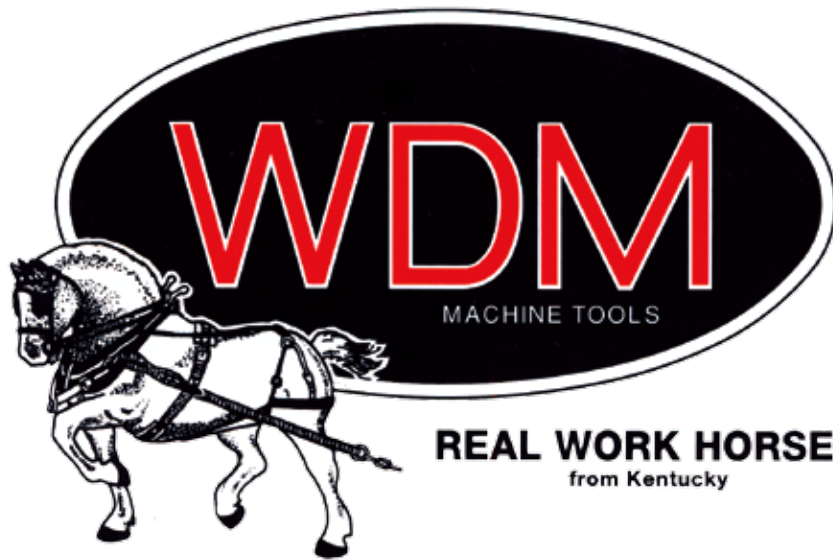


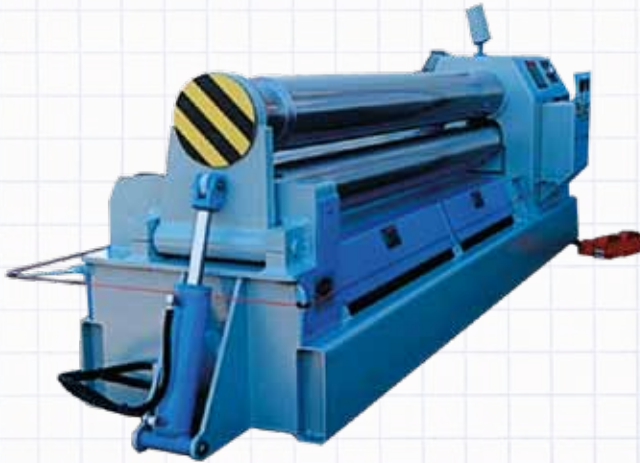
# Hydraulic Initial Pinch Plate Bending Machines



## WDM K Series

# INITIAL PINCH PLATE BENDING ROLLS

The WDM hydraulic initial pinch plate bending machine; models K-5 to K-19 are well designed, robust machines that feature a wedge actuated pinch roll positioning system. This provides for an accurate and parallel pinch roll position. The rear bending roll is positioned with heavy duty master and slave hydraulic cylinder arrangement. The accurately machined rolls turn on sealed spherical roller bearings with extended maintenance period of five years or more, in most cases. The heavy fabricated steel main frame contains a hydraulic reservoir for a quiet integrated hydraulic system. In designing the system, much attention is given to the efficiency of components which results in a cool operation. The standard manual hydraulic valves provide an excellent feel of the forming operation. The simple analog dial pointer (clock) style roll position indicator is very practical and trouble free. If however you prefer a more sophisticated machine we offer many options and enhancements in control styles and position indication. We even offer a fully automatic PLC type control. See listing of standard and non-standard options on pages 6 and 7. If you have a special need beyond this we are glad to accommodate it.



K-10 viewed from the drop end.



K-6-5 (1/4" x 5') Standard machine with special circular grooves and optional foot pedal FP.



K-10-8 (13/32" x 8') with optional swinging console SC.

## WARRANTY

Waldemar Design & Machine L.L.C. warrants its products to be free from defects in material and workmanship for a period of one year from date of manufacture.

Waldemar's obligation is to replace, free of charge, any defective part of any product that its inspection shows to be defective, including the lowest priced round trip transportation to Waldemar's plant in Liberty, KY, from any point in the 48 contiguous states.

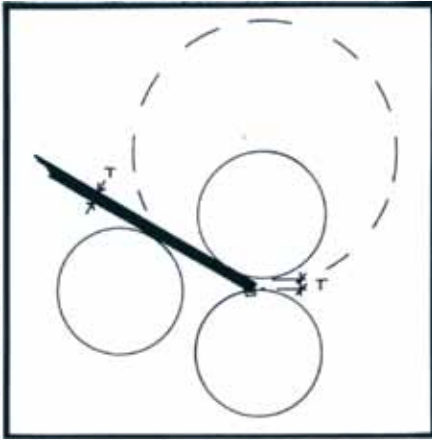
Waldemar shall not be liable for installation and removal expense, loss of time, manufacturing costs, labor, materials, loss of profits, or consequential damages direct or indirect, because of defective products. There is no other warranty, express or implied.



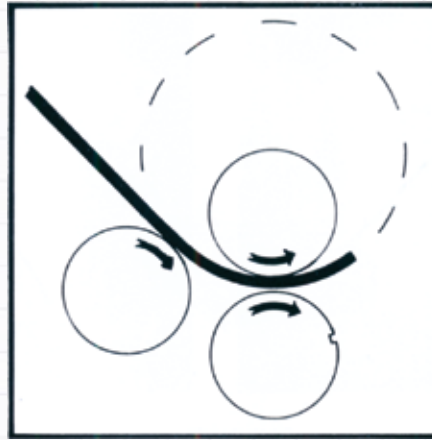
K-6-5 (1/4" x 5') plate bending roll. Showing rear side of machine.



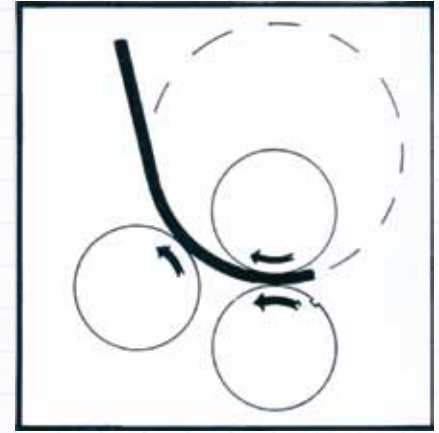
# Forming Procedure



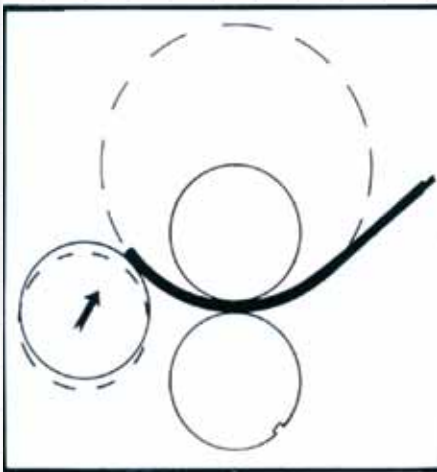
Pinch roll is adjusted to metal thickness. Bending roll is adjusted to pre-bend position. Workpiece is entered from rear of machine and engaged into starting/squaring groove.



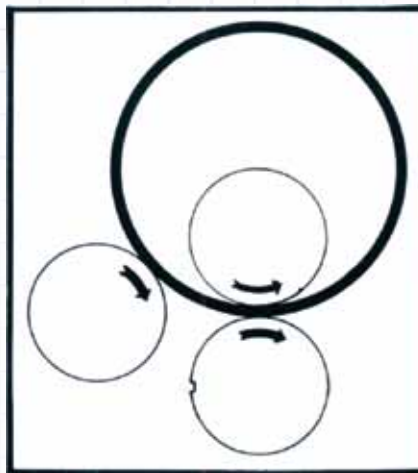
Rolls are rotated to feed work piece into machine a short distance, completing the pre-bend.



Rolls are rotated in opposite direction and workpiece is removed.



Workpiece is turned and re-entered from opposite (front) side of machine. Bending roll is adjusted upwards to finish roll position.



Rolls are rotated and workpiece rolled to completion.



Standard operator's control station with optional foot pedal.

## WORKPIECE ACCURACY

In the final analysis, the proof of performance is the acceptability of the finished workpiece. With uniform quality of the workpiece blanks, our machines have historically rolled workpieces within 1/2 of 1% of perfect concentricity.

There are many variables that can affect the accuracy or repeatability either minimally or drastically. These include, but are not limited to, the following: varying material thickness; varying material temper; uneven cross section of material, i.e. wide and narrow profile of workpiece or a workpiece with holes or cutouts; and direction of grain of material.

Many of these variables can be overcome by various means. An important element for success is a knowledgeable operator who understands the characteristics of the material being formed and the various functions of the machine.

If the workpiece being formed is anything other than uniform material and cylinders, and you are unsure if your pieces can be rolled practically, please, provide us with a drawing or sketch and we will be happy to evaluate it.

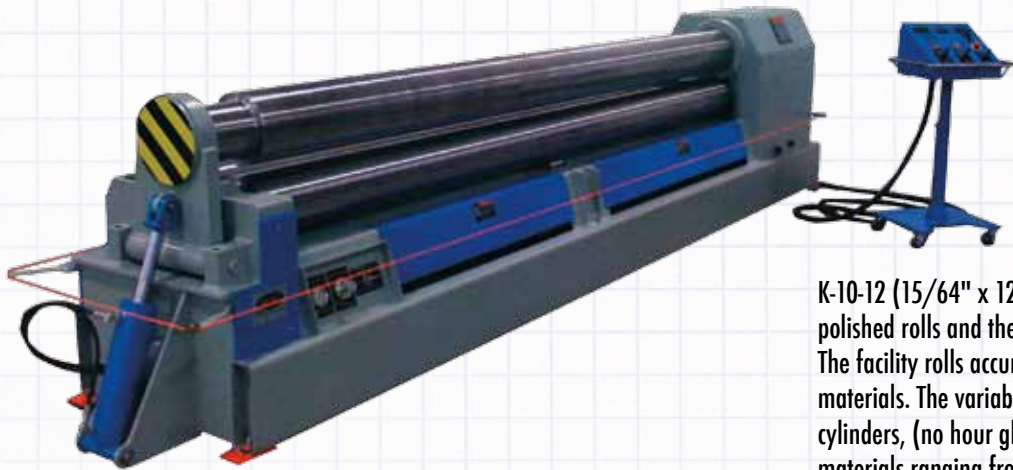
# OTHER INITIAL PINCH MODELS BY WDM...



K-9-12 (.164" x 12') with standard dial pointer roll position indicator on bending roll. This machine is used to roll column covers.



K-10-8 (13/32" x 8')  
This machine is equipped with optional 421 DRO to replace the dial pointer roll position.



K-10-12 (15/64" x 12') This machine has special hardened and polished rolls and the new roll crown compensation feature. The facility rolls accurate column covers from many different materials. The variable crown control allows them to roll straight cylinders, (no hour glass or barrel shape) in a wide variety of materials ranging from stainless steel to aluminum/plastic composite.

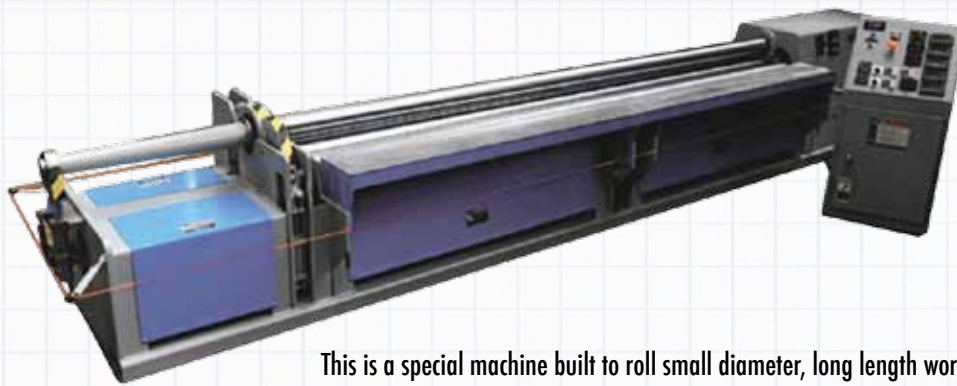


Group of K machines nearing completion.



K-6-6 (1/4" x 6') with optional cone attachment and roll rotation foot pedal.





This is a special machine built to roll small diameter, long length work pieces. Notice the extended housing at the drive end and the double bearing at the drop end. This allows the top roll to be pre-loaded there by rigidizing it and increasing the capacity. This machine is the four roll design but the K Series can also be built with this feature. If you have needs in this area, inquire.

## SOME OUTSTANDING FEATURES



Hydraulic reservoir is integrated into the structural frame which helps dissipate the heat. Notice the convenient location of oil fill and level temperature gauges.



### CONE ATTACHMENT

The cone attachment consists of an indexable and replaceable hardened steel nose mounted on a bronze or composite - bushed steel sleeve which slides onto the reduced diameter portion of the top roll next to the drop end. It is locked into position by the drop-end and removed when not rolling cones. Heavy duty cone attachments are available for shops doing large amounts of cone rolling.



Notice simple clean lines and robust housing which contains the drive system and hydraulic components.

# CAPACITY AND RATING SPECIFICATIONS

## STANDARD FEATURES

- 1045 Steel rolls machined to 63 micro inches
- Total hydraulic operation
- Instant start-stop-reverse
- Roll speed infinitely variable 0 to 22 FPM
- 2 Roll drive
- 3 Phase 230/460 Volts
- Electrics to NFPA-79 specifications
- 120 Volt Control Circuit
- Overload protected
- TEFC motor
- Quiet hydraulic system
- Haze gray epoxy and blue enamel finish (V.O.C. compliant)
- Sealed spherical roller bearings on all main points
- Rolls tilt for cone rolling
- Rolls driven through efficient spur gear drives or planetary speed reducers
- Dial pointer type roll position indicators
- Horizontal starting groove in pinch roll (Optional at no charge)
- Hydraulically actuated drop-end
- Accurately machined, compact, streamlined, all welded steel frame
- 1 year warranty
- Made in Liberty, KY, USA using components from American and worldwide companies

## STANDARD OPTIONS

- Hardened and polished rolls 28-32 Rc. (4140 HT)
- Hardened and polished rolls 55-60 Rc. (1045 flame hardened)
- Other alloys and finishes are available , inquire
- Squaring grooves in lower rolls
- Circular grooves in rolls for rolling rods or sheets with wire edges 3/8, 1/2, and 5/8
- Other special circular grooves for extrusions etc.
- Forward & reverse guarded foot pedal for roll rotation
- Cone attachment
- Third roll drive
- Heavy duty cone attachment
- Side supports
- Overhead supports
- Ejectors
- DRO for roll position instead of dial pointer indicator (**Series 421**)
- Same as above on both ends of rolls (**Series 422**)
- DRO with 2-preset stops for roll position indicators and control (**Series 423**)
- Same as above with an additional DRO to show position of outboard end of roll (**Series 424**) useful for cone rolling
- DRO length indicator to show length rolled to facilitate forming of flat-radius-flat, ect. type workpiece (**Series L**)
- Same as above with 2 presets (**Series LP**)
- Same as above with 6 presets (**Series LP6**)
- Electric roving pendant control to replace manual valves on machine housing
- Moveable console electric control to replace manual valves on machine housing

Model	Rated Capacity	Capacity 12x Top Roll Dia.	Nominal Top Roll Dia.	Horse-power	Size L x W x H	Approximate Weight	Bar on Edge	Optional Capacity Angle
K-5-4	.164 x 4	5/16 x 4	5	3	82 x 23 x 35	1,627		
K-6-4	5/16 x 4	3/8 x 4	6	5	84 x 28 x 38	2,358	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-4	3/8 x 4	1/2 x 4	7	5	84 x 28 x 38	3,142	2 x 3/4	1-1/2 x 1-1/2 x 3/4
K-8-4	1/2 x 4	5/8 x 4	8	7.5	95 x 31 x 40	4,128	2-1/2 x 1	2 x 2 x 1/4
K-9-4	5/8 x 4	23/32 x 4	9	10	95 x 31 x 40	5,252	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-4	23/32 x 4	7/8 x 4	10	10	98 x 33 x 46	7,387	3 x 3	3 x 3 x 3/8
K-11-4	7/8 x 4	1-1/16 x 4	11	15	98 x 33 x 46	9,137	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-4	1-1/16 x 4	1-1/4 x 4	12	20	100 x 35 x 50	10,570	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-4	1-1/4 x 4	1-7/16 x 4	13	25	100 x 35 x 50	12,465	4 x 1-1/2	4 x 4 x 1/2
K-14-4	1-7/16 x 4	1-5/8 x 4	14	40	108 x 60 x 66	15,588	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-4	1-5/8 x 4	1-3/4 x 4	15	50	108 x 60 x 66	18,300	5 x 2-1/2	4 x 4 x 1/2
K-16-4	1-3/4 x 4	2 x 4	16	50	111 x 64 x 68	20,078	5 x 2-1/2	5 x 5 x 1/2*
K-17-4	2 x 4	2-1/4 x 4	17	60	111 x 64 x 68	23,052	5 x 3	5 x 5 x 1/2*
K-18-4	2-1/4 x 4	2-1/2 x 4	18	60	123 x 72 x 78	25,835	6 x 2-1/2	6 x 6 x 3/4*
K-19-4	2-1/2 x 4	2-3/4 x 4	19	75	123 x 72 x 78	28,952	6 x 3	6 x 6 x 3/4*
K-5-5	.135 x 5	1/4 x 5	5	3	94 x 23 x 35	1,902		
K-6-5	1/4 x 5	5/16 x 5	6	5	96 x 28 x 38	2,757	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-5	5/16 x 5	3/8 x 5	7	5	96 x 28 x 38	3,672	2 x 3/4	1-1/2 x 1-1/2 x 3/4
K-8-5	3/8 x 5	1/2 x 5	8	7.5	107 x 31 x 40	4,825	2-1/2 x 1	2 x 2 x 1/4
K-9-5	1/2 x 5	5/8 x 5	9	10	107 x 31 x 40	6,137	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-5	5/8 x 5	23/32 x 5	10	10	110 x 33 x 46	8,463	3 x 1	3 x 3 x 3/8
K-11-5	23/32 x 5	7/8 x 5	11	15	110 x 33 x 46	10,468	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-5	7/8 x 5	1-1/16 x 5	12	20	112 x 35 x 50	12,112	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-5	1-1/16 x 5	1-1/4 x 5	13	25	112 x 35 x 50	14,283	4 x 1-1/2	4 x 4 x 1/2
K-14-5	1-1/4 x 5	1-7/16 x 5	14	40	120 x 60 x 66	17,565	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-5	1-7/16 x 5	1-5/8 x 5	15	50	120 x 60 x 66	20,818	5 x 2-1/2	4 x 4 x 1/2
K-16-5	1-5/8 x 5	1-3/4 x 5	16	50	123 x 64 x 68	22,828	5 x 2-1/2	5 x 5 x 1/2*
K-17-5	1-3/4 x 5	2 x 5	17	60	123 x 64 x 68	26,215	5 x 3	5 x 5 x 1/2*
K-18-5	2 x 5	2-3/16 x 5	18	60	135 x 72 x 78	29,380	6 x 2-1/2	5 x 6 x 3/4*
K-19-5	2-3/16 x 5	2-1/4 x 5	19	75	135 x 72 x 78	32,923	6 x 3	6 x 6 x 3/4*
K-5-6	.104 x 6	7/32 x 6	5	3	106 x 23 x 35	2,177		
K-6-6	7/32 x 6	9/32 x 6	6	5	108 x 28 x 38	3,155	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-6	9/32 x 6	3/8 x 6	7	5	108 x 28 x 38	4,200	2 x 3/4	1-1/2 x 1-1/2 x 3/4
K-8-6	3/8 x 6	7/16 x 6	8	7.5	119 x 31 x 40	5,522	2-1/2 x 1	2 x 2 x 1/4
K-9-6	7/16 x 6	9/16 x 6	9	10	119 x 31 x 40	7,022	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-6	9/16 x 6	11/16 x 6	10	10	122 x 33 x 46	9,540	3 x 1	3 x 3 x 3/8
K-11-6	11/16 x 6	13/16 x 6	11	15	122 x 33 x 46	11,802	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-6	13/16 x 6	1 x 6	12	20	124 x 35 x 50	13,653	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-6	1 x 6	1-1/8 x 6	13	25	124 x 35 x 50	16,100	4 x 1-1/2	4 x 4 x 1/2
K-14-6	1-1/8 x 6	1-1/4 x 6	14	40	132 x 60 x 66	19,682	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-6	1-1/4 x 6	1-3/8 x 6	15	50	132 x 60 x 66	23,335	5 x 2-1/2	4 x 4 x 1/2
K-16-6	1-3/8 x 6	1-1/2 x 6	16	50	135 x 64 x 68	25,582	5 x 2-1/2	5 x 5 x 1/2*
K-17-6	1-1/2 x 6	1-5/8 x 6	17	60	135 x 64 x 68	29,378	5 x 3	5 x 5 x 1/2*
K-18-6	1-5/8 x 6	1-3/4 x 6	18	60	147 x 72 x 78	32,922	6 x 2-1/2	6 x 6 x 3/4*
K-19-6	1-3/4 x 6	2 x 6	19	75	147 x 72 x 78	36,897	6 x 3	6 x 6 x 3/4*



Model	Rated Capacity	Capacity 12x Top Roll Dia	Nominal Top Roll Diameter	Horsepower	Size L x W x H	Approximate Weight	Bar on Edge	Capacity Angle
K-5-8	.060 x 8	.140 x 8	5	3	130 x 23 x 35	2,727		
K-6-8	.140 x 8	3/16 x 8	6	5	132 x 28 x 38	3,948	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-8	3/16 x 8	1/4 x 8	7	5	132 x 28 x 38	5,258	2 x 3/4	1-1/2 x 1-1/2 x 1/4
K-8-8	1/4 x 8	5/16 x 8	8	7.5	143 x 31 x 40	6,915	2-1/2 x 1	2 x 2 x 1/4
K-9-8	5/16 x 8	13/32 x 8	9	10	143 x 31 x 40	8,795	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-8	13/32 x 8	33/64 x 8	10	10	146 x 33 x 46	11,695	3 x 1	3 x 3 x 3/8
K-11-8	33/64 x 8	5/8 x 8	11	15	146 x 33 x 46	14,468	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-8	5/8 x 8	47/64 x 8	12	20	148 x 35 x 50	16,735	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-8	47/64 x 8	55/64 x 8	13	25	148 x 35 x 50	19,737	4 x 1-1/2	4 x 4 x 1/2
K-14-8	55/64 x 8	63/64 x 8	14	40	156 x 60 x 66	22,983	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-8	63/64 x 8	1-7/64 x 8	15	50	156 x 60 x 66	27,255	5 x 2-1/2	4 x 4 x 1/2
K-16-8	1-7/64 x 8	1-17/64 x 8	16	50	159 x 64 x 68	29,868	5 x 2-1/2	5 x 5 x 1/2*
K-17-8	1-17/64 x 8	1-27/64 x 8	17	60	159 x 64 x 68	34,308	5 x 3	5 x 5 x 1/2*
K-18-8	1-27/64 x 8	1-37/64 x 8	18	60	171 x 72 x 78	38,450	6 x 2-1/2	6 x 6 x 3/4*
K-19-8	1-37/64 x 8	1-47/64 x 8	19	75	171 x 72 x 78	43,097	6 x 3	6 x 6 x 3/4*
K-5-10	.048 x 10	.094 x 10	5	3	154 x 23 x 35	3,275		
K-6-10	.094 x 10	.125 x 10	6	5	156 x 28 x 38	4,745	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-10	.125 x 10	11/64 x 10	7	5	156 x 28 x 38	6,317	2 x 3/4	1-1/2 x 1-1/2 x 1/4
K-8-10	11/64 x 10	15/64 x 10	8	7.5	167 x 31 x 40	8,592	2-1/2 x 1	2 x 2 x 1/4
K-9-10	15/64 x 10	5/16 x 10	9	10	167 x 31 x 40	10,565	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-10	5/16 x 10	25/64 x 10	10	10	170 x 33 x 46	13,852	3 x 1	3 x 3 x 3/8
K-11-10	25/64 x 10	1/2 x 10	11	15	170 x 33 x 46	17,137	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-10	1/2 x 10	19/32 x 10	12	20	172 x 35 x 50	19,817	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-10	19/32 x 10	11/16 x 10	13	25	172 x 35 x 50	23,370	4 x 1-1/2	4 x 4 x 1/2
K-14-10	11/16 x 10	51/64 x 10	14	40	180 x 60 x 66	28,150	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-10	51/64 x 10	57/64 x 10	15	50	180 x 60 x 66	33,403	5 x 2-1/2	4 x 4 x 1/2
K-16-10	57/64 x 10	1-1/32 x 10	16	50	183 x 64 x 68	36,585	5 x 2-1/2	5 x 5 x 1/2*
K-17-10	1-1/32 x 10	1-5/32 x 10	17	60	183 x 64 x 68	42,025	5 x 3	5 x 5 x 1/2*
K-18-10	1-5/32 x 10	1-9/32 x 10	18	60	195 x 72 x 78	47,095	6 x 2-1/2	5 x 6 x 3/4*
K-19-10	1-9/32 x 10	1-13/32 x 10	19	75	195 x 72 x 78	52,785	6 x 3	6 x 6 x 3/4*
K-5-12	.035 x 12	.062 x 12	5	3	178 x 23 x 35	3,823		
K-6-12	.062 x 12	.094 x 12	6	5	180 x 28 x 38	5,540	1-1/2 x 3/4	1-1/4 x 1-1/4 x 3/16
K-7-12	.094 x 12	.140 x 12	7	5	180 x 28 x 38	7,373	2 x 3/4	1-1/2 x 1-1/2 x 1/4
K-8-12	.125 x 12	11/64 x 12	8	7.5	191 x 31 x 40	9,697	2-1/2 x 1	2 x 2 x 1/4
K-9-12	11/64 x 12	15/64 x 12	9	10	191 x 31 x 40	12,335	2-1/2 x 1	2-1/2 x 2-1/2 x 3/8
K-10-12	15/64 x 12	9/32 x 12	10	10	194 x 33 x 46	16,003	3 x 1	3 x 3 x 3/8
K-11-12	9/32 x 12	3/8 x 12	11	15	194 x 33 x 46	19,800	3 x 1-1/4	3-1/2 x 3-1/2 x 1/2
K-12-12	3/8 x 12	7/16 x 12	12	20	196 x 35 x 50	22,897	3-1/2 x 1-1/2	4 x 4 x 1/2
K-13-12	7/16 x 12	35/64 x 12	13	25	196 x 35 x 50	27,003	4 x 1-1/2	4 x 4 x 1/2
K-14-2	35/64 x 12	5/8 x 12	14	40	204 x 60 x 66	32,385	4-1/2 x 1-3/4	4 x 4 x 1/2
K-15-12	5/8 x 12	3/4 x 12	15	50	204 x 60 x 66	38,435	5 x 2-1/2	4 x 4 x 1/2
K-16-2	3/4 x 12	13/16 x 12	16	50	207 x 64 x 68	42,087	5 x 2-1/2	5 x 5 x 1/2*
K-17-12	13/16 x 12	15/16 x 12	17	60	207 x 64 x 68	48,356	5 x 3	5 x 5 x 1/2*
K-18-12	15/16 x 12	1 x 12	18	60	219 x 72 x 78	54,178	6 x 2-1/2	6 x 6 x 3/4*
K-19-12	1 x 12	1-1/8 x 12	19	75	219 x 72 x 78	60,730	6 x 3	6 x 6 x 3/4*

- Automatic cycle PLC controlled for high production (**Series 425-4**)
- Independent roll rotation and roll adjustment speed control (standard on larger machines K-12 and above)
- Side supports
- Overhead supports, feed tables, automatic feeders, manual and automatic ejectors
- Special electrics
- Special customer-supplied paint

#### NON-STANDARD OPTIONS

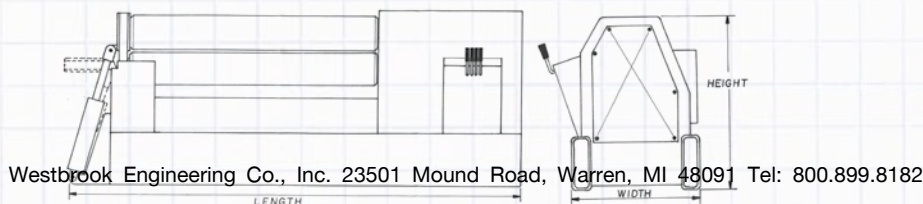
- Chromed rolls
- Special extra smooth rolls
- Special grooves in rolls
- High-speed version

#### TRAINING

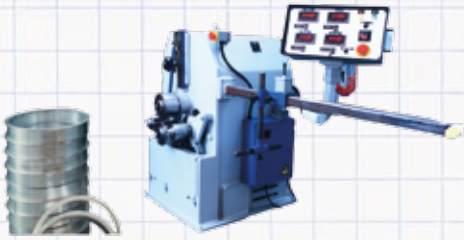
Waldemar Design & Machine L. L. C. strongly encourages the dealer and/or customer to visit our plant upon completion of the machine to receive free training on the machine operation and maintenance.

#### WARNING

We have incorporated safety features into this machine. It is the responsibility of the owner / employer to provide point-of-operation guards or operating procedures necessary to adequately protect operator.



# Other Machines By WDM



Model AR-24 (2 x 2 angle capacity) four-roll angle roll rolling machine hole rims automatically.



403-7-6 (9/32" x 6') with 423-3 Control



101-10-8 (1/2" x 8') hydraulic pinch pyramid plate bending machine.



Model AR-31 (3 x 3 x 3/8 Capacity) angle roll with standard AR-520 control.



B-3.5-36 (12 gauge x 3') sheet metal roll



B-6-72 (7/32" x 6') with rod grooves. This machine is an economical alternative to the K series machine.

## MADE IN THE USA

For two generations the family business of Waldemar Design and Machine has been designing and manufacturing metal forming machines for industry small and large. We build these machines in a simple setting, exercising serious craftsmanship and integrity. Many of the high quality components are manufactured in our shops in Kentucky, USA, or purchased from domestic or worldwide suppliers. Special attention is paid to quality, availability, and durability.

Your satisfaction and the performance of our machines is held in highest regard.

-Owners