

2012-2013 CATALOG

THE

SOURCE

NEWEN[®]



ENGLISH

FIXED-TURNING®

*the new standard
in valve seat machining™*

ZERO Defect... 100% Perfection! FIXED-TURNING® in all its forms

CONTOUR-BB™
... the best budget



CONTOUR-CS™
... the extra comfort



EPOC-XL™
... objective no-limit



Who is best able to guaranty the 2012 OEM quality requirements on the following operations...	NEWEN FIXED-TURNING® machines		The best Form-Tool seat & guide machines in the market	
	YES	NO	YES	NO
Machine the hardest valve seats with a 100% guaranteed precision and, of course, chatter free	✓			X
Machine round and concentric valve seats 100% of the time regardless of the material to machine	✓			X
Machine round and concentric valve seats for a 100% seal regardless of the diameter of the seat ranging from 14 to 240mm (.55" to 9.45")	✓			X
Machine perfectly round & square valve seat housings within a 0.005mm (.0002") circularity tolerance and perpendicularity of the resting face (OEM tolerance)	✓			X
Machine valve guides with "H7" (OEM Tolerance) automatically	✓			X
Carry out all the machining operations in automatic with depth tolerances within a few hundredths of mm regardless of the diameters of the valve seats and their hardness	✓			X
Guaranty optimum quality with an operator who only has a few days of training	✓			X
Guaranty the same quality for decades to come regardless of the materials and precision levels required	✓			X
Guaranty the machining of all the shapes and profiles with one standard single point cutting tool	✓			X
Guaranty an inventory of the most complex profiles and make them available at any moment with a few simple touches on the screen	✓			X
Guaranty the capacity to machine all types of cylinder heads that may exist, including the ones featuring venturi type shapes (back cuts) below the seats	✓			X

BE> THINK> INNOVATE>



NEWEN

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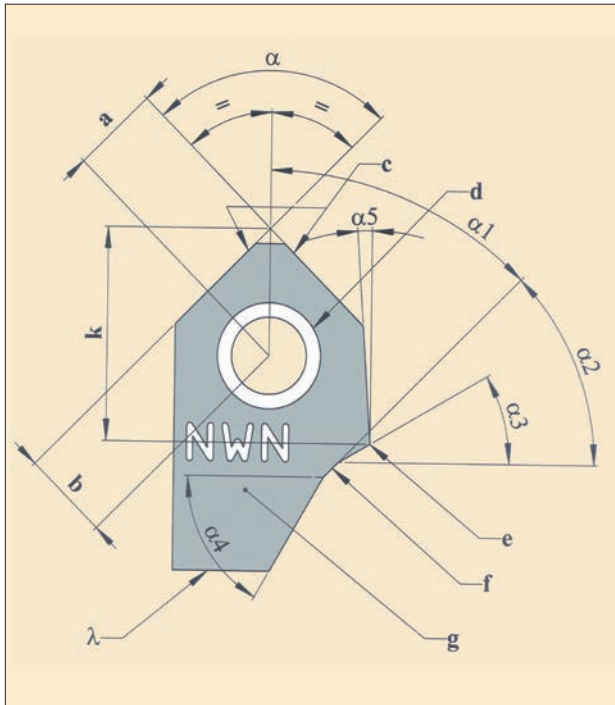
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■ **NWN, THE BEST PROFILE MONEY CAN BUY!**

- LARGEST INVENTORY
- BEST QUALITY
- BEST PRICE
- NO MINIMUMS
- BEST PERFORMANCE



f _____
 the machining of the profile is done with a special concave shape which, in turn, allows for the machining of more valve seats between resharpenings. This concave shape also allows the customers who wish to resharpen their tips to do so more times since the above mentioned shape let them remove less material during any given sharpening operation.

g _____
 the carbide used to manufacture NEWEN® tips is of the finest quality and is specially treated to make the cutting edges of the tips as strong as possible.

λ _____
 the base of the tip has a relief angle in order to avoid heeling.

k _____
 this dimension has very close tolerance in order to make the tips completely interchangeable without adjustment of the tool holder and for added precision and considerable time saving.

α1, α2, α3, α4, α5 _____
 all the angles are executed with a precision unequalled to date and are controlled automatically while each tip is being machined. NEWEN® tips are machined one at a time to ensure perfect angle accuracy and consistency.

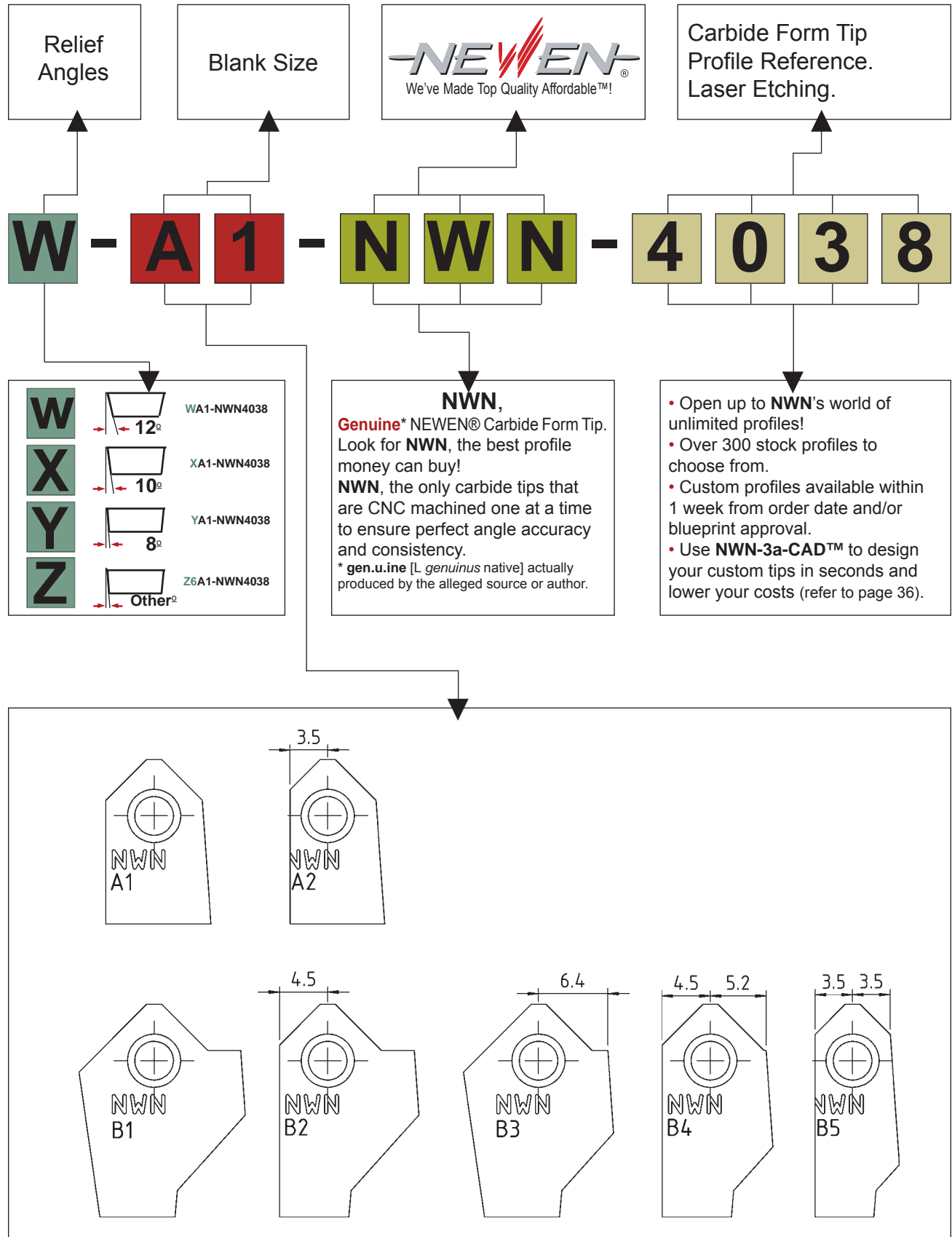
a,b,c,α _____
 precision positioning of the tip seat angle and proper tightening of the tip result directly from parameters a, b, c and α. Both the positioning of the seat angle of the tip and proper tightening of the tip **are critical** to ensure adequate rigidity of the tool and to eliminate chattering. The tolerances on NEWEN® High-Performance Tips are the strictest of any tips available on the market.

d _____
 the seat angle of the screw hole is designed to ensure maximum pressure on the tips in their housing. NEWEN® T8 torx screws guarantee optimum tightening of the tips.

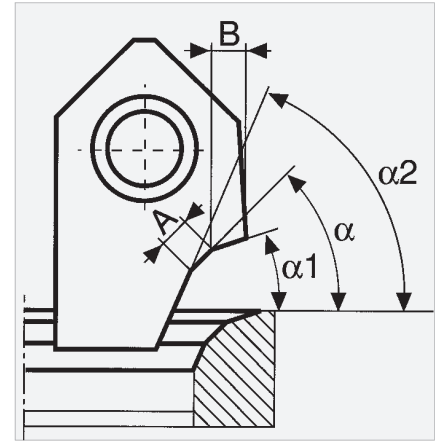
e _____
 this small radius, made while the tips are being machined, reinforces the tips significantly at this delicate place and allow for longer use of the tips.

NEWEN® carbide form tips are cut one at a time guaranteeing maximum precision.

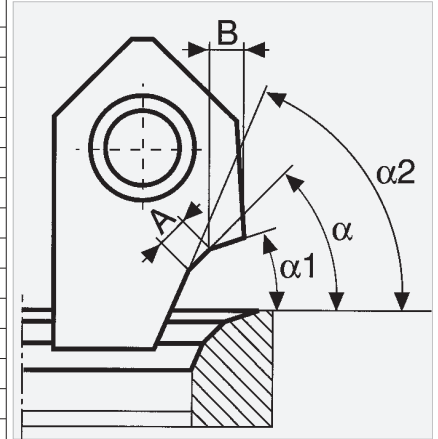
NEWEN® CARBIDE FORM TIP REFERENCING SYSTEM



NEWEN REFERENCE	A = Seat Width		B = Top Width		α Seat Angle	$\alpha 1$ Top Angle	$\alpha 2$ Throat Angle
	mm	in	mm	in			
In 1 WA1-NWN4183	0.8	.031	1.0	.039	45	32	60
In 2 WA1-NWN4445	1.0	.039	1.0	.039	45	15	60
In 3 WA1-NWN1101	1.0	.039	1.0	.039	45	25	60
In 4 WA1-NWN4028	1.0	.039	1.2	.047	45	30	60
In 5 WA1-NWN4984	1.0	.039	1.2	.047	45	38	52
In 6 WA1-NWN4983	1.0	.039	1.3	.051	45	30	75
In 7 WA1-NWN1102	1.0	.039	1.4	.055	45	25	60
In 8 WA1-NWN4588	1.0	.039	1.6	.063	45	25	52
In 9 WA1-NWN4029	1.0	.039	1.6	.063	45	35	52
In 10 WA1-NWN4030	1.0	.039	1.6	.063	45	35	55
In 11 WA1-NWN4031	1.0	.039	1.6	.063	45	35	60
In 12 WA1-NWN4980	1.0	.039	1.6	.063	45	38	65
In 13 WA1-NWN4017	1.0	.039	1.8	.071	45	15	60
In 14 WA1-NWN4981	1.0	.039	1.8	.071	45	20	75
In 15 WA1-NWN1103	1.0	.039	1.8	.071	45	25	60
In 16 WA1-NWN4090	1.0	.039	1.8	.071	45	30	60
In 17 WA1-NWN4303	1.0	.039	2.0	.079	45	30	60
In 18 WA1-NWN4087	1.0	.039	2.0	.079	45	37	52
In 19 WA1-NWN4903	1.0	.039	2.54	.100	45	37	58
In 20 WA1-NWN4904	1.0	.039	2.54	.100	45	37	64
In 21 WA1-NWN1105	1.0	.039	3.0	.118	45	25	60
In 22 WA1-NWN4451	1.0	.039	3.0	.118	45	30	60
In 23 WA1-NWN4182	1.2	.047	1.2	.047	45	30	60
In 24 WA1-NWN1122	1.2	.047	1.4	.055	45	25	60
In 25 WA1-NWN4016	1.2	.047	1.8	.071	45	15	60
In 26 WA1-NWN4032	1.3	.051	1.0	.039	45	30	60
In 27 WA1-NWN4221	1.3	.051	1.2	.047	45	30	60
In 28 WA1-NWN4480	1.3	.051	1.6	.063	45	30	60
In 29 WA1-NWN4091	1.3	.051	1.8	.071	45	30	60
In 30 WA1-NWN4034	1.3	.051	2.0	.079	45	30	52
In 31 WA1-NWN4035	1.3	.051	2.0	.079	45	30	60
In 32 WA1-NWN4975	1.3	.051	2.0	.079	45	35R1	56
In 33 WA1-NWN4033	1.3	.051	2.0	.079	45	37	52
In 34 WA1-NWN1141	1.4	.055	1.0	.039	45	25	60
In 35 WA1-NWN4036	1.4	.055	1.0	.039	45	30	60
In 36 WA1-NWN1142	1.4	.055	1.4	.055	45	25	60
In 37 WA1-NWN4093	1.4	.055	2.0	.079	45	30	60
In 38 WA1-NWN4109	1.5	.059	1.0	.039	45	15	60
In 39 WA1-NWN4094	1.5	.059	1.0	.039	45	30	60
In 40 WA1-NWN4982	1.5	.059	1.2	.047	45	38	52
In 41 WA1-NWN4978	1.5	.059	1.3	.051	45	30	75
In 42 WA1-NWN4261	1.5	.059	1.4	.055	45	15	60
In 43 WA1-NWN4993	1.5	.059	1.4	.055	45	20	75
In 44 WA1-NWN4241	1.5	.059	1.4	.055	45	25	52
In 45 WA1-NWN4003	1.5	.059	1.4	.055	45	25	60
In 46 WA1-NWN4216	1.5	.059	1.4	.055	45	30	60
In 47 WA1-NWN4025	1.5	.059	1.8	.071	45	15	60
In 48 WA1-NWN4077	1.5	.059	1.8	.071	45	30	52
In 49 WA1-NWN4038	1.5	.059	1.8	.071	45	30	60
In 50 WA1-NWN4037	1.5	.059	1.8	.071	45	37	52
In 51 WA1-NWN4015	1.5	.059	2.0	.079	45	15	60
In 52 WA1-NWN4177	1.5	.059	2.0	.079	45	30	60
In 53 WA1-NWN4986	1.5	.059	3.0	.118	45	30	60
In 54 WA1-NWN1161	1.6	.063	1.0	.039	45	25	60
In 55 WA1-NWN4039	1.6	.063	1.0	.039	45	30	60
In 56 WA1-NWN4135	1.6	.063	1.2	.047	45	30	52



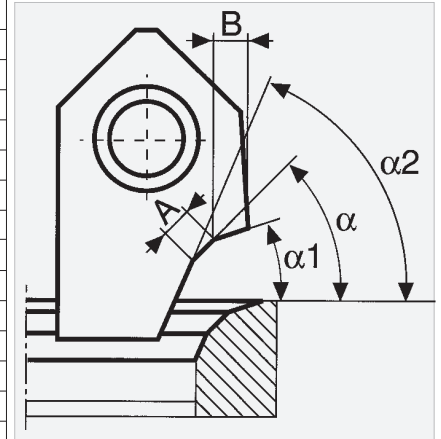
NEWEN REFERENCE	A = Seat Width		B = Top Width		α	$\alpha 1$	$\alpha 2$
	mm	in	mm	in	Seat Angle	Top Angle	Throat Angle
In 1 WA1-NWN4136	1.6	.063	1.2	.047	45	30	60
In 2 WA1-NWN4391	1.6	.063	1.4	.055	45	30	60
In 3 WA1-NWN1162	1.6	.063	1.4	.055	45	25	60
In 4 WA1-NWN4481	1.6	.063	1.6	.063	45	15	60
In 5 WA1-NWN4482	1.6	.063	1.6	.063	45	30	52
In 6 WA1-NWN1163	1.6	.063	1.8	.071	45	25	60
In 7 WA1-NWN4361	1.6	.063	1.8	.071	45	30	52
In 8 WA1-NWN4117	1.6	.063	2.0	.079	45	15	60
In 9 WA1-NWN4266	1.6	.063	2.0	.079	45	30	52
In 10 WA1-NWN4040	1.6	.063	2.0	.079	45	30	60
In 11 WA1-NWN4258	1.6	.063	3.0	.055	45	30	60
In 12 WA1-NWN4479	1.7	.067	1.8	.071	45	32	55
In 13 WA1-NWN4007	1.8	.071	1.0	.039	45	30	60
In 14 WA1-NWN4041	1.8	.071	1.6	.063	45	30	60
In 15 WA1-NWN4483	1.8	.071	3.0	.118	45	30	60
In 16 WA1-NWN4145	1.9	.075	0.8	.032	45	30	52
In 17 WA1-NWN4299	1.9	.075	1.2	.047	45	30	52
In 18 WA1-NWN4306	1.9	.075	1.2	.047	45	30	60
In 19 WA1-NWN4169	1.9	.075	1.4	.055	45	30	60
In 20 WA1-NWN4339	1.9	.075	1.6	.063	45	30	60
In 21 WA1-NWN4271	1.9	.075	1.8	.071	45	25	52
In 22 WA1-NWN4146	1.9	.075	1.8	.071	45	30	52
In 23 WA1-NWN4484	1.9	.075	2.0	.079	45	30	52
In 24 WA1-NWN4042	1.9	.075	2.0	.079	45	30	60
In 25 WA1-NWN4012	2.0	.079	1.0	.039	45	15	60
In 26 WA1-NWN1201	2.0	.079	1.0	.039	45	25	60
In 27 WA1-NWN4043	2.0	.079	1.2	.047	45	30	60
In 28 WA1-NWN4987	2.0	.079	1.2	.047	45	38	52
In 29 WA1-NWN4988	2.0	.079	1.2	.047	45	38	65
In 30 WA1-NWN4989	2.0	.079	1.4	.055	45	15	60
In 31 WA1-NWN4990	2.0	.079	1.4	.055	45	20	75
In 32 WA1-NWN1202	2.0	.079	1.4	.055	45	25	60
In 33 WA1-NWN4328	2.0	.079	1.4	.055	45	30	60
In 34 WA1-NWN4006	2.0	.079	1.5	.059	45	30	60
In 35 WA1-NWN4991	2.0	.079	1.6	.063	45	30	60
In 36 WA1-NWN4236	2.0	.079	1.6	.063	45	30	70
In 37 WA1-NWN4485	2.0	.079	1.6	.063	45	30	75
In 38 WA1-NWN4338	2.0	.079	1.78	.070	45	30	55
In 39 WA1-NWN1203	2.0	.079	1.8	.071	45	25	60
In 40 WA1-NWN4097	2.0	.079	2.0	.079	45	30	60
In 41 WA1-NWN4486	2.2	.087	0.6	.024	45	30	60
In 42 WA1-NWN4343	2.2	.087	2.0	.079	45	30	60
In 43 WA1-NWN4021	2.3	.091	1.0	.039	45	15	60
In 44 WA1-NWN4022	2.3	.091	1.8	.071	45	15	60
In 45 WA1-NWN4348	2.3	.091	2.0	.079	45	30	60
In 46 WA1-NWN4992	2.4	.094	1.3	.051	45	30	75
In 47 WA1-NWN1252	2.5	.098	1.4	.055	45	25	60
In 48 WA1-NWN1253	2.5	.098	1.8	.071	45	25	60
In 49 WA1-NWN4487	2.5	.098	2.0	.079	45	30	60
In 50 WA1-NWN1302	3.0	.118	1.4	.055	45	25	60
In 51 WA1-NWN1303	3.0	.118	1.8	.071	45	25	60
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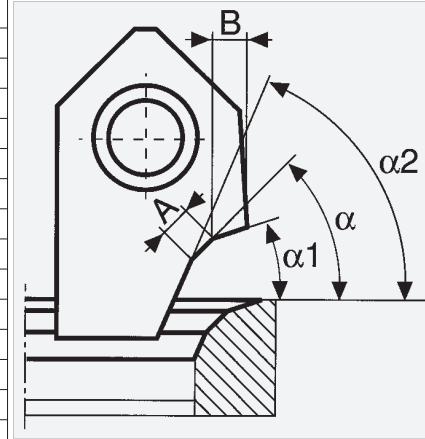
<p>1</p> <p>NWN AI</p>	<p>2</p> <p>NWN AI</p>	<p>3</p> <p>NWN AI</p>
<p>WA1-NWN5447</p>	<p>WA1-NWN5074</p>	<p>WA1-NWN5073</p>
<p>4</p> <p>NWN AI</p>	<p>5</p> <p>NWN AI</p>	<p>6</p> <p>NWN AI</p>
<p>WA1-NWN4496</p>	<p>WA1-NWN5444</p>	<p>WA1-NWN5448</p>
<p>7</p> <p>NWN AI</p>	<p>8</p> <p>NWN AI</p>	<p>9</p> <p>NWN AI</p>
<p>WA1-NWN5442</p>	<p>WA1-NWN5043</p>	<p>WA1-NWN5118</p>

<p style="text-align: right;">10</p> <p>NWN AI</p> <p>R1.50mm (.059) Tan 30°-94° 30° - 0.98mm (.038) 45° - 1.00mm (.039) 75° - 3.39mm (.134)</p> <p style="text-align: center;">WA1-NWN5439</p>	<p style="text-align: right;">11</p> <p>NWN AI</p> <p>30° - 1.50mm (.059) 45° - 1.00mm (.039) R10.00mm (.394) Tan 82°-45°</p> <p style="text-align: center;">WA1-NWN5120</p>	<p style="text-align: right;">12</p> <p>NWN AI</p> <p>R0.80mm (.032) Tan 15°-94° 15° - 1.56mm (.062) 45° - 1.00mm (.039) 75° - 4.67mm (.184)</p> <p style="text-align: center;">WA1-NWN5122</p>
<p style="text-align: right;">13</p> <p>NWN AI</p> <p>R1.50mm (.059) Tan 38°-94° 38° - 0.91mm (.036) 45° - 1.10mm (.043) 60° - 2.80mm (.110)</p> <p style="text-align: center;">WA1-NWN4498</p>	<p style="text-align: right;">14</p> <p>NWN AI</p> <p>R1.50mm (.059) Tan 32°-94° 32° - 1.05mm (.041) 45° - 1.20mm (.047) 60° - 2.50mm (.098)</p> <p style="text-align: center;">WA1-NWN4497</p>	<p style="text-align: right;">15</p> <p>NWN AI</p> <p>R0.50mm (.019) Tan 32°-94° 32° - 1.49mm (.059) 45° - 1.20mm (.047) 60° - 5.60mm (.221)</p> <p style="text-align: center;">WA1-NWN4247</p>
<p style="text-align: right;">16</p> <p>NWN AI</p> <p>R1.50mm (.059) Tan 30°-94° 30° - 0.98mm (.038) 45° - 1.30mm (.051) 60° - 4.80mm (.189)</p> <p style="text-align: center;">WA1-NWN5449</p>	<p style="text-align: right;">17</p> <p>NWN AI</p> <p>R1.50mm (.059) Tan 30°-94° 30° - 0.98mm (.038) 45° - 1.50mm (.059) 60° - 5.00mm (.197)</p> <p style="text-align: center;">WA1-NWN5436</p>	<p style="text-align: right;">18</p> <p>NWN AI</p> <p>30° - 1.50mm (.059) 45° - 1.50mm (.059) R10.00mm (.394) Tan 80°-44°</p> <p style="text-align: center;">WA1-NWN5119</p>

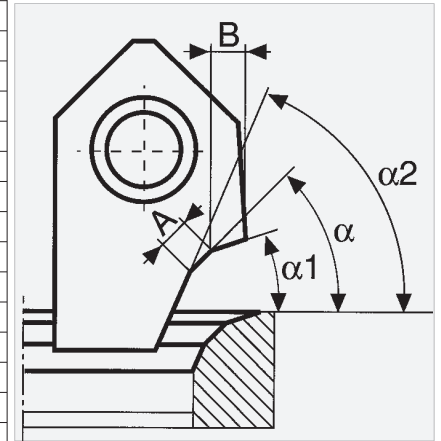
NEWEN REFERENCE	A = Seat Width		B = Top Width		α	$\alpha 1$	$\alpha 2$
	mm	in	mm	in	Seat Angle	Top Angle	Throat Angle
In 1 WA1-NWN5185	1.5	.059	1.5	.059	45.5	2	75
In 2							
In 3							
In 4							
In 5 WA1-NWN4603	1.2	.047	1.2	.047	46	30	55
In 6 WA1-NWN4601	1.6	.063	0.8	.031	46	35	55
In 7 WA1-NWN4604	1.9	.075	1.2	.047	46	30	52
In 8 WA1-NWN4602	2.2	.087	0.8	.031	46	30	55
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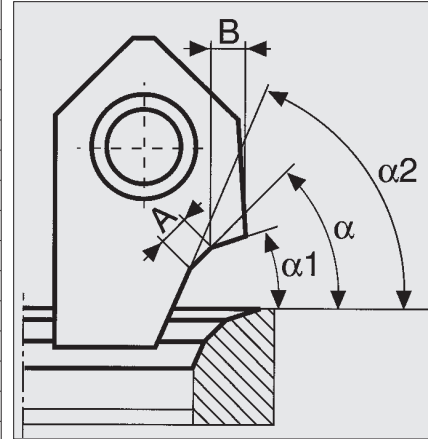
NEWEN REFERENCE	A = Seat Width		B = Top Width		α	$\alpha 1$	$\alpha 2$
	mm	in	mm	in	Seat Angle	Top Angle	Throat Angle
In 1 Z6A1-NWN5183	2.0	.079	1.8	.071	20	00	60
In 2 Z6A1-NWN2133	2.0	.079	2.0	.079	20	00	75
In 3 Z6A1-NWN2327	2.0	.079	2.0	.079	20	05	45
In 4 Z6A1-NWN2266	2.3	.091	2.0	.079	20	10	75
In 5 Z6A1-NWN5022	2.5	.098	1.8	.071	20	00	60
In 6 Z6A1-NWN2200	2.5	.098	2.0	.079	20	05	75
In 7 Z6A1-NWN4599	2.5	.098	3.0	.118	20.25	15	60
In 8 Z6A1-NWN5116	2.66	.105	2.8	.110	20.15	15	60
In 9 Z6B1-NWN60182	3.0	.118	1.5	.059	20	15	60
In 10 Z6A1-NWN5205	3.2	.126	N/A	N/A	20	N/A	60
In 11 Z6A1-NWN2402	3.2	.126	2.0	.079	20	05	45
In 12 Z6A1-NWN2091	3.8	.150	1.8	.071	20	11	45
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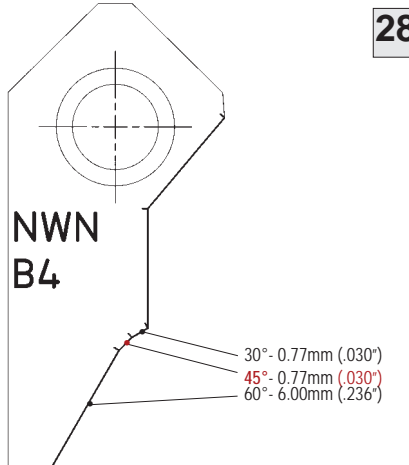
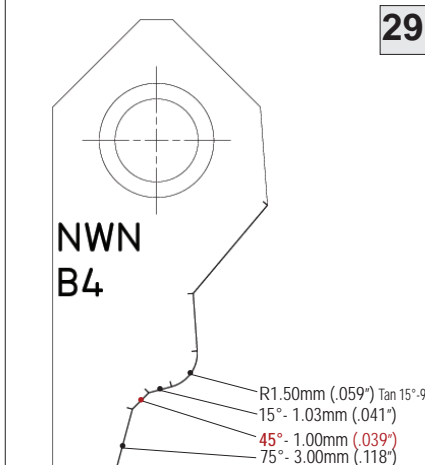
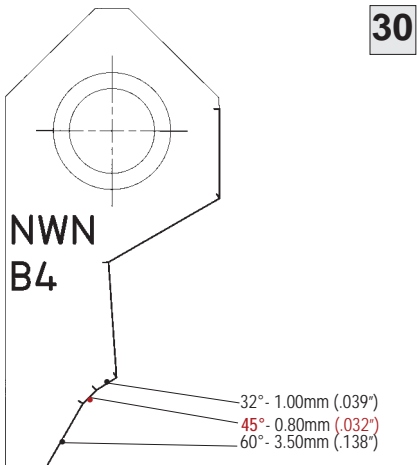
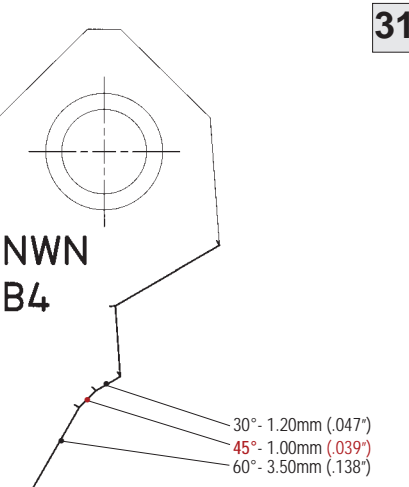
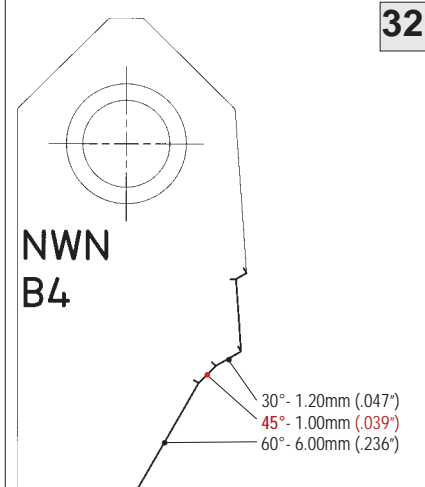
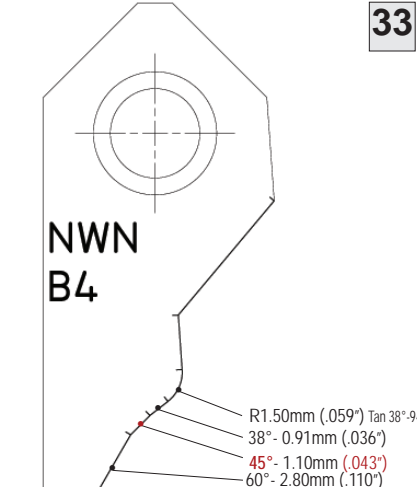
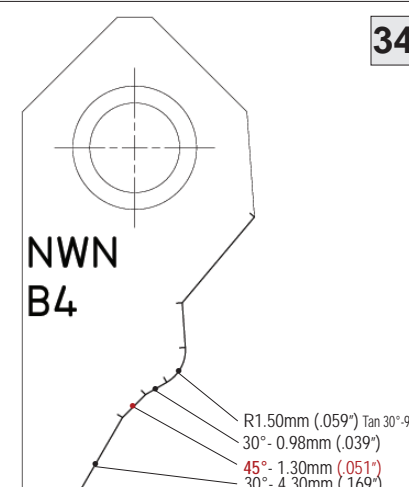
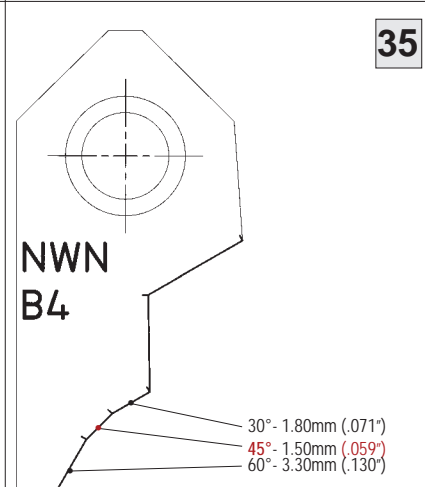
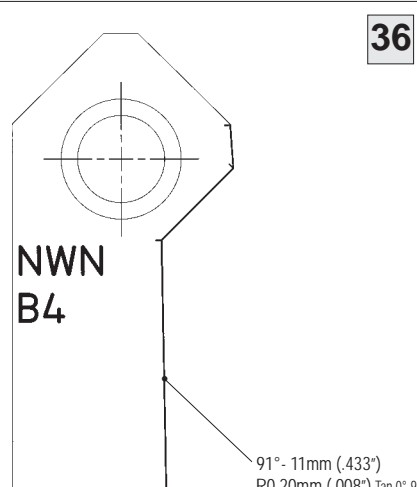
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		mm	in	mm	in			
In 1	WA1-NWN2102	1.0	.039	1.4	.055	30	15	60
In 2	WA1-NWN4999	1.0	.039	1.4	.055	30	23	52
In 3	WA1-NWN3062	1.0	.039	1.6	.063	30	20	52
In 4	WA1-NWN2103	1.0	.039	1.8	.071	30	15	60
In 5	WA1-NWN2000	1.0	.039	2.5	.098	30	15	60
In 6	WA1-NWN3245	1.2	.047	1.0	.039	30	15	60
In 7	WA1-NWN3023	1.3	.051	1.0	.039	30	15	45
In 8	WA1-NWN3065	1.3	.051	2.0	.079	30	15	45
In 9	WA1-NWN3061	1.3	.051	2.0	.079	30	15	60
In 10	WA1-NWN3068	1.5	.059	1.4	.055	30	15	45
In 11	WA1-NWN2152	1.5	.059	1.4	.055	30	15	60
In 12	WA1-NWN4998	1.5	.059	1.4	.055	30	23	52
In 13	WA1-NWN3064	1.5	.059	1.8	.071	30	15	45
In 14	WA1-NWN3016	1.5	.059	1.8	.071	30	15	52
In 15	WA1-NWN2153	1.5	.059	1.8	.071	30	15	60
In 16	WA1-NWN3024	1.5	.059	2.0	.079	30	0	60
In 17	WA1-NWN3200	1.5	.059	2.0	.079	30	15	60
In 18	WA1-NWN3025	1.5	.059	3.0	.118	30	20	60
In 19	WA1-NWN3078	1.6	.063	1.2	.047	30	15	45
In 20	WA1-NWN3194	1.6	.063	1.8	.071	30	15	45
In 21	WA1-NWN3195	1.6	.063	1.8	.071	30	15	52
In 22	WA1-NWN3026	1.6	.063	2.0	.079	30	15	45
In 23	WA1-NWN3067	1.6	.063	2.0	.079	30	15	60
In 24	WA1-NWN4997	1.6	.063	2.2	.087	30	15	60
In 25	WA1-NWN3027	1.8	.071	1.4	.055	30	15	60
In 26	WA1-NWN3146	1.8	.071	2.0	.079	30	15	45
In 27	WA1-NWN3072	1.9	.075	1.0	.039	30	15	45
In 28	WA1-NWN3010	1.9	.075	1.8	.071	30	15	60
In 29	WA1-NWN3029	1.9	.075	2.0	.079	30	15	60
In 30	WA1-NWN3196	2.0	.079	1.2	.047	30	15	45
In 31	WA1-NWN2202	2.0	.079	1.4	.055	30	15	60
In 32	WA1-NWN4995	2.0	.079	1.4	.055	30	23	52
In 33	WA1-NWN2203	2.0	.079	1.8	.071	30	15	60
In 34	WA1-NWN4996	2.0	.079	1.9	.075	30	15	60
In 35	WA1-NWN3084	2.0	.079	2.0	.079	30	15	45
In 36	WA1-NWN3198	2.2	.087	2.0	.079	30	15	60
In 37	WA1-NWN3226	2.4	.095	1.4	.055	30	15	70
In 38	WA1-NWN2252	2.5	.098	1.4	.055	30	15	60
In 39	WA1-NWN2253	2.5	.098	1.8	.071	30	15	60
In 40	WA1-NWN3032	2.5	.098	2.0	.079	30	15	60
In 41	WA1-NWN2254	2.5	.098	2.2	.087	30	15	60
In 42	WA1-NWN3031	2.8	.110	2.0	.079	30	0	60
In 43	WA1-NWN2302	3.0	.118	1.4	.055	30	15	60
In 44	WA1-NWN3199	3.8	.150	3.0	.118	30	20	45
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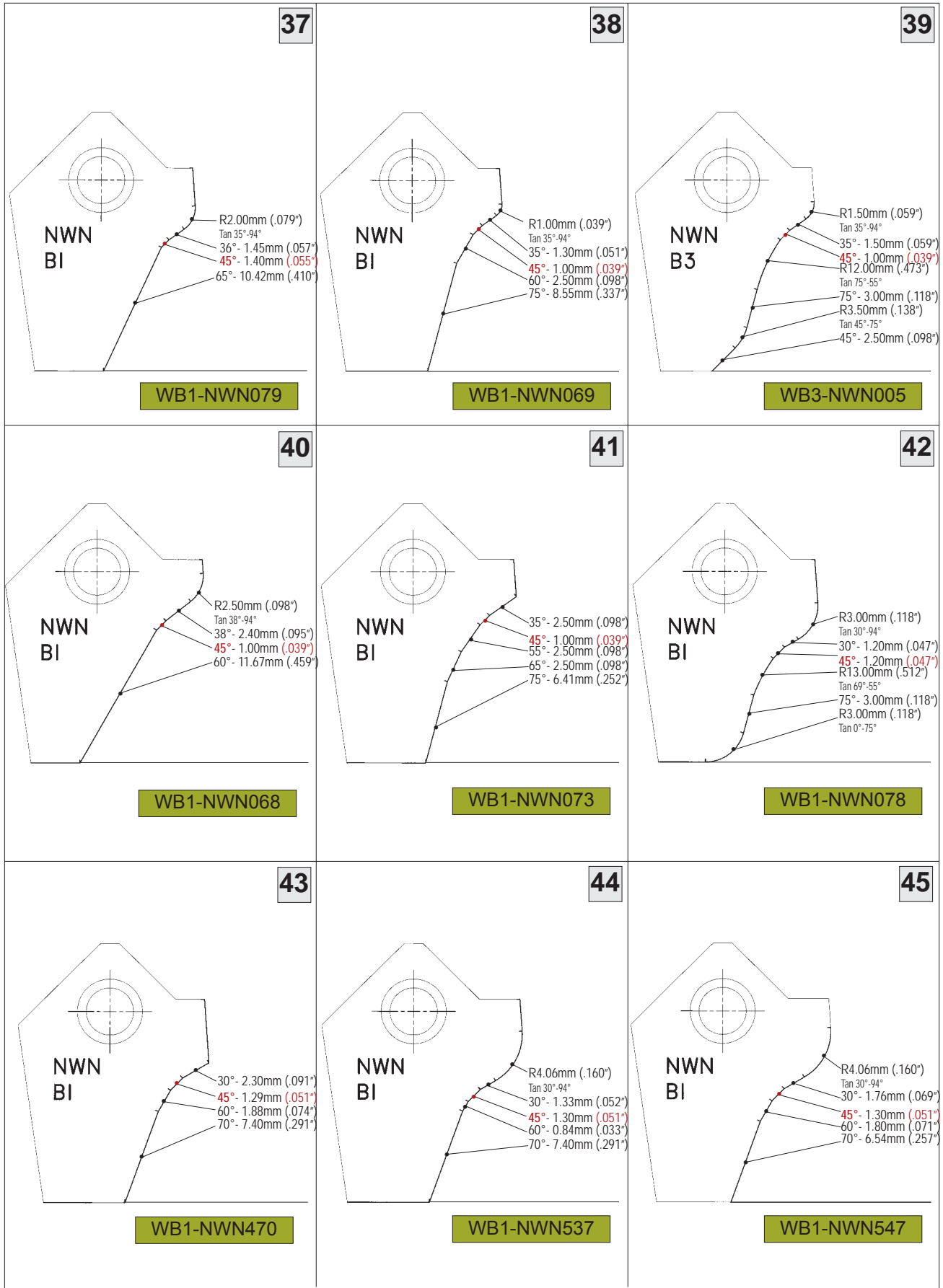


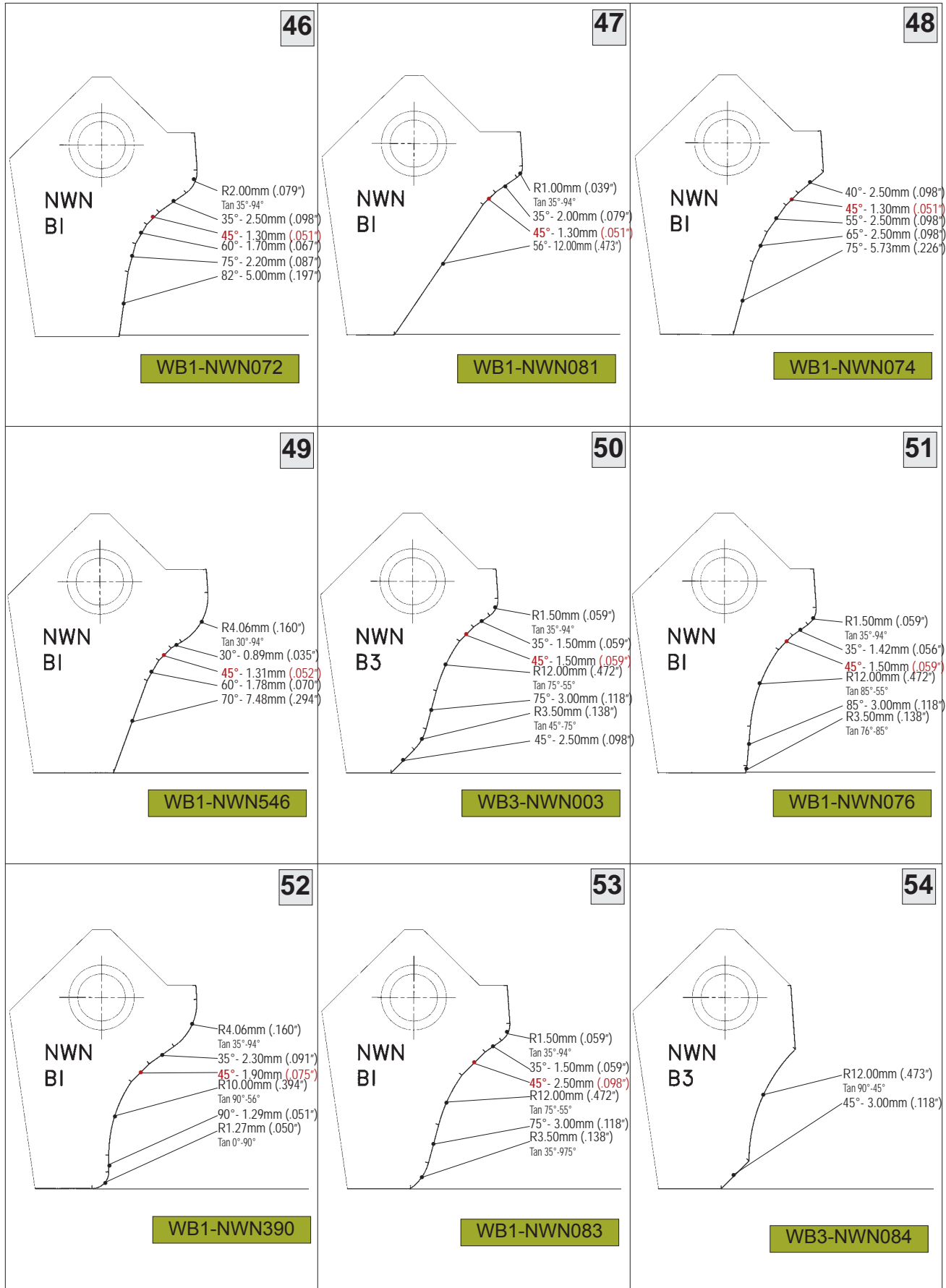
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		mm	in	mm	in			
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In 2	WA1-NWN5364	1.5	.059	1.5	.059	30.5	2	75
In 3								
In 4								
In 5	WA1-NWN5362	1.2	.047	1.4	.055	31	15	60
In 6	WA1-NWN5280	1.5	.059	1.4	.055	31	11	60
In 7	WA1-NWN5158	1.5	.059	1.5	.059	31	2	75
In 8	WA1-NWN5363	2.1	.083	2.0	.079	31	2	60
In 9								
In 10								
In 11								
In 12	WA1-NWN4994	1.5	.059	1.4	.055	37.5	25	75
In 13	WA1-NWN5414	1.6	.063	1.4	.055	37.5	30	60
In 14	WA1-NWN5415	1.6	.063	2.0	.079	37.5	30	60
In 15	WA1-NWN5006	1.8	.071	1.2	.047	37.5	20	52
In 16	WA1-NWN5416	1.9	.075	1.4	.055	37.5	30	60
In 17	WA1-NWN5417	2.0	.079	2.0	.079	37.5	30	60
In 18	WA1-NWN5251			2.0	.079	37.5		75
In 19	WA1-NWN5418	2.1	.083	0.6	.024	37.5	18	52
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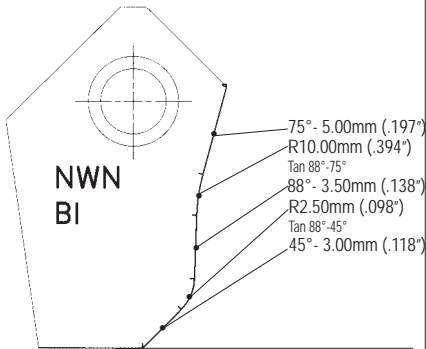
<p style="text-align: right;">19</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 32°-94° 32° - 0.70mm (.028") 45° - 0.80mm (.032") 60° - 3.00mm (.118") <p style="text-align: center;">WA2-NWN4496</p>	<p style="text-align: right;">20</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 15°-94° 15° - 1.03mm (.041") 45° - 1.00mm (.039") 75° - 3.00mm (.118") <p style="text-align: center;">WA2-NWN5448</p>	<p style="text-align: right;">21</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 20°-94° 20° - 0.97mm (.038") 45° - 1.00mm (.039") 60° - 4.10mm (.162") <p style="text-align: center;">WA2-NWN5442</p>
<p style="text-align: right;">22</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 32°-94° 32° - 1.05mm (.041") 45° - 1.20mm (.047") 60° - 2.40mm (.095") <p style="text-align: center;">WA2-NWN4497</p>	<p style="text-align: right;">23</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 30°-94° 30° - 0.98mm (.038") 45° - 1.00mm (.039") 75° - 3.39mm (.133") <p style="text-align: center;">WA2-NWN5439</p>	<p style="text-align: right;">24</p> <p>NWN A2</p> <ul style="list-style-type: none"> 30° - 1.20mm (.047") 45° - 1.00mm (.039") 60° - 4.50mm (.177") <p style="text-align: center;">WA2-NWN4028</p>
<p style="text-align: right;">25</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 38°-94° 38° - 0.91mm (.036") 45° - 1.10mm (.043") 60° - 2.80mm (.110") <p style="text-align: center;">WA2-NWN4498</p>	<p style="text-align: right;">26</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 30°-94° 30° - 0.98mm (.038") 45° - 1.30mm (.051") 60° - 2.40mm (.095") <p style="text-align: center;">WA2-NWN5449</p>	<p style="text-align: right;">27</p> <p>NWN A2</p> <ul style="list-style-type: none"> R1.50mm (.059") Tan 30°-94° 30° - 0.98mm (.038") 45° - 1.50mm (.059") 60° - 3.40mm (.134") <p style="text-align: center;">WA2-NWN5436</p>

<p>28</p>  <p>NWN B4</p> <p>30° - 0.77mm (.030°) 45° - 0.77mm (.030°) 60° - 6.00mm (.236°)</p> <p>WB4-NWN268</p>	<p>29</p>  <p>NWN B4</p> <p>R1.50mm (.059°) Tan 15°-94° 15° - 1.03mm (.041°) 45° - 1.00mm (.039°) 75° - 3.00mm (.118°)</p> <p>WB4-NWN60252</p>	<p>30</p>  <p>NWN B4</p> <p>32° - 1.00mm (.039°) 45° - 0.80mm (.032°) 60° - 3.50mm (.138°)</p> <p>WB4-NWN215</p>
<p>31</p>  <p>NWN B4</p> <p>30° - 1.20mm (.047°) 45° - 1.00mm (.039°) 60° - 3.50mm (.138°)</p> <p>WB4-NWN4028</p>	<p>32</p>  <p>NWN B4</p> <p>30° - 1.20mm (.047°) 45° - 1.00mm (.039°) 60° - 6.00mm (.236°)</p> <p>WB4-NWN536</p>	<p>33</p>  <p>NWN B4</p> <p>R1.50mm (.059°) Tan 38°-94° 38° - 0.91mm (.036°) 45° - 1.10mm (.043°) 60° - 2.80mm (.110°)</p> <p>WB4-NWN60253</p>
<p>34</p>  <p>NWN B4</p> <p>R1.50mm (.059°) Tan 30°-94° 30° - 0.98mm (.039°) 45° - 1.30mm (.051°) 30° - 4.30mm (.169°)</p> <p>WB4-NWN60251</p>	<p>35</p>  <p>NWN B4</p> <p>30° - 1.80mm (.071°) 45° - 1.50mm (.059°) 60° - 3.30mm (.130°)</p> <p>WB4-NWN4038</p>	<p>36</p>  <p>NWN B4</p> <p>91° - 11mm (.433°) R0.20mm (.008°) Tan 0°-91°</p> <p>WB4-NWN90-20</p>



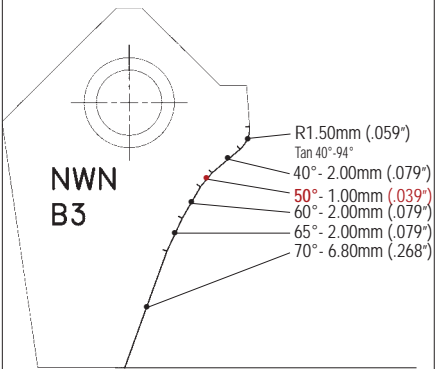


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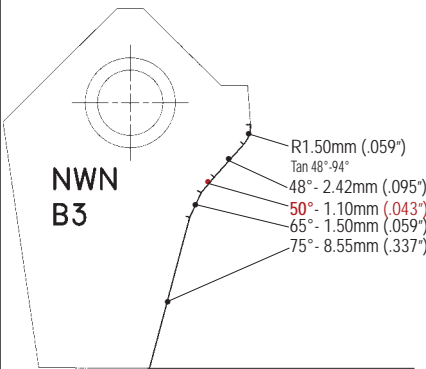
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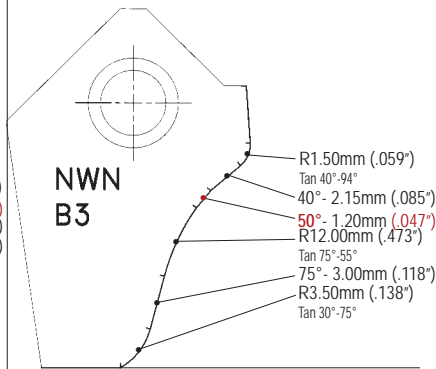
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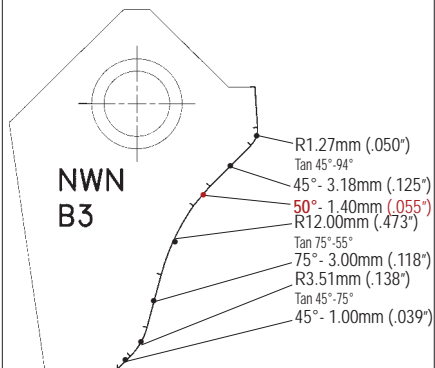
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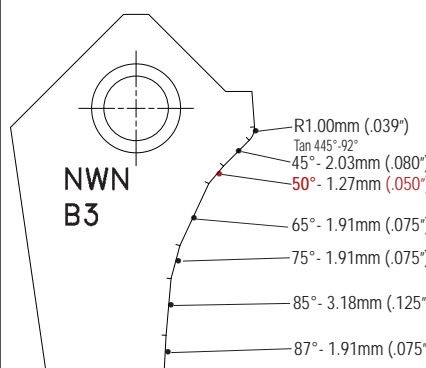
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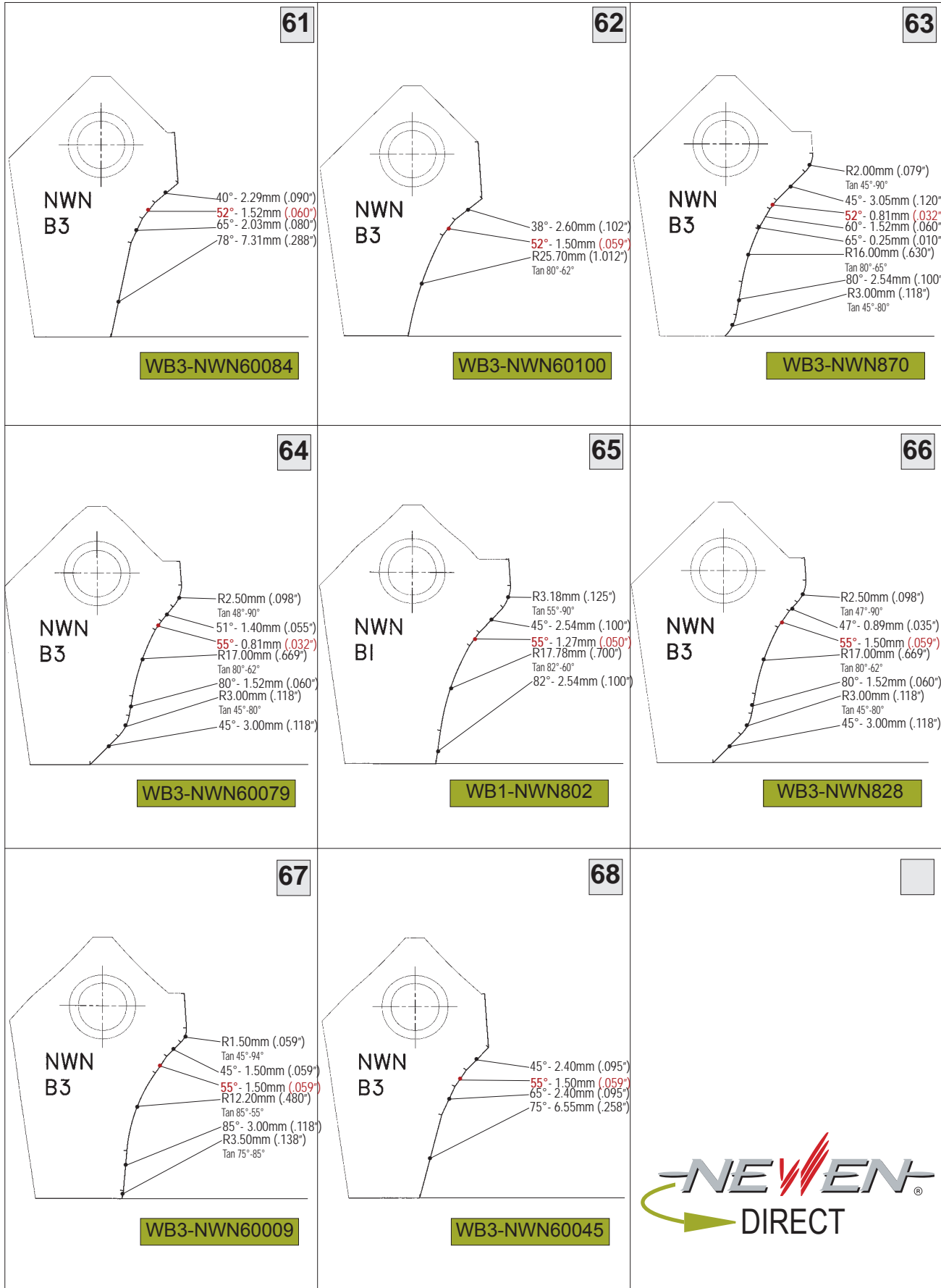
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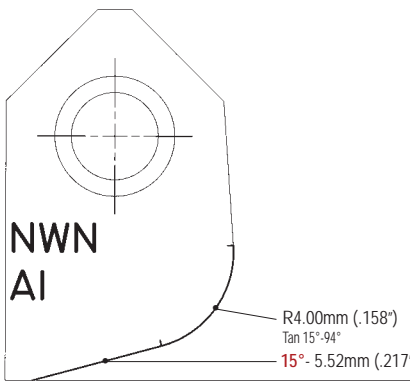
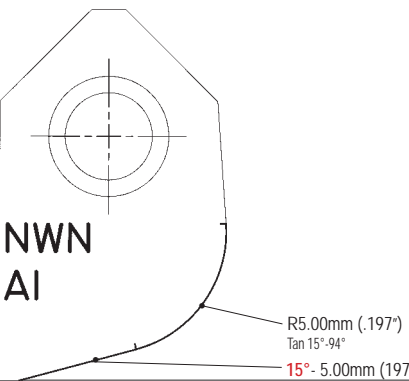
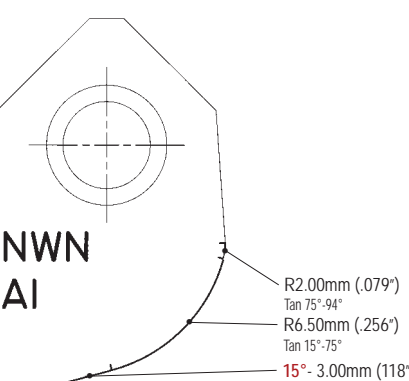
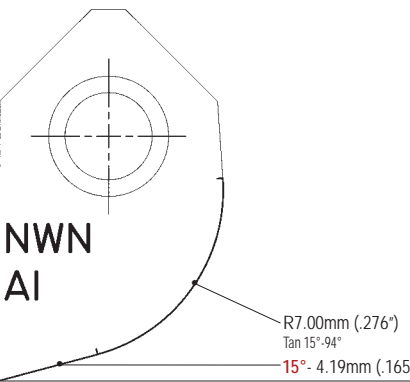
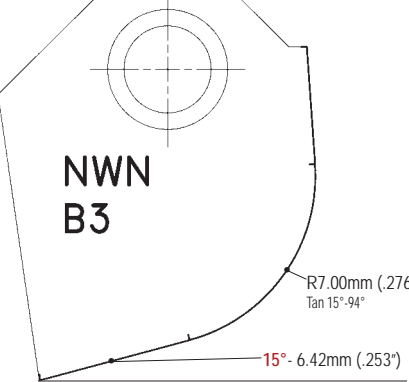
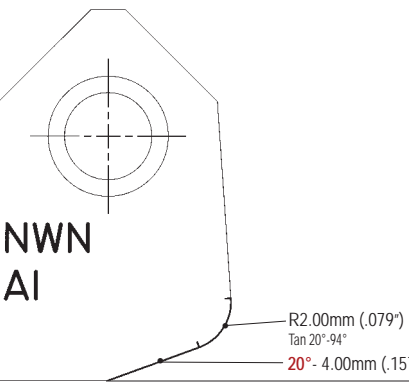
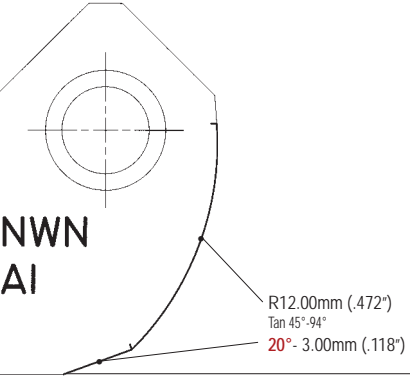
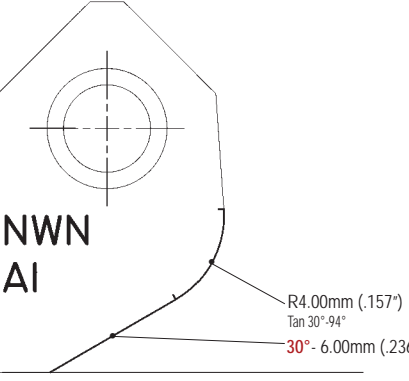
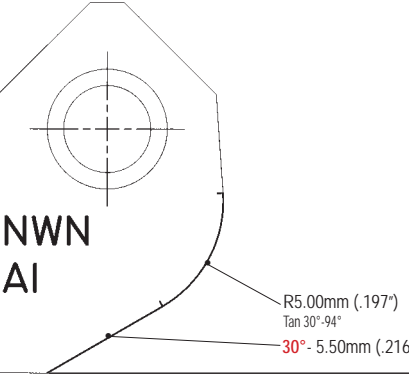
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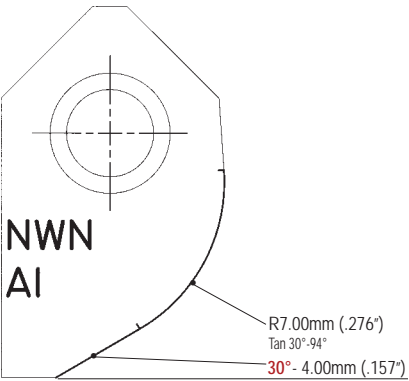
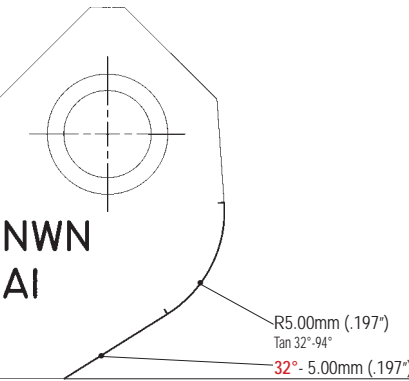
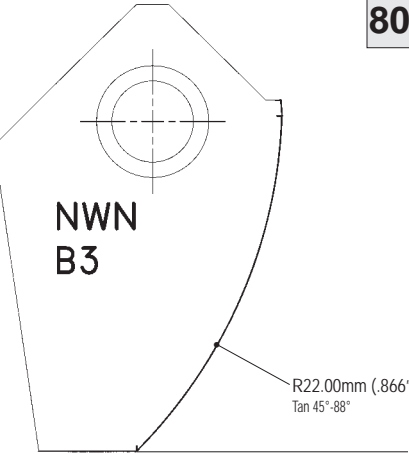




50°



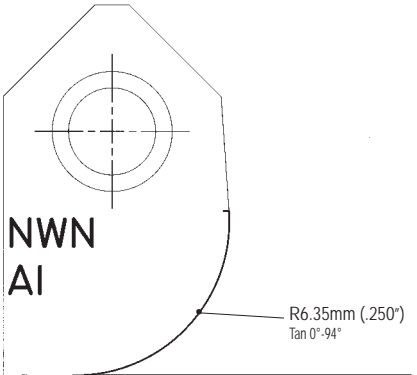
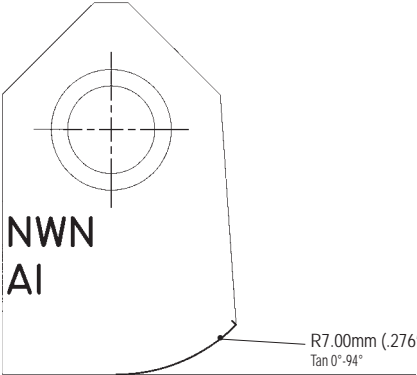
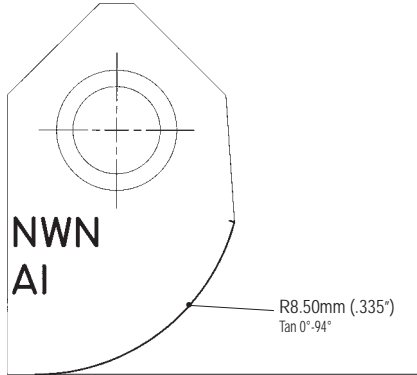
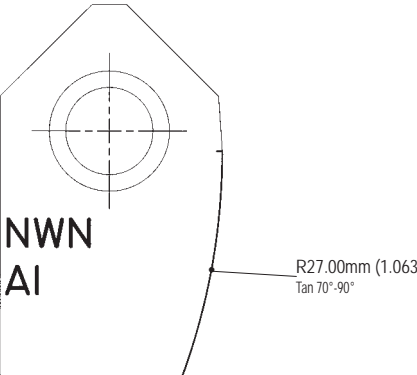

52°

55°

<p style="text-align: right;">69</p>  <p>NWN AI</p> <p>R4.00mm (.158") Tan 15°-94° 15°- 5.52mm (.217")</p> <p style="text-align: center;">WA1-NWN5121</p>	<p style="text-align: right;">70</p>  <p>NWN AI</p> <p>R5.00mm (.197") Tan 15°-94° 15°- 5.00mm (.197")</p> <p style="text-align: center;">WA1-NWN5428</p>	<p style="text-align: right;">71</p>  <p>NWN AI</p> <p>R2.00mm (.079") Tan 75°-94° R6.50mm (.256") Tan 15°-75° 15°- 3.00mm (.118")</p> <p style="text-align: center;">WA1-NWN2002</p>
<p style="text-align: right;">72</p>  <p>NWN AI</p> <p>R7.00mm (.276") Tan 15°-94° 15°- 4.19mm (.165")</p> <p style="text-align: center;">WA1-NWN5429</p>	<p style="text-align: right;">73</p>  <p>NWN B3</p> <p>R7.00mm (.276") Tan 15°-94° 15°- 6.42mm (.253")</p> <p style="text-align: center;">WB1-NWN077</p>	<p style="text-align: right;">74</p>  <p>NWN AI</p> <p>R2.00mm (.079") Tan 20°-94° 20°- 4.00mm (.157")</p> <p style="text-align: center;">WA1-NWN2003</p>
<p style="text-align: right;">75</p>  <p>NWN AI</p> <p>R12.00mm (.472") Tan 45°-94° 20°- 3.00mm (.118")</p> <p style="text-align: center;">WA1-NWN2004</p>	<p style="text-align: right;">76</p>  <p>NWN AI</p> <p>R4.00mm (.157") Tan 30°-94° 30°- 6.00mm (.236")</p> <p style="text-align: center;">WA1-NWN5168</p>	<p style="text-align: right;">77</p>  <p>NWN AI</p> <p>R5.00mm (.197") Tan 30°-94° 30°- 5.50mm (.216")</p> <p style="text-align: center;">WA1-NWN5079</p>

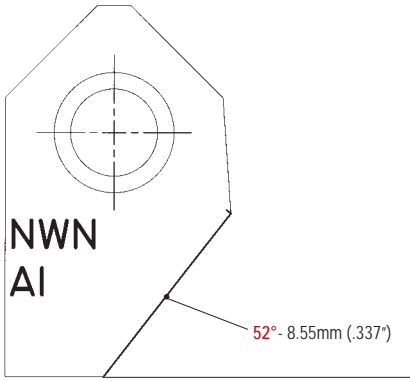
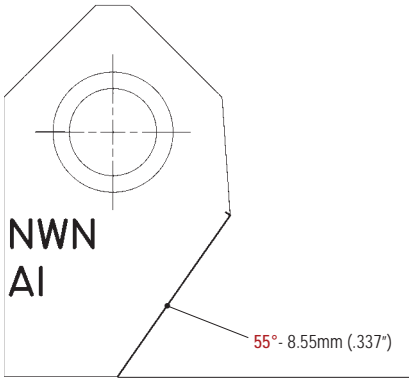
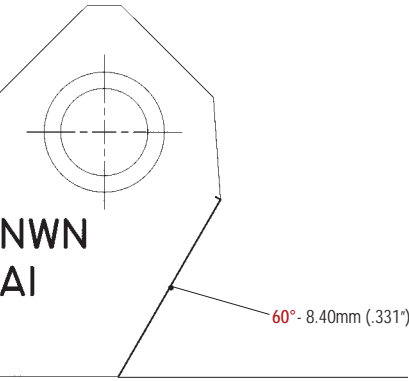
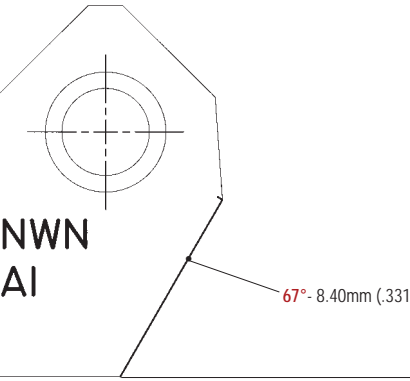
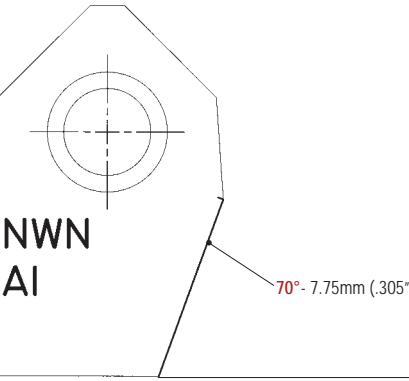
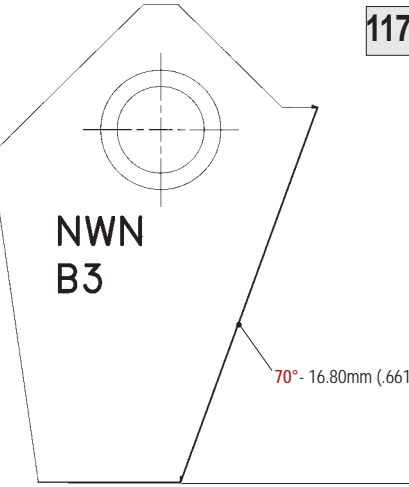
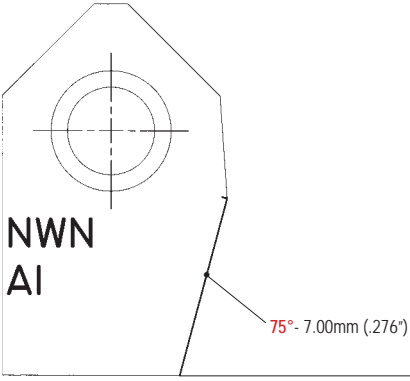
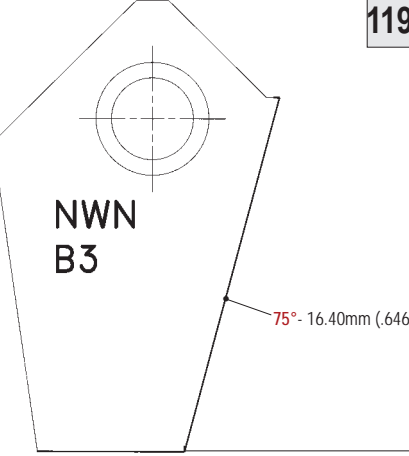
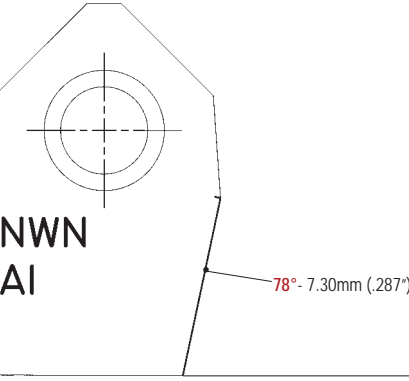
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<p>81</p> <p>NWN AI</p> <p>45° - 3.00mm (.118°) R1.00mm (.039°) Tan 0°-45°</p> <p>WA1-NWN2007</p>	<p>82</p> <p>NWN B3</p> <p>75° - 10.69mm (.421°) R7.00mm (.276°) Tan 0°-75°</p> <p>WB3-NWN002</p>	<p>83</p> <p>NWN AI</p> <p>75° - 5.50mm (.216°) R12.00mm (.472°) Tan 55°-75°</p> <p>WA1-NWN2008</p>
<p>84</p> <p>NWN AI</p> <p>75° - 5.50mm (.217°) R12.00mm (.472°) Tan 60°-75°</p> <p>WA1-NWN2009</p>	<p>85</p> <p>NWN AI</p> <p>80° - 5.50mm (.216°) R3.00mm (.118°) Tan 0°-80°</p> <p>WA1-NWN2010</p>	<p>86</p> <p>NWN B3</p> <p>80° - 9.81mm (.386°) R7.00mm (.276°) Tan 0°-80°</p> <p>WB3-NWN033</p>
<p>87</p> <p>NWN AI</p> <p>R4.50mm (.177°) Tan 0°-94°</p> <p>WA1-NWN21045</p>	<p>88</p> <p>NWN AI</p> <p>R5.00mm (.197°) Tan 0°-94°</p> <p>WA1-NWN21050</p>	<p>89</p> <p>NWN AI</p> <p>R6.00mm (.236°) Tan 0°-94°</p> <p>WA1-NWN2011</p>

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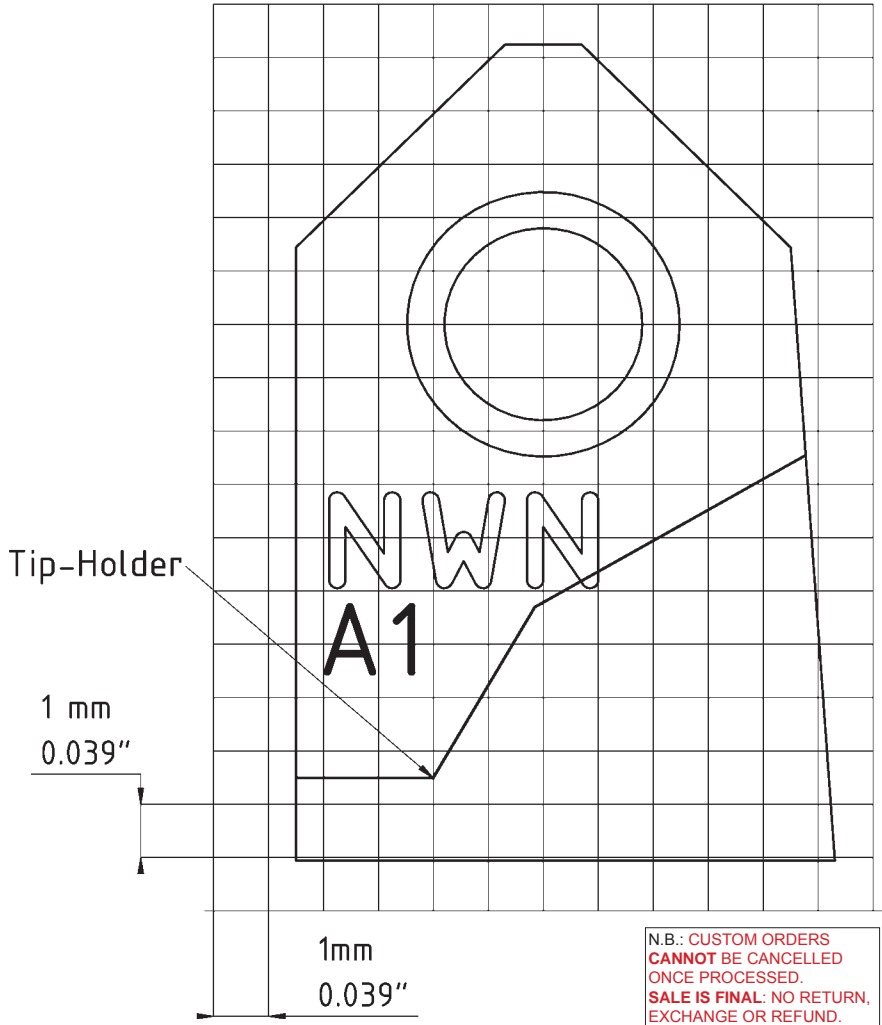
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<p style="text-align: right;">97</p> <p>NWN AI</p> <p style="text-align: right;">20° - 8.20mm (.323°)</p> <p style="text-align: center;">WA1-NWN20</p>	<p style="text-align: right;">98</p> <p>NWN AI</p> <p style="text-align: right;">20.25° - 8.38mm (.330°)</p> <p style="text-align: center;">WA1-NWN20C</p>	<p style="text-align: right;">99</p> <p>NWN AI</p> <p style="text-align: right;">25° - 10.43mm (.411°)</p> <p style="text-align: center;">WA1-NWN25</p>
<p style="text-align: right;">100</p> <p>NWN AI</p> <p style="text-align: right;">30° - 9.00mm (.354°)</p> <p style="text-align: center;">WA1-NWN30</p>	<p style="text-align: right;">101</p> <p>NWN AI</p> <p style="text-align: right;">30.25° - 10.9mm (.429°)</p> <p style="text-align: center;">WA1-NWN30C</p>	<p style="text-align: right;">102</p> <p>NWN AI</p> <p style="text-align: right;">31° - 10.45mm (.412°)</p> <p style="text-align: center;">WA1-NWN31</p>

<p>103</p> <p>NWN AI</p> <p>35° - 9.50mm (.374")</p> <p>WA1-NWN35</p>	<p>104</p> <p>NWN AI</p> <p>37° - 9.30mm (.366")</p> <p>WA1-NWN37</p>	<p>105</p> <p>NWN AI</p> <p>37.50° - 9.20mm (.362")</p> <p>WA1-NWN37D</p>
<p>106</p> <p>NWN AI</p> <p>38° - 9.10mm (.358")</p> <p>WA1-NWN38</p>	<p>107</p> <p>NWN AI</p> <p>39° - 9.00mm (.354")</p> <p>WA1-NWN39</p>	<p>108</p> <p>NWN AI</p> <p>45° - 8.90mm (.350")</p> <p>WA1-NWN45</p>
<p>109</p> <p>NWN AI</p> <p>45.25° - 8.00mm (.315")</p> <p>WA1-NWN4888</p>	<p>110</p> <p>NWN AI</p> <p>45.50° - 8.90mm (.350")</p> <p>WA1-NWN45C</p>	<p>111</p> <p>NWN AI</p> <p>50° - 8.55mm (.337")</p> <p>WA1-NWN50</p>

<p>112</p>  <p>NWN AI</p> <p>52° - 8.55mm (.337°)</p> <p>WA1-NWN52</p>	<p>113</p>  <p>NWN AI</p> <p>55° - 8.55mm (.337°)</p> <p>WA1-NWN55</p>	<p>114</p>  <p>NWN AI</p> <p>60° - 8.40mm (.331°)</p> <p>WA1-NWN60</p>
<p>115</p>  <p>NWN AI</p> <p>67° - 8.40mm (.331°)</p> <p>WA1-NWN67</p>	<p>116</p>  <p>NWN AI</p> <p>70° - 7.75mm (.305°)</p> <p>WA1-NWN70</p>	<p>117</p>  <p>NWN B3</p> <p>70° - 16.80mm (.661°)</p> <p>WB3-NWN070</p>
<p>118</p>  <p>NWN AI</p> <p>75° - 7.00mm (.276°)</p> <p>WA1-NWN75</p>	<p>119</p>  <p>NWN B3</p> <p>75° - 16.40mm (.646°)</p> <p>WB3-NWN085</p>	<p>120</p>  <p>NWN AI</p> <p>78° - 7.30mm (.287°)</p> <p>WA1-NWN78</p>

<p>121</p> <p>NWN B3</p> <p>80° - 12.10mm (.476°)</p> <p>WB3-NWN080</p>	<p>122</p> <p>NWN AI</p> <p>82° - 7.07mm (.278°)</p> <p>WA1-NWN82</p>	<p>123</p> <p>NWN B3</p> <p>82° - 11.50mm (.453°)</p> <p>WB3-NWN082</p>
<p>124</p> <p>NWN AI</p> <p>R0.80mm (.031°) Tan 0°-94°</p> <p>• Nose Radius best for Aluminum applications</p> <p>WA1-NWN90-12</p>	<p>125</p> <p>NWN AI</p> <p>60° - 0.92mm (.0356)</p> <p>• Chamfer best for Cast Iron applications</p> <p>WA1-NWN91-12</p>	<p>126</p> <p>NWN AI</p> <p>R0.80mm (.031°) Tan 0°-94°</p> <p>• Nose Radius best for Aluminum applications</p> <p>WA1-NWN90-16</p>
<p>127</p> <p>NWN AI</p> <p>60° - 0.92mm (.0356)</p> <p>• Chamfer best for Cast Iron applications</p> <p>WA1-NWN91-16</p>	<p>128</p> <p>NWN B4</p> <p>91° - 11mm (.433°) R0.20mm (.008°) Tan 0°-91°</p> <p>WB4-NWN90-20</p>	<p>129</p> <p>NWN AI</p> <p>40° - 8.43mm (.332°)</p> <p>WA1-NWN040</p>

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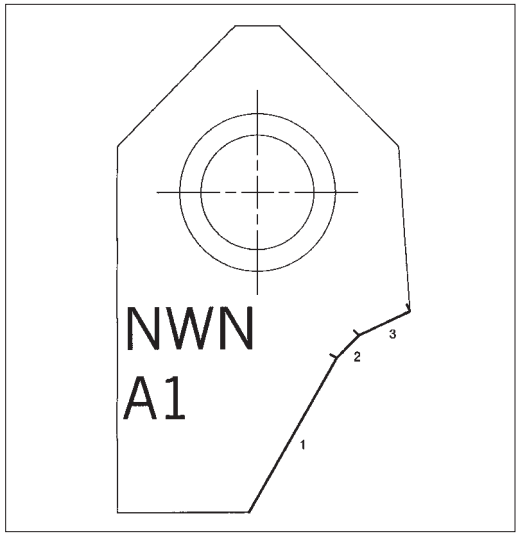


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 Designed by:
 Approved by:
 Material:
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 Ship Via (UPS or Fedex): _____

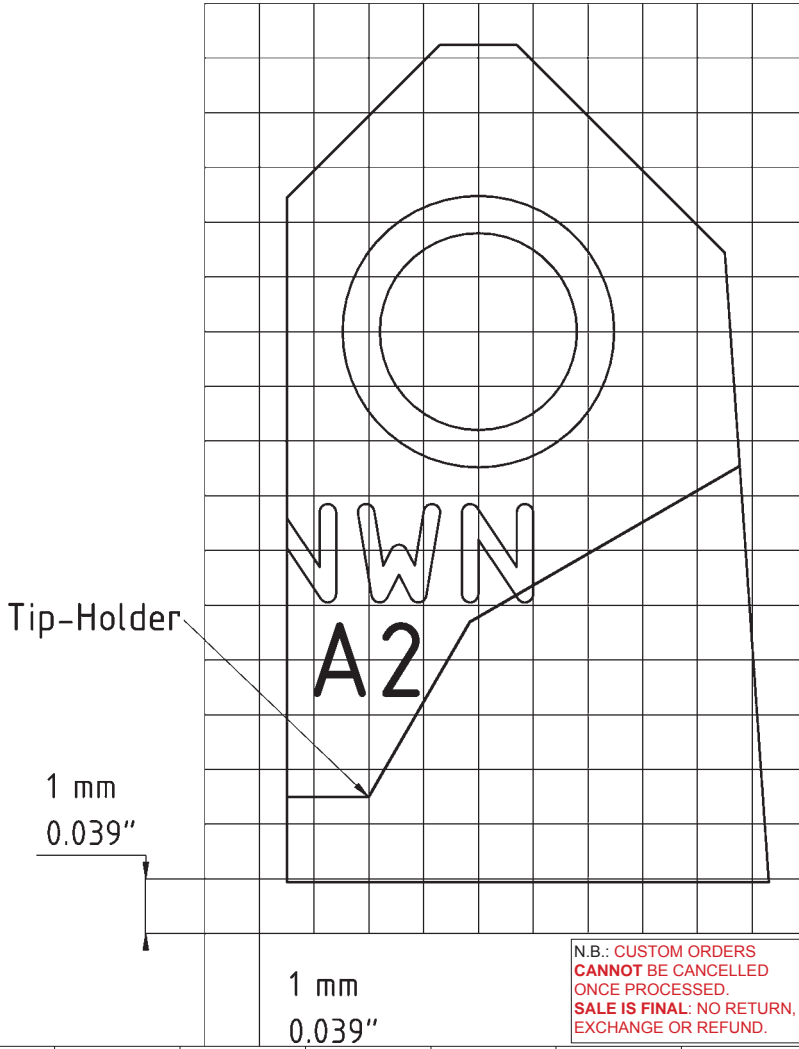
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 ONCE PROCESSED.
 SALE IS FINAL: NO RETURN,
 EXCHANGE OR REFUND.**

SEGMENT NO.	DELTA X mm or inch	LENGTH mm or inch	ANGLE degree	TAN (β^1)	TAN (β^2)	RADIUS mm or inch



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SEGMENT NO.	DELTA X mm or inch	LENGTH mm or inch	ANGLE degree	TAN (β_1°)	TAN (β_2°)	RADIUS mm or inch

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Relief Angle:

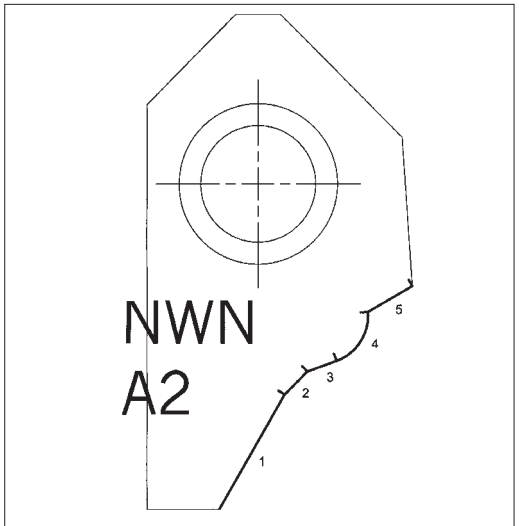
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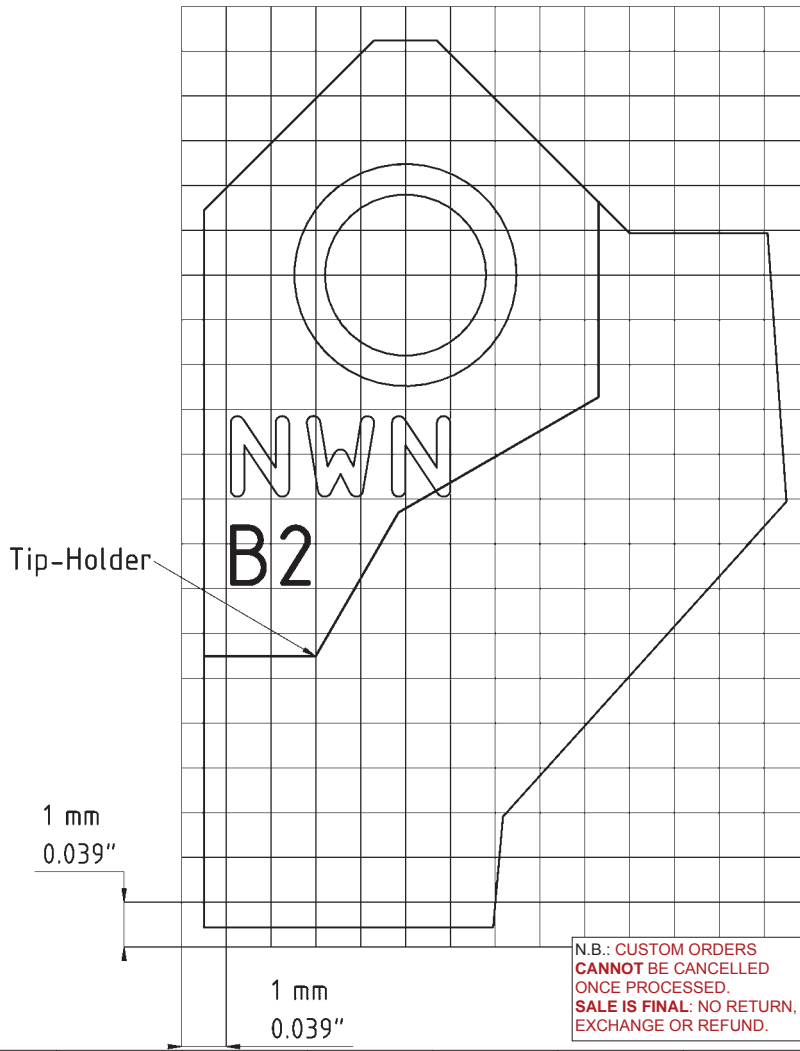
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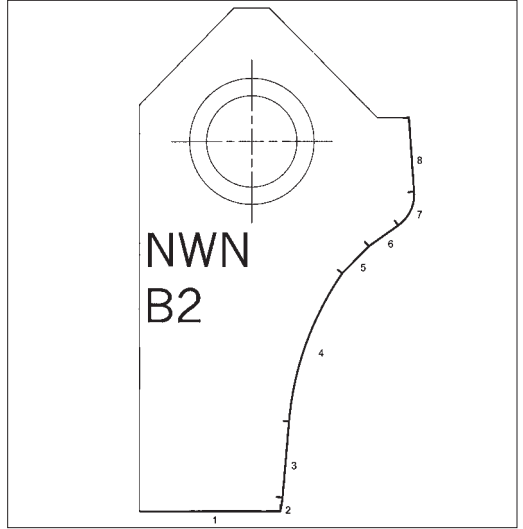
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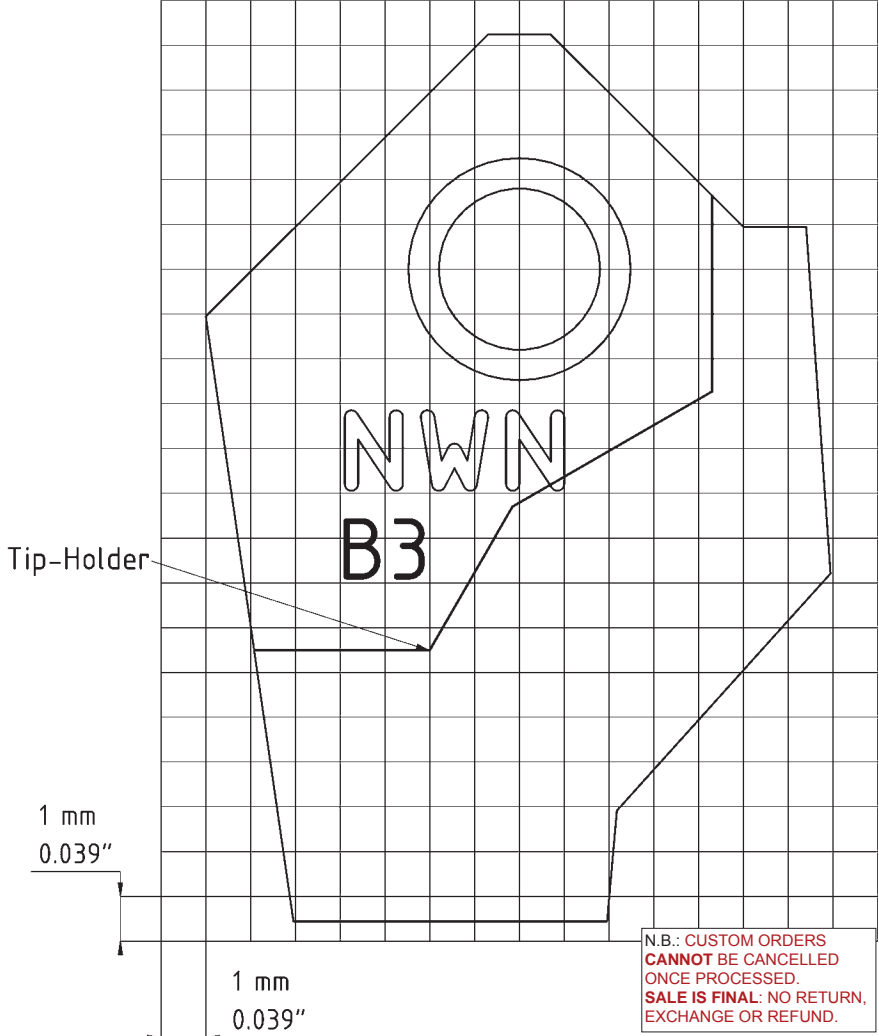
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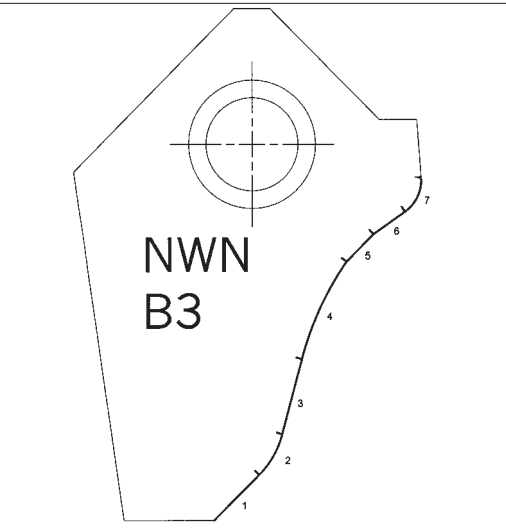
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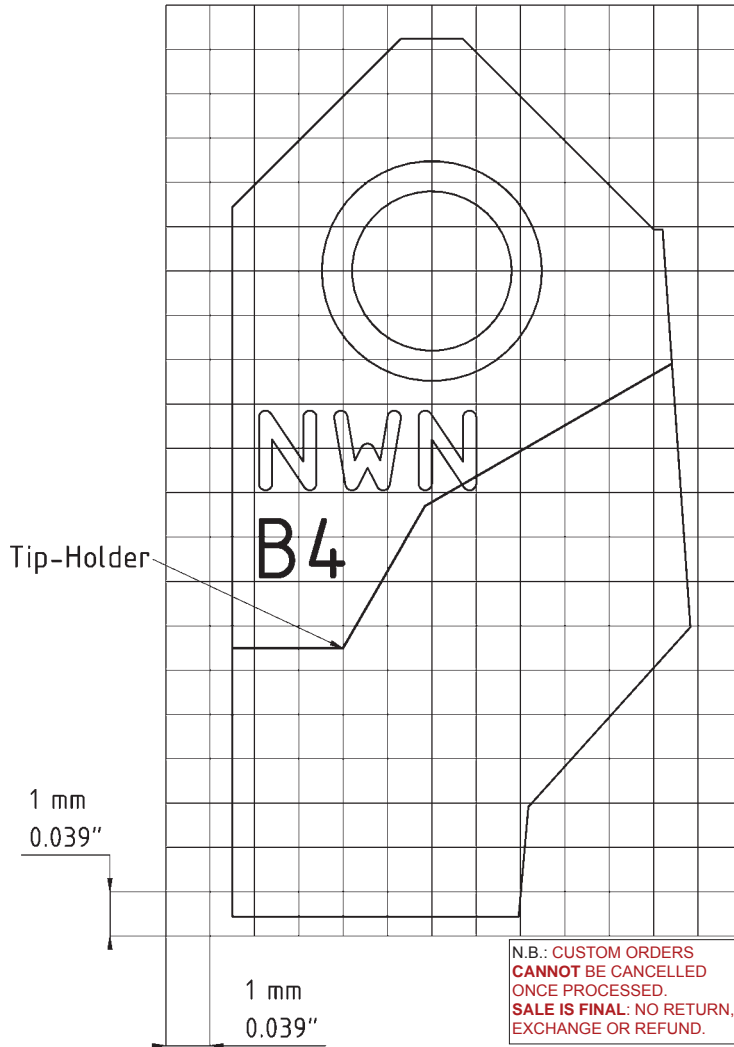
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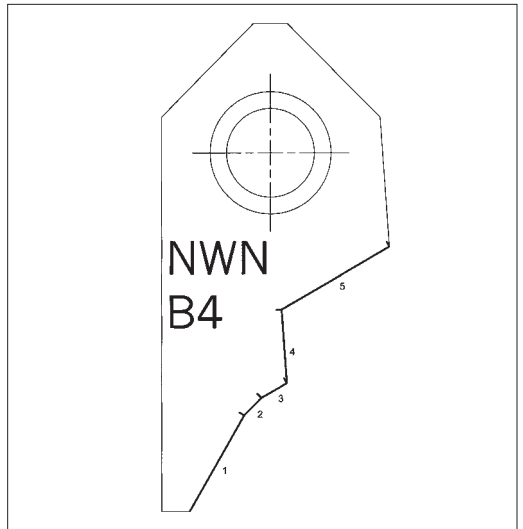
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Date:
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Material:
Relief Angle:
Quantity:
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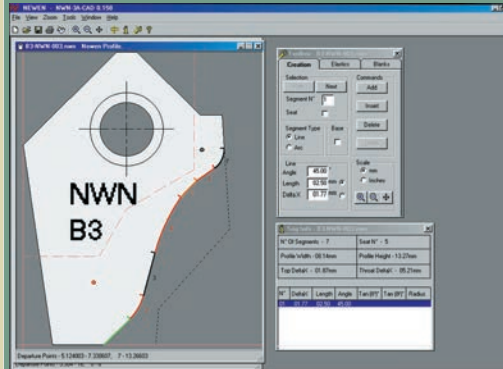
SEGMENT NO.	DELTA X mm or inch	LENGTH mm or inch	ANGLE degree	TAN (β_1°)	TAN (β_2°)	RADIUS mm or inch



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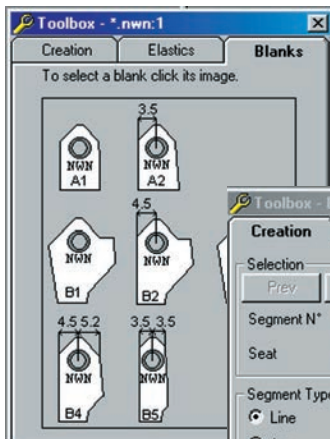
1 Create your own profile, any shape, any relief angle, any blank, within seconds.

#	Detail	Length	Angle	Tan (D1)	Tan (D2)	Radius
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2	00.91mm					
3	00.78mm	03.00mm	75.00			
4	01.78mm			75.00	55.00	12.00mm
*5	01.06mm	01.50mm	45.00			
6	01.23mm	01.50mm	35.00			
7	00.64mm			35.00	94.00	01.50mm

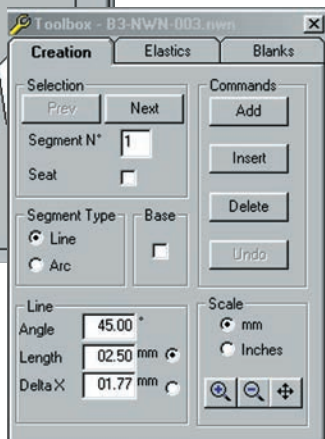
▶ INSERT YOUR COMPANY LOGO

NEWEN		6991-165684-426945
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Treatment: None	Designed By: Tim	
Relief Angle: 12	Approved By: Mark	
Calibration: No	Scale: 8:1	
Filename: WB3-NWN003.mmm	Blueprint #: 1254897	
Base: No	14343-9251-23562-11163	

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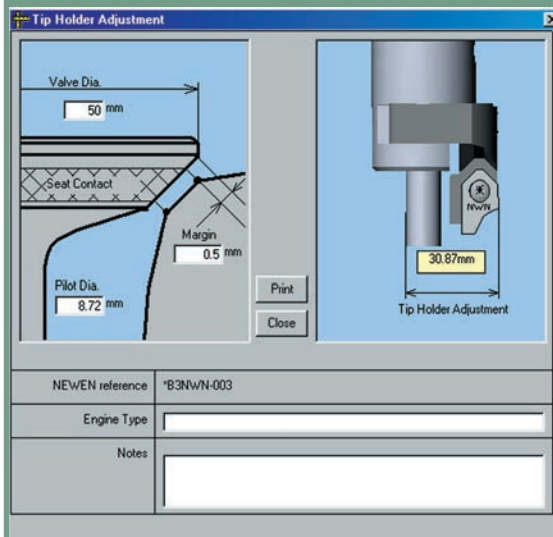


4 Select the best suited blank for your profile.

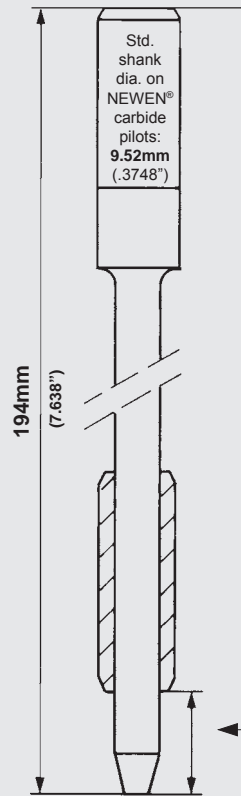


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mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
3.96	0.1559	4.64	0.1827	5.32	0.2095	5.99	0.2359	6.67	0.2626	7.35	0.2894
3.97	0.1563	4.65	0.1831	5.33	0.2099	6.00	0.2363	6.68	0.2630	7.36	0.2898
3.98	0.1567	4.66	0.1835	5.34	0.2102	6.01	0.2367	6.69	0.2634	7.37	0.2902
3.99	0.1571	4.67	0.1839	5.35	0.2106	6.02	0.2371	6.70	0.2638	7.38	0.2906
4.00	0.1575	4.68	0.1843	5.36	0.2110	6.03	0.2375	6.71	0.2642	7.39	0.2910
4.01	0.1579	4.69	0.1847	5.37	0.2114	6.04	0.2379	6.72	0.2646	7.40	0.2913
4.02	0.1583	4.70	0.1851	5.38	0.2118	6.05	0.2383	6.73	0.2650	7.41	0.2917
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4.04	0.1591	4.72	0.1858	5.40	0.2126	6.07	0.2390	6.75	0.2658	7.43	0.2925
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4.07	0.1602	4.75	0.1870	5.43	0.2138	6.10	0.2402	6.78	0.2669	7.46	0.2937
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4.11	0.1618	4.79	0.1886	5.47	0.2154	6.14	0.2417	6.82	0.2685	7.50	0.2953
4.12	0.1622	4.80	0.1890	5.48	0.2157	6.15	0.2421	6.83	0.2689	7.51	0.2957
4.13	0.1626	4.81	0.1894	5.49	0.2161	6.16	0.2425	6.84	0.2693	7.52	0.2961
4.14	0.1630	4.82	0.1898	5.50	0.2165	6.17	0.2429	6.85	0.2697	7.53	0.2965
4.15	0.1634	4.83	0.1902	5.51	0.2169	6.18	0.2433	6.86	0.2701	7.54	0.2969
4.16	0.1638	4.84	0.1906	5.52	0.2173	6.19	0.2437	6.87	0.2705	7.55	0.2972
4.17	0.1642	4.85	0.1910	5.53	0.2177	6.20	0.2441	6.88	0.2709	7.56	0.2976
4.18	0.1646	4.86	0.1914	5.54	0.2181	6.21	0.2445	6.89	0.2713	7.57	0.2980
4.19	0.1650	4.87	0.1918	5.55	0.2185	6.22	0.2449	6.90	0.2717	7.58	0.2984
4.20	0.1654	4.88	0.1921	5.56	0.2189	6.23	0.2453	6.91	0.2721	7.59	0.2988
4.21	0.1658	4.89	0.1925	5.57	0.2193	6.24	0.2457	6.92	0.2724	7.60	0.2992
4.22	0.1662	4.90	0.1929	5.58	0.2197	6.25	0.2461	6.93	0.2728	7.61	0.2996
4.23	0.1666	4.91	0.1933	5.59	0.2201	6.26	0.2465	6.94	0.2732	7.62	0.3000
4.24	0.1670	4.92	0.1937	5.60	0.2205	6.27	0.2469	6.95	0.2736	7.63	0.3004
4.25	0.1674	4.93	0.1941	5.61	0.2209	6.28	0.2473	6.96	0.2740	7.64	0.3008
4.26	0.1678	4.94	0.1945	5.62	0.2213	6.29	0.2476	6.97	0.2744	7.65	0.3012
4.27	0.1682	4.95	0.1949	5.63	0.2217	6.30	0.2480	6.98	0.2748	7.66	0.3016
4.28	0.1686	4.96	0.1953	5.64	0.2221	6.31	0.2484	6.99	0.2752	7.67	0.3020
4.29	0.1690	4.97	0.1957	5.65	0.2225	6.32	0.2488	7.00	0.2756	7.68	0.3024
4.30	0.1694	4.98	0.1961	5.66	0.2228	6.33	0.2492	7.01	0.2760	7.69	0.3028
4.31	0.1697	4.99	0.1965	5.67	0.2232	6.34	0.2496	7.02	0.2764	7.70	0.3032
4.32	0.1701	5.00	0.1969	5.68	0.2236	6.35	0.2500	7.03	0.2768	7.71	0.3035
4.33	0.1705	5.01	0.1972	5.69	0.2240	6.36	0.2504	7.04	0.2772	7.72	0.3039
4.34	0.1709	5.02	0.1976	5.70	0.2244	6.37	0.2508	7.05	0.2776	7.73	0.3043
4.35	0.1713	5.03	0.1980	5.71	0.2248	6.38	0.2512	7.06	0.2780	7.74	0.3047
4.36	0.1717	5.04	0.1984	5.72	0.2252	6.39	0.2516	7.07	0.2784	7.75	0.3051
4.37	0.1721	5.05	0.1988	5.73	0.2256	6.40	0.2519	7.08	0.2788	7.76	0.3055
4.38	0.1725	5.06	0.1992	5.74	0.2260	6.41	0.2524	7.09	0.2791	7.77	0.3059
4.39	0.1729	5.07	0.1996	5.75	0.2264	6.42	0.2528	7.10	0.2795	7.78	0.3063
4.40	0.1733	5.08	0.2000	5.76	0.2268	6.43	0.2532	7.11	0.2799	7.79	0.3067
4.41	0.1737	5.09	0.2004	5.77	0.2272	6.44	0.2536	7.12	0.2803	7.80	0.3071
4.42	0.1741	5.10	0.2008	5.78	0.2276	6.45	0.2540	7.13	0.2807	7.81	0.3075
4.43	0.1745	5.11	0.2012	5.79	0.2280	6.46	0.2543	7.14	0.2811	7.82	0.3079
4.44	0.1748	5.12	0.2016	5.80	0.2284	6.47	0.2547	7.15	0.2815	7.83	0.3083
4.45	0.1752	5.13	0.2020	5.81	0.2288	6.48	0.2551	7.16	0.2819	7.84	0.3087
4.46	0.1756	5.14	0.2024	5.82	0.2291	6.49	0.2555	7.17	0.2823	7.85	0.3091
4.47	0.1760	5.15	0.2028	5.83	0.2295	6.50	0.2559	7.18	0.2827	7.86	0.3095
4.48	0.1764	5.16	0.2032	5.84	0.2299	6.51	0.2563	7.19	0.2831	7.87	0.3099
4.49	0.1768	5.17	0.2036	5.85	0.2303	6.52	0.2567	7.20	0.2835	7.88	0.3103
4.50	0.1772	5.18	0.2040	5.86	0.2307	6.53	0.2571	7.21	0.2839	7.89	0.3107
4.51	0.1776	5.19	0.2044	5.87	0.2311	6.54	0.2575	7.22	0.2843	7.90	0.3111
4.52	0.1780	5.20	0.2047	5.88	0.2315	6.55	0.2579	7.23	0.2847	7.91	0.3115
4.53	0.1784	5.21	0.2051	5.89	0.2319	6.56	0.2583	7.24	0.2850	7.92	0.3119
4.54	0.1788	5.22	0.2055	5.90	0.2323	6.57	0.2587	7.25	0.2854	7.93	0.3123
4.55	0.1791	5.23	0.2059	5.91	0.2327	6.58	0.2591	7.26	0.2858	7.94	0.3127
4.56	0.1795	5.24	0.2063	5.92	0.2331	6.59	0.2594	7.27	0.2862	7.95	0.3131
4.57	0.1799	5.25	0.2067	5.93	0.2335	6.60	0.2598	7.28	0.2866	7.96	0.3135
4.58	0.1803	5.26	0.2071	5.94	0.2339	6.61	0.2602	7.29	0.2870	7.97	0.3139
4.59	0.1807	5.27	0.2075	5.95	0.2343	6.62	0.2606	7.30	0.2874	7.98	0.3143
4.60	0.1811	5.28	0.2079	5.96	0.2347	6.63	0.2610	7.31	0.2878	7.99	0.3147
4.61	0.1815	5.29	0.2083	5.97	0.2351	6.64	0.2614	7.32	0.2882	8.00	0.3151
4.62	0.1819	5.30	0.2087	5.98	0.2355	6.65	0.2619	7.33	0.2886	8.01	0.3155
4.63	0.1823	5.31	0.2091			6.66	0.2622	7.34	0.2890	8.02	0.3159

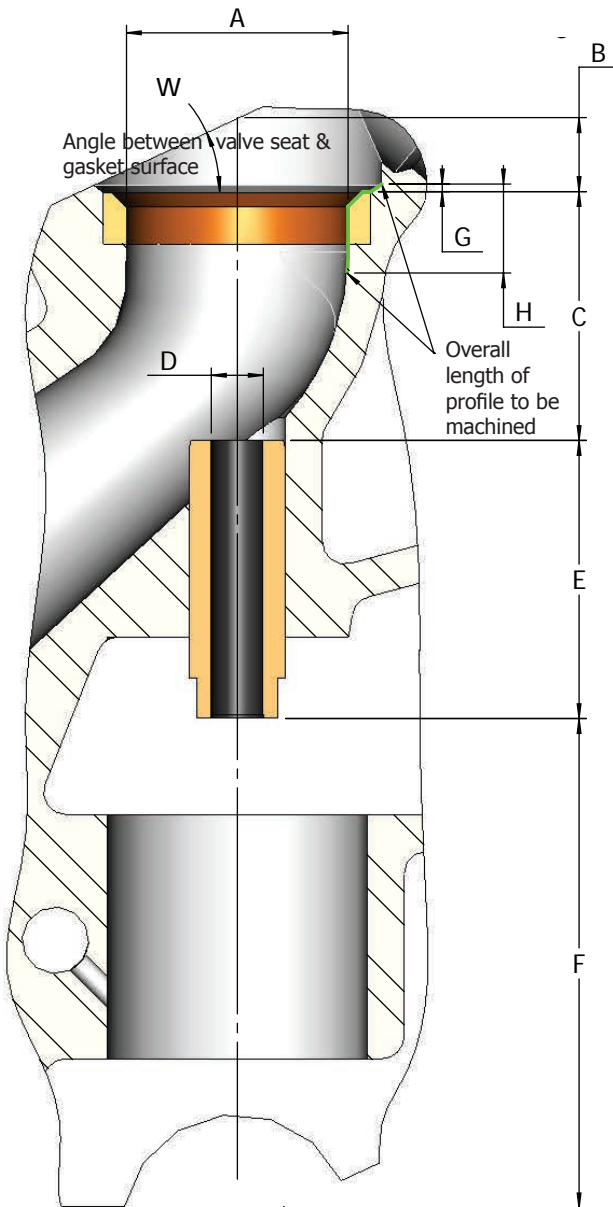
Lead time for non-stock items: 1 week from date of order



Legend: • Stock • Non-stock

mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
8.03	0.3161	8.71	0.3429	9.39	0.3697	10.07	0.3965	12.59	0.4957	Lead time for non-stock items: 1 week from date of order
8.04	0.3166	8.72	0.3433	9.40	0.3701	...	...	12.60	0.4961
8.05	0.3169	8.73	0.3437	9.41	0.3705	10.25	0.4035	12.61	0.4965	
8.06	0.3173	8.74	0.3441	9.42	0.3709	10.26	0.4039	12.62	0.4969	
8.07	0.3177	8.75	0.3445	9.43	0.3713	10.27	0.4043	12.63	0.4972	
8.08	0.3181	8.76	0.3449	9.44	0.3717	10.28	0.4047	12.64	0.4976	
8.09	0.3185	8.77	0.3453	9.45	0.3720	10.29	0.4051	12.65	0.4980	
8.10	0.3189	8.78	0.3457	9.46	0.3724	10.30	0.4055	12.66	0.4984	
8.11	0.3193	8.79	0.3461	9.47	0.3728	10.31	0.4059	12.67	0.4988	
8.12	0.3197	8.80	0.3465	9.48	0.3732	10.32	0.4063	12.68	0.4992	
8.13	0.3201	8.81	0.3469	9.49	0.3736	10.33	0.4067	12.69	0.4996	
8.14	0.3205	8.82	0.3472	9.50	0.3740	10.34	0.4071	12.70	0.5000	
8.15	0.3209	8.83	0.3476	9.51	0.3744	10.35	0.4075	12.71	0.5004	
8.16	0.3213	8.84	0.3480	9.52	0.3748	10.36	0.4079	12.72	0.5008	
8.17	0.3217	8.85	0.3484	9.53	0.3752	10.37	0.4083	12.73	0.5012	
8.18	0.3221	8.86	0.3488	9.54	0.3756	10.38	0.4087	12.74	0.5016	
8.19	0.3225	8.87	0.3492	9.55	0.3760	10.39	0.4091	12.75	0.5020	
8.20	0.3228	8.88	0.3496	9.56	0.3764	10.40	0.4094	12.76	0.5024	
8.21	0.3232	8.89	0.3500	9.57	0.3768	10.41	0.4098	12.77	0.5028	
8.22	0.3236	8.90	0.3504	9.58	0.3772	10.42	0.4102	12.78	0.5031	
8.23	0.3240	8.91	0.3508	9.59	0.3776	10.43	0.4106	12.79	0.5035	
8.24	0.3244	8.92	0.3512	9.60	0.3780	10.44	0.4110	12.80	0.5039	
8.25	0.3248	8.93	0.3516	9.61	0.3783	10.45	0.4114	...	...
8.26	0.3252	8.94	0.3520	9.62	0.3787	10.46	0.4118	14.20	0.5591	
8.27	0.3256	8.95	0.3524	9.63	0.3791	...	...	14.21	0.5594
8.28	0.3260	8.96	0.3528	9.64	0.3795	10.96	0.4315	14.22	0.5598	
8.29	0.3264	8.97	0.3531	9.65	0.3799	10.97	0.4319	14.23	0.5602	
8.30	0.3268	8.98	0.3535	9.66	0.3803	10.98	0.4323	14.24	0.5606	
8.31	0.3271	8.99	0.3539	9.67	0.3807	10.99	0.4327	14.25	0.5610	
8.32	0.3275	9.00	0.3543	9.68	0.3811	11.00	0.4331	14.26	0.5614	
8.33	0.3279	9.01	0.3547	9.69	0.3815	11.01	0.4335	14.27	0.5618	
8.34	0.3283	9.02	0.3551	9.70	0.3819	11.02	0.4339	14.28	0.5622	
8.35	0.3287	9.03	0.3555	9.71	0.3823	11.03	0.4343	14.29	0.5626	
8.36	0.3291	9.04	0.3559	9.72	0.3827	11.04	0.4346	14.30	0.5630	
8.37	0.3295	9.05	0.3563	9.73	0.3831	11.05	0.4350	14.31	0.5634	
8.38	0.3299	9.06	0.3567	9.74	0.3835	11.06	0.4354	14.32	0.5638	
8.39	0.3303	9.07	0.3571	9.75	0.3839	11.07	0.4358	14.33	0.5642	
8.40	0.3307	9.08	0.3575	9.76	0.3843	11.08	0.4362	14.34	0.5646	
8.41	0.3311	9.09	0.3579	9.77	0.3846	11.09	0.4366	14.35	0.5650	
8.42	0.3315	9.10	0.3583	9.78	0.3850	11.10	0.4370	14.36	0.5654	
8.43	0.3319	9.11	0.3587	9.79	0.3854	11.11	0.4374	14.37	0.5657	
8.44	0.3323	9.12	0.3591	9.80	0.3858	...	...	14.38	0.5661
8.45	0.3327	9.13	0.3595	9.81	0.3862	11.45	0.4508	14.39	0.5665	
8.46	0.3331	9.14	0.3598	9.82	0.3866	11.46	0.4512	14.40	0.5669	
8.47	0.3335	9.15	0.3602	9.83	0.3870	11.47	0.4516	...	...
8.48	0.3339	9.16	0.3606	9.84	0.3874	11.48	0.4520	15.75	0.6201	
8.49	0.3343	9.17	0.3610	9.85	0.3878	11.49	0.4524	15.76	0.6205	
8.50	0.3347	9.18	0.3614	9.86	0.3882	11.50	0.4528	15.77	0.6209	
8.51	0.3350	9.19	0.3618	9.87	0.3886	11.51	0.4531	15.78	0.6213	
8.52	0.3354	9.20	0.3622	9.88	0.3890	11.52	0.4535	15.79	0.6217	
8.53	0.3358	9.21	0.3626	9.89	0.3894	...	...	15.80	0.6220
8.54	0.3362	9.22	0.3630	9.90	0.3898	11.98	0.4717	15.81	0.6224	
8.55	0.3366	9.23	0.3634	9.91	0.3902	11.99	0.4720	15.82	0.6228	
8.56	0.3370	9.24	0.3638	9.92	0.3906	12.00	0.4724			
8.57	0.3374	9.25	0.3642	9.93	0.3909	12.01	0.4728			
8.58	0.3378	9.26	0.3646	9.94	0.3913	12.02	0.4732			
8.59	0.3382	9.27	0.3650	9.95	0.3917	...	...	
8.60	0.3386	9.28	0.3654	9.96	0.3921	12.48	0.4913			
8.61	0.3390	9.29	0.3657	9.97	0.3925	12.49	0.4917			
8.62	0.3394	9.30	0.3661	9.98	0.3929	12.50	0.4921			
8.63	0.3398	9.31	0.3665	9.99	0.3933	12.51	0.4925			
8.64	0.3402	9.32	0.3669	10.00	0.3937	12.52	0.4929			
8.65	0.3406	9.33	0.3673	10.01	0.3941	12.53	0.4933			
8.66	0.3409	9.34	0.3677	10.02	0.3945	12.54	0.4937			
8.67	0.3413	9.35	0.3681	10.03	0.3949	12.55	0.4941			
8.68	0.3417	9.36	0.3685	10.04	0.3953	12.56	0.4945			
8.69	0.3421	9.37	0.3689	10.05	0.3957	12.57	0.4949			
8.70	0.3425	9.38	0.3693	10.06	0.3961	12.58	0.4953			





MEASURING UNIT used to fill out form: INCH MM

Guide Diameter BEFORE REAMING: Diameter D _____ Tolerance _____

Guide Diameter AFTER REAMING: Diameter D _____ Tolerance* H6 H7

TOLERANCE TABLE*					
	D	Tolerance	D	Tolerance	
H7	Inch	.1181 to .2362	+ .00048 + 0	.2362 to .3937	+ .0006 + 0
	mm	3 to 6	+ 0.012 + 0	6 to 10	+ 0.015 + 0
H6	Inch	.1181 to .2362	+ .00032 + 0	.2362 to .3937	+ .00036 + 0
	mm	3 to 6	+ 0.008 + 0	6 to 10	+ 0.009 + 0

Select *Machine Model* you will be using this reamer on:
 SUPER100™ GII-LTD™ GII™ OTHER

This reamer will be used for:
 Guide reaming ONLY COMBINATION guide reaming & valve seat machining

Tool Holder used: _____

Reaming of guide will be done from the valve seat side _____ or from the back side of the cylinder head _____ (reaming from the back side requires a shorter reamer and thus guarantying better results).

Please, fill out table below with geometric dimensions of your cylinder head:

A	B	C
E	F	G
H	W	

APPLICATION

Make: _____

Model: _____

Engine Type: _____

Year: _____

Guide Material: _____

N.B.: CUSTOM ORDERS CANNOT BE CANCELLED ONCE PROCESSED. SALE IS FINAL: NO RETURN, EXCHANGE OR REFUND.

Company:

Contact:

Address:

Country:

Tel:

Fax:

Email:



■ **NWN2000**

Tip Holder, Diameter Range:
18-30mm (0.709" - 1.181").

• Fits NWN5100F, NWN5100F-L1, NWN5100F-L2 tool holders, (100% compatible with Serdi tool holders) and small body Ball Heads sold on the market.



■ **NWN2001**

Tip Holder, Diameter Range:
28-42mm (1.102" - 1.653").

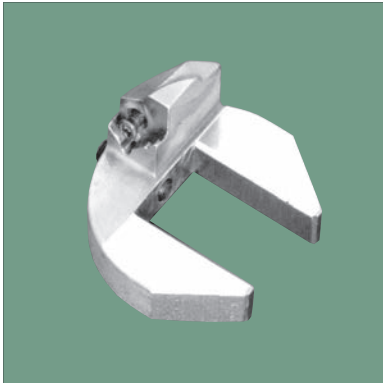
• Fits NWN5100F, NWN5100F-L1, NWN5100F-L2 tool holders, (100% compatible with Serdi tool holders) and small body Ball Heads sold on the market.



■ **NWN2002**

Tip Holder, Diameter Range:
40-60mm (1.575" - 2.362").

• Fits NWN5100F, NWN5100F-L1, NWN5100F-L2 tool holders, (100% compatible with Serdi tool holders) and small body Ball Heads sold on the market.



■ **NWN2003**

Tip Holder, Diameter Range:
40-60mm (1.575" - 2.362").

• Fits NWN5300, NWN5300-L1 tool holders, (100% compatible with Serdi tool holders) and wide body Ball Heads sold on the market.



■ **NWN2004**

Tip Holder, Diameter Range:
58-80mm (2.285" - 3.150").

• Fits NWN5300, NWN5300-L1 tool holders, (100% compatible with Serdi tool holders) and wide body Ball Heads sold on the market.

Carbide form Tips need to seat properly withing tip-holder. Please check your tip-holders on a regular basis and replace them as needed to maintain optimum machining quality.



■ **NWN5100F**

Tool-Holder, Capacity: 18-60mm
(0.709"-2.362").

- Uses tip holders NWN2000, NWN2001 & NWN2002. Used on NEWEN® & Serdi (with the exception of the Serdi Light/Pro & Micro) seat & guide machines.



■ **NWN-ADPT2**

Adaptor for morse #2 to NEWEN® taper or Serdi taper.



■ **NWN5300**

Tool-Holder, Capacity: 40-120mm
(2.285"-3.150").

- Uses tip holders NWN2003, NWN2004, NWN2005, NWN2003-CBN-15, NWN2003-CBN-20, NWN2003-CBN-30, NWN2003-CBN-45. Used on NEWEN® & Serdi (with the exception of the Serdi Light/Pro & Micro) seat & guide machines.

■ **NWN5300-L1**

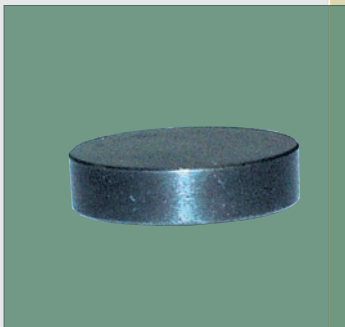
Tool-Holder, 1" longer than NWN5300. Capacity: 40-120mm
(2.285"-3.150").

- Uses tip holders NWN2003, NWN2004, NWN2005, NWN2003-CBN-15, NWN2003-CBN-20, NWN2003-CBN-30, NWN2003-CBN-45. Used on NEWEN® & Serdi (with the exception of the Serdi Light/Pro & Micro) seat & guide machines.

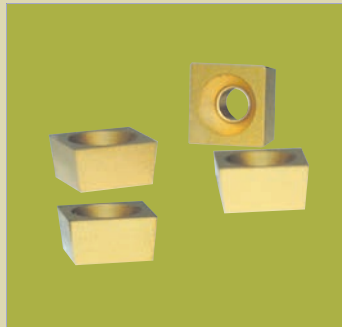


■ **FIXED CUTTERS** are conceived and designed for valve seat counterboring. All geometrical and dimensional features are met. Those indexable fixed cutters use two replaceable titanium nitrate coated inserts, each with four cutting edges. Each fixed cutter comes with two inserts and one torx wrench (replacement inserts and screws available).

NEWEN REF.	DESCRIPTION	CAPACITY
	<i>Fits NEWEN® 5100F tool holder, NEWEN® ball heads and Serdi Tooling (25mm Arbor).</i>	
NWN-FC1-1/4	Fixed cutter	1-1/4" (1.2500")
NWN-FC1-5/16	Fixed cutter	1-5/16" (1.3125")
NWN-FC1-3/8	Fixed cutter	1-3/8" (1.3750")
NWN-FC1-7/16	Fixed cutter	1-7/16" (1.4375")
NWN-FC1-1/2	Fixed cutter	1-1/2" (1.5000")
NWN-FC1-9/16	Fixed cutter	1-9/16" (1.5625")
NWN-FC1-5/8	Fixed cutter	1-5/8" (1.6250")
NWN-FC1-11/16	Fixed cutter	1-11/16" (1.6875")
NWN-FC1-3/4	Fixed cutter	1-3/4" (1.7500")
NWN-FC1-13/16	Fixed cutter	1-13/16" (1.8125")
NWN-FC1-7/8	Fixed cutter	1-7/8" (1.8750")
NWN-FC1-15/16	Fixed cutter	1-15/16" (1.9375")
NWN-FC2	Fixed cutter	2"
NWN-FC2-1/16	Fixed cutter	2-1/16" (2.0625")
NWN-FC2-1/8	Fixed cutter	2-1/8" (2.1250")
NWN-FC2-3/16	Fixed cutter	2-3/16" (2.1875")
NWN-FC2-1/4	Fixed cutter	2-1/4" (2.2500")
NWN-FC2-5/16	Fixed cutter	2-5/16" (2.3125")
NWN-FC2-3/8	Fixed cutter	2-3/8" (2.3750")
NWN-FC2-7/16	Fixed cutter	2-7/16" (2.4375")
NWN-FC2-1/2	Fixed cutter	2-1/2" (2.5000")



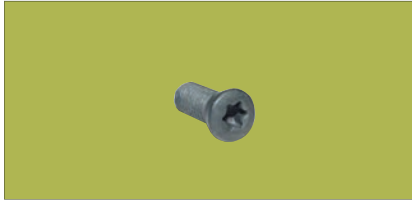
■ **NWN-FCW**
Fixed cutter hardened lock screw insert.



■ **NWN-FC3/8C**
Titanium nitrate coated insert (3/8").



■ **FIXED CUTTER**
See above for sizes.



■ **NWN-T8**
T8 torx screw for carbide form tips attachment (set of 5).



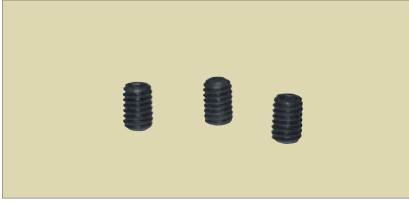
■ **NWN-THS2000-1**
Tip holder adj. screw for NWN2000 & NWN2001 tip holder - **5 x 10mm** (set of 10).



■ **NWN-THS2002-3**
Tip holder adj. screw for NWN2002 & NWN2003 tip holder - **5 x 16mm** (set of 10).



■ **NWN-THS2004**
Tip holder adj. screw for NWN2004 tip holder - **5 x 20mm** (set of 10).



■ **NWN-THLS**
Tip holder lock screw for NWN5100F, NWN5100F-L2 & Ball Heads - **4mm x 6mm** (set of 10).



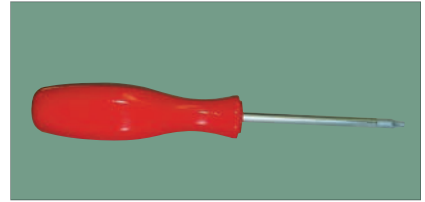
■ **NWN-PLTS**
Pilot lock screw for NWN5100F & NWN5100F-L2 - **8 x 8mm** (set of 10).



■ **NWN-PLTSB**
Pilot lock screw for ball heads. Tip holder lock screw for NWN5300 tool holder & wide body ball heads - **6 x 8mm** (set of 10).



■ **NWN-PLTSWB**
Pilot lock screw for NWN5300 tool holder & wide body ball heads - **8 x 16 mm** (set of 10).



■ **NWN101**
T8 x 60 Torx driver.



■ **NWN100**
T8 torx L-key.



■ **SGC607**
1.5mm-10mm 9 Key-long Hex-L key set.



■ **NWN-PCG/MM**

NEWEN® puppitast concentricity gauge (mm).
Graduation / Accuracy: **0.001mm**
Range: **1mm**.



■ **NWN-PCG/IN**

NEWEN® puppitast concentricity gauge (inch).
Graduation / Accuracy: **.0001"**
Range: **.039"**.



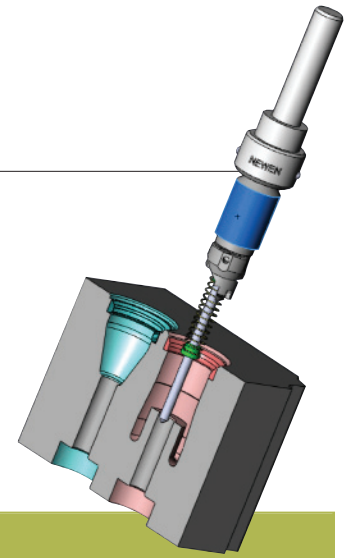
■ **NWN-TSFA**

High precision tool setting fixture with interchangeable point.



■ **NWN-TLEVEL**

Adjustable high precision valve guide level.



■ Upgrade your current guide & seat machine and/or milling machine to use the **leading 3 ANGLE SYSTEM** by NEWEN® and open up to NEWEN®'s **world of unlimited carbide tip profiles!**

1 • DRIVE ADAPTOR (includes 1 drive adaptor of your choice):

NWN-SNTA	Drive adaptor for Sunnen & Tobin Arp machines.
NWN-CM3	#3 morse taper adaptor.
NWN-CM4	#4 morse taper adaptor.
NWN-3/4SS	Straight 3/4" shank for Bridgeport, DCM or any milling machine.

2 • BALL HEAD (includes 1 ball head of your choice):

NWN-BH375F	.375" ID for Mira, Serdi, Kwik-Way, Neway, Winona, Peterson, NEWEN pilots..
NWN-BH385F	.385" ID for Sioux pilots.
NWN-BH389F	.389" ID for Tobin Arp pilots.
NWN-BH390F	.390" ID for Sunnen pilots.
NWN-BH437F	.437" ID for Kwik-Way pilots.

3 • TIP HOLDERS (includes all 3 tip-holders):

NWN2000	Tip Holder, Capacity 18-30mm (.709"-1.181").
NWN2001	Tip Holder, Capacity 28-42mm (1.102"-1.653").
NWN2002	Tip Holder, Capacity 40-60mm (1.575"-2.362").

HIGH PERFORMANCE CARBIDE TIP STARTER KIT (includes 1 each of the following):

WA1-NWN90-16	90 degree Ctip
WA1-NWN45	45 degree Ctip
WA1-NWN30	30 degree Ctip
WA1-NWN4035	13 (.051")-20 (.079")-45-30-60 Ctip
WA1-NWN4038	15 (.059")-18 (.071")-45-30-60 Ctip
WA1-NWN1163	16 (.063")-18 (.071")-45-25-60 Ctip
WA1-NWN1202	20 (.079")-14 (.055")-45-25-60 Ctip
WA1-NWN3023	13 (.051")-10 (.039")-30-15-45 Ctip
WA1-NWN3068	15 (.059")-14 (.055")-30-15-45 Ctip
WA1-NWN2202	20 (.079")-14 (.055")-30-15-60 Ctip

4 • BOUNCE SPRINGS (includes 1 each of the following):

NWN-SSS	Set of 3 small stainless steel bounce springs.
NWN-SSL	Set of 4 large stainless steel bounce springs.

5 • BUSHINGS (includes 1 each of the following):

NWN-BS	Complete set of bushings (range: 6-11mm & 3/8")
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TOOL SETTING FIXTURE (includes 1 each of the following):

NWN-TSFA	High precision tool setting fixture with interchangeable point
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TORX SCREWS (includes 1 each of the following):

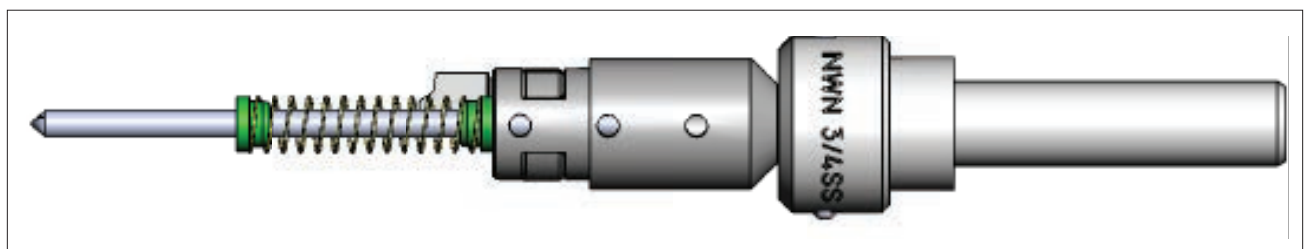
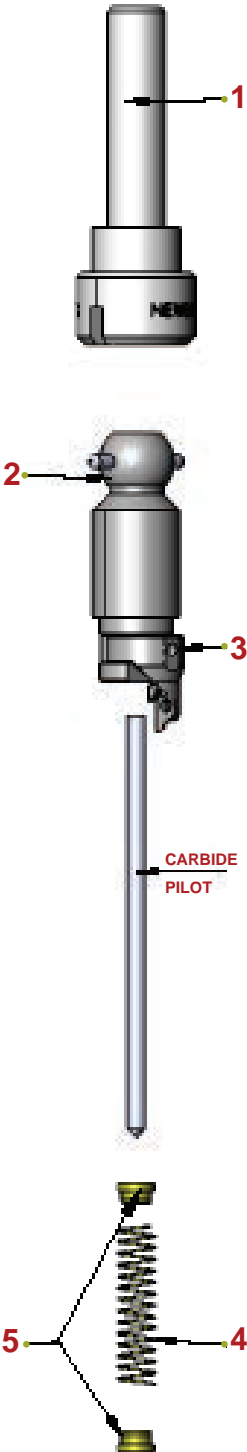
NWN-T8	Set of 5 T8 torx screw
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TORX L KEY (includes 1 each of the following):

NWN100	Torx L Key
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SELECT YOUR DRIVE ADAPTOR & BALL HEAD & ORDER YOUR KIT ACCORDINGLY:

- **NWN-3AKIT-1** (Comes with NWN-SNTA & NWN-BH375F)
- **NWN-3AKIT-2** (Comes with NWN-SNTA & NWN-BH385F)
- **NWN-3AKIT-3** (Comes with NWN-SNTA & NWN-BH389F)
- **NWN-3AKIT-4** (Comes with NWN-SNTA & NWN-BH390F)
- **NWN-3AKIT-5** (Comes with NWN-SNTA & NWN-BH437F)
- **NWN-3AKIT-6** (Comes with NWN-CM3 & NWN-BH375F)
- **NWN-3AKIT-7** (Comes with NWN-CM3 & NWN-BH385F)
- **NWN-3AKIT-8** (Comes with NWN-CM3 & NWN-BH389F)
- **NWN-3AKIT-9** (Comes with NWN-CM3 & NWN-BH390F)
- **NWN-3AKIT-10** (Comes with NWN-CM3 & NWN-BH437F)
- **NWN-3AKIT-11** (Comes with NWN-CM4 & NWN-BH375F)
- **NWN-3AKIT-12** (Comes with NWN-CM4 & NWN-BH385F)
- **NWN-3AKIT-13** (Comes with NWN-CM4 & NWN-BH389F)
- **NWN-3AKIT-14** (Comes with NWN-CM4 & NWN-BH390F)
- **NWN-3AKIT-15** (Comes with NWN-CM4 & NWN-BH437F)
- **NWN-3AKIT-21** (Comes with NWN-3/4SS & NWN-BH375F)
- **NWN-3AKIT-22** (Comes with NWN-3/4SS & NWN-BH385F)
- **NWN-3AKIT-23** (Comes with NWN-3/4SS & NWN-BH389F)
- **NWN-3AKIT-24** (Comes with NWN-3/4SS & NWN-BH390F)
- **NWN-3AKIT-25** (Comes with NWN-3/4SS & NWN-BH437F)





■ **NWN-SNTA**
Drive adaptor for Sunnen, Tobin Arp & Berco machines.



■ **NWN-CM3**
3 morse taper adaptor (commonly used on Winona Van Norman, Peterson, Kwik-Way, Zan Rosso seat & guide machines).



■ **NWN-CM4**
4 morse taper (Kwik-Way, Winona Van Norman....seat & guide)

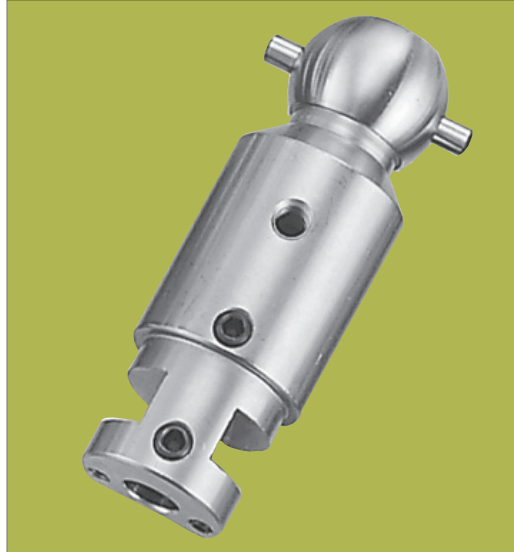


■ **NWN-3/4SS**
3/4" straight shank adaptor (commonly used on DCM machines, vertical mills (bridgeport...)).

NEWEN ball heads are:

- **Heat treated** not to deform over time
- **Precision ground** on the outside to use NWN Fixed Cutters

NEWEN ball heads can be used with either **dead or live pilots** and have a **standard 1" ball** to use with your existing tooling.



■ **NWN-BH375F**

Ball head, diameter .375" (9.52mm) for Mira, Serdi, K.O. Lee, Snap On, Neway, Winona, Peterson, Kwik-Way & NEWEN® pilots (uses tip holders, NWN2000, NWN2001 & NWN2002).

■ **NWN-BH385F**

Ball head, diameter .385" (9.78mm) for Sioux pilots (uses tip holders, NWN2000, NWN2001 & NWN2002).

■ **NWN-BH389F (While Supplies Last Only - Discontinued Item)**

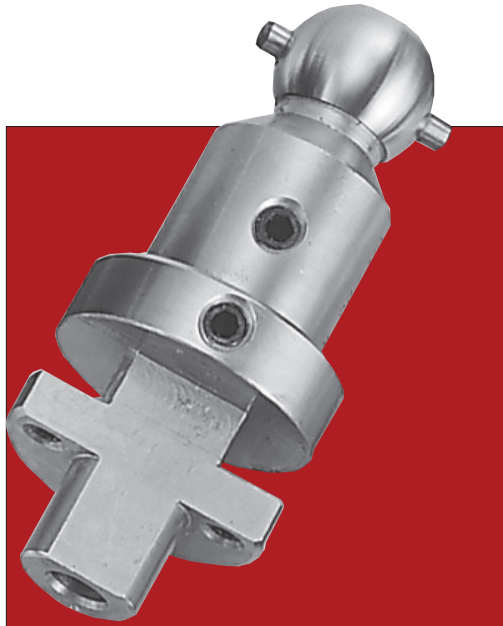
Ball head, diameter .389" (9.88mm) for Tobin Arp pilots (uses tip holders, NWN2000, NWN2001 & NWN2002).

■ **NWN-BH390F**

Ball head, diameter .390" (9.91mm) for Sunnen pilots (uses tip holders, NWN2000, NWN2001 & NWN2002).

■ **NWN-BH437F (While Supplies Last Only - Discontinued Item)**

Ball head, diameter .437" (11.10mm) for Kwik-Way pilots (uses tip holders, NWN2000, NWN2001 & NWN2002).

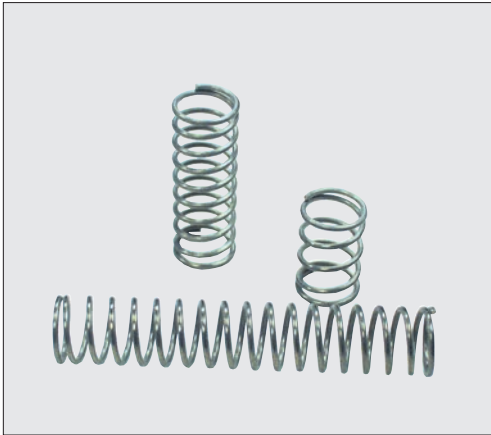


■ **NWN-BH375W**

Wide Body Ball head, diameter .375" (9.52mm) for Mira, Serdi, K.O. Lee, Snap On, Neway, Winona, Peterson, Kwik-Way & NEWEN® pilots (uses tip holders, NWN2003, NWN2004, NWN2005, NWN2003-CBN-15, NWN2003-CBN-20, NWN2003-CBN-30, NWN2003-CBN-45).

■ **NWN-BH385W**

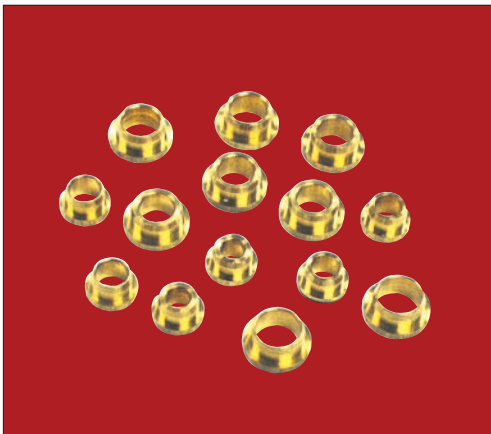
Wide Body Ball head, diameter .385" (9.78mm) for Sioux pilots (uses tip holders, NWN2003, NWN2004, NWN2005, NWN2003-CBN-15, NWN2003-CBN-20, NWN2003-CBN-30, NWN2003-CBN-45).



■ **NWN-SSS**
Set of 3 small stainless steel springs.



■ **NWN-SSL**
Set of 4 large stainless steel springs.



■ **NWN-BS**
Brass bushing set (6mm ID, 7mm ID, 8mm ID, 9mm ID, 10mm ID, 11mm ID and 3/8" ID).
For use with NEWEN® springs.



NEWEN® • Tel: +1-760-233-0067 • Fax: +1-760-233-0068

Email: contact@newen.com • Website: www.newen.com

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