

Multi-Flute Coarse Pitch Roughing End Mills

High Speed Steel

Roughing end mills feature a chip breaker type cutting edge for heavier cuts, higher speeds and feeds and greatly increased productivity. Economical **High Speed Steel** roughing end mills are recommended for most materials of low to medium hardness.

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4593

STANDARD
PACKAGE

All sizes — 1 each

Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/4	.2500	3/8	5/8	27/16	3	44464
5/16	.3125	3/8	3/4	2 1/2	3	44465
3/8	.3750	3/8	3/4	2 1/2	4	44466
1/2	.5000	1/2	1 1/4	3 1/4	4	44476
5/8	.6250	5/8	1 5/8	3 3/4	4	44477
3/4	.7500	3/4	1 5/8	3 7/8	4	44478
1	1.0000	3/4	1 7/8	4 1/8	5	44463
1	1.0000	1	2	4 1/2	5	44480
1	1.0000	1	3	5 1/2	5	44468
1 1/4	1.2500	3/4	2	4 1/2	6	44469
1 1/4	1.2500	1 1/4	2	4 1/2	6	44482
1 1/2	1.5000	3/4	2 1/4	4 1/2	6	44470
1 1/2	1.5000	1 1/4	2	4 1/2	6	44483
2	2.0000	1 1/4	2	4 1/2	8	44471

Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/2	.5000	1/2	2	4	4	44467
3/4	.7500	3/4	3	5 1/4	4	44488
1	1.0000	1	4	6 1/2	5	44490
1 1/4	1.2500	1 1/4	4	6 1/2	6	44491
1 1/2	1.5000	1 1/4	4	6 1/2	6	44492
2	2.0000	2	4	7 3/4	8	44485
2	2.0000	2	6	9 3/4	8	44494
2	2.0000	2	8	11 3/4	8	44495

Tool Coatings Also Available



Center Cutting

2-Flute 6-Pc. Sets

Sizes 1/8", 3/16", 1/4", 5/16", 3/8", 1/2"

(Sizes 1/8" - 3/8" are 3/8" shank, size 1/2" is 1/2" shank)

SET NO.	LIST NO.	DESCRIPTION	EDP NO.
W-11	1887	2 Flute, Single End, Ball Nose	45001
W-13	1896	2 Flute, Double End	45015
W-15	1898	2 Flute, Single End	45025

End Mill Sets Single End and Double End High Speed Steel In Wooden Stand

Jeu de fraises à queue à rainurer

Juego de cortadores verticales



Non-Center Cutting

4-Flute 6-Pc. Sets

Sizes 1/8", 3/16", 1/4", 5/16", 3/8", 1/2"

(Sizes 1/8" - 3/8" are 3/8" shank, size 1/2" is 1/2" shank)

SET NO.	LIST NO.	DESCRIPTION	EDP NO.
W-12	1895	4 Flute, Double End	45010
W-14	1897	4 Flute, Single End	45020

3/4" Shank 6-Pc. Multi-Flute Set

Sizes 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-1/2"

SET NO.	LIST NO.	DESCRIPTION	EDP NO.
W-21	1897	Multi-Flute, Single End	45021



Non-Center Cutting

M42 8% Cobalt Roughing / Finishing End Mills

Center Cutting

Roughing / Finishing end mills rough and finish in a single pass, removing material at roughing rates while producing a finish near that produced by standard end mills. Recommended for a wide variety of materials of soft to medium hardness including titanium and aluminum alloys.

Fraise à queue à rainurer de dégrossissage et de finition
cortador vertical para desbastado/acabado



List No. 4640 — Bright Finish

List No. 4640G — TiN Coated

List No. 4640C — TiCN Coated

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications. **Tool Coatings** further enhance milling performance.

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED
						EDP NO.	EDP NO.	EDP NO.
3/16	.1875	3/8	1/2	2 3/8	4	45100	45200	45300
1/4	.2500	3/8	5/8	2 7/16	4	45101	45201	45301
5/16	.3125	3/8	3/4	2 1/2	4	45102	45202	45302
5/16	.3125	3/8	1 3/8	3 1/8	4	45103	45203	45303
3/8	.3750	3/8	3/4	2 1/2	4	45104	45204	45304
7/16	.4375	3/8	1	2 11/16	4	45105	45205	45305
1/2	.5000	1/2	1 1/4	3 1/4	4	45106	45206	45306
1/2	.5000	1/2	2	4	4	45107	45207	45307
1/2	.5000	1/2	3	5	4	45108	45208	45308
1/2	.5000	1/2	1 5/8	3 5/8	4	—	—	45310*
9/16	.5625	1/2	1 3/8	3 3/8	4	45112	45212	45312
5/8	.6250	5/8	1 5/8	3 3/4	4	45113	45213	45313
5/8	.6250	5/8	2 1/2	4 5/8	4	45114	45214	45314
5/8	.6250	5/8	3/4	2 7/8	4	—	45216*	—
5/8	.6250	5/8	1 1/4	3 3/8	4	45117*	—	—
1 1/16	.6875	5/8	1 5/8	3 3/4	4	45119	45219	45319
3/4	.7500	5/8	1 5/8	3 3/4	4	45120	45220	45320
3/4	.7500	3/4	1 5/8	3 7/8	4	45121	45221	45321
3/4	.7500	3/4	3	5 1/4	4	45122	45222	45322
3/4	.7500	3/4	4 1/8	6 3/8	4	45123	45223	45323
3/4	.7500	3/4	3/4	3	4	—	—	45324*
13/16	.8125	3/4	1 7/8	4 1/8	5	45127	45227	45327
7/8	.8750	3/4	1 7/8	4 1/8	5	45128	45228	45328
1	1.0000	3/4	2	4 1/4	5	45132	45232	45332
1	1.0000	3/4	1 1/8	3 3/8	5	—	45234*	—
1	1.0000	3/4	1 1/2	3 3/4	5	45135*	45235*	—
1	1.0000	1	2	4 1/2	5	45137	45237	45337
1	1.0000	1	4	6 1/2	5	45138	45238	45338
1	1.0000	1	6	8 1/2	5	45139	45239	45339
1	1.0000	1	1 1/8	3 3/8	5	45140*	—	45340*
1	1.0000	1	1 5/8	4 1/8	5	—	45241*	45341*
1	1.0000	1	3	5 1/2	5	45142	45242	45342
1 1/8	1.1250	3/4	2	4 1/4	6	45143	45243	45343
1 1/4	1.2500	3/4	2	4 1/4	6	45145	45245	45345
1 1/4	1.2500	3/4	1 1/8	3 3/8	6	45146*	—	—
1 1/4	1.2500	1 1/4	2	4 1/2	6	45147	45247	45347
1 1/4	1.2500	1 1/4	4	6 1/2	6	45148	45248	45348
1 1/4	1.2500	1 1/4	6	8 1/2	6	45149	45249	45349
1 1/4	1.2500	1 1/4	3	5 1/2	6	45150*	45250*	—
1 1/2	1.5000	3/4	2	4 1/2	6	45153	45253	45353
1 1/2	1.5000	3/4	1 1/8	3 3/8	6	45154*	45254*	45354*
1 1/2	1.5000	3/4	1 1/2	3 3/4	6	—	45255*	—
1 1/2	1.5000	1 1/4	2	4 1/2	6	45156	45256	45356
1 1/2	1.5000	1 1/4	4	6 1/2	6	45157	45257	45357
1 1/2	1.5000	1 1/4	6	8 1/2	6	45158	45258	45358

* Available while supplies last

M42 8% Cobalt Coarse Pitch Roughing End Mills

Roughing end mills feature a chip breaker type cutting edge for heavier cuts, higher speeds and feeds and greatly increased productivity. **Coarse Pitch** is recommended for a wide variety of materials of soft to medium hardness including titanium and aluminum alloys.

Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/4	.2500	3/8	5/8	27/16	3	44496
5/16	.3125	3/8	3/4	2 1/2	3	44497
3/8	.3750	3/8	3/4	2 1/2	4	44498
1/2	.5000	1/2	1 1/4	3 1/4	4	44501
5/8	.6250	5/8	1 5/8	3 3/4	4	44502
3/4	.7500	5/8	1 5/8	3 7/8	4	44635
3/4	.7500	3/4	1 5/8	3 7/8	4	44503
7/8	.8750	3/4	1 7/8	4 1/8	5	44636
7/8	.8750	7/8	1 7/8	4 1/8	5	44637
1	1.0000	3/4	2	4 1/4	5	44500
1	1.0000	1	2	4 1/2	5	44505
1 1/8	1.1250	1	2	4 1/2	6	44638
1 1/4	1.2500	1 1/4	2	4 1/2	6	44508
1 1/4	1.2500	3/4	2	4 1/2	6	44639
1 1/2	1.5000	3/4	2	4 1/4	6	44640
1 1/2	1.5000	1 1/4	2	4 1/2	6	44511
1 3/4	1.7500	1 1/4	2	4 1/2	6	44641
2	2.0000	1 1/4	2	4 1/2	6	44519
2	2.0000	2	2	5 3/4	8	44642

M42 8% Cobalt Fine Pitch Roughing End Mills

Roughing end mills feature a chip breaker type cutting edge for heavier cuts, higher speeds and feeds and greatly increased productivity. **Fine Pitch** is recommended for difficult-to-machine, high tensile strength, abrasive and harder materials up to 40 Rc.

Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/4	.2500	3/8	5/8	27/16	4	44650
5/16	.3125	3/8	3/4	2 1/2	4	44651
3/8	.3750	3/8	3/4	2 1/2	4	44652
7/16	.4375	3/8	1	2 11/16	4	44653
1/2	.5000	1/2	1 1/4	3 1/4	4	44654
9/16	.5625	1/2	1 3/8	3 3/8	4	44655
5/8	.6250	5/8	1 5/8	3 3/4	4	44656
3/4	.7500	5/8	1 5/8	3 3/4	4	44657
3/4	.7500	3/4	1 5/8	3 7/8	4	44658
7/8	.8750	3/4	1 7/8	4 1/8	5	44659
7/8	.8750	7/8	1 7/8	4 1/8	5	44660
1	1.0000	3/4	2	4 1/4	5	44661
1	1.0000	1	2	4 1/2	5	44662
1 1/8	1.1250	1	2	4 1/2	6	44663
1 1/4	1.2500	3/4	2	4 1/2	6	44664
1 1/4	1.2500	1 1/4	2	4 1/2	6	44665
1 1/2	1.5000	3/4	1 1/2	4 1/2	6	44666
1 1/2	1.5000	1 1/4	2	4 1/2	6	44667
1 3/4	1.7500	1 1/4	2	4 1/2	6	44668
2	2.0000	3/4	2	4 1/2	6	44669
2	2.0000	1 1/4	2	4 1/2	8	44670

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4594

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications.

STANDARD PACKAGE All sizes — 1 each

Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/2	.2500	1/2	2	4	4	44499
5/8	.6250	5/8	2 1/2	4 5/8	4	44643
3/4	.7500	3/4	3	5 1/4	4	44504
1	1.0000	1	4	6 1/2	5	44507
1 1/4	1.2500	1 1/4	4	6 1/2	6	44510
1 1/2	1.5000	1 1/4	4	6 1/2	6	44513
1 3/4	1.7500	1 1/4	4	6 1/2	6	44644
2	2.0000	1 1/4	4	6 1/2	6	44645
2	2.0000	2	4	7 3/4	8	44516
2	2.0000	2	6	9 3/4	8	44517
2	2.0000	2	8	11 3/4	8	44518

End Mills with 2" dia. shanks are provided with a dual drive shank.

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4596

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications.

STANDARD PACKAGE All sizes — 1 each

Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	EDP NO.
1/2	.5000	1/2	2	4	4	44671
5/8	.6250	5/8	2 1/2	4 5/8	4	44672
3/4	.7500	3/4	3	5 1/4	4	44673
7/8	.8750	7/8	3 1/2	5 3/4	5	44674
1	1.0000	1	4	6 1/2	5	44675
1 1/2	1.5000	1 1/4	4	6 1/2	6	44678*
2	2.0000	1 1/4	4	6 1/2	6	44679*

* Available While Supplies Last

Tool Coatings Also Available

M42 8% Cobalt Coarse Pitch Center Cutting Roughing End Mills

Center Cutting

Roughing end mills feature a chip breaker type cutting edge for heavier cuts, higher speeds and feeds and greatly increased productivity. **Coarse Pitch** is recommended for a wide variety of materials of soft to medium hardness including titanium and aluminum alloys. **Center Cutting** end allows for plunge cutting like a drill into solid material.

Fraise à queue à rainurer de dégrossissage

cortador vertical para desbaste



List No. 4611 — Regular Length

List No. 4612 — Medium & Long Length

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications. **Tool Coatings** further enhance milling performance.

STANDARD PACKAGE All sizes — 1 each

List No. 4611 - Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED	TIALN COATED
						EDP NO.	EDP NO.	EDP NO.	EDP NO.
3/16	.1875	3/8	1/2	23/8	4	45413	—	—	45419
1/4	.2500	3/8	5/8	27/16	4	45414	—	—	45420
5/16	.3125	3/8	3/4	2 1/2	4	45415	—	—	45421
3/8	.3750	3/8	3/4	2 1/2	4	45416	—	—	45422
7/16	.4375	3/8	1	2 11/16	4	45417	—	—	45423
1/2	.5000	1/2	1 1/4	3 1/4	4	44910	44921	44932	45425
5/8	.6250	5/8	1 5/8	3 3/4	4	44911	44922	44933	45426
3/4	.7500	3/4	1 5/8	3 7/8	4	44912	44923	44934	45427
7/8	.8750	3/4	1 7/8	4 1/8	5	44913	44924	44935	45428
1	1.0000	1	2	4 1/2	5	44914	44925	44936	45429
1 1/4	1.2500	1 1/4	2	4 1/2	6	44915	44926	44937	45430
1 1/2	1.5000	1 1/4	2	4 1/2	6	44916	44927	44938	45431
2	2.0000	2	2	5 3/4	8	—	44928*	44939*	—
2	2.0000	2	3	6 3/4	8	—	44929*	—	—

End Mills with 2" dia. shanks are provided with a dual drive shank

* Available while supplies last

List No. 4612 - Medium & Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED	TIALN COATED
						EDP NO.	EDP NO.	EDP NO.	EDP NO.
3/8	.3750	3/8	1 1/2	3 1/4	4	45418	—	—	45424
1/2	.5000	1/2	2	4	4	44943	44952	44961	45432
5/8	.6250	5/8	2 1/2	4 5/8	4	44944	44953	44962	45433
3/4	.7500	3/4	3	5 1/4	4	44945	44954	44963	45434
1	1.0000	1	3	5 1/2	5	44946	44955	44964	45435
1	1.0000	1	4	6 1/2	5	44947	44956	44965	45436
1 1/4	1.2500	1 1/4	3	5 1/2	6	44948	44957	44966	45437
1 1/4	1.2500	1 1/4	4	6 1/2	6	44949	44958	44967	45438
1 1/2	1.5000	1 1/4	3	5 1/2	6	44950	44959	44968	45439
1 1/2	1.5000	1 1/4	4	6 1/2	6	44951	44960	44969	45440

TOOL COATING SERVICE

Tool Coatings enhance cutting tool performance for increased productivity and lower overall tooling cost. Benefits include increased surface hardness, lubricity & heat resistance and decreased chemical reactivity. Results include reduced friction & torque, higher speeds & feeds, increased tool life, decreased galling & chip welding and improved surface finish. **PLEASE INQUIRE.**

TiN — Titanium Nitride

TiCN — Titanium Carbonitride

TiAlN — Titanium Aluminum Nitride

AlTiN — Aluminum Titanium Nitride

CrN — Chromium Nitride

CrC — Chromium Carbide

DLC — Diamond Like Carbon

M42 8% Cobalt Fine Pitch Center Cutting Roughing End Mills

Center Cutting

Roughing end mills feature a chip breaker type cutting edge for heavier cuts, higher speeds and feeds and greatly increased productivity. **Fine Pitch** is recommended for difficult-to-machine, high tensile strength, abrasive and harder materials up to 40 Rc. **Center Cutting** end allows for plunge cutting like a drill into solid material.

Fraise à queue à rainurer de dégrossissage

cortador vertical para desbaste



List No. 4613 — Regular Length

List No. 4614 — Medium & Long Length

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications. **Tool Coatings** further enhance milling performance.

STANDARD PACKAGE All sizes — 1 each

List No. 4613 - Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED	TIALN COATED
						EDP NO.	EDP NO.	EDP NO.	EDP NO.
1/4	.2500	3/8	5/8	27/16	4	45441	—	—	45443
3/8	.3750	3/8	3/4	2 1/2	4	45442	—	—	45444
1/2	.5000	1/2	1 1/4	3 1/4	4	44970	44981	45050	45445
5/8	.6250	5/8	1 5/8	3 3/4	4	44971	44982	45051	45446
3/4	.7500	3/4	1 5/8	3 7/8	4	44972	44983	45052	45447
7/8	.8750	3/4	1 7/8	4 1/8	5	44973	44984	45053	45448
1	1.0000	1	2	4 1/2	5	44974	44985	45054	45449
1 1/4	1.2500	1 1/4	2	4 1/2	6	44975	44986	45055	45450
1 1/2	1.5000	1 1/4	2	4 1/2	6	44976	44987	45056	45451
2	2.0000	2	2	5 3/4	8	44977*	—	45057*	—
2	2.0000	2	3	6 3/4	8	44978*	44989*	—	—

End Mills with 2" dia. shanks are provided with a dual drive shank

* Available while supplies last

List No. 4614 - Medium & Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED	TIALN COATED
						EDP NO.	EDP NO.	EDP NO.	EDP NO.
1/2	.5000	1/2	2	4	4	45061	45070	45079	45452
5/8	.6250	5/8	2 1/2	4 5/8	4	45062	45071	45080	45453
3/4	.7500	3/4	3	5 1/4	4	45063	45072	45081	45454
1	1.0000	1	3	5 1/2	5	45064	45073	45082	45455
1	1.0000	1	4	6 1/2	5	45065	45074	45083	45456
1 1/4	1.2500	1 1/4	3	5 1/2	6	45066	45075	45084	45457
1 1/4	1.2500	1 1/4	4	6 1/2	6	45067	45076	45085	45458
1 1/2	1.5000	1 1/4	3	5 1/2	6	45068	45077	45086	45459
1 1/2	1.5000	1 1/4	4	6 1/2	6	45069	45078	45087	45460

CUTTING FLUIDS

Coolants and lubricants offer many benefits including reduced friction and heat, enhanced chip removal, improved accuracy and surface finish, higher speeds and feeds, corrosion protection and increased tool life.

Proper selection and application of cutting fluids is critical to optimizing machining applications. **Please consult your cutting fluids supplier for advice on your specific machining application.**

M42 8% Cobalt Coarse Pitch Ball Nose Roughing End Mills

Center Cutting

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4607 — Regular Length

List No. 4608 — Medium & Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED
						EDP NO.	EDP NO.	EDP NO.
1/2	.5000	1/2	1 1/4	3 1/4	4	44817*	—	—
5/8	.6250	5/8	1 5/8	3 3/4	4	44818*	44827*	—
3/4	.7500	3/4	1 5/8	3 7/8	4	44819*	—	44837*
1	1.0000	1	2	4 1/2	5	44820*	44829*	44838*
1 1/4	1.2500	1 1/4	2	4 1/2	6	—	—	44839*
2	2.0000	2	4	7 3/4	8	44824*	44833*	44842*
2	2.0000	2	6	9 3/4	8	44825*	44834*	44843*
1/2	.5000	1/2	2	4	4	44844*	44850*	44856*
5/8	.6250	5/8	2 1/2	4 5/8	4	44845*	44851*	44857*
3/4	.7500	3/4	3	5 1/4	4	44846*	44852*	—
1	1.0000	1	4	6 1/2	5	44847*	—	44859*
1 1/2	1.5000	1 1/4	4	6 1/2	6	44849*	44855*	44861*

M42 8% Cobalt Fine Pitch Ball Nose Roughing End Mills

Center Cutting

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4609

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED
						EDP NO.	EDP NO.	EDP NO.
1/2	.5000	1/2	1 1/4	3 1/4	4	44862*	44871*	44880*
5/8	.6250	5/8	1 5/8	3 3/4	4	44863*	44872*	44881*
3/4	.7500	3/4	1 5/8	3 7/8	4	44864*	44873*	44882*
1	1.0000	1	2	4 1/2	5	44865*	44874*	44883*
1 1/4	1.2500	1 1/4	2	4 1/2	6	44866*	—	44884*
1 1/2	1.5000	1 1/4	2	4 1/2	6	44867*	44876*	44885*
2	2.0000	2	4	7 3/4	8	44869*	44878*	—
2	2.0000	2	6	9 3/4	8	44870*	—	44888*

M42 8% Cobalt Coarse Pitch Stub Length Roughing End Mills

Center Cutting

Fraise à queue à rainurer de dégrossissage
cortador vertical para desbaste



List No. 4610

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	NO. OF FLUTES	UNCOATED	TIN COATED	TICN COATED
						EDP NO.	EDP NO.	EDP NO.
1/4	.2500	3/8	1/4	2 1/16	3	—	—	44903*
3/8	.3750	3/8	3/8	2 5/32	4	—	—	44904*
1/2	.5000	1/2	1/2	2 1/2	4	44891*	—	—
1 1/4	1.2500	1 1/4	1 1/4	3 3/4	6	44895*	44902*	44909*

End Mills with 2" dia. shanks are provided with a dual drive shank

*Available while supplies last

M42 8% Cobalt High Helix 4-Flute Coolant Fed Roughing / Finishing End Mills

Center Cutting – 38° Helix Angle

Roughing / Finishing end mills rough and finish in a single pass. Deep Flutes and **38° High Helix** angle designed for milling **Aluminum**, aluminum alloys, magnesium, zinc alloys and other soft non-ferrous materials. **Center Cutting** end allows for plunge cutting like a drill into solid material. **Coolant Flow** through the center reduces friction and heat, flushes out chips and extends tool life.

Fraise à queue à rainurer de dégrossissage et de finition
cortador vertical para desbastado/acabado



- List No. 4601* — Regular Length
- List No. 4602* — Medium Length
- List No. 4603* — Long Length
- List No. 4604* — Extra Long Length

M42 8% Cobalt offers increased wear and heat resistance for abrasive and difficult materials, higher speeds and feeds and long life in production applications. **Tool Coatings** further enhance milling performance.

STANDARD PACKAGE All sizes — 1 each

List No. 4601* - Uncoated / 4601G - TiN / 4601C - TiCN - Regular Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED	TIN COATED	TICN COATED
					EDP NO.	EDP NO.	EDP NO.
1	1.0000	1	2	4½	—	44704*	—
1¼	1.2500	1¼	2	4½	44701*	44705*	44709*
1½	1.5000	1¼	2	4½	44702*	44706*	44710*
2	2.0000	2	2	5¾	—	44707*	44711*

*Available While Supplies Last

List No. 4602* - Uncoated / 4602G - TiN / 4602C - TiCN - Medium Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED	TIN COATED	TICN COATED
					EDP NO.	EDP NO.	EDP NO.
1	1.0000	1	3	5½	44712*	—	—
1¼	1.2500	1¼	3	5½	—	44717*	44721*
1½	1.5000	1¼	3	5½	44714*	44718*	44722*
2	2.0000	2	3	6¾	44715*	44719*	44723*

*Available While Supplies Last

List No. 4603* - Uncoated / 4603G - TiN / 4603C - TiCN - Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED	TIN COATED	TICN COATED
					EDP NO.	EDP NO.	EDP NO.
1	1.0000	1	4	6½	44724*	—	—
1¼	1.2500	1¼	4	6½	—	44729*	44733*
1½	1.5000	1¼	4	6½	44726*	44730*	44734*
2	2.0000	2	4	7¾	44727*	44731*	44735*

*Available While Supplies Last

List No. 4604* - Uncoated / 4604G - TiN / 4604C - TiCN - Extra Long Length

DIA.	DEC. EQUIV.	SHANK DIA.	LENGTH OF CUT	OAL	UNCOATED	TIN COATED	TICN COATED
					EDP NO.	EDP NO.	EDP NO.
1	1.0000	1	6	8½	44736*	44740*	—
1¼	1.2500	1¼	6	8½	44737*	—	44745*
1½	1.5000	1¼	6	8½	44738*	44742*	44746*
2	2.0000	2	6	9¾	44739*	44743*	44747*

End Mills with 2" dia. shanks are provided with a dual drive shank

*Available While Supplies Last