



MASTER CATALOG 2018

VOLUME TWO | **ROTATING TOOLS**



HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

DUO-LOCK[®]

High-Performance Modular Roughing Solid Carbide End Mills

Primary Application

Duo-Lock™ high-performance roughing tools provide superior metal removal rates while reducing machine power consumption. Applicable on a wide range of workpiece materials such as steels, stainless steels, and difficult-to-machine materials. Tailored to roughing profiles, provides excellent chip management, and reduces cutting forces to the necessary level. Combines roughing and semi-finishing for fewer tool changes.

- High-performance universal tools for almost all cutting materials.
- Lowering cutting forces and spindle power consumption.
- Center cutting for ramping, profiling, high-feed slotting, and side milling.

Features and Benefits

Advanced Technology

- Up to full length of cut for:
 - Slotting
 - Side milling
 - Profiling
 - Semi-finishing
- Various roughing profiles available to choose from for the right balance between cutting forces, feed rates, and surface quality.
- Fewer passes due to 1 x D slotting capability.

Tailored Grades

- KCPM15™ Beyond™ grade for outstanding wear protection in stainless steel to mitigate crater, depth-of-cut notching, and flank wear.
- KCSM15™ Beyond grade for exceptional tool life in titanium and stainless steels.

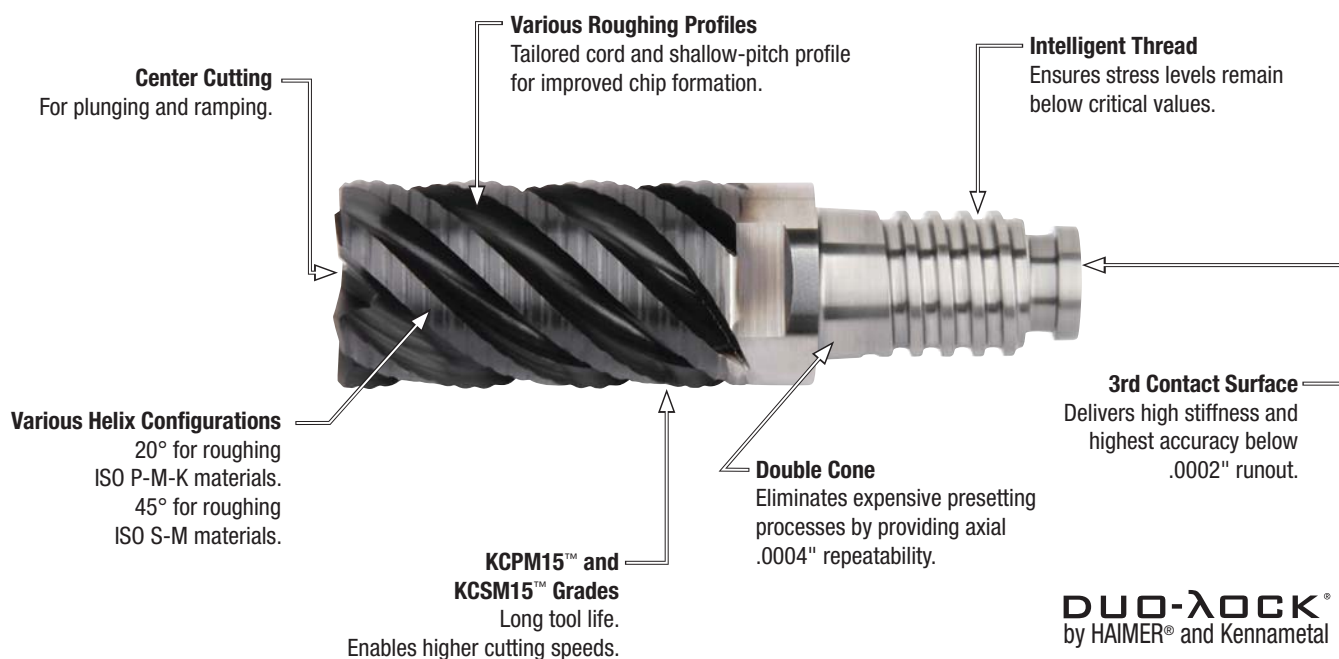
Customization

- Intermediate diameters are available between 3/8–1 1/4".

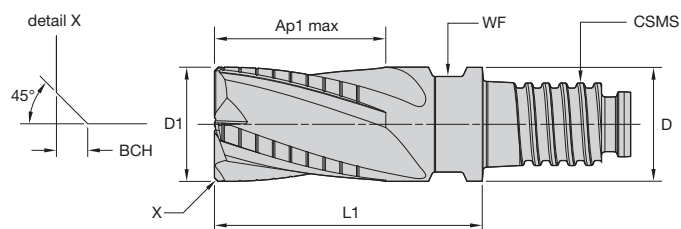
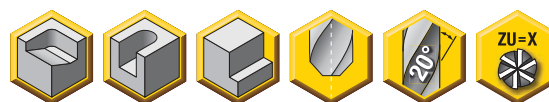
Extensive Standard Offering

- Diameter ranges 3/8–1".
- Necked, corner radii, and chamfered tips offered.
- Integral adapters reduce the amount of interface for maximum accuracy. Steel extensions with Safe-Lock™ by HAIMER shanks prevent pullout.
- Cut-to-size extra-long extensions available upon request off the shelf.

For high metal removal rates
and low power consumption.

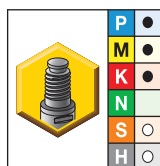


- Center cutting.
- Cord profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances	
D1	tolerance d11
13/32-11/16"	-0.002/-0.0063"
23/32-1-3/16"	-0.026/ -0.0077"

RQDB • Inch

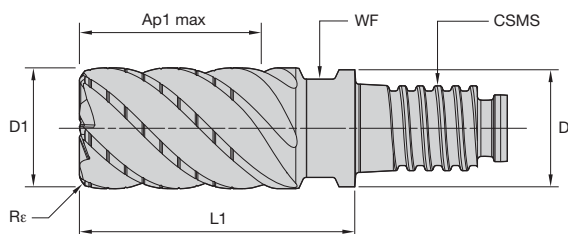


- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF	BCH	Z U
RQDB0375Y4CV	3/8	.359	9/16	.843	DL10	.315	.020	4
RQDB0500Y4CV	1/2	.480	3/4	1.126	DL12	.374	.020	4
RQDB0625Y4CV	5/8	.605	15/16	1.406	DL16	.512	.020	4
RQDB0750Y4CV	3/4	.730	1 1/8	1.689	DL20	.630	.020	4
RQDB1000Y5CV	1	.961	1 1/2	2.252	DL25	.827	.020	5

NOTE: For application data, please see page O37.

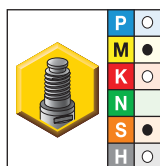
- Center cutting.
- Shallow-pitch profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance d11
13/32–11/16"	-0.002/-0.0063"
23/32–1-3/16"	-0.026/-0.0077"

RKDF • Inch

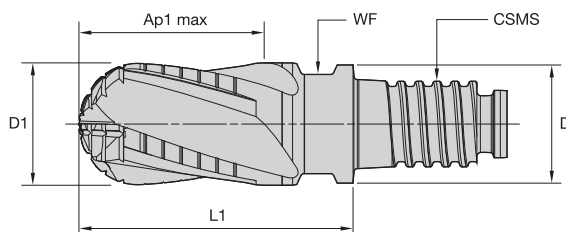


- first choice
- alternate choice

KCSM15	D1	D	Ap1 max	L1	CSMS system size	WF	Re	Z U
RKDF0375Y4CQA	3/8	.359	9/16	.843	DL10	.315	.015	4
RKDF0500Y4CQB	1/2	.480	3/4	1.126	DL12	.374	.030	4
RKDF0625Y4CQB	5/8	.605	15/16	1.406	DL16	.512	.030	4
RKDF0750Y6CQB	3/4	.730	1 1/8	1.689	DL20	.630	.030	6
RKDF1000Y6CQB	1	.961	1 1/2	2.252	DL25	.827	.030	6

NOTE: For application data, please see page O38.

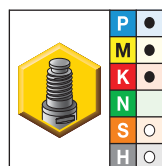
- Center cutting.
- Cord profile reduces machine power consumption.
- Standard items listed. Additional styles and coatings made-to-order.



End Mill Tolerances

D1	tolerance d11
13/32–11/16"	-0.002/-0.0063"
23/32–1-3/16"	-0.026/ -0.0077"

RQBB • Inch

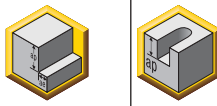



- first choice
- alternate choice

KCPM15	D1	D	Ap1 max	L1	CSMS system size	WF
RQBB0375Y4CN	3/8	.359	9/16	.843	DL10	.315
RQBB0500Y4CN	1/2	.480	3/4	1.126	DL12	.374
RQBB0625Y4CN	5/8	.605	15/16	1.406	DL16	.512
RQBB0750Y4CN	3/4	.730	1 1/8	1.689	DL20	.630
RQBB1000Y4CN	1	.961	1 1/2	2.252	DL25	.827




NOTE: For application data, please see page O39.

RQDB • Inch

Material Group																			
		Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	adapter reach									D1 – Diameter					
					KCPM15			KCPM15			KCPM15								
					Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	3/4	1
ap	ae	ap	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.2500		
P	0	1.5 x D	0.5 x D	1 x D	390	–	520	351	–	468	351	–	468	IPT	.0020	.0025	.0029	.0032	.0036
	1	1.5 x D	0.5 x D	1 x D	390	–	520	351	–	468	351	–	468	IPT	.0020	.0025	.0029	.0032	.0036
	2	1.5 x D	0.5 x D	1 x D	370	–	500	333	–	450	333	–	450	IPT	.0020	.0025	.0029	.0032	.0036
	3	1.5 x D	0.4 x D	0.75 x D	310	–	420	279	–	378	279	–	378	IPT	.0017	.0021	.0025	.0028	.0035
	4	1.5 x D	0.3 x D	0.3 x D	240	–	390	216	–	351	216	–	351	IPT	.0015	.0019	.0022	.0024	.0029
M	5	1.5 x D	0.4 x D	0.75 x D	160	–	260	136	–	221	128	–	208	IPT	.0013	.0017	.0020	.0022	.0028
	1	1.5 x D	0.4 x D	0.75 x D	240	–	300	192	–	240	168	–	210	IPT	.0017	.0021	.0025	.0028	.0035
	2	1.5 x D	0.4 x D	0.75 x D	160	–	210	128	–	168	112	–	147	IPT	.0013	.0017	.0020	.0022	.0028
K	3	1.5 x D	0.4 x D	0.75 x D	160	–	180	128	–	144	112	–	126	IPT	.0011	.0014	.0016	.0018	.0021
	1	1.5 x D	0.5 x D	1 x D	310	–	390	279	–	351	279	–	351	IPT	.0020	.0025	.0029	.0032	.0036
	2	1.5 x D	0.4 x D	1 x D	290	–	370	261	–	333	261	–	333	IPT	.0017	.0021	.0025	.0028	.0035
S	3	1.5 x D	0.4 x D	1 x D	290	–	340	261	–	306	261	–	306	IPT	.0013	.0017	.0020	.0022	.0028
	1	1.5 x D	0.4 x D	0.75 x D	130	–	240	104	–	192	78	–	144	IPT	.0017	.0021	.0025	.0028	.0035
H	3	1.5 x D	0.4 x D	0.75 x D	70	–	100	56	–	80	42	–	60	IPT	.0009	.0011	.0013	.0015	.0019
	1	1.5 x D	0.3 x D	0.3 x D	210	–	370	168	–	296	126	–	222	IPT	.0015	.0019	.0022	.0024	.0029

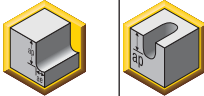

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D, reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

RKDF • Inch

Material Group																			
		Side Milling (A) and Slotting (B)				short		medium		long		Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.							
		A		B		adapter reach						D1 – Diameter							
						KCSM15		KCSM15		KCSM15									
				Cutting Speed – vc SFM		Cutting Speed – vc SFM		Cutting Speed – vc SFM		frac.		3/8	1/2	5/8	3/4	1			
		ap	ae	ap	min	max	min	max	min	max	dec.	.3750	.5000	.6250	.7500	1.000			
P	3	1.0 x D	0.5 x D	0.75 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0033
	4	1.0 x D	0.3 x D	0.75 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0028
	5	1.0 x D	0.4 x D	0.75 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0026
	6	1.0 x D	0.3 x D	0.3 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0013	.0016	.0019	.0021	.0020
M	1	1.0 x D	0.4 x D	0.75 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0033
	2	1.0 x D	0.4 x D	0.75 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0026
	3	1.0 x D	0.4 x D	0.75 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0020
K	1	1.0 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0035
	2	1.0 x D	0.5 x D	1 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0033
	3	1.0 x D	0.5 x D	1 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0026
S	1	1.0 x D	0.3 x D	0.75 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0033
	2	1.0 x D	0.3 x D	0.75 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0018
	3	1.0 x D	0.3 x D	0.75 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0018
	4	1.0 x D	0.4 x D	0.75 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0024
H	1	1.0 x D	0.3 x D	0.3 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0028
	2	1.0 x D	0.2 x D	0.2 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0020
	3	1.0 x D	0.2 x D	0.2 x D	200	–	300	160	–	240	120	–	180	IPT	.0010	.0013	.0015	.0018	.0018

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
For side milling with A_p bigger than $1 \times D$ reduce f_z by 20%!
Cylindrical shanks not recommended for full slotting.

■ RQBB • Inch

Material Group																			
		Side Milling (A) and Slotting (B)			short			medium			long			Recommended feed per tooth (IPT = inch/th) for side milling (A). For slotting (B), reduce IPT by 20%.					
		A		B	adapter reach									D1 – Diameter					
					KCPM15			KCPM15			KCPM15								
					Cutting Speed – vc SFM			Cutting Speed – vc SFM			Cutting Speed – vc SFM			frac.	3/8	1/2	5/8	3/4	1
ap	ae	ap	min		max	min		max	min		max	dec.	.3750	.5000	.6250	.7500	1.000		
P	0	1.5 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042
	1	1.5 x D	0.5 x D	1 x D	490	–	660	441	–	594	441	–	594	IPT	.0023	.0029	.0034	.0037	.0042
	2	1.5 x D	0.5 x D	1 x D	460	–	620	414	–	558	414	–	558	IPT	.0023	.0029	.0034	.0037	.0042
	3	1.5 x D	0.4 x D	0.75 x D	390	–	520	351	–	468	351	–	468	IPT	.0019	.0025	.0029	.0033	.0038
	4	1.5 x D	0.3 x D	0.3 x D	300	–	490	270	–	441	270	–	441	IPT	.0017	.0022	.0026	.0029	.0033
	5	1.5 x D	0.4 x D	0.75 x D	200	–	330	170	–	280.5	160	–	264	IPT	.0016	.0020	.0023	.0026	.0031
M	6	1.5 x D	0.3 x D	0.3 x D	160	–	250	136	–	212.5	128	–	200	IPT	.0013	.0016	.0019	.0021	.0024
	1	1.5 x D	0.4 x D	0.75 x D	300	–	380	240	–	304	210	–	266	IPT	.0019	.0025	.0029	.0033	.0038
	2	1.5 x D	0.4 x D	0.75 x D	200	–	260	160	–	208	140	–	182	IPT	.0016	.0020	.0023	.0026	.0031
K	3	1.5 x D	0.4 x D	0.75 x D	200	–	230	160	–	184	140	–	161	IPT	.0013	.0016	.0019	.0021	.0024
	1	1.5 x D	0.5 x D	1 x D	390	–	490	351	–	441	351	–	441	IPT	.0023	.0029	.0034	.0037	.0042
	2	1.5 x D	0.4 x D	1 x D	360	–	460	324	–	414	324	–	414	IPT	.0019	.0025	.0029	.0033	.0038
S	3	1.5 x D	0.4 x D	1 x D	360	–	430	324	–	387	324	–	387	IPT	.0016	.0020	.0023	.0026	.0031
	1	1.5 x D	0.4 x D	0.75 x D	160	–	300	128	–	240	96	–	180	IPT	.0019	.0025	.0029	.0033	.0038
	2	1.5 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0021
	3	1.5 x D	0.3 x D	0.3 x D	80	–	130	64	–	104	48	–	78	IPT	.0010	.0013	.0015	.0018	.0021
H	4	1.5 x D	0.3 x D	0.75 x D	160	–	200	128	–	160	96	–	120	IPT	.0014	.0018	.0021	.0024	.0028
	1	1.5 x D	0.3 x D	0.3 x D	260	–	460	208	–	368	156	–	276	IPT	.0017	.0022	.0026	.0029	.0033
	2	1.5 x D	0.2 x D	0.2 x D	230	–	390	184	–	312	138	–	234	IPT	.0013	.0016	.0019	.0021	.0024
	3	1.5 x D	0.2 x D	0.2 x D	200	–	300	160	–	240	120	–	180	IPT	.0010	.0013	.0015	.0018	.0021

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
 Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
 Above parameters are based on ideal conditions. Please adjust parameters according to system stability.
 For side milling with Ap bigger than 1 x D reduce fz by 20%!
 Cylindrical shanks not recommended for full slotting.

Duo-Lock Modular Milling