Thread Tapping Technology

All-in-One

Product Overview

January **2014**

Content

Conditions	General delivery conditions of microtap GmbH
Pricing **€**	excludes sales tax, packing, shipping, and handling
Payment terms	payment in advance
Warranty	12 months
Delivery time	approximately 4 - 8 weeks after order
Installation and training	additional
Alterations	additional

info@microtap.de

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051 / Fax +49-89-6127488
http://www.microtap.de/

Thread tapping units

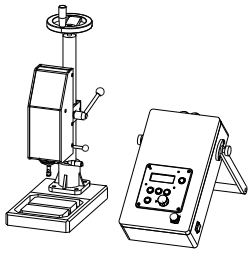
Machines

microtap – **job**tap (no interface)

G2 Thread capacity
(DIN13, sheet 34 / 1,2 x D)

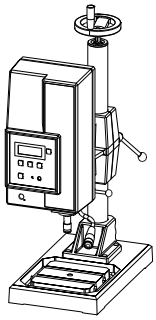
M0,5 - M2 X5CrNi189 / 1.4435
M0,5 - M2 9sMn28 / 1.0715
M0,5 - M3 AlCuMgPb / 3.1645
Torque range Mz 2 - 65 Ncm
Spindle speed range 150 - 1000 RPM
Thread depth / stroke max. 40 / 53 mm
Software special
- Tapping torque display min/max. Mz
- Lubrication pulse control
- Chip clearance function
- Automatic Start / QS and SZ - control
- 50 programmable data memories

Spindle B6/ER8 Tap adapter chuck holder system holder
system complete with 5 adapters (1,0 to 3,0 mm)



G5 Thread capacity
(DIN13, sheet 34 / 1,2 x D)

M1 - M4 X5CrNi189 / 1.4435
M1 - M5 9sMn28 / 1.0715
M1 - M6 AlCuMgPb / 3.1645
Torque range Mz 5 - 220 Ncm
Spindle speed range 250 - 2200 RPM
Thread depth / maximum stroke 45 / 65 mm
Spindle B10/ 00 Quick change system SWS0 & 5 inserts
DIN371/ M0,8-1,8/ M2-2,6 /M3/ M4/ M4,5-6

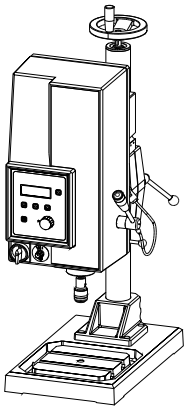


G8 Thread capacity
(DIN13, sheet 34 / 1,2 x D)

M2,5 - M8 X5CrNi189 / 1.4435
M2,5 - M10 9sMn28 / 1.0715
M2,5 - M12 AlCuMgPb / 3.1645
Torque range Mz 50 - 700 Ncm /from 470 Ncm max. 2060 min-1
Spindle speed range 300 – 3000 RPM
Thread depth / maximum stroke 75 / 85 mm
Spindle B12 / 01 Quick change system SWS1 & 6 inserts
DIN371/ M2/ M3/ M4 /M4,5-6/ M8/ M10

G14 Thread capacity
(DIN13, sheet 34 / 1,2 x D)

M3,5 - M12 X5CrNi189 / 1.4435
M3,5 - M14 9sMn28 / 1.0715
M3,5 - M16 AlCuMgPb / 3.1645
Torque range Mz 120 - 1680 Ncm / ab 1128 Ncm max. 858 min-1
Spindle speed range 125 - 1250 min-1
Thread depth / maximum stroke 75 / 85 mm
Spindle B12 / 01 Quick change system SWS2
incl. 7 inserts DIN 371M3-M10 /DIN 374/376 M4,5-14



G16 Thread capacity
(DIN13, sheet 34 / 1,2 x D)

M4 - M14 X5CrNi189 / 1.4435
M4 - M18 9sMn28 / 1.0715
M4 - M20 AlCuMgPb / 3.1645
Torque range Mz 150 - 2100 Ncm / from 1430 Ncm max. 690 min-1
Spindle speed range 100 - 1000 RPM
Thread depth / maximum stroke 75 / 85 mm
Spindle B12 / 03 Quick change system SWS3 & 9 Inserts (SWS2 G14)
DIN371/ M4/ M4,5-6/ M8/ M10/ M12/ M14/ M16/ M18/ M20

info@microtap.de
Overview Thread Tapping Units

microtap **GmbH /** Rotwandweg 4 / 82024 Taufkirchen / Muenchen
Tel +49-89-6128051 / Fax +49-89-6127488

Thread tapping technology

Process-controlled-production

... the big advantages

Free floating spindle

spindle is directly driven
No lead screw
Control of the cutting load

- Counter balance compensation
- threading takes place with the pitch of the tap
- in Z-direction, only with **ZAP**

Torque monitoring

Maximum torque
Torque set-point is adjustable
Current torque in Ncm is readable
Minimum torque in Ncm is not reached

- below the static breaking point of the tap
- error info when pilot hole too small or dull tap
- tool failure and scrap are avoided
- quality and service life monitoring
- pilot hole is too large
- or thread pitch is worn out

Only necessary torque is used

- cutting action in Ncm lies below tool breaking point

Programming, menu driven

- all parameters are indicated in the display
- good/bad are indicated *during* the manufacturing

Supervised manufacturing

tip

Parameter settings

- part position tolerance ΔDelta-Sz - with **ZAP**
- Torque control window, min-max
- Depth setting to 0,1mm

minimum torque
maximum torque

- pilot hole tolerance recognition
  no breakage
  pilot hole to small
  - automatic chip clearance
  - observe service life for the taps

speed RPM

- optimum speed

depth

- exact *depth is achieved +/- 0.1 mm*

control in quality

- *optimum performance and service life of taps*

special features

- *for depth > 1,5 d minimum power and torque for greater depth, without scrap and breakage using programmable chip-clearance*

!

Quality control

PC-Software **Win**PCA_VIEW / QND

- Online-Protocol for Quality management
- Develop optimum performance with feedback

Speed control

- Identifies the best working speed
- Tool geometry, coatings, and lubrication are evaluated in the process for the best service life.

Standard-Interfaces

- 8 bit input / output parallel interfaces
- RS232 (V24) 9600 Baud
  for Automation and communication

CE- / GS-Sign, incl. EMV

- **CE**-Certificated, **TÜV Certification**
  Norm: EN 60 204-1; 1992;
  DIN EN 292 T1,T2; DIN EN 294; DIN EN 349; DIN 8418
- **E**lektro**M**agnetische **V**ertraeglichkeit EMV
  Norm: EN 55011/50081-2/50082-2

TÜV PRODUCT SERVICE GS CE

info@microtap.de
http://www.microtap.de/

Thread tapping technology

Machine software & functions

Assignment		
Machine Types / Stainless Steel	**micro**tap	**job**tap
G2 / M0,5 – M2	G2 for very small threads	-
G5 / M1 – M4	G5 – G8 for small threads	job-shop
G8 / M2,5 – M8	without breakage & scrap	work-bench machines
G14 / M3 – M12	All units with	Without scrap
G16 / M4 – M14	interface	and breakage

Machine Software / Functions	**micro**tap	**job**tap
Language selector GB/F/NL/B/DK/S/I/D	+	+
Metric / Inch selector for tap and depth of cut	+	+
Ncm Torque control setting, minimum – maximum	+	+
Fast, normal and slow return speeds	+	+
Motor rotation right or left-hand thread	+	+
Auto start with position depth control, with ZAP option	+	+
Cutting force start sensor, only with ZAP option	+	+
User data storage for 40 different parameters	+	+
Single and total thread / part counter	+	+
Variable chip clearance function	+	+
Lubricant control with pulse and timed flow	+	+
Further production features		
Program for thread cutting and forming	+	+
Program for thread inserts / Ensat / Helicoil / Kato	+	-
Program for screw setting & secondary hole (similar reaming)	+	-
Continuous motor running for counter-sinking	+	-
Serial interface		
RS232 / V24 interface	+	-
QND SW for quality printer and documentation	€	-
Customer specific special software for automation	€	-
Parallel interface		
I/O port / parallel interface with four isolated outputs	+	-
Control software for one 24 Volt DC Valve (I/O)	+	-

+ = included / **€** = option / **-** = not available

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen /Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
http://www.microtap.de/

info@microtap.de

Thread tapping technology

Accessories

Overview

This is an overview of accessories for the different tapping machines. The functions of the accessories are explained on separate data sheets

Please note: The jobtap work-bench line has no interface and is not able to use for automations or to connect it with handling system

Accessories / product groups	**micro**tap	**job**tap
ZAP controlled pneumatic feeding system	+ not micG2	+ not micG2
MMS minimum quantity lubrication unit	+	+
DSK double-spindle head adapter	+	+
MLM magnetic machine light	+	+
LSM spindle motor air seal	+	+
SVH column upgrade -- manual	+	+
SVE column height adjustment -- electrical	+	+
HVS horizontal reach adjustment	only G5/G8	only G5/G8
SWS quick change tool holder system	+	+
SWE quick change tool inserts	+	+
SZS optional - fixed collet holder system	+	+
SSB security key	only G8/G14/G16	only G8/G14/G16
MPT integrated manual positioning X-Y-table	+	without interface
APT controlled positioning X-Y-table	+	+
MTA mechanical depth system	+	+
ASL audible signal light	+	-
QND serial printer for quality reports	+	-

+ = available / **-** = not available

… the tap protector —

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
http://www.microtap.de/

info@microtap.de

Thread tapping technology

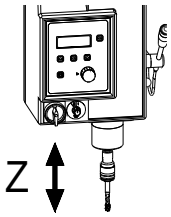
Spindle feeding system

ZAP

pneumatic **Z-Axis** spindle feeding system

Start functions

AutoStart**:**
- auto start control function
- cutting force sense to start
- part location tolerance setting (ΔDelta-SZ)



Mounting
Air pressure
Air connection

at microtap or authorized agency
2-8 bar
Hose4 / 6 mm / without service unit 4/6 mm

Free Floating Spindle

Drive unit is in hover situation

- mechanical counter-balance compensation
- low axiale power
  im Betrieb mit **ZAP** wird der Zustellzylinder nach Anschnitt des Werkzeuges automatisch zurueckgesetzt

No lead screw / guidance cartridges

- production of thread independently of rise
- low wear
- no costs and time for changing leadscrew
- no pitch faults through mechanical play
- no broken tap, specially during changing in, the backward running

Control of the ingate strength

- in Z-direction incl. FZ- broached-power
- FZ & SZ- distance-controll (ΔDelta-SZ)

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen
Tel +49-89-6128051
Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

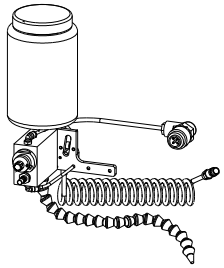
Thread tapping technology

Minimum lubricant coolant systems

MMS

Minimum – quantity– lubrication unit

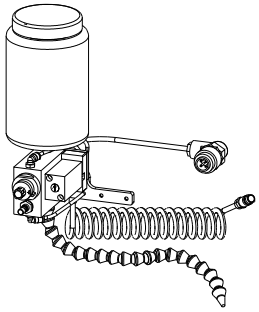
Machine software	solenoid valve 24 volt, pulse and time controlled by machine software manually adjustable
fluid amount	1 Liter
fluid bottle	24V/2W to tapping machine
connection	4-8 bar
operating pressure	Hose 4/6 mm
air connection	Quick clutch (Ø = 12 mm)



MMS-I

Pulse control for MMS (adjustable)

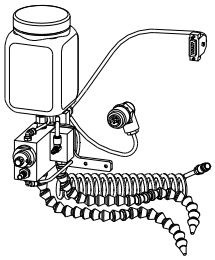
Advantage of pulse control	several lubricant pulse during one working process. Avoidance from tear off the lubricant film in depth wholes.
Controlling	Controlled by tapping machine
connection	24V/2W to tapping machine
operating pressure	4-8 bar
air connection	Hose 4/6 mm
	Quick clutch (Ø = 12 mm)



MMS-A

Blow out pulse for MMS
(adjustable)

Advantage of blow out pulse	Removing from dust and chips
Control	solenoid valve 24 volt, pulse controlled by machine software
connection	24V/2W to tapping machine
operating pressure	4-8 bar
air connection	Hose 4/6 mm
	Quick clutch (Ø = 12 mm)



microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
http://www.microtap.de/

info@microtap.de

Thread tapping technology

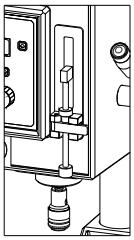
Integrated Manual X-Y-Positioning Table

MPT

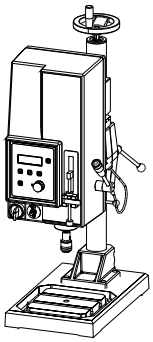
(matrix**tap)**

Application	integratad manual positioning table with four croos tables
Recommendation	electro-magnetic locks and integrated control of tapping units working only with automatic spindle feed system **ZAP**
Table size	250 x 600 mm with 8 mm T-nut
Range	180 x 400 mm with microtap G5 200 x 400 mm with microtap G8/14/16 and integrated in our **TTTsystem**
Maximum work load	50 kg
Connection	230 Volt
Adjustable holding	2 clamps / 1 locator
Control	I/O-interface

MTA



	mechanical depth stop for use with fixed collet system **SZS**
Function	mechanical depth stop for an accurate depth within 0,1mm repeatability 0,05
Application	the spindle runs in the programmed direction, right or left
Drilling capacity	in addition to tapping it is possible to use the machine for counter sinking and low production drilling
Area	approximately 2 – 4 mm with square
Recommended	depends on material and application technical advice and evaluation
Mounting	only at microtap GmbH



microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen /Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

Thread tapping technology

Double spindle heads

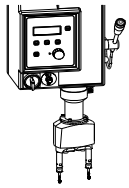
DSK

Double-spindle head / DSK-11/63
adjustable double-spindle head with variable spindle centers for tapping machines
microtap II-G5 / labtap G5 / jobtap G5

Thread sizes	**M1 – M3**	St37-2 / 9sMn28
Variable distance	11 – 63	mm
Tool holder	collet	S1502
Torque capacity	Mz – max. 110 Ncm per spindle	

Double-spindle head / DSK-16/90
adjustable double-spindle head with variable spindle centres for tapping machines
megatap II-G8 / labtap G8 / jobtap G8

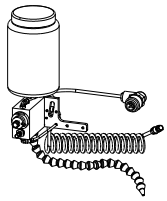
Thread sizes	**M2 – M5**	St37-2 / 9sMn28
Variable distance	16 – 90	mm
Tool holder	Collet	ER 11
Torque capacity	Mz – max. 350 Ncm each spindle	



Elongation sleeve	through an extending sleeve it is possible to produce two different threads with different pitches or thread sizes
Counter-balance	weight compensation for the single and double-spindle is lever controlled
Change over	the thread tapping machines are quickly changed to a two spindle application
Adaptation	flange and coupling
Accessories	2 collets with instep keys

MMS – 2

Double-Spindel-Lubricant-System
MMS-2 - lubrication fluid dispenser
with two nozzles
solenoid valve 24 volt, pulse controlled by machine software
manually adjustable
1 litre
24V/2W to thread tapping machine
4-6 bar
4/6 mm



Machine software	
Fluid amount	
Fluid bottle	
Connection	
Operating pressure	
Air connection	

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muechen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

Thread tapping technology

Production document printer

QND

Production document printer **/ QND**
Document printer and control software
through tapping machine software

Output
records parameter set with parameter name from memory **–**
single and total thread counter
– with good / bad counter
– maximum torque

Error correction
manual counter correcting after
accounting for the bad parts

Operation
Total overview and/or documentation of every cut

Mounting
when it is needed

Control
RS232

Documentation-examples

AutoSave
Documentation of all pertinent parameters:
***micro**tap II* – *G5* /** Thread M2 / stainless steel
DATE: *10th October 2008*
T= 4 mm N= 2200RPM Mz max = 45 Ncm
PROG: THREAD FORMING Mz min = 15 Ncm
PARTS TOTAL = 75 THREADS / PART = 2
PARTS GOOD = 73 / BAD = FAULT THREAD = 2
DEPTH NOT REACHED = **2**
NAME: microtap

AutoSaveALL
documents every single cut:

CUT : Mz-max 18 Ncm
CUT : Mz-max 18 Ncm
CUT : Mz-max 20 Ncm
*ERROR: Depth not achieved T= **3.6** mm CUT : Mz-max 18 Ncm*
*ERROR: Depth not reached T= **3.7** mm*
CUT : Mz-max 20 Ncm
CUT : Mz-max 19 Ncm
... etc.

microtap **GmbH,** Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051 / Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

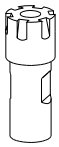
Thread tapping technology

Quick- and collet systems

SZS

Collet system / **SZS**

Sizes	ER 8/ 11/ 16/ 20
Versions	with and without square / on request
Special accessories	adapter from SWS – quick change system to SZS – collet system available



SWS

Quick change systems **/ SWS**0/ 1/ 2/ 3
complete including holder and Inserts

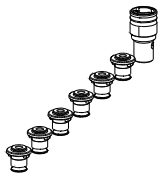
Holder	**SFM-**00/ 01 /03 / true running tolerance 0,05 mm
Inserts	Quick change inserts **/ SWE** to hold cutting tools
Qualities	Quick tool change / Compensates for part alignment

SWS0 Quick change system complete with 5 inserts
DIN371/ M0,8-1,8/ M2-2,6/ M3/ M4/ M4,5-6

SWS1 Quick change system complete with 6 inserts
DIN371/ M2/ M3/ M4/ M4,5-6/ M8/ M10

SWS2 Quick change system complete with 7 inserts
DIN371/374/376 M3/ M4/ M4,5-6/ M8/ M10/ M12/ M14

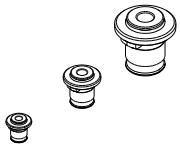
SWS3 Quick change system complete with 9 inserts
DIN371/ M4/ M4,5-6/ M8/ M10/ M12/ M14/ M16/ M18 / M20



SWE

Quick change inserts / **SWE**

Sizes	**SWE**-00/ 01/ 03
Inserts	Metric / ISO / UNF – UNC
True running tolerance	0,05 mm, only with selected inserts of microtap
Quality	Quick tool change / self-aligning
Delivery	most sizes available from stock.
Special sizes / details	on request (see data sheet **SWE**)



microtap **GmbH,** Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051/ Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

Overview SWS & SWE

Quick change systems and inserts

microtap - **job**tap

SWS & SWE	Quick change systems SWS0/1/2/3
Inserts standards	metric / ISO / UNF-UNC
Accuracy	0,05 mm, only at selected inserts of microtap
Quality	quick change
Delivery	on request 2-4 weeks special sizes on request
Collet system	on request

Price overview inserts and holder

Insert Size ∅ / □	Tap DIN 371	Tap DIN 374/376	Quick change systems and available inserts / type (Price in EURO)			
			SWS0 5 inserts Size 00 **220,00**	**SWS1** 6 inserts Size 01 **250,00**	**SWS2** 7 inserts Size 01 **280,00**	**SWS3** 9 inserts Size 03 **400,00**
2,5/2,1	M 1 - 1,8	M 3,5	**34,00**	40,00*	40,00*	
2,8/2,1	M 2 - 2,6	M 4	**34,00**	**40,00**	40,00	
3,5/2,7	M 3	M 4,5 – 5	**34,00**	**40,00**	**40,00**	
4,0/3,0	M 3,5		34,00	40,00	40,00	
4,5/3,4	M 4	M 6	**34,00**	**40,00**	**40,00**	**65,00***
5,5/4,3		M 7	34,00	40,00	40,00	
6,0/4,9	M 4,5 - 6	M 8	**34,00**	**40,00**	**40,00**	**50,00**
7,0/5,5	M 7	M 9 - 10	34,00	40,00	40,00	50,00
8,0/6,2	M 8	M 11	62,00*	**40,00**	**40,00**	**50,00**
9,0/7,0	M 9	M 12		40,00	**40,00**	**50,00**
10,0/8,0	M 10		62,00*	**40,00**	**40,00**	**50,00**
11,0/9,0		M 14		40,00	**40,00**	**50,00**
12,0/9,0		M 16		45,00*	45,00*	**50,00**
14,0/11,0		M 18				**50,00**
16,0/12,0		M 20				**50,00**
18,0/14,5		M 22 - 26				50,00
20,0/16,0		M27				70,00*
22,0/18,0		M 29 - 32				70,00*
Quick change holder						
SFM 00	B10	DIN 238	**110,00**			
SFM 01	B12 (B10)	DIN 238		**120,00**	**120,00**	
SFM 03	B12	DIN 238				**180,00**
* Special sizes					**Bold** printed articles are included in **SWS**	

SWS Collet-holder-sices.doc

microtap **GmbH**, Rotwandweg 4, 82024 Taufkirchen / Munich – Germany / Tel +49-89-6128051, Fax +49-89-6127488
info@microtap.de http://www.microtap.de/

Thread tapping technology

Accessories

LSM

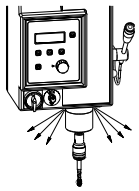
air seal for spindle motor **/ LSM**
air seal for spindle motor to protect against dust and oil mist
- operation of compressed air under spindle

Recommended for
chip and oil spray rejection
– abrasive material
– corrosive environment
such as welding
– vaporized fluids

Mounting
easily assembled

Air pressure and connector
4-8 bar - 4/6 mm

System
standard & gear special system

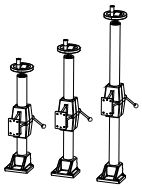


SHV

column upgrade to different heights **/SHV**

Sizes / height
600mm / 750mm / 1000mm

Mounting
easily assembly and exchange



SVE

electrical column high adjustment
SVE recommended for 1000mm columns

Connection
230 Volt external

Control
cable remote control

Mounting
to standard columns

HVS

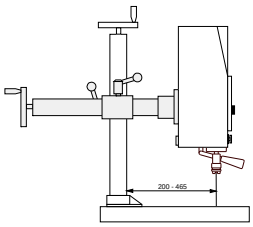
horizontal adjustment **/ HVS**
only for G5 / G8

Maximum weight
25 kg

Maximum adjustment
465 mm

Mounting
on standard columns

Recommended
load analysis



microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/

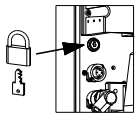
Thread tapping technology

Accessories

SSB

key switch to lock touch screen **/ SSB**

Quality	to protect the parameter set from changes and from manipulation of counted parts
	order before delivery
Recommended	only at microtap
Mounting Application	to secure machine operator from changing parameters



ASL

Quality	signal light **/ ASL**
	with electronic interface
Signal beep	a quality error switches on the signal light and tone.
	the light flashes and beeps switches off after 2-3 seconds
Connection	I/O interface

MLM

Machine light **/ MLM**

	with magnetic base
Connection	230 Volt external
Light	Halogen 12 V/ 20 W

microtap **GmbH**
Rotwandweg 4
82024 Taufkirchen / Muenchen (Munich) - Germany
Tel +49-89-6128051
Fax +49-89-6127488
info@microtap.de
http://www.microtap.de/