SYNCROLIZE
Tapping Chuck for Synchronized Tapping

TECHLEADER offers a sophisticated system which combines a quick change chuck with high precision tap adapters. The chuck features a particular pitch compensation system along with high precision alignment for a state-of-the art product that yields significantly longer tap life and improved thread quality.

CNC machines now feature the synchronization of the feed rate with the pitch of the tap for tapping operations. Even if the traditional axial compensation is not necessary any longer, it is fundamental to use Tappers with a micro-compensation feature. One of the reasons why is at the time of reversal, high torque is applied to the leading flanks of the threads on the tap. The resulting micro damage on the flanks of the tap will then reduce the precise finish of these flanks and then in turn the life of the tap is affected. Another factor is the synchronization should not be taken for granted because as your CNC machine ages from constant use this feature starts to wear and the synchronization between the feed rate and the pitch of the tap become slightly mismatched.

RAPID CHANGE. Quick change tap adapters allow for a reduction in the time needed to change tools which increases your machining time.

"PRECISION" ER/ECX TAP ADAPTERS with ANTI ROTATION SCREWS to hold the tap square. This allows the use of standard ER/ECX collets rather then Rigid Tapping Collets, which means some consequential cost savings.

COMPENSATION LENGTH in EXTENSION and COMPRESSION: By limiting the compensation in compression to 0.2 mm, proper thread depth is maintained while 1 mm in extension allows the chuck to compensate for any machine errors.

COOLANT THROUGH CAPABILITY is standard and can handle up to 50 bars of coolant pressure.

ALSO AVAILABLE IN A "SLIM" PROLONGED VERSION

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TAPPING CHUCK FOR SYNCHRONIZED TAPPING

The fast development of tapping technologies on CNC machine centers asks for new systems that can satisfy these new requirements. Techleader proposes a system based on tapping chuck and tap adapters of complete new concept. The simplicity of mounting the tap, the rigidity and the perfect centering makes synchronized tapping easier to manage.

The minimal run in extension and in compensation, the rigidity and the perfect centering of the tap make this product the maximum of technology in the field of rigid tapping assuring long life of the tap and threads in perfect tolerance.

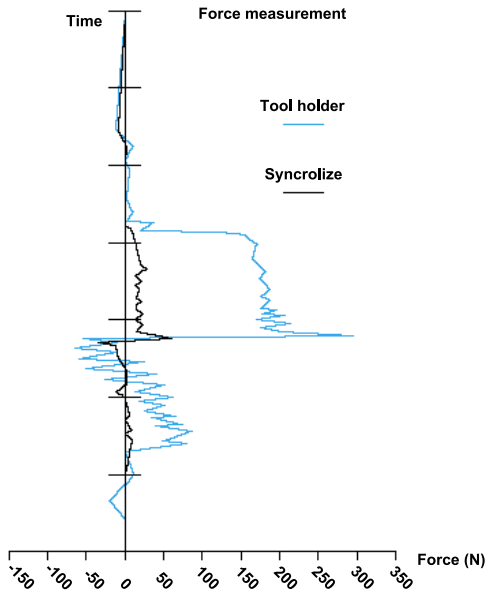
Technical features:

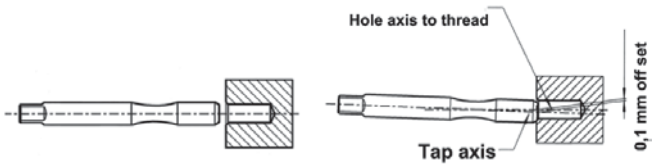
- Tap capacity: NO.6 - 1/2" /M3-M12; 1/4" - 3/4" / M6-M20; 9/16" - 1-1/8" / M14-M33;
- Perfect line up tap-hole: 0.003 mm;
- Triple life of tap in comparison to a traditional tapping system;
- Quick change of the tap and the adapter;
- Suitable for rigid tapping with a micro compensation in extension (1 mm) and (0,2 mm) in compression type 23400-23600 and compensation in extension (2 mm) and (0,4 mm) in compression type 23800;
- Possible coolant flow to 50 bars;
- Reduced dimensions.

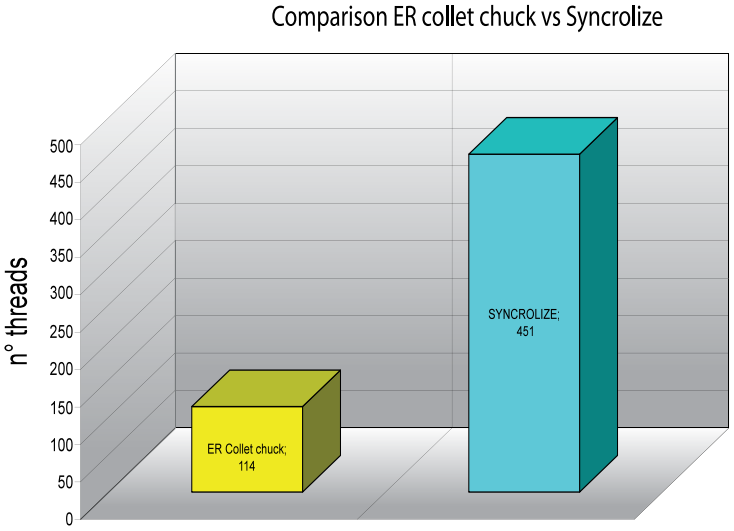
On rigid tapping we need a minimum compensation to absorb eventual errors between feed rate and pitch of the thread. Analysis showed that there is a correlation between the alignment of the tap and hole especially on small taps from M3 to M12.

If the alignment isn't perfect than the tap wears out easily because the tap touches the flanks of the hole because of a slight radial play. On the other hand we found that if there is no radial play involved the tool life can be increased drastically.

The best tap manufacturers advise a rigid tapping cycle with a micro-compensation within 1 mm. With rigid tapping we need a machining centre with a rigid tapping program. This has become a standard feature nowadays. Our experience showed us at the very critical moment of inverting the sense of the machine the synchronization is not always 100% granted. In that case there is a high pressure on the flanks of the tap. Taps for synchronized tapping can be placed in Weldon tapping chucks or in collet chucks. In both cases axial forces cannot be compensated during the inversion. The SYNCROLIZE tapping chuck is a better solution because it gives you the possibility to work with axial compensation of 0.2 mm in compression and 1.0 mm compensation in extension for type 23400-23600 and with axial compensation of 0.4 mm in compression and 2 mm compensation in extension for type 23800.







TOOL LIFE EXAMPLE

WORKING PARAMETERS:

Material: AISI 304 Stainless Steel - 1,3401 rolled (150 x 100 x 15mm)

Machine: Mori Seiki SH403 Horizontal Machining Center

Coolant: Blaser BC20 @ 7% Emulsion Tapping: tap UFS

Tap: M6 x 1.0P K82-TXC LA030310F

Speeds & Feeds: 637 RPM & 1mm/rev

Depth Of Tapped Hole: 12mm

TEST RESULT:

Tapped holes with ER Collet Chuck with Rigid Tap Collet until tap breakage: 114.

Tapped holes with SYNCROLIZE MICRO FLOAT tapper until tap breakage: 451.

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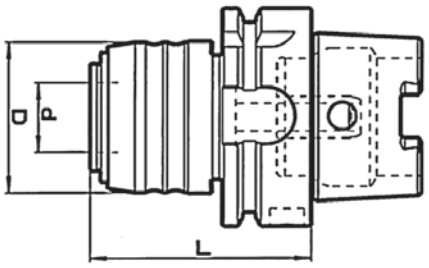
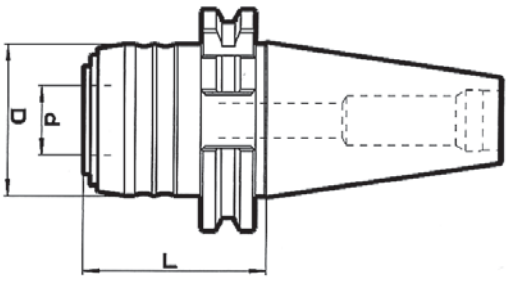


HSK DIN69893: A

ORDER NO.	DEVICE TYPE	SHANK	TAP CAPACITY	BUSH	L (mm)	D (mm)	d (mm)
594-010	23400-H40A	HSK-40A	NO.6 - 1/2" /M3-M12	23410-ER16	69	43	20
594-011	23400-H50A	HSK-50A	NO.6 - 1/2" /M3-M12	23410-ER16	70	43	20
594-012	23400-H63A	HSK-63A	NO.6 - 1/2" /M3-M12	23410-ER16	64	43	20
594-013	23400H100A	HSK-100A	NO.6 - 1/2" /M3-M12	23410-ER16	70	43	20
594-020	23600-H40A	HSK-40A	1/4" - 3/4" / M6-M20	23610-ER25	90	60	32
594-021	23600-H50A	HSK-50A	1/4" - 3/4" / M6-M20	23610-ER25	97	60	32
594-022	23600-H63A	HSK-63A	1/4" - 3/4" / M6-M20	23610-ER25	97	60	32
594-023	23600-H100A	HSK-100A	1/4" - 3/4" / M6-M20	23610-ER25	91	60	32
594-025	23800-H100A	HSK-100A	9/16" - 1-1/8" / M14-M33	23810-ER40	115	87	50

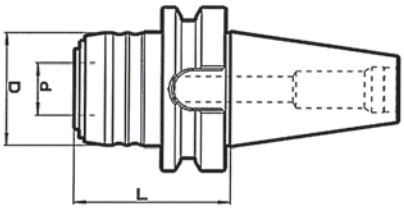


CT

ORDER NO.	DEVICE TYPE	SHANK	TAP CAPACITY	BUSH	L (mm)	D (mm)	d (mm)
494-200	23400-40CAT	40	NO.6 - 1/2" / M3-M12	23410-ER16	53	43	20
494-400	23400-50CAT	50	NO.6 - 1/2" / M3-M12	23410-ER16	53	43	20
494-205	23600-40CAT	40	1/4" - 3/4" / M6-M20	23610-ER25	90	60	32
494-405	23600-50CAT	50	1/4" - 3/4" / M6-M20	23610-ER25	74	60	32

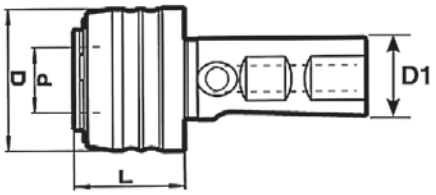
For tapping chucks with minimal lubrication add “MMS” to the codes in the table: ex. 494-200 for “MMS” becomes 494-200MMS.

SYNCROLIZE
Tapping Chuck for Synchronized Tapping



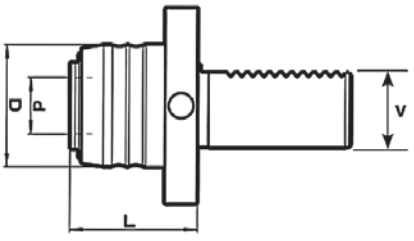
BT-Flange

ORDER NO.	DEVICE TYPE	SHANK	TAP CAPACITY	BUSH	L (mm)	D (mm)	d (mm)
493-200	23400-40BT	40	NO.6 - 1/2" /M3-M12	23410-ER16	61	43	20
493-400	23400-50BT	50	NO.6 - 1/2" /M3-M12	23410-ER16	72	43	20
493-205	23600-40BT	40	1/4" - 3/4" / M6-M20	23610-ER25	82	60	32
493-405	23600-50BT	50	1/4" - 3/4" / M6-M20	23610-ER25	93	60	32



Straight Shank

ORDER NO.	DEVICE TYPE	SHANK D1	TAP CAPACITY	BUSH	L (mm)	D (mm)	d (mm)
494-100	23400-D1"	1"	NO.6 - 1/2" / M3-M12	23410-ER16	34	43	20
494-101	23600-D1"	1"	1/4" - 3/4" / M6-M20	23610-ER25	56	32	32
494-103	23800-D1-1/2"	1-1/2"	9/16" - 1-1/8" / M14-M33	23810-ER40	60	67	60



VDI 69880

ORDER NO.	DEVICE TYPE	SHANK v	TAP CAPACITY	BUSH	L (mm)	D (mm)	d (mm)
494-220	23400-VDI30	30 mm	NO.6 - 1/2" / M3-M12	23410-ER16	46	43	20
494-225	23400-VDI40	40 mm	NO.6 - 1/2" / M3-M12	23410-ER16	46	43	20
494-221	23600-VDI30	30 mm	1/4" - 3/4" / M6-M20	23610-ER25	67	60	32
494-226	23600-VDI40	40 mm	1/4" - 3/4" / M6-M20	23610-ER25	67	60	32

For tapping chucks with minimal lubrication add “MMS” to the codes in the table: ex. 494-200 for “MMS” becomes 494-200MMS.

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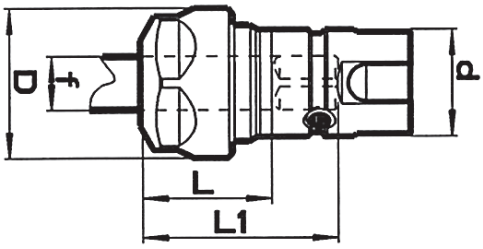
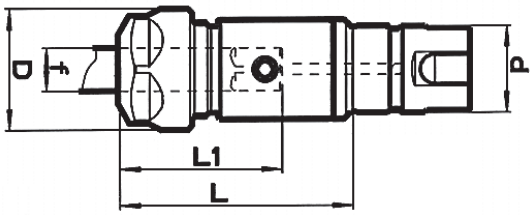


Tap Adapter For SYNCROLIZE

ORDER NO.	DEVICE TYPE	TAP CAPACITY	COLLETS	SHANK DIAMETER	d (mm)	D (mm)	L (mm)	L1 (mm)
494-23410	23410-ER16*	NO6-1/2" / M3-M12	ECX/ER16	2-10 mm	20	28	24	37
494-23610	23610-ER25	1/4" - 3/4" / M6-M20	ECX/ER25	2-16 mm	32	42	28	52
494-23810	23810-ER40	9/16" - 1-1/8" / M14-M33	ECX/ER40	6-26 mm	50	63	32	75



Tap Adapter For SYNCROLIZE

ORDER NO.	DEVICE TYPE	TAP CAPACITY	COLLETS	SHANK DIAMETER	d (mm)	D (mm)	L (mm)	L1 (mm)
494-23410L	23410-ER16-LONG*	NO6-1/2" / M3-M12	ECX/ER16	2-10	20	28	55	38
494-23610L	23610-ER25-LONG	1/4" - 3/4" / M6-M20	ECX/ER25	2-16	32	42	86	63
494-23810L	23810-ER40-LONG	9/16" - 1-1/8" / M14-M33	ECX/ER40	6-26	50	63	95	73

*Supplied with hex nut. Coolant Flow: For coolant through use ER coolant sealed collets or coolant sealed nuts and discs.

Minimal Lubrication

Use:
With MMS is meant the minimal lubrication in order to reduce the quantity of lubrication. A mix of compressed air and oil will lubricate the tool and reduce friction. Through MMS the mixture of oil and air will lubricate the cutting edge of your tool.

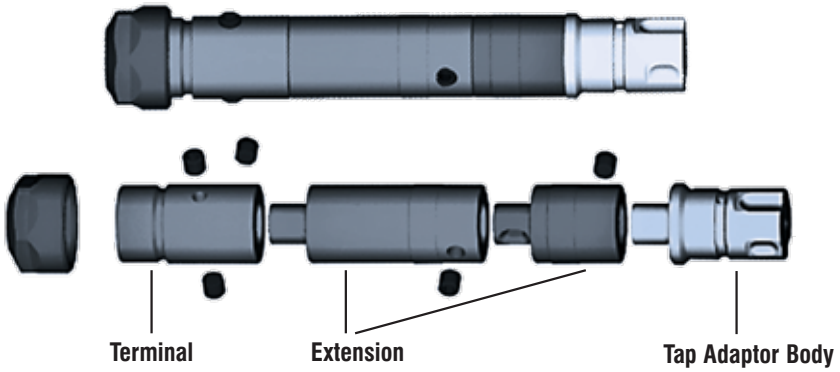
Advantages:
- Increase of tool life
- Cycle times reduced by 30%
- Significantly reduced cost

MMS tapping chucks are coolant flow prepared.

The tapping chuck with MMS guarantees the lubrication of the tool without modifying the portion of air-oil.

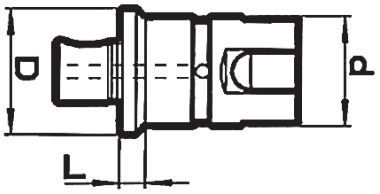
SYNCROLIZE
Synchronized Modular Tap Adapters

Example For Modular Tap Adapters Assembly



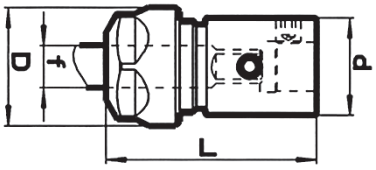
EXTENDED TAP ADAPTER BODY

ORDER NO.	DEVICE TYPE	d (mm)	D (mm)	L (mm)	FOR CHUCK
494-23411M	23411-MOD*	20	23	5	23400-..
494-23611M	23611-MOD	32	35	7	23600-..
494-23811M	23811-MOD	50	50	2	23800-..



TERMINAL

ORDER NO.	DEVICE TYPE	COLLET	SHANK DIAMETER	d (mm)	D (mm)	L (mm)	FOR CHUCK
494-42147	42147/ER16*	ECX/ER16	2-10 mm	23	28	50	23400-..
494-42247	42247/ER25	ECX/ER25	2-16 mm	35	42	79	23600-..
494-42347	42347/ER40	ECX/ER40	6-26 mm	48	63	93	23800-..

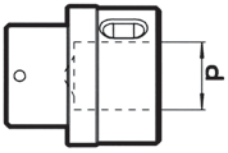


EXTENSION

ORDER NO.	DEVICE TYPE	D (mm)	L (mm)	FOR CHUCK
494-42150A	42150/25	23	25	23400-..
494-42150B	42150/50	23	50	23400-..
494-42250A	42250/50	35	50	23600-..
494-42250B	42250/100	35	100	23600-..
494-42350A	42350/50	48	50	23800-..
494-42350B	42350/100	48	100	23800-..

ASSEMBLY SUPPORT

ORDER NO.	DEVICE TYPE	d (mm)	L (mm)
494-23449	23449	20	23410-ER16
494-23649	23649	32	23610-ER25
494-23849	23849	50	23810-ER40



*Supplied with hex. nut.