



HARRIER™

Material Specific High Performance End Mills



Harrier carbide end mills are
"Made In The USA" and can be used in
automotive, aerospace, defense, medical,
firearms, and communications industries.
Harrier shows a wide variety of styles and
offers a large selection of diameters,
flutes, lengths and coatings.

BHID.com

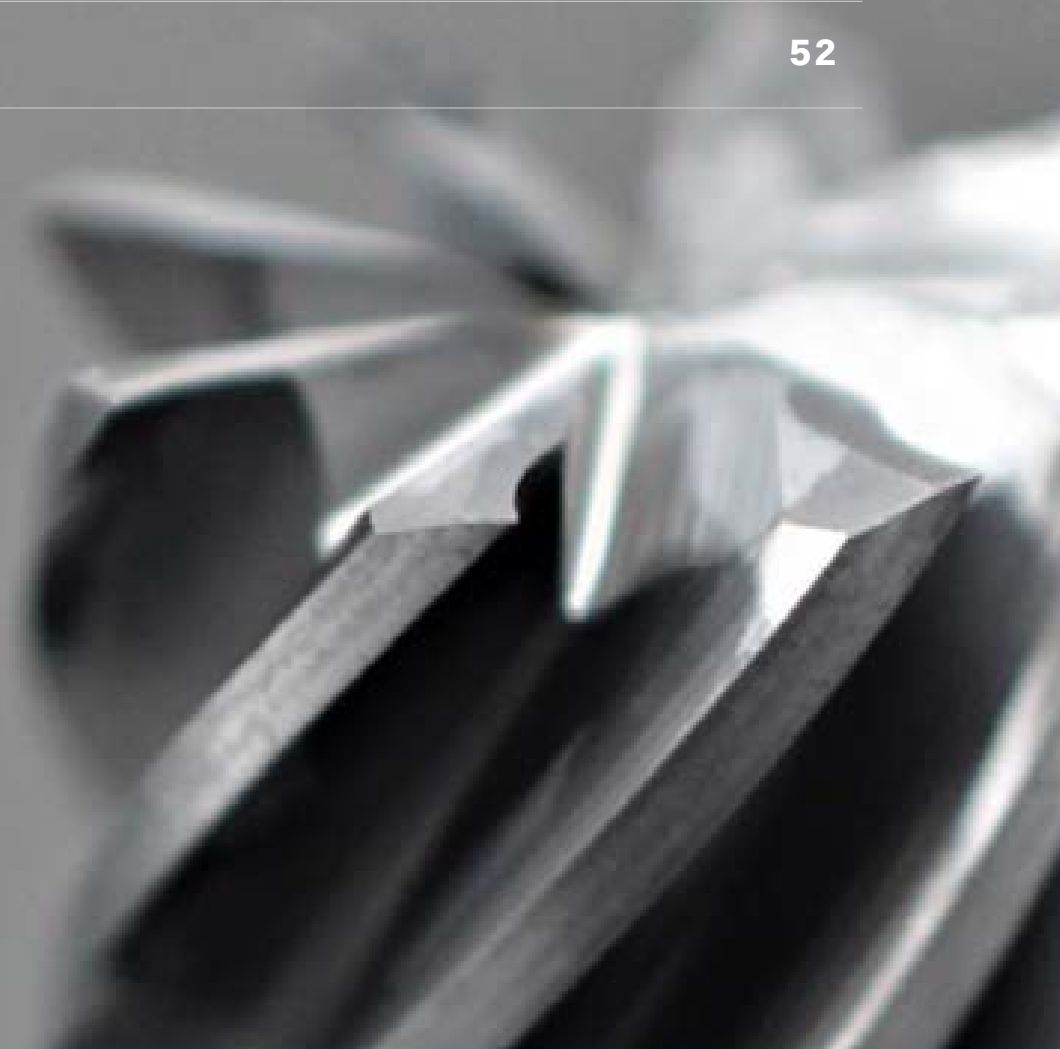
HARRIER is a new high-performance end mill brand in the metalworking industry that is brought to you by BlackHawk Industrial. **HARRIER** is evaluating the latest technologies, not only to improve a customer's ability to manufacture parts more efficiently, but also to improve the customer's operations.

HARRIER is dedicated to becoming a supplier for cutting tools to the automotive, aerospace & defense, medical, firearms, and communications industries. **HARRIER** can provide you with all of your cutting tool needs. This catalog shows a wide variety of cutting tool options provided under the **HARRIER** brand. **HARRIER** offers a large selection of diameters, flutes, lengths, coatings, and tolerances.



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HARRIER-ALT

- ❏ CR-MAX coating for the perfect balance of wear resistance, lubricity and toughness
- ❏ Eccentric relief and highly engineered honed cutting edge prevents premature edge wear & break in chatter
- ❏ 4, 5 & 7-flute designs incorporate unequal index design to reduce vibration and increase metal removal rates

The HARRIER-ALT is an "All-Terrain" series ideal for a wide range of materials including Titanium and Stainless Steel



HARRIER-NF

- ◀ High performance geometry with available chip breaker technology for high efficiency roughing and finishing
- ◀ Tapered cores, polished flutes, and proprietary gashing for steep ramping are just a few features integrated in NF series tools
- ◀ Up to 4 times faster than a traditional aluminum cutting end mill

The HARRIER-NF series are designed exclusively for non-ferrous materials like 6061-T6 Aluminum



HARRIER-F

- ◀ Unequal indexing and variable helix reduces or eliminates chatter
- ◀ High Performance cutting geometries allow for faster material removal rates
- ◀ SI-MAX coating increases performance & extends tool life

The HARRIER-F is ideal for difficult ferrous materials like nickel alloys and hardened steels



APPLICATION

							Low Carbon Steel	High Carbon Steel	Alloy Steel	300 Stainless	400 Stainless	PH Stainless	Cast Iron	Aluminum Alloy	Cast Aluminum	Nickel Alloys	Titanium Alloys	Hardened Steels 35-45 HRC	Hardened Steels 45-50 HRC
Series	Image	Page	Fl.	Description	Coating	Size Range													
HARRIER-ALT	504R	10	4	Variable Index	CR-MAX	1/8 - 1-1/4	■	■	□	■	■	□	□	X	X	□	■	□	X
	504B	14	4	Variable Index Reduced Neck	CR-MAX	1/8 - 1-1/4	■	■	□	■	■	□	□	X	X	□	■	□	X
	504C	17	4	Variable Index Ball Nose	CR-MAX	1/8 - 1.0	■	■	□	■	■	□	□	X	X	□	■	□	X
	504D	18	4	Variable Index Chipbreakers	CR-MAX	1/8 - 1.0	■	■	□	■	■	□	□	X	X	□	■	□	X
	505A	19	5	Variable Index	CR-MAX	1/8 - 1-1/4	■	■	□	■	■	□	□	X	X	□	■	□	X
	505B	23	5	Variable Index Reduced Neck	CR-MAX	1/8 - 1-1/4	■	■	□	■	■	□	□	X	X	□	■	□	X
	507A	27	7	Variable Index	CR-MAX	3/8 - 1-1/4	■	■	□	■	■	□	□	X	X	□	■	□	X
HARRIER-NF	103P	29	3	Ramping	Bright	3/16 - 3/4	X	X	X	X	X	X	X	■	■	X	X	X	X
	103R	30	3	Slotting & Roughing	Bright	3/16 - 3/4	X	X	X	X	X	X	X	■	■	X	X	X	X
	103F	31	3	Finishing	Bright	3/16 - 3/4	X	X	X	X	X	X	X	■	■	X	X	X	X
	203A	32	3	General Milling	ZrN, Bright	1/8 - 1-1/4	X	X	X	X	X	X	X	■	■	X	X	X	X
	203B	35	3	General Milling WF	ZrN, Bright	1/8 - 1.0	X	X	X	X	X	X	X	■	■	X	X	X	X
	203C	36	3	General Milling BN	ZrN, Bright	1/4 - 1.0	X	X	X	X	X	X	X	■	■	X	X	X	X
	203D	37	3	General Milling RN	ZrN, Bright	1/8 - 1.0	X	X	X	X	X	X	X	■	■	X	X	X	X
	203E	39	3	General Milling RN BN	ZrN, Bright	1/4 - 1.0	X	X	X	X	X	X	X	■	■	X	X	X	X
HARRIER-F	404A	40	4	Variable Helix/Index	SI-MAX	1/8 - 1.0	□	□	■	X	□	■	■	X	X	■	X	■	■
	404R	43	4	Chamfer Variable Helix/Index	SI-MAX	1/8 - 1.0	□	□	■	X	□	■	■	X	X	■	X	■	■
	404B	44	4	Variable Helix/Index	SI-MAX	1/8 - 1.0	□	□	■	X	□	■	■	X	X	■	X	■	■
	405A	45	5	Variable Helix/Index	SI-MAX	1/8 - 1.0	□	□	■	X	□	■	■	X	X	■	X	■	■
	407A	48	7	Variable Helix/Index	SI-MAX	1/8 - 1.0	□	□	■	X	□	■	■	X	X	■	X	■	■
							■ Best □ Good X Not Recommended												



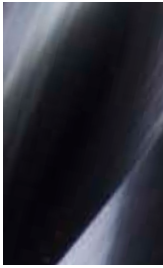
BLACKHAWK **I N D U S T R I A L** **BIG ENOUGH TO SERVE | SMALL ENOUGH TO CARE**

BlackHawk Industrial provides you the highest quality industrial products and equipment, offering manufacturing services while creating innovative engineered supply solutions. We truly believe in the importance of the local relationships with the customers we service. Our employees take pride every day exceeding the expectations of our customers, suppliers and shareholders.

With locations across North America, you have access to thousands of manufacturers supplying a wide range of standard and custom products. Our streamlined distribution program allows you to dramatically reduce your total costs. We are **BIG ENOUGH TO SERVE | SMALL ENOUGH TO CARE**

What does **BIG ENOUGH TO SERVE | SMALL ENOUGH TO CARE mean to BlackHawk?**

- | | |
|---|--|
| - Cost Savings Programs | - Custom Solutions |
| - Technical Specialists | - Commitment to Excellence |
| - National Footprint, Local Feel | - Relationship Driven |
| - Multiple Categories, One Purchase Order | - Service to our customer's individual needs |
| - Inventory when & where you need it | - Product Category Breadth & Depth |



SI-Max

High performance nano composite coating with extreme high hardness and high heat resistance. For high performance milling operations in alloyed steels, hardened steels and Nickel Alloys.



CR-Max

PVD - An AlCrN-based nano composite coating that combine titanium to create a layered coating with high hardness (3000 HV) and heat resistance (800 degrees C). Performs well in wet or dry machining operations and ideal for alloyed steels, stainless steels and titanium alloys.



ZrN

This Zirconium-based coating is designed for high performance aluminum machining applications to extend tool life by increasing wear resistance and reducing BUE via and ultra-smooth coating finish.

Harrier Series 504R
HARRIER-ALT | 4FL | SQUARE & RADIUS

HARRIER-ALT

About the
Harrier
Series 504R

UNEQUAL INDEX

4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1/8	1/8	1/4	1-1/2		504403
1/8	1/8	1/4	1-1/2	0.01	504218
1/8	1/8	1/4	1-1/2	0.02	504219
1/8	1/8	1/4	1-1/2	0.03	504220
1/8	1/8	1/2	2		504404
1/8	1/8	1/2	2	0.01	504221
1/8	1/8	1/2	2	0.02	504222
1/8	1/8	1/2	2	0.03	504223
1/8	1/8	3/4	2-1/2		504405
1/8	1/8	3/4	2-1/2	0.01	504224
1/8	1/8	3/4	2-1/2	0.02	504225
1/8	1/8	3/4	2-1/2	0.03	504226
3/16	3/16	5/16	2		504406
3/16	3/16	5/16	2	0.01	504227
3/16	3/16	5/16	2	0.02	504228
3/16	3/16	5/16	2	0.03	504229
3/16	3/16	9/16	2		504407
3/16	3/16	9/16	2	0.01	504230
3/16	3/16	9/16	2	0.02	504231
3/16	3/16	9/16	2	0.03	504232
3/16	3/16	3/4	2-1/2		504408
3/16	3/16	3/4	2-1/2	0.01	504233
3/16	3/16	3/4	2-1/2	0.02	504234
3/16	3/16	3/4	2-1/2	0.03	504235
1/4	1/4	3/8	2		504409
1/4	1/4	3/8	2	0.01	504236
1/4	1/4	3/8	2	0.02	504237
1/4	1/4	3/8	2	0.03	504238
1/4	1/4	3/8	2	0.06	504239
1/4	1/4	1/2	2-1/2		504410
1/4	1/4	1/2	2-1/2	0.01	504240
1/4	1/4	1/2	2-1/2	0.02	504241
1/4	1/4	1/2	2-1/2	0.03	504242
1/4	1/4	1/2	2-1/2	0.06	504243
1/4	1/4	3/4	2-1/2		504411
1/4	1/4	3/4	2-1/2	0.01	504244
1/4	1/4	3/4	2-1/2	0.02	504245
1/4	1/4	3/4	2-1/2	0.03	504246
1/4	1/4	3/4	2-1/2	0.06	504247
1/4	1/4	1	3		504413
1/4	1/4	1	3	0.01	504252
1/4	1/4	1	3	0.02	504253
1/4	1/4	1	3	0.03	504254
1/4	1/4	1	3	0.06	504255
1/4	1/4	1-1/4	3		504412
1/4	1/4	1-1/4	3	0.01	504248
1/4	1/4	1-1/4	3	0.02	504249
1/4	1/4	1-1/4	3	0.03	504250
1/4	1/4	1-1/4	3	0.06	504251
5/16	5/16	7/16	2		504414
5/16	5/16	7/16	2	0.01	504256
5/16	5/16	7/16	2	0.02	504257
5/16	5/16	7/16	2	0.03	504258
5/16	5/16	7/16	2	0.06	504259
5/16	5/16	13/16	2-1/2		504415
5/16	5/16	13/16	2-1/2	0.01	504260
5/16	5/16	13/16	2-1/2	0.02	504261
5/16	5/16	13/16	2-1/2	0.03	504262



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HARRIER-ALT

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4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
5/16	5/16	13/16	2-1/2	0.06	504263
5/16	5/16	1	3		504416
5/16	5/16	1	3	0.01	504264
5/16	5/16	1	3	0.02	504265
5/16	5/16	1	3	0.03	504266
5/16	5/16	1	3	0.06	504267
3/8	3/8	1/2	2		504417
3/8	3/8	1/2	2	0.01	504268
3/8	3/8	1/2	2	0.02	504269
3/8	3/8	1/2	2	0.03	504270
3/8	3/8	1/2	2	0.06	504271
3/8	3/8	1/2	2	0.09	504272
3/8	3/8	1	2-1/2		504420
3/8	3/8	1	2-1/2	0.01	504283
3/8	3/8	1	2-1/2	0.02	504284
3/8	3/8	1	2-1/2	0.03	504285
3/8	3/8	1	2-1/2	0.06	504286
3/8	3/8	1	2-1/2	0.09	504287
3/8	3/8	1-1/4	3		504418
3/8	3/8	1-1/4	3	0.01	504273
3/8	3/8	1-1/4	3	0.02	504274
3/8	3/8	1-1/4	3	0.03	504275
3/8	3/8	1-1/4	3	0.06	504276
3/8	3/8	1-1/4	3	0.09	504277
3/8	3/8	1-1/2	3		504419
3/8	3/8	1-1/2	3	0.01	504278
3/8	3/8	1-1/2	3	0.02	504279
3/8	3/8	1-1/2	3	0.03	504280
3/8	3/8	1-1/2	3	0.06	504281
3/8	3/8	1-1/2	3	0.09	504282
1/2	1/2	5/8	2-1/2		504421
1/2	1/2	5/8	2-1/2	0.02	504288
1/2	1/2	5/8	2-1/2	0.03	504289
1/2	1/2	5/8	2-1/2	0.06	504290
1/2	1/2	5/8	2-1/2	0.09	504291
1/2	1/2	5/8	2-1/2	0.12	504292
1/2	1/2	1	3		504424
1/2	1/2	1	3	0.02	504303
1/2	1/2	1	3	0.03	504304
1/2	1/2	1	3	0.06	504305
1/2	1/2	1	3	0.09	504306
1/2	1/2	1	3	0.12	504307
1/2	1/2	1-1/4	3		504422
1/2	1/2	1-1/4	3	0.02	504293
1/2	1/2	1-1/4	3	0.03	504294
1/2	1/2	1-1/4	3	0.06	504295
1/2	1/2	1-1/4	3	0.09	504296
1/2	1/2	1-1/4	3	0.12	504297
1/2	1/2	1-5/8	4		504423
1/2	1/2	1-5/8	4	0.02	504298
1/2	1/2	1-5/8	4	0.03	504299
1/2	1/2	1-5/8	4	0.06	504300
1/2	1/2	1-5/8	4	0.09	504301
1/2	1/2	1-5/8	4	0.12	504302
1/2	1/2	2	4		504425
1/2	1/2	2	4	0.02	504308
1/2	1/2	2	4	0.03	504309
1/2	1/2	2	4	0.06	504310



Harrier Series 504R
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HARRIER-ALT

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4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1/2	1/2	2	4	0.09	504311
1/2	1/2	2	4	0.12	504312
5/8	5/8	3/4	3		504426
5/8	5/8	3/4	3	0.03	504313
5/8	5/8	3/4	3	0.06	504314
5/8	5/8	3/4	3	0.09	504315
5/8	5/8	3/4	3	0.12	504316
5/8	5/8	1-1/4	3-1/2		504427
5/8	5/8	1-1/4	3-1/2	0.03	504317
5/8	5/8	1-1/4	3-1/2	0.06	504318
5/8	5/8	1-1/4	3-1/2	0.09	504319
5/8	5/8	1-1/4	3-1/2	0.12	504320
5/8	5/8	1-5/8	3-1/2		504428
5/8	5/8	1-5/8	3-1/2	0.03	504321
5/8	5/8	1-5/8	3-1/2	0.06	504322
5/8	5/8	1-5/8	3-1/2	0.09	504323
5/8	5/8	1-5/8	3-1/2	0.12	504324
5/8	5/8	2-1/8	4		504429
5/8	5/8	2-1/8	4	0.03	504325
5/8	5/8	2-1/8	4	0.06	504326
5/8	5/8	2-1/8	4	0.09	504327
5/8	5/8	2-1/8	4	0.12	504328
5/8	5/8	2-1/2	5		504430
5/8	5/8	2-1/2	5	0.03	504329
5/8	5/8	2-1/2	5	0.06	504330
5/8	5/8	2-1/2	5	0.09	504331
5/8	5/8	2-1/2	5	0.12	504332
3/4	3/4	1	3		504432
3/4	3/4	1	3	0.03	504338
3/4	3/4	1	3	0.06	504339
3/4	3/4	1	3	0.09	504340
3/4	3/4	1	3	0.12	504341
3/4	3/4	1	3	0.25	504342
3/4	3/4	1-5/8	4		504431
3/4	3/4	1-5/8	4	0.03	504333
3/4	3/4	1-5/8	4	0.06	504334
3/4	3/4	1-5/8	4	0.09	504335
3/4	3/4	1-5/8	4	0.12	504336
3/4	3/4	1-5/8	4	0.25	504337
3/4	3/4	2-1/4	5		504433
3/4	3/4	2-1/4	5	0.03	504343
3/4	3/4	2-1/4	5	0.06	504344
3/4	3/4	2-1/4	5	0.09	504345
3/4	3/4	2-1/4	5	0.12	504346
3/4	3/4	2-1/4	5	0.25	504347
3/4	3/4	2-3/4	5		504434
3/4	3/4	2-3/4	5	0.03	504348
3/4	3/4	2-3/4	5	0.06	504349
3/4	3/4	2-3/4	5	0.09	504350
3/4	3/4	2-3/4	5	0.12	504351
3/4	3/4	2-3/4	5	0.25	504352
3/4	3/4	3-1/4	6		504435
3/4	3/4	3-1/4	6	0.03	504353
3/4	3/4	3-1/4	6	0.06	504354
3/4	3/4	3-1/4	6	0.09	504355
3/4	3/4	3-1/4	6	0.12	504356
3/4	3/4	3-1/4	6	0.25	504357
1	1	1-1/4	4		504440



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CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1	1	1-1/4	4	0.03	504378
1	1	1-1/4	4	0.06	504379
1	1	1-1/4	4	0.09	504380
1	1	1-1/4	4	0.12	504381
1	1	1-1/4	4	0.25	504382
1	1	2	4		504442
1	1	2	4	0.03	504388
1	1	2	4	0.06	504389
1	1	2	4	0.09	504390
1	1	2	4	0.12	504391
1	1	2	4	0.25	504392
1	1	2-5/8	5		504441
1	1	2-5/8	5	0.03	504383
1	1	2-5/8	5	0.06	504384
1	1	2-5/8	5	0.09	504385
1	1	2-5/8	5	0.12	504386
1	1	2-5/8	5	0.25	504387
1	1	3-1/4	6		504443
1	1	3-1/4	6	0.03	504393
1	1	3-1/4	6	0.06	504394
1	1	3-1/4	6	0.09	504395
1	1	3-1/4	6	0.12	504396
1	1	3-1/4	6	0.25	504397
1	1	4-1/4	7		504444
1	1	4-1/4	7	0.03	504398
1	1	4-1/4	7	0.06	504399
1	1	4-1/4	7	0.09	504400
1	1	4-1/4	7	0.12	504401
1	1	4-1/4	7	0.25	504402
1-1/4	1-1/4	1-1/2	4-1/2		504436
1-1/4	1-1/4	1-1/2	4-1/2	0.03	504358
1-1/4	1-1/4	1-1/2	4-1/2	0.06	504359
1-1/4	1-1/4	1-1/2	4-1/2	0.09	504360
1-1/4	1-1/4	1-1/2	4-1/2	0.12	504361
1-1/4	1-1/4	1-1/2	4-1/2	0.25	504362
1-1/4	1-1/4	2	4-1/2		504438
1-1/4	1-1/4	2	4-1/2	0.03	504368
1-1/4	1-1/4	2	4-1/2	0.06	504369
1-1/4	1-1/4	2	4-1/2	0.09	504370
1-1/4	1-1/4	2	4-1/2	0.12	504371
1-1/4	1-1/4	2	4-1/2	0.25	504372
1-1/4	1-1/4	2-5/8	6		504437
1-1/4	1-1/4	2-5/8	6	0.03	504363
1-1/4	1-1/4	2-5/8	6	0.06	504364
1-1/4	1-1/4	2-5/8	6	0.09	504365
1-1/4	1-1/4	2-5/8	6	0.12	504366
1-1/4	1-1/4	2-5/8	6	0.25	504367
1-1/4	1-1/4	4-1/2	7		504439
1-1/4	1-1/4	4-1/2	7	0.03	504373
1-1/4	1-1/4	4-1/2	7	0.06	504374
1-1/4	1-1/4	4-1/2	7	0.09	504375
1-1/4	1-1/4	4-1/2	7	0.12	504376
1-1/4	1-1/4	4-1/2	7	0.25	504377



Harrier Series 504B

HARRIER-ALT

HARRIER-ALT | 4FL | REDUCED NECK | SQUARE & RADIUS

About the
Harrier
Series 504B

- UNEQUAL INDEX
- 4 FLUTE
- SQUARE & RADIUS
- CENTER CUTTING
- NECK
- H6 SHANK

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
1/8	1/8	5/32	2	3/8	3/8		504130
1/8	1/8	5/32	2	3/8	3/8	0.01	504001
1/8	1/8	5/32	2	3/8	3/8	0.02	504004
1/8	1/8	5/32	2	3/8	3/8	0.03	504007
1/8	1/8	5/32	2	1/2	1/2		504131
1/8	1/8	5/32	2	1/2	1/2	0.01	504002
1/8	1/8	5/32	2	1/2	1/2	0.02	504005
1/8	1/8	5/32	2	1/2	1/2	0.03	504008
1/8	1/8	5/32	2	3/4	3/4		504132
1/8	1/8	5/32	2	3/4	3/4	0.01	504003
1/8	1/8	5/32	2	3/4	3/4	0.02	504006
1/8	1/8	5/32	2	3/4	3/4	0.03	504009
3/16	3/16	1/4	3	1/2	1/2		504133
3/16	3/16	1/4	3	1/2	1/2	0.01	504010
3/16	3/16	1/4	3	1/2	1/2	0.02	504013
3/16	3/16	1/4	3	1/2	1/2	0.03	504016
3/16	3/16	1/4	3	3/4	3/4		504134
3/16	3/16	1/4	3	3/4	3/4	0.01	504011
3/16	3/16	1/4	3	3/4	3/4	0.02	504014
3/16	3/16	1/4	3	3/4	3/4	0.03	504017
3/16	3/16	1/4	3	1-1/8	1-1/8		504135
3/16	3/16	1/4	3	1-1/8	1-1/8	0.01	504012
3/16	3/16	1/4	3	1-1/8	1-1/8	0.02	504015
3/16	3/16	1/4	3	1-1/8	1-1/8	0.03	504018
1/4	1/4	3/8	4	3/4	3/4		504136
1/4	1/4	3/8	4	3/4	3/4	0.01	504019
1/4	1/4	3/8	4	3/4	3/4	0.02	504022
1/4	1/4	3/8	4	3/4	3/4	0.03	504025
1/4	1/4	3/8	4	3/4	3/4	0.06	504028
1/4	1/4	3/8	4	1-1/8	1-1/8		504137
1/4	1/4	3/8	4	1-1/8	1-1/8	0.01	504020
1/4	1/4	3/8	4	1-1/8	1-1/8	0.02	504023
1/4	1/4	3/8	4	1-1/8	1-1/8	0.03	504026
1/4	1/4	3/8	4	1-1/8	1-1/8	0.06	504029
1/4	1/4	3/8	4	2-1/8	2-1/8		504138
1/4	1/4	3/8	4	2-1/8	2-1/8	0.01	504021
1/4	1/4	3/8	4	2-1/8	2-1/8	0.02	504024
1/4	1/4	3/8	4	2-1/8	2-1/8	0.03	504027
1/4	1/4	3/8	4	2-1/8	2-1/8	0.06	504030
3/8	3/8	1/2	4	1-1/8	1-1/8		504139
3/8	3/8	1/2	4	1-1/8	1-1/8	0.02	504031
3/8	3/8	1/2	4	1-1/8	1-1/8	0.03	504033
3/8	3/8	1/2	4	1-1/8	1-1/8	0.06	504035
3/8	3/8	1/2	4	1-1/8	1-1/8	0.09	504037
3/8	3/8	1/2	4	2-1/8	2-1/8		504140
3/8	3/8	1/2	4	2-1/8	2-1/8	0.02	504032
3/8	3/8	1/2	4	2-1/8	2-1/8	0.03	504034
3/8	3/8	1/2	4	2-1/8	2-1/8	0.06	504036
3/8	3/8	1/2	4	2-1/8	2-1/8	0.09	504038
3/8	3/8	1/2	6	3-1/8	3-1/8		504141
3/8	3/8	1/2	6	3-1/8	3-1/8	0.02	504039
3/8	3/8	1/2	6	3-1/8	3-1/8	0.03	504041
3/8	3/8	1/2	6	3-1/8	3-1/8	0.06	504043
3/8	3/8	1/2	6	3-1/8	3-1/8	0.09	504045
3/8	3/8	1/2	6	4-1/8	4-1/8		504142
3/8	3/8	1/2	6	4-1/8	4-1/8	0.02	504040
3/8	3/8	1/2	6	4-1/8	4-1/8	0.03	504042
3/8	3/8	1/2	6	4-1/8	4-1/8	0.06	504044

Harrier Series 504B

HARRIER-ALT

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Harrier
Series 504B

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4 FLUTE

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CENTER
CUTTING

NECK

H6 SHANK

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
3/8	3/8	1/2	6	4-1/8	4-1/8	0.09	504046
1/2	1/2	5/8	4	1-1/2	1-1/2		504143
1/2	1/2	5/8	4	1-1/2	1-1/2	0.02	504047
1/2	1/2	5/8	4	1-1/2	1-1/2	0.06	504050
1/2	1/2	5/8	4	1-1/2	1-1/2	0.09	504052
1/2	1/2	5/8	4	1-1/2	1-1/2	0.12	504054
1/2	1/2	5/8	4	2-1/4	2-1/4		504144
1/2	1/2	5/8	4	2-1/4	2-1/4	0.02	504048
1/2	1/2	5/8	4	2-1/4	2-1/4	0.03	504049
1/2	1/2	5/8	4	2-1/4	2-1/4	0.06	504051
1/2	1/2	5/8	4	2-1/4	2-1/4	0.09	504053
1/2	1/2	5/8	4	2-1/4	2-1/4	0.12	504055
1/2	1/2	5/8	6	3-3/8	3-3/8		504145
1/2	1/2	5/8	6	3-3/8	3-3/8	0.02	504056
1/2	1/2	5/8	6	3-3/8	3-3/8	0.03	504058
1/2	1/2	5/8	6	3-3/8	3-3/8	0.06	504060
1/2	1/2	5/8	6	3-3/8	3-3/8	0.09	504062
1/2	1/2	5/8	6	3-3/8	3-3/8	0.12	504064
1/2	1/2	5/8	6	4-1/8	4-1/8		504146
1/2	1/2	5/8	6	4-1/8	4-1/8	0.02	504057
1/2	1/2	5/8	6	4-1/8	4-1/8	0.03	504059
1/2	1/2	5/8	6	4-1/8	4-1/8	0.06	504061
1/2	1/2	5/8	6	4-1/8	4-1/8	0.09	504063
1/2	1/2	5/8	6	4-1/8	4-1/8	0.12	504065
5/8	5/8	3/4	4	1-5/8	1-5/8		504147
5/8	5/8	3/4	4	1-5/8	1-5/8	0.03	504066
5/8	5/8	3/4	4	1-5/8	1-5/8	0.06	504067
5/8	5/8	3/4	4	1-5/8	1-5/8	0.09	504068
5/8	5/8	3/4	4	1-5/8	1-5/8	0.12	504069
5/8	5/8	3/4	6	2-3/8	2-3/8		504148
5/8	5/8	3/4	6	2-3/8	2-3/8	0.03	504070
5/8	5/8	3/4	6	2-3/8	2-3/8	0.06	504073
5/8	5/8	3/4	6	2-3/8	2-3/8	0.09	504076
5/8	5/8	3/4	6	2-3/8	2-3/8	0.12	504079
5/8	5/8	3/4	6	3-3/8	3-3/8		504149
5/8	5/8	3/4	6	3-3/8	3-3/8	0.03	504071
5/8	5/8	3/4	6	3-3/8	3-3/8	0.06	504074
5/8	5/8	3/4	6	3-3/8	3-3/8	0.09	504077
5/8	5/8	3/4	6	3-3/8	3-3/8	0.12	504080
5/8	5/8	3/4	6	4-1/8	4-1/8		504150
5/8	5/8	3/4	6	4-1/8	4-1/8	0.03	504072
5/8	5/8	3/4	6	4-1/8	4-1/8	0.06	504075
5/8	5/8	3/4	6	4-1/8	4-1/8	0.09	504078
5/8	5/8	3/4	6	4-1/8	4-1/8	0.12	504081
3/4	3/4	1	4	2	2		504151
3/4	3/4	1	4	2	2	0.03	504082
3/4	3/4	1	4	2	2	0.06	504083
3/4	3/4	1	4	2	2	0.09	504084
3/4	3/4	1	4	2	2	0.12	504085
3/4	3/4	1	4	2	2	0.19	504086
3/4	3/4	1	4	2	2	0.25	504087
3/4	3/4	1	6	2-1/2	2-1/2		504152
3/4	3/4	1	6	2-1/2	2-1/2	0.03	504088
3/4	3/4	1	6	2-1/2	2-1/2	0.06	504091
3/4	3/4	1	6	2-1/2	2-1/2	0.09	504094
3/4	3/4	1	6	2-1/2	2-1/2	0.12	504097
3/4	3/4	1	6	2-1/2	2-1/2	0.19	504100
3/4	3/4	1	6	2-1/2	2-1/2	0.25	504103

Harrier Series 504B

HARRIER-ALT

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Harrier
Series 504B

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- SQUARE & RADIUS
- CENTER CUTTING
- NECK
- H6 SHANK

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
3/4	3/4	1	6	3-3/8	3-3/8		504153
3/4	3/4	1	6	3-3/8	3-3/8	0.03	504089
3/4	3/4	1	6	3-3/8	3-3/8	0.06	504092
3/4	3/4	1	6	3-3/8	3-3/8	0.09	504095
3/4	3/4	1	6	3-3/8	3-3/8	0.12	504098
3/4	3/4	1	6	3-3/8	3-3/8	0.19	504101
3/4	3/4	1	6	3-3/8	3-3/8	0.25	504104
3/4	3/4	1	6	4-1/8	4-1/8		504154
3/4	3/4	1	6	4-1/8	4-1/8	0.03	504090
3/4	3/4	1	6	4-1/8	4-1/8	0.06	504093
3/4	3/4	1	6	4-1/8	4-1/8	0.09	504096
3/4	3/4	1	6	4-1/8	4-1/8	0.12	504099
3/4	3/4	1	6	4-1/8	4-1/8	0.19	504102
3/4	3/4	1	6	4-1/8	4-1/8	0.25	504105
1	1	1-1/4	4	2-1/4	2-1/4		504155
1	1	1-1/4	4	2-1/4	2-1/4	0.03	504106
1	1	1-1/4	4	2-1/4	2-1/4	0.06	504107
1	1	1-1/4	4	2-1/4	2-1/4	0.09	504108
1	1	1-1/4	4	2-1/4	2-1/4	0.12	504109
1	1	1-1/4	4	2-1/4	2-1/4	0.19	504110
1	1	1-1/4	4	2-1/4	2-1/4	0.25	504111
1	1	1-1/4	6	2-5/8	2-5/8		504156
1	1	1-1/4	6	2-5/8	2-5/8	0.03	504112
1	1	1-1/4	6	2-5/8	2-5/8	0.06	504115
1	1	1-1/4	6	2-5/8	2-5/8	0.09	504118
1	1	1-1/4	6	2-5/8	2-5/8	0.12	504121
1	1	1-1/4	6	2-5/8	2-5/8	0.19	504124
1	1	1-1/4	6	2-5/8	2-5/8	0.25	504127
1	1	1-1/4	6	3-3/8	3-3/8		504157
1	1	1-1/4	6	3-3/8	3-3/8	0.03	504113
1	1	1-1/4	6	3-3/8	3-3/8	0.06	504116
1	1	1-1/4	6	3-3/8	3-3/8	0.09	504119
1	1	1-1/4	6	3-3/8	3-3/8	0.12	504122
1	1	1-1/4	6	3-3/8	3-3/8	0.19	504125
1	1	1-1/4	6	3-3/8	3-3/8	0.25	504128
1	1	1-1/4	6	4-1/8	4-1/8		504158
1	1	1-1/4	6	4-1/8	4-1/8	0.03	504114
1	1	1-1/4	6	4-1/8	4-1/8	0.06	504117
1	1	1-1/4	6	4-1/8	4-1/8	0.09	504120
1	1	1-1/4	6	4-1/8	4-1/8	0.12	504123
1	1	1-1/4	6	4-1/8	4-1/8	0.19	504126
1	1	1-1/4	6	4-1/8	4-1/8	0.25	504129



Harrier Series 504C

HARRIER-ALT

HARRIER-ALT| 4FL | BALL NOSE

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Harrier
Series 504C

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4 FLUTE
BALL NOSE
CENTER
CUTTING
H6 SHANK
CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	CR-MAX
1/8	1/8	1/4	1-1/2	504159
1/8	1/8	1/2	2	504160
3/16	3/16	5/16	2	504161
3/16	3/16	5/8	2	504162
1/4	1/4	3/8	2	504163
1/4	1/4	1/2	2-1/2	504164
1/4	1/4	3/4	2-1/2	504165
5/16	5/16	7/16	2	504166
5/16	5/16	13/16	2-1/2	504167
3/8	3/8	1/2	2	504168
3/8	3/8	1	2-1/2	504169
1/2	1/2	5/8	2-1/2	504170
1/2	1/2	1	3	504172
1/2	1/2	1-1/4	3	504171
5/8	5/8	1-1/4	3-1/2	504173
5/8	5/8	1-5/8	3-1/2	504174
3/4	3/4	1	3	504176
3/4	3/4	1-5/8	4	504175
1	1	1-1/4	4	504177
1	1	2	4	504178



Harrier Series 504D

HARRIER-ALT

HARRIER-ALT | 4FL | RADIUS | CHIP BREAKER

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Harrier
Series 504D

UNEQUAL INDEX
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4 FLUTE

RADIUS

H6 SHANK

CENTER
CUTTING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1/8	1/8	1/4	1-1/2	0.01	504179
1/8	1/8	1/2	2	0.01	504180
1/8	1/8	3/4	2-1/2	0.01	504181
3/16	3/16	5/16	2	0.01	504182
3/16	3/16	9/16	2	0.01	504183
3/16	3/16	3/4	2-1/2	0.01	504184
1/4	1/4	3/8	2	0.02	504185
1/4	1/4	1/2	2-1/2	0.02	504186
1/4	1/4	3/4	2-1/2	0.02	504187
1/4	1/4	1	3	0.02	504188
5/16	5/16	7/16	2	0.02	504189
5/16	5/16	13/16	2-1/2	0.02	504190
5/16	5/16	1	3	0.02	504191
3/8	3/8	1/2	2	0.02	504192
3/8	3/8	7/8	2-1/2	0.02	504193
3/8	3/8	1	2-1/2	0.02	504196
3/8	3/8	1-1/4	3	0.02	504194
3/8	3/8	1-1/2	3	0.02	504195
1/2	1/2	5/8	2-1/2	0.03	504197
1/2	1/2	1	3	0.03	504201
1/2	1/2	1-1/4	3	0.03	504198
1/2	1/2	1-5/8	4	0.02	504199
1/2	1/2	1-5/8	4	0.03	504200
1/2	1/2	2	4	0.03	504202
5/8	5/8	3/4	3	0.03	504203
5/8	5/8	1-1/4	3-1/2	0.03	504204
5/8	5/8	1-5/8	3-1/2	0.03	504205
5/8	5/8	2-1/8	4	0.03	504206
5/8	5/8	2-1/2	5	0.03	504207
3/4	3/4	1	3	0.03	504209
3/4	3/4	1-5/8	4	0.03	504208
3/4	3/4	2-1/4	5	0.03	504210
3/4	3/4	2-3/4	5	0.03	504211
3/4	3/4	3-1/4	6	0.03	504212
1	1	1-1/4	4	0.03	504213
1	1	2	4	0.03	504215
1	1	2-5/8	5	0.03	504214
1	1	3-1/4	6	0.03	504216
1	1	4-1/4	7	0.03	504217



Harrier Series 505A
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HARRIER-ALT

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Harrier
Series 505A

UNEQUAL INDEX

5 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1/8	1/8	1/4	1-1/2		505184
1/8	1/8	1/4	1-1/2	0.01	505001
1/8	1/8	1/4	1-1/2	0.02	505002
1/8	1/8	1/4	1-1/2	0.03	505003
1/8	1/8	1/2	2		505185
1/8	1/8	1/2	2	0.01	505004
1/8	1/8	1/2	2	0.02	505005
1/8	1/8	1/2	2	0.03	505006
1/8	1/8	3/4	2-1/2		505186
1/8	1/8	3/4	2-1/2	0.01	505007
1/8	1/8	3/4	2-1/2	0.02	505008
3/16	3/16	5/16	2		505187
3/16	3/16	5/16	2	0.01	505009
3/16	3/16	5/16	2	0.02	505010
3/16	3/16	9/16	2		505188
3/16	3/16	9/16	2	0.01	505011
3/16	3/16	9/16	2	0.02	505012
3/16	3/16	9/16	2	0.03	505013
3/16	3/16	3/4	2-1/2		505189
3/16	3/16	3/4	2-1/2	0.01	505014
3/16	3/16	3/4	2-1/2	0.02	505015
3/16	3/16	3/4	2-1/2	0.03	505016
1/4	1/4	3/8	2		505190
1/4	1/4	3/8	2	0.01	505017
1/4	1/4	3/8	2	0.02	505018
1/4	1/4	3/8	2	0.03	505019
1/4	1/4	3/8	2	0.06	505020
1/4	1/4	1/2	2-1/2		505191
1/4	1/4	1/2	2-1/2	0.01	505021
1/4	1/4	1/2	2-1/2	0.02	505022
1/4	1/4	1/2	2-1/2	0.03	505023
1/4	1/4	1/2	2-1/2	0.06	505024
1/4	1/4	3/4	2-1/2		505192
1/4	1/4	3/4	2-1/2	0.01	505025
1/4	1/4	3/4	2-1/2	0.02	505026
1/4	1/4	3/4	2-1/2	0.03	505027
1/4	1/4	3/4	2-1/2	0.06	505028
1/4	1/4	1	3		505194
1/4	1/4	1	3	0.01	505033
1/4	1/4	1	3	0.02	505034
1/4	1/4	1	3	0.03	505035
1/4	1/4	1	3	0.06	505036
1/4	1/4	1-1/4	3		505193
1/4	1/4	1-1/4	3	0.01	505029
1/4	1/4	1-1/4	3	0.02	505030
1/4	1/4	1-1/4	3	0.03	505031
1/4	1/4	1-1/4	3	0.06	505032
5/16	5/16	7/16	2		505195
5/16	5/16	7/16	2	0.01	505037
5/16	5/16	7/16	2	0.02	505038
5/16	5/16	7/16	2	0.03	505039
5/16	5/16	7/16	2	0.06	505040
5/16	5/16	13/16	2-1/2		505196
5/16	5/16	13/16	2-1/2	0.01	505041
5/16	5/16	13/16	2-1/2	0.02	505042
5/16	5/16	13/16	2-1/2	0.03	505043
5/16	5/16	13/16	2-1/2	0.06	505044
5/16	5/16	1	3		505197

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Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
5/16	5/16	1	3	0.01	505045
5/16	5/16	1	3	0.02	505046
5/16	5/16	1	3	0.03	505047
5/16	5/16	1	3	0.06	505048
3/8	3/8	1/2	2		505198
3/8	3/8	1/2	2	0.01	505049
3/8	3/8	1/2	2	0.02	505050
3/8	3/8	1/2	2	0.03	505051
3/8	3/8	1/2	2	0.06	505052
3/8	3/8	1/2	2	0.09	505053
3/8	3/8	1	2-1/2		505201
3/8	3/8	1	2-1/2	0.01	505064
3/8	3/8	1	2-1/2	0.02	505065
3/8	3/8	1	2-1/2	0.03	505066
3/8	3/8	1	2-1/2	0.06	505067
3/8	3/8	1	2-1/2	0.09	505068
3/8	3/8	1-1/4	3		505199
3/8	3/8	1-1/4	3	0.01	505054
3/8	3/8	1-1/4	3	0.02	505055
3/8	3/8	1-1/4	3	0.03	505056
3/8	3/8	1-1/4	3	0.06	505057
3/8	3/8	1-1/4	3	0.09	505058
3/8	3/8	1-1/2	3		505200
3/8	3/8	1-1/2	3	0.01	505059
3/8	3/8	1-1/2	3	0.02	505060
3/8	3/8	1-1/2	3	0.03	505061
3/8	3/8	1-1/2	3	0.06	505062
3/8	3/8	1-1/2	3	0.09	505063
1/2	1/2	5/8	2-1/2		505202
1/2	1/2	5/8	2-1/2	0.02	505069
1/2	1/2	5/8	2-1/2	0.03	505070
1/2	1/2	5/8	2-1/2	0.06	505071
1/2	1/2	5/8	2-1/2	0.09	505072
1/2	1/2	5/8	2-1/2	0.12	505073
1/2	1/2	1	3		505205
1/2	1/2	1	3	0.02	505084
1/2	1/2	1	3	0.03	505085
1/2	1/2	1	3	0.06	505086
1/2	1/2	1	3	0.09	505087
1/2	1/2	1	3	0.12	505088
1/2	1/2	1-1/4	3		505203
1/2	1/2	1-1/4	3	0.02	505074
1/2	1/2	1-1/4	3	0.03	505075
1/2	1/2	1-1/4	3	0.06	505076
1/2	1/2	1-1/4	3	0.09	505077
1/2	1/2	1-1/4	3	0.12	505078
1/2	1/2	1-5/8	4		505204
1/2	1/2	1-5/8	4	0.02	505079
1/2	1/2	1-5/8	4	0.03	505080
1/2	1/2	1-5/8	4	0.06	505081
1/2	1/2	1-5/8	4	0.09	505082
1/2	1/2	1-5/8	4	0.12	505083
1/2	1/2	2	4		505206
1/2	1/2	2	4	0.02	505089
1/2	1/2	2	4	0.03	505090
1/2	1/2	2	4	0.06	505091
1/2	1/2	2	4	0.09	505092
1/2	1/2	2	4	0.12	505093



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Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
5/8	5/8	3/4	3		505207
5/8	5/8	3/4	3	0.03	505094
5/8	5/8	3/4	3	0.06	505095
5/8	5/8	3/4	3	0.09	505096
5/8	5/8	3/4	3	0.12	505097
5/8	5/8	1-1/4	3-1/2		505208
5/8	5/8	1-1/4	3-1/2	0.03	505098
5/8	5/8	1-1/4	3-1/2	0.06	505099
5/8	5/8	1-1/4	3-1/2	0.09	505100
5/8	5/8	1-1/4	3-1/2	0.12	505101
5/8	5/8	1-5/8	3-1/2		505209
5/8	5/8	1-5/8	3-1/2	0.03	505102
5/8	5/8	1-5/8	3-1/2	0.06	505103
5/8	5/8	1-5/8	3-1/2	0.09	505104
5/8	5/8	1-5/8	3-1/2	0.12	505105
5/8	5/8	2-1/8	4		505210
5/8	5/8	2-1/8	4	0.03	505106
5/8	5/8	2-1/8	4	0.06	505107
5/8	5/8	2-1/8	4	0.09	505108
5/8	5/8	2-1/8	4	0.12	505109
5/8	5/8	2-1/2	5		505211
5/8	5/8	2-1/2	5	0.03	505110
5/8	5/8	2-1/2	5	0.06	505111
5/8	5/8	2-1/2	5	0.09	505112
5/8	5/8	2-1/2	5	0.12	505113
3/4	3/4	1	3		505213
3/4	3/4	1	3	0.03	505119
3/4	3/4	1	3	0.06	505120
3/4	3/4	1	3	0.09	505121
3/4	3/4	1	3	0.12	505122
3/4	3/4	1	3	0.25	505123
3/4	3/4	1-5/8	4		505212
3/4	3/4	1-5/8	4	0.03	505114
3/4	3/4	1-5/8	4	0.06	505115
3/4	3/4	1-5/8	4	0.09	505116
3/4	3/4	1-5/8	4	0.12	505117
3/4	3/4	1-5/8	4	0.25	505118
3/4	3/4	2-1/4	5		505214
3/4	3/4	2-1/4	5	0.03	505124
3/4	3/4	2-1/4	5	0.06	505125
3/4	3/4	2-1/4	5	0.09	505126
3/4	3/4	2-1/4	5	0.12	505127
3/4	3/4	2-1/4	5	0.25	505128
3/4	3/4	2-3/4	5		505215
3/4	3/4	2-3/4	5	0.03	505129
3/4	3/4	2-3/4	5	0.06	505130
3/4	3/4	2-3/4	5	0.09	505131
3/4	3/4	2-3/4	5	0.12	505132
3/4	3/4	2-3/4	5	0.25	505133
3/4	3/4	3-1/4	6		505216
3/4	3/4	3-1/4	6	0.03	505134
3/4	3/4	3-1/4	6	0.06	505135
3/4	3/4	3-1/4	6	0.09	505136
3/4	3/4	3-1/4	6	0.12	505137
3/4	3/4	3-1/4	6	0.25	505138
1	1	1-1/4	4		505221
1	1	1-1/4	4	0.03	505159
1	1	1-1/4	4	0.06	505160

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Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
1	1	1-1/4	4	0.09	505161
1	1	1-1/4	4	0.12	505162
1	1	1-1/4	4	0.25	505163
1	1	2	4		505223
1	1	2	4	0.03	505169
1	1	2	4	0.06	505170
1	1	2	4	0.09	505171
1	1	2	4	0.12	505172
1	1	2	4	0.25	505173
1	1	2-5/8	5		505222
1	1	2-5/8	5	0.03	505164
1	1	2-5/8	5	0.06	505165
1	1	2-5/8	5	0.09	505166
1	1	2-5/8	5	0.12	505167
1	1	2-5/8	5	0.25	505168
1	1	3-1/4	6		505224
1	1	3-1/4	6	0.03	505174
1	1	3-1/4	6	0.06	505175
1	1	3-1/4	6	0.09	505176
1	1	3-1/4	6	0.12	505177
1	1	3-1/4	6	0.25	505178
1	1	4-1/4	7		505225
1	1	4-1/4	7	0.03	505179
1	1	4-1/4	7	0.06	505180
1	1	4-1/4	7	0.09	505181
1	1	4-1/4	7	0.12	505182
1	1	4-1/4	7	0.25	505183
1-1/4	1-1/4	1-1/2	4-1/2		505217
1-1/4	1-1/4	1-1/2	4-1/2	0.03	505139
1-1/4	1-1/4	1-1/2	4-1/2	0.06	505140
1-1/4	1-1/4	1-1/2	4-1/2	0.09	505141
1-1/4	1-1/4	1-1/2	4-1/2	0.12	505142
1-1/4	1-1/4	1-1/2	4-1/2	0.25	505143
1-1/4	1-1/4	2	4-1/2		505219
1-1/4	1-1/4	2	4-1/2	0.03	505149
1-1/4	1-1/4	2	4-1/2	0.06	505150
1-1/4	1-1/4	2	4-1/2	0.09	505151
1-1/4	1-1/4	2	4-1/2	0.12	505152
1-1/4	1-1/4	2	4-1/2	0.25	505153
1-1/4	1-1/4	2-5/8	6		505218
1-1/4	1-1/4	2-5/8	6	0.03	505144
1-1/4	1-1/4	2-5/8	6	0.06	505145
1-1/4	1-1/4	2-5/8	6	0.09	505146
1-1/4	1-1/4	2-5/8	6	0.12	505147
1-1/4	1-1/4	2-5/8	6	0.25	505148
1-1/4	1-1/4	4-1/2	7		505220
1-1/4	1-1/4	4-1/2	7	0.03	505154
1-1/4	1-1/4	4-1/2	7	0.06	505155
1-1/4	1-1/4	4-1/2	7	0.09	505156
1-1/4	1-1/4	4-1/2	7	0.12	505157
1-1/4	1-1/4	4-1/2	7	0.25	505158



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Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
1/8	1/8	5/32	2	3/8	3/8	0.02	505228
1/8	1/8	5/32	2	3/8	3/8	0.03	505231
1/8	1/8	5/32	2	1/2	1/2		505378
1/8	1/8	5/32	2	1/2	1/2	0.01	505226
1/8	1/8	5/32	2	1/2	1/2	0.02	505229
1/8	1/8	5/32	2	1/2	1/2	0.03	505232
1/8	1/8	5/32	2	3/4	3/4		505379
1/8	1/8	5/32	2	3/4	3/4	0.01	505227
1/8	1/8	5/32	2	3/4	3/4	0.02	505230
1/8	1/8	5/32	2	3/4	3/4	0.03	505233
3/16	3/16	7/32	2	1/2	1/2		505382
3/16	3/16	7/32	2	1/2	1/2	0.01	505240
3/16	3/16	7/32	2	1/2	1/2	0.02	505241
3/16	3/16	7/32	2	1/2	1/2	0.03	505242
3/16	3/16	7/32	2-1/2	3/4	3/4		505380
3/16	3/16	7/32	2-1/2	3/4	3/4	0.01	505234
3/16	3/16	7/32	2-1/2	3/4	3/4	0.02	505236
3/16	3/16	7/32	2-1/2	3/4	3/4	0.03	505238
3/16	3/16	7/32	2-1/2	1-1/8	1-1/8		505381
3/16	3/16	7/32	2-1/2	1-1/8	1-1/8	0.01	505235
3/16	3/16	7/32	2-1/2	1-1/8	1-1/8	0.02	505237
3/16	3/16	7/32	2-1/2	1-1/8	1-1/8	0.03	505239
1/4	1/4	3/8	4	3/4	3/4		505383
1/4	1/4	3/8	4	3/4	3/4	0.01	505243
1/4	1/4	3/8	4	3/4	3/4	0.02	505246
1/4	1/4	3/8	4	3/4	3/4	0.03	505249
1/4	1/4	3/8	4	3/4	3/4	0.06	505252
1/4	1/4	3/8	4	1-1/8	1-1/8		505384
1/4	1/4	3/8	4	1-1/8	1-1/8	0.01	505244
1/4	1/4	3/8	4	1-1/8	1-1/8	0.02	505247
1/4	1/4	3/8	4	1-1/8	1-1/8	0.03	505250
1/4	1/4	3/8	4	1-1/8	1-1/8	0.06	505253
1/4	1/4	3/8	4	2-1/8	2-1/8		505385
1/4	1/4	3/8	4	2-1/8	2-1/8	0.01	505245
1/4	1/4	3/8	4	2-1/8	2-1/8	0.02	505248
1/4	1/4	3/8	4	2-1/8	2-1/8	0.03	505251
1/4	1/4	3/8	4	2-1/8	2-1/8	0.06	505254
3/8	3/8	1/2	4	1-1/8	1-1/8		505386
3/8	3/8	1/2	4	1-1/8	1-1/8	0.02	505255
3/8	3/8	1/2	4	1-1/8	1-1/8	0.03	505257
3/8	3/8	1/2	4	1-1/8	1-1/8	0.06	505259
3/8	3/8	1/2	4	1-1/8	1-1/8	0.09	505261
3/8	3/8	1/2	4	2-1/8	2-1/8		505387
3/8	3/8	1/2	4	2-1/8	2-1/8	0.02	505256
3/8	3/8	1/2	4	2-1/8	2-1/8	0.03	505258
3/8	3/8	1/2	4	2-1/8	2-1/8	0.06	505260
3/8	3/8	1/2	4	2-1/8	2-1/8	0.09	505262
3/8	3/8	1/2	6	3-1/8	3-1/8		505388
3/8	3/8	1/2	6	3-1/8	3-1/8	0.02	505263
3/8	3/8	1/2	6	3-1/8	3-1/8	0.03	505265
3/8	3/8	1/2	6	3-1/8	3-1/8	0.06	505267
3/8	3/8	1/2	6	3-1/8	3-1/8	0.09	505269
3/8	3/8	1/2	6	4-1/8	4-1/8		505389
3/8	3/8	1/2	6	4-1/8	4-1/8	0.02	505264
3/8	3/8	1/2	6	4-1/8	4-1/8	0.03	505266
3/8	3/8	1/2	6	4-1/8	4-1/8	0.06	505268
3/8	3/8	1/2	6	4-1/8	4-1/8	0.09	505270
1/2	1/2	5/8	4	1-1/2	1-1/2		505390

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Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
1/2	1/2	5/8	4	1-1/2	1-1/2	0.02	505271
1/2	1/2	5/8	4	1-1/2	1-1/2	0.06	505274
1/2	1/2	5/8	4	1-1/2	1-1/2	0.09	505276
1/2	1/2	5/8	4	1-1/2	1-1/2	0.12	505278
1/2	1/2	5/8	4	2-1/4	2-1/4		505391
1/2	1/2	5/8	4	2-1/4	2-1/4	0.02	505272
1/2	1/2	5/8	4	2-1/4	2-1/4	0.03	505273
1/2	1/2	5/8	4	2-1/4	2-1/4	0.06	505275
1/2	1/2	5/8	4	2-1/4	2-1/4	0.09	505277
1/2	1/2	5/8	4	2-1/4	2-1/4	0.12	505279
1/2	1/2	5/8	6	3-3/8	3-3/8		505392
1/2	1/2	5/8	6	3-3/8	3-3/8	0.02	505280
1/2	1/2	5/8	6	3-3/8	3-3/8	0.03	505282
1/2	1/2	5/8	6	3-3/8	3-3/8	0.06	505284
1/2	1/2	5/8	6	3-3/8	3-3/8	0.09	505286
1/2	1/2	5/8	6	3-3/8	3-3/8	0.12	505288
1/2	1/2	5/8	6	4-1/8	4-1/8		505393
1/2	1/2	5/8	6	4-1/8	4-1/8	0.02	505281
1/2	1/2	5/8	6	4-1/8	4-1/8	0.03	505283
1/2	1/2	5/8	6	4-1/8	4-1/8	0.06	505285
1/2	1/2	5/8	6	4-1/8	4-1/8	0.09	505287
1/2	1/2	5/8	6	4-1/8	4-1/8	0.12	505289
5/8	5/8	3/4	4	1-5/8	1-5/8		505394
5/8	5/8	3/4	4	1-5/8	1-5/8	0.03	505290
5/8	5/8	3/4	4	1-5/8	1-5/8	0.06	505291
5/8	5/8	3/4	4	1-5/8	1-5/8	0.09	505292
5/8	5/8	3/4	4	1-5/8	1-5/8	0.12	505293
5/8	5/8	3/4	6	2-3/8	2-3/8		505395
5/8	5/8	3/4	6	2-3/8	2-3/8	0.03	505294
5/8	5/8	3/4	6	2-3/8	2-3/8	0.06	505297
5/8	5/8	3/4	6	2-3/8	2-3/8	0.09	505300
5/8	5/8	3/4	6	2-3/8	2-3/8	0.12	505303
5/8	5/8	3/4	6	3-3/8	3-3/8		505396
5/8	5/8	3/4	6	3-3/8	3-3/8	0.03	505295
5/8	5/8	3/4	6	3-3/8	3-3/8	0.06	505298
5/8	5/8	3/4	6	3-3/8	3-3/8	0.09	505301
5/8	5/8	3/4	6	3-3/8	3-3/8	0.12	505304
5/8	5/8	3/4	6	4-1/8	4-1/8		505397
5/8	5/8	3/4	6	4-1/8	4-1/8	0.03	505296
5/8	5/8	3/4	6	4-1/8	4-1/8	0.06	505299
5/8	5/8	3/4	6	4-1/8	4-1/8	0.09	505302
5/8	5/8	3/4	6	4-1/8	4-1/8	0.12	505305
3/4	3/4	1	4	2	2		505398
3/4	3/4	1	4	2	2	0.03	505306
3/4	3/4	1	4	2	2	0.06	505307
3/4	3/4	1	4	2	2	0.09	505308
3/4	3/4	1	4	2	2	0.12	505309
3/4	3/4	1	4	2	2	0.19	505310
3/4	3/4	1	4	2	2	0.25	505311
3/4	3/4	1	6	2-1/2	2-1/2		505399
3/4	3/4	1	6	2-1/2	2-1/2	0.03	505312
3/4	3/4	1	6	2-1/2	2-1/2	0.06	505315
3/4	3/4	1	6	2-1/2	2-1/2	0.09	505318
3/4	3/4	1	6	2-1/2	2-1/2	0.12	505321
3/4	3/4	1	6	2-1/2	2-1/2	0.19	505324
3/4	3/4	1	6	2-1/2	2-1/2	0.25	505327
3/4	3/4	1	6	3-3/8	3-3/8		505400
3/4	3/4	1	6	3-3/8	3-3/8	0.03	505313

Harrier Series 505B

HARRIER-ALT

HARRIER-ALT | 5FL | REDUCED NECK | SQUARE & RADIUS

About the
Harrier
Series 505B

- UNEQUAL INDEX
- 5 FLUTE
- SQUARE & RADIUS
- CENTER CUTTING
- NECK
- H6 SHANK

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
3/4	3/4	1	6	3-3/8	3-3/8	0.06	505316
3/4	3/4	1	6	3-3/8	3-3/8	0.09	505319
3/4	3/4	1	6	3-3/8	3-3/8	0.12	505322
3/4	3/4	1	6	3-3/8	3-3/8	0.19	505325
3/4	3/4	1	6	3-3/8	3-3/8	0.25	505328
3/4	3/4	1	6	4-1/8	4-1/8		505401
3/4	3/4	1	6	4-1/8	4-1/8	0.03	505314
3/4	3/4	1	6	4-1/8	4-1/8	0.06	505317
3/4	3/4	1	6	4-1/8	4-1/8	0.09	505320
3/4	3/4	1	6	4-1/8	4-1/8	0.12	505323
3/4	3/4	1	6	4-1/8	4-1/8	0.19	505326
3/4	3/4	1	6	4-1/8	4-1/8	0.25	505329
1	1	1-1/4	4	2-1/4	2-1/4		505406
1	1	1-1/4	4	2-1/4	2-1/4	0.03	505354
1	1	1-1/4	4	2-1/4	2-1/4	0.06	505355
1	1	1-1/4	4	2-1/4	2-1/4	0.09	505356
1	1	1-1/4	4	2-1/4	2-1/4	0.12	505357
1	1	1-1/4	4	2-1/4	2-1/4	0.19	505358
1	1	1-1/4	4	2-1/4	2-1/4	0.25	505359
1	1	1-1/4	6	2-5/8	2-5/8		505407
1	1	1-1/4	6	2-5/8	2-5/8	0.03	505360
1	1	1-1/4	6	2-5/8	2-5/8	0.06	505363
1	1	1-1/4	6	2-5/8	2-5/8	0.09	505366
1	1	1-1/4	6	2-5/8	2-5/8	0.12	505369
1	1	1-1/4	6	2-5/8	2-5/8	0.19	505372
1	1	1-1/4	6	2-5/8	2-5/8	0.25	505375
1	1	1-1/4	6	3-3/8	3-3/8		505408
1	1	1-1/4	6	3-3/8	3-3/8	0.03	505361
1	1	1-1/4	6	3-3/8	3-3/8	0.06	505364
1	1	1-1/4	6	3-3/8	3-3/8	0.09	505367
1	1	1-1/4	6	3-3/8	3-3/8	0.12	505370
1	1	1-1/4	6	3-3/8	3-3/8	0.19	505373
1	1	1-1/4	6	3-3/8	3-3/8	0.25	505376
1	1	1-1/4	6	4-1/8	4-1/8		505409
1	1	1-1/4	6	4-1/8	4-1/8	0.03	505362
1	1	1-1/4	6	4-1/8	4-1/8	0.06	505365
1	1	1-1/4	6	4-1/8	4-1/8	0.09	505368
1	1	1-1/4	6	4-1/8	4-1/8	0.12	505371
1	1	1-1/4	6	4-1/8	4-1/8	0.19	505374
1	1	1-1/4	6	4-1/8	4-1/8	0.25	505377
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4		505402
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.03	505330
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.06	505331
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.09	505332
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.12	505333
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.19	505334
1-1/4	1-1/4	1-1/2	5	2-1/4	2-1/4	0.25	505335
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8		505403
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.03	505336
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.06	505339
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.09	505342
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.12	505345
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.19	505348
1-1/4	1-1/4	1-1/2	6	2-5/8	2-5/8	0.25	505351
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8		505404
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.03	505337
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.06	505340
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.09	505343

Harrier Series 505B

HARRIER-ALT

HARRIER-ALT | 5FL | REDUCED NECK | SQUARE & RADIUS

About the
Harrier
Series 505B

- UNEQUAL INDEX
- 5 FLUTE
- SQUARE &
RADIUS
- CENTER
CUTTING
- NECK
- H6 SHANK

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	CR-MAX
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.12	505346
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.19	505349
1-1/4	1-1/4	1-1/2	6	3-3/8	3-3/8	0.25	505352
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8		505405
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.03	505338
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.06	505341
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.09	505344
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.12	505347
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.19	505350
1-1/4	1-1/4	1-1/2	6	4-1/8	4-1/8	0.25	505353



Harrier Series 507A
HARRIER-ALT | 7FL | SQUARE & RADIUS

HARRIER-ALT

About the
Harrier
Series 507A

7 FLUTE

SQUARE &
RADIUS

NON-CENTER
CUTTING

H6 SHANK

CR-MAX
COATING

ROUGHING &
FINISHING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
3/8	3/8	1/2	2		507087
3/8	3/8	1/2	2	0.03	507001
3/8	3/8	1/2	2	0.06	507002
3/8	3/8	1	2-1/2		507090
3/8	3/8	1	2-1/2	0.03	507007
3/8	3/8	1	2-1/2	0.06	507008
3/8	3/8	1-1/4	3		507088
3/8	3/8	1-1/4	3	0.03	507003
3/8	3/8	1-1/4	3	0.06	507004
3/8	3/8	1-1/2	4		507089
3/8	3/8	1-1/2	4	0.03	507005
3/8	3/8	1-1/2	4	0.06	507006
3/8	3/8	2-1/2	6		507091
3/8	3/8	2-1/2	6	0.03	507009
3/8	3/8	2-1/2	6	0.06	507010
1/2	1/2	3/4	2-1/2		507092
1/2	1/2	3/4	2-1/2	0.03	507011
1/2	1/2	3/4	2-1/2	0.06	507012
1/2	1/2	3/4	2-1/2	0.09	507013
1/2	1/2	1-1/4	3		507093
1/2	1/2	1-1/4	3	0.03	507014
1/2	1/2	1-1/4	3	0.06	507015
1/2	1/2	1-1/4	3	0.09	507016
1/2	1/2	2	4		507094
1/2	1/2	2	4	0.03	507017
1/2	1/2	2	4	0.06	507018
1/2	1/2	2	4	0.09	507019
1/2	1/2	3-1/4	6		507095
1/2	1/2	3-1/4	6	0.03	507020
1/2	1/2	3-1/4	6	0.06	507021
1/2	1/2	3-1/4	6	0.09	507022
5/8	5/8	3/4	3		507096
5/8	5/8	3/4	3	0.03	507023
5/8	5/8	3/4	3	0.06	507024
5/8	5/8	3/4	3	0.09	507025
5/8	5/8	3/4	3	0.12	507026
5/8	5/8	1-5/8	3-1/2		507097
5/8	5/8	1-5/8	3-1/2	0.03	507027
5/8	5/8	1-5/8	3-1/2	0.06	507028
5/8	5/8	1-5/8	3-1/2	0.09	507029
5/8	5/8	1-5/8	3-1/2	0.12	507030
5/8	5/8	2	5		507098
5/8	5/8	2	5	0.03	507031
5/8	5/8	2	5	0.06	507032
5/8	5/8	2	5	0.09	507033
5/8	5/8	2	5	0.12	507034
5/8	5/8	3-1/4	6		507099
5/8	5/8	3-1/4	6	0.03	507035
5/8	5/8	3-1/4	6	0.06	507036
5/8	5/8	3-1/4	6	0.09	507037
5/8	5/8	3-1/4	6	0.12	507038
3/4	3/4	1	3		507101
3/4	3/4	1	3	0.03	507043
3/4	3/4	1	3	0.06	507044
3/4	3/4	1	3	0.09	507045
3/4	3/4	1	3	0.12	507046
3/4	3/4	1-5/8	4		507100
3/4	3/4	1-5/8	4	0.03	507039

Harrier Series 507A
HARRIER-ALT | 7FL | SQUARE & RADIUS

HARRIER-ALT

About the
Harrier
Series 507A

- 7 FLUTE
- SQUARE &
RADIUS
- NON-CENTER
CUTTING
- H6 SHANK
- CR-MAX
COATING
- ROUGHING &
FINISHING

Diameter	Shank Dia.	LOC	OAL	Radius	CR-MAX
3/4	3/4	1-5/8	4	0.06	507040
3/4	3/4	1-5/8	4	0.09	507041
3/4	3/4	1-5/8	4	0.12	507042
3/4	3/4	2-1/4	5		507102
3/4	3/4	2-1/4	5	0.03	507047
3/4	3/4	2-1/4	5	0.06	507048
3/4	3/4	2-1/4	5	0.09	507049
3/4	3/4	2-1/4	5	0.12	507050
3/4	3/4	3-1/4	6		507103
3/4	3/4	3-1/4	6	0.03	507051
3/4	3/4	3-1/4	6	0.06	507052
3/4	3/4	3-1/4	6	0.09	507053
3/4	3/4	3-1/4	6	0.12	507054
1	1	1-1/4	4		507108
1	1	1-1/4	4	0.03	507071
1	1	1-1/4	4	0.06	507072
1	1	1-1/4	4	0.09	507073
1	1	1-1/4	4	0.12	507074
1	1	2	5		507109
1	1	2	5	0.03	507075
1	1	2	5	0.06	507076
1	1	2	5	0.09	507077
1	1	2	5	0.12	507078
1	1	3-1/4	6		507110
1	1	3-1/4	6	0.03	507079
1	1	3-1/4	6	0.06	507080
1	1	3-1/4	6	0.09	507081
1	1	3-1/4	6	0.12	507082
1	1	4-1/8	7		507111
1	1	4-1/8	7	0.03	507083
1	1	4-1/8	7	0.06	507084
1	1	4-1/8	7	0.09	507085
1	1	4-1/8	7	0.12	507086
1-1/4	1-1/4	2	4-1/2		507105
1-1/4	1-1/4	2	4-1/2	0.03	507059
1-1/4	1-1/4	2	4-1/2	0.06	507060
1-1/4	1-1/4	2	4-1/2	0.09	507061
1-1/4	1-1/4	2	4-1/2	0.12	507062
1-1/4	1-1/4	2-5/8	6		507104
1-1/4	1-1/4	2-5/8	6	0.03	507055
1-1/4	1-1/4	2-5/8	6	0.06	507056
1-1/4	1-1/4	2-5/8	6	0.09	507057
1-1/4	1-1/4	2-5/8	6	0.12	507058
1-1/4	1-1/4	3-1/4	6		507106
1-1/4	1-1/4	3-1/4	6	0.03	507063
1-1/4	1-1/4	3-1/4	6	0.06	507064
1-1/4	1-1/4	3-1/4	6	0.09	507065
1-1/4	1-1/4	3-1/4	6	0.12	507066
1-1/4	1-1/4	4-1/8	7-1/2		507107
1-1/4	1-1/4	4-1/8	7-1/2	0.03	507067
1-1/4	1-1/4	4-1/8	7-1/2	0.06	507068
1-1/4	1-1/4	4-1/8	7-1/2	0.09	507069
1-1/4	1-1/4	4-1/8	7-1/2	0.12	507070



Harrier Series 103P

HARRIER-NF

HARRIER-NF | 3FL | CHIP BREAKER | RADIUS | RAMPING TOOL

About the
Harrier
Series 103P

CHIP BREAKERS
37°

3 FLUTE

RADIUS

H6 SHANK

NON-CENTER
CUTTING

Diameter	Shank Dia.	LOC	OAL	Radius	Bright
3/16	3/16	5/8	2	0.015	103052
3/16	3/16	5/8	2	0.03	103053
1/4	1/4	3/4	2-1/2	0.015	103054
1/4	1/4	3/4	2-1/2	0.03	103055
1/4	1/4	1-1/8	3	0.015	103056
1/4	1/4	1-1/8	3	0.03	103057
5/16	5/16	3/4	2-1/2	0.015	103058
5/16	5/16	3/4	2-1/2	0.03	103059
5/16	5/16	1-1/8	3	0.015	103060
5/16	5/16	1-1/8	3	0.03	103061
3/8	3/8	1	2-1/2	0.015	103066
3/8	3/8	1	2-1/2	0.03	103067
3/8	3/8	1	2-1/2	0.06	103068
3/8	3/8	1-1/2	4	0.015	103063
3/8	3/8	1-1/2	4	0.03	103064
3/8	3/8	1-1/2	4	0.06	103065
1/2	1/2	1-1/4	3	0.015	103069
1/2	1/2	1-1/4	3	0.03	103070
1/2	1/2	1-1/4	3	0.045	103071
1/2	1/2	1-1/4	3	0.06	103072
1/2	1/2	1-1/4	3	0.09	103073
1/2	1/2	2-1/4	4	0.015	103074
1/2	1/2	2-1/4	4	0.03	103075
1/2	1/2	2-1/4	4	0.045	103076
1/2	1/2	2-1/4	4	0.06	103077
1/2	1/2	2-1/4	4	0.09	103078
5/8	5/8	1-5/8	3-1/2	0.015	103079
5/8	5/8	1-5/8	3-1/2	0.03	103080
5/8	5/8	1-5/8	3-1/2	0.045	103081
5/8	5/8	1-5/8	3-1/2	0.06	103082
5/8	5/8	1-5/8	3-1/2	0.09	103083
5/8	5/8	2-1/2	5	0.03	103085
5/8	5/8	2-1/2	5	0.06	103086
5/8	5/8	2-1/2	5	0.09	103087
3/4	3/4	1-5/8	4	0.03	103088
3/4	3/4	1-5/8	4	0.06	103089
3/4	3/4	1-5/8	4	0.09	103090
3/4	3/4	1-5/8	4	0.12	103091
3/4	3/4	2-1/2	5	0.03	103092
3/4	3/4	2-1/2	5	0.06	103093
3/4	3/4	2-1/2	5	0.09	103094
3/4	3/4	2-1/2	5	0.12	103095



Harrier Series 103R

HARRIER-NF

HARRIER-NF | 3FL | CHIP BREAKER | SQUARE & RADIUS | SLOTTING & ROUGHING

About the
Harrier
Series 103R

CHIP BREAKERS
37°

3 FLUTE

SQUARE &
RADIUS

H6 SHANK

CENTER
CUTTING

Diameter	Shank Dia.	LOC	OAL	Radius	Bright
3/16	3/16	5/8	2		103138
3/16	3/16	5/8	2	0.015	103096
3/16	3/16	5/8	2	0.03	103097
1/4	1/4	3/4	2-1/2		103139
1/4	1/4	3/4	2-1/2	0.015	103098
1/4	1/4	3/4	2-1/2	0.03	103099
1/4	1/4	1-1/8	3		103140
1/4	1/4	1-1/8	3	0.015	103100
1/4	1/4	1-1/8	3	0.03	103101
5/16	5/16	3/4	2-1/2		103141
5/16	5/16	3/4	2-1/2	0.015	103102
5/16	5/16	3/4	2-1/2	0.03	103103
5/16	5/16	1-1/8	3		103142
5/16	5/16	1-1/8	3	0.015	103104
5/16	5/16	1-1/8	3	0.03	103105
3/8	3/8	1	2-1/2		103144
3/8	3/8	1	2-1/2	0.015	103109
3/8	3/8	1	2-1/2	0.03	103110
3/8	3/8	1	2-1/2	0.06	103111
3/8	3/8	1-1/2	4		103143
3/8	3/8	1-1/2	4	0.015	103106
3/8	3/8	1-1/2	4	0.03	103107
3/8	3/8	1-1/2	4	0.06	103108
1/2	1/2	1-1/4	3		103145
1/2	1/2	1-1/4	3	0.015	103112
1/2	1/2	1-1/4	3	0.03	103113
1/2	1/2	1-1/4	3	0.045	103114
1/2	1/2	1-1/4	3	0.06	103115
1/2	1/2	1-1/4	3	0.09	103116
1/2	1/2	2-1/4	4		103146
1/2	1/2	2-1/4	4	0.015	103117
1/2	1/2	2-1/4	4	0.03	103118
1/2	1/2	2-1/4	4	0.06	103119
1/2	1/2	2-1/4	4	0.09	103120
5/8	5/8	1-5/8	3-1/2		103147
5/8	5/8	1-5/8	3-1/2	0.015	103121
5/8	5/8	1-5/8	3-1/2	0.03	103122
5/8	5/8	1-5/8	3-1/2	0.045	103123
5/8	5/8	1-5/8	3-1/2	0.06	103124
5/8	5/8	1-5/8	3-1/2	0.09	103125
5/8	5/8	2-1/2	5		103148
5/8	5/8	2-1/2	5	0.015	103126
5/8	5/8	2-1/2	5	0.03	103127
5/8	5/8	2-1/2	5	0.06	103128
5/8	5/8	2-1/2	5	0.09	103129
3/4	3/4	1-5/8	4		103149
3/4	3/4	1-5/8	4	0.03	103130
3/4	3/4	1-5/8	4	0.06	103131
3/4	3/4	1-5/8	4	0.09	103132
3/4	3/4	1-5/8	4	0.12	103133
3/4	3/4	2-1/2	5		103150
3/4	3/4	2-1/2	5	0.03	103134
3/4	3/4	2-1/2	5	0.06	103135
3/4	3/4	2-1/2	5	0.09	103136
3/4	3/4	2-1/2	5	0.12	103137



Harrier Series 103F

HARRIER-NF

HARRIER-NF | 3FL | SQUARE & RADIUS | FINISHING TOOL

About the
Harrier
Series 103F

- 37°
- 3 FLUTE
- SQUARE &
RADIUS
- H6 SHANK
- CENTER
CUTTING
- BRIGHT FINISH

Diameter	Shank Dia.	LOC	OAL	Radius	Bright
3/16	3/16	5/8	2		103039
3/16	3/16	5/8	2	0.01	103001
3/16	3/16	5/8	2	0.03	103002
1/4	1/4	3/4	2-1/2		103040
1/4	1/4	3/4	2-1/2	0.01	103003
1/4	1/4	3/4	2-1/2	0.03	103004
1/4	1/4	3/4	2-1/2	0.04	103005
1/4	1/4	1-1/8	3		103041
1/4	1/4	1-1/8	3	0.01	103006
1/4	1/4	1-1/8	3	0.04	103007
5/16	5/16	3/4	2-1/2		103042
5/16	5/16	3/4	2-1/2	0.01	103008
5/16	5/16	3/4	2-1/2	0.03	103009
5/16	5/16	3/4	2-1/2	0.05	103010
5/16	5/16	1-1/8	3		103043
5/16	5/16	1-1/8	3	0.01	103011
5/16	5/16	1-1/8	3	0.05	103012
3/8	3/8	1	2-1/2		103045
3/8	3/8	1	2-1/2	0.015	103015
3/8	3/8	1	2-1/2	0.03	103016
3/8	3/8	1	2-1/2	0.06	103017
3/8	3/8	1-1/2	4		103044
3/8	3/8	1-1/2	4	0.015	103013
3/8	3/8	1-1/2	4	0.06	103014
1/2	1/2	1-1/4	3		103046
1/2	1/2	1-1/4	3	0.015	103018
1/2	1/2	1-1/4	3	0.03	103019
1/2	1/2	1-1/4	3	0.045	103020
1/2	1/2	1-1/4	3	0.06	103021
1/2	1/2	1-1/4	3	0.08	103022
1/2	1/2	1-1/4	3	0.09	103023
1/2	1/2	2-1/4	4		103047
1/2	1/2	2-1/4	4	0.015	103024
1/2	1/2	2-1/4	4	0.08	103025
5/8	5/8	1-5/8	3-1/2		103048
5/8	5/8	1-5/8	3-1/2	0.02	103026
5/8	5/8	1-5/8	3-1/2	0.03	103027
5/8	5/8	1-5/8	3-1/2	0.06	103028
5/8	5/8	1-5/8	3-1/2	0.09	103029
5/8	5/8	1-5/8	3-1/2	0.1	103030
5/8	5/8	2-1/2	5		103049
5/8	5/8	2-1/2	5	0.02	103031
5/8	5/8	2-1/2	5	0.1	103032
3/4	3/4	1-5/8	4		103050
3/4	3/4	1-5/8	4	0.03	103033
3/4	3/4	1-5/8	4	0.06	103034
3/4	3/4	1-5/8	4	0.09	103035
3/4	3/4	1-5/8	4	0.12	103036
3/4	3/4	2-1/2	5		103051
3/4	3/4	2-1/2	5	0.03	103037
3/4	3/4	2-1/2	5	0.12	103038

Harrier Series 203A

HARRIER-NF

HARRIER-NF | 3FL | SQUARE & RADIUS

About the
Harrier
Series 203A

- 37°
- 3 FLUTE
- SQUARE &
RADIUS
- H6 SHANK
- CENTER
CUTTING
- BRIGHT FINISH

Diameter	Shank Dia.	LOC	OAL	Radius	ZrN	Bright
1/8	1/8	1/4	1-1/2		203056	203055
1/8	1/8	1/4	1-1/2	0.01	203001	203476
1/8	1/8	5/16	1-1/2		203058	203057
1/8	1/8	3/8	1-1/2		203060	203059
1/8	1/8	3/8	1-1/2	0.01	203002	203481
1/8	1/8	3/8	1-1/2	0.02	203003	203482
1/8	1/8	3/8	1-1/2	0.03	203004	203483
1/8	1/8	1/2	2		203062	203061
1/8	1/8	5/8	2		203064	203063
1/8	1/8	3/4	2		203066	203065
1/8	1/8	1	2-1/2		203068	203067
5/32	3/16	5/16	2		203070	203069
5/32	3/16	9/16	2		203576	203071
3/16	3/16	5/16	2		203073	203072
3/16	3/16	5/16	2	0.02	203005	203485
3/16	3/16	3/8	2		203075	203074
3/16	3/16	5/8	2-1/2		203077	203076
3/16	3/16	5/8	2-1/2	0.01	203006	203489
3/16	3/16	5/8	2-1/2	0.02	203007	203490
3/16	3/16	5/8	2-1/2	0.03	203008	203491
3/16	3/16	3/4	2-1/2		203079	203078
3/16	3/16	1	2-1/2		203081	203080
7/32	1/4	3/8	2-1/2		203083	203082
7/32	1/4	3/4	2-1/2		203085	203084
1/4	1/4	3/8	2-1/2		203087	203086
1/4	1/4	3/8	2-1/2	0.015	203009	203492
1/4	1/4	3/8	2-1/2	0.02	203010	203494
1/4	1/4	3/8	2-1/2	0.03	203011	203495
1/4	1/4	3/8	2-1/2	0.06	203012	203497
1/4	1/4	1/2	2-1/2		203089	203088
1/4	1/4	5/8	2-1/2		203091	203090
1/4	1/4	3/4	2-1/2		203093	203092
1/4	1/4	3/4	2-1/2	0.01	203014	203505
1/4	1/4	3/4	2-1/2	0.015	203013	203504
1/4	1/4	3/4	2-1/2	0.02	203015	203506
1/4	1/4	3/4	2-1/2	0.03	203016	203507
1/4	1/4	3/4	2-1/2	0.045	203017	203508
1/4	1/4	3/4	2-1/2	0.06	203018	203509
1/4	1/4	1	2-1/2		203101	203100
1/4	1/4	1-1/8	2-1/2		203095	203094
1/4	1/4	1-1/4	3		203097	203096
1/4	1/4	1-1/2	3		203099	203098
1/4	1/4	2	4		203103	203102
9/32	5/16	7/16	2-1/2		203105	203104
9/32	5/16	13/16	2-1/2		203107	203106
5/16	5/16	7/16	2-1/2		203109	203108
5/16	5/16	7/16	2-1/2	0.02	203019	203515
5/16	5/16	7/16	2-1/2	0.03	203020	203516
5/16	5/16	1/2	2-1/2		203111	203110
5/16	5/16	13/16	2-1/2		203113	203112
5/16	5/16	13/16	2-1/2	0.02	203021	203517
5/16	5/16	13/16	2-1/2	0.03	203022	203518
5/16	5/16	13/16	2-1/2	0.06	203023	203519
5/16	5/16	1-1/8	2-1/2		203115	203114
5/16	5/16	1-1/4	3-1/2		203117	203116
5/16	5/16	1-1/2	3-1/2		203119	203118
5/16	5/16	2-1/8	4		203121	203120

Harrier Series 203A

HARRIER-NF

HARRIER-NF | 3FL | SQUARE & RADIUS

About the
Harrier
Series 203A

- 37°
- 3 FLUTE
- SQUARE &
RADIUS
- H6 SHANK
- CENTER
CUTTING
- BRIGHT FINISH

Diameter	Shank Dia.	LOC	OAL	Radius	ZrN	Bright
11/32	3/8	1/2	2-1/2		203123	203122
11/32	3/8	1	2-1/2		203125	203124
3/8	3/8	1/2	2-1/2		203127	203126
3/8	3/8	1/2	2-1/2	0.02	203024	203521
3/8	3/8	1/2	2-1/2	0.03	203025	203522
3/8	3/8	1/2	2-1/2	0.045	203026	203523
3/8	3/8	5/8	2-1/2		203129	203128
3/8	3/8	3/4	2-1/2		203131	203130
3/8	3/8	1	2-1/2		203137	203136
3/8	3/8	1	2-1/2	0.02	203027	203525
3/8	3/8	1	2-1/2	0.03	203028	203526
3/8	3/8	1	2-1/2	0.045	203029	203527
3/8	3/8	1	2-1/2	0.06	203030	203528
3/8	3/8	1-1/4	3		203133	203132
3/8	3/8	1-1/2	4		203135	203134
3/8	3/8	2	4		203141	203140
3/8	3/8	2-1/2	6		203139	203138
13/32	7/16	9/16	2-3/4		203143	203142
13/32	7/16	1	2-3/4		203145	203144
7/16	7/16	9/16	2-3/4		203147	203146
7/16	7/16	1	2-3/4		203149	203148
7/16	7/16	2	4		203151	203150
15/32	1/2	5/8	3		203153	203152
15/32	1/2	1-1/4	3		203155	203154
1/2	1/2	5/8	3		203157	203156
1/2	1/2	5/8	3	0.02	203031	203530
1/2	1/2	5/8	3	0.03	203032	203532
1/2	1/2	5/8	3	0.06	203033	203534
1/2	1/2	5/8	3	0.09	203034	203536
1/2	1/2	3/4	3		203159	203158
1/2	1/2	1	3		203165	203164
1/2	1/2	1-1/4	3		203161	203160
1/2	1/2	1-1/4	3	0.02	203035	203551
1/2	1/2	1-1/4	3	0.03	203036	203552
1/2	1/2	1-1/4	3	0.06	203037	203582
1/2	1/2	1-1/4	3	0.09	203038	203583
1/2	1/2	1-1/4	3	0.12	203039	203584
1/2	1/2	1-1/2	4		203163	203162
1/2	1/2	2	4		203171	203170
1/2	1/2	2-1/4	6		203167	203166
1/2	1/2	2-1/2	6		203169	203168
1/2	1/2	3-1/4	6		203173	203172
1/2	1/2	4	8		203175	203174
5/8	5/8	3/4	3-1/2		203177	203176
5/8	5/8	1-1/4	3-1/2		203179	203178
5/8	5/8	1-5/8	3-1/2		203181	203180
5/8	5/8	1-5/8	3-1/2	0.03	203040	203590
5/8	5/8	1-5/8	3-1/2	0.06	203041	203591
5/8	5/8	1-5/8	3-1/2	0.09	203042	203592
5/8	5/8	1-5/8	3-1/2	0.12	203043	203593
5/8	5/8	2	5		203187	203186
5/8	5/8	2-1/2	5		203183	203182
5/8	5/8	2-3/4	5		203185	203184
5/8	5/8	3-1/4	6		203189	203188
5/8	5/8	4	8		203191	203190
3/4	3/4	1	4		203197	203196
3/4	3/4	1	5		203424	203578

Harrier Series 203A

HARRIER-NF

HARRIER-NF | 3FL | SQUARE & RADIUS

About the
Harrier
Series 203A

37°

3 FLUTE

SQUARE &
RADIUS

H6 SHANK

CENTER
CUTTING

BRIGHT FINISH

Diameter	Shank Dia.	LOC	OAL	Radius	ZrN	Bright
3/4	3/4	1	6		203427	203579
3/4	3/4	1	4	0.03	203047	203601
3/4	3/4	1	4	0.06	203048	203603
3/4	3/4	1	4	0.09	203049	203605
3/4	3/4	1	4	0.12	203050	203607
3/4	3/4	1-1/2	4		203193	203192
3/4	3/4	1-5/8	4		203195	203194
3/4	3/4	1-5/8	4	0.06	203044	203594
3/4	3/4	1-5/8	4	0.09	203045	203595
3/4	3/4	1-5/8	4	0.12	203046	203596
3/4	3/4	2	5		203203	203202
3/4	3/4	2	5	0.06	203377	203558
3/4	3/4	2	5	0.09	203378	203559
3/4	3/4	2-1/4	5		203199	203198
3/4	3/4	2-1/2	5		203201	203200
3/4	3/4	3	6		203209	203208
3/4	3/4	3-1/4	6		203205	203204
3/4	3/4	3-1/2	6		203207	203206
3/4	3/4	4	7		203211	203210
3/4	3/4	5	8		203213	203212
1	1	1-1/4	5		203223	203222
1	1	1-1/4	5	0.03	203560	203051
1	1	1-1/2	5		203225	203224
1	1	2	5		203229	203228
1	1	2	5	0.06	203052	203569
1	1	2	5	0.09	203053	203570
1	1	2	5	0.12	203054	203571
1	1	2-1/2	5		203227	203226
1	1	3	6		203233	203232
1	1	3-1/2	6		203231	203230
1	1	4-1/8	7		203235	203234
1	1	5-1/2	8		203237	203236
1-1/4	1-1/4	1-1/4	4-1/2		203215	203214
1-1/4	1-1/4	2	4-1/2		203217	203216
1-1/4	1-1/4	3-1/4	6		203580	203218
1-1/4	1-1/4	5	7-1/2		203581	203220



Harrier Series 203B

HARRIER-NF

HARRIER-NF | 3FL | SQUARE | WIPER FLATS

About the
Harrier
Series 203B

37°

3 FLUTE

SQUARE END

WIPER FLAT

CENTER
CUTTING

H6 SHANK

Diameter	Shank Dia.	LOC	OAL	ZrN
1/8	1/8	1/4	1-1/2	203238
1/8	1/8	1/2	2	203239
1/8	1/8	3/4	2	203240
3/16	3/16	5/16	2	203241
3/16	3/16	5/8	2-1/2	203242
3/16	3/16	3/4	2-1/2	203243
1/4	1/4	3/8	2-1/2	203244
1/4	1/4	3/4	2-1/2	203245
1/4	1/4	1-1/4	3	203246
5/16	5/16	7/16	2-1/2	203247
5/16	5/16	13/16	2-1/2	203248
5/16	5/16	1-1/4	3	203249
3/8	3/8	1/2	2-1/2	203250
3/8	3/8	1	2-1/2	203252
3/8	3/8	1-1/2	4	203251
1/2	1/2	5/8	3	203253
1/2	1/2	1-1/4	3	203254
1/2	1/2	2	4	203255
1/2	1/2	3-1/4	6	203256
5/8	5/8	3/4	3-1/2	203257
5/8	5/8	1-5/8	3-1/2	203258
5/8	5/8	2-1/2	5	203259
5/8	5/8	2-1/2	5	203259
3/4	3/4	1	4	203261
3/4	3/4	1	4	203261
3/4	3/4	1-5/8	4	203260
3/4	3/4	1-5/8	4	203260
3/4	3/4	2-1/2	5	203262
3/4	3/4	2-1/2	5	203262
3/4	3/4	3-1/4	6	203263
3/4	3/4	3-1/4	6	203263
1	1	1-1/4	3	203264
1	1	1-1/4	3	203264
1	1	2	5	203265
1	1	2	5	203265
1	1	3	6	203266
1	1	3	6	203266



Harrier Series 203C

HARRIER-NF

HARRIER-NF | 3FL | BALL NOSE

About the
Harrier
Series 203C

- 37°
- 3 FLUTE
- BALL NOSE
- H6 SHANK
- CENTER CUTTING
- BRIGHT FINISH

Diameter	Shank Dia.	LOC	OAL	ZrN	Bright
1/4	1/4	3/8	2-1/2	203268	203267
1/4	1/4	3/4	2-1/2	203270	203269
1/4	1/4	1-1/4	3	203272	203271
5/16	5/16	7/16	2-1/2	203274	203273
5/16	5/16	13/16	2-1/2	203276	203275
5/16	5/16	1-1/4	3	203278	203277
3/8	3/8	1/2	2-1/2	203280	203279
3/8	3/8	1	2-1/2	203284	203283
3/8	3/8	1-1/2	4	203282	203281
7/16	7/16	9/16	2-3/4	203286	203285
7/16	7/16	1	2-3/4	203288	203287
7/16	7/16	2	4	203290	203289
1/2	1/2	5/8	3	203292	203291
1/2	1/2	1-1/4	3	203294	203293
1/2	1/2	2	4	203296	203295
5/8	5/8	3/4	3-1/2	203298	203297
5/8	5/8	1-5/8	3-1/2	203300	203299
5/8	5/8	2-1/2	5	203302	203301
3/4	3/4	1	4	203306	203305
3/4	3/4	1-5/8	4	203304	203303
3/4	3/4	3-1/4	6	203308	203307
1	1	1-1/4	5	203310	203309
1	1	2	5	203312	203311
1	1	3-1/2	6	203314	203313



Harrier Series 203D

HARRIER-NF

HARRIER-NF | 3FL | REDUCED NECK | SQUARE & RADIUS

About the
Harrier
Series 203D

37°

3 FLUTE

SQUARE &
RADIUS

NECK

H6 SHANK

CENTER
CUTTING

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	ZrN	Bright
1/8	1/8	1/4	1-1/2	1/2	1/2	0.02	203315	203477
1/8	1/8	1/4	1-1/2	1/2	1/2	0.03	203316	203478
1/8	1/8	1/4	3	1-3/8	1-3/8	0.02	203317	203479
1/8	1/8	1/4	3	1-3/8	1-3/8	0.03	203318	203480
3/16	3/16	5/16	2	1/2	1/2	0.01	203319	203484
3/16	3/16	5/16	2	1/2	1/2	0.03	203320	203486
3/16	3/16	5/16	3	1-3/8	1-3/8	0.01	203321	203487
3/16	3/16	5/16	3	1-3/8	1-3/8	0.03	203322	203488
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8		203392	203391
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8	0.015	203323	203493
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8	0.03	203324	203496
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8	0.06	203325	203498
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8	0.09	203326	203499
1/4	1/4	3/8	4	2-1/8	2-1/8		203394	203393
1/4	1/4	3/8	4	2-1/8	2-1/8	0.015	203327	203500
1/4	1/4	3/8	4	2-1/8	2-1/8	0.03	203328	203501
1/4	1/4	3/8	4	2-1/8	2-1/8	0.06	203329	203502
1/4	1/4	3/8	4	2-1/8	2-1/8	0.09	203330	203503
1/4	1/4	3/4	4	2-1/8	2-1/8	0.015	203331	203510
1/4	1/4	3/4	4	2-1/8	2-1/8	0.03	203332	203511
1/4	1/4	3/4	4	2-1/8	2-1/8	0.06	203333	203512
1/4	1/4	3/4	4	2-1/8	2-1/8	0.09	203334	203513
5/16	5/16	7/16	2-1/2	1-1/8	1-1/8		203396	203395
5/16	5/16	7/16	2-1/2	1-1/8	1-1/8	0.015	203335	203514
5/16	5/16	7/16	4	2-1/8	2-1/8		203398	203397
5/16	5/16	13/16	4	2-1/8	2-1/8	0.015	203336	203520
3/8	3/8	1/2	2-1/2	1-1/8	1-1/8		203400	203399
3/8	3/8	1/2	4	2-1/8	2-1/8		203402	203401
3/8	3/8	1/2	4	2-1/8	2-1/8	0.03	203337	203524
1/2	1/2	5/8	3	1-3/8	1-3/8		203404	203403
1/2	1/2	5/8	3	1-3/8	1-3/8	0.015	203338	203529
1/2	1/2	5/8	3	1-3/8	1-3/8	0.02	203339	203531
1/2	1/2	5/8	3	1-3/8	1-3/8	0.03	203340	203533
1/2	1/2	5/8	3	1-3/8	1-3/8	0.06	203341	203535
1/2	1/2	5/8	3	1-3/8	1-3/8	0.09	203342	203537
1/2	1/2	5/8	3	1-3/8	1-3/8	0.12	203343	203538
1/2	1/2	5/8	4	2-3/8	2-3/8		203408	203407
1/2	1/2	5/8	4	2-3/8	2-3/8	0.015	203344	203539
1/2	1/2	5/8	4	2-3/8	2-3/8	0.02	203345	203540
1/2	1/2	5/8	4	2-3/8	2-3/8	0.03	203346	203541
1/2	1/2	5/8	4	2-3/8	2-3/8	0.06	203347	203542
1/2	1/2	5/8	4	2-3/8	2-3/8	0.09	203348	203543
1/2	1/2	5/8	4	2-3/8	2-3/8	0.12	203349	203544
1/2	1/2	5/8	6	3-3/8	3-3/8		203577	203411
1/2	1/2	5/8	6	3-3/8	3-3/8	0.015	203350	203545
1/2	1/2	5/8	6	3-3/8	3-3/8	0.02	203351	203546
1/2	1/2	5/8	6	3-3/8	3-3/8	0.03	203352	203547
1/2	1/2	5/8	6	3-3/8	3-3/8	0.06	203353	203548
1/2	1/2	5/8	6	3-3/8	3-3/8	0.09	203354	203549
1/2	1/2	5/8	6	3-3/8	3-3/8	0.12	203355	203550
1/2	1/2	1-1/4	6	3-3/8	3-3/8	0.015	203356	203585
1/2	1/2	1-1/4	6	3-3/8	3-3/8	0.03	203357	203586
1/2	1/2	1-1/4	6	3-3/8	3-3/8	0.06	203358	203587
1/2	1/2	1-1/4	6	3-3/8	3-3/8	0.09	203359	203588
1/2	1/2	1-1/4	6	3-3/8	3-3/8	0.12	203360	203589
5/8	5/8	3/4	3-1/2	1-5/8	1-5/8		203413	203412
5/8	5/8	3/4	5	2-3/8	2-3/8		203417	203416

Harrier Series 203D

HARRIER-NF

HARRIER-NF | 3FL | REDUCED NECK | SQUARE & RADIUS

About the
Harrier
Series 203D

- 37°
- 3 FLUTE
- SQUARE &
RADIUS
- NECK
- H6 SHANK
- CENTER
CUTTING

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	Radius	ZrN	Bright
5/8	5/8	3/4	6	3-3/8	3-3/8		203421	203420
3/4	3/4	1	4	1-5/8	1-5/8		203423	203422
3/4	3/4	1	4	1-5/8	1-5/8	0.03	203365	203602
3/4	3/4	1	4	1-5/8	1-5/8	0.06	203366	203604
3/4	3/4	1	4	1-5/8	1-5/8	0.09	203367	203606
3/4	3/4	1	4	1-5/8	1-5/8	0.12	203368	203608
3/4	3/4	1	5	2-1/2	2-1/2		203426	203425
3/4	3/4	1	5	2-1/2	2-1/2	0.03	203369	203609
3/4	3/4	1	5	2-1/2	2-1/2	0.06	203370	203610
3/4	3/4	1	5	2-1/2	2-1/2	0.09	203371	203611
3/4	3/4	1	5	2-1/2	2-1/2	0.12	203372	203553
3/4	3/4	1	6	3-3/8	3-3/8		203429	203428
3/4	3/4	1	6	3-3/8	3-3/8	0.03	203373	203554
3/4	3/4	1	6	3-3/8	3-3/8	0.06	203374	203555
3/4	3/4	1	6	3-3/8	3-3/8	0.09	203375	203556
3/4	3/4	1	6	3-3/8	3-3/8	0.12	203376	203557
3/4	3/4	1-5/8	6	3-3/8	3-3/8	0.03	203361	203597
3/4	3/4	1-5/8	6	3-3/8	3-3/8	0.06	203362	203598
3/4	3/4	1-5/8	6	3-3/8	3-3/8	0.09	203363	203599
3/4	3/4	1-5/8	6	3-3/8	3-3/8	0.12	203364	203600
1	1	1-1/4	5	2-1/8	2-1/8		203431	203430
1	1	1-1/4	6	3-3/8	3-3/8		203435	203434
1	1	1-1/4	6	3-3/8	3-3/8	0.03	203561	203379
1	1	1-1/4	6	3-3/8	3-3/8	0.06	203380	203562
1	1	1-1/4	6	3-3/8	3-3/8	0.09	203381	203563
1	1	1-1/4	6	3-3/8	3-3/8	0.12	203382	203564
1	1	1-1/4	7	4-3/8	4-3/8		203439	203438
1	1	1-1/4	7	4-3/8	4-3/8	0.03	203383	203565
1	1	1-1/4	7	4-3/8	4-3/8	0.06	203384	203566
1	1	1-1/4	7	4-3/8	4-3/8	0.09	203385	203567
1	1	1-1/4	7	4-3/8	4-3/8	0.12	203386	203568
1	1	2	7	4-3/8	4-3/8	0.03	203387	203572
1	1	2	7	4-3/8	4-3/8	0.06	203388	203573
1	1	2	7	4-3/8	4-3/8	0.09	203389	203574
1	1	2	7	4-3/8	4-3/8	0.12	203390	203575



Harrier Series 203E

HARRIER-NF

HARRIER-NF | 3FL | REDUCED NECK | BALL NOSE

About the
Harrier
Series 203E

- 37°
- NECK
- 3 FLUTE
- BALL NOSE
- H6 SHANK
- CENTER CUTTING

Diameter	Shank Dia.	LOC	OAL	LBS	Neck Dia.	ZrN	Bright
1/4	1/4	3/8	2-1/2	1-1/8	1-1/8	203441	203440
1/4	1/4	3/8	4	2-1/8	2-1/8	203475	203442
5/16	5/16	7/16	2-1/2	1-1/8	1-1/8	203444	203443
5/16	5/16	7/16	4	2-1/8	2-1/8	203446	203445
3/8	3/8	1/2	2-1/2	1-1/8	1-1/8	203448	203447
3/8	3/8	1/2	4	2-1/8	2-1/8	203450	203449
1/2	1/2	5/8	3	1-3/8	1-3/8	203452	203451
1/2	1/2	5/8	4	2-3/8	2-3/8	203454	203453
1/2	1/2	5/8	6	3-3/8	3-3/8	203456	203455
5/8	5/8	3/4	3-1/2	1-5/8	1-5/8	203458	203457
5/8	5/8	3/4	5	2-3/8	2-3/8	203460	203459
5/8	5/8	3/4	6	3-3/8	3-3/8	203462	203461
3/4	3/4	1	4	1-5/8	1-5/8	203464	203463
3/4	3/4	1	5	2-3/8	2-3/8	203466	203465
3/4	3/4	1	6	3-3/8	3-3/8	203468	203467
1	1	1-1/4	5	2-1/8	2-1/8	203470	203469
1	1	1-1/4	6	3-3/8	3-3/8	203472	203471
1	1	1-1/4	7	4-3/8	4-3/8	203474	203473



Harrier Series 404A

HARRIER-F | 4FL | SQUARE & RADIUS

HARRIER-F

About the
Harrier
Series 404A

VARIABLE
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4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
1/8	1/8	1/4	1-1/2		404144
1/8	1/8	1/4	1-1/2	0.005	404001
1/8	1/8	1/4	1-1/2	0.015	404002
1/8	1/8	1/4	1-1/2	0.03	404003
1/8	1/8	1/2	1-1/2		404145
1/8	1/8	1/2	1-1/2	0.005	404004
1/8	1/8	1/2	1-1/2	0.015	404005
1/8	1/8	1/2	1-1/2	0.03	404006
3/16	3/16	5/16	2		404146
3/16	3/16	5/16	2	0.005	404007
3/16	3/16	5/16	2	0.015	404008
3/16	3/16	5/16	2	0.03	404009
3/16	3/16	5/8	2		404147
3/16	3/16	5/8	2	0.005	404010
3/16	3/16	5/8	2	0.015	404011
3/16	3/16	5/8	2	0.03	404012
3/16	3/16	3/4	2		404148
3/16	3/16	3/4	2	0.005	404013
3/16	3/16	3/4	2	0.015	404014
3/16	3/16	3/4	2	0.03	404015
3/16	3/16	3/4	2	0.06	404016
1/4	1/4	5/16	2		404149
1/4	1/4	5/16	2	0.005	404017
1/4	1/4	5/16	2	0.01	404019
1/4	1/4	5/16	2	0.015	404018
1/4	1/4	5/16	2	0.03	404020
1/4	1/4	5/16	2	0.06	404021
1/4	1/4	1/2	2		404150
1/4	1/4	1/2	2	0.005	404022
1/4	1/4	1/2	2	0.01	404024
1/4	1/4	1/2	2	0.015	404023
1/4	1/4	1/2	2	0.03	404025
1/4	1/4	1/2	2	0.06	404026
1/4	1/4	3/4	2-1/2		404151
1/4	1/4	3/4	2-1/2	0.005	404027
1/4	1/4	3/4	2-1/2	0.01	404029
1/4	1/4	3/4	2-1/2	0.015	404028
1/4	1/4	3/4	2-1/2	0.03	404030
1/4	1/4	3/4	2-1/2	0.06	404031
1/4	1/4	1-1/8	3		404152
1/4	1/4	1-1/8	3	0.005	404032
1/4	1/4	1-1/8	3	0.01	404034
1/4	1/4	1-1/8	3	0.015	404033
1/4	1/4	1-1/8	3	0.03	404035
1/4	1/4	1-1/8	3	0.06	404036
5/16	5/16	1/2	2		404153
5/16	5/16	1/2	2	0.01	404038
5/16	5/16	1/2	2	0.015	404037
5/16	5/16	1/2	2	0.03	404039
5/16	5/16	1/2	2	0.06	404040
5/16	5/16	13/16	2-1/2		404154
5/16	5/16	13/16	2-1/2	0.01	404042
5/16	5/16	13/16	2-1/2	0.015	404041
5/16	5/16	13/16	2-1/2	0.03	404043
5/16	5/16	13/16	2-1/2	0.06	404044
5/16	5/16	1-1/8	3		404155
5/16	5/16	1-1/8	3	0.01	404046
5/16	5/16	1-1/8	3	0.015	404045

Harrier Series 404A

HARRIER-F | 4FL | SQUARE & RADIUS

HARRIER-F

About the
Harrier
Series 404A

VARIABLE
HELIX/INDEX

4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
5/16	5/16	1-1/8	3	0.03	404047
5/16	5/16	1-1/8	3	0.06	404048
3/8	3/8	7/16	2		404156
3/8	3/8	7/16	2	0.015	404049
3/8	3/8	7/16	2	0.03	404050
3/8	3/8	7/16	2	0.06	404051
3/8	3/8	5/8	2		404157
3/8	3/8	5/8	2	0.015	404052
3/8	3/8	5/8	2	0.03	404053
3/8	3/8	5/8	2	0.06	404054
3/8	3/8	7/8	2-1/2		404158
3/8	3/8	7/8	2-1/2	0.01	404056
3/8	3/8	7/8	2-1/2	0.015	404055
3/8	3/8	7/8	2-1/2	0.03	404057
3/8	3/8	7/8	2-1/2	0.06	404058
3/8	3/8	1-1/8	3		404159
3/8	3/8	1-1/8	3	0.01	404060
3/8	3/8	1-1/8	3	0.015	404059
3/8	3/8	1-1/8	3	0.03	404061
3/8	3/8	1-1/8	3	0.06	404062
3/8	3/8	1-1/8	3	0.09	404063
3/8	3/8	1-1/8	3	0.12	404064
1/2	1/2	5/8	2-1/2		404160
1/2	1/2	5/8	2-1/2	0.015	404065
1/2	1/2	5/8	2-1/2	0.03	404066
1/2	1/2	5/8	2-1/2	0.06	404067
1/2	1/2	5/8	2-1/2	0.09	404068
1/2	1/2	5/8	2-1/2	0.12	404069
1/2	1/2	1	3		404164
1/2	1/2	1	3	0.015	404085
1/2	1/2	1	3	0.02	404086
1/2	1/2	1	3	0.03	404087
1/2	1/2	1	3	0.06	404088
1/2	1/2	1	3	0.09	404089
1/2	1/2	1	3	0.12	404090
1/2	1/2	1-1/4	3		404161
1/2	1/2	1-1/4	3	0.015	404070
1/2	1/2	1-1/4	3	0.03	404071
1/2	1/2	1-1/4	3	0.06	404072
1/2	1/2	1-1/4	3	0.09	404073
1/2	1/2	1-1/4	3	0.12	404074
1/2	1/2	1-1/2	3		404162
1/2	1/2	1-1/2	3	0.015	404075
1/2	1/2	1-1/2	3	0.03	404076
1/2	1/2	1-1/2	3	0.06	404077
1/2	1/2	1-1/2	3	0.09	404078
1/2	1/2	1-1/2	3	0.12	404079
1/2	1/2	1-3/4	4		404163
1/2	1/2	1-3/4	4	0.015	404080
1/2	1/2	1-3/4	4	0.03	404081
1/2	1/2	1-3/4	4	0.06	404082
1/2	1/2	1-3/4	4	0.09	404083
1/2	1/2	1-3/4	4	0.12	404084
1/2	1/2	2	4		404165
1/2	1/2	2	4	0.015	404091
1/2	1/2	2	4	0.03	404092
1/2	1/2	2	4	0.06	404093
1/2	1/2	2	4	0.09	404094



Harrier Series 404A

HARRIER-F

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About the
Harrier
Series 404A

VARIABLE
HELIX/INDEX

4 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
1/2	1/2	2	4	0.12	404095
5/8	5/8	3/4	3		404166
5/8	5/8	3/4	3	0.015	404096
5/8	5/8	3/4	3	0.02	404097
5/8	5/8	3/4	3	0.03	404098
5/8	5/8	3/4	3	0.06	404099
5/8	5/8	3/4	3	0.09	404100
5/8	5/8	3/4	3	0.12	404101
5/8	5/8	1-1/4	3-1/2		404167
5/8	5/8	1-1/4	3-1/2	0.015	404102
5/8	5/8	1-1/4	3-1/2	0.02	404103
5/8	5/8	1-1/4	3-1/2	0.03	404104
5/8	5/8	1-1/4	3-1/2	0.06	404105
5/8	5/8	1-1/4	3-1/2	0.09	404106
5/8	5/8	1-1/4	3-1/2	0.12	404107
5/8	5/8	2-1/4	5		404168
5/8	5/8	2-1/4	5	0.015	404108
5/8	5/8	2-1/4	5	0.02	404109
5/8	5/8	2-1/4	5	0.03	404110
5/8	5/8	2-1/4	5	0.06	404111
5/8	5/8	2-1/4	5	0.09	404112
5/8	5/8	2-1/4	5	0.12	404113
3/4	3/4	7/8	3		404169
3/4	3/4	7/8	3	0.015	404114
3/4	3/4	7/8	3	0.03	404115
3/4	3/4	7/8	3	0.06	404116
3/4	3/4	7/8	3	0.09	404117
3/4	3/4	7/8	3	0.12	404118
3/4	3/4	1-1/2	4		404170
3/4	3/4	1-1/2	4	0.015	404119
3/4	3/4	1-1/2	4	0.03	404120
3/4	3/4	1-1/2	4	0.06	404121
3/4	3/4	1-1/2	4	0.09	404122
3/4	3/4	1-1/2	4	0.12	404123
3/4	3/4	2-1/4	5		404171
3/4	3/4	2-1/4	5	0.015	404124
3/4	3/4	2-1/4	5	0.03	404125
3/4	3/4	2-1/4	5	0.06	404126
3/4	3/4	2-1/4	5	0.09	404127
3/4	3/4	2-1/4	5	0.12	404128
1	1	1	4		404173
1	1	1	4	0.015	404134
1	1	1	4	0.03	404135
1	1	1	4	0.06	404136
1	1	1	4	0.09	404137
1	1	1	4	0.12	404138
1	1	1-1/2	4		404172
1	1	1-1/2	4	0.015	404129
1	1	1-1/2	4	0.03	404130
1	1	1-1/2	4	0.06	404131
1	1	1-1/2	4	0.09	404132
1	1	1-1/2	4	0.12	404133
1	1	2-1/4	5		404174
1	1	2-1/4	5	0.015	404139
1	1	2-1/4	5	0.03	404140
1	1	2-1/4	5	0.06	404141
1	1	2-1/4	5	0.09	404142
1	1	2-1/4	5	0.12	404143



Harrier Series 404R

HARRIER-F

HARRIER-F | 4FL | SQUARE | FINISHING & ROUGHING

About the
Harrier
Series 404R

VARIABLE
HELIX/INDEX

4 FLUTE

CORNER
CHAMFER

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	SI-MAX
1/8	1/8	1/4	1-1/2	404205
1/8	1/8	1/2	1-1/2	404206
3/16	3/16	5/16	2	404207
3/16	3/16	5/8	2	404208
1/4	1/4	1/2	2	404209
1/4	1/4	3/4	2-1/2	404210
1/4	1/4	1-1/8	3	404211
5/16	5/16	1/2	2	404212
5/16	5/16	13/16	2-1/2	404213
5/16	5/16	1-1/8	3	404214
3/8	3/8	5/8	2	404215
3/8	3/8	7/8	2-1/2	404216
3/8	3/8	1-1/8	3	404217
1/2	1/2	5/8	2-1/2	404218
1/2	1/2	1	3	404219
1/2	1/2	2	4	404220
5/8	5/8	3/4	3	404221
5/8	5/8	1-1/4	3-1/2	404222
5/8	5/8	2-1/4	5	404223
3/4	3/4	7/8	3	404224
3/4	3/4	1-1/2	4	404225
3/4	3/4	2-1/4	5	404226
1	1	1	4	404228
1	1	1-1/2	4	404227
1	1	2-1/4	5	404229



Harrier Series 404B

HARRIER-F

HARRIER-F | 4FL | BALL NOSE

About the
Harrier
Series 404B

- VARIABLE
HELIX/INDEX
- 4 FLUTE
- BALL NOSE
- CENTER
CUTTING
- H6 SHANK
- SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	SI-MAX
1/8	1/8	1/4	1-1/2	404175
1/8	1/8	1/2	1-1/2	404176
3/16	3/16	5/16	2	404177
3/16	3/16	5/8	2	404178
3/16	3/16	3/4	2	404179
1/4	1/4	5/16	2	404180
1/4	1/4	1/2	2	404181
1/4	1/4	3/4	2-1/2	404182
1/4	1/4	1-1/8	3	404183
5/16	5/16	1/2	2	404184
5/16	5/16	13/16	2-1/2	404185
5/16	5/16	1-1/8	3	404186
3/8	3/8	5/8	2	404187
3/8	3/8	7/8	2-1/2	404188
3/8	3/8	1-1/8	3	404189
1/2	1/2	5/8	2-1/2	404190
1/2	1/2	1	3	404194
1/2	1/2	1-1/4	3	404191
1/2	1/2	1-1/2	3	404192
1/2	1/2	1-3/4	4	404193
1/2	1/2	2	4	404195
5/8	5/8	3/4	3	404196
5/8	5/8	1-1/4	3-1/2	404197
5/8	5/8	2-1/4	5	404198
3/4	3/4	7/8	3	404199
3/4	3/4	1-1/2	4	404200
3/4	3/4	2-1/4	5	404201
1	1	1	4	404203
1	1	1-1/2	4	404202
1	1	2-1/4	5	404204



Harrier Series 405A

HARRIER-F

HARRIER-F | 5FL | SQUARE & RADIUS

About the
Harrier
Series 405A

VARIABLE
HELIX/INDEX

5 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
1/8	1/8	1/4	1-1/2		405145
1/8	1/8	1/4	1-1/2	0.005	405002
1/8	1/8	1/4	1-1/2	0.015	405003
1/8	1/8	1/4	1-1/2	0.03	405004
1/8	1/8	1/2	1-1/2		405146
1/8	1/8	1/2	1-1/2	0.005	405005
1/8	1/8	1/2	1-1/2	0.015	405006
1/8	1/8	1/2	1-1/2	0.03	405007
3/16	3/16	5/16	2		405147
3/16	3/16	5/16	2	0.005	405008
3/16	3/16	5/16	2	0.015	405009
3/16	3/16	5/16	2	0.03	405010
3/16	3/16	5/8	2		405148
3/16	3/16	5/8	2	0.005	405011
3/16	3/16	5/8	2	0.015	405012
3/16	3/16	5/8	2	0.03	405013
3/16	3/16	3/4	2		405149
3/16	3/16	3/4	2	0.005	405014
3/16	3/16	3/4	2	0.015	405015
3/16	3/16	3/4	2	0.03	405016
3/16	3/16	3/4	2	0.06	405017
1/4	1/4	5/16	2		405150
1/4	1/4	5/16	2	0.005	405018
1/4	1/4	5/16	2	0.01	405020
1/4	1/4	5/16	2	0.015	405019
1/4	1/4	5/16	2	0.03	405021
1/4	1/4	5/16	2	0.06	405022
1/4	1/4	1/2	2		405151
1/4	1/4	1/2	2	0.005	405023
1/4	1/4	1/2	2	0.01	405025
1/4	1/4	1/2	2	0.015	405024
1/4	1/4	1/2	2	0.03	405026
1/4	1/4	1/2	2	0.06	405027
1/4	1/4	3/4	2-1/2		405152
1/4	1/4	3/4	2-1/2	0.005	405028
1/4	1/4	3/4	2-1/2	0.01	405030
1/4	1/4	3/4	2-1/2	0.015	405029
1/4	1/4	3/4	2-1/2	0.03	405031
1/4	1/4	3/4	2-1/2	0.06	405032
1/4	1/4	1-1/8	3		405153
1/4	1/4	1-1/8	3	0.005	405033
1/4	1/4	1-1/8	3	0.01	405035
1/4	1/4	1-1/8	3	0.015	405034
1/4	1/4	1-1/8	3	0.03	405036
1/4	1/4	1-1/8	3	0.06	405037
5/16	5/16	1/2	2		405154
5/16	5/16	1/2	2	0.01	405039
5/16	5/16	1/2	2	0.015	405038
5/16	5/16	1/2	2	0.03	405040
5/16	5/16	1/2	2	0.06	405041
5/16	5/16	13/16	2-1/2		405155
5/16	5/16	13/16	2-1/2	0.01	405043
5/16	5/16	13/16	2-1/2	0.015	405042
5/16	5/16	13/16	2-1/2	0.03	405044
5/16	5/16	13/16	2-1/2	0.06	405045
5/16	5/16	1-1/8	3		405156
5/16	5/16	1-1/8	3	0.01	405047
5/16	5/16	1-1/8	3	0.015	405046

Harrier Series 405A

HARRIER-F | 5FL | SQUARE & RADIUS

HARRIER-F

About the
Harrier
Series 405A

VARIABLE
HELIX/INDEX

5 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
5/16	5/16	1-1/8	3	0.03	405048
5/16	5/16	1-1/8	3	0.06	405049
3/8	3/8	7/16	2		405157
3/8	3/8	7/16	2	0.015	405050
3/8	3/8	7/16	2	0.03	405051
3/8	3/8	7/16	2	0.06	405052
3/8	3/8	5/8	2		405158
3/8	3/8	5/8	2	0.015	405053
3/8	3/8	5/8	2	0.03	405054
3/8	3/8	5/8	2	0.06	405055
3/8	3/8	7/8	2-1/2		405159
3/8	3/8	7/8	2-1/2	0.01	405057
3/8	3/8	7/8	2-1/2	0.015	405056
3/8	3/8	7/8	2-1/2	0.03	405058
3/8	3/8	7/8	2-1/2	0.06	405059
3/8	3/8	1-1/8	3		405160
3/8	3/8	1-1/8	3	0.01	405061
3/8	3/8	1-1/8	3	0.015	405060
3/8	3/8	1-1/8	3	0.03	405062
3/8	3/8	1-1/8	3	0.06	405063
3/8	3/8	1-1/8	3	0.09	405064
3/8	3/8	1-1/8	3	0.12	405065
1/2	1/2	5/8	2-1/2		405161
1/2	1/2	5/8	2-1/2	0.015	405066
1/2	1/2	5/8	2-1/2	0.03	405067
1/2	1/2	5/8	2-1/2	0.06	405068
1/2	1/2	5/8	2-1/2	0.09	405069
1/2	1/2	5/8	2-1/2	0.12	405070
1/2	1/2	1	3		405164
1/2	1/2	1	3	0.015	405086
1/2	1/2	1	3	0.02	405087
1/2	1/2	1	3	0.03	405088
1/2	1/2	1	3	0.06	405089
1/2	1/2	1	3	0.09	405090
1/2	1/2	1	3	0.12	405091
1/2	1/2	1-1/4	3	0.015	405071
1/2	1/2	1-1/4	3	0.03	405072
1/2	1/2	1-1/4	3	0.06	405073
1/2	1/2	1-1/4	3	0.09	405074
1/2	1/2	1-1/4	3	0.12	405075
1/2	1/2	1-1/2	3		405162
1/2	1/2	1-1/2	3	0.015	405076
1/2	1/2	1-1/2	3	0.03	405077
1/2	1/2	1-1/2	3	0.06	405078
1/2	1/2	1-1/2	3	0.09	405079
1/2	1/2	1-1/2	3	0.12	405080
1/2	1/2	1-3/4	4		405163
1/2	1/2	1-3/4	4	0.015	405081
1/2	1/2	1-3/4	4	0.03	405082
1/2	1/2	1-3/4	4	0.06	405083
1/2	1/2	1-3/4	4	0.09	405084
1/2	1/2	1-3/4	4	0.12	405085
1/2	1/2	2	4		405165
1/2	1/2	2	4	0.015	405092
1/2	1/2	2	4	0.03	405093
1/2	1/2	2	4	0.06	405094
1/2	1/2	2	4	0.09	405095
1/2	1/2	2	4	0.12	405096



Harrier Series 405A

HARRIER-F

HARRIER-F | 5FL | SQUARE & RADIUS

About the
Harrier
Series 405A

VARIABLE
HELIX/INDEX

5 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
5/8	5/8	3/4	3		405166
5/8	5/8	3/4	3	0.015	405097
5/8	5/8	3/4	3	0.02	405098
5/8	5/8	3/4	3	0.03	405099
5/8	5/8	3/4	3	0.06	405100
5/8	5/8	3/4	3	0.09	405101
5/8	5/8	3/4	3	0.12	405102
5/8	5/8	1-1/4	3-1/2		405167
5/8	5/8	1-1/4	3-1/2	0.015	405103
5/8	5/8	1-1/4	3-1/2	0.02	405104
5/8	5/8	1-1/4	3-1/2	0.03	405105
5/8	5/8	1-1/4	3-1/2	0.06	405106
5/8	5/8	1-1/4	3-1/2	0.09	405107
5/8	5/8	1-1/4	3-1/2	0.12	405108
5/8	5/8	2-1/4	5		405168
5/8	5/8	2-1/4	5	0.015	405109
5/8	5/8	2-1/4	5	0.02	405110
5/8	5/8	2-1/4	5	0.03	405111
5/8	5/8	2-1/4	5	0.06	405112
5/8	5/8	2-1/4	5	0.09	405113
5/8	5/8	2-1/4	5	0.12	405114
3/4	3/4	7/8	3		405169
3/4	3/4	7/8	3	0.015	405115
3/4	3/4	7/8	3	0.03	405116
3/4	3/4	7/8	3	0.06	405117
3/4	3/4	7/8	3	0.09	405118
3/4	3/4	7/8	3	0.12	405119
3/4	3/4	1-1/2	4		405170
3/4	3/4	1-1/2	4	0.015	405120
3/4	3/4	1-1/2	4	0.03	405121
3/4	3/4	1-1/2	4	0.06	405122
3/4	3/4	1-1/2	4	0.09	405123
3/4	3/4	1-1/2	4	0.12	405124
3/4	3/4	2-1/4	5		405171
3/4	3/4	2-1/4	5	0.015	405125
3/4	3/4	2-1/4	5	0.03	405126
3/4	3/4	2-1/4	5	0.06	405127
3/4	3/4	2-1/4	5	0.09	405128
3/4	3/4	2-1/4	5	0.12	405129
1	1	1	4		405173
1	1	1	4	0.015	405135
1	1	1	4	0.03	405136
1	1	1	4	0.06	405137
1	1	1	4	0.09	405138
1	1	1	4	0.12	405139
1	1	1-1/2	4		405172
1	1	1-1/2	4	0.015	405130
1	1	1-1/2	4	0.03	405131
1	1	1-1/2	4	0.06	405132
1	1	1-1/2	4	0.09	405133
1	1	1-1/2	4	0.12	405134
1	1	2-1/4	5		405174
1	1	2-1/4	5	0.015	405140
1	1	2-1/4	5	0.03	405141
1	1	2-1/4	5	0.06	405142
1	1	2-1/4	5	0.09	405143
1	1	2-1/4	5	0.12	405144

Harrier Series 407A

HARRIER-F | 7FL | SQUARE & RADIUS

HARRIER-F

About the
Harrier
Series 407A

VARIABLE
HELIX/INDEX

7 FLUTE

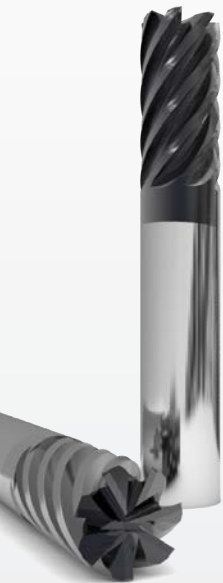
SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
1/8	1/8	1/4	1-1/2		407144
1/8	1/8	1/4	1-1/2	0.005	407001
1/8	1/8	1/4	1-1/2	0.015	407002
1/8	1/8	1/4	1-1/2	0.03	407003
1/8	1/8	1/2	1-1/2		407145
1/8	1/8	1/2	1-1/2	0.005	407004
1/8	1/8	1/2	1-1/2	0.015	407005
1/8	1/8	1/2	1-1/2	0.03	407006
3/16	3/16	5/16	2		407146
3/16	3/16	5/16	2	0.005	407007
3/16	3/16	5/16	2	0.015	407008
3/16	3/16	5/16	2	0.03	407009
3/16	3/16	5/8	2		407147
3/16	3/16	5/8	2	0.005	407010
3/16	3/16	5/8	2	0.015	407011
3/16	3/16	5/8	2	0.03	407012
3/16	3/16	3/4	2		407148
3/16	3/16	3/4	2	0.005	407013
3/16	3/16	3/4	2	0.015	407014
3/16	3/16	3/4	2	0.03	407015
3/16	3/16	3/4	2	0.06	407016
1/4	1/4	5/16	2		407149
1/4	1/4	5/16	2	0.005	407017
1/4	1/4	5/16	2	0.01	407019
1/4	1/4	5/16	2	0.015	407018
1/4	1/4	5/16	2	0.03	407020
1/4	1/4	5/16	2	0.06	407021
1/4	1/4	1/2	2		407150
1/4	1/4	1/2	2	0.005	407022
1/4	1/4	1/2	2	0.01	407024
1/4	1/4	1/2	2	0.015	407023
1/4	1/4	1/2	2	0.03	407025
1/4	1/4	1/2	2	0.06	407026
1/4	1/4	3/4	2-1/2		407151
1/4	1/4	3/4	2-1/2	0.005	407027
1/4	1/4	3/4	2-1/2	0.01	407029
1/4	1/4	3/4	2-1/2	0.015	407028
1/4	1/4	3/4	2-1/2	0.03	407030
1/4	1/4	3/4	2-1/2	0.06	407031
1/4	1/4	1-1/8	3		407152
1/4	1/4	1-1/8	3	0.005	407032
1/4	1/4	1-1/8	3	0.01	407034
1/4	1/4	1-1/8	3	0.015	407033
1/4	1/4	1-1/8	3	0.03	407035
1/4	1/4	1-1/8	3	0.06	407036
5/16	5/16	1/2	2		407153
5/16	5/16	1/2	2	0.01	407038
5/16	5/16	1/2	2	0.015	407037
5/16	5/16	1/2	2	0.03	407039
5/16	5/16	1/2	2	0.06	407040
5/16	5/16	13/16	2-1/2		407154
5/16	5/16	13/16	2-1/2	0.01	407042
5/16	5/16	13/16	2-1/2	0.015	407041
5/16	5/16	13/16	2-1/2	0.03	407043
5/16	5/16	13/16	2-1/2	0.06	407044
5/16	5/16	1-1/8	3		407155
5/16	5/16	1-1/8	3	0.01	407046
5/16	5/16	1-1/8	3	0.015	407045



Harrier Series 407A

HARRIER-F

HARRIER-F | 7FL | SQUARE & RADIUS

About the
Harrier
Series 407A

VARIABLE
HELIX/INDEX

7 FLUTE

SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
5/16	5/16	1-1/8	3	0.03	407047
5/16	5/16	1-1/8	3	0.06	407048
3/8	3/8	7/16	2		407156
3/8	3/8	7/16	2	0.015	407049
3/8	3/8	7/16	2	0.03	407050
3/8	3/8	7/16	2	0.06	407051
3/8	3/8	5/8	2		407157
3/8	3/8	5/8	2	0.015	407052
3/8	3/8	5/8	2	0.03	407053
3/8	3/8	5/8	2	0.06	407054
3/8	3/8	7/8	2-1/2		407158
3/8	3/8	7/8	2-1/2	0.01	407056
3/8	3/8	7/8	2-1/2	0.015	407055
3/8	3/8	7/8	2-1/2	0.03	407057
3/8	3/8	7/8	2-1/2	0.06	407058
3/8	3/8	1-1/8	3		407159
3/8	3/8	1-1/8	3	0.01	407060
3/8	3/8	1-1/8	3	0.015	407059
3/8	3/8	1-1/8	3	0.03	407061
3/8	3/8	1-1/8	3	0.06	407062
3/8	3/8	1-1/8	3	0.09	407063
3/8	3/8	1-1/8	3	0.12	407064
1/2	1/2	5/8	2-1/2		407160
1/2	1/2	5/8	2-1/2	0.015	407065
1/2	1/2	5/8	2-1/2	0.03	407066
1/2	1/2	5/8	2-1/2	0.06	407067
1/2	1/2	5/8	2-1/2	0.09	407068
1/2	1/2	5/8	2-1/2	0.12	407069
1/2	1/2	1	3		407164
1/2	1/2	1	3	0.015	407085
1/2	1/2	1	3	0.02	407086
1/2	1/2	1	3	0.03	407087
1/2	1/2	1	3	0.06	407088
1/2	1/2	1	3	0.09	407089
1/2	1/2	1	3	0.12	407090
1/2	1/2	1-1/4	3		407161
1/2	1/2	1-1/4	3	0.015	407070
1/2	1/2	1-1/4	3	0.03	407071
1/2	1/2	1-1/4	3	0.06	407072
1/2	1/2	1-1/4	3	0.09	407073
1/2	1/2	1-1/4	3	0.12	407074
1/2	1/2	1-1/2	3		407162
1/2	1/2	1-1/2	3	0.015	407075
1/2	1/2	1-1/2	3	0.03	407076
1/2	1/2	1-1/2	3	0.06	407077
1/2	1/2	1-1/2	3	0.09	407078
1/2	1/2	1-1/2	3	0.12	407079
1/2	1/2	1-3/4	4		407163
1/2	1/2	1-3/4	4	0.015	407080
1/2	1/2	1-3/4	4	0.03	407081
1/2	1/2	1-3/4	4	0.06	407082
1/2	1/2	1-3/4	4	0.09	407083
1/2	1/2	1-3/4	4	0.12	407084
1/2	1/2	2	4		407165
1/2	1/2	2	4	0.015	407091
1/2	1/2	2	4	0.03	407092
1/2	1/2	2	4	0.06	407093
1/2	1/2	2	4	0.09	407094



Harrier Series 407A

HARRIER-F | 7FL | SQUARE & RADIUS

HARRIER-F

About the
Harrier
Series 407A

VARIABLE
HELIX/INDEX

7 FLUTE

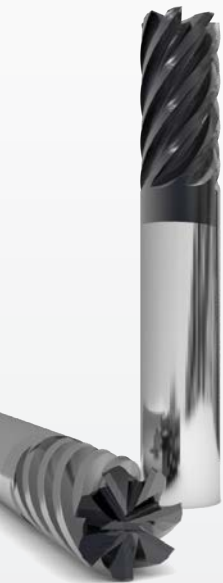
SQUARE &
RADIUS

CENTER
CUTTING

H6 SHANK

SI-MAX COATING

Diameter	Shank Dia.	LOC	OAL	Radius	SI-MAX
1/2	1/2	2	4	0.12	407095
5/8	5/8	3/4	3		407166
5/8	5/8	3/4	3	0.015	407096
5/8	5/8	3/4	3	0.02	407097
5/8	5/8	3/4	3	0.03	407098
5/8	5/8	3/4	3	0.06	407099
5/8	5/8	3/4	3	0.09	407100
5/8	5/8	3/4	3	0.12	407101
5/8	5/8	1-1/4	3-1/2		407167
5/8	5/8	1-1/4	3-1/2	0.015	407102
5/8	5/8	1-1/4	3-1/2	0.02	407103
5/8	5/8	1-1/4	3-1/2	0.03	407104
5/8	5/8	1-1/4	3-1/2	0.06	407105
5/8	5/8	1-1/4	3-1/2	0.09	407106
5/8	5/8	1-1/4	3-1/2	0.12	407107
5/8	5/8	2-1/4	5		407168
5/8	5/8	2-1/4	5	0.015	407108
5/8	5/8	2-1/4	5	0.02	407109
5/8	5/8	2-1/4	5	0.03	407110
5/8	5/8	2-1/4	5	0.06	407111
5/8	5/8	2-1/4	5	0.09	407112
5/8	5/8	2-1/4	5	0.12	407113
3/4	3/4	7/8	3		407169
3/4	3/4	7/8	3	0.015	407114
3/4	3/4	7/8	3	0.03	407115
3/4	3/4	7/8	3	0.06	407116
3/4	3/4	7/8	3	0.09	407117
3/4	3/4	7/8	3	0.12	407118
3/4	3/4	1-1/2	4		407170
3/4	3/4	1-1/2	4	0.015	407119
3/4	3/4	1-1/2	4	0.03	407120
3/4	3/4	1-1/2	4	0.06	407121
3/4	3/4	1-1/2	4	0.09	407122
3/4	3/4	1-1/2	4	0.12	407123
3/4	3/4	2-1/4	5		407171
3/4	3/4	2-1/4	5	0.015	407124
3/4	3/4	2-1/4	5	0.03	407125
3/4	3/4	2-1/4	5	0.06	407126
3/4	3/4	2-1/4	5	0.09	407127
3/4	3/4	2-1/4	5	0.12	407128
1	1	1	4		407173
1	1	1	4	0.015	407134
1	1	1	4	0.03	407135
1	1	1	4	0.06	407136
1	1	1	4	0.09	407137
1	1	1	4	0.12	407138
1	1	1-1/2	4		407172
1	1	1-1/2	4	0.015	407129
1	1	1-1/2	4	0.03	407130
1	1	1-1/2	4	0.06	407131
1	1	1-1/2	4	0.09	407132
1	1	1-1/2	4	0.12	407133
1	1	2-1/4	5		407174
1	1	2-1/4	5	0.015	407139
1	1	2-1/4	5	0.03	407140
1	1	2-1/4	5	0.06	407141
1	1	2-1/4	5	0.09	407142
1	1	2-1/4	5	0.12	407143





Speed & Feed Guide

103P | Harrier NF

Material		Axial ↓	Radial →	3/16		1/4		5/16		3/8		1/2		5/8		3/4	
				RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	0.5 X D	0.7 X D	12000	169	12000	227	12000	283	12000	341	12000	454	12000	568	12000	680
		1 X D	.6 X D	12000	155	12000	208	12000	260	12000	312	12000	416	12000	520	12000	624
		2 X D	.4 X D	12000	141	12000	189	12000	236	12000	284	12000	378	12000	473	12000	567
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	0.5 X D	0.7 X D	12000	140	12000	188	12000	235	12000	282	12000	376	12000	470	12000	564
		1 X D	.6 X D	12000	133	12000	179	12000	223	12000	268	12000	357	12000	447	12000	536
		2 X D	.4 X D	12000	127	12000	170	12000	212	12000	256	12000	340	12000	426	12000	510

103R | Harrier NF

Material		Axial ↓	Radial →	3/16		1/4		5/16		3/8		1/2		5/8		3/4	
				RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	1 X D	1.0 X D	12000	98	12000	132	12000	165	12000	198	12000	263	12000	330	12000	395
		2 X D	1.0 X D	12000	74	12000	99	12000	124	12000	149	12000	198	12000	248	12000	297
		2 X D	.4 X D	12000	141	12000	189	12000	236	12000	284	12000	378	12000	473	12000	567
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	1 X D	1.0 X D	12000	89	12000	119	12000	148	12000	178	12000	237	12000	297	12000	356
		2 X D	1.0 X D	12000	67	12000	89	12000	112	12000	134	12000	178	12000	223	12000	267
		2 X D	.4 X D	12000	127	12000	170	12000	212	12000	256	12000	340	12000	426	12000	510

103F | Harrier NF

Material		Axial ↓	Radial →	3/16		1/4		5/16		3/8		1/2		5/8		3/4	
				RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	2 X D	.05 X D	12000	101	12000	135	12000	168	12000	203	12000	270	12000	338	12000	405
		.05 X D	0.65 X D	12000	111	12000	149	12000	185	12000	223	12000	297	12000	372	12000	446
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	2 X D	.05 X D	12000	91	12000	122	12000	151	12000	183	12000	243	12000	304	12000	365
		.05 X D	0.65 X D	12000	100	12000	134	12000	166	12000	201	12000	267	12000	335	12000	401

203A - 203B - 203C - 203D - 203E | Harrier NF

Material		Axial ↓	Radial →	SFM	1/8		1/4		5/16		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	.5 x D	1 x D	600	18336	66	9168	66	7334	79	6112	79	4584	83	3667	80	3056	80
		1.25 x D	.3 x D	720	22003	99	11002	96	8801	115	7334	115	5501	121	4401	116	3667	116
		1.5 X D	.1 x D	1200	36672	220	18336	193	14669	231	12224	231	9168	243	7334	233	6112	233
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	.5 x D	1 x D	600	18336	55	9168	55	7334	66	6112	66	4584	69	3667	67	3056	67
		1.25 x D	.3 x D	720	22003	79	11002	79	8801	95	7334	95	5501	100	4401	96	3667	96
		1.5 X D	.1 x D	1200	36672	176	18336	165	14669	198	12224	198	9168	208	7334	200	6112	200

404A - 404B | Harrier F

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	13	3362	13	2241	16	1681	17	1345	16	1121	15
		1.25 x D	.3 x D	264	8068	19	4034	19	2689	23	2017	24	1614	23	1345	21
		1.5 X D	.1 x D	343	10488	42	5244	42	3496	50	2622	53	2098	51	1748	47
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	21	2750	16	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	31	3438	24	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	63	4126	47	2750	38	2063	40	1650	38	1375	35
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	10	2750	10	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	16	3438	16	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	31	4126	31	2750	38	2063	40	1650	38	1375	35
M	SS 300 & 400 Series 303, 304, 316, 420, 417	.75 x D	1 x D	140	4278	7	2139	7	1426	8	1070	9	856	8	713	8
		1.25 x D	.3 x D	185	5654	11	2827	11	1885	13	1413	14	1131	13	942	12
		1.5 x D	.1 x D	230	7039	23	3519	23	2346	28	1760	29	1408	28	1173	25
	Precipitation SS 15-5, 16-6, 17-4, 17-6	2 X D	0.07 X D	393 - 800	12000	50	10696	107	7131	107	5348	107	4270	107	4075	107
		1.5 X D	0.15 X D	393 - 800	12000	55	10696	118	7131	118	5348	118	4270	118	4075	118
		1.0 X D	0.25 X D	393 - 800	12000	62	10696	132	7131	132	5348	132	4270	132	4075	132
S	High Temp Alloys Inconel 718, Hastalloy, A286, Waspalloy, CoCr	2 X D	0.1 X D	93 - 125	3820	8	1910	8	1273	5	955	8	764	8	477	6
		1.5 X D	0.15	84 - 112	3438	6	1719	6	1146	4	860	6	688	6	429	5
		1.0 X D	0.25	70-90	2865	5	1433	5	955	3	716	5	573	5	358	4

Speed & Feed Guide

405A | Harrier F

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	17	3362	17	2241	20	1681	21	1345	20	1121	19
		1.25 x D	.3 x D	264	8068	24	4034	24	2689	29	2017	30	1614	29	1345	27
		1.5 X D	.1 x D	343	10488	52	5244	52	3496	63	2622	66	2098	63	1748	58
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	16	2750	20	1834	16	1375	16	1100	16	917	14
		1.25 x D	.3 x D	225	6876	24	3438	29	2292	24	1719	25	1375	24	1146	22
		1.5 X D	.1 x D	270	8251	47	4126	59	2750	47	2063	49	1650	47	1375	43
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	13	2750	13	1834	16	1375	16	1100	16	917	14
		1.25 x D	.3 x D	225	6876	20	3438	20	2292	24	1719	25	1375	24	1146	22
		1.5 X D	.1 x D	270	8251	39	4126	39	2750	47	2063	49	1650	47	1375	43
M	SS 300 & 400 Series 303, 304, 316, 420, 417	.75 x D	1 x D	140	4278	9	2139	9	1426	10	1070	11	856	11	713	10
		1.25 x D	.3 x D	185	5654	14	2827	14	1885	17	1413	17	1131	17	942	15
		1.5 x D	.1 x D	230	7039	29	3519	29	2346	34	1760	36	1408	35	1173	32
	Precipitation SS 15-5, 16-6, 17-4, 17-6	2 X D	0.07 X D	393 - 800	12000	60	10696	107	7131	107	5348	107	4270	107	4075	107
		1.5 X D	0.15 X D	393 - 800	12000	66	10696	120	7131	120	5348	120	4270	120	4075	120
		1.0 X D	0.25 X D	393 - 800	12000	74	10696	150	7131	150	5348	150	4270	150	4075	150
S	High Temp Alloys Inconel 718, Hastalloy, A286, Waspalloy, CoCr	2 X D	0.07 X D	93 - 125	3820	10	1910	8	1273	5	955	8	764	8	477	6
		1.5 X D	0.15 X D	84 - 112	3438	8	1719	6	1146	4	860	6	688	6	429	5
		1.0 X D	0.25 X D	70-90	2865	6	1433	5	955	3	716	5	573	5	358	4

407A | Harrier F

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	24	3362	24	2241	28	1681	30	1345	28	1121	26
		1.25 x D	.3 x D	264	8068	34	4034	34	2689	41	2017	43	1614	41	1345	38
		1.5 X D	.1 x D	343	10488	73	5244	73	3496	88	2622	93	2098	89	1748	81
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	37	2750	27	1834	22	1375	23	1100	22	917	20
		1.25 x D	.3 x D	225	6876	55	3438	41	2292	33	1719	35	1375	33	1146	30
		1.5 X D	.1 x D	270	8251	110	4126	82	2750	66	2063	69	1650	66	1375	61
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	18	2750	18	1834	22	1375	23	1100	22	917	20
		1.25 x D	.3 x D	225	6876	27	3438	27	2292	33	1719	35	1375	33	1146	30
		1.5 X D	.1 x D	270	8251	55	4126	55	2750	66	2063	69	1650	66	1375	61
M	SS 300 & 400 Series 303, 304, 316, 420, 417	.75 x D	1 x D	140	4278	12	2139	12	1426	15	1070	15	856	15	713	14
		1.25 x D	.3 x D	185	5654	19	2827	19	1885	23	1413	24	1131	23	942	21
		1.5 x D	.1 x D	230	7039	40	3519	40	2346	48	1760	51	1408	49	1173	44
	Precipitation SS 15-5, 16-6, 17-4, 17-6	2 X D	0.07 X D	393 - 800	12000	70	10696	107	7131	107	5348	107	4270	107	4075	107
		1.5 X D	0.15 X D	393 - 800	12000	80	10696	122	7131	122	5348	122	4270	122	4075	122
		1.0 X D	0.25 X D	393 - 800	12000	96	10696	146	7131	146	5348	146	4270	146	4075	146
S	High Temp Alloys Inconel 718, Hastalloy, A286, Waspalloy, CoCr	2 X D	0.07 X D	93 - 125	3820	10	1910	8	1273	5	955	8	764	8	477	6
		1.5 X D	0.15 X D	84 - 112	3438	8	1719	6	1146	4	860	6	688	6	429	5
		1.0 X D	0.25 X D	70-90	2865	6	1433	5	955	3	716	5	573	5	358	4

404R | Harrier F

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	13	3362	13	2241	16	1681	17	1345	16	1121	15
		1.25 x D	.3 x D	264	8068	19	4034	19	2689	23	2017	24	1614	23	1345	21
		1.5 X D	.1 x D	343	10488	42	5244	42	3496	50	2622	53	2098	51	1748	47
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	21	2750	16	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	31	3438	24	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	63	4126	47	2750	38	2063	40	1650	38	1375	35
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	10	2750	10	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	16	3438	16	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	31	4126	31	2750	38	2063	40	1650	38	1375	35
M	SS 300 & 400 Series 303, 304, 316, 420, 416	.75 x D	1 x D	140	4278	7	2139	7	1426	8	1070	9	856	8	713	8
		1.25 x D	.3 x D	185	5654	11	2827	11	1885	13	1413	14	1131	13	942	12
		1.5 x D	.1 x D	230	7039	23	3519	23	2346	28	1760	29	1408	28	1173	25
	Precipitation SS 15-5, 16-6, 17-4, 17-5	2 X D	0.07 X D	393 - 800	12000	50	10696	107	7131	107	5348	107	4270	107	4075	107
		1.5 X D	0.15 X D	393 - 800	12000	55	10696	118	7131	118	5348	118	4270	118	4075	118
		1.0 X D	0.25 X D	393 - 800	12000	62	10696	132	7131	132	5348	132	4270	132	4075	132
K	Cast Iron- Grey, GG-10, GG-40	1 x D	1 x D	100	3056	6	1528	6	1019	7	764	7	611	7	509	6
		1.25 x D	.3 x D	125	3820	8	1910	8	1273	10	955	10	764	10	637	9
		1.5 X D	.1 x D	163	4966	18	2483	18	1655	22	1242	23	993	22	828	20
	Cast Iron- Ductile GGG-40, GGG-70	.75 x D	1 x D	155	4737	8	2368	8	1579	10	1184	10	947	10	789	9
		1.25 x D	.3 x D	180	5501	11	2750	11	1834	14	1375	14	1100	14	917	13
		1.5 x D	.1 x D	216	6601	23	3300	23	2200	27	1650	29	1320	27	1100	25
S	High Temp Alloys Inconel 718, Hastalloy, A286, CoCr	2 X D	0.1 X D	93 - 125	3820	8	1910	8	1273	5	955	8	764	8	477	6
		1.5 X D	0.15	84 - 112	3438	6	1719	6	1146	4	860	6	688	6	429	5
		1.0 X D	0.25	70-90	2865	5	1433	5	955	3	716	5	573	5	358	4

504R - 504B - 504C - 504D | Harrier ALT

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	13	3362	13	2241	16	1681	17	1345	16	1121	15
		1.25 x D	.3 x D	264	8068	19	4034	19	2689	23	2017	24	1614	23	1345	21
		1.5 X D	.1 x D	343	10488	42	5244	42	3496	50	2622	53	2098	51	1748	47
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	21	2750	16	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	31	3438	24	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	63	4126	47	2750	38	2063	40	1650	38	1375	35
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	10	2750	10	1834	13	1375	13	1100	13	917	12
		1.25 x D	.3 x D	225	6876	16	3438	16	2292	19	1719	20	1375	19	1146	17
		1.5 X D	.1 x D	270	8251	31	4126	31	2750	38	2063	40	1650	38	1375	35
M	SS 300 & 400 Series 303, 304, 316, 420, 416	.75 x D	1 x D	140	4278	7	2139	7	1426	8	1070	9	856	8	713	8
		1.25 x D	.3 x D	185	5654	11	2827	11	1885	13	1413	14	1131	13	942	12
		1.5 x D	.1 x D	230	7039	23	3519	23	2346	28	1760	29	1408	28	1173	25
	Precipitation SS 15-5, 16-6, 17-4, 17-5	0.5	1 x D	115	3514	5	1757	5	1171	7	879	7	703	7	586	6
		1.25 x D	.3 x D	180	5501	10	2750	10	1834	12	1375	13	1100	12	917	11
		1.5 x D	.1 x D	250	7640	24	3820	24	2547	28	1910	30	1528	29	1273	26
K	Cast Iron - Grey GG-10 to GG-40	1 x D	1 x D	100	3056	6	1528	6	1019	7	764	7	611	7	509	6
		1.25 x D	.3 x D	125	3820	8	1910	8	1273	10	955	10	764	10	637	9
		1.5 X D	.1 x D	163	4966	18	2483	18	1655	22	1242	23	993	22	828	20
	Cast Iron- Ductile GGG-40, to GGG-70	.75 x D	1 x D	155	4737	8	2368	8	1579	10	1184	10	947	10	789	9
		1.25 x D	.3 x D	180	5501	11	2750	11	1834	14	1375	14	1100	14	917	13
		1.5 x D	.1 x D	216	6601	23	3300	23	2200	27	1650	29	1320	27	1100	25
S	High Temp Alloys Inconel 718, Hastalloy, Waspalloy, A286, CoCr	.25 x D	.4 x D	70	2139	3	1070	3	713	4	535	4	428	4	357	3
		1.25 x D	.2 x D	80	2445	4	1222	4	815	5	611	5	489	5	407	5
		1.5 x D	.07 x D	125	3820	11	1910	11	1273	13	955	14	764	14	637	12
	Titanium Alloy Ti-6Al4V Grades (5-38)	0.5	1 x D	180	5501	8	2750	8	1834	9	1375	10	1100	9	917	9
		1.25 x D	.3 x D	225	6876	12	3438	12	2292	14	1719	15	1375	14	1146	13
		1.5 x D	.1 x D	360	11002	31	5501	31	3667	37	2750	39	2200	37	1834	34

Speed & Feed Guide

505A - 505B | Harrier ALT

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	17	3362	17	2241	20	1681	21	1345	20	1121	19
		1.25 x D	.3 x D	264	8068	24	4034	24	2689	29	2017	30	1614	29	1345	27
		1.5 X D	.1 x D	343	10488	52	5244	52	3496	63	2622	66	2098	63	1748	58
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	16	2750	20	1834	16	1375	16	1100	16	917	14
		1.25 x D	.3 x D	225	6876	24	3438	29	2292	24	1719	25	1375	24	1146	22
		1.5 X D	.1 x D	270	8251	47	4126	59	2750	47	2063	49	1650	47	1375	43
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	13	2750	13	1834	16	1375	16	1100	16	917	14
		1.25 x D	.3 x D	225	6876	20	3438	20	2292	24	1719	25	1375	24	1146	22
		1.5 X D	.1 x D	270	8251	39	4126	39	2750	47	2063	49	1650	47	1375	43
M	SS 300 & 400 Series 303, 304, 316, 420, 416	.75 x D	1 x D	140	4278	9	2139	9	1426	10	1070	11	856	11	713	10
		1.25 x D	.3 x D	185	5654	14	2827	14	1885	17	1413	17	1131	17	942	15
		1.5 x D	.1 x D	230	7039	29	3519	29	2346	34	1760	36	1408	35	1173	32
	Precipitation SS 15-5, 16-6, 17-4, 17-5	0.5	1 x D	115	3514	7	1757	7	1171	8	879	9	703	8	586	8
		1.25 x D	.3 x D	180	5501	13	2750	13	1834	15	1375	16	1100	15	917	14
		1.5 x D	.1 x D	250	7640	30	3820	30	2547	35	1910	37	1528	36	1273	33
K	Cast Iron - Grey GG-10 to GG-40	1 x D	1 x D	100	3056	7	1528	7	1019	8	764	9	611	8	509	8
		1.25 x D	.3 x D	125	3820	10	1910	10	1273	12	955	13	764	13	637	11
		1.5 X D	.1 x D	163	4966	22	2483	22	1655	27	1242	28	993	27	828	25
	Cast Iron- Ductile GGG-40, to GGG-70	.75 x D	1 x D	155	4737	10	2368	10	1579	12	1184	13	947	12	789	11
		1.25 x D	.3 x D	180	5501	14	2750	14	1834	17	1375	18	1100	17	917	16
		1.5 x D	.1 x D	216	6601	28	3300	28	2200	34	1650	36	1320	34	1100	31
S	High Temp Alloys Inconel 718, Hastalloy, Waspalloy, A286, CoCr	.25 x D	.4 x D	70	2139	4	1070	4	713	5	535	5	428	5	357	4
		1.25 x D	.2 x D	80	2445	5	1222	5	815	6	611	7	489	7	407	6
		1.5 x D	.07 x D	125	3820	14	1910	14	1273	17	955	18	764	17	637	16
	Titanium Alloy Ti-6Al4V Grades (5-38)	0.5	1 x D	180	5501	10	2750	10	1834	12	1375	12	1100	12	917	11
		1.25 x D	.3 x D	225	6876	14	3438	14	2292	17	1719	18	1375	17	1146	16
		1.5 x D	.1 x D	360	11002	38	5501	38	3667	46	2750	48	2200	46	1834	43

507A | Harrier ALT

Material		Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P	Carbon Steel 10XX, 11XX, 12XX, 13XX	1 x D	1 x D	220	6723	24	3362	24	2241	28	1681	30	1345	28	1121	26
		1.25 x D	.3 x D	264	8068	34	4034	34	2689	41	2017	43	1614	41	1345	38
		1.5 X D	.1 x D	343	10488	73	5244	73	3496	88	2622	93	2098	89	1748	81
	Alloy Steel 4140, 8620	1 x D	1 x D	180	5501	37	2750	27	1834	22	1375	23	1100	22	917	20
		1.25 x D	.3 x D	225	6876	55	3438	41	2292	33	1719	35	1375	33	1146	30
		1.5 X D	.1 x D	270	8251	110	4126	82	2750	66	2063	69	1650	66	1375	61
	Tool Steel A2 ,A3, D2, H11, H13	1 x D	.5 x D	180	5501	18	2750	18	1834	22	1375	23	1100	22	917	20
		1.25 x D	.3 x D	225	6876	27	3438	27	2292	33	1719	35	1375	33	1146	30
		1.5 X D	.1 x D	270	8251	55	4126	55	2750	66	2063	69	1650	66	1375	61
M	SS 300 & 400 Series 303, 304, 316, 420, 416	.75 x D	1 x D	140	4278	12	2139	12	1426	15	1070	15	856	15	713	14
		1.25 x D	.3 x D	185	5654	19	2827	19	1885	23	1413	24	1131	23	942	21
		1.5 x D	.1 x D	230	7039	40	3519	40	2346	48	1760	51	1408	49	1173	44
	Precipitation SS 15-5, 16-6, 17-4, 17-5	0.5	1 x D	115	3514	10	1757	10	1171	11	879	12	703	12	586	11
		1.25 x D	.3 x D	180	5501	18	2750	18	1834	21	1375	23	1100	22	917	20
		1.5 x D	.1 x D	250	7640	41	3820	41	2547	50	1910	52	1528	50	1273	46
K	Cast Iron - Grey, GG-10 to GG-40	1 x D	1 x D	100	3056	10	1528	10	1019	12	764	12	611	12	509	11
		1.25 x D	.3 x D	125	3820	14	1910	14	1273	17	955	18	764	18	637	16
		1.5 X D	.1 x D	163	4966	31	2483	31	1655	38	1242	40	993	38	828	35
	Cast Iron - Ductile GGG-40, to GGG-70	.75 x D	1 x D	155	4737	14	2368	14	1579	17	1184	18	947	17	789	16
		1.25 x D	.3 x D	180	5501	20	2750	20	1834	24	1375	25	1100	24	917	22
		1.5 x D	.1 x D	216	6601	40	3300	40	2200	48	1650	50	1320	48	1100	44
S	High Temp Alloys Inconel 718, Hastalloy, Waspalloy, A286, CoCr	.25 x D	.4 x D	70	2139	6	1070	6	713	7	535	7	428	7	357	6
		1.25 x D	.2 x D	80	2445	8	1222	8	815	9	611	10	489	9	407	8
		1.5 x D	.07 x D	125	3820	20	1910	20	1273	24	955	25	764	24	637	22
	Titanium Alloy Ti-6Al4V Grades (5-38)	0.5	1 x D	180	5501	13	2750	13	1834	16	1375	17	1100	16	917	15
		1.25 x D	.3 x D	225	6876	20	3438	20	2292	24	1719	25	1375	24	1146	22
		1.5 x D	.1 x D	360	11002	54	5501	54	3667	65	2750	68	2200	65	1834	60



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