

RMG Integrated Multi-Roll Wire Straighteners

RMG's unique design, The Integrator®, provides users with the following benefits:

- 1) The ability to control the wire's straightness with a single-knob or single-screw adjustment.
- 2) The ability to accommodate a very wide range of wire diameters by being able to mount many different rolls, on various center distances on a single assembly.

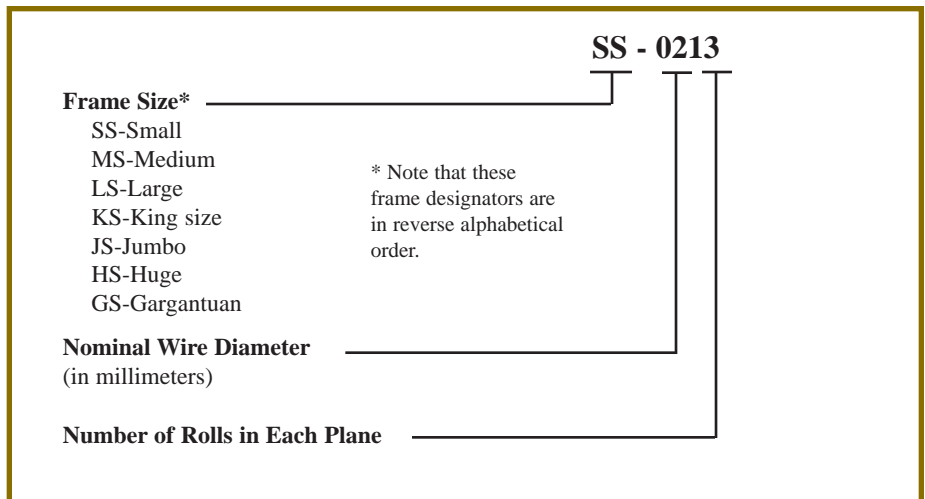
Features and Benefits

RMG Multi-Roll Wire Straighteners offer the following advantages:

1. Single adjustment straightness control.
2. Wide range of wire or rod diameters. A minimum range ratio of 4 to 1 can be accommodated on any RMG straightener frame size.
3. Complete line from .030" to 1.75" (0.8 mm to 45 mm).
4. Modular construction. Most RMG Integrated Wire Straighteners can be changed in the customer's plant from left-to-right or right-to-left wire flow, and for either horizontal or vertical uncoiling. Complete assemblies can be furnished using a different number of rolls in each plane.
5. Many unique construction features, including universal X-Y-Z axis adjustment, sealed double-row ball bearing construction, and carbide entrance guide bushings.
6. Use with either power-driven feed rolls or power-driven uncoilers. RMG custom-designed adjustable speed drives can be used to automate and provide controlled, power-driven feeding systems for certain types of feeding, straightening and cutting systems.

Seven basic frames accommodate all RMG Integrated Wire Assemblies. These frames fall into three separate categories:

Typical Model Designation



Model SS and MS Straighteners

The most universal assemblies for easy conversion from one diameter range to another. One has only to unscrew one set of rolls and screw in another set to convert it from one diameter range to another. All Model SS and MS mounting frames include pre-tapped holes for roll changing at any time in the future.

Model LS, KS and JS Straighteners

These models are converted from one range to another by replacing entire sub-assemblies referred to as "rails," on which the individual rolls are mounted. The bending loads imposed on the shafts by relatively larger wire and rod diameters preclude the use of screw-in mounts.

Model HS and GS Straighteners.

This type of straightener cannot incorporate easily-removable rolls and mounting shafts or studs. This includes any type of straightener on which a centralized grease lubrication system is specified.

RMG Integrated Multi-Roll Wire Straighteners

All straighteners (except the larger HS and GS units) are available in standard assemblies as either single-plane or double-plane units. Most RMG single-plane assemblies can be converted into double plane assemblies at the customer's plant.

6.2 Power-Driven Feed Rolls

Power-driven feed roll assemblies can be ordered for all Model LS and larger straightener assemblies. These are usually powered by a 5 HP adjustable speed drive, but many optional drive arrangements are available with custom-designed transmission assemblies.

Power-Driven Uncoiler Combinations

RMG's power-driven uncoilers are used for rod and wire diameters in a range of .625" - 1.75" (16 - 45 mm). Type KS and larger straightener assemblies can be easily adapted to these power-driven uncoilers.

Notes on Selection Criteria

1. All ratings are based on mild steel. Consult RMG for all applications involving alloy, high tensile wire, stainless steel, and non-ferrous material.

2. Straightness quality can usually be improved and set-up time can usually be minimized by increasing the number of rolls.

Roll-type straighteners, including RMG's Integrator, *do not* achieve perfect straightness. Only a rotary arbor type straightener can consistently provide this straightness quality.

3. Optimum L/d values are usually in a range of 6 to 10 for mild steel. Harder or tougher materials favor a higher value; softer, non-ferrous materials favor lower values.

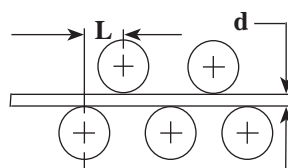
4. Optimum L/d values are in a range of 6 to 10. The advantages involved in being able to change (1) the number of rolls, (2) the roll center distance and (3) the roll diameter (with a required change in wire diameter) should be obvious.

5. Two-plane straighteners can be assembled to permit wire flow from left-to-right or right-to-left and/or with horizontal plane on right or left. Complete adjustments are provided for wire line alignment in both axis.

6. The Model GS-4005-00 uses sealed double row spherical roller bearings.

The Integrator® Selection Criteria

Size Designator—mm	02	04	06	08	12	16	20	30	40	
Size Designator—inch	.080	.160	.240	.310	.470	.630	.780	1.10	1.57	
Number of Rolls (2)	SS (Small)	13	7	5						
	MS (Medium)		9	7	5					
	LS (Large)		13	9	7	5				
	KS (King-size)				11	7	5			
	JS (Jumbo)					9	7	5		
	HS (Huge)								5	
GS (Gargantuan)									5	
Roll Diameter	.78	1.25	1.78	2.38	4.00	5.00	5.00	7.00	10.00	
Center Spacing (L)	.63	1.13	1.50	2.00	3.00	4.50	6.00	8.00	11.00	
Recommended Wire Diameter (d)	Minimum	.045	.080	.100	.125	.200	.350	.500	.700	1.00
	Nominal	.080	.160	.240	.310	.470	.630	.780	1.10	1.57
	Maximum	.100	.175	.250	.340	.500	.700	.870	1.30	1.75
L/d Ratio (3)	Minimum	21.0	14.1	15.0	16.0	15.0	12.9	12.0	11.4	11.0
	Nominal	7.9	7.1	6.3	6.5	6.4	7.1	7.7	7.3	7.0
	Maximum	6.3	6.5	6.0	5.9	6.0	6.4	6.9	6.2	6.3
Roll Part Number	M-160	M-161	M-162	M-163	4434	288-4	3055	935	3122	
Type of Bearings	Sealed, double-row, ball bearings				Single-row ball bearings		Double-row ball bearings		Note (4)	



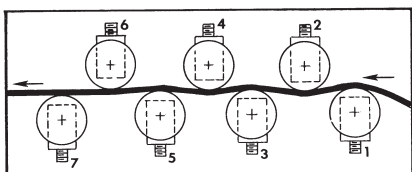
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RMG Integrated Multi-Roll Wire Straighteners

General Specifications

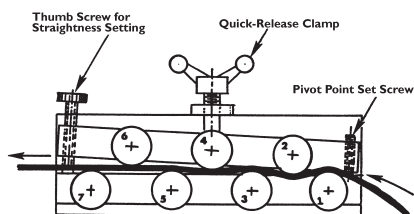


Almost all roll-type wire straighteners use the reverse-bending technique illustrated below.

The object is to cause the wire to reversibly flex beyond its elastic limit as it traverses through the straightening rolls. Most straighteners in use today provide a screw adjustment on each individual roll and the operator individually adjusts each roll to achieve the desired straightness.

The usual set-up procedure is to adjust the rolls so that a greater degree of off-set or reverse-bending is imposed on the upstream rolls at positions 1-2-3. The downstream rolls (5-6-7) are adjusted so that gradually less reverse-bending is imposed upon the wire as it traverses through the straightener. The final set of rolls should impose just enough reverse-bending to flex the wire just very slightly beyond its elastic limit and hope that it “springs back” to a reasonably straight condition.

How The Integrator® works



All lower rolls are attached to the fixed lower plate along a straight line. The upper set of rolls are attached to a tiltable upper plate which pivots about a set screw. This pivot-point set screw determines the degree of relatively-higher reverse-bending imposed upon the wire on the entering end of the

straightener and usually requires re-adjustment only when the wire diameter is changed.

The force required for reverse-bending the wire is imposed by the quick-release handle working against the upper plate assembly. The upper plate is slotted and secured in place by two socket head cap screws. Re-tightening of the cap screws after each opening and closing of the straightener is usually necessary only on intermittent-feed applications.

The quick-release handle is screwed downwards, tilting the upper movable plate assembly until it bottoms out against the setting of the thumb screw. This thumb screw is adjusted up or down so that the wire exiting from the straightener has been subjected to minimum reverse bending at rolls 5-6-7 just enough to attain desired straightness. Essentially, all rolls are positioned relative to each other, and in a controlled, integrated manner with this single position-limiting thumb screw.

The Integrator’s Unique Features “Three-in-One” Construction

Two basic-size straighteners each accommodate three different sets of rolls on different center distances. Therefore, RMG can offer six different models in two basic sizes. To change the straightener over to a different wire diameter range, simply unscrew one set of rolls and replace with another set.

One-Knob Straightness Setting

Saves operator time and effort and achieves optimum wire straightness with minimum pull-back being imposed upon the wire. Straightness-setting thumb screw is changeable from left side to right side, permitting either left-to-right or right-to-left wire flow.

Quick-Release with Memory Return

Whenever the quick-release handle is disengaged and re-engaged, it always returns the upper roll assembly to the predetermined position.

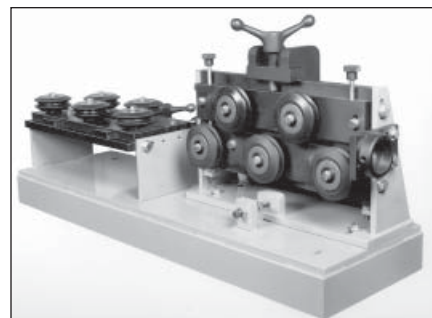
Easy Conversion to Two Planes

Complete adjustments are provided for wire-line alignment in both axis. Standardized mounting holes are provided to permit field conversion from left-to-right or right-to-left with the horizontal plane mounted either right or left.

Optional Accessories

We provide a number of standard optional accessories and mounting arrangements with RMG integrated wire and rod straighteners:

1. Heavy-duty frames for mounting Model SS and larger straighteners. These are typically supplied when ever RMG power-driven feed rolls are required.
2. Fixed-speed or adjustable-speed drives for power-driven feed rolls.
3. Entrance roller guides and end-of-coil detection switches.
4. Straightener benches are available to support all sizes.



RMG Model KS-1605
Two-Plane Straightener.

Type SS and MS - Small and Medium Straighteners

RMG Integrated Multi-Roll Wire Straighteners

6.4

Specifications for Type SS - Small Straighteners

MODEL SS-0213

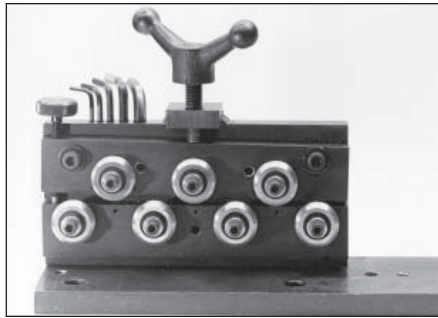
Minimum Wire Diameter	.045" (1.1 mm)
Nominal Wire Diameter	.080" (2.0 mm)
Maximum Wire Diameter	.100" (2.5 mm)
Number of Rolls	13
Outside Diameter of Rolls	.780" (19.8 mm)
Pitch Diameter of Rolls	.700" (17.8 mm)
Roll Center Distance	.625" (15.8 mm)
Nominal L/d Value	7.8

MODEL SS-0407

Minimum Wire Diameter	.080" (2.0 mm)
Nominal Wire Diameter	.160" (4.0 mm)
Maximum Wire Diameter	.175" (4.5 mm)
Number of Rolls	7
Outside Diameter of Rolls	1.25" (31.8 mm)
Pitch Diameter of Rolls	1.10" (28.0 mm)
Roll Center Distance	1.13" (28.7 mm)
Nominal L/d Value	7.2

MODEL SS-0605

Minimum Wire Diameter	.100" (2.5 mm)
Nominal Wire Diameter	.236" (6.0 mm)
Maximum Wire Diameter	.250" (6.4 mm)
Number of Rolls	5
Outside Diameter of Rolls	1.78" (45.2 mm)
Pitch Diameter of Rolls	1.60" (40.5 mm)
Roll Center Distance	1.50" (38.1 mm)
Nominal L/d Value	6.4



RMG Model SS-0407-02 Straightener

Specifications for Type MS - Medium Straighteners

MODEL MS-0409

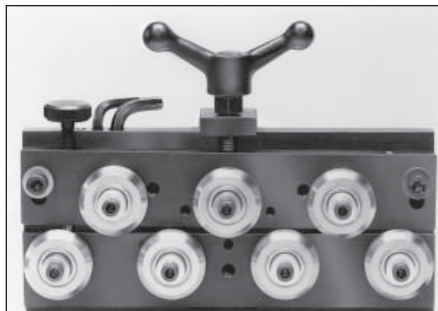
Minimum Wire Diameter	.080" (2.0 mm)
Nominal Wire Diameter	.160" (4.0 mm)
Maximum Wire Diameter	.175" (4.5 mm)
Number of Rolls	9
Outside Diameter of Rolls	1.25" (31.8 mm)
Pitch Diameter of Rolls	1.10" (28.0 mm)
Roll Center Distance	1.13" (28.7 mm)
Nominal L/d Value	7.2

MODEL MS-0607

Minimum Wire Diameter	.100" (2.5 mm)
Nominal Wire Diameter	.236" (6.0 mm)
Maximum Wire Diameter	.250" (6.4 mm)
Number of Rolls	7
Outside Diameter of Rolls	1.78" (45.2 mm)
Pitch Diameter of Rolls	1.60" (40.5 mm)
Roll Center Distance	1.50" (38.1 mm)
Nominal L/d Value	6.4

MODEL MS-0805

Minimum Wire Diameter	.125" (3.2 mm)
Nominal Wire Diameter	.312" (8.0 mm)
Maximum Wire Diameter	.340" (8.6 mm)
Number of Rolls	5
Outside Diameter of Rolls	2.38" (60.5 mm)
Pitch Diameter of Rolls	2.25" (57.2 mm)
Roll Center Distance	2.00" (50.8 mm)
Nominal L/d Value	6.4

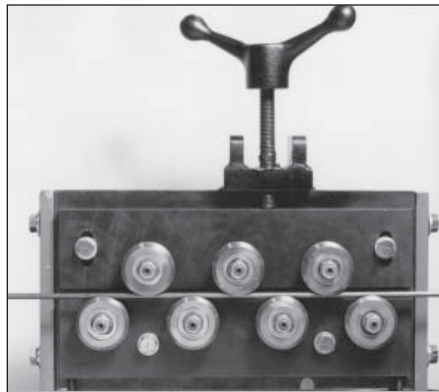


RMG Model MS-0607-01 Straightener

Specifications for
Type LS - Large Straighteners

MODEL LS-0413

Minimum Wire Diameter	.080" (2.0 mm)
Nominal Wire Diameter	.160" (4.0 mm)
Maximum Wire Diameter	.175" (4.5 mm)
Number of Rolls	13
Roll Diameter	1.25" (31.8 mm)
Roll Center Distance	1.13" (28.7 mm)



RMG Model LS-0807-02 Straightener

MODEL LS-0609

Minimum Wire Diameter	.100" (2.5 mm)
Nominal Wire Diameter	.240" (6.0 mm)
Maximum Wire Diameter	.250" (6.4 mm)
Number of Rolls	9
Roll Diameter	1.78" (45.2 mm)
Roll Center Distance	1.5" (38.0 mm)

MODEL LS-0807

Minimum Wire Diameter	.125" (3.2 mm)
Nominal Wire Diameter	.312" (8.0 mm)
Maximum Wire Diameter	.340" (8.6 mm)
Number of Rolls	7
Roll Diameter	2.38" (60.5 mm)
Roll Center Distance	2.00" (50.8 mm)

MODEL LS-1205

Minimum Wire Diameter	.200" (5.0 mm)
Nominal Wire Diameter	.470" (12.0 mm)
Maximum Wire Diameter	.500" (12.7 mm)
Number of Rolls	5
Roll Diameter	4.0" (102 mm)
Roll Center Distance	3.0" (76.0 mm)

Specifications for
Type KS - King-size
Straighteners

MODEL KS-0811

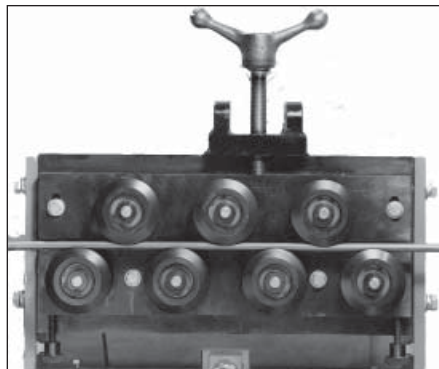
Minimum Wire Diameter	.125" (3.2 mm)
Nominal Wire Diameter	.312" (8.0 mm)
Maximum Wire Diameter	.340" (8.6 mm)
Number of Rolls	11
Roll Diameter	2.38" (60.5 mm)
Roll Center Distance	2.00" (50.8 mm)

MODEL KS-1207

Minimum Wire Diameter	.200" (5.0 mm)
Nominal Wire Diameter	.470" (12.0 mm)
Maximum Wire Diameter	.500" (12.7 mm)
Number of Rolls	7
Roll Diameter	4.00" (102 mm)
Roll Center Distance	3.00" (76.0 mm)

MODEL KS-1605

Minimum Wire Diameter	.350" (9.0 mm)
Nominal Wire Diameter	.630" (16.0 mm)
Maximum Wire Diameter	.700" (17.8 mm)
Number of Rolls	5
Roll Diameter	5.00" (127 mm)
Roll Center Distance	4.50" (114 mm)



RMG Model KS-1207-02 Straightener

Type JS-HS-GS Straighteners

RMG Integrated Multi-Roll Wire Straighteners

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MODEL JS-1209

Minimum Wire Diameter	.200" (5.0 mm)
Nominal Wire Diameter	.470" (12.0 mm)
Maximum Wire Diameter	.500" (12.7 mm)
Number of Rolls	9
Roll Diameter	4.00" (102 mm)
Roll Center Distance	3.00" (76.0 mm)

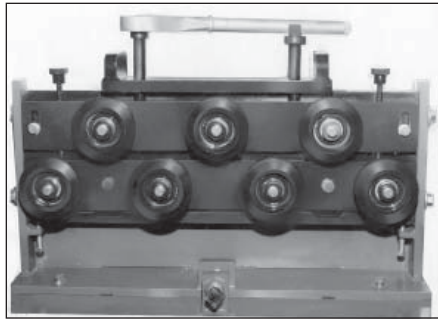
Specifications for Type JS - Jumbo Straighteners

MODEL JS-1607

Minimum Wire Diameter	.350" (9.0 mm)
Nominal Wire Diameter	.630" (16.0 mm)
Maximum Wire Diameter	.700" (17.8 mm)
Number of Rolls	7
Roll Diameter	5.00" (127 mm)
Roll Center Distance	4.50" (114 mm)

MODEL JS-2005

Minimum Wire Diameter	.500" (12.7 mm)
Nominal Wire Diameter	.780" (20.0 mm)
Maximum Wire Diameter	.870" (22.0 mm)
Number of Rolls	5
Roll Diameter	5.00" (127 mm)
Roll Center Distance	6.00" (152 mm)



RMG Model JS-1607-00 Straightener

Special HS and GS Straighteners



RMG Model 2428 Uncoiler
equipped with HS Straightener

These two large series of integrated wire and rod straighteners are available in only two model arrangements:

Model HS-3005 for wire and rod diameters in a range of .700" (17.8 mm) to 1.30" (33.0 mm)

Model GS-4005 for handling wire and rod diameters in a range of 1.00" (25.4 mm) to 1.75" (44.5 mm).

Because of the extreme difficulty in handling, pre-straightening and pre-feeding, an RMG Power Driven Uncoiler is almost always recommended for use with these larger straighteners.