

## **Blade Break-In Procedure**

All band saw blades, regardless of the manufacturer, need to be "broken in". When new, the teeth are just too sharp. Cutting at full rate will cause fracturing of the feather edges, which will lead to premature blade failure. Breaking in a saw blade wears off this ultra sharp edge and allows the blade to retain its cutting ability longer. Each manufacturer has their preferred method for blade break-in. However, they all share the same principles:

1. Maintain recommended band speed
2. Reduce feed pressure to ½ normal rate
3. Run at these settings for the first 50 square inches of material cut (150 square inches on mild and low carbon steel)

Note: If you are unsure what the normal feed pressure is, start light. Increase feed pressure until good, curly chips start to form. After cutting the recommended area, slowly increase the feed pressure until you reach your desired cutting rate.

Special consideration must be given while breaking in a saw blade on nickel-based alloys. (Stainless Steel, Inconel, Hastelloy, D2 Tool Steel, etc.) These alloys tend to work harden very quickly; therefore, sufficient feed pressure must be applied during the break-in period to remove some material. As a general rule, alloys sawed at lower speeds need more pressure during break-in period.

## Technical Guide: Tooth and Speed Selection Chart

Material to Cut		Bi-Metal Band	S.F.P.M.	Cut Rate Sq. In./Min.	Feed Pressure	Tool life Sq. In./Ft.	Material Characteristics
LOW CARBON	1010-1019	MATRIX II	300-350	11 to 15	MEDIUM/LIGHT	650 to 800	FREE MACHINING
MEDIUM CARBON	1020-1050	MATRIX II	190-225	7 to 9	MEDIUM/LIGHT	425 to 700	FREE MACHINING
HIGH CARBON	1055-1095	MATRIX II	145-170	6 to 8	MEDIUM	300 to 400	FREE MACHINING
FREE MACHINING	1109-1113	MATRIX II	300-350	12 to 15	MEDIUM/LIGHT	700 to 850	FREE MACHINING
FREE MACHINING	1115-1213	MATRIX II	200-250	8 to 10	MEDIUM/LIGHT	500 to 750	FREE MACHINING
MANGANESE	1320-1340	M42/M51*	175-220	6 to 8	MEDIUM	330 to 375	WORK HARDENING
NICKEL	2015-2517	M42/M51*	225-250	6 to 7	MEDIUM	250 to 300	WORK HARDENING
NICKEL	2320-2350	M42/M51*	145-170	5 to 6	MEDIUM	250 to 300	WORK HARDENING
NICKEL	2512-2515	M42/M51*	175-200	4 to 5	MEDIUM	250 to 300	WORK HARDENING
NICKEL-CHROME	3115-3150	M42	125-160	6 to 9	MEDIUM	275 to 350	TENDENCY TO CHIP WELD
NICKEL-CHROME	3215-3240	M42/M51*	110-140	5 to 8	MEDIUM	250 to 300	WORK HARDENING
NICKEL-CHROME	3415-3450	M42/M51*	90-125	4 to 6	MEDIUM/HEAVY	250 to 300	WORK HARDENING
MOLYBDENUM	4023-4037	MATRIX II	230-270	6 to 8	MEDIUM	350 to 375	ABRASIVE
MOLYBDENUM	4042-4063	MATRIX II	180-220	5 to 7	MEDIUM/HEAVY	325 to 350	ABRASIVE
CHROME-MOLY	4120-4140	M42/M51*	185-210	5 to 7	MEDIUM	275 to 350	WORK HARDENING/ ABRASIVE
CHROME-MOLY	4320-4340	M42/M51*	180-230	5 to 7	MEDIUM	250 to 325	WORK HARDENING/ ABRASIVE
NICK-CHRO-MOLY	8620-8750	M42	175-230	5 to 7	MEDIUM	275 to 425	GOOD CUTTING CHARACTERISTICS
NICK-CHRO-MOLY	9310-9850	M42/M51*	160-220	4 to 6	MEDIUM/HEAVY	175 to 300	WORK HARDENING
NICKEL-MOLY	4615-4640	M42/M51*	210-240	5 to 7	MEDIUM	275 to 300	WORK HARDENING
NICKEL-MOLY	4812-4820	M42/M51*	175-190	4 to 6	MEDIUM/HEAVY	225 to 275	WORK HARDENING
CHROME	5120-5160	M42	190-230	6 to 8	MEDIUM	225 to 350	GOOD CUTTING CHARACTERISTICS
CHROME	50100-52100	M42/M51*	150-185	4 to 6	MEDIUM	200 to 275	ABRASIVE
CHRO-VAN-SILICON	6115-6120	M42	160-225	3 to 6	MEDIUM	200 to 275	ABRASIVE
SILICON	9255-9262	M42	175-210	8 to 16	MEDIUM	175 to 250	EXTREMELY ABRASIVE
STAINLESS	201-304	M42/M51*	80-125	2 to 4	MEDIUM/HEAVY	275 to 300	WORK HARDENING
STAINLESS	308-348	M42/M51*	55-80	1 to 2	MEDIUM/HEAVY	100 to 250	WORK HARDENING

STAINLESS	410-430	M42/M51*	110-150	2 to 4	MEDIUM	125 to 250	WORK HARDENING/ ABRASIVE
STAINLESS	440 & 17-series	M42/M51*	75-110	1 to 2	MEDIUM/HEAVY	125 to 175	WORK HARDENING/ ABRASIVE
TOOL STEEL	M1,M2,M3,T1,T2	M42/M51*	120-150	3 to 5	MEDIUM/HEAVY	125 to 175	WORK HARDENING/ ABRASIVE
DIE STEEL	O-1, O-2, O-6, O-7	M42/M51*	175-210	3 to 5	MEDIUM/HEAVY	225 to 350	WORK HARDENING/ ABRASIVE
DIE STEEL	A-2, A-4	M42/M51*	180-220	3 to 4	MEDIUM/HEAVY	200 to 250	WORK HARDENING/ ABRASIVE
DIE STEEL	D-2, D-3, D-4	M42/M51*	90-120	2 to 3	MEDIUM/HEAVY	125 to 175	WORK HARDENING/ ABRASIVE
HOT WORK STEEL	H12, H13, H21	M42	160-200	4 to 5	MEDIUM	275 to 325	ABRASIVE
HOT WORK STEEL	H22, H24, H25	M42	130-175	2 to 4	MEDIUM/HEAVY	175 to 225	ABRASIVE
MONEL		M42/M51*	60-90	.5 to 4	MEDIUM/HEAVY	50 to 100	EXTREMELY WORK HARDENING
INCONEL		M42/M51*	50-80	.5 to 4	MEDIUM/HEAVY	25 to 70	EXTREMELY WORK HARDENING
HASTELLOY		M42/M51*	50-80	.5 to 4	MEDIUM/HEAVY	55 to 100	EXTREMELY WORK HARDENING
TITANIUM		M42/M51*	40-60	.5 to 4	MEDIUM/HEAVY	25 to 60	EXTREMELY WORK HARDENING
ALUMINUM	2011-7075	MATRIX II	325-400	14 to 25	MEDIUM/LIGHT	175 to 275	ABRASIVE/ CHIP BUILDUP
COPPER		MATRIX II	275-350	6 to 8	MEDIUM/LIGHT	250 to 600	GOOD CUTTING CHARACTERISTICS
BRONZE		MATRIX II	225-300	14 to 18	MEDIUM/LIGHT	200 to 425	GOOD CUTTING CHARACTERISTICS
BRASS RED		MATRIX II	225-300	14 to 18	MEDIUM/LIGHT	225 to 400	GOOD CUTTING CHARACTERISTICS
BRASS, NAVAL		MATRIX II	275-350	10 to 14	MEDIUM/LIGHT		GOOD CUTTING CHARACTERISTICS
CAST IRON		MATRIX II	165-225		MEDIUM		
CAST STEEL		MATRIX II	110-225		MEDIUM		
STRUCTURALS		MATRIX II	175-250		MEDIUM/LIGHT		TOOTH BREAKAGE POTENTIAL