



STEADYLINE™
VIBRATION DAMPING SHELL MILL HOLDERS





STEADYLINE™ **WITH DYNAMIC VIBRATION DAMPING ABSORBER**

Difficult-to-access machining areas, such as large, complex monolithic workpieces and deep cavities, demand long overhang tools and these applications are becoming increasingly common.

Steadyline vibration damping shell mill holders drastically improve the dynamic rigidity of milling assemblies. This allows much higher cutting conditions, with quieter operation and optimum stability. Key benefits are increased productivity, improved surface finish and longer tool and spindle life.

The patented Steadyline – passive dynamic damping system – from Seco will boost your production in a wide range of applications while reducing operating costs.

THINK OF THE SAVINGS!

Without damping, cutting conditions must be adapted to the constraints of the toolholder (natural frequency): a long and annoying FFT frequency analysis is required to obtain optimum cutting conditions.

The answer is Steadyline, a highly productive and cost-efficient solution that also works more quietly than classic solutions. It is ready to use and permits higher cutting conditions (cutting speeds, depth of cut a_p x2 to x4), hence increasing the chip removal rate.

A typical long overhang operation can be performed twice as quickly as with a classic system, not to mention the increased tool life.

GREATER DYNAMIC RIGIDITY

Steadyline shell mill holders offer up to three times greater dynamic rigidity than equivalent solid holders. This enables machining over 5xD overhang with optimal cutting conditions.

Steadyline offers the same advantages irrespective of the type of milling operation, the number of teeth in the cutter, the technology, or the workpiece material.

OTHER IMPORTANT FEATURES

- Made from high tensile steel with protective coating
- Dynamically balanced
- Coolant supply channels through the spigot
- Ready-to-use

A WIDE RANGE OF APPLICATIONS

Steadyline shell mill holders are available in a wide range of types and sizes (cylindrical, conically strengthened, HSK, Seco-Capto, DIN, BT and CAT).

They are suitable for:

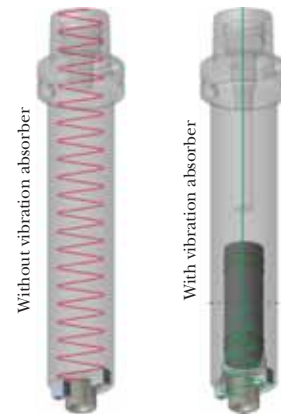
- Every milling operation with long overhangs with predominantly radial forces.
- Machining of deep mould and die workpieces.
- Machining of complex monolithic workpieces, particularly in the aerospace, automotive and power generation industries.



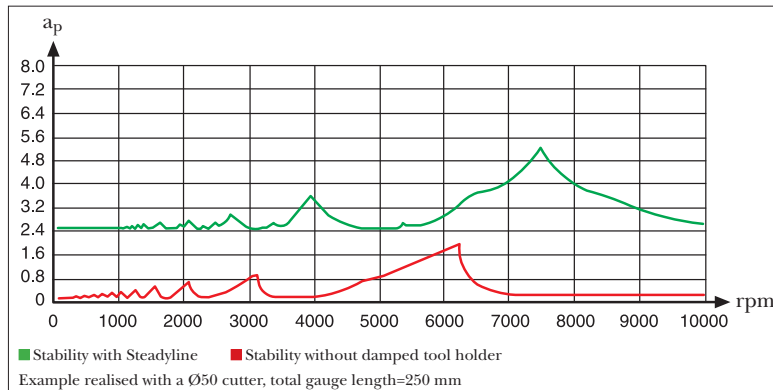
STEADYLINE OPERATING PRINCIPLE

In the Steadyline shell mill holder, the vibration absorber is positioned where the deflection is highest, at the front of the bar. The vibration absorber damps the vibrations as soon as they are transmitted by the cutting tool to the body of the bar. It prevents them from spreading along the bar, thus limiting the deflection of the tool.

The result is greater rigidity that ensures high stability even with extreme cutting conditions: the chip removal rate can be dramatically increased!



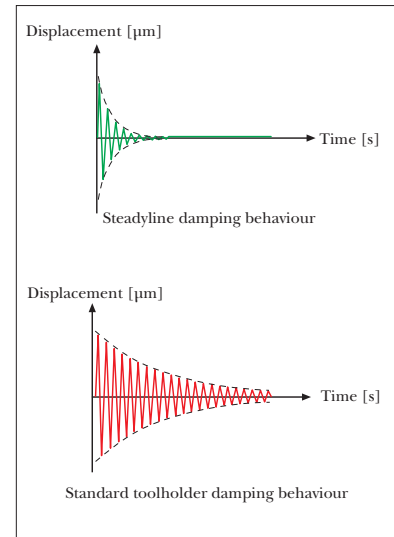
COMPARISON BETWEEN A CLASSIC MODULAR SYSTEM AND A STEADYLINE HOLDER



The test is realised with a shell mill holder Ø50, A length=250 mm. The aim is to measure the depth up to which the holder is stable, at different speeds.

At a given speed, the Steadyline holder's optimal depth of cut (a_p) can be 2 to 4 times that of a modular system and the surface finish is improved dramatically.

DAMPING BEHAVIOUR

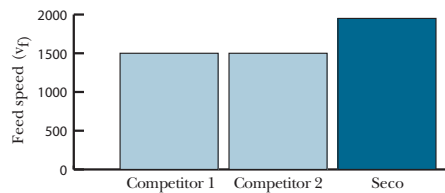
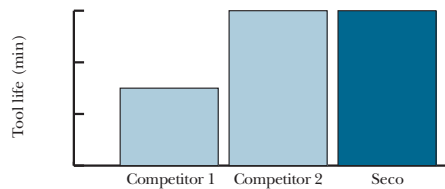


STEADYLINE TEST RESULTS

INCREASED RPM, IMPROVED TOOL LIFE

Competitors' damping holders vs. Steadyliner

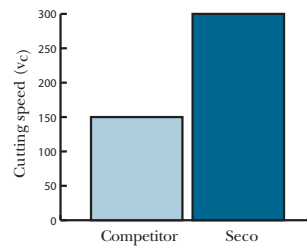
	Competitor 1	Competitor 2	Steadyliner
Operation	Copy milling		
Material	Bi-material Seco material group 13 (cast iron) and Seco material group 3 (steel)		
Tool holder	Steadyliner: E3471 5556 27320		
Cutter	R220.29-0066-06.4A		
Insert	RPHT1204M0T-M10, F40M		
Cutting data	v_c	137 m/min	178 m/min
	f_z	0,56 mm/tooth	
	v_f	1500 mm/min	1950 mm/min
Tool life (pieces)	1x	1,5x	1,5x
Result	Speed +30%, Tool life +50%		



INCREASED CUTTING SPEED

Competitor classic holder vs. Steadyliner

	Classic toolholder	Steadyliner
Operation	High feed milling	
Material	Seco material group 3, 4	
Tool holder	Steadyliner: C8-391. 5556.22260	
Cutter	R220.21-0052-SC12.4A	
Insert	RPHT1204M0T-M08, F40M	
Cutting data	v_c	150 m/min
	f_z	1,2 mm/tooth
	a_e	Full engagement
	a_p	1 mm
Result	v_c +100%	

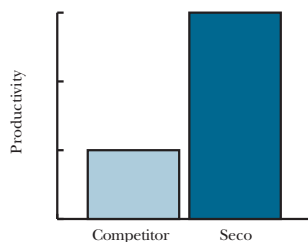


PRODUCTIVITY IMPROVED IN EVERY CASE

Competitor modular system vs. Steadyliner

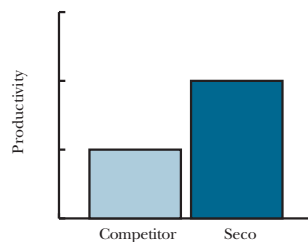
ROUND INSERTS

	Competitor modular system	Steadyliner
Operation	Plain milling	
Material	Seco material group 4	
Tool holder	Steadyliner: E3416 5556 27320 (conical)	
Cutter	R220.29-0080-06.6A	
Insert	RPHT1204M0T-M15, F40M	
Cutting data	v_f	1350 mm/min
	a_p	0.4 mm
	a_e	80 mm
	Q	43 cm ³ /min
Result	Productivity increased by 200%	



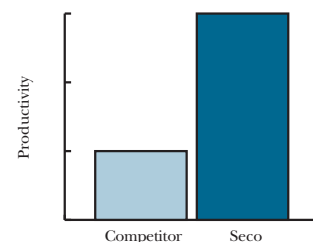
HIGH FEED INSERTS

	Competitor modular system	Steadyliner
Operation	Plain milling	
Material	Seco material group 4	
Tool holder	Steadyliner: E3416 5556 27320 (conical)	
Cutter	R220.21-0080-R160.6	
Insert	218.19-160T-04-MD, MP1500	
Cutting data	v_f	4320 mm/min
	a_p	0.7 mm
	a_e	80 mm
	Q	242 cm ³ /min
Result	Productivity increased by 100%	



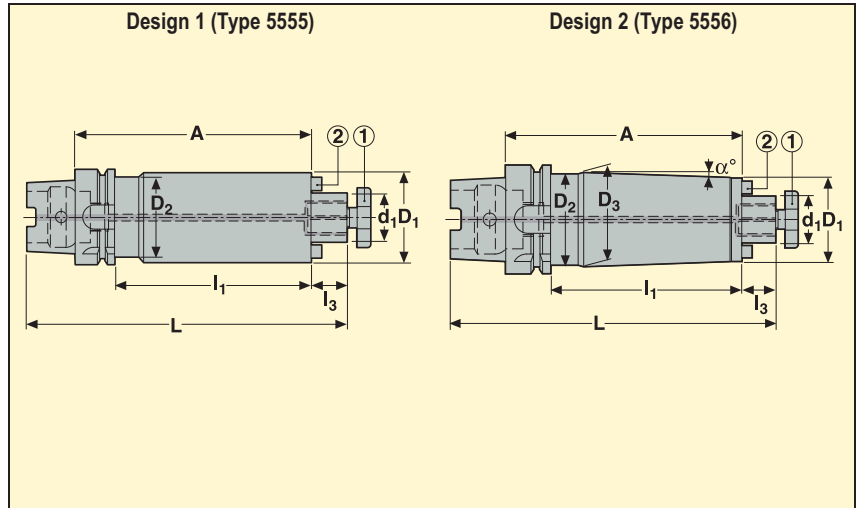
SQUARE 6™

	Competitor modular system	Steadyliner
Operation	Plain milling	
Material	Seco material group 4	
Tool holder	Steadyliner: E3416 5555 27260 (cylindrical)	
Cutter	R220.96-0080.08.7A	
Insert	XNEX080608TR-M13, F40M	
Cutting data	v_f	2240 mm/min
	a_p	0.4 mm
	a_e	80 mm
	Q	71.6 cm ³ /min
Result	Productivity increased by 200%	





- With dynamic damping, ready to use.
- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.



Taper	d ₁ mm	Part No.	Dimensions in mm							Design	α°	Balancing	KG
			A	D ₁	D ₂	D ₃	L	l ₁	l ₃				
HSK-A63	16	E9304 5555 16160	160	38	–	–	209	131	17	1	–	1	2,40
	22	E9304 5555 22210	210	48	–	–	261	184	19	1	–	1	3,60
	22	E9304 5556 22260	260	48	53	63,3	311	234	19	2	1,9	1	5,52
	27	E9304 5555 27260	260	60	53	–	313	234	21	1	–	1	6,63
HSK-A100	22	E9306 5555 22210	210	48	–	–	279	181	19	1	–	1	4,88
	22	E9306 5556 22260	260	48	–	65	329	231	19	2	1,9	1	6,94
	27	E9306 5555 27260	260	60	–	–	331	231	21	1	–	1	8,06
	27	E9306 5556 27320	320	60	–	82	391	291	21	2	2	1	12,07
	32	E9306 5555 32330	330	78	–	–	404	301	24	1	–	1	14,90

∅ 16 and 32 mm available from November 2009.

Accessories

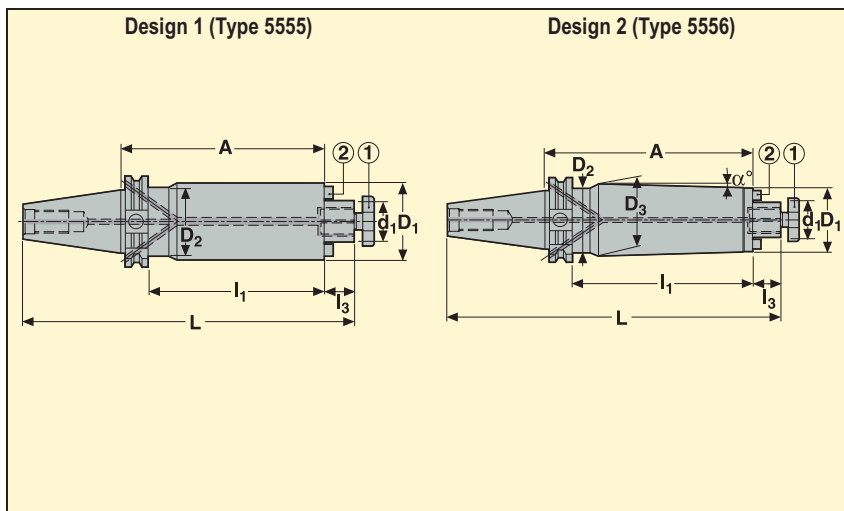
Spare parts

For d ₁	Spanner for bolt	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608	16C2080810A	951D0312
22	5812210	5802210	16C2101111	951D0416
27	5812712	5802712	16C2121214A	951D0516
32	5813216	5803216	16C2141421A	951D0516

Please check availability in current price and stock-list.



- With dynamic damping, ready to use.
- Direct run-out 5 μm maximum.
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Taper	d ₁ mm	Part No.	Dimensions in mm							Design	α°	Balancing	KG
			A	D ₁	D ₂	D ₃	L	l ₁	l ₃				
DIN40 ADB	16	E3469 5555 16160	160	38	–	–	245,4	141	17	1	–	1	2,60
	22	E3469 5555 22210	210	48	–	–	297,4	191	19	1	–	1	3,74
	22	E3469 5556 22260	260	48	50	63,2	347,4	241	19	2	1,9	1	5,64
	27	E3469 5555 27260	260	60	50	–	349,4	241	21	1	–	1	6,77
DIN50 ADB	22	E3471 5555 22210	210	48	–	–	330,7	191	19	1	–	1	5,39
	22	E3471 5556 22260	260	48	–	66	380,7	241	19	2	2	1	7,58
	27	E3471 5555 27260	260	60	–	–	382,7	241	21	1	–	1	8,60
	27	E3471 5556 27320	320	60	–	79,5	442,7	301	21	2	1,7	1	12,34
	32	E3471 5555 32330	330	78	–	–	455,7	311	24	1	–	1	15,20

Ø 16 and 32 mm available from November 2009.

Accessories

Spare parts

	Spanner for bolt	Bolt (1)	Tenon/ Screw for tenon (2)	
For d ₁				
16	5811608	5801608	16C2080810A	951D0312
22	5812210	5802210	16C2101111	951D0416
27	5812712	5802712	16C2121214A	951D0516
32	5813216	5803216	16C2141421A	951D0516

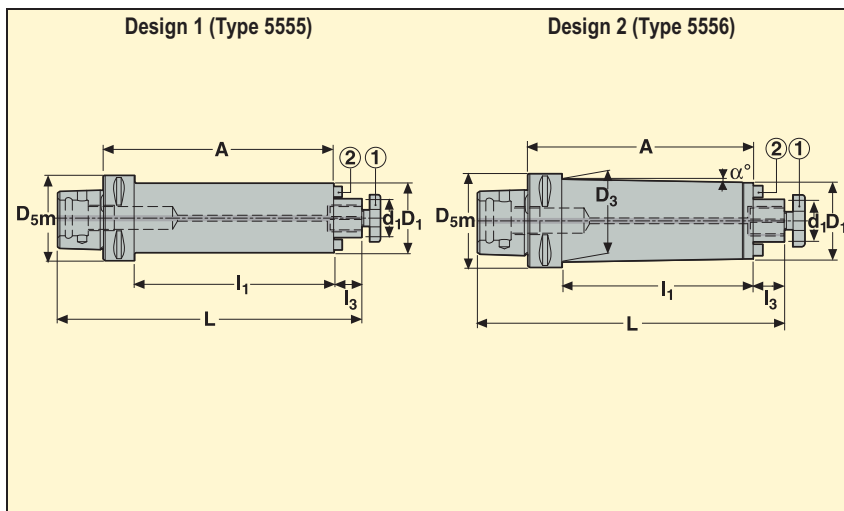
Please check availability in current price and stock-list.

Type 5555/5556 – Steadyline™, vibration damping shell mill holders

Seco-Capto™



- With dynamic damping, ready to use.
- Direct run-out 5 μm maximum.
- With coolant supply channels through the spigot.



Seco-Capto shank	d ₁ mm	Part No.	Dimensions in mm							Design	α°	Balancing	KG
			A	D ₁	D ₃	D _{5m}	L	I ₁	I ₃				
C6	16	C6-391.5555-16160	160	38	–	63	215	135	17	1	–	1	2,35
	22	C6-391.5555-22210	210	48	–	63	267	185	19	1	–	1	3,69
	22	C6-391.5556-22260	260	48	60	63	317	235	19	2	1,3	1	5,40
	27	C6-391.5555-27260	260	60	–	63	319	235	21	1	–	1	5,65
C8	22	C8-391.5555-22210	210	48	–	80	277	177	19	1	–	1	4,61
	22	C8-391.5556-22260	260	48	64	80	327	227	19	2	1,8	1	6,60
	27	C8-391.5555-27260	260	60	–	80	329	227	21	1	–	1	6,52
	27	C8-391.5556-27320	320	60	75	80	389	287	21	2	1,3	1	9,67
	32	C8-391.5555-32330	330	78	–	80	402	297	24	1	–	1	15,00

∅ 16 and 32 mm available from November 2009.

Accessories

Spare parts

For d ₁	Spanner for bolt	Bolt (1)	Tenon/ Screw for tenon (2)	
16	5811608	5801608	16C2080810A	951D0312
22	5812210	5802210	16C2101111	951D0416
27	5812712	5802712	16C2121214A	951D0516
32	5813216	5803216	16C2141421A	951D0516

Please check availability in current price and stock-list.



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