DEALERS

The information in this catalog is believed to be correct .Natho Spindle toolings, however,assumes no responsibility for any errors, inaccuracies or omissions that may appear in this catalog.
Information in this catalog is subject to change without notice and should not be taken as a commitment by NATHO spindle toolings or it’s subsidiaries.
ON MANY NEW MODERN CNC MACHINES & FEED AXIS FOR THREAD CUTTING BY TAPS WITHOOL HOLDERS ENABLES THEAD TO BE MACHINED WITHOUT THE NEED OF ALENGTH COMPENSATING CHUCK.
BUT IN PRACTICE (BY LAW OF THEORY) FOLLOWING ERRORS THEY DO COME.
ARE LISTED BELOW
1) DYNAMICS OF MACHINE
2) CO-OPERATION BETWEEN SPINDLE& FEED DRIVES DURING OPERATION
3) DURING CHANGE OF SPINDLE ROTATIONAL DIRECTION AND FEED DIRECTION CHANGE
4) THREAD GROUND TOOL PITCH ERRORS (TOLERANCE ON PITCH)
THIS WILL LEAD TO:
A) LESS TOOL LIFE BECAUSE OF FLANK WEAR (ONE SIDED)
B) DAMAGED FLANKS ON THREADS ON THE WORK PIECE
C) THREADS NOT ANSWERING TO THE GAUGE
NATHO SYNCRO-SOFT TAPPING CHUCKS SY-SO OFFERS FOLLOWING
COMPENSATES THE ERROR BETWEEN SPINDLE& FEED ON THREADING TOOLS LIKE CUTTING OR ROLLING TAPS.
HIGH CONCENTRICITY OF HOLDER IMPROVES TOOL LIFE
POSITIVE CLAMPING THROUGHER COLLET SYSTEM & POSITIVE DRIVE WITH THE HELP OF TAP DRIVER INSERTION.
NO SPECIAL TOOL HOLDING COLLETS (LIKE COLLETS WITH SQUARE)
CHUCK BODY INTERNAL TAPER, CLAMPING NUT & COLLET ARE PROTECTED FROM ROTATION IN OPERATION
WITH THE INSERTION OF TAP DRIVER CAN BE USED TO THE FULL EXTENT OF CHUCK CAPACITY (SEE BELOW THE LIMIT OF TIGHTENING TORQUE VALUE OF ER NUTS)
ER40 NUT MAX. CLAMPING TORQUE FOR IS 141 Nm. MEANS M22/7/8” UNC TAPPING (MAX TAPPING TORQUE 80% BREAKAGE VALUE)
WITH TAP DRIVER IN THE SAME CHUCK M30 TAPPING/1-1/8” UNC IS POSSIBLE

HIGHER CUTTING SPEEDS CAN BE USED FOR BEST TOOL LIFE RATIO
CENTER THROUGH COOLANT OR FLANGE THROUGH COOLANT POLLIBLE
THIS IS THE SUCCESS OF NATHO SY-SO SYNCRO SOFT TAPPING CHUCKS

Italy Tecnology

Precision Tooling System

NATHO
NATIONAL TOOL HOLDERS

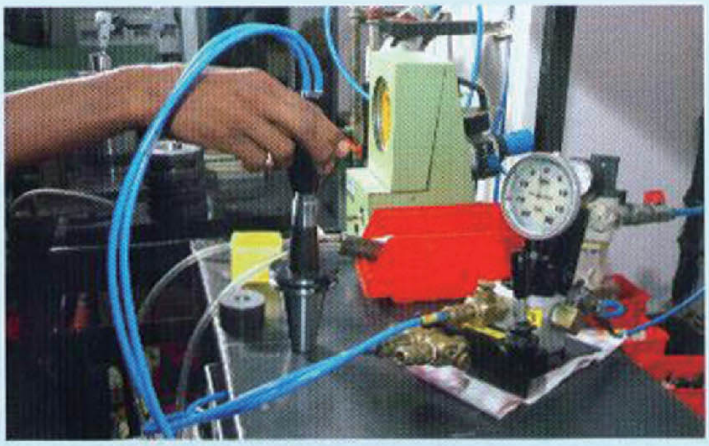
Forniture di utensili ed accessori

per la macchina utensile

Catalogue No: 8 – year 2010

COMPANY PROFILE

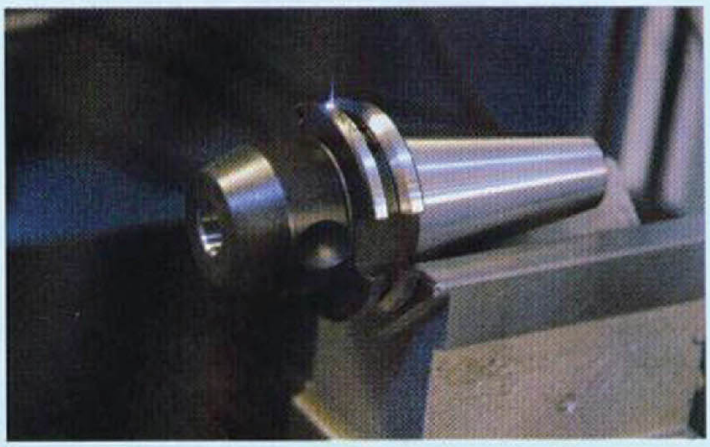
The company works on New Generation CNC Machines, Multitasking CNC machines for turning, Milling & Grinding which acquires 26,000 Sq. Feet area. For controlling International standards in high Precision grinding, we have World Class External, Internal, Surface & Thread grinding machines which occupies 6000 Sq. Feet air conditioned shop.



NATHO Spindle Toolings believes in "great things must be accomplished by group of people" so we have very strong research & development team. In 2006 we have come out with Syncro Soft Tapping Chuck which is proved in very stringent Tapping conditions in Germany , India & Italy .

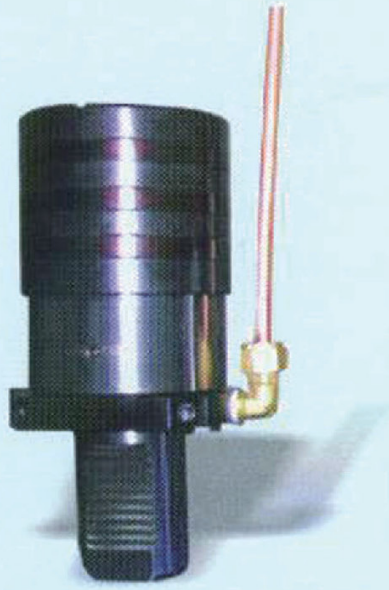
As a manufacturer, we believe the only way to win customer satisfaction is to provide good products and services. With this ideal, we can forge ahead towards more prosperity in future.

Our website now makes it even easier for you to get to know our products.



PRODUCT RANGE

Collet Chucks
in ER16, ER20, ER25, ER32, ER40 & ER50



VDI DIN 69880 Tapping Chucks
in KWFLK1, KWFLK2, KWFLK3, in
VDI20, VDI30, VDI40 & VDI50.

Micro Chuck
Range: 6.0,8.0,10.0,12.0
16.0,20.0,25.0,32.0

Sealing Nut with
Sealing Disc

Face Mill Holders P.C.D. Clamping
suitable for boxes dia40, dia50 ,dia60, etc.

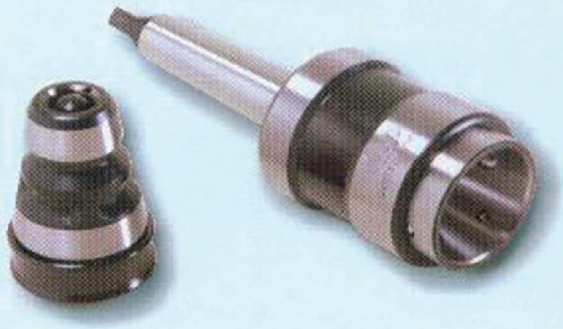
Rigid Tapping Chuck
Capacity: M3 to M12 ; M8 to M20
M14 to M33

PRODUCT RANGE

Side Lock Holders in H6 Tolerance
Range: 6.0,8.0,10.0,12.016.0,
20.0, 25.0, 32.0, 40.0

HSK DIN 69893 Holders
HSK 63A & E
HSK 100A & E

Syncro Soft Chuck
Capacity : ER16 upto M12
ER 32 upto M20



Quick Change Drilling Tapping Chuck
Range: QCDTC2, QCDTC3, QCDTC4

NC DC 113 x BT40
Capacity 1.0 mm to 13.0 mm

Combi Shell & Mill Holders
Suitable for cutter Bore dia16, dia22,
dia27, dia32, dia40.
Extra long holders made to order

PRODUCT RANGE

Keyless Drill Chucks & Arbors
Dc065 & Dc113

'KWFLK' Series Tapping Chucks & Tap Adaptors
Capacity M3 to M12 ; M8 to M20
M14 to M33 ; M22 to M48

'TSFL' Series Tapping Attachment
Capacity M3 to M12 ; M8 to M20

'KWFSL 60' Series Tapping Attachment
Capacity M30 to M68X6.0 ; M30 to M120X4.0

'QSFL' Series Tapping Attachment
Capacity M3 to M12 ; M8 to M20

INDEX

NATHO TOOL HOLDERS: TECHNICAL INFORMATION

All NATHO Tool holders are manufactured according to **DIN norms** (these DIN norms provide the same classes of tolerance for the attachment DIN 2080, DIN69871 A/B, MAS BT I)

CONE'S TOLERANCE

According to the class AT 3

COLLET CHUCK'S RUN OUT ACCURACY

The norm DIN 6391 permit a run out error between external cone and internal cone /collet seat of 0,016. Our collet chucks have a run out accuracy which is largely below the requested one .

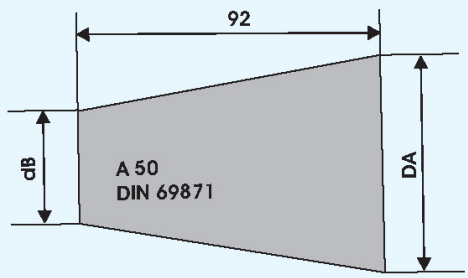
SHELL END MILL ADAPTOR'S RUN OUT ACCURACY

Our shell end mill adaptors meet the requirements of the norms DIN 6358 , which prescribes for
O 16,22,27,32 a run out accuracy of : 0,01 for SK 30/40
0,015 for SK 50
Our Holders have a Run out accuracy which is largely below the requested one.

END MILL HOLDER'S RUN OUT

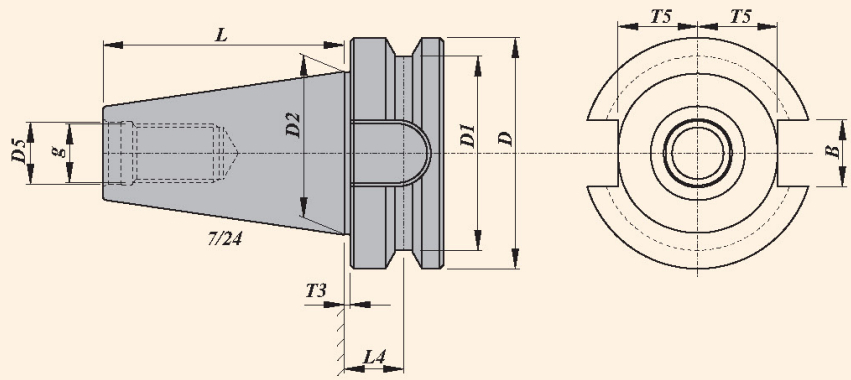
According to the Norm DIN 6359-1 end mill holders have to meet the following requirements
bore : **H5/H6**
Runout accuracy: **<0,01**
Our end mill holders ensure the prescribed hole's tolerance and have a run out accuracy which is largely below the requested one (normally 0,005).

ISO	L	dA-dB	AT 3
30	42	12,250	+0,002
40	59	17,208	+0,003
50	92	26,833	+0,004



BT MAS 403 FORM A

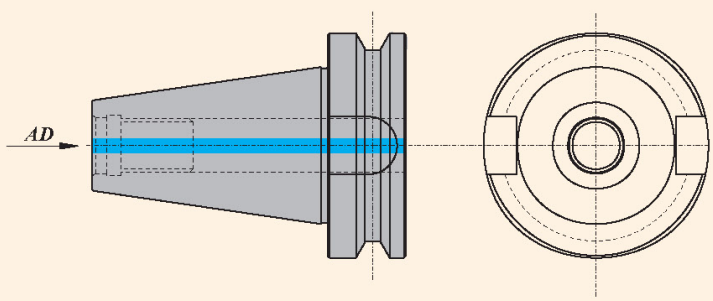
BT MAS 403



TAPER	D	D1	D2	L	D5	g	T5	B	T3	L4
30	46	38	31.75	48.4	12.5	M 12	16.3	16.1	2	13.6
35	53	43	38.1	56.5	13	M 12	19.3	14.1	2	13
35 MAS	53	43	38.1	56.5	12.5	M 12	19.6	16.1	2	14.6
40	63	53	44.45	65.4	17	M 16	2.6	16.1	2	16.6
45	85	73	57.15	82.8	21	M 20	29.1	19.3	3	21.2
50	100	85	69.85	101.8	25	M 24	35.4	25.7	3	23.2

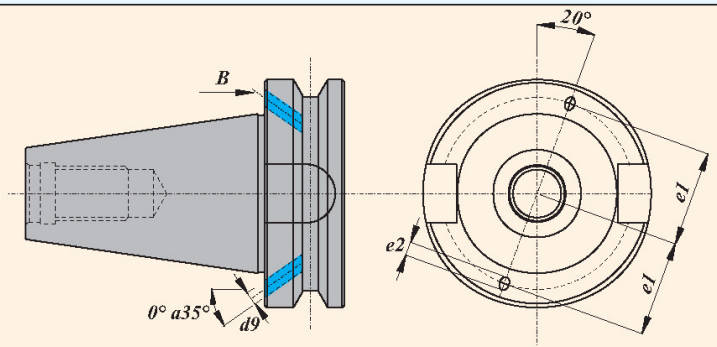
WITH COOLANT THROUGH CENTRE (FORM AD)

FORM AD



WITH COOLANT THROUGH FLANGE (FORM B)

FORM B



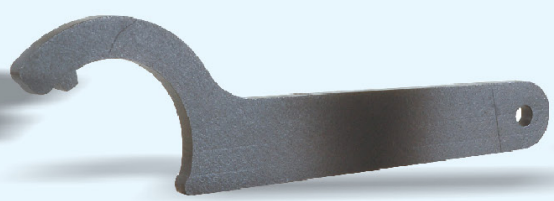
TAPER	d9	e1	e2
40	4	27	5
50	6	42	7

Combi Shell Mill Holders

Side Lock Adaptors

KWFLK Tapping Chucks

ER Collet Chuck

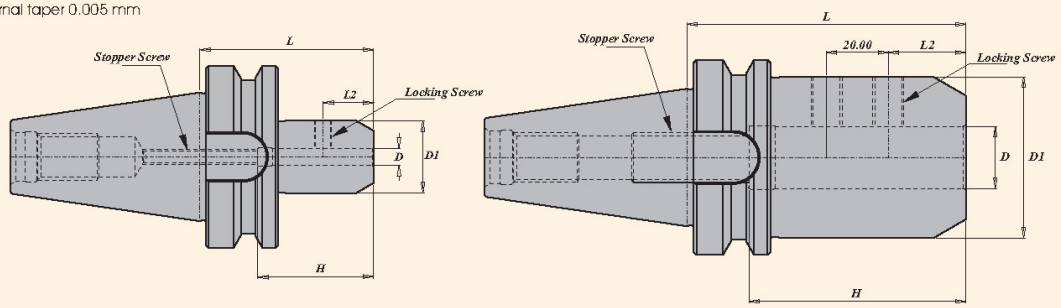


NC Drill Chuck

SIDE LOCK ADAPTOR FOR STRAIGHT SHANK TOOLS

BT MAS 403

Taper Angle Class AT3
Maximum runout of the internal ID in relation to the external taper 0.005 mm



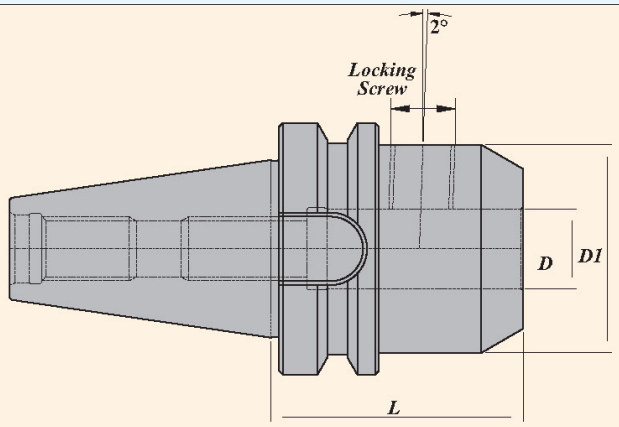
Description	BT	D	L	D1	L2	H	Stopper Screw	Locking Screw	Quantity
BT30SLA06065	30	6	65	20	15	40	M 5	M 6	1
BT30SLA08065	30	8	65	24	15	40	M 6	M 8	1
BT30SLA10065	30	10	65	30	16	44	M 8	M 10	1
BT30SLA12065	30	12	65	35	20	44	M 10	M 10	1
BT30SLA16065	30	16	65	40	23	52	M 12	M 10	1
BT30SLA20090	30	20	90	50	25	70	M 16	M 10	2
BT30SLA25090	30	25	90	50	25	70	M 20	M 10	2
BT40SLA06065	40	6	65	20	15	40	M 5	M 6	1
BT40SLA08065	40	8	65	24	15	40	M 6	M 8	1
BT40SLA10065	40	10	65	30	16	44	M 8	M 10	1
BT40SLA12065	40	12	65	35	20	44	M 10	M 10	1
BT40SLA16065	40	16	65	40	23	52	M 12	M 10	1
BT40SLA20090	40	20	90	50	25	70	M 16	M 10	2
BT40SLA25090	40	25	90	50	25	70	M 20	M 10	2
BT40SLA32090	40	32	90	60	30	70	M 20	M 10	2
BT40SLA40090	40	40	90	60	30	70	M 20	M 10	2
BT50SLA06075	50	6	75	20	15	40	M 5	M 6	1
BT50SLA08075	50	8	75	24	15	40	M 6	M 8	1
BT50SLA10075	50	10	75	30	16	44	M 8	M 10	1
BT50SLA12075	50	12	75	35	20	44	M 10	M 10	1
BT50SLA16075	50	16	75	40	23	52	M 12	M 10	1
BT50SLA20105	50	20	105	50	25	70	M 16	M 10	2
BT50SLA25105	50	25	105	50	25	70	M 20	M 10	2
BT50SLA32105	50	32	105	60	30	70	M 20	M 10	2
BT50SLA40105	50	40	105	60	30	70	M 20	M 10	2

Ordering Example :-
NATHO BT40SLA06065 / Qty.- 2 Nos.

SIDE LOCK ADAPTOR WELDON TYPE

BT MAS 403
DIN1835E

Taper Angle Class AT3
Maximum runout of the
internal ID in relation
to the external taper 0.005 mm

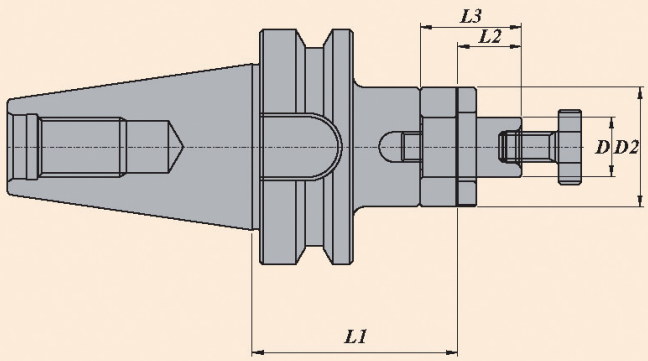


Description	ISO	D	L	D1	Locking Screw	Quantity	Stopper Screw
BT30WN06045	30	6	45	25	M6	1	M5
BT30WN08045	30	8	45	28	M8	1	M6
BT30WN10050	30	10	50	35	M10	1	M8
BT30WN12050	30	12	50	42	M12	1	M10
BT30WN16063	30	16	63	48	M14	1	M12
BT30WN20063	30	20	63	52	M16	1	M16
BT40WN06050	40	6	50	25	M6	1	M5
BT40WN08050	40	8	50	28	M8	1	M6
BT40WN10063	40	10	63	35	M10	1	M8
BT40WN12063	40	12	63	42	M12	1	M10
BT40WN16063	40	16	63	48	M14	1	M12
BT40WN20063	40	20	63	50	M16	1	M16
BT40WN25090	40	25	90	65	M18 X 2	2	M20
BT40WN32100	40	32	100	72	M20 X 2	2	M20
BT50WN06063	50	6	63	25	M6	1	M5
BT50WN08063	50	8	63	28	M8	1	M6
BT50WN10080	50	10	80	35	M10	1	M8
BT50WN12080	50	12	80	42	M12	1	M10
BT50WN16080	50	16	80	48	M14	1	M12
BT50WN20080	50	20	80	52	M16	1	M16
BT50WN25100	50	25	100	65	M18 X 2	2	M20
BT50WN32105	50	32	105	72	M20 X 2	2	M20
BT50WN40115	50	40	115	78	M 20 X 2	2	M20

Ordering Example :-
NATHO BT40WN06050 / Qty.- 2 Nos.

COMBI SHELL MILL ADAPTOR

BT MAS 403
DIN 6358
Taper Angle Class AT3

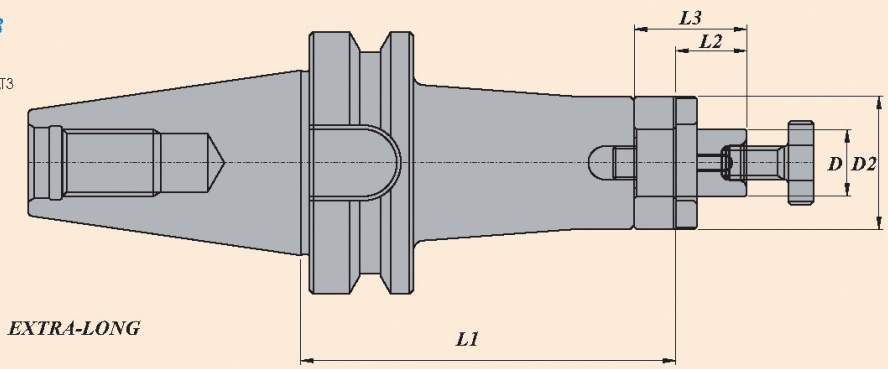


Description	ISO	D	L1	L2	L3	D2
BT30CSMA16050	30	16	50	17	27	32
BT30CSMA22050	30	22	50	19	31	40
BT30CSMA27055	30	27	55	21	33	48
BT40CSMA16055	40	16	55	17	27	32
BT40CSMA22055	40	22	55	19	31	40
BT40CSMA27055	40	27	55	21	33	48
BT40CSMA32060	40	32	60	24	38	58
BT40CSMA40060	40	40	60	27	41	70
BT50CSMA16065	50	16	65	17	27	32
BT50CSMA22065	50	22	65	19	31	40
BT50CSMA27065	50	27	65	21	33	48
BT50CSMA32080	50	32	80	24	38	58
BT50CSMA40080	50	40	80	27	41	70

Ordering Example :-
NATHO BT40CSMA16055 / Qty.- 2 Nos.

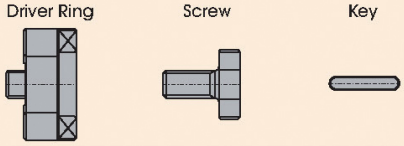
COMBI SHELL MILL ADAPTOR (EXTRA LONG)

BT MAS 403
DIN 6358
Taper Angle Class AT3



Description	ISO	D	L1	L2	L3	D2
BT40CSMA16100	40	16	100	17	27	32
BT40CSMA22100	40	22	100	19	31	40
BT40CSMA27100	40	27	100	21	33	48
BT40CSMA32100	40	32	100	24	38	58
BT50CSMA16100	50	16	100	17	27	32
BT50CSMA22100	50	22	100	19	31	40
BT50CSMA27100	50	27	100	21	33	48
BT50CSMA32100	50	32	100	24	38	58
BT50CSMA40100	50	40	100	27	41	70

Driver Ring | Screw | Key

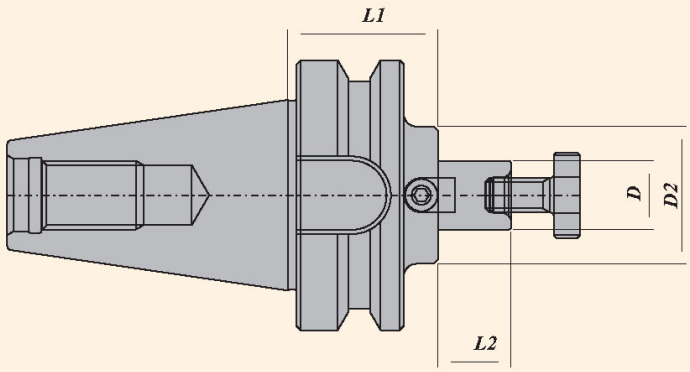


D	Driver Ring	Screw	Key W□ X L
16	DR16 X 10	SCR16 X M8	KEY 4□X20
22	DR22 X 12	SCR22 X M10	KEY 6□X25
27	DR27 X 12	SCR27 X M12	KEY 7□X25
32	DR32 X 14	SCR32 X M16	KEY 8□X30
40	DR40 X 14	SCR40 X M20	KEY 10□X30

Ordering Example :-
NATHO BT50CSMA40100 Qty.- 2 Nos.

FACE MILL HOLDER TENNON DRIVER

BT MAS 403
DIN 3937
Taper Angle Class AT3

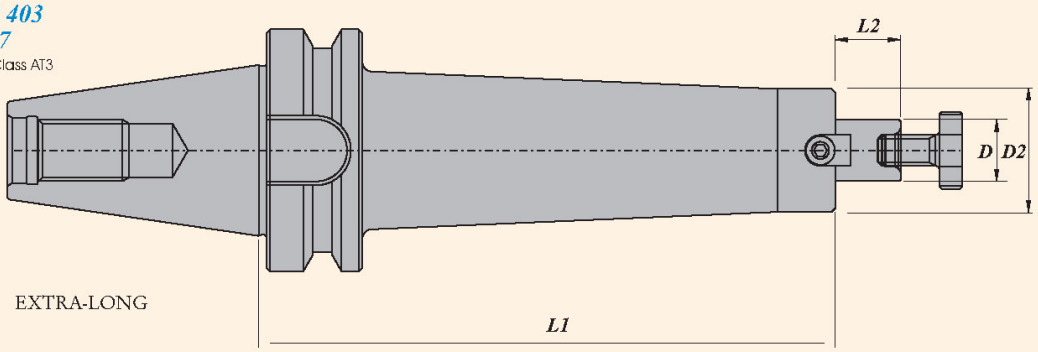


Description	ISO	D	L1	L2	D2
BT30FMH16040	30	16	40	17	38
BT30FMH22040	30	22	40	19	48
BT30FMH27040	30	27	40	21	58
BT40FMH16045	40	16	45	17	38
BT40FMH22045	40	22	45	19	48
BT40FMH27045	40	27	45	21	58
BT40FMH32050	40	32	50	24	78
BT40FMH40050	40	40	50	27	82
BT50FMH16055	50	16	55	17	38
BT50FMH22055	50	22	55	19	48
BT50FMH27055	50	27	55	21	58
BT50FMH32060	50	32	60	24	78
BT50FMH40060	50	40	60	27	82

Ordering Example :-
NATHO BT40FMH16045 / Qty.- 2 Nos.

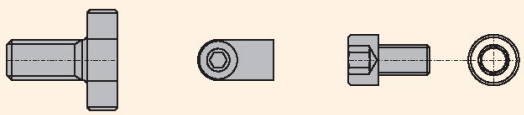
FACE MILL HOLDER TENNON DRIVER (EXTRA LONG)

BT MAS 403
DIN 3937
Taper Angle Class AT3



Description	ISO	D	L1	L2	D2
BT40FMH16120	40	16	120	17	38
BT40FMH22120	40	22	120	19	48
BT40FMH27120	40	27	120	21	58
BT40FMH32120	40	32	120	24	78
BT50FMH16150	50	16	150	17	38
BT50FMH22150	50	22	150	19	48
BT50FMH27150	50	27	150	21	58
BT50FMH32150	50	32	150	24	78
BT50FMH40150	50	40	150	27	82

Screw Tenon Allen Cap Screw

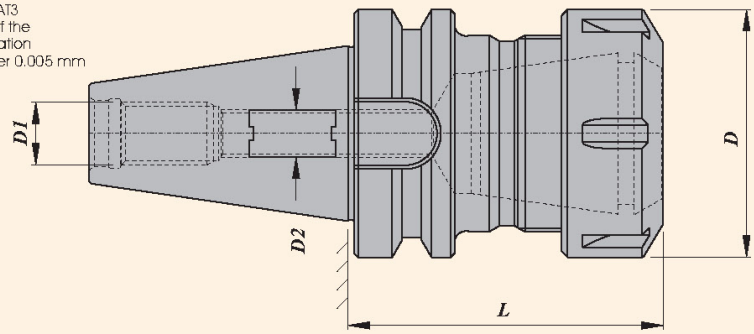


D	Screw	Tenon	Allen Cap Screw
16	SCR16 X M8	8	M4
22	SCR22 X M10	10	M5
27	SCR27 X M12	12	M5
32	SCR32 X M16	14	M6
40	SCR40 X M20	16	M6

'ER' COLLET CHUCK

BT MAS 403
BT A / ER

Taper Angle Class AT3
Maximum runout of the internal taper in relation to the external taper 0.005 mm



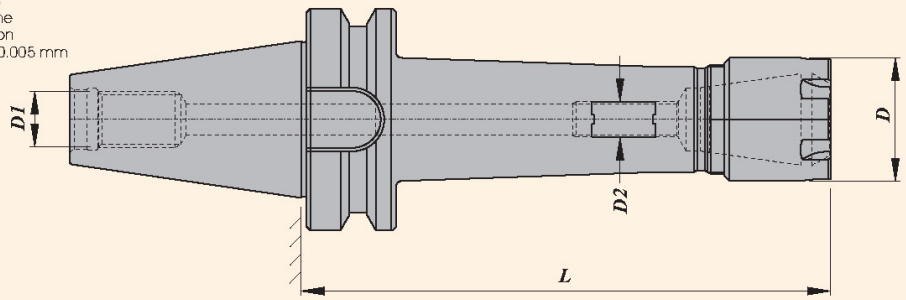
Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	D2	Nut		Spanner Designation
						D	Designation	
BT 30 ER 16060	ER 16	0.5 - 10	60	M 12	M 10	28	UM/ER 16	GS 25
BT 30 ER 16100	ER 16	0.5 - 10	100	M 12	M 10	28	UM/ER 16	GS 25
BT 30 ER 20060	ER 20	1.0 - 13	60	M 12	M 10	34	UM/ER 20	E 20
BT 30 ER 20100	ER 20	1.0 - 13	100	M 12	M 10	34	UM/ER 20	E 20
BT 30 ER 25060	ER 25	1.0 - 16	60	M 12	M 12	42	UM/ER 25	E 25
BT 30 ER 25100	ER 25	1.0 - 16	100	M 12	M 12	42	UM/ER 25	E 25
BT 30 ER 32060	ER 32	2.0 - 20	60	M 12	M 12	50	UM/ER 32	E 32
BT 30 ER 32100	ER 32	2.0 - 20	100	M 12	M 12	50	UM/ER 32	E 32
BT 30 ER 40100	ER 40	3.0 - 26	100	M 12	M 16	63	UM/ER 40	E 40
BT 40 ER 16060	ER 16	0.5 - 10	60	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 16100	ER 16	0.5 - 10	100	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 16160	ER 16	0.5 - 10	160	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 20060	ER 20	1.0 - 13	60	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 20100	ER 20	1.0 - 13	100	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 20160	ER 20	1.0 - 13	160	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 25060	ER 25	1.0 - 16	60	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 25100	ER 25	1.0 - 16	100	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 25160	ER 25	1.0 - 16	160	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 32070	ER 32	2.0 - 20	70	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 32100	ER 32	2.0 - 20	100	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 32160	ER 32	2.0 - 20	160	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 40080	ER 40	3.0 - 26	80	M 16	M 16	63	UM/ER 40	E 40
BT 40 ER 40100	ER 40	3.0 - 26	100	M 16	M 16	63	UM/ER 40	E 40
BT 40 ER 40160	ER 40	3.0 - 26	160	M 16	M 16	63	UM/ER 40	E 40
BT 50 ER 25065	ER 25	1.0 - 16	65	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 25100	ER 25	1.0 - 16	100	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 25160	ER 25	1.0 - 16	160	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 32070	ER 32	2.0 - 20	70	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 32100	ER 32	2.0 - 20	100	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 32160	ER 32	2.0 - 20	160	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 40080	ER 40	3.0 - 26	80	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 40100	ER 40	3.0 - 20	100	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 40160	ER 40	3.0 - 20	160	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 50100	ER 50	10.0 - 34	100	M 24	M 16	78	UM/ER 50	E 50
BT 50 ER 50160	ER 50	10.0 - 34	160	M 24	M16	78	UM/ER 50	E 50

Ordering Example :-
NATHO BT 40 ER 16100 / Qty.- 2 Nos.

BT SHANK 'ER' COLLET HOLDER (EXTRA LONG) WITH M NUTS

BT MAS 403
BT A / ER M

Taper Angle Class AT3
Maximum runout of the internal taper in relation to the external taper 0.005 mm



Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	D2	Nut		Spanner Designation
						D	Designation	
BT 40 ER 16M060	ER 16	0.5 - 10	60	M 16	M 10	22	ER 16 M	E 16 M
BT 40 ER 16M120	ER 16	0.5 - 10	120	M 16	M 10	22	ER 16 M	E 16 M
BT 40 ER 16M160	ER 16	0.5 - 10	160	M 16	M 10	22	ER 16 M	E 16 M
BT 40 ER 20M060	ER 20	1.0 - 13	60	M 16	M 10	28	ER 20 M	E 20 M
BT 40 ER 20M120	ER 20	1.0 - 13	120	M 16	M 10	28	ER 20 M	E 20 M
BT 40 ER 20M160	ER 20	1.0 - 13	160	M 16	M 10	28	ER 20 M	E 20 M
BT 40 ER 25M070	ER 25	1.0 - 16	70	M 16	M 12	35	ER 25 M	E 25 M
BT 40 ER 25M120	ER 25	1.0 - 16	120	M 16	M 12	35	ER 25 M	E 25 M
BT 40 ER 25M160	ER 25	1.0 - 16	160	M 16	M 12	35	ER 25 M	E 25 M

Ordering Example :-
NATHO BT 40 ER 16M060 / Qty. - 2 Nos.

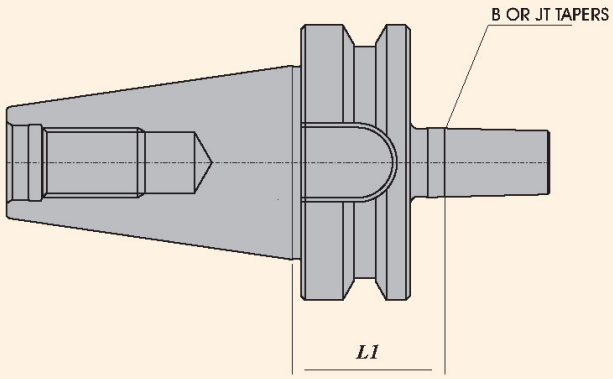
For 'ER/M' Nut
refer page no. 55,56

ARBOR

BT MAS 403
DIN 238

Taper Angle Class AT3

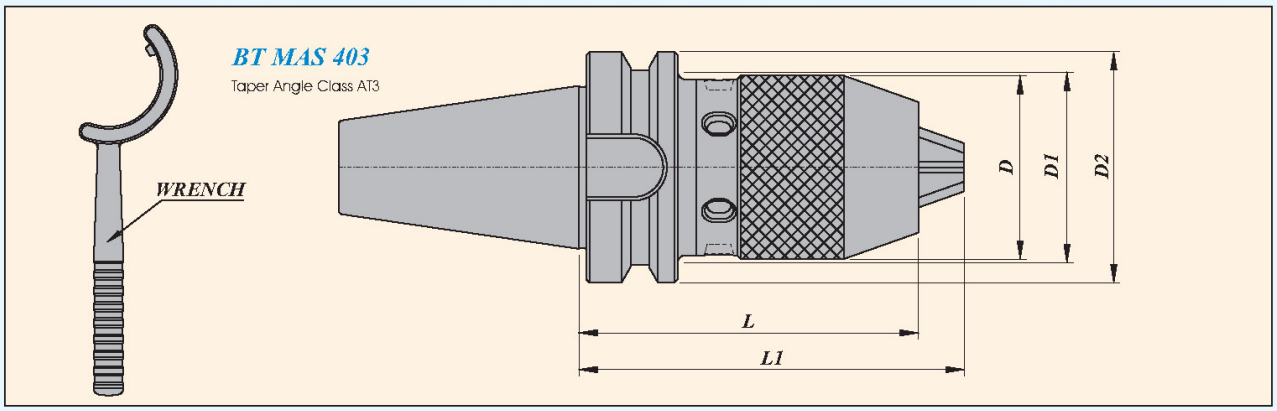
Concentricity of external tapers is within 0.005 mm



Description	ISO	B	L1
BT30 B12	30	B12	26.5
BT30 B16	30	B16	26.5
BT40 J6	40	J6	35.5
BT40 B12	40	B12	35.5
BT40 B16	40	B16	35.5
BT50 J6	50	J6	46.5
BT50 B12	50	B12	46.5
BT50 B16	50	B16	46.5

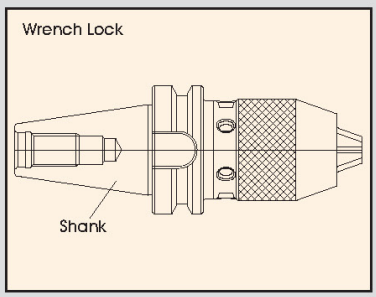
Ordering Example :-
NATHO BT40 B16 /Qty. - 2 Nos.

BT SHANK NC DRILL CHUCK

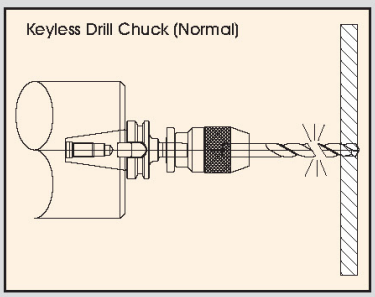


Type	D Ø	D1Ø	D2 Ø	L	L1
BT30XDC113	50	48	46	108.5	121
BT40XDC113	50	52	63	92.5	105
BT50XDC113	50	52	100	103.5	116

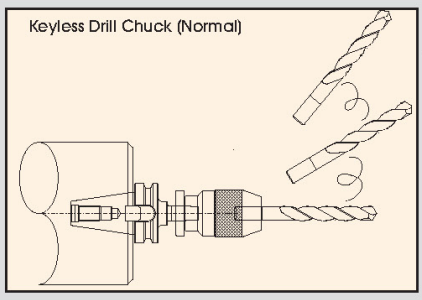
Ordering Example :-
NATHO BT50XDC113 Qty. - 2 Nos.



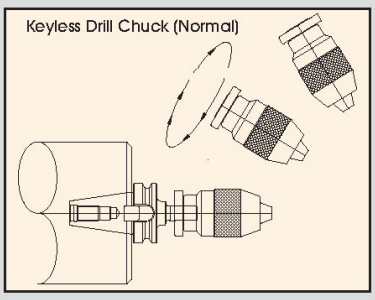
Built in design eliminates the possibility of slipping off from the arbour.



Drill breakage & slipping of drill before through hole drilling.

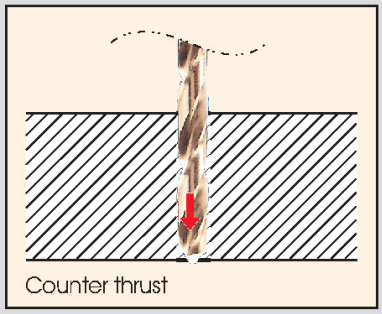


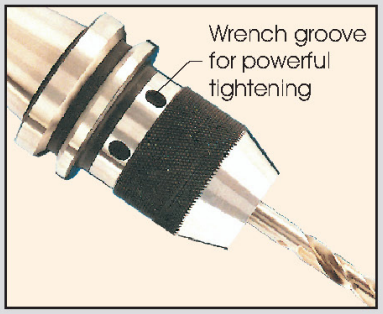
Flying of drill when spindle stops. Sudden stop of spindle or reverse rotation of spindle (by error)



Disengagement from taper either from short morse or jacob's

3 Times Chucking Power





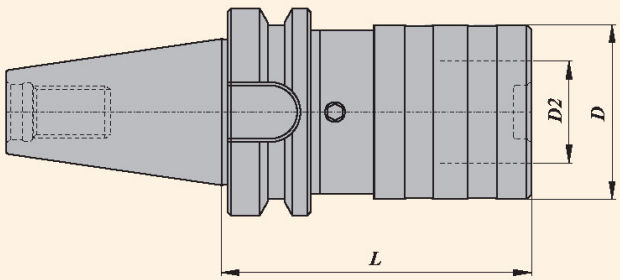
Comparison data of drill chuck tightening torque

Type of drill chuck	Method of tightening	Twisting moment	Comparison %
NATHO DC 113	By hand	6.9 Nm	100
NATHO NC DC 113	By wrench	21.8 Nm	300

Concentricity 0.04 T.I.R.

KWFLK / BT / MAS 403 : TAPPING CHUCK

BT MAS 403
Taper Angle Class AT3

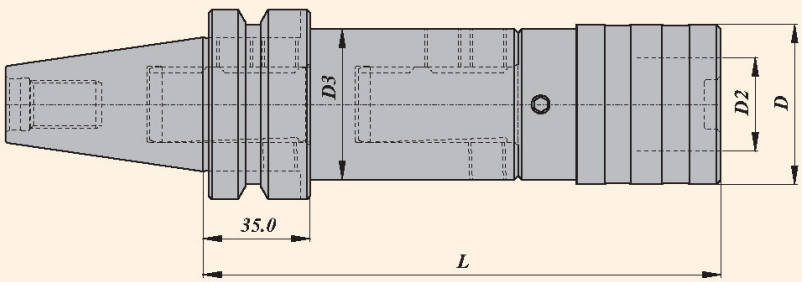


Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	D2 dia.	BT30	BT40	BCT45	BT50
			Compr.	Expan.			L	L	L	L
KWFLK1/BT	M 3 - M 12	KWES1B / KWE1	7.50	7.50	36	19	64.0	67.5	73.5	77.0
KWFLK2BT	M 8 - M 20	KWES2B / KWE2	12.50	12.50	53	31	-	94.5	97.5	102.5
KWFLK3/BT	M 14 - M 33	KWES3B / KWE3	20.00	20.00	78	48	-	164.5	154.5	142.5

Ordering Example :-
NATHO KWFLK3/BT Qty. - 2 Nos.

KWFLK / BT / MAS (EXTRA LONG SPECIAL) : TAPPING CHUCK

BT MAS 403
Taper Angle Class AT3

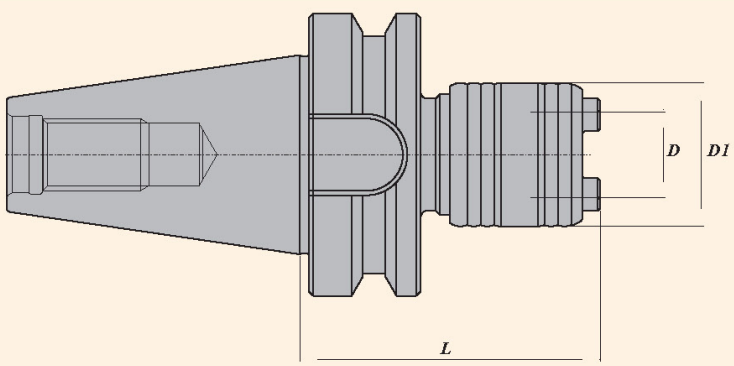


Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	D2 dia.	D3 dia	CT40/L	CT45/L	CT50/L
			Compr.	Expan.				L	L	L
KWFLK1/BT	M 3 - M 12	KWES1B / KWE1	7.50	7.50	36	19	50	150 to 500	150 to 500	150 to 500
KWFLK2/BT	M 8 - M 20	KWES2B / KWE2	12.50	12.50	53	31	85	150 to 500	150 to 500	150 to 500
KWFLK3/BT	M 14 - M 33	KWES3B / KWE3	20.00	20.00	78	48	100	200 to 500	200 to 500	200 to 500

Ordering Example :-
NATHO KWFLK3/BT Qty. - 2 Nos.

RIGID TAPPING CHUCK Q / BT40

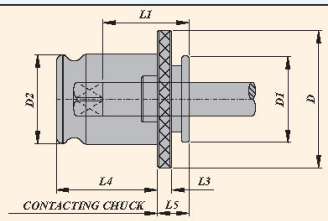
BT MAS 403
Taper Angle Class AT3



Chuck Designation	Capacity	Suitable Adaptors KWE & KWES B Size	D	D1	30	40	50
					L	L	L
Q 3-12 / BT	M3 - M12	KWE1/ KWES1B	32	19	61.5	67.0	77.0
Q 8-20 / BT	M8 - M20	KWE2/ KWES2B	50	31	84.5	90.0	100.0

Ordering Example :-
NATHO Q 3-12 / BT40 / Qty. - 2 Nos.

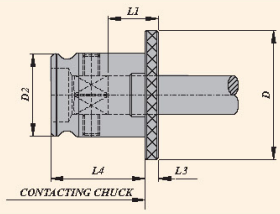
ADAPTOR TYPE KWE



Ordering Example :-
NATHO TAP ADAPTOR : KWE1 Ø 6.3X5sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D1 dia.	D2 dia	L1	L3	L4	L5
KWE1	M 3 - M 12	3.5 - 11.3	1	30	19	19	17	4	21.5	7
KWE2	M 8 - M 20	7.0 - 18.0	2	48	30	31	30	5	35.0	11
KWE3	M 14 - M 33	11.0 - 28.0	3	70	48	48	44	6	55.5	14

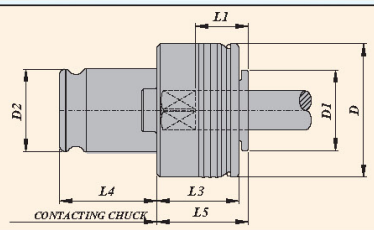
ADAPTOR TYPE KWEK (For Light Duty Application)



Ordering Example :-
NATHO TAP ADAPTOR : KWEK2 Ø 20X16sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D2 dia	L1	L3	L4
KWEK1	M16	>11.3 - 12	1	30	19	13	4	21.5
KWEK2	M 27 - M 30	>18.0 - 22	2	48	31	20	5	35.0
KWEK3	M 39 - M 48	>28.0 - 36	3	70	48	36	6	55.5

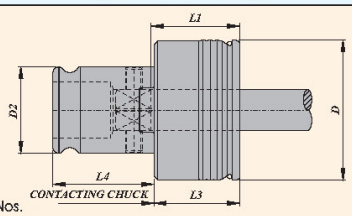
ADAPTOR TYPE KWES / B



Ordering Example :-
NATHO TAP ADAPTOR : KWES/1B M8 Ø 10X8sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D1 dia.	D2 dia	L1	L3	L4	L5
KWES / 1B	M 3 - M 12	3.5 - 11.3	1	32	19	19	17	25	21.5	25
KWES / 2B	M 8 - M 20	7.0 - 18.0	2	50	30	31	30	31	35.0	34
KWES / 3B	M 14 - M 33	11.0 - 28.0	3	72	48	48	44	41	55.5	45

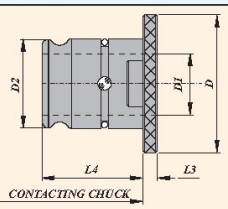
ADAPTOR TYPE KWESK/B (For Light Duty Application)



Ordering Example :-
NATHO TAP ADAPTOR : KWESK/1B M16X1 / Ø 12.5X10sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D2 dia	L1	L3	L4
KWESK /1B	M16	>11.3 - 12	1	32	19	27.5	25	21.5
KWESK /2B	M 27 - M 30	>18.0 - 22	2	50	31	32.5	31	35.0
KWESK /3B	M 39 - M 48	>28.0 - 36	3	72	48	40.0	41	55.5

ADAPTOR TYPE KWRE (Reduction Socket)



Ordering Example :-
NATHO REDUCER : KWRE 2/1 / Qty. - 2 Nos.

Chuck Designation Size	Suitable for Chuck Size	Adaptor Size	D dia.	D1 dia	D2 dia	L3	L4
KWRE 2/1	2	1	48	19	31	5	35
KWRE 3/2	3	2	70	31	48	6	55.5

TECHNICAL INFORMATION

Tap Shank Dimensions ISO 529 - 1975

Dimension Dia. x Square	Metric		UNC		UNF		BSW		BSF		BA	
		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged
3.15 x 2.5	M4	M3	-	No. 4-40	-	No. 4-48	-	-	-	-	-	No. 5
	-	-	No. 8.32	No. 5-40	No. 8-36	No. 5-44	-	-	-	-	No. 3	-
3.55 x 2.8	M 4.5	M 3.5	No. 10-24	No. 6-32	No. 10-32	No. 6-40	3/16"-24	-	3/16"-32	-	No. 2	No. 4
4 x 3.15	M 5	M 4	No. 12-24	-	No. 12-28	-	-	-	7/32"-28	-	No. 1	-
4.5 x 3.55	M 6	-	1/4"-20	No. 8-32	1/4"-28	No. 3-36	1/4"-20	-	1/4"-26	-	No. 0	No. 3
5 x 4	-	M 5	-	No. 10-24	-	No. 10-32	-	3/16"-24	-	3/16"-32	-	No. 2
5.6 x 4.5	-	-	-	No. 12-24	-	No. 12-28	-	-	9/32"-26	7/32"-28	-	No. 1
6.3 x 5	M 8	M 6	5/16"-18	1/4"-20	5/16"-24	1/4"-28	5/16"-18	1/4"-20	5/16"-22	1/4"-26	-	No. 0
7.1 x 5.6	-	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	9/32"-36	-	-
8 x 6.3	M 10	M 8	7/16"-14	5/16"-18	7/16"-20	-	7/16"-14	5/16"-18	7/16"-18	5/16"-22	-	-
9 x 7.1	M 12	-	1/2"-13	-	1/2"-20	-	1/2"-12	-	1/2"-12	-	-	-
10 x 8	-	M 10	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	-	-
11.2 x 9	M 14	-	9/16"-12	-	9/16"-18	-	9/16"-12	-	9/16"-16	-	-	-
12.5 x 10	M 16	-	5/8"-11	-	5/8"-18	-	5/8"-11	-	3/8"-14	-	-	-
14 x 11.2	M 18	-	3/4"-10	-	3/4"-16	-	11/16"-11	-	11/16"-14	-	-	-
	M 20	-	-	-	-	-	3/4"-10	-	3/4"-12	-	-	-
16 x 12.5	M 22	-	7/8"-9	-	7/8"-14	-	7/8"-9	-	7/8"-11	-	-	-
18 x 14	M 24	-	1"-8	-	1"-12	-	1"-8	-	1"-10	-	-	-
20 x 16	M 27	-	1 1/8"-7	-	1 1/8"-12	-	1 1/8"-7	-	1 1/8"-9	-	-	-
	M 30	-	-	-	-	-	-	-	-	-	-	-
22.4 x 18	M 33	-	1¼"-4	-	1¼"-12	-	1¼"-7	-	1¼"-9	-	-	-
25 X 20	M 36	-	1 3/8"-6	-	1 3/8"-12	-	-	-	1 3/8"-8	-	-	-
28 x 22.4	M 39	-	1½"-6	-	1½"-12	-	1½"-6	-	1½"-8	-	-	-
	M 42	-	-	-	-	-	-	-	1 5/8"-8	-	-	-
31.5 x 25	M 45	-	1 3/4"-5	-	-	-	1 3/4"-5	-	1 3/4"-7	-	-	-
	M 48	-	-	-	-	-	-	-	-	-	-	-

Tap Shank Dimensions DIN

Dimension Dia. x Square	DIN 352	DIN 353	DIN 371	DIN 374	DIN 376	DIN 2182	DIN 2183
3.5 x 2.7	M 3	-	M 3	M 5	M 5	1/8"	-
4 x 3	M 4	-	M 3.5	-	-	-	-
4.5 x 3.4	M 4	-	M 4	M 6	M 6	5/32"	1/4"
6 x 4.9	M 5	-	M 5	-	-	7/32"	-
	M 6	-	M 6	-	-	-	-
	M 8	-	-	M 8	M 8	-	-
7 x 5.5	M 10	G 1/8"	-	M 10	M 10	1/4"	3/8"
8 x 6.2	-	-	M 8	-	-	5/16"	7/16"
9 x 7	M 12	-	-	M 12	M 12	3/8"	1/2"
10 x 8	-	-	M 10	-	-	-	-
11 x 9	M 14	G 1/4"	-	M14	M 14	-	9/16"
12 X 9	M 16	G 3/8"	-	M 16	M 16	-	5/8"
14 X 11	M 18	-	-	M 18	M 18	-	11/16"
16 X 12	M 20	G 1/2"	-	M 20	M 20	-	13/16"
18 x 14.5	M 22	G 5/8:	-	M 22	M 22	-	7/8"
	M 24	-	-	M 24	M 24	-	15/16"
20 x 16	M 27	G 3/4"	-	M 27	M 27	-	1"
22 x 18	M 30	G 7/8"	-	M 30	M 30	-	1 1/8"
25 x 20	M 33	G 1"	-	M 33	M 33	-	1¼"
28 x 22	M 36	G 1 1/8"	-	M 36	M 36	-	1 3/8"
32 x 24	M 39	G 1 1/8"	-	M 39	M 39	-	1½"
	M 42	-	-	M 42	M 42	-	1 5/8"
36 x 29	M 45	G 3/8"	-	M 45	M 45	-	1 3/4"
	M 48	G 1½"	-	M 48	M 48	-	1 7/8"
	-	G 1 3/4"	-	-	-	-	-
	-	G 2"	-	-	-	-	-

Tap Shank Dimensions ANSI (US Standards)

Dimension in Inch. Dia. x Square		Metric Conversions		Tap Size	Dimension in Inch. Dia. x Square		Metric Conversions		Tap Size
0.141	0.110	3.59	2.80	1/8" No.6	0.590	0.442	14.99	11.23	3/4"
0.168	0.131	4.27	3.33	5/32" No.8	0.652	0.489	16.57	12.43	M 20
0.194	0.152	4.93	3.87	3/16" No. 10	0.688	0.515	17.47	13.09	1/2" Ps
0.220	0.165	5.59	4.20	No. 12	0.697	0.523	17.71	13.29	7/8"
0.255	0.191	6.48	4.86	1/4" No. 14	0.700	0.531	17.78	13.49	3/8"Ps
0.312	0.234	7.94	5.95	1/16"Ps 1/8"Ps	0.760	0.570	19.31	14.48	M 24
0.318	0.238	8.08	6.05	5/16" 3/8"	0.800	0.600	20.32	15.24	1"
0.323	0.242	8.21	6.15	5/16" 7/16"	0.896	0.672	22.76	17.07	1 1/8"
0.367	0.275	9.33	6.99	1/2"	0.906	0.679	23.02	17.25	3/4"P
0.381	0.286	9.68	7.27	3/8"	1.021	0.766	25.94	19.46	1¼"
0.429	0.322	10.90	8.18	9/16"	1.108	0.833	28.15	21.11	1 3/8"
0.438	0.328	11.12	8.34	1/8"Ps	1.125	0.843	28.58	21.42	1"P
0.480	0.360	12.20	9.15	5/8"	1.233	0.925	31.32	23.50	1½"
0.542	0.406	13.77	10.31	11/16"	1.132	0.984	33.34	25.00	1¼"P
0.563	0.421	14.29	10.70	1/4"Ps	1.430	1.072	36.33	27.23	1 3/4"

Tap Shank Dimensions (JIS Standards)

Dimension in mm. Dia. x Square		Tap Size
4.0	3.0	M 3 & M 3.5
5.0	4.0	M 4 & M 4.5
5.5	4.5	M 5
6.0	4.5	M 6
6.2	5.0	M 7 & M 8
7.0	5.5	M 9 & M 10
8.0	6.2	M 11
8.5	6.5	M 12
10.5	8.0	M 14
12.5	10.0	M 16
14.0	11.0	M 18
15.0	12.0	M 20
17.0	13.0	M 22
19.0	15.0	M 24
20.0	15.0	M 27
23.0	23.17	M 30

Recommended Torque Valves

For Safety Clutch adjustment For Tapping & Cold Forming (Rolling)

For material upto 1000 N/mm²

Torque Setting Nm	Threads										Torque Setting Nm
	Metric	Whitworth BSW	BSP Whitworth Pipe	BSF	BSP Taper	BA	PG	NPT Taper	UNC	UNF	
0.5	M3	-	-	-	-	No. 7	-	-	-	-	0.5
0.6	-	-	-	-	-	No. 6	-	-	No. 3	No. 4	0.6
0.8	M 3.5	-	-	-	-	No. 5	-	-	No. 4	No. 5	0.8
1.0	-	1/8"	-	-	-	-	-	-	No. 5	-	1.0
1.2	-	-	-	-	-	No. 4	-	-	-	No. 6	1.2
1.6	M4	-	-	-	-	-	-	-	No. 6	No. 8	1.6
2.0	-	5/32"	-	-	-	No. 3	-	-	No. 8	-	2.0
2.5	M5	-	-	3/16"	-	No. 2	-	-	-	No. 10	2.5
3.0	-	-	-	-	-	-	-	-	-	No. 12	3.0
4.0	-	3/16"	-	7/32"	-	No. 1	-	-	No. 10	1/4"	4.0
5.0	M6	7/32"	-	1/4"	-	No. 0	-	-	No. 12	-	5.0
6.0	-	-	G 1/8"	9/32"	-	-	-	-	-	5/16"	6.0
8.0	-	1/4"	-	5/16"	-	-	-	-	1/4"	3/8"	8.0
10	M8	-	-	-	-	-	-	-	-	-	10
12	-	5/16"	-	3/8"	-	-	PG 7	-	5/16"	7/16"	12
16	-	-	-	-	-	-	-	-	-	1/2"	16
18	M10	3/8"	G 1/4"	7/16"	1/8"	-	-	-	3/8"	-	18
20	-	-	-	-	-	-	PG9	1/8"	-	-	20
22	-	-	-	-	-	-	PG11	-	-	9/16"	22
25	-	-	-	1/2"	-	-	PG 13.5	-	-	5/8"	25
28	M 12	7/16"	G 3/8"	-	-	-	PG 16	-	7/16"	-	28
32	-	-	-	9/16"	-	-	-	-	-	-	32
36	-	-	-	-	-	-	-	-	-	3/4"	36
40	-	-	-	5/8"	-	-	-	-	1/2"	-	40
45	M 14	1/2"	-	11/16"	-	-	PG 21	-	-	-	45
50	M 16	-	G 1/2"	-	1/4"	-	-	-	9/16"	-	50
56	-	-	G 5/8"	-	-	-	-	1/4"	-	7/8"	56
63	-	5/8"	-	-	3/8"	-	PG 29	-	5/8"	-	63
70	-	-	G 3/4"	3/4"	-0	-	-	3/8"	-	-	70
80	M 18	-	G 7/8"	13/16"	-	-	PG 36	-	-	-	80
90	M 20	3/4"	-	7/8"	-	-	PG 42	-	3/4"	1"	90
100	M22	-	-	-	-	-	PG 48	-	-	1 1/8"	100
110	-	-	-	-	-	-	-	-	-	1¼"	110
125	-	7/8"	-	1"	-	-	-	-	7/8"	1 3/8"	125
140	-	-	G 1"	-	-	-	-	-	-	1½"	140
160	M24	-	G 1 1/8"	-	1/2"	-	-	1/2"	-	-	160
180	M 27	-	G 1¼"	1 1.8"	-	-	-	-	-	-	180
200	-	1"	G 1 3/8"	1¼"	3/4"	-	-	3/4"	1"	-	200
220	-	-	G 1½"	-	-	-	-	-	-	-	220
240	-	-	G 1 3/4"	-	-	-	-	-	-	-	240
260	-	-	G 2"	1 3/8"	-	-	-	-	-	-	260
280	M 30	1 1/8"	-	-	-	-	-	-	1 1/8"	-	280
300	-	-	G 2¼	1½	-	-	-	-	-	-	300
320	M 33	1¼"	-	1 5/8"	-	-	-	-	1¼"	-	320
340	-	-	G 2¼"	-	1"	-	-	1"	-	-	340
360	-	-	G 2 3/4"	-	-	-	-	-	-	-	360
400	-	-	G 3"	-	-	-	-	-	-	-	400
420	M 36	-	G 3¼"	-	-	-	-	-	-	-	420
450	-	-	G 3½"	1 3/4"	1¼"	-	-	1¼"	-	-	450
480	M 39	1 3/8"	G 3 3/4"	-	-	-	-	-	1 3/8"	-	480
500	-	1½"	G 4"	2"	-	-	-	-	1½"	-	550
560	-	-	-	-	1½	-	-	1½"	-	-	560
630	M 42	-	-	-	-	-	-	-	-	-	630
710	M 45	-	-	2¼"	2"	-	-	2"	-	-	710
800	-	1 5/8"	-	2½"	-	-	-	-	-	-	800
900	M 48	1 3/4"	-	23/4"	-	-	-	-	1 3/4"	-	900

The given torque values are for tapping & cold forming operations. They pertain to material with a tensile strength of 1000 N/mm².
The torque values for tapping include a wear factor of 100%.
If necessary, these values can be increased by up to 20% for tapping & up to 50% for cold forming.

HEX DRIVE NEW RIGID TAPPING SYSTEM

HEX DRIVE BT SHANK ER/TC RIGID TAPPING CHUCK

TECHNICAL INFORMATION ON HEX DRIVE

It is the most Universal Rigid Tapping Chuck. There is a Hexagon provided inside the main collet chuck and there is outside Hexagon provided for Rigid Tapping adaptor.

After inserting the Hex Drive Tap Adaptor inside the holder, it becomes most positive driving Mechanisum.

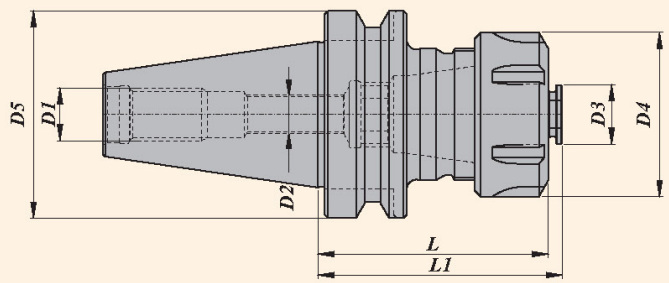
Secondly there is a square & diameter provided in the Rigid Tap Adaptor, which holds the Tap firmly & because of square drive, the tap is driven positively, without any slipage.

The biggest advantage is quick changing of the tap, just press the bush & remove the tap & insert the new tap with same geometry & start the machine.

HEX DRIVE BT SHANK ER/TC RIGID TAPPING CHUCK

BT A / ER
BT MAS 403

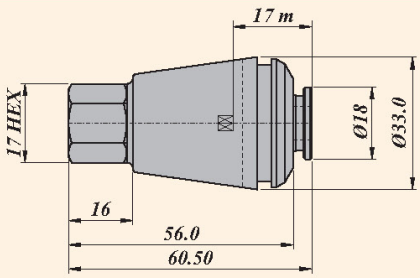
WITHOUT COOLANT
THROUGH FORM A



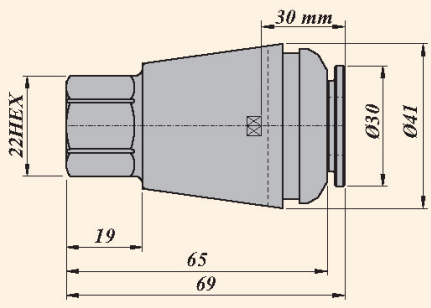
Collet Chuck Designation	Suitable TAP Collet	Tap Clamping Capacity	Tap Holding Range upto	D1	D2	D3	D5	L	L1	Nut		Spanner Designation
										D4	Designation	
HEX DRIVE BT 30 A ER 32070	ER 32 / TC1	M3 - M 12	Ø 12 x □ 9 mm	M 12	M12	18	46	70	74	50	UM/ER 32	E 32
HEX DRIVE BT 40 A ER 32070	ER 32 / TC1	M3 - M 12	Ø 12 x □ 9 mm	M 16	M12	18	63	70	74	50	UM/ER 32	E 32
HEX DRIVE BT 40 A ER 40080	ER 40 / TC2	M8 - M 20	Ø 16 x □ 12.5 mm	M 16	M16	30	63	70	74	63	UM/ER 40	E 40
HEX DRIVE BT 50 A ER 32100	ER 32 / TC1	M3 - M 12	Ø 12 x □ 9 mm	M 24	M12	18	100	100	104	50	UM/ER 32	E 32
HEX DRIVE BT 50 A ER 40100	ER 40 / TC2	M8 - M 20	Ø 16 x □ 12.5 mm	M 24	M16	30	100	100	104	63	UM/ER 40	E 40

Ordering Example :-
NATHO HEX DRIVE BT 30 A ER 32 Without coolant / Qty. - 2 Nos.

HEX DRIVE ER/TC RIGID TAPPING COLLET



ER32/TC1 M3 TO M12
SPECIFY SHANK & SQUARE SIZE WHILE ORDERING
FOR EXAMPLE 9.0 X 7.1 SQ.



ER40/TC2 M8 TO M20
SPECIFY SHANK & SQUARE SIZE WHILE ORDERING
FOR EXAMPLE 11.2 X 9.0 SQ.

FOR TAP ADAPTOR DETAILS REFER PAGE NO. 13

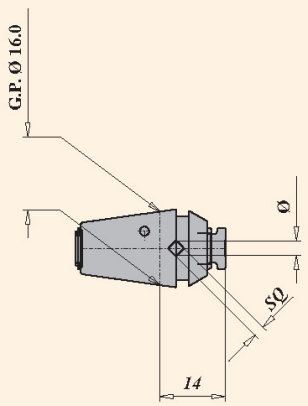
ERT QUICK CHANGE TAPPING COLLETS WITH AXIAL COMPENSATION

This system is to be used along with ER Collet chucks on CNC machines & SPM's Recommendations

Rapid approach, then feed the tap with approximately 95% of the pitch value, this gives positive start to the tapping. This uses 20% to 30% of the compensation stroke.

When the spindle rotation & the feed movement are simultaneously reversed. Return feed must be made 100% of the pitch value. Which maintains the sleeve of the tapping collet in the expansion stroke upto the tap disengagement. When tapping with very high speed, an appropriate programming, compensation may be necessary to balance the differences of inertia between the spindle & the feed movement on reverse. Never disturb the axial compensation. Use external coolant supply only.

ERT 16 COLLET

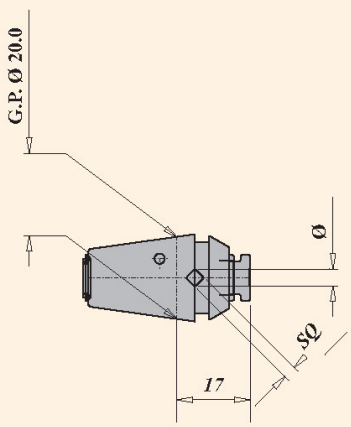


FOR ERT 16 COLLET CHUCKS

HOLDING RANGE
FROM Ø 2.8 X □ 1.8 mm
TO Ø 5.0 X □ 4.0 mm

ONLY EXPANSION 7 mm

ERT 20 COLLET

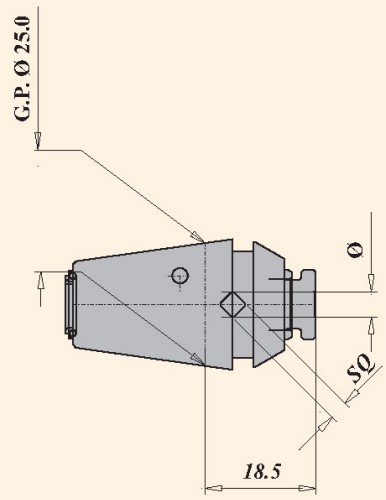


FOR ERT 20 COLLET CHUCKS

HOLDING RANGE
FROM Ø 2.8 X □ 1.8 mm
TO Ø 7.1 X □ 5.6 mm

ONLY EXPANSION 7.5 mm

ERT 25 COLLET

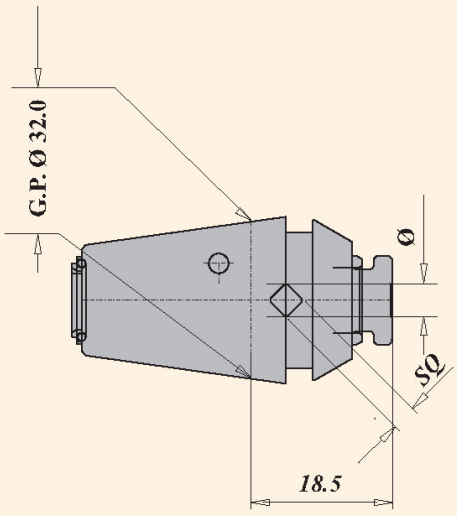


FOR ERT 25 COLLET CHUCKS

HOLDING RANGE
FROM Ø 2.8 X □ 1.8 mm
TO Ø 9.0 X □ 7.3 mm

ONLY EXPANSION 8 mm

ERT 32 COLLET

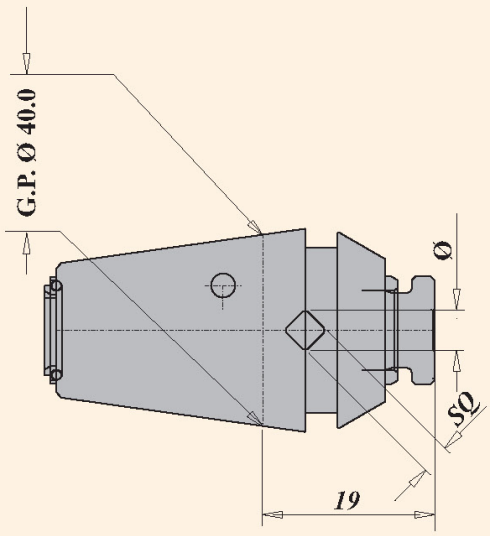


FOR ERT 32 COLLET CHUCKS

HOLDING RANGE
FROM Ø 2.8 X □ 1.8 mm
TO Ø 12.0 X □ 9.0 mm

ONLY EXPANSION 10 mm

ERT 40 COLLET



FOR ERT 40 COLLET CHUCKS

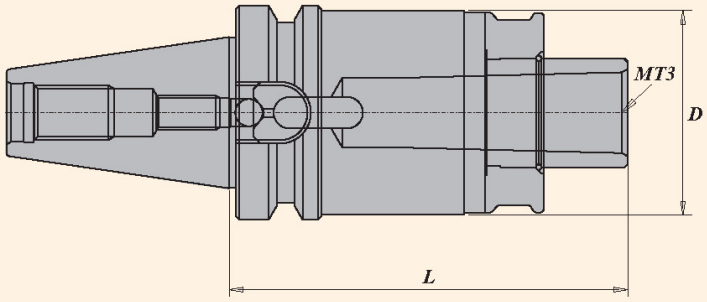
HOLDING RANGE
FROM Ø 2.8 X □ 1.8 mm
TO Ø 16.0 X □ 12.5 mm

ONLY EXPANSION 12 mm

BT FLOTTING REMAR HOLDER

BT MAS 403

Taper Angle Class AT3



Collet Chuck Designation	L	D	Radial Parallel Float
BT 40 FRH / MT3	117	60	1.5
BT 50 FRH / MT3	86	60	1.5

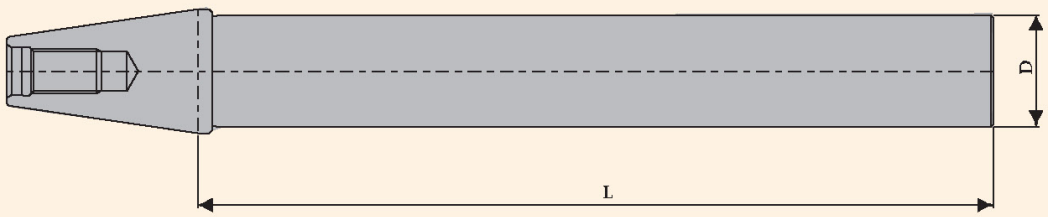
MASTER MANDREL

BT MAS 403

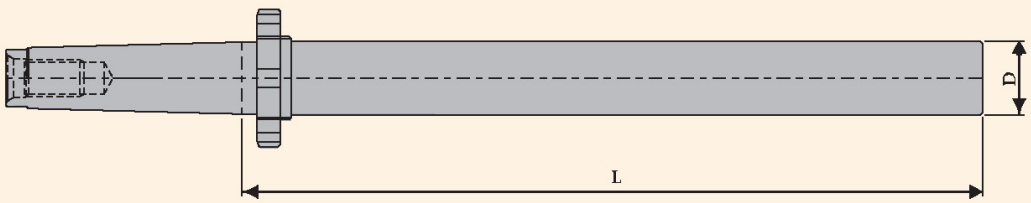
Taper Angle Class AT3

MASTER MANDRELS ACCORDING TO MAS 403 STD.
RUNOUT MAX 0.005 TAPER w.r.t. PLANE DIA AT L

NOTE:-TO BE VERTICALLY STORED
SUPPLIED IN WOODEN BOX



BT30 ØD 32 L=250
BT40 ØD 40 L=300
BT 50 ØD 50 L=350

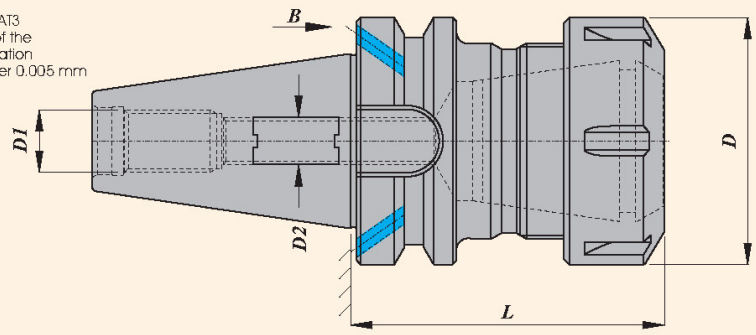


MT2 ØD 24 L=150
MT4 ØD 40 L=300
MT3 ØD 32 L=200
MT5 ØD 40 L=300

ER COLLET CHUCK

BT MAS 403
BT A / ER
Taper Angle Class AT3
Maximum runout of the internal taper in relation to the external taper 0.005 mm

COOLANT THROUGH FLANGE 'FORM B'



Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	D2	Nut		Spanner Designation
						D	Designation	
BT 30 ER 16060ADB	ER 16	0.5 - 10	60	M 12	M 10	28	UM/ER 16	GS 25
BT 30 ER 16100ADB	ER 16	0.5 - 10	100	M 12	M 10	28	UM/ER 16	GS 25
BT 30 ER 20060ADB	ER 20	1.0 - 13	60	M 12	M 10	34	UM/ER 20	E 20
BT 30 ER 20100ADB	ER 20	1.0 - 13	100	M 12	M 10	34	UM/ER 20	E 20
BT 30 ER 25060ADB	ER 25	1.0 - 16	60	M 12	M 12	42	UM/ER 25	E 25
BT 30 ER 25100ADB	ER 25	1.0 - 16	100	M 12	M 12	42	UM/ER 25	E 25
BT 30 ER 32060ADB	ER 32	2.0 - 20	60	M 12	M 12	50	UM/ER 32	E 32
BT 30 ER 32100ADB	ER 32	2.0 - 20	100	M 12	M 12	50	UM/ER 32	E 32
BT 30 ER 40100ADB	ER 40	3.0 - 26	100	M 12	M 16	63	UM/ER 40	E 40
BT 40 ER 16060ADB	ER 16	0.5 - 10	60	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 16100ADB	ER 16	0.5 - 10	100	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 16160ADB	ER 16	0.5 - 10	160	M 16	M 10	28	UM/ER 16	GS 25
BT 40 ER 20060ADB	ER 20	1.0 - 13	60	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 20100ADB	ER 20	1.0 - 13	100	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 20160ADB	ER 20	1.0 - 13	160	M 16	M 10	34	UM/ER 20	E 20
BT 40 ER 25060ADB	ER 25	1.0 - 16	60	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 25100ADB	ER 25	1.0 - 16	100	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 25160ADB	ER 25	1.0 - 16	160	M 16	M 12	42	UM/ER 25	E 25
BT 40 ER 32070ADB	ER 32	2.0 - 20	70	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 32100ADB	ER 32	2.0 - 20	100	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 32160ADB	ER 32	2.0 - 20	160	M 16	M 12	50	UM/ER 32	E 32
BT 40 ER 40080ADB	ER 40	3.0 - 26	80	M 16	M 16	63	UM/ER 40	E 40
BT 40 ER 40100ADB	ER 40	3.0 - 26	100	M 16	M 16	63	UM/ER 40	E 40
BT 40 ER 40160ADB	ER 40	3.0 - 26	160	M 16	M 16	63	UM/ER 40	E 40
BT 50 ER 25065ADB	ER 25	1.0 - 16	65	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 25100ADB	ER 25	1.0 - 16	100	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 25160ADB	ER 25	1.0 - 16	160	M 24	M 12	42	UM/ER 25	E 25
BT 50 ER 32070ADB	ER 32	2.0 - 20	70	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 32100ADB	ER 32	2.0 - 20	100	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 32160ADB	ER 32	2.0 - 20	160	M 24	M 12	50	UM/ER 32	E 32
BT 50 ER 40080ADB	ER 40	3.0 - 26	80	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 40100ADB	ER 40	3.0 - 20	100	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 40160ADB	ER 40	3.0 - 20	160	M 24	M 16	63	UM/ER 40	E 40
BT 50 ER 50100ADB	ER 50	10.0 - 34	100	M 24	M 16	78	UM/ER 50	E 50
BT 50 ER 50160ADB	ER 50	10.0 - 34	160	M 24	M16	78	UM/ER 50	E 50

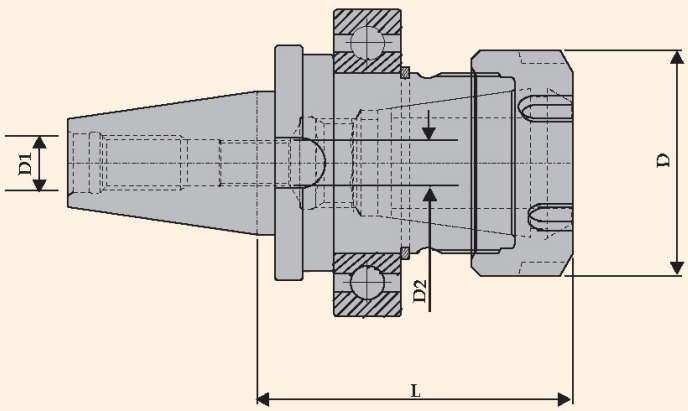
Ordering Example :-
NATHO BT 40 ER 16060 ADB / Qty.- 2 Nos.

ER COLLET CHUCK

NT 30 / ER

Taper Angle Class AT3
Maximum runout of the
internal taper in relation
to the external taper 0.005 mm

WITHOUT COOLANT THROUGH
THE FLANGE FORM B



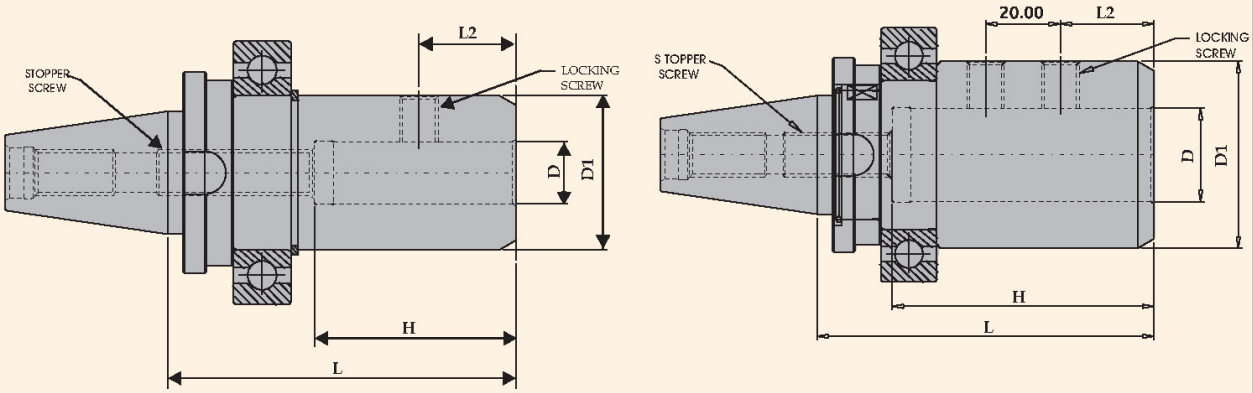
Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	D2	Nut		Spanner Designation
						D	Designation	
NT 30 ER 16065	ER 16	0.5 - 10	65	M 12	M 10	28	UM/ER 16	GS 25
NT 30 ER 20070	ER 20	0.5 - 10	70	M 12	M 10	28	UM/ER 16	GS 25
NT 30 ER 25070	ER 25	1.0 - 13	70	M 12	M 12	34	UM/ER 20	E 20
NT 30 ER 32070	ER 32	1.0 - 13	70	M 12	M 12	34	UM/ER 20	E 20

Ordering Example :-
NATHO NT 30 ER 16060 ADB / Qty.- 2 Nos.

SIDE LOCK ADAPTOR FOR STRAIGHT SHANK TOOLS

NT 30

Taper Angle Class AT3
Maximum runout of the
internal ID in relation
to the external taper 0.005 mm



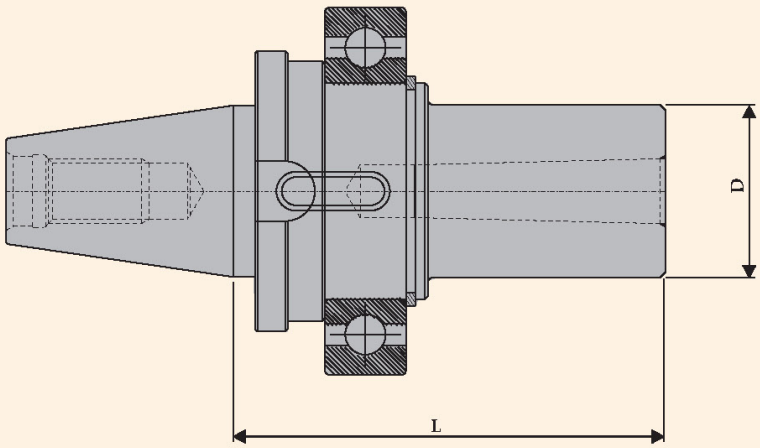
Description	NT	D	L	D1	L2	H	Stopper Screw	Locking Screw	Quantity
NT30SLA06065	30	6	65	20	15	40	M 5	M 6	1
NT30SLA08065	30	8	65	24	15	40	M 6	M 8	1
NT30SLA10065	30	10	65	30	16	44	M 8	M 10	1
NT30SLA12065	30	12	65	35	20	44	M 10	M 10	1
NT30SLA16070	30	16	65	40	23	52	M 12	M 10	1
NT30SLA20090	30	20	90	40	23	70	M 16	M 10	2
NT30SLA25090	30	25	90	50	23	70	M 20	M 10	2

Ordering Example :-
NATHO NT30SLA06065 / Qty.- 2 Nos.

MORSE TAPER ADAPTORS

NT 30

Taper Angle Class AT3
Maximum runout of the
internal taper in relation
to the external taper 0.005 mm

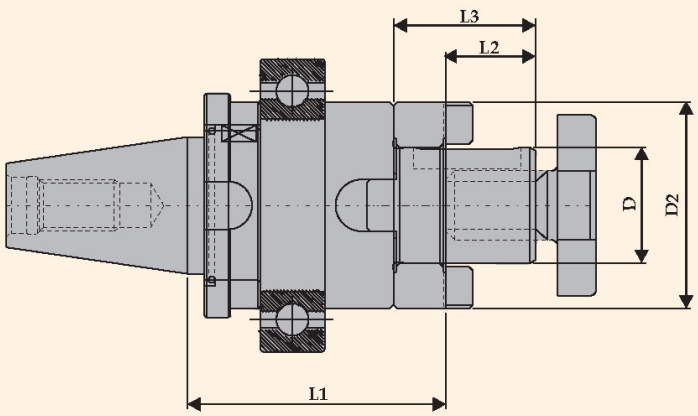


Description	ISO	MORSE	D	L
NT30MTA01060	30	1	25	60
NT30MTA02062	30	2	32	62
NT30MTA03080	30	3	40	80

COMBI SHELL MILL ADAPTOR

NT 30

Taper Angle Class AT3



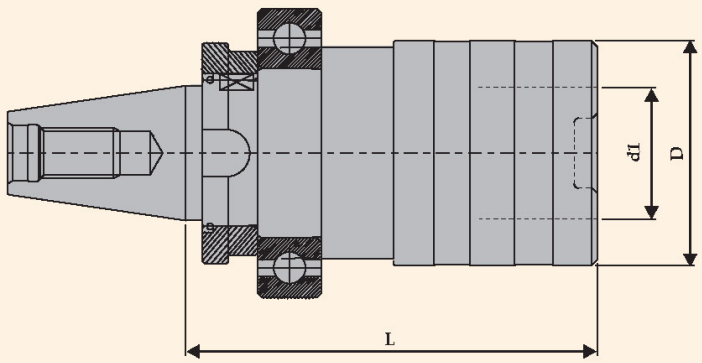
Description	ISO	D	L1	L2	L3	D2
NT30CSMA16060	30	16	60	17	27	32
NT30CSMA22060	30	22	60	19	31	40
NT30CSMA27060	30	27	60	21	33	48

Ordering Example :-
NATHO NT30CSMA16055 / Qty.- 2 Nos.

KWFLK / NT 30 : TAPPING CHUCK

NT 30

Taper Angle Class AT3

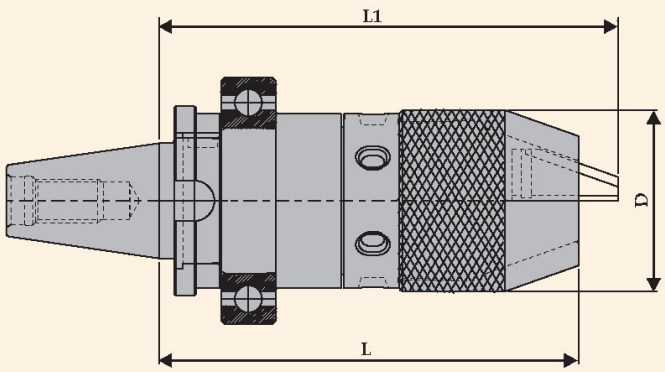


Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	d1 dia.	L
			Compr.	Expan.			
KWFLK1/NT30	M 3 - M 12	KWES1B / KWE1	7.50	7.50	36	19	64.0
KWFLK2/NT30	M 8 - M 20	KWES2B / KWE2	12.50	12.50 53	31		

BT SHANK NC DRILL CHUCK

NT 30 NC DC 113

Taper Angle Class AT3



Type	D Ø	D1Ø	D2 Ø	L	L1
NT30XDC113	50	48	46	108.5	121

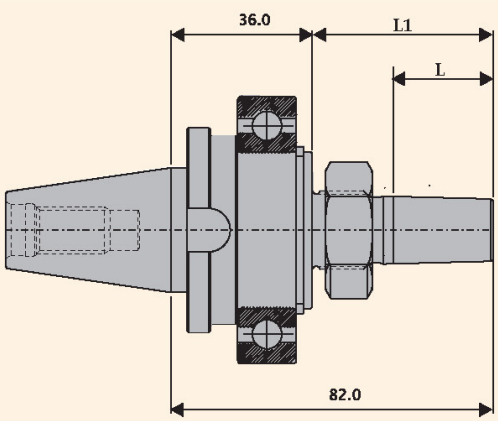
Ordering Example :-
NATHO NT30XDC113 Qty. - 2 Nos.

ARBOR

NT 30

Taper Angle Class AT3

Concentricity of external tapers is within 0.005 mm



Description	ISO	B	L	L1
NT30 B12	30	B12	18.5	39
NT30 B16	30	B16	24.0	45

Ordering Example :-
NATHO NT30 B16 /Qty. - 2 Nos.

MICRO HIGH PRECISION CHUCK

Direct Substitute To Hydrogrip
With Better Features

MICRO CHUCK

INCREASE PRODUCTIVITY AT AN ECONOMIC PRICE WITH THE UNIQUE PRECISION CHUCK FROM NATHO

The MICRO CHUCK is designed specifically to meet the demands of today's new generation of machines and cutting tools.Its powerful clamping force and ability to hold tools within 1 micron T.I.R. and eliminate the need for expensive hydraulic chucks (Hydrogrip) and conventional miling chucks .

NATHO'S innovative MICRO CHUCK features clamping surfaces ground directly from the tool holder body. Holding a cutting tool within 5 micron T.I.R. is achieved with no adjustments. MICRO CHUCK incorporates truing screws that contact the tool shank directly, permitting rapid adjustments to within 1 micron - either on a pre setter or in the machine spindle .

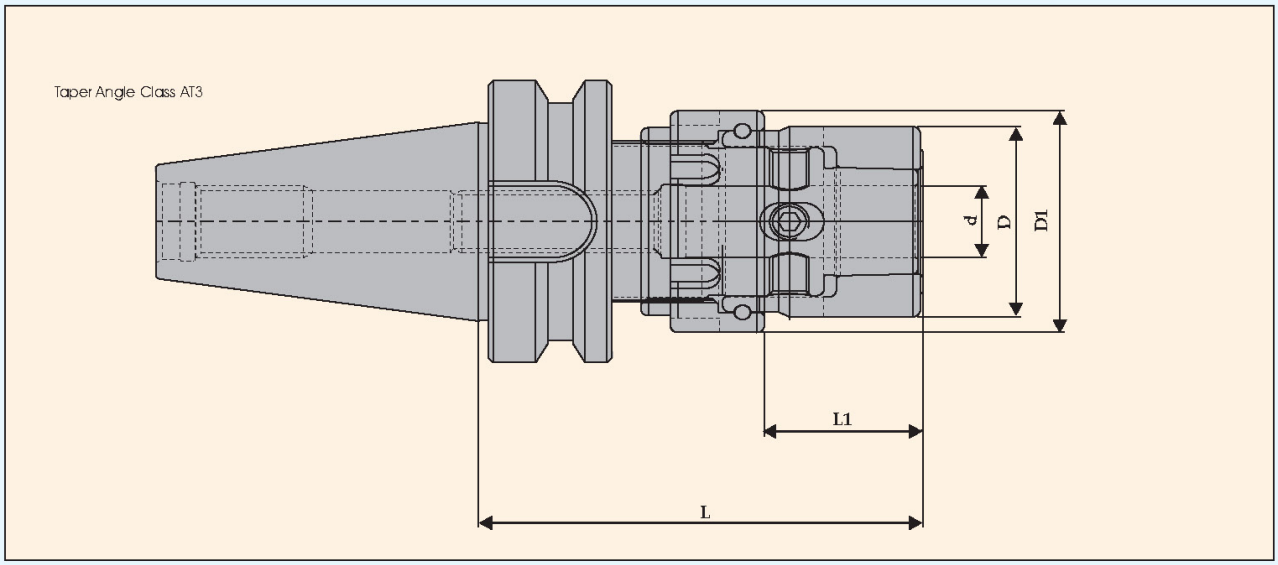
MICRO CHUCK is ideal for rough milling and finish milling. And because of its unusually high accuracy, it is perfectly suited for holemaking applications that normally require hydraulic chuck (Hydrogrip) or boring operations.

The MICRO CHUCK ensures greater workpiece accuracy, while delivering increased feed rates and tool life.

Features and Benefits :

- Vibration-damping structure. NATHO'S MICRO CHUCK interrupts the transmission of helical vibrations to allow increased RPM and feed rates.
- Guaranteed high accuracies. Tools clamp within 5 micron T.I.R. With no adjustment. Truing screws that contact directly to the tool shank can be set easily and quickly to achieve T.I.R. within 1 micron.
- Locking screw. In addition to exerting extremely powerful clamping forces, the MICRO CHUCK is equipped with a Weldon type screw to eliminate tool pullout common with standard heavy duty milling chucks.
- Delivery. MICRO high precision chucks are available in all standard sizes like CAT/V-Flange, BT,SK (DIN 69871) etc.
- Value pricing. MICRO CHUCK can replace expensive hydraulic chucks (Hydrogrip) and heavy duty milling chucks, yet are available from NATHO at much lower price.

MICRO HIGH PRECISION CHUCK



SPECIFICATIONS

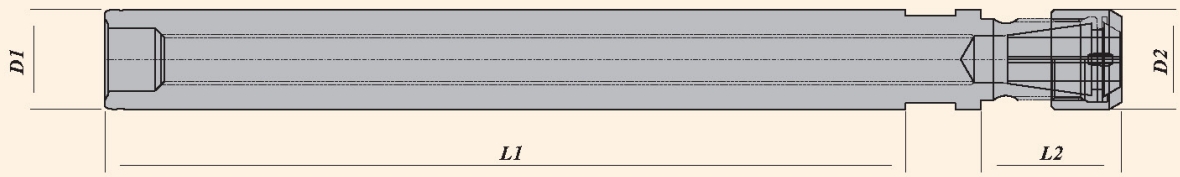
Description	Shank	d mm.	D mm.	D1 mm.	L mm.	L1 mm.
BT40MicroChuck 06	BT 40	6.0	28.5	37.5	78	25
BT40MicroChuck 08	BT 40	8.0	28.5	37.5	78	25
BT40MicroChuck 10	BT 40	10.0	35.5	44.5	88	31.5
BT40MicroChuck 12	BT 40	12.0	38.0	44.5	88	31.5
BT40MicroChuck 16	BT 40	16.0	42.5	49.5	90	32.5
BT40MicroChuck 20	BT 40	20.0	48.5	54.5	92	34.5
BT40MicroChuck 25	BT 40	25.0	61.5	68.5	98	39
BT40MicroChuck 32	BT 40	32.0	70.0	73.5	106	43.5
BT50MicroChuck 06	BT 50	6.0	28.5	37.5	89	25
BT50MicroChuck 08	BT 50	8.0	28.5	37.5	89	25
BT50MicroChuck 10	BT 50	10.0	35.5	44.5	99	31.5
BT50MicroChuck 12	BT 50	12.0	38.0	44.5	99	31.5
BT50MicroChuck 16	BT 50	16.0	42.5	49.5	101	32.5
BT50MicroChuck 20	BT 50	20.0	48.5	54.5	103	34.5
BT50MicroChuck 25	BT 50	25.0	61.5	68.5	109	39
BT50MicroChuck 32	BT 50	32.0	70.0	73.5	117	43.5

Ordering Example :-
NATHO BT40MicroChuck 20 - 2 Nos.

Description	Shank	d mm.	D mm.	D1 mm.	L mm.	L1 mm.
CT40MicroChuck 06	CT 40	6.0	28.5	37.5	86	25
CT40MicroChuck 08	CT 40	8.0	28.5	37.5	86	25
CT40MicroChuck 10	CT 40	10.0	35.5	44.5	96	31.5
CT40MicroChuck 12	CT 40	12.0	38.0	44.5	96	31.5
CT40MicroChuck 16	CT 40	16.0	42.5	49.5	98	32.5
CT40MicroChuck 20	CT 40	20.0	48.5	54.5	100	34.5
CT40MicroChuck 25	CT 40	25.0	61.5	68.5	106	39
CT40MicroChuck 32	CT 40	32.0	70.0	73.5	114	43.5
CT50MicroChuck 06	CT 50	6.0	28.5	37.5	86	25
CT50MicroChuck 08	CT 50	8.0	28.5	37.5	86	25
CT50MicroChuck 10	CT 50	10.0	35.5	44.5	96	31.5
CT50MicroChuck 12	CT 50	12.0	38.0	44.5	96	31.5
CT50MicroChuck 16	CT 50	16.0	42.5	49.5	98	32.5
CT50MicroChuck 20	CT 50	20.0	48.5	54.5	100	34.5
CT50MicroChuck 25	CT 50	25.0	61.5	68.5	106	39
CT50MicroChuck 32	CT 50	32.0	70.0	73.5	114	43.5

CYLINDRICAL COLLET CHUCK WITH M NUTS

CYL BABY COLLET CHUCKS

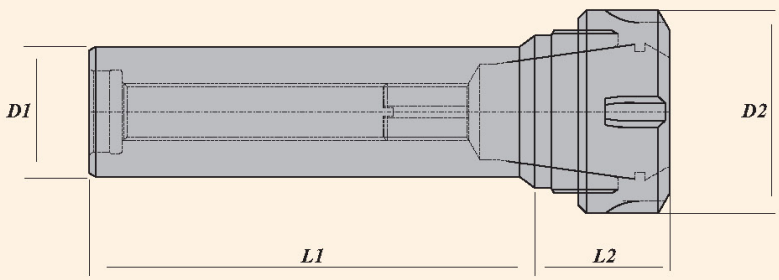


Maximum runout of the
internal taper in relation
to the external diameter 0.005 mm

Description	D1	L1	L2	D2 for M Type Nut	Clamping capacity	M Type Spanner	Std. nut Spanner
D8 L70 ER8M	8	70	21	12	0.5-5	ER8M	--
D8 L125 ER8M	8	125	21	12	0.5-5	ER8M	--
D12 L125 ER8M	12	125	16	12	0.5-5	ER8M	--
D12 L125 ER11M	12	125	27	16	0.5-7	ER11M	GS17
D16 L150 ER11M	16	150	19	16	0.5-7	ER11M	GS17
D12 L150 ER16M	12	150	36	22	0.5-10	ER16M	GS25
D16 L150 ER16M	16	150	36	22	0.5-10	ER16M	GS25
D20 L150 ER16M	20	150	36	22	0.5-10	ER16M	GS25
D20 L200 ER16M	20	200	36	22	0.5-10	ER16M	GS25
D25 L150 ER16M	25	150	36	22	0.5-10	ER16M	GS25
D20 L150 ER20M	20	150	37	28	1-13	ER20M	E20
D25 L150 ER20M	25	150	37	28	1-13	ER20M	E20
D20 L150 ER25M	20	150	46	35	1-16	ER25M	E25
D25 L150 ER25M	25	150	46	35	1-16	ER25M	E25
D32 L180 ER25M	32	180	46	35	1-16	ER25M	E25

Ordering Example :-
NATHO D32 L180 ER25M / Qty.- 2 Nos.

ER CYLINDRICAL COLLET CHUCK WITH STANDARD NUTS



Maximum runout of the
internal taper in relation
to the external diameter 0.005 mm

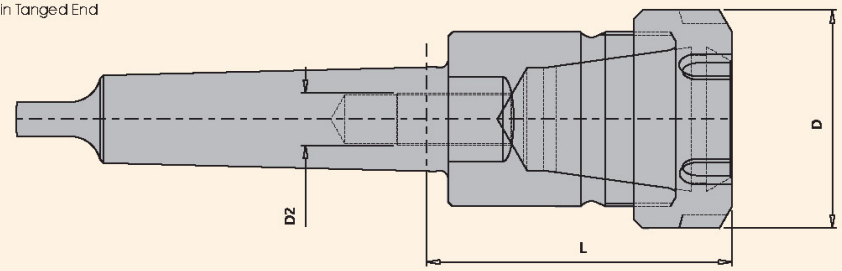
Description	D1	L1	L2	D2	Clamping capacity	Type
D16 L60 ER16	16	60	36	28	0.5-10	ER16
D16 L100 ER16	16	100	36	28	0.5-10	ER16
D16 L150 ER16	16	150	36	28	0.5-10	ER16
D20 L100 ER16	20	100	36	28	0.5-10	ER16
D20 L150 ER16	20	150	36	28	0.5-10	ER16
D20 L150 ER20	20	150	37	34	1-13	ER20
D25 L50 ER25	25	50	39	42	1-16	ER25
D32 L50 ER25	30	150	39	42	1-16	ER25
D40L90 ER25	40	90	46	42	1-16	ER25
D32 L60 ER32	32	60	40	50	2-20	ER32
D40L90 ER32	40	90	52	50	2-20	ER32
D40L90ER40	40	90	60	63	3-26	ER40

Ordering Example :-
NATHO D16 L60 Er16 / Qty.- 2 Nos.

MORSE TAPER COLLET CHUCK ER (MTA Tang Type)

MTB / ER
DIN 228

Also available in Tanged End



Maximum runout of the internal taper in relation to the external taper 0.005 mm

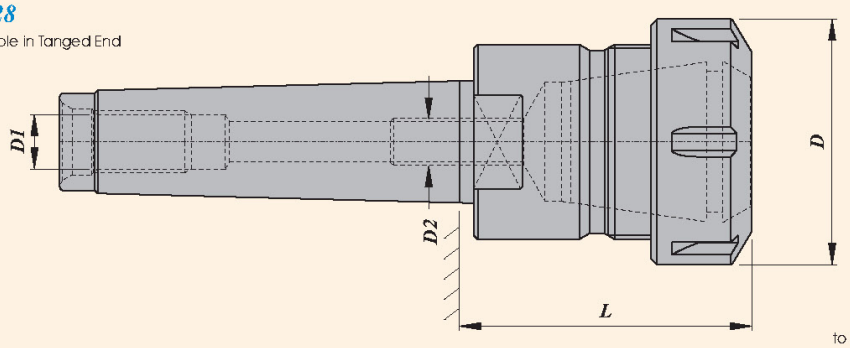
Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D2	Nut		Spanner Designation
					D	Designation	
MT 1A ER 11025	ER 11	0.5 - 7	25	M6	19	UM/ER 11	GS 17
MT 1A ER 16045	ER 16	0.5 - 10	45	M6	28	UM/ER 16	GS 25
MT 2A ER 16042	ER 16	0.5 - 10	42	M6	28	UM/ER 16	GS 25
MT 2A ER 20048	ER 20	1 - 13	48	M8	34	UM/ER 20	E 20
MT 2A ER 25052	ER 25	1 - 16	52	M10	42	UM/ER 25	E 25
MT 2A ER 32060	ER 32	2 - 20	60	M12	50	UM/ER 32	E 32
MT 3A ER 25052	ER 25	1 - 10	52	M10	42	UM/ER 25	E 25
MT 3A ER 32070	ER 32	2 - 20	70	M12	50	UM/ER 32	E 32
MT 3A ER 40080	ER 40	3 - 26	80	M18	63	UM/ER 40	E 40
MT 4A ER 25052	ER 25	1 - 16	52	M10	42	UM/ER 25	E 25
MT 4A ER 32054	ER 32	2 - 20	54	M12	50	UM/ER 32	E 32
MT 4A ER 40075	ER 40	3 - 26	75	M16	63	UM/ER 40	E 40
MT 4A ER 50105	ER 50	10 - 34	105	M16	78	UM/ER 50	E 30
MT 5A ER 40082	ER 40	3 - 26	82	M16	63	UM/ER 40	E 40
MT 5A ER 50100	ER 50	10 - 34	100	M16	78	UM/ER 50	E 60

Ordering Example :-
NATHO MT 5A ER 50100 / Qty. - 3 Nos.

MORSE TAPER COLLET CHUCK ER (MTB Pull Type)

MTB / ER
DIN 228

Also available in Tanged End



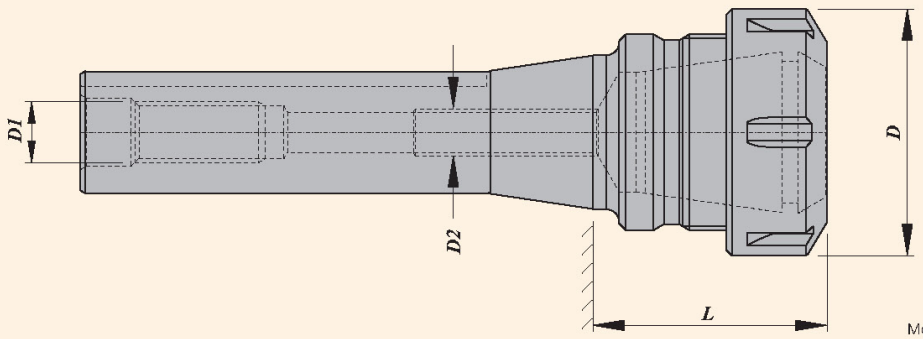
Maximum runout of the internal taper in relation to the external taper 0.005 mm

Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D2	Nut		Spanner Designation
					D	Designation	
MT 1A ER 11025	ER 11	0.5 - 7	25	M6	19	UM/ER 11	GS 17
MT 1A ER 16045	ER 16	0.5 - 10	45	M6	28	UM/ER 16	GS 25
MT 2A ER 16042	ER 16	0.5 - 10	42	M6	28	UM/ER 16	GS 25
MT 2A ER 20048	ER 20	1 - 13	48	M8	34	UM/ER 20	E 20
MT 2A ER 25052	ER 25	1 - 16	52	M10	42	UM/ER 25	E 25
MT 2A ER 32060	ER 32	2 - 20	60	M12	50	UM/ER 32	E 32
MT 3A ER 25052	ER 25	1 - 10	52	M10	42	UM/ER 25	E 25
MT 3A ER 32070	ER 32	2 - 20	70	M12	50	UM/ER 32	E 32
MT 3A ER 40080	ER 40	3 - 26	80	M18	63	UM/ER 40	E 40
MT 4A ER 25052	ER 25	1 - 16	52	M10	42	UM/ER 25	E 25
MT 4A ER 32054	ER 32	2 - 20	54	M12	50	UM/ER 32	E 32
MT 4A ER 40075	ER 40	3 - 26	75	M16	63	UM/ER 40	E 40
MT 4A ER 50105	ER 50	10 - 34	105	M16	78	UM/ER 50	E 30
MT 5A ER 40082	ER 40	3 - 26	82	M16	63	UM/ER 40	E 40
MT 5A ER 50100	ER 50	10 - 34	100	M16	78	UM/ER 50	E 60

Ordering Example :-
NATHO MT 5A ER 50100 / Qty. - 3 Nos.

R8 SHANK 'ER' COLLET HOLDERS (BRIDGEPORT / M1TR) TYPE

R 8 / ER



Maximum runout of the internal taper in relation to the external taper 0.005 mm

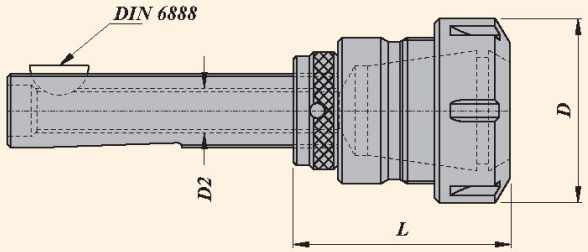
Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D2	Nut		Spanner Designation
					D	Designation	
R8 ER 16040	ER 16	0.5- 10	40	M6	28	UM/ER 16	GS 25
R8 ER 20050	ER 20	1 - 13	50	M 8	34	UM/ER 20	E 20
R8 ER 25050	ER 25	2 - 16	50	M10	42	UM/ER 25	E 25
R8 ER 32060	ER 32	3 - 20	60	M12	50	UM/ER 32	E 32

Ordering Example :-
NATHO R8 ER 25050 / Qty. - 4 Nos.

Specify D1 as required : 1) Metric - M 12 x 1.5
2) Inch - 7/16" - 20 UNF - 2A

TR SHANK 'ER' COLLET HOLDERS

TR / ER



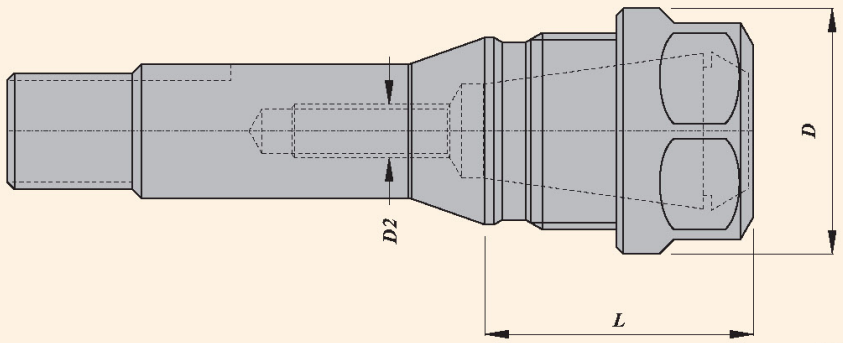
Maximum runout of the internal taper in relation to the external diameter 0.005 mm

Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D2	Nut		Spanner Designation
					D	Designation	
TR 12 ER 11050	ER 11	0.5 - 7	50	M 5	19	UM/ER 11	GS 17
TR 12 ER 16060	ER 16	0.5 - 10	60	M6	28	UM/ER 16	GS 25
TR 16 ER 16060	ER 16	0.5 - 1	60	M10	28	UM/ER 16	GS 25
TR 16 ER 20060	ER 20	1.0 - 13	60	M10	34	UM/ER 20	E 20
TR 16 ER 25060	ER 25	1.0 - 16	60	M12	42	UM/ER 25	E 32
TR 16 ER 32080	ER 32	2.0 - 20	80	M12	50	UM/ER 32	E 32
TR 20 ER 20060	ER 20	1.0 - 13	60	M8	34	UM/ER 20	E 20
TR 28 ER 25060	ER 25	1.0 - 16	60	M10	42	UM/ER 25	E 25
TR 28 ER 32060	ER 32	2.0 - 20	60	M12	50	UM/ER 32	E 32
TR 32 ER 32050	ER 32	2.0 - 20	50	M12	50	UM/ER 32	E 32
TR 32 ER 40080	ER 40	3.0 - 26	80	M16	63	UM/ER 40	E 40
TR 36 ER 32050	ER 32	2.0 - 20	50	M12	50	UM/ER 32	E 32
TR 36 ER 40070	ER 40	3.0 - 26	70	M16	63	UM/ER 40	E 40

Ordering Example :-
NATHO TR 28 ER 32060/Qty. - 2 Nos.

COLLET HOLDERS FOR TRAUB AUTOMATS A3 & A4 SHANK

A3 / ER

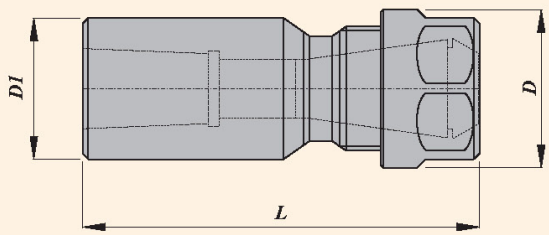


Maximum runout of the internal taper in relation to the external taper 0.005 mm

Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D2	Nut		Spanner Designation
					D	Designation	
A3 ER 16030	ER 16	0.5 - 10	30	M6	28	UM/ER 16	GS 25
A4 ER 32050	ER 32	2 - 20	50	M12	50	UM/ER 32	E 32

Ordering Example :-
NATHO A3 ER 16030/Qty. - 2 Nos.

J / ER DIN

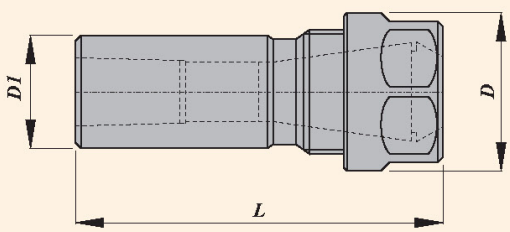


Maximum runout of the internal taper in relation to the internal taper 0.005 mm

Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	Nut		Spanner Designation
					D	Designation	
J2 ER 16	ER 16	0.5 - 10	70	25	28	UM/ER 16	GS 25
J6 ER 20	ER 20	1 - 13	70	34	34	UM/ER 20	E 20

Ordering Example :-
NATHO J2 ER 16/Qty. - 2 Nos.

B / ER DIN 238

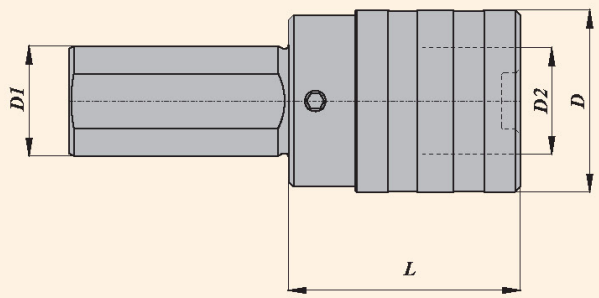


Maximum runout of the internal taper in relation to the internal taper 0.005 mm

Collet Chuck Designation	Suitable for Collet	Collet Clamping Capacity	L	D1	Nut		Spanner Designation
					D	Designation	
B12 ER 16	ER 16	0.5 - 10	65	25	28	UM/ER 16	GS 25
B16 ER 20	ER 20	1 - 13	70	34	34	UM/ER 20	E 20

Ordering Example :-
NATHO B12 ER 16/Qty. - 2Nos.

KWFLK / DIA : TAPPING CHUCK

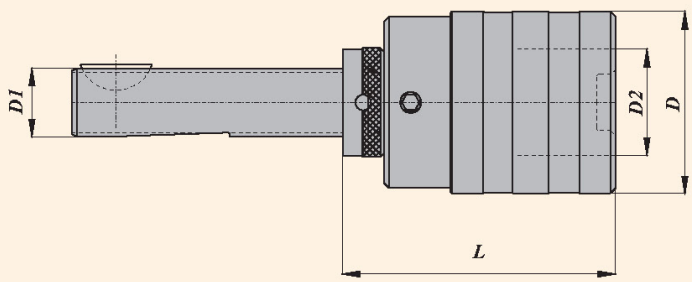


Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	D1 dia.	D2 dia.	L
			Compr.	Expan.				
KWFLK1/DIA	M 3 - M 12	KWES1B / KWE1	7.50	7.50	36	25	19	40
KWFLK2/DIA	M 8 - M 20	KWES2B / KWE2	12.50	12.50	53	25/32/40	31	63
KWFLK3/DIA	M 14 - M 33	KWES3B / KWE3	20.00	20.00	78	32/40	48	125

Ordering Example :-
NATHO KWFLK3/DIA 25 / Qty. - 2 Nos.

For Adaptors refer page no.13,14,15

KWFLK / TR .. (DIN 6327) : TAPPING CHUCK

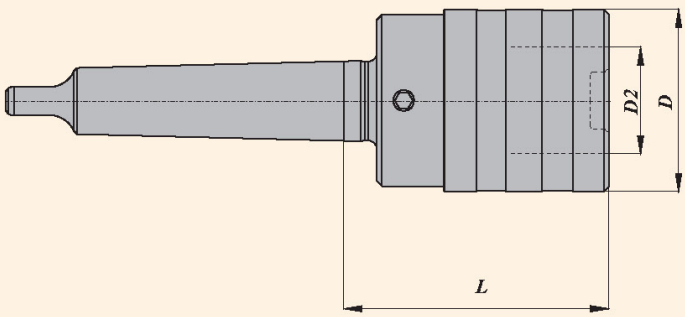


Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	D2 dia.	TR 16X1.5	TR 20X2	TR 28X2	TR 36X2	TR 48X2
			Compr.	Expan.			L	L	L	L	L
KWFLK1/TR	M 3 - M 12	KWES1B / KWE1	7.5	7.5	36	19	52	52	52	54	-
KWFLK2/TR	M 8 - M 20	KWES2B / KWE2	12.5	12.5	53	31	-	76	76	78	-
KWFLK3/TR	M 14 - M 33	KWES3B / KWE3	20.0	20.0	78	78	-	-	109	111	115

Ordering Example :-
NATHO KWFLK3/TR 20X2 / Qty. - 2 Nos.

For Adaptors refer page no13,14,15

KWFLK / MT .. (DIN 228) : TAPPING CHUCK

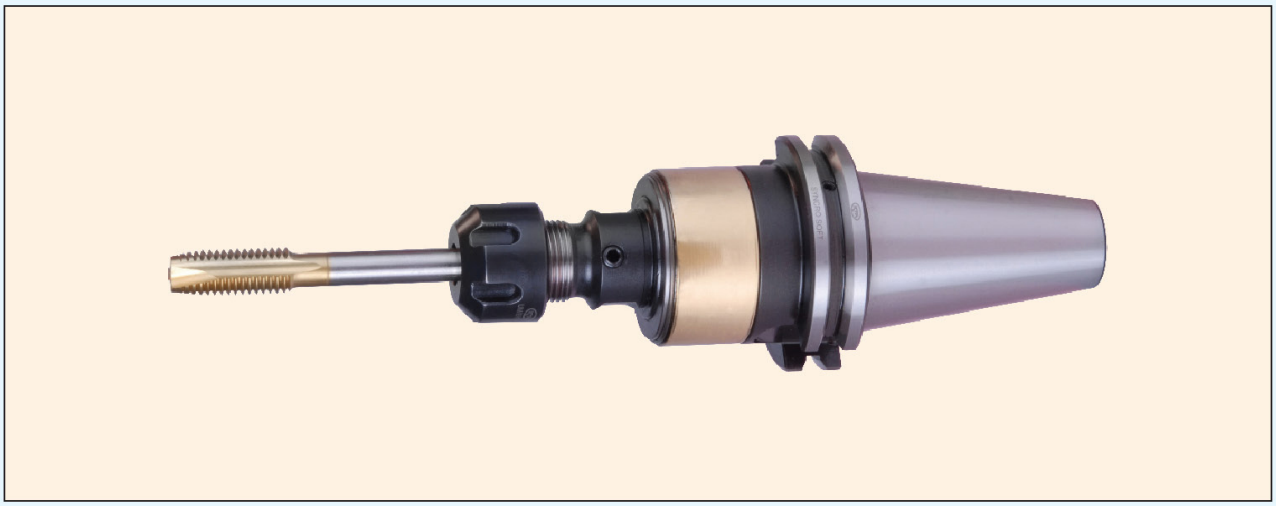


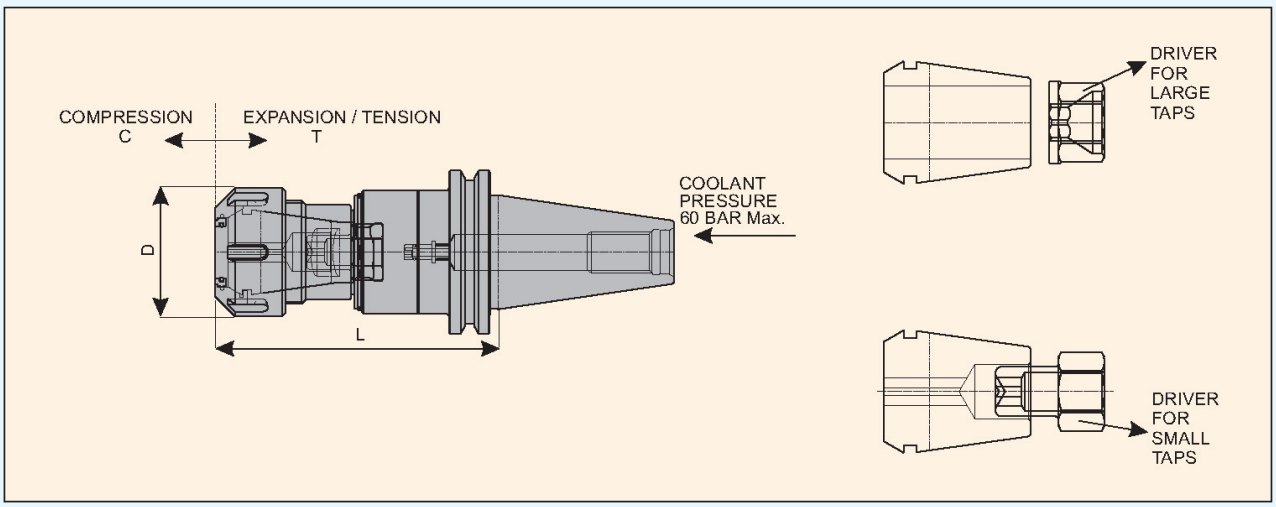
Chuck Designation Size	For Taps Size	Suitable Adaptors	Length Comp.		D dia.	D2 dia.	MT 2	MT 3	MT 4	MT 5
			Compr.	Expan.			L	L	L	L
KWFLK1/MT	M 3 - M 12	KWES1B / KWE1	7.5	7.5	36	19	47	47	-	-
KWFLK2/MT	M 8 - M 20	KWES2B / KWE2	12.5	12.5	53	31	-	71	72	-
KWFLK3/MT	M 14 - M 33	KWES3B / KWE3	20.0	20.0	78	78	-	-	105	105.5

Ordering Example :-
NATHO KWFLK3/MT2 / Qty. - 2 Nos.

For Adaptors refer page no. 13,14,15

DIN 69871 SK XX (CT)

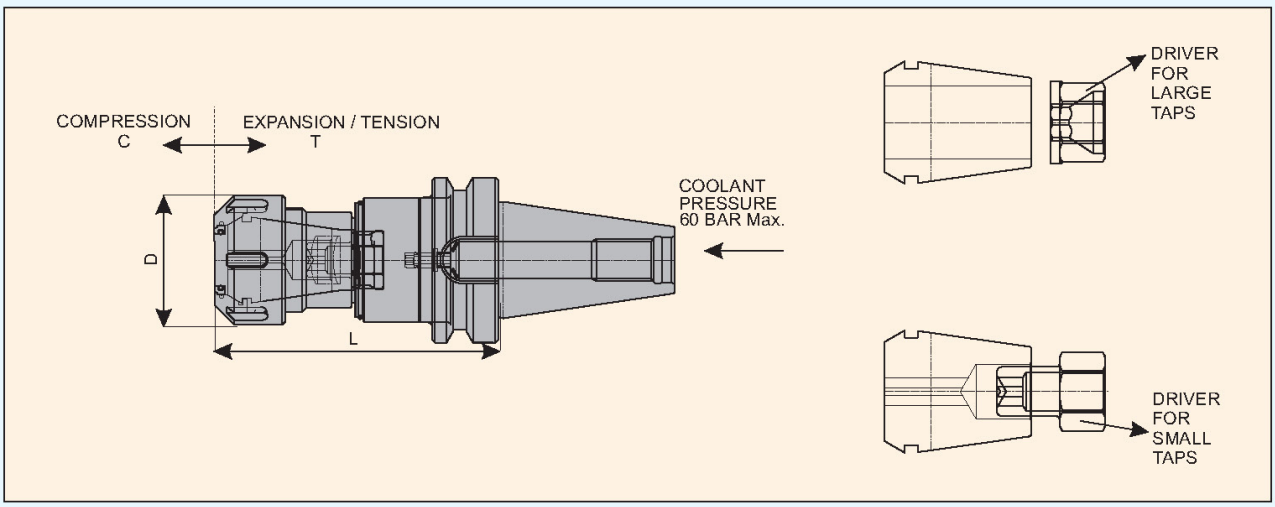




CHUCK TYPE	RANGE	C	T	D	G.P.Lg.	CT30 / SK30	CT40 / SK40	CT50 / SK50
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	L	123	110	106
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	L	123	110	106
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63	L		142	125.5

Ordering Example :-
NATHO SY-SO, CT40 /SIZE2 / ER32 / Qty.- 2 Nos.

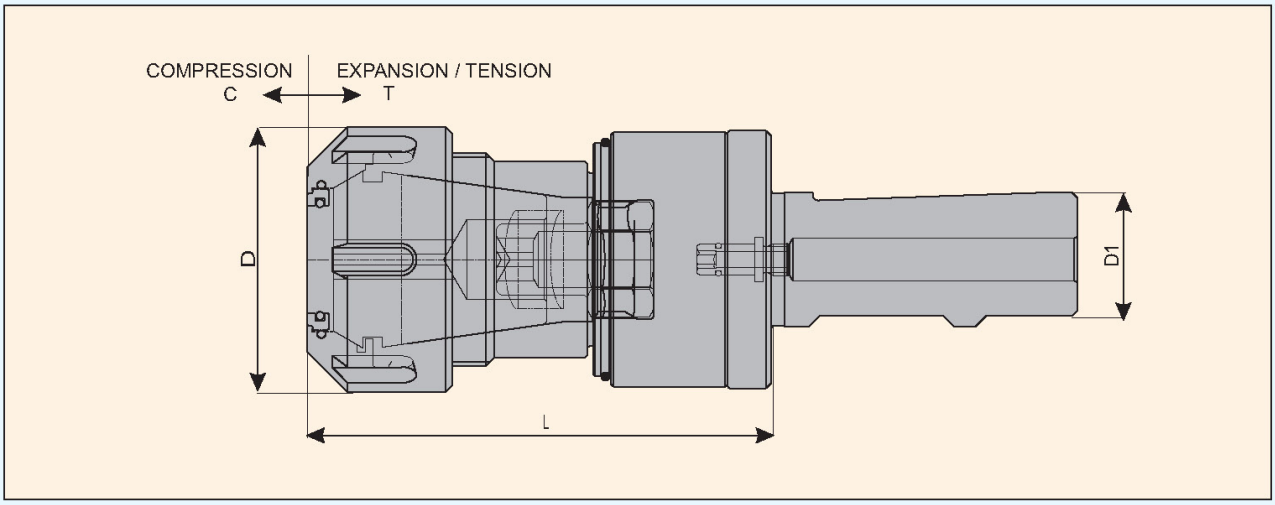
MAS403 / BT XX



CHUCK TYPE	RANGE	C	T	D	G.P.Lg.	BT30	BT40	BT50
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	L	110	110	125
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	L	110	110	125
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63	L		130	142.5

Ordering Example :-
NATHO SY-SO, MAS403 /BT40 /SIZE2 / ER32 / Qty.- 2 Nos.

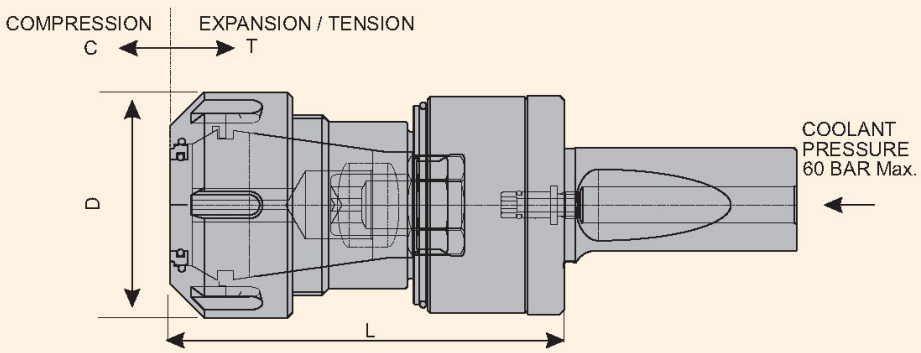
CYL. SHANK (DIN 1835)



CHUCK TYPE	RANGE	C	T	D	L	MOUNTING DIAMETER D1		
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	87.0mm	25	32	
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	87.0mm	25	32	
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63	118.0mm		32	40

Ordering Example :-
NATHO SY-SO, DIA25(DIN1835) /SIZE2 / ER32 / Qty.- 2 Nos.

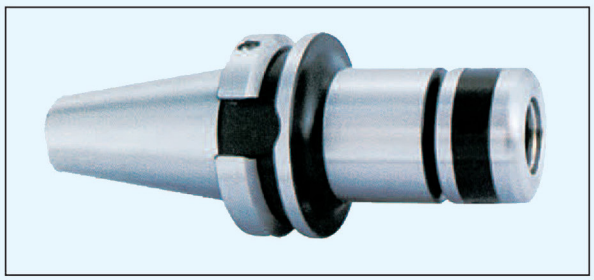
CYLINDRICAL MOUNTING (INCH)

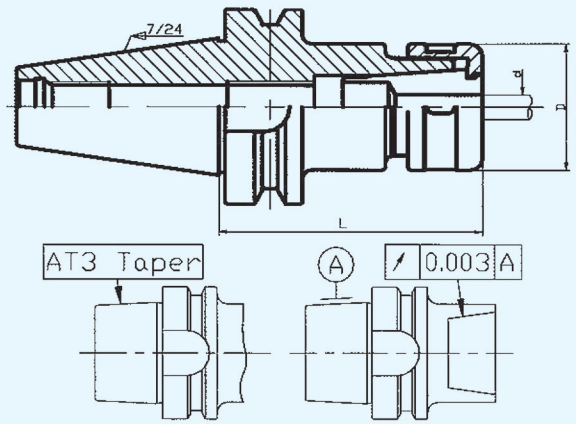


CHUCK TYPE	RANGE	C	T	D	L	MOUNTING DIAMETER
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	87.0mm	1"
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	87.0mm	1"
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63	118.0mm	1" ½"

Ordering Example :-
NATHO SY-SO, HSK-A 63 /1"/ SIZE2 / ER32 / Qty.- 2 Nos.

SD-BT(MAS403) SD PRECISION COLLET CHUCK





μ grade

Order Code	L	ØD	Hold range Ød
BT30–SD06– 60	60	20	1.75~6.0
– 90	90		
–SD10– 60	60	29	1.75~10.0
– 90	90		
–SD16– 60	60	41	2.75~16
– 90	90		
–SD20– 60	60	50	4–20
–SD25– 60	60	55	6–25
BT40–SD06– 60	60	20	1.75~6.0
–90	90		
–120	120		
–SD10– 60	60	29	1.75~10.0
–90	90		
–120	120		
–150	150		
–SD16– 60	60	41	2.75~16
–90	90		
–120	120		
–150	150		
–SD20– 60	60	50	4–20
–90	90		
–120	120		
–150	150		
–SD25– 90	90	55	6~25
–120	120		
–150	150		
BT50–SD06–100	100	20	1.75~6.0
–150	150		
–SD10–100	100	29	1.75~10.0
–150	150		

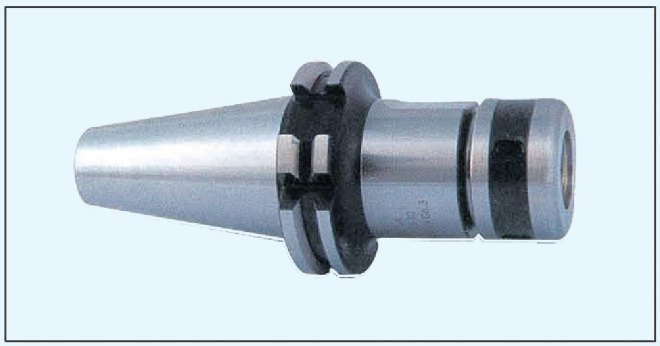
continued Table >>

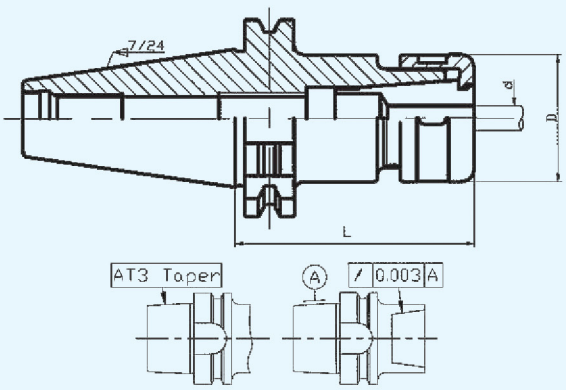
SD-BT(MAS403) SD PRECISION COLLET CHUCK

continued Table > >

Order Code	L	D	Hold Range φd
BT50–SD16–60	60		
–90	90	41	2.75~16
–120	120		
–SD20–60	60		
–90	90	50	4–20
–120	120		
SD25–100	100		
–150	150	55	6~25
–200	200		

SD-SK(DIN69871-1) SD PRECISION COLLET CHUCK - SK

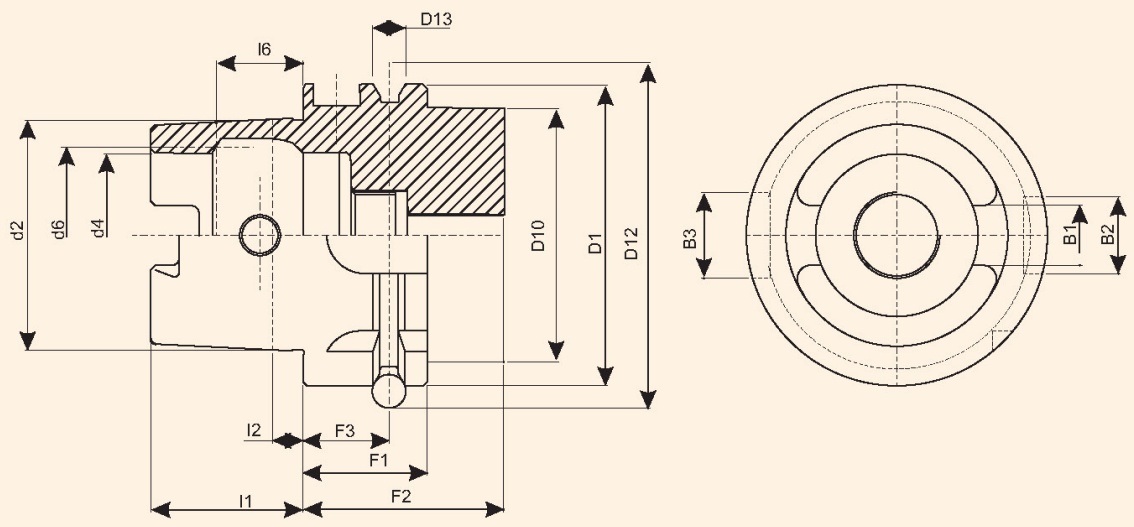




μ grade

Order Code	L	ØD	Hold Range φd
SK40–SD06–80	80	20	1.75~6.0
–SD10–80		29	1.75~10.0
–SD16–80		41	2.75~16
–SD20–80		50	4–20
SD25–80		55	6~25
SK50–SD06–100	100	20	1.75~6.0
–SD10–100		29	1.75~10.0
–SD16–100		41	2.75~16
–SD20–100		50	4–20
–SD25–100		55	6~25

HSK TOOL HOLDERS : (DIN - 69893)



	HSK-A 50	HSK-A 63	HSK-A 100
b1	10,54	12,54	20.02
b2	12	16	20
b3	14	18	22
d1	50	63	100
d2	38	48	75
d4	26	34	53
d6	29	37	58
d10	42	53	88
d12	59,3	72,3	109,75
d13	7	7	7
f1	26	26	29
f2	42	42	45
f3	18	18	20
l1	25	32	50
L2	5	6,3	10
l6	14,13	18.13	28.56

All **HSK** Tool holders are manufactured according to **DIN** 69893.
Balanced to G 6.3 - 12,000 RPM.

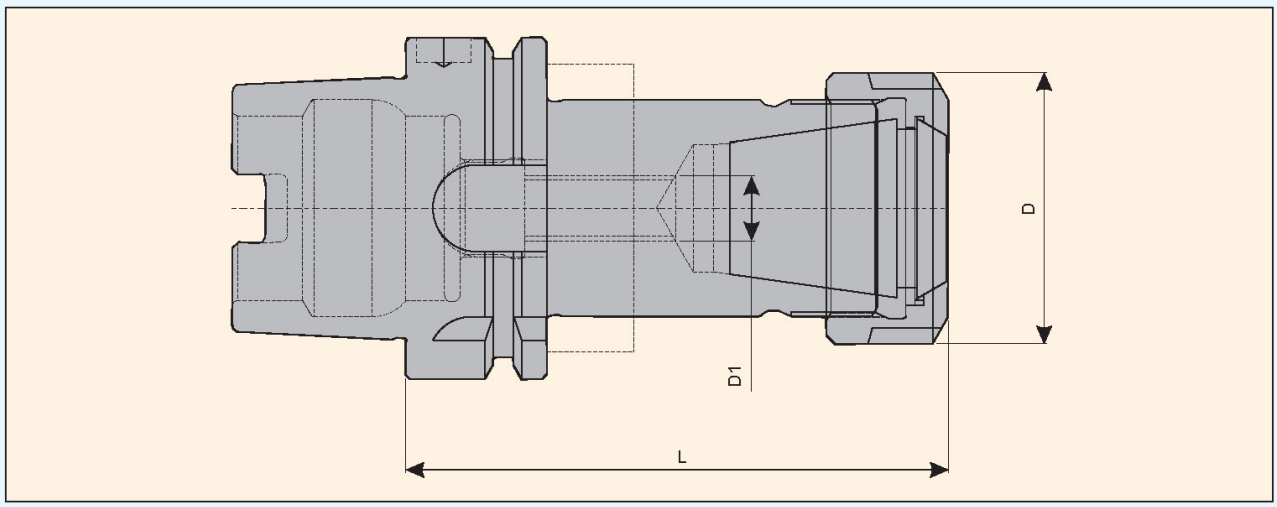
FORM A

Used on machining centres, milling machines turning machines, special machines with automatic tool change.

- central, axial coolant supply through coolant tube.
- Torque transmission via two key slots at end of taper.
- Two slots on collar for tool magazine, location edge.

Hole for data carrier **DIN** 69873 in collar.

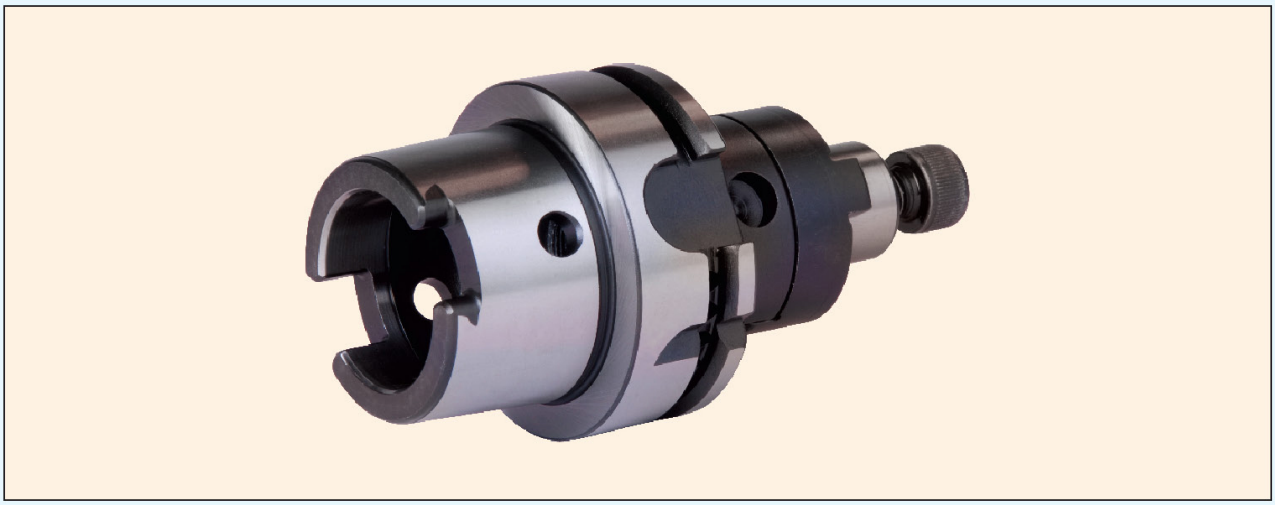
COLLET CHUCK FOR COLLETS ER : DIN 6499

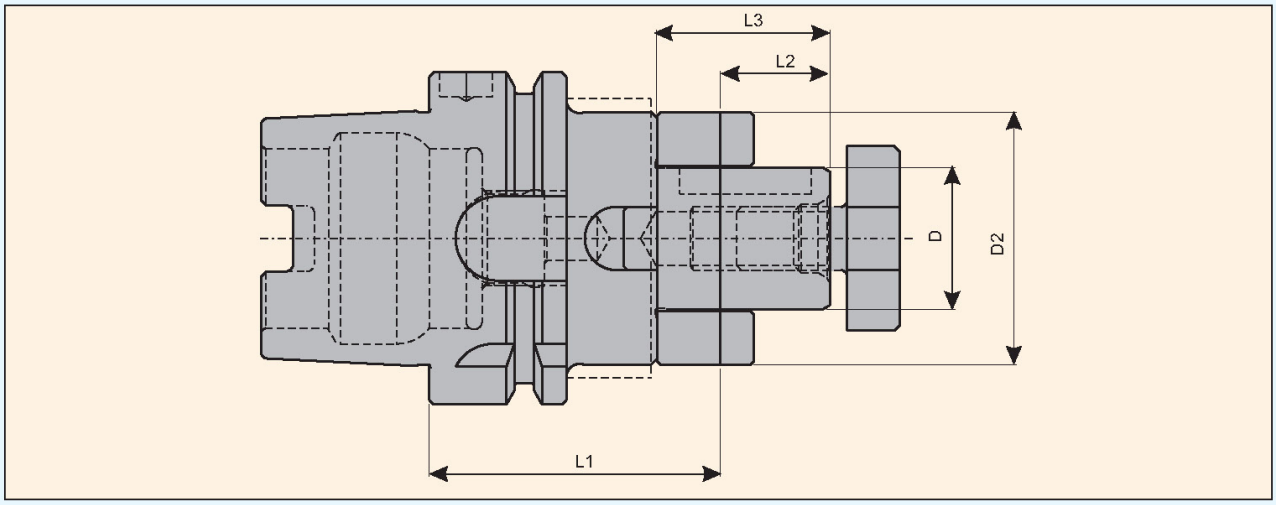


HSK ER COLLET CHUCK	CLAMPING CAPACITY	D	L	D1
HSK-A 50 ER25095	1.0 - 16	42.00	95m	M18x1
HSK-A 50 ER32100	2.0 - 20	50.00	100	M22x1.5
HSK-A 50 ER32160	2.0 - 20	50.00	160	M22x1.5
HSK-A 63 ER16100	0.5 - 10	28.00	100	M10x1
HSK-A 63 ER20100	1.0 - 13	34.00	100	M10x1
HSK-A 63 ER25090	1.0 - 16	42.00	90	M18x1
HSK-A 63 ER32100	2.0 - 20	50.00	100	M22x1.5
HSK-A 63 ER32160	2.0 - 20	50.00	160	M22x1.5
HSK-A 63 ER40120	3.0 - 26	63.00	120	M30x1.5
HSK-A 63 ER40160	3.0 - 26	63.00	160	M30x1.5
HSK-A 100 ER25100	1.0 - 16	42.00	100	M18x1
HSK-A 100 ER25160	1.0 - 16	42.00	160	M18x1
HSK-A 100 ER32100	2.0 - 20	50.00	100	M22x1.5
HSK-A 100 ER32160	2.0 - 20	50.00	160	M22x1.5
HSK-A 100 ER40120	3.0 - 26	63.00	120	M30x1.5
HSK-A 100 ER40160	3.0 - 26	63.00	160	M30x1.5
HSK-A 50 ER16080M	0.5 - 10	22.00	80	M10x1
HSK-A 50 ER16150M	0.5 - 10	22.00	150	M10x1
HSK-A 50 ER25150M	1.0 - 16	35.00	150	M18x1
HSK-A 63 ER1690M	0.5 - 10	22.00	90	M10x1
HSK-A 63 ER16160M	0.5 - 10	22.00	160	M10x1
HSK-A 63 ER25160M	1.0 - 16	35.00	160	M18x1

Ordering Example :-
NATHO HSK-A 63 ER16100 / Qty.- 2 Nos.

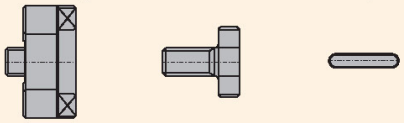
COMBI SHELL MILL ADAPTOR DIN 6538 (CSMA)





HSK CSMA	D	L1	L2	L3	D2
HSK-A 50 CSMA16050	16	50	17	27	32
HSK-A 50 CSMA22055	22	55	19	31	40
HSK-A 50 CSMA27065	27	65	21	33	48
HSK-A 50 CSMA32065	32	65	24	38	58
HSK-A 63 CSMA16060	16	60	17	27	32
HSK-A 63 CSMA22060	22	60	19	31	40
HSK-A 63 CSMA27060	27	60	21	33	48
HSK-A 63 CSMA32065	32	65	24	38	58
HSK-A 63 CSMA40070	40	70	27	41	70
HSK-A 100 CSMA16055	16	55	17	27	32
HSK-A 100 CSMA22065	22	65	19	31	40
HSK-A 100 CSMA27065	27	65	21	33	48
HSK-A 100 CSMA32070	32	70	24	38	58
HSK-A 100 CSMA40070	40	70	27	41	70

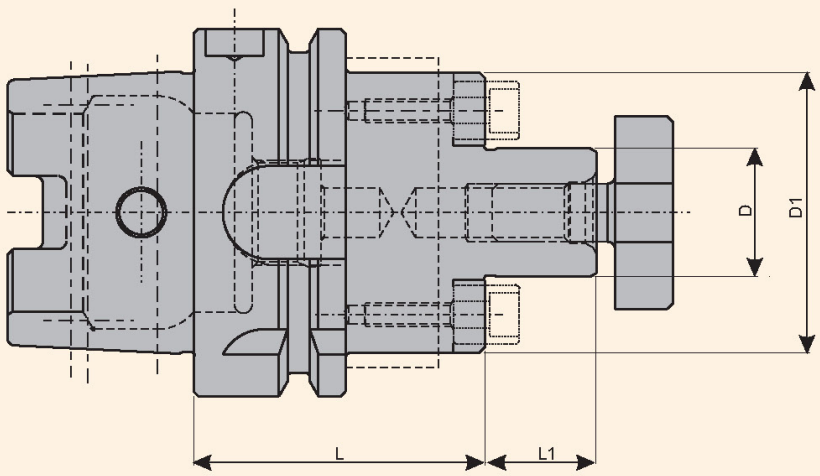
Driver Ring | Screw | Key



D	Driver Ring	Screw	Key W□ X L
16	DR16 X 10	SCR16 X M8	KEY 4□X20
22	DR22 X 12	SCR22 X M10	KEY 6□X25
27	DR27 X 12	SCR27 X M12	KEY 7□X25
32	DR32 X 14	SCR32 X M16	KEY 8□X30
40	DR40 X 14	SCR40 X M20	KEY 10□X30

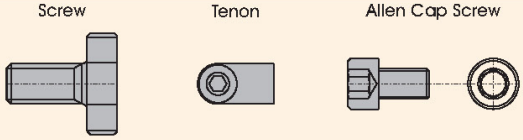
Ordering Example :-
NATHO HSK-A 63 CSMA16060 / Qty.- 2 Nos.

FACE MILL HOLDERS DIN 3937 (FMH)



HSK FMH	D	L	D1	L1
HSK-A 50 FMH16045	16	45	38	17
HSK-A 50 FMH22055	22	55	48	19
HSK-A 50 FMH27055	27	55	58	21
HSK-A 50 FMH32060	32	60	78	24
HSK-A 63 FMH16045	16	45	38	17
HSK-A 63 FMH160145	16	145	38	17
HSK-A 63 FMH22050	22	50	48	19
HSK-A 63 FMH220150	22	150	48	19
HSK-A 63 FMH27055	27	55	58	21
HSK-A 63 FMH270155	27	155	58	21
HSK-A 63 FMH32060	32	60	78	24
HSK-A 63 FMH320155	32	155	78	24
HSK-A 63 FMH40065	40	65	82	27
HSK-A 63 FMH400160	40	160	82	27
HSK-A 100 FMH16055	16	55	38	17
HSK-A 100 FMH160155	16	155	38	17
HSK-A 100 FMH22055	22	55	48	19
HSK-A 100 FMH220155	22	155	48	19
HSK-A 100 FMH27055	27	55	58	21
HSK-A 100 FMH270155	27	155	58	21
HSK-A 100 FMH32060	32	60	78	24
HSK-A 100 FMH320155	32	155	78	24
HSK-A 100 FMH40065	40	65	82	27
HSK-A 100 FMH400160	40	160	82	27

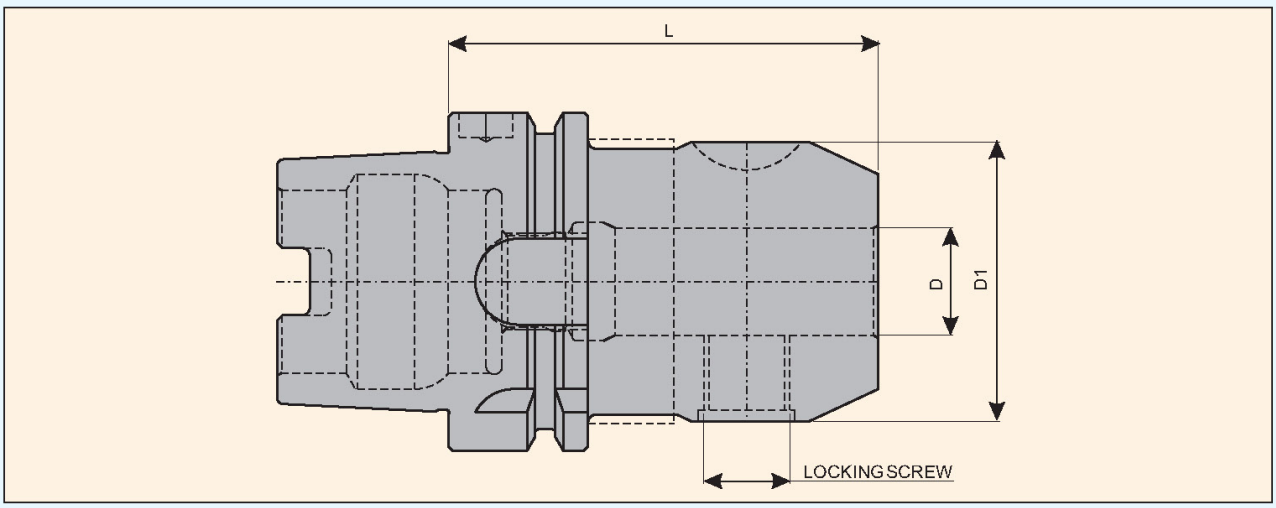
Screw Tenon Allen Cap Screw



D	Screw	Tenon	Allen Cap Screw
16	SCR16 X M8	8	M4
22	SCR22 X M10	10	M5
27	SCR27 X M12	12	M5
32	SCR32 X M16	14	M6
40	SCR40 X M20	16	M6

Ordering Example :-
NATHO HSK-A 63 FMH16045 / Qty.- 2 Nos.

WELDON DIN 1835 (FORM B) (WN)



HSK WN	D	L	D1	LOCKING SCREW
HSK-A 50 WN06065	06	65	25	M6
HSK-A 50 WN060100	06	100	25	M6
HSK-A50 WN060160	06	160	25	M6
HSK-A 50 WN08065	08	65	28	M8
HSK-A 50 WN080100	08	100	28	M8
HSK-A 50 WN080160	08	160	28	M8
HSK-A 50 WN10065	10	65	35	M10
HSK-A 50 WN100100	10	100	35	M10
HSK-A 50 WN100160	10	160	35	M10
HSK-A 50 WN12080	12	80	42	M12
HSK-A 50 WN120100	12	100	42	M12
HSK-A 50 WN120160	12	160	42	M12
HSK-A 50 WN14080	14	80	44	M12
HSK-A 50 WN140100	14	100	44	M12
HSK-A 50 WN140160	14	160	44	M12
HSK-A 50 WN16080	16	80	48	M14
HSK-A 50 WN160100	16	100	48	M14
HSK-A 50 WN160160	16	160	48	M14
HSK-A 50 WN18080	18	80	50	M14
HSK-A 50 WN20080	20	80	52	M16
HSK-A 63 WN25105	25	105	65	M18x2 / 2
HSK-A 63 WN32120	32	120	72	M20x2 / 2
HSK-A 63 WN06065	06	65	25	M6
HSK-A 63 WN060100	06	100	25	M6
HSK-A 63 WN060160	06	160	25	M6
HSK-A 63 WN08065	08	65	28	M8
HSK-A 63 WN080100	08	100	28	M8
HSK-A 63 WN080160	08	160	28	M8
HSK-A 63 WN10065	10	65	35	M10

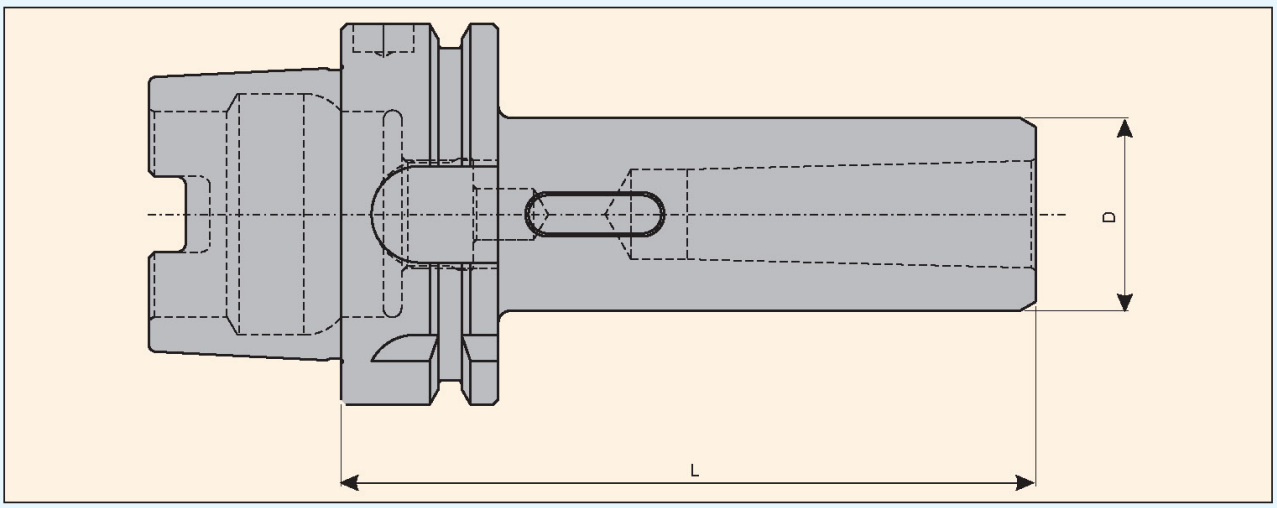
P.T.O

WELDON DIN 1835 (FORM B)(WN)

HSK WN	D	L	D1	LOCKING SCREW
HSK-A 63 WN100100	10	100	35	M10
HSK-A 63 WN100160	10	160	35	M10
HSK-A 63 WN12080	12	80	42	M12
HSK-A 63 WN120100	12	100	42	M12
HSK-A 63 WN120160	12	160	42	M12
HSK-A 63 WN14080	14	80	44	M12
HSK-A 63 WN140100	14	100	44	M12
HSK-A 63 WN140160	14	160	44	M12
HSK-A 63 WN16080	16	80	48	M14
HSK-A 63 WN160100	16	100	48	M14
HSK-A 63 WN160160	16	160	48	M14
HSK-A 63 WN18080	18	80	50	M14
HSK-A 63 WN180100	18	100	50	M14
HSK-A 63 WN180160	18	160	50	M14
HSK-A 63 WN20080	20	80	52	M16
HSK-A 63 WN200100	20	100	52	M16
HSK-A 63 WN200160	20	160	52	M16
HSK-A 63 WN25110	25	110	65	M18x2 / 2
HSK-A 63 WN32110	32	110	72	M20x2 / 2
HSK-A 63 WN40125	40	125	80	M20x2 / 2
HSK-A 100 WN06090	06	90	25	M6
HSK-A 100 WN060160	06	160	25	M6
HSK-A 100 WN08090	08	90	28	M8
HSK-A 100 WN080160	08	160	28	M8
HSK-A 100 WN10090	10	90	35	M10
HSK-A 100 WN100160	10	160	35	M10
HSK-A 100 WN12100	12	100	42	M12
HSK-A 100 WN12160	12	160	42	M12
HSK-A 100 WN14100	14	100	44	M12
HSK-A 100 WN14160	14	160	44	M12
HSK-A 100 WN16100	16	100	48	M14
HSK-A 100 WN16160	16	160	48	M14
HSK-A 100 WN18100	18	100	50	M14
HSK-A 100 WN18160	18	160	50	M14
HSK-A 100 WN20100	20	100	52	M16
HSK-A 100 WN20160	20	160	52	M16
HSK-A 100 WN25100	25	100	65	M18x2 / 2
HSK-A 100 WN25160	25	160	65	M18x2 / 2
HSK-A 100 WN32120	32	120	72	M20x2 / 2
HSK-A 100 WN40120	40	120	80	M20x2 / 2
HSK-A 100 WN50130	50	130	100	M24x2 / 2

Ordering Example :-
NATHO HSK-A 63 WN06065 / Qty.- 2 Nos.

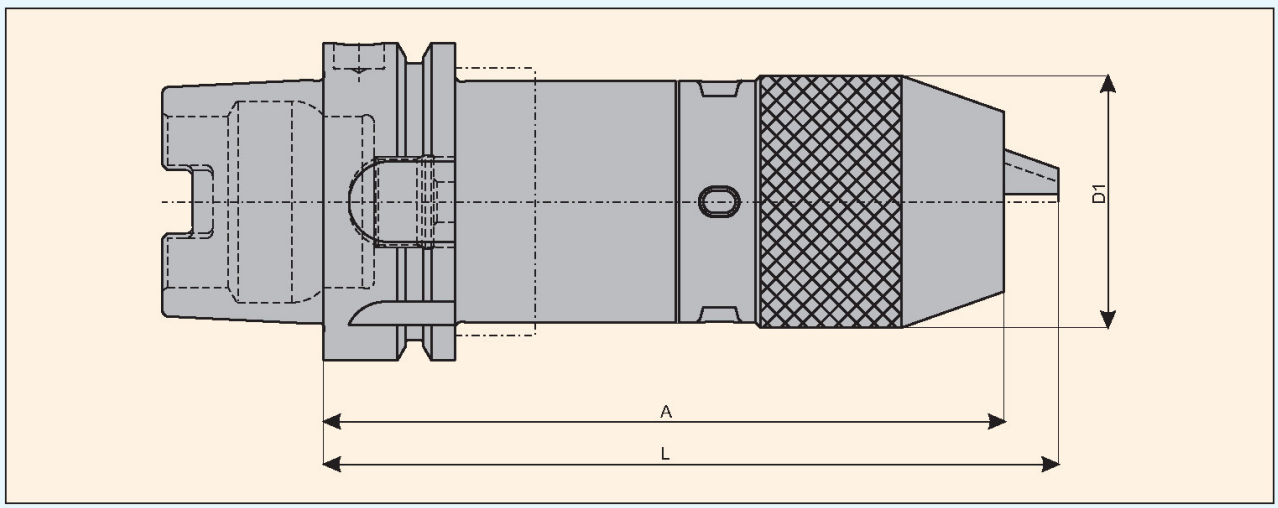
MORSE TAPER ADAPTOR DIN 228-2 FORM D (MTA)



HSK MORSE TAPER	D	L
HSK-A 50 MTA1100	25	100
HSK-A 50 MTA2115	32	115
HSK-A 50 MTA3135	40	135
HSK-A 63 MTA1100	25	100
HSK-A 63 MTA2115	32	115
HSK-A 63 MTA3135	40	135
HSK-A 63 MTA4160	48	160
HSK-A 100 MTA2120	32	120
HSK-A 100 MTA3150	40	150
HSK-A 100 MTA4170	48	170
HSK-A 100 MTA5205	63	205

Ordering Example :-
NATHO HSK-A 63 MTA1100 / Qty.- 2 Nos.

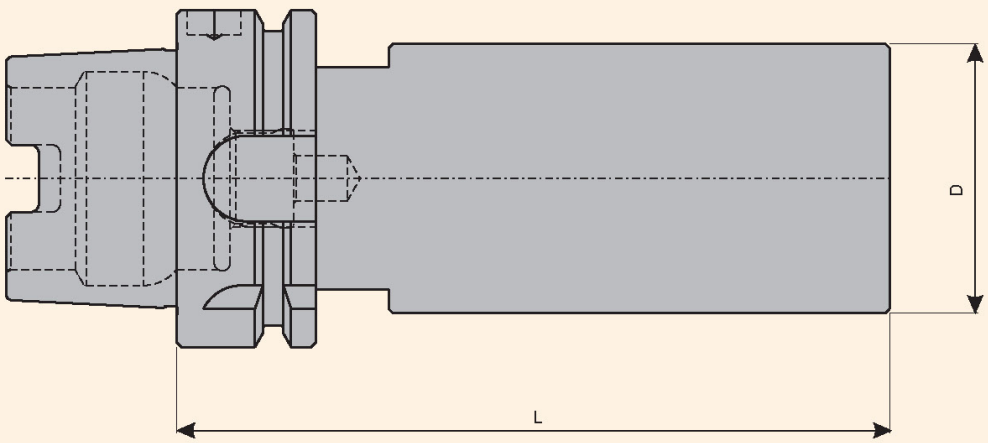
NC DRILL CHUCK (NCDC)



HSK TYPE	CAPACITY	D1	A	L
HSK-A 50 DC113	0.8 TO 13.0	52.0	130	141
HSK-A 63 DC113	0.8 TO 13.0	52.0	135	146
HSK-A 100 DC113	0.8 TO 13.0	52.0	135	146

Ordering Example :-
NATHO HSK-A 50 DC113 / Qty.- 2 Nos.

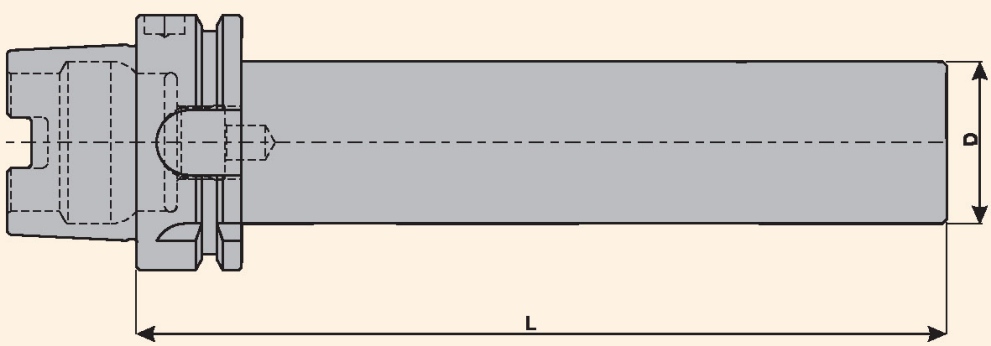
BORING BAR BLANK



DESCRIPTION	D	L
HSK-A 50	52.00	200.00
HSK-A 50	63.00	200.00
HSK-A 63	63.00	160.00
HSK-A 63	80.00	250.00
HSK-A 100	97.00	250.00
HSK-A 100	97.00	300.00

Ordering Example :-
NATHO HSK-A 63 63160 / Qty.- 2 Nos.

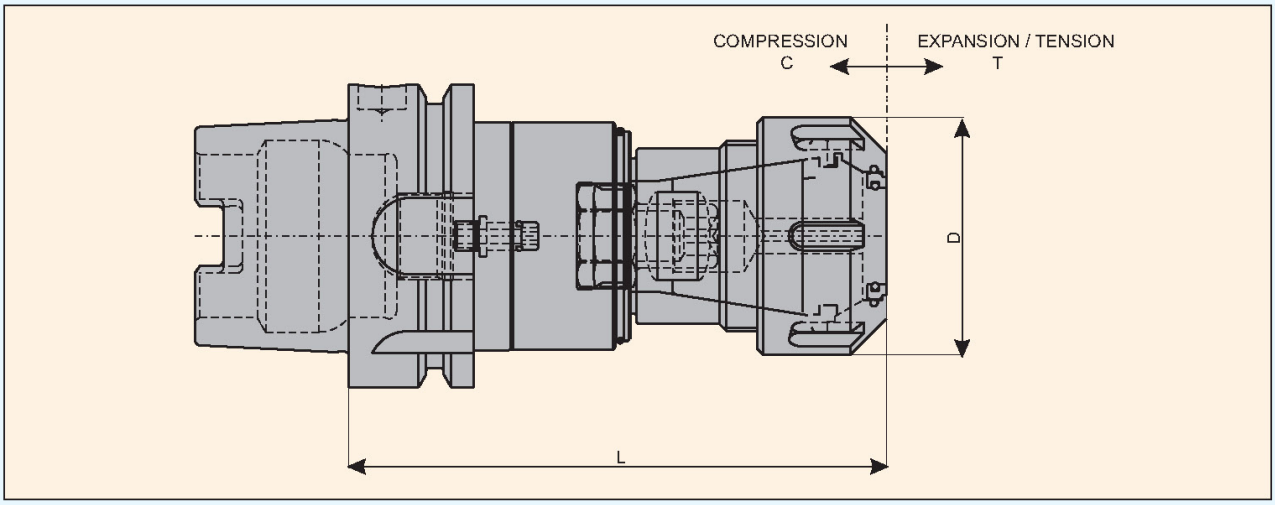
MASTER MANDRELL



HSK	D	L
HSK-A 50	40	300
HSK-A 63	40	300
HSK-A 100	50	300

Ordering Example :-
NATHO HSK-A 63 40300 / Qty.- 2 Nos.

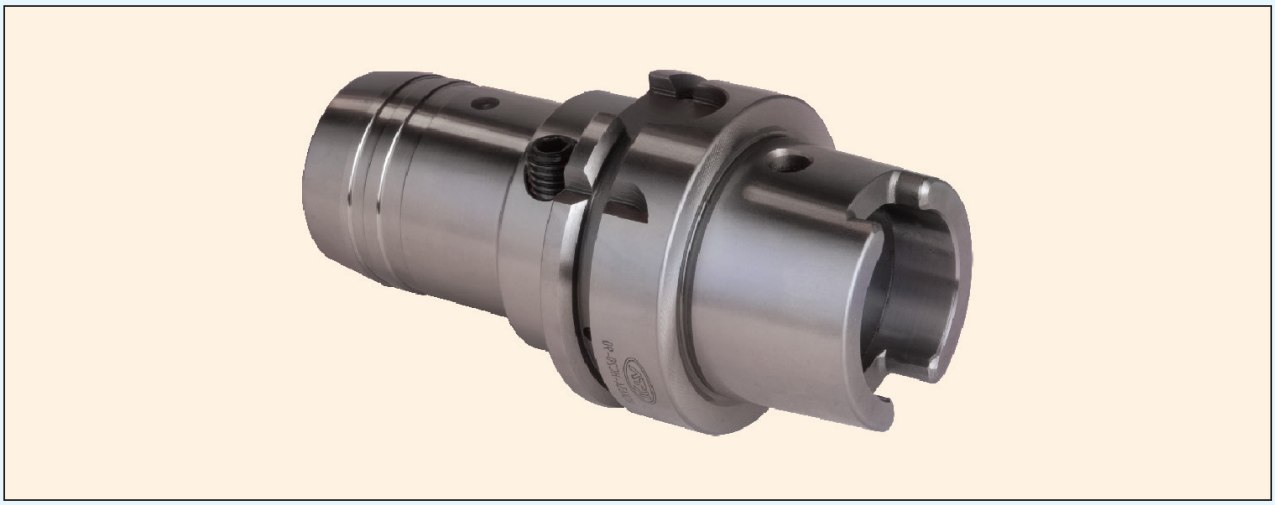
SYNCRO SOFT TAPPING CHUCK

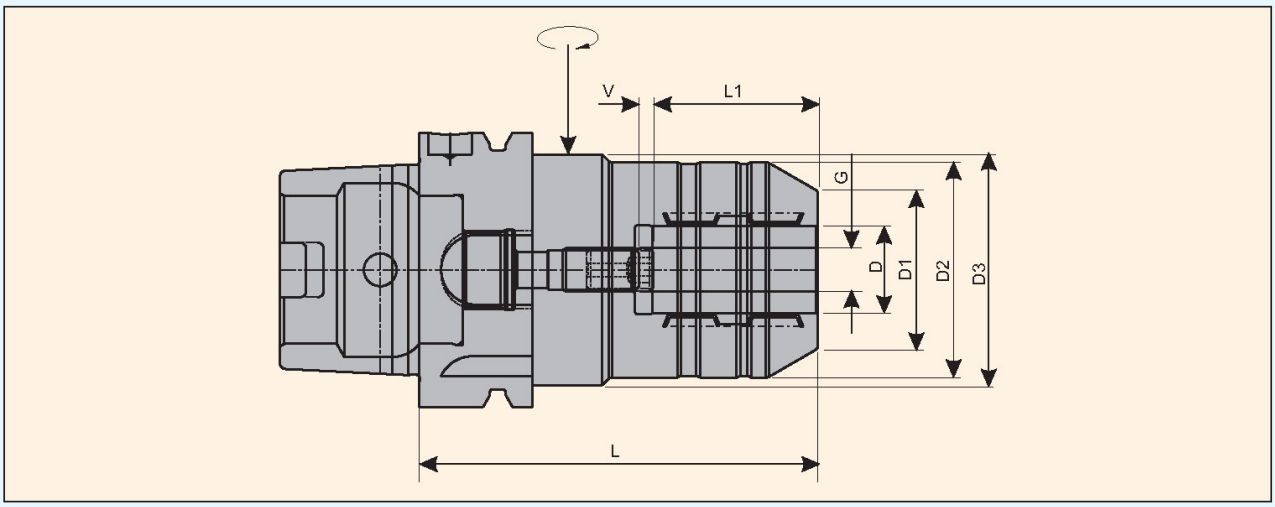


CHUCK TYPE	RANGE	C	T	D	HSK-A 50	HSK-A 63	HSK-A 100
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	121	113	120
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	121	113	120
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63		146.5	141

Ordering Example :-
NATHO SY-SO, HSK-A 63 SIZE2/ ER32 / Qty.- 2 Nos.

HYDRAULIC CHUCK

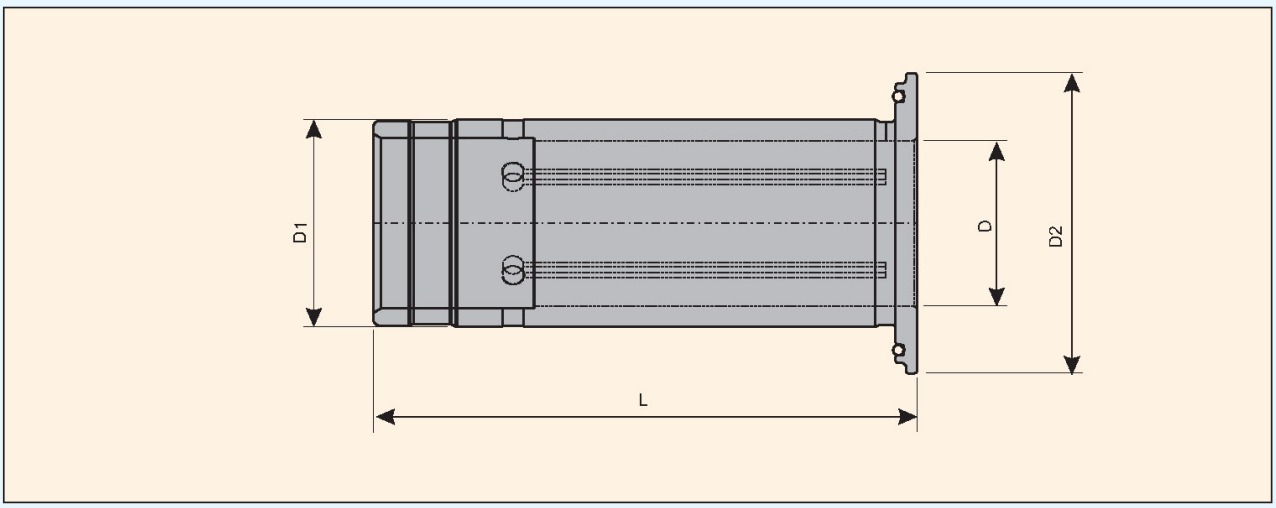




CODE NO.	D	D1	D2	D3	L	L1	V	G
HSK-A 50 HC20-90.0	20	38	42	50	90	42.0 Min	10	M16X1
HSK-A 63 HC20-91.5	20	38	42	50	91.5	42.0 Min	10	M16X1
HSK-A 63 HC20-105	20	38	42	50	105	420.0 Min	10	M16X1
HSK-A 100 HC20-105	20	38	42	50	105	420.0 Min	10	M16X1

Ordering Example :-
NATHO HSK-A 63 HC20-91.5 / Qty.- 2 Nos.

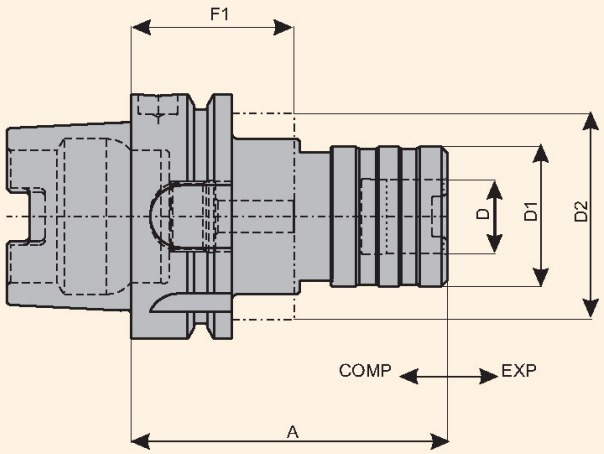
REDUCTION SLEEVE



ARTICAL NO.	D	D1	D2	LOCKING SCREW
RS20X04	4	20	29	52.5
RS20X05	5	20	29	52.5
RS20X06	6	20	29	52.5
RS20X08	8	20	29	52.5
RS20X10	10	20	29	52.5
RS20X12	12	20	29	52.5
RS20X14	14	20	29	52.5
RS20X15	15	20	29	52.5
RS20X16	16	20	29	52.5
RS32X04	4	32	39	63.5
RS32X05	5	32	39	63.5
RS32X06	6	32	39	63.5
RS32X08	8	32	39	63.5
RS32X10	10	32	39	63.5
RS32X12	12	32	39	63.5
RS32X14	14	32	39	63.5
RS32X15	15	32	39	63.5
RS32X16	16	32	39	63.5
RS32X18	18	32	39	63.5
RS32X20	20	32	39	63.5
RS32X22	22	32	39	63.5
RS32X25	25	32	39	63.5

Ordering Example :-
NATHO RS32X25 / Qty.- 2 Nos.

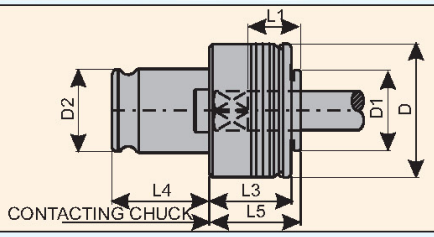
KWFLK : TAPPING CHUCK ACTING ON COMPRESSION & EXPANSION



HSK TYPE	CAPACITY	SUITABLE ADAPTOR	D	D1	D2	A	F1	EXP / COMP
HSK A50 WFLK1	M3 TO M12	KWE1 / KWES1B	19	36	42	76	42	7.5MM / 7.5MM
HSK A50 WFLK2	M5 TO M20	KWE2 / KWES2B	31	53	42	123	42	12.5MM / 12.5MM
HSK A63 WFLK1	M3 TO M12	KWE1 / KWES1B	19	36	53	81	42	7.5MM / 7.5MM
HSK A63 WFLK2	M5 TO M20	KWE2 / KWES2B	31	53	53	119	42	12.5MM / 12.5MM
HSK A63 WFLK3	M14 TO M33	KWE3 / KWES3B	48	78	53	176	42	20.0MM / 20.0MM
HSK A100 WFLK1	M3 TO M12	KWE1 / KWES1B	19	36	88	90	45	7.5MM / 7.5MM
HSK A100 WFLK2	M5 TO M20	KWE2 / KWES2B	31	53	88	138	45	12.5MM / 12.5MM
HSK A100 WFLK3	M14 TO M33	KWE3 / KWES3B	48	78	88	190	45	20.0MM / 20.0MM

Ordering Example :-
NATHO HSK A50 WFLK1 / Qty.- 2 Nos.

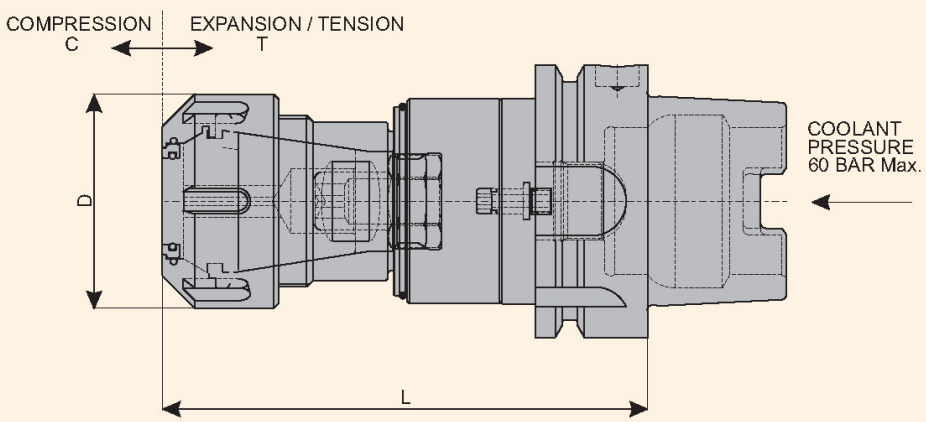
ADAPTOR TYPE KWES / B WITH SAFELY CHUCK



Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D1 dia.	D2 dia	L1	L3	L4	L5
KWES / 1B	M 3 - M 12	3.5 - 11.3	1	32	19	19	17	25	21.5	25
KWES / 2B	M 8 - M 20	7.0 - 18.0	2	50	30	31	30	31	35.0	34
KWES / 3B	M 14 - M 33	11.0 - 28.0	3	72	48	48	44	41	55.5	45

Ordering Example :-
NATHO TAP ADAPTOR : KWES/1B M8 Ø 10X8sq. / Qty. - 2 Nos.

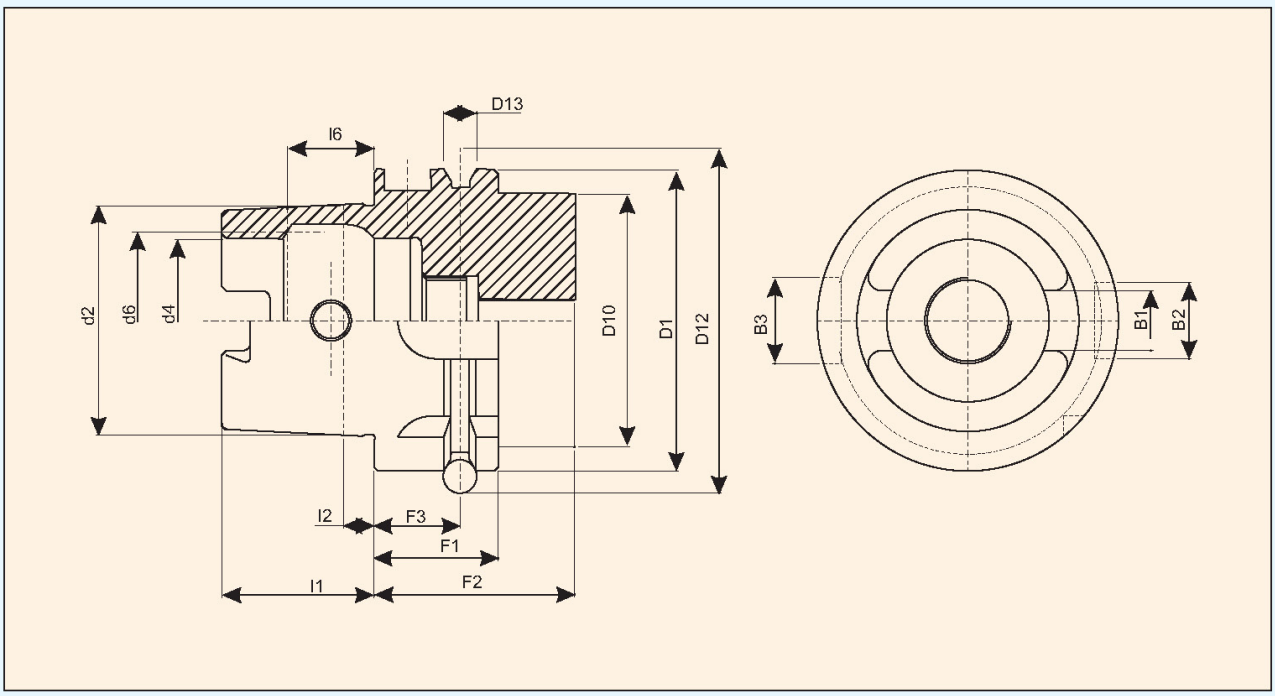
HSK-A XX (DIN 69893)



CHUCK TYPE	RANGE	C	T	D	HSK-A 50	HSK-A 63	HSK-A 100
SY-SO SIZE1/ ER16	M4 -M12	0.50	0.50	28	121	113	120
SY-SO SIZE2/ ER32	M6 - M20	0.50	0.50	50	121	113	120
SY-SO SIZE3/ ER40	M10 - M30	0.80	0.80	63		146.5	141

Ordering Example :-
NATHO SY-SO, HSK-A 63 SIZE2 / ER32 / Qty.- 2 Nos.

HSK TOOL HOLDERS : (DIN - 69893)



	HSK-A 50	HSK-A 63	HSK-A 100
b1	10,54	12,54	20.02
b2	12	16	20
b3	14	18	22
d1	50	63	100
d2	38	48	75
d4	26	34	53
d6	29	37	58
d10	42	53	88
d12	59,3	72,3	109,75
d13	7	7	7
f1	26	26	29
f2	42	42	45
f3	18	18	20
l1	25	32	50
L2	5	6,3	10
l6	14,13	18.13	28.56

All **HSK** Tool holders are manufactured according to **DIN** 69893.
Balanced to G 6.3 - 12,000 RPM.

FORM A

Used on machining centres, milling machines turning machines, special machines with automatic tool change.

- central, axial coolant supply through coolant tube.
- Torque transmission via two key slots at end of taper.
- Two slots on collar for tool magazine, location edge.

Hole for data carrier **DIN** 69873 in collar.

TECHNICAL INFORMATION

Tap Shank Dimensions ISO 529 - 1975

Dimension Dia. x Square	Metric		UNC		UNF		BSW		BSF		BA	
		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged
3.15 x 2.5	M4	M3	-	No. 4-40	-	No. 4-48	-	-	-	-	-	No. 5
	-	-	No. 8.32	No. 5-40	No. 8-36	No. 5-44	-	-	-	-	No. 3	-
3.55 x 2.8	M 4.5	M 3.5	No. 10-24	No. 6-32	No. 10-32	No. 6-40	3/16"-24	-	3/16"-32	-	No. 2	No. 4
4 x 3.15	M 5	M 4	No. 12-24	-	No. 12-28	-	-	-	7/32"-28	-	No. 1	-
4.5 x 3.55	M 6	-	1/4"-20	No. 8-32	1/4"-28	No. 3-36	1/4"-20	-	1/4"-26	-	No. 0	No. 3
5 x 4	-	M 5	-	No. 10-24	-	No. 10-32	-	3/16"-24	-	3/16"-32	-	No. 2
5.6 x 4.5	-	-	-	No. 12-24	-	No. 12-28	-	-	9/32"-26	7/32"-28	-	No. 1
6.3 x 5	M 8	M 6	5/16"-18	1/4"-20	5/16"-24	1/4"-28	5/16"-18	1/4"-20	5/16"-22	1/4"-26	-	No. 0
7.1 x 5.6	-	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	9/32"-36	-	-
8 x 6.3	M 10	M 8	7/16"-14	5/16"-18	7/16"-20	-	7/16"-14	5/16"-18	7/16"-18	5/16"-22	-	-
9 x 7.1	M 12	-	1/2"-13	-	1/2"-20	-	1/2"-12	-	1/2"-12	-	-	-
10 x 8	-	M 10	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	-	-
11.2 x 9	M 14	-	9/16"-12	-	9/16"-18	-	9/16"-12	-	9/16"-16	-	-	-
12.5 x 10	M 16	-	5/8"-11	-	5/8"-18	-	5/8"-11	-	3/8"-14	-	-	-
14 x 11.2	M 18	-	3/4"-10	-	3/4"-16	-	11/16"-11	-	11/16"-14	-	-	-
	M 20	-	-	-	-	-	3/4"-10	-	3/4"-12	-	-	-
16 x 12.5	M 22	-	7/8"-9	-	7/8"-14	-	7/8"-9	-	7/8"-11	-	-	-
18 x 14	M 24	-	1"-8	-	1"-12	-	1"-8	-	1"-10	-	-	-
20 x 16	M 27	-	1 1/8"-7	-	1 1/8"-12	-	1 1/8"-7	-	1 1/8"-9	-	-	-
	M 30	-	-	-	-	-	-	-	-	-	-	-
22.4 x 18	M 33	-	1¼"-4	-	1¼"-12	-	1¼"-7	-	1¼"-9	-	-	-
25 X 20	M 36	-	1 3/8"-6	-	1 3/8"-12	-	-	-	1 3/8"-8	-	-	-
28 x 22.4	M 39	-	1½"-6	-	1½"-12	-	1½"-6	-	1½"-8	-	-	-
	M 42	-	-	-	-	-	-	-	1 5/8"-8	-	-	-
31.5 x 25	M 45	-	1 3/4"-5	-	-	-	1 3/4"-5	-	1 3/4"-7	-	-	-
	M 48	-	-	-	-	-	-	-	-	-	-	-

Tap Shank Dimensions DIN

Dimension Dia. x Square	DIN 352	DIN 353	DIN 371	DIN 374	DIN 376	DIN 2182	DIN 2183
3.5 x 2.7	M 3	-	M 3	M 5	M 5	1/8"	-
4 x 3	M 4	-	M 3.5	-	-	-	-
4.5 x 3.4	M 4	-	M 4	M 6	M 6	5/32"	1/4"
6 x 4.9	M 5	-	M 5	-	-	7/32"	-
	M 6	-	M 6	-	-	-	-
	M 8	-	-	M 8	M 8	-	-
7 x 5.5	M 10	G 1/8"	-	M 10	M 10	1/4"	3/8"
8 x 6.2	-	-	M 8	-	-	5/16"	7/16"
9 x 7	M 12	-	-	M 12	M 12	3/8"	1/2"
10 x 8	-	-	M 10	-	-	-	-
11 x 9	M 14	G 1/4"	-	M14	M 14	-	9/16"
12 X 9	M 16	G 3/8"	-	M 16	M 16	-	5/8"
14 X 11	M 18	-	-	M 18	M 18	-	11/16"
16 X 12	M 20	G 1/2"	-	M 20	M 20	-	13/16"
18 x 14.5	M 22	G 5/8:	-	M 22	M 22	-	7/8"
	M 24	-	-	M 24	M 24	-	15/16"
20 x 16	M 27	G 3/4"	-	M 27	M 27	-	1"
22 x 18	M 30	G 7/8"	-	M 30	M 30	-	1 1/8"
25 x 20	M 33	G 1"	-	M 33	M 33	-	1¼"
28 x 22	M 36	G 1 1/8"	-	M 36	M 36	-	1 3/8"
32 x 24	M 39	G 1 1/8"	-	M 39	M 39	-	1½"
	M 42	-	-	M 42	M 42	-	1 5/8"
36 x 29	M 45	G3/8"	-	M 45	M 45	-	1 3/4"
	M 48	G1½"	-	M 48	M 48	-	1 7/8"
	-	G1 3/4"	-	-	-	-	-
	-	G 2"	-	-	-	-	-

Tap Shank Dimensions ANSI (US Standards)

Dimension in Inch. Dia. x Square		Metric Conversions		Tap Size
0.141	0.110	3.59	2.80	1/8" No.6
0.168	0.131	4.27	3.33	5/32" No.8
0.194	0.152	4.93	3.87	3/16" No. 10
0.220	0.165	5.59	4.20	No. 12
0.255	0.191	6.48	4.86	1/4" No. 14
0.312	0.234	7.94	5.95	1/16"Ps 1/8"Ps
0.318	0.238	8.08	6.05	5/16" 3/8"
0.323	0.242	8.21	6.15	5/16" 7/16"
0.367	0.275	9.33	6.99	1/2"
0.381	0.286	9.68	7.27	3/8"
0.429	0.322	10.90	8.18	9/16"
0.438	0.328	11.12	8.34	1/8"Ps
0.480	0.360	12.20	9.15	5/8"
0.542	0.406	13.77	10.31	11/16"
0.563	0.421	14.29	10.70	1/4"Ps
0.590	0.442	14.99	11.23	3/4"
0.652	0.489	16.57	12.43	M 20
0.688	0.515	17.47	13.09	1/2" Ps
0.697	0.523	17.71	13.29	7/8"
0.700	0.531	17.78	13.49	3/8"Ps
0.760	0.570	19.31	14.48	M 24
0.800	0.600	20.32	15.24	1"
0.896	0.672	22.76	17.07	1 1/8"
0.906	0.679	23.02	17.25	3/4"P
1.021	0.766	25.94	19.46	1¼"
1.108	0.833	28.15	21.11	1 3/8"
1.125	0.843	28.58	21.42	1"P
1.233	0.925	31.32	23.50	1½"
1.132	0.984	33.34	25.00	1¼"P
1.430	1.072	36.33	27.23	1 3/4"

Tap Shank Dimensions (JIS Standards)

Dimension in mm. Dia. x Square		Tap Size
4.0	3.0	M 3 & M 3.5
5.0	4.0	M 4 & M 4.5
5.5	4.5	M 5
6.0	4.5	M 6
6.2	5.0	M 7 & M 8
7.0	5.5	M 9 & M 10
8.0	6.2	M 11
8.5	6.5	M 12
10.5	8.0	M 14
12.5	10.0	M 16
14.0	11.0	M 18
15.0	12.0	M 20
17.0	13.0	M 22
19.0	15.0	M 24
20.0	15.0	M 27
23.0	17.0	M 30

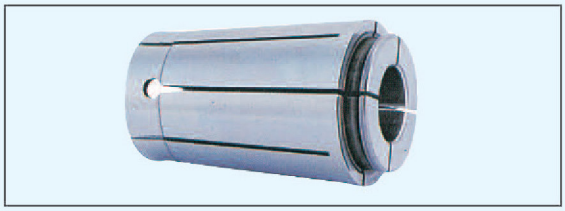
Recommended Torque Valves
For Safety Clutch adjustment For Tapping & Cold Forming (Rolling)

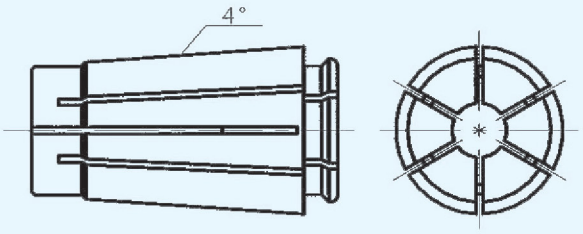
For material upto 1000 N/mm^2

Torque Setting Nm	Threads										Torque Setting Nm
	Metric	Whitworth BSW	BSP Whitworth Pipe	BSF	BSP Taper	BA	PG	NPT Taper	UNC	UNF	
0.5	M3	-	-	-	-	No. 7	-	-	-	-	0.5
0.6	-	-	-	-	-	No. 6	-	-	No. 3	No. 4	0.6
0.8	M 3.5	-	-	-	-	No. 5	-	-	No. 4	No. 5	0.8
1.0	-	1/8"	-	-	-	-	-	-	No. 5	-	1.0
1.2	-	-	-	-	-	No. 4	-	-	-	No. 6	1.2
1.6	M4	-	-	-	-	-	-	-	No. 6	No. 8	1.6
2.0	-	5/32"	-	-	-	No. 3	-	-	No. 8	-	2.0
2.5	M5	-	-	3/16"	-	No. 2	-	-	-	No. 10	2.5
3.0	-	-	-	-	-	-	-	-	-	No. 12	3.0
4.0	-	3/16"	-	7/32"	-	No. 1	-	-	No. 10	1/4"	4.0
5.0	M6	7/32"	-	1/4"	-	No. 0	-	-	No. 12	-	5.0
6.0	-	-	G 1/8"	9/32"	-	-	-	-	-	5/16"	6.0
8.0	-	1/4"	-	5/16"	-	-	-	-	1/4"	3/8"	8.0
10	M8	-	-	-	-	-	-	-	-	-	10
12	-	5/16"	-	3/8"	-	-	PG 7	-	5/16"	7/16"	12
16	-	-	-	-	-	-	-	-	-	1/2"	16
18	M10	3/8"	G 1/4"	7/16"	1/8"	-	-	-	3/8"	-	18
20	-	-	-	-	-	-	PG9	1/8"	-	-	20
22	-	-	-	-	-	-	PG11	-	-	9/16"	22
25	-	-	-	1/2"	-	-	PG 13.5	-	-	5/8"	25
28	M 12	7/16"	G 3/8"	-	-	-	PG 16	-	7/16"	-	28
32	-	-	-	9/16"	-	-	-	-	-	-	32
36	-	-	-	-	-	-	-	-	-	3/4"	36
40	-	-	-	5/8"	-	-	-	-	1/2"	-	40
45	M 14	1/2"	-	11/16"	-	-	PG 21	-	-	-	45
50	M 16	-	G 1/2"	-	1/4"	-	-	-	9/16"	-	50
56	-	-	G 5/8"	-	-	-	-	1/4"	-	7/8"	56
63	-	5/8"	-	-	3/8"	-	PG 29	-	5/8"	-	63
70	-	-	G 3/4"	3/4"	-0	-	-	3/8"	-	-	70
80	M 18	-	G 7/8"	13/16"	-	-	PG 36	-	-	-	80
90	M 20	3/4"	-	7/8"	-	-	PG 42	-	3/4"	1"	90
100	M22	-	-	-	-	-	PG 48	-	-	1 1/8"	100
110	-	-	-	-	-	-	-	-	-	1¼"	110
125	-	7/8"	-	1"	-	-	-	-	7/8"	1 3/8"	125
140	-	-	G 1"	-	-	-	-	-	-	1½"	140
160	M24	-	G 1 1/8"	-	1/2"	-	-	1/2"	-	-	160
180	M 27	-	G 1¼"	1 1.8"	-	-	-	-	-	-	180
200	-	1"	G 1 3/8"	1¼"	3/4"	-	-	3/4"	1"	-	200
220	-	-	G 1½"	-	-	-	-	-	-	-	220
240	-	-	G 1 3/4"	-	-	-	-	-	-	-	240
260	-	-	G 2"	1 3/8"	-	-	-	-	-	-	260
280	M 30	1 1/8"	-	-	-	-	-	-	1 1/8"	-	280
300	-	-	G 2¼	1½	-	-	-	-	-	-	300
320	M 33	1¼"	-	1 5/8"	-	-	-	-	1¼"	-	320
340	-	-	G 2¼"	-	1"	-	-	1"	-	-	340
360	-	-	G 2 3/4"	-	-	-	-	-	-	-	360
400	-	-	G 3"	-	-	-	-	-	-	-	400
420	M 36	-	G 3¼"	-	-	-	-	-	-	-	420
450	-	-	G 3½"	1 3/4"	1¼"	-	-	1¼"	-	-	450
480	M 39	1 3/8"	G 3 3/4"	-	-	-	-	-	1 3/8"	-	480
500	-	1½"	G 4"	2"	-	-	-	-	1½"	-	550
560	-	-	-	-	1½	-	-	1½"	-	-	560
630	M 42	-	-	-	-	-	-	-	-	-	630
710	M 45	-	-	2¼"	2"	-	-	2"	-	-	710
800	-	1 5/8"	-	2½"	-	-	-	-	-	-	800
900	M 48	1 3/4"	-	23/4"	-	-	-	-	1 3/4"	-	900

The given torque values are for tapping & cold forming operations. They pertain to material with a tensile strength of 1000 N/mm^2.
The torque values for tapping include a wear factor of 100%.
If necessary, these values can be increased by up to 20% for tapping & up to 50% for cold forming.

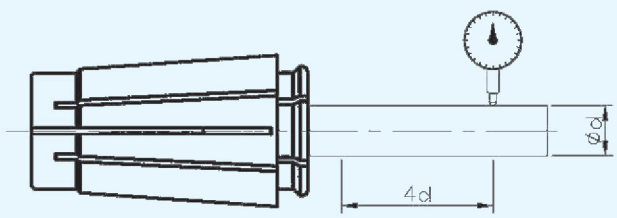
SD PRECISION COLLETS



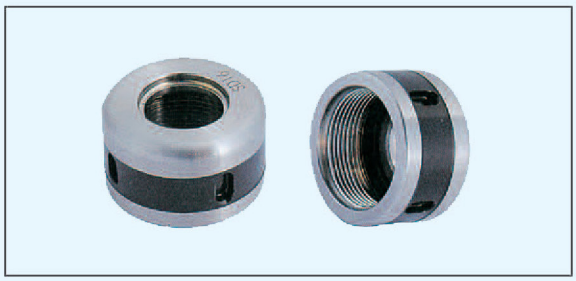


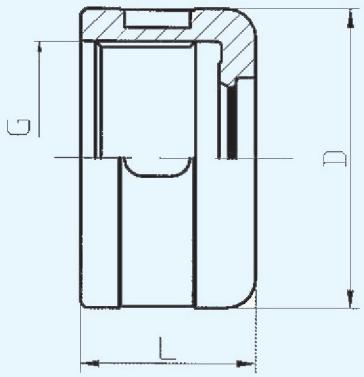
SD06		SD10		SD16		SD20	
Order Code	Range	Order Code	Range	Order Code	Range	Order Code	Ød
SD06-2	1.75-2.0	SD10-2	1.75-2.0	SD16-3	2.5-3.0	SD20-4	4
SD06-2.25	2.0-2.25	SD10-2.25	2.0-2.25	SD16-3.5	3.0-3.5	SD20-6	6
SD06-2.5	2.25-2.5	SD10-2.5	2.25-2.5	SD16-4	3.5-4.0	SD20-8	8
SD06-2.75	2.5-2.75	SD10-2.75	2.5-2.75	SD16-4.5	4.0-4.5	SD20-10	10
SD06-3	2.75-3.0	SD10-3	2.75-3.0	SD16-5	4.5-5.0	SD20-12	12
SD06-3.5	3.0-3.5	SD10-3.5	3.0-3.5	SD16-5.5	5.0-5.5	SD20-16	16
SD06-4	3.5-4.0	SD10-4	3.5-4.0	SD16-6	5.5-6.0	SD20-20	20
SD06-4.5	4.0-4.5	SD10-4.5	4.0-4.5	SD16-6.5	6.0-6.5		
SD06-5	4.5-5.0	SD10-5	4.5-5.0	SD16-7	6.5-7.0		
SD06-5.5	5.0-5.5	SD10-5.5	5.0-5.5	SD16-7.5	7.0-7.5		
SD06-6	5.5-6.0	SD10-6	5.5-6.0	SD16-8	7.5-8.0		
		SD10-6.5	6.0-6.5	SD16-8.5	8.0-8.5		
		SD10-7	6.5-7.0	SD16-9	8.5-9.0		
		SD10-7.5	7.0-7.5	SD16-9.5	9.0-9.5	SD25	
		SD10-8	7.5-8.0	SD16-10	9.5-10.0	Order Code	Ød
		SD10-8.5	8.0-8.5	SD16-10.5	10.0-10.5	SD25-6	6
		SD10-9	8.5-9.0	SD16-11	10.5-11.0	SD25-8	8
		SD10-9.5	9.0-9.5	SD16-11.5	11.0-11.5	SD25-10	10
		SD10-10	9.5-10.0	SD16-12	11.5-12.0	SD25-12	12
				SD16-12.5	12.0-12.5	SD25-16	16
				SD16-13	12.5-13.0	SD25-20	20
				SD16-13.5	13.0-13.5	SD25-25	25
				SD16-14	13.5-14.0		
				SD16-14.5	14.0-14.5		
				SD16-15	14.5-15.0		
				SD16-15.5	15.0-15.5		
				SD16-16	15.5-16.0		

COLLET LEVEL	RUNOUT
AA	0.007
A	0.01



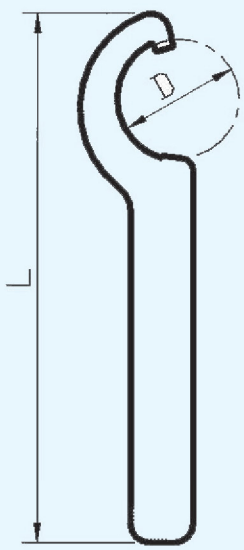
SD CLAMPING NUTS





Order Code	Ø D	L	G
CN–SD06	20	15	M14 × 1.0
–SD10	29	17	M22 × 1.0
–SD16	41	24	M32 × 1.5
–SD20	50	25	M40 × 1.5
–SD25	55	28	M45 × 1.5

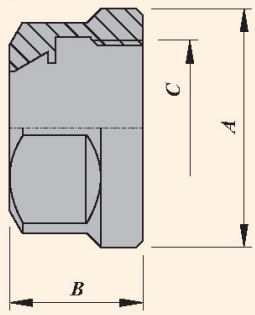
SD SPANNER WRENCH



Order Code	L	Ø D
SP–SD06	120	20
–SD10	150	29
–SD16	170	41
–SD20	180	50
–SD25	190	55

HEXAGONAL NUT FOR 'ER' COLLET CHUCK

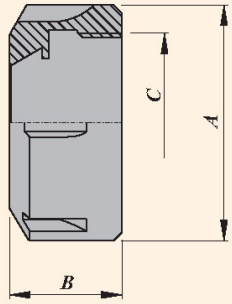
DIN 6499



TYPE	A	B	C	Spanner to be used
UM/ER 11	19.0	11.3	M 14 x 0.75	GS 17
UM/ER 16	28.0	17.50	M 22 x 1.50	GS 25
UM/ER 20	34.0	19.0	M 25 x 1.50	GS 30

SLOTTED NUT FOR 'ER' COLLET CHUCK

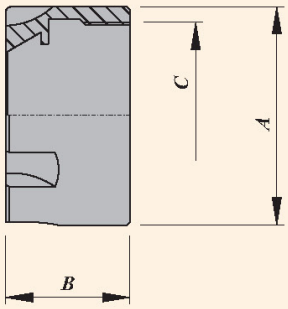
DIN 6499



TYPE	A	B	C	Spanner to be used
UM/ER 20	34.0	19.0	M 25 x 1.50	E 20
UM/ER 25	42.0	20.0	M 32 x 1.50	E 25
UM/ER 32	50.0	22.3	M 40 x 1.50	E 32
UM/ER 40	63.0	25.3	M 50 x 1.50	E 40
UM/ER 50	78.0	35.3	M 64 x 2.00	E 50

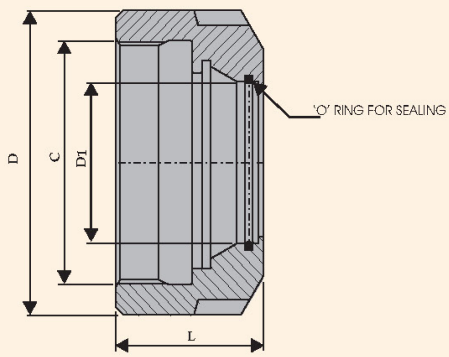
MINI NUT FOR 'ER' COLLET CHUCK

For minimum external diameter.



TYPE	A	B	C	Spanner to be used
UM/ER 8M	12.0	10.8	M 10 x 0.75	E 8M
UM/ER 11M	16.0	11.3	M 13 x 0.75	E 11M
UM/ER 16M	22.0	17.0	M 19 x 1.00	E 16M
UM/ER 20M	28.0	19.0	M 24 x 1.00	E 20M
UM/ER 25M	35.0	20.0	M 30 x 1.00	E 25M

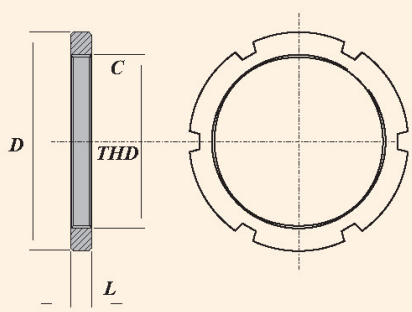
SEALING NUT



Type	L	D	D1	C
UM/ER 16S	22.50	28.00	13.00	M22X1.5
UM/ER 20S	24.00	34.00	16.00	M25X1.5
UM/ER 25S	25.00	42.00	21.00	M32X1.5
UM/ER 32S	27.50	50.00	27.00	M40X1.5
UM/ER 40S	30.50	63.00	33.50	M50X1.5
UM/ER 50S	42.40	78.00	43.50	M64X2

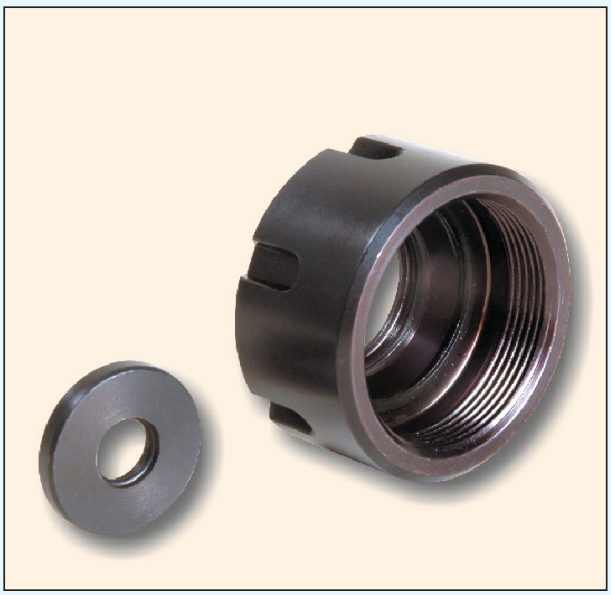
NOTE: Also available in MINI NUT type : ER 'M'

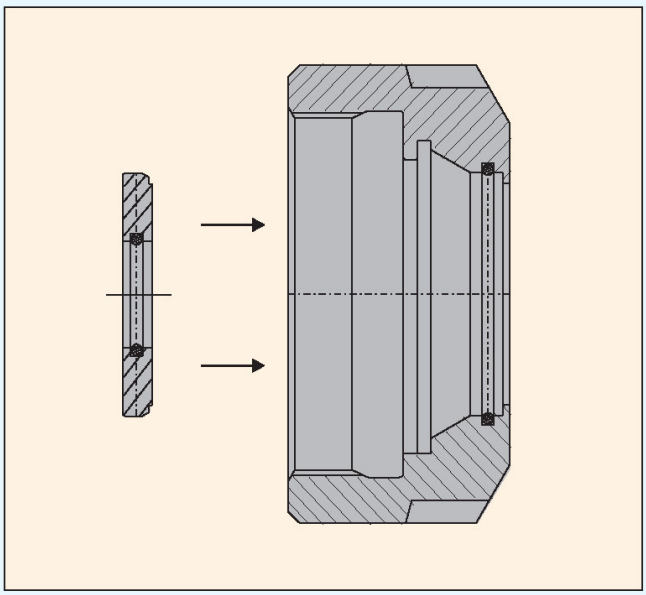
LOCK NUT



TYPE	L	D	C
UM/ER 16L	5	28	M 22 X 1.5
UM/ER 20L	5	34	M 25 X 1.5
UM/ER 25L	5	42	M 32 X 1.5
UM/ER 32L	5	50	M 40 X 1.5
UM/ER 40L	5	63	M 50 X 1.5

SEALING NUTS AND SEALING DISK





TECHNICAL INFORMATION :

Sealing Nuts along with sealing Disk has a compact design with very short extension of damping nuts which gives the following benefits.

1) It protects against all kind of dirt and chips entering the slots of the collet.

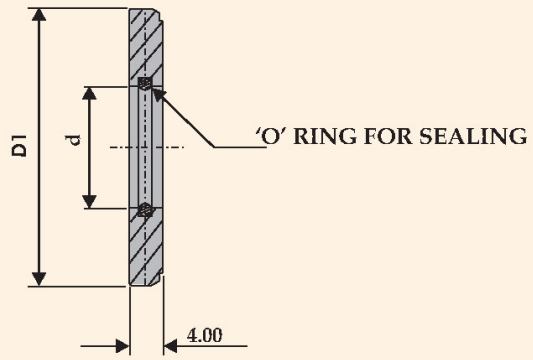
2) Coolant through tools can be used, which gives improved cooling and lubrication of tools and hence increases the tool Life.

3) Improved chip removal.

4) Sealing Disk are available from Dia.06 mm in range of 0.5mm. Hence easy changing of Sealing Disk according to required application.

5) No need of expensive sealed collets. Regular collets are best suitable.

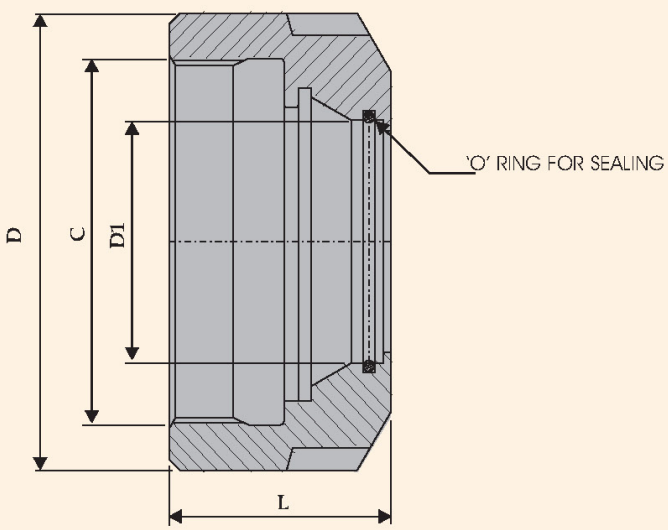
SEALING DISK



Type	D1	d (Sealing disk holding range in steps of 0.5mm)
ER 16	13.00	6-10
ER 20	16.00	6-13
ER 25	21.00	6-16
ER 32	27.00	6-20
ER 40	33.00	6-26
ER 50	43.50	10-34

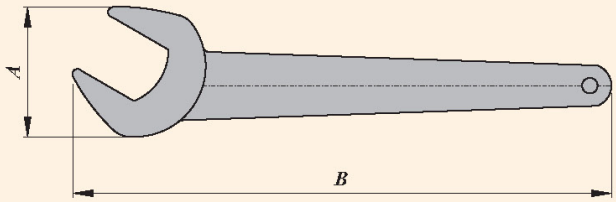
Ordering Example :-
Sealing Disk ER 16 : 8.0mm =2 Nos
Sealing Disk ER 25 : 6.50mm =2 Nos

SEALING NUT



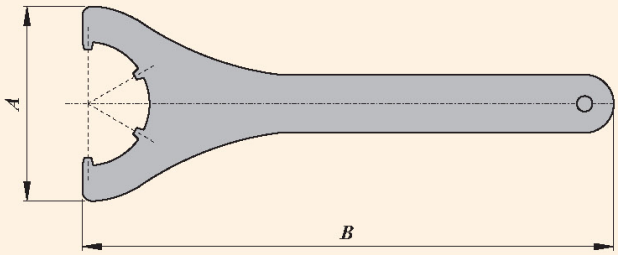
Type	L	D	D1	C
UM/ER 16S	22.50	28.00	13.00	M22X1.5
UM/ER 20S	24.00	34.00	16.00	M25X1.5
UM/ER 25S	25.00	42.00	21.00	M32X1.5
UM/ER 32S	27.50	50.00	27.00	M40X1.5
UM/ER 40S	30.50	63.00	33.50	M50X1.5
UM/ER 50S	42.40	78.00	43.50	M64X2

NOTE: Also available in MINI NUT type : ER 'M'



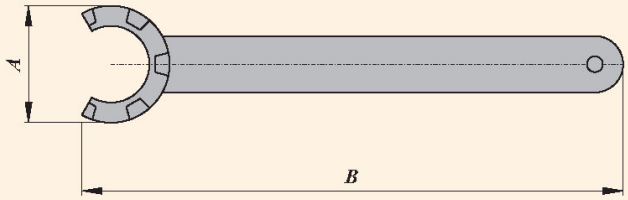
SPANNER TYPE : GS

TYPE	A	B	Suitable for Nut
GS 17	40	155	UM/ER 11
GS 25	53	210	UM/ER 16



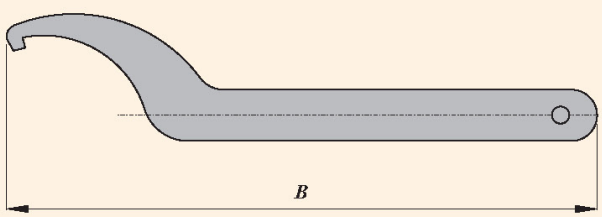
SPANNER TYPE : E

TYPE	A	B	Suitable for Nut
E 20	55	180	UM/ER 20
E 25	65	210	UM/ER 25
E 32	75	250	UM/ER 32
E 40	90	290	UM/ER 40
E 50	110	350	UM/ER 50



SPANEER TYPE : EM (MINI)

TYPE	A	B	Suitable for Nut
E 8M	12.4	70	ER 8M
E 11M	16.8	90	ER 11M
E 16M	22.5	110	ER 16M
E 20M	29.0	120	ER 20M
E 25M	36.0	130	ER 25M

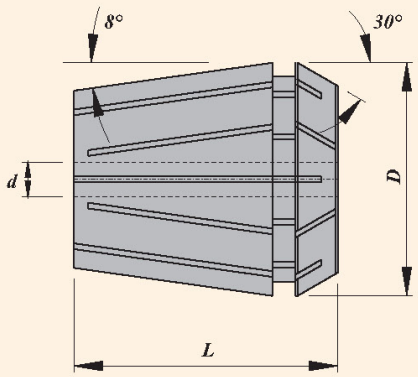


SPANNER TYPE : HS

TYPE	B	Suitable for Nut
HS 25	160	UM/RDO 25
HS 35	228	UM/RDO 35
HS 44	280	UM/RDO 44

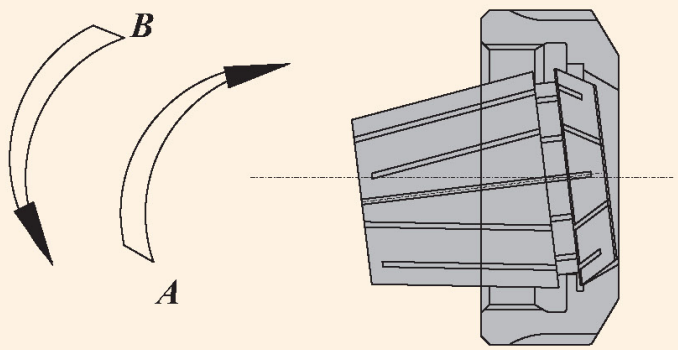
ER COLLET STANDARD

ER TYPE COLLETS
DIN 6499



Collet Designation	Bore Range 'd'			Clamping Capacity per set		Each Collet collapse by mm	D mm	L mm
	From mm	To	in steps mm	From mm	To mm			
ER 8	0.5	5	0.5	0.5	5.0	0.5	8.5	13.5
ER 11	0.5	7	0.5	0.5	7.0	0.5	11.5	18.0
ER 16	0.5	10	1.0	0.5	10.0	1.0	17.0	27.0
ER 20	1.0	13	1.0	1.0	13.0	1.0	21.0	31.0
ER 25	1.0	16	1.0	1.0	16.0	1.0	26.0	35.0
ER 32	2.0	20	1.0	2.0	20.0	1.0	33.0	40.0
ER 40	3.0	26	1.0	3.0	26.0	1.0	41.0	46.0
ER 50	10.0	34	2.0	10.0	34.0	2.0	52.0	60.0

The collet must always be inserted into the nut before setting the tool into the collet. The collet is fitted inside the nut by applying slight pressure A. It is removed by applying B to the collet. Never tighten the chuck without a correct size tool shank being present in the collet. Failure to observe this guideline can result in collet breakage.

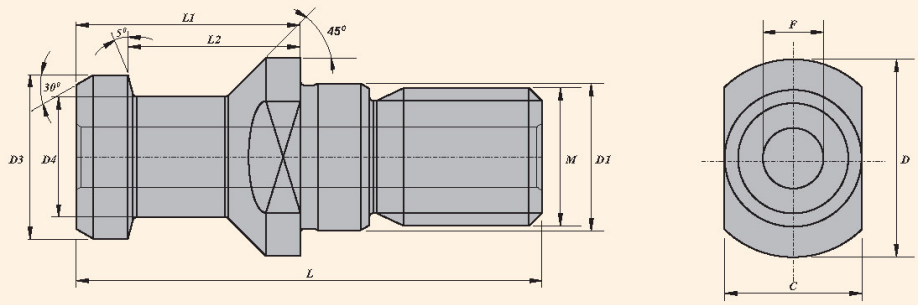


SEE EXTRACTION MARK ON FACE OF NUT FOR REFERENCE.

PULL STUDS

THROUGH COOLANT

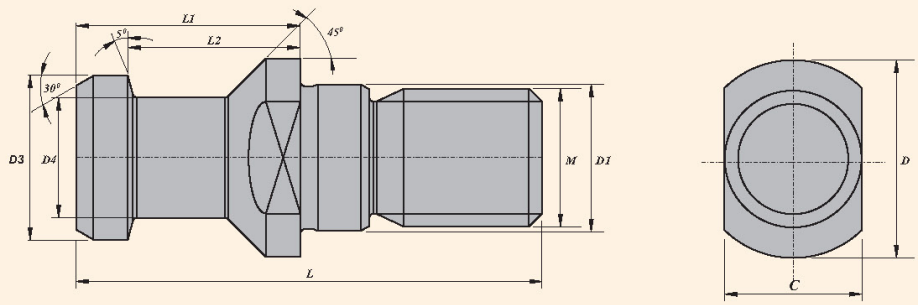
DIN 69872



ISO	M	D	D1	D3	D4	L	L1	L2	C	F
30	M12	17	13	13	9	44	24	19	14	3
40	M16	23	17	19	14	54	26	20	19	7
50	M24	36	25	28	21	74	34	25	30	11.5

WITHOUT THROUGH COOLANT

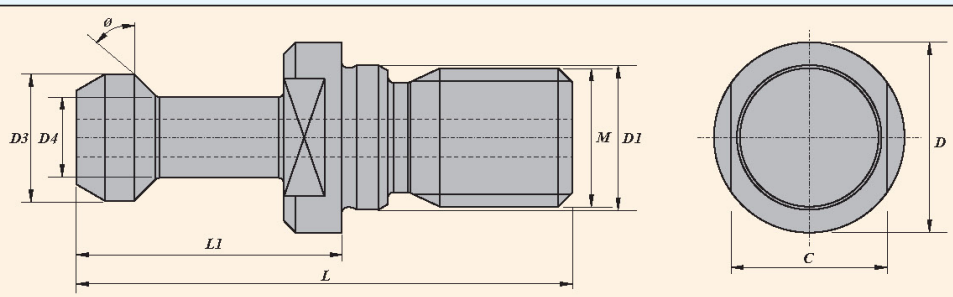
DIN 69872



ISO	M	D	D1	D3	D4	L	L1	L2	C
30	M12	17	13	13	9	44	24	19	14
40	M16	23	17	19	14	54	26	20	19
50	M24	36	25	28	21	74	34	25	30

THROUGH COOLANT

MAS-BT

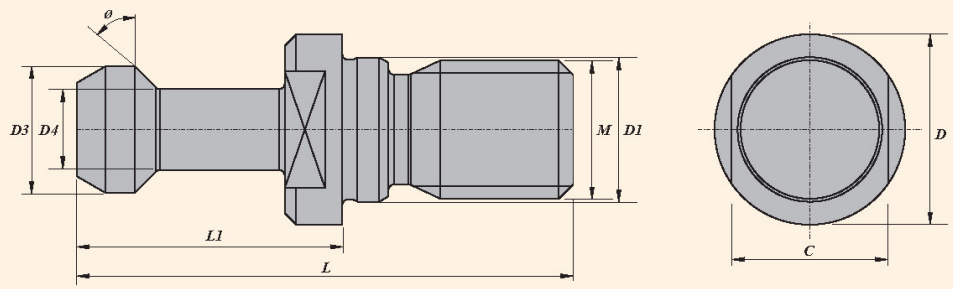


ISO	A	M	L1	L	D	D1	D3	D4	C
30	30	M12	23	43	16	12,5	11	7	13
30	45	M12	23	43	16	12,5	11	7	13
40	30	M16	35	60	23	17	15	10	19
40	45	M16	35	60	23	17	15	10	19
40	90	M16	35	60	23	17	15	10	19
50	30	M24	45	85	38	25	23	17	30
50	45	M24	45	85	38	25	23	17	30
50	90	M24	45	85	38	25	23	17	30

PULL STUDS

WITHOUT THROUGH COOLANT

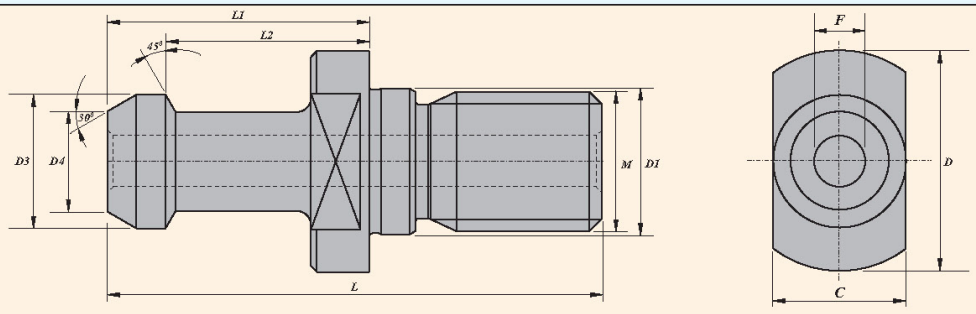
MAS-BT



ISO	A	M	L1	L	D	D1	D3	D4	C
30	30	M12	23	43	16	12,5	11	7	13
30	45	M12	23	43	16	12,5	11	7	13
40	30	M16	35	60	23	17	15	10	19
40	45	M16	35	60	23	17	15	10	19
40	90	M16	35	60	23	17	15	10	19
50	30	M24	45	85	38	25	23	17	30
50	45	M24	45	85	38	25	23	17	30
50	90	M24	45	85	38	25	23	17	30

THROUGH COOLANT

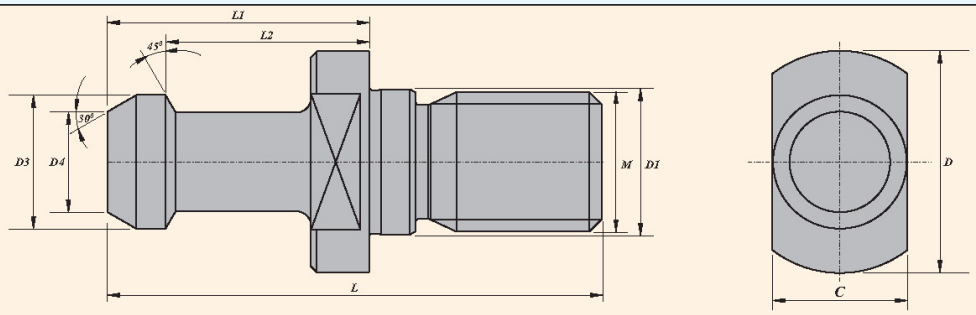
ISO 7388/2-B



ISO	M	D	D1	D3	D4	L	L1	L2	C	F
30	M12	16	13	12	8	44	24	19	14	3
40	M16	23	17	19	14	54	26	20	19	7
50	M24	36	25	28	21	74	34	25	30	11.5

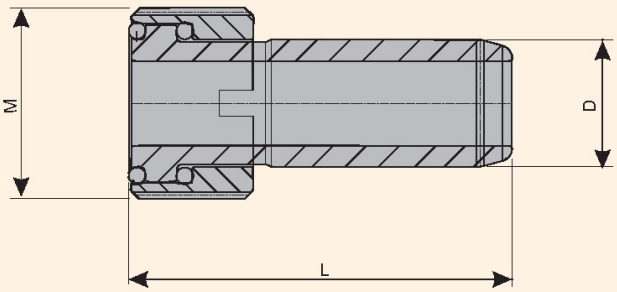
WITHOUT THROUGH COOLANT

ISO 7388/2-B



ISO	M	D	D1	D3	D4	L	L1	L2	C
30	M12	16	13	12	8	44	24	19	14
40	M16	23	17	19	14	54	26	20	19
50	M24	36	25	28	21	74	34	25	30

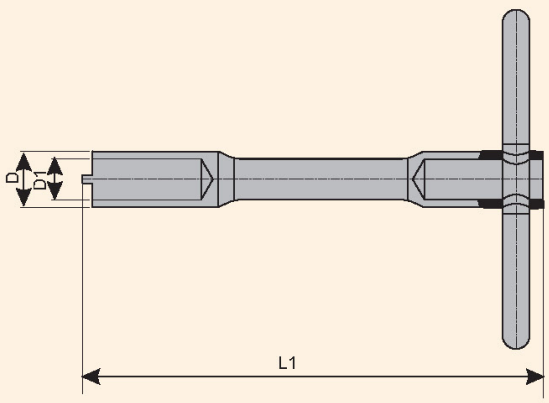
COOLANT TUBE FOR HSK HOLDERS



HSK TYPE	M	L	D
HSK-A 50 CT	M16X1	33.0	10.0
HSK-A 63 CT	M18X1	34.0	12.0
HSK-A 100 CT	M24X1.5	44.0	16.0

Ordering Example :-
NATHO HSK-A 63 COOLANT TUBE / Qty.- 2 Nos.

SPANNER FOR HSK COOLANT TUBES

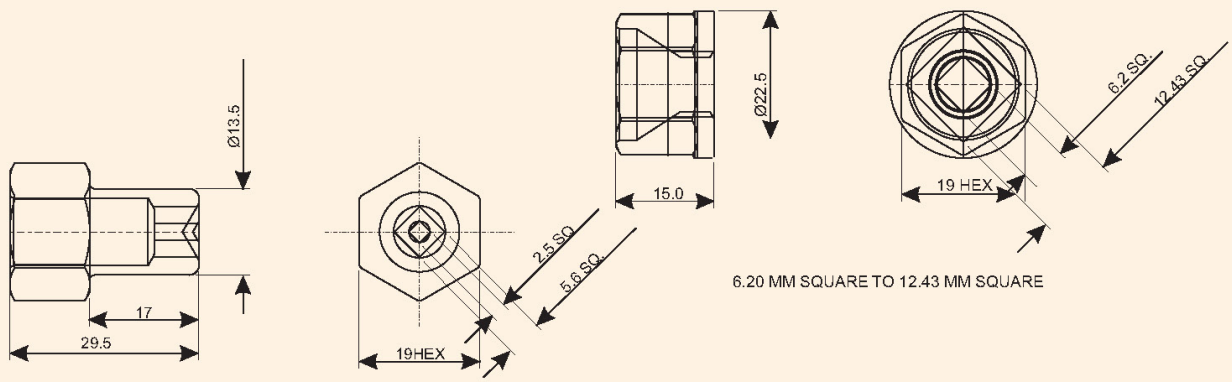


HSK TYPE	D1	L	D
HSK-A 50 CTS	10.2	115	14.5
HSK-A 63 CTS	12.2	136.0	16.5
HSK-A 100 CTS	16.2	136.0	22.0

Ordering Example :-
NATHO HSK-A 100 COOLANT TUBE SPANNER / Qty.- 2 Nos.

TAP DRIVERS

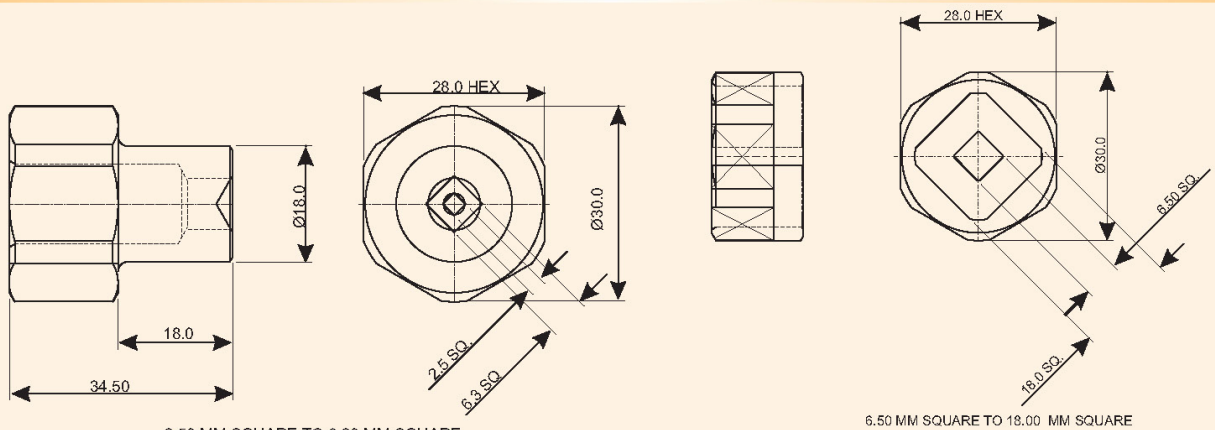
TAP DRIVER SIZE 1 / ER32



2.50 MM SQUARE TO 5.60 MM SQUARE

6.20 MM SQUARE TO 12.43 MM SQUARE

TAP DRIVER SIZE 2 / ER40

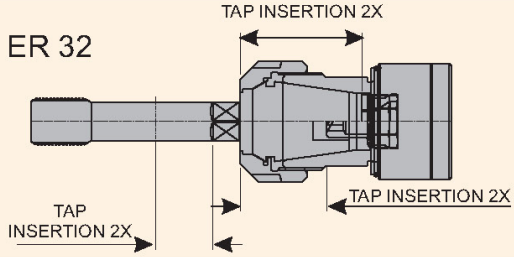


2.50 MM SQUARE TO 6.20 MM SQUARE

6.50 MM SQUARE TO 18.00 MM SQUARE

TAP DRIVERS	DIN	ISO	ANSI / INCH	JIS
SIZE1/ ER16	SCREW CLAMPING	SCREW CLAMPING	SCREW CLAMPING	SCREW CLAMPING
SIZE2/ ER32	2.7 SQ.-12 SQ.	2.5 SQ.-12.5 SQ.	0.11 SQ.-0.442 SQ.	3.0 SQ -12.0 SQ.
SIZE3/ ER40	5.5 SQ.-18 SQ.	5.6 SQ.-16 SQ.	0.234 SQ.-0.679 SQ.	5.5 SQ -17.0 SQ.

Syncro-Soft Tapping ChuckTap Insertion Depth in ER 32
Small Taps 31.5mm, Large Taps 50.0mm
Tap Insertion Depth in ER 40
Small Taps 38.5mm, Large Taps 56.5mm



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