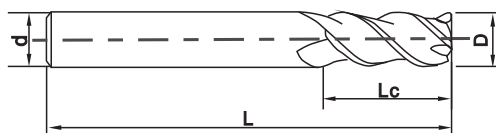


Square End Mill (HRC48)



2 FLUTES SQUARE



	2 Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-005S-50-2F	0.5	4	1	50	2	▲
TOTIME48-008S-50-2F	0.8	4	2	50	2	▲
TOTIME48-010S-50-2F	1.0	4	3	50	2	▲
TOTIME48-015S-50-2F	1.5	4	5	50	2	▲
TOTIME48-020S-50-1-2F	2.0	4	3	50	2	▲
TOTIME48-020S-50-2-2F	2.0	4	6	50	2	▲
TOTIME48-020S-75-2F	2.0	4	15	75	2	▲
TOTIME48-025S-50-1-2F	2.5	4	6	50	2	▲
TOTIME48-025S-50-2-2F	2.5	4	8	50	2	▲
TOTIME48-030S-04-50-2F	3.0	4	9	50	2	▲
TOTIME48-030S-06-50-2F	3.0	6	9	50	2	▲
TOTIME48-030S-06-75-2F	3.0	6	12	75	2	▲
TOTIME48-040S-04-50-2F	4.0	4	11	50	2	▲
TOTIME48-040S-06-50-2F	4.0	6	11	50	2	▲
TOTIME48-045S-50-1-2F	4.5	6	11	50	2	▲
TOTIME48-045S-50-2-2F	4.5	6	13	50	2	△
TOTIME48-050S-50-2F	5.0	6	13	50	2	▲
TOTIME48-055S-50-2F	5.5	6	16	50	2	▲
TOTIME48-060S-50-2F	6.0	6	16	50	2	▲
TOTIME48-060S-100-2F	6.0	6	20	100	2	▲
TOTIME48-065S-60-2F	6.5	8	16	60	2	▲
TOTIME48-070S-60-2F	7.0	8	20	60	2	▲
TOTIME48-075S-60-2F	7.5	8	20	60	2	△
TOTIME48-080S-60-2F	8.0	8	20	60	2	▲
TOTIME48-080S-100-2F	8.0	8	25	100	2	△
TOTIME48-085S-75-2F	8.5	10	23	75	2	△
TOTIME48-090S-75-2F	9.0	10	23	75	2	▲
TOTIME48-100S-75-2F	10.0	10	25	75	2	▲
TOTIME48-100S-100-2F	10.0	10	30	100	2	▲
TOTIME48-120S-75-2F	12.0	12	30	75	2	▲
TOTIME48-120S-100-2F	12.0	12	35	100	2	▲
TOTIME48-160S-150-2F	16.0	16	36	150	2	▲
TOTIME48-200S-150-2F	20.0	20	45	150	2	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

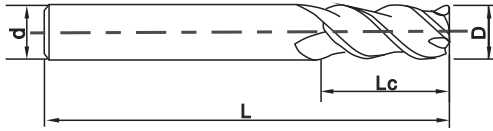
▲ Stock △ Non-Stock
Recommended Cutting Conditions B91



Square End Mill (HRC48)



4 FLUTES SQUARE



	4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010S-50-4F	1.0	4	3	50	4	▲
TOTIME48-015S-04-50-4F	1.5	4	5	50	4	▲
TOTIME48-015S-06-50-4F	1.5	6	5	50	4	▲
TOTIME48-020S-04-50-4F	2.0	4	6	50	4	▲
TOTIME48-020S-06-50-4F	2.0	6	6	50	4	▲
TOTIME48-025S-04-50-4F	2.5	4	8	50	4	▲
TOTIME48-025S-06-50-4F	2.5	6	8	50	4	▲
TOTIME48-030S-03-50-4F	3.0	3	9	50	4	▲
TOTIME48-030S-04-50-4F	3.0	4	9	50	4	▲
TOTIME48-030S-06-50-1-4F	3.0	6	6	50	4	▲
TOTIME48-030S-06-50-2-4F	3.0	6	9	50	4	▲
TOTIME48-030S-75-4F	3.0	4	12	75	4	▲
TOTIME48-031S-50-4F	3.1	4	9	50	4	▲
TOTIME48-035S-50-4F	3.5	4	11	50	4	▲
TOTIME48-040S-04-50-4F	4.0	4	11	50	4	▲
TOTIME48-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME48-040S-75-4F	4.0	4	15	75	4	▲
TOTIME48-045S-50-4F	4.5	6	11	50	4	▲
TOTIME48-050S-05-50-4F	5.0	5	13	50	4	▲
TOTIME48-050S-06-50-1-4F	5.0	6	8	50	4	▲
TOTIME48-050S-06-50-2-4F	5.0	6	13	50	4	▲
TOTIME48-050S-75-4F	5.0	6	20	75	4	▲
TOTIME48-055S-50-4F	5.5	6	16	50	4	▲
TOTIME48-060S-50-1-4F	6.0	6	16	50	4	▲
TOTIME48-060S-50-2-4F	6.0	6	18	50	4	▲
TOTIME48-060S-75-4F	6.0	6	20	75	4	▲
TOTIME48-060S-75-2-4F	6.0	6	30	75	4	▲
TOTIME48-065S-60-4F	6.5	8	16	60	4	△
TOTIME48-070S-60-4F	7.0	8	20	60	4	▲
TOTIME48-075S-60-4F	7.5	8	20	60	4	△
TOTIME48-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME48-080S-60-2-4F	8.0	8	24	60	4	△
TOTIME48-080S-100-4F	8.0	8	25	100	4	▲

Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B92

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

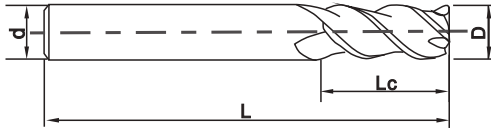
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Square End Mill (HRC48)



4/6 FLUTES SQUARE



	4 Flutes 6 Flutes	Cobalt 12%	HRC 48	AICrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-085S-75-4F	8.5	10	23	75	4	▲
TOTIME48-090S-75-4F	9.0	10	23	75	4	▲
TOTIME48-095S-75-4F	9.5	10	25	75	4	▲
TOTIME48-100S-75-4F	10.0	10	25	75	4	▲
TOTIME48-100S-100-4F	10.0	10	30	100	4	▲
TOTIME48-110S-75-4F	11.0	12	28	75	4	▲
TOTIME48-120S-75-4F	12.0	12	30	75	4	▲
TOTIME48-120S-100-4F	12.0	12	35	100	4	▲
TOTIME48-130S-100-4F	13.0	14	32	100	4	△
TOTIME48-140S-75-4F	14.0	14	32	75	4	▲
TOTIME48-140S-100-4F	14.0	14	34	100	4	△
TOTIME48-150S-100-4F	15.0	16	36	100	4	▲
TOTIME48-160S-100-4F	16.0	16	36	100	4	▲
TOTIME48-180S-100-4F	18.0	18	45	100	4	▲
TOTIME48-180S-150-4F	18.0	18	70	150	4	▲
TOTIME48-200S-100-4F	20.0	20	45	100	4	▲
TOTIME48-200S-150-4F	20.0	20	70	150	4	△
TOTIME48-060S-50-6F	6.0	6	15	50	6	▲
TOTIME48-080S-60-6F	8.0	8	20	60	6	▲
TOTIME48-100S-75-6F	10.0	10	25	75	6	▲
TOTIME48-120S-75-6F	12.0	12	30	75	6	▲
TOTIME48-160S-100-6F	16.0	16	36	100	6	▲
TOTIME48-200S-100-6F	20.0	20	45	100	6	▲

Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B92

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

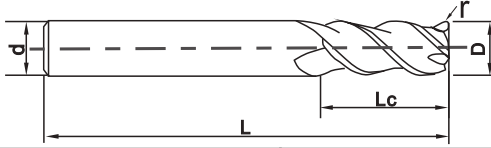
TOTIME48-E
for General Steels



Corner Radius End Mill (HRC48)



2 FLUTES CORNER RADIUS



	2Flutes	Cobalt 12%	HRC 48	AICrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-010CR002-50-2F	1.0	0.2	4	3	50	▲
TOTIME48-015CR002-50-2F	1.5	0.2	4	5	50	▲
TOTIME48-020CR002-50-2F	2.0	0.2	4	6	50	▲
TOTIME48-030CR002-04-50-2F	3.0	0.2	4	9	50	△
TOTIME48-030CR002-06-50-2F	3.0	0.2	6	9	50	▲
TOTIME48-030CR003-04-50-2F	3.0	0.3	4	9	50	△
TOTIME48-030CR003-06-50-2F	3.0	0.3	6	9	50	▲
TOTIME48-030CR005-04-50-2F	3.0	0.5	4	9	50	△
TOTIME48-030CR005-06-50-2F	3.0	0.5	6	9	50	△
TOTIME48-040CR002-04-50-2F	4.0	0.2	4	11	50	△
TOTIME48-040CR002-06-50-2F	4.0	0.2	6	11	50	▲
TOTIME48-040CR003-04-50-2F	4.0	0.3	4	11	50	△
TOTIME48-040CR003-06-50-2F	4.0	0.3	6	11	50	▲
TOTIME48-040CR005-04-50-2F	4.0	0.5	4	11	50	△
TOTIME48-040CR005-06-50-2F	4.0	0.5	6	11	50	▲
TOTIME48-040CR010-50-2F	4.0	1.0	4	11	50	▲
TOTIME48-050CR002-50-2F	5.0	0.2	6	13	50	▲
TOTIME48-050CR003-50-2F	5.0	0.3	6	13	50	△
TOTIME48-050CR005-50-2F	5.0	0.5	6	13	50	△
TOTIME48-050CR010-50-2F	5.0	1.0	6	13	50	▲
TOTIME48-060CR005-50-2F	6.0	0.5	6	16	50	▲
TOTIME48-060CR010-50-2F	6.0	1.0	6	16	50	△
TOTIME48-060CR015-50-2F	6.0	1.5	6	16	50	△
TOTIME48-060CR020-50-2F	6.0	2.0	6	16	50	△
TOTIME48-060CR010-75-2F	6.0	1.0	6	16	75	▲
TOTIME48-060CR015-75-2F	6.0	1.5	6	16	75	△
TOTIME48-080CR003-60-2F	8.0	0.3	8	20	60	△
TOTIME48-080CR010-60-2F	8.0	1.0	8	20	60	▲
TOTIME48-080CR015-60-2F	8.0	1.5	8	20	60	△
TOTIME48-080CR020-60-2F	8.0	2.0	8	20	60	△
TOTIME48-080CR005-75-2F	8.0	0.5	8	20	75	▲
TOTIME48-080CR010-75-2F	8.0	1.0	8	20	75	▲
TOTIME48-080CR002-100-2F	8.0	0.2	8	20	100	▲
TOTIME48-080CR005-100-2F	8.0	0.5	8	20	100	△
TOTIME48-100CR003-75-2F	10.0	0.3	10	25	75	▲

Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B91

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

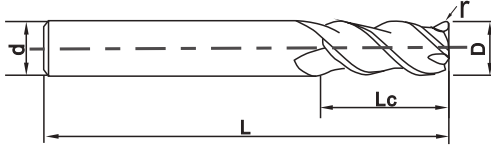
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Corner Radius End Mill (HRC48)



2 FLUTES CORNER RADIUS



	2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation ○ 2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-100CR005-75-2F	10	0.5	10	25	75	△
TOTIME48-100CR010-75-2F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-2F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-2F	10	2.0	10	25	75	△
TOTIME48-100CR030-75-2F	10	3.0	10	25	75	△
TOTIME48-100CR010-100-2F	10	1.0	10	25	100	▲
TOTIME48-120CR005-75-2F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-2F	12	1.0	12	30	75	△
TOTIME48-120CR015-75-2F	12	1.5	12	30	75	△
TOTIME48-120CR020-75-2F	12	2.0	12	30	75	▲
TOTIME48-120CR030-75-2F	12	3.0	12	30	75	▲
TOTIME48-160CR005-100-2F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-2F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-2F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-2F	16	3.0	16	36	100	△
TOTIME48-160CR020-150-2F	16	2.0	16	36	150	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B91

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

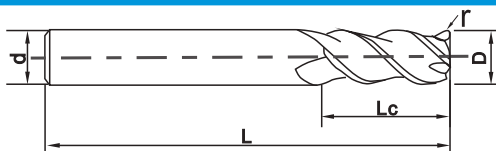
TOTIME48-E
for General Steels



Corner Radius End Mill (HRC48)



4 FLUTES CORNER RADIUS



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide		
● 1st Recommendation		○ 2nd Recommendation					
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys	
<HRC35	<HRC48	HRC48-55	HRC55-60				
●	●			○	●		
Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock	
TOTIME48-010CR002-50-4F	1.0	0.2	4	3	50	▲	
TOTIME48-015CR002-50-4F	1.5	0.2	4	5	50	▲	
TOTIME48-020CR002-50-4F	2.0	0.2	4	6	50	▲	
TOTIME48-030CR002-50-1-4F	3.0	0.2	4	6	50	▲	
TOTIME48-030CR002-50-2-4F	3.0	0.2	4	9	50	△	
TOTIME48-030CR003-50-4F	3.0	0.3	4	9	50	△	
TOTIME48-030CR005-50-4F	3.0	0.5	4	9	50	▲	
TOTIME48-030CR005-75-4F	3.0	0.5	4	9	75	▲	
TOTIME48-040CR002-50-1-4F	4.0	0.2	4	6	50	▲	
TOTIME48-040CR002-50-2-4F	4.0	0.2	4	11	50	▲	
TOTIME48-040CR003-50-4F	4.0	0.3	4	11	50	▲	
TOTIME48-040CR005-50-4F	4.0	0.5	4	11	50	▲	
TOTIME48-040CR005-75-4F	4.0	0.5	4	11	75	▲	
TOTIME48-040CR010-50-4F	4.0	1.0	4	11	50	△	
TOTIME48-045CR010-50-4F	4.5	1.0	6	12	50	▲	
TOTIME48-050CR002-06-50-4F	5.0	0.2	6	13	50	▲	
TOTIME48-050CR005-05-50-4F	5.0	0.5	5	13	50	▲	
TOTIME48-050CR005-06-50-4F	5.0	0.5	6	13	50	△	
TOTIME48-050CR010-05-50-4F	5.0	1.0	5	13	50	△	
TOTIME48-050CR010-06-50-4F	5.0	1.0	6	13	50	△	
TOTIME48-050CR015-50-4F	5.0	1.5	6	13	50	△	
TOTIME48-060CR002-50-4F	6.0	0.2	6	16	50	▲	
TOTIME48-060CR005-50-1-4F	6.0	0.5	6	9	50	▲	
TOTIME48-060CR005-50-2-4F	6.0	0.5	6	16	50	▲	
TOTIME48-060CR010-50-4F	6.0	1.0	6	16	50	▲	
TOTIME48-060CR015-50-4F	6.0	1.5	6	16	50	△	
TOTIME48-060CR005-75-4F	6.0	0.5	6	16	75	▲	
TOTIME48-060CR010-75-4F	6.0	1.0	6	16	75	▲	
TOTIME48-060CR015-75-4F	6.0	1.5	6	16	75	△	
TOTIME48-080CR003-60-4F	8.0	0.3	8	20	60	▲	
TOTIME48-080CR005-60-4F	8.0	0.5	8	20	60	△	
TOTIME48-080CR010-60-4F	8.0	1.0	8	20	60	▲	
TOTIME48-080CR015-60-4F	8.0	1.5	8	20	60	△	
TOTIME48-080CR020-60-4F	8.0	2.0	8	20	60	▲	
TOTIME48-080CR005-75-4F	8.0	0.5	8	20	75	△	

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B92

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

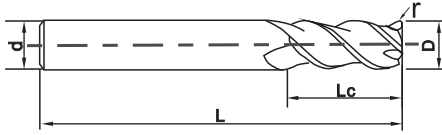
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Corner Radius End Mill (HRC48)



4 FLUTES CORNER RADIUS



	4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080CR010-75-4F	8	1.0	8	20	75	▲
TOTIME48-080CR005-100-4F	8	0.5	8	20	100	▲
TOTIME48-080CR010-100-4F	8	1.0	8	20	100	△
TOTIME48-080CR015-100-4F	8	1.5	8	20	100	△
TOTIME48-080CR020-100-4F	8	2.0	8	20	100	△
TOTIME48-100CR002-75-4F	10	0.2	10	25	75	△
TOTIME48-100CR003-75-4F	10	0.3	10	25	75	△
TOTIME48-100CR005-75-4F	10	0.5	10	25	75	▲
TOTIME48-100CR010-75-4F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-4F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-4F	10	2.0	10	25	75	▲
TOTIME48-100CR025-75-4F	10	2.5	10	25	75	▲
TOTIME48-100CR030-75-4F	10	3.0	10	25	75	△
TOTIME48-100CR005-100-4F	10	0.5	10	25	100	▲
TOTIME48-100CR010-100-4F	10	1.0	10	25	100	▲
TOTIME48-100CR015-100-4F	10	1.5	10	25	100	△
TOTIME48-100CR020-100-4F	10	2.0	10	25	100	△
TOTIME48-120CR005-75-4F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-4F	12	1.0	12	30	75	▲
TOTIME48-120CR015-75-4F	12	1.5	12	30	75	▲
TOTIME48-120CR020-75-4F	12	2.0	12	30	75	▲
TOTIME48-120CR025-75-4F	12	2.5	12	30	75	▲
TOTIME48-120CR030-75-4F	12	3.0	12	30	75	▲
TOTIME48-120CR005-100-4F	12	0.5	12	30	100	△
TOTIME48-120CR010-100-4F	12	1.0	12	30	100	▲
TOTIME48-120CR015-100-4F	12	1.5	12	30	100	△
TOTIME48-120CR020-100-4F	12	2.0	12	30	100	▲
TOTIME48-120CR030-100-4F	12	3.0	12	30	100	△
TOTIME48-160CR005-100-4F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-4F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-4F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-4F	16	3.0	16	36	100	△
TOTIME48-160CR005-150-4F	16	0.5	16	36	150	△
TOTIME48-160CR010-150-4F	16	1.0	16	36	150	▲
TOTIME48-160CR015-150-4F	16	1.5	16	36	150	△
TOTIME48-160CR020-150-4F	16	2.0	16	36	150	△
TOTIME48-160CR030-150-4F	16	3.0	16	36	150	△

Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

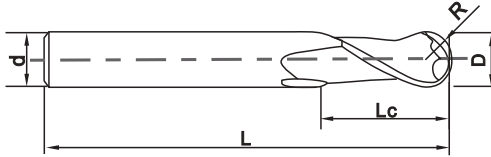
▲ Stock △ Non-Stock
Recommended Cutting Conditions B92



Ball Nose End Mill (HRC48)



2 FLUTES BALL NOSE



	2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-008B-50-2F	0.8	0.40	4	1.6	50	▲
TOTIME48-009B-50-2F	0.9	0.45	4	1.8	50	▲
TOTIME48-010B-50-2F	1.0	0.50	4	2.0	50	▲
TOTIME48-015B-50-2F	1.5	0.75	4	3.0	50	▲
TOTIME48-020B-04-50-2F	2.0	1.00	4	4.0	50	▲
TOTIME48-020B-06-50-2F	2.0	1.00	6	4.0	50	△
TOTIME48-020B-04-75-2F	2.0	1.00	4	4.0	75	▲
TOTIME48-020B-06-75-2F	2.0	1.00	6	4.0	75	▲
TOTIME48-025B-50-2F	2.5	1.25	4	5.0	50	△
TOTIME48-030B-04-50-2F	3.0	1.50	4	6.0	50	▲
TOTIME48-030B-06-50-2F	3.0	1.50	6	6.0	50	▲
TOTIME48-030B-04-75-2F	3.0	1.50	4	6.0	75	▲
TOTIME48-030B-06-75-2F	3.0	1.50	6	6.0	75	▲
TOTIME48-040B-04-50-2F	4.0	2.00	4	8.0	50	▲
TOTIME48-040B-06-50-2F	4.0	2.00	6	8.0	50	▲
TOTIME48-040B-04-75-2F	4.0	2.00	4	8.0	75	▲
TOTIME48-040B-06-75-2F	4.0	2.00	6	8.0	75	▲
TOTIME48-050B-50-2F	5.0	2.50	6	10.0	50	▲
TOTIME48-050B-75-2F	5.0	2.50	6	10.0	75	▲
TOTIME48-060B-50-2F	6.0	3.00	6	12.0	50	▲
TOTIME48-060B-75-2F	6.0	3.00	6	12.0	75	▲
TOTIME48-070B-60-2F	7.0	3.50	8	14.0	60	▲
TOTIME48-070B-100-2F	7.0	3.50	8	14.0	100	▲

Tolerance: R≤1.5 -0.01~0 1.5<R<3 -0.015~0 R≥3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B93

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

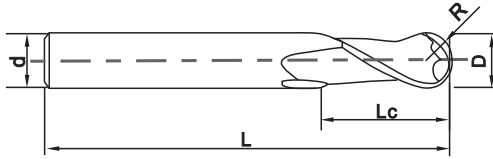
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Ball Nose End Mill (HRC48)



2 FLUTES BALL NOSE



	2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080B-60-2F	8	4.0	8	14	60	▲
TOTIME48-080B-75-2F	8	4.0	8	14	75	▲
TOTIME48-080B-100-2F	8	4.0	8	14	100	▲
TOTIME48-090B-75-2F	9	4.5	10	16	75	▲
TOTIME48-090B-100-2F	9	4.5	10	16	100	▲
TOTIME48-100B-75-2F	10	5.0	10	18	75	▲
TOTIME48-100B-100-2F	10	5.0	10	18	100	▲
TOTIME48-110B-75-2F	11	5.5	12	20	75	▲
TOTIME48-110B-100-2F	11	5.5	12	20	100	▲
TOTIME48-120B-75-2F	12	6.0	12	22	75	▲
TOTIME48-120B-100-2F	12	6.0	12	22	100	▲
TOTIME48-130B-100-2F	13	6.5	14	26	100	▲
TOTIME48-140B-100-2F	14	7.0	14	26	100	▲
TOTIME48-150B-100-2F	15	7.5	16	30	100	▲
TOTIME48-160B-100-2F	16	8.0	16	30	100	▲
TOTIME48-200B-100-2F	20	10.0	20	38	100	▲

Tolerance: R≤1.5 -0.01~0 1.5<R<3 -0.015~0 R≥3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B93

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

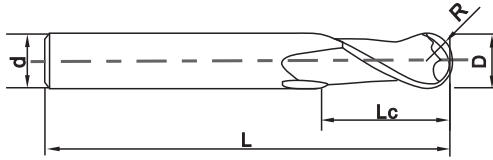
TOTIME48-E
for General Steels



Ball Nose End Mill (HRC48)



4 FLUTES BALL NOSE



	4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-020B-04-50-4F	2.0	1.00	4	4	50	▲
TOTIME48-025B-50-4F	2.5	1.25	4	5	50	▲
TOTIME48-030B-03-50-4F	3.0	1.50	3	6	50	▲
TOTIME48-030B-04-50-4F	3.0	1.50	4	6	50	△
TOTIME48-030B-06-50-4F	3.0	1.50	6	6	50	▲
TOTIME48-040B-04-50-4F	4.0	2.00	4	8	50	▲
TOTIME48-040B-06-50-4F	4.0	2.00	6	8	50	▲
TOTIME48-050B-05-50-4F	5.0	2.50	5	10	50	△
TOTIME48-050B-06-50-4F	5.0	2.50	6	10	50	▲
TOTIME48-060B-50-4F	6.0	3.00	6	12	50	▲
TOTIME48-060B-100-4F	6.0	3.00	6	12	100	▲
TOTIME48-060B-150-4F	6.0	3.00	6	12	150	▲
TOTIME48-070B-60-4F	7.0	3.50	8	14	60	▲
TOTIME48-080B-60-4F	8.0	4.00	8	14	60	▲
TOTIME48-080B-100-4F	8.0	4.00	8	14	100	▲
TOTIME48-090B-75-4F	9.0	4.50	10	16	75	▲
TOTIME48-100B-75-4F	10.0	5.00	10	18	75	▲
TOTIME48-110B-75-4F	11.0	5.50	12	20	75	▲
TOTIME48-120B-75-4F	12.0	6.00	12	22	75	▲
TOTIME48-120B-100-4F	12.0	6.00	12	22	100	▲
TOTIME48-120B-150-4F	12.0	6.00	12	22	150	▲
TOTIME48-140B-75-4F	14.0	7.00	14	24	75	▲
TOTIME48-160B-100-4F	16.0	8.00	16	30	100	▲
TOTIME48-200B-100-4F	20.0	10.00	20	38	100	▲

Tolerance: R ≤ 1.5 -0.01~0 1.5 < R < 3 -0.015~0 R ≥ 3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B93

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

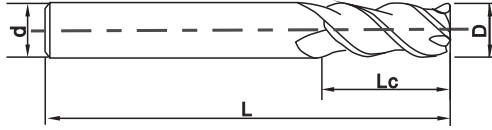
TOTIME48-E
for General Steels



Variable Helix Square End Mill(HRC48)



4 FLUTES SQUARE



	4Flutes	Cobalt 12%	HRC 48	AICrSiN Coating	UMG 0.5µm	Materials Carbide
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● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				○	

Order No.	D (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock
TOTIME3538-020S-50-4F	2.0	4	6	50	4	▲
TOTIME3538-030S-50-4F	3.0	4	9	50	4	▲
TOTIME3538-040S-50-4F	4.0	4	11	50	4	▲
TOTIME3538-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME3538-040S-75-4F	4.0	6	15	75	4	▲
TOTIME3538-050S-50-4F	5.0	6	13	50	4	▲
TOTIME3538-050S-75-4F	5.0	6	20	75	4	▲
TOTIME3538-055S-50-4F	5.5	6	16	50	4	▲
TOTIME3538-060S-50-4F	6.0	6	16	50	4	▲
TOTIME3538-060S-75-4F	6.0	6	20	75	4	▲
TOTIME3538-070S-60-4F	7.0	8	20	60	4	▲
TOTIME3538-080S-60-4F	8.0	8	16	60	4	▲
TOTIME3538-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME3538-080S-60-2-4F	8.0	8	25	60	4	▲
TOTIME3538-080S-75-4F	8.0	8	25	75	4	▲
TOTIME3538-080S-100-4F	8.0	8	25	100	4	▲
TOTIME3538-100S-75-4F	10.0	10	25	75	4	▲
TOTIME3538-100S-75-1-4F	10.0	10	20	75	4	▲
TOTIME3538-100S-75-2-4F	10.0	10	30	75	4	▲
TOTIME3538-100S-100-4F	10.0	10	30	100	4	▲
TOTIME3538-120S-75-4F	12.0	12	30	75	4	▲
TOTIME3538-120S-75-1-4F	12.0	12	24	75	4	▲
TOTIME3538-120S-100-4F	12.0	12	35	100	4	▲
TOTIME3538-140S-75-4F	14.0	14	32	75	4	▲
TOTIME3538-140S-100-4F	14.0	14	40	100	4	▲
TOTIME3538-160S-100-4F	16.0	16	36	100	4	▲
TOTIME3538-160S-150-4F	16.0	16	50	150	4	▲
TOTIME3538-180S-100-4F	18.0	18	45	100	4	▲
TOTIME3538-180S-150-4F	18.0	18	50	150	4	▲
TOTIME3538-200S-100-4F	20.0	20	45	100	4	▲
TOTIME3538-200S-150-4F	20.0	20	50	150	4	▲

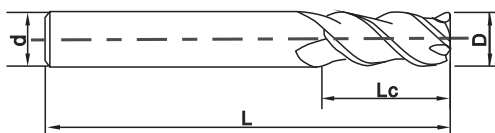
Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B94

Variable Helix Square End Mill(HRC48)



4 FLUTES SQUARE



4Flutes		Cobalt 12%	HRC 48	TiSiAlN Coating	UMG 0.5µm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation					
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys	
<HRC35	<HRC48	HRC48-55	HRC55-60			●	
Order No.	D (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock	
TOTIME3638-020S-50-4F	2.0	4	6	50	4	▲	
TOTIME3638-030S-50-4F	3.0	4	9	50	4	▲	
TOTIME3638-040S-50-4F	4.0	4	12	50	4	▲	
TOTIME3638-040S-06-50-4F	4.0	6	12	50	4	▲	
TOTIME3638-040S-75-4F	4.0	6	12	75	4	▲	
TOTIME3638-050S-50-4F	5.0	6	13	50	4	▲	
TOTIME3638-050S-75-4F	5.0	6	20	75	4	▲	
TOTIME3638-055S-50-4F	5.5	6	16	50	4	▲	
TOTIME3638-060S-50-4F	6.0	6	18	50	4	▲	
TOTIME3638-060S-75-4F	6.0	6	18	75	4	▲	
TOTIME3638-070S-60-4F	7.0	8	20	60	4	▲	
TOTIME3638-080S-60-4F	8.0	8	16	60	4	▲	
TOTIME3638-080S-60-1-4F	8.0	8	20	60	4	▲	
TOTIME3638-080S-60-2-4F	8.0	8	24	60	4	▲	
TOTIME3638-080S-75-4F	8.0	8	24	75	4	▲	
TOTIME3638-080S-100-4F	8.0	8	32	100	4	▲	
TOTIME3638-100S-75-4F	10.0	10	25	75	4	▲	
TOTIME3638-100S-75-1-4F	10.0	10	20	75	4	▲	
TOTIME3638-100S-75-2-4F	10.0	10	30	75	4	▲	
TOTIME3638-100S-100-4F	10.0	10	40	100	4	▲	
TOTIME3638-120S-75-4F	12.0	12	36	75	4	▲	
TOTIME3638-120S-75-1-4F	12.0	12	24	75	4	▲	
TOTIME3638-120S-100-4F	12.0	12	40	100	4	▲	
TOTIME3638-140S-75-4F	14.0	14	32	75	4	▲	
TOTIME3638-140S-100-4F	14.0	14	40	100	4	▲	
TOTIME3638-160S-100-4F	16.0	16	36	100	4	▲	
TOTIME3638-160S-150-4F	16.0	16	50	150	4	▲	
TOTIME3638-180S-100-4F	18.0	18	45	100	4	▲	
TOTIME3638-180S-150-4F	18.0	18	50	150	4	▲	
TOTIME3638-200S-100-4F	20.0	20	45	100	4	▲	
TOTIME3638-200S-150-4F	20.0	20	50	150	4	▲	

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B106

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

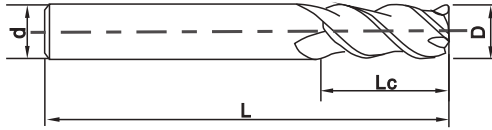
TOTIME48-E
for General Steels



Variable Lead Square End Mill(HRC48)



2 FLUTES SQUARE [1.5D]



	2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-1.5D	1.0	4	1.5	50	2	△
TOTIME3538-MS015S-50-2F-1.5D	1.5	4	2.3	50	2	△
TOTIME3538-MS020S-50-2F-1.5D	2.0	4	3.0	50	2	▲
TOTIME3538-MS030S-50-2F-1.5D	3.0	4	4.5	50	2	▲
TOTIME3538-MS040S-50-2F-1.5D	4.0	4	6.0	50	2	△
TOTIME3538-MS040S-75-2F-1.5D	4.0	4	6.0	75	2	▲
TOTIME3538-MS050S-50-2F-1.5D	5.0	6	7.5	50	2	△
TOTIME3538-MS060S-50-2F-1.5D	6.0	6	9.0	50	2	△
TOTIME3538-MS060S-75-2F-1.5D	6.0	6	9.0	75	2	▲
TOTIME3538-MS060S-100-2F-1.5D	6.0	6	9.0	100	2	△
TOTIME3538-MS080S-60-2F-1.5D	8.0	8	12.0	60	2	△
TOTIME3538-MS080S-75-2F-1.5D	8.0	8	12.0	75	2	△
TOTIME3538-MS080S-100-2F-1.5D	8.0	8	12.0	100	2	▲
TOTIME3538-MS100S-75-2F-1.5D	10.0	10	15.0	75	2	△
TOTIME3538-MS100S-100-2F-1.5D	10.0	10	15.0	100	2	▲
TOTIME3538-MS120S-75-2F-1.5D	12.0	12	18.0	75	2	△
TOTIME3538-MS120S-100-2F-1.5D	12.0	12	18.0	100	2	▲
TOTIME3538-MS160S-100-2F-1.5D	16.0	16	24.0	100	2	△
TOTIME3538-MS160S-150-2F-1.5D	16.0	16	24.0	150	2	△
TOTIME3538-MS200S-100-2F-1.5D	20.0	20	30.0	100	2	△
TOTIME3538-MS200S-150-2F-1.5D	20.0	20	30.0	150	2	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock

Recommended Cutting Conditions B95~B96

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

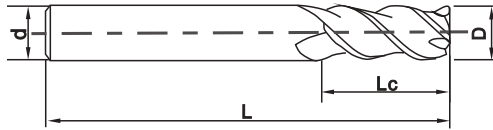
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Variable Lead Square End Mill(HRC48)



2 FLUTES SQUARE [3D]



2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-3D	1.0	4	3.0	50	2	△
TOTIME3538-MS015S-50-2F-3D	1.5	4	4.5	50	2	△
TOTIME3538-MS020S-50-2F-3D	2.0	4	6.0	50	2	△
TOTIME3538-MS030S-50-2F-3D	3.0	4	9.0	50	2	△
TOTIME3538-MS040S-50-2F-3D	4.0	4	12.0	50	2	△
TOTIME3538-MS040S-75-2F-3D	4.0	4	12.0	75	2	▲
TOTIME3538-MS050S-50-2F-3D	5.0	6	15.0	50	2	△
TOTIME3538-MS060S-50-2F-3D	6.0	6	18.0	50	2	△
TOTIME3538-MS060S-75-2F-3D	6.0	6	18.0	75	2	▲
TOTIME3538-MS060S-100-2F-3D	6.0	6	18.0	100	2	△
TOTIME3538-MS080S-60-2F-3D	8.0	8	24.0	60	2	△
TOTIME3538-MS080S-75-2F-3D	8.0	8	24.0	75	2	△
TOTIME3538-MS080S-100-2F-3D	8.0	8	24.0	100	2	▲
TOTIME3538-MS100S-75-2F-3D	10.0	10	30.0	75	2	△
TOTIME3538-MS100S-100-2F-3D	10.0	10	30.0	100	2	▲
TOTIME3538-MS120S-75-2F-3D	12.0	12	36.0	75	2	△
TOTIME3538-MS120S-100-2F-3D	12.0	12	36.0	100	2	▲
TOTIME3538-MS160S-100-2F-3D	16.0	16	48.0	100	2	▲
TOTIME3538-MS160S-150-2F-3D	16.0	16	48.0	150	2	△
TOTIME3538-MS200S-150-2F-3D	20.0	20	60.0	150	2	△

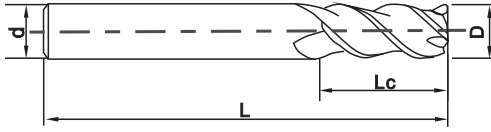
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B95~B96

Variable Lead Square End Mill(HRC48)



4 FLUTES SQUARE [2.5D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME3538-MS015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME3538-MS020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME3538-MS030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME3538-MS040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME3538-MS040S-75-4F-2.5D	4.0	4	10.0	75	4	△
TOTIME3538-MS050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME3538-MS060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME3538-MS060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME3538-MS060S-100-4F-2.5D	6.0	6	15.0	100	4	△
TOTIME3538-MS080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME3538-MS080S-75-4F-2.5D	8.0	8	20.0	75	4	△
TOTIME3538-MS080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME3538-MS100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME3538-MS100S-100-4F-2.5D	10.0	10	25.0	100	4	△
TOTIME3538-MS120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME3538-MS120S-100-4F-2.5D	12.0	12	30.0	100	4	△
TOTIME3538-MS160S-100-4F-2.5D	16.0	16	40.0	100	4	▲
TOTIME3538-MS160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME3538-MS200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B95

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

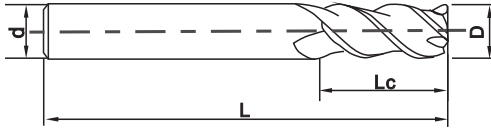
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Variable Lead Square End Mill(HRC48)



4 FLUTES SQUARE [3D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-3D	1.0	4	3.0	50	4	▲
TOTIME3538-MS015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME3538-MS020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME3538-MS030S-50-4F-3D	3.0	4	9.0	50	4	▲
TOTIME3538-MS040S-50-4F-3D	4.0	4	12.0	50	4	△
TOTIME3538-MS040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME3538-MS050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME3538-MS060S-50-4F-3D	6.0	6	18.0	50	4	△
TOTIME3538-MS060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME3538-MS060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME3538-MS080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME3538-MS080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME3538-MS080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME3538-MS100S-75-4F-3D	10.0	10	30.0	75	4	△
TOTIME3538-MS100S-100-4F-3D	10.0	10	30.0	100	4	▲
TOTIME3538-MS120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME3538-MS120S-100-4F-3D	12.0	12	36.0	100	4	▲
TOTIME3538-MS160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME3538-MS160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME3538-MS200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

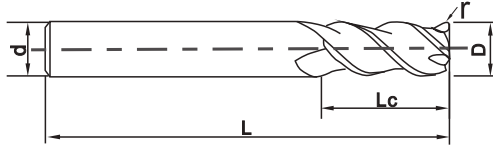
▲ Stock △ Non-Stock
Recommended Cutting Conditions B95



Variable Lead Corner Radius End Mill(HRC48)



4 FLUTES CORNER RADIUS [2.5D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010CR001-50-4F-2.5D	1.0	0.1	4	2.5	50	4	△
TOTIME3538-MS010CR002-50-4F-2.5D	1.0	0.2	4	2.5	50	4	▲
TOTIME3538-MS015CR001-50-4F-2.5D	1.5	0.1	4	3.8	50	4	▲
TOTIME3538-MS015CR002-50-4F-2.5D	1.5	0.2	4	3.8	50	4	▲
TOTIME3538-MS020CR001-50-4F-2.5D	2.0	0.1	4	5.0	50	4	▲
TOTIME3538-MS020CR002-50-4F-2.5D	2.0	0.2	4	5.0	50	4	▲
TOTIME3538-MS020CR005-50-4F-2.5D	2.0	0.5	4	5.0	50	4	△
TOTIME3538-MS030CR001-50-4F-2.5D	3.0	0.1	4	8.0	50	4	▲
TOTIME3538-MS030CR002-50-4F-2.5D	3.0	0.2	4	8.0	50	4	△
TOTIME3538-MS030CR003-50-4F-2.5D	3.0	0.3	4	8.0	50	4	△
TOTIME3538-MS030CR005-50-4F-2.5D	3.0	0.5	4	8.0	50	4	△
TOTIME3538-MS040CR002-50-4F-2.5D	4.0	0.2	4	10.0	50	4	△
TOTIME3538-MS040CR003-50-4F-2.5D	4.0	0.3	4	10.0	50	4	△
TOTIME3538-MS040CR005-50-4F-2.5D	4.0	0.5	4	10.0	50	4	▲
TOTIME3538-MS040CR010-50-4F-2.5D	4.0	1.0	4	10.0	50	4	△
TOTIME3538-MS050CR002-50-4F-2.5D	5.0	0.2	6	12.0	50	4	▲
TOTIME3538-MS050CR003-50-4F-2.5D	5.0	0.3	6	12.0	50	4	△
TOTIME3538-MS050CR005-50-4F-2.5D	5.0	0.5	6	12.0	50	4	△
TOTIME3538-MS050CR010-50-4F-2.5D	5.0	1.0	6	12.0	50	4	△
TOTIME3538-MS060CR002-50-4F-2.5D	6.0	0.2	6	15.0	50	4	▲
TOTIME3538-MS060CR003-50-4F-2.5D	6.0	0.3	6	15.0	50	4	△
TOTIME3538-MS060CR005-50-4F-2.5D	6.0	0.5	6	15.0	50	4	▲
TOTIME3538-MS060CR010-50-4F-2.5D	6.0	1.0	6	15.0	50	4	▲
TOTIME3538-MS060CR015-50-4F-2.5D	6.0	1.5	6	15.0	50	4	△
TOTIME3538-MS060CR002-75-4F-2.5D	6.0	0.2	6	15.0	75	4	△
TOTIME3538-MS060CR003-75-4F-2.5D	6.0	0.3	6	15.0	75	4	△
TOTIME3538-MS060CR005-75-4F-2.5D	6.0	0.5	6	15.0	75	4	▲
TOTIME3538-MS060CR010-75-4F-2.5D	6.0	1.0	6	15.0	75	4	△
TOTIME3538-MS060CR015-75-4F-2.5D	6.0	1.5	6	15.0	75	4	△

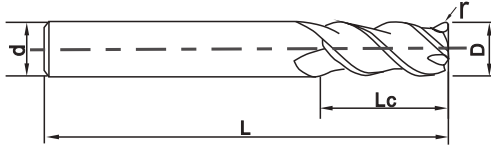
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B95

Variable Lead Corner Radius End Mill(HRC48)



4 FLUTES CORNER RADIUS [2.5D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS080CR003-60-4F-2.5D	8	0.3	8	20	60	4	△
TOTIME3538-MS080CR005-60-4F-2.5D	8	0.5	8	20	60	4	▲
TOTIME3538-MS080CR010-60-4F-2.5D	8	1.0	8	20	60	4	▲
TOTIME3538-MS080CR015-60-4F-2.5D	8	1.5	8	20	60	4	△
TOTIME3538-MS080CR020-60-4F-2.5D	8	2.0	8	20	60	4	▲
TOTIME3538-MS080CR003-75-4F-2.5D	8	0.3	8	20	75	4	△
TOTIME3538-MS080CR005-75-4F-2.5D	8	0.5	8	20	75	4	△
TOTIME3538-MS080CR010-75-4F-2.5D	8	1.0	8	20	75	4	△
TOTIME3538-MS080CR015-75-4F-2.5D	8	1.5	8	20	75	4	△
TOTIME3538-MS080CR020-75-4F-2.5D	8	2.0	8	20	75	4	△
TOTIME3538-MS100CR002-75-4F-2.5D	10	0.2	10	25	75	4	△
TOTIME3538-MS100CR003-75-4F-2.5D	10	0.3	10	25	75	4	△
TOTIME3538-MS100CR005-75-4F-2.5D	10	0.5	10	25	75	4	▲
TOTIME3538-MS100CR010-75-4F-2.5D	10	1.0	10	25	75	4	▲
TOTIME3538-MS100CR015-75-4F-2.5D	10	1.5	10	25	75	4	▲
TOTIME3538-MS100CR020-75-4F-2.5D	10	2.0	10	25	75	4	▲
TOTIME3538-MS100CR025-75-4F-2.5D	10	2.5	10	25	75	4	△
TOTIME3538-MS100CR030-75-4F-2.5D	10	3.0	10	25	75	4	▲
TOTIME3538-MS100CR002-100-4F-2.5D	10	0.2	10	25	100	4	△
TOTIME3538-MS100CR003-100-4F-2.5D	10	0.3	10	25	100	4	△
TOTIME3538-MS100CR005-100-4F-2.5D	10	0.5	10	25	100	4	△
TOTIME3538-MS100CR010-100-4F-2.5D	10	1.0	10	25	100	4	△
TOTIME3538-MS100CR015-100-4F-2.5D	10	1.5	10	25	100	4	△
TOTIME3538-MS100CR020-100-4F-2.5D	10	2.0	10	25	100	4	△
TOTIME3538-MS100CR025-100-4F-2.5D	10	2.5	10	25	100	4	△
TOTIME3538-MS100CR030-100-4F-2.5D	10	3.0	10	25	100	4	△
TOTIME3538-MS120CR005-75-4F-2.5D	12	0.5	12	30	75	4	▲
TOTIME3538-MS120CR010-75-4F-2.5D	12	1.0	12	30	75	4	▲
TOTIME3538-MS120CR015-75-4F-2.5D	12	1.5	12	30	75	4	▲
TOTIME3538-MS120CR020-75-4F-2.5D	12	2.0	12	30	75	4	▲
TOTIME3538-MS120CR025-75-4F-2.5D	12	2.5	12	30	75	4	△

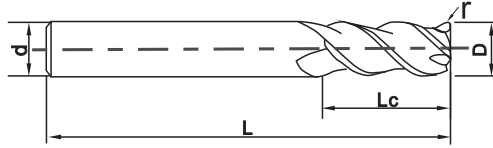
Tolerance: D≤12 -0.02~0 D>12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B95

Variable Lead Corner Radius End Mill(HRC48)



4 FLUTES CORNER RADIUS [2.5D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS120CR030-75-4F-2.5D	12	3.0	12	30	75	4	▲
TOTIME3538-MS120CR005-100-4F-2.5D	12	0.5	12	30	100	4	△
TOTIME3538-MS120CR010-100-4F-2.5D	12	1.0	12	30	100	4	△
TOTIME3538-MS120CR015-100-4F-2.5D	12	1.5	12	30	100	4	△
TOTIME3538-MS120CR020-100-4F-2.5D	12	2.0	12	30	100	4	△
TOTIME3538-MS120CR025-100-4F-2.5D	12	2.5	12	30	100	4	△
TOTIME3538-MS120CR030-100-4F-2.5D	12	3.0	12	30	100	4	△
TOTIME3538-MS160CR005-100-4F-2.5D	16	0.5	16	40	100	4	△
TOTIME3538-MS160CR010-100-4F-2.5D	16	1.0	16	40	100	4	▲
TOTIME3538-MS160CR015-100-4F-2.5D	16	1.5	16	40	100	4	△
TOTIME3538-MS160CR020-100-4F-2.5D	16	2.0	16	40	100	4	△
TOTIME3538-MS160CR025-100-4F-2.5D	16	2.5	16	40	100	4	△
TOTIME3538-MS160CR030-100-4F-2.5D	16	3.0	16	40	100	4	△
TOTIME3538-MS160CR005-150-4F-2.5D	16	0.5	16	40	150	4	△
TOTIME3538-MS160CR010-150-4F-2.5D	16	1.0	16	40	150	4	△
TOTIME3538-MS160CR015-150-4F-2.5D	16	1.5	16	40	150	4	△
TOTIME3538-MS160CR020-150-4F-2.5D	16	2.0	16	40	150	4	△
TOTIME3538-MS160CR025-150-4F-2.5D	16	2.5	16	40	150	4	△
TOTIME3538-MS160CR030-150-4F-2.5D	16	3.0	16	40	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B95

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

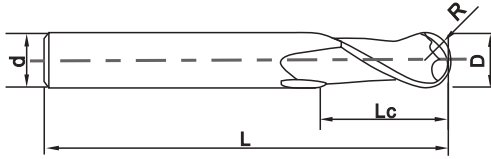
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Variable Lead Ball Nose End Mill(HRC48)



2 FLUTES BALL NOSE [2D]



	2Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS020B-50-2F-2D	2	1.0	4	4	50	2	▲
TOTIME3538-MS020B-75-2F-2D	2	1.0	4	4	75	2	△
TOTIME3538-MS030B-50-2F-2D	3	1.5	4	6	50	2	▲
TOTIME3538-MS030B-75-2F-2D	3	1.5	4	6	75	2	△
TOTIME3538-MS040B-50-2F-2D	4	2.0	4	8	50	2	▲
TOTIME3538-MS040B-75-2F-2D	4	2.0	4	8	75	2	△
TOTIME3538-MS050B-50-2F-2D	5	2.5	6	10	50	2	▲
TOTIME3538-MS050B-75-2F-2D	5	2.5	6	10	75	2	△
TOTIME3538-MS050B-100-2F-2D	5	2.5	6	10	100	2	△
TOTIME3538-MS060B-50-2F-2D	6	3.0	6	12	50	2	▲
TOTIME3538-MS060B-75-2F-2D	6	3.0	6	12	75	2	▲
TOTIME3538-MS060B-100-2F-2D	6	3.0	6	12	100	2	△
TOTIME3538-MS080B-60-2F-2D	8	4.0	8	16	60	2	▲
TOTIME3538-MS080B-75-2F-2D	8	4.0	8	16	75	2	△
TOTIME3538-MS080B-100-2F-2D	8	4.0	8	16	100	2	▲
TOTIME3538-MS100B-75-2F-2D	10	5.0	10	20	75	2	▲
TOTIME3538-MS100B-100-2F-2D	10	5.0	10	20	100	2	▲
TOTIME3538-MS120B-75-2F-2D	12	6.0	12	24	75	2	▲
TOTIME3538-MS120B-100-2F-2D	12	6.0	12	24	100	2	△
TOTIME3538-MS160B-100-2F-2D	16	8.0	16	32	100	2	△
TOTIME3538-MS160B-150-2F-2D	16	8.0	16	32	150	2	△
TOTIME3538-MS200B-100-2F-2D	20	10.0	20	40	100	2	△
TOTIME3538-MS200B-150-2F-2D	20	10.0	20	40	150	2	△

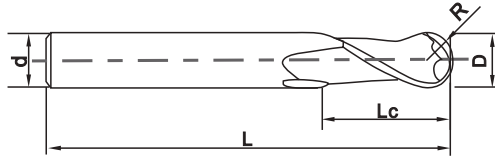
Tolerance: R ≤ 1.5 -0.01-0 1.5 < R < 3 -0.015-0 R ≥ 3 -0.02-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B96

Variable Lead Ball Nose End Mill(HRC48)



4 FLUTES BALL NOSE [1.5D]



	4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS040B-50-4F-1.5D	4	2.0	4	6.0	50	4	▲
TOTIME3538-MS040B-75-4F-1.5D	4	2.0	4	6.0	75	4	△
TOTIME3538-MS050B-50-4F-1.5D	5	2.5	6	7.5	50	4	▲
TOTIME3538-MS050B-75-4F-1.5D	5	2.5	6	7.5	75	4	△
TOTIME3538-MS050B-100-4F-1.5D	5	2.5	6	7.5	100	4	△
TOTIME3538-MS060B-50-4F-1.5D	6	3.0	6	9.0	50	4	▲
TOTIME3538-MS060B-75-4F-1.5D	6	3.0	6	9.0	75	4	△
TOTIME3538-MS060B-100-4F-1.5D	6	3.0	6	9.0	100	4	△
TOTIME3538-MS080B-60-4F-1.5D	8	4.0	8	12.0	60	4	▲
TOTIME3538-MS080B-75-4F-1.5D	8	4.0	8	12.0	75	4	△
TOTIME3538-MS080B-100-4F-1.5D	8	4.0	8	12.0	100	4	△
TOTIME3538-MS100B-75-4F-1.5D	10	5.0	10	15.0	75	4	▲
TOTIME3538-MS100B-100-4F-1.5D	10	5.0	10	15.0	100	4	△
TOTIME3538-MS120B-75-4F-1.5D	12	6.0	12	18.0	75	4	▲
TOTIME3538-MS120B-100-4F-1.5D	12	6.0	12	18.0	100	4	△
TOTIME3538-MS160B-100-4F-1.5D	16	8.0	16	24.0	100	4	△
TOTIME3538-MS160B-150-4F-1.5D	16	8.0	16	24.0	150	4	△
TOTIME3538-MS200B-100-4F-1.5D	20	10.0	20	30.0	100	4	△
TOTIME3538-MS200B-150-4F-1.5D	20	10.0	20	30.0	150	4	△

Tolerance: R ≤ 1.5 -0.01~0 1.5 < R < 3 -0.015~0 R ≥ 3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

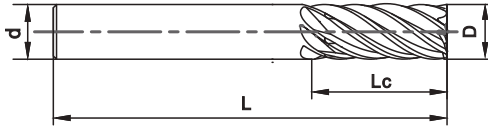
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Square End Mill (HRC48)



6 FLUTES SQUARE [1.5D]



	6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-6F-1.5D	8	8	12	60	6	▲
TOTIME38-MS080S-75-6F-1.5D	8	8	12	75	6	▲
TOTIME38-MS080S-100-6F-1.5D	8	8	12	100	6	▲
TOTIME38-MS100S-75-6F-1.5D	10	10	15	75	6	▲
TOTIME38-MS100S-100-6F-1.5D	10	10	15	100	6	▲
TOTIME38-MS120S-75-6F-1.5D	12	12	18	75	6	▲
TOTIME38-MS120S-100-6F-1.5D	12	12	18	100	6	▲
TOTIME38-MS160S-100-6F-1.5D	16	16	24	100	6	▲
TOTIME38-MS160S-150-6F-1.5D	16	16	24	150	6	▲
TOTIME38-MS200S-100-6F-1.5D	20	20	30	100	6	▲
TOTIME38-MS200S-150-6F-1.5D	20	20	30	150	6	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97



Carbide End Mill Cutter
For Stainless Steels, Heat Resistant Material, Titanium Alloys



Square End Mill (HRC48)



7 FLUTES SQUARE [1.5D]



	7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-7F-1.5D	8	8	12	60	7	▲
TOTIME38-MS080S-75-7F-1.5D	8	8	12	75	7	▲
TOTIME38-MS080S-100-7F-1.5D	8	8	12	100	7	▲
TOTIME38-MS100S-75-7F-1.5D	10	10	15	75	7	▲
TOTIME38-MS100S-100-7F-1.5D	10	10	15	100	7	▲
TOTIME38-MS120S-75-7F-1.5D	12	12	18	75	7	▲
TOTIME38-MS120S-100-7F-1.5D	12	12	18	100	7	▲
TOTIME38-MS160S-100-7F-1.5D	16	16	24	100	7	▲
TOTIME38-MS160S-150-7F-1.5D	16	16	24	150	7	▲
TOTIME38-MS200S-100-7F-1.5D	20	20	30	100	7	▲
TOTIME38-MS200S-150-7F-1.5D	20	20	30	150	7	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME38-MS
for Superalloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

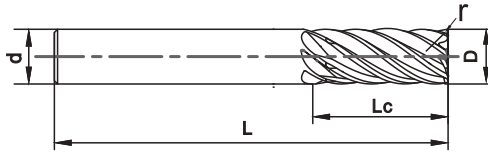
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Square End Mill (HRC48)



6 FLUTES SQUARE [2.5D]



	6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-6F-2.5D	8	8	20	60	6	▲
TOTIME38-MS080S-75-6F-2.5D	8	8	20	75	6	▲
TOTIME38-MS080S-100-6F-2.5D	8	8	20	100	6	▲
TOTIME38-MS100S-75-6F-2.5D	10	10	25	75	6	▲
TOTIME38-MS100S-100-6F-2.5D	10	10	25	100	6	▲
TOTIME38-MS120S-75-6F-2.5D	12	12	30	75	6	▲
TOTIME38-MS120S-100-6F-2.5D	12	12	30	100	6	▲
TOTIME38-MS160S-100-6F-2.5D	16	16	40	100	6	▲
TOTIME38-MS160S-150-6F-2.5D	16	16	40	150	6	▲
TOTIME38-MS200S-100-6F-2.5D	20	20	50	100	6	▲
TOTIME38-MS200S-150-6F-2.5D	20	20	50	150	6	▲

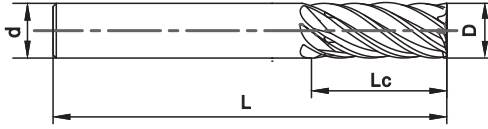
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

Square End Mill (HRC48)



7 FLUTES SQUARE [2.5D]



	7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
<input checked="" type="radio"/> 1st Recommendation <input type="radio"/> 2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-7F-2.5D	8	8	20	60	7	▲
TOTIME38-MS080S-75-7F-2.5D	8	8	20	75	7	▲
TOTIME38-MS080S-100-7F-2.5D	8	8	20	100	7	▲
TOTIME38-MS100S-75-7F-2.5D	10	10	25	75	7	▲
TOTIME38-MS100S-100-7F-2.5D	10	10	25	100	7	▲
TOTIME38-MS120S-75-7F-2.5D	12	12	30	75	7	▲
TOTIME38-MS120S-100-7F-2.5D	12	12	30	100	7	▲
TOTIME38-MS160S-100-7F-2.5D	16	16	40	100	7	▲
TOTIME38-MS160S-150-7F-2.5D	16	16	40	150	7	▲
TOTIME38-MS200S-100-7F-2.5D	20	20	50	100	7	▲
TOTIME38-MS200S-150-7F-2.5D	20	20	50	150	7	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME38-MS
for Superalloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

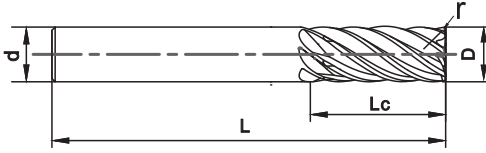
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Corner Radius End Mill (HRC48)



6 FLUTES CORNER RADIUS [1.5D]



	6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-6F-1.5D	8	0.2	8	12	60	6	▲
TOTIME38-MS080CR005-60-6F-1.5D	8	0.5	8	12	60	6	▲
TOTIME38-MS080CR010-60-6F-1.5D	8	1.0	8	12	60	6	▲
TOTIME38-MS080CR015-60-6F-1.5D	8	1.5	8	12	60	6	▲
TOTIME38-MS080CR020-60-6F-1.5D	8	2.0	8	12	60	6	▲
TOTIME38-MS100CR002-75-6F-1.5D	10	0.2	10	15	75	6	▲
TOTIME38-MS100CR005-75-6F-1.5D	10	0.5	10	15	75	6	▲
TOTIME38-MS100CR010-75-6F-1.5D	10	1.0	10	15	75	6	▲
TOTIME38-MS100CR015-75-6F-1.5D	10	1.5	10	15	75	6	▲
TOTIME38-MS100CR020-75-6F-1.5D	10	2.0	10	15	75	6	▲
TOTIME38-MS100CR030-75-6F-1.5D	10	3.0	10	15	75	6	▲
TOTIME38-MS120CR005-75-6F-1.5D	12	0.5	12	18	75	6	▲
TOTIME38-MS120CR010-75-6F-1.5D	12	1.0	12	18	75	6	▲
TOTIME38-MS120CR015-75-6F-1.5D	12	1.5	12	18	75	6	▲
TOTIME38-MS120CR020-75-6F-1.5D	12	2.0	12	18	75	6	▲
TOTIME38-MS120CR030-75-6F-1.5D	12	3.0	12	18	75	6	▲
TOTIME38-MS120CR005-100-6F-1.5D	12	0.5	12	18	100	6	▲
TOTIME38-MS120CR010-100-6F-1.5D	12	1.0	12	18	100	6	▲
TOTIME38-MS120CR015-100-6F-1.5D	12	1.5	12	18	100	6	▲
TOTIME38-MS120CR020-100-6F-1.5D	12	2.0	12	18	100	6	▲
TOTIME38-MS120CR030-100-6F-1.5D	12	3.0	12	18	100	6	▲
TOTIME38-MS160CR005-100-6F-1.5D	16	0.5	16	24	100	6	▲
TOTIME38-MS160CR010-100-6F-1.5D	16	1.0	16	24	100	6	▲
TOTIME38-MS160CR015-100-6F-1.5D	16	1.5	16	24	100	6	▲
TOTIME38-MS160CR020-100-6F-1.5D	16	2.0	16	24	100	6	▲
TOTIME38-MS160CR030-100-6F-1.5D	16	3.0	16	24	100	6	▲
TOTIME38-MS160CR005-150-6F-1.5D	16	0.5	16	24	150	6	▲
TOTIME38-MS160CR010-150-6F-1.5D	16	1.0	16	24	150	6	▲
TOTIME38-MS160CR015-150-6F-1.5D	16	1.5	16	24	150	6	▲
TOTIME38-MS160CR020-150-6F-1.5D	16	2.0	16	24	150	6	▲
TOTIME38-MS160CR030-150-6F-1.5D	16	3.0	16	24	150	6	▲

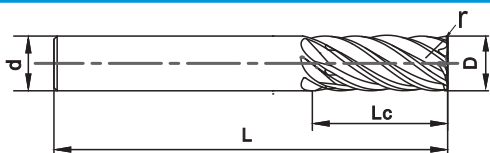
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

Corner Radius End Mill (HRC48)



7 FLUTES CORNER RADIUS [1.5D]



	7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-7F-1.5D	8	0.2	8	12	60	7	▲
TOTIME38-MS080CR005-60-7F-1.5D	8	0.5	8	12	60	7	▲
TOTIME38-MS080CR010-60-7F-1.5D	8	1.0	8	12	60	7	▲
TOTIME38-MS080CR015-60-7F-1.5D	8	1.5	8	12	60	7	▲
TOTIME38-MS080CR020-60-7F-1.5D	8	2.0	8	12	60	7	▲
TOTIME38-MS100CR002-75-7F-1.5D	10	0.2	10	15	75	7	▲
TOTIME38-MS100CR005-75-7F-1.5D	10	0.5	10	15	75	7	▲
TOTIME38-MS100CR010-75-7F-1.5D	10	1.0	10	15	75	7	▲
TOTIME38-MS100CR015-75-7F-1.5D	10	1.5	10	15	75	7	▲
TOTIME38-MS100CR020-75-7F-1.5D	10	2.0	10	15	75	7	▲
TOTIME38-MS100CR030-75-7F-1.5D	10	3.0	10	15	75	7	▲
TOTIME38-MS120CR005-75-7F-1.5D	12	0.5	12	18	75	7	▲
TOTIME38-MS120CR010-75-7F-1.5D	12	1.0	12	18	75	7	▲
TOTIME38-MS120CR015-75-7F-1.5D	12	1.5	12	18	75	7	▲
TOTIME38-MS120CR020-75-7F-1.5D	12	2.0	12	18	75	7	▲
TOTIME38-MS120CR030-75-7F-1.5D	12	3.0	12	18	75	7	▲
TOTIME38-MS120CR005-100-7F-1.5D	12	0.5	12	18	100	7	▲
TOTIME38-MS120CR010-100-7F-1.5D	12	1.0	12	18	100	7	▲
TOTIME38-MS120CR015-100-7F-1.5D	12	1.5	12	18	100	7	▲
TOTIME38-MS120CR020-100-7F-1.5D	12	2.0	12	18	100	7	▲
TOTIME38-MS120CR030-100-7F-1.5D	12	3.0	12	18	100	7	▲
TOTIME38-MS160CR005-100-7F-1.5D	16	0.5	16	24	100	7	▲
TOTIME38-MS160CR010-100-7F-1.5D	16	1.0	16	24	100	7	▲
TOTIME38-MS160CR015-100-7F-1.5D	16	1.5	16	24	100	7	▲
TOTIME38-MS160CR020-100-7F-1.5D	16	2.0	16	24	100	7	▲
TOTIME38-MS160CR030-100-7F-1.5D	16	3.0	16	24	100	7	▲
TOTIME38-MS160CR005-150-7F-1.5D	16	0.5	16	24	150	7	▲
TOTIME38-MS160CR010-150-7F-1.5D	16	1.0	16	24	150	7	▲
TOTIME38-MS160CR015-150-7F-1.5D	16	1.5	16	24	150	7	▲
TOTIME38-MS160CR020-150-7F-1.5D	16	2.0	16	24	150	7	▲
TOTIME38-MS160CR030-150-7F-1.5D	16	3.0	16	24	150	7	▲

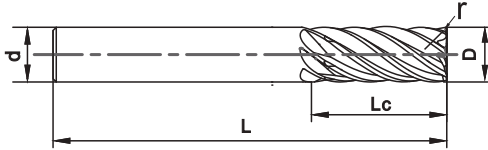
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

Corner Radius End Mill (HRC48)



6 FLUTES CORNER RADIUS [2.5D]



	6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-6F-2.5D	8	0.2	8	20	60	6	▲
TOTIME38-MS080CR005-60-6F-2.5D	8	0.5	8	20	60	6	▲
TOTIME38-MS080CR010-60-6F-2.5D	8	1.0	8	20	60	6	▲
TOTIME38-MS080CR015-60-6F-2.5D	8	1.5	8	20	60	6	▲
TOTIME38-MS080CR020-60-6F-2.5D	8	2.0	8	20	60	6	▲
TOTIME38-MS100CR002-75-6F-2.5D	10	0.2	10	25	75	6	▲
TOTIME38-MS100CR005-75-6F-2.5D	10	0.5	10	25	75	6	▲
TOTIME38-MS100CR010-75-6F-2.5D	10	1.0	10	25	75	6	▲
TOTIME38-MS100CR015-75-6F-2.5D	10	1.5	10	25	75	6	▲
TOTIME38-MS100CR020-75-6F-2.5D	10	2.0	10	25	75	6	▲
TOTIME38-MS100CR030-75-6F-2.5D	10	3.0	10	25	75	6	▲
TOTIME38-MS120CR005-75-6F-2.5D	12	0.5	12	30	75	6	▲
TOTIME38-MS120CR010-75-6F-2.5D	12	1.0	12	30	75	6	▲
TOTIME38-MS120CR015-75-6F-2.5D	12	1.5	12	30	75	6	▲
TOTIME38-MS120CR020-75-6F-2.5D	12	2.0	12	30	75	6	▲
TOTIME38-MS120CR030-75-6F-2.5D	12	3.0	12	30	75	6	▲
TOTIME38-MS120CR005-100-6F-2.5D	12	0.5	12	30	100	6	▲
TOTIME38-MS120CR010-100-6F-2.5D	12	1.0	12	30	100	6	▲
TOTIME38-MS120CR015-100-6F-2.5D	12	1.5	12	30	100	6	▲
TOTIME38-MS120CR020-100-6F-2.5D	12	2.0	12	30	100	6	▲
TOTIME38-MS120CR030-100-6F-2.5D	12	3.0	12	30	100	6	▲
TOTIME38-MS160CR005-100-6F-2.5D	16	0.5	16	40	100	6	▲
TOTIME38-MS160CR010-100-6F-2.5D	16	1.0	16	40	100	6	▲
TOTIME38-MS160CR015-100-6F-2.5D	16	1.5	16	40	100	6	▲
TOTIME38-MS160CR020-100-6F-2.5D	16	2.0	16	40	100	6	▲
TOTIME38-MS160CR030-100-6F-2.5D	16	3.0	16	40	100	6	▲
TOTIME38-MS160CR005-150-6F-2.5D	16	0.5	16	40	150	6	▲
TOTIME38-MS160CR010-150-6F-2.5D	16	1.0	16	40	150	6	▲
TOTIME38-MS160CR015-150-6F-2.5D	16	1.5	16	40	150	6	▲
TOTIME38-MS160CR020-150-6F-2.5D	16	2.0	16	40	150	6	▲
TOTIME38-MS160CR030-150-6F-2.5D	16	3.0	16	40	150	6	▲

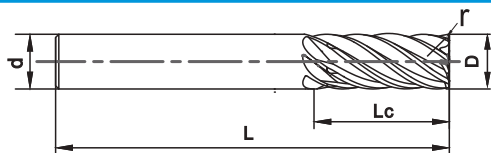
Tolerance: D ≤ 12 -0.02-0 D > 12 -0.03-0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

Corner Radius End Mill (HRC48)



7 FLUTES CORNER RADIUS [2.5D]



	7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-7F-2.5D	8	0.2	8	20	60	7	▲
TOTIME38-MS080CR005-60-7F-2.5D	8	0.5	8	20	60	7	▲
TOTIME38-MS080CR010-60-7F-2.5D	8	1.0	8	20	60	7	▲
TOTIME38-MS080CR015-60-7F-2.5D	8	1.5	8	20	60	7	▲
TOTIME38-MS080CR020-60-7F-2.5D	8	2.0	8	20	60	7	▲
TOTIME38-MS100CR002-75-7F-2.5D	10	0.2	10	25	75	7	▲
TOTIME38-MS100CR005-75-7F-2.5D	10	0.5	10	25	75	7	▲
TOTIME38-MS100CR010-75-7F-2.5D	10	1.0	10	25	75	7	▲
TOTIME38-MS100CR015-75-7F-2.5D	10	1.5	10	25	75	7	▲
TOTIME38-MS100CR020-75-7F-2.5D	10	2.0	10	25	75	7	▲
TOTIME38-MS100CR030-75-7F-2.5D	10	3.0	10	25	75	7	▲
TOTIME38-MS120CR005-75-7F-2.5D	12	0.5	12	30	75	7	▲
TOTIME38-MS120CR010-75-7F-2.5D	12	1.0	12	30	75	7	▲
TOTIME38-MS120CR015-75-7F-2.5D	12	1.5	12	30	75	7	▲
TOTIME38-MS120CR020-75-7F-2.5D	12	2.0	12	30	75	7	▲
TOTIME38-MS120CR030-75-7F-2.5D	12	3.0	12	30	75	7	▲
TOTIME38-MS120CR005-100-7F-2.5D	12	0.5	12	30	100	7	▲
TOTIME38-MS120CR010-100-7F-2.5D	12	1.0	12	30	100	7	▲
TOTIME38-MS120CR015-100-7F-2.5D	12	1.5	12	30	100	7	▲
TOTIME38-MS120CR020-100-7F-2.5D	12	2.0	12	30	100	7	▲
TOTIME38-MS120CR030-100-7F-2.5D	12	3.0	12	30	100	7	▲
TOTIME38-MS160CR005-100-7F-2.5D	16	0.5	16	40	100	7	▲
TOTIME38-MS160CR010-100-7F-2.5D	16	1.0	16	40	100	7	▲
TOTIME38-MS160CR015-100-7F-2.5D	16	1.5	16	40	100	7	▲
TOTIME38-MS160CR020-100-7F-2.5D	16	2.0	16	40	100	7	▲
TOTIME38-MS160CR030-100-7F-2.5D	16	3.0	16	40	100	7	▲
TOTIME38-MS160CR005-150-7F-2.5D	16	0.5	16	40	150	7	▲
TOTIME38-MS160CR010-150-7F-2.5D	16	1.0	16	40	150	7	▲
TOTIME38-MS160CR015-150-7F-2.5D	16	1.5	16	40	150	7	▲
TOTIME38-MS160CR020-150-7F-2.5D	16	2.0	16	40	150	7	▲
TOTIME38-MS160CR030-150-7F-2.5D	16	3.0	16	40	150	7	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B97

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME38-MS
for Superalloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

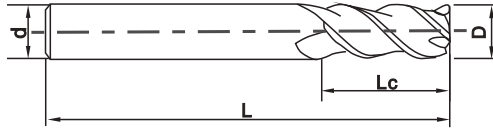
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Variable Lead U-shaped Groove Square End Mill(HRC48)



4 FLUTES SQUARE



	4Flutes	Cobalt 10%	HRC 48	TiSiN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock
TU45-010S-50-4F	1.0	4	3.0	50	4	▲
TU45-015S-50-4F	1.5	4	4.5	50	4	▲
TU45-020S-50-4F	2.0	4	6.0	50	4	▲
TU45-025S-50-4F	2.5	4	7.5	50	4	▲
TU45-030S-03-50-4F	3.0	3	9.0	50	4	▲
TU45-030S-04-50-4F	3.0	4	9.0	50	4	▲
TU45-030S-06-50-4F	3.0	6	9.0	50	4	▲
TU45-035S-50-4F	3.5	4	10.5	50	4	▲
TU45-040S-04-50-4F	4.0	4	12.0	50	4	▲
TU45-040S-06-50-4F	4.0	6	12.0	50	4	▲
TU45-040S-75-4F	4.0	4	12.0	75	4	▲
TU45-040S-100-4F	4.0	4	12.0	100	4	▲
TU45-050S-50-4F	5.0	6	15.0	50	4	▲
TU45-060S-50-4F	6.0	6	18.0	50	4	▲
TU45-060S-75-4F	6.0	6	18.0	75	4	▲
TU45-060S-100-4F	6.0	6	18.0	100	4	▲
TU45-080S-60-4F	8.0	8	24.0	60	4	▲
TU45-080S-75-4F	8.0	8	24.0	75	4	▲
TU45-080S-100-4F	8.0	8	24.0	100	4	▲
TU45-080S-150-4F	8.0	8	24.0	150	4	▲
TU45-100S-75-4F	10.0	10	30.0	75	4	▲
TU45-100S-100-4F	10.0	10	30.0	100	4	▲
TU45-100S-150-4F	10.0	10	30.0	150	4	▲
TU45-120S-75-4F	12.0	12	30.0	75	4	▲
TU45-120S-100-4F	12.0	12	30.0	100	4	▲
TU45-120S-150-4F	12.0	12	30.0	150	4	▲
TU45-160S-100-4F	16.0	16	48.0	100	4	▲

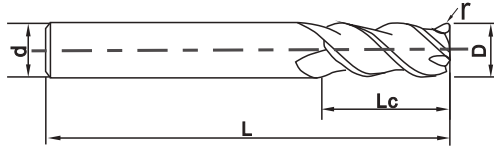
Tolerance: D ≤ 12 0-02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B106

Variable Lead Double-core End Mill(HRC48)



4 FLUTES CORNER RADIUS



	4Flutes	Cobalt 10%	HRC 48	AlTiN Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D (mm)	r (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock
TD3941-040CR002-50-4F	4	0.2	4	10	50	4	▲
TD3941-060CR002-50-4F	6	0.2	6	15	50	4	▲
TD3941-080CR002-60-4F	8	0.2	8	20	60	4	▲
TD3941-100CR002-75-4F	10	0.2	10	25	75	4	▲
TD3941-120CR002-75-4F	12	0.2	12	30	75	4	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

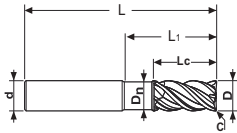
▲ Stock △ Non-Stock
Recommended Cutting Conditions B109

TOTIME48 for General Steels Cast Irons
TOTIME3538 for General Steels Cast Irons
TOTIME3638 for Stainless Steels
TOTIME3538 for Stainless Steels Titanium Alloys
TU45 for General Steels Cast Irons
TD3941 for General Steels Cast Irons
TOTIME48S/L for General Steels
TOTIME48-E for General Steels

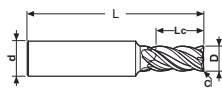
Variable Lead Square End Mill(HRC48)



4 FLUTES SQUARE



Type E



Type F



Form HB



Form HA

	4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	DIN6535 HA/HB	D(mm)	d(mm)	Dn(mm)	Lc(mm)	L1(mm)	L(mm)	CX45° (mm)	Flutes	Type
TOTIME48S-010SC-40-4F-HA	HA	1	4	-	1.5	-	40	0.025	4	F
TOTIME48L-010SC-40-4F-HA	HA	1	4	-	2.5	-	40	0.025	4	F
TOTIME48S-020SC-04-40-4F-HA	HA	2	4	-	3	-	40	0.050	4	F
TOTIME48L-020SC-04-40-4F-HA	HA	2	4	-	4	-	40	0.050	4	F
TOTIME48L-020SC-06-50-4F-HA	HA	2	6	-	4	-	50	0.050	4	F
TOTIME48S-030SC-04-40-4F-HA	HA	3	4	2.8	4	6	40	0.075	4	E
TOTIME48L-030SC-04-40-4F-HA	HA	3	4	2.8	6	9	40	0.075	4	E
TOTIME48L-030SC-06-50-4F-HA	HA	3	6	2.8	6	9	50	0.075	4	E
TOTIME48S-040SC-50-4F-HA/HB	HA/HB	4	6	3.8	5	8	50	0.100	4	E
TOTIME48L-040SC-50-4F-HA/HB	HA/HB	4	6	-	8	-	50	0.100	4	F
TOTIME48L-040SC-54-4F-HA/HB	HA/HB	4	6	3.8	8	12	54	0.100	4	E
TOTIME48S-050SC-50-4F-HA/HB	HA/HB	5	6	4.8	6	10	50	0.150	4	E
TOTIME48L-050SC-54-4F-HA/HB	HA/HB	5	6	4.8	10	15	54	0.150	4	E
TOTIME48S-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	7	16	54	0.200	4	E
TOTIME48L-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	13	19	54	0.200	4	E
TOTIME48S-080SC-58-4F-HA/HB	HA/HB	8	8	7.7	9	20	58	0.200	4	E
TOTIME48L-080SC-63-4F-HA/HB	HA/HB	8	8	7.7	19	27	63	0.200	4	E
TOTIME48S-100SC-65-4F-HA/HB	HA/HB	10	10	9.7	11	24	65	0.200	4	E
TOTIME48L-100SC-72-4F-HA/HB	HA/HB	10	10	9.7	22	32	72	0.200	4	E
TOTIME48S-120SC-73-4F-HA/HB	HA/HB	12	12	11.7	12	26	73	0.200	4	E
TOTIME48L-120SC-82-4F-HA/HB	HA/HB	12	12	11.7	26	38	82	0.200	4	E
TOTIME48S-140SC-75-4F-HA/HB	HA/HB	14	14	13.7	14	28	75	0.300	4	E
TOTIME48L-140SC-82-4F-HA/HB	HA/HB	14	14	13.7	26	38	82	0.300	4	E
TOTIME48S-160SC-82-4F-HA/HB	HA/HB	16	16	15.7	16	32	82	0.300	4	E
TOTIME48L-160SC-92-4F-HA/HB	HA/HB	16	16	15.7	32	44	92	0.300	4	E
TOTIME48S-180SC-82-4F-HA/HB	HA/HB	18	18	17.7	18	32	82	0.300	4	E
TOTIME48L-180SC-92-4F-HA/HB	HA/HB	18	18	17.7	32	44	92	0.300	4	E
TOTIME48S-200SC-92-4F-HA/HB	HA/HB	20	20	19.7	20	40	92	0.300	4	E
TOTIME48L-200SC-104-4F-HA/HB	HA/HB	20	20	19.7	38	50	104	0.300	4	E

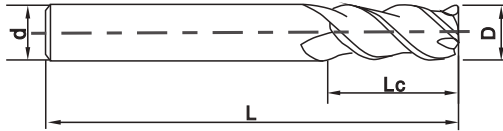
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0
Customized Non-standard End Mill Size is Available.

Recommended Cutting Conditions B107

Variable Lead Square End Mill(HRC48)



4 FLUTES SQUARE [Inch]



	4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5µm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation					
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys	
<HRC35	<HRC48	HRC48-55	HRC55-60				
●	●			○	●		

Order No.	D(in)		d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125S-015-4F	1/8	0.125	0.125	0.313	1.500	4	▲
TOTIME48-E0187S-020-4F	3/16	0.187	0.187	0.469	2.000	4	▲
TOTIME48-E0250S-025-4F	1/4	0.250	0.250	0.531	2.500	4	▲
TOTIME48-E0375S-030-4F	3/8	0.375	0.375	0.844	3.000	4	▲
TOTIME48-E0500S-035-4F	1/2	0.500	0.500	1.094	3.500	4	▲
TOTIME48-E0625S-040-4F	5/8	0.625	0.625	1.313	4.000	4	▲
TOTIME48-E0750S-040-4F	3/4	0.750	0.750	1.563	4.000	4	▲
TOTIME48-E1000S-050-4F	1	1.000	1.000	2.094	5.000	4	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0
Customized Non-standard End Mill Size is Available.

▲ Stock △ Non-Stock
Recommended Cutting Conditions B107

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

TD3941
for General Steels
Cast Irons

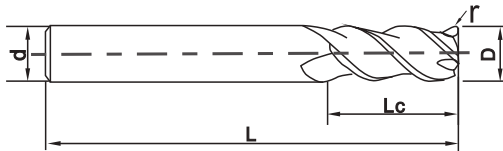
TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Variable Lead Corner Radius End Mill(HRC48)



4 FLUTES CORNER RADIUS [Inch]



	4 Flutes	Cobalt 10%	HRC 48	AICrN Coating	UMG 0.5µm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation					
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys	
<HRC35	<HRC48	HRC48-55	HRC55-60				
●	●			○	●		

Order No.	D(in)	r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125CR015-015-4F	1/8	0.125	0.015	0.125	0.313	1.500	4 ▲
TOTIME48-E0187CR015-020-4F	3/16	0.187	0.015	0.187	0.438	2.000	4 ▲
TOTIME48-E0250CR015-025-4F	1/4	0.250	0.015	0.250	0.625	2.500	4 ▲
TOTIME48-E0250CR030-025-4F	1/4	0.250	0.030	0.250	0.625	2.500	4 ▲
TOTIME48-E0375CR015-025-4F	3/8	0.375	0.015	0.375	0.875	2.500	4 ▲
TOTIME48-E0375CR030-025-4F	3/8	0.375	0.030	0.375	0.875	2.500	4 ▲
TOTIME48-E0500CR015-030-4F	1/2	0.500	0.015	0.500	1.125	3.000	4 ▲
TOTIME48-E0500CR030-030-4F	1/2	0.500	0.030	0.500	1.125	3.000	4 ▲
TOTIME48-E0500CR060-030-4F	1/2	0.500	0.060	0.500	1.125	3.000	4 ▲
TOTIME48-E0625CR030-035-4F	5/8	0.625	0.030	0.625	1.313	3.500	4 ▲
TOTIME48-E0625CR060-035-4F	5/8	0.625	0.060	0.625	1.313	3.500	4 ▲
TOTIME48-E0750CR030-040-4F	3/4	0.750	0.030	0.750	1.625	4.000	4 ▲
TOTIME48-E0750CR060-040-4F	3/4	0.750	0.060	0.750	1.625	4.000	4 ▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0
Customized Non-standard End Mill Size is Available.

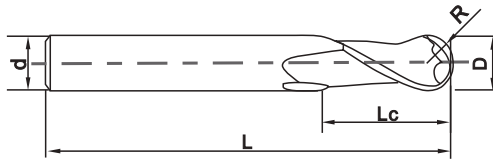
▲ Stock △ Non-Stock
Recommended Cutting Conditions B107



Ball Nose End Mill(HRC48)



2 FLUTES BALL NOSE [Inch]



2 Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5µm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-2F	1/16	0.063	0.031	0.250	0.125	2.000	2	▲
TOTIME48-E0094B-020-2F	3/32	0.094	0.047	0.250	0.188	2.000	2	▲
TOTIME48-E0125B-020-2F	1/8	0.125	0.063	0.250	0.250	2.000	2	▲
TOTIME48-E0187B-020-2F	3/16	0.187	0.094	0.250	0.375	2.000	2	▲
TOTIME48-E0250B-020-2F	1/4	0.250	0.125	0.250	0.500	2.000	2	▲
TOTIME48-E0375B-025-2F	3/8	0.375	0.187	0.375	0.750	2.500	2	▲
TOTIME48-E0500B-030-2F	1/2	0.500	0.250	0.500	1.000	3.000	2	▲
TOTIME48-E0625B-035-2F	5/8	0.625	0.313	0.625	1.250	3.500	2	▲
TOTIME48-E0750B-040-2F	3/4	0.750	0.375	0.750	1.500	4.000	2	▲

Tolerance: $R \leq 1.5$ -0.01~0 $1.5 < R < 3$ -0.015~0 $R \geq 3$ -0.02~0
Customized Non-standard End Mill Size is Available.

▲ Stock △ Non-Stock
Recommended Cutting Conditions B104

TOTIME48
for General Steels
Cast Irons

TOTIME3538
for General Steels
Cast Irons

TOTIME3638
for Stainless Steels

TOTIME3538
for Stainless Steels
Titanium Alloys

TU45
for General Steels
Cast Irons

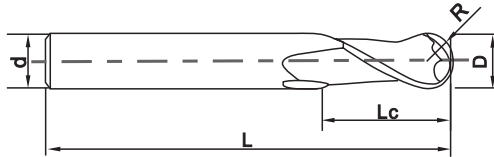
TD3941
for General Steels
Cast Irons

TOTIME48S/L
for General Steels

TOTIME48-E
for General Steels

Ball Nose End Mill(HRC48)

4 FLUTES BALL NOSE [Inch]



	4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)	r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-4F	1/16	0.063	0.031	0.250	0.125	2.000	4 ▲
TOTIME48-E0094B-020-4F	3/32	0.094	0.047	0.250	0.188	2.000	4 ▲
TOTIME48-E0125B-020-4F	1/8	0.125	0.063	0.250	0.250	2.000	4 ▲
TOTIME48-E0187B-020-4F	3/16	0.187	0.094	0.250	0.375	2.000	4 ▲
TOTIME48-E0250B-020-4F	1/4	0.250	0.125	0.250	0.500	2.000	4 ▲
TOTIME48-E0375B-025-4F	3/8	0.375	0.187	0.375	0.750	2.500	4 ▲
TOTIME48-E0500B-030-4F	1/2	0.500	0.250	0.500	1.000	3.000	4 ▲
TOTIME48-E0625B-035-4F	5/8	0.625	0.313	0.625	1.250	3.500	4 ▲
TOTIME48-E0750B-040-4F	3/4	0.750	0.375	0.750	1.500	4.000	4 ▲

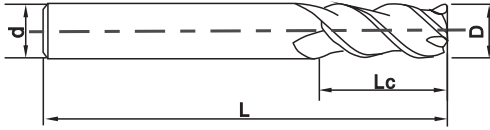
Tolerance: R ≤ 1.5 -0.01~0 1.5 < R < 3 -0.015~0 R ≥ 3 -0.02~0
Customized Non-standard End Mill Size is Available.

▲ Stock △ Non-Stock
Recommended Cutting Conditions B110

Cermet Square End Mill(HRC48)



4 FLUTES SQUARE



	4Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet
● 1st Recommendation ○ 2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040S-50-4F	4	4	10	50	4	▲
TCM45-040S-75-4F	4	4	12	75	4	▲
TCM45-050S-50-4F	5	5	12.5	50	4	▲
TCM45-060S-50-4F	6	6	15	50	4	▲
TCM45-060S-75-4F	6	6	18	75	4	▲
TCM45-080S-60-4F	8	8	20	60	4	▲
TCM45-080S-75-4F	8	8	24	75	4	▲
TCM45-080S-100-4F	8	8	24	100	4	▲
TCM45-100S-75-4F	10	10	25	75	4	▲
TCM45-100S-100-4F	10	10	30	100	4	▲
TCM45-120S-75-4F	12	12	30	75	4	▲
TCM45-120S-100-4F	12	12	30	100	4	▲
TCM45-160S-100-4F	16	16	50	100	4	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B108

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

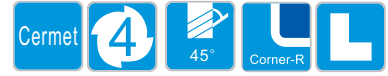
TDIA
for Graphite

TCM45
for General Steels

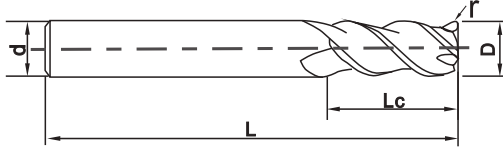
ZSTNB/ZSTNR
for General Steels
Die Steels

CBN
High Hardness
Materials

Cermet Corner Radius End Mill(HRC48)



4 FLUTES CORNER RADIUS



	4Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040CR002-50-4F	4	0.2	4	10	50	4	▲
TCM45-040CR005-50-4F	4	0.5	4	10	50	4	▲
TCM45-040CR010-50-4F	4	1.0	4	10	50	4	▲
TCM45-050CR002-50-4F	5	0.2	5	12.5	50	4	▲
TCM45-050CR005-50-4F	5	0.5	5	12.5	50	4	▲
TCM45-060CR002-50-4F	6	0.2	6	15	50	4	▲
TCM45-060CR005-50-4F	6	0.5	6	15	50	4	▲
TCM45-060CR010-50-4F	6	1.0	6	15	50	4	▲
TCM45-060CR002-75-4F	6	0.2	6	18	75	4	▲
TCM45-060CR005-75-4F	6	0.5	6	18	75	4	▲
TCM45-060CR010-75-4F	6	1.0	6	18	75	4	▲
TCM45-080CR002-60-4F	8	0.2	8	20	60	4	▲
TCM45-080CR005-60-4F	8	0.5	8	20	60	4	▲
TCM45-080CR010-60-4F	8	1.0	8	20	60	4	▲
TCM45-080CR002-75-4F	8	0.2	8	24	75	4	▲
TCM45-080CR005-75-4F	8	0.5	8	24	75	4	▲
TCM45-080CR010-75-4F	8	1.0	8	24	75	4	▲
TCM45-080CR002-100-4F	8	0.2	8	24	100	4	▲
TCM45-080CR005-100-4F	8	0.5	8	24	100	4	▲
TCM45-080CR010-100-4F	8	1.0	8	24	100	4	▲
TCM45-100CR002-75-4F	10	0.2	10	25	75	4	▲
TCM45-100CR005-75-4F	10	0.5	10	25	75	4	▲
TCM45-100CR010-75-4F	10	1.0	10	25	75	4	▲
TCM45-100CR005-100-4F	10	0.5	10	30	100	4	▲
TCM45-100CR010-100-4F	10	1.0	10	30	100	4	▲
TCM45-120CR005-75-4F	12	0.5	12	30	75	4	▲
TCM45-120CR010-75-4F	12	1.0	12	30	75	4	▲
TCM45-120CR005-100-4F	12	0.5	12	30	100	4	▲
TCM45-120CR010-100-4F	12	1.0	12	30	100	4	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B108

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-Ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

TCM45
for General Steels

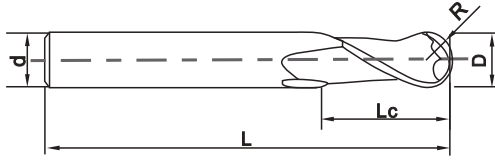
ZSTN/ZSTNR
for General Steels
Die Steels

CBN
High Hardness
Materials

Cermet Ball Nose End Mill(HRC48)



2 FLUTES BALL NOSE



	2 Flutes	Cobalt 0%	HRC 48	No Coating	UMG —	Materials Cermet
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040B-50-2F	4	2.0	4	8	50	2	▲
TCM45-050B-50-2F	5	2.5	5	10	50	2	▲
TCM45-060B-50-2F	6	3.0	6	12	50	2	▲
TCM45-060B-75-2F	6	3.0	6	12	75	2	▲
TCM45-080B-60-2F	8	4.0	8	16	60	2	▲
TCM45-080B-75-2F	8	4.0	8	16	75	2	▲
TCM45-100B-75-2F	10	5.0	10	20	75	2	▲
TCM45-100B-100-2F	10	5.0	10	20	100	2	▲
TCM45-120B-75-2F	12	6.0	12	24	75	2	▲
TCM45-120B-100-2F	12	6.0	12	24	100	2	▲

Tolerance: R ≤ 1.5 -0.01~0 1.5 < R < 3 -0.015~0 R ≥ 3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B109

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

TCM45
for General Steels

ZSTNB/ZSTNR
for General Steels
Die Steels

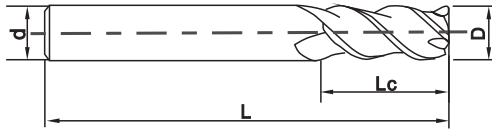
CBN
High Hardness
Materials



High Speed and High Hardness Square End Mill(HRC65)



4 FLUTES SQUARE [2.5D]



	4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME65-H015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME65-H020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME65-H030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME65-H040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME65-H040S-75-4F-2.5D	4.0	4	10.0	75	4	▲
TOTIME65-H050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME65-H060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME65-H060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME65-H060S-100-4F-2.5D	6.0	6	15.0	100	4	▲
TOTIME65-H080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME65-H080S-75-4F-2.5D	8.0	8	20.0	75	4	▲
TOTIME65-H080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME65-H100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME65-H100S-100-4F-2.5D	10.0	10	25.0	100	4	▲
TOTIME65-H120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME65-H120S-100-4F-2.5D	12.0	12	30.0	100	4	▲
TOTIME65-H160S-100-4F-2.5D	16.0	16	40.0	100	4	△
TOTIME65-H160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME65-H200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

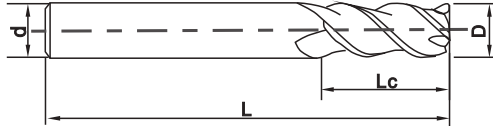
▲ Stock △ Non-Stock
Recommended Cutting Conditions B100



High Speed and High Hardness Square End Mill(HRC65)



4 FLUTES SQUARE [3D]



	4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-3D	1.0	4	3.0	50	4	△
TOTIME65-H015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME65-H020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME65-H030S-50-4F-3D	3.0	4	9.0	50	4	△
TOTIME65-H040S-50-4F-3D	4.0	4	12.0	50	4	▲
TOTIME65-H040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME65-H050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME65-H060S-50-4F-3D	6.0	6	18.0	50	4	▲
TOTIME65-H060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME65-H060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME65-H080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME65-H080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME65-H080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME65-H100S-75-4F-3D	10.0	10	30.0	75	4	▲
TOTIME65-H100S-100-4F-3D	10.0	10	30.0	100	4	△
TOTIME65-H120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME65-H120S-100-4F-3D	12.0	12	36.0	100	4	△
TOTIME65-H160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME65-H160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME65-H200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

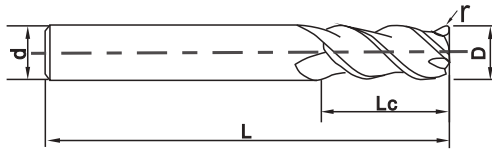
▲ Stock △ Non-Stock
Recommended Cutting Conditions B100



High Speed and High Hardness Corner Radius End Mill(HRC65)



4 FLUTES CORNER RADIUS [2D]



	4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010CR001-50-4F-2D	1.0	0.1	4	2	50	4	▲
TOTIME65-H010CR002-50-4F-2D	1.0	0.2	4	2	50	4	▲
TOTIME65-H015CR001-50-4F-2D	1.5	0.1	4	3	50	4	▲
TOTIME65-H015CR002-50-4F-2D	1.5	0.2	4	3	50	4	▲
TOTIME65-H020CR001-50-4F-2D	2.0	0.1	4	4	50	4	▲
TOTIME65-H020CR002-50-4F-2D	2.0	0.2	4	4	50	4	▲
TOTIME65-H020CR005-50-4F-2D	2.0	0.5	4	4	50	4	▲
TOTIME65-H030CR001-50-4F-2D	3.0	0.1	4	6	50	4	△
TOTIME65-H030CR002-50-4F-2D	3.0	0.2	4	6	50	4	▲
TOTIME65-H030CR003-50-4F-2D	3.0	0.3	4	6	50	4	△
TOTIME65-H030CR005-50-4F-2D	3.0	0.5	4	6	50	4	▲
TOTIME65-H040CR002-50-4F-2D	4.0	0.2	4	8	50	4	▲
TOTIME65-H040CR003-50-4F-2D	4.0	0.3	4	8	50	4	▲
TOTIME65-H040CR005-50-4F-2D	4.0	0.5	4	8	50	4	▲
TOTIME65-H040CR010-50-4F-2D	4.0	1.0	4	8	50	4	△
TOTIME65-H050CR002-50-4F-2D	5.0	0.2	6	10	50	4	△
TOTIME65-H050CR003-50-4F-2D	5.0	0.3	6	10	50	4	△
TOTIME65-H050CR005-50-4F-2D	5.0	0.5	6	10	50	4	▲
TOTIME65-H050CR010-50-4F-2D	5.0	1.0	6	10	50	4	△
TOTIME65-H060CR002-50-4F-2D	6.0	0.2	6	12	50	4	▲
TOTIME65-H060CR003-50-4F-2D	6.0	0.3	6	12	50	4	▲
TOTIME65-H060CR005-50-4F-2D	6.0	0.5	6	12	50	4	▲
TOTIME65-H060CR010-50-4F-2D	6.0	1.0	6	12	50	4	▲
TOTIME65-H060CR015-50-4F-2D	6.0	1.5	6	12	50	4	△
TOTIME65-H060CR002-75-4F-2D	6.0	0.2	6	12	75	4	▲
TOTIME65-H060CR003-75-4F-2D	6.0	0.3	6	12	75	4	△
TOTIME65-H060CR005-75-4F-2D	6.0	0.5	6	12	75	4	▲
TOTIME65-H060CR010-75-4F-2D	6.0	1.0	6	12	75	4	▲
TOTIME65-H060CR015-75-4F-2D	6.0	1.5	6	12	75	4	△
TOTIME65-H080CR003-60-4F-2D	8.0	0.3	8	16	60	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B100

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

Micro Diameter
for General Purpose

ZSTNB/ZSTNR
for General Steels
Die Steels

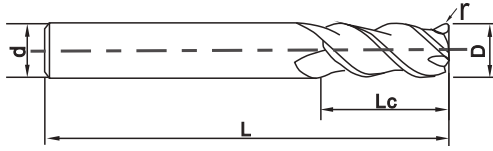
CBN
High Hardness
Materials



High Speed and High Hardness Corner Radius End Mill(HRC65)



4 FLUTES CORNER RADIUS [2D]



	4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H080CR005-60-4F-2D	8	0.5	8	16	60	4	▲
TOTIME65-H080CR010-60-4F-2D	8	1.0	8	16	60	4	▲
TOTIME65-H080CR015-60-4F-2D	8	1.5	8	16	60	4	△
TOTIME65-H080CR020-60-4F-2D	8	2.0	8	16	60	4	△
TOTIME65-H080CR003-75-4F-2D	8	0.3	8	16	75	4	△
TOTIME65-H080CR005-75-4F-2D	8	0.5	8	16	75	4	▲
TOTIME65-H080CR010-75-4F-2D	8	1.0	8	16	75	4	▲
TOTIME65-H080CR015-75-4F-2D	8	1.5	8	16	75	4	△
TOTIME65-H080CR020-75-4F-2D	8	2.0	8	16	75	4	△
TOTIME65-H100CR002-75-4F-2D	10	0.2	10	20	75	4	△
TOTIME65-H100CR003-75-4F-2D	10	0.3	10	20	75	4	△
TOTIME65-H100CR005-75-4F-2D	10	0.5	10	20	75	4	▲
TOTIME65-H100CR010-75-4F-2D	10	1.0	10	20	75	4	▲
TOTIME65-H100CR015-75-4F-2D	10	1.5	10	20	75	4	△
TOTIME65-H100CR020-75-4F-2D	10	2.0	10	20	75	4	△
TOTIME65-H100CR025-75-4F-2D	10	2.5	10	20	75	4	△
TOTIME65-H100CR030-75-4F-2D	10	3.0	10	20	75	4	△
TOTIME65-H100CR002-100-4F-2D	10	0.2	10	20	100	4	△
TOTIME65-H100CR003-100-4F-2D	10	0.3	10	20	100	4	△
TOTIME65-H100CR005-100-4F-2D	10	0.5	10	20	100	4	▲
TOTIME65-H100CR010-100-4F-2D	10	1.0	10	20	100	4	▲
TOTIME65-H100CR015-100-4F-2D	10	1.5	10	20	100	4	△
TOTIME65-H100CR020-100-4F-2D	10	2.0	10	20	100	4	△
TOTIME65-H100CR025-100-4F-2D	10	2.5	10	20	100	4	△
TOTIME65-H100CR030-100-4F-2D	10	3.0	10	20	100	4	△
TOTIME65-H120CR005-75-4F-2D	12	0.5	12	24	75	4	▲
TOTIME65-H120CR010-75-4F-2D	12	1.0	12	24	75	4	▲
TOTIME65-H120CR015-75-4F-2D	12	1.5	12	24	75	4	△
TOTIME65-H120CR020-75-4F-2D	12	2.0	12	24	75	4	△
TOTIME65-H120CR025-75-4F-2D	12	2.5	12	24	75	4	△
TOTIME65-H120CR030-75-4F-2D	12	3.0	12	24	75	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

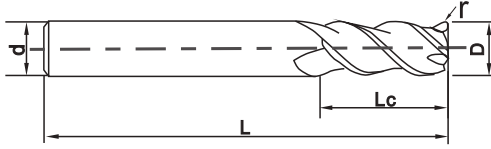
▲ Stock △ Non-Stock
Recommended Cutting Conditions B100



High Speed and High Hardness Corner Radius End Mill(HRC65)



4 FLUTES CORNER RADIUS [2D]



	4 Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H120CR005-100-4F-2D	12	0.5	12	24	100	4	▲
TOTIME65-H120CR010-100-4F-2D	12	1.0	12	24	100	4	▲
TOTIME65-H120CR015-100-4F-2D	12	1.5	12	24	100	4	△
TOTIME65-H120CR020-100-4F-2D	12	2.0	12	24	100	4	△
TOTIME65-H120CR025-100-4F-2D	12	2.5	12	24	100	4	△
TOTIME65-H120CR030-100-4F-2D	12	3.0	12	24	100	4	△
TOTIME65-H160CR005-100-4F-2D	16	0.5	16	32	100	4	△
TOTIME65-H160CR010-100-4F-2D	16	1.0	16	32	100	4	△
TOTIME65-H160CR015-100-4F-2D	16	1.5	16	32	100	4	△
TOTIME65-H160CR020-100-4F-2D	16	2.0	16	32	100	4	△
TOTIME65-H160CR025-100-4F-2D	16	2.5	16	32	100	4	△
TOTIME65-H160CR030-100-4F-2D	16	3.0	16	32	100	4	△
TOTIME65-H160CR005-150-4F-2D	16	0.5	16	32	150	4	△
TOTIME65-H160CR010-150-4F-2D	16	1.0	16	32	150	4	△
TOTIME65-H160CR015-150-4F-2D	16	1.5	16	32	150	4	△
TOTIME65-H160CR020-150-4F-2D	16	2.0	16	32	150	4	△
TOTIME65-H160CR025-150-4F-2D	16	2.5	16	32	150	4	△
TOTIME65-H160CR030-150-4F-2D	16	3.0	16	32	150	4	△

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

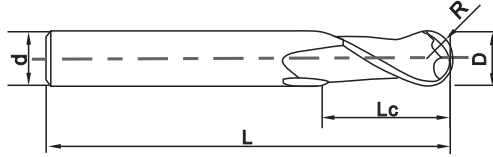
▲ Stock △ Non-Stock
Recommended Cutting Conditions B100



High Speed and High Hardness Ball Nose End Mill(HRC65)



2 FLUTES BALL NOSE [1.5D]



	2Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H020B-50-2F-1.5D	2	1.0	4	3.0	50	2	▲
TOTIME65-H020B-75-2F-1.5D	2	1.0	4	3.0	75	2	△
TOTIME65-H030B-50-2F-1.5D	3	1.5	4	4.5	50	2	▲
TOTIME65-H030B-75-2F-1.5D	3	1.5	4	4.5	75	2	△
TOTIME65-H040B-50-2F-1.5D	4	2.0	4	6.0	50	2	▲
TOTIME65-H040B-75-2F-1.5D	4	2.0	4	6.0	75	2	△
TOTIME65-H050B-50-2F-1.5D	5	2.5	6	7.5	50	2	▲
TOTIME65-H050B-75-2F-1.5D	5	2.5	6	7.5	75	2	△
TOTIME65-H050B-100-2F-1.5D	5	2.5	6	7.5	100	2	△
TOTIME65-H060B-50-2F-1.5D	6	3.0	6	9.0	50	2	▲
TOTIME65-H060B-75-2F-1.5D	6	3.0	6	9.0	75	2	▲
TOTIME65-H060B-100-2F-1.5D	6	3.0	6	9.0	100	2	△
TOTIME65-H080B-60-2F-1.5D	8	4.0	8	12.0	60	2	▲
TOTIME65-H080B-75-2F-1.5D	8	4.0	8	12.0	75	2	▲
TOTIME65-H080B-100-2F-1.5D	8	4.0	8	12.0	100	2	▲
TOTIME65-H100B-75-2F-1.5D	10	5.0	10	15.0	75	2	▲
TOTIME65-H100B-100-2F-1.5D	10	5.0	10	15.0	100	2	▲
TOTIME65-H120B-75-2F-1.5D	12	6.0	12	18.0	75	2	▲
TOTIME65-H120B-100-2F-1.5D	12	6.0	12	18.0	100	2	▲
TOTIME65-H160B-100-2F-1.5D	16	8.0	16	24.0	100	2	△
TOTIME65-H160B-150-2F-1.5D	16	8.0	16	24.0	150	2	△
TOTIME65-H200B-100-2F-1.5D	20	10.0	20	30.0	100	2	△
TOTIME65-H200B-150-2F-1.5D	20	10.0	20	30.0	150	2	△

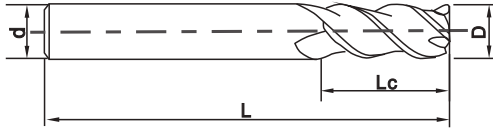
Tolerance: R ≤ 1.5 -0.01~0 1.5 < R < 3 -0.015~0 R ≥ 3 -0.02~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B100

Square End Mill(HRC48)



3 FLUTES SQUARE



	3Flutes	Cobalt 10%	HRC 48	No Coating	MG 0.8µm	Materials Carbide
● 1st Recommendation ○ 2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC46-55	HRC55-60			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-020AL-50-3F	2	4	6	50	3	▲
TOTIME48-030AL-50-3F	3	4	9	50	3	▲
TOTIME48-040AL-50-3F	4	4	11	50	3	▲
TOTIME48-050AL-50-3F	5	6	13	50	3	▲
TOTIME48-060AL-50-3F	6	6	16	50	3	▲
TOTIME48-080AL-60-3F	8	8	20	60	3	▲
TOTIME48-100AL-75-3F	10	10	25	75	3	▲
TOTIME48-120AL-75-3F	12	12	30	75	3	▲

Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B98

TOTIME45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

Micro Diameter
for General Purpose

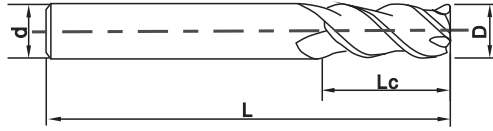
ZSTN/ZSTNR
for General Steels
Die Steels

CBN
High Hardness
Materials

Square End Mill(HRC48)



3 FLUTES TAC COATING SQUARE [3D]



	3Flutes	Cobalt 10%	HRC 48	TAC Coating	MG 0.8μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-C010AL-50-3F-3D	1.0	4	3.0	50	3	▲
TOTIME48-C015AL-50-3F-3D	1.5	4	4.5	50	3	▲
TOTIME48-C020AL-50-3F-3D	2.0	4	6.0	50	3	▲
TOTIME48-C030AL-50-3F-3D	3.0	4	9.0	50	3	▲
TOTIME48-C040AL-50-3F-3D	4.0	4	12.0	50	3	▲
TOTIME48-C040AL-75-3F-3D	4.0	4	12.0	75	3	▲
TOTIME48-C050AL-50-3F-3D	5.0	6	15.0	50	3	▲
TOTIME48-C060AL-50-3F-3D	6.0	6	18.0	50	3	▲
TOTIME48-C060AL-75-3F-3D	6.0	6	18.0	75	3	△
TOTIME48-C060AL-100-3F-3D	6.0	6	18.0	100	3	▲
TOTIME48-C080AL-60-3F-3D	8.0	8	24.0	60	3	▲
TOTIME48-C080AL-75-3F-3D	8.0	8	24.0	75	3	△
TOTIME48-C080AL-100-3F-3D	8.0	8	24.0	100	3	△
TOTIME48-C100AL-75-3F-3D	10.0	10	30.0	75	3	▲
TOTIME48-C100AL-100-3F-3D	10.0	10	30.0	100	3	△
TOTIME48-C120AL-75-3F-3D	12.0	12	36.0	75	3	▲
TOTIME48-C120AL-100-3F-3D	12.0	12	36.0	100	3	▲
TOTIME48-C160AL-100-3F-3D	16.0	16	48.0	100	3	△
TOTIME48-C160AL-150-3F-3D	16.0	16	48.0	150	3	△
TOTIME48-C200AL-150-3F-3D	20.0	20	60.0	150	3	△

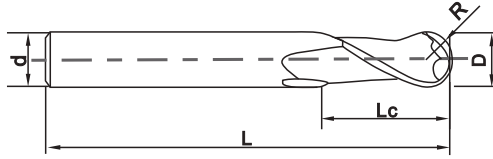
Tolerance: D ≤ 12 -0.02~0 D > 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B99

Ball Nose End Mill(HRC48)



2 FLUTES BALL NOSE [1.5D]



	2Flutes	Cobalt 10%	HRC 48	No Coating	UMG 0.5µm	Materials Carbide
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● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-1.5D	1.0	0.50	4	1.5	50	2	△
TOTIME48-015ALB-50-2F-1.5D	1.5	0.75	4	2.3	50	2	△
TOTIME48-020ALB-50-2F-1.5D	2.0	1.00	4	3.0	50	2	▲
TOTIME48-030ALB-50-2F-1.5D	3.0	1.50	4	4.5	50	2	△
TOTIME48-040ALB-50-2F-1.5D	4.0	2.00	4	6.0	50	2	▲
TOTIME48-060ALB-50-2F-1.5D	6.0	3.00	6	9.0	50	2	△
TOTIME48-060ALB-75-2F-1.5D	6.0	3.00	6	9.0	75	2	▲
TOTIME48-080ALB-60-2F-1.5D	8.0	4.00	8	12.0	60	2	△
TOTIME48-080ALB-75-2F-1.5D	8.0	4.00	8	12.0	75	2	▲
TOTIME48-080ALB-100-2F-1.5D	8.0	4.00	8	12.0	100	2	△
TOTIME48-100ALB-75-2F-1.5D	10.0	5.00	10	15.0	75	2	▲
TOTIME48-100ALB-100-2F-1.5D	10.0	5.00	10	15.0	100	2	△
TOTIME48-120ALB-75-2F-1.5D	12.0	6.00	12	18.0	75	2	△
TOTIME48-120ALB-100-2F-1.5D	12.0	6.00	12	18.0	100	2	▲

Tolerance: R ≤ 3 ± 0.015 R > 3 ± 0.02

▲ Stock △ Non-Stock
Recommended Cutting Conditions B98

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-Ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

Micro Diameter
for General Purpose

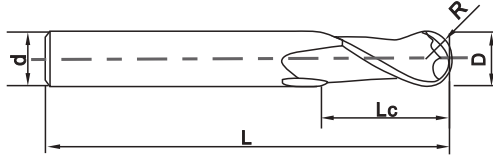
ZSTNB/ZSTNR
for General Steels
Die Steels

CBN
High Hardness
Materials

Ball Nose End Mill(HRC48)



2 FLUTES BALL NOSE [2D]



	Cobalt 10%	HRC 48	No Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-2D	1.0	0.50	4	2	50	2	▲
TOTIME48-015ALB-50-2F-2D	1.5	0.75	4	3	50	2	▲
TOTIME48-020ALB-50-2F-2D	2.0	1.00	4	4	50	2	▲
TOTIME48-030ALB-50-2F-2D	3.0	1.50	4	6	50	2	▲
TOTIME48-040ALB-50-2F-2D	4.0	2.00	4	8	50	2	▲
TOTIME48-060ALB-50-2F-2D	6.0	3.00	6	12	50	2	▲
TOTIME48-060ALB-75-2F-2D	6.0	3.00	6	12	75	2	△
TOTIME48-080ALB-60-2F-2D	8.0	4.00	8	16	60	2	▲
TOTIME48-080ALB-75-2F-2D	8.0	4.00	8	16	75	2	△
TOTIME48-080ALB-100-2F-2D	8.0	4.00	8	16	100	2	△
TOTIME48-100ALB-75-2F-2D	10.0	5.00	10	20	75	2	▲
TOTIME48-100ALB-100-2F-2D	10.0	5.00	10	20	100	2	△
TOTIME48-120ALB-75-2F-2D	12.0	6.00	12	24	75	2	▲
TOTIME48-120ALB-100-2F-2D	12.0	6.00	12	24	100	2	△

Tolerance: R ≤ 3 ± 0.015 R > 3 ± 0.02

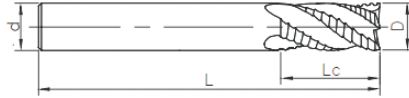
▲ Stock △ Non-Stock
Recommended Cutting Conditions B98

TCM45 for General Steels
TOTIME65 for Die Steels Hardened Steels
TOTIME48 for Non-ferrous Metal
TOTIME3839 for General Steels Cast Irons
TDIA for Graphite
Micro Diameter for General Purpose
ZSTNB/ZSTNR for General Steels Die Steels
CBN High Hardness Materials

Variable Lead Roughing (HRC55)



4 FLUTES ROUGHING



	4Flutes	Cobalt 10%	HRC 55	TiAlN Coating	UMG 0.6µm	Carbide Materials	
● 1st Recommendation		○ 2nd Recommendation					
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys	
<HRC35	<HRC48	HRC48-55	HRC55-65				
●	●	●					

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3839-060R-S-4F	6	6	15	50	4	▲
TOTIME3839-080R-S-4F	8	8	20	60	4	▲
TOTIME3839-100R-S-4F	10	10	30	75	4	▲
TOTIME3839-120R-S-4F	12	12	32	75	4	▲
TOTIME3839-160R-S-4F	16	16	45	100	4	▲
TOTIME3839-200R-S-4F	20	20	50	100	4	▲

Tolerance: D ≤ 8 0~0.01 D > 8 0~0.02

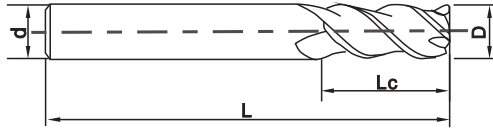
▲ Stock △ Non-Stock
Recommended Cutting Conditions B101



Diamond Coating Square End Mill



4 FLUTES SQUARE



	4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
<HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-010S-50-4F	1	4	3	50	4	▲
TDIA-020S-50-4F	2	4	6	50	4	▲
TDIA-030S-50-4F	3	4	9	50	4	▲
TDIA-040S-50-4F	4	4	12	50	4	▲
TDIA-040S-60-4F	4	4	12	60	4	▲
TDIA-040S-75-4F	4	4	12	75	4	▲
TDIA-040S-100-4F	4	4	20	100	4	▲
TDIA-060S-50-4F	6	6	20	50	4	▲
TDIA-060S-60-4F	6	6	20	60	4	▲
TDIA-060S-75-4F	6	6	25	75	4	▲
TDIA-060S-100-4F	6	6	30	100	4	▲
TDIA-060S-150-4F	6	6	40	150	4	▲
TDIA-080S-50-4F	8	8	20	50	4	▲
TDIA-080S-60-4F	8	8	20	60	4	▲
TDIA-080S-75-4F	8	8	30	75	4	▲
TDIA-080S-100-4F	8	8	30	100	4	▲
TDIA-080S-150-4F	8	8	40	150	4	▲
TDIA-100S-60-4F	10	10	25	60	4	▲
TDIA-100S-75-4F	10	10	30	75	4	▲
TDIA-100S-100-4F	10	10	30	100	4	▲
TDIA-100S-150-4F	10	10	40	150	4	▲
TDIA-120S-100-4F	12	12	40	100	4	▲
TDIA-120S-150-4F	12	12	50	150	4	▲
TDIA-120S-180-4F	12	12	50	180	4	▲

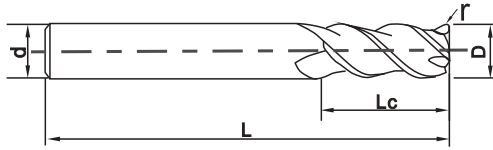
Tolerance: D < 6 -0.02~0 6 ≤ D ≤ 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B120

Diamond Coating Corner Radius End Mill



4 FLUTES CORNER RADIUS



	4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5µm	Materials Carbide
● 1st Recommendation		○ 2nd Recommendation				
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
<HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030CR002-60-4F	3	0.2	3	10	60	4	▲
TDIA-030CR002-75-4F	3	0.2	3	10	75	4	▲
TDIA-030CR002-100-4F	3	0.2	3	10	100	4	▲
TDIA-030CR003-60-4F	3	0.3	3	10	60	4	▲
TDIA-030CR005-60-4F	3	0.5	3	10	60	4	▲
TDIA-030CR005-75-4F	3	0.5	3	10	75	4	▲
TDIA-030CR005-100-4F	3	0.5	3	10	100	4	▲
TDIA-040CR001-40-4F	4	0.1	4	6	40	4	▲
TDIA-040CR002-50-4F	4	0.2	4	6	50	4	▲
TDIA-040CR002-60-4F	4	0.2	4	12	60	4	▲
TDIA-040CR002-75-4F	4	0.2	4	20	75	4	▲
TDIA-040CR002-100-4F	4	0.2	4	20	100	4	▲
TDIA-040CR005-50-4F	4	0.5	4	6	50	4	▲
TDIA-040CR005-60-4F	4	0.5	4	12	60	4	▲
TDIA-040CR005-75-4F	4	0.5	4	12	75	4	▲
TDIA-040CR005-100-4F	4	0.5	4	20	100	4	▲
TDIA-060CR003-75-4F	6	0.3	6	20	75	4	▲
TDIA-060CR003-100-4F	6	0.3	6	30	100	4	▲
TDIA-060CR005-60-4F	6	0.5	6	20	60	4	▲
TDIA-060CR005-75-4F	6	0.5	6	20	75	4	▲
TDIA-060CR005-100-4F	6	0.5	6	25	100	4	▲
TDIA-080CR003-75-4F	8	0.3	8	25	75	4	▲
TDIA-080CR003-100-4F	8	0.3	8	30	100	4	▲

Tolerance: D < 6 -0.02~0 6 ≤ D ≤ 12 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B120

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

Micro Diameter
for General Purpose

ZSTN/ZSTNR
for General Steels
Die Steels

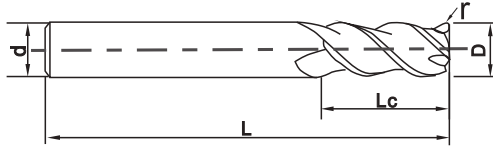
CBN
High Hardness
Materials



Diamond Coating Corner Radius End Mill



4 FLUTES CORNER RADIUS



	4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide
● 1st Recommendation ○ 2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
<HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-080CR005-75-4F	8	0.5	8	30	75	4	▲
TDIA-080CR005-100-4F	8	0.5	8	30	100	4	▲
TDIA-080CR005-150-4F	8	0.5	8	40	150	4	▲
TDIA-100CR005-75-4F	10	0.5	10	25	75	4	▲
TDIA-100CR005-100-4F	10	0.5	10	30	100	4	▲
TDIA-100CR005-150-4F	10	0.5	10	40	150	4	▲
TDIA-120CR005-100-4F	12	0.5	12	30	100	4	▲
TDIA-120CR005-150-4F	12	0.5	12	40	150	4	▲

Tolerance: D < 6 -0.02~0 6 ≤ D ≤ 12 -0.03~0

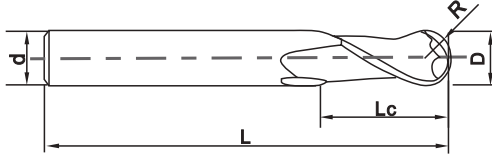
▲ Stock △ Non-Stock
Recommended Cutting Conditions B120

TCM45 for General Steels
TOTIME65 for Die Steels Hardened Steels
TOTIME48 for Non-ferrous Metal
TOTIME3839 for General Steels Cast Irons
TDIA for Graphite
Micro Diameter for General Purpose
ZSTNB/ZSTNR for General Steels Die Steels
CBN High Hardness Materials

Diamond Coating Ball Nose End Mill



2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5µm	Materials Carbide	
● 1st Recommendation ○ 2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
<HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030B-50-2F	3	1.5	3	6	50	2	▲
TDIA-030B-60-2F	3	1.5	3	6	60	2	▲
TDIA-030B-75-2F	3	1.5	3	6	75	2	▲
TDIA-030B-100-2F	3	1.5	3	6	100	2	▲
TDIA-040B-50-2F	4	2.0	4	8	50	2	▲
TDIA-040B-60-2F	4	2.0	4	8	60	2	▲
TDIA-040B-75-2F	4	2.0	4	8	75	2	▲
TDIA-040B-100-2F	4	2.0	4	10	100	2	▲
TDIA-060B-60-2F	6	3.0	6	12	60	2	▲
TDIA-060B-75-2F	6	3.0	6	12	75	2	▲
TDIA-060B-100-2F	6	3.0	6	16	100	2	▲
TDIA-060B-150-2F	6	3.0	6	20	150	2	▲
TDIA-080B-75-2F	8	4.0	8	16	75	2	▲
TDIA-080B-100-2F	8	4.0	8	16	100	2	▲
TDIA-080B-150-2F	8	4.0	8	30	150	2	▲
TDIA-100B-100-2F	10	5.0	10	20	100	2	▲
TDIA-100B-150-2F	10	5.0	10	30	150	2	▲
TDIA-120B-100-2F	12	6.0	12	30	100	2	▲
TDIA-120B-150-2F	12	6.0	12	30	150	2	▲

Tolerance: R<3 -0.02~0 3≤R≤6 -0.03~0

▲ Stock △ Non-Stock
Recommended Cutting Conditions B120

TCM45
for General Steels

TOTIME65
for Die Steels
Hardened Steels

TOTIME48
for Non-Ferrous
Metal

TOTIME3839
for General Steels
Cast Irons

TDIA
for Graphite

Micro Diameter
for General Purpose

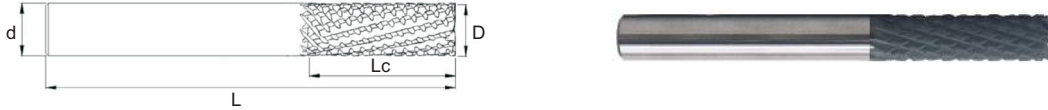
ZSTNB/ZSTNR
for General Steels
Die Steels

CBN
High Hardness
Materials

Diamond Coating Square End Mill



Square End Mill



● Features

1. Finishing and rough integrated wear-resistant diamond coating.
2. The left and right front and back teeth, and the bottom edge can be cut in layers.
3. Improve the smoothness of the product while achieving efficient processing.

● Application

Suitable for aramid honeycomb, carbon fiber T300 T700 T800, glass fiber, and carbon composite materials.

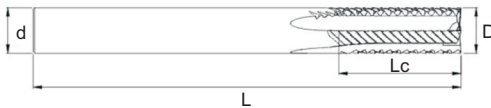
Order No.	D (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock
TCCF010S-50-3F	1.0	4	3	50	3	▲
TCCF015S-50-3F	1.5	4	4	50	3	▲
TCCF020S-50-3F	2.0	4	6	50	3	▲
TCCF030S-50-4F	3.0	4	9	50	4	▲
TCCF040S-50-4F	4.0	4	12	50	4	▲
TCCF050S-50-4F	5.0	6	15	50	4	▲
TCCF060S-50-4F	6.0	6	18	50	4	▲
TCCF080S-75-6F	8.0	8	32	75	6	▲
TCCF100S-75-6F	10.0	10	30	75	6	▲
TCCF100S-100-6F	10.0	10	30	100	6	▲
TCCF120S-80-5F	12.0	12	36	80	5	▲
TCCF120S-100-5F	12.0	12	48	100	5	▲

▲ Stock △ Non-Stock

Diamond Coating Square End Mill



Square End Mill



● Features

1. Medium and rough integrated wear-resistant diamond coating.
2. U-shaped groove with alternating teeth, finishing and rough integrated groove.
3. Achieve efficient processing while improving product smoothness.

● Application

Suitable for composite materials of aramid fiber, carbon fiber T300, PEEK polymer materials.

Order No.	D (mm)	d (mm)	Lc (mm)	L (mm)	Flutes	Stock
TRFCF030S-50-4F	3.0	4	9	50	4	▲
TRFCF040S-50-4F	4.0	4	10	50	4	▲
TRFCF050S-60-4F	5.0	6	15	60	4	▲
TRFCF060S-60-4F	6.0	6	18	60	4	▲
TRFCF080S-75-4F	8.0	8	30	75	4	▲
TRFCF100S-80-4F	10.0	10	30	80	4	▲
TRFCF120S-80-4F	12.0	12	35	80	4	▲

▲ Stock △ Non-Stock