

WKW[™]
Wisconsin Knife Works, Inc.

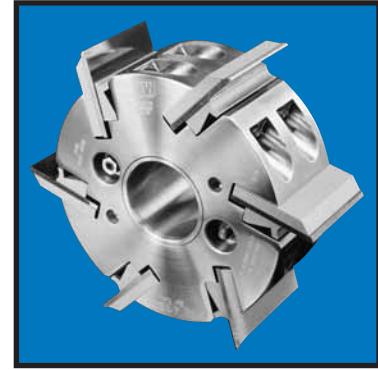
GUTTERHEADS

Order online @ www.wkwinc.com



HYDRO-LOC™

Made from premium steel with a hardened sleeve. Two chamber sleeve construction for accuracy, uniformity and perfect concentricity.



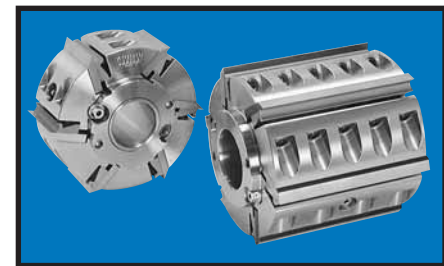
QUICK-LOC™

Fully enclosed, dual chamber, hardened steel, hydraulic sleeve cutterheads. High pressure grease gun is **NOT** required.



AXIAL CONSTANT

Precision Machined with hubs for axial constant setup system.



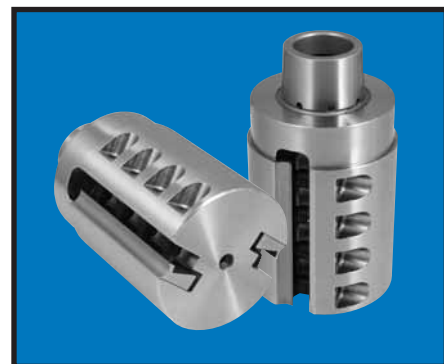
STRAIGHT BORE

Premium hardened steel body. Precision machined for true concentricity.



HSK

Certified to run up to 12,000 RPM on moulders designed for HSK style tooling..





The Quick Delivery Cutterhead Program includes thousands of combinations of bore sizes, cutting angles, cutting lengths, body diameters and number of knife slots. Cutterheads in the Quick Delivery Program ship in 7 - 10 working days.

The following types of cutterheads are included in the Quick Delivery Program: HYDRO-LOC™; QUICK-LOC™; STRAIGHT BORE and AXIAL CONSTANT.

The Wisconsin Knife Works Quick Delivery Program offers quality cutterheads to fit most common moulder applications. All Quick Delivery cutterheads are corrugated to accept 16-60° knives, up to 10mm thick. Please remember to use a locking collar when running any hydraulic style cutterhead.

STRAIGHT BORE CUTTERHEADS

The Quick Delivery Program includes Straight Bore cutterheads in the following configurations:

BORE SIZE:	1-1/4"; 35mm; 1-1/2"; 40mm; 1-13/16"; 50mm; 2-1/8"
CUT ANGLE:	5° - 22° (including dual angle)
CUT LENGTH:	40mm - 240mm
# OF KNIVES:	4, 6, or 8
BODY DIAMETER:	122mm - 230mm

Please contact WKW for your specific Straight Bore Cutterhead needs.

Straight Bore Shaper Cutterheads

The following Straight Bore Shaper Cutterheads are available on the Quick Delivery Program.

PART NUMBERS	BODY DIAMETER	CUTTING ANGLE	CUTTING LENGTH	# OF KNIVES	BORE
39100	4"	20°	2"	4	1 1/4"
39103	4"	20°	4"	4	1 1/4"
39106	4"	20°	6"	4	1 1/4"
39202	4"	20°	2"	2	1 1/4"
39204	4"	20°	4"	2	1 1/4"
39206	4"	20°	6"	2	1 1/4"
39222	2 3/4"	15°	2"	2	3/4"
39223	2 3/4"	15°	3"	2	3/4"
39232	3 1/2"	20°	2"	2	1"
39233	3 1/2"	20°	3"	2	1"



C-4

QUICK DELIVERY



HYDRAULIC BORE CUTTERHEADS

HYDRO-LOC™, AXIAL CONSTANT, QUICK-LOC™.

137MM BODY DIAMETER

BORE	CUT ANGLE	CUT LENGTH	# OF KNIVES
40mm	5° - 25° (including dual angle)	60mm - 240mm	4 or 6

137MM BODY DIAMETER

BORE	CUT ANGLE	CUT LENGTH	# OF KNIVES
50mm	10° - 25° (including dual angle)	60mm - 240mm	4 or 6

150MM BODY DIAMETER

BORE	CUT ANGLE	CUT LENGTH	# OF KNIVES
40mm, 1-13/16", 50mm, 2-1/8"	5° - 25° (including dual angle)	60mm - 240mm	4, 6 or 8

163MM BODY DIAMETER

BORE	CUT ANGLE	CUT LENGTH	# OF KNIVES
2-1/8"	10° - 20°	60mm - 240mm	8

LOCK RINGS

Wisconsin Knife Works always recommends using a locking collar when running hydraulic sleeved cutterheads.

PART NUMBER	BORE	PIN SPACING
SE 1653	40mm	2.56 (65MM)
SE 1590	1-13/16"	3.15 (80MM)
SE 1648	50mm	3.15 (80MM)
SE 1591	2-1/8"	3.15 (80MM)

Thousands of cutterheads to choose from. Call WKW for your specific applications.

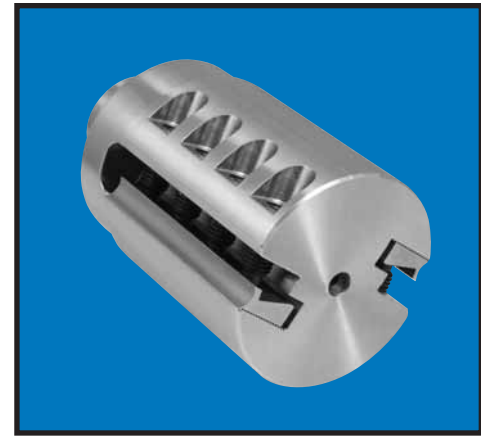
WKW Quick Delivery Cutterheads are available in 7-10 working days.

order online at www.wkwinc.com



HSK CORRUGATED CUTTERHEAD**C-5**

WKW "HSK" Corrugated Heads are manufactured to the highest standards and are balanced using state of the art equipment to insure proper balance for the maximum speed stamped on the tool.



PART NUMBER	WIDTH	CUT ANGLE	SPINDLE USE	PART NUMBER	WIDTH	CUT ANGLE	SPINDLE USE
38021	60mm	20°	L/B	38031	60mm	20°	R/T
38022	80mm	20°	L/B	38032	80mm	20°	R/T
38023	100mm	20°	L/B	38033	100mm	20°	R/T
38024	130mm	20°	L/B	38034	130mm	20°	R/T
38025	150mm	20°	L/B	38035	150mm	20°	R/T
38026	170mm	20°	L/B	38036	170mm	20°	R/T
38030	180mm	20°	Bottom	38040	180mm	20°	Top
38029	210mm	20°	Bottom	38039	210mm	20°	Top
38027	240mm	20°	Bottom	38037	240mm	20°	Top
38041	60mm	12°	L/B	38051	60mm	12°	R/T
38042	80mm	12°	L/B	38052	80mm	12°	R/T
38043	100mm	12°	L/B	38053	100mm	12°	R/T
38044	130mm	12°	L/B	38054	130mm	12°	R/T
38045	150mm	12°	L/B	38055	150mm	12°	R/T
38046	170mm	12°	L/B	38056	170mm	12°	R/T
38050	180mm	12°	Bottom	38060	180mm	12°	Top
38049	210mm	12°	Bottom	38059	210mm	12°	Top
38047	240mm	12°	Bottom	38057	240mm	12°	Top

CUTTERHEADS



As with any cutterhead, WKW recommends that care be taken to maintain the heads so that they are kept in good operating condition. This would include the following:



- 1. Make sure knives and gibs are balanced properly:** It is recommended that knives and gibs be balanced to within .1 gram or better.
- 2. Keep HSK taper clean:** It is very important that the internal clamping mechanism and the external taper and face on the heads be kept extremely clean in order to provide top working performance.
- 3. Keep head clean:** A clean head with little pitch and dirt build-up will run smoother and produce better finishes. Any pitch build-up, just like knives that are not in perfect balance, will have an affect on the head running at its optimum.
- 4. Inspect heads for any damage:** Before any head is used visually inspect it for any damage or defects that may have occurred while handling, during the grinding process, or from general wear and tear. If any defects are discovered it is recommended that it be evaluated and possibly re-conditioned and balanced. This can easily be done by returning it to WKW for a full evaluation.
- 5. Corrugation Inspection:** A very common area where damage occurs is the top corner of the corrugation on each end of the head. This is usually caused by improper handling and may cause the knives to not seat properly in the corrugation and could affect performance.
- 6. Tighten the Gib Screws Properly:** When tightening the gib screws it is recommended that each wing be tightened incrementally from an initial snug up to a final torque of 25 ft.-lbs. By alternating the gib screw tightening process the stress buildup in the head body is held to a minimum and more evenly distributed preventing any head distortion.
- 7. Do Not Exceed Recommended RPM:** Each head has its maximum RPM etched on the end. It is very important that this not be exceeded.
- 8. Maximum Knife Adjustment:** For safety reasons, the maximum adjustment of knives must not exceed 4 corrugations (1/4") from the bottom.



HIGH PRESSURE PNEUMATIC GREASE GUN

C-7



WKW's High Pressure Pneumatic Grease Gun can be used in place of current high pressure guns. Many high pressure grease guns frequently break down and are difficult and time consuming to maintain. Regular maintenance on some grease guns is required due to the many parts that tend to fail internally and must be repaired for the gun to work properly. You may have even noticed that some of the replacement parts are now being made from plastic and tend to fail even faster.

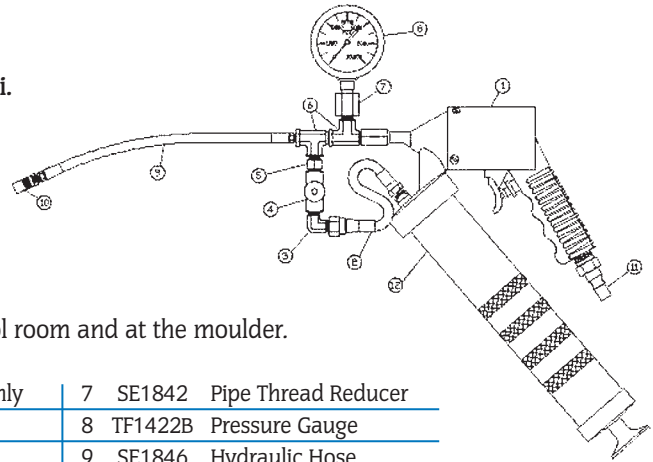
Wisconsin Knife Works has developed a Pneumatic Grease Gun which is built from the highest quality high pressure standard fittings rated up to 10,000 p.s.i. Similar systems are used daily in our own factory and are used for pressurizing hydro tooling during the manufacturing process. The Pneumatic Grease Gun is ideal for tool rooms and the shop floor. It can be set to produce exact repeatable pressures time after time eliminating damage that can occur as a result of over or under pressurization.

High Pressure Pneumatic Grease Gun:

1. Heavy duty high quality construction.
2. Connects to any air hose and **operates best at an air pressure of 90 p.s.i.**
3. Easily connects and disconnects from standard air lines.
4. High pressure fittings are standard parts in stock.
5. The gun is rated for 10,000 p.s.i., nearly double what is required to pressurize heads.
6. Ideal for tool rooms, at the profile grinder, and on the shop floor.
7. Air pressure setting insures consistent pressurization of heads in the tool room and at the moulder.

8. Heads can be pressurized at the moulder to the identical pressure used when the knives were profile ground. Duplicating the pressure on the head on the moulder with the same pressure used when profile grinding increases head accuracy, knife tracking, improves finishes, and eliminates human error.

1	SE1836	Grease Gun Body Only	7	SE1842	Pipe Thread Reducer
2	SE1840	Grease Cartridge	8	TF1422B	Pressure Gauge
3	SE1845	Male Elbow	9	SE1846	Hydraulic Hose
4	SE1844	Flow Control	10	36338	Grease Coupling
5	SE1843	Pipe Nipple	11	SE1858	Quick Disconnect
6	SE1841	Male Run Tee	12	36361	Grease Cartridge



9. No over or under pressurization of SE1841 Male Run Tee heads which can cause damage, reduce repeatability and consistency from grinder to moulder.

Note: Wisconsin Knife Works recommends that a lithium NLGI grade 2 grease be used.

Instructions:

1. This is a single action gun. This means that each time the trigger button is depressed, a measured amount of grease is dispensed from the hydraulic coupler. For first time use, the trigger button must be pressed and released repeatedly until grease begins to appear at the edge of the fitting. After the grease fills the hose up to the coupler, depressing the trigger button twice should pressurize a hydro head completely and consistently.
2. The High Pressure Pneumatic Grease Gun will come fully assembled and ready to use. Simply connect the gun to an air supply hose at the connector on the bottom of the handle.
3. A pressure regulator (SE1855) can be installed to an air line to precisely control the pressure produced by the High Pressure Pneumatic Grease Gun.
4. We recommend that the air supply line pressure be set to 90 p.s.i. which will generate approx. 350 bar or 5,000 p.s.i

Air Line	Bar	PSI
83psi	300	4300
85psi	325	4500
90psi	350	5000
100psi	375	5400
105psi	400	5800
110psi	425	6100
115psi	450	6500

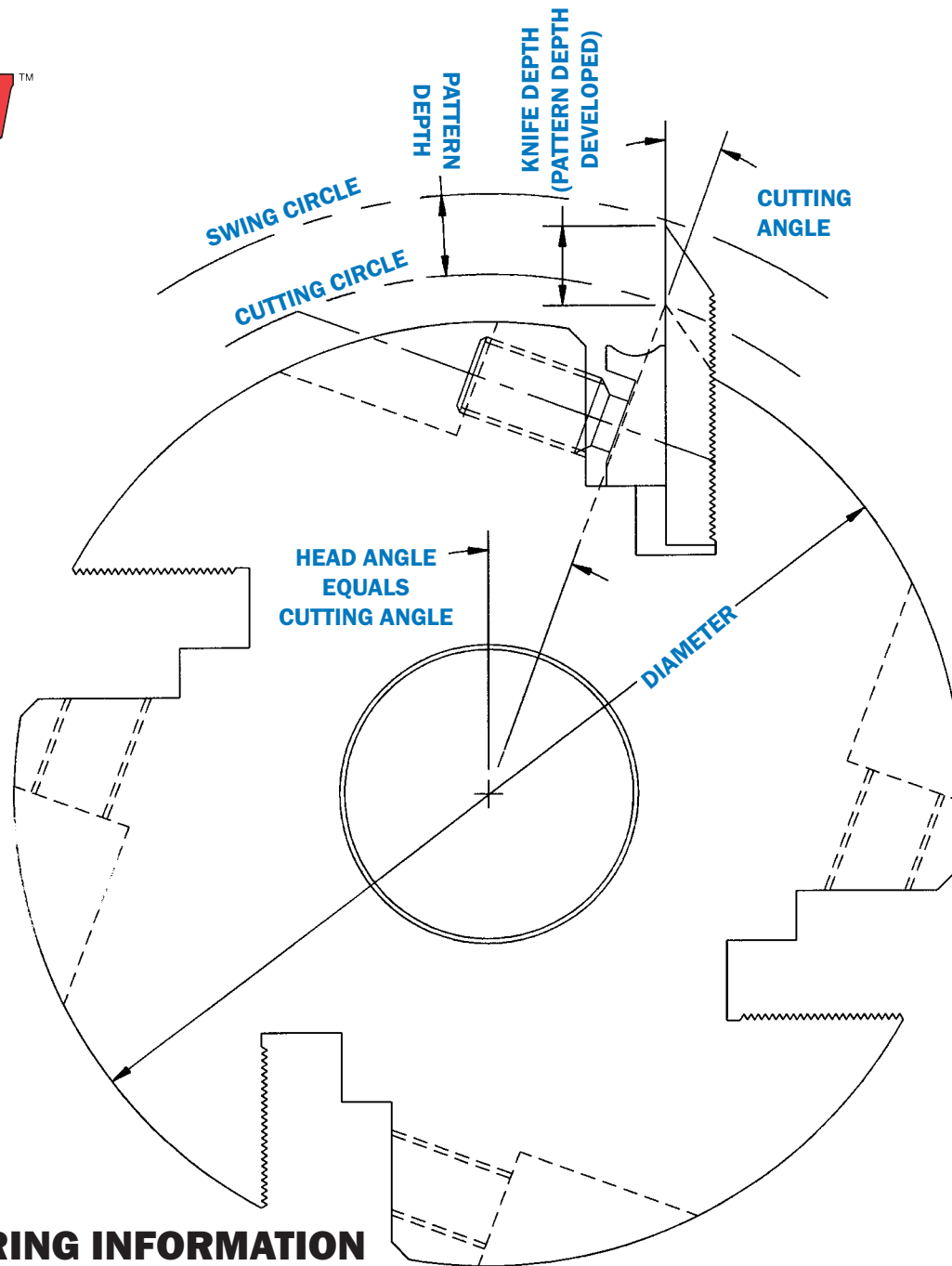
Conversions:

Bar to psi
 $\text{Bar} \times 14.504 = \text{psi}$
 Example: $350 \text{ Bar} = 5076 \text{ psi}$

Psi to Bar
 $\text{Psi} \div 14.504 = \text{Bar}$
 Example: $5076 \text{ psi} = 350 \text{ Bar}$

5. Do not connect an air supply to the gun with a pressure greater than 130 p.s.i. or less than 83 p.s.i.
6. After the head is pressurized, simply turn the knob on the flow control counter clockwise to release the pressure and allow easy disengagement of the coupler and the grease fitting. When this is done, the pressure release allows the grease to flow back into the grease tube eliminating any grease leakage.

CUTTERHEADS



ORDERING INFORMATION

WKW is able to supply cutterheads for virtually any machine, in virtually any configuration. To help us in determining your needs, please have the following information available when calling or faxing.

Make and model of machine.

Cutting circle and body diameter.

Length of cut.

Gib type (pocket type is standard; wedge type furnished on request).

Number of knives or wings.

Type of knives (i.e. corrugated, plain, etc.)

Bore size.

Type of bore (i.e. Hydro-Loc™, Quick-Loc™, Straight Bore, Mechanical Sleeve)

Cutting angle or species being cut (dual cutting angle heads available).

order online at www.wkwinc.com





CUTTERHEAD TYPES

TYPE OF HEAD	TYPE OF CUTTING
Clamp T-Slot Heads	Lineal Cutting
Round Heads	Lineal, Cross, End Grain Cutting
Clamp-Type Heads	Lineal or End Grain Cutting
Vise Grip Heads	Lineal Cutting
Square Heads	Lineal Cutting
Shaper Tooling	Lineal or End Grain Cutting
Cope	Cross or End Grain Cutting
Semi Clamp-Type Heads	End Grain Cutting
Finger Joint Heads	End Grain Cutting

WHERE SOME HEADS ARE USED

TYPE OF CUTTERHEAD	MAX RPM*	MOULDER	TENONER	SHAPER
Clamp T-Slot	6000	X		
Clamp-Type	7200	X		X
Combination Disc and Vise Grip Cope	7200		X	
Combination Shaper	7200			X
Disc Cope	7200		X	
Finger Joint	3600		X	X
Round Head Corrugated Back Knife Under 6 inches diameter	8300	X		X
Round Head Corrugated Back Knife 6 inches or greater diameter	7200	X		X
Round Head Plain Back Knife	3600	X		
Round Head L-Type & Lug-Type Bits	7200	X	X	
Groover Disc	7200		X	
Round Shaper Corrugated Back Knife	8300			X
Semi Clamp-Type Cope	7200		X	
Square Cope	7200		X	
Vise Grip Moulder	7200	X		
Vise Grip Shaper	7200			X
XL Moulder HD	8300	X		X
Saw Sleeve	7200	X	X	

*Max RPM is Wisconsin Knife Works' recommended RPM for safest operation.



HYDRO-LOC™ & QUICK-LOC™ HEAD MAINTENANCE

The arbor or spindle on your machine must be free from runout and wear. For your cutterhead to properly lock on the arbor and to produce the optimum finish, the arbor size should be no more than .0005 less than the nominal size. Runout in your spindle will also prevent your cutterhead from performing properly.

Hydro-Loc™, and Quick-Loc™ heads rely on grease pressure and are equipped with a filler and a release valve, or a set screw in the case of a **Quick-Loc™** head. The following steps should be observed. When using **Hydro-Loc™** or **Quick-Loc™** heads, **always use a locking collar** to guard against unexpected pressure loss that could lead to damage of the arbor and/or cutterhead.

Hydro-Loc™ Heads

1. Place the head in the desired location on the spindle. Never pressurize a head when it is not on a spindle or when your spindle is .001 inch or more under the nominal diameter. Damage to the head could result.
2. Connect the grease gun to the filler nipple. Always use the WKW recommended grease gun. A regular grease gun will not pressurize the head to a high enough pressure.
3. Loosen the screw valve on the gauge block, and pump until grease flows out the release valve. This will remove any air pockets inside the head.
4. Tighten the screw in the release valve on the head and pressurize to 300 to 350 bar (4350 to 5075 PSI). Tighten the screw valve on the gauge block and loosen the grease release valve on the gun. Remove the grease gun.
5. If there is no pressure loss within two minutes, install and tighten the lock ring. You may proceed if you have read and understand the information provided by the machine manufacturer. Never operate a Hydro-Loc™ cutterhead without a lock ring.
6. Always be sure to check for any pressure loss each morning, after each shift change, or after the machine has been idle for more than eight hours.
7. If cleaning the head with a heated solution, always be sure that pressure release fitting is left open to prevent sleeve damage.

Quick-Loc™ heads also rely on grease pressure and are equipped with one or two set screws. Only one screw needs to be used to pressurize and release the head. To lock the head to the arbor, the set screw should be tightened *by hand* until it bottoms out, using the allen wrench that is provided. Do not use a torque wrench or any device to add torque. Simple hand pressure is adequate. To remove the head, from the arbor, merely loosen the screw one or two rotations or until the head loosens on the arbor. It is not necessary to remove the screw.

Re-charging Quick-Loc™ Heads is recommended after every 100 hours of use. To re-charge the head, merely place it on an arbor, tighten the pressurizing screws until they bottom out, and re-charge to 300–350 bar (4350–5075 PSI) with a grease gun. Do not over- or under-pressurize. Periodic checking of the pressure is recommended in this manner. Never pressurize when the head is not on a properly sized arbor.

Observe all other precautions as listed for Hydro-Loc™ heads above. For more information, please contact the factory with the part number of your cutterhead.

USEFUL INFORMATION

C-11



FINISH AND RATES OF FEED*

$$\frac{\text{R.P.M.} \times \text{NO. KNIVES}}{\text{FT. PER MIN.} \times 12} = \text{KNIFE MARKS PER INCH}$$

R.P.M.	KNIFE MARKS PER INCH	NUMBER OF KNIVES CUTTING								
		1	2	4	6	8	10	12	14	16
3,600	10	30 Ft.	60 Ft.	120 Ft.	180 Ft.	240 Ft.	300 Ft.	360 Ft.	420 Ft.	480 Ft.
	12	25	50	100	150	200	250	300	350	400
	14	21	42	85	128	171	214	257	300	342
	16	18	37	75	112	150	187	225	262	300
	18	16	33	66	100	133	166	200	233	266
4,800	20	15	30	60	90	120	150	180	210	240
	10	40 Ft.	80 Ft.	160 Ft.	240 Ft.	320 Ft.	400 Ft.	480 Ft.	560 Ft.	640 Ft.
	12	33	66	133	200	266	333	400	466	533
	14	28	57	114	171	228	285	342	400	457
	16	25	50	100	150	200	250	300	350	400
6,000	18	22	44	88	133	177	222	266	311	355
	20	20	40	80	120	160	200	240	290	320
	10	50 Ft.	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	700 Ft.	800 Ft.
	12	41	83	166	250	333	416	500	583	666
	14	35	71	142	214	285	357	428	500	571
7,200	16	31	62	125	187	254	312	375	457	500
	18	27	55	111	166	222	277	333	388	444
	20	25	50	100	150	200	250	300	350	400
	10	60 Ft.	120 Ft.	240 Ft.	360 Ft.	480 Ft.	600 Ft.	720 Ft.	840 Ft.	960 Ft.
	12	50	100	200	300	400	500	600	700	800
8,000	14	42	85	171	257	342	428	514	600	685
	16	37	75	150	225	300	375	450	525	600
	18	33	66	133	200	266	333	400	466	533
	20	30	60	120	180	240	300	360	420	480
	10	66 Ft.	133 Ft.	266 Ft.	400 Ft.	533 Ft.	666 Ft.	800 Ft.	933 Ft.	1,066 Ft.
10,000	12	55	111	222	333	444	555	666	777	888
	14	47	95	190	285	380	476	571	666	761
	16	41	83	166	250	333	416	500	583	666
	18	37	74	148	222	296	370	444	518	592
	20	33	66	133	200	266	333	400	466	533
	10	83 Ft.	166 Ft.	333 Ft.	500 Ft.	666 Ft.	833 Ft.	1,000 Ft.	1,166 Ft.	1,333 Ft.
	12	69	138	277	416	555	694	833	972	1,111
	14	59	119	238	357	476	595	714	833	952
	16	52	104	204	312	416	520	625	729	833
	18	46	92	185	277	370	462	555	648	740
20	41	83	166	250	333	416	500	583	666	

• Finish of material is directly related to the feed and speed of your machine • No steel made will stand up if the feed rate is too slow • The heat generated will make the knives dull fast • Too many knives at a slow feed rate will also create burning. *Please contact WKW engineering for finish/feed rates recommended for other speeds.

CUTTERHEADS



KNIFE MARKS PER INCH

Knife finish ranges are generally recommended according to wood species:

Wood	Knife Marks Per Inch
Ash	11 to 14
Basswood	8 to 12
Beech	12 to 14
Birch (plain)	12 to 14
Birch (curly)	13 to 16
Cedar	8 to 12
Cherry	12 to 14
Cottonwood	8 to 12
Cypress	8 to 12
Elm (hard)	10 to 13
Elm (soft)	8 to 12
Fir	8 to 12
Gum	9 to 13
Hemlock	8 to 12
Hickory	12 to 15
Mahogany (plain)	12 to 14
Mahogany (figured)	14 to 16
Maple	12 to 14
Oak	12 to 14
Pine (yellow)	9 to 13
Pine (white)	9 to 13
Poplar	9 to 13
Redwood	8 to 12
Spruce	8 to 12
Sycamore	11 to 14
Walnut	12 to 14
MDF	10 TO 12

CUTTING ANGLES

	Kiln Dried 7% Moisture or Less Cutting Angle	Wet or Green More than 9% Cutting Angle
Ash	10°	15°
Basswood	10	20
Beech	10	15
Birch	10	15
Cedar	20	25
Cherry	10	15
Chestnut	5	10
Cottonwood	5	10
Cypress	5	10
Elm, Hard	0	5
Elm, Soft	5	10
Fir	15	15
Gum	20	25
Hemlock	15	20
Hickory	5	10
Mahogany	10	15
Maple	5	10
Oak	10	15
Oak Qtd.	10	15
Pine, Yellow	20	25
Pine, White	20	30
Pine, Ponderosa	20	30
Poplar	20	35
Redwood	5	15
Spruce	20	25
Sycamore	5	10
Walnut	5	10