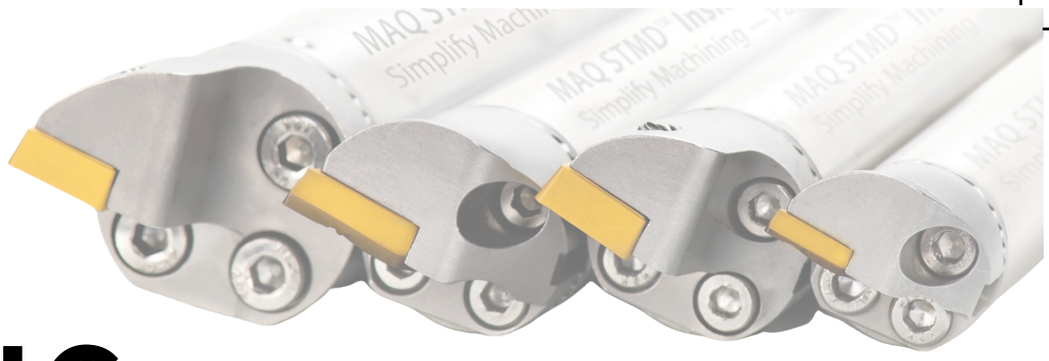
MAQ

Simplify Machining™

REMOVING VIBRATIONS,
ADDING SIMPLICITY

MAQAB.COM



SELF-TUNING

Remove vibration Adding simplicity

MAQ STMD™ Self-Tuning Mass Damper tools are easy to use and improve cutting tool performance out of the box: Plug & Play.
No Maintenance. No Tuning.

Parts Manufacturers, Machine Tool Builders and Cutting Tool Manufacturers can simplify their machining with MAQ STMD and get these benefits

Vibration in machining usually means damaged parts and poor surface quality, potentially destroying cutting inserts and dramatically increasing production costs. MAQ provides a new method for mass dampening in the tool body to minimize movement and neutralize vibration.

Simplify Your Machining with MAQ STMD™

TECHNOLOGY

By the numbers, the STMD can:

Higher productivity up to	*Reduce Cycle Time by up to*	*Reduce Tooling Costs by up to*	*Reduce Energy Consumption by up to*	*Reduce Scrap by up to*
50%	**30%**	**10%**	**3%**	**2%**

Absorbing vibrations is the Key

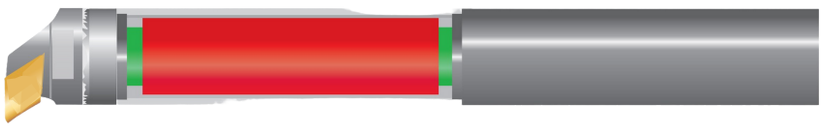
Vibration in machining means damaged parts and surface quality, destroyed cutting inserts, and increased production costs. Machining operations using high length to diameter (L/D) ratio tools have the most prominent vibration issues. MAQ provides vibration damped tool holders which has a new invention to extract the vibration energy from the cutting tool body to control the machine tool vibration problem. The new approach has a Self-Tuning mass damper in the tool holder body and it automatically adjust it self as vibration occurs.

Physics & Chemistry Working Together

In mass damped tool holds the challenge is the change of vibration frequency on machining tools due to the cutting condition changes (tool wear, wearing joints, variation of work piece materials, etc.). For these reasons, leading competitor's products in the market require the optimized tuning of the mass damper to ensure performance. The out of tuning condition could make the vibration problem even worse, instead of controlled. With MAQ Self-Tuning mass damper in the tool holders, the spring elements on the mass dampers automatically adjust its stiffness according to the machining tool's vibration frequency.

The unique self-tuning property enables MAQ damped machining tools outperform the solutions on the market providing better surface finish and higher process reliability. MAQ damped machining tools boost the productivity through simplify machining, as you do not need any tuning, and it works at any set up you have in your production facility.

TURNING TOOLS



Remove vibration Adding simplicity

MAQ provides a new innovative technology that takes vibration technologies to this century. The new technology does not use liquid (Oil) inside and does not need any adjustment (tuning) during the operation. MAQ's new approach has a self-tuning mass damper in the tool holder body and it automatically adjust itself as vibration occurs.

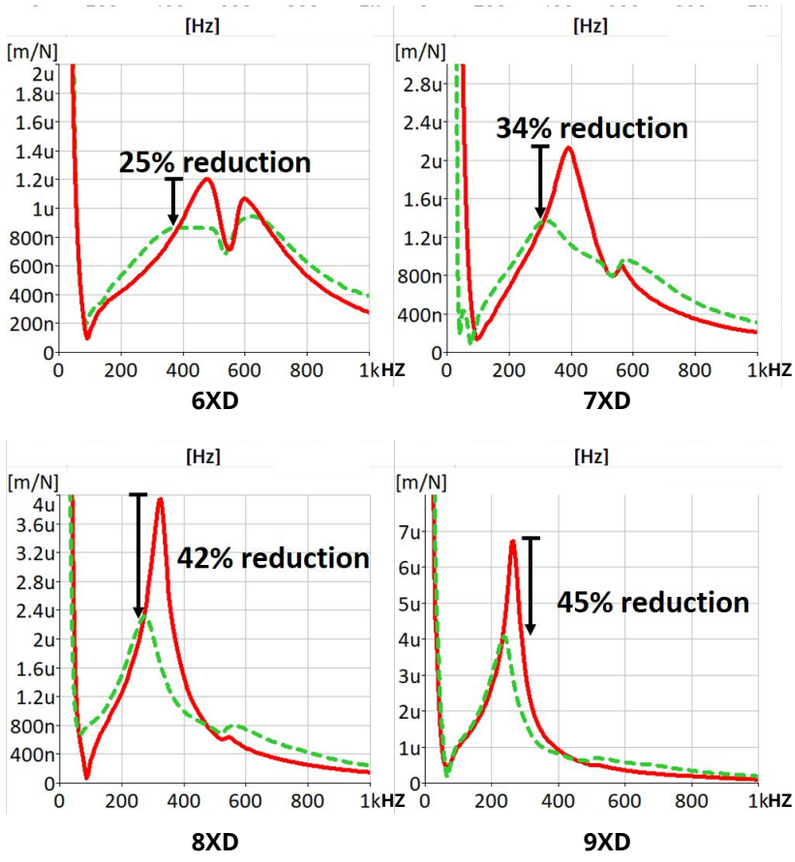
Where to use MAQ technology of self-tuning mass bars for turning and milling.

Aerospace manufacturing, Automotive manufacturing, Oil and gas manufacturing, Medical components manufacturing, Die and mold manufacturing, Power generation systems manufacturing and Wind power manufacturing.

How can you benefit using MAQ technology?

MAQ covers a larger L/D ratio range. When the competition needs 4 tools to cover from 5XD to 15XD, MAQ uses only 3 tools. MAQ turning tools will reduce your cycle time and tool cost investment.When tested in comparison, MAQ allows higher cutting speed and wider selection of feed rate and better surface finish.
All this provides you with a productivity improvement when using MAQ self-tuning mass damper technology in Turning and Milling.

MAQ
Simplify Machining™



"VIBRATION MEASURMENT COMPARISON OF MAQ STM M25-255 VERSUS THE EQUIVALENT FROM THE LEADING COMPETITOR AT DIFFERENT L/D RATIOS"

Inch

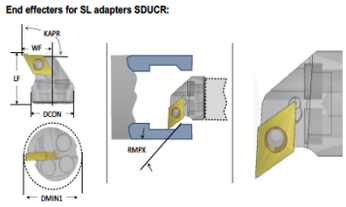
Art. Nr	D (inch)	L (inch)	L* (max)	L (min)	Adapter	KG
STMD™ I 3/8-5.9-SCLCR-06	**3/8**	5.9	3.9	5.9	NA	0.10
STMD™ I 3/8-5.9-SDUCR-07	**3/8**	5.9	3.9	5.9	NA	0.10
STMD™ I 3/8-5.9-STFCR-09	**3/8**	5.9	3.9	5.9	NA	0.10
STMD™ I ½-5.7	½	5.7	3.8	5.7	SL12	0.18
STMD™ I ½-7.1-SCLCR-06	½	7.1	4.7	7.1	NA	0.45
STMD™ I ½-7.1-SDUCR-07	½	7.1	4.7	7.1	NA	0.45
STMD™ I ½-7.1-STFCR-09	½	7.1	4.7	7.1	NA	0.45
STMD™ I 5/8-6.7	**5/8**	6.7	5.0	4.6	SL16	0.25
STMD™ I 5/8-8.0	**5/8**	8.0	6.9	8.0	SL16	0.50
STMD™ I 5/8-10.6	**5/8**	10.6	9.5	10.6	SL16	0.75
STMD™ I ¾-7.9	¾	7.9	6.3	5.4	SL20	0.50
STMD™ I ¾-10.3	¾	10.4	8.6	10.2	SL20	1.00
STMD™ I ¾-13.4	¾	13.4	11.6	13.4	SL20	1.50
STMD™ I 1-10.0	1	10.0	7.9	7.1	SL25	1.10
STMD™ I 1-13.0	1	13.0	10.8	10	SL25	1.70
STMD™ I 1-16.9	1	16.9	14.7	16.9	SL25	3.20
STMD™ I 11/4-12.6	1 ¼	12.6	10.1	8.4	SL32	2.10
STMD™ I 11/4-16.4	1 ¼	16.4	13.8	12.2	SL32	3.50
STMD™ I 11/4-21.4	1 ¼	21.4	18.8	21.4	SL32	6.40
STMD™ I 11/2-16.0	1 ½	16.3	12.6	10.2	SL40	3,9
STMD™ I 11/2-20.8	1 ½	21.1	17.2	12.3	SL40	5.00
STMD™ I 2-20.4-SL40	2	20.8	15.7	12.7	SL40	8
STMD™ I 2-20.4-SL50	2	20.7	15.7	12.7	SL50	8
STMD™ I 2-26.0-SL40	2	26.5	21.6	15.0	SL40	9.40
STMD™ I 2-26.0-SL50	2	26.4	21.6	15.0	SL50	9.40
STMD™ I 2 ½ -24.7-SL40	2 ½	25.2	18.9	16.7	SL40	13.6
STMD™ I 2 ½ -24.7-SL60	2 ½	25.1	18.9	16.6	SL60	13.6
STMD™ I 2 ½ -31.8-SL40	2 ½	32.4	26.0	19.0	SL40	16,4
STMD™ I 2 ½ -31.8-SL60	2 ½	32.3	26.0	19.0	SL60	16,4

Metric

Art. Nr	D (mm)	L (mm)	L* (max)	L (min)	Adapter	KG
STMD™ M10-150 SCLCR-06	10	150	100	150	NA	0.10
STMD™ M10-150 SDUCR-07	10	150	100	150	NA	0.10
STMD™ M10-150 STFCR-09	10	150	100	150	NA	0.10
STMD™ M12-144	12	144	96	144	SL12	0.18
STMD™ M12-180 SCLCR-06	12	180	120	180	NA	0.45
STMD™ M12-180 SCLCR-07	12	180	120	180	NA	0.45
STMD™ M12-180 STFCR-09	12	180	120	180	NA	0.45
STMD™ M16-170	16	170	128	117	SL16	0.25
STMD™ M16-204	16	204	176	204	SL16	0.50
STMD™ M16-268	16	268	236	268	SL16	0.75
STMD™ M20-200	20	200	160	137	SL20	0.50
STMD™ M20-260	20	260	220	260	SL20	1.00
STMD™ M20-340	20	340	300	340	SL20	1.50
STMD™ M25-255	25	255	200	180	SL25	1.10
STMD™ M25-330	25	330	275	255	SL25	1.70
STMD™ M25-430	25	430	380	430	SL25	3.20
STMD™ M32-320	32	320	256	213	SL32	2.10
STMD™ M32-416	32	416	352	309	SL32	3.50
STMD™ M32-544	32	544	480	544	SL32	6.40
STMD™ M40-408	40	408	320	260	SL40	3,9
STMD™ M40-528	40	528	440	312	SL40	5.00
STMD™ M50-518-SL40	50	520	400	324	SL40	8
STMD™ M50-518-SL50	50	518	400	322	SL50	8
STMD™ M50-660-SL40	50	662	550	384	SL40	9.40
STMD™ M50-660-SL50	50	660	550	382	SL50	9.40
STMD™ M60-628-SL40	60	630	480	424	SL40	13.6
STMD™ M60-628-SL60	60	628	480	422	SL60	13.6
STMD™ M60-808-SL40	60	810	660	484	SL40	16,4
STMD™ M60-808-SL60	60	808	660	482	SL40	16,4

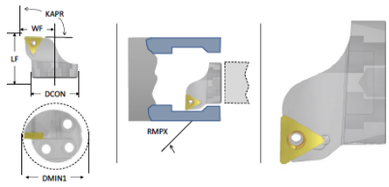
CUTTER HEADS

End effecters for SL adapters SDUCR:



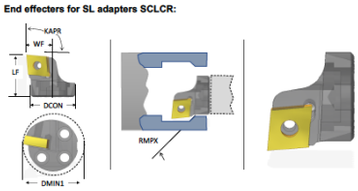
Art. Nr	DCON (mm)	DMIN 1 (mm)	Hand	Insert	KC
SDUCR-12	SL 12	16	R	DCMT 0702XX	0.01
SDUCL-12	SL 12	16	L	DCMT 0702XX	0.01
SDUCR-16-5/8	SL 16	20	R	DCMT 0702XX	0.01
SDUCL-16-5/8	SL 16	20	L	DCMT 0702XX	0.01
SDUCR-20-3/4	SL 20	25	R	DCMT 11T3XX	0.02
SDUCR-25-1	SL 25	32	R	DCMT 11T3XX	0.04
SDUCR-32-1 1/4	SL 32	40	R	DCMT 11T3XX	0.07
SDUCR-40-1 1/2	SL 40	50	R	DCMT 11T3XX	0,14

End effecters for SL adapters STFCR:



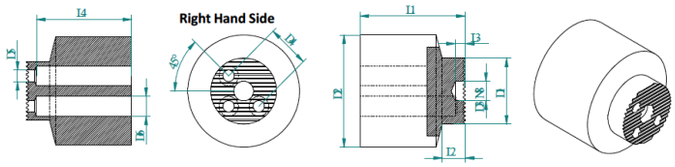
Art. Nr	DCON (mm)	DMIN1 (mm)	Hand	Insert	KC
STFCR-12	SL 12	16	R	TCMT 0902XX	0.01
STFCL-12	SL 12	16	L	TCMT 0902XX	0.01
STFCR-16-5/8	SL 16	20	R	TCMT 0902XX	0.01
STFCL-16-5/8	SL 16	20	L	TCMT 0902XX	0.01
STFCR-20-3/4	SL 20	25	R	TCMT 1103XX	0.02
STFCR-25-1	SL 25	32	R	TCMT 1103XX	0.04
STFCR-32-1 1/4	SL 32	40	R	TCMT 16T3XX	0.07
STFCR-40-1 1/2	SL 40	50	R	TCMT 16T3XX	0.14

End effecters for SL adapters SCLCR:



Art. Nr	DCON (mm)	DMIN1 (mm)	Hand	Insert	KC
SCLCR-12	SL 12	16	R	CCMT 0602XX	0.01
SCLCL-12	SL 12	16	L	CCMT 0602XX	0.01
SCLCR-16-5/8	SL 16	20	R	CCMT 0602XX	0.01
SCLCL-16-5/8	SL 16	20	L	CCMT 0602XX	0.01
SCLCR-20-3/4	SL 20	25	R	CCMT 09T3XX	0.02
SCLCR-25-1	SL 25	32	R	CCMT 09T3XX	0.04
SCLCR-32-1 1/4	SL 32	40	R	CCMT 09T3XX	0.07
SCLCR-40-1 1/2	SL 40	50	R	CCMT 09T3XX	0.14

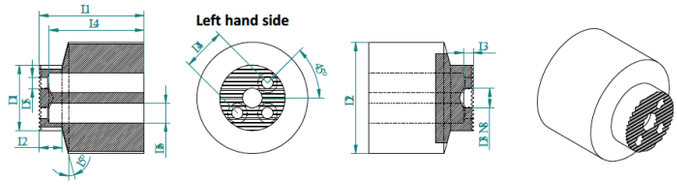
SL Blanks Right Hand Side:



Art. Nr	D1 (mm)	D2 (mm)	D3 N8** (mm)	D4 (mm)	D5 (mm)	D6 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)
SL12-20-20 R	12	20	4	7.4	2.5	4	20	7	3	17
SL16-26-25 R	16	26	4	9.5	3.5	6	25	7	3	22
SL20-34-32 R	20	34	6	13	3.5	6	32	7	3	29
SL25-40-40 R	25	40	6	16	4.5	7.5	40	7	3	37
SL32-50-50 R	32	50	6	22	5.5	9	50	11	3	47
SL40-60-60 R	40	60	6	28	6.5	10.5	60	11	3	57
SL50-70-70 R	50	70	8	35	8.5	13.5	70	11	4	67

**: all SL blank parts will be supplied with a centering pin equivalenting the dimension

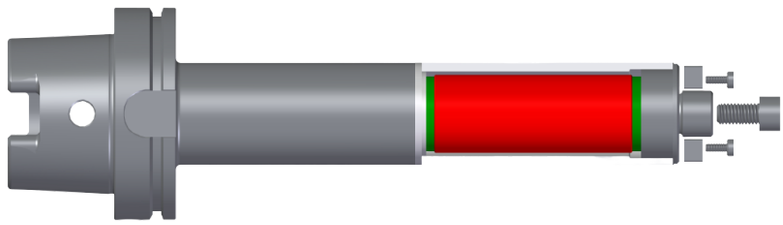
SL Blanks Left Hand Side:



Art. Nr	D1 (mm)	D2 (mm)	D3 N8** (mm)	D4 (mm)	D5 (mm)	D6 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)
SL12-20-20 L	12	20	4	7.4	2.5	4	20	7	3	17
SL16-26-25 L	16	26	4	9.5	3.5	6	25	7	3	22
SL20-34-32 L	20	34	6	13	3.5	6	32	7	3	29
SL25-40-40 L	25	40	6	16	4.5	7.5	40	7	3	37
SL32-50-50 L	32	50	6	22	5.5	9	50	11	3	47
SL40-60-60 L	40	60	6	28	6.5	10.5	60	11	3	57
SL50-70-70 L	50	70	8	35	8.5	13.5	70	11	4	67

**: all SL blank parts will be supplied with a centering pin equivalenting the dimension

MILLING TOOLS



Help You Remove Material Faster

MAQ has launched its milling product line with its patented STMD (Self -Tuning Mass Damper) technology. The STMD technology allows us to choose operation parameters witch improves your prodoctivity:

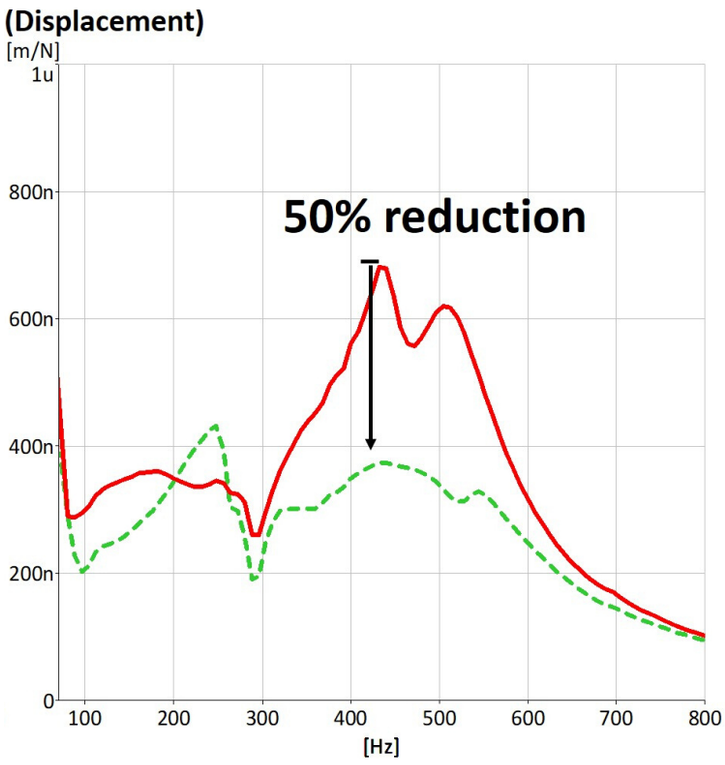
- ***Cutting speed***
- ***Feed rate + 30 to 50%***
- ***Number of inserts + 30 to 50%***
- ***Depth of cut + 30 to 50%***

MAQ has developed the new line of milling products covering the ISO back ends of HSK 100A, HSK 63A, PSC-C5, BT 40 and BT 50, and ISO front ends of Arbor 6462.

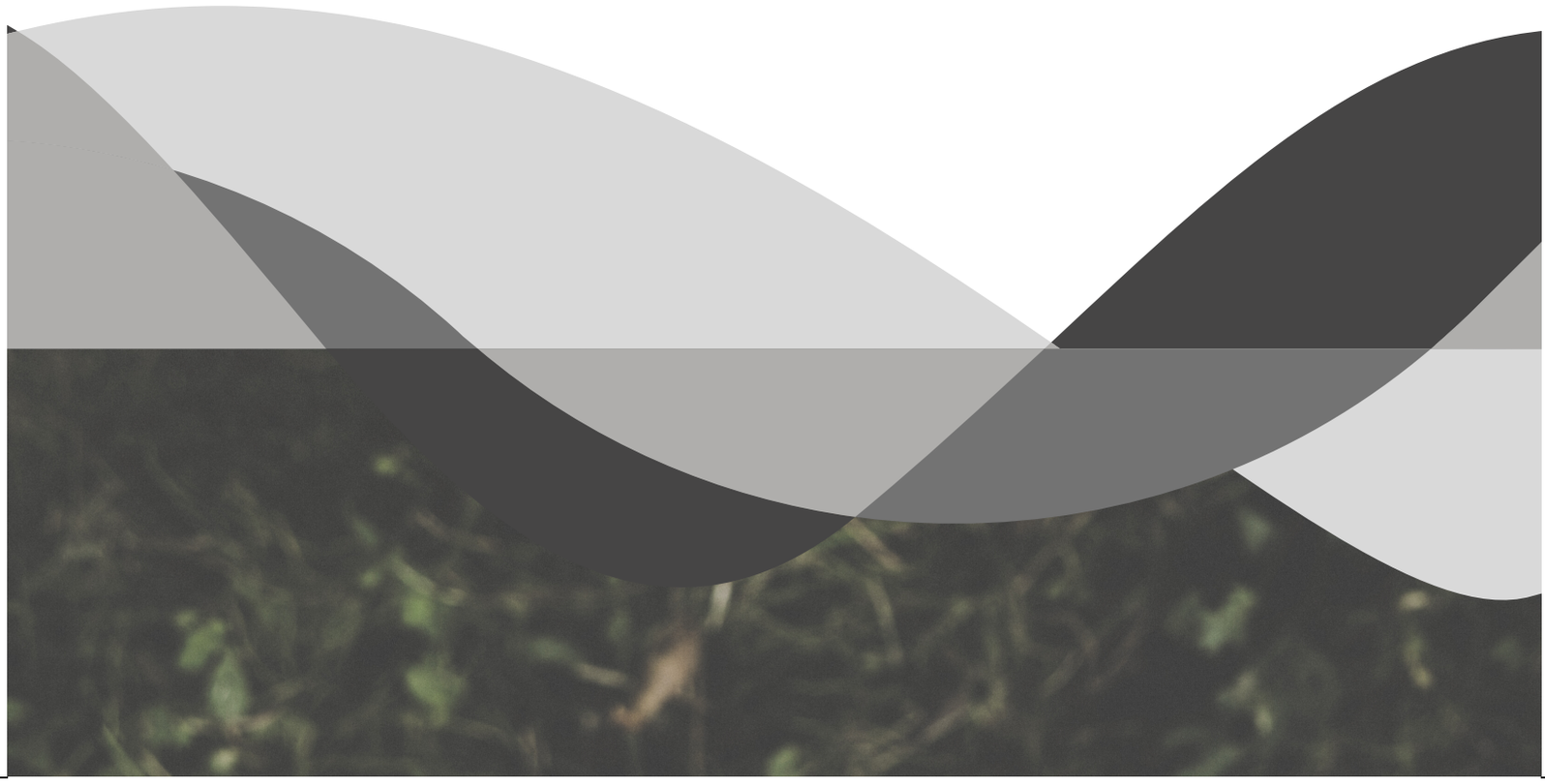
When the vibration frequency of the milling process is changed, the STMD technology will automatically adjust itself to adapt to the new situation. The mass damper is automatically tuned to the new situation and maintain the high efficiency of energy transfer between the mass damper and the tool body. Thus, we will always have the most stable cutting no matter which parameter you are going to use. It will allow you to boost another 30-50% productivity in the same machine, just by choosing MAQ products.

MAQ Simplify Machining™

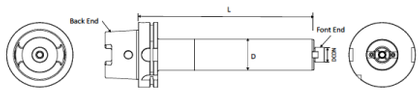
Tool: *MAQ STMD HSK100A 48-260M22*
Workpiece material: *Aluminum 6082*
Cutter head: *R390-050q22-11H*



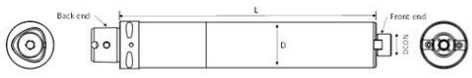
MAQ STMD HSKI00A 48-260M22 THE RED GRAPH IS THE MAIN COMPETITOR AND THE GREEN GRAPH IS MAQ



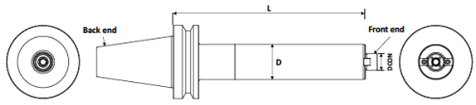
Milling tools – with back-ends:



Product code	Back End	D (mm)	L (mm)	Front End | DCON	kg	Through Coolant
STMD HSK63A 48-213 M22	HSK63A	48	213	Arbor | M22	3,5	Yes
STMD HSK63A 48-263 M22	HSK63A	48	263	Arbor | M22	4	Yes
STMD HSK63A 48-313 M22	HSK63A	48	313	Arbor | M22	5	Yes
STMD HSK100A 48-213 M22	HSK100A	48	213	Arbor | M22	4	Yes
STMD HSK100A 48-263 M22	HSK100A	48	263	Arbor | M22	5	Yes
STMD HSK100A 48-313 M22	HSK100A	48	313	Arbor | M22	6	Yes
STMD HSK100A 60-340 M22	HSK100A	60	340	Arbor | M22	9	Yes

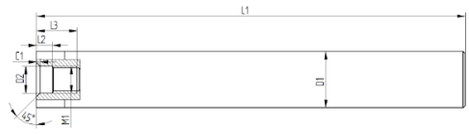


Product code	Back End	D (mm)	L (mm)	Front End | DCON	kg	Through Coolant
STMD PSC50 48-213 M22	PSC50	48	213	Arbor | M22	3,5	Yes
STMD PSC50 48-263 M22	PSC50	48	263	Arbor | M22	4	Yes
STMD PSC50 48-313 M22	PSC50	48	313	Arbor | M22	6	Yes



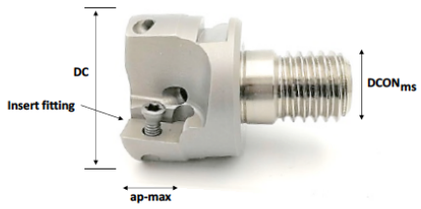
Product code	Back End	D (mm)	L (mm)	Front End | DCON	kg	Through Coolant
STMD BT40 48-213 M22	BT40	48	213	Arbor | M22	4	Yes
STMD BT40 48-263 M22	BT40	48	263	Arbor | M22	5	Yes
STMD BT40 48-313 M22	BT40	48	313	Arbor | M22	6	Yes
STMD BT50 48-213 M22	BT50	48	213	Arbor | M22	6	Yes
STMD BT50 48-263 M22	BT50	48	263	Arbor | M22	7	Yes
STMD BT50 48-313 M22	BT50	48	313	Arbor | M22	8	Yes

Milling tools – straight shank:

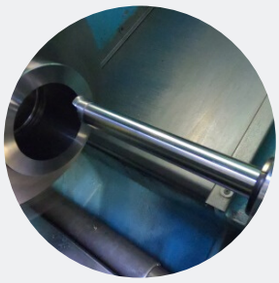


Product code	D1	L1	D2	M1	L2	L3	C1	kg	Through Coolant
STMD M25-190 M12	25	190	**12,5**	**M12.5X1.75**	7	18	1.5	0.7	Yes
STMD M32-236 M16	32	236	17	M16X2	7	20	1.5	1	Yes
Dimension in mm.									

Milling tools – cutting heads:



Product code	DC	$DCON_{ms}$	Inserts	Type of insert	kg	Fit to	Wrench	Through Coolant
R390-26-M12-X3	26	M12	X3	R390 11T3	0.05	STMD M25-190 M12	W26	Yes
R390-33-M16-X4	33	M16	X4	R390 11T3	0.09	STMD M32-236 M16	W33	Yes



Self-Tuning

The STMD's™ Self-Tuning features make the vibration damped tool holder easy to use and significantly improve productivity. The STMD™ also enhances the quality of machined parts and increases the probability of jobs finishing on-time, on-spec and on-budget.

Totally Plug & Play

The MAQ vibration damped tools with Self-Tuning Mass Damper™ (STMD™) is easy to install and use. Think of it as a "smart tool holder" that adjusts to machining conditions in real time while enabling you to reduce total cost of ownership (TCO) by up to 30%.

Maintenance Free

The MAQ vibration damped tool holders with Self-Tuning Mass Damper™ (STMD™) technology, is an alternative to traditional tool holders and boring bars. It's the only self-adjusting tool on the market that maximizes mass damping effect.

Learn how the MAQ vibration damped tool holder with STMD™ can benefit you, whether you're a Job Shop Owner, Plant Manager, Manufacturing Engineer, Machine Programmer, Machine Operator, Machine Tool Builder, Distributor, Buyer/Purchasing Agent or Cutting Tool Manufacturer.
- Visit us at ***www. maqab.com***

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