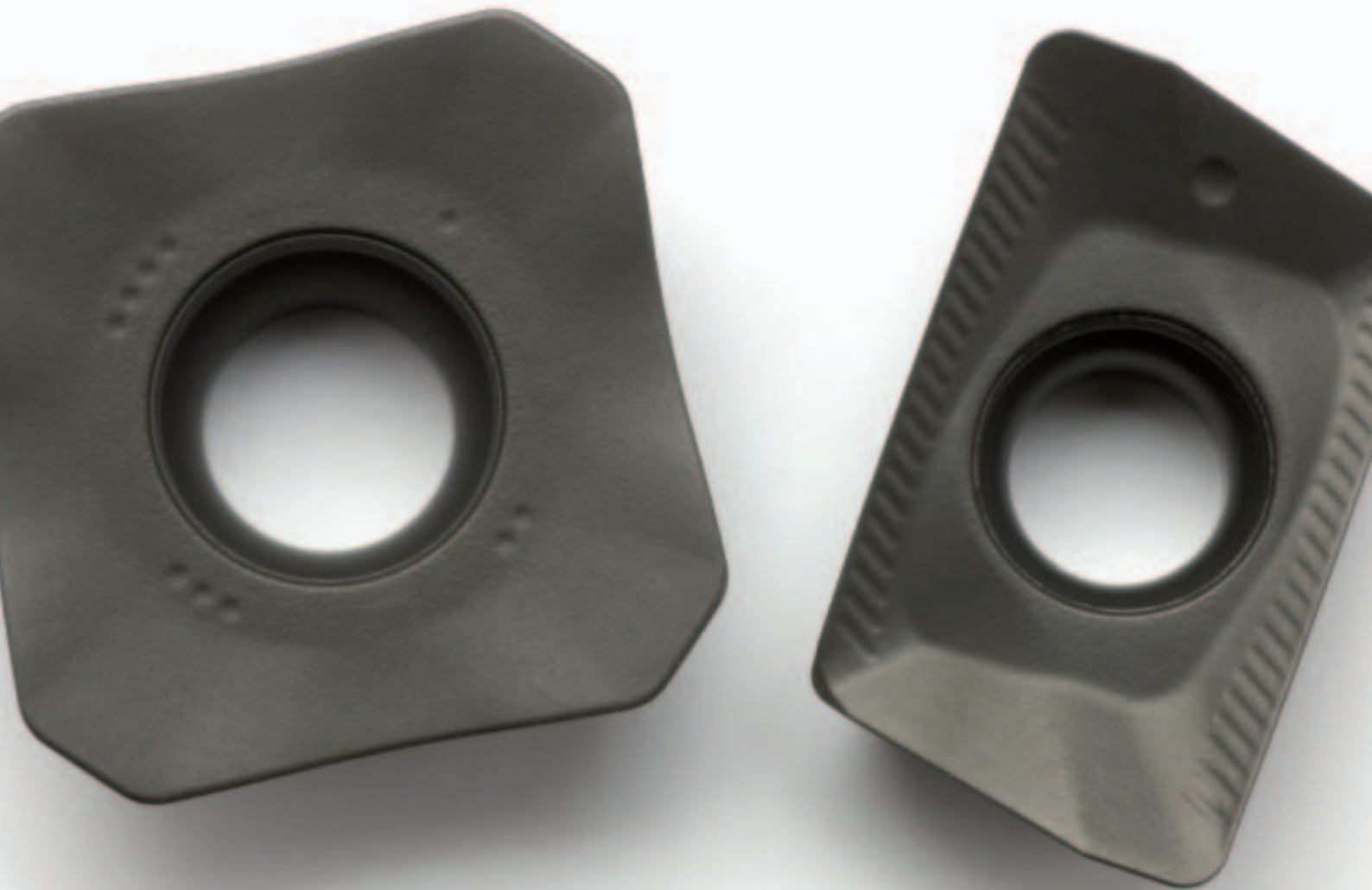


# **DURATOMIC™**

## **NEW MILLING GRADES 2008**



**MP1500 • MP2500 • MK1500 • MK3000**

**ALSO INCLUDES THE PVD GRADES:  
MK2000 & MH1000**

**SECO** 

# DURATOMIC™

## EVOLUTION BY SECO



### A NEW TECHNOLOGY – A NEW ERA FOR EXCEPTIONAL GRADES

Duratomic is a new insert coating technology from Seco Tools that allows us to design grades for optimal performance in all areas of metal cutting.

We have explored every possibility down to the atomic level in order to increase toughness and wear resistance in our coated grades. The improved mechanical and thermal properties are far beyond the capabilities of any existing grade on the market.



**WHEN OPPOSITES ATTRACT: MAXIMUM PRODUCTIVITY**

The Duratomic coating technology offers a new level of toughness and wear resistance in the same grade, with more versatile grades, a wider range of applications and a greater flexibility in cutting data.

This gives you higher speeds, increased cutting data, a longer and more predictable tool life, a wider machining window and dramatically increased productivity ...

# SIX NEW GRADES FOR ALL YOUR MILLING APPLICATIONS

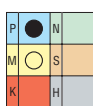
Seco is now introducing new powerful grades for milling. A full range of grades especially designed to satisfy the needs for longer tool life, higher reliability and a more flexible production.

For the broad range of ISO P, M and K applications, Seco offers four new Duratomic grades that stand up to the heat of both normal and high speed machining; MP2500 and MP1500 for steel and stainless steel, and MK1500 and MK3000 for cast iron.

## A COMPLETE PROGRAMME FOR STEEL, STAINLESS STEEL AND CAST IRON

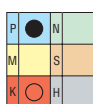
And to make the milling grade programme complete, Seco also introduces two new PVD coated grades for optimal performance in medium machining of cast iron and high speed machining of hardened steels; MK2000 for cast iron and MH1000 for hardened steel.

### MP2500 DURATOMIC™



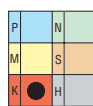
MP2500 is the universal grade and first choice for milling in steel and stainless steel applications. It has the widest application area of all the new grades and is also suitable for unmanned production.

### MP1500 DURATOMIC™



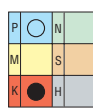
MP1500 is an extremely wear resistant grade for milling in harder and more difficult steel. It is ideally suited for milling harder steels like tool steels and even difficult types of cast iron.

### MK1500 DURATOMIC™



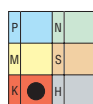
MK1500 is the first choice for general purpose machining of various types of cast iron. It is a highly wear resistant grade ideal for unmanned production in grey and nodular cast irons.

### MK3000 DURATOMIC™



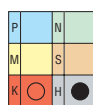
MK3000 is a very tough grade suitable for face milling, roughing and other difficult operations in both grey and nodular cast irons. It can also be used for milling in steel using negative inserts.

### MK2000



MK2000 is designed for square shoulder and disc milling of nodular cast iron applications with small radial engagement. It is also suitable for machining of ductile irons.

### MH1000



MH1000 is an extra hard grade for milling hardened steels (steels hardened to more than 50 HRC). It can also be used for finishing operations in grey cast irons.



# MP2500 – FIRST CHOICE FOR STEEL & STAINLESS STEEL

## SECURITY AND SAFETY FOR UNMANNED PRODUCTION

MP2500 has a unique combination of wear resistance and toughness and is the perfect grade when it comes to security and safety. It is the ideal grade for unmanned production where long and predictable tool life are important issues.

MP2500 has the widest application area of all new milling grades and is therefore our first choice for general steel milling, especially suitable for face, square shoulder and disc milling.

Thanks to its superior performance, MP2500 is also a very good choice for milling stainless steels. MP2500 can supply longer tool life and higher cutting speeds resulting in higher productivity and less cost per component.

The Duratomic-coated MP2500 is a perfect grade for customers seeking a simple and reliable solution.

## MP2500 – DURATOMIC™

P	●	N	
M	○	S	
K		H	

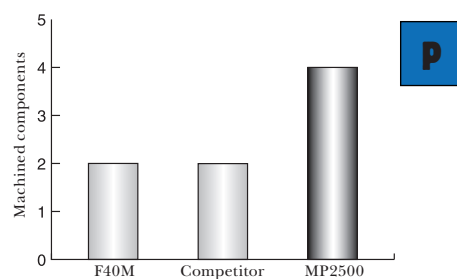
- First choice for general machining in steel.
- First choice for finish to medium finishing in stainless steel.

## AVAILABLE FOR:

Face, Square shoulder, Disc, High Feed and Copy milling.

## SMG 3 – MP2500

Operation	Contouring	
Material	ST 52-3, SMG 3	
Cutter	R220.69-0050-12-7A Competitor	
Inserts	XOMX120408TR-M12 Competitor	
Cutting data	$v_c$	251 m/min
	$f_z$	0.25 mm/tooth
	$a_p$	9 mm
	$a_e$	1–5 mm
	D	50 mm
	Coolant	No



# MP1500 – EXTREME WEAR RESISTANCE FOR TOOL STEEL

## HIGHER CUTTING SPEEDS, EXCELLENT PERFORMANCE, MAXIMUM PRODUCTIVITY

MP1500 is an extremely hard and wear resistant grade ideally suited for milling harder steels. It has excellent performance in machining hard steels like tool steels, and is even suitable for difficult materials within the cast iron group.

Thanks to the exceptional wear resistance, MP1500 is a perfect grade for optimizing milling applications in steels with stable machining conditions.

The Duratomic-coated MP1500 is the choice for customers seeking better performance, higher outcome and increased productivity when it comes to milling harder steel.

The extreme wear resistance and the possibilities of using higher cutting speeds leads to higher productivity and maximum performance meaning more parts machined in less time.

## MP1500 – DURATOMIC™

P	●	N	
M		S	
K	○	H	

- For hard and hardened steel.
- For optimizing finishing-under stable conditions.
- For milling in difficult to machine cast iron.

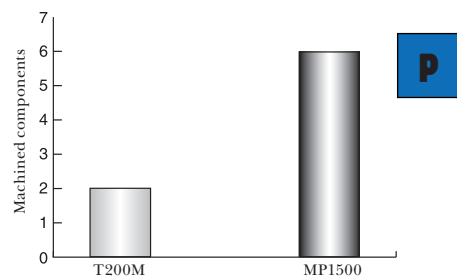
## AVAILABLE FOR:

Face, Square shoulder, Disc, High Feed and Copy milling.

## SMG 6 – MP1500

Operation	Face milling	
Component	Cutting die	
Material	X 155 CrVMo12 1, SMG 6	
Cutter	R220.53-8160-12-10	
Insert	SEM X1204AFTN-M15	
Cutting data	$v_c$	150 m/min
	$f_z$	0.20 mm/tooth
	$a_p$	2.0 mm
	$a_e$	70 mm
	D	160 mm
Coolant	No	

Change criteria Surface and noise  $V_b=0,4$  mm



# MK1500 – FIRST CHOICE FOR CAST IRON

## SECURITY AND SAFETY FOR UNMANNED PRODUCTION IN CAST IRON

MK1500 is a highly wear resistant grade ideal for unmanned production in grey and nodular cast irons at medium to high cutting speeds. It has a very wide application area and is the first choice for general purpose machining of various grades of cast iron.

The combination of wear resistance and toughness results in higher cutting speeds and longer tool life, giving increased productivity in all areas of cast iron milling.

The Duratomic-coated MK1500 is designed for optimal wear resistance, toughness and reliability, and provides excellent performance in face, square shoulder and disc milling. It is the perfect grade for customers machining cast iron and seeking improved performance and longer tool life.

## MK1500 – DURATOMIC™

P		N	
M		S	
K	●	H	

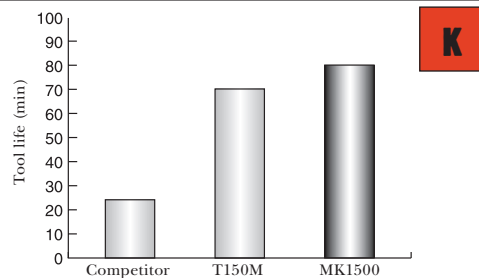
- First choice for general machining in cast iron.

## AVAILABLE FOR:

Face, Square shoulder and Disc milling.

### SMG 14 – MK1500

Operation	Rough shoulder milling	
Component	Pump housing	
Material	CGI, 18-22 HRC (Compact Graphite Iron), SMG14	
Cutter	R220.69-03.00-18.8A Competitor	
Insert	XOMX180608TR-M14 Competitor	
Cutting data	$v_c$	190 m/min
	$f_z$	0.20 mm/tooth
	$a_p$	9.5 mm
	$a_e$	51 mm
	D	76 mm
Coolant	No	
Remark	MK1500 with less wear than T150M and competitor grade	



# MK3000 – TOUGH GRADE FOR DIFFICULT OPERATIONS



## RELIABLE PERFORMANCE IN DIFFICULT CAST IRON MACHINING

MK3000 is a very tough grade and has its main application areas in face milling, roughing and other difficult operations in grey and nodular cast iron at medium speed.

Thanks to its toughness it is ideal for difficult machining, and the Duratomic-coated MK3000 has also proven to offer a very good performance in milling steel and stainless steel using negative inserts.

MK3000 is very suitable for operations with long tool overhangs and other unstable machining conditions. It is the perfect choice for customers looking for reliable performance in difficult cast iron machining.

## MK3000 – DURATOMIC™

P		N	
M		S	
K		H	

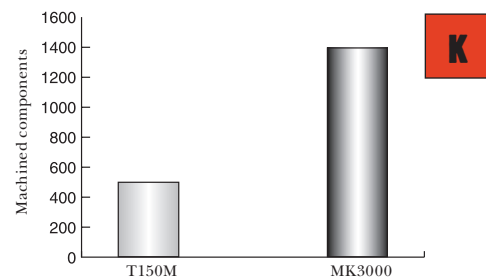
- For roughing and difficult to machine face milling applications in cast iron.
- Very good performance in milling steel and stainless steel using negative inserts.

## AVAILABLE FOR:

Face milling.

## SMG 13 – MK3000

Operation	Roughing	
Component	Cylinder block, side	
Material	Alloyed grey iron, HB180-225, SMG 13	
Cutter	R220.44-9250-15ST	
Insert	SNHF1504XNN-M14	
Cutting data	$v_c$	118 m/min
	$f_z$	0.29 mm/tooth
	D	250 mm
Change criteria	Burr	



# MK2000 – NEW PVD GRADE FOR CAST IRON

## THE GRADE FOR MILLING APPLICATIONS WITH SMALL RADIAL ENGAGEMENT

MK2000 is a very wear resistant PVD coated grade with optimal edge quality. It is an ideal grade for milling applications with small radial engagement in grey and nodular cast iron at medium speed. The grade is designed for square shoulder, helical and disc milling of nodular cast iron, and has also proven successful in face milling of ductile irons.

The MK2000 is a very suitable grade for difficult milling operations with small radial engagement requiring long reach. It is also the perfect choice when small chip thickness and long tool overhang is an objective.

## MK2000

P		N	
M		S	
K	●	H	

Suitable for difficult milling operations with small radial engagement and small chip thickness, e.g.

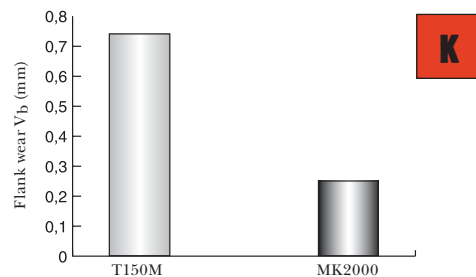
- Side milling with square shoulder milling cutters.
- Suitable for long overhangs.

## AVAILABLE FOR:

Square shoulder and Disc milling.

## SMG 13 – MK2000

Operation	Square shoulder milling	
Component	Brake collector	
Material	FSG 600/3, SMG 13	
Cutter	R220.99-0050-09-6T	
Insert	SONX09T308TR-M10	
Cutting data	$v_c$	251 m/min
	$f_z$	0.125 mm/tooth
	$a_p$	2–3 mm
	$a_e$	20–35 mm
	D	50 mm
	Coolant	Yes
Change criteria	70 components	
Remark	Chipping of T150M	



# MH1000 – NEW PVD GRADE FOR HARDENED STEELS

## EXCELLENT FINISH QUALITY

MH1000 is an extra hard grade intended for high speed milling of hardened steels. It is our hardest milling grade and especially designed for steels hardened to more than 50 HRC.

MH1000 is a very wear resistant PVD coated grade for improved and optimal edge quality and also the first choice for milling applications in hardened steels.

MH1000 has also proven to perform very well in finishing operations in grey cast iron. It produces an excellent finish quality in both hardened materials and grey cast iron.

## MH1000

P		N	
M		S	
K	○	H	●

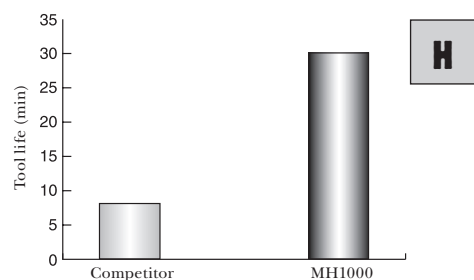
- For milling in hard and hardened steels.
- Also for finishing in grey cast iron.
- Excellent finish quality.

## AVAILABLE FOR:

High Feed and Copy milling.

## SMG 7 – MH1000

<b>Operation</b>	Profiling –Roughing			
<b>Component</b>	Crank shaft die			
<b>Material</b>	Nitratd 60 -64 HRC , SMG 7			
<b>Cutter</b>	R217.29-2525.3-05.3.050/ Competitor			
<b>Insert</b>	RDHW 10T3MOT-MD06/ Competitor			
<b>Cutting data</b>	<b>MH1000</b>		<b>Competitor grade</b>	
	<b>v<sub>c</sub></b>	150 m/min	<b>v<sub>c</sub></b>	215 m/min
	<b>f<sub>z</sub></b>	0.50 mm/tooth	<b>f<sub>z</sub></b>	0.41 mm/tooth
	<b>v<sub>f</sub></b>	2800 mm/min	<b>v<sub>f</sub></b>	2800 mm/min
	<b>a<sub>p</sub></b>	0.5 mm	<b>a<sub>p</sub></b>	0.5 mm
	<b>a<sub>e</sub></b>	18 mm	<b>a<sub>e</sub></b>	18 mm
	<b>Coolant</b>	Air	<b>Coolant</b>	Air



# THE NEWCOMERS IN ACTION

The outstanding performances achieved with the new grades, are the result of very good balance between toughness and wear resistance, which leads to excellent versatility and reliability. This, in combination with our modern and flexible cutters, leads to highly increased productivity in every area of milling.

## FACE MILLING

Quattromill™, Seco's family of 45° lead face mills, provides easy productivity across the range of face milling applications, and better economy because of its highly-positive rake angle.

For operational versatility and the economy of eight cutting edges per insert, Seco's Octomill® offers the first eight-sided insert for face milling. Quattromill, Octomill and other face mills will be available with MK1500, MK2000, MK3000, MP1500 and MP2500 inserts.

## SQUARE SHOULDER AND HELICAL MILLING

The comprehensive Turbo square shoulder milling family is ideal for applications such as side milling, as well as ramping, slotting, contouring, plunging, pocket milling, and circular or helical interpolation in every material.

From the 6 mm Nano Turbo® to the 18 mm Power Turbo™, Seco delivers efficient, free cutting performance and the productivity of high metal removal rates.

Mini Square™, Seco's line of square shoulder endmills, offers the economy of four cutting edges per insert.

Turbo, Mini Square, and other square shoulder and helical cutter inserts will be available in MK1500, MK2000, MP1500 and MP2500.



### **COPY MILLING**

For a broad range of reliable cavity milling solutions using the strong geometry of round inserts, Seco offers a range of button cutters, available in grades MK2000, MP1500, MP2500 and MH1000.

### **PLUNGE MILLING**

Plunge mills transfer cutting forces axially, minimizing vibration and deflection and producing a high quality finish and superb accuracy.

Seco plunge mills are available in many different configurations, including versions that use the unique XO.. Turbo insert for high metal removal applications.

Plunge mill inserts will be available in grades MK1500, MP1500, MP2500 and MK2000 (XOMX type of inserts).

### **DISC MILLING**

Seco offers a comprehensive range of accurate and durable disc milling and slotting solutions for a wide range of slotting, backfacing, circular interpolation, circlip grooving, and trochoidal T-slotting operations.

Seco discmills will be available with MK1500, MK2000, MP1500 and MP2500 inserts.

### **HIGH FEED MILLING**

Seco's high-feed cutters use a unique insert to thin the chip in low depth of cut, very high feed applications, maximizing productivity with high metal removal rates.

High feed milling inserts will be available in MK2000, MP1500, MP2500 and MH1000



# THE BEST GRADES ALSO NEED THE BEST TOOLS

Seco provides you with well proven and reliable tools for all general applications.

- Quattromill™ and Hexamill® for face milling
- Turbo range for square shoulder and slot milling
- Copy milling with round inserts
- Plunge milling cutters

The newly introduced three cutter families for face milling (mainly aimed at cast iron machining) in combination with Duratomic grades provide outstanding tool life and performance including finishing applications.



**R220.48** - Double Octomill® an economical insert with 16 cutting edges. Versatile cutter also for machining steel. Both roughing and finishing applications.



**R220.44** - Cutter for high metal removal rate in cast iron without limitations in stability and machine power.



**R220.88** - Cutter developed for applications to machine square shoulder component walls also excellent for use in unstable conditions.



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