



**Cutter Style:**  
1TW7, 1TW8

**Insert Series**  
NBEU1603R  
NBEU1904R  
NBEU25T4R

**Grades:**  
IN2035  
IN2504  
IN2505  
IN2530  
IN4005  
IN4030

**Applications:**  
Die & Mold  
Aerospace  
General Purpose



**NEW  
PRODUCT  
ANNOUNCEMENT  
2016**

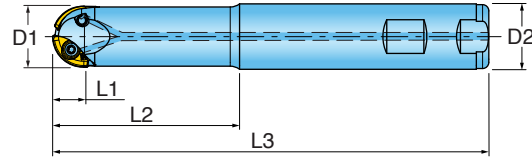
## Roughing & Semi-Finishing Ball Nose

### Features and Benefits

- Aggressive, strong insert design
- Exceptional cutting edge strength
- Highly stable cutting performance
- High helix cutting edge for smooth milling
- Designed for semi-rough and roughing applications
- Unique double-sided Insert with 2 cutting edges provides economy
- One insert is used for both central and peripheral pockets
- Coolant through cutter bodies

## Ball Nose End Mill

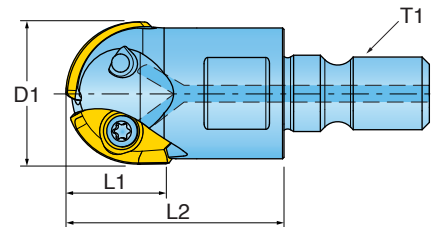
### Ball Nose End Mill, 2-Flute, Steel Shank



Cutter Number	D1 Nominal Diameter	L1 Cut Length	L2 Extension Length	L3 Overall Length	Z No. of Flutes	D2 Shank Size/Style
1TW7Q-0601379R01	.625	.480	1.375	4.750	2	.625 Weldon
1TW8Q-0601357R01	.625	.480	1.375	5.000	2	.750 Cylindrical
1TW8Q-0601357R02	.625	.480	1.375	6.000	2	.750 Cylindrical
1TW7J-0702084R01	.750	.527	2.000	4.000	2	.750 Weldon
1TW7J-0702084R02	.750	.527	2.000	6.000	2	.750 Weldon
1TW8J-0701580R01	.750	.527	2.000	6.000	2	1.000 Weldon
1TW8J-0701850R02	.750	.527	2.000	7.000	2	1.000 Weldon
1TW7K-1002780R01	1.000	.685	2.750	5.000	2	1.000 Weldon
1TW7K-1002780R02	1.000	.685	2.750	6.000	2	1.000 Weldon
1TW8K-1001981R01	1.000	.685	2.750	6.000	2	1.250 Weldon
1TW8K-1001981R02	1.000	.685	2.750	7.000	2	1.250 Weldon

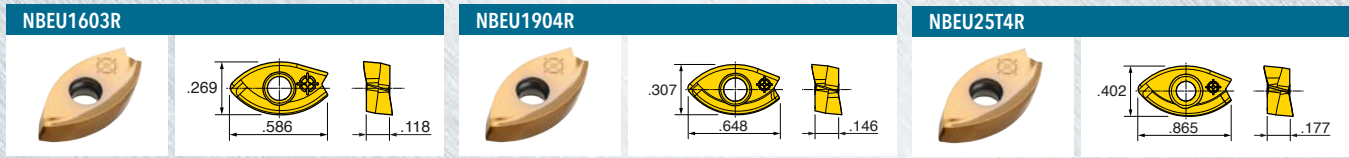
## Ball Nose Top-On Modular

### Ball Nose End Mill, 2-Flute, Top-On Style





Cutter Number	D1 Nominal Diameter	L1 Cut Length	L2 Extension Length	Z No. of Flutes	T1 Shank Adaption
1TW7Q-06012X5R01	.625	.480	.984	2	M8
1TW7J-07014X6R01	.750	.528	1.181	2	M10
1TW7K-10017X7R01	1.000	.685	1.378	2	M12

## Inserts





Cutter Diameter	Insert Part Number	Grade	Grade					
			IN2035	IN2504	IN2505	IN2530	IN4005	IN4030
.625	NBEU1603R		•	•	•	•	•	•
.750	NBEU1904R		•	•	•	•	•	•
1.000	NBEU25T4R		•	•	•	•	•	•



\* Please check both insert and pocket for correct positioning. Insert marked  must be clamped in pocket marked  on the cutter.

\* One insert is used for both central and peripheral pockets

## Hardware

Cutter Diameter	Cutter Diameter	 Screw	 Driver
.625	1TW7Q-0601379R01	SM25-064-00	DS-T08S
	1TW8Q-06013S7R01		
	1TW8Q-06013S7R02		
	1TW7Q-06012X5R01		
.750	1TW7J-0702084R01	SM30-072-00	DS-0022
	1TW7J-0702084R02		
	1TW7J-0701580R01		
	1TW7J-0701580R02		
1.000	1TW7J-07014X6R01	SM35-087-00	DS-0010
	1TW7K-1002780R01		
	1TW7K-1002780R02		
	1TW7K-1001981R01		
	1TW7K-1001981R02		
	1TW7K-10017X7R01		

## Operating Guidelines

Pro-Duo - Series 1TW7, 1TW8											
Material		Brinnell Hardness	SFM	Feed per Insert	IN2035	IN2504	IN2505	IN2530	IN4005	IN4030	Coolant
Cast Iron	Gray	-	785 - 1250	.006 - .035		3	2		1		No
	Nodular		590 - 920	.004 - .030							
Steel	Low Carbon 1018, 8620	85 - 175	650 - 1150	.004 - .035		3	2		1		No
	High Carbon F-6180	175 - 225	590 - 1050	.004 - .025							
	Alloyed Steel 4140	275 - 325	390 - 820	.002 - .030							
	Tool Steel P20 - H13	200 - 250	330 - 650	.002 - .025							
Stainless Steel	Hardened Steel, HRC 50-65	495 - 712	300 - 600	.003 - .025	1		3		4	2	No
	300 Series, 304, 316	-	400 - 900	.002 - .030							
	400 Series 15-5 PH, 17-4 PH	-	650 - 985	.002 - .030							
	13-8 PH	-	200 - 400	.002 - .020							Yes
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy	-	65 - 265	.002 - .020	1			3		2	Yes
Titanium	6AL-4V	-	130 - 360	.002 - .030	1			3		2	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

