



# SQUAREWORX®

For every eventuality: Square shoulder, slotting and chamfering milling with only one insert



**pokolm**  
PREMIUMTOOLS. WE KNOW HOW.

# ONE FOR TWO: SQUARE SHOULDER, SLOTTING AND CHAMFERING MILLING OPERATIONS WITH ONLY ONE INSERT AND TWO CUTTER BODIES

**SQUAREWORX®** is the name of the new, multifunctional milling system for precise machining with both 90° and 45° kappa approach angles and only a single insert. One insert is thus enough to perform square shoulder, slotting, face and chamfering milling operations.

Each insert has four useable cutting edges with a corner radius of 0.8 mm. Cutting tool materials in five different qualities cover the machining of all standard materials, ranging from roughing to finishing.

All of the available shell-type, threaded shank and plain shank cutters possess the maximum possible number of teeth. In combination with the mandatory internal coolant supply, this feature allows high feedrates.

The square shoulder and slotting cutters (90° approach angle) are available from stock in diameters between 25 and 66 mm and have an embedded insert seat.

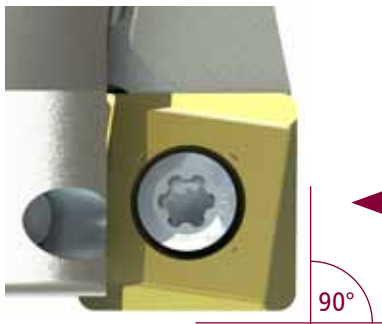
With the Ø 16 - 63 mm 45° approach angle chamfering milling cutters, in addition to deburring, both forward and reverse chamfering operations up to a cutting depth ap of 5 mm are possible thanks to their special geometry.

Ease of cutting is always guaranteed thanks to the high-positive geometry, even with machines featuring less sophisticated geometry.

Furthermore, the costs are extremely low thanks to the four useable cutting edges in combination with high removal rates.

With these features and such outstanding application flexibility, **SQUAREWORX®** is the latest milling system from POKOLM to lay claim to the attribute of maximum efficiency for itself.

**Square shoulder and slotting cutters SQ09 .... 90**

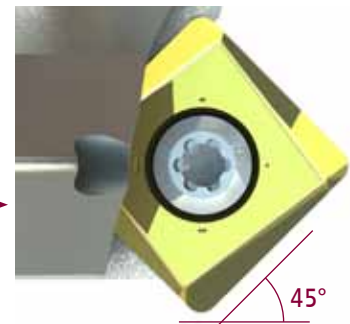


**One insert for two cutter bodies**



4 cutting edges, corner radius 0.8 mm

**Chamfering milling cutters SQ09 .... 45**



## Connection types

**SQUAREWORX®**- cutter bodies are available with

- ☉ shell-type connection,
- ☉ threaded shank and with
- ☉ plain shank

All tools feature an internal coolant supply for maximum process safety and reliable chip extraction.



Shell-type



Threaded shank



Plain shank

# SQUAREWORX® M IN DETAIL

## SQUAREWORX® Features at a glance

- ⊕ 90° approach angle tool: Precise square shoulder, slotting and face milling, embedded inserts
- ⊕ 45° approach angle tool: Both forward and reverse chamfering and deburring up to a cutting depth ap of 5 mm
- ⊕ Low storage costs thanks to the use of only one insert for two tool geometries
- ⊕ 4 useable cutting edges per insert, low costs per cutting edge
- ⊕ Clearance angle 15°, corner radius 0.8 mm
- ⊕ High feedrates thanks to a large number of teeth
- ⊕ Ease of cutting, also suitable for machines which feature less sophisticated geometry
- ⊕ Tool diameter 16 ... 66 mm
- ⊕ High removal rates, maximum efficiency
- ⊕ For rough, medium and fine cutting
- ⊕ Inserts for nearly all materials: Extremely sharp inserts machined by peripheral grinding tailored for use with non-ferrous metal; sintered inserts for all other materials

### Breakdown of order number for MILLING CUTTER BODIES

Example: **SQ09-025-Z25-03-50-90**

⊕ System key  
SQ - SQUAREWORX®

⊕ Insert size  
mm [l]

⊕ Nominal diameter  
Ø mm [d<sub>1</sub>]

⊕ Connection types  
E - Threaded shank  
A - Shell type  
Z - Plain shank

⊕ Connection size  
Ø mm [d<sub>2</sub>]

⊕ Number of teeth

⊕ Usable length  
mm [l<sub>3</sub>]

⊕ Approach angle Kappa °

### Breakdown of order number for INSERTS

Example: **SQ09-8042-R08-MP**

⊕ System key  
SQ - SQUAREWORX®

⊕ Insert size  
mm [l]

⊕ Grade specification

⊕ Corner radius

⊕ Chip breaker

<b>L</b>	for light cutting
<b>M</b>	for medium cutting
<b>R</b>	for heavy cutting

⊕ ISO Material group

<b>P</b>	Steel
<b>M</b>	Stainless steel
<b>K</b>	Cast iron
<b>N</b>	Non-ferrous materials
<b>S</b>	High-temperature alloys
<b>H</b>	Hardened steel



Practical video  
**SQUAREWORX®**  
in 1.2358



# SQUAREWORX

Size M | Shoulder face and slotting milling cutters

**SQUAREWORX®** stands out through its high application flexibility when used as shoulder face and slotting milling cutters:

- Four efficiently useable cutting edges with a real corner radius of 0.8 mm
- Lower power consumption; is also the ideal choice for use on machines featuring less sophisticated geometry
- Efficient: Fast feedrates and high removal rates thanks to a large number of teeth
- Optimum swarf conveyance thanks to internal coolant supply

Milling cutter bodies		Catalogue no.										Accessories		Features
		$d_1$	$l/d$	$r$	$l_3$	$l_2$	$l_1$	$d_2$	$d_3$	$z$				
<b>Plain shank end mill bodies</b>														
	SQ09-025-Z25-03-50-90	25	9	0.8	50	1	-	diam. 25	24	3	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
<b>Threaded shank end mill bodies</b>														
	SQ09-025-E12-03-90	25	9	0.8	35	1	-	M 12	21	3	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-032-E16-04-90	32	9	0.8	40	1	-	M 16	29	4	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-035-E16-04-90	35	9	0.8	40	1	-	M 16	29	4	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-040-E16-05-90	40	9	0.8	40	1	-	M 16	29	5	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-042-E16-05-90	42	9	0.8	40	1	-	M 16	29	5	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
<b>Shell type milling cutter bodies</b>														
	SQ09-040-A16-05-90	40	9	0.8	40	1	-	diam. 16	35	5	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-042-A16-05-90	42	9	0.8	40	1	-	diam. 16	35	5	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-050-A22-06-90	50	9	0.8	40	1	-	diam. 22	40	6	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-052-A22-06-90	52	9	0.8	40	1	-	diam. 22	40	6	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-063-A27-07-90	63	9	0.8	50	1	-	diam. 27	48	7	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
	SQ09-066-A27-07-90	66	9	0.8	50	1	-	diam. 27	48	7	A, B, C, D, E		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> [NEW]	
<b>Accessories</b>														
<p>30 505 P Torx screw A &gt; Page 7</p>	<p>08 500 P Torx-screwdriver (Torx-Plus) B &gt; Page 7</p>	<p>TV 08-2 Screwdriver torque Vario®-S with window scale, C &gt; Page 7</p>	<p>T8 500 P Torx interchangeable bit for Torque Vario® D &gt; Page 7</p>	<p>T8 502 P Torx MagicSpring compatible bit f. Torque Vario® E &gt; Page 7</p>										

# SQUAREWORX

Size M | Chamfering milling cutter



**SQUAREWORX®** stands out through its application flexibility when used as a chamfering milling cutter:

- Forward and reverse chamfering
- Four efficiently useable cutting edges
- Efficient: Fast feedrates thanks to a large number of teeth
- Optimum swarf conveyance thanks to internal coolant supply

Milling cutter bodies												Accessories		Features								
Catalogue no.												$d_1$	$l/d$	$r$	$l_3$	$l_2$	$l_1$	$d_2$	$d_3$	$z$		
<b>Plain shank end mill bodies</b>																						
	SQ09-016-Z16-03-32-45	16	9	0.8	32	1.2	-	diam. 16	13.8	3	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-020-Z20-03-40-45	20	9	0.8	40	1.2	-	diam. 20	18	3	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-025-Z25-04-50-45	25	9	0.8	50	1.2	-	diam. 25	21	4	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
<b>Threaded shank end mill bodies</b>																						
	SQ09-016-E10-03-45	16	9	0.8	25	1.2	-	M 10	18	3	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-020-E12-03-45	20	9	0.8	30	1.2	-	M 12	21	3	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-025-E12-04-45	25	9	0.8	30	1.2	-	M 12	21	4	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-035-E16-05-45	35	9	0.8	40	1.2	-	M 16	29	5	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
<b>Shell type milling cutter bodies</b>																						
	SQ09-040-A16-06-45	40	9	0.8	40	1.2	-	diam. 16	35	6	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-050-A22-07-45	50	9	0.8	40	1.2	-	diam. 22	40	7	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
	SQ09-063-A27-08-45	63	9	0.8	50	1.2	-	diam. 27	48	8	A, B, C, D, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEW							
<b>Accessories</b>																						
<p>30 505 P Torx screw A &gt; Page 7</p>	<p>POKOLM 08 500 P Torx-screwdriver (Torx-Plus) B &gt; Page 7</p>	<p>TV 08-2 Screwdriver torque Vario®-S with window scale, C &gt; Page 7</p>	<p>T8 500 P Torx interchangeable bit for Torque Vario® D &gt; Page 7</p>	<p>T8 502 P Torx MagicSpring compatible bit f. Torque Vario® E &gt; Page 7</p>																		

Indexable inserts	Catalogue no.	DIN Specification	Carbide Grade	Coating	Material			M
					l	s	r	
	SQ09-8048-R08-MP	SDKT 09T308 SR	P40	PPGO	9	3.97	0.8	M 3.0
	SQ09-8062-R08-MK	SDKT 09T308 SR	K10	PCSR	9	3.97	0.8	M 3.0
	SQ09-8099-R08-MS	SDKT 09T308 SR	M35	PCTC	9	3.97	0.8	M 3.0
	SQ09-8096-R08-MM	SDKT 09T308 SR	M40	PPST	9	3.97	0.8	M 3.0
	SQ09-8020-R08-MN	SDHT 09T308 FR	K10	polished	9	3.97	0.8	M 3.0

### Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Carbide Grade	Feed per tooth   d.o.c.						
P40 PPGO	f <sub>z</sub> (mm) a <sub>p</sub> (mm)	0,05-0,3 0,1-5	0,05-0,17 0,1-5	0,05-0,2 0,1-5	-	0,04-0,13 0,1-4	-
K10 PCSR	f <sub>z</sub> (mm) a <sub>p</sub> (mm)	0,05-0,2 0,1-2,5	-	0,05-0,2 0,1-5	-	-	-
M35 PCTC	f <sub>z</sub> (mm) a <sub>p</sub> (mm)	-	0,05-0,25 0,1-5	-	-	0,05-0,25 0,1-5	-
M40 PPST	f <sub>z</sub> (mm) a <sub>p</sub> (mm)	0,05-0,25 0,1-5	0,04-0,25 0,1-5	-	-	0,04-0,15 0,1-5	-
K10 polished	f <sub>z</sub> (mm) a <sub>p</sub> (mm)	-	-	-	0,05-0,35 0,1-5	-	-

### Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Carbide Grade	Application						
P40 PPGO	roughing	▽ 100 150 200	▽ 90 110 130	▽ 110 130 150	-	▽ 60 80 100	-
	pre finishing	▽ 100 150 200	▽ 90 110 130	▽ 110 130 150	-	▽ 60 80 100	-
K10 PCSR	roughing	-	-	▽ 140 180 220	-	-	-
	pre finishing	▽ 100 180 260	-	▽ 160 190 220	-	-	-
M35 PCTC	roughing	-	▽ 110 155 200	-	-	▽ 30 65 100	-
	pre finishing	-	▽ 120 175 230	-	-	▽ 40 75 110	-
	finishing	-	▽ 160 220 280	-	-	▽ 60 100 140	-
M40 PPST	roughing	▽ 80 140 200	▽ 80 130 180	-	-	▽ 30 55 80	-
	pre finishing	▽ 100 150 200	▽ 100 155 210	-	-	▽ 40 65 90	-
	finishing	-	▽ 120 185 250	-	-	▽ 60 90 120	-
K10 polished	roughing	-	-	-	▽ 100 450 800	-	-
	pre finishing	-	-	-	▽ 100 450 800	-	-
	finishing	-	-	-	▽ 100 450 800	-	-

## Extended operation data

Plunging	
Cutter diam. d1	X <sub>max</sub>
25 - 32	0.5
35	0.4
40 - 63	0.3

Ramping		
Cutter diam. d1	$\alpha^\circ$	y
25	<2.00	12.2
32	<1.50	19.2
35	<1.00	22.2
40	<0.60	27.2
42	<0.55	29.2
50	<0.45	37.2
52	<0.40	39.2
63	<0.30	50.2
66	<0.30	53.2

Helix		
Cutter diam. d1	D <sub>min</sub>	D <sub>max</sub>
25	37.2	48
32	51.2	62
35	57.2	68
40	67.2	78
42	71.2	82
50	87.2	98
52	91.2	102
63	113.2	124
66	119.2	130

Accessories	Catalogue no.	Description
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Torx®screws   Torx®screws						
	30 505 P	Torx screw M 3.0   L 7.0   T 8 Plus   1.5 Nm	M 3.0	L 7.0	T 8 Plus	1.5 Nm

Spanners / screwdrivers   Torx-screwdriver						
	08 500 P	Torx-screwdriver (Torx-Plus) T 8 Plus	T 8 Plus			

Torque screwdrivers and accessories   Torque screwdrivers						
	TV 08-2	Screwdriver torque Vario®-S with window scale from Nm 0.8 up to 2,0 Nm   with scale, inc setter	from Nm 0.8	up to 2,0 Nm		

Torque screwdrivers and accessories   Torx bits, standard						
	T8 500 P	Torx interchangeable bit for Torque Vario® T 8 IP   L 175   max. 2.0 Nm	T 8 IP	L 175	max. 2.0 Nm	

Torque screwdrivers and accessories   Torx bits with retaining spring						
	T8 502 P	Torx MagicSpring compatible bit f. Torque Vario® T 8 IP   L 175   max. 2.0 Nm	T 8 IP	L 175	max. 2.0 Nm	



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