	24	64
A20.160.50.32/250		192	80	66	32	250	24	64
A20.160.50.32/300		242	80	68	32	300	24	64
A20.160.50.32/400		342	80	74	32	400	24	64
A20.160.50.32/500		442	80	78	32	500	24	64

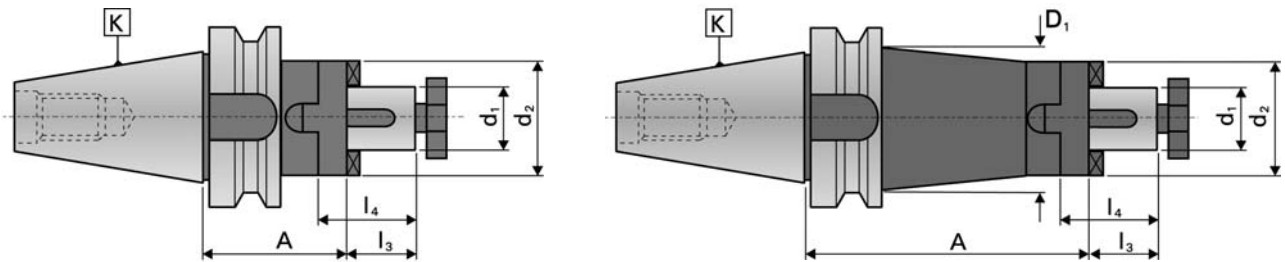


REF. 20.165	K ISO	d ₁ g5 mm	A mm	d ₂ mm	d ₃ mm	G mm	G ₁ mm	l ₁ mm
20.165.40.40	40	40	60	89	66,7	M-20	M-12	30
20.165.50.40	50	40	70	89	66,7	M-20	M-12	30
20.165.50.60		60	80	129	101,6	M-30	M-16	40

REF. 20.165

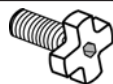


20.165.40.40	89.172.40
20.165.50.40	89.172.40
20.165.50.60	89.172.60

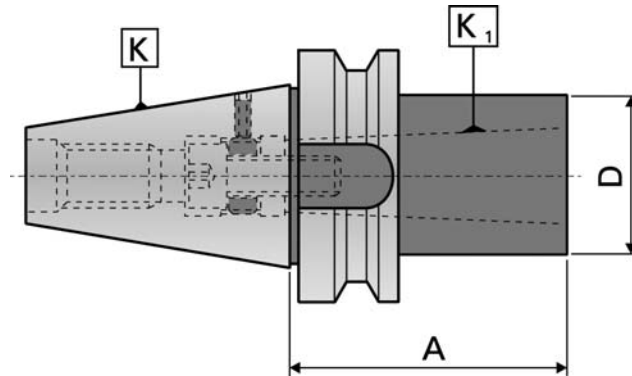





REF. 20.180	K ISO	d ₁ h6 mm	A mm	l ₃ mm	l ₄ mm	d ₂ mm	D ₁ mm
20.180.30.16	30	16	50	17	27	32	
20.180.30.22		22	50	19	31	40	
20.180.30.27		27	55	21	33	48	
20.180.40.16	40	16	55	17	27	32	
20.180.40.16/100		16	100	17	27	32	35
20.180.40.22		22	55	19	31	40	
20.180.40.22/100		22	100	19	31	40	48
20.180.40.27		27	55	21	33	48	
20.180.40.27/100		27	100	21	33	48	48
20.180.40.32		32	60	24	38	58	
20.180.40.32/100		32	100	24	38	58	58
20.180.40.40		40	60	27	41	70	
20.180.50.16	50	16	70	17	27	32	
20.180.50.16/125		16	125	17	27	32	35
20.180.50.22		22	70	19	31	40	
20.180.50.22/125		22	125	19	31	40	48
20.180.50.27		27	70	21	33	48	
20.180.50.27/125		27	125	21	33	48	60
20.180.50.32		32	70	24	38	58	
20.180.50.32/125		32	125	24	38	58	78
20.180.50.40		40	70	27	41	70	
20.180.50.40/125		40	125	27	41	70	78
20.180.50.50		50	70	30	46	90	

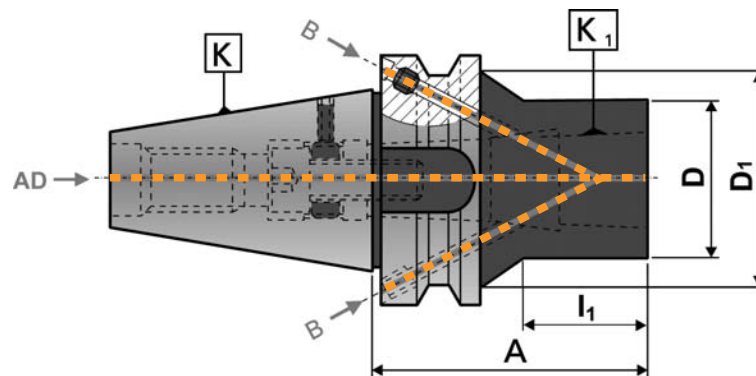
REF. 20.180



20.180.30.16	89.100.16	89.161.16	89.141.16
20.180.30.22	89.100.22	89.161.22	89.141.22
20.180.30.27	89.100.27	89.161.27	89.141.27
20.180.40.16	89.100.16	89.161.16	89.141.16
20.180.40.16/100	89.100.16	89.161.16	89.141.16
20.180.40.22	89.100.22	89.161.22	89.141.22
20.180.40.22/100	89.100.22	89.161.22	89.141.22
20.180.40.27	89.100.27	89.161.27	89.141.27
20.180.40.27/100	89.100.27	89.161.27	89.141.27
20.180.40.32	89.100.32	89.161.32	89.141.32
20.180.40.32/100	89.100.32	89.161.32	89.141.32
20.180.40.40	89.100.40	89.161.40	89.141.40
20.180.50.16	89.100.16	89.161.16	89.141.16
20.180.50.16/125	89.100.16	89.161.16	89.141.16
20.180.50.22	89.100.22	89.161.22	89.141.22
20.180.50.22/125	89.100.22	89.161.22	89.141.22
20.180.50.27	89.100.27	89.161.27	89.141.27
20.180.50.27/125	89.100.27	89.161.27	89.141.27
20.180.50.32	89.100.32	89.161.32	89.141.32
20.180.50.32/125	89.100.32	89.161.32	89.141.32
20.180.50.40	89.100.40	89.161.40	89.141.40
20.180.50.40/125	89.100.40	89.161.40	89.141.40
20.180.50.50	89.100.50	89.161.50	89.141.50





REF. 20.210

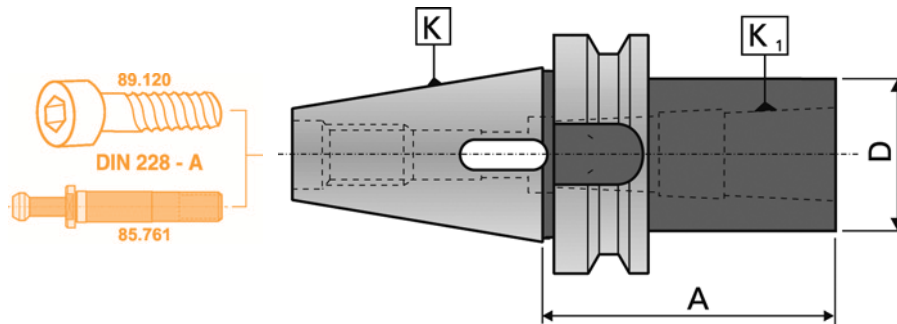
REF. 20.210	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	I ₁ mm			
								20.210	23.210
20.210.30.01	30	1	50	25			89.193.31	89.120.25	
20.210.30.02		2	65	32			89.193.32	89.120.19	
20.210.30.03		3	80	40			89.193.33	89.120.31	
20.210.40.01	40	1	50	25	45	16	89.193.41	89.120.25	89.128.08
20.210.40.02		2	50	32	50	19	89.193.42	89.120.18	89.128.20
20.210.40.03		3	70	40	50	42	89.193.43	89.120.69	89.128.30
20.210.40.04		4	95	48			89.193.44	89.120.44	89.128.44
20.210.50.01	50	1	45	25	80	16	89.193.51	89.120.26	89.128.08
20.210.50.02		2	60	32	80	23	89.193.52	89.120.53	89.128.23
20.210.50.03		3	65	40	80	28	89.193.53	89.120.70	89.128.32
20.210.50.04		4	70	48	80	37	89.193.54	89.120.44	89.128.44
20.210.50.05		5	100	63	80	66	89.193.55	89.120.90	89.128.60





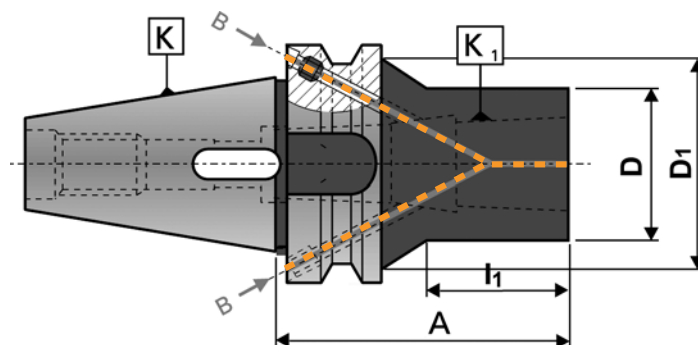
SIMILAR DIN 69871 - Form AD+B

REF. 23.210



REF. 23.210	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	I ₁ mm			
								20.210	23.210
23.210.40.01	40	1	50	25	45	16	89.193.41	89.120.25	89.128.08
23.210.40.02		2	50	32	50	19	89.193.42	89.120.18	89.128.20
23.210.40.03		3	70	40	50	42	89.193.43	89.120.69	89.128.30
23.210.40.04		4	95	48			89.193.44	89.120.44	89.128.44
23.210.50.01	50	1	45	25	80	16	89.193.51	89.120.26	89.128.08
23.210.50.02		2	60	32	80	23	89.193.52	89.120.53	89.128.23
23.210.50.03		3	65	40	80	28	89.193.53	89.120.70	89.128.32
23.210.50.04		4	70	48	80	37	89.193.54	89.120.44	89.128.44
23.210.50.05		5	100	63	80	66	89.193.55	89.120.90	89.128.60

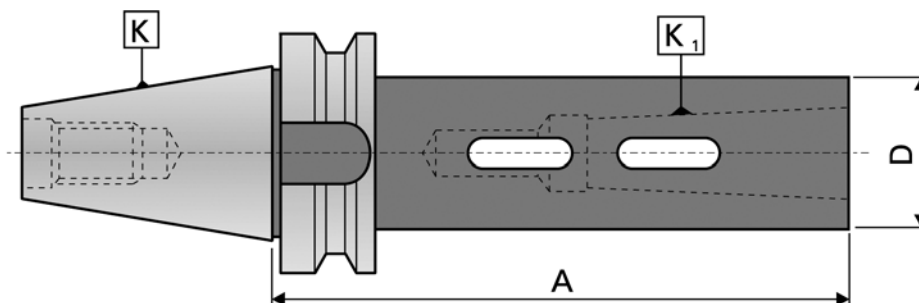


REF. 20.215	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	l ₁ mm		
20.215.30.01	30	1	50	25			89.120.27	
20.215.30.02		2	62	32				85.761.XX.30/02
20.215.30.03		3	78	40				85.761.XX.30/03
20.215.40.01	40	1	50	25	45	16	89.120.28	
20.215.40.02		2	50	32	50	18	89.124.21	
20.215.40.03		3	70	40	50	42		85.761.XX.40/03
20.215.40.04		4	95	48				85.761.XX.40/04
20.215.50.01	50	1	45	25	80	16	89.120.29	
20.215.50.02		2	60	32	80	23	89.120.58	
20.215.50.03		3	65	40	80	28	89.120.74	
20.215.50.04		4	95	48	80	49	89.124.40	
20.215.50.05		5	105	63	80	71		85.761.XX.50/55

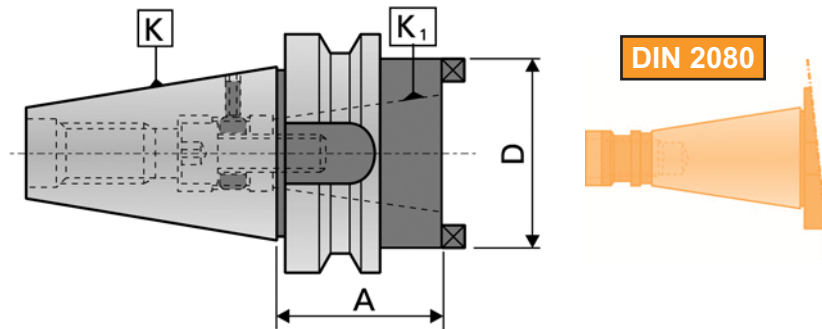


SIMILAR DIN 69871 - Form AD+B




REF. 23.215	K ISO	K ₁ MORSE	A mm	D mm	D ₁ mm	l ₁ mm		
23.215.40.01	40	1	50	25	45	16	89.120.28	
23.215.40.02		2	50	32	50	18	89.124.21	
23.215.40.03		3	70	40	50	42		85.761.XX.40/03
23.215.40.04		4	95	48				85.761.XX.40/04
23.215.50.01	50	1	45	25	80	16	89.120.29	
23.215.50.02		2	60	32	80	23	89.120.58	
23.215.50.03		3	65	40	80	28	89.120.74	
23.215.50.04		4	95	48	80	49	89.124.40	
23.215.50.05		5	105	63	80	71		85.761.XX.50/55

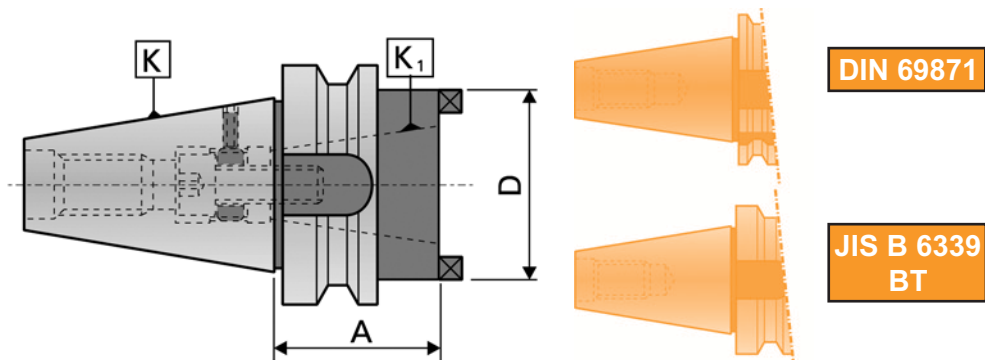


REF. 20.216	K ISO	K ₁ MORSE	A mm	D mm
20.216.30.01	30	1	115	25
20.216.30.02		2	125	32
20.216.30.03		3	145	40
20.216.40.01	40	1	115	25
20.216.40.02		2	125	32
20.216.40.03		3	145	40
20.216.40.04		4	165	48
20.216.50.01	50	1	120	25
20.216.50.02		2	135	32
20.216.50.03		3	155	40
20.216.50.04		4	180	48
20.216.50.05		5	215	63






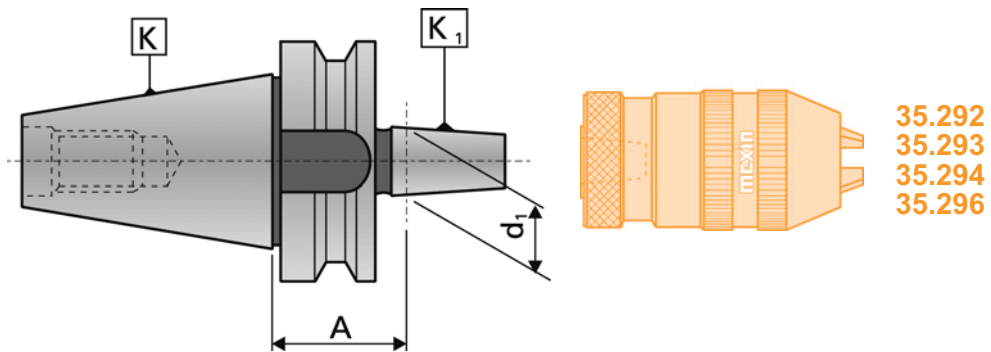
REF. 20.225	K ISO	K ₁ DIN 2080	A mm	D mm
20.225.40.30	40	30	50	50
20.225.40.40		40	100	63
20.225.50.30	50	30	50	50
20.225.50.40		40	70	63
20.225.50.50		50	120	97

REF. 20.225		 20.225	 20.226
20.225.40.30	89.193.45	89.124.28	89.124.33
20.225.40.40	89.193.44	89.124.44	89.124.45
20.225.50.30	89.193.53	89.120.69	89.120.73
20.225.50.40	89.193.54	89.124.44	89.124.45
20.225.50.50	89.193.56	89.124.56	89.124.57



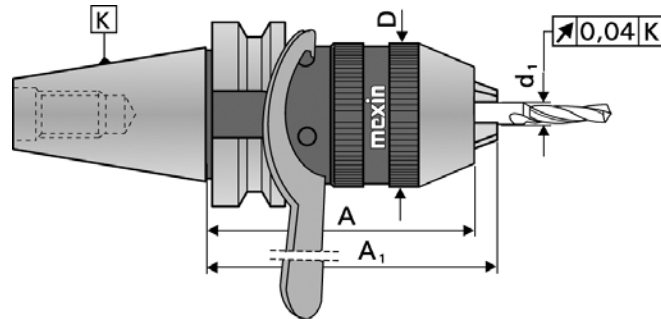
REF. 20.226	K ISO	K ₁ DIN 2080	A mm	D mm
20.226.40.30	40	30	50	50
20.226.40.40		40	100	63
20.226.50.30	50	30	50	50
20.226.50.40		40	70	63
20.226.50.50		50	120	97

REF. 20.226		 20.225	 20.226
20.226.40.30	89.193.45	89.124.28	89.124.33
20.226.40.40	89.193.44	89.124.44	89.124.45
20.226.50.30	89.193.53	89.120.69	89.120.73
20.226.50.40	89.193.54	89.124.44	89.124.45
20.226.50.50	89.193.56	89.124.56	89.124.57



REF. 20.290	K ISO	K ₁ DIN	A mm	d ₁ mm
20.290.30.12	30	B-12	27	12,065
20.290.30.16		B-16	27	15,733
20.290.40.12	40	B-12	32	12,065
20.290.40.16		B-16	32	15,733
20.290.40.18		B-18	32	17,780
20.290.50.16	50	B-16	43	15,733
20.290.50.18		B-18	43	17,780

PAR DE SUJECIÓN } > 40 Nm
 TIGHTENING TORQUE }



REF. 20.295	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
20.295.30.08	30	0 - 8	35,5	74	82
20.295.40.08	40	0 - 8	35,5	75	83
20.295.40.13		0 - 13	51,0	92	103
20.295.40.16		3 - 16	58,0	112	125
20.295.50.13	50	0 - 13	51,0	102	113
20.295.50.16		3 - 16	58,0	105	118
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

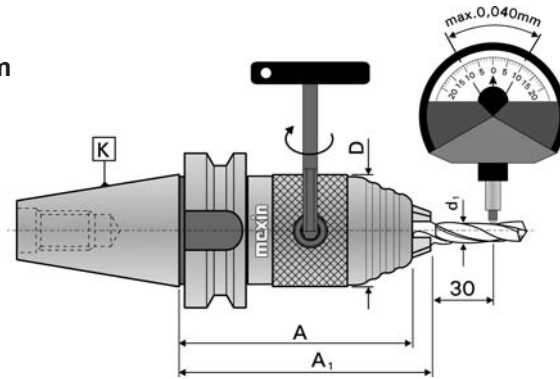
REF. 20.295



3

20.295.30.08	89.200.08	89.220.08
20.295.40.08	89.200.08	89.220.08
20.295.40.13	89.200.13	89.220.13
20.295.40.16	89.200.16	89.220.16
20.295.50.13	89.200.13	89.220.13
20.295.50.16	89.200.16	89.220.16

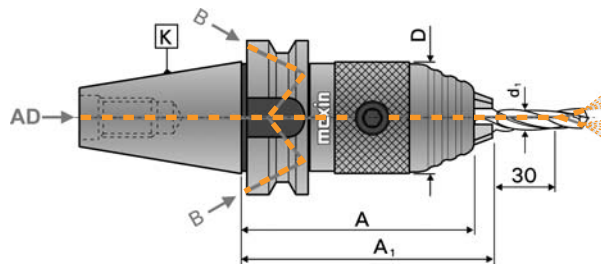
PAR DE SUJECI3N } > 70 Nm
 TIGHTENING TORQUE }



REF. 20.296	K ISO	d1 mm	D mm	A mm	A1 max mm
20.296.30.13	30	1-13	50	86,4	93,4
20.296.40.13	40	1-13	50	89,4	96,4
20.296.40.16		3-16	56	96,4	103,4
20.296.50.13	50	1-13	50	100,4	107,4
20.296.50.16		3-16	56	107,4	114,4

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 20.296	Wrench	Drill Bits
20.296.30.13	89.206.06	89.220.13
20.296.40.13	89.206.06	89.220.13
20.296.40.16	89.206.06	89.220.13
20.296.50.13	89.206.06	89.220.13
20.296.50.16	89.206.06	89.220.13

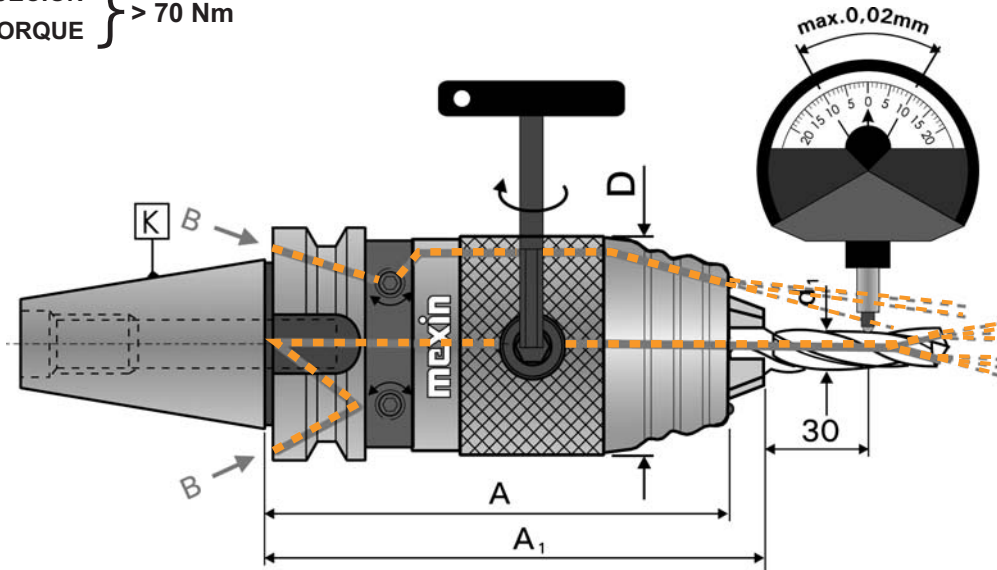


REF. 23.296	K ISO	d1 mm	D mm	A mm	A1 max mm
23.296.30.13	30	1-13	50	86,4	93,4
23.296.40.13	40	1-13	50	89,4	96,4
23.296.40.16		3-16	56	96,4	103,4
23.296.50.13	50	1-13	50	100,4	107,4
23.296.50.16		3-16	56	107,4	114,4

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 23.296	Wrench	Drill Bits
23.296.30.13	89.206.06	89.220.13
23.296.40.13	89.206.06	89.220.13
23.296.40.16	89.206.06	89.220.13
23.296.50.13	89.206.06	89.220.13
23.296.50.16	89.206.06	89.220.13

PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }





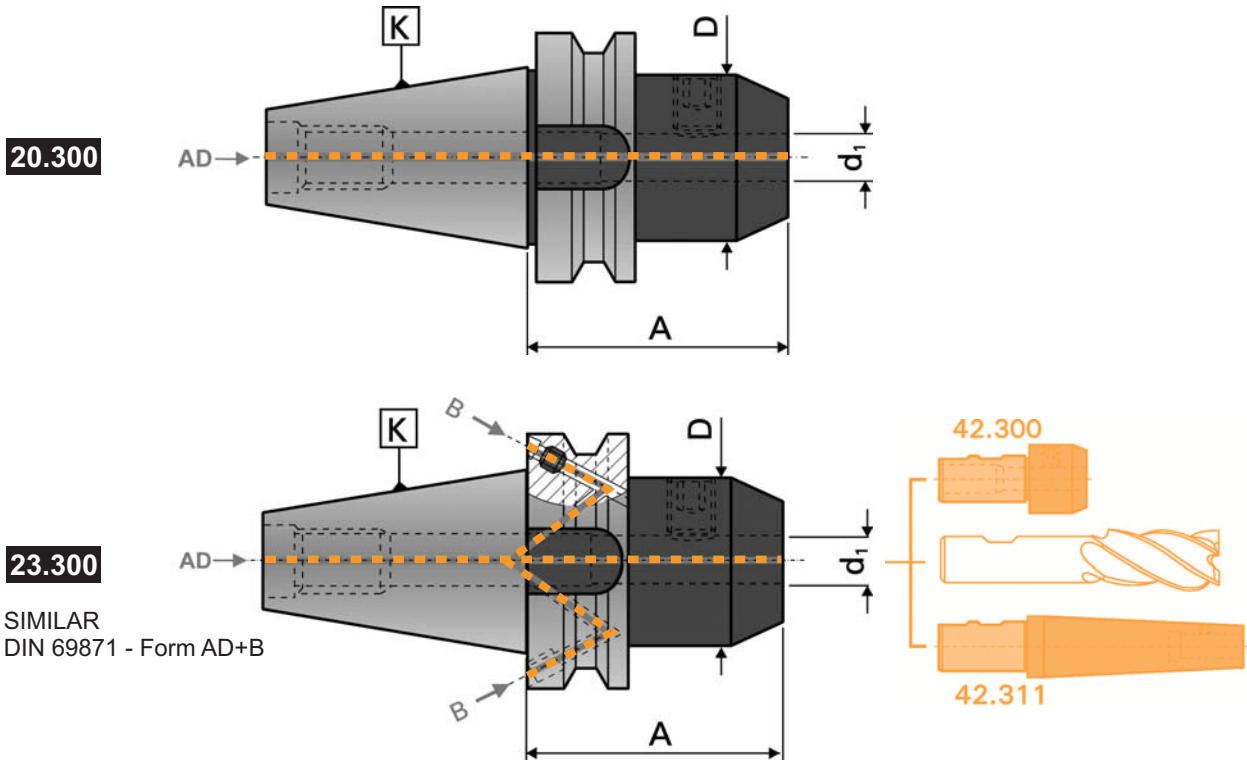
La refrigeración puede ser distribuida a voluntad: por el centro de la herramienta, por la parte frontal del portabrocas o por las dos simultáneamente.


The coolant can be supplied in different ways: through the coolant holes of the tool, through the front part of the drill chuck or through both parts simultaneously.

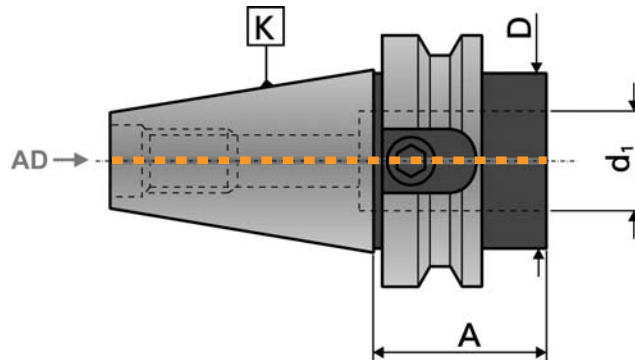
REF. 23.297	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
23.297.40.13	40	1-13	56	113	120
23.297.40.16		3-16	56	120	131
23.297.50.13	50	1-13	56	114	121
23.297.50.16		3-16	56	121	132


* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

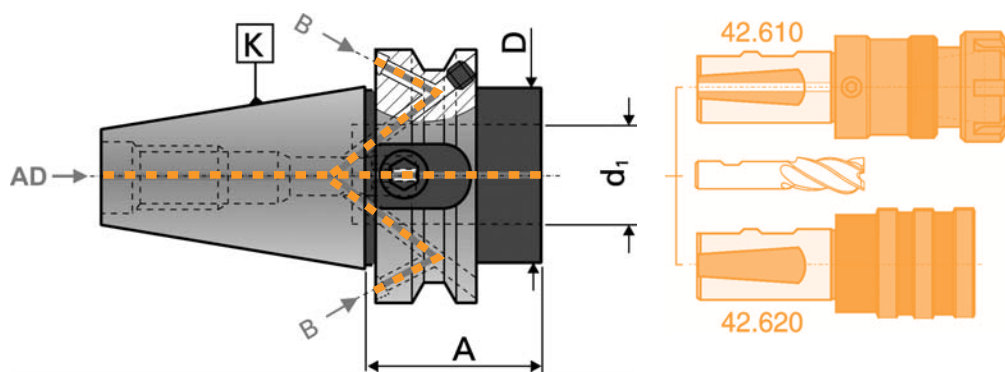
REF. 23.297		
23.297.40.13	89.206.06	89.220.13
23.297.40.16	89.206.06	89.220.13
23.297.50.13	89.206.06	89.220.13
23.297.50.16	89.206.06	89.220.13




REF. 20.300	REF. 23.300	K ISO	d ₁ H4 mm	A mm	D mm	
20.300.30.06		30	6	50	25	89.122.20
20.300.30.08			8	50	28	89.122.35
20.300.30.10			10	50	35	89.122.40
20.300.30.12			12	50	42	89.122.50
20.300.30.14			14	50	44	89.122.50
20.300.30.16			16	63	48	89.122.60
20.300.30.18			18	63	50	89.122.60
20.300.40.06	23.300.40.06	40	6	50	25	89.122.20
20.300.40.08	23.300.40.08		8	50	28	89.122.35
20.300.40.10	23.300.40.10		10	63	35	89.122.40
20.300.40.12	23.300.40.12		12	63	42	89.122.50
20.300.40.14	23.300.40.14		14	63	44	89.122.50
20.300.40.16	23.300.40.16		16	63	48	89.122.60
20.300.40.18	23.300.40.18		18	63	50	89.122.60
20.300.40.20	23.300.40.20		20	63	52	89.122.65
20.300.40.25	23.300.40.25		25	90	65	89.122.75
20.300.40.32	23.300.40.32		32	100	72	89.122.80
20.300.40.40	23.300.40.40		40	110	90	89.122.80
20.300.50.06	23.300.50.06	50	6	63	25	89.122.20
20.300.50.08	23.300.50.08		8	63	28	89.122.35
20.300.50.10	23.300.50.10		10	65	35	89.122.40
20.300.50.12	23.300.50.12		12	80	42	89.122.50
20.300.50.14	23.300.50.14		14	80	44	89.122.50
20.300.50.16	23.300.50.16		16	80	48	89.122.60
20.300.50.18	23.300.50.18		18	80	50	89.122.60
20.300.50.20	23.300.50.20		20	80	52	89.122.65
20.300.50.25	23.300.50.25		25	100	65	89.122.75
20.300.50.32	23.300.50.32		32	105	72	89.122.80
20.300.50.40	23.300.50.40		40	120	90	89.122.80
20.300.50.50	23.300.50.50		50	120	98	89.122.85

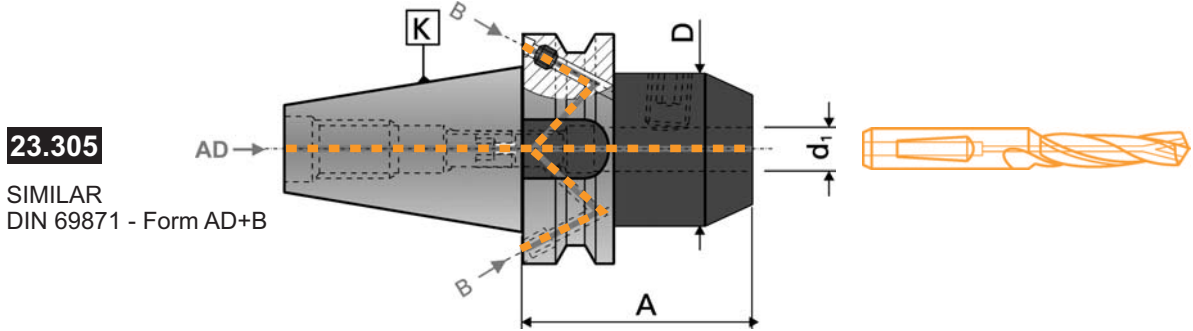
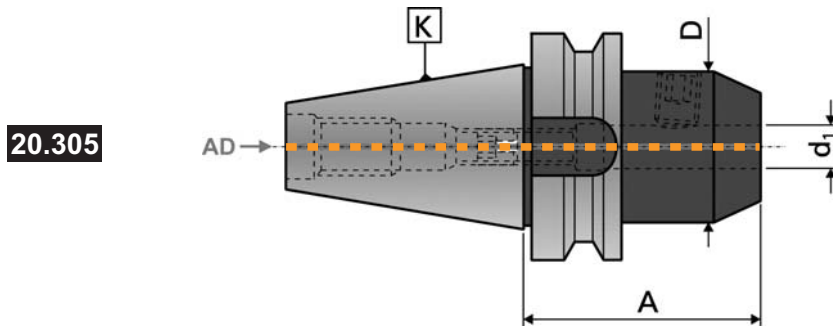




REF. 20.302	K ISO	d ₁ H4 mm	A mm	D mm	
20.302.30.16	30	16	32	32	89.122.57
20.302.30.20		20	34	36	89.122.56
20.302.40.16	40	16	35	44	89.122.60
20.302.40.20		20	35	44	89.122.63
20.302.40.25		25	35	44	89.122.62
20.302.50.16	50	16	44	70	89.122.60
20.302.50.20		20	44	70	89.122.65
20.302.50.25		25	44	70	89.122.75
20.302.50.32		32	44	70	89.122.80



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REF. 23.302	K ISO	d ₁ H4 mm	A mm	D mm	
23.302.40.16	40	16	35	44	89.122.60
23.302.40.20		20	35	44	89.122.63
23.302.40.25		25	35	44	89.122.62
23.302.50.16	50	16	44	70	89.122.60
23.302.50.20		20	44	70	89.122.65
23.302.50.25		25	44	70	89.122.75
23.302.50.32		32	44	70	89.122.80



REF. 20.305	REF. 23.305	K ISO	d ₁ H4 mm	A mm	D mm		
20.305.30.06		30	6	50	25	89.190.15	89.122.20
20.305.30.08			8	50	28	89.190.21	89.122.35
20.305.30.10			10	50	35	89.190.37	89.122.40
20.305.30.12			12	50	42	89.190.43	89.122.50
20.305.30.14			14	50	44	89.190.43	89.122.50
20.305.30.16			16	50	48	89.190.51	89.122.60
20.305.30.18			18	60	50	89.190.51	89.122.80
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20.305.40.06	23.305.40.06	40	6	50	25	89.190.15	89.122.20
20.305.40.08	23.305.40.08		8	50	28	89.190.21	89.122.35
20.305.40.10	23.305.40.10		10	63	35	89.190.37	89.122.40
20.305.40.12	23.305.40.12		12	50	42	89.190.43	89.122.50
20.305.40.14	23.305.40.14		14	50	44	89.190.43	89.122.50
20.305.40.16	23.305.40.16		16	63	48	89.190.51	89.122.60
20.305.40.18	23.305.40.18		18	63	50	89.190.51	89.122.60
20.305.40.20	23.305.40.20		20	63	52	89.190.66	89.122.65
20.305.40.25	23.305.40.25		25	90	65	89.190.82	89.122.75
20.305.40.32	23.305.40.32		32	100	72	89.190.82	89.122.80
<hr/>							
20.305.50.06	23.305.50.06	50	6	63	25	89.190.15	89.122.20
20.305.50.08	23.305.50.08		8	63	28	89.190.21	89.122.35
20.305.50.10	23.305.50.10		10	65	35	89.190.37	89.122.40
20.305.50.12	23.305.50.12		12	80	42	89.190.43	89.122.50
20.305.50.14	23.305.50.14		14	80	44	89.190.43	89.122.50
20.305.50.16	23.305.50.16		16	80	48	89.190.51	89.122.60
20.305.50.18	23.305.50.18		18	80	50	89.190.51	89.122.60
20.305.50.20	23.305.50.20		20	80	52	89.190.66	89.122.65
20.305.50.25	23.305.50.25		25	100	65	89.190.82	89.122.75
20.305.50.32	23.305.50.32		32	105	72	89.190.82	89.122.80
20.305.50.40	23.305.50.40	40	120	90	89.190.82	89.122.80	

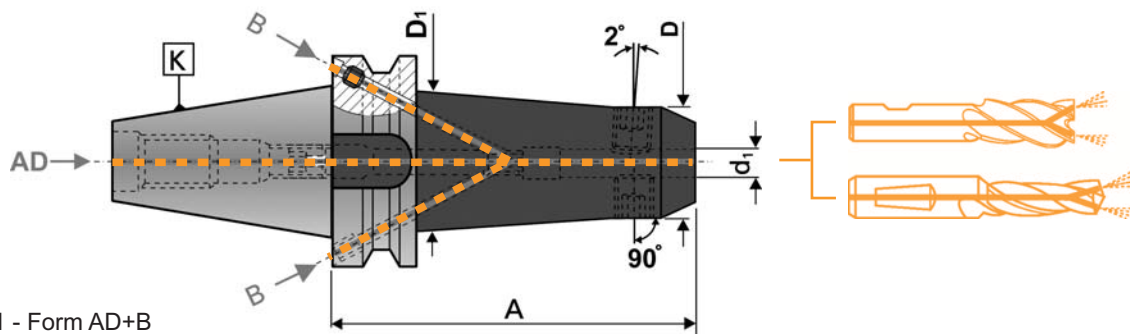


El Kit incluye mandrinos portafresas, conos reductores, portabrocas de precisión, mandrinos portapinzas, roscador y una gama de pinzas y tirantes listos para su utilización.

The Kit includes Shell Mill Adaptors, Reducing Adaptors, Self-Clamping Short Precision Drill Chucks, Collet Chucks, Tapping Head and a range of Collets and Pull Studs, everything ready to be used.


CONTENIDO DEL KIT - KIT CONTAINING

Num.	Ref.	Descripción / Description
1	20.160.40.22	Mandrino Portafresas Frontal Ø22 / Shell Mill Adaptor Ø22
1	20.160.40.27	Mandrino Portafresas Frontal Ø27 / Shell Mill Adaptor Ø27
1	20.215.40.02	Mandrino Portafresas para brocas Morse 2 / Reducing Adaptor with Morse Taper 2
1	20.215.40.03	Mandrino Portafresas para brocas Morse 3 / Reducing Adaptor with Morse Taper 3
1	20.295.40.13	Portabrocas Autoblocante Cap. 13 / Self-Clamping Drill Chuck Cap.13
1	20.300.40.06	Mandrino Portafresas Weldon Ø6 / End Mill Adaptor Weldon Ø6
1	20.300.40.08	Mandrino Portafresas Weldon Ø8 / End Mill Adaptor Weldon Ø8
1	20.300.40.10	Mandrino Portafresas Weldon Ø10 / End Mill Adaptor Weldon Ø10
1	20.300.40.12	Mandrino Portafresas Weldon Ø12 / End Mill Adaptor Weldon Ø12
1	20.300.40.16	Mandrino Portafresas Weldon Ø16 / End Mill Adaptor Weldon Ø16
1	20.300.40.20	Mandrino Portafresas Weldon Ø20 / End Mill Adaptor Weldon Ø20
4	20.453.40.20	Mandrino Portapinzas DIN 6499 (ER32) / CNC-Universal Drill Chuck DIN 6499 (ER32)
8	80.294.20.XX	Juego Pinzas DIN 6499 (ER32) / Set of Collets DIN 6499 (ER32) Ø 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 mm
1	89.200.13	Llave / Key
1	89.202.20	Llave / Key
15	85.XXX.XX.40	Tirantes. Indicar Modelo / Pull Studs. Please indicate Model.



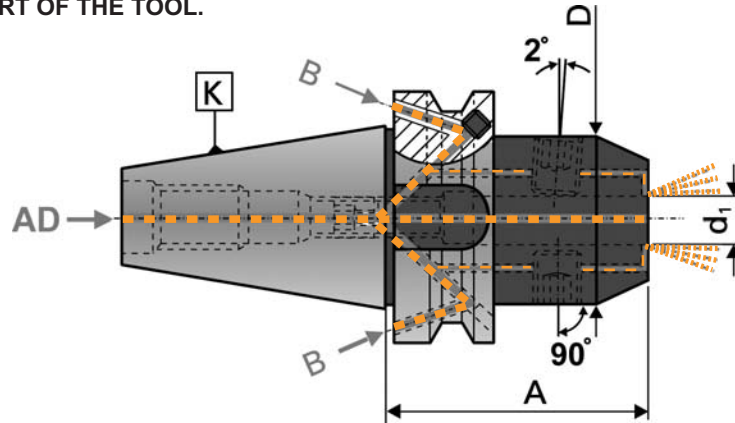
SIMILAR
 DIN 69871 - Form AD+B

REF. **23.306**



REF. 23.306	K ISO	d ₁ H4 mm	A mm	D mm	D ₁ mm	2 x 
23.306.40.06 / 100	40	6	100	22	28	89.122.17
23.306.40.06 / 130		6	130	22	28	89.122.17
23.306.40.06 / 160		6	160	22	33	89.122.17
23.306.40.08 / 100		8	100	24	30	89.122.34
23.306.40.08 / 130		8	130	24	30	89.122.34
23.306.40.08 / 160		8	160	24	35	89.122.34
23.306.40.10 / 100		10	100	30	38	89.122.39
23.306.40.10 / 130		10	130	30	38	89.122.39
23.306.40.10 / 160		10	160	30	39	89.122.39
23.306.40.12 / 100		12	100	32	40	89.122.48
23.306.40.12 / 130		12	130	32	40	89.122.48
23.306.40.12 / 160		12	160	32	43	89.122.48
23.306.40.14 / 100		14	100	32	40	89.122.48
23.306.40.14 / 130		14	130	32	40	89.122.48
23.306.40.14 / 160		14	160	32	44	89.122.48
23.306.40.16 / 100		16	100	36	44	89.122.57
23.306.40.16 / 130		16	130	36	44	89.122.57
23.306.40.16 / 160		16	160	36	44	89.122.57
23.306.40.18 / 100		18	100	38	46	89.122.57
23.306.40.18 / 130		18	130	38	46	89.122.57
23.306.40.18 / 160		18	160	38	46	89.122.57
23.306.40.20 / 100		20	100	44	50	89.122.63
23.306.40.20 / 130		20	130	44	50	89.122.63
23.306.40.20 / 160		20	160	44	50	89.122.63
23.306.40.25 / 130		25	130	50	50	89.122.71
23.306.40.25 / 160		25	160	50	50	89.122.71
23.306.50.06 / 130	50	6	130	22	28	89.122.17
23.306.50.06 / 160		6	160	22	33	89.122.17
23.306.50.06 / 200		6	200	22	36	89.122.17
23.306.50.08 / 130		8	130	24	30	89.122.34
23.306.50.08 / 160		8	160	24	35	89.122.34
23.306.50.08 / 200		8	200	24	38	89.122.34
23.306.50.10 / 130		10	130	30	38	89.122.39
23.306.50.10 / 160		10	160	30	39	89.122.39
23.306.50.10 / 200		10	200	30	43	89.122.39
23.306.50.12 / 130		12	130	32	40	89.122.48
23.306.50.12 / 160		12	160	32	43	89.122.48
23.306.50.12 / 200		12	200	32	46	89.122.48
23.306.50.14 / 130		14	130	32	40	89.122.48
23.306.50.14 / 160		14	160	32	44	89.122.48
23.306.50.14 / 200		14	200	32	48	89.122.48
23.306.50.16 / 130		16	130	36	44	89.122.57
23.306.50.16 / 160		16	160	36	44	89.122.57
23.306.50.16 / 200		16	200	36	50	89.122.57
23.306.50.18 / 130		18	130	38	46	89.122.57
23.306.50.18 / 160		18	160	38	46	89.122.57
23.306.50.18 / 200		18	200	38	52	89.122.57
23.306.50.20 / 130		20	130	44	50	89.122.63
23.306.50.20 / 160		20	160	44	50	89.122.63
23.306.50.20 / 200		20	200	44	55	89.122.63
23.306.50.25 / 130		25	130	50	56	89.122.71
23.306.50.25 / 160		25	160	50	60	89.122.71
23.306.50.25 / 200		25	200	50	64	89.122.71
23.306.50.32 / 200		32	200	58	72	89.122.77

**SALIDA DE REFRIGERANTE POR EL CENTRO
 O POR EL LATERAL DE LA HERRAMIENTA.**

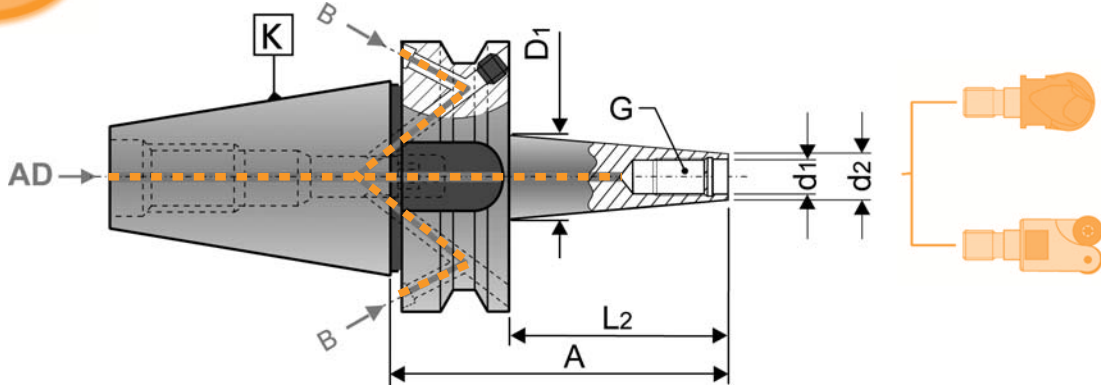
**COOLANT DISTRIBUTION TROUGH THE CENTRAL
 OR TROUGH LATERAL PART OF THE TOOL.**



SIMILAR DIN 69871 - Form AD+B

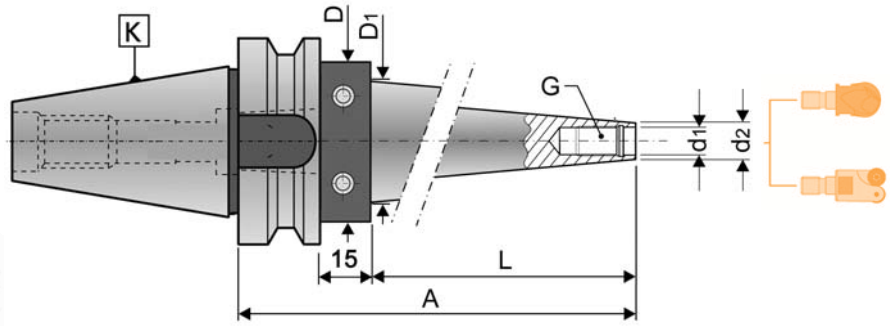
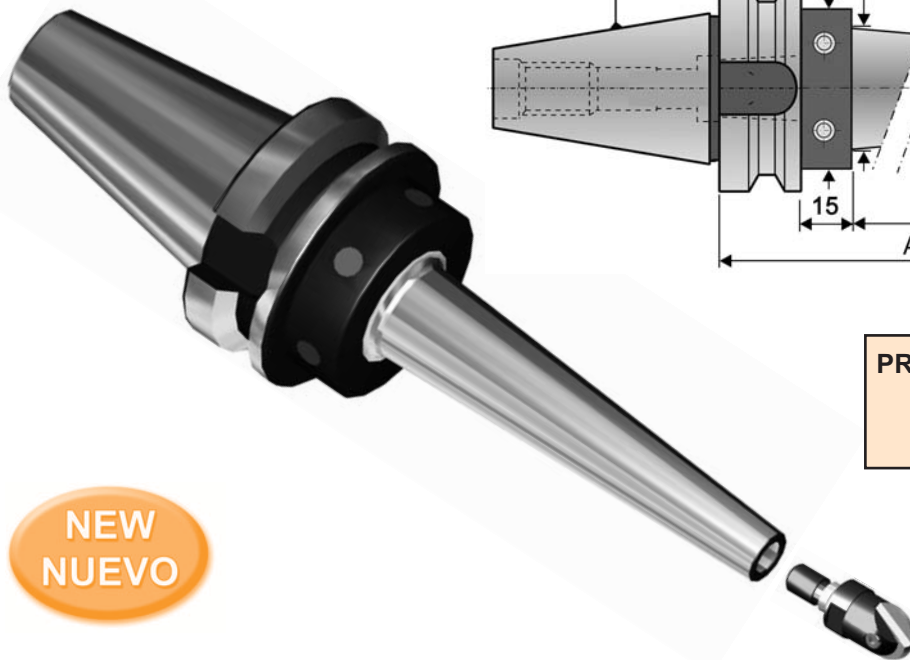
REF. 23.307	K ISO	d ₁ H4 mm	A mm	D mm		2 x 
23.307.40.06	40	6	50	25	89.190.15	89.122.20
23.307.40.08		8	50	28	89.190.21	89.122.35
23.307.40.10		10	63	35	89.190.37	89.122.40
23.307.40.12		12	63	42	89.190.43	89.122.50
23.307.40.14		14	63	44	89.190.43	89.122.50
23.307.40.16		16	63	48	89.190.51	89.122.60
23.307.40.18		18	63	50	89.190.51	89.122.60
23.307.40.20		20	63	52	89.190.66	89.122.65
23.307.40.25		25	90	65	89.190.82	89.122.75
23.307.40.32		32	100	72	89.190.82	89.122.80
23.307.50.06	50	6	63	25	89.190.15	89.122.20
23.307.50.08		8	63	28	89.190.21	89.122.35
23.307.50.10		10	65	35	89.190.37	89.122.40
23.307.50.12		12	80	42	89.190.43	89.122.50
23.307.50.14		14	80	44	89.190.43	89.122.50
23.307.50.16		16	80	48	89.190.51	89.122.60
23.307.50.18		18	80	50	89.190.51	89.122.60
23.307.50.20		20	80	52	89.190.66	89.122.65
23.307.50.25		25	100	65	89.190.82	89.122.75
23.307.50.32		32	105	72	89.190.82	89.122.80
23.307.50.40		40	120	90	89.190.82	89.122.80

**NEW
NUEVO**



SIMILAR DIN 69871 - Form AD+B

REF. 23.315	K ISO	A mm	d ₁ mm	G mm	d ₂ mm	L ₂ mm	D ₁ mm
23.315.40.10/055	40	55	10,5	M10	18	25	20
23.315.40.10/080		80	10,5	M10	18	50	23
23.315.40.10/130		130	10,5	M10	18	100	29
23.315.40.12/055	40	55	12,5	M12	21	25	24
23.315.40.12/080		80	12,5	M12	21	50	26
23.315.40.12/130		130	12,5	M12	21	100	32
23.315.40.16/055	40	55	17,0	M16	29	25	32
23.315.40.16/080		80	17,0	M16	29	50	35
23.315.40.16/130		130	17,0	M16	29	100	40
23.315.50.12/090	50	90	12,5	M12	21	50	26
23.315.50.12/140		140	12,5	M12	21	100	32
23.315.50.12/190		190	12,5	M12	21	150	37
23.315.50.16/090	50	90	17,0	M16	29	50	35
23.315.50.16/140		140	17,0	M16	29	100	40
23.315.50.16/190		190	17,0	M16	29	150	45



PREEQUILIBRADO / PRE-BALANCED
 ISO-40: 15.000 r.p.m. G-6,3
 ISO-50: 10.000 r.p.m. G-6,3

**NEW
 NUEVO**

Portafresas Antivibratorios fabricados con materiales y mecanismos con propiedades antivibratorias. Longitudes estándar y extra largas, indicado para moldistas y fabricaciones especiales.

Antivibratory Shell Mill Adaptors manufactured with materials and mechanisms having antivibration properties. Standard and extra long lengths, suitable for moulding and special manufactures.

JIS B 6339 - BT	K ISO	L ₂ mm	D mm	D ₁ mm	A mm	d ₁ mm	G mm	d ₂ mm
A20.315.40.10/200	40	158	50	35	200	10,5	M10	18
A20.315.40.10/250		208	50	40	250	10,5	M10	18
A20.315.40.10/300		258	50	45	300	10,5	M10	18
A20.315.40.12/200		158	50	38	200	12,5	M12	21
A20.315.40.12/250		208	50	43	250	12,5	M12	21
A20.315.40.12/300		258	50	44	300	12,5	M12	21
A20.315.40.16/200		158	50	43	200	17,0	M16	29
A20.315.40.16/250		208	50	44	250	17,0	M16	29
A20.315.40.16/300		258	50	47	300	17,0	M16	29
A20.315.50.12/250	50	197	80	42	250	12,5	M12	21
A20.315.50.12/300		247	80	47	300	12,5	M12	21
A20.315.50.12/400		347	80	57	400	12,5	M12	21
A20.315.50.16/250		197	80	50	250	17,0	M16	29
A20.315.50.16/300		247	80	55	300	17,0	M16	29
A20.315.50.16/400		347	80	65	400	17,0	M16	29
A20.315.50.16/500		447	80	76	500	17,0	M16	29

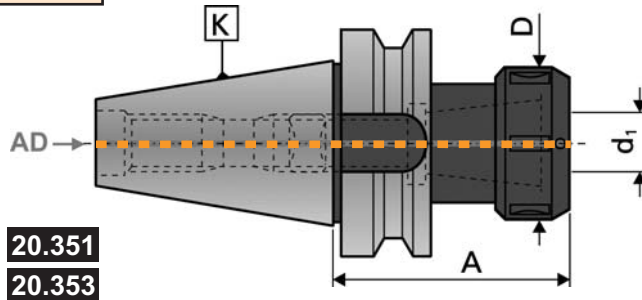
Los mandrinos antivibratorios DIN 69871 - JIS 6339-BT en ISO 50 pueden convertirse en acoplamientos DIN 2080 mediante un tirante especial.

ISO 50 Axial compensation Toolholders as per DIN 69871 and JIS 6339-BT could become DIN 2080 tapers by using the special pull stud.



Ref. A85.752.50.50

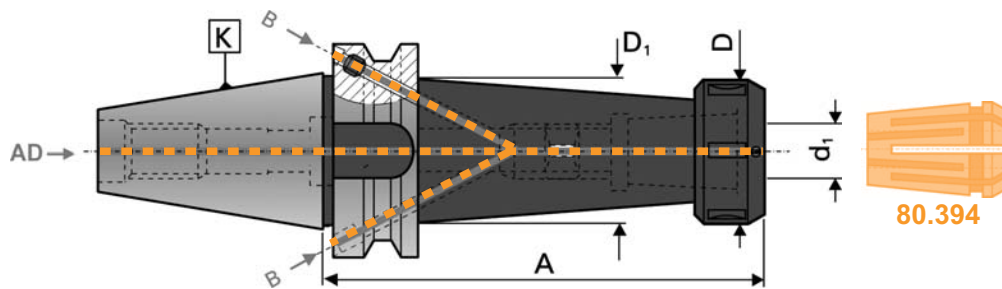
CON TUERCA A BOLAS REF. **XX.351**
 WITH BALL BEARING NUT REF. **XX.351**



20.351
20.353

REF. 20.353		80.393	K ISO	A mm	d₁ mm	D mm	D₁ mm		
20.353.30.16		80.393.16	30	65	2-16	43		89.201.16	89.192.16
20.353.30.25		80.393.25		70	3-25	60		89.201.25	89.192.16
20.353.40.16		80.393.16	40	70	2-16	43		89.201.16	89.192.16
20.353.40.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
20.353.40.25		80.393.25		70	3-25	60		89.201.25	89.192.26
20.353.40.25/120		80.393.25		120	3-25	60	50	89.201.25	89.192.26
20.353.40.32		80.393.32		90	4-32	72		89.201.32	89.192.26
20.353.50.16		80.393.16	50	70	2-16	43		89.201.16	89.192.16
20.353.50.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
20.353.50.25		80.393.25		85	3-25	60		89.201.25	89.192.26
20.353.50.25/140		80.393.25		140	3-25	60	60	89.201.25	89.192.26
20.353.50.32		80.393.32		90	4-32	72		89.201.32	89.192.34

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH



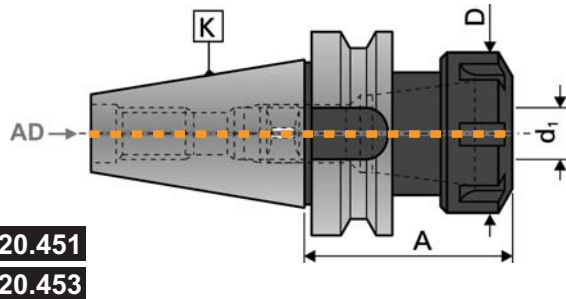
23.351 SIMILAR
23.353 DIN 69871 - Form AD+B

PAR DE SUJECIÓN } > 150 Nm - Ø20
 TIGHTENING TORQUE }

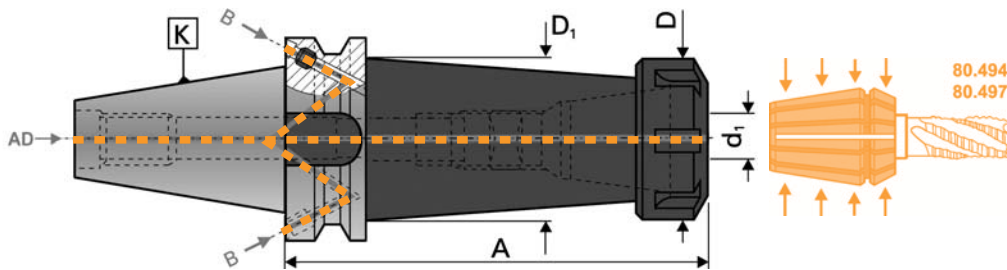
REF. 23.353		80.393	K ISO	A mm	d₁ mm	D mm	D₁ mm		
23.353.40.16		80.393.16	40	70	2-16	43		89.201.16	89.192.16
23.353.40.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
23.353.40.25		80.393.25		70	3-25	60		89.201.25	89.192.26
23.353.40.25/120		80.393.25		120	3-25	60	50	89.201.25	89.192.26
23.353.40.32		80.393.32		90	4-32	72		89.201.32	89.192.26
23.353.50.16		80.393.16	50	70	2-16	43		89.201.16	89.192.16
23.353.50.16/120		80.393.16		120	2-16	43	43	89.201.16	89.192.16
23.353.50.25		80.393.25		85	3-25	60		89.201.25	89.192.26
23.353.50.25/140		80.393.25		140	3-25	60	60	89.201.25	89.192.26
23.353.50.32		80.393.32		90	4-32	72		89.201.32	89.192.34

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

CON TUERCA A BOLAS REF. **XX.451**
 WITH BALL BEARING NUT REF.







20.451
20.453

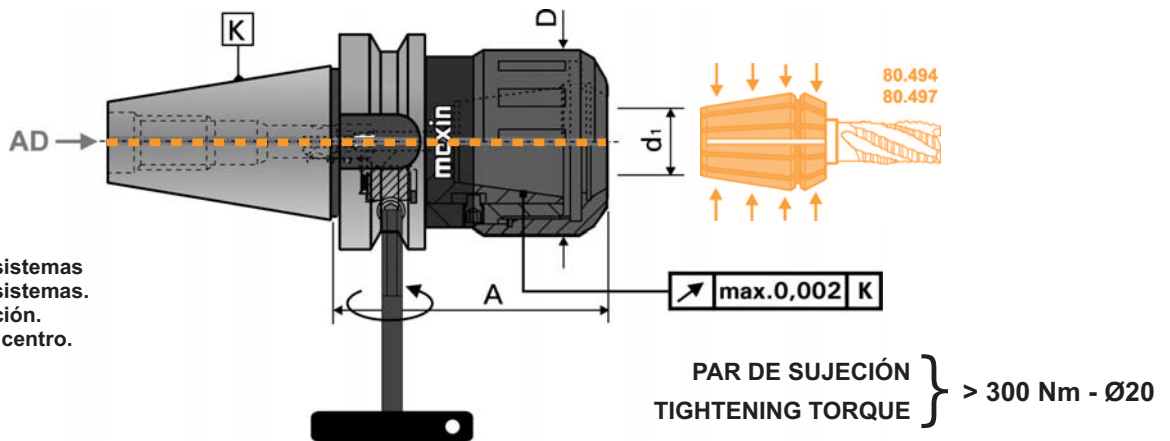



23.451 SIMILAR
23.453 DIN 69871 - Form AD+B




PAR DE SUJECIÓN } **> 150 Nm - Ø20**
TIGHTENING TORQUE

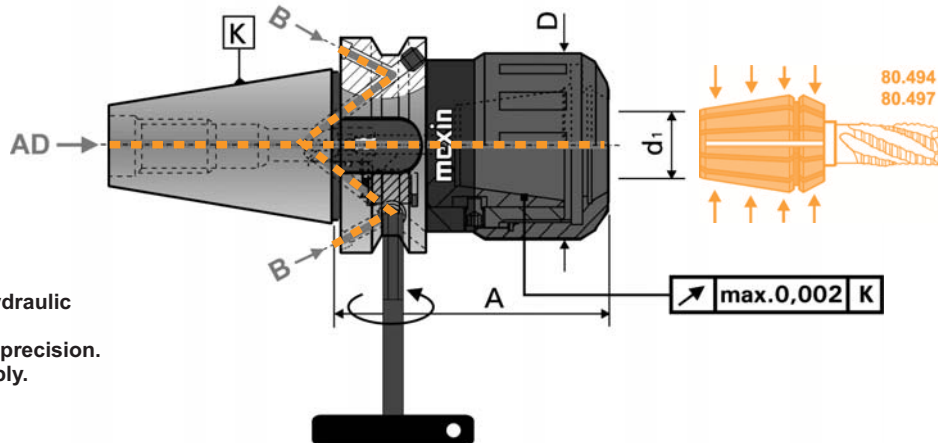
REF. 20.453	REF. 23.453	K ISO	 80.493		A mm	d ₁ mm	D mm	D ₁ mm		
20.453.30.10		30	80.493.10	ER16	55	0,5-10	32		89.202.10	89.192.10
20.453.30.13			80.493.13	ER20	55	1-13	35		89.202.13	89.192.13
20.453.30.16			80.493.16	ER25	55	1-16	42		89.202.16	89.192.16
20.453.30.20			80.493.20	ER32	60	2-20	50		89.202.20	89.192.20
20.453.40.10	23.453.40.10	40	80.493.10	ER16	70	0,5-10	32		89.202.10	89.192.10
20.453.40.10/100	23.453.40.10/100		80.493.10	ER16	100	0,5-10	32	28	89.202.10	89.192.10
20.453.40.10/150	23.453.40.10/150		80.493.10	ER16	150	0,5-10	32	28	89.202.10	89.192.10
20.453.40.13	23.453.40.13		80.493.13	ER20	70	1-13	35		89.202.13	89.192.13
20.453.40.13/100	23.453.40.13/100		80.493.13	ER20	100	1-13	35	34	89.202.13	89.192.13
20.453.40.13/150	23.453.40.13/150		80.493.13	ER20	150	1-13	35	34	89.202.13	89.192.13
20.453.40.16	23.453.40.16		80.493.16	ER25	70	1-16	42		89.202.16	89.192.16
20.453.40.16/150	23.453.40.16/150		80.493.16	ER25	150	1-13	42	42	89.202.16	89.192.16
20.453.40.20	23.453.40.20		80.493.20	ER32	70	2-20	50		89.202.20	89.192.22
20.453.40.20/150	23.453.40.20/150		80.493.20	ER32	150	2-20	50	50	89.202.20	89.192.22
20.453.40.26	23.453.40.26		80.493.26	ER40	70	3-30	63		89.202.26	89.192.26
20.453.40.26/150	23.453.40.26/150		80.493.26	ER40	150	3-30	63	63	89.202.26	89.192.26
20.453.50.10/100	23.453.50.10/100	50	80.493.10	ER16	100	0,5-10	32	28	89.202.10	89.192.10
20.453.50.10/150	23.453.50.10/150		80.493.10	ER16	150	0,5-10	32	28	89.202.10	89.192.10
20.453.50.13/100	23.453.50.13/100		80.493.13	ER20	100	1-13	35	28	89.202.13	89.192.13
20.453.50.13/150	23.453.50.13/150		80.493.13	ER20	150	1-13	35	28	89.202.13	89.192.13
20.453.50.16	23.453.50.16		80.493.16	ER25	70	1-16	42		89.202.16	89.192.16
20.453.50.16/150	23.453.50.16/150		80.493.16	ER25	150	1-16	42	42	89.202.16	89.192.16
20.453.50.20	23.453.50.20		80.493.20	ER32	70	2-20	50		89.202.20	89.192.22
20.453.50.20/150	23.453.50.20/150		80.493.20	ER32	150	2-20	50	50	89.202.10	89.192.22
20.453.50.26	23.453.50.26		80.493.26	ER40	80	3-30	63		89.202.26	89.192.26
20.453.50.26/150	23.453.50.26/150		80.493.26	ER40	150	3-30	63	63	89.202.26	89.192.26
20.453.50.34	23.453.50.34		80.493.34	ER50	90	10-34	78		89.202.34	89.192.34


* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH






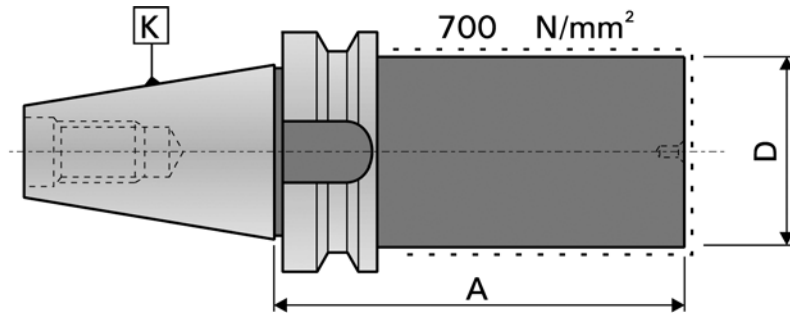
REF. 20.457	K ISO		A mm	d1 mm	D mm
20.457.40.20	40	ER32	80	2-20	54
20.457.50.20	50	ER32	110	2-20	54
20.457.50.30		ER40	120	3-30	65
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

REF. 20.457			
20.457.40.20	80.457.20	89.190.19	89.206.04
20.457.50.20	80.457.20	89.190.19	89.206.04
20.457.50.30	80.457.30	19.190.41	89.206.06



REF. 23.457	K ISO		A mm	d1 mm	D mm
23.457.40.20	40	ER32	80	2-20	54
23.457.50.20	50	ER32	110	2-20	54
23.457.50.30		ER40	120	3-30	65
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

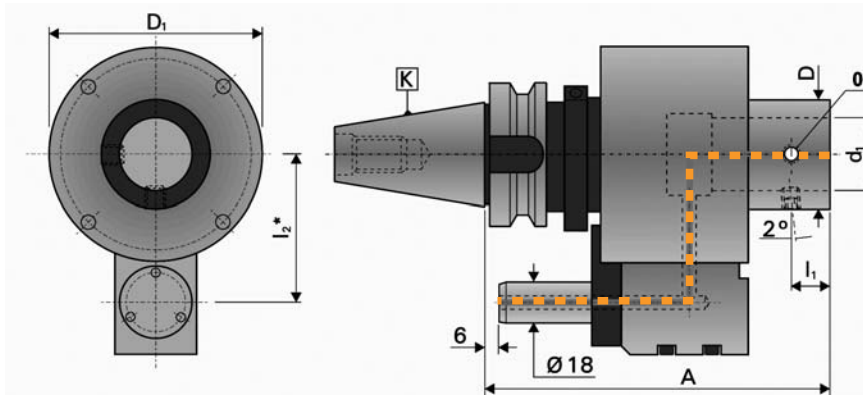
REF. 23.457			
23.457.40.20	80.457.20	89.190.19	89.206.04
23.457.50.20	80.457.20	89.190.19	89.206.04
23.457.50.30	80.457.30	19.190.41	89.206.06



REF. 20.470	K ISO	D mm	A mm
20.470.30.40	30	40,5	160
20.470.40.40	40	40,5	100
20.470.40.40/160		40,5	160
20.470.40.50		50,5	100
20.470.40.50/200		50,5	200
20.470.40.63		63,5	160
20.470.40.63/250		63,5	250
20.470.50.40	50	40,5	100
20.470.50.40/160		40,5	160
20.470.50.50		50,5	100
20.470.50.50/200		50,5	200
20.470.50.63		63,5	200
20.470.50.63/315		63,5	315
20.470.50.95		95,5	200
20.470.50.95/315		95,5	315

n_{max} 4.000 min.⁻¹ α p_{max} 25 bar

* Se fabrican otras medidas bajo pedido.
 * Other sizes are manufactured under order.



REF. 20.512	K ISO	d ₁ G6 mm	A mm	D mm	D ₁ mm	l ₁ mm	l ₂ * mm
20.512.40.25	40	25	152	45	95	15	65
20.512.40.32		32	152	48	95	16	65
20.512.50.32	50	32	152	48	110	16	80
20.512.50.40		40	166	58	110	17	80

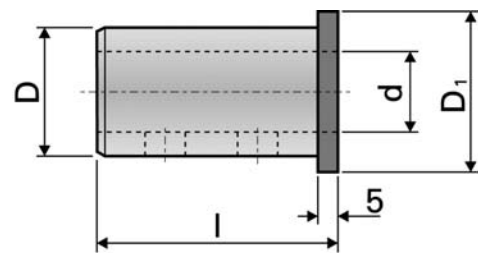
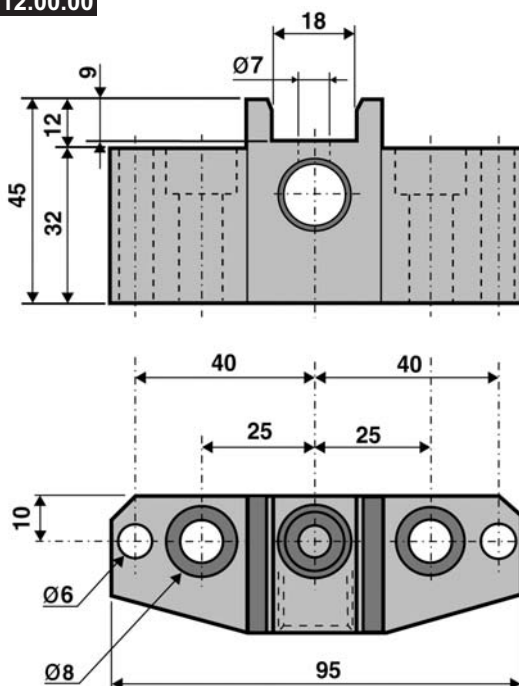
REF. 20.512



20.512.40.25	89.121.68
20.512.40.32	89.121.68
20.512.50.32	89.121.68
20.512.50.40	89.121.68

COMPLEMENTOS DEL GRUPO 512 - COMPLEMENTS OF 512 GROUP

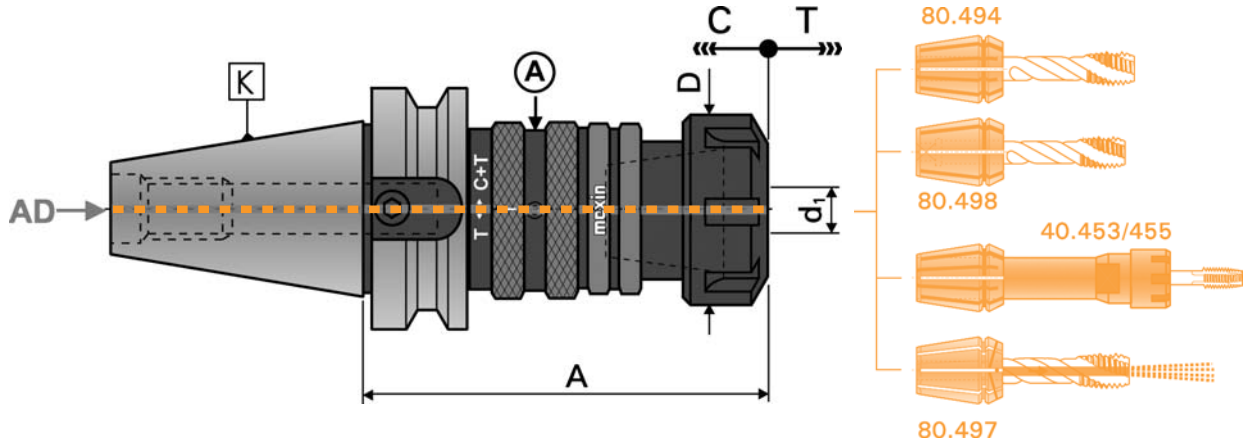
REF. 89.512.00.00



REF. 89.512	D mm	d mm	D ₁ mm	l mm
89.512.25.16	25	16	33	60
89.512.25.20		20	33	60
89.512.32.16	32	16	40	60
89.512.32.20		20	40	60
89.512.32.25		25	40	60
89.512.40.16	40	16	48	60
89.512.40.20		20	48	60
89.512.40.25		25	48	60
89.512.40.32		32	48	60

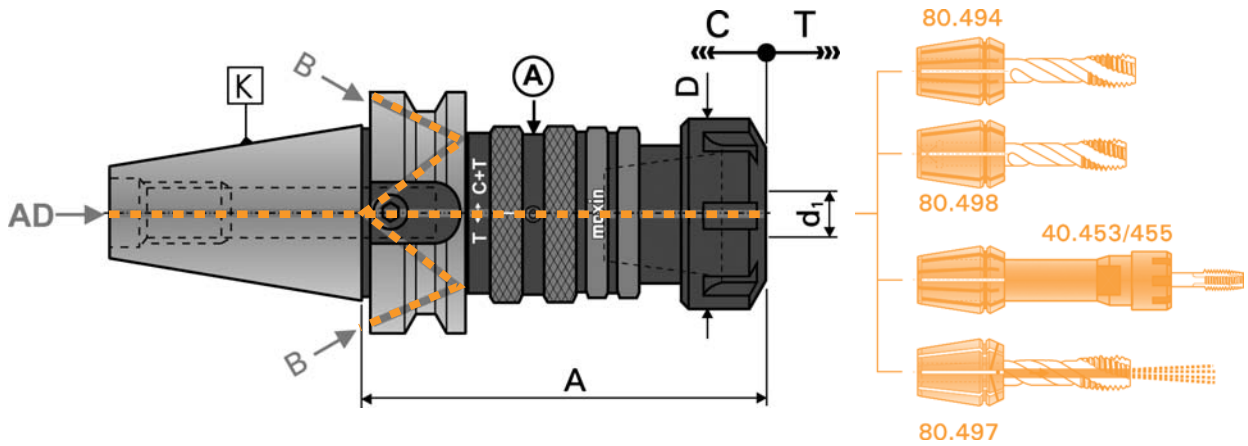
Compensación a la compresión (C) y a la tracción (T).
 Posibilidad de anular la compresión con el anillo (A).
 Control de la profundidad de roscado.
 Refrigeración por el centro.

Compensation in compression (C) and tension (T).
 Compression can be blocked by turning the rear ring (A).
 Control of threading depth.
 Central coolant supply.



REF. 20.610	K ISO			A mm	D mm	C mm	T mm		
20.610.30.12	30	ER 16	M3-M12	99	28	5,5	6,0	80.493.10	89.202.10
20.610.40.12	40	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
20.610.40.20		ER 25	M4-M20	125	42	10,5	7,5	80.493.16	89.202.16
20.610.40.33		ER 40	M8-M33	141	63	10,0	10,0	80.493.26	89.202.26
20.610.50.12	50	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
20.610.50.20		ER 25	M4-M20	134	42	10,5	7,5	80.493.16	89.202.16
20.610.50.33		ER 40	M8-M33	150	63	10,0	10,0	80.493.26	89.202.26

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

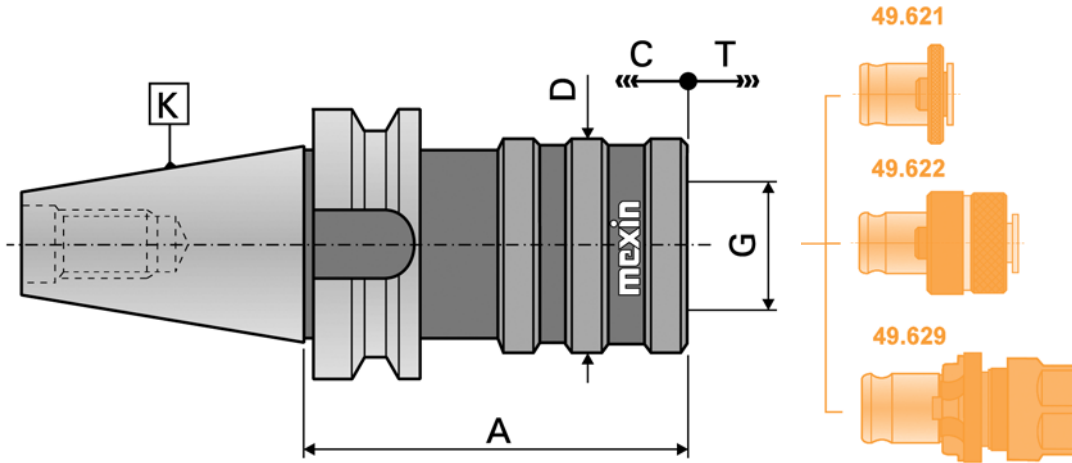



REF. 23.610	K ISO			A mm	D mm	C mm	T mm		
23.610.40.12	40	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
23.610.40.20		ER 25	M4-M20	125	42	10,5	7,5	80.493.16	89.202.16
23.610.40.33		ER 40	M8-M33	141	63	10,0	10,0	80.493.26	89.202.26
23.610.50.12	50	ER 16	M3-M12	100	28	5,5	6,0	80.493.10	89.202.10
23.610.50.20		ER 25	M4-M20	134	42	10,5	7,5	80.493.16	89.202.16
23.610.50.33		ER 40	M8-M33	150	63	10,0	10,0	80.493.26	89.202.26

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

COMPENSACIÓN DEL PASO A LA COMPRESIÓN (C) Y A LA TRACCIÓN (T)

COMPENSATION IN COMPRESSION (C) AND TENSION (T)



REF. 20.620	K ISO	G No.	Ø		A mm	D mm	C mm	T mm
20.620.30.12	30	1	19	M3-M12	63	38	9	9
20.620.40.12	40	1	19	M3-M12	68	38	9	9
20.620.40.20		2	31	M8-M20	93	55	15	15
20.620.40.33		3	48	M14-M33	138	79	24	24
20.620.50.12	50	1	19	M3-M12	80	38	9	9
20.620.50.20		2	31	M8-M20	102	55	15	15
20.620.50.33		3	48	M14-M33	135	79	24	24

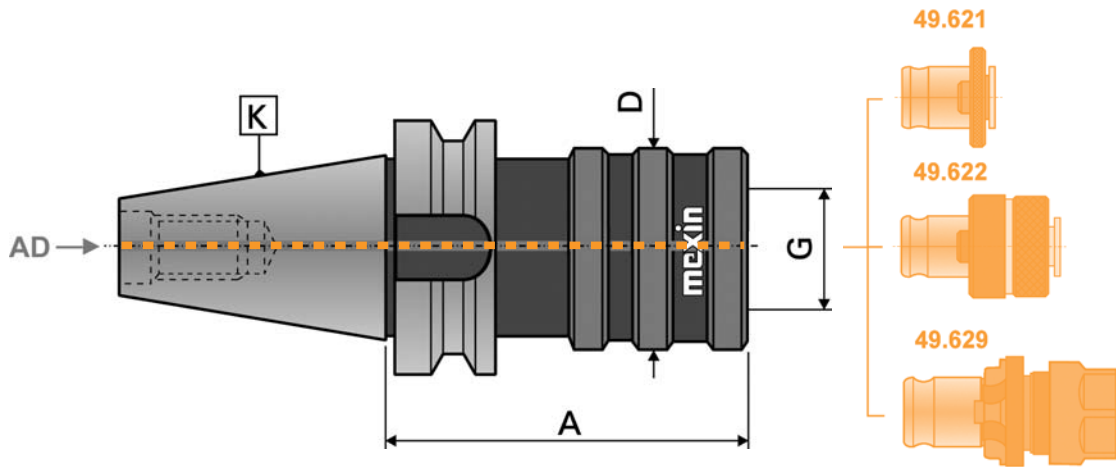
REF. 20.620






20.620.30.12	49.621.12xx	49.622.12xx
20.620.40.12	49.621.12xx	49.622.12xx
20.620.40.20	49.621.20xx	49.622.20xx
20.620.40.33	49.621.33xx	49.622.33xx
20.620.50.12	49.621.12xx	49.622.12xx
20.620.50.20	49.621.20xx	49.622.20xx
20.620.50.33	49.621.33xx	49.622.33xx

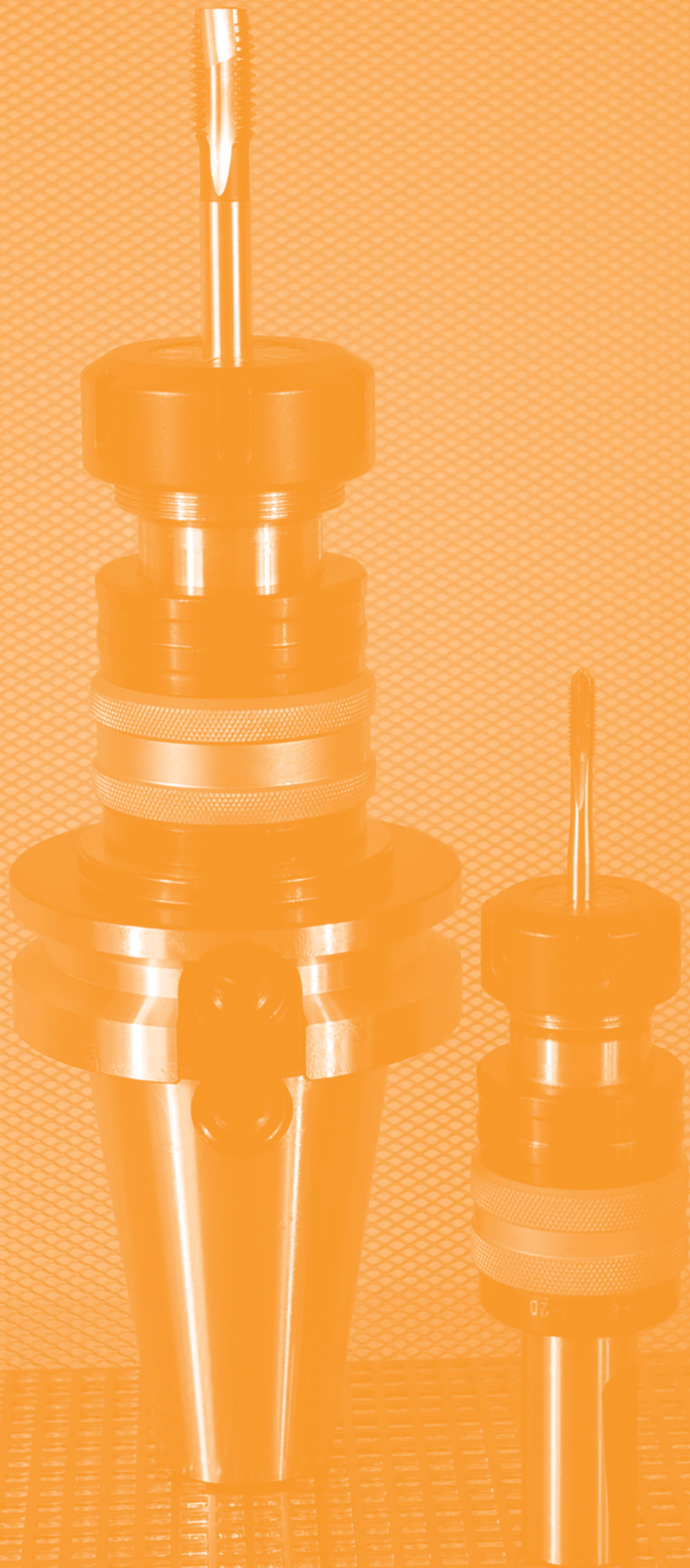
CON PASO DE REFRIGERANTE

WITH INNER COOLANT



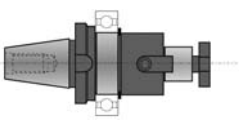
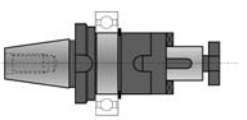
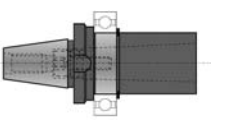
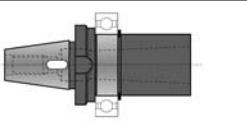
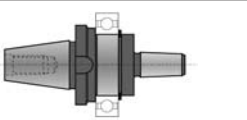
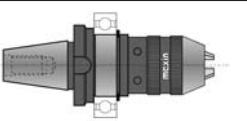
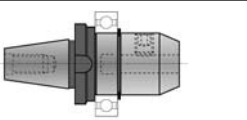
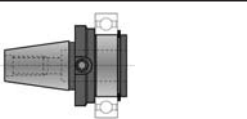
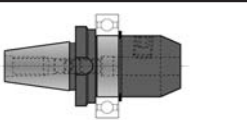
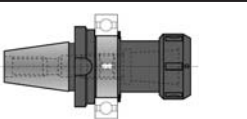
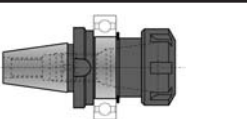
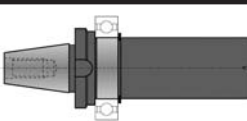
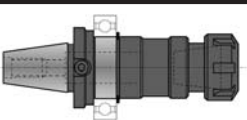
REF. 20.630	K ISO	G No.	Ø		A mm	D mm
20.630.30.12	30	1	19	M3-M12	60	33
20.630.40.12	40	1	19	M3-M12	67	33
20.630.40.20		2	31	M8-M20	90	50
20.630.40.33		3	48	M14-M33	117	72
20.630.50.12	50	1	19	M3-M12	78	33
20.630.50.20		2	31	M8-M20	101	50
20.630.50.33		3	48	M14-M33	125	72

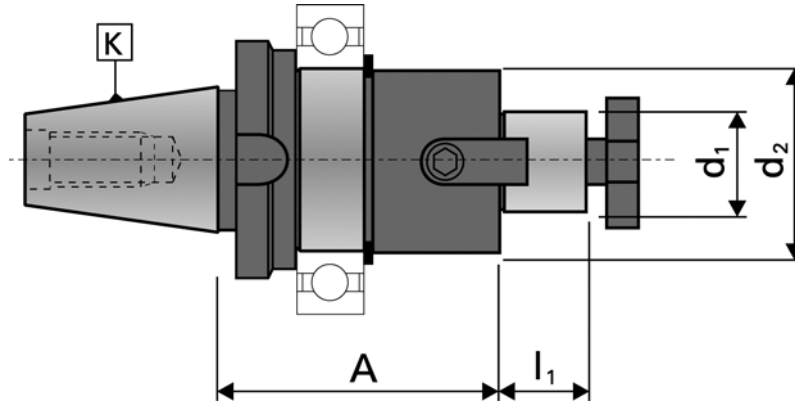
REF. 20.630		
20.630.30.12	49.621.12xx	49.622.12xx
20.630.40.12	49.621.12xx	49.622.12xx
20.630.40.20	49.621.20xx	49.622.20xx
20.630.40.33	49.621.33xx	49.622.33xx
20.630.50.12	49.621.12xx	49.622.12xx
20.630.50.20	49.621.20xx	49.622.20xx
20.630.50.33	49.621.33xx	49.622.33xx







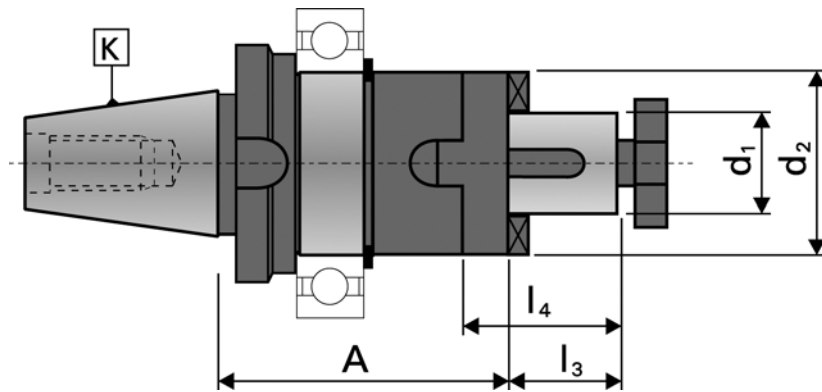
REFERENCIA - PAGINA
ORDER NR. - PAGE

25.160					
E.01					
25.180					
E.02					
25.210					
E.03					
25.215					
E.04					
25.290					
E.05					
25.295					
E.06					
25.300					
E.07					
25.302					
E.08					
25.305					
E.09					
25.351/3					
E.10					
25.451/3					
E.11					
25.470					
E.12					
25.610					
E.13					






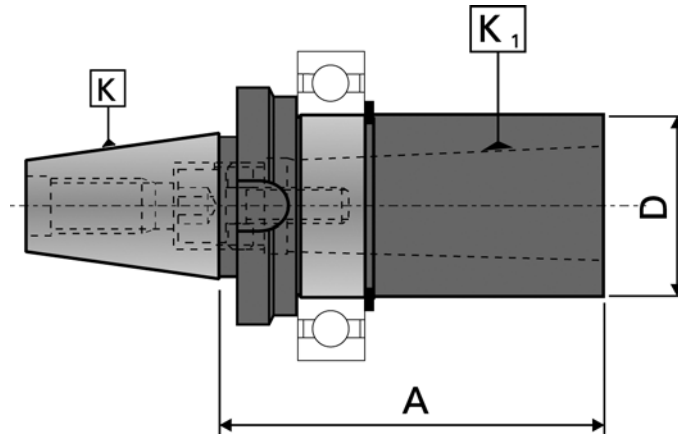
REF. 25.160	K ISO	d ₁ h6 mm	A mm	I ₁ mm	d ₂ mm
25.160.30.16	30	16	40	17	32
25.160.30.22		22	40	19	40
25.160.30.27		27	51	21	48

REF. 25.160		
25.160.30.16	89.100.16	89.171.16
25.160.30.22	89.100.22	89.171.22
25.160.30.27	89.100.27	89.171.27


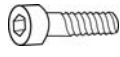


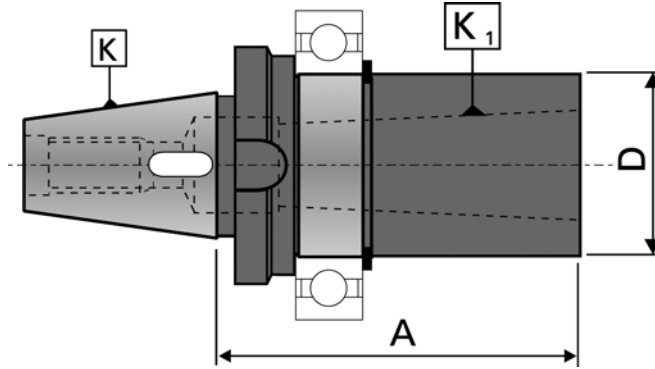
REF. 25.180	K ISO	d ₁ h6 mm	A mm	l ₃ mm	l ₄ mm	d ₂ mm
25.180.30.16	30	16	57	17	27	32
25.180.30.22		22	62	19	31	40
25.180.30.27		27	62	21	33	48

REF. 25.180			
25.180.30.16	89.100.16	89.161.16	89.141.16
25.180.30.22	89.100.22	89.161.22	89.141.22
25.180.30.27	89.100.27	89.161.27	89.141.27





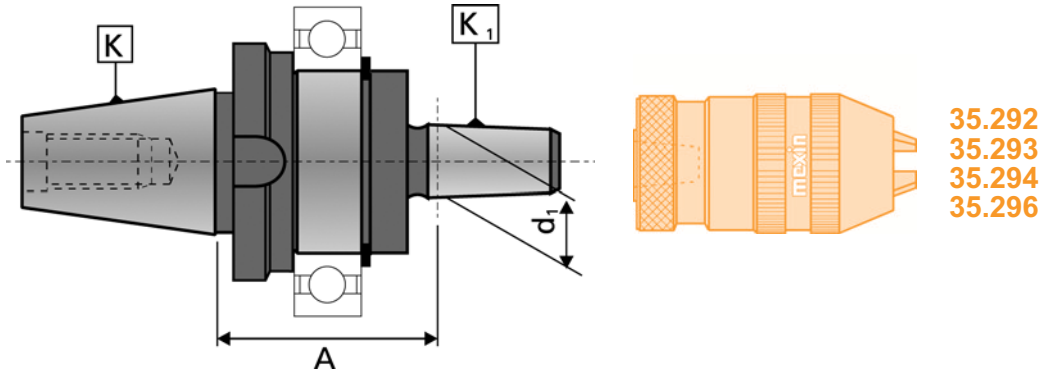
REF. 25.210	K ISO	K ₁ MORSE	A mm	D mm
25.210.30.16	30	1	50	25
25.210.30.22		2	65	32
25.210.30.27		3	80	40

REF. 25.210		
25.210.30.16	89.193.31	89.120.24
25.210.30.22	89.193.32	89.124.19
25.210.30.27	89.193.33	89.124.31



REF. 25.215	K ISO	K ₁ MORSE	A mm	D mm
25.215.30.01	30	1	50	25
25.215.30.02		2	62	32
25.215.30.03		3	80	40

REF. 25.215		
25.215.30.01	89.120.27	
25.215.30.02		85.760.25.32/02
25.215.30.03		85.760.25.30/03



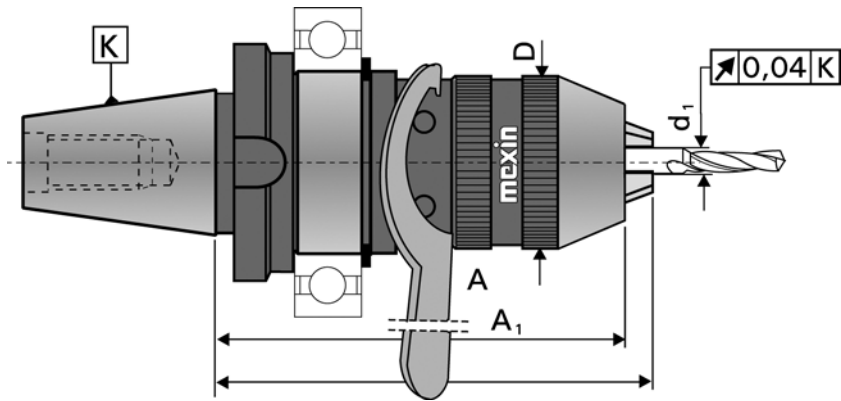
REF. 25.290	K ISO	K ₁ DIN	A mm	d ₁ mm
25.290.30.12	30	B-12	40	12,065
25.290.30.16		B-16	42	15,733



PORTABROCAS CORTOS DE PRECISI3N AUTOBLOCANTES
 giro solamente a derechas
SELF CLAMPING SHORT PRECISION DRILL CHUCKS CHIRON
 for right turn only



CHIRON

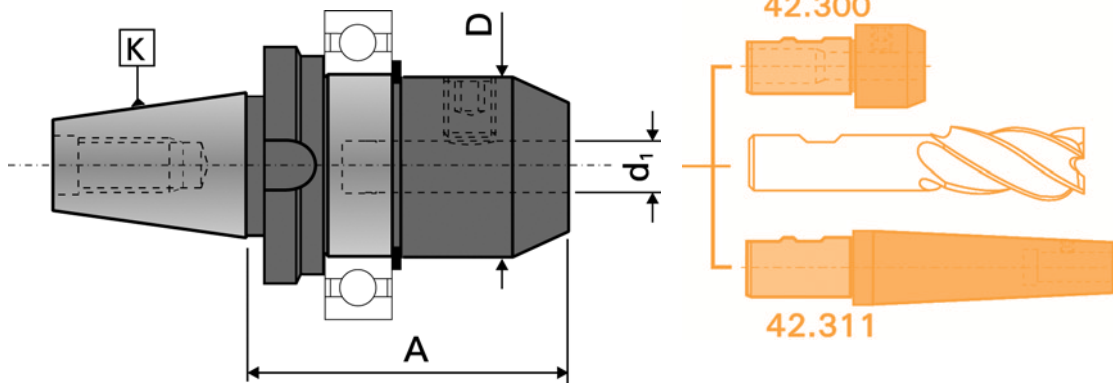
25.295




PAR DE SUJECI3N } > 40 Nm
 TIGHTENING TORQUE }

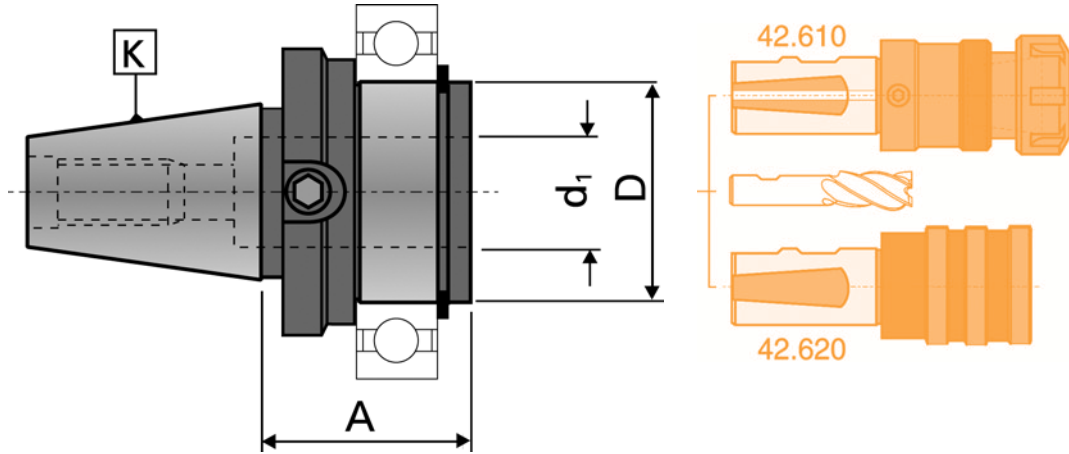
REF. 25.295	K ISO	d ₁ mm	D mm	A mm	A ₁ max mm
25.295.30.08	30	0-8	35,5	83	91

REF. 25.295		
25.295.30.08	89.200.08	89.220.08




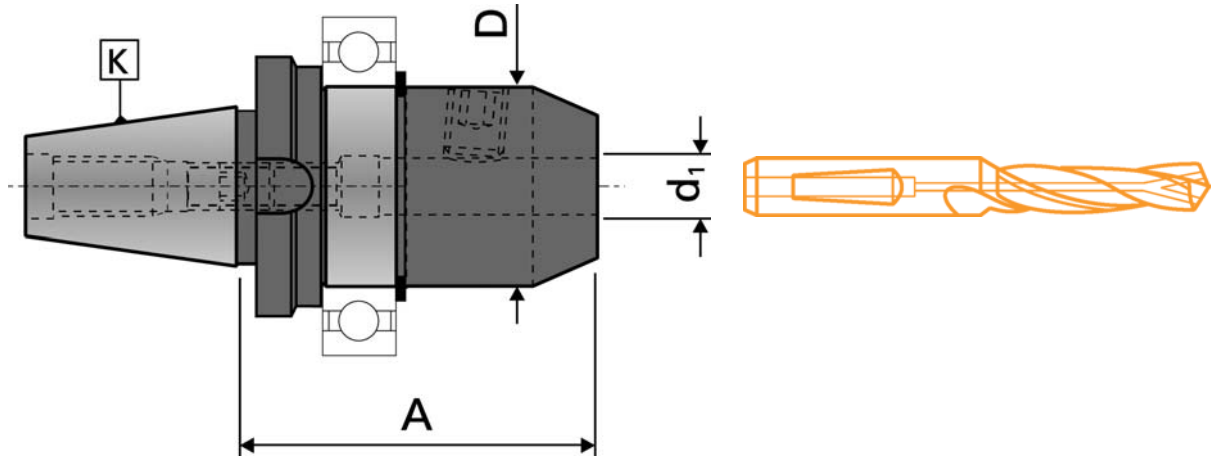
REF. 25.300	K ISO	d ₁ H4 mm	A mm	D mm
25.300.30.06	30	6	70	25
25.300.30.08		8	70	28
25.300.30.10		10	70	35
25.300.30.12		12	70	40
25.300.30.14		14	70	40
25.300.30.16		16	70	40
25.300.30.18		18	70	40
25.300.30.20		20	70	40

REF. 25.300	
25.300.30.06	89.122.20
25.300.30.08	89.122.35
25.300.30.10	89.122.40
25.300.30.12	89.122.50
25.300.30.14	89.122.50
25.300.30.16	89.122.60
25.300.30.18	89.122.60
25.300.30.20	89.122.65





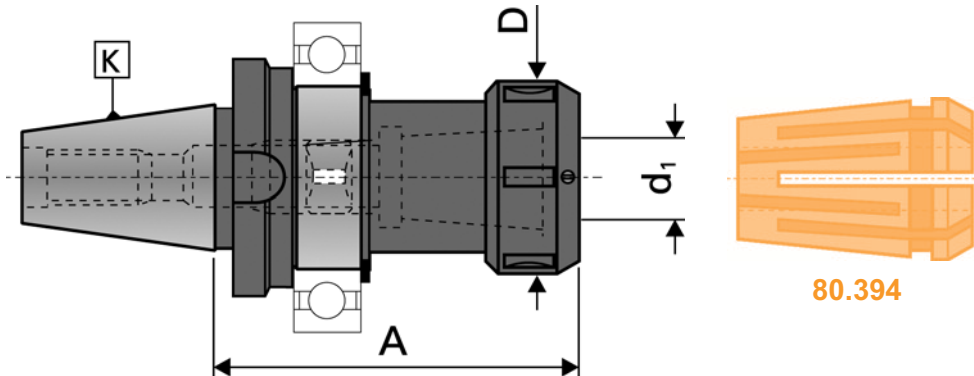
REF. 25.302	K ISO	d ₁ H4 mm	A mm	D mm
25.302.30.16	30	16	35	32
25.302.30.20		20	35	36

REF. 25.302	
25.302.30.16	89.122.40
25.302.30.20	89.122.39




REF. 25.305	K ISO	d ₁ H4 mm	A mm	D mm
25.305.30.06	30	6	70	25
25.305.30.08		8	70	28
25.305.30.10		10	70	35
25.305.30.12		12	70	40
25.305.30.14		14	70	40
25.305.30.16		16	70	40
25.305.30.18		18	70	40



REF. 25.305		
25.305.30.06	89.122.15	89.122.20
25.305.30.08	89.122.21	89.122.35
25.305.30.10	89.122.37	89.122.40
25.305.30.12	89.122.43	89.122.49
25.305.30.14	89.122.43	89.122.49
25.305.30.16	89.122.51	89.122.59
25.305.30.18	89.122.51	89.122.59






CON TUERCA A BOLAS REF. **XX.351**
 WITH BALL BEARING NUT REF.

PAR DE SUJECIÓN } > 150 Nm - Ø20
 TIGHTENING TORQUE

REF. 25.351	A mm	 80.391	d ₁ mm	D mm
25.351.30.16	81	80.391.16	2-16	43
25.351.30.25	55	80.391.25	3-25	60
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH				

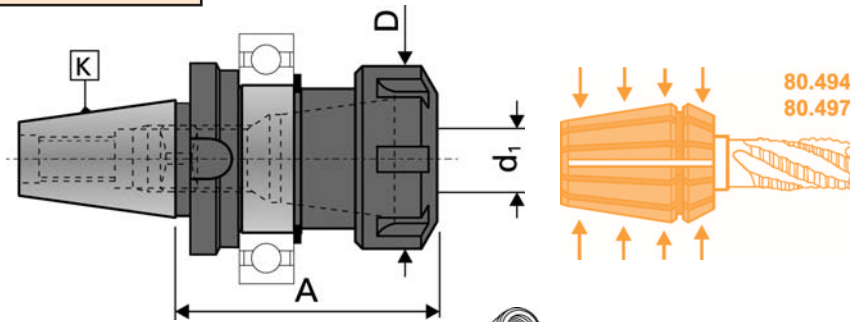
REF. 25.351		
25.351.30.16	89.201.16	89.192.16
25.351.30.25	89.201.25	89.192.16


REF. 25.353	A mm	 80.393	d ₁ mm	D mm
25.353.30.16	81	80.393.16	2-16	43
25.353.30.25	55	80.393.25	3-25	60
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH				

REF. 25.353		
25.353.30.16	89.201.16	89.192.16
25.353.30.25	89.201.25	89.192.16



CON TUERCA A BOLAS REF. **XX.451**
 WITH BALL BEARING NUT REF. **XX.451**


PAR DE SUJECIÓN } > 150 Nm - Ø20
 TIGHTENING TORQUE }





REF. 25.451	K ISO	A mm	80.491		d ₁ mm	D mm
25.451.30.16	30	57,7	80.491.16	ER 25	1-16	42
25.451.30.20		64,0	80.491.20	ER 32	2-20	50
25.451.30.26		95,3	80.491.26	ER 40		

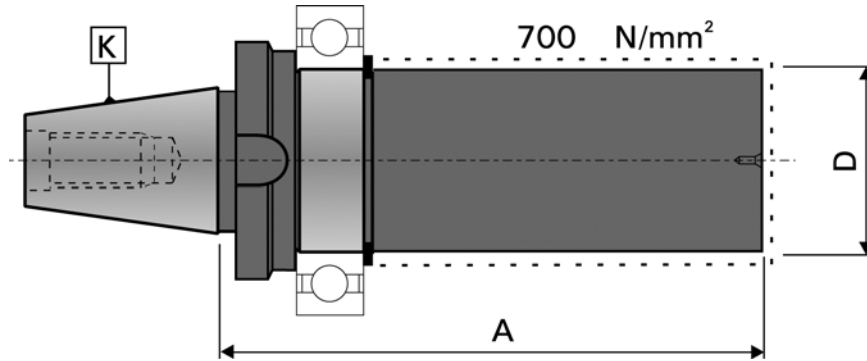
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

REF. 25.451		
25.451.30.16	89.202.16	89.192.16
25.451.30.20	89.202.20	89.192.22
25.451.30.26	89.202.26	89.192.26

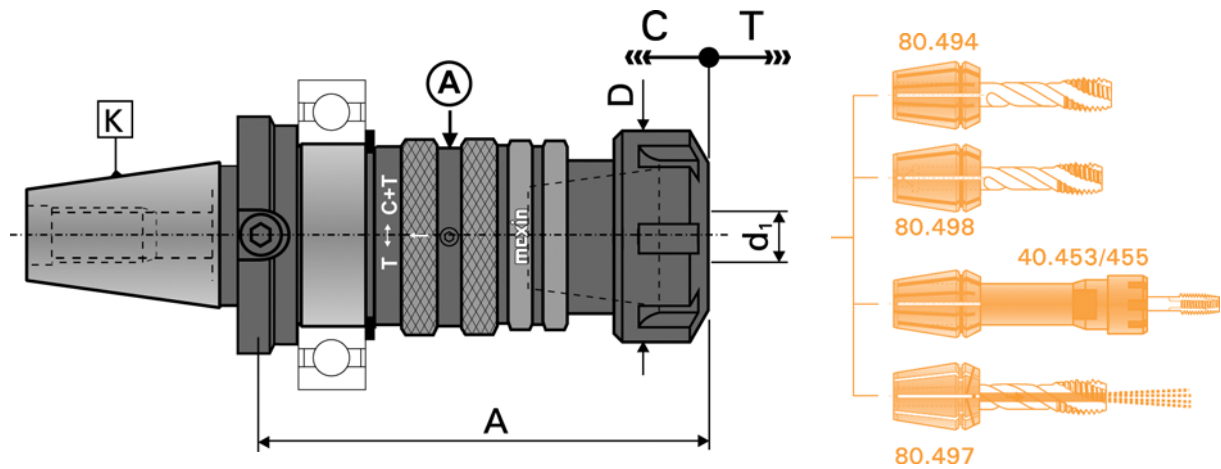
REF. 25.453	K ISO	A mm	80.493		d ₁ mm	D mm
25.453.30.10	30	55	80.493.10	ER 16	0,5-10	32
25.453.30.10/100		100	80.493.10	ER 16	0,5-10	32
25.453.30.13		55	80.493.13	ER 20	1-13	35
25.453.30.13/100		100	80.493.13	ER 20	1-13	35
25.453.30.16		55	80.493.16	ER 25	1-16	42
25.453.30.20		60	80.493.20	ER 32	2-20	50
25.453.30.26		91	80.493.26	ER 40	3-26	63

* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH

REF. 25.453		
25.453.30.10	89.202.10	89.192.10
25.453.30.10/100	89.202.10	89.192.10
25.453.30.13	89.202.13	89.192.13
25.453.30.13/100	89.202.13	89.192.13
25.453.30.16	89.202.16	89.192.16
25.453.30.20	89.202.20	89.192.20
25.453.30.26	89.202.26	89.192.26





REF. 25.470	K ISO	D mm	A mm
25.470.30.40	30	40	160
25.470.30.60		60	160



Compensación a la compresión (C) y a la tracción (T).
 Posibilidad de anular la compresión con el anillo (A).
 Control de la profundidad de roscado.
 Refrigeración por el centro.

Compensation in compression (C) and tension (T).
 Compression can be blocked by turning the rear ring (A).
 Control of thread depth.
 Central coolant supply.

REF. 25.610	K ISO			A mm	D mm	C mm	T mm
25.610.30.12	30	ER 16	M3-M12	100	28	7,5	6

REF. 25.610		
25.610.30.12	80.496.10	89.202.10




















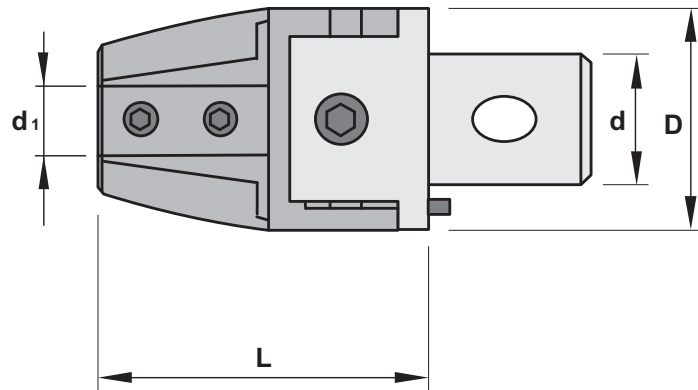


BORE R...
Ø m...
39-5...

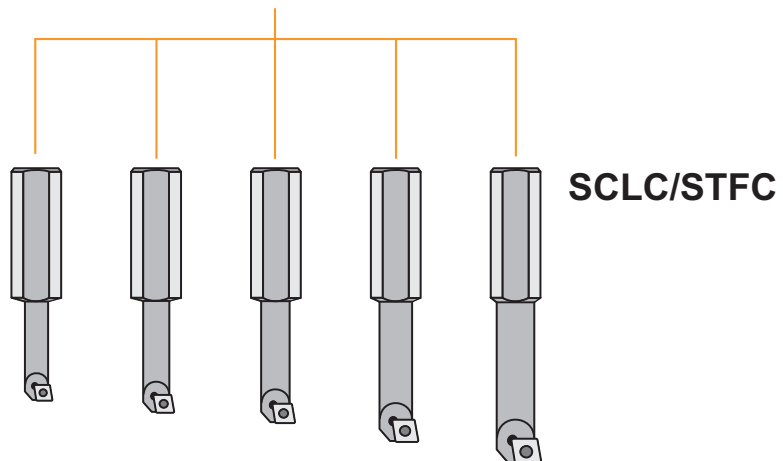
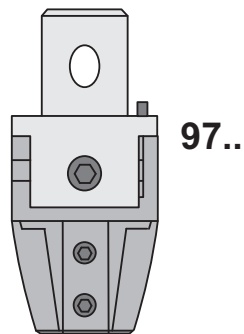
REFERENCIA - PAGINA
ORDER NR. - PAGE

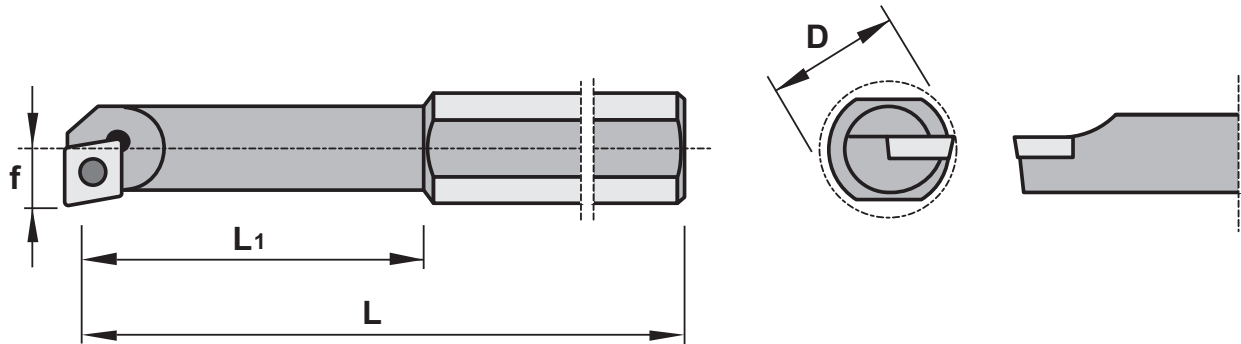
REFERENCIA - PAGINA
ORDER NR. - PAGE



97.71/73		KIT 97			
F.01		F.15			
SCLC		KIT 7072			
F.02		F.16			
STFC		KIT 7074			
F.03		F.17			
63_4.70/74					
F.04					
6344.75/77					
F.05					
64_4.70/74					
F.06					
6444.75/77					
F.07					
6634.72/74					
F.08					
6634.75/77					
F.09					
60.43/45					
F.10					
60.47/48					
F.11					
60.49/50					
F.12					
60.62/64					
F.13					
60.70/73					
F.14					

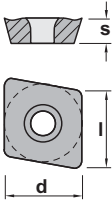





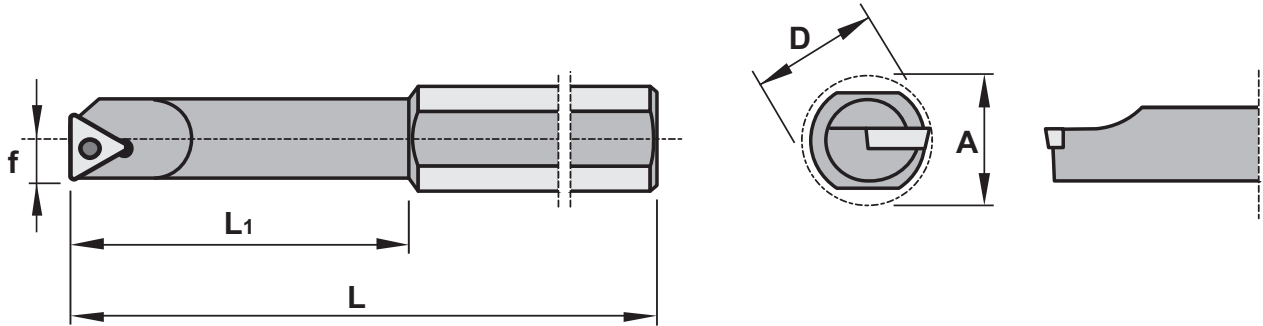
REF. 97.71	D mm	L mm	d mm	d_1 mm	D min	D max
97.71.08	27	50	15	8	10	21
REF. 97.72						
97.72.08	32	58	20	8	10	21
97.72.10	32	58	20	10	13	25
REF. 97.73						
97.73.10	42	70	24	10	13	29
97.73.12	42	70	24	12	16	34
97.73.16	42	70	24	16	20	38









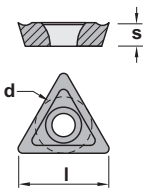


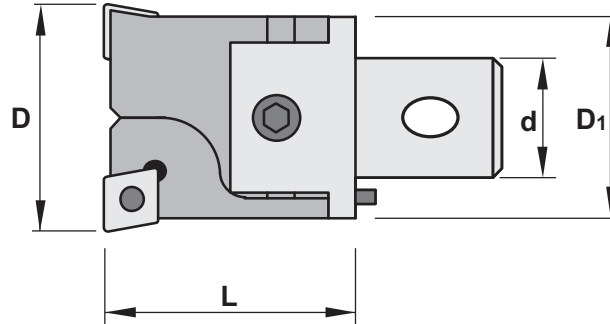
REF. SCLC	D mm	L mm	L ₁ mm	f mm	Rango de taladro Bore range		Plaquita Insert		
					min	max			
S0816F SCLC R 06	16	80	35	4	10	28	CC.. 0602..	1425	5507
S1016G SCLC R 06	16	90	45	6	13	31	CC.. 0602..	1425	5507
S1216H SCLC R 06	16	100	57	7	16	34	CC.. 0602..	1425	5507
S1616 SCLC R 09	16	110	73	9	20	38	CC.. 09T3..	1440	5515





REF. CC	l	s	d		CCGT-AL	CCMT-03	CCMW
							
CC.. 0602..	6,45	2,38	6,35				
CC.. 09T3..	9,65	3,97	9,52				

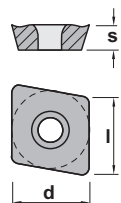





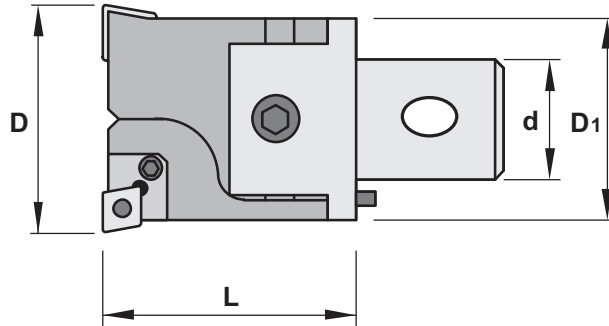
REF. STFC	D mm	L mm	L ₁ mm	f mm	Rango de taladro Bore range		Plaquita Insert		
					min	max			
S0816F STFC R 09	16	80	35	5	10	28	TC.. 0902..	1222	5506
S0816G STFC R 09	16	90	45	6	13	31	TC.. 0902..	1222	5506
S1216H STFC R 09	16	100	57	7	16	34	TC.. 0902..	1222	5506
S1216I STFC R 09	16	110	73	9	20	38	TC.. 0902..	1222	5506
S1616I STFC R 09	16	110	73	11	20	38	TC.. 16T3..	1425	5515

REF. TC	l	s	d				
TC.. 0902..	9,62	2,38	5,55				
TC.. 16T3..	16,50	3,97	9,52				








REF. 63_4.70/74	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert				
6314.70.2430	22	34	12	24	30	CC.. 0602..	1425	5607	5003	5002
6334.71.2940	27	42	15	29	40	CC.. 09T3..	1240	5615	5004	5002
6334.72.3950	32	45	20	39	50	CC.. 09T3..	1240	5615	5004	5025
6344.73.4965	42	56	24	49	65	CC.. 1204..	1250	5620	5005	5003
6344.74.6382	54	56	28	63	82	CC.. 1204..	1250	5620	5006	5003




REF. CC	l	s	d		CCGT-AL	CCMT-03	CCMW
CC.. 0602..	6,45	2,38	6,35				
CC.. 09T3..	9,65	3,97	9,52				
CC.. 1204..	12,90	4,76	12,70				

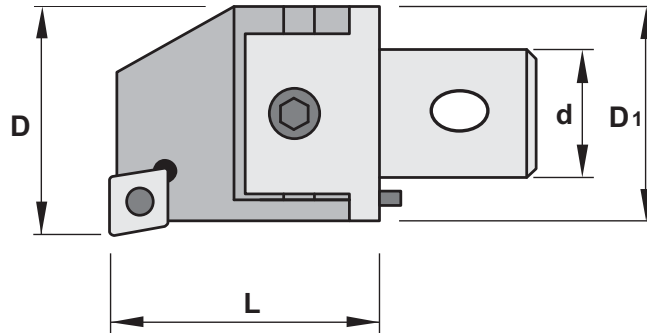






REF. 6344.75/77

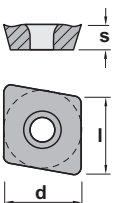



REF.	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert					
6344.75.080102	68	86	36	80	102	CC.. 1204..	1250	5620	5508	5004	6412
6344.76.100125	85	100	50	100	125	CC.. 1204..	1250	5620	5508	5005	6412
6344.77.125160	110	100	60	125	160	CC.. 1204..	1250	5620	5508	5005	6412
6344.77.160220	145	100	60	160	220	CC.. 1204..	1250	5620	5508	5005	6412

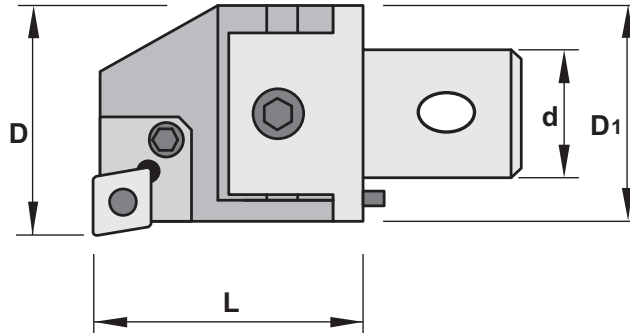
REF. CC

REF.	l	s	d	CCGT-AL	CCMT-03	CCMW
CC.. 1204..	12,90	4,76	12,70			








REF. 64_4.70/74	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert				
6414.70.2430	22	34	12	24	30	CC.. 0602..	1425	5607	5003	5002
6434.71.2940	27	42	15	29	40	CC.. 09T3..	1240	5615	5004	5002
6434.72.3950	32	45	20	39	50	CC.. 09T3..	1240	5615	5004	5025
6444.73.4965	42	56	24	49	65	CC.. 1204..	1250	5620	5005	5003
6444.74.6382	54	56	28	63	82	CC.. 1204..	1250	5620	5006	5003





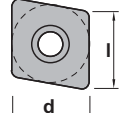
REF. CC	l	s	d	CCGT-AL	CCMT-03	CCMW	
CC.. 0602..	6,45	2,38	6,35				
CC.. 09T3..	9,65	3,97	9,52				
CC.. 1204..	12,90	4,76	12,70				

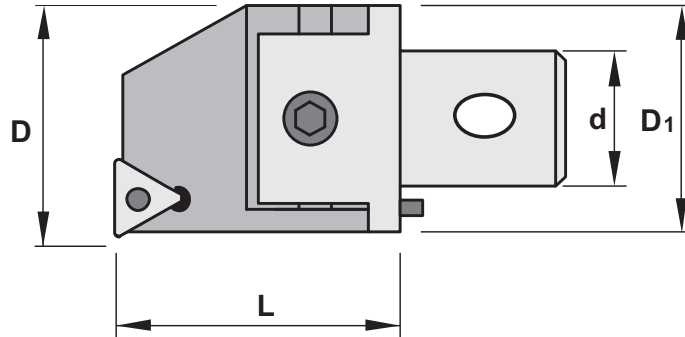


REF. 6444.75/77





	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert					
6444.75.080102	68	86	36	80	102	CC.. 1204..	1250	5620	5508	5004	6412
6444.76.100125	85	100	50	100	125	CC.. 1204..	1250	5620	5508	5005	6412
6444.77.125160	110	100	60	125	160	CC.. 1204..	1250	5620	5508	5005	6412
6444.77.160220	145	100	60	160	220	CC.. 1204..	1250	5620	5508	5005	6412

REF. CC

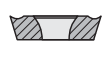















	l	s	d		CCGT-AL	CCMT-03	CCMW
CC.. 1204..	12,90	4,76	12,70				
							

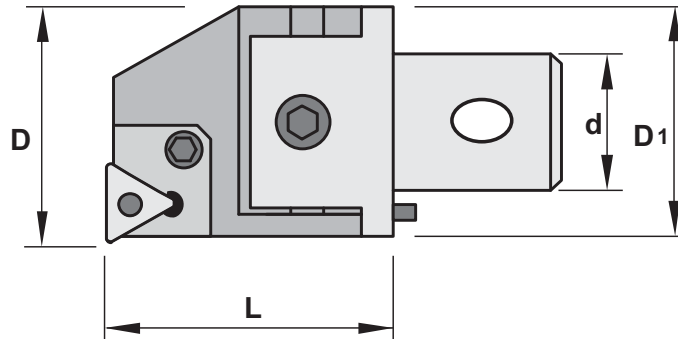


REF. 6634.72/74






	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert				
6634.72.3950	32	45	20	39	50	TC.. 16T3..	1240	5615	5004	5025
6634.73.4965	42	56	24	49	65	TC.. 16T3..	1250	5620	5005	5003
6634.74.6382	54	66	28	63	82	TC.. 16T3..	1250	5620	5006	5003

REF. TC





	l	s	d	TCGT-AL	TCMT-03	TCMT-39	TCMW
TC.. 16T3..	16,50	3,97	9,52				
							
							
							

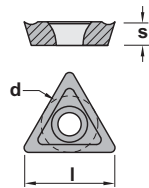


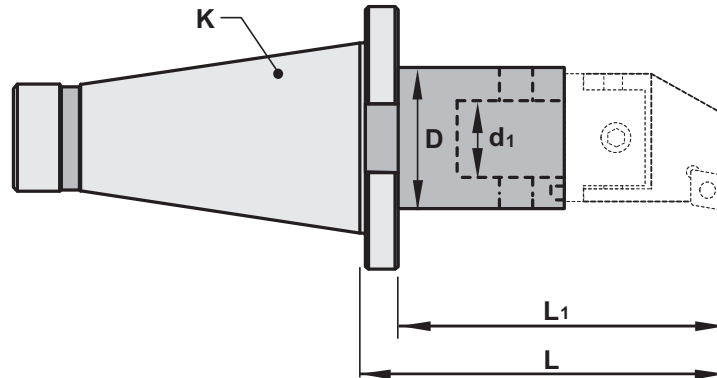
REF. 6634.75/77

	D ₁ mm	L mm	d mm	D min	D max	Plaquita Insert					
6634.75.080102	68	86	36	80	102	TC.. 16T3..	1250	5620	5508	5004	6412
6634.76.100125	85	100	50	100	125	TC.. 16T3..	1250	5620	5508	5005	6412
6634.77.125160	110	100	60	125	160	TC.. 16T3..	1250	5620	5508	5005	6412
6634.77.160220	145	100	60	160	220	TC.. 16T3..	1250	5620	5508	5005	6412

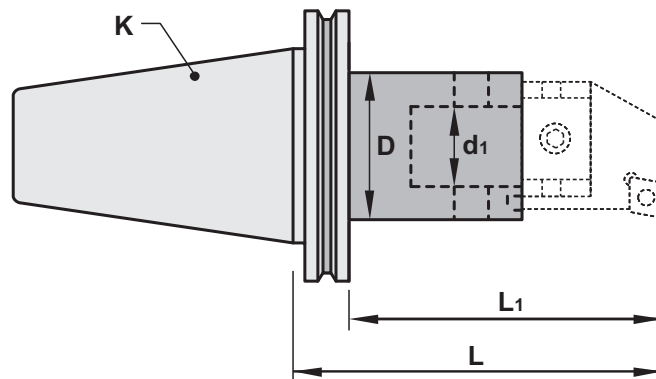
REF. TC

	l	s	d	TCGT-AL	TCMT-03	TCMT-39	TCMW
TC.. 16T3..	16,50	3,97	9,52				

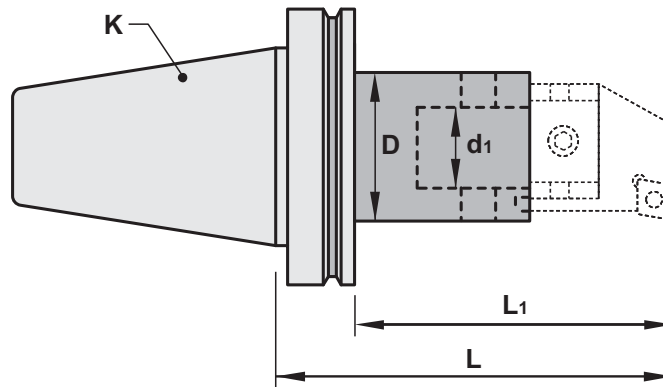




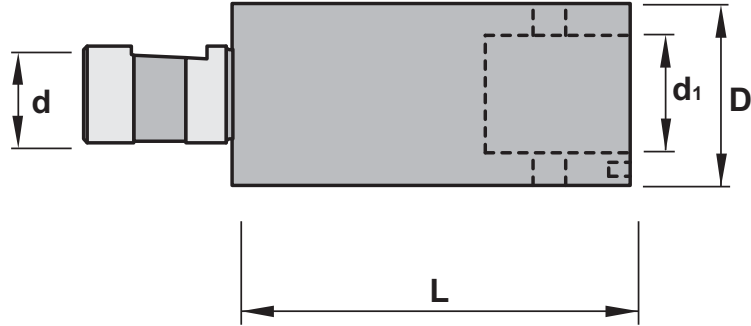
REF. 60.43/45	K	D mm	L mm	L ₁ mm	d ₁ mm
60.43.70.100	30	22	115	100	12
60.43.71.100	30	27	115	100	15
60.43.72.100	30	32	115	100	20
60.44.70.100	40	22	115	100	12
60.44.71.100	40	27	115	100	15
60.44.72.100	40	32	115	100	20
60.44.73.160	40	42	175	160	24
60.44.74.160	40	54	175	160	28
60.44.75.160	40	68	176	160	36
60.45.70.100	50	22	119	100	12
60.45.71.100	50	27	119	100	15
60.45.72.130	50	32	149	130	20
60.45.73.160	50	42	179	160	24
60.45.74.160	50	54	179	160	28
60.45.75.200	50	68	220	200	36
60.45.76.200	50	85	221	200	50
60.45.77.260	50	100	281	260	60



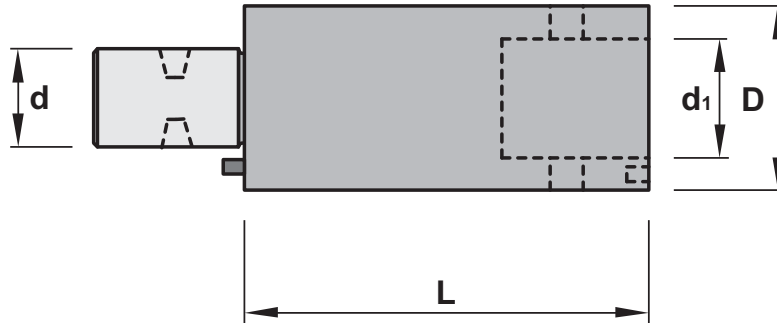
REF. 60.47/48	K	D mm	L mm	L ₁ mm	d ₁ mm
60.47.70.100	40	22	115	100	12
60.47.71.100	40	27	115	100	15
60.47.72.100	40	32	115	100	20
60.47.73.160	40	42	175	160	24
60.47.74.160	40	54	175	160	28
60.47.75.160	40	68	176	160	36
60.48.70.100	50	22	119	100	12
60.48.71.100	50	27	119	100	15
60.48.72.130	50	32	149	130	20
60.48.73.160	50	42	179	160	24
60.48.74.160	50	54	179	160	28
60.48.75.200	50	68	220	200	36
60.48.76.200	50	85	221	200	50
60.48.77.260	50	100	281	260	60



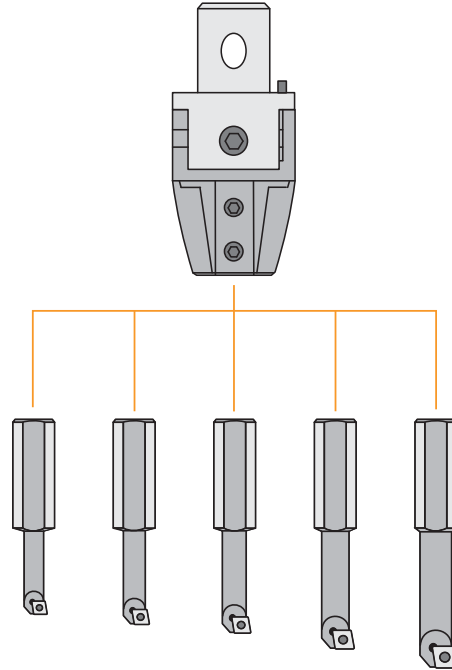
REF. 60.49/50	K	D mm	L mm	L ₁ mm	d ₁ mm
60.49.70.100	40	22	115	100	12
60.49.71.100	40	27	115	100	15
60.49.72.100	40	32	115	100	20
60.49.73.160	40	42	175	160	24
60.49.74.160	40	54	175	160	28
60.49.75.160	40	68	176	160	36
60.50.70.100	50	22	119	100	12
60.50.71.100	50	27	119	100	15
60.50.72.130	50	32	149	130	20
60.50.73.160	50	42	179	160	24
60.50.74.160	50	54	179	160	28
60.50.75.200	50	68	220	200	36
60.50.76.200	50	85	221	200	50
60.50.77.260	50	100	281	260	60



REF. 60.62/64	D mm	d mm	L mm	d ₁ mm
60.62.70	22	20	20	12
60.62.71	27	20	30	15
60.63.70	22	20	30	12
60.63.71	27	20	45	15
60.63.72	32	25	35	20
60.64.70	22	20	52	12
60.64.71	27	20	52	15
60.64.72	32	20	52	20
60.64.73	42	25	60	24



REF. 60.70/73	D mm	d mm	L mm	d ₁ mm
60.70.70.20	22	12	20	12
60.70.70.30	22	12	30	15
60.71.71.30	27	15	30	15
60.71.71.45	27	15	45	15
60.72.72.35	32	20	35	20
60.72.72.52	32	20	52	20
60.73.73.40	42	24	40	24
60.73.73.60	42	24	60	24



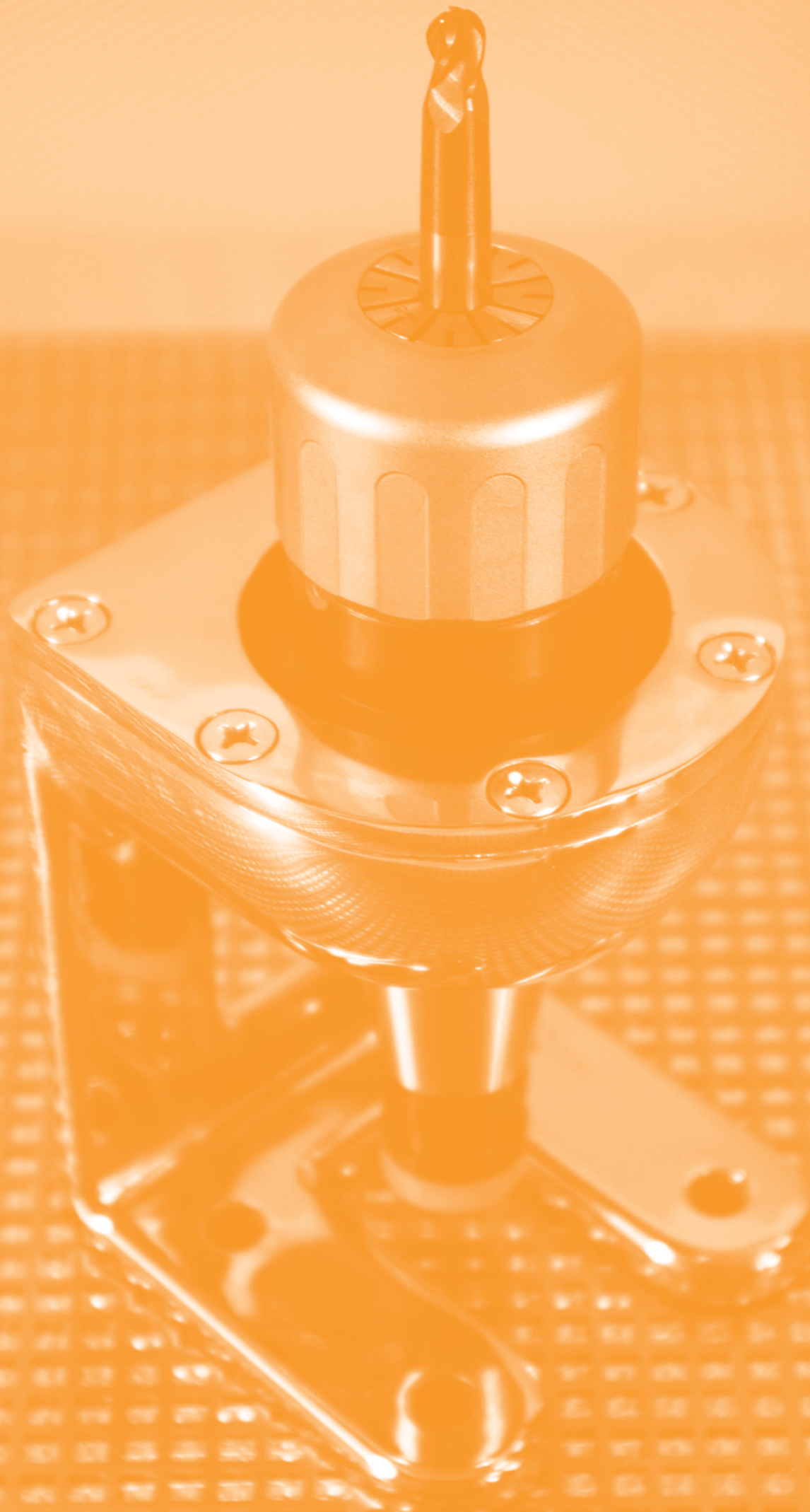
REF. KIT 97	Cabezal mandrilador <i>Boring head</i>	Herramienta para mandrilador <i>Boring bars</i>	Rango de taladro <i>Bore range</i>	
			min	max
97.SCLC	97.73.16	S0816F SCLC R 06	10	28
		S1016G SCLC R 06	13	31
		S1216H SCLC R 06	16	34
		S1616I SCLC R 09	20	38
		S1616I SCLC R 09	20	38
97.STFC	97.73.16	S0816F STFC R09	10	28
		S1016G STFC R 09	13	31
		S1216H STFC R 09	16	34
		S1216I STFC R 09	20	38
		S1616I STFC R 16	20	38



REF. KIT 7072	Mandrilador desbaste <i>Roughing boring head</i>	Mandrilador acabado <i>Finishing boring head</i>	Cabezal mandrilador <i>Boring head</i>	Barras de mandrilar <i>Boring bars</i>	Rango de taladro <i>Bore range</i>	
					min	max
KIT 7072	6314.70.2430	6414.70.2430	97.73.16	S0816F SCLC R 06	10	28
	6334.71.2940	6434.71.2940		S1016G SCLC R 06	13	31
	6334.72.3950	6434.72.3950		S1216H SCLC R 06	16	34
				S1616I SCLC R 09	20	38






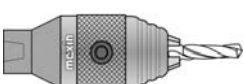
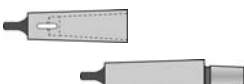
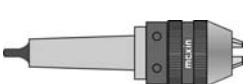
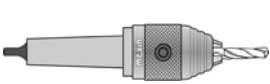
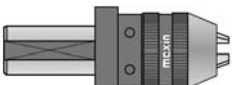
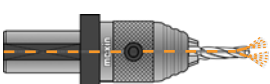

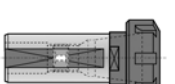
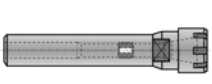
REF. KIT 7074	Mandrilador desbaste <i>Roughing boring head</i>	Mandrilador acabado <i>Finishing boring head</i>	Cabezal mandrilador <i>Boring head</i>	Barras de mandrilar <i>Boring bars</i>	Rango de taladro <i>Bore range</i>	
					min	max
KIT 7074	6314.70.2430	6414.70.2430	97.73.16	S0816F SCLC R 06	10	28
	6334.71.2940	6434.71.2940		S1016G SCLC R 06	13	31
	6334.72.3950	6434.72.3950		S1216H SCLC R 06	16	34
	6344.73.4965	6444.73.4965				
	6344.74.6382	6444.74.6382		S1616I SCLC R 09	20	38

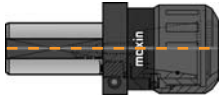


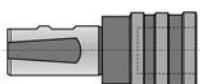


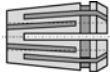







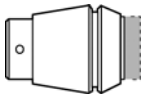
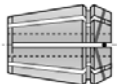
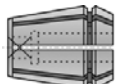

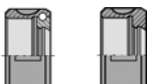

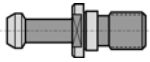
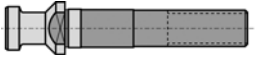



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ORDER NR. - PAGE

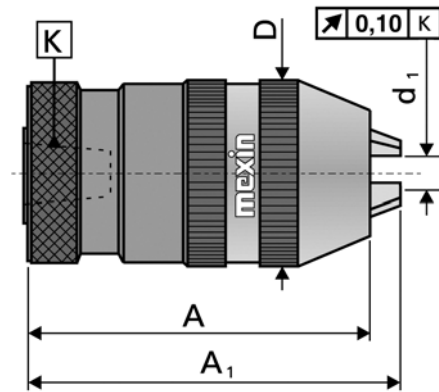
REFERENCIA - PAGINA
ORDER NR. - PAGE

REFERENCIA - PAGINA
ORDER NR. - PAGE

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85.760		
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02.70/80 02.71/81		
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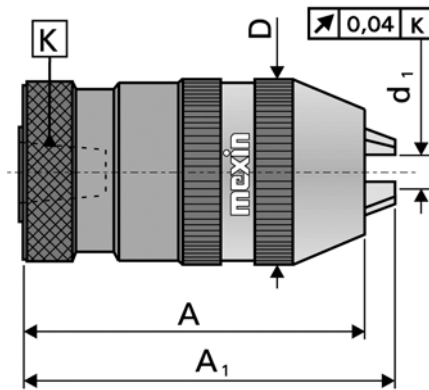
REF. 35.292	d ₁ mm	K DIN238	D mm	A mm	A ₁ mm
35.292.08.12	0 - 8	B-12	36	68	74
35.292.10.12	0-10	B-12	36	70	77
35.292.13.16	0-13	B-16	40	88	99
35.292.16.16	3-16	B-16	46	100	109
35.292.16.18		B-18	46	100	109

REF. 35.292



35.292.08.12	89.220.28
35.292.10.12	89.220.30
35.292.13.16	89.220.33
35.292.16.16	89.220.36
35.292.16.18	89.220.36

PAR DE SUJECIÓN } > 25 Nm
TIGHTENING TORQUE }



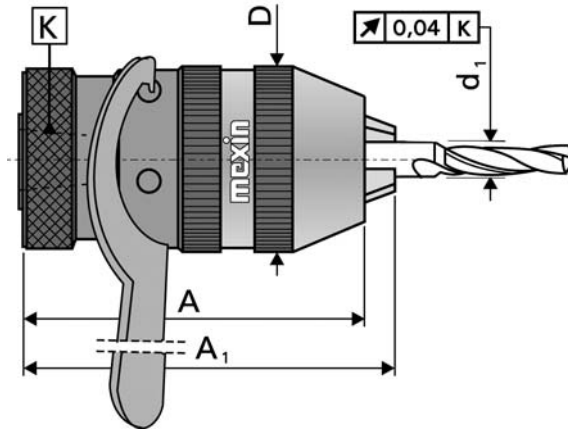
REF. 35.293	d ₁ mm	K DIN238	D mm	A mm	A ₁ mm
35.293.08.12	0 - 8	B-12	36,0	64,5	72,5
35.293.10.12	0-10	B-12	44,5	80,5	92,0
35.293.10.16		B-16	44,5	80,5	92,0
35.293.13.16	0-13	B-16	51,5	91,5	103,0
35.293.16.16	3-16	B-16	57,5	94,5	108,5
35.293.16.18		B-18	57,5	94,5	108,5

REF. 35.293



35.293.08.12	89.220.08
35.293.10.12	89.220.10
35.293.10.16	89.220.10
35.293.13.16	89.220.13
35.293.16.16	89.220.16
35.293.16.18	89.220.16

PAR DE SUJECIÓN } > 40 Nm
 TIGHTENING TORQUE }



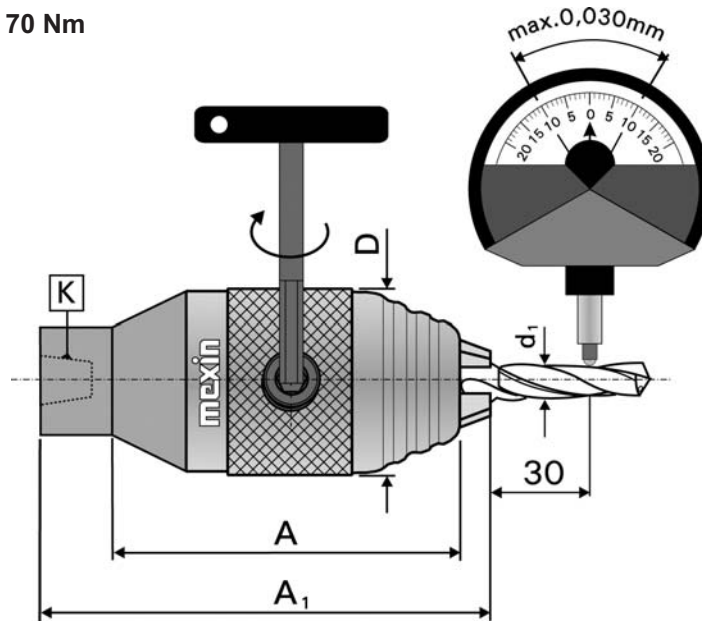
REF. 35.294	d ₁ mm	K DIN238	D mm	A mm	A ₁ mm
35.294.08.12	0 - 8	B-12	36,0	64,5	72,5
35.294.10.12	0-10	B-12	44,5	80,5	92,0
35.294.10.16		B-16	44,5	80,5	92,0
35.294.13.16	0-13	B-16	51,5	91,5	103,0
35.294.16.16	3-16	B-16	57,5	94,5	108,5
35.294.16.18		B-18	57,5	94,5	108,5

REF. 35.294



35.294.08.12	89.200.08	89.220.08
35.294.10.12	89.200.10	89.220.10
35.294.10.16	89.200.10	89.220.10
35.294.13.16	89.200.13	89.220.13
35.294.16.16	89.200.16	89.220.16
35.294.16.18	89.200.16	89.220.16

PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }





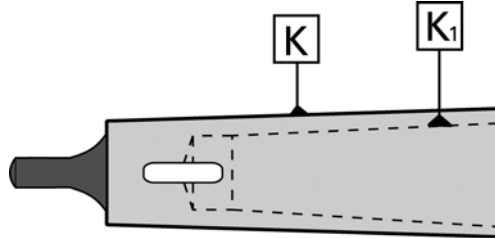
PORTABROCAS PARA ACOPLAR A ESPIGAS SEGÚN DIN 238.
 GRAN FUERZA DE APRIETE.

DRILL CHUCK FOR THE COUPLING OVER DIN 238 SHAFTS.
 HIGH TIGHTENING.

REF. 35.296	K DIN238	d ₁ mm	D mm	A mm	A ₁ max mm
35.296.16.13	16	1-13	50	100	107
35.296.18.16	18	3-16	56	108	115

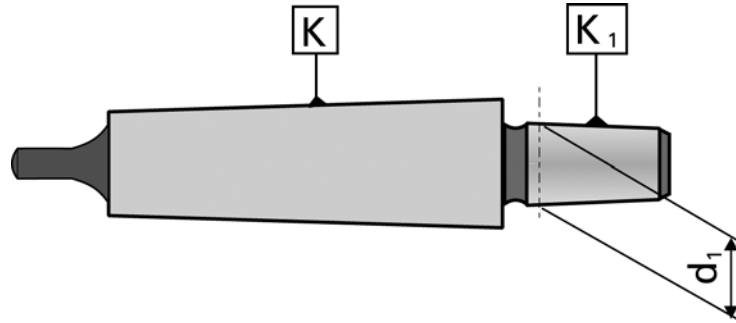
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 35.296		
35.296.16.13	89.206.06	89.220.13
35.296.18.16	89.206.06	89.220.13



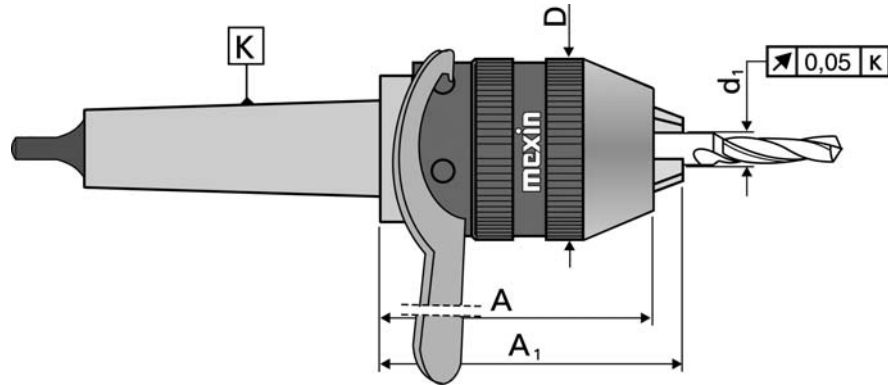
REF. 37.215

	K MORSE	K ₁ MORSE
37.215.02.01	2	1
37.215.03.01	3	1
37.215.03.02	3	2
37.215.04.02	4	2
37.215.04.03	4	3
37.215.05.03	5	3
37.215.05.04	5	4



REF. 37.290	K MORSE	K ₁ DIN	d ₁ mm
37.290.02.12	2	B-12	12.065
37.290.02.16		B-16	15.733
37.290.02.18		B-18	17.780
37.290.03.12	3	B-12	12.065
37.290.03.16		B-16	15.733
37.290.03.18		B-18	17.780
37.290.04.16	4	B-16	15.733
37.290.04.18		B-18	17.780

PAR DE SUJECI3N } > 40 Nm
 TIGHTENING TORQUE }



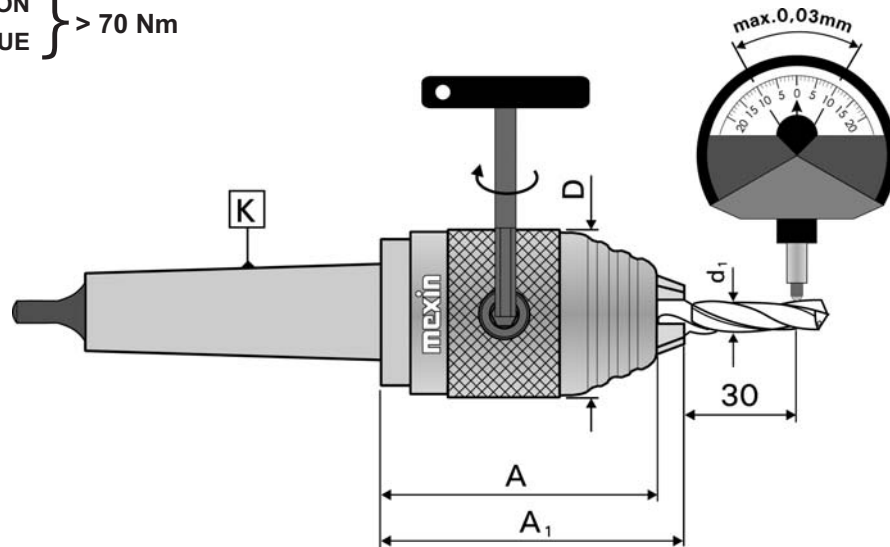
REF. 37.295	K MORSE	d ₁ mm	D mm	A mm	A ₁ max mm
37.295.02.08	2	0 - 8	35	56	65
37.295.02.13		0-13	51	81	95
37.295.03.13	3	0-13	51	81	95
37.295.03.16		3-16	56	85	98
37.295.04.13	4	0-13	51	81	95
37.295.04.16		3-16	56	85	98
* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH					

REF. 37.295



REF. 37.295	WRENCH	DRILL BITS
37.295.02.08	89.200.08	89.220.08
37.295.02.13	89.200.13	89.220.08
37.295.03.13	89.200.13	89.220.13
37.295.03.16	89.200.16	89.220.13
37.295.04.13	89.200.13	89.220.16
37.295.04.16	89.200.16	89.220.16



PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }



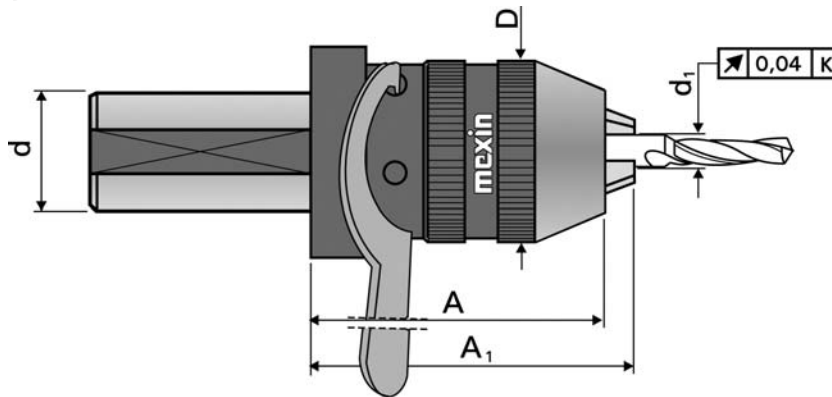
Cono morse integrado en el portabrocas, solucionando los problemas de acoplamiento de otros sistemas.
 Morse shank being part of the drill chuck, solving coupling problems of any other systems.

REF. 37.296	K MORSE	d ₁ mm	D mm	A mm	A ₁ max mm
37.296.02.13	2	1-13	50	85	92
37.296.03.13	3	1-13	50	85	92
37.296.03.16		3-16	56	92	99
37.296.04.13	4	1-13	50	85	92
37.296.04.16		3-16	56	92	99
37.296.05.16	5	3-16	56	92	99

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH



REF. 37.296		
37.296.02.13	89.206.06	89.220.13
37.296.03.13	89.206.06	89.220.13
37.296.03.16	89.206.06	89.220.13
37.296.04.13	89.206.06	89.220.13
37.296.04.16	89.206.06	89.220.13
37.296.05.16	89.206.06	89.220.13

PAR DE SUJECI3N } > 70 Nm
 TIGHTENING TORQUE }

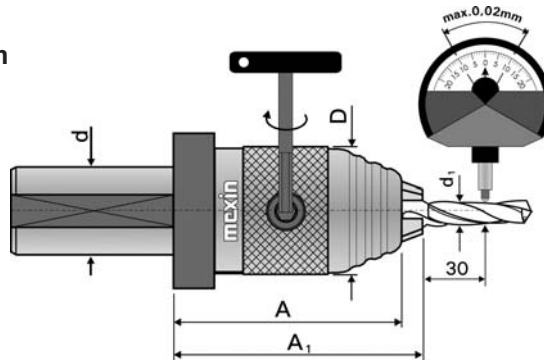


REF. 40.295	d mm	d ₁ mm	D mm	A mm	A ₁ max mm
40.295.25.08	25	0 - 8	36,0	68	76
40.295.30.08	30	0 - 8	36,0	68	76
40.295.32.08	32	0 - 8	36,0	68	76
40.295.32.13		0-13	50,5	90	101
40.295.40.13	40	0-13	50,5	90	101
40.295.40.16		3-16	58,0	96	109
40.295.50.16	50	3-16	58,0	96	109

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 40.295		
40.295.25.08	89.200.08	89.220.08
40.295.30.08	89.200.08	89.220.08
40.295.32.08	89.200.08	89.220.08
40.295.32.13	89.200.13	89.220.13
40.295.40.13	89.200.13	89.220.13
40.295.40.16	89.200.16	89.220.16
40.295.50.16	89.200.16	89.220.16

PAR DE SUJECIÓN } > 70 Nm
 TIGHTENING TORQUE }

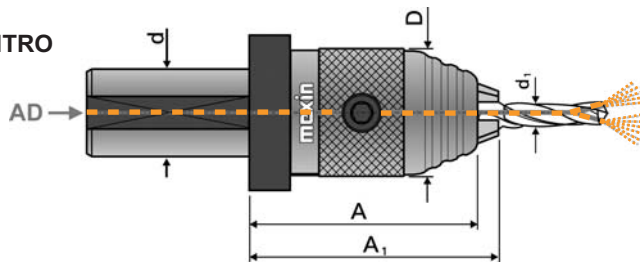


REF. 40.296	d mm	d1 mm	D mm	A mm	A1 max mm
40.296.25.13	25	1-13	50	80,5	87,5
40.296.32.13	32	1-13	50	80,5	87,5
40.296.32.16		3-16	56	87,5	94,5
40.296.40.13	40	1-13	50	80,5	87,5
40.296.40.16		3-16	57	87,5	94,5

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 40.296	Wrench	Wrenches
40.296.25.13	89.206.06	89.220.13
40.296.32.13	89.206.06	89.220.13
40.296.32.16	89.206.06	89.220.13
40.296.40.13	89.206.06	89.220.13
40.296.40.16	89.206.06	89.220.13

REFRIGERACIÓN POR EL CENTRO
 CENTRAL COOLANT SUPPLY



REF. 43.296	d mm	d1 mm	D mm	A mm	A1 max mm
43.296.25.13	25	1-13	50	80,5	87,5
43.296.32.13	32	1-13	50	80,5	87,5
43.296.32.16		3-16	56	87,5	94,5
43.296.40.13	40	1-13	50	80,5	87,5
43.296.40.16		3-16	57	87,5	94,5

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 43.296	Wrench	Wrenches
43.296.25.13	89.206.06	89.220.13
43.296.32.13	89.206.06	89.220.13
43.296.32.16	89.206.06	89.220.13
43.296.40.13	89.206.06	89.220.13
43.296.40.16	89.206.06	89.220.13

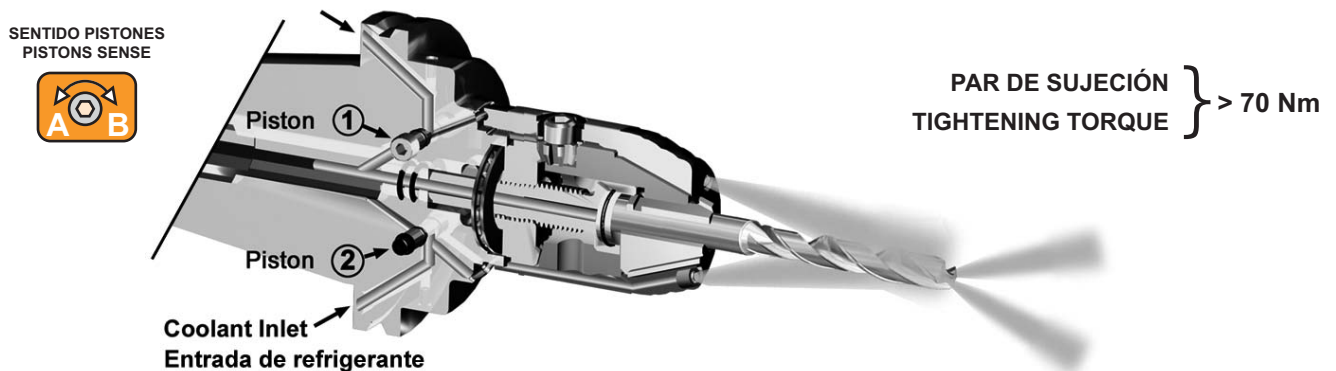
SISTEMA DE REFRIGERACIÓN

Tres boquillas móviles permiten orientar el refrigerante sobre la herramienta según necesidad.

Un sistema hidráulico que actúa sobre unos pistones permite dirigir el refrigerante por el interior de la herramienta, por el exterior o bien simultáneamente.

Usando una llave hexagonal de 3mm para girar los pistones en sentido A o B se obtiene:

- Refrigeración frontal: Girando los pistones en sentido A
- Refrigeración central: Hacerlos girar en sentido B
- Frontal + Central, simultáneamente: Girando el pistón 2 en sentido A y el 1 en sentido B



PORTABROCAS DE PRECISIÓN CNC-UNIVERSAL, PARA ROTACIÓN A DERECHA E IZQUIERDA.

La más avanzada tecnología mecánica. Sistema de sujeción que permite el mecanizado con herramientas tanto con giro a derechas como a izquierdas. Construcción compacta. Reducido volumen. Robustez y fuerza de amarre de la broca. Par de apriete 12Nm = Fuerza sujeción herramienta de 70Nm. Tolerancia en concentricidad < 0,020mm.

COOLANT SUPPLY

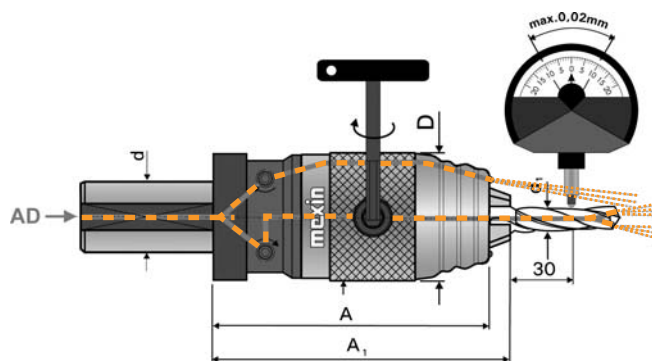
In the frontal part there are three mobile outlets, each one individually supplying the coolant over the required points. By using an hydraulic system consisting in two screws working over pistons. The coolant can be supplied through the coolant holes of the tool, through the front part of the chuck or both parts, simultaneously.

By using a standard hexagonal 3mm wrench the pistons can turn in A or B senses, in the manner that we want to distribute the coolant as follows:

- Through the frontal part: Turn pistons in the A sense.
- Through the central part: Turn pistons in the B sense.
- Through both parts simultaneously: Turn piston 2 in the A sense and piston 1 in the B sense.

CNC-UNIVERSAL PRECISION DRILL CHUCKS FOR LEFT AND RIGHT TURN.

The most advanced mechanical technology: The tightening system provides to work left and right hand turning. The compact and the built-in construction of this drill chuck allowed us to reduce its volume. With Tightening torque of 12 Nm over the mechanism by using dynamometric key, a tightening force of 70 Nm over tool it is reached. Run out under 0,020mm.

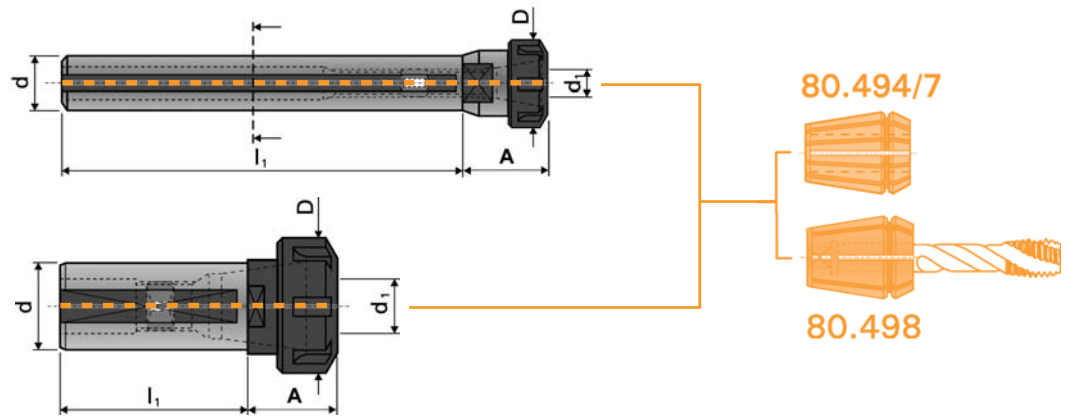


REF. 43.297	d mm	d ₁ mm	D mm	A mm	A ₁ max mm		
43.297.25.13	25	1-13	58	90	97	89.206.06	89.220.13
43.297.32.13	32	1-13	58	90	97	89.206.06	89.220.13
43.297.32.16		3-16	60	97	104	89.206.06	89.220.13
43.297.40.13	40	1-13	58	90	97	89.206.06	89.220.13
43.297.40.16		3-16	60	97	104	89.206.06	89.220.13


* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

CON PLANO DE SUJECIÓN PARA TORNOS CNC Y TORNOS REVOLVER.

WITH CLAMPING FLAT FOR CNC LATHES AND TURRET LATHES.



REF. 40.453

	d mm		d ₁ mm	A mm	l ₁ mm	D mm	h ₁ mm
40.453.20.10/050	20	ER 16	0,5-10	31,5	50	32	19,5
40.453.20.10/100		ER 16	0,5-10	31,5	100	32	19,5
40.453.20.10/150		ER 16	0,5-10	31,5	150	32	19,5
40.453.20.16/050		ER 25	1,0-16	46,5	50	42	19,5
40.453.20.16/100		ER 25	1,0-16	46,5	100	42	19,5
40.453.20.16/150		ER 25	1,0-16	46,5	150	42	19,5
40.453.20.20/050		ER 32	2,0-20	54,5	50	50	19,5
40.453.20.20/100		ER 32	2,0-20	54,5	100	50	19,5
40.453.25.13/050	25	ER 20	1,0-13	33,5	50	35	24,0
40.453.25.13/100		ER 20	1,0-13	33,5	100	35	24,0
40.453.25.13/150		ER 20	1,0-13	33,5	150	35	24,0
40.453.25.16/050		ER 25	1,0-16	46,5	50	42	24,0
40.453.25.16/100		ER 25	1,0-16	46,5	100	42	24,0
40.453.25.20/050		ER 32	2,0-20	52,5	50	50	24,0
40.453.25.20/100		ER 32	2,0-20	52,5	100	50	24,0
40.453.25.26/050		ER 40	3,0-30	60,5	50	63	24,0
40.453.32.20/050	32	ER 32	2,0-20	52,5	50	50	31,0
40.453.32.26/050		ER 40	3,0-30	60,5	50	63	31,0
40.453.40.20/075	40	ER 32	2,0-20	52,0	75	50	38,0
40.453.40.26/075		ER 40	3,0-30	60,5	75	63	38,0

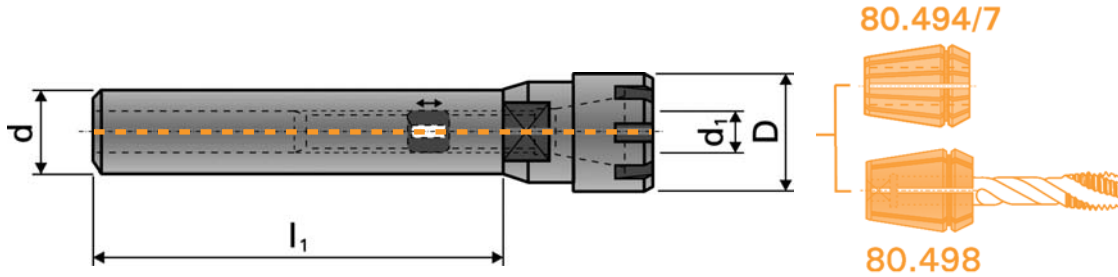
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH


REF. 40.453






40.453.20.10/050	80.493.10	89.202.10	89.192.10
40.453.20.10/100	80.493.10	89.202.10	89.192.10
40.453.20.10/150	80.493.10	89.202.10	89.192.10
40.453.20.16/050	80.493.16	89.202.16	89.192.10
40.453.20.16/100	80.493.16	89.202.16	89.192.10
40.453.20.16/150	80.493.16	89.202.16	89.192.10
40.453.20.20/050	80.493.20	89.202.20	89.192.10
40.453.20.20/100	80.493.20	89.202.20	89.192.10
40.453.25.13/050	80.493.13	89.202.13	89.192.13
40.453.25.13/100	80.493.13	89.202.13	89.192.13
40.453.25.13/150	80.493.13	89.202.13	89.192.13
40.453.25.16/050	80.493.16	89.202.16	89.192.16
40.453.25.16/100	80.493.16	89.202.16	89.192.16
40.453.25.20/050	80.493.20	89.202.20	89.192.16
40.453.25.20/100	80.493.20	89.202.20	89.192.16
40.453.25.26/050	80.493.26	89.202.26	89.192.16
40.453.32.20/050	80.493.20	89.202.20	89.192.20
40.453.32.26/050	80.493.26	89.202.26	89.192.20
40.453.40.20/075	80.493.20	89.202.20	89.192.20
40.453.40.26/075	80.493.26	89.202.26	89.192.20

CON TUERCA "MINI"
WITH "MINI" COLLET NUT



REF. 40.455	d mm		d ₁ mm	A mm	l ₁ mm	D mm
40.455.12.10/080	12	ER 16	0,5-10	40,5	80	22
40.455.16.10/050	16	ER 16	0,5-10	36,5	50	22
40.455.16.10/100		ER 16	0,5-10	36,5	100	22
40.455.16.10/150		ER 16	0,5-10	36,5	150	22
40.455.16.13/050		ER 20	1,0-13	33,5	50	28
40.455.16.13/100		ER 20	1,0-13	33,5	100	28
40.455.16.13/150		ER 20	1,0-13	33,5	150	28
40.455.20.10/050	20	ER 16	0,5-10	30,5	50	22
40.455.20.10/100		ER 16	0,5-10	30,5	100	22
40.455.20.10/150		ER 16	0,5-10	30,5	150	22
40.455.20.13/050		ER 20	1,0-13	33,5	50	28
40.455.20.13/100		ER 20	1,0-13	33,5	100	28
40.455.20.13/150		ER 20	1,0-13	33,5	150	28

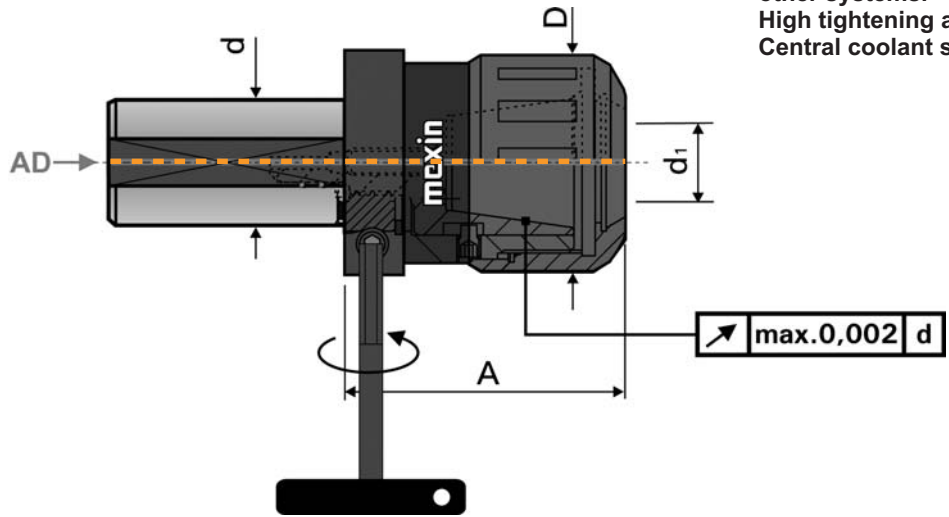
* SE SUMINISTRA SIN LLAVE / * SUPPLIED WITHOUT WRENCH


REF. 40.455			
40.455.12.10/080	80.495.10	89.205.10	89.190.21
40.455.16.10/050	80.495.10	89.205.10	89.190.10
40.455.16.10/100	80.495.10	89.205.10	89.190.10
40.455.16.10/150	80.495.10	89.205.10	89.190.10
40.455.16.13/050	80.495.13	89.205.13	89.190.10
40.455.16.13/100	80.495.13	89.205.13	89.190.10
40.455.16.13/150	80.495.13	89.205.13	89.190.10
40.455.20.10/050	80.495.10	89.205.10	89.190.10
40.455.20.10/100	80.495.10	89.205.10	89.190.10
40.455.20.10/150	80.495.10	89.205.10	89.190.10
40.455.20.13/050	80.495.13	89.205.13	89.190.13
40.455.20.13/100	80.495.13	89.205.13	89.190.13
40.455.20.13/150	80.495.13	89.205.13	89.190.13

PAR DE SUJECIÓN } > 300 Nm - Ø20
 TIGHTENING TORQUE }




La alternativa a sistemas hidráulicos u otros sistemas. Gran fuerza de apriete y precisión. Refrigeración por el centro.

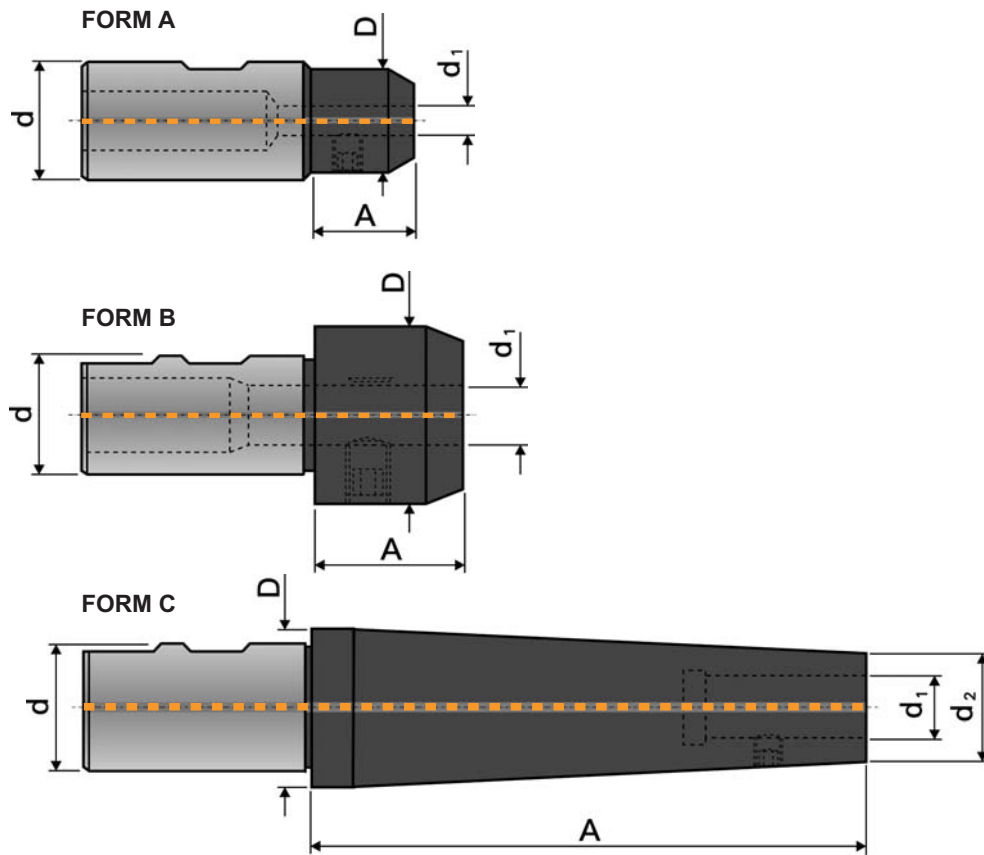
The alternative to hydraulic or other systems. High tightening and precision. Central coolant supply.




REF. 43.457	d mm		d ₁ mm	A mm	D mm
43.457.25.20	25	ER 32	2-20	79	54
43.457.32.20	32	ER 32	2-20	79	54
43.457.40.30	40	ER 40	3-30	88	65

* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH

REF. 43.457			
43.457.25.20	80.457.20	89.190.21	89.206.04
43.457.32.20	80.457.20	89.190.21	89.206.04
43.457.40.30	80.457.30	89.190.37	89.206.06



REF. 42.300

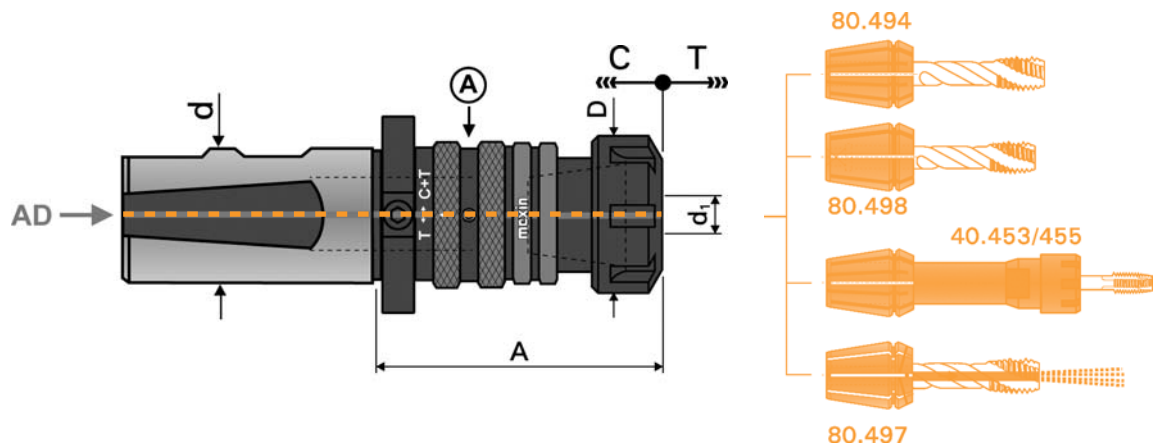
	d mm	d ₁ H5 mm	A mm	D mm	FORM	d ₂ mm	
42.300.20.06	20	6	30	25	B		89.122.20
42.300.20.08		8	30	28	B		89.122.35
42.300.20.10		10	35	35	B		89.122.40
42.300.20.12		12	35	42	B		89.122.50
42.300.20.14		14	35	44	B		89.122.50
42.300.20.16		16	60	48	B		89.122.60
42.300.25.06	25	6	30	25	A		89.122.20
42.300.25.10		10	35	35	B		89.122.40
42.300.25.12		12	35	42	B		89.122.50
42.300.25.14		14	35	44	B		89.122.50
42.300.25.16		16	40	48	B		89.122.60
42.300.32.06	32	6	30	25	A		89.122.20
42.300.32.08		8	30	28	A		89.122.35
42.300.32.10		10	35	35	B		89.122.40
42.300.32.12		12	35	42	B		89.122.50
42.300.32.14		14	35	44	B		89.122.50
42.300.32.16		16	40	48	B		89.122.60
42.300.32.18		18	40	50	B		89.122.60
42.300.32.20		20	40	52	B		89.122.65



REF. 42.311

42.311.40.08	40	8	175	50	C	16	89.121.33
42.311.40.10		10	175	50	C	20	89.121.33
42.311.40.12		12	175	50	C	22	89.121.33
42.311.40.16		16	175	50	C	28	89.121.38
42.311.40.20		20	175	50	C	34	89.121.38
42.311.40.25		25	175	50	C	40	89.121.38
42.311.40.32		32	180	50	C	46	89.121.38



Compensación a la compresión (C) y a la tracción (T).
 Posibilidad de anular la compresión con el anillo (A).
 Control de la profundidad de roscado.
 Refrigeración por el centro.

Compensation in compression (C) and tension (T).
 Compression can be blocked by turning the rear ring (A).
 Control of thread depth.
 Central coolant supply.



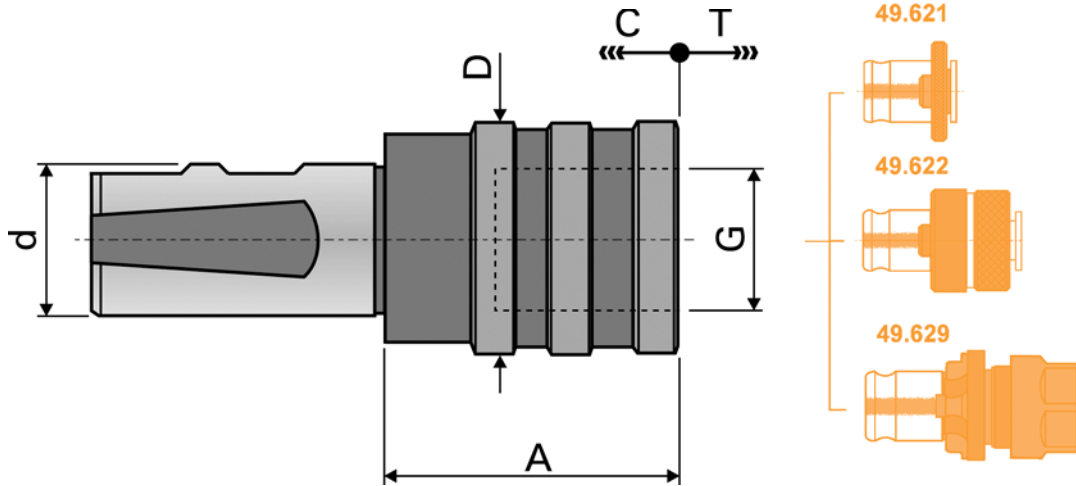
REF. 42.610	d mm			A mm	D mm	C mm	T mm
42.610.20.12	20	ER 16	M3-M12	65	28	5,5	6,0
42.610.25.12	25	ER 16	M3-M12	67	28	5,5	6,0
42.610.25.20		ER 25	M4-M20	90	42	10,5	7,5
42.610.25.33		ER 40	M8-M33	106	63	10,0	10,0
42.610.32.33	32	ER 40	M8-M33	106	63	10,0	10,0


* SE SUMINISTRA CON LLAVE / * SUPPLIED WITH WRENCH



REF. 42.610		
42.610.20.12	80.493.10	89.202.10
42.610.25.12	80.493.10	89.202.10
42.610.25.20	80.493.16	89.202.16
42.610.25.33	80.493.26	89.202.26
42.610.32.33	80.493.26	89.202.26

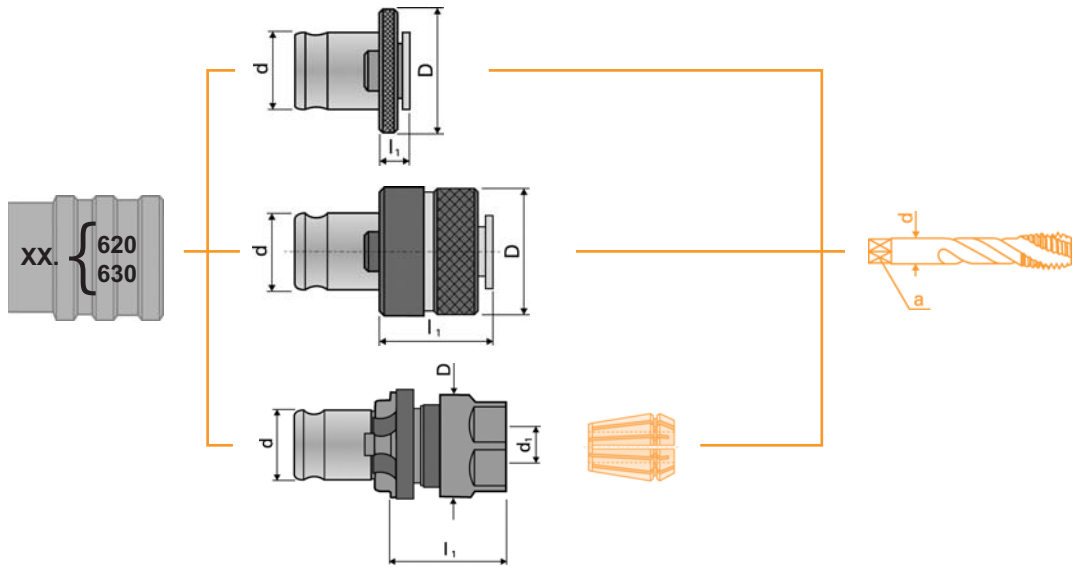
COMPENSACIÓN DEL PSO A LA COMPRESIÓN (C) Y A LA TRACCIÓN (T)

COMPENSATION IN COMPRESSION (C) AND TENSION (T)



REF. 42.620	d mm	G No.	Ø		A mm	D mm	C mm	T mm
42.620.20.12	20	1	19	M3-M12	41	38	9	9
42.620.20.20		2	31	M8-M20	63	55	15	15
42.620.25.12	25	1	19	M3-M12	41	38	9	9
42.620.25.20		2	31	M8-M20	63	55	15	15
42.620.32.12	32	1	19	M3-M12	41	38	9	9
42.620.32.20		2	31	M8-M20	63	55	15	15
42.620.32.33		3	48	M14-M33	97	79	24	24
42.620.40.12	40	1	19	M3-M12	41	38	9	9
42.620.40.20		2	31	M8-M20	63	55	15	15
42.620.40.33		3	48	M14-M33	97	79	24	24

REF. 42.620		
42.620.20.12	49.621.12.xx	49.622.12.xx
42.620.20.20	49.621.20.xx	49.622.20.xx
42.620.25.12	49.621.12.xx	49.622.12.xx
42.620.25.20	49.621.20.xx	49.622.20.xx
42.620.32.12	49.621.12.xx	49.622.12.xx
42.620.32.20	49.621.20.xx	49.622.20.xx
42.620.32.33	49.621.33.xx	49.622.33.xx
42.620.40.12	49.621.12.xx	49.622.12.xx
42.620.40.20	49.621.20.xx	49.622.20.xx
42.620.40.33	49.621.33.xx	49.622.33.xx



49.621.12

d = 19 mm l₁ = 11 mm
D = 30 mm

REF.	DIN d ₁ x a mm
49.621.12.02	2,8 x 2,1
49.621.12.03	3,5 x 2,7
49.621.12.04	4,0 x 3,0
49.621.12.05	4,5 x 3,4
49.621.12.06	5,5 x 3,4
49.621.12.07	6,0 x 4,9
49.621.12.08	7,0 x 5,5
49.621.12.09	8,0 x 6,2
49.621.12.10	9,0 x 7,0
49.621.12.11	10,0 x 8,0
49.621.12.12	11,0 x 9,0
49.621.12.13	12,0 x 9,0

49.621.20

d = 31 mm l₁ = 11 mm
D = 48 mm

REF.	DIN d ₁ x a mm
49.621.20.07	6 x 4,9
49.621.20.08	7 x 5,5
49.621.20.09	8 x 6,2
49.621.20.10	9 x 7,0
49.621.20.11	10 x 8,0
49.621.20.12	11 x 9,0
49.621.20.13	12 x 9,0
49.621.20.14	14 x 11,0
49.621.20.15	16 x 12,0
49.621.20.16	18 x 14,5
49.621.20.17	20 x 16,0
49.621.20.18	22 x 18,0

49.621.33

d = 48 mm l₁ = 14 mm
D = 70 mm

REF.	DIN d ₁ x a mm
49.621.33.12	11 x 9,0
49.621.33.13	12 x 9,0
49.621.33.14	14 x 11,0
49.621.33.15	16 x 12,0
49.621.33.16	18 x 14,5
49.621.33.17	20 x 16,0
49.621.33.18	22 x 18,0
49.621.33.19	25 x 20,0
49.621.33.20	28 x 22,0
49.621.33.21	32 x 24,0
49.621.33.22	36 x 29,0

49.622.12

d = 19 mm l₁ = 25 mm
D = 32 mm

REF.	DIN d ₁ x a mm
49.622.12.02	2,8 x 2,1
49.622.12.03	3,5 x 2,7
49.622.12.04	4,0 x 3,0
49.622.12.05	4,5 x 3,4
49.622.12.06	5,5 x 3,4
49.622.12.07	6,0 x 4,9
49.622.12.08	7,0 x 5,5
49.622.12.09	8,0 x 6,2
49.622.12.10	9,0 x 7,0
49.622.12.11	10,0 x 8,0
49.622.12.12	11,0 x 9,0
49.622.12.13	12,0 x 9,0

49.622.20

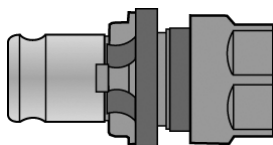
d = 31 mm l₁ = 34 mm
D = 50 mm

REF.	DIN d ₁ x a mm
49.622.20.07	6 x 4,9
49.622.20.08	7 x 5,5
49.622.20.09	8 x 6,2
49.622.20.10	9 x 7,0
49.622.20.11	10 x 8,0
49.622.20.12	11 x 9,0
49.622.20.13	12 x 9,0
49.622.20.14	14 x 11,0
49.622.20.15	16 x 12,0
49.622.20.16	18 x 14,5
49.622.20.17	20 x 16,0
49.622.20.18	22 x 18,0

49.622.33

d = 48 mm l₁ = 45 mm
D = 72 mm

REF.	DIN d ₁ x a mm
49.622.33.10	9 x 7,0
49.622.33.12	11 x 9,0
49.622.33.13	12 x 9,0
49.622.33.14	14 x 11,0
49.622.33.15	16 x 12,0
49.622.33.16	18 x 14,5
49.622.33.17	20 x 16,0
49.622.33.18	22 x 18,0
49.622.33.19	25 x 20,0
49.622.33.20	28 x 22,0
49.622.33.21	32 x 24,0
49.622.33.22	36 x 29,0



49.629.19.12

d = 19 mm l₁ = 29 mm
D = 28 mm

REF.		
49.629.19.12	ER 16	M2-M10

49.629.31.20

d = 31 mm l₁ = 38 mm
D = 42 mm

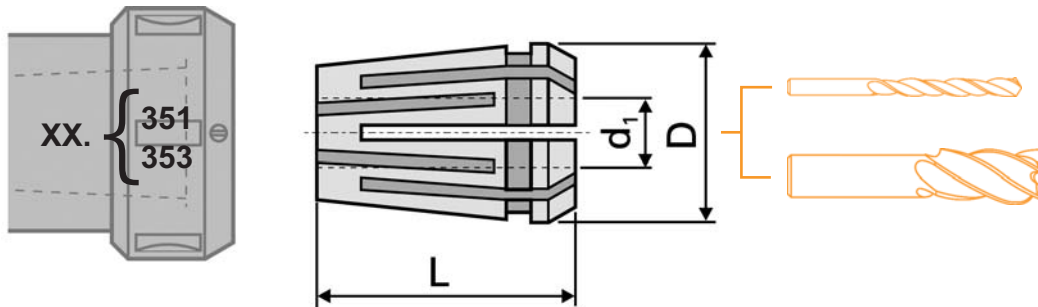
REF.		
49.629.31.20	ER 16	M2-M10

"XX"	Ø x □	DIN 352	DIN 5156 5157	DIN 371	DIN 374	DIN 376	DIN 371	DIN 374 376
01	2,5 x 2,1	M 1/1,8		M 1/1,8	M 3,5	M 3,5	1/16"	
							Nr. 0/1	
02	2,8 x 2,1	M 2		M 2	M 4	M 4	3/32"	
		M 2,2		M 2,2			Nr. 2	
		M 2,5		M 2,5			Nr. 3	
03	3,5 x 2,7	M 3		M 3	M 5	M 5	1/8"	
							Nr. 4	
							Nr. 5	
04	4 x 3	M 3,5		M 3,5	M 5,5	M 5,5	Nr. 6	
05	4,5 x 3,4	M 4		M 4	M 6	M 6	5/32"	
							Nr. 8	
06	5,5 x 4,3				M 7	M 7		
07	6 x 4,9	M 4,5	G1/16"	M 4,5	M 8	M 8	Nr. 10/12	
		M 5		M 5			3/16"	1/4"
		M 6		M 6			7/32"	5/16"
		M 7						
		M 8						
08	7 x 5,5	M 10	G 1/8"	M 7	M 10	M 10	1/4"	3/8"
09	8 x 6,2	M 11		M 8	M 11	M 11	5/16"	7/16"
10	9 x 7	M 12		M 9	M 12	M 12	3/8"	1/2"
11	10 x 8			M 10				
12	11 x 9	M 14	G 1/4"		M 14	M 14	9/16"	
13	12 x 9	M 16	G 3/8"		M 16	M 16	5/8"	
14	14 x 11	M 18			M 18	M 18	11/16"	
								3/4"
15	16 x 12	M 20	G 1/2"		M 20	M 20	13/16"	
16	18 x 14,5	M 22	G 5/8"		M 22	M 22	7/8"	
		M 24			M 24	M 24	15/16"	
17	20 x 16	M 27	G 3/4"		M 27	M 27	1"	
18	22 x 18	M 30	G 7/8"		M 30	M 30	1.1/8"	
19	25 x 20	M 33	G 1"		M 33	M 33	1.1/4"	
20	28 x 22	M 36	G 1.1/8"		M 36	M 36	1.3/8"	
21	32 x 24	M 39	G 1.1/4"		M 39	M 39	1.1/2"	
		M 42			M 42	M 42	1.5/8"	
22	36 x 29	M 45	G 1.3/8"		M 45	M 45	1.3/4"	
		M 48	G 1.1/2"		M 48	M 48		1.7/8"

A = MANGO DELGADO / REDUCED SHANK

B = MANGO REFORZADO / REINFORCED SHANK

"XX"	Ø X □	M - MF		UNC - UNF		BSW - BSF		BA
		A	B	A	B	A	B	A
30	2,24 x 1,8	M 3		Nr. 5		1/8		
31	2,5 x 2	M 3,5	M 1,0/2	Nr. 6	Nr. 0			Nr. 11
					Nr. 1			Nr. 10
								Nr. 9
32	2,8 x 2,24		M 2,2		Nr. 2			Nr. 8
			M 2,5		Nr. 3			Nr. 7
								Nr. 6
33	3,15 x 2,5	M 4	M 3		Nr. 4		1/8	Nr. 5
				Nr. 8	Nr. 5			
34	3,55 x 2,8	M 4,5	M 3,5	Nr. 10	Nr. 6	3/16		Nr. 4
35	4 x 3,15	M 5	M 4	Nr. 12		7/32		
36	4,5 x 3,55	M 6	M 4,5	1/4	Nr. 8	1/4		Nr. 3
37	5 x 4		M 5		Nr. 10		3/16	Nr. 2
38	5,6 x 4,5	M 7			Nr. 12	9/32	7/32	Nr. 1
39	6,3 x 5	M 8	M 6	5/16	1/4	5/16	1/4	Nr. 0
40	7,1 x 5,6	M 9	M 7	3/8		3/8	9/32	
41	8 x 6,3	M 10	M 8	7/16	5/16	7/16	5/16	
42	9 x 7,1	M 12	M 9	1/2		1/2		
11	10 x 8		M 10		3/8		3/8	
43	11,2 x 9	M 14		9/16		9/16		
44	12,5 x 10	M 16		5/8		5/8		
45	14 x 11,2	M 18				11/16		
		M 20		3/4		3/4		
46	16 x 12,5	M 22		7/8		7/8		
47	18 x 14	M 24		1		1		
17	20 x 16	M 27		1.1/8		1.1/8		
		M 30						
48	22,4 x 18	M 33		1.1/4		1.1/4		
19	25 x 20	M 36		1.3/8		1.3/8		
49	28 x 22,4	M 39		1.1/2		1.1/2		
		M 42				1.5/8		
50	31,5 x 25	M 45		1.3/4		1.3/4		
		M 48						
51	35,45 x 28	M 52		2		2		



80.394.16 B 16

D = 25,5 mm L = 40 mm

REF.	d ₁ mm
80.394.16.020	2,0-1,5
80.394.16.025	2,5-2,0
80.394.16.030	3,0-2,5
80.394.16.035	3,5-3,0
80.394.16.040	4,0-3,5
80.394.16.045	4,5-4,0
80.394.16.050	5,0-4,5
80.394.16.055	5,5-5,0
80.394.16.060	6,0-5,5
80.394.16.065	6,5-6,0
80.394.16.070	7,0-6,5
80.394.16.075	7,5-7,0
80.394.16.080	8,0-7,5
80.394.16.085	8,5-8,0
80.394.16.090	9,0-8,5
80.394.16.095	9,5-9,0
80.394.16.100	10,0-9,5
80.394.16.105	10,5-10,0
80.394.16.110	11,0-10,5
80.394.16.115	11,5-11,0
80.394.16.120	12,0-11,5
80.394.16.125	12,5-12,0
80.394.16.130	13,0-12,5
80.394.16.135	13,5-13,0
80.394.16.140	14,0-13,5
80.394.16.145	14,5-14,0
80.394.16.150	15,0-14,5
80.394.16.155	15,5-15,0
80.394.16.160	16,0-15,5

80.394.25 B 25










D = 35,5 mm L = 52 mm

REF.	d ₁ mm
80.394.25.030	3,0-2,5
80.394.25.035	3,5-3,0
80.394.25.040	4,0-3,5
80.394.25.045	4,5-4,0
80.394.25.050	5,0-4,5
80.394.25.055	5,5-5,0
80.394.25.060	6,0-5,5
80.394.25.065	6,5-6,0
80.394.25.070	7,0-6,5
80.394.25.075	7,5-7,0
80.394.25.080	8,0-7,5
80.394.25.085	8,5-8,0
80.394.25.090	9,0-8,5
80.394.25.095	9,5-9,0
80.394.25.100	10,0-9,5
80.394.25.105	10,5-10,0
80.394.25.110	11,0-10,5
80.394.25.115	11,5-11,0
80.394.25.120	12,0-11,5
80.394.25.125	12,5-12,0
80.394.25.130	13,0-12,5
80.394.25.135	13,5-13,0
80.394.25.140	14,0-13,5
80.394.25.145	14,5-14,0
80.394.25.150	15,0-14,5
80.394.25.155	15,5-15,0
80.394.25.160	16,0-15,5
80.394.25.165	16,5-16,0
80.394.25.170	17,0-16,5
80.394.25.175	17,5-17,0
80.394.25.180	18,0-17,5
80.394.25.185	18,5-18,0
80.394.25.190	19,0-18,5
80.394.25.195	19,5-19,0
80.394.25.200	20,0-19,5
80.394.25.205	20,5-20,0
80.394.25.210	21,0-20,5
80.394.25.215	21,5-21,0
80.394.25.220	22,0-21,5
80.394.25.225	22,5-22,0
80.394.25.230	23,0-22,5
80.394.25.235	23,5-23,0
80.394.25.240	24,0-23,5
80.394.25.245	24,5-24,0
80.394.25.250	25,0-24,5

80.394.32 B 32

D = 44 mm L = 60 mm

REF.	d ₁ mm
80.394.32.040	4,0-3,5
80.394.32.045	4,5-4,0
80.394.32.050	5,0-4,5
80.394.32.055	5,5-5,0
80.394.32.060	6,0-5,5
80.394.32.065	6,5-6,0
80.394.32.070	7,0-6,5
80.394.32.075	7,5-7,0
80.394.32.080	8,0-7,5
80.394.32.085	8,5-8,0
80.394.32.090	9,0-8,5
80.394.32.095	9,5-9,0
80.394.32.100	10,0-9,5
80.394.32.105	10,5-10,0
80.394.32.110	11,0-10,5
80.394.32.115	11,5-11,0
80.394.32.120	12,0-11,5
80.394.32.125	12,5-12,0
80.394.32.130	13,0-12,5
80.394.32.135	13,5-13,0
80.394.32.140	14,0-13,5
80.394.32.145	14,5-14,0
80.394.32.150	15,0-14,5
80.394.32.155	15,5-15,0
80.394.32.160	16,0-15,5
80.394.32.165	16,5-16,0
80.394.32.170	17,0-16,5
80.394.32.175	17,5-17,0
80.394.32.180	18,0-17,5
80.394.32.185	18,5-18,0
80.394.32.190	19,0-18,5
80.394.32.195	19,5-19,0
80.394.32.200	20,0-19,5
80.394.32.205	20,5-20,0
80.394.32.210	21,0-20,5
80.394.32.215	21,5-21,0
80.394.32.220	22,0-21,5
80.394.32.225	22,5-22,0
80.394.32.230	23,0-22,5
80.394.32.235	23,5-23,0
80.394.32.240	24,0-23,5
80.394.32.245	24,5-24,0
80.394.32.250	25,0-24,5
80.394.32.255	25,5-25,0
80.394.32.260	26,0-25,5
80.394.32.265	26,5-26,0
80.394.32.270	27,0-26,5
80.394.32.275	27,5-27,0
80.394.32.280	28,0-27,5
80.394.32.285	28,5-28,0
80.394.32.290	29,0-28,5
80.394.32.295	29,5-29,0
80.394.32.300	30,0-29,5
80.394.32.305	30,5-30,0
80.394.32.310	31,0-30,5
80.394.32.315	31,5-31,0
80.394.32.320	32,0-31,5

89.800	89.201.16	CAP-16
	+  +	14  Ø3-4-5-6-7-8-9-10 11-12-13-14-15-16
89.800	89.201.25	CAP-25
	+  +	18  Ø3-4-5-6-7-8-9 10-11-12-13-14 15-16-18-20-22-25
89.800	89.201.32	CAP-32
	+  +	18  Ø4-5-6-7-8-9-10 11-12-13-14-15 16-18-20-22-25-32

REF. **89.394**

K
ISO

89.394.30.16

30

89.394.40.16

40

89.394.50.16

50

REF. **89.394**

K
ISO

89.394.30.25

30

89.394.40.25

40

89.394.50.25

50

REF. **89.394**

K
ISO

89.394.40.32

40

89.394.50.32

50



ESTUCHE PARA PORTAPINZAS Y PINZAS
CASE FOR COLLET CHUCKS AND COLLETS

89.800



REF. 89.800	K ISO	394	494 (ER)
89.800.00	-		
89.800.40	40	394.16 394.32	494.10 494.26 494.13 494.34 494.16
89.800.50	30/50		
89.800.01	-		
89.800.41	40	394.25	494.20
89.800.51	30/50		



ESTUCHE CON PINZAS DOBLE RANURA DIN 6499 (ER) FORMA B

DIN 6499-B

SET OF COLLETS DIN 6499 (ER) FORM B IN A PLASTIC BOX

89.494



REF. 89.494



CAP

n° 

Ø mm


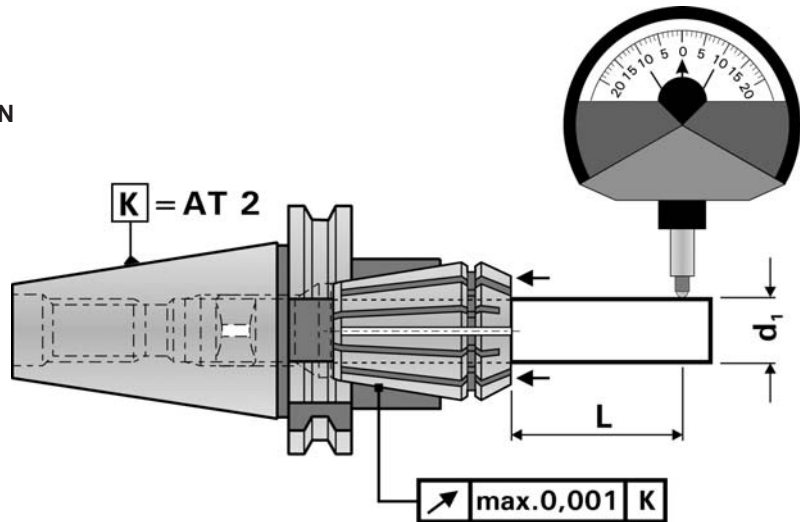
REF. 89.494	ER	CAP	n° 	Ø mm
89.494.00.16	ER 25	16	15	2 - 3 - 4 - 5 - 6 - 8 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16
89.494.00.20	ER 32	20	18	3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20

Tabla de precisión y de concentricidad para las pinzas MEXIN según DIN 6499. Se destaca con la misma gran precisión de las pinzas normales tipo 80.494, con relación a las demás marcas.

Run out table of MEXIN collets according to DIN 6499 showing the high precision of normal collets type 80.494, in comparison with others brands.

EL CONTROL DEBE HACERSE CON UN "MASTER" DE ALTA PRECISIÓN.


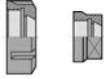


THE CONTROL MUST BE MADE WITH A HIGH PRECISION "MASTER".

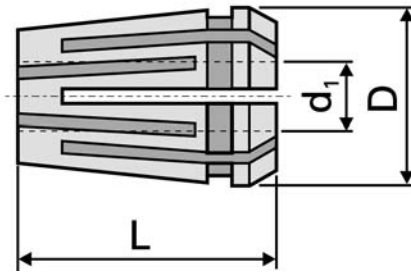
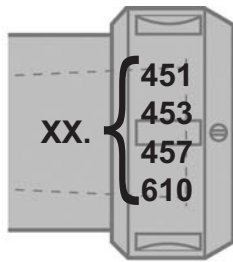


d ₁ mm	L mm	DIN		MEXIN	
		KLASSE 2 mm	KLASSE 1 mm	NORMAL mm	SUPER mm
		80.492 80.498		80.494	
1,0 - 1,6	6	0,015	0,010	0,010	0,005
> 1,6 - 3,0	10	0,015	0,010	0,010	0,005
> 3,0 - 7,0	16	0,015	0,010	0,010	0,005
> 7,0 - 10,0	25	0,015	0,010	0,010	0,005
> 10,0 - 18,0	40	0,020	0,015	0,015	0,005
> 18,0 - 26,0	50	0,020	0,015	0,015	0,005
> 26,0 - 34,0	60	0,025	0,020	0,020	0,010

VALORES RECOMENDADOS DE PAR DE SUJECIÓN PARA PINZAS DIN 6499 ER COLLETS SEGÚN TUERCA.

RECOMMENDED CLAMPING TORQUE FOR NUTS FOR DIN 6499 ER COLLETS.

	Normal	Bolas Bearings	Mini
			
	80.493 / 80.496 Max. Par Nm Max. Torque Nm	80.491 Max. Par Nm Max. Torque Nm	80.495 Max. Par Nm Max. Torque Nm
ER 16	35 / 60	50 / 70	25 / 30
ER 20	40 / 100	50 / 100	25 / 35
ER 25	80 / 120	90 / 130	35 / 40
ER 32	100 / 130	130 / 170	
ER 40	170 / 200	220 / 220	
ER 50	280 / 300	300 / 300	



80.494.10 ER 16

D = 17 mm L = 27,5 mm

REF.	d ₁ mm
80.494.10.010	1,0-0,5
80.494.10.015	1,5-1,0
80.494.10.020	2,0-1,5
80.494.10.025	2,5-2,0
80.494.10.030	3,0-2,5
80.494.10.040	4,0-3,0
80.494.10.050	5,0-4,0
80.494.10.060	6,0-5,0
80.494.10.070	7,0-6,0
80.494.10.080	8,0-7,0
80.494.10.090	9,0-8,0
80.494.10.100	10,0-9,0

80.494.13 ER 20

D = 21 mm L = 31,5 mm

REF.	d ₁ mm
80.494.13.010	1,0-0,5
80.494.13.015	1,5-1,0
80.494.13.020	2,0-1,5
80.494.13.025	2,5-2,0
80.494.13.030	3,0-2,5
80.494.13.040	4,0-3,0
80.494.13.050	5,0-4,0
80.494.13.060	6,0-5,0
80.494.13.070	7,0-6,0
80.494.13.080	8,0-7,0
80.494.13.090	9,0-8,0
80.494.13.100	10,0-9,0
80.494.13.110	11,0-10,0
80.494.13.120	12,0-11,0
80.494.13.130	13,0-12,0

80.494.16 ER 25

D = 26 mm L = 34 mm

REF.	d ₁ mm
80.494.16.010	1,0-0,5
80.494.16.015	1,5-1,0
80.494.16.020	2,0-1,5
80.494.16.025	2,5-2,0
80.494.16.030	3,0-2,5
80.494.16.040	4,0-3,0
80.494.16.050	5,0-4,0
80.494.16.060	6,0-5,0
80.494.16.070	7,0-6,0
80.494.16.080	8,0-7,0
80.494.16.090	9,0-8,0
80.494.16.100	10,0-9,0
80.494.16.110	11,0-10,0
80.494.16.120	12,0-11,0
80.494.16.130	13,0-12,0
80.494.16.140	14,0-13,0
80.494.16.150	15,0-14,0
80.494.16.160	16,0-15,0

80.494.20 ER 32

D = 33 mm L = 40 mm

REF.	d ₁ mm
80.494.20.020	2,0-1,5
80.494.20.025	2,5-2,0
80.494.20.030	3,0-2,5
80.494.20.040	4,0-3,0
80.494.20.050	5,0-4,0
80.494.20.060	6,0-5,0
80.494.20.070	7,0-6,0
80.494.20.080	8,0-7,0
80.494.20.090	9,0-8,0
80.494.20.100	10,0-9,0
80.494.20.110	11,0-10,0
80.494.20.120	12,0-11,0
80.494.20.130	13,0-12,0
80.494.20.140	14,0-13,0
80.494.20.150	15,0-14,0
80.494.20.160	16,0-15,0
80.494.20.170	17,0-16,0
80.494.20.180	18,0-17,0
80.494.20.190	19,0-18,0
80.494.20.200	20,0-19,0

80.494.26 ER 40




D = 41 mm L = 46 mm

REF.	d ₁ mm
80.494.26.030	3-2
80.494.26.040	4-3
80.494.26.050	5-4
80.494.26.060	6-5
80.494.26.070	7-6
80.494.26.080	8-7
80.494.26.090	9-8
80.494.26.100	10-9
80.494.26.110	11-10
80.494.26.120	12-11
80.494.26.130	13-12
80.494.26.140	14-13
80.494.26.150	15-14
80.494.26.160	16-15
80.494.26.170	17-16
80.494.26.180	18-17
80.494.26.190	19-18
80.494.26.200	20-19
80.494.26.210	21-20
80.494.26.220	22-21
80.494.26.230	23-22
80.494.26.240	24-23
80.494.26.250	25-24
80.494.26.260	26-25
80.494.26.270	27-26
80.494.26.280	28-27
80.494.26.290	29-28
80.494.26.300	30-29




80.494.34 ER 50

D = 52 mm L = 60 mm

REF.	d ₁ mm
80.494.34.060	6-4
80.494.34.080	8-6
80.494.34.100	10-8
80.494.34.120	12-10
80.494.34.140	14-12
80.494.34.160	16-14
80.494.34.180	18-16
80.494.34.200	20-18
80.494.34.220	22-20
80.494.34.240	24-22
80.494.34.260	26-24
80.494.34.280	28-26
80.494.34.300	30-28
80.494.34.320	32-30
80.494.34.340	34-32

89.800	89.202.10	ER 16 CAP-10
		10  \varnothing 1-2-3-4-5-6 7-8-9-10

REF. 89.494	K ISO
89.494.30.10	30
89.494.40.10	40
89.494.50.10	50

89.800	89.202.13	ER 20 CAP-13
		12  \varnothing 2-3-4-5-6 7-8-9-10-11 12-13



REF. 89.494	K ISO
89.494.30.13	30
89.494.40.13	40
89.494.50.13	50

89.800	89.202.16	ER 25 CAP-16
		15  \varnothing 2-3-4-5-6-7 8-9-10-11-12 13-14-15-16

REF. 89.494	K ISO
89.494.30.16	30
89.494.40.16	40
89.494.50.16	50

89.800	89.202.20	ER 32 CAP-20
		18  \varnothing 3-4-5-6-7-8-9-10 11-12-13-14-15 16-17-18-19-20

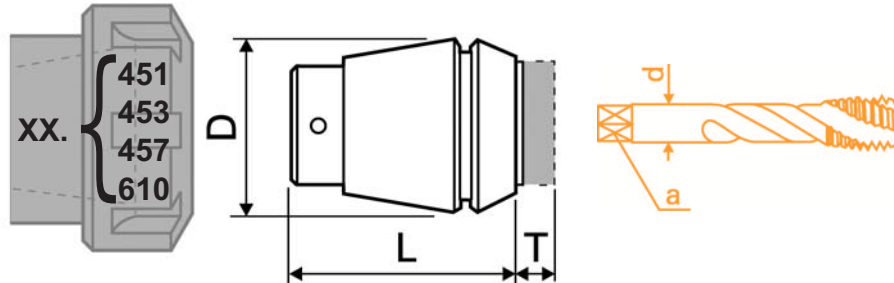
REF. 89.494	K ISO
89.494.30.20	30
89.494.40.20	40
89.494.50.20	50

89.800	89.202.26	ER 40 CAP-26
		23  \varnothing 4-5-6-7-8-9-10-11-12 13-14-15-16-17-18-19 20-21-22-23-24-25-26

REF. 89.494	K ISO
89.494.40.26	40
89.494.50.26	50

89.800	89.202.34	ER 50 CAP-34
		11  \varnothing 12-16-18-20 22-24-26-28 30-32-34

REF. 89.494	K ISO
89.494.50.34	50



80.490.10 ER 16

D = 17 mm L = 27 mm T = 7 mm

REF.	DIN	dxa	mm
80.490.10.01	2,5	x	2,1
80.490.10.02	2,8	x	2,1
80.490.10.03	3,5	x	2,7
80.490.10.04	4,0	x	3,0
80.490.10.05	4,5	x	3,4
80.490.10.06	5,5	x	4,3
80.490.10.07	6,0	x	4,9

80.490.13 ER 20

D = 21 mm L = 31 mm T = 7 mm

REF.	DIN	dxa	mm
80.490.13.01	2,5	x	2,1
80.490.13.02	2,8	x	2,1
80.490.13.03	3,5	x	2,7
80.490.13.04	4,0	x	3,0
80.490.13.05	4,5	x	3,4
80.490.13.06	5,5	x	4,3
80.490.13.07	6,0	x	4,9
80.490.13.08	7,0	x	5,5

80.490.16 ER 25

D = 26 mm L = 34 mm T = 8 mm

REF.	DIN	dxa	mm
80.490.16.01	2,5	x	2,1
80.490.16.02	2,8	x	2,1
80.490.16.03	3,5	x	2,7
80.490.16.04	4,0	x	3,0
80.490.16.05	4,5	x	3,4
80.490.16.06	5,5	x	4,3
80.490.16.07	6,0	x	4,9
80.490.16.08	7,0	x	5,5
80.490.16.09	8,0	x	6,2
80.490.16.10	9,0	x	7,0

80.490.20 ER 32

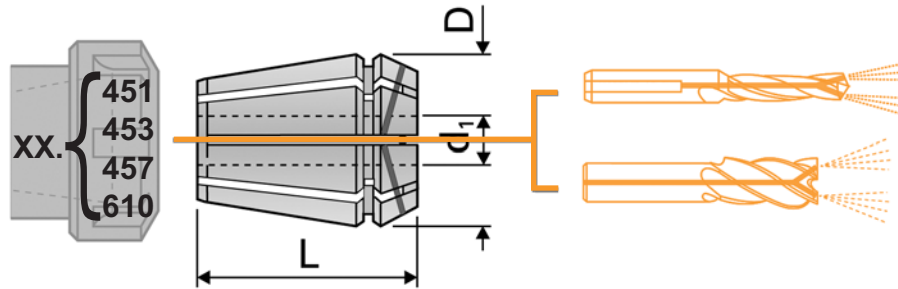
D = 33 mm L = 43 mm T = 10 mm

REF.	DIN	dxa	mm
80.490.20.05	4,5	x	3,4
80.490.20.06	5,5	x	4,3
80.490.20.07	6,0	x	4,9
80.490.20.08	7,0	x	5,5
80.490.20.09	8,0	x	6,2
80.490.20.10	9,0	x	7,0
80.490.20.11	10,0	x	8,0
80.490.20.12	11,0	x	9,0
80.490.20.13	12,0	x	9,0

80.490.26 ER 40

D = 41 mm L = 54 mm T = 13 mm

REF.	DIN	dxa	mm
80.490.26.07	6	x	4,9
80.490.26.08	7	x	5,5
80.490.26.09	8	x	6,2
80.490.26.10	9	x	7,0
80.490.26.11	10	x	8,0
80.490.26.12	11	x	9,0
80.490.26.13	12	x	9,0
80.490.26.14	14	x	11,0
80.490.26.15	16	x	12,0



80.497.10		ER 16
D = 17 mm	L = 27,5 mm	
REF.	d_1 mm	
80.497.10.040	4	
80.497.10.050	5	
80.497.10.060	6	
80.497.10.070	7	
80.497.10.080	8	
80.497.10.090	9	
80.497.10.100	10	

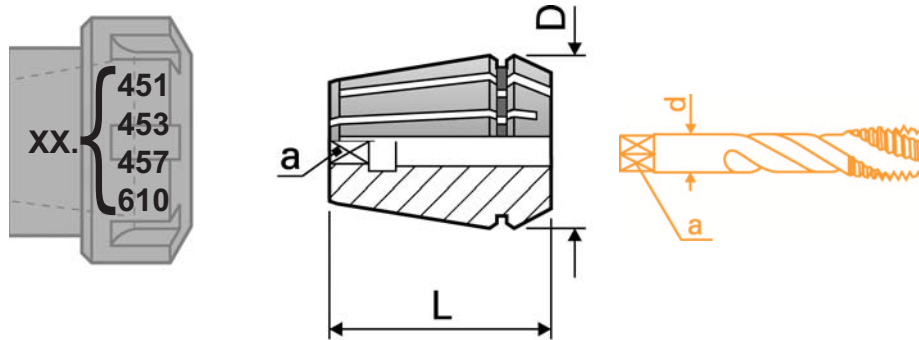
80.497.13		ER 20
D = 21 mm	L = 31,5 mm	
REF.	d_1 mm	
80.497.13.040	4	
80.497.13.050	5	
80.497.13.060	6	
80.497.13.070	7	
80.497.13.080	8	
80.497.13.090	9	
80.497.13.100	10	
80.497.13.110	11	
80.497.13.120	12	
80.497.13.130	13	

80.497.16		ER 25
D = 26 mm	L = 34 mm	
REF.	d_1 mm	
80.497.16.040	4	
80.497.16.050	5	
80.497.16.060	6	
80.497.16.070	7	
80.497.16.080	8	
80.497.16.090	9	
80.497.16.100	10	
80.497.16.110	11	
80.497.16.120	12	
80.497.16.130	13	
80.497.16.140	14	
80.497.16.150	15	
80.497.16.160	16	

80.497.20		ER 32
D = 33 mm	L = 40 mm	
REF.	d_1 mm	
80.497.20.040	4	
80.497.20.050	5	
80.497.20.060	6	
80.497.20.070	7	
80.497.20.080	8	
80.497.20.090	9	
80.497.20.100	10	
80.497.20.110	11	
80.497.20.120	12	
80.497.20.130	13	
80.497.20.140	14	
80.497.20.150	15	
80.497.20.160	16	
80.497.20.170	17	
80.497.20.180	18	
80.497.20.190	19	
80.497.20.200	20	

80.497.26		ER 40
D = 41 mm	L = 46 mm	
REF.	d_1 mm	
80.497.26.040	4	
80.497.26.050	5	
80.497.26.060	6	
80.497.26.070	7	
80.497.26.080	8	
80.497.26.090	9	
80.497.26.100	10	
80.497.26.110	11	
80.497.26.120	12	
80.497.26.130	13	
80.497.26.140	14	
80.497.26.150	15	
80.497.26.160	16	
80.497.26.170	17	
80.497.26.180	18	
80.497.26.190	19	
80.497.26.200	20	
80.497.26.210	21	
80.497.26.220	22	
80.497.26.230	23	
80.497.26.240	24	
80.497.26.250	25	
80.497.26.260	26	

80.497.34		ER 50
D = 52 mm	L = 50 mm	
REF.	d_1 mm	
80.497.34.120	12	
80.497.34.140	14	
80.497.34.160	16	
80.497.34.180	18	
80.497.34.200	20	
80.497.34.220	22	
80.497.34.240	24	
80.497.34.260	26	
80.497.34.280	28	
80.497.34.300	30	
80.497.34.320	32	
80.497.34.340	34	



80.498.10

ER 16

D = 17 mm L = 27,5 mm

REF.	d ₁ mm
80.498.10.05	4,5 x 3,4
80.498.10.06	5,5 x 4,3
80.498.10.07	6,0 x 4,9
80.498.10.08	7,0 x 5,5

80.498.13

ER 20

D = 21 mm L = 31,5 mm

REF.	d ₁ mm
80.498.13.05	4,5 x 3,4
80.498.13.06	5,5 x 4,3
80.498.13.07	6,0 x 4,9
80.498.13.08	7,0 x 5,5
80.498.13.09	8,0 x 6,2
80.498.13.10	9,0 x 7,0
80.498.13.11	10,0 x 8,0

80.498.16

ER 25

D = 26 mm L = 34 mm

REF.	d ₁ mm
80.498.16.05	4,5 x 3,4
80.498.16.06	5,5 x 4,3
80.498.16.07	6,0 x 4,9
80.498.16.08	7,0 x 5,5
80.498.16.09	8,0 x 6,2
80.498.16.10	9,0 x 7,0
80.498.16.11	10,0 x 8,0
80.498.16.12	11,0 x 9,0
80.498.16.13	12,0 x 9,0

80.498.20

ER 32

D = 33 mm L = 40 mm

REF.	d ₁ mm
80.498.20.05	4,5 x 3,4
80.498.20.06	5,5 x 4,3
80.498.20.07	6,0 x 4,9
80.498.20.08	7,0 x 5,5
80.498.20.09	8,0 x 6,2
80.498.20.10	9,0 x 7,0
80.498.20.11	10,0 x 8,0
80.498.20.12	11,0 x 9,0
80.498.20.13	12,0 x 9,0
80.498.20.14	14,0 x 11,0
80.498.20.15	16,0 x 12,0

80.498.26

ER 40

D = 41 mm L = 46 mm

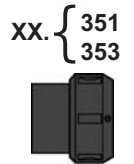
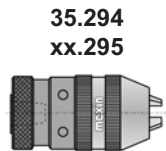
REF.	d ₁ mm
80.498.26.08	7 x 5,5
80.498.26.09	8 x 6,2
80.498.26.10	9 x 7,0
80.498.26.11	10 x 8,0
80.498.26.12	11 x 9,0
80.498.26.13	12 x 9,0
80.498.26.14	14 x 11,0
80.498.26.15	16 x 12,0
80.498.26.16	18 x 14,5
80.498.26.17	20 x 16,0

80.498.34

ER 50

D = 52 mm L = 60 mm

REF.	d ₁ mm
80.498.34.13	12 x 9,0
80.498.34.14	14 x 11,0
80.498.34.15	16 x 12,0
80.498.34.16	18 x 14,5
80.498.34.17	20 x 16,0
80.498.34.18	22 x 18,0
80.498.34.19	25 x 20,0
80.498.34.20	28 x 22,0
80.498.34.21	32 x 24,0



REF. 89.200

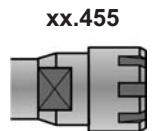
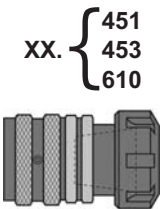
CAP
mm

REF. 89.200	CAP mm
89.200.08	0 - 8
89.200.10	0-10
89.200.13	0-13
89.200.16	3-16

REF. 89.201

CAP
mm

REF. 89.201	CAP mm
89.201.16	16
89.201.25	25
89.201.32	32



REF. 89.202

ER

CAP
mm

REF. 89.202	ER	CAP mm
89.202.10	16	10
89.202.13	20	13
89.202.16	25	16
89.202.20	32	20
89.202.26	40	30
89.202.34	50	34

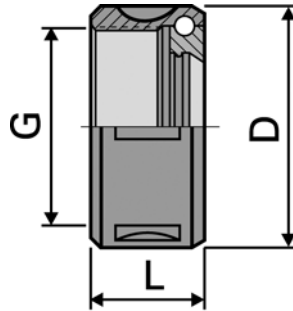
REF. 89.205


ER

CAP
mm

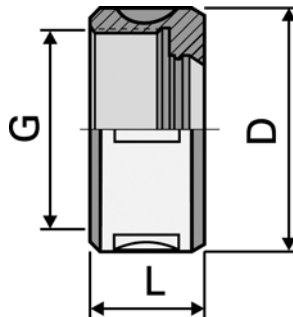
REF. 89.205	ER	CAP mm
89.205.10	16	10
89.205.13	20	13
89.205.16	25	16


TUERCA A BOLAS
BALL BEARING NUT



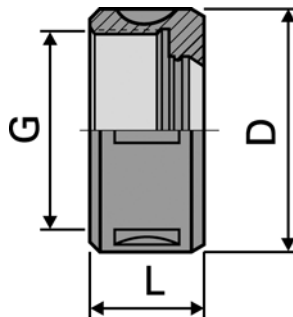
REF. 80.391	 d_1 max mm	D mm	L mm	G
80.391.16	16	43	24,0	M 32 x 1,5
80.391.25	25	60	30,0	M 48 x 2,0
80.391.32	32	72	33,5	M 60 x 2,5


EQUILBRADA
BALANCED

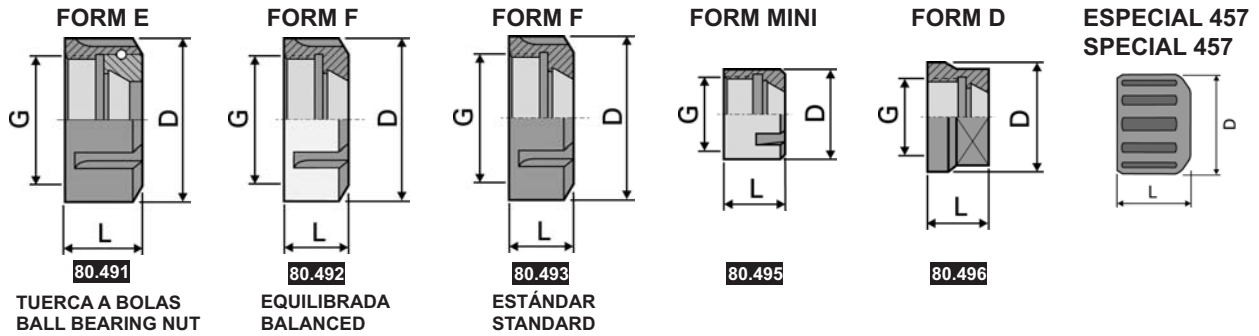



REF. 80.392	 d_1 max mm	D mm	L mm	G
80.392.16	16	43	24,0	M 32 x 1,5
80.392.25	25	60	30,0	M 48 x 2,0
80.392.32	32	72	33,5	M 60 x 2,5


ESTÁNDAR
STANDARD




REF. 80.393	 d_1 max mm	D mm	L mm	G
80.393.16	16	43	24,0	M 32 x 1,5
80.393.25	25	60	30,0	M 48 x 2,0
80.393.32	32	72	33,5	M 60 x 2,5




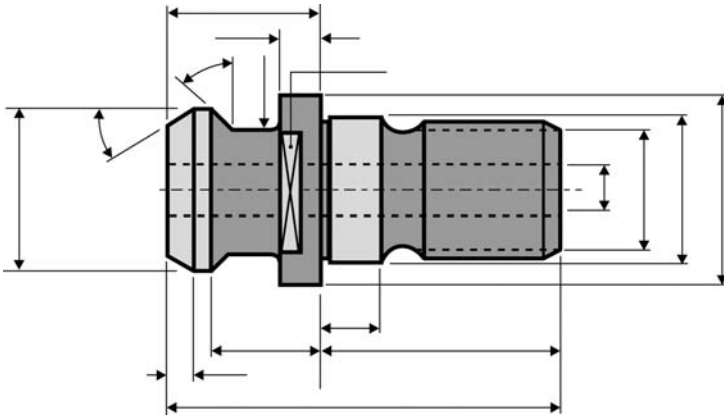
REF. 80.491			d ₁ max mm	D mm	L mm	G
80.491.10		ER 16	10	29	19,5	M 22 x 1,5
80.491.13		ER 20	13	34	21,0	M 25 x 1,5
80.491.16		ER 25	16	42	22,7	M 32 x 1,5
80.491.20		ER 32	20	50	26,5	M 40 x 1,5
80.491.26		ER 40	26	63	29,8	M 50 x 1,5
80.491.34		ER 50	34	78	40,0	M 64 x 2,0

REF. 80.492	REF. 80.493		d ₁ max mm	D mm	L mm	G
80.492.10	80.493.10	ER 16	10	32	17,5	M 22 x 1,5
80.492.13	80.493.13	ER 20	13	35	19,0	M 25 x 1,5
80.492.16	80.493.16	ER 25	16	42	20,0	M 32 x 1,5
80.492.20	80.493.20	ER 32	20	50	22,5	M 40 x 1,5
80.492.26	80.493.26	ER 40	26	63	25,5	M 50 x 1,5
80.492.34	80.493.34	ER 50	34	78	35,5	M 64 x 2,0

REF. 80.495			d ₁ max mm	D mm	L mm	G
80.495.10		ER 16	10	22	18	M 19 x 1
80.495.13		ER 20	13	28	19	M 24 x 1
80.495.16		ER 25	16	35	20	M 30 x 1

REF. 80.496			d ₁ max mm	D mm	L mm	G
80.496.10		ER 16	10	28	17,5	M 22 x 1,5
80.496.13		ER 20	13	34	19,0	M 25 x 1,5

REF. 80.457			d ₁ max mm	D mm	L mm	G
80.457.20		ER 32	20	54	40	M 45 x 1,5
80.457.30		ER 40	30	65	50	M 56 x 2,0

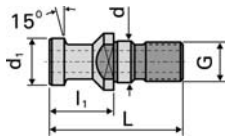


- Para solicitudes de oferta: indicar cotas y enviarnos plano.

- For enquiries: Fill up sizes and send us drawing.

DIN - ISO TIRANTES - PULL STUDS 85.750

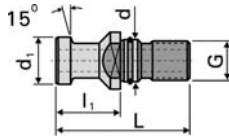
DIN 69872-A



REF. 85.750.00	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.00.30 *	30	M 12	13	13	44	24
85.750.00.40	40	M 16	17	19	54	26
85.750.00.50	50	M 24	25	28	74	34

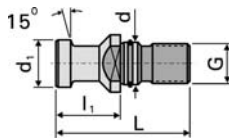
* Sin agujero central / Without central hole

DIN 69872-B



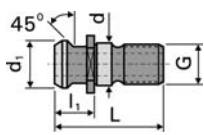
REF. 85.750.05	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.05.40	40	M 16	17	19	54	26
85.750.05.50	50	M 24	25	28	74	34

± DIN 69872-B



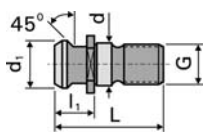
REF. 85.750.06	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.06.40	40	M 16	17	19	54	26
85.750.06.50	50	M 24	25	28	74	34

ISO 7388/2-B



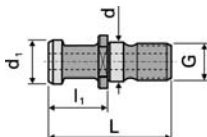
REF. 85.750.10	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.10.40	40	M 16	17	18,95	44,5	16,40
85.750.10.50	50	M 24	25	29,10	65,5	25,55

± ISO 7388/2-B



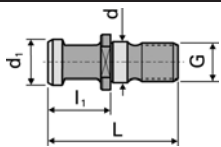
REF. 85.750.11	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.11.40	40	M 16	17	18,95	44,5	16,40
85.750.11.50	50	M 24	25	29,10	65,5	25,55

ISO 7388/2-A



REF. 85.750.15	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.15.40	40	M 16	17	19	54	26
85.750.15.50	50	M 24	25	28	74	34

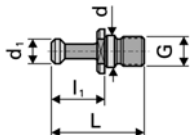
± ISO 7388/2-A



REF. **85.750.16**

	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.16.30	30	M 12	13	12	44	24
85.750.16.40	40	M 16	17	19	54	26
85.750.16.50	50	M 24	25	28	74	34

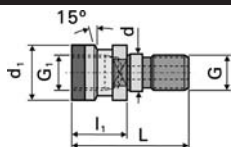
CHIRON



REF. **85.750.25**

	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.25.30	30	M 12	13	10	36	20

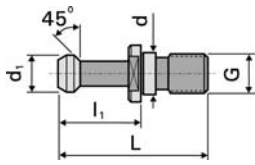
MAHO - OTT



REF. **85.750.50**

	K ISO		G mm	G ₁ mm	d mm	d ₁ mm	L mm	l ₁ mm
85.750.50.40	40		M 16	M 16	17	25,00	53	25
85.750.50.41			M 16	M 16	17	25,00	56	28
85.750.50.50	50		M 24	M 24	25	39,29	68	25

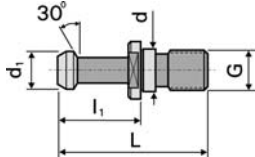
BT - TYPE I



REF. 85.751.00	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.751.00.30	30	M 12	12,5	11	43	23
85.751.00.40	40	M 16	17,0	15	60	35
85.751.00.50	50	M 24	25,0	23	85	45
85.751.01.40	40	M 16	17,0	15	60	35
85.751.01.50	50	M 24	25,0	23	85	45

☰ Con agujero central / With central hole

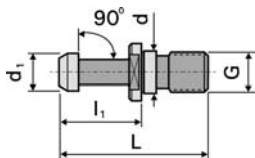
BT - TYPE II



REF. 85.751.10	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.751.10.30	30	M 12	12,5	11	43	23
85.751.10.40	40	M 16	17,0	15	60	35
85.751.10.50	50	M 24	25,0	23	85	45
85.751.11.40	40	M 16	17,0	15	60	35
85.751.11.50	50	M 24	25,0	23	85	45

☰ Con agujero central / With central hole

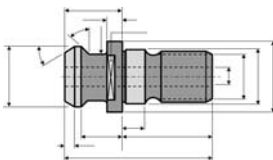
BT - TYPE III



REF. 85.751.20	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.751.20.40	40	M 16	17	15	60	35
85.751.20.50	50	M 24	25	23	85	45
85.751.21.40	40	M 16	17	15	60	35
85.751.21.50	50	M 24	25	23	85	45

☰ Con agujero central / With central hole

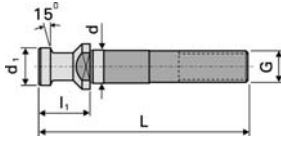
SPECIALS



REF. 85.750	K ISO	G mm	d mm	d ₁ mm	L mm	l ₁ mm	Tipo Type
85.750.CA.40	40	M 16	17	18,79	41,25	16,25	MAZAK
85.750.CA.41	40	M 16	17	18,79	44,10	19,10	MAZAK
85.750.CO.50	50	M 24	-	20,00	76,00	36,00	CORREA
85.750.MT.40	40	M 16	17	19,00	54,00	29,00	MATSURA
85.750.K.35	35						KITAMURA
85.750.CI.40	40						CINCINNATI
85.750.ZA.50	50						ZAYER

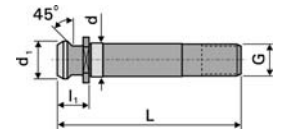
☰ Con agujero central / With central hole

± DIN 69872-A



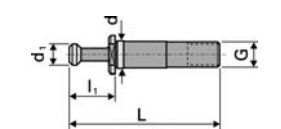
REF. 85.760.00	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.760.00.30/02	30	2	M 10	13	13	89	25
85.760.00.30/03		3	M 12	13	13	96	25
85.760.00.40/03	40	3	M 12	17	19	107	26
85.760.00.40/04		4	M 16	17	19	114	26
85.760.00.50/05	50	5	M 20	25	28	145	34

± ISO 7388/2-B



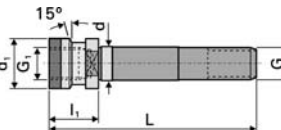
REF. 85.760.10	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.760.10.40/03	40	3	M 12	17	18,95	97,4	16,40
85.760.10.40/04		4	M 16	17	18,95	104,4	16,40
85.760.10.50/05	50	5	M 20	25	29,00	134,0	25,55

CHIRON



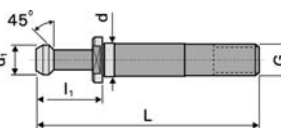
REF. 85.760.25	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.760.25.30/02	30	2	M 12	13	10	85	20
85.760.25.30/03		3	M 12	13	10	86	20

MAHO - OTT



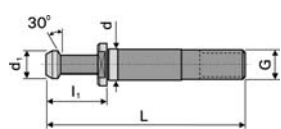
REF. 85.760.50	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.760.50.40/03	40	3	M 12	17	19	106	25
85.760.50.40/04		4	M 16	17	19	113	25
85.760.50.50/05	50	5	M 20	21	28	135	25

BT - TYPE I



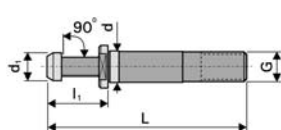
REF. 85.761.00	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.761.00.30/02	30	2	M 10	12,5	11	91	23
85.761.00.30/03		3	M 12	12,5	11	92	23
85.761.00.40/03	40	3	M 12	17,0	15	113	35
85.761.00.40/04		4	M 16	17,0	15	120	35
85.761.00.50/05	50	5	M 20	25,0	23	158	45

BT - TYPE II



REF. 85.761.10	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.761.10.30/02	30	2	M 10	12,5	11	91	23
85.761.10.30/03		3	M 12	12,5	11	92	23
85.761.10.40/03	40	3	M 12	17,0	15	113	35
85.761.10.40/04		4	M 16	17,0	15	120	35
85.761.10.50/05	50	5	M 20	25,0	23	158	45

BT - TYPE III



REF. 85.761.20	K ISO	K MORSE	G mm	d mm	d ₁ mm	L mm	l ₁ mm
85.761.20.40/03	40	3	M 12	17	15	113	35
85.761.20.40/04		4	M 16	17	15	120	35
85.761.20.50/05	50	5	M 20	25	23	158	45

02.70/80



Rotación 90°
Se puede sujetar sobre un banco o con una mordaza.
Sirve para el montaje y desmontaje de los útiles portaherramientas.

02.71/81



90° Turnover
Can be tightened on bench or clamp.
Useful for mounting and dismantling of the tools in any toolholder.



REF. 02.70/80

	DIN 2080	DIN 69871/A	MAS BT	HSK	CAPTO	KM
02.30.70	30	30	X	50	C5	50
02.30.80	X	X	30	X	X	X
02.40.70	40	40	40	63	C6	63
02.50.70	50	50	50	100	X	X



REF. 02.71/81

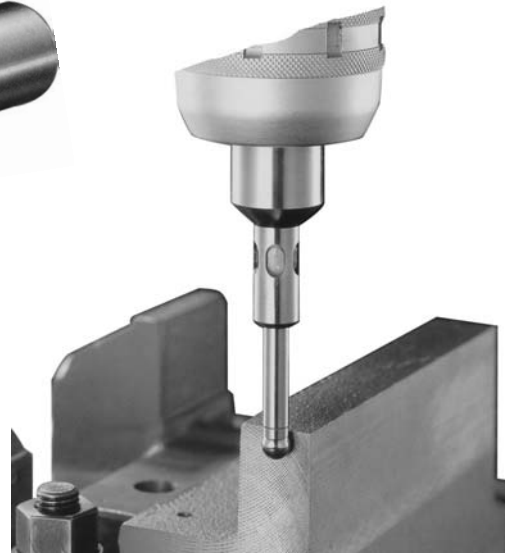
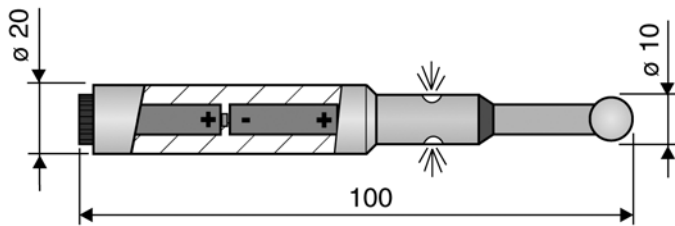
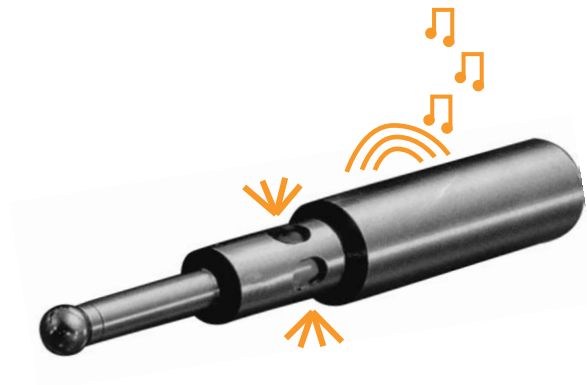
	DIN 2080	DIN 69871/A	MAS BT	HSK	CAPTO	KM
02.30.71	30	30	X	50	C5	50
02.30.81	X	X	30	X	X	X
02.40.71	40	40	40	63	C6	63
02.50.71	50	50	50	100	X	X

Provisto de muelle salva esfera y alta sensibilidad.

Spring protecting sphere and high sensitivity.

81.721.20.10 } Led luminoso
Light led

81.722.20.10 } Led luminoso + señal acústica
Light led + acoustic signal





REF. 81.954	K ISO	CAP.
81.954.40.18	40	18
81.954.50.15	50	15





mexin
TOOLING S.L.

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