
McELROY
FINTUBE
CATALOG AND REFERENCE GUIDE

McELROY BEGAN

operations in the 1950's and has grown from a two person startup in an Oklahoma garage, to the industry leader in the design and manufacture of machinery to produce finned tubes. Our first finning equipment was introduced in 1961 and has evolved to the digitally controlled No. 5 Machine which includes many labor saving options to simplify and reduce the cost of the customer's plant operations. The name McElroy is recognized worldwide as the most reliable, rugged, versatile, and technically advanced equipment in the marketplace.

McElroy's focus on innovation has further driven our growth. We have expanded countless times over our 60 years in business. Each expansion had one primary aim—gain physical space needed to bring our inventions to life and better meet our customers' demands. We currently have over 575,000 sq. ft. of manufacturing and office space spread across 25 acres.

In addition to our new facility, we are in the final stages of a multimillion dollar renovation to our existing facilities. The Fintube assembly area has undergone physical upgrades to improve our operations and increase our capacity.

Our investment in the state-of-the-art technology and commitment to quality work translates into productivity in your plant. Our commitment to stand behind our equipment and our customers remains steadfast.

Since 2012 McElroy finned tube products are offered through our expanding international network of offices. Machines, service, technical assistance and training are available through selected strategic offices.

McElroy provides information on our products, animations on the formation of different types of fins, videos and acceptable industry practices for different finned tubes through our website and mobile apps. For more information visit www.mcelroyfintube.com

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WARRANTY

McELROY APPLIED TUBE FINNING MACHINES

McElroy Manufacturing, Inc. warrants these products, Ex Works from Tulsa, Oklahoma, for 12 months from date of shipment against faulty material or workmanship, except for normal wear and abuse, with the exception of purchased items in which case that manufacturer's warranty applies.

McElroy further warrants the machine to produce the tube sizes and fin heights as stated when commissioning and training of personnel are conducted by McElroy technicians and the subsequent maintenance and repairs are made in compliance with McElroy specifications.

McElroy further warrants on the No. 5 machine, that finning speed with aluminum fin is 75% of maximum tube speed (RPM) for Wrap-On fin and 50% of maximum tube speed (RPM) for Imbedded aluminum fins on carbon steel tube when recommended coolant, lubricants, and materials are used.

DISCLAIMER OF LIABILITY

McElroy accepts no responsibility of liability for finned tubes. Operation and maintenance of the product is the responsibility of others. We recommend qualified procedures be followed when using McElroy fintube equipment. McElroy makes no other warranty of any kind whatsoever, express or implied; and all implied warranties of merchantability and fitness for a particular purpose which exceed the afore stated obligation are hereby disclaimed by McElroy.

PRODUCT IMPROVEMENT

McElroy reserves the right to make any changes in or improvements on its products without incurring any liability or obligation to update or change previously sold machines and/or the accessories thereto.

INFORMATION DISCLOSED

No information of knowledge heretofore or hereafter disclosed to McElroy in the performance of or in connection with the terms hereof, shall be deemed to be confidential or proprietary, unless otherwise expressly agreed to in writing by McElroy and any such information or knowledge shall be free from restrictions, other than a claim for patent infringement, is part of the consideration hereof.

PROPRIETARY RIGHTS

All proprietary rights pertaining to the equipment or the components of the equipment to be delivered by McElroy hereunder, and all patent rights therein, arising prior to, or in the course of, or as a result of the design or fabrication of the said product, are exclusively the property of McElroy.

LAW APPLICABLE

All sales shall be governed by the Uniform Commercial Code of Oklahoma, U.S.A.

SAFETY & QUALITY

McELROY QUALITY

McElroy is dedicated to Total Quality Management throughout the organization. Processes and procedures are documented utilizing our McElroy "SP" (Standard Practice) and "ES" (Engineering Standard) system. Building on our doctrine of empowerment, each process/procedure is the specific responsibility of the team member that performs the task.

Conformance to our Standards is the minimum requirement for any member of McElroy; and it is what allows us as a Company to consistently deliver products that provide the highest quality and performance in the industry.

Specific machine directives available upon request. Safety standards and declaration of conformity are available upon request.

McELROY SAFETY

At McElroy, your safety is our number one priority. All of our equipment, literature and training classes are strictly designed with the operator's safety in mind. Never operate machinery until you have read the manual completely and understand the safety and operation sections of your manual. Your safety and the safety of others depends upon care and judgment in the operation of the equipment. Product manuals and assembly drawings are provided to each end user and additional copies can be requested from your product specialist.

THE McELROY ADVANTAGE

PRODUCTIVITY

The McElroy family of finned tube machinery offers the highest productivity in the market. From handling the raw materials to the final finned tube production, McElroy productivity offers saving in both labor and time, thus improving your profitability.

VERSATILITY

The Applied family of machines offers the end user the versatility to produce a wide range of types and sizes of finned tubes. With the base machine, tooling can be added at any time to produce these different configurations of fins: Wrap-On, Overlapped Footed Fin, Wrap-On Knurled Footed Fin, Overlapped Knurled Footed Fin, Imbedded Fin and Perforated Fin.

The Extruded family of products offers a range of tube sizes. With our standard discs, the end user can produce fins with a minimum fin height of 0.5" (12.7mm) to a maximum of 0.625" (15.9mm.)

QUALITY

Our equipment is designed to give you the assurance that your produced tube will meet industry acceptable standards and quality. Our tooling, training, and continual support of our customer base assures you that the brand McElroy is known and respected throughout the world.

DURABILITY & PERFORMANCE

McElroy prides itself on building the toughest and longest lasting fintube machines in the world. With proper maintenance, many McElroy machines built in the 1960's are still operating today. They are designed to be used anywhere in the world and are configured to meet each customer's specific requirements. Equipment is designed to require minimal, but regular maintenance and critical components are designed to last for years.

MANAGEMENT REPORTING

This is a system used to record and document the daily activities of your operator and daily production. In addition, the information can be downloaded in Excel format for interpretation and use in determining your production costs and ultimate bid pricing. The management reporting feature is available on the No. 5 machine. It is recommended that each tube configuration be assigned a part number which allows the end user to have specific productivity information for each configuration. In addition, the machine stores critical machine settings for ease of set up for the next production run for the specific part number.

COMPLETE TUBE-HANDLING SYSTEM

Whether you select the Applied No. 5 Machine or our Extruded Machine, we offer complete handling of the tube from the time it is loaded into the machine until it is ready for offloading to the finished basket and for transport to your assembly area or to your end customer.

INTERNATIONAL PRESENCE

McElroy always strives to provide customer focused service. We pride ourselves on being easily accessible to our customers through our headquarters and now through our international locations. Machines, service, technical assistance and training are available through selected strategic offices.

SINCE 1981
McELROY UNIVERSITY℠

TRAINING

McElroy understands that a fully trained and qualified operator can increase your overall production and your bottom line. That's why McElroy offers basic training, periodic machine re-inspection, and refresher courses to ensure the efficiency, productivity and safety of your equipment and personnel through McElroy University.

OPERATOR TRAINING

Operators can be trained in our facility or yours. Our hands on training helps operators of all levels to understand the principles of the machine and the skills necessary to produce products from our equipment. With an instructional mix of classroom and hands-on, operators learn not only the basic mechanics of the machine operations but the theory behind it for an overall understanding of proper finning. Maintenance and troubleshooting are also included.

Our manuals and operator screens are offered in multiple languages to help facilitate the professional training and education of your management and staff.

ONLINE TRAINING

For existing customers in need of a quick refresher, or training of a new operator, visit our website at www.mcelroyfintube.com for short video clips of key set up and operational requirements.

MAJOR FIN TYPES

	IMBEDDED (G)	EDGEWOUND	WRAP-ON (L)	WRAP-ON KNURLED	OVERLAPPED FOOTED (LL)	EXTRUDED
Fin Mat/Wt. Per Ft of Tube .625" X 11 FPI X .016"	.423# (Strip weight only)	.423#	.458#	.462#	.512#	.67# (finished product)
Est. Al Cost @ $1.785/lb.	$0.755 (1.00)	$0.755 (1.00)	$0.818 (1.083)	$0.825 (1.092)	$0.914 (1.21)	$1.196/(1.584)
Fins Per Inch/FPI *Refer to specific tube OD & fin height combinations)	4 - 13	4 - 13	4 - 12	4 - 12	4 - 12	5 - 11
Fin Material	Al/Cu/CS/SS	Al/Cu/CS/SS	Al/Cu	Al/Cu	Al/Cu	Al 1050°F or 6063°C/Cu
McElroy Min. Tube Wall	CS .072 - SS .083	CS .072 - SS .083	CS .035	CS .083	CS .035	CS - SS .039, Monotubes
Tube Material	Ferrous, Nonferrous and some alloys	Ferrous, Nonferrous and some alloys	Ferrous, Nonferrous and some alloys	Ferrous, Nonferrous and some alloys	Ferrous, Nonferrous and some alloys	Ferrous, Nonferrous and some alloys
Fin Contact	Mechanical bond. Negligible deterioration of fin bond	Usually brazed or hot dip galvanized	Interference fit	Interference fit	Interference fit	Interference fit 1560 Kg - 50mm sample
Type of Service	High temperature fin material limiting factor	If brazed, high temperature	Light or special practice/ often coated	More severe service; more specific info N/A	Corrosive applications with higher fin heights	Severe duties if corrosive environment & thermal cycling is a problem
Max Recommended Metal Temp.	1000°F/540°C *	300°F/149°C *	350°F/176°C *	500°F/ 260°C *	N/A	400-600°F/204-316°C *

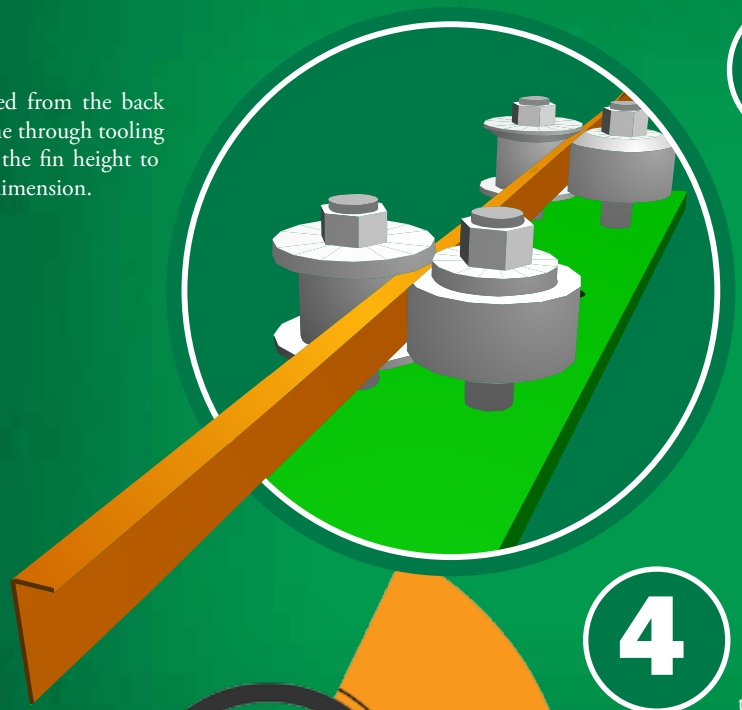
*Temperatures shown are for reference only.


DRIVE CHUCK
McELROY
JOG
START

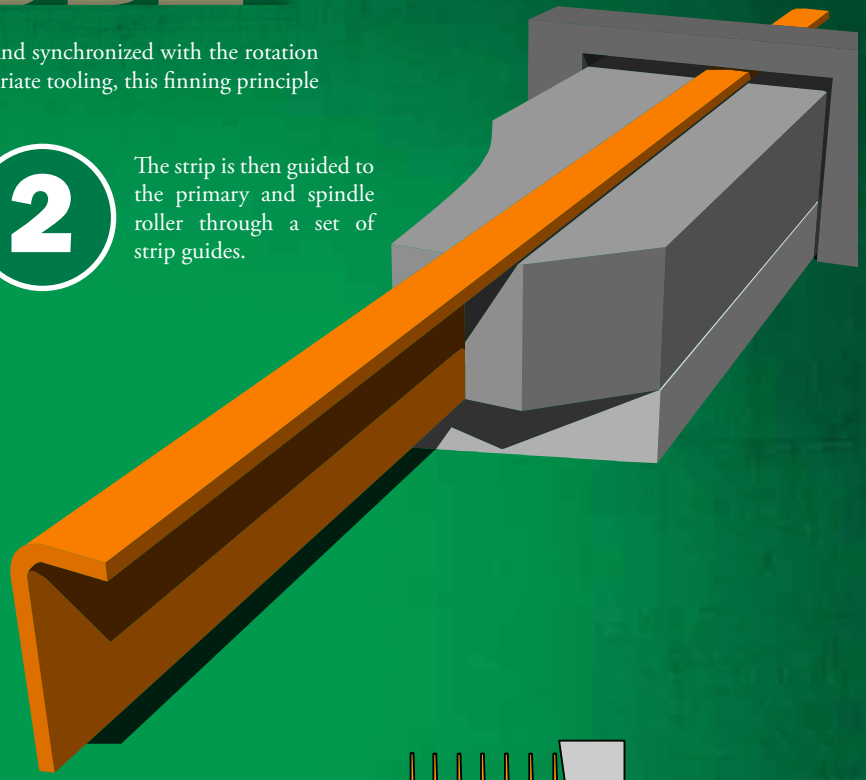
THEORY OF APPLIED FINTUBE

The McElroy applied finning machine is a miniature high speed rolling mill where the fin strip is rolled and synchronized with the rotation and advance (pitch) of the tube. With certain modifications of the rolling surfaces and changes in the appropriate tooling, this finning principle is the same for all types of fins and tube sizes.

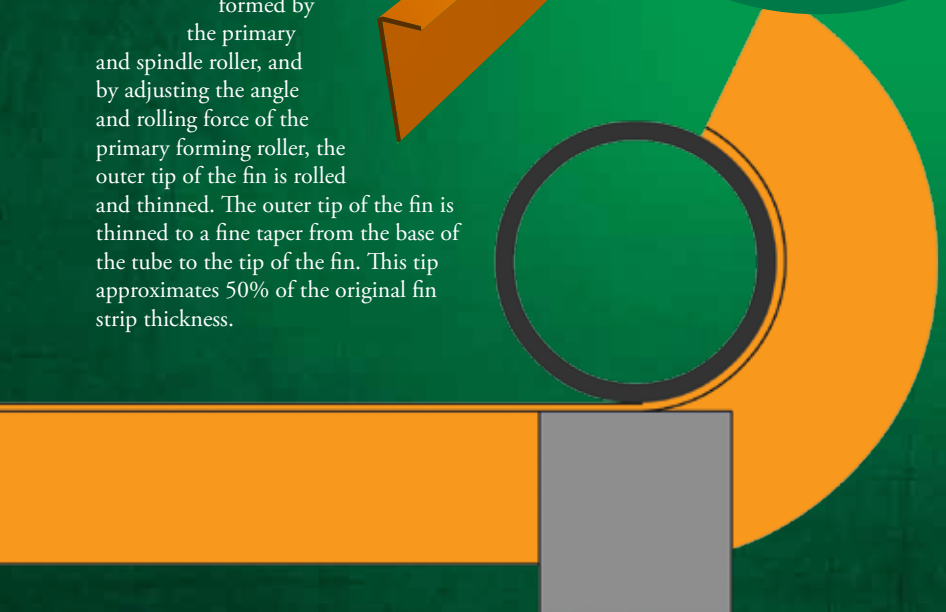
1 The strip is fed from the back of the machine through tooling that controls the fin height to the specified dimension.



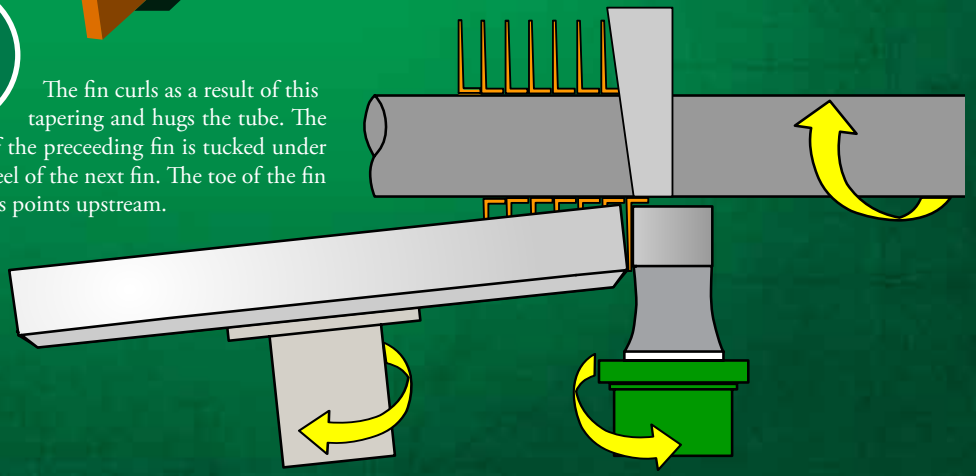
2 The strip is then guided to the primary and spindle roller through a set of strip guides.



3 As the strip is formed by the primary and spindle roller, and by adjusting the angle and rolling force of the primary forming roller, the outer tip of the fin is rolled and thinned. The outer tip of the fin is thinned to a fine taper from the base of the tube to the tip of the fin. This tip approximates 50% of the original fin strip thickness.



4 The fin curls as a result of this tapering and hugs the tube. The toe of the preceeding fin is tucked under the heel of the next fin. The toe of the fin always points upstream.



NO.5 APPLIED MACHINE

UNIQUE IN THE INDUSTRY

EFFICIENT USE OF FIN STRIP

Our machines work the fin strip so that the fin shape is thick at the bottom and thin at the tip. This uses less aluminum than simply wrapping the aluminum around the tube. Weight per foot is reduced, as is raw material cost.

HIGH SPEED PRODUCTION

The No.5 typically runs at approximately 2,400 rpm yielding high productivity rates. There is a maximum of 3000 rpm on a 1" tube.

DIGITAL ELECTRONIC COMPONENTS

Our digital drive system increases the accuracy of the finning process generating a higher quality product and more consistent results. Digital controls also allow for a wider range of FPI capabilities. Operation parameters can be saved as unique part numbers for easy access.

SMART CARD LOGIC

The smart card logic system allows for easy programming upgrades, as they become available, and easy access to a backup program.

SIMPLIFIED MAINTENANCE PROCEDURES

Dual digital-drive motors eliminate speed variators, variable pulley systems and belt systems. Fewer gearboxes and shafts means less maintenance.

QUIETER OPERATION

With fewer gear drive components and the elimination of jack shafts, the machine operation becomes quieter and mechanically simpler.

SIMPLIFIED MANAGEMENT REPORTING

The management reporting allows production supervisors to have access to a detailed look at production numbers and efficiency. This will assist the user to maximize capabilities.

NO. 5 MACHINE CAPABILITIES

Tube Size: 0.5" – 2" (12.7mm – 50.8mm)
Fin Heights: 0.25" – 1" (6.35mm – 25.4mm)
Fins Per Inch (FPI): 4 – 13

FIN TYPES

- Knurled Footed (KL-Fin)
- Overlapped Footed (LL-Fin)
- Imbedded (G-Fin)
- Wrap-on (L-Fin)
- Perforated

ADDITIONAL CAPABILITIES

The No.5 Applied Fintube Machine also has the capability of applying 0.625" carbon steel imbedded fins on 1" and larger tube sizes, as well as 0.375" high stainless steel imbedded fin.

CUSTOM MODIFICATIONS

Other configurations may be available upon request.

NO. 5 MACHINE SPECS.

LENGTH: 30.5 meters (100 feet)

WIDTH: 6.10 meters (20 feet)

TYPICAL TUBE LENGTH: 12.19 meters (40 feet)
Other rack lengths are also available

POWER REQUIREMENT: 100 Amps at 460 Volts, 3 Phase

MOTOR: 2-20 HP 460 VAC Motors with digital interface encoding software

ISOLATION TRANSFORMER: 60 kVA, 50 or 60 Hz, 3 Phase. Freestanding transformer matches customer's incoming plant voltage and steps up or down to provide required 460V

AIR: 30 CFM at 100 PSI with dryer. Provided by end user

MANPOWER: One full-time operator and part-time helper

REQUIRED TRANSFORMERS

For saw-ready machines, a second transformer may be required. Please consult your McElroy representative.

DESCRIPTION	PART NO.
60 kVA. 380/460, 3 PH, 50 Hz	MKA00007
60 kVA. 380/460, 3 PH, 60 Hz	MKA00008
60 kVA. 440/460, 3 PH, 50 Hz	MKA00009
60 kVA. 440/460, 3 PH, 60 Hz	MKA00010
60 kVA. 575/460, 3 PH, 60 Hz	MKA00011
60 kVA. 480/460, 3 PH, 60 Hz	MKA00012
60 kVA. 230/460, 3 PH, 60 Hz	MKA00013
60 kVA. 415/460, 3 PH, 50 Hz	MKA00014
60 kVA. 200/460, 3 PH, 60 Hz	MKA00018
60 kVA. 208/460, 3 PH, 60 Hz	MKA00028
60 kVA. 460/460, 3 PH, 60 Hz	MKA00030
60 kVA. 400/460, 3PH, 50 Hz	MKA00037
60 kVA. 200/460, 3PH, 50 Hz	MKA00040
60 kVA. 240/460, 3 PH, 60 Hz	MKA00062
60 kVA. 220/460, 3PH, 50 Hz	MKA00066

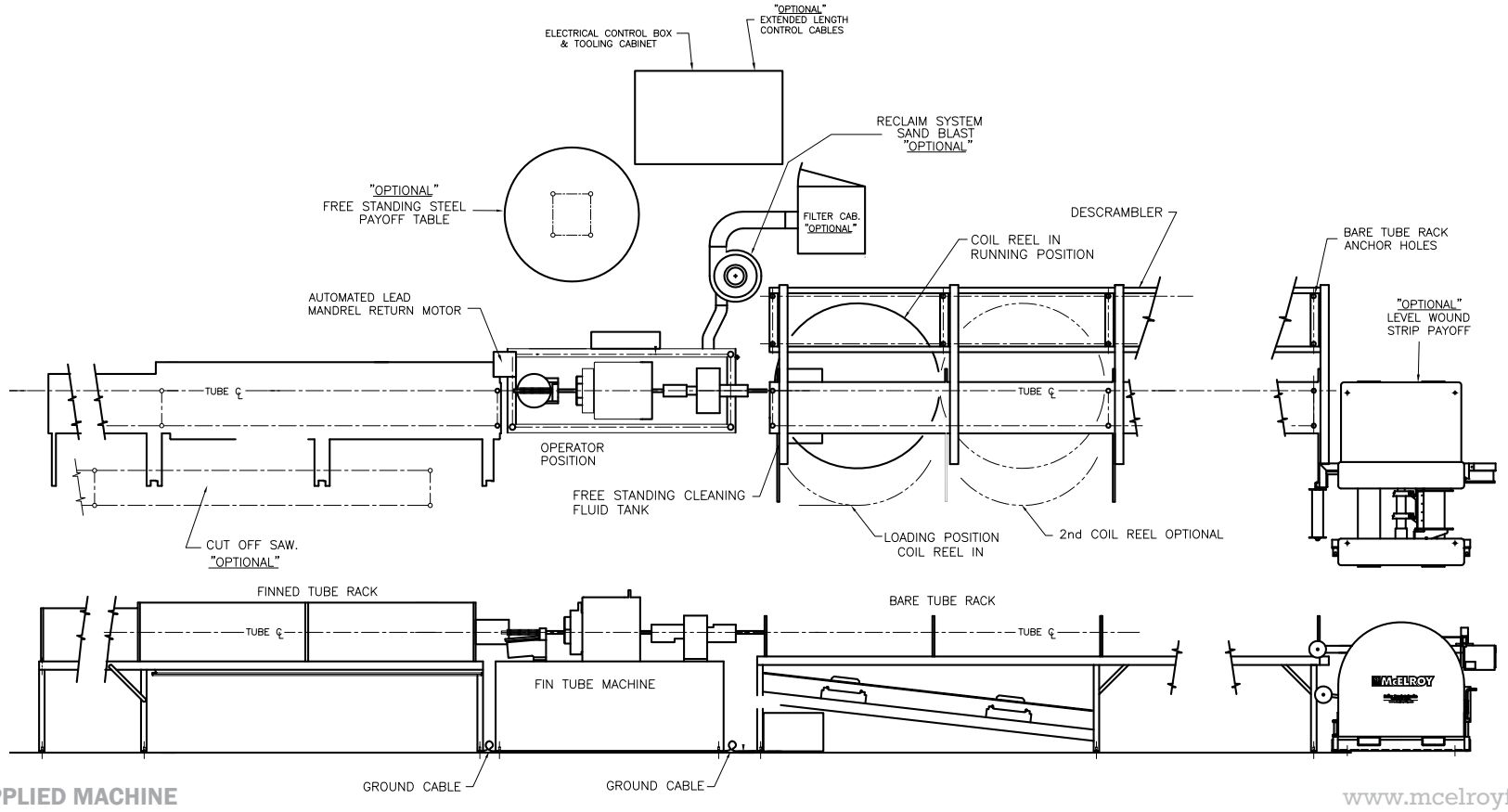
NO.5 APPLIED MACHINE

NO. 5 MACHINE

The No.5 machine is offered in two basic configurations: Standard No. 5 or Saw Ready No. 5. In the Standard No. 5 configuration, the quick-change finned tube rack has a dwell rack which allows the storage of approximately 15 finned tubes and requires the manual offloading of the finned tubes. Note that the finned tube rack is five (5) feet longer than the maximum specified bare tube length to allow for the mandrel return disengagement from the tube.

		DIMENSIONS			
PART NO.	DESCRIPTION	LENGTH MINIMUM (ft/m)	LENGTH MAXIMUM (ft/m)	WIDTH MINIMUM (ft/m)	WIDTH MAXIMUM (ft/m)
5CM00222	20' Maximum Tube Length	55/16.76	60/18.29	9/2.75	20/6.10
5CM00201	40' Maximum Tube Length	95/28.96	100/30.48	9/2.75	20/6.10
5CM00202	45' Maximum Tube Length	105/32.01	110/33.53	9/2.75	20/6.10
5CM00203	50' Maximum Tube Length	115/35.06	120/36.58	9/2.75	20/6.10
5CM00204	55' Maximum Tube Length	130/38.10	130/39.63	9/2.75	20/6.10
5CM00205	60' Maximum Tube Length	135/41.15	140/42.67	9/2.75	20/6.10

Regardless of the model you select, you must specify your incoming plant voltage, phase, and Frequency (Hz) for the appropriate isolation transformer to be provided.

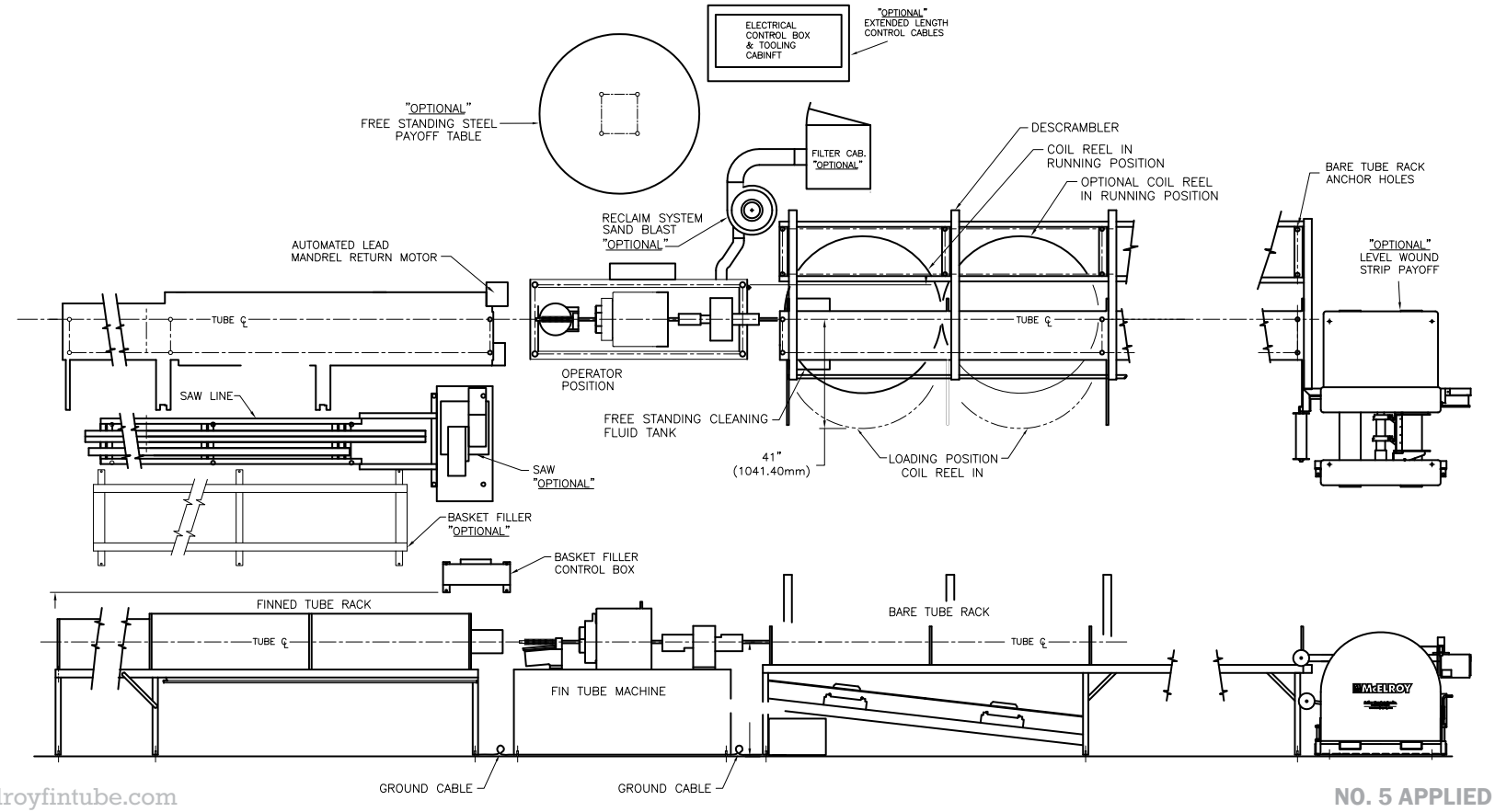


NO. 5 SAW READY MACHINE

The No.5 machine is offered in two basic configurations: Standard No. 5 or Saw Ready No. 5. The Saw Ready machine has the same quick change finned tube rack with a discharge system to a dwell rack allowing for the storage of 8 finned tubes and then automatic discharge of the finished finned tube. This assembly makes it possible to design your own manufacturing cell. The customer can design the manufacturing cell and complement that cell with products offered by McElroy, such as the Saw Support Table, Semi-Automatic Saw System, Basketfiller, or power-fed tube saw system. Note that the finned tube rack is five (5) feet longer than the maximum specified bare tube length to allow for the mandrel return disengagement from the tube.

		DIMENSIONS			
PART NO.	DESCRIPTION	LENGTH MINIMUM (ft/m)	LENGTH MAXIMUM (ft/m)	WIDTH MINIMUM (ft/m)	WIDTH MAXIMUM (ft/m)
5CM00211	40' Maximum Tube Length	96/29.27	101/30.79	9/2.75	20/6.10
5CM00212	45' Maximum Tube Length	106/32.31	111/33.84	9/2.75	20/6.10
5CM00213	50' Maximum Tube Length	116/35.36	121/36.89	9/2.75	20/6.10
5CM00214	55' Maximum Tube Length	126/38.41	131/39.93	9/2.75	20/6.10
5CM00215	60' Maximum Tube Length	136/41.46	141/42.98	9/2.75	20/6.10

Regardless of the model you select, you must specify your incoming plant voltage, phase, and Frequency (Hz) for the appropriate isolation transformer to be provided.



NO.5 APPLIED MACHINE

MANDATORY MACHINE ACCESSORIES AND SPARES

BEARINGS AND SEALS - PAN & SPINDLE SHAFT

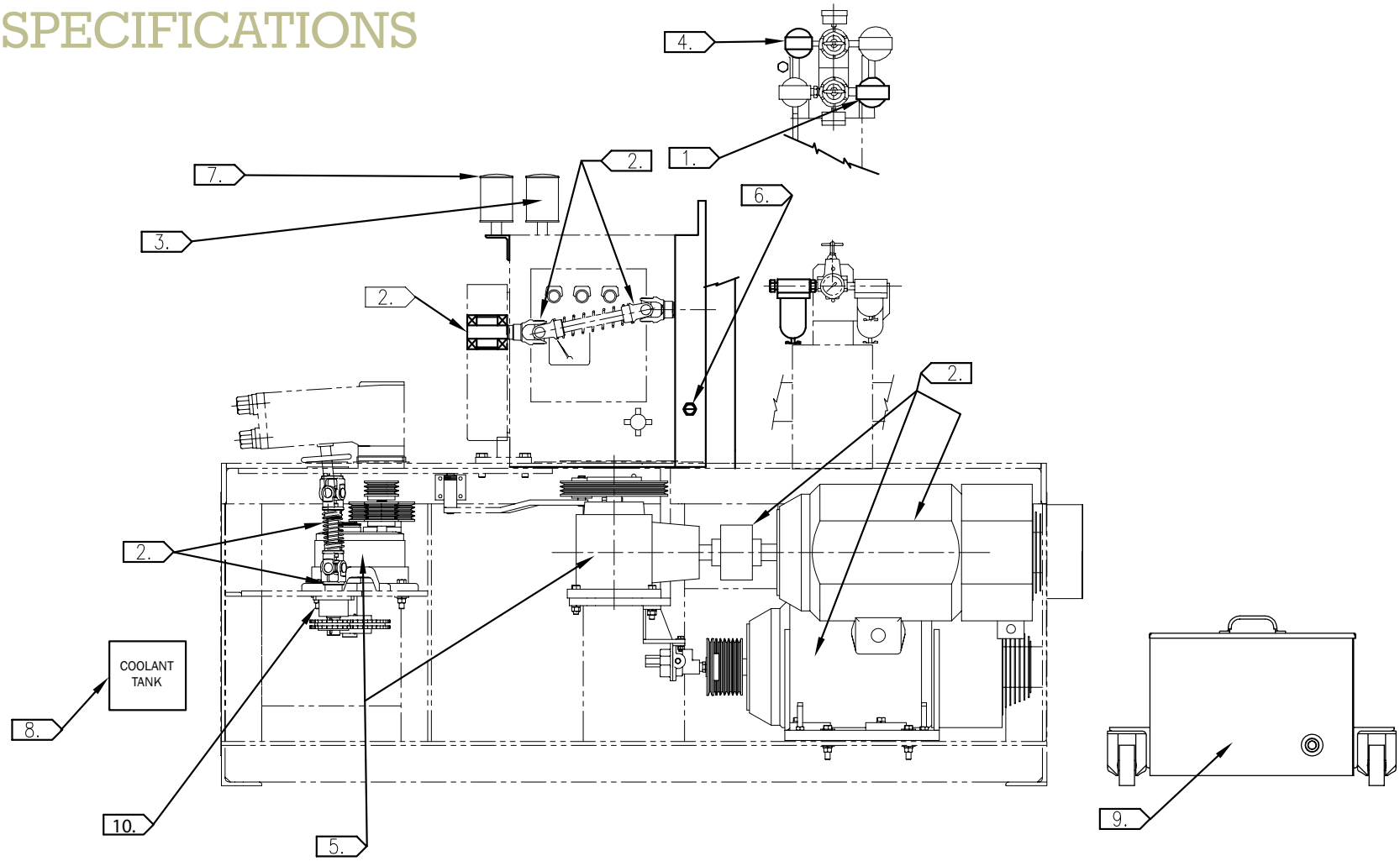
DESCRIPTION	PART NO.	NO. REQ.
Primary Forming Roll (Pan)		
Bearing	MDM00073	2
Seal	MDL00056	2
Seal	MDL00055	2
Spindle Shaft		
Bearing	MDM00071	1
Bearing	MDM00070	1
Seal	MDL00052	1
Seal	MDL00054	1
O'Ring	MDL00010	1

ELECTRICAL SPARES - NO.5 MACHINE

DESCRIPTION	PART NO.	NO. REQ.
Digital Drives		
Fuse	MLN00115	2
Fuse	MLQ00051	3
Fuse	MLQ00045	2
Fuse	MLN00077	4
Fuse	MLN00040	2
Fuse	MLQ00037	1
Fuse	MLN00047	2
Fuse	MLQ00018	2
Fuse	MLN00305	2
Fuse	MLN00284	2
Fuse	MLN00251	2
Fuse	MLQ00006	1
Fuse	MLQ00009	2
Switch	MKE00024	2
Proximity Switch	MKM00002	1
Fuse	MLN00263	1
Belts		
Belt 3VX-710	MDE00007	3
Belt 3VX-315	MDE00002	3
Belt 3VX-1120	MDE00039	6
Belt 3VX-375	MDE00004	1
Hand Tools		
Terminal Screw Driver	MJQ00094	1
Staple Gun	3FH334	2
Staples (Box of 5,040)	MJQ00096	2
Snips	MJQ00097	2
Pliers	MJQ00098	2
Box End Wrench	3FH329	1
Spanner-Index Shaft	MJQ00100	1
Spindle Shaft Locking Tool	3FH49601	1
Spanner Backfiller	MJL00054	1
Grease Pencil	MJQ00101	1
Grease Pencil Lead Refill	MJQ00102	1
Tool Box	SW16001	1
⅜" Drive Socket Set	MJQ00103	1
Comb. Wrench Set	MJQ00104	1
Hex Key Set	MJQ00105	1
Feeler Gauge Set	MJQ00107	1
6" Scale	MJQ00108	1
Shell Pull Test Pliers	3FH35201	1
6" Digimatic Calipers	MJI00006	1
5/16" Dia x 61g Masonry Drill	MJQ00320	1
⅝" Anchor Shield	MAH00118	1
½" Anchor Driver	MAH00152	1
½" Masonry Drill	MJQ00378	1
⅝" Masonry Drill	MJQ00207	1
Bridge Offset Bit Tool	MJL00053	1
Grease Gun	MJQ00334	1
Grease Tube	MJQ00145	10
Refractometer	MJQ00266	1
⅜" Torque Wrench	MJL00068	1
Spanner	MJL00055	1
Green Enamel Spray Paint	SCC20705	3
55Gal Tube Cleaning Sol.	MJR00004	1
Spindle Roll Removal Tool	3SF480	1
Phenolic Half	3BTR00704	4
Optivisor	MJQ00111	1
Pump	A3WB037	1
Bushing Ind. Shaft	3FH19701	5
Spindle Roll Removal Anvil	3SF198	1
5 Gallon Trim Sol	MJQ00116	4
No. 5 Manual	5CM005	1
5 Foot Mach Critical Data	5CM00501	1
Felt Pad	3SF42901	20
5 Gallon Gear Oil	MJR00005	2
5 Gallon Strip Oil	MJR00003	4
WD-40 (Can)	MJR00013	2
60 Scotchbrite Pads	MJU00009	1

No. 5 Machine with Optional Blaster Add		
Lbs. Steel Shot	MJQ00112	200
Blaster Nozzle	MHE00003	2
3VX355 V-belt	MDE00003	1

OIL SPECIFICATIONS



1. VERTICAL SPINDLE SHAFT BEARINGS
Micro-fog Oiler- Keep oil cup full of 10W30 motor oil and keep filters clean.

2. UNIVERSAL JOINTS (MJQ00145)
NLGI 2 grease every 1000 operating hours.
AC DRIVE MOTORS
NLGI 2 grease every 1000 operating hours.
DRIVE WHEEL SHAFTS
Repack every 2000 hours with NLGI 2 grease.
DRIVE MOTOR COUPLING
NLGI 2 grease every 1000 operating hours.

3. PRIMARY FORMING ROLLER, STATIC HEAD OILER
SAE 10W30 motor oil.

4. LUBRICATOR, VALVE STACK
Maintain oil level with SAE 10W30 motor oil.

5. RIGHT ANGLE GEAR BOX AND OPTIMOUNT SPEED REDUCER (MJR00005)
Check oil level every 2000 operating hours. Fill with EP 150 or equal.

6. DRIVE HEAD GEAR BOX (MJR00005)
Check oil level daily. Change oil every 2000 operating hours. Fill with EP 150 or equal.

7. STRIP OILER (MJR00003)
Fill with AD7 Strip Oil. Adjust flow to allow saturation of Felt Wiper Pads on the Lead-in Frame. Replace pads when worn.

8. TUBE AND GROOVER TANK (MJR00002 and MJQ00116)
Check fluid level and concentration daily. Discard dirty coolant as needed. Clean residue from inside of tank every 6 months. Mix 20% Master Chemical Trim E206 with 80% water.

9. CLEANING FLUID TANK (MJR00004)
Maintain the fluid by changing the filter paper regularly. Check the fluid level daily, add new fluid as needed. Drain and clean sediment from the bottom of the tank every 2000 hours.

10. ALL OTHER BEARINGS
All other bearings are sealed for life and should be replaced when worn.

NO.5 APPLIED MACHINE

TYPICAL PRODUCTION RATES OF WRAP-ON AND IMBEDDED ALUMINUM FINS

The values presented on this page are mathematically calculated based on theoretical data. This information is intended to be used as a guide for fintube production, but your results may vary. The values herein should be compared to those achieved during normal production to establish an accuracy for future planning. McElroy makes no warranties, expressed or implied for this data.

	IMBEDDED (G-FIN)			WRAP-ON (L-FIN)		
1" Tube (Max. tube RPM 3,000)	50%	75%	90%	50%	75%	90%
	1500 RPM	2250 RPM	2700 RPM	1500 RPM	2250 RPM	2700 RPM
50-foot Tube @ 11 FPI						
Connect Time (Seconds)	15	15	15	15	15	15
Transfer time from connect to disconnect (Seconds)	40	40	40	40	40	40
Add for Accel (Seconds)	5	5	5	5	5	5
Disconnect of Tube Connector and Connect Mandrel (Seconds)	30	30	30	30	30	30
Bal of tube run at production RPM (Seconds)	232	155	129	232	155	129
Add for Control Accel (Seconds)	5	5	5	5	5	5
Prorated Strip Threading Time (Seconds)	15	15	15	15	15	15
Prorated Tool Monitoring Time (Seconds)	60	60	60	N/A	N/A	N/A
Total Seconds	402	325	299	342	265	239
/.85 Efficiency	473	382	351	402	311	281
/60 Minutes per Tube	8	6	6	7	5	5
Tubes per Hour	8	9	10	9	12	13
Feet per Hour	381	472	512	447	578	641
Feet in 8 hour shift	3045	3772	4098	3580	4628	5128
Meters per Hour	116	144	156	136	176	195
Meters in 8 hour shift	928	1150	1249	1091	1411	1563

ADDITIONAL EQUIPMENT OPTIONS FOR NO. 5 STANDARD, NO. 5 SAW READY, NO. 4, NO. 3S, AND NO. 3 MACHINES

Meeting the needs of our customers with productivity-enhancing tools has been our way of life at McElroy for over 60 years. At this time we are pleased to present these productivity tools that can be added to your existing fintube line to create a safer and more efficient work center.

POWER FED TUBE SAW SYSTEM

The Power Fed Tube Saw System can be added as an accessory to existing systems. Offers a quick, clean cut, semi-automatic and effortless operation. All with minimal noise, much quieter than an abrasive saw.

SECOND PAYOFF TABLE FOR PANCAKE STRIP

The addition of this second table allows you to load new product on this table while the machine is running off the first table. (59" OD X 10" ID turntable with hydraulic brake for shuttle loading of fin strip). This option improves efficiency and reduces downtime to thread and restart the machine.

SAW SUPPORT TABLE (NO.5 SAW READY ONLY)

Imbedded and Knurled Footed fin tubes grow in length 1/2% during finning (depending upon the tube wall thickness) and must be trimmed to length after finning. This can readily be done immediately following discharge of the finned tube from the mandrel. The finned tube is dumped from the Quick Change Finned Tube Rack (QFTR) to the modified portion of the saw ready rack, and then to the saw support table where it is indexed to a stop for positioning and then conveyed to the saw.

BASKETFILLER (NO.5 SAW READY ONLY)

A specifically designed system to automate the loading of completed tubes into a basket or crate. The loader is positioned to the top-most position of the basket and the first tube is dropped into the basket at a slight incline. When the first row is full, the operator adds cardboard or lumber spacers to the basket, and indexes the loader down to receive the next row of tubes. A drawing of the basket (designed to ANSI standards) and crate with required dimensions is provided so additional baskets can be made by the end user.

TUBE BLASTER

This system, generally used for Wrap-On or Overlapped Footed Fin type fins, is comprised of a three-compartment assembly to wash, blast and wash the tube. The system manufactured for McElroy is a recycling type sand-blasting arrangement adapted to blast the surface of the tube as it passes through the cabinet. Cabinet selection is based on Frequency (Hz). Uses steel shot medium.

OSCILLATING LEVEL WOUND COIL PAYOFF SYSTEM

Powered payoff system which handles large coils of aluminum, copper, or carbon steel strip and provides more efficient delivery for high speed finning operation. This electronically controlled fin strip payoff is a free standing system and automatically adjusts acceleration or braking to match the production speed of the machine. Payoff selection is based on incoming plant voltage and Frequency (Hz).

STEEL FIN PANCAKE PAYOFF SYSTEM (NO. 4 AND 5 ONLY)

This free standing payoff table is mounted directly behind the fin head to avoid work hardening of the fin strip by its straight feed into the primary forming roller and spindle roller. It is a 48" OD X 16" ID turntable with air-hydraulic brake. This item is required for carbon steel and stainless steel fin applications.

CUT OFF SAW (NO. 5 SAW READY ONLY)

A semi-automatic PLC-controlled saw cuts the tail end of the finned tube to the specified length and may be run with or without lubrication. Specific jaws to hold the tube must be ordered for each finned OD to be processed. After the tube is cut to length it is discharged to the Basketfiller or can be set to discharge to a manual mold collar system. A saw support table is required for this operation.

TUBE DESCRAMBLER

McElroy offers a retrofit tube bundle support and descrambler system for up to 60ft (18.3m) tube lengths. The addition of this equipment eliminates the manual loading of tubes and offers increased productivity with minimal investment. The bundle support is sized to accommodate a bundle size of 15.5" wide by 13" tall, which provides for 91 - 1" (25.4mm) or 1.25" (31.7mm) tubes; 127 – .75" (19.05mm) tubes; and 169 – .625" (15.8mm) tubes.

Tubes are fed to the upper support rack. Cams then rotate and drop the tubes individually into the lower arms of the bare tube rack. Most suitable when tubes are received in octagonal bundles and not crates.

McElroy has an extensive background producing a broad variety of custom-designed special purpose machinery to fit your individual needs. If you have special machine requirements and need help with the design and production, contact a McElroy representative. We will work on the solution with you.

END-USER RESPONSIBILITIES

PRIOR TO INSTALLATION

The customer is responsible for proper floor preparation, providing of electrical and air supply and the actual connection of the equipment to incoming plant voltage. Upon arrival, McElroy technicians will complete connections between power base and electrical cabinet, make air connections, level and align machine, demonstrate machine's capabilities, and train operators.

- **Air requirement:** End user must provide a compressor capable of 30 CFM at 100 PSI. Compressor must be equipped with a dryer. End user must run a .75" ID line to the machine, fitted with a shop air fitting or quick disconnect.

- **Power Consumption:** End user must provide a 100 Amp service connection. McElroy provides the transformer to step up or down to the incoming plant voltage. Customer needs to specify incoming plant voltage and frequency (Hz) at the time the order is placed. The proper method of electrical connection is described in the manual and must be completed by a licensed electrician.

- **Floor Preparation:** The machine needs to be laid out off of a centerline (chalk line). Make the layout and drill holes off this centerline for the machine and racks. It is recommended that a drill guide be used to ensure that the holes are straight. It is also necessary to level and align the machine by using a bubble level and laser. Anchor bolts, shields, anchor shield drivers, masonry drills as well as the laser are shipped with the machine. Specific setting plan dimensions based on maximum tube length are provided at the time of order.

INITIAL OPERATIONS

- For setup and run-in of the machine, the end user will provide tubes and fin strip of a recognized alloy, as specified in the "Critical Data" section of the machine manual.

- One full time operator and a part-time helper are required to run the machine and provide a continuous supply of tube and strip for the most efficient production.

- It is recommended that a team consisting of operations, maintenance, engineering and supervisory management be selected for training.

- End user will provide an Ethernet connection at the electrical control cabinet so the reporting management system can then connect directly to a local server. The machine may be connected using a CAT 5E cable up to a distance of 1148 feet (350 meters) from the computer reporting station.

HOW WE SHIP

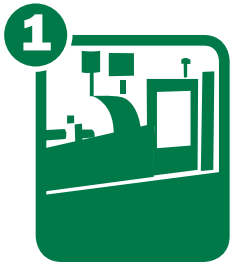
For international shipment: machine and components are skidded for ease of offloading. Machines with a maximum input length of 40 feet (12.2 meters) will generally ship in one forty foot high-cube container. Estimated weight, depending upon tooling requested, 13,000 pounds (5896 Kg). Machines with maximum input length of greater than 40 feet (12.2 meters) will require two containers. Weight and packing list is provided at the time the container is released to the trucking firm for transport to the port. A typical 50/55 foot machine with saw ready option, basket filler and oscillating level wound payoff will pack in two containers with these estimated weights: Container 1: 13,772 lbs (6247 Kg); and Container 2: 14,515 lbs. (6,584 Kg.)

Domestic shipments are usually made on 45 foot floats and may require up to three trucks, depending upon tooling and options ordered. Ask your customer service assistant for specifications at the time your order is placed. It is recommended that the truck be tarped or enclosed to protect the equipment during transit.

NO. 5 APPLIED MACHINE SELECTION PROCESS

This catalog has been designed to help you put together a package that will fit your needs for a wide variety of finning applications. Each of the following sections details the components needed, quantities required for the machine and our suggested order quantity.

The No. 5 Applied Machine includes all the major components, including the power base, fin head, drive chuck, electrics, electronics, bare tube racks (QBTR) and finned tube racks (QFTR). Tooling is not included, and can be selected following the steps outlined below. Each end user can customize the machine to fit his specific needs. Some tooling is interchangeable and your customer service representative can assist with the identification of these parts.

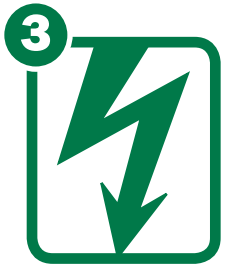


Select the machine model. To choose the appropriate basic machine, you will need to know:

- Maximum Tube length to be manufactured
- Rack preferences (Saw ready or Non-saw ready)

Choose optional equipment to make your operation even more efficient and productive.

Please turn to page 17 for optional equipment.



Specify incoming plant Voltage and Frequency (Hz) in order to select the proper transformer(s) necessary. Please see page 18.

Establish the tube sizes to be run, then select the corresponding Tube Size Hardware beginning on page 20.

Specify fin type(s) and fin materials to be run. You will need to know Fin height, Fins Per Inch (FPI) and strip thickness to select the appropriate tooling. Instructions on how to determine the appropriate strip thickness can be found in each fin type section.

Select the necessary Fin Height Hardware for each fin type and fin material.

Choose from a variety of optional fin enhancements, like Knurled or Perforated fin. This tooling can be found on pages 27-45 for Wrap-on and Overlapped Footed Fin, and page 55 for Imbedded Fin.

Once these steps have been completed, please allow us to verify your information in order to ensure a smooth operation from the initial contact to the production floor.

TUBE SIZE HARDWARE

TUBE GUIDE BUSHING

A bushing to support the tube through the Drive Head which is dependent on tube OD. Machine requires one bushing.

TUBE SIZE	PART NO.	RECOMMENDED ORDER QTY.
.5” (12.7mm)	3DH053028	2
.625” (15.9mm)	3DH053004	2
.709” (18mm)	3DH053010	2
.75” (19mm)	3DH053001	2
.761” (19.31mm)	3DH053025	2
.827” (21mm)	3DH053022	2
.854” (21.7mm)	3DH053019	2
.875” (22.2mm)	3DH053015	2
1” (25.4mm)	3DH053003	2
1.07” (27.2mm)	3DH053016	2
1.125” (28.6mm)	3DH053006	2
1.25” (31.7mm)	3DH053005	2
1.26” (32mm)	3DH053014	2
1.315” (33.5mm)	3DH053027	2
1.375” (34.9mm)	3DH053020	2
1.5” (38.1mm)	3DH053007	2
1.75” (44.4mm)	3DH053023	2
1.81” (46mm)	3DH053026	2
1.9” (48.2mm)	3DH053024	2
2” (50.8mm)	3DH053021	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

CAM FOLLOWER BEARINGS

Three cam follower bearings are used in the cartridge that is set to a specific helix angle to assist the longitudinal drive component of the tube. It is recommended to replace all three at the same time.

TUBE SIZE	PART NO.	RECOMMENDED ORDER QTY.
.5” (12.7mm) - .75” (19mm)	MDM00059	12
1” & larger (25.4mm & larger)	MDM00054	12

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN FINGER

An adjustable guide for the vertical positioning of the fin. Machine requires one or two dependent on fin type produced.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Standard	3FH048	8
Extended Life	3FH04802	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

DRIVE TIRE

A rubber tire with a steel liner that is mounted on the Drive Wheel Hub used to drive the tube. Always change all three tires at the same time. Size of tire required is based upon tube size. See GFTI-5 on page 95, in the Applied Reference section of this catalog.

TUBE SIZE	TIRE SIZE	SET NO.	RECOMMENDED ORDER QTY.
.5”(12.7mm) - .625”(15.9mm)	3”	A3SDH10002	1
.625” (15.9mm) - .75” (19mm)	3.37”	A3DH08101	1
.75” (19mm) - 1” (25.4mm)	4”	A3DH08201	1
1” (25.4mm) & larger	5”	A3DH07501	1

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

DRIVE WHEEL HUB SET

A two (2) piece steel-flanged hub set used to capture the Drive Tire on the Drive Wheel Shaft. Size based on tire size selected above. One set includes 6 pieces.

DRIVE TIRE SIZE	SET NO.	NO. REQ.
3”	3SDH10101	1
3.37”	3DH083100	1
4”	3DH083100	1
5”	3DH079100	1

ARM LINK SET

Used to space the Drive Wheels for different tube sizes. It is recommended that you replace all three arm links at one time. Each set includes three arm links.

TUBE SIZE/TIRE SIZE	SET NO.	RECOM-MENDED ORDER QTY.
Less than .75" (19mm) tube with 3.37" tire	A3DH015B	1
.75" - .984" with 4" tire	A3DH015C	1
.984" (25mm) tube & larger with 5" tire	A3DH015A	1

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

WASHER BAFFLE SEAL RING SET

Used to help scrub the tube and keep the cleaning fluid in the Washer Box. Machine requires 1 set.

If you don't see the size needed, contact fintube@mcelroy.com for additional information.

TUBE SIZE	SET NO.	RECOMMENDED ORDER QTY.
.5" (12.7mm)	3WB032033	3
.552" (14mm)	3WB032025	3
.625" (15.9mm)	3WB032009	3
.630" (16mm)	3WB032010	3
.709" (18mm)	3WB032011	3
.75" (19mm)	3WB032013	3
.854" (21.7mm)	3WB032030	3
.875" (22.2mm)	3WB032016	3
1" (25.4mm)	3WB032019	3
1.07" (27.2mm)	3WB032027	3
1.25" (31.7mm)	3WB032021	3
1.26" (32mm)	3WB032026	3
1.315" (33.5mm)	3WB032032	3
1.5" (38.1mm)	3WB032022	3
1.75" (44.4mm)	3WB032023	3
1.81" (46mm)	3WB032031	3
1.9" (48.2mm)	3WB032029	3
2" (50.8mm)	3WB032024	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

1/2" TUBE RETROFIT KIT

A kit for .5" (12.7mm) tube size tooling that will expand the machine capabilities. Previously the minimum tube size range was 9/16".

TUBE SIZE	PART NO.	RECOMMENDED ORDER QTY.
.5" (12.7mm)	A3SDH09901	3

CARTRIDGE BRIDGE ASSEMBLY

Holds the cartridge and is used to mount the helix, fin finger, and the overarm. The cartridge bridge is specific to one tube size but will accept a variety of the same size cartridges for different FPI's. Assembly includes two fin fingers.

TUBE SIZE	PART NO.	NO. REQ.
.5" (12.7mm)	3FH27624	1
.625" (16mm)	3FH27602	1
.709" (18mm)	3FH27605	1
.75" (19mm)	3FH27608	1
.761" (19.3mm)	3FH27608	1
.787" (20mm)	3FH27606	1
.854" (21.7mm)	3FH27613	1
.875" (22.2mm)	3FH27619	1
.984" (25mm)	3FH27601	1
1" (25.4mm)	3FH27601	1
1.07" (27.2mm)	3FH27614	1
1.125" (28.6mm)	3FH27616	1
1.25" (32mm)	3FH27611	1
1.315" (33.4mm)	3FH27623	1
1.320" (33.5mm)	3FH27612	1
1.5" (38.1mm)	3FH27603	1
1.75" (44.4mm)	3FH27617	1
1.81" (46mm)	3FH27621	1
1.89" (48mm)	3FH27622	1
2.0" (50.8mm)	3FH27604	1

TUBE SIZE HARDWARE

CARTRIDGE

Used in the cartridge bridge to support and feed the tube and is specific for FPI and tube diameter. Includes three cam follower bearings (page 20).

TUBE SIZE	PART NO.	NO. REQ.
.5” (12.7mm) X 10 FPI	3FH501	1
.625” X 7 FPI	3FH350	1
.625” X 8 FPI	3FH308	1
.625” X 9 FPI	3FH351	1
.625” X 10 FPI	3FH286	1
.625” X 11 FPI	3FH290	1
.625” X 12 FPI	3FH416	1
.625” X 13 FPI	3FH357	1
.625” X 15 FPI	3FH472	1
.630” (16mm) X 8 FPI	4FH173	1
.630” (16mm) X 9 FPI	3FH444	1
.630” (16mm) X 11 FPI	3FH445	1
.630” (16mm) X 12 FPI	3FH471	1
.709” (18mm) X 10 FPI	3FH315	1
.709” (18mm) X 12.5 FPI	3FH349	1
.709” (18mm) X 13 FPI	3FH361	1
.75” X 7 FPI	4FH149	1
.75” X 8 FPI	3FH347	1
.75” X 9 FPI	3FH302	1
.75” X 10 FPI	3FH307	1
.75” X 11 FPI	3FH301	1
.75” X 12 FPI	3FH376	1
.75” X 13 FPI	3FH363	1
.75” X 17 FPI	3FH441	1
.761” X 7 FPI	3FH398	1
.787” (20mm) X 13 FPI	3FH362	1
.855” (21.7mm) X 8 FPI	3FH395	1
.855” (21.7mm) X 10 FPI	3FH338	1

TUBE SIZE	PART NO.	NO. REQ.
.875” X 7 FPI	3FH491	1
.875” X 9 FPI	3FH493	1
.875” X 11 FPI	3FH494	1
.945” (24mm) X 11 FPI	3FH467	1
.984” (25mm) X 8 FPI	3FH414	1
.984” (25mm) X 9 FPI	3FH415	1
.984” (25mm) X 10 FPI	3FH411	1
.984” (25mm) X 11 FPI	3FH410	1
.984” (25mm) X 12 FPI	3FH412	1
.984” (25mm) X 13 FPI	3FH413	1
1” X 5 FPI	3FH268	1
1” X 6 FPI	3FH359	1
1” X 7 FPI	3FH269	1
1” X 8 FPI	3FH285	1
1” X 9 FPI	3FH270	1
1” X 10 FPI	3FH284	1
1” X 11 FPI	3FH271	1
1” X 12 FPI	3FH303	1
1” X 13 FPI	3FH348	1
1.07” (27.2mm) X 8 FPI	3FH354	1
1.125” X 11 FPI	3FH420	1
1.25” X 7 FPI	3FH325	1
1.25” X 8 FPI	3FH341	1
1.25” X 9 FPI	3FH317	1
1.25” X 10 FPI	3FH319	1
1.25” X 11 FPI	3FH296	1
1.25” X 12 FPI	3FH379	1
1.25” X 13 FPI	3FH380	1

TUBE SIZE	PART NO.	NO. REQ.
1.26” (32mm) X 10 FPI	3FH321	1
1.26” (32mm) X 11 FPI	3FH386	1
1.320” X 11 FPI	3FH328	1
1.5” X 5 FPI	3FH272	1
1.5” X 6 FPI	3FH333	1
1.5” X 7 FPI	3FH273	1
1.5” X 8 FPI	3FH332	1
1.5” X 9 FPI	3FH274	1
1.5” X 10 FPI	3FH295	1
1.5” X 11 FPI	3FH275	1
1.5” X 12 FPI	3FH381	1
1.5” X 12.5 FPI	3FH424	1
1.5” X 13 FPI	3FH382	1
1.75” X 8 FPI	3FH455	1
1.75” X 9 FPI	3FH456	1
1.75” X 11 FPI	3FH422	1
1.81” (46mm) X 9 FPI	3FH459	1
1.89” (48mm) X 9 FPI	3FH460	1
2” X 6 FPI	3FH434	1
2” X 7 FPI	3FH389	1
2” X 8 FPI	3FH261	1
2” X 9 FPI	3FH313	1
2” X 10 FPI	3FH260	1
2” X 11 FPI	3FH337	1
2” X 12 FPI	3FH470	1

TUBE CONNECTOR - For tube sizes .875" (22.2mm) and larger

Used to internally connect tubes together so the fin may be applied to the full length of the tube as well as provide continuation onto the next tube. Tube Connectors must be correctly sized to the tube wall thickness - Birmingham Wire Gauge (BWG) Equivalent - standard for tube wall sizing. Refer to GFTI –11 (page 97) GFTI-12 (page 98) and GFTI-13 (page 99) for recommended minimum tube wall thickness.
Note: Minimum Tube Wall (MTW) preferred, not average tube wall, as average tube wall can vary plus/minus 10% of wall thickness.

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOMMENDED ORDER QTY.
21.7mm X 14 (.083)	3FH080Y17	2
21.7mm X 12 (.109)	3FH080Y24	2
.875" X 14 (.083)	3FH080G17	2
.875" X 12 (.109)	3FH080G24	2
.984" X 20 (.035)	3FH080H04	2
.984" X .039	3FH080H05	2
.984" X 18 (.049)	3FH080H09	2
.984" X 17 (.058)	3FH080H10	2
.984" X .079	3FH080H16	2
.984" X 13 (.095)	3FH080H20	2
.984" X .118	3FH080H28	2
25mm X 2.5mm (.0985)	3FH080H21	2
1" X 20 (.035)	3FH080J04	2
1" X .039	3FH080J05	2
1" X 19 (.042)	3FH080J07	2
1" X .047	3FH080J57	2
1" X 18 (.049)	3FH080J09	2
1" X 17 (.058)	3FH080J10	2
1" X .059	3FH080J11	2
1" X .060	3FH080J12	2
1" X 16 (.065)	3FH080J13	2
1" X .067	3FH080J54	2
1" X .070	3FH080J46	2
1" X 15 (.072)	3FH080J14	2
1" X .075	3FH080J15	2
1" X .079	3FH080J16	2

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOMMENDED ORDER QTY.
1" X 14 (.083)	3FH080J17	2
1" X .085	3FH080J18	2
1" X .093	3FH080J52	2
1" X 12 (.109)	3FH080J24	2
1" X .110	3FH080J25	2
1" X .114	3FH080J48	2
1" X .116	3FH080J55	2
1" X .118	3FH080J28	2
1" X 11 (.120)	3FH080J29	2
1" X .125	3FH080J31	2
1" X 10 (.134)	3FH080J32	2
25.4mm X .138 (3.5mm)	3FH080J43	2
1" X .142	3FH080J50	2
1" X .145	3FH080J53	2
1" X 9 (.148)	3FH080J33	2
1" X .156	3FH080J35	2
1" X 4mm (.158)	3FH080J36	2
1" X 8 (.165)	3FH080J37	2
1" X .174	3FH080J38	2
1" X 7 (.180)	3FH080J39	2
1" X .190	3FH080J45	2
1" X .200	3FH080J49	2
1" X 6 (.203)	3FH080J58	2
1.050" X .218	3FH080W60	2
27.2mm X .110	3FH080U24	2
27.8mm X 15 (.072)	3FH080Z14	2

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOMMENDED ORDER QTY.
1.125" X .059	3FH080K11	2
1.125" X 16 (.065)	3FH080K13	2
1.25" X 21 (.032)	3FH080M03	2
1.25" X 20 (.035)	3FH080M04	2
1.25" X .039	3FH080M05	2
1.25" X 19 (.042)	3FH080M07	2
1.25" X .047	3FH080M57	2
1.25" X 18 (.049)	3FH080M09	2
1.25" X 17 (.058)	3FH080M10	2
1.25" X .060	3FH080M12	2
1.25" X 16 (.065)	3FH080M13	2
1.25" X 15 (.072)	3FH080M14	2
1.25" X .075	3FH080M15	2
1.25" X .079	3FH080M16	2
1.25" X 14 (.083)	3FH080M17	2
1.25" X .085	3FH080M18	2
1.25" X .089	3FH080M19	2
1.25" X 13 (.095)	3FH080M20	2
1.25" X 2.5mm (.0985)	3FH080M21	2
1.25" X .107	3FH080M47	2
1.25" X 12 (.109)	3FH080M24	2
1.25" X .110	3FH080M25	2
1.25" X 11 (.120)	3FH080M29	2
1.25" X .125	3FH080M31	2
1.25" X 10 (.134)	3FH080M32	2

...continued on next page

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

TUBE CONNECTOR - For tube sizes .875" (22.2mm) and larger *continued*

Used to internally connect tubes together so the fin may be applied to the full length of the tube as well as provide continuation onto the next tube. Tube Connectors must be correctly sized to the tube wall thickness - Birmingham Wire Gauge (BWG) Equivalent - standard for tube wall sizing. Refer to GFTI –11 (page 97), GFTI-12 (page 98), and GFTI-13 (page 99) for recommended minimum tube wall thickness.
Note: Minimum Tube Wall (MTW) preferred, not average tube wall, as average tube wall can vary plus/minus 10% of wall thickness.

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOM-MENDED ORDER QTY.
1.25" X .142	3FH080M50	2
1.25" X 9 (.148)	3FH080M33	2
1.25" X .150	3FH080M56	2
1.25" X 8 (.165)	3FH080M37	2
1.25" X 7 (.180)	3FH080M39	2
1.25" X .200	3FH080M49	2
1.25" X .203	3FH080M58	2
1.25" X .234	3FH080M41	2
1.25" X .270	3FH080M59	2
32mm X 2.5 (.0985)	3FH080N21	2
32mm X 11 (.120)	3FH080N29	2
32mm X .138	3FH080N43	2
32mm X .248	3FH080N42	2
1.5" X 19 (.042)	3FH080P07	2
1.5" X .047	3FH080P57	2
1.5" X 18 (.049)	3FH080P09	2
1.5" X 17 (.058)	3FH080P10	2
1.5" X .060	3FH080P12	2
1.5" X 16 (.065)	3FH080P13	2
1.5" X .067	3FH080P54	2
1.5" X 15 (.072)	3FH080P14	2
1.5" X .075	3FH080P15	2
1.5" X .079	3FH080P16	2
1.5" X 14 (.083)	3FH080P17	2
1.5" X 13 (.095)	3FH080P20	2
1.5" X .107	3FH080P47	2

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOM-MENDED ORDER QTY.
1.5" X 12 (.109)	3FH080P24	2
1.5" X .110	3FH080P25	2
1.5" X 11 (.120)	3FH080P29	2
1.5" X .125	3FH080P31	2
1.5" X 10 (.134)	3FH080P32	2
1.5" X .145	3FH080P53	2
1.5" X 9 (.148)	3FH080P33	2
1.5" X .156	3FH080P35	2
1.5" X 8 (.165)	3FH080P37	2
1.5" X .200	3FH080P49	2
1.75" X 18 (.049)	3FH080R09	2
1.75" X 16 (.065)	3FH080R13	2
1.75" X 14 (.083)	3FH080R17	2
1.75" X 12 (.109)	3FH080R24	2
46mm X .118	3FH080AA28	2
1.9" X .118	3FH080X28	2
1.9" X .145	3FH080X53	2
2.0" X 17 (.058)	3FH080S10	2
2.0" X 16 (.065)	3FH080S13	2
2.0" X 15 (.072)	3FH080S14	2
2.0" X 14 (.083)	3FH080S17	2
2.0" X 13 (.095)	3FH080S20	2
2.0" X .105	3FH080S51	2
2.0" X 12 (.109)	3FH080S24	2
2.0" X .118	3FH080S28	2
2.0" X 11 (.120)	3FH080S29	2

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOM-MENDED ORDER QTY.
2.0" X .125	3FH080S31	2
2.0" X 10 (.134)	3FH080S32	2
2.0" X 9 (.148)	3FH080S33	2
2.0" X .150	3FH080S56	2
2.0" X .156	3FH080S35	2
2.0" X 8 (.165)	3FH080S37	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

TUBE CONNECTOR - For tube sizes less than .875" (22.2mm)

Used to internally connect tubes together so the fin may be applied to the full length of the tube as well as provide continuation onto the next tube. Tube Connectors must be correctly sized to the tube wall thickness - Birmingham Wire Gauge (BWG) Equivalent - standard for tube wall sizing. Refer to GFTI –11 (page 97), GFTI-12 (page 98), and GFTI-13 (page 99) for recommended minimum tube wall thickness.

Note: Minimum Tube Wall (MTW) preferred, not average tube wall, as average tube wall can vary plus/minus 10% of wall thickness.

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOM-MENDED ORDER QTY.
.5" X 18 (.049)	3FH245A06	2
.5" X 16 (.065)	3FH245A07	2
.625" X .02	3FH244D30	2
.625" X 21 (.032)	3FH244D15	2
.625" X 20 (.035)	3FH244D02	2
.625" X .039	3FH244D03	2
.625" X 19 (.042)	3FH244D05	2
.625" X .045	3FH244D27	2
.625" X .047	3FH244D20	2
.625" X 18 (.049)	3FH244D06	2
.625" X .053	3FH244D31	2
.625" X .059	3FH244D29	2
.625" X .060	3FH244D25	2
.625" X 16 (.065)	3FH244D07	2
.625" X 15 (.072)	3FH244D08	2
.625" X .075	3FH244D24	2
.625" X .076	3FH244D32	2
.625" X 14 (.083)	3FH244D10	2
.625" X 13 (.095)	3FH244D11	2
.625" X 12 (.109)	3FH244D12	2
.625" X 11 (.12)	3FH244D13	2
.625" X .134	3FH244D14	2
16mm X .032	3FH244E15	2
16mm X .035	3FH244E02	2
16mm X .039	3FH244E03	2
16mm X .042	3FH244E05	2
16mm X .079	3FH244E09	2

TUBE SIZE X GAUGE (MTW)	PART NO.	RECOM-MENDED ORDER QTY.
18mm X .039	3FH244F03	2
18mm X 16 (.065)	3FH244F07	2
.75" X 22 (.028)	3FH244H19	2
.75" X 21 (.032)	3FH244H15	2
.75" X 20 (.035)	3FH244H02	2
.75" X .039	3FH244H03	2
.75" X 19 (.042)	3FH244H05	2
.75" X .045	3FH244H27	2
.75" X .047	3FH244H20	2
.75" X 18 (.049)	3FH244H06	2
.75" X .053	3FH244H31	2
.75" X 17 (.058)	3FH244H04	2
.75" X .06	3FH244H25	2
.75" X .063	3FH244H21	2
.75" X 16 (.065)	3FH244H07	2
.75" X .07	3FH244H28	2
.75" X 15 (.072)	3FH244H08	2
.75" X .075	3FH244H24	2
.75" X .079	3FH244H09	2
.75" X 14 (.083)	3FH244H10	2
.75" X .085	3FH244H26	2
.75" X 13 (.095)	3FH244H11	2
.75" X 12 (.109)	3FH244H12	2
.75" X 11 (.120)	3FH244H13	2
.75" X 10 (.134)	3FH244H14	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

QUICK CHANGE BARE TUBE RACK (QBTR) SIZING MANDREL SET FOR QBTR03101 (MANUFACTURED AFTER MARCH 1995)

A pair of bushings with a specific outside tube diameter that mounts on the QBTR Adjustment Bracket. These discs are sized to tube diameter. Set includes 2 pieces.

TUBE OD	SET NO.	NO REQ.
.75” (19.05mm)	QBTR03205	1
.761” (19.31mm)	QBTR03210	1
.854” (21.7mm)	QBTR03209	1
.984” (25mm)	QBTR03206	1
1” (25.4mm)	QBTR03201	1
1.25” (31.7mm)	QBTR03202	1
1.26” (32mm)	QBTR03207	1
1.5” (38.1mm)	QBTR03203	1
1.75” (44.4mm)	QBTR03211	1
1.81” (46mm)	QBTR03212	1
1.9” (48.2mm)	QBTR03204	1
2.0” (50.8mm)	QBTR03208	1

ALIGNMENT FIXTURE BAR SET FOR 3BTR017 (MANUFACTURED PRIOR TO MARCH 1995)

A pair of bars with a specific outside diameter that mount on the Adjustment Bracket. These bars are sized to tube diameter.

TUBE OD	SET NO.	NO REQ.
.625” (15.875mm)	3BTR018AB	1
18mm (.709”)	3BTR018AJ	1
.75” (19.05mm)	3BTR018AC	1
.984” (25mm)	3BTR018AS	1
1”	3BTR018AE	1
1.25”	3BTR018AF	1
1.26” (32mm)	3BTR018AV	1
1.5”	3BTR018AG	1
2.0”	3BTR018AH	1

WRAP-ON (L-FIN)

The Wrap-On Fin or "L" footed fin is characterized as an L fin and is widely used throughout the world. This fin is considered an interference fit type fin and is limited to light duty. Typically this fin is produced out of aluminum or copper fin strip. This fin type is not suitable for carbon steel or stainless steel fin materials as the material is too hard for the formation of the characteristic L foot. The foot of the fin is formed by pulling the strip through a two stage preformer set. The first stage rolls the fin to a 45-degree foot and the second stage rolls it to a true 90-degree foot. The tooling controls the fin height as specified. As a result of this, each combination of FPI (pitch) and fin strip thickness requires a specific strip width. Fin strip width can be calculated with the formula shown below:

$$\text{Strip Width} = \left(\frac{1}{\text{FPI}} + \text{Fin Height}\right) - (\text{Fin Strip Thickness} \times 3) + \left(\text{Fin Strip Thickness} \times \frac{3.1416}{2}\right)$$

Fin Tip Thickness is also predictable by the following formula:

$$\text{Fin Tip Thickness} = \frac{\text{Fin Strip Thickness} \times \text{Tube Diameter}}{\text{Finned OD}}$$

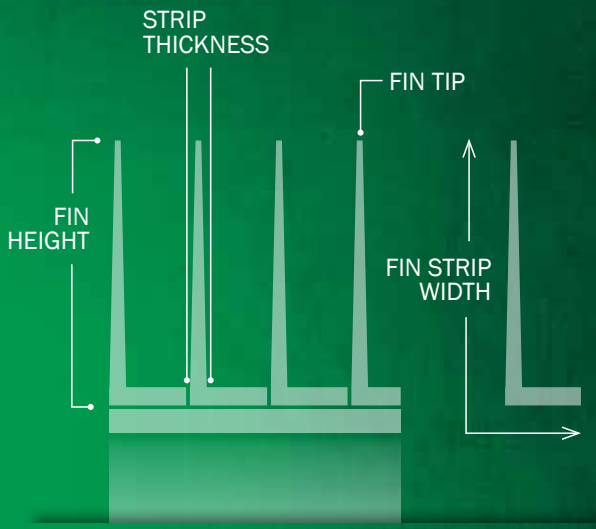
The toe of the fin points upstream. This makes it possible for the incoming fin, as it enters the "nip" of the pan and spindle roll to press and form the toe of the previous fin flat against the tube, providing for maximum contact with the tube surface.

Fin height hardware will work with a range of tube sizes as shown on General Fintube Information (GFTI) -1B on page 94. This chart shows the principle of fin height, fin strip thickness and tube size. The zero pitch line of all of the McElroy fin types are basically at the surface of the tube. The fins are smooth with a uniform taper from the base to the tip. This makes it possible to calculate the weight of fin strip per foot of tube with the following formula:

Weight of Aluminum Fin Per Foot of Tube =
Fin Strip Thickness x Fin Strip Width x Tube OD x 3.1416 x FPI x 12 x .1

Weight of Copper Fin Per Foot of Tube =
Fin Strip Thickness x Fin Strip Width x Tube OD x 3.1416 x FPI x 12 x .32

Note: If you have special requirements or need assistance, contact (918) 831-9236 or fintube@mcelroy.com



TYPICAL CHARACTERISTICS

FINS PER INCH: 4 – 12 FPI

TUBE MATERIAL:
Ferrous, Non-Ferrous & Some Alloys

FIN CONTACT: Interference Fit

TYPE OF SERVICE: Light or Special Practice

MAXIMUM TUBE WALL OPERATING TEMPERATURE: Up to 350°F (176°C)

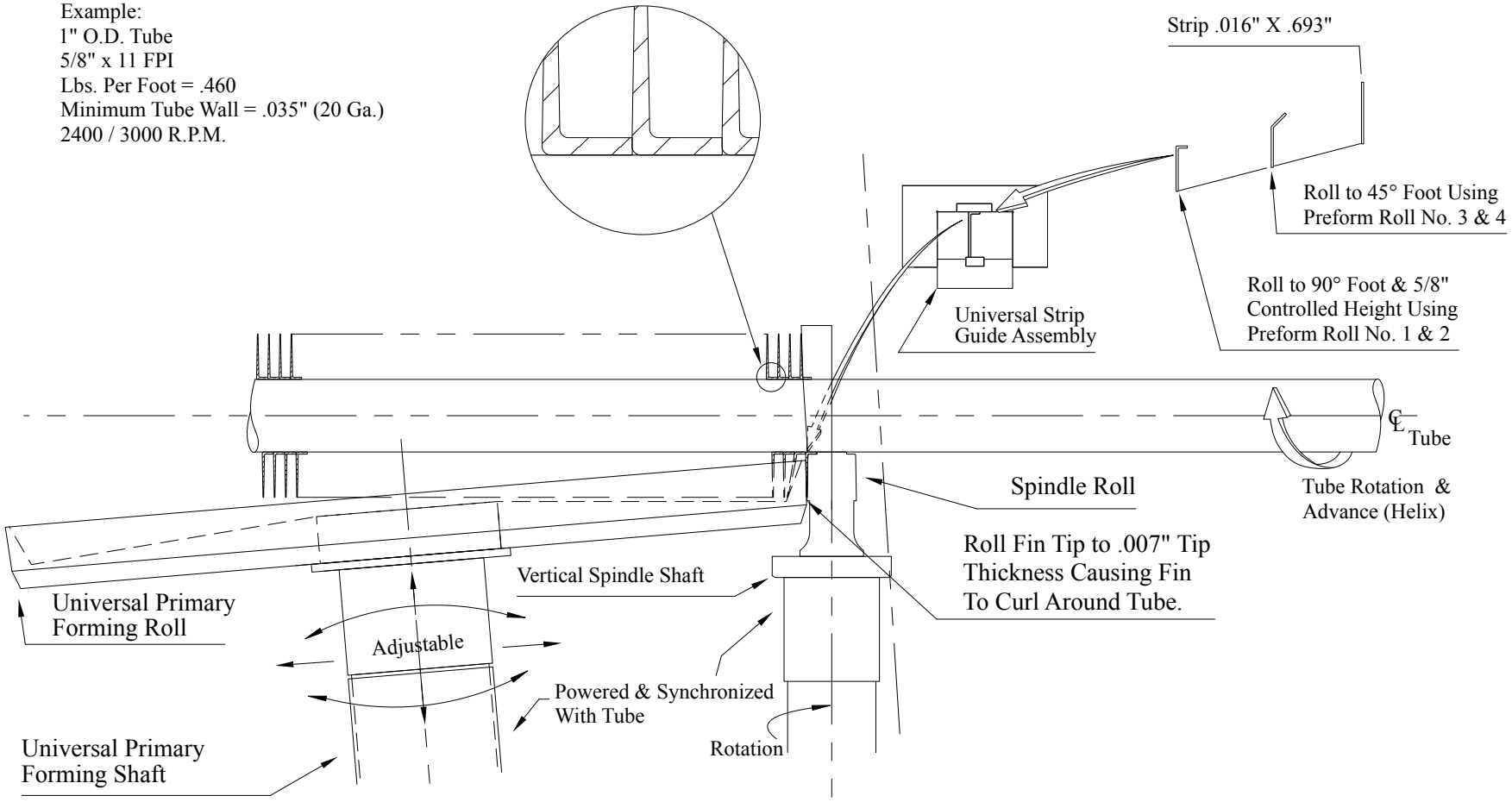
MAXIMUM TUBE RPM ON 1" TUBE: 3000

ESTIMATED PRODUCTION FT/HR ON 1" X 11 FPI X 50' TUBE AT 90% OF TUBE RPM AND 85% EFFICIENCY FACTOR:
641 ft/hr or 195 m/hr

WRAP-ON FIN FORMATION

The sketch below graphically shows the formation of the Wrap-On or "L" footed fin. Beginning in the upper right hand portion of the page, the fin strip is pulled through the first set of preformer rolls where the 45 degree angle of the foot is formed and then into the second set of preformer rolls where the 90 degree foot is completed. As the strip is fed into the universal strip guides, the foot runs on top of the strip guides. The toe continues to point upstream or toward the Quick Change Bare Tube Rack. The foot of the fin rides on the clearance of the spindle roll, as the fin enters the "nip" of the pan and the fin is tapered to the designed fin tip thickness. The sketch also illustrates the flexibility of the pan or the primary forming roller to increase pan pressure against the spindle roll as well as its adjustability to be positioned at different heights to the rolling surface of the spindle roll.

Example:
1" O.D. Tube
5/8" x 11 FPI
Lbs. Per Foot = .460
Minimum Tube Wall = .035" (20 Ga.)
2400 / 3000 R.P.M.



PREFORM ROLLER SET

A set of four (4) rollers, which form the "L" shaped foot from the fin strip. Machine requires one set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" (6.4mm)	PH022AA	2
.3" (7.6mm)	PH022AB	2
.3125" (7.93mm)	PH022AC	2
.335" (8.5mm)	PH022BX	2
.365" (9.26mm)	PH022BS	2
.375" (9.51mm)	PH022AN	2
.394" (10mm)	PH022AS	2
.406" (10.31mm)	PH022AE	2
.422" (10.7mm)	PH022BZ	2
.433" (11mm)	PH022CC	2
.438" (11.11mm)	PH022BM	2
.453" (11.5mm)	PH022CB	2
.473" (12.01mm)	PH022BY	2
.496" (12.6mm)	PH022CA	2
.5" (12.7mm)	PH022AH	2
.583" (14.80mm)	PH022BR	2
.610" (15.48mm)	PH022BV	2
.625" (15.9mm)	PH022AK	2
.630" (16mm)	PH022AW	2
.680" (17.26mm)	PH022BT	2
.75" (19.05mm)	PH022AL	2
.788" (20mm)	PH022BU	2
.807" (20.48mm)	PH022BW	2
.875" (22.2mm)	PH022AT	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL SPINDLE ROLL

Used in conjunction with the Univeral Primary Forming Roll (Pan) to curl the fin strip around the tube. Spindle roll is specific for Wrap-On type fin and is suitable for a range of fin heights. Machine requires one spindle roll.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .35" (6.4mm - 9mm)	3SF49201	8
.36" - .44" (9.1mm - 11.2mm)	3SF49202	8
.45" - .53" (11.4mm - 13.5mm)	3SF49203	8
.54" - .63" (13.7mm - 16mm)	3SF49204	8
.64" - .81" (16.2mm - 20.6mm)	3SF49205	8
.82" - 1.0" (20.8mm - 25.4mm)	3SF49206	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, Overlapped Footed, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm-11.2mm)	3SF49301	3
.45" - .63" (11.4mm-16mm)	3SF49302	3
.64" - .81" (16.2mm-20.6mm)	3SF49303	3
.82" - 1.0" (20.8mm-25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm-11.2mm)	3SF49401	3
.45" - .63" (11.4mm-16mm)	3SF49402	3
.64" - .81" (16.2mm-20.6mm)	3SF49403	3
.82" - 1.0" (20.8mm-25.4mm)*	3SF49404	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

* For Wrap-On and OLFF only

UNIVERSAL STRIP GUIDE SET
For strip thickness less than .014" (.355mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses of less than .014" (.355mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF544	2
.45" - .63" (11.4 - 16mm)	3SF545	2
.64" - .81" (16.2 - 20.6mm)	3SF546	2
.82" - 1.0" (20.8 - 25.4mm)	3SF547	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET
For strip thickness from .014" (.355mm) to .020" (.508mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .014" (.355mm) to .020" (.508mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF510	2
.45" - .63" (11.4 - 16mm)	3SF511	2
.64" - .81" (16.2 - 20.6mm)	3SF512	2
.82" - 1.0" (20.8 - 25.4mm)	3SF513	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET
For strip thickness from .021" (.533mm) to .030" (.762mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .021" (.533mm) to .030" (.762mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF540	2
.45" - .63" (11.4 - 16mm)	3SF541	2
.64" - .81" (16.2 - 20.6mm)	3SF542	2
.82" - 1.0" (20.8 - 25.4mm)	3SF543	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

STRIP GUIDE CLAMPS

One Universal Strip Guide Clamp is required to secure the strip guide set in place. The same clamp can be used on all Universal Strip Guides. Machine requires one clamp.

Note: Sole plate type strip guides require a different clamp.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Strip Guide Clamp	3SF509	1

CARBIDE FOR UNIVERSAL STRIP GUIDE CLAMP

Carbide wears separately from the Universal Strip Guide Clamp and can be replaced independently. **Part No. 3SF50902**

QUICK CHANGE FINNED TUBE RACK (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997)

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD.

FINNED OD	SET NO.	NO. REQ.
.985" (25mm)	QFTR04332	1
1.125" (28.56mm)	QFTR04324	1
1.25" (31.7mm)	QFTR04313	1
1.375" (34.9mm)	QFTR04325	1
1.47" (37.3mm)	QFTR04327	1
1.5" (38.1mm)	QFTR04318	1
1.54" (39.1mm)	QFTR04323	1
1.57" (39.8mm)	QFTR04328	1
1.625" (41.2mm)	QFTR04320	1
1.74" (42.2mm)	QFTR04326	1
1.75" (44.4mm)	QFTR04305	1
1.8" (45.7mm)	QFTR04322	1
1.96" (49.7mm)	QFTR04315	1
1.98" (50.3mm)	QFTR04306	1
2" (50.8mm)	QFTR04307	1
2.24" (56.8mm)	QFTR04316	1
2.25" (57.1mm)	QFTR04301	1
2.3" (58.4mm)	QFTR04334	1
2.48" (62.9mm)	QFTR04317	1
2.5" (63.5mm)	QFTR04302	1
2.52" (64mm)	QFTR04314	1
2.56" (65mm)	QFTR04333	1
2.61" (66.24mm)	QFTR04310	1
2.75" (69.80mm)	QFTR04303	1
2.86" (72.6mm)	QFTR04311	1
3" (76.1mm)	QFTR04308	1
3.05" (77.6mm)	QFTR04330	1

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QUICK CHANGE FINNED TUBE RACK (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997) *continued*

FINNED OD	SET NO.	NO. REQ.
3.11" (78.93mm)	QFTR04312	1
3.14" (79.6mm)	QFTR04331	1
3.25" (82.5mm)	QFTR04309	1
3.4" (86.3mm)	QFTR04304	1
3.5" (88.8mm)	QFTR04321	1
3.58" (90.9mm)	QFTR04329	1
3.61" (91.6mm)	QFTR04319	1

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.5" X .375" X 1.25"	QFTR11101CH	1
.625" X .25" X 1.125"	QFTR11101AT	1
.625" X .375" X 1.375"	QFTR11101AU	1
.625" X 10.7mm X 1.467"	QFTR11101BD	1
.625" X .438" X 1.5"	QFTR11101AS	1
.625" X .473" (12mm) X 1.5625"	QFTR11101BB	1
.625" X .5" X 1.625"	QFTR11101AA	1
.630" (16mm) X .433" (11mm) X 1.5"	QFTR11101BU	1
.75" X .140" X 1.03"	QFTR11101BH	1
.75" X .25" X 1.25"	QFTR11101AV	1
.75" X .375" X 1.5"	QFTR11101AW	1
.75" X .394" (10mm) X 1.537"	QFTR11101AP	1
.75" X .406" X 1.5625"	QFTR11101AY	1
.75" X .438" X 1.625"	QFTR11101AF	1
.75" X .5" X 1.75"	QFTR11101AM	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.75" X .625" X 2"	QFTR11101AR	1
.855" (21.7mm) X .473" (12mm) X 1.797"	QFTR11101AN	1
.985" (25mm) X .5" X 1.984"	QFTR11101BP	1
.985" (25mm) X .625" X 2.234"	QFTR11101BR	1
.985" (25mm) X .630" (16mm) X 2.244"	QFTR11101BT	1
.985" (25mm) X .658" (16.7mm) X 2.298"	QFTR11101BM	1
1" X 3.13" (7.95mm) X 1.625"	QFTR11101BV	1
1" X .5" X 2"	QFTR11101AK	1
1" X .625" X 2.25"	QFTR11101AC	1
1" X .807" (20.5mm) X 2.614"	QFTR11101AG	1
1.125" X .438" X 2"	QFTR11101BC	1
1.25" X .5" X 2.25"	QFTR11101AJ	1
1.25" X .625" X 2.5"	QFTR11101AE	1
1.25" X .630" (16mm) X 2.51"	QFTR11101BS	1
1.25" X .807" (20.5mm) X 2.864"	QFTR11101AZ	1
1.315" X .625" X 2.565"	QFTR11101BN	1
1.5" X .5" X 2.5"	QFTR11101BF	1
1.5" X .625" X 2.75"	QFTR11101AD	1
1.5" X .807" (20.5mm) X 3.114"	QFTR11101BA	1
1.5" X 1" X 3.5"	QFTR11101AX	1
1.5" X 1.04" X 3.58"	QFTR11101BE	1
1.75" X .625" X 3"	QFTR11101BJ	1
1.81" (46mm) X .623" (15.8mm) X 3.055"	QFTR11101BK	1
1.89" (48mm) X .623" (15.8mm) X 3.134"	QFTR11101BL	1
2" X .5" X 3"	QFTR11101BG	1
2" X .625" X 3.25"	QFTR11101AH	1
2" X .75" X 3.5"	QFTR11101AL	1
2" X .807" (20.5mm) X 3.615"	QFTR11101AB	1

LIVE CENTER SPINNING NOSE (FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002)

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
.623" (15.8mm) X 3.77" (9.56mm)	3FTR087182	3
.625" X .313"	3FTR087169	3
.625" X .438"	3FTR087128	3
.625" X .5"	3FTR087119	3
.709" (18mm) X .276" (7mm)	3FTR087103	3
.750" (19.05mm) X 3.74" (9.48mm)	3FTR087165	3
.75" X .256"	3FTR087148	3
.75" X .5"	3FTR087104	3
.75" X .625"	3FTR087140	3
.985" (25mm) X .5"	3FTR087139	3
.985" (25mm) X .625"	3FTR087174	3
.984" (25mm) X .630" (16mm)	3FTR087110	3
.984" (25mm) X .749" (19mm)	3FTR087111	3
1" X .313"	3FTR087107	3
1" X .315" (8mm)	3FTR087163	3
1" X .375"	3FTR087134	3
1" X .5"	3FTR087123	3
1" X .625"	3FTR087121	3
1" X .627" (15.9mm)	3FTR087164	3
1" X .650"	3FTR087166	3
1" X .680"	3FTR087168	3
1" X .75"	3FTR087130	3
1" X .805"	3FTR087171	3
1.25" X .375"	3FTR087167	3
1.25" X .5"	3FTR087127	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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LIVE CENTER SPINNING NOSE (FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002) *continued*

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
1.25" X .625"	3FTR087126	3
1.25" X .630"	3FTR087180	3
1.25" X .75"	3FTR087109	3
1.25" X .805"	3FTR087172	3
1.25" X .875"	3FTR087137	3
1.26" (32mm) X .493" (12.5mm)	3FTR087176	3
1.26" (32mm) X 16mm (.630")	3FTR087178	3
1.26" (32mm) X .632" (16.05mm)	3FTR087135	3
1.5" (38mm) X .492" (12.5mm) X 2.49" (63mm)	3FTR087177	3
1.5" X .5"	3FTR087125	3
1.5" X .625"	3FTR087124	3
1.5" (38mm) X 16mm (.630")	3FTR087179	3
1.5" X .75"	3FTR087159	3
1.5" X .805"	3FTR087173	3
1.5" X .875"	3FTR087138	3
1.9" X .75"	3FTR087170	3
2" X .625"	3FTR087116	3
2" X .75"	3FTR087132	3

WRAP-ON HELIXES FOR ICF AND CARTRIDGE BRIDGES MANUFACTURED AFTER 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.5" X 10	3FH228AV10	5
.625" X 7	3FH228AG07	5
.625" X 8	3FH228AG08	5
.625" X 9	3FH228AG09	5
.625" X 10	3FH228AG10	5
.625" X 11	3FH228AG11	5
.625" X 12	3FH228AG12	5
.625" x 15	3FH228AG15	5
.630" (16mm) X 12	3FH228AU12	5
.75" X 6	3FH228AH06	5
.75" X 7	3FH228AH07	5
.75" X 8	3FH228AH08	5
.75" X 9	3FH228AH09	5
.75" X 10	3FH228AH10	5
.75" X 11	3FH228AH11	5
.75" X 12	3FH228AH12	5
.788" (20mm) x 11	3FH228AS11	5
.855" (21.7mm) X 8	3FH228AM08	5
.855" (21.7mm) X 10	3FH228AM10	5
.946" (24mm) X 11	3FH228AT11	5
.985" (25mm) X 8	3FH228AE08	5
.985" (25mm) X 9	3FH228AE09	5
.985" (25mm) X 10	3FH228AE10	5
.985" (25mm) X 11	3FH228AE11	5
1" X 6	3FH228AA06	5
1" X 6.5	3FH228AA065	5
1" X 7	3FH228AA07	5
1" X 8	3FH228AA08	5
1" X 9	3FH228AA09	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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WRAP-ON HELIXES FOR ICF AND CARTRIDGE BRIDGES MANUFACTURED AFTER 1981 *continued*

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
1” X 10	3FH228AA10	5
1” X 11	3FH228AA11	5
1” X 12	3FH228AA12	5
1” X 13	3FH228AA13	5
1.07” (27.2mm) X 8	3FH228AN08	5
1.125” X 11	3FH228AP11	5
1.25” X 7	3FH228AB07	5
1.25” X 8	3FH228AB08	5
1.25” X 9	3FH228AB09	5
1.25” X 10	3FH228AB10	5
1.25” X 11	3FH228AB11	5
1.25” X 12	3FH228AB12	5
1.26” (32mm) X 11	3FH228AR11	5
1.32” X 11	3FH228AL11	5
1.5” X 7	3FH228AC07	5
1.5” X 8	3FH228AC08	5
1.5” X 9	3FH228AC09	5
1.5” X 10	3FH228AC10	5
1.5” X 11	3FH228AC11	5
1.5” X 12	3FH228AC12	5
2” X 6	3FH228AF06	5
2” X 7	3FH228AF07	5
2” X 8	3FH228AF08	5
2” X 9	3FH228AF09	5
2” X 10	3FH228AF10	5
2” X 11	3FH228AF11	5
2” X 12	3FH228AF12	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

WRAP-ON HELIXES FOR BRIDGES MANUFACTURED BEFORE 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.625” X 7	3FH054AC07	5
.625” X 8	3FH054AC08	5
.625” X 9	3FH054AC09	5
.625” X 10	3FH054AC10	5
.625” X 11	3FH054AC11	5
.625” X 12	3FH054AC12	5
.75” X 10	3FH054AE10	5
.75” X 11	3FH054AE11	5
1” X 5	3FH054AK05	5
1” X 6	3FH054AK06	5
1” X 7	3FH054AK07	5
1” X 8	3FH054AK08	5
1” X 9	3FH054AK09	5
1” X 10	3FH054AK10	5
1” X 11	3FH054AK11	5
1” X 12	3FH054AK12	5
1.07” (27.2mm) X 10	3FH054AV10	5
1.125” X 11	3FH054AW11	5
1.25” X 6	3FH054AL06	5
1.25” X 7	3FH054AL07	5
1.25” X 8	3FH054AL08	5
1.25” X 9	3FH054AL09	5
1.25” X 10	3FH054AL10	5
1.25” X 11	3FH054AL11	5
1.5” X 7	3FH054AN07	5
1.5” X 8	3FH054AN08	5
1.5” X 9	3FH054AN09	5
1.5” X 10	3FH054AN10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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WRAP-ON HELIXES FOR BRIDGES MANUFACTURED BEFORE 1981 *continued*

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
1.5” X 11	3FH054AN11	5
2” X 8	3FH054AR08	5
2” X 9	3FH054AR09	5
2” X 10	3FH054AR10	5
2” X 11	3FH054AR11	5

HELIX MOUNTING SCREWS

Used to secure the helix to the bridge without interfering with the formation of the fin. 3 screws required, 6 recommended.

TUBE SIZE	PART NO.	REC. ORDER QTY.
.5” (12.7mm)	3FH26303	6
.625” - less than .875”	3FH26301	6
.875” - 2” (50.8mm)	3FH26302	6

McELROY FINTUBE CALCULATOR

WEB AND MOBILE APPS

FIND:

STRIP WIDTH

FINNED OD

FIN TIP THICKNESS

WEIGHTS OF FIN MATERIAL

www.mcelroy.com/fintube/resources.htm

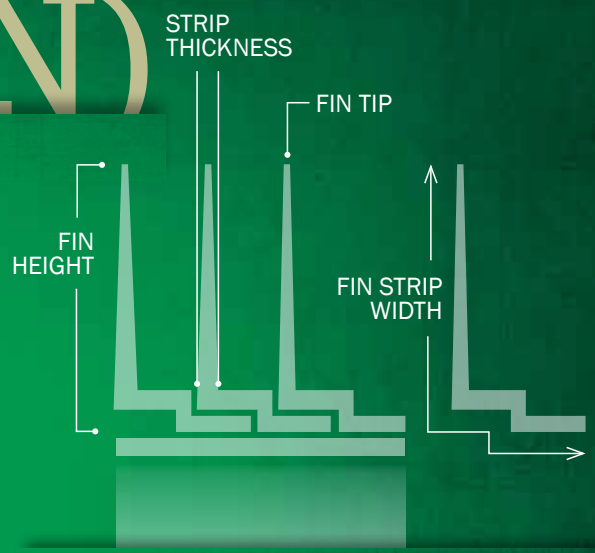
Download on the App Store

ANDROID APP ON Google play

Download for Windows Phone

OVERLAPPED FOOTED (LL-FIN)

The Overlapped Footed Fin (OLFF) is characterized as a double LL fin and is widely used throughout the world as an alternative to the extruded fin. This fin is considered an interference fit type of fin and is used in corrosive applications where protection of the base tube is required. The double LL coverage of the base tube represents a double strip thickness coverage of the base tube. Typically, this fin is produced out of aluminum or copper fin strip. This fin type is not suitable for carbon steel or stainless steel fin materials as the material is too hard for the formation of the characteristic LL foot. The foot of the fin is formed by pulling the strip through a two stage preform roller set. By preforming the foot of the fin into a "joggle" or a one thickness offset, it is possible to take advantage of the ability to place the heel of one fin on the toe of the adjacent fin. The preformers preform the foot to allow the fins to fit together on the surface of the tube, for continuous contact with the base tube and forms a seal to protect the base tube from atmospheric corrosion.



Fin Strip Tip Thickness is also predictable by the following formula:

$$\text{Fin Tip Thickness} = \frac{\text{Fin Strip Thickness x Tube Diameter}}{\text{Finned OD}}$$

Fin height hardware will work with a range of tube sizes as shown on GFTI-1B (page 94). This chart shows the principle of fin height, fin strip thickness and tube size. The zero pitch line of all of the McElroy fin types are basically at the surface of the tube. The fins are smooth with a uniform taper from the base of the tube to the tip of the fin. This makes it possible to calculate the weight of fin strip per foot of tube with the following formula:

Weight of Aluminum Fin Per Foot of Tube =
Fin Strip Thickness x Strip Width x Tube OD x 3.1416 x FPI x 12 x .1

Weight of Copper Fin Per Foot of Tube =
Fin Strip Thickness x Strip Width x Tube OD x 3.1416 x FPI x 12 x .32

CAUTION: Fin Height Hardware for OLFF is specific for each combination of fin height, fin strip thickness and pitch. For other fin strip specifications, contact McElroy at (918) 831-9236 or fintube@mcelroy.com

TYPICAL CHARACTERISTICS

FINS PER INCH: 4 – 12 FPI

TUBE MATERIAL:
Ferrous, Non-Ferrous & Some Alloys

FIN CONTACT: Interference Fit

TYPE OF SERVICE: Corrosive Applications

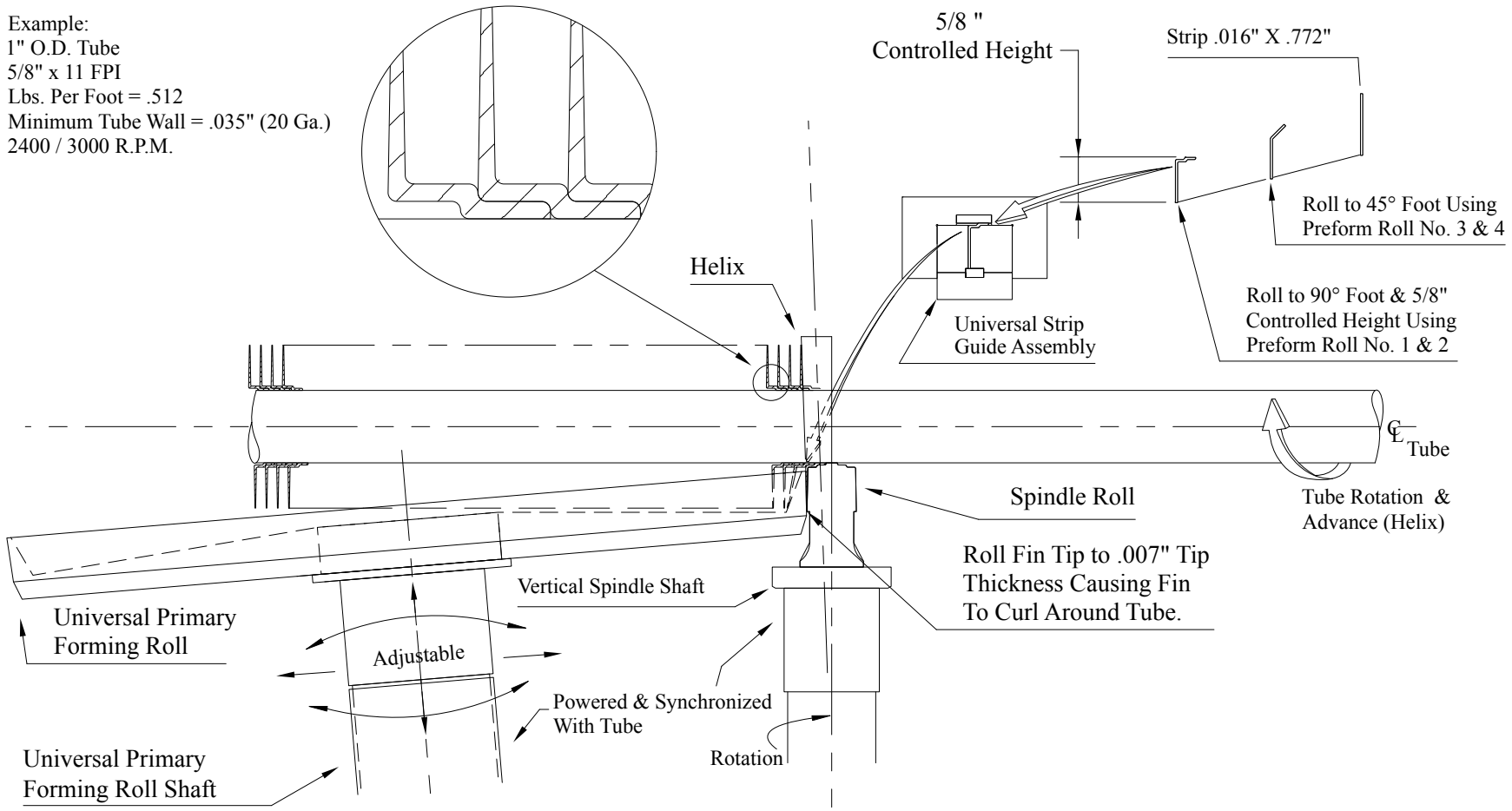
MAXIMUM TUBE WALL OPERATING TEMPERATURE: Up to 350°F (176°C)

MAXIMUM TUBE RPM ON 1" TUBE: 3000

ESTIMATED PRODUCTION FT/HR ON 1" X 11 FPI X 50' TUBE AT 90% OF TUBE RPM AND 85% EFFICIENCY FACTOR:
641 ft/ hr or 195 m/hr

OVERLAPPED FOOTED FIN FORMATION

The sketch below graphically shows the formation of the Overlapped Footed Fin or "LL" footed fin. Beginning in the upper right hand portion of the page, the fin strip is pulled through the first stage preformer roll where the 45 degree angle of the foot is formed and then into the second set of preformers where the 90 degree foot is completed. As the strip is fed into the universal strip guides, the foot runs on top of the strip guides. The toe continues to point upstream or toward the Quick Change Bare Tube Rack. The foot of the fin rides on the clearance of the spindle roll, as the fin enters the "nip" of the pan and the fin is tapered and rolled to the designed fin tip thickness. The sketch also illustrates the flexibility of the Universal Primary Forming Roll to increase pan pressure against the spindle roll as well as its adjustability to be positioned at different heights to the rolling surface of the spindle roll.



PREFORM ROLLER SET

Preform Rollers form the double "LL" shaped foot from the fin strip. These preform rollers are specific for fin height, FPI and Fin Strip Thickness. Machine requires one set of preform rollers.

FIN HEIGHT X FPI X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
7mm (.276") X 12.5 X .010"	3SF418	2
.354" X 10 X .016"	3SF390	2
.375" X 11 X .018"	3SF220	2
.375" X 11 X .016"	3SF343	2
.375" X 12 X .012"	3SF428	2
.5" X 8 X .016"	3SF186	2
.5" X 9 X .016"	3SF445	2
.5" X 10 X .016"	3SF044	2
.5" X 11 X .016"	3SF129	2
.623" X 11 X .016"	3SF408	2
.625" X 8 X .018"	3SF143	2
.625" X 9 X .016"	3SF139	2
.625" X 9 X .018"	3SF096	2
.625" X 10 X .015"	3SF466	2
.625" X 10 X .016"	3SF174	2
.625" X 10 X .018"	3SF010	2
.625" X 11 X .016"	3SF091	2
.625" X 11 X .018"	3SF377	2
.630" X 7 X .016"	3SF433	2
.630" X 10 X .016"	3SF381	2
.630" X 11 X .016"	3SF213	2
.75" X 9 X .018"	3SF447	2
.75" X 11 X .018"	3SF202	2
.875" X 9 X .020"	3SF450	2
.875" X 11 X .020"	3SF451	2
1" X 9 X .031"	3SF027	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SPINDLE ROLL

Used in conjunction with the Universal Primary Forming Roll to curl the fin strip around the tube. Spindle roll is specific for only OLFF fin height, FPI, and Fin Strip Thickness. Machine requires one spindle roll.

FIN HEIGHT X FPI X FIN STRIP THICKNESS	PART NO.	RECOMMENDED ORDER QTY.
.276" (7mm) X 12.5 X .010"	3SF026044	8
.354" X 10 X .016"	3SF026034	8
.375" X 8 X .016"	3SF026052	8
.375" X 11 X .016"	3SF026039	8
.375" X 11 X .018"	3SF026032	8
.375" X 12 X .012"	3SF026045	8
.375" X 15 X .017"	3SF026061	8
.394" X 9 X .016"	3SF026059	8
.438" X 9 X .016"	3SF026056	8
.5" X 7 X .016"	3SF026057	8
.5" X 8 X .016"	3SF026031	8
.5" X 9 X .016"	3SF026047	8
.5" X 10 X .016"	3SF026002	8
.5" X 11 X .016"	3SF026003	8
.5" X 11 X .018"	3SF026021	8
.563" X 9 X .031"	3SF026004	8
.622" X 7 X .016"	3SF026054	8
.623" (15.8mm) X 11 X .016"	3SF026043	8
.625" X 8 X .016"	3SF026020	8
.625" X 8 X .018"	3SF026005	8
.625" X 8 X .030"	3SF026006	8
.625" X 9 X .016"	3SF026007	8
.625" X 9 X .018"	3SF026008	8
.625" X 10 X .015"	3SF026051	8
.625" X 10 X .016"	3SF026022	8
.625" X 10 X .018"	3SF026009	8
.625" X 10 X .023"	3SF026010	8
.625" X 11 X .016"	3SF026011	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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OVERLAPPED FOOTED FIN

SPINDLE ROLL *continued*

FIN HEIGHT X FPI X FIN STRIP THICKNESS	PART NO.	RECOMMENDED ORDER QTY.
.625” X 11 X .018”	3SF026012	8
.625” X 12 X .016”	3SF026060	8
.630” X 7 X .016”	3SF026046	8
.630” (16mm) X 8 X .016”	3SF026053	8
.630” (16mm) X 9 X .5mm	3SF026014	8
.630” X 10 X .016”	3SF026042	8
.630” X 11 X .016”	3SF026030	8
.658” X 12 X .016”	3SF026058	8
.75” X 9 X .018”	3SF026048	8
.75” X 11 X .018”	3SF026028	8
.875” X 9 X .020”	3SF026050	8
.875” X 11 X .020”	3SF026049	8
1” X 9 X .020”	3SF026055	8
1” X 9 X .031”	3SF026025	8

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin stock around the tube. Pan is universal and can be used for Wrap-On, OLFF, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 MACHINE

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm-11.2mm)	3SF49301	3
.45" - .63" (11.4mm-16mm)	3SF49302	3
.64" - .81" (16.2mm-20.6mm)	3SF49303	3
.82" - 1.0" (20.8mm-25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm-11.2mm)	3SF49401	3
.45" - .63" (11.4mm-16mm)	3SF49402	3
.64" - .81" (16.2mm-20.6mm)	3SF49403	3
.82" - 1.0" (20.8mm-25.4mm)*	3SF49404	3

* For W/O and OLFF only

UNIVERSAL STRIP GUIDE SET
For strip thickness less than .014" (.355mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses of less than .014" (.355mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF544	2
.45" - .63" (11.4 - 16mm)	3SF545	2
.64" - .81" (16.2 - 20.6mm)	3SF546	2
.82" - 1.0" (20.8 - 25.4mm)	3SF547	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET
For strip thickness from .014" (.355mm) to .020" (.508mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .014" (.355mm) to .020" (.508mm) and will accept fin heights as indicated in part description. Requires Universal Strip Guide Clamp 3SF09. Machine requires one Strip Guide Set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (.64 - 11.2mm)	3SF510	2
.45" - .63" (11.4 - 16mm)	3SF511	2
.64" - .81" (16.2 - 20.6mm)	3SF512	2
.82" - 1.0" (20.8 - 25.4mm)	3SF513	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET
For strip thickness from .021" (.533mm) to .030" (.762mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .021" (.533mm) to .030" (.762mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF540	2
.45" - .63" (11.4 - 16mm)	3SF541	2
.64" - .81" (16.2 - 20.6mm)	3SF542	2
.82" - 1.0" (20.8 - 25.4mm)	3SF543	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

STRIP GUIDE CLAMPS

One Universal Strip Guide Clamp is required to secure the strip guide set in place. The same clamp can be used on all Universal Strip Guides. Machine requires one clamp.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Strip Guide Clamp	3SF509	1

CARBIDE FOR UNIVERSAL STRIP GUIDE CLAMP

Carbide wears separately from the Universal Strip Guide Clamp and can be replaced independently. **Part No. 3SF50902**

NOTE: Sole plate type strip guides require a different clamp.

QUICK CHANGE FINNED TUBE RACK (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997)

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned tube OD. The sizing mandrels are replaceable and specific for each finned tube OD.

FINNED TUBE OD	SET NO.	NO. REQ.
.985” (25mm)	QFTR04332	1
1.125” (28.57mm)	QFTR04324	1
1.25” (28.57mm)	QFTR04313	1
1.375” (34.92mm)	QFTR04325	1
1.47” (37.33mm)	QFTR04327	1
1.5” (38.1mm)	QFTR04318	1
1.54” (39.11mm)	QFTR04323	1
1.57” (39.87mm)	QFTR04328	1
1.625” (41.27mm)	QFTR04320	1
1.74” (44.2mm)	QFTR04326	1
1.75” (44.45mm)	QFTR04305	1
1.8” (45.72mm)	QFTR04322	1
1.96” (49.78mm)	QFTR04315	1
1.98” (50.29mm)	QFTR04306	1
2” (50.8mm)	QFTR04307	1
2.24” (56.89mm)	QFTR04316	1
2.25” (57.15mm)	QFTR04301	1
2.3” (58.4mm)	QFTR04334	1
2.48” (62.99mm)	QFTR04317	1
2.5” (63.5mm)	QFTR04302	1
2.52” (64mm)	QFTR04314	1
2.56” (65.02mm)	QFTR04333	1
2.61” (66.29mm)	QFTR04310	1
2.75” (69.85mm)	QFTR04303	1
2.86” (72.64mm)	QFTR04311	1
3” (76.2mm)	QFTR04308	1

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QUICK CHANGE FINNED TUBE RACK (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997) *continued*

FINNED TUBE OD	SET NO.	NO. REQ.
3.06” (77.6mm)	QFTR04330	1
3.11” (78.99mm)	QFTR04312	1
3.14” (79.6mm)	QFTR04331	1
3.25” (82.55mm)	QFTR04309	1
3.4” (86.36mm)	QFTR04304	1
3.5” (88.9mm)	QFTR04321	1
3.58” (90.93mm)	QFTR04329	1
3.61” (91.69mm)	QFTR04319	1

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED TUBE OD	SET NO.	NO. REQ.
.5” X .375” X 1.25”	QFTR11101CH	1
.625” X .25” X 1.125”	QFTR11101AT	1
.625” X .375” X 1.38”	QFTR11101AU	1
.625” X .422” (10.7mm) X 1.47”	QFTR11101BD	1
.625” X .438” X 1.5”	QFTR11101AS	1
.625” X .473” (12mm) X 1.57”	QFTR11101BB	1
.625” X .5” X 1.625”	QFTR11101AA	1
.630” (16mm) X .433” (11mm) X 1.5” (38mm)	QFTR11101BU	1
.75” X .140” X 1.03”	QFTR11101BH	1
.75” X .25” X 1.25”	QFTR11101AV	1
.75” X .375” X 1.5”	QFTR11101AW	1
.75” X 3.94” (10mm) X 1.54”	QFTR11101AP	1
.75” X .406” X 1.56”	QFTR11101AY	1
.75” X .438” X 1.626”	QFTR11101AF	1
.75” X .5” X 1.75”	QFTR11101AM	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

TUBE SIZE X FIN HEIGHT X FINNED TUBE OD	SET NO.	NO. REQ.
.75" X .625" X 2"	QFTR11101AR	1
.855" (21.7mm) X .473" (12mm) X 1.8"	QFTR11101AN	1
.985" (25mm) X .5" X 1.985"	QFTR11101BP	1
.985" (25mm) X .625" X 2.24"	QFTR11101BR	1
.985" (25mm) X .630" (16mm) X 2.25"	QFTR11101BT	1
.985" (25mm) X .658" (16.7mm) X 2.30"	QFTR11101BM	1
1" X .313" (7.95mm) X 1.627"	QFTR11101BV	1
1" X .5" X 2"	QFTR11101AK	1
1" X .625" X 2.25"	QFTR11101AC	1
1" X .807" X 2.614"	QFTR11101AG	1
1.125" X .438" X 2"	QFTR11101BC	1
1.25" X .5" X 2.25"	QFTR11101AJ	1
1.25" X .625" X 2.5"	QFTR11101AE	1
1.25" X .630" (16mm) X 2.51"	QFTR11101BS	1
1.25" X .807" (20.5mm) X 2.86"	QFTR11101AZ	1
1.315" X .625" X 2.57"	QFTR11101BN	1
1.5" X .5"	QFTR11101BF	1
1.5" X .625" X 2.75"	QFTR11101AD	1
1.5" X .807" (20.5mm) X 3.11"	QFTR11101BA	1
1.5" X 1" X 2.5"	QFTR11101AX	1
1.5" X 1.04" X 3.58"	QFTR11101BE	1
1.75" X .625" X 3"	QFTR11101BJ	1
1.81" (46mm) X .623" (15.8mm) X 3.06"	QFTR11101BK	1
1.89" (48mm) X .623" (15.8mm) X 3.14"	QFTR11101BL	1
2" X .5" X 3"	QFTR11101BG	1
2" X .625" X 3.25"	QFTR11101AH	1
2" X .625" X 3.5"	QFTR11101AL	1
2" X .807" (20.5mm) X 3.615"	QFTR11101AB	1

LIVE CENTER SPINNING NOSE FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
15.8mm X 9.6mm X 34.9mm	3FTR087182	3
.625" X .313" X 1.25"	3FTR087169	3
.625" X .438" X 1.5"	3FTR087128	3
.625" X .5" X 1.625"	3FTR087119	3
.709" (18mm) X .276" (7mm) X 1.26"	3FTR087103	3
.75" (19.05mm) X .374" (9.48mm) X 1.5" (38mm)	3FTR087165	3
.75" X .256" X 1.262"	3FTR087148	3
.75" X .5" X 1.75"	3FTR087104	3
.75" X .625" X 2"	3FTR087140	3
.985" (25mm) X .5" X 1.985"	3FTR087139	3
.985" (25mm) X .625" X 2.235"	3FTR087174	3
.985" (25mm) X .630" (16mm) X 2.45"	3FTR087110	3
.985" (25mm) X .745" (19mm) X 2.48"	3FTR087111	3
1" X .313" X 1.626"	3FTR087107	3
1" X .315" (8mm) X 1.630"	3FTR087163	3
1" X .375" X 1.75"	3FTR087134	3
1" X .5" X 2.0"	3FTR087123	3
1" X .625" X 2.25"	3FTR087121	3
1" X .627" (15.9mm) X 2.25" (57.2mm)	3FTR087164	3
1" X .650" X 2.3"	3FTR087166	3
1" X .680" X 2.36"	3FTR087168	3
1" X .75" X 2.5"	3FTR087130	3
1" X .805" X 2.61"	3FTR087171	3
1.25" X .375" X 2"	3FTR087167	3
1.25" X .5" X 2.25"	3FTR087127	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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LIVE CENTER SPINNING NOSE FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002 *continued*

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
1.25" X .625" X 2.5"	3FTR087126	3
1.25" X .63" X 2.51"	3FTR087180	3
1.25" X .75" X 2.75"	3FTR087109	3
1.25" X .805" X 2.86"	3FTR087172	3
1.25" X .875" X 3"	3FTR087137	3
1.26" (32mm) X .493" (12.5mm) X 2.25" (57mm)	3FTR087176	3
1.26" (32mm) X .63" (16mm) X 2.52" (64mm)	3FTR087178	3
1.26" (32mm) X .632" (16.05mm) X 2.524"	3FTR087135	3
1.5" (38mm) X .493" (12.5mm) X 2.48" (63mm)	3FTR087177	3
1.5" X .5" X 2.5"	3FTR087125	3
1.5" X .625" X 2.75"	3FTR087124	3
1.5" (38mm) X .63" (16mm) X 2.76" (70mm)	3FTR087179	3
1.5" X .75" X 3"	3FTR087159	3
1.5" X .805" X 3.11"	3FTR087173	3
1.5" X .875" X 3.25"	3FTR087138	3
1.9" X .75" X 3.4"	3FTR087170	3
2" X .625" X 3.25"	3FTR087116	3
2" X .75" X 3.5"	3FTR087132	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OLFF HELIXES FOR ICF AND CARTRIDGE BRIDGES (MANUFACTURED AFTER 1981)

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 9	3FH255AH09	5
.625" X 11	3FH255AH11	5
.709" (18mm) X 10	3FH255AD10	5
.709" (18mm) X 12.5	3FH255AD125	5
.75" X 9	3FH255AG09	5
.75" X 10	3FH255AG10	5
.75" X 11	3FH255AG11	5
.75" X 12	3FH255AG12	5
.985" (25mm) X 9	3FH255AB09	5
.985" (25mm) X 10	3FH255AB10	5
.985" (25mm) X 11	3FH255AB11	5
.985" (25mm) X 12	3FH255AB12	5
1" X 7	3FH255AA07	5
1" X 8	3FH255AA08	5
1" X 9	3FH255AA09	5
1" X 10	3FH255AA10	5
1" X 11	3FH255AA11	5
1.25" X 6	3FH255AE06	5
1.25" X 9	3FH255AE09	5
1.25" X 10	3FH255AE10	5
1.25" X 11	3FH255AE11	5
1.5" X 7	3FH255AC07	5
1.5" X 8	3FH255AC08	5
1.5" X 9	3FH255AC09	5
1.5" X 10	3FH255AC10	5
1.5" X 11	3FH255AC11	5
2" X 9	3FH255AJ09	5
2" X 10	3FH255AJ10	5

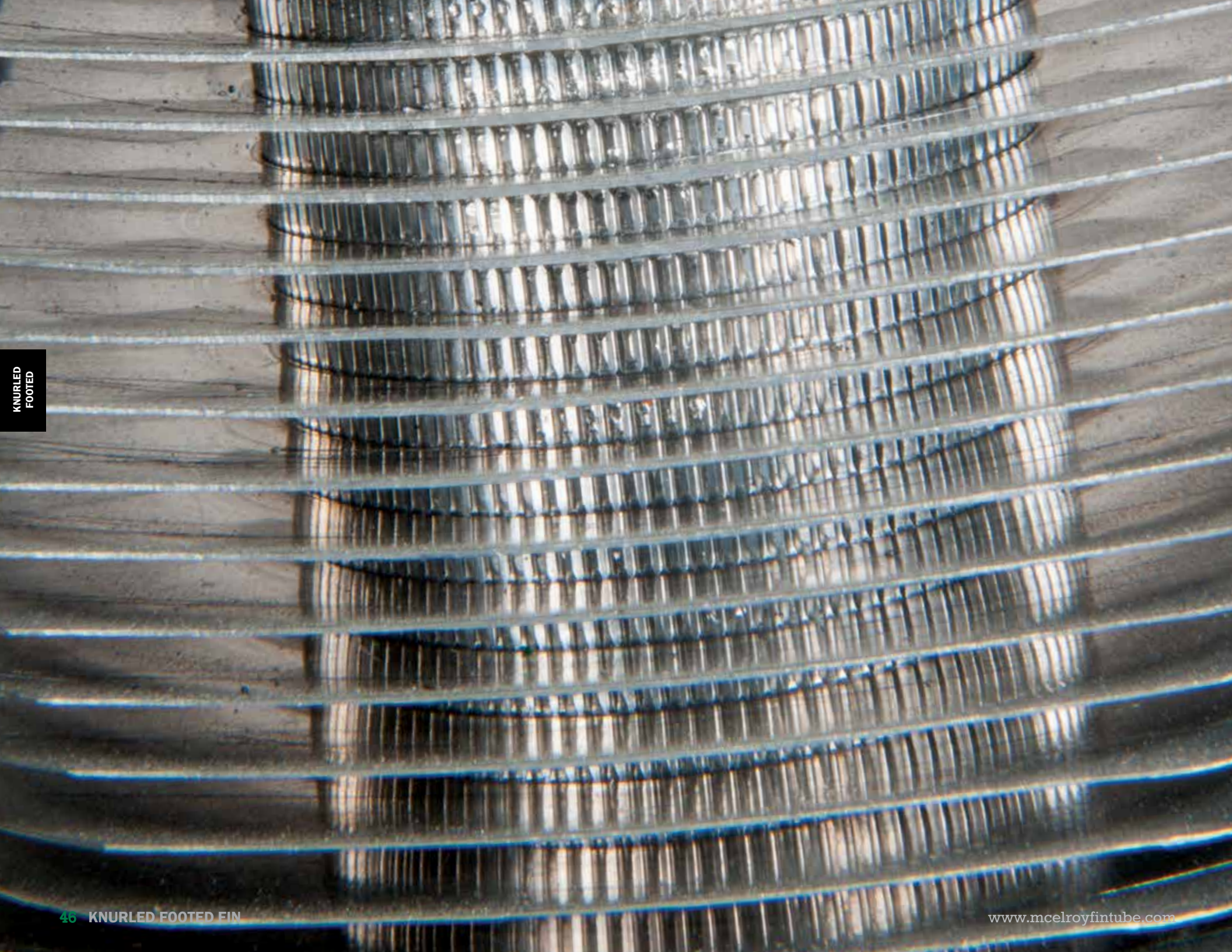
NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OLFF HELIXES FOR BRIDGES MANUFACTURED BEFORE 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
18mm (.709") X 10	3FH053AK10	5
1" X 5	3FH053AD05	5
1" X 6	3FH053AD06	5
1" X 7	3FH053AD07	5
1" X 8	3FH053AD08	5
1" X 9	3FH053AD09	5
1" X 10	3FH053AD10	5
1" X 11	3FH053AD11	5
1.25" X 9	3FH053AF09	5
1.25" X 10	3FH053AF10	5
1.25" X 11	3FH053AF11	5
1.5" X 9	3FH053AH09	5
1.5" X 11	3FH053AH11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.



KNURLED FOOTED (KL-FIN)

ENHANCEMENTS FOR WRAP-ON AND OVERLAPPED FOOTED FINS

The Knurled Footed Fin is characterized as adding increased tube and fin surface area due to the knurled surface on the fin foot and tube. The fin is consider an interference fit type fin and because of the knurls some heat transfer specialist give the fin added performance ratings due to a mechanical type bond of the fin material to the tube wall surface. Typically, this fin is produced out of aluminum or copper fin strip. This fin type is not suitable for carbon steel or stainless steel fin materials as the material is too hard for the formation of the characteristic L or LL foot. Knurling depth in the tube wall is affected by the hardness of the tube material chosen. The fin, whether Wrap-On (L-Fin) or Overlapped Footed Fin (LL-Fin), is formed using standard fin height hardware.

For Wrap-On fin strip width, standard formulas can be used. But, when establishing your fin strip width use one less FPI; in other words, if you wish to manufacture an 11 FPI tube, use 10 FPI for determination of your fin strip width in the following formula.

$$\text{Strip Width} = \left(\frac{1}{\text{FPI}} + \text{Fin Height}\right) - (\text{Fin Strip Thickness} \times 3) + \left(\text{Fin Strip Thickness} \times \frac{3.1416}{2}\right)$$

OLFF fin strip width is again reduced by one FPI.
Fin Strip Tip Thickness is also predictable by the following fomula:

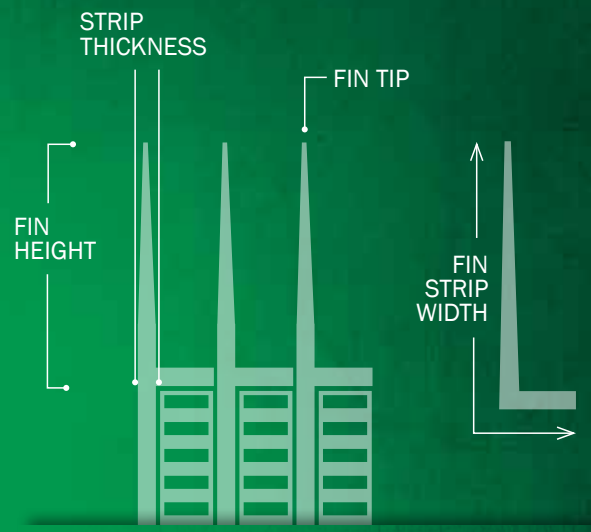
$$\text{Fin Tip Thickness} = \frac{\text{Fin Strip Thickness} \times \text{Tube Diameter}}{\text{Finned OD}}$$

When calculating the weight of material per foot of tube be sure to use the revised fin strip width but the actual FPI to be produced.

Weight of Aluminum Fin Per Foot of Tube =
Fin Strip Thickness x Strip Width x Tube OD x 3.1416 x FPI x 12 x .1

Weight of Copper Fin Per Foot of Tube =
Fin Strip Thickness x Strip Width x Tube OD x 3.1416 x FPI x 12 x .32

CAUTION: Fin Height Hardware for OLFF is specific for each combination of fin height, fin strip thickness and pitch. For other fin strip specifications, contact McElroy at (918) 831-9236 or fintube@mcelroy.com



TYPICAL CHARACTERISTICS

FINS PER INCH: 4-12 FPI

TUBE MATERIAL:
Ferrous, Non-Ferrous & Some Alloys

FIN CONTACT: Interference Fit

TYPE OF SERVICE: More Severe Service

MAXIMUM TUBE WALL OPERATING TEMPERATURE: Up to 500° F (260° C)

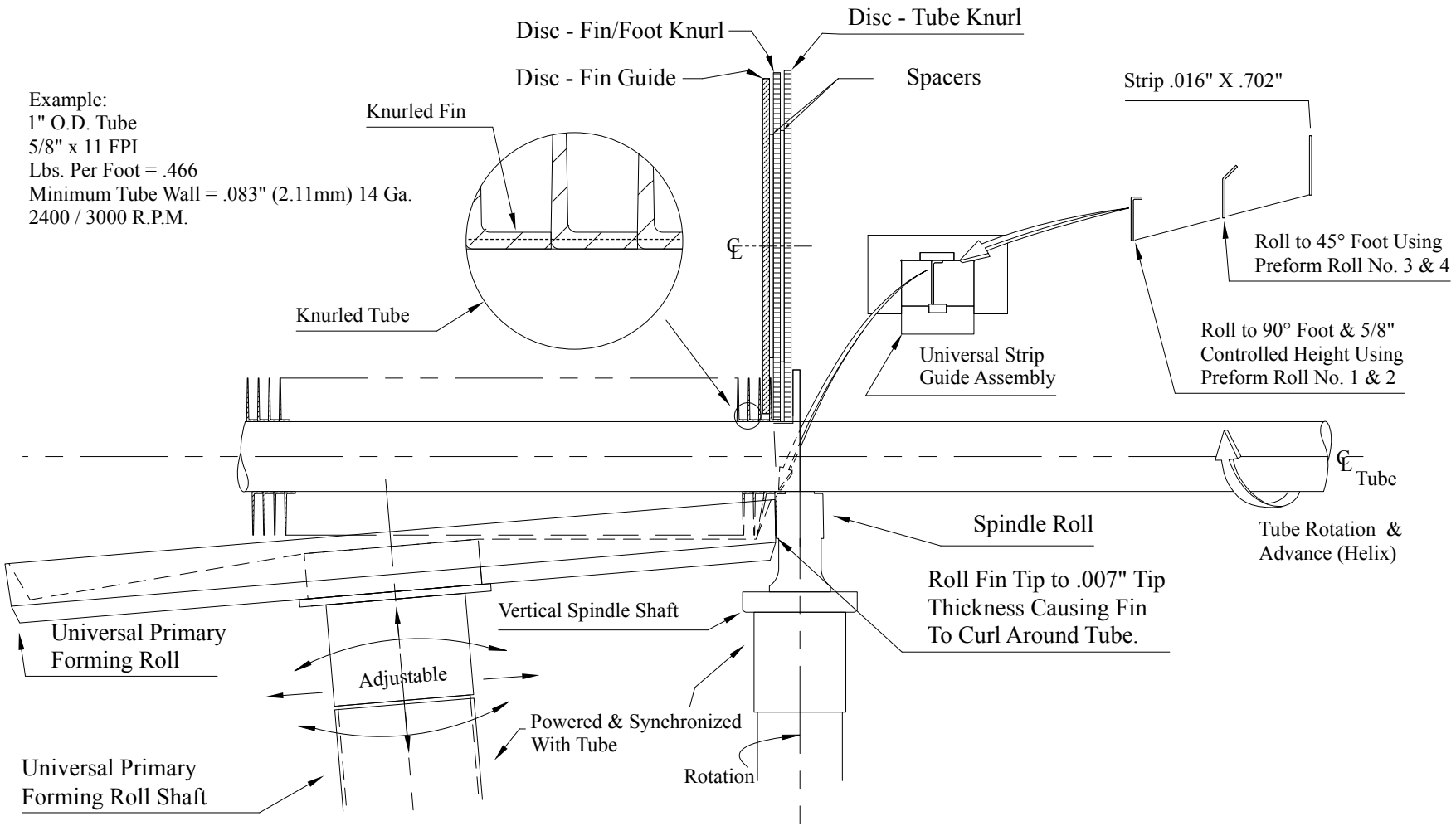
MAXIMUM TUBE RPM ON 1" TUBE: 3000

ESTIMATED PRODUCTION FEET/HOUR ON 1" X 11 FPI 50 FOOT TUBE AT 90% OF TUBE RPM AND 85% EFFICIENCY FACTOR: 641 ft/hr or 95 m/hr

WRAP-ON KNURLED FOOTED FIN FORMATION

The sketch below graphically shows the formation of the Wrap-On Knurled Footed Fin. Standard Wrap-On hardware is used in conjunction with the roller overarm that is equipped with discs which are specific for the FPI and thickness of fin strip material. Beginning in the upper right hand portion of the page, the fin strip is pulled through the first stage preformer roll where the 45 degree angle of the foot is formed and then into the second set of preformers where the 90 degree foot is completed. As the strip is fed into the universal strip guides, the foot runs on top of the strip guides.

One half revolution before the fin reaches the tube, the surface of the tube wall is knurled; on the next revolution the fin foot is knurled into the tube wall. The toe continues to point upstream or toward the Quick Change Bare Tube Rack just as with the other footed fins. The foot of the fin rides on the clearance of the spindle roll, as the fin enters the "nip" of the pan and as the fin is tapered and rolled to the designed fin tip thickness. The sketch also illustrates the flexibility of the pan or the primary forming roller to increase pan pressure against the spindle roll as well as it's adjustability to be positioned at different heights to the rolling surface of the spindle roll.



WRAP-ON KNURLED FIN PITCH HARDWARE

FIN GUIDE DISC

Spacer to maintain pitch of fin. Suitable for all FPIs. Machine requires one fin guide disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Fin Guide Disc	3FH229B	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

TUBE KNURLING DISC

Disc that knurls the surface of the tube. It is suitable for all FPIs and stock thicknesses. Machine requires one tube knurling disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Tube Knurling Disc	3FH230	16

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

KNURLING DISC SHIM KIT

Special spacer kit to be used with Knurled tooling. Allows discs to be spaced .002" larger than desired fin strip. Various shims required from each kit. Each kit includes shims, color-coded for thickness.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Shim Kit	A3FH429	20

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT

Standard shims to be used with Universal Backfillers and Knurled tooling. Allows the disc to be spaced .002" less than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Shim Kit	A3FH403	20

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN FOOT KNURLING DISC

This disc knurls the foot of the fin after it has been formed. Specify FPI and fin strip thickness. Machine requires one fin foot knurling disc. Shown with bearing differential installed, not included - must be ordered separately. See below.

FPI X FIN STRIP THICKNESS	PART NO.	RECOMMENDED ORDER QTY.
7 X .016"	3FH23105	6
8 X .016"	3FH23103	6
9 X .014"	3FH23112	6
9 X .015"	3FH23104	6
9 X .016"	3FH23106	6
9 X .018"	3FH23110	6
10 X .014"	3FH23107	6
10 X .016"	3FH23102	6
10 X .018"	3FH23111	6
11 X .014"	3FH23109	6
11 X .016"	3FH23101	6
11 X .018"	3FH23108	6
12 X .016"	3FH23113	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

BEARING DIFFERENTIAL

Wear surface for fin foot knurling disc (ordered separately). Specific for selected FPI. Machine requires one bearing differential.

FPI	PART NO.	RECOMMENDED ORDER QTY.
7 FPI	3FH22705	3
8 FPI	3FH22703	3
9 FPI	3FH22704	3
10 FPI	3FH22702	3
11 FPI	3FH22701	3
12 FPI	3FH22706	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

IMBEDDED HELIX (USED FOR WRAP-ON KNURLED)

Supports the formed fin on its first revolution and is mounted on the face of the cartridge bridge. This helix is used for both Imbedded and Wrap-On Knurled Footed Fins. Specify tube OD and FPI. Note: must have ICF or Cartridge bridge to run this fin.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 6	3FH133AA06	5
.625" X 7	3FH133AA07	5
.625" X 8	3FH133AA08	5
.625" X 9	3FH133AA09	5
.625" X 10	3FH133AA10	5
.625" X 11	3FH133AA11	5
.625" X 12	3FH133AA12	5
.625" X 13	3FH133AA13	5
.630" X 8	3FH133AP08	5
.709" (18mm) X 10	3FH133AK10	5
.709" (18mm) X 11	3FH133AK11	5
.709" (18mm) X 13	3FH133AK13	5
.75" X 5	3FH133AB05	5
.75" X 6	3FH133AB06	5
.75" X 7	3FH133AB07	5
.75" X 8	3FH133AB08	5
.75" X 9	3FH133AB09	5
.75" X 10	3FH133AB10	5
.75" X 11	3FH133AB11	5
.75" X 12	3FH133AB12	5
.75" X 13	3FH133AB13	5
.75" X 17	3FH133AB17	5
.761" X 7	3FH133BA07	5
.788" (20mm) X 10	3FH133AC10	5
.788" (20mm) X 11	3FH133AC11	5
.854" (21.7mm) X 8	3FH133AZ08	5
.854" (21.7mm) X 9	3FH133AZ09	5
.854" (21.7mm) X 10	3FH133AZ10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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IMBEDDED HELIX (USED FOR WRAP-ON KNURLED) *continued*

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.875" X 7	3FH133AU07	5
.875" X 9	3FH133AU09	5
.875" X 11	3FH133AU11	5
.946" (24mm) X 10	3FH133AV10	5
.985" (25mm) X 8	3FH133AL08	5
.985" (25mm) X 9	3FH133AL09	5
.985" (25mm) X 10	3FH133AL10	5
.985" (25mm) X 11	3FH133AL11	5
.985" (25mm) X 12	3FH133AL12	5
.985" (25mm) X 13	3FH133AL13	5
1" X 5	3FH133AD05	5
1" X 6	3FH133AD06	5
1" X 7	3FH133AD07	5
1" X 8	3FH133AD08	5
1" X 9	3FH133AD09	5
1" X 10	3FH133AD10	5
1" X 11	3FH133AD11	5
1" X 12	3FH133AD12	5
1" X 13	3FH133AD13	5
1.125" X 11	3FH133BB11	5
1.25" X 6	3FH133AF06	5
1.25" X 7	3FH133AF07	5
1.25" X 8	3FH133AF08	5
1.25" X 9	3FH133AF09	5
1.25" X 10	3FH133AF10	5
1.25" X 11	3FH133AF11	5
1.25" X 12	3FH133AF12	5
1.25" X 13	3FH133AF13	5
1.26" (32mm) X 10	3FH133AM10	5
1.26" (32mm) X 11	3FH133AM11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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IMBEDDED HELIX (USED FOR WRAP-ON KNURLED) *continued*

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
1.315” X 9	3FH133BD09	5
1.32” X 10	3FH133AW10	5
1.32” X 11	3FH133AW11	5
1.375” X 8	3FH133AG08	5
1.375” X 10	3FH133AG10	5
1.5” X 5	3FH133AH05	5
1.5” X 6	3FH133AH06	5
1.5” X 7	3FH133AH07	5
1.5” X 8	3FH133AH08	5
1.5” X 9	3FH133AH09	5
1.5” X 10	3FH133AH10	5
1.5” X 11	3FH133AH11	5
1.5” X 12	3FH133AH12	5
1.5” X 13	3FH133AH13	5
1.75” X 8	3FH133AR08	5
1.75” X 9	3FH133AR09	5
1.75” X 10	3FH133AR10	5
1.75” X 11	3FH133AR11	5
1.81” (46mm) X 9	3FH133BC09	5
1.9” X 7	3FH133AY07	5
1.9” X 9	3FH133AY09	5
2” X 6	3FH133AJ06	5
2” X 7	3FH133AJ07	5
2” X 8	3FH133AJ08	5
2” X 9	3FH133AJ09	5
2” X 10	3FH133AJ10	5
2” X 11	3FH133AJ11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OVERLAPPED FOOTED KNURLED FIN PITCH HARDWARE

KNURLED OLFF FIN GUIDE DISC

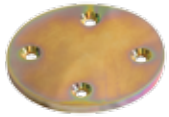
Spacer to maintain pitch of fin. Suitable for all FPI's. Machine requires one knurled OLFF fin guide disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
KF OLFF Fin Guide Disc	3FH373	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

KNURLED OLFF OVERARM COVER PLATE

Plate to hold the knurled fin guide disc in place on the overarm roller shaft. This is a special cover plate for this fin application only.



DESCRIPTION	PART NO.	NO. REQ.
KF OLFF Overarm Cover Plate	3FH371	1

KNURLED OLFF OVERARM ROLLER SHAFT

Shaft to hold tooling for knurled OLFF. This is a special shaft for this fin application only.

DESCRIPTION	PART NO.	NO. REQ.
KF OLFF Overarm Roller Shaft	3FH372	1

TUBE KNURLING DISC

Disc that knurls the surface of the tube. It is suitable for all FPIs and stock thicknesses. Machine requires one tube knurling disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Tube Knurling Disc	3FH230	16

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN FOOT KNURLING DISC

This disc knurls the foot of the fin after it has been formed. Specify FPI and fin strip thickness. Machine requires one fin foot knurling disc. Shown with bearing differential installed, not included - must be ordered separately. See below.

FPI X FIN STRIP THICKNESS	PART NO.	RECOMMENDED ORDER QTY.
7 X .016"	3FH23105	6
8 X .016"	3FH23103	6
9 X .014"	3FH23112	6
9 X .015"	3FH23104	6
9 X .016"	3FH23106	6
9 X .018"	3FH23110	6
10 X .014"	3FH23107	6
10 X .016"	3FH23102	6
10 X .018"	3FH23111	6
11 X .014"	3FH23109	6
11 X .016"	3FH23101	6
11 X .018"	3FH23108	6
12 X .016"	3FH23113	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

BEARING DIFFERENTIAL

Wear surface for fin foot knurling disc (ordered separately). Specific for selected FPI. Machine requires two bearing differential.

FPI	PART NO.	RECOMMENDED ORDER QTY.
7 FPI	3FH22705	6
8 FPI	3FH22703	6
9 FPI	3FH22704	6
10 FPI	3FH22702	6
11 FPI	3FH22701	6
12 FPI	3FH22706	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN FOOT KNURLING OLFF DISC SET

This disc adds the knurling for second fin foot. Specify FPI and fin strip thickness. Machine requires one fin foot knurling disc. Shown with bearing differential installed, not included - must be ordered separately. See "Bearing Differential" table on previous page.

FPI X FIN STRIP THICKNESS	SET INCLUDES	SET NO.	RECOMMENDED ORDER QTY.
10 X .016"	10	3FH46202	1
12 X .016"	12	3FH46201	1

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OLFF KNURLED HELIX FOR ICF AND CARTRIDGE BRIDGES (MANUFACTURED AFTER 1981)

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge Bridge. The helix is specific for each tube OD and FPI. Helix has two counter bores for clearance of the OLFF foot. Uses helix screw 3FH26302. See page 100 for frequently used parts. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
25mm x 12 FPI	3FH463AA12	5
1" x 10 FPI	3FH463AB10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SPACER FOR KNURLING DISC SHIM KIT

Special Spacer kit to be used with Knurled tooling. Allows discs to be spaced .002" larger than desired fin strip. Various shims required from each kit. Each kit includes shims, color-coded for thickness.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Shim Kit	A3FH429	40

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT (REQUIRED FOR OLFF FIN GUIDE DISCS)

Standard shims to be used with Universal Backfillers and Knurled tooling. Allows the disc to be spaced .002" less than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Shim Kit	A3FH403	20

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, OLFF, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

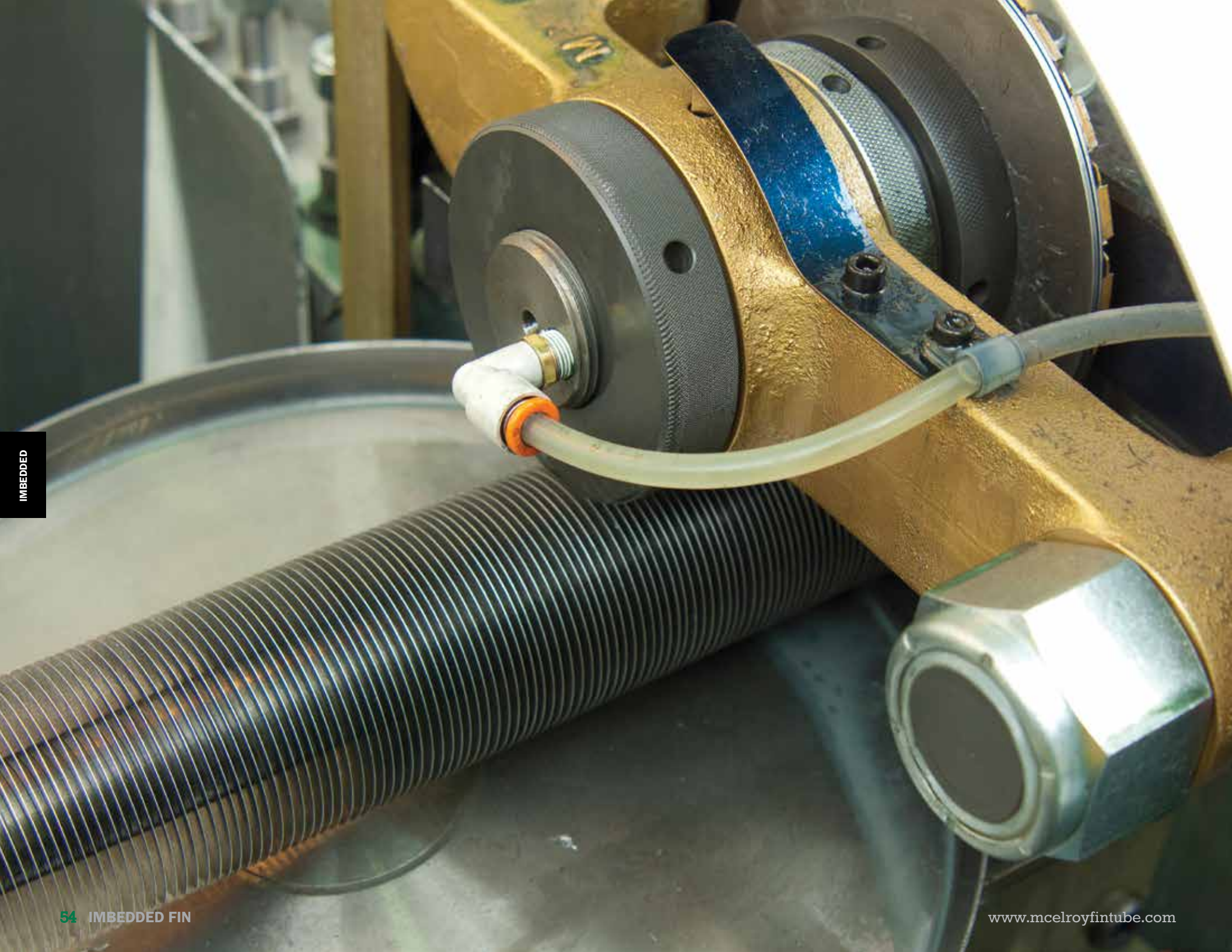
FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49301	3
.45" - .63" (11.4mm - 16mm)	3SF49302	3
.64" - .81" (16.2mm - 20.6mm)	3SF49303	3
.82" - 1" (20.8mm - 25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49401	3
.45" - .63" (11.4mm - 16mm)	3SF49402	3
.64" - .81" (16.2mm - 20.6mm)	3SF49403	3
.82" - 1" (20.8mm - 25.4mm)*	3SF49404	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

* For Wrap-On and OLFF only



IMBEDDED (G-FIN)

The Imbedded Fin, also known as a G-fin (grooved fin), is widely used throughout the world. This fin is considered to have a mechanical bond to the tube and has negligible deterioration of the fin bond with heat cycling. The fin is usually specified for high temperature applications with the fin material being the limiting factor. Typically, this fin is produced out of aluminum or copper fin strip. This fin type is also suitable for carbon steel or stainless steel fin materials, but requires special tooling and processing of these steel fin strips.

Preforming is not required for aluminum fin on carbon steel tubes, but is required for copper or steel fin and in the case of aluminum fin on aluminum tubes. Dovetail rollers are used to preform the fin and facilitates insertion into the groove. When standard groove depth is used for aluminum or copper fin strip, the fin strip width is always .012" larger than the fin height, i.e. .625" plus .012" = .637".

Fin Strip Tip Thickness is also predictable by the following formula:

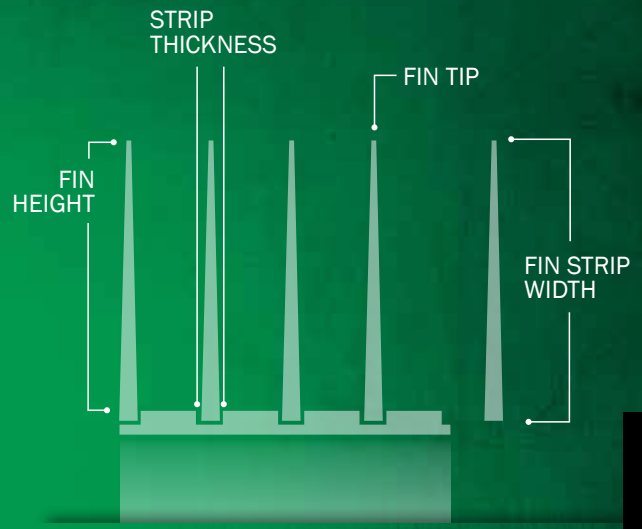
$$\text{Fin Tip Thickness} = \frac{\text{Fin Strip Thickness x Tube Diameter}}{\text{Finned OD}}$$

The imbedding process is controlled by the plow and backfillers which are mounted on a bearing overarm and positioned to form a groove one-half pitch upstream of the forming of the fin by the pan and spindle roll. This positions an open groove for the fin as it is curled. The fin is loosely curled into the groove until it completes another half revolution. The backfillers roll in each side of the groove to form a lock of the fin to the tube wall. The relative position of the plow and backfillers are locked together on one tool and do not need to be adjusted by the operator.

Weight of Aluminum Fin Per Foot of Tube =
Fin Strip Thickness x Fin Strip Width x Tube OD x 3.1416 x FPI x 12 x .1

Weight of Copper Fin Per Foot of Tube =
Fin Strip Thickness x Fin Strip Width x Tube OD x 3.1416 x FPI x 12 x .32

Note: If you have special requirements or need assistance, contact (918) 831-9236 or fintube@mcelroy.com



TYPICAL CHARACTERISTICS

FINS PER INCH: 5-13 FPI

TUBE MATERIAL:
Ferrous, Non-Ferrous & Some Alloys

FIN CONTACT: Mechanical Bond

TYPE OF SERVICE: High Temperature

MAXIMUM TUBE WALL OPERATING TEMPERATURE: Based on fin material: Aluminum: 650°F (343°C); Carbon Steel 850°F (450°C); Stainless Steel 1000°F (540°C)

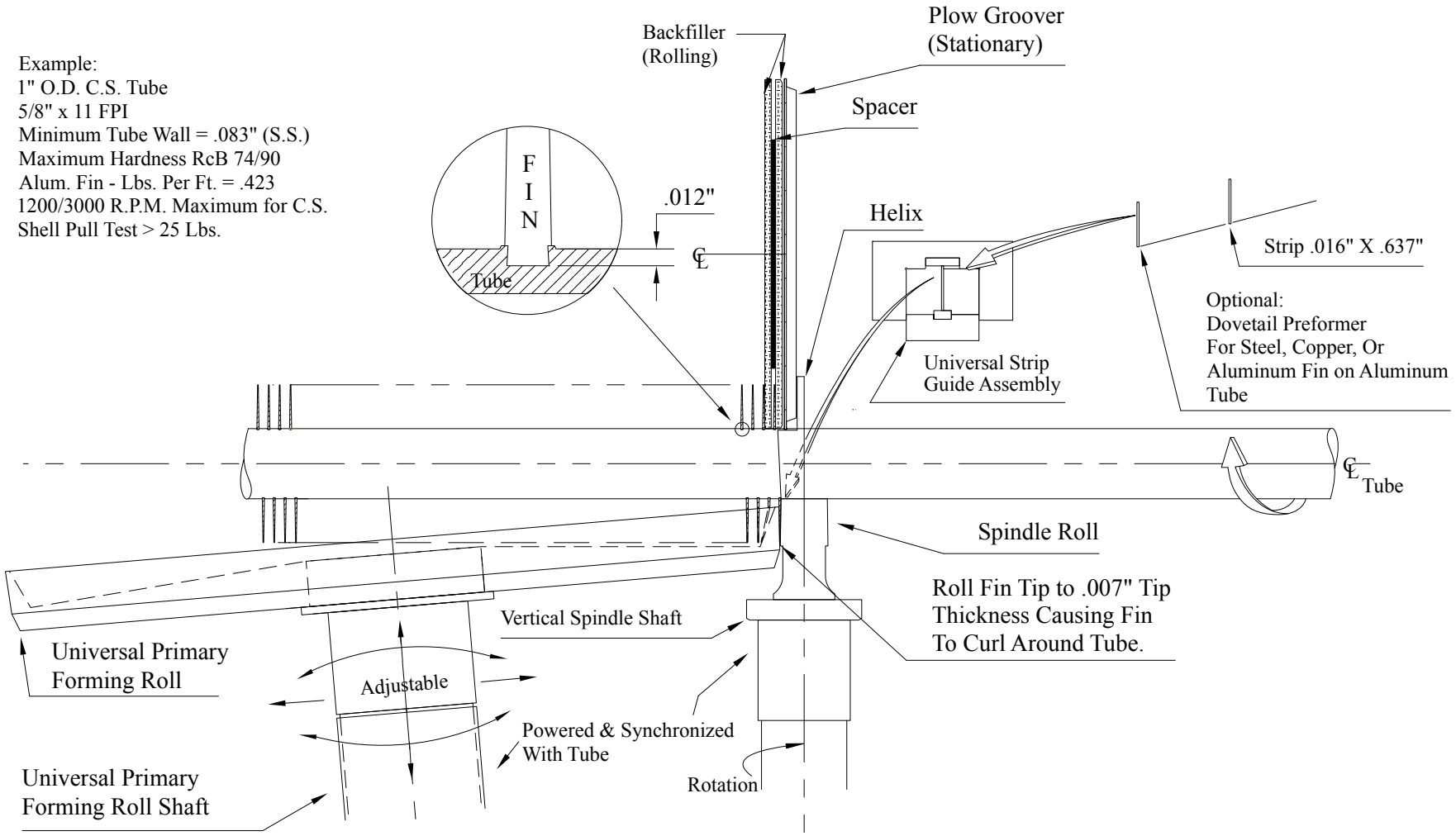
MAXIMUM TUBE RPM ON 1" TUBE: 3000

ESTIMATED PRODUCTION FEET/HOUR ON 1" TUBE AT 11 FPI AT 90% OF TUBE RPM AND 85% EFFICIENCY FACTOR: 512 ft/hr or 156 m/hr

IMBEDDED FIN FORMATION

The sketch below graphically shows the formation of the Imbedded Fin. Preforming of the fin strip is not required for aluminum fin material. Dovetail rollers are required in the case of carbon steel, stainless steel fin, copper fin on copper tubes, or aluminum fin on aluminum tubes. The strip is led from the lead in roller frame into the universal strip guides.

The imbedding process is controlled by the plow and backfillers which are mounted on a bearing overarm and positioned to form a groove one-half pitch upstream of the forming of the fin by the pan and spindle roll. This positions an open groove for the fin as it is curled. The groove material raised by the plow is much like the furrow of a farmer's plow. The fin is loosely curled into the groove until it completes another half revolution. The backfillers roll in the sides of the groove to form a lock of the fin into the tube wall. The relative position of the plow and backfillers are locked together on one tool and do not need to be adjusted by the operator.



UNIVERSAL SPINDLE ROLL (IMBEDDED, G-FIN)

Used in conjunction with the Pan to curl the fin strip around the tube. Spindle roll is specific for the type of fin and is suitable for a range of fin heights. Machine requires one spindle roll.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .35" (6.4mm - 9mm)	3SF49101	8
.36" - .44" (9.1mm - 11.2mm)	3SF49102	8
.45" - .53" (11.4mm - 13.5mm)	3SF49103	8
.54" - .63" (13.7mm - 16mm)	3SF49104	8
.64" - .81" (16.2mm - 20.6mm)	3SF49105	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, OLFF, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44"(6.4mm - 11.2mm)	3SF49301	3
.45" - .63"(11.4mm - 16mm)	3SF49302	3
.64" - .81"(16.2mm - 20.6mm)	3SF49303	3
.82" - 1"(20.8mm - 25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44"(6.4mm - 11.2mm)	3SF49401	3
.45" - .63"(11.4mm - 16mm)	3SF49402	3
.64" - .81"(16.2mm - 20.6mm)	3SF49403	3
.82" - 1"(20.8mm - 25.4mm)*	3SF49404	3

* For Wrap-On and OLFF only

STRIP GUIDE CLAMPS

One Universal Strip Guide Clamp is required to secure the strip guide set in place. The same clamp can be used on all Universal Strip Guides. Machine requires one clamp.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Strip Guide Clamp	3SF509	1

CARBIDE FOR UNIVERSAL STRIP GUIDE CLAMP

Carbide wears separately from the Universal Strip Guide Clamp and can be replaced independently. **Part No. 3SF50902**

NOTE: Sole plate type strip guides require a different clamp.

UNIVERSAL STRIP GUIDE SET
For strip thickness less than .014" (.355mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses of less than .014" (.355mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF544	2
.45" - .63" (11.4 - 16mm)	3SF545	2
.64" - .81" (16.2 - 20.6mm)	3SF546	2
.82" - 1.0" (20.8 - 25.4mm)	3SF547	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET
For strip thickness from .014" (.355mm) to .020" (.508mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .014" (.355mm) to .020" (.508mm) and will accept fin heights as indicated in part description. Requires Universal Strip Guide Clamp 3SF09. Machine requires one Strip Guide Set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (.64 - 11.2mm)	3SF510	2
.45" - .63" (11.4 - 16mm)	3SF511	2
.64" - .81" (16.2 - 20.6mm)	3SF512	2
.82" - 1.0" (20.8 - 25.4mm)	3SF513	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL STRIP GUIDE SET

For strip thickness from .021" (.533mm) to .030" (.762mm)

A guide to position the strip between the Pan and Spindle Roll. Universal strip guides will accept strip thicknesses from .021" (.533mm) to .030" (.762mm) and will accept fin heights as indicated in part description. Machine requires one strip guide set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4 - 11.2mm)	3SF540	2
.45" - .63" (11.4 - 16mm)	3SF541	2
.64" - .81" (16.2 - 20.6mm)	3SF542	2
.82" - 1.0" (20.8 - 25.4mm)	3SF543	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

IMBEDDED HELIX

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge (all Imbedded Bridge versions.) Specific for each tube OD and FPI. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.5" X 10	3FH228AV10	5
.625" X 6	3FH133AA06	5
.625" X 7	3FH133AA07	5
.625" X 8	3FH133AA08	5
.625" X 9	3FH133AA09	5
.625" X 10	3FH133AA10	5
.625" X 11	3FH133AA11	5
.625" X 12	3FH133AA12	5
.625" X 13	3FH133AA13	5
.630" X 8	3FH133AP08	5
.709" (18mm) X 10	3FH133AK10	5
.709" (18mm) X 11	3FH133AK11	5
.709" (18mm) X 13	3FH133AK13	5
.75" X 5	3FH133AB05	5
.75" X 6	3FH133AB06	5
.75" X 7	3FH133AB07	5
.75" X 8	3FH133AB08	5
.75" X 9	3FH133AB09	5
.75" X 10	3FH133AB10	5
.75" X 11	3FH133AB11	5
.75" X 12	3FH133AB12	5
.75" X 13	3FH133AB13	5
.75" X 17	3FH133AB17	5
.761" X 7	3FH133BA07	5
.788" (20mm) X 10	3FH133AC10	5
.788" (20mm) X 11	3FH133AC11	5
.854" (21.7mm) X 8	3FH133AZ08	5
.854" (21.7mm) X 9	3FH133AZ09	5

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IMBEDDED HELIX *continued*

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.854" (21.7mm) X 10	3FH133AZ10	5
.875" X 7	3FH133AU07	5
.875" X 9	3FH133AU09	5
.875" X 11	3FH133AU11	5
.946" (24mm) X 10	3FH133AV10	5
.985" (25mm) X 8	3FH133AL08	5
.985" (25mm) X 9	3FH133AL09	5
.985" (25mm) X 10	3FH133AL10	5
1" X 5	3FH133AD05	5
1" X 6	3FH133AD06	5
1" X 7	3FH133AD07	5
1" X 8	3FH133AD08	5
1" X 9	3FH133AD09	5
1" X 10	3FH133AD10	5
1" X 11	3FH133AD11	5
1" X 12	3FH133AD12	5
1" X 13	3FH133AD13	5
1.125" X 11	3FH133BB11	5
1.25" X 6	3FH133AF06	5
1.25" X 7	3FH133AF07	5
1.25" X 8	3FH133AF08	5
1.25" X 9	3FH133AF09	5
1.25" X 10	3FH133AF10	5
1.25" X 11	3FH133AF11	5
1.25" X 12	3FH133AF12	5
1.25" X 13	3FH133AF13	5
1.32" X 10	3FH133AW10	5
1.32" X 11	3FH133AW11	5
1.375" X 8	3FH133AG08	5
1.375" X 10	3FH133AG10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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IMBEDDED HELIX *continued*

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge (all Imbedded versions.) Specific for each tube OD and FPI. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
1.5" X 5	3FH133AH05	5
1.5" X 6	3FH133AH06	5
1.5" X 7	3FH133AH07	5
1.5" X 8	3FH133AH08	5
1.5" X 9	3FH133AH09	5
1.5" X 10	3FH133AH10	5
1.5" X 11	3FH133AH11	5
1.5" X 12	3FH133AH12	5
1.5" X 13	3FH133AH13	5
1.75" X 8	3FH133AR08	5
1.75" X 9	3FH133AR09	5
1.75" X 10	3FH133AR10	5
1.75" X 11	3FH133AR11	5
1.9" X 7	3FH133AY07	5
1.9" X 9	3FH133AY09	5
2" X 6	3FH133AJ06	5
2" X 7	3FH133AJ07	5
2" X 8	3FH133AJ08	5
2" X 9	3FH133AJ09	5
2" X 10	3FH133AJ10	5
2" X 11	3FH133AJ11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

HELIX ANGLE SET UP BAR

Used to set the angle of the Overarm to the tangent of the tube for a specific tube OD and FPI. One helix angle set up bar is required per configuration.

TUBE OD X FPI	PART NO.	NO. REQ.
.625" X 6	3FH181P06	1
.625" X 8	3FH181P08	1
.625" X 9	3FH181P09	1

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HELIX ANGLE SET UP BAR *continued*

TUBE OD X FPI	PART NO.	NO. REQ.
.625" X 10	3FH181P10	1
.625" X 11	3FH181P11	1
.709" (18mm) X 9	3FH181E09	1
.709" (18mm) X 10	3FH181E10	1
.709" (18mm) X 13	3FH181E13	1
.75" X 6	3FH181K06	1
.75" X 8	3FH181K08	1
.75" X 9	3FH181K09	1
.75" X 10	3FH181K10	1
.75" X 11	3FH181K11	1
.75" X 12	3FH181K12	1
.75" X 13	3FH181K13	1
.761" X 7	3FH181AD07	1
.855" (21.7mm) X 8	3FH181AC08	1
.875" X 7	3FH181F07	1
.875" X 9	3FH181F09	1
.875" X 11	3FH181F11	1
.985" (25mm) X 8	3FH181S08	1
.985" (25mm) X 9	3FH181S09	1
.985" (25mm) X 10	3FH181S10	1
.985" (25mm) X 11	3FH181S11	1
.985" (25mm) X 12	3FH181S12	1
.985" (25mm) X 13	3FH181S13	1
1" X 6	3FH181X06	1
1" X 7	3FH181X07	1
1" X 8	3FH181X08	1
1" X 9	3FH181X09	1
1" X 10	3FH181X10	1
1" X 11	3FH181X11	1
1" X 12	3FH181X12	1

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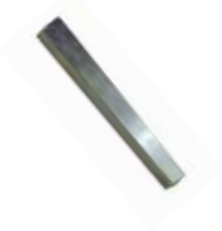
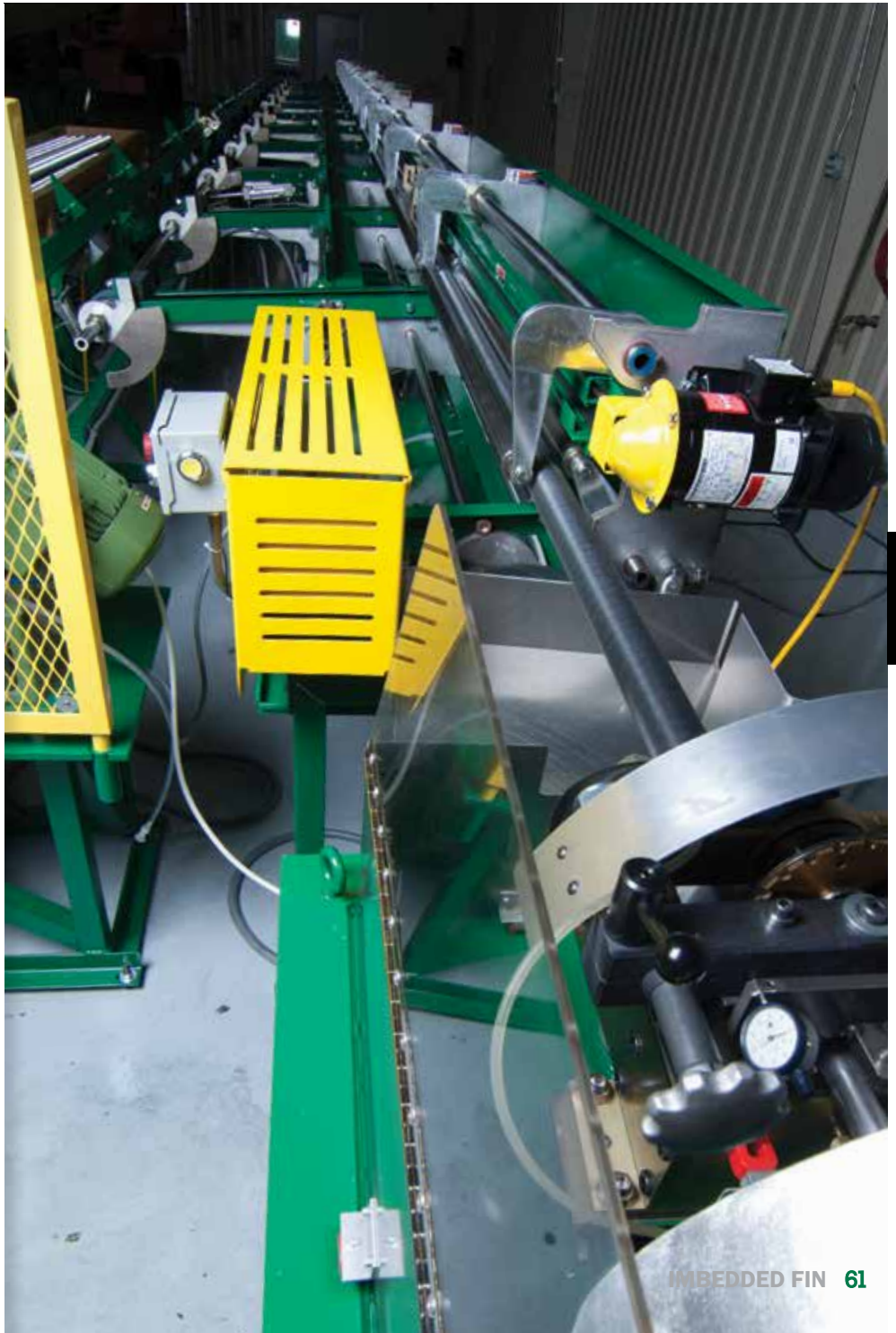
HELIX ANGLE SET UP BAR *continued*



TUBE OD X FPI	PART NO.	NO. REQ.
1” X 13	3FH181X13	1
1.25” X 7	3FH181T07	1
1.25” X 8	3FH181T08	1
1.25” X 9	3FH181T09	1
1.25” X 10	3FH181T10	1
1.25” X 11	3FH181T11	1
1.25” X 12	3FH181T12	1
1.25” X 13	3FH181T13	1
1.26” (32mm) X 10	3FH181Y10	1
1.26” (32mm) X 11	3FH181Y11	1
1.315” X 9	3FH181AF09	1
1.5” X 6	3FH181H06	1
1.5” X 7	3FH181H07	1
1.5” X 8	3FH181H08	1
1.5” X 9	3FH181H09	1
1.5” X 10	3FH181H10	1
1.5” X 11	3FH181H11	1
1.5” X 12	3FH181H12	1
1.5” X 13	3FH181H13	1
1.75” X 8	3FH181N08	1
1.75” X 9	3FH181N09	1
1.75” X 10	3FH181N10	1
1.75” X 11	3FH181N11	1
1.9” X 7	3FH181AB07	1
1.9” X 9	3FH181AB09	1
2” X 7	3FH181U07	1
2” X 8	3FH181U08	1
2” X 9	3FH181U09	1
2” X 10	3FH181U10	1
2” X 11	3FH181U11	1



PLOW GROOVER SYSTEM

PLOW GROOVER

This preferred and more flexible system does not load the tube OD as much as the DT system and can handle thinner tube walls as well as ferrous and non-ferrous tube materials. The plow is fixed and actually plows the metal much as a farmer's plow would do. The metal rises high on each side of the plow tip. No metal is removed. The plow tool has 20 teeth and is mounted on an indexing arbor and overarm which allows the operator to readily index the next tooth into the working position when the first tooth is worn out or broken. Each tooth will produce approximately 3000' (914m) of finned carbon steel tube for a total of approximately 60,000' (18,287m) per 20 tooth tool.* Reference GFTI-11 (pg 97) for minimum tube wall thickness and tube wall hardness. The Shell-pull Test is greater with the plow system.

As a result of the additional raised metal, backfilling and locking only requires flat rolling to lock the fin. Maximum fin strip thickness is .030" (.761mm). Machine requires one plow groover.

FIN STRIP THICKNESS RANGE	PART NO.	RECOMMENDED ORDER QTY.
.009" - .012"	3FH40101	50
.013" - .016"	3FH40102	50
.017" - .020"	3FH40103	50
.021" - .025"	3FH40104	50
.026" - .030"	3FH40105	50

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

*Actual tool performance may vary due to coolant used, tube condition (welded or seamless), tube material and operator experience.

UNIVERSAL BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately into the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit. Machine requires one of each universal backfilling disc. These tools are for standard groove depth of .012" (.305mm)

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal CBored Backfilling Disc	A3FH404	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL OVERSIZED BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit. Machine requires one of each universal backfilling disc.

These tools are used in conjunction with the Universal Plow and reduce the groove depth to .008" (.203mm). This reduced groove application is used on Stainless Steel tubes and other thin wall alloy tubes. This tooling makes it possible to produce an imbedded fin in a .049" (1.24mm) minimum wall 1" Stainless Steel tube. Strip width can be reduced by .004" or at your option the standard fin strip width can be run, but the finned OD would be .008" greater. Used with the Universal Backfiller Shim Kit.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Oversized Backfilling Disc Set	A3FH407	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SST BACKFILLING DISCS

This tooling is used for fin strip thicknesses greater than .020" (.508mm) and thinner than .014" (.355 mm) for FPI's (Fins Per Inch) of 12 or finer and wider than 5 FPI. Used with Universal Backfilling Shim Kit. Set contains two backfilling discs.

FPI X STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
5 SST X .030"	3FH0692400	42
6 SST X .030"	3FH0694200	42
7 SST X .010"	3FH0693400	42
7 SST X .022"	3FH0691400	42
7 SST X .030"	3FH0692600	42
8 SST X .022"	3FH0692000	42
8 SST X .030"	3FH0694300	42
9 SST X .010"	3FH0693500	42
9 SST X .022"	3FH0691300	42
9 SST X .030"	3FH0692800	42
10 SST X .030"	3FH0692700	42
11 SST X .010"	3FH0693600	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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SST BACKFILLING DISCS *continued*

FPI X STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
11 SST X .023”	3FH0691100	42
12 SST X .012”	3FH0691800	42
12 SST X .020”	3FH0691200	42
13 SST X .012” - .016”	3FH0693900	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT

These shims are used with Imbedded tooling to properly space backfilling discs for specific pitch and fin strip thickness. Standard shims to be used with Universal Backfillers, SST Backfilling Discs and Knurled tooling. Allows the disc to be spaced .002” greater than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness. Refer to Technical Bulletin TB004 for spacing of backfillers and Operator’s Manual.

DESCRIPTION	PART NO.	NO. REQ.
Shim Kit	A3FH403	20

IMBEDDED CARBON STEEL FIN

This application is suitable on the No. 4 or No. 5 Tube Finning Machines ONLY.

This application requires a special payoff table and lead in frame. Basic tube size hardware is the same as for any applied fin, except for the bridge and bridge fin-head spacers. Dovetail rollers are required to preform the carbon steel fin strip and a special primary forming roller is also required.

Fin strip specification also changes. It is not necessary to allow for the depth of the groove when applying steel fin. The fin strip width will always be the same as the fin height, i.e. .625” high, fin strip width will be .625” and after rolling the fin will grow to compensate for the .012” fin groove depth. This fin is limited to 9 FPI or wider pitches.

Maximum tube wall operating temperature: 850° F/ 450° C. Typical production is approximately six (6) forty foot tubes per hour or 1,920 feet or 585m per shift.

NOTE: In addition to the carbon steel specific tooling shown next, standard tube size and fin height hardware is also required.

QFTR SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997)

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD.

FINNED OD	SET NO.	NO. REQ.
.985” (25mm)	QFTR04332	1
1.125” (28.56mm)	QFTR04324	1
1.25” (31.7mm)	QFTR04313	1
1.375” (34.9mm)	QFTR04325	1
1.47” (37.3mm)	QFTR04327	1
1.5” (38.1mm)	QFTR04318	1
1.54” (39.1mm)	QFTR04323	1
1.57” (39.8mm)	QFTR04328	1
1.625” (41.2mm)	QFTR04320	1
1.7” (43.1mm)	QFTR04326	1
1.75” (44.4mm)	QFTR04305	1
1.8” (45.7mm)	QFTR04322	1
1.96” (49.7mm)	QFTR04315	1
1.98” (50.3mm)	QFTR04306	1
2” (50.8mm)	QFTR04307	1
2.24” (56.8mm)	QFTR04316	1
2.25” (57.1mm)	QFTR04301	1
2.3” (58.4mm)	QFTR04334	1
2.48” (62.9mm)	QFTR04317	1
2.5” (63.5mm)	QFTR04302	1
2.52” (64mm)	QFTR04314	1
2.56” (65mm)	QFTR04333	1
2.61” (66.24mm)	QFTR04310	1
2.75” (69.80mm)	QFTR04303	1
2.86” (72.6mm)	QFTR04311	1
3” (76.1mm)	QFTR04308	1
3.05” (77.6mm)	QFTR04330	1

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QFTR SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997) *continued*

3.11” (78.93mm)	QFTR04312	1
3.14” (79.6mm)	QFTR04331	1
3.25” (82.5mm)	QFTR04309	1
3.4” (86.3mm)	QFTR04304	1
3.5” (88.8mm)	QFTR04321	1
3.58” (90.9mm)	QFTR04329	1
3.61” (91.6mm)	QFTR04319	1

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.5” X .375” X 1.25”	QFTR11101CH	1
.625” X .25” X 1.125”	QFTR11101AT	1
.625” X .375” X 1.38”	QFTR11101AU	1
.625” X .422” (10.7mm) X 1.47”	QFTR11101BD	1
.625” X .438” X 1.5”	QFTR11101AS	1
.625” X .473” (12mm) X 1.57”	QFTR11101BB	1
.625” X .5” X 1.625”	QFTR11101AA	1
.630” (16mm) X .433” (11mm) X 1.5” (38mm)	QFTR11101BU	1
.75” X .14 X 1.03”	QFTR11101BH	1
.75” X .25” X 1.25”	QFTR11101AV	1
.75” X .375” X 1.5”	QFTR11101AW	1
.75” X 3.94” (10mm) X 1.54”	QFTR11101AP	1
.75” X .406” X 1.56”	QFTR11101AY	1
.75” X .438” X 1.626”	QFTR11101AF	1
.75” X .5” X 1.75”	QFTR11101AM	1
.75” X .625” X 2”	QFTR11101AR	1
.855” (21.7mm) X .473” (12mm) X 1.8”	QFTR11101AN	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.985” (25mm) X .5” X 1.985”	QFTR11101BP	1
.985” (25mm) X .625” X 2.24”	QFTR11101BR	1
.985” (25mm) X .630” (16mm) X 2.25”	QFTR11101BT	1
.985” (25mm) X .658” (16.7mm) X 2.3”	QFTR11101BM	1
1” X .313” (7.95mm) X 1.627”	QFTR11101BV	1
1” X .5” X 2”	QFTR11101AK	1
1” X .625” X 2.25”	QFTR11101AC	1
1” X .807” X 2.614”	QFTR11101AG	1
1.125” X .438” X 2”	QFTR11101BC	1
1.25” X .5” X 2.25”	QFTR11101AJ	1
1.25” X .625” X 2.5”	QFTR11101AE	1
1.25” X .630” (16mm) X 2.51”	QFTR11101BS	1
1.25” X .807” (20.5mm) X 2.86”	QFTR11101AZ	1
1.315” X .625” X 2.57”	QFTR11101BN	1
1.5” X .5”	QFTR11101BF	1
1.5” X .625” X 2.75”	QFTR11101AD	1
1.5” X .807” (20.5mm) X 3.11”	QFTR11101BA	1
1.5” X 1” X 2.5”	QFTR11101AX	1
1.5” X 1.04” X 3.58”	QFTR11101BE	1
1.75” X .625” X 3”	QFTR11101BJ	1
1.81” (46mm) X .623” (15.8mm) X 3.06”	QFTR11101BK	1
1.89” (48mm) X .623” (15.8mm) X 3.14”	QFTR11101BL	1
2” X .5” X 3”	QFTR11101BG	1
2” X .625” X 3.25”	QFTR11101AH	1
2” X .75” X 3.5”	QFTR11101AL	1
2” X .807” (20.5mm) X 3.62”	QFTR11101AB	1

STEEL PAYOFF TABLE

One 48" OD X 16" ID turn table or level wound drum trunnion, with air-hydraulic brake located directly behind finning head of machine. This item is required for carbon steel and stainless steel fin application.

DESCRIPTION	PART NO.	NO. REQ.
Steel Payoff Table	4PT001	1

STEEL LEAD IN HARDWARE

Set includes outer lead in roller frame, pins, eccentric pins and hardware to convert lead in assembly for steel fin application.

DESCRIPTION	SET NO.	NO. REQ.
Steel Strip Forming Assembly	4SF009	1

CARTRIDGE BRIDGE ASSEMBLY FOR CARBON STEEL FIN

Holds the Cartridge and is used to mount the Helix, Fin Finger, and the Overarm. The Cartridge Bridge is specific to one tube size for carbon steel fin applications only. Specify cartridge and FPI from the chart to the right.

TUBE SIZE	SET NO.	NO. REQ.
.625"	4FH15504	1
.709" (18mm)	4FH15510	1
.75"	4FH15502	1
.761"	4FH15509	1
.985" (25mm)	4FH15503	1
1"	4FH15503	1
1.5"	4FH15508	1
1.9"	4FH15506	1

CARTRIDGE

Used in the cartridge bridge to support and feed the tube and is specific for FPI and tube diameter. Includes three cam follower bearings (page 20).

TUBE SIZE X FPI	PART NO.	NO. REQ.
.625" X 7	3FH350	1
.625" X 8	3FH308	1
.625" X 9	3FH351	1
.630" X 8	4FH173	1
.75" X 7	4FH149	1
.75" X 8	3FH347	1
.75" X 9	3FH302	1
.761" X 7	3FH398	1
1" X 5	3FH268	1
1" X 6	3FH359	1
1" X 7	3FH269	1
1" X 8	3FH285	1
1" X 9	3FH270	1
1.9" X 7	4FH166	1

LEAD IN SHEAVE (ROLL 6)

Roll 6 in the lead in frame to guide the strip into the strip guides.

FIN HEIGHT	PART NO.	NO. REQ.
.394" (10mm)	4SF170	1
.473" (12mm)	4SF172	1
.5"	4SF141	1
.625"	4SF123	1
0.630"	4SF155	1
.75"	4SF166	1

RETAINING ROLL (ROLL 5)

Roll 5 in the lead in frame to guide the strip into the strip guides. Machine requires two retaining rolls.

FIN HEIGHT	PART NO.	NO. REQ.
10mm (.394")	4SF17005	2
12mm (.473")	4SF17205	2
.5"	4SF14105	2
.625"	4SF12305	2
.630"	4SF15505	2
.75"	4SF16605	2

DOVETAIL ROLLER SET FOR COPPER ON COPPER OR CARBON STEEL ON STEEL

Used in applications where the fin strip is the same material as the tube. Preforms and notches base of fin for easy insertion in the groove. Machine requires one set of rolls. Set consists of two rolls. Cartridge Bridge Assembly from page 65, Spindle Roll and Pan from page 67 required.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
10mm (.394")	4SF171	1
12mm (.473")	4SF173	1
.5"	4SF145	1
.625"	4SF122	1
.75"	4SF167	1

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

STRIP GUIDE SET - For strip thickness greater than .020" (.508mm) and less than .014" (.355mm)

Suitable for Wrap-On, Wrap-On Knurled, Edgewound, and Imbedded type fins. Requires Sole Plate 4SF018 shown below. Machine requires one strip guide set.

FIN HEIGHT X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
.368" X .020"	3SF018FV	2
.375" X .012"	3SF018AK	2
.406" X .026"	3SF018FE	2
.5" X .022"	3SF018EB	2
.625" X .020"	3SF018BY	2
.625" X .022"	3SF018CB	2
.75" X .023"	3SF018BE	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SOLE PLATE—STEEL FIN

Suitable for carbon steel fin only. Requires 3SF01805 strip guide clamp. Requires strip guide clamp in next column.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.375"	4SF018AM3	1
.394"	4SF018BD03	1
.406"	4SF018AP03	1
.438"	4SF018AW03	1
.473"	4SF018BE03	1
.5"	4SF018AE3	1
.625"	4SF018AK3	1
.630"	4SF018AX3	1
.75"	4SF018BC3	1

CARBIDE FOR STRIP GUIDE CLAMP

Carbide wears separately from the Sole Plate and can be replaced independently. **Part No. 3SF01804**

STRIP GUIDE CLAMP

Strip Guide Clamp for non-universal strip guides. To be used in conjunction with strip guides 3SF018 and Sole Plate 4SF018 and 3SF467.

DESCRIPTION	PART NO.	NO. REQ.
Strip Guide Clamp	3SF01805	1

SPINDLE ROLL CARBON STEEL FIN - IMBEDDED

Shorter spindle roll used in conjunction with the steel profile pan to curl the fin strip around the tube. Spindle roll is specific for imbedded carbon steel fin and is specific to a designated fin height. Machine requires one spindle roll.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.3”	4SF025001	8
.375”	4SF025002	8
.394”	4SF025014	8
.406”	4SF025003	8
.410”	4SF025004	8
.438”	4SF025005	8
.473”	4SF025015	8
.5”	4SF025006	8
.571”	4SF025012	8
.625”	4SF025007	8
.630”	4SF025013	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is specific for carbon steel fin only. Maximum FPI is 9. Inquire for additional pan options. Machine requires one pan.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.375”	4SF070MB4	3
.5”	4SF124MB4	3
.563”	4SF132MB4	3
.625”	4SF012MB4	3
.75”	4SF164MB4	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PLOW GROOVER

This preferred and more flexible system does not load the tube OD as much as the DT system and can handle thinner tube walls as well as ferrous and non-ferrous tube materials. The plow is fixed and actually plows the metal much as a farmer’s plow would do. The metal rises high on each side of the plow tip. No metal is removed. The plow tool has 20 teeth and is mounted on an indexing arbor and overarm which allows the operator to readily index the next tooth into the working position when the first tooth is worn out or broken. Each tooth will produce approximately 3000’ (914m) of finned carbon steel tube for a total of approximately 60,000’ (18,287m) per 20 tooth tool.* Reference GFTI-11 (pg 97) for minimum tube wall thickness and tube wall hardness. The Shell-pull Test is greater with the plow system.

As a result of the additional raised metal, backfilling and locking only requires flat rolling to lock the fin. Maximum fin strip thickness is .030” (.761mm). Machine requires one plow groover.

FIN STRIP THICKNESS RANGE	PART NO.	RECOMMENDED ORDER QTY.
.009” - .012”	3FH40101	50
.013” - .016”	3FH40102	50
.017” - .020”	3FH40103	50
.021” - .025”	3FH40104	50
.026” - .030”	3FH40105	50

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

*Actual tool performance may vary due to coolant used, tube condition (welded or seamless), tube material and operator experience.

UNIVERSAL BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately into the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit. Machine requires one of each universal backfilling disc. These tools are for standard groove depth of .012" (.305mm)

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal CBored Backfilling Disc	A3FH404	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT

These shims are used with Imbedded tooling to properly space backfilling discs for specific pitch and fin strip thickness. Standard shims to be used with Universal Backfillers and Knurled tooling. Allows the disc to be spaced .002" greater than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness. Refer to Technical Bulletin TB004 for spacing of backfillers and Operator's Manual.

DESCRIPTION	PART NO.	NO. REQ.
Shim Kit	A3FH403	20

UNIVERSAL OVERSIZED BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit. Machine requires one universal backfilling disc.

These tools are used in conjunction with the Universal Plow and reduce the groove depth to .008" (.203mm). This reduced groove application is used on Stainless Steel tubes and other thin wall alloy tubes. This tooling makes it possible to produce an imbedded fin in a .049" (1.24mm) minimum wall 1" Stainless Steel tube. Strip width would be reduced by .004" or at your option the standard fin strip width can be run, but the finned OD would be .008" greater. Used with the Universal Backfiller Shim Kit. Machine requires one universal oversized backfilling disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Oversized Backfilling Disc Set	A3FH407	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

IMBEDDED HELIX

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge (all Imbedded Bridge versions.) Specific for each tube OD and FPI. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 6	3FH133AA06	5
.625" X 7	3FH133AA07	5
.625" X 8	3FH133AA08	5
.625" X 9	3FH133AA09	5
.630" X 8	3FH133AP08	5
.75" X 6	3FH133AB06	5
.75" X 7	3FH133AB07	5
.75" X 8	3FH133AB08	5
.75" X 9	3FH133AB09	5
.761" X 7	3FH133BA07	5
.854" (21.7mm) X 8	3FH133AZ08	5
.854" (21.7mm) X 9	3FH133AZ09	5
.875" X 7	3FH133AU07	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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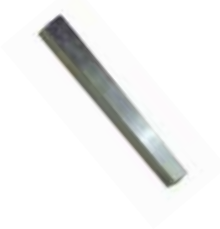
IMBEDDED HELIX *continued*

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.875” X 9	3FH133AU09	5
.985” (25mm) X 8	3FH133AL08	5
.985” (25mm) X 9	3FH133AL09	5
1” X 6	3FH133AD06	5
1” X 7	3FH133AD07	5
1” X 8	3FH133AD08	5
1” X 9	3FH133AD09	5
1.25” X 6	3FH133AF06	5
1.25” X 7	3FH133AF07	5
1.25” X 8	3FH133AF08	5
1.25” X 9	3FH133AF09	5
1.375” X 8	3FH133AG08	5
1.5” X 6	3FH133AH06	5
1.5” X 7	3FH133AH07	5
1.5” X 8	3FH133AH08	5
1.5” X 9	3FH133AH09	5
1.75” X 8	3FH133AR08	5
1.75” X 9	3FH133AR09	5
1.9” X 7	3FH133AY07	5
1.9” X 9	3FH133AY09	5
2” X 6	3FH133AJ06	5
2” X 7	3FH133AJ07	5
2” X 8	3FH133AJ08	5
2” X 9	3FH133AJ09	5

HELIX ANGLE SET UP BAR

Used to set the angle of the Overarm to the tangent of the tube for a specific tube OD and FPI. One helix angle set up bar is required per configuration.



TUBE OD X FPI	PART NO.	NO. REQ.
.625" X 6	3FH181P06	1
.625" X 8	3FH181P08	1
.625" X 9	3FH181P09	1
.625" X 10	3FH181P10	1
.625" X 11	3FH181P11	1
.709" (18mm) X 9	3FH181E09	1
.709" (18mm) X 10	3FH181E10	1
.709" (18mm) X 13	3FH181E13	1
.75" X 6	3FH181K06	1
.75" X 8	3FH181K08	1
.75" X 9	3FH181K09	1
.75" X 10	3FH181K10	1
.75" X 11	3FH181K11	1
.75" X 12	3FH181K12	1
.75" X 13	3FH181K13	1
.761" X 7	3FH181AD07	1
.855" (21.7mm) X 8	3FH181AC08	1
.875" X 7	3FH181F07	1
.875" X 9	3FH181F09	1
.875" X 11	3FH181F11	1
.985" (25mm) X 8	3FH181S08	1
.985" (25mm) X 9	3FH181S09	1
.985" (25mm) X 10	3FH181S10	1
.985" (25mm) X 11	3FH181S11	1
.985" (25mm) X 12	3FH181S12	1
.985" (25mm) X 13	3FH181S13	1
1" X 6	3FH181X06	1
1" X 7	3FH181X07	1

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HELIX ANGLE SET UP BAR *continued*

TUBE OD X FPI	PART NO.	NO. REQ.
1" X 8	3FH181X08	1
1" X 9	3FH181X09	1
1" X 10	3FH181X10	1
1" X 11	3FH181X11	1
1" X 12	3FH181X12	1
1" X 13	3FH181X13	1
1.25" X 7	3FH181T07	1
1.25" X 8	3FH181T08	1
1.25" X 9	3FH181T09	1
1.25" X 10	3FH181T10	1
1.25" X 11	3FH181T11	1
1.25" X 12	3FH181T12	1
1.25" X 13	3FH181T13	1
1.26" (32mm) X 10	3FH181Y10	1
1.26" (32mm) X 11	3FH181Y11	1
1.315" X 9	3FH181AF09	1
1.5" X 6	3FH181H06	1
1.5" X 7	3FH181H07	1
1.5" X 8	3FH181H08	1
1.5" X 9	3FH181H09	1
1.5" X 10	3FH181H10	1
1.5" X 11	3FH181H11	1
1.5" X 12	3FH181H12	1
1.5" X 13	3FH181H13	1
1.75" X 8	3FH181N08	1
1.75" X 9	3FH181N09	1
1.75" X 10	3FH181N10	1
1.75" X 11	3FH181N11	1
1.9" X 7	3FH181AB07	1

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HELIX ANGLE SET UP BAR *continued*

TUBE OD X FPI	PART NO.	NO. REQ.
1.9" X 9	3FH181AB09	1
2" X 7	3FH181U07	1
2" X 8	3FH181U08	1
2" X 9	3FH181U09	1
2" X 10	3FH181U10	1
2" X 11	3FH181U11	1

IMBEDDED STAINLESS STEEL FIN

This application is suitable on the No. 4 or No. 5 Combination Tube Finning Machines ONLY and requires standard Tube Size Hardware plus special bridge for stainless steel application. A special payoff table and lead in frame allows the progression of the fin strip from directly behind the fin head in a straight line to the pan and spindle roll. Basic tube size hardware is the same as for any applied fin, except for the bridge and bridge fin head spacers. Dovetail rollers are required to preform the stainless steel fin strip and a special primary forming roller is also required.

Fin strip specification also changes. It is not necessary to allow for the depth of the groove when applying stainless steel fin. The fin strip width will always be the same as the fin height, i.e. .375" high, fin strip width will be .375" and, after rolling, the fin will grow to compensate for the .012" fin groove depth.*

* Typical configuration is .375" fin height at maximum 9 FPI on 1" tubes or larger.

TYPICAL CHARACTERISTICS

MAXIMUM TUBE WALL OPERATING TEMPERATURE: 1000˚F/540˚C

TYPICAL PRODUCTION IS FIVE, 1" TUBES AT 9 FPI ON 40 FOOT TUBES PER HOUR OR 1,600 FT/488m PER SHIFT. DUE TO THE HARDNESS OF THIS FIN STRIP, EXPENDABLE TOOLING COSTS WILL INCREASE FOR PANS AND SPINDLE ROLLS.

NOTE: In addition to the carbon steel specific tooling shown next, standard tube size and fin height hardware is also required.

STEEL PAYOFF TABLE

One 48" OD X 16" ID turn table, with air-hydraulic brake located directly behind finning head of machine. This item is required for carbon steel and stainless steel fin application.

DESCRIPTION	PART NO.	NO. REQ.
Steel Payoff Table	4PT001	1

STEEL LEAD IN HARDWARE

Set includes outer lead in roller frame, pins, eccentric pins and hardware to convert lead in assembly for steel fin application.

DESCRIPTION	SET NO.	NO. REQ.
Steel Fin Forming Assembly	4SF009	1

MOUNTING ADAPTER

Adapter that changes the height of the strip as it enters the lead-in frame.

FIN HEIGHT	SET NO.	NO. REQ.
.375"	4SF138	1

BRIDGE ASSEMBLY

Holds the Bridge Bushing and Needle Bearing and is used to mount the Helix, Fin Finger, and the Overarm. The Bridge is specific to one tube size for stainless steel fin applications only.

FIN HEIGHT	SET NO.	NO. REQ.
.375"	4FH13502	1

SPARE BRIDGE BUSHING

Supports the tube through the bridge. Machine requires one bushing.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
1" tube, .375" fin	4FH138	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SPARE NEEDLE BEARING

Replacement bearing for bridge assembly. Machine requires one needle bearing.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
1" tube, .375" fin	MDM00152	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

LEAD IN SHEAVE (ROLL 6)

Roll 6 in the lead in frame to guide the strip into the strip guides.

FIN HEIGHT	PART NO.	NO. REQ.
.375"	4SF127	1

RETAINING ROLL (ROLL 5)

Roll 5 in the lead in frame to guide the strip into the strip guides. Machine requires two retaining rolls.

FIN HEIGHT	PART NO.	NO. REQ.
.375"	4SF12705	2

DOVETAIL ROLLER SET FOR STAINLESS STEEL FIN

Used in applications where the fin strip is the same material as the tube. Preforms and notches base of fin for easy insertion in the groove. Machine requires one set of rolls. Set consists of two rolls. Special bridge and Spindle Roll required.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.375"	4SF126	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

STRIP GUIDE FOR FIN STRIP THICKNESS .015" (.538mm)

Suitable for Imbedded Stainless Steel fin. Requires steel fin sole plate below. Requires clamp 3SF01805. Machine requires one strip guide.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.375"	3SF018CL	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

SOLE PLATE—STAINLESS STEEL FIN

Suitable for stainless steel fin only. Requires 3SF01805 strip guide clamp below.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.375"	4SF135	1

CARBIDE FOR UNIVERSAL STRIP GUIDE CLAMP

Carbide wears separately from the Universal Strip Guide Clamp and can be replaced independently. **Part No. 3SF01804**

STRIP GUIDE CLAMP

Strip Guide Clamp for non-universal strip guide. To be used in conjunction with strip guide 3SF018 and Sole Plate 4SF135.

DESCRIPTION	PART NO.	NO. REQ.
Strip Guide Clamp	3SF01805	1

SPINDLE ROLL STAINLESS STEEL FIN - IMBEDDED

Shorter spindle roll used in conjunction with the steel profile pan to curl the fin strip around the tube. Spindle roll is specific for imbedded stainless steel fin and is specific to a designated fin height. Machine requires one spindle roll.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.375”	4SF133	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is specific for stainless steel fin only. Maximum FPI is 9. Inquire for additional pan options. Machine requires one pan.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
.375”	4SF156MB4	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PLOW GROOVER

This preferred and more flexible system does not load the tube OD as much as the DT system and can handle thinner tube walls as well as ferrous and non-ferrous tube materials. The plow is fixed and actually plows the metal much as a farmer’s plow would do. The metal rises high on each side of the plow tip. No metal is removed. The plow tool has 20 teeth and is mounted on an indexing arbor and overarm which allows the operator to readily index the next tooth into the working position when the first tooth is worn out or broken. Each tooth will produce approximately 3000’ (914m) of finned carbon steel tube for a total of approximately 60,000’ (18,287m) per 20 tooth tool.* Reference GFTI-11 (pg 97) for minimum tube wall thickness and tube wall hardness. The Shell-pull Test is greater with the plow system.

As a result of the additional raised metal, backfilling and locking only requires flat rolling to lock the fin. Maximum fin strip thickness is .015” (.381mm) for stainless steel application. Machine requires one plow groover.

FIN STRIP THICKNESS RANGE	PART NO.	RECOMMENDED ORDER QTY.
.009” - .012”	3FH40101	50
.013” - .016”	3FH40102	50
.017” - .020”	3FH40103	50
.021” - .025”	3FH40104	50
.026” - .030”	3FH40105	50

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

*Actual tool performance may vary due to coolant used, tube condition (welded or seamless), tube material and operator experience.

UNIVERSAL BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately into the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014” (.355mm) to .020” (.508mm) when used with the Shim Kit. Machine requires one of each universal backfilling disc. These tools are for standard groove depth of .012” (.305mm)

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal CBored Backfilling Disc	A3FH404	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT

These shims are used with Imbedded tooling to properly space backfilling discs for specific pitch and fin strip thickness. Standard shims to be used with Universal Backfillers and Knurled tooling. Allows the disc to be spaced .002" greater than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness. Refer to Technical Bulletin TB004 for spacing of backfillers and Operator's Manual.

DESCRIPTION	PART NO.	NO. REQ.
Shim Kit	A3FH403	20

UNIVERSAL OVERSIZED BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately .008" into the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit.

These tools are used in conjunction with the Universal Plow and reduce the groove depth to .008" (.203mm). This reduced groove application is used on Stainless Steel tubes and other thin wall alloy tubes. This tooling makes it possible to produce an imbedded fin in a .049" (1.24mm) minimum wall 1" Stainless Steel tube. Strip width would be reduced by .004" or at your option the standard fin strip width can be run, but the finned OD would be .008" greater. Used with the Universal Backfiller Shim Kit. Machine requires one of each universal oversized backfilling disc.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal Oversized Backfilling Disc Set	A3FH407	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

IMBEDDED HELIX

Supports the newly formed fin on its first revolution and is mounted on the face of the cartridge bridge. Specific for each tube OD and FPI and Stainless Steel.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
1" x 9 FPI .375" SS Helix	4FH137AD09	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

HELIX ANGLE SET UP BAR

Used to set the angle of the Overarm to the tangent of the tube for a specific tube OD and FPI. One helix angle set up bar is required per configuration.

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
1" x 9 FPI	3FH181X09	1

PERFORATED FIN ENHANCEMENT

This enhancement to the fin face creates slits much like the spokes of a wagon wheel or a small "tear drop." The fin is preformed by a set of rollers and when it passes through the forming area of the spindle roll and primary forming roller the "tear drop" or spoke opens up. There is no loss of material.

The enhancement can be done in any type of Wrap-On (L-Fin), Overlapped Footed Fin (LL-Fin) or Imbedded (G-Fin) aluminum or copper fin. Some tooling is different for Wrap-On and for Imbedded perforated fins. Please refer to the appropriate section in this catalog.

The slit or "tear drop" increases heat transfer and can reduce the required amount of heat transfer surface. Each end user would need to determine the percentage of improvement offered by this enhancement over the plain fin. The industry has also accepted that this type of enhancement reduces the amount of air required and therefore decreases power costs.

Note: If you have special requirements or need assistance, contact (918) 831-9236 or fintube@mcelroy.com

TYPICAL CHARACTERISTICS

PERFORATED FIN:
Available for any Aluminum or Copper Fin

FINS PER INCH: 4– 12 FPI

TUBE MATERIAL:
Ferrous, Non-Ferrous & Some Alloys

FIN CONTACT:
Primary Fin selection determines fin contact

TYPE OF SERVICE:
Primary Fin selection determines service level

MAXIMUM TUBE WALL OPERATING TEMPERATURE:
Primary Fin selection determines the temperature

MAXIMUM TUBE RPM ON 1" TUBE: 3000

WRAP-ON PERFORATED FIN HEIGHT HARDWARE

UNIVERSAL LEAD IN ROLLER KIT (For machines manufactured prior to 2001)

Kit includes (1) Roll #6 and (2) Roll #5 for prior models.

DESCRIPTION	PART NO.	NO. REQ.
Universal Lead In Roller Kit	A3SF48701	1

INNER LEAD IN ROLLER FRAME (For machines manufactured prior to January 1991)

Extended lead in roller frame to include location for perforating gears.

DESCRIPTION	PART NO.	NO. REQ.
Inner Lead In Roller Frame	3FH320	1

PERFORATED

WRAP ON HARDWARE

Accessory tooling to run perforated Wrap-On fin. Set includes pins for eccentric and roller pins for perforating rollers, spanner wrench and ball plunger. Shown installed on Inner Lead In Roller Frame above.

DESCRIPTION	SET NO.	NO. REQ.
Wrap-On Perforated Accessory Tooling	3SF374	1

PERFORATED STRIP GUIDE SET

A guide to position the preformed strip between the pan and spindle roll. Specific for fin height. These strip guide sets provide the added clearance required for the preformed perforated strip clearance. These strip guides can be used for Wrap-On or Imbedded perforated fin. Requires use of 3SF01805 strip guide clamp and 3SF467 Sole Plate. Machine requires one set of perforated strip guides.

FIN HEIGHT X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
.438" X .030"	3SF366DU	2
.5" X .030"	3SF366DW	2
.563" X .030"	3SF366DV	2
.625" X .030"	3SF366CW	2
.630" X .030"	3SF366CY	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

Other sizes available upon request. Contact fintube@mcelroy.com for additional information.

STRIP GUIDE CLAMP

Strip Guide Clamp for non-universal strip guides. To be used in conjunction with strip guides 3SF018, 3SF366 and Sole Plate 3SF467.

DESCRIPTION	PART NO.	NO. REQ.
Strip Guide Clamp	3SF01805	1

STRIP GUIDE SOLE PLATE

For strip thickness greater than .020" (.508mm) and less than .014" (.355mm)

Suitable for Wrap-On, Wrap-On Knurled, Overlapped Footed, Edgewound, and Imbedded Fin. This is a required item for the Strip Guide Set.

FIN HEIGHT	PART NO.	NO. REQ.
.422" (10.7mm)	3SF467DA03	1
.438"	3SF467AD03	1
.496" (12.6mm)	3SF467DF03	1
.5"	3SF467AH03	1

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STRIP GUIDE SOLE PLATE

For strip thickness greater than .020" (.508mm) and less than .014" (.355mm) *continued*

FIN HEIGHT	PART NO.	NO. REQ.
.563"	3SF467CR03	1
.625"	3SF467AB03	1
.630"	3SF467CY03	1
20.5mm (.807")	3SF467EH03	1

CARBIDE FOR SOLE PLATE

Carbide wears separately from the Sole Plate and can be replaced independently. **Part No. 3SF01804**

PERFORATING ROLL SET

A pair of rolls that preform the fin strip for Perforated fin type. These rolls can be used for Wrap-On and Imbedded type fins. Machine requires one perforating roll set. Set includes two rollers and one tie bar.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.422" (10.7mm)	3SF496	2
.438"	3SF488	2
.496" (12.6mm)	3SF497	2
.5"	3SF506	2
.563"	3SF423	2
.625"	3SF376	2
.807" (20.5mm)	3SF498	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PERFORATED SPINDLE ROLL (WRAP-ON)

Used with the pan to curl the fin strip around the tube. This spindle roll does not work for a range of fin heights but is specific for fin type and fin height and has ground-in relief for perforations. Machine requires one spindle roll.

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.421"	3SF369021	8
.438"	3SF369007	8

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PERFORATED SPINDLE ROLL (WRAP-ON) *continued*

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.496"	3SF369022	8
.5"	3SF369008	8
.625"	3SF369011	8
.630"	3SF369017	8
.807"	3SF369023	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, Overlapped Footed Fin, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49301	3
.45" - .63" (11.4mm - 16mm)	3SF49302	3
.64" - .81" (16.2mm - 20.6mm)	3SF49303	3
.82" - 1.0" (20.8mm - 25.4mm)*	3SF49304	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

NO. 4 AND 5 MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49401	3
.45" - .63" (11.4mm - 16mm)	3SF49402	3
.64" - .81" (16.2mm - 20.6mm)	3SF49403	3
.82" - 1" (20.8mm - 25.4mm)*	3SF49404	3

* For L-Fin and LL-Fin only

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.625" X .25" X 1.125"	QFTR11101AT	1
.625" X .375" X 1.375"	QFTR11101AU	1
.625" X .422" X 1.47"	QFTR11101BD	1
.625" X .438" X 1.501"	QFTR11101AS	1
.625" X .473" (12mm) X 1.57"	QFTR11101BB	1
.625" X .5" X 1.625"	QFTR11101AA	1
.630" (16mm) X .433" (11mm) X 1.5" (38mm)	QFTR11101BU	1
.75" X .14" X 1.03"	QFTR11101BH	1
.75" X .25" X 1.25"	QFTR11101AV	1
.75" X .375" X 1.5"	QFTR11101AW	1
.75" X .394" (10mm) X 1.538"	QFTR11101AP	1
.75" X .406" X 1.56"	QFTR11101AY	1
.75" X .438" X 1.626"	QFTR11101AF	1
.75" X .5" X 1.75"	QFTR11101AM	1
.75" X .625" X 2"	QFTR11101AR	1
.855" (21.7mm) X .473" (12mm) X 1.801" (45.7mm)	QFTR11101AN	1
.985" (25mm) X .5" X 1.985"	QFTR11101BP	1
.985" (25mm) X .625" X 2.24"	QFTR11101BR	1
.985" (25mm) X .630" (16mm) X 2.25" (57mm)	QFTR11101BT	1
.985" (25mm) X .658" (16.7mm) X 2.30" (58.4mm)	QFTR11101BM	1
1" X 3.13" (7.95mm) X 1.627"	QFTR11101BV	1
1" X .5" X 2"	QFTR11101AK	1
1" X .625" X 2.25"	QFTR11101AC	1
1" X .807" X 2.614"	QFTR11101AG	1
1.125" X .438" X 2"	QFTR11101BC	1
1.25" X .5" X 2.25"	QFTR11101AJ	1
1.25" X .625" X 2.5"	QFTR11101AE	1
1.25" X .630" (16mm) X 2.51"	QFTR11101BS	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
1.25" X .807" (20.5mm) X 2.86"	QFTR11101AZ	1
1.315" X .625" X 2.57"	QFTR11101BN	1
1.5" X .5" X 2.5"	QFTR11101BF	1
1.5" X .625" X 2.75"	QFTR11101AD	1
1.5" X .807" (20.5mm) X 3.12"	QFTR11101BA	1
1.5" X 1" X 3.5"	QFTR11101AX	1
1.5" X 1.04" X 3.58"	QFTR11101BE	1
1.75" X .625" X 3"	QFTR11101BJ	1
1.81" (46mm) X .623" (15.8mm) X 3.06" (77.6mm)	QFTR11101BK	1
1.89" (48mm) X .623" (15.8mm) X 3.14" (79.6mm)	QFTR11101BL	1
2" X .5" X 3"	QFTR11101BG	1
2" X .625" X 3.25"	QFTR11101AH	1
2" X .75" X 3.5"	QFTR11101AL	1
2" X .807" (20.5mm) X 3.66"	QFTR11101AB	1

QUICK CHANGE FINNED TUBE RACKS (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER 1997)

The Quick Change Finned Tube Racks (QFTR) discs used on Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD.

FINNED OD	SET NO.	NO. REQ.
.985" (25mm)	QFTR04332	1
1.125" (28.56mm)	QFTR04324	1
1.25" (31.7mm)	QFTR04313	1
1.375" (34.9mm)	QFTR04325	1
1.47" (37.3mm)	QFTR04327	1
1.5" (38.1mm)	QFTR04318	1
1.54" (39.1mm)	QFTR04323	1
1.57" (39.8mm)	QFTR04328	1

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QUICK CHANGE FINNED TUBE RACKS (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER 1997) *continued*

FINNED OD	SET NO.	NO. REQ.
1.625” (41.2mm)	QFTR04320	1
1.74” (44.2mm)	QFTR04326	1
1.75” (44.4mm)	QFTR04305	1
1.8” (45.7mm)	QFTR04322	1
1.96” (49.7mm)	QFTR04315	1
1.98” (50.3mm)	QFTR04306	1
2” (50.8mm)	QFTR04307	1
2.24” (56.8mm)	QFTR04316	1
2.25” (57.11mm)	QFTR04301	1
2.3” (58.4mm)	QFTR04334	1
2.48” (62.99mm)	QFTR04317	1
2.5” (63.5mm)	QFTR04302	1
2.52” (64mm)	QFTR04314	1
2.56” (65mm)	QFTR04333	1
2.61” (66.24mm)	QFTR04310	1
2.75” (69.80mm)	QFTR04303	1
2.86” (72.6mm)	QFTR04311	1
3” (76.1mm)	QFTR04308	1
3.05” (77.6mm)	QFTR04330	1
3.11” (78.93mm)	QFTR04312	1
3.14” (79.6mm)	QFTR04331	1
3.25” (82.5mm)	QFTR04309	1
3.4” (86.3mm)	QFTR04304	1
3.5” (88.8mm)	QFTR04321	1
3.58” (90.9mm)	QFTR04329	1
3.61” (91.6mm)	QFTR04319	1

LIVE CENTER SPINNING NOSE (FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002)

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
.625” X .313” X 1.25”	3FTR087169	3
.625” (15.8mm) X .376” (9.56mm) X 1.38” (34.92mm)	3FTR087182	3
.625” X .438” X 1.5”	3FTR087128	3
.625” X .5” X 1.625”	3FTR087119	3
.790” (18mm) X .276” (7mm) X 1.26”	3FTR087103	3
.75” (19.05mm) X .374” (9.48mm) X 1.5” (38mm)	3FTR087165	3
.75” X .256” X 1.262”	3FTR087148	3
.75” X .5” X 1.75”	3FTR087104	3
.75” X .625” X 2”	3FTR087140	3
.985” (25mm) X .5” X 1.985”	3FTR087139	3
.985” (25mm) X .625” X 2.235”	3FTR087174	3
.985” (25mm) X .630” (16mm) X 2.45”	3FTR087110	3
.985” (25mm) X .749” (19mm) X 2.48”	3FTR087111	3
1” X .313” X 1.625”	3FTR087107	3
1” X .315” (8mm) X 1.63”	3FTR087163	3
1” X .375” X 1.75”	3FTR087134	3
1” X .5” X 2”	3FTR087123	3
1” X .625” X 2.25”	3FTR087121	3
1” X .627” (15.9mm) X 2.254” (57.2mm)	3FTR087164	3
1” X .65” X 2.3”	3FTR087166	3
1” X .68” X 2.36”	3FTR087168	3
1” X .75” X 2.5”	3FTR087130	3
1” X .805” X 2.61”	3FTR087171	3
1.25” X .375” X 2”	3FTR087167	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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LIVE CENTER SPINNING NOSE (FOR ALL FINNED TUBE RACKS MANUFACTURED PRIOR TO 2002) *continued*

The spinning nose precedes and protects the finned tube through the three rollers of the finned tube rack. Machine requires one live center spinning nose.

TUBE SIZE X FIN HEIGHT X FINNED OD	PART NO.	RECOMMENDED ORDER QTY.
.75" X .4375" X 1.625"	3FTR087183	3
.875" X 15.88" X 2.126"	3FTR087184	3
1.25" X .5" X 2.25"	3FTR087127	3
1.25" X .625" X 2.5"	3FTR087126	3
1.25" X .630" X 2.51"	3FTR087180	3
1.25" X .75" X 2.75"	3FTR087109	3
1.25" X .805" X 2.86"	3FTR087172	3
1.25" X .875" X 3"	3FTR087137	3
1.26" (32mm) X .493" (12.5mm) X 2.25" (57mm)	3FTR087176	3
1.26" (32mm) X .630" (16mm) X 2.52" (64mm)	3FTR087178	3
1.26" (32mm) X .632" (16.05mm) X 2.524" (64.1mm)	3FTR087135	3
1.5" (38mm) X .493" (12.5mm) X 2.49" (63mm)	3FTR087177	3
1.5" X .5" X 2.5"	3FTR087125	3
1.5" X .625" X 2.75"	3FTR087124	3
1.5" (38mm) X .630" (916mm) X 2.76" (70mm)	3FTR087179	3
1.5" X .75" X 3"	3FTR087159	3
1.5" X .805" X 3.11"	3FTR087173	3
1.5" X .875" X 3.25"	3FTR087138	3
1.9" X .75" X 3.4"	3FTR087170	3
2" X .625" X 3.25"	3FTR087116	3
2" X .75" X 3.5"	3FTR087132	3
15.88mm X .376" (9.56mm) X 1.38" (35mm)	3FTR087182	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PREFORM ROLLER SET

A set of four (4) rollers, which form the "L" shaped foot from the fin strip. Machine requires one set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.25" (6.4mm) x 14	PH022AA	2
.3" (7.6mm) x 15	PH022AB	2
.3125" (7.93mm) x 15	PH022AC	2
.335" (8.5mm) x 12	PH022BX	2
.365" (9.26mm) x 16	PH022BS	2
.375" (9.51mm) x 16	PH022AN	2
.375" (9.51mm) x 14	PH022AZ	2
.375" (9.51mm) x 12	PH022BC	2
.394" (10mm) x 16	PH022AS	2
.406" (10.31mm) x 16	PH022AE	2
.422" (10.7mm)	PH022BZ	2
.433" (11mm) x 16	PH022CC	2
.438" (11.11mm) x 16	PH022BM	2
.453" (11.5mm) x 16	PH022CB	2
.473" (12.01mm) x 16	PH022BY	2
.469" (12.6mm)	PH022CA	2
.5" (12.7mm) x 16	PH022AH	2
.583" (14.80mm) x 14	PH022BR	2
.610" (15.48mm) x 16	PH022BV	2
.625" (15.9mm) x 18	PH022AK	2
.625" (15.9mm) x 16	PH022BP	2
.630" (16mm) x 16	PH022AW	2
.680" (17.26mm) x 16	PH022BT	2
.75" (19.05mm) x 18	PH022AL	2
.788" (20mm) x 16	PH022BU	2
.807" (20.48mm) x 16	PH022BW	2
.875" (22.2mm) x 18	PH022AT	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

WRAP-ON HELIXES FOR ICF AND CARTRIDGE BRIDGES MANUFACTURED AFTER 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 7	3FH228AG07	5
.625" X 8	3FH228AG08	5
.625" X 9	3FH228AG09	5
.625" X 10	3FH228AG10	5
.625" X 11	3FH228AG11	5
.625" X 12	3FH228AG12	5
.625" x 15	3FH228AG15	5
.630" (16mm) X 12	3FH228AU12	5
.75" X 6	3FH228AH06	5
.75" X 7	3FH228AH07	5
.75" X 8	3FH228AH08	5
.75" X 9	3FH228AH09	5
.75" X 10	3FH228AH10	5
.75" X 11	3FH228AH11	5
.75" X 12	3FH228AH12	5
.788" (20mm) x 11	3FH228AS11	5
.855" (21.7mm) X 8	3FH228AM08	5
.855" (21.7mm) X 10	3FH228AM10	5
.946" (24mm) X 11	3FH228AT11	5
.985" (25mm) X 8	3FH228AE08	5
.985" (25mm) X 9	3FH228AE09	5
.985" (25mm) X 10	3FH228AE10	5
.985" (25mm) X 11	3FH228AE11	5
1" X 6	3FH228AA06	5
1" X 6.5	3FH228AA065	5
1" X 7	3FH228AA07	5
1" X 8	3FH228AA08	5
1" X 9	3FH228AA09	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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WRAP-ON HELIXES FOR ICF AND CARTRIDGE BRIDGES MANUFACTURED AFTER 1981 *continued*

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
1" X 10	3FH228AA10	5
1" X 11	3FH228AA11	5
1" X 12	3FH228AA12	5
1" X 13	3FH228AA13	5
1.07" (27.2mm) X 8	3FH228AN08	5
1.125" X 11	3FH228AP11	5
1.25" X 7	3FH228AB07	5
1.25" X 8	3FH228AB08	5
1.25" X 9	3FH228AB09	5
1.25" X 10	3FH228AB10	5
1.25" X 11	3FH228AB11	5
1.25" X 12	3FH228AB12	5
1.26" (32mm) X 11	3FH228AR11	5
1.32" X 10	3FH228AL11	5
1.32" X 11	3FH228AL11	5
1.5" X 7	3FH228AC07	5
1.5" X 8	3FH228AC08	5
1.5" X 9	3FH228AC09	5
1.5" X 10	3FH228AC10	5
1.5" X 11	3FH228AC11	5
1.5" X 12	3FH228AC12	5
2" X 6	3FH228AF06	5
2" X 7	3FH228AF07	5
2" X 8	3FH228AF08	5
2" X 9	3FH228AF09	5
2" X 10	3FH228AF10	5
2" X 11	3FH228AF11	5
2" X 12	3FH228AF12	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

WRAP-ON HELIXES FOR BRIDGES MANUFACTURED BEFORE 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 7	3FH054AC07	5
.625" X 8	3FH054AC08	5
.625" X 9	3FH054AC09	5
.625" X 10	3FH054AC10	5
.625" X 11	3FH054AC11	5
.625" X 12	3FH054AC12	5
.75" X 10	3FH054AE10	5
.75" X 11	3FH054AE11	5
1" X 5	3FH054AK05	5
1" X 6	3FH054AK06	5
1" X 7	3FH054AK07	5
1" X 8	3FH054AK08	5
1" X 9	3FH054AK09	5
1" X 10	3FH054AK10	5
1" X 11	3FH054AK11	5
1" X 12	3FH054AK12	5
1.07" (27.2mm) X 10	3FH054AV10	5
1.125" X 11	3FH054AW11	5
1.25" X 6	3FH054AL06	5
1.25" X 7	3FH054AL07	5
1.25" X 8	3FH054AL08	5
1.25" X 9	3FH054AL09	5
1.25" X 10	3FH054AL10	5
1.25" X 11	3FH054AL11	5
1.5" X 7	3FH054AN07	5
1.5" X 8	3FH054AN08	5
1.5" X 9	3FH054AN09	5
1.5" X 10	3FH054AN10	5
1.5" X 11	3FH054AN11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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WRAP-ON HELIXES FOR BRIDGES MANUFACTURED BEFORE 1981 *continued*

TUBE OD AND FPI	PART NO.	RECOMMENDED ORDER QTY.
2" X 8	3FH054AR08	5
2" X 9	3FH054AR09	5
2" X 10	3FH054AR10	5
2" X 11	3FH054AR11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OVERLAPPED FOOTED PERFORATED FIN HEIGHT HARDWARE

UNIVERSAL LEAD IN ROLLER KIT (For machines manufactured prior to 2001)

Kit includes (1) Roll #6 and (2) Roll #5 for prior models.

DESCRIPTION	PART NO.	NO. REQ.
Universal Lead In Roller Kit	A3SF48701	1

INNER LEAD IN ROLLER FRAME (For machines manufactured prior to January 1991)

Extended lead in roller frame to include location for perforating gears.

DESCRIPTION	PART NO.	NO. REQ.
Inner Lead In Roller Frame	3HF320	1

OVERLAPPED FOOTED FIN HARDWARE

Accessory tooling to run perforated Overlapped Footed Fin. Set includes pins for eccentric and roller pins for perforating rollers, spanner wrench and ball plunger. Shown installed on Inner Lead In Roller Frame above.

DESCRIPTION	SET NO.	NO. REQ.
Perforated Accessory Tooling	3SF374	1

PERFORATED STRIP GUIDE SET

A guide to position the preformed strip between the pan and spindle roll. Specific for fin height, stock thickness and pitch. Added clearance required for preformed strip thickness. Requires strip guide clamp 3SF01805.

FIN HEIGHT X FPI X FIN STRIP THICKNESS	PART NO.	NO. REQ.
.630" x 10 x .016"	3SF456AB	2
.630" x 11 x .016"	3SF456AA	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

STRIP GUIDE SOLE PLATE

Base plate with carbide insert for above strip guides. Requires use of 3SF01805 Strip guide clamp.

FIN HEIGHT	PART NO.	NO. REQ.
16mm (.630")	3SF467CY03	1

CARBIDE FOR SOLE PLATE

Carbide wears separately from the Sole Plate and can be replaced independently. **Part No. 3SF01804**

STRIP GUIDE CLAMP

Strip Guide Clamp for non-universal strip guides. To be used in conjunction with strip guides 3SF018, 3SF366 and Sole Plate 3SF467.

DESCRIPTION	PART NO.	NO. REQ.
Strip Guide Clamp	3SF01805	1

OLFF PERFORATED SPINDLE ROLL

Used with the pan to curl the fin strip around the tube. This spindle roll does not work for a range of fin heights but is specific for fin type and fin height and has ground-in relief for perforation. Machine requires one spindle roll.

FIN HEIGHT X FPI X FIN STRIP THICKNESS	PART NO.	RECOMMENDED ORDER QTY.
.630" x 10 x .016"	3SF455002	8
.630" x 11 x .016"	3SF455001	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PERFORATING ROLL SET

A pair of rolls that preform the fin strip for Perforated fin types. These rolls can be used for Wrap-On, OLFF and Imbedded type fins. Machine requires one perforating roll set. Set includes two rollers and one tie bar.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.422" (10.7mm)	3SF496	2
.438"	3SF488	2
.496" (12.6mm)	3SF497	2
.5"	3SF506	2
.563"	3SF423	2
.625"	3SF376	2
.807" (20.5mm)	3SF498	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, OLFF, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly. **Note:** Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49301	3
.45" - .63" (11.4mm - 16mm)	3SF49302	3
.64" - .81" (16.2mm - 20.6mm)	3SF49303	3
.82" - 1" (20.8mm - 25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25" - .44" (6.4mm - 11.2mm)	3SF49401	3
.45" - .63" (11.4mm - 16mm)	3SF49402	3
.64" - .81" (16.2mm - 20.6mm)	3SF49403	3
.82" - 1" (20.8mm - 25.4mm)*	3SF49404	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

* For L-Fin and LL-Fin only

PREFORM ROLLER SET

Preform Rollers form the double "LL" shaped foot from the fin strip. These preform rollers are specific for fin height, FPI and Fin Strip Thickness. Machine requires one set of preform rollers.

FIN HEIGHT X FPI X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
7mm (.276") X 12.5 X .010"	3SF418	2
.354" X 10 X .016"	3SF390	2
.375" X 11 X .018"	3SF220	2
.375" X 11 X .016"	3SF343	2
.375" X 12 X .012"	3SF428	2
.5" X 8 X .016"	3SF186	2
.5" X 9 X .016"	3SF445	2
.5" X 10 X .016"	3SF044	2
.5" X 11 X .016"	3SF129	2
.623" X 11 X .016"	3SF408	2
.625" X 10 X .015"	3SF466	2
.625" X 9 X .016"	3SF139	2
.625" X 10 X .016"	3SF174	2
.625" X 11 X .016"	3SF091	2
.625" X 8 X .018"	3SF143	2
.625" X 9 X .018"	3SF096	2
.625" X 10 X .018"	3SF010	2
.625" X 11 X .018"	3SF377	2
.630" X 7 X .016"	3SF433	2
.630" X 10 X .016"	3SF381	2
.630" X 11 X .016"	3SF213	2
.75" X 9 X .018"	3SF447	2
.75" X 11 X .018"	3SF202	2
.875" X 9 X .020"	3SF450	2
.875" X 11 X .020"	3SF451	2
1" X 9 X .031"	3SF027	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.625" X .25" X 1.125"	QFTR11101AT	1
.625" X .375" X 1.375"	QFTR11101AU	1
.625" X .422" X 1.47"	QFTR11101BD	1
.625" X .438" X 1.501"	QFTR11101AS	1
.625" X .473" (12mm) X 1.57"	QFTR11101BB	1
.625" X .5" X 1.625"	QFTR11101AA	1
.630" (16mm) X .433" (11mm) X 1.5" (38mm)	QFTR11101BU	1
.75" X .140" X 1.03"	QFTR11101BH	1
.75" X .25" X 1.25"	QFTR11101AV	1
.75" X .375" X 1.5"	QFTR11101AW	1
.75" X .394" (10mm) X 1.538"	QFTR11101AP	1
.75" X .406" X 1.56"	QFTR11101AY	1
.75" X .438" X 1.626"	QFTR11101AF	1
.75" X .5" X 1.75"	QFTR11101AM	1
.75" X .625" X 2"	QFTR11101AR	1
.855" (21.7mm) X .473" (12mm) X 1.801" (45.7mm)	QFTR11101AN	1
.985" (25mm) X .5" X 1.985"	QFTR11101BP	1
.985" (25mm) X .625" X 2.24"	QFTR11101BR	1
.985" (25mm) X .63" (16mm) X 2.25" (57mm)	QFTR11101BT	1
.985" (25mm) X .658" (16.7mm) X 2.30" (58.4mm)	QFTR11101BM	1
1" X 3.13" (7.95mm) X 1.627"	QFTR11101BV	1
1" X .5" X 2"	QFTR11101AK	1
1" X .625" X 2.25"	QFTR11101AC	1
1" X .807" X 2.614"	QFTR11101AG	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
1.125” X .438” X 2”	QFTR11101BC	1
1.25” X .5” X 2.25”	QFTR11101AJ	1
1.25” X .625” X 2.5”	QFTR11101AE	1
1.25” X .630” (16mm) X 2.51”	QFTR11101BS	1
1.25” X .807” (20.5mm) X 2.86”	QFTR11101AZ	1
1.315” X .625” X 2.57”	QFTR11101BN	1
1.5” X .5” X 2.5”	QFTR11101BF	1
1.5” X .625” X 2.75”	QFTR11101AD	1
1.5” X .807” (20.5mm) X 3.12”	QFTR11101BA	1
1.5” X 1” X 3.5”	QFTR11101AX	1
1.5” X 1.04” X 3.58”	QFTR11101BE	1
1.75” X .625” X 3”	QFTR11101BJ	1
1.81” (46mm) X .623” (15.8mm) X 3.06” (77.6mm)	QFTR11101BK	1
1.89” (48mm) X .623” (15.8mm) X 3.14” (79.6mm)	QFTR11101BL	1
2” X .5” X 3”	QFTR11101BG	1
2” X .625” X 3.25”	QFTR11101AH	1
2” X .75” X 3.5”	QFTR11101AL	1
2” X .807” (20.5mm) X 3.62”	QFTR11101AB	1

QFTR SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997)

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD.

FINNED OD	SET NO.	NO. REQ.
25mm (.985”)	QFTR04332	1
1.25” (28.56mm)	QFTR04324	1
1.25” (31.7mm)	QFTR04313	1
1.375” (34.9mm)	QFTR04325	1

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QFTR SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997) *continued*

FINNED OD	SET NO.	NO. REQ.
1.47” (37.3mm)	QFTR04327	1
1.50” (38.1mm)	QFTR04318	1
1.54” (39.1mm)	QFTR04323	1
1.57” (39.8mm)	QFTR04328	1
1.625” (41.2mm)	QFTR04320	1
1.74” (44.2mm)	QFTR04326	1
1.75” (44.4mm)	QFTR04305	1
1.80” (45.7mm)	QFTR04322	1
1.96” (49.7mm)	QFTR04315	1
1.98” (50.3mm)	QFTR04306	1
2” (50.8mm)	QFTR04307	1
2.24” (56.8mm)	QFTR04316	1
2.25” (57.1mm)	QFTR04301	1
2.3” (58.4mm)	QFTR04334	1
2.48” (62.9mm)	QFTR04317	1
2.50” (63.5mm)	QFTR04302	1
2.52” (64mm)	QFTR04314	1
2.56” (65mm)	QFTR04333	1
2.61” (66.24mm)	QFTR04310	1
2.75” (69.80mm)	QFTR04303	1
2.86” (72.6mm)	QFTR04311	1
3” (76.1mm)	QFTR04308	1
3.05” (77.6mm)	QFTR04330	1
3.11” (78.93mm)	QFTR04312	1
3.14” (79.6mm)	QFTR04331	1
3.25” (82.5mm)	QFTR04309	1
3.4” (86.3mm)	QFTR04304	1
3.5” (88.8mm)	QFTR04321	1
3.58” (90.9mm)	QFTR04329	1
3.61” (91.6mm)	QFTR04319	1

OLFF HELIXES FOR ICF AND CARTRIDGE BRIDGES MANUFACTURED AFTER 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge Bridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 9	3FH255AH09	5
.625" X 11	3FH255AH11	5
.709" (18mm) X 10	3FH255AD10	5
.709" (18mm) X 12.5	3FH255AD125	5
.75" X 9	3FH255AG09	5
.75" X 10	3FH255AG10	5
.75" X 11	3FH255AG11	5
.75" X 12	3FH255AG12	5
.985" (25mm) X 9	3FH255AB09	5
.985" (25mm) X 10	3FH255AB10	5
.985" (25mm) X 11	3FH255AB11	5
.985" (25mm) X 12	3FH255AB12	5
1" X 7	3FH255AA07	5
1" X 8	3FH255AA08	5
1" X 9	3FH255AA09	5
1" X 10	3FH255AA10	5
1" X 11	3FH255AA11	5
1.25" X 6	3FH255AE06	5
1.25" X 9	3FH255AE09	5
1.25" X 10	3FH255AE10	5
1.25" X 11	3FH255AE11	5
1.5" X 7	3FH255AC07	5
1.5" X 8	3FH255AC08	5
1.5" X 9	3FH255AC09	5
1.5" X 10	3FH255AC10	5
1.5" X 11	3FH255AC11	5
2" X 9	3FH255AJ09	5
2" X 10	3FH255AJ10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

OLFF HELIXES FOR BRIDGES MANUFACTURED PRIOR TO 1981

Supports the newly formed fin on its first revolution and is mounted on the face of the Cartridge. The helix is specific for each tube OD and FPI. Machine requires one helix.

TUBE OD FPI	PART NO.	RECOMMENDED ORDER QTY.
18mm (.709") X 10	3FH053AK10	5
1" X 5	3FH053AD05	5
1" X 6	3FH053AD06	5
1" X 7	3FH053AD07	5
1" X 8	3FH053AD08	5
1" X 9	3FH053AD09	5
1" X 10	3FH053AD10	5
1" X 11	3FH053AD11	5
1.25" X 9	3FH053AF09	5
1.25" X 10	3FH053AF10	5
1.25" X 11	3FH053AF11	5
1.5" X 9	3FH053AH09	5
1.5" X 11	3FH053AH11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

ENHANCED IMBEDDED PERFORATED FIN

Just as with the Perforated enhancement for the Wrap-On and OLFF type fins, this same enhancement can be added to the imbedded fin face. In addition to the Standard Plow, Backfillers, and Imbedded Helix you would need to add the following:

UNIVERSAL LEAD IN ROLLER KIT For machines manufactured prior to 2001

Kit includes (1) Roll #6 and (2) Roll #5 for prior models.

DESCRIPTION	PART NO.	NO. REQ.
Universal Lead In Roller Kit	A3SF48701	1

INNER LEAD IN ROLLER FRAME For machines manufactured prior to January 1991

Extended lead in roller frame to include location for perforating gears.

DESCRIPTION	PART NO.	NO. REQ.
Inner Lead In Roller Frame	3HF320	1

IMBEDDED PERFORATED HARDWARE SET

Accessory tooling to run perforated Imbedded fins. Set includes pins for eccentric and roller pins for perforating rollers, spanner wrench and ball plunger. Shown installed on Inner Lead In Roller Frame above.

DESCRIPTION	SET NO.	NO. REQ.
Perforated Accessory Tooling	3SF375	1

STRIP GUIDE CLAMP

Strip Guide Clamp for non-universal strip guides. To be used in conjunction with strip guides 3SF018 and Sole Plate 3SF467.

DESCRIPTION	PART NO.	NO. REQ.
Strip Guide Clamp	3SF01805	1

PERFORATED STRIP GUIDE SET

A guide to position the preformed strip between the pan and spindle roll. Specific for fin height. These strip guide sets provide the added clearance required for the preformed perforated strip clearance. These strip guides can be used for Wrap-On or Imbedded perforated fin. Requires use of 3SF01805 strip guide clamp and 3SF467 Sole Plate. Machine requires one set of perforated strip guides.

FIN HEIGHT X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
.438" X .030"	3SF366DU	2
.5" X .030"	3SF366DW	2
.563" X .020"	3SF366DV	2
.625" X .030"	3SF366CW	2
.630" X .030"	3SF366CY	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

Other sizes available upon request. Contact fintube@mcelroy.com for additional information.

SOLE PLATE

Base plate with carbide insert for above strip guides. Requires use of 3SF01805 strip guide clamp.

FIN HEIGHT	PART NO.	NO. REQ.
.422" (10.7mm)	3SF467DA03	1
.438"	3SF467AD03	1
.496" (12.6mm)	3SF467DF03	1
.5"	3SF467AH03	1
.563"	3SF467CR03	1
.625"	3SF467AB03	1
.630" (16mm)	3SF467CY03	1
.807" (20.5mm)	3SF467EH03	1

CARBIDE FOR SOLE PLATE

Carbide wears separately from the Universal Strip Guide Clamp and can be replaced independently. **Part No. 3SF01804**

RETAINING PERFORATING ROLL ASSEMBLY SET

A set of rollers to capture and direct the fin strip to the strip guides. Set includes two rollers. Machine requires one set.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.422” (10.7mm)	3SF500A	1
.437”	3SF500B	1
.496” (12.6mm)	3SF499E	1
.5”	3SF499F	1
.563”	3SF499D	1
.625”	3SF499A	1
.630”	3SF499B	1
.807” (20.5mm)	3SF499C	1

PERFORATING ROLL SET

A pair of rolls that preform the fin strip for Perforated fin type. These rolls can be used for Wrap-On and Imbedded type fins. Machine requires one perforating roll set. Set includes two rollers and one tie bar.

FIN HEIGHT	SET NO.	RECOMMENDED ORDER QTY.
.422” (10.7mm)	3SF496	2
.438”	3SF488	2
.496” (12.6mm)	3SF497	2
.5”	3SF506	2
.563”	3SF423	2
.625”	3SF376	2
.807” (20.5mm)	3SF498	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

PERFORATED SPINDLE ROLL - IMBEDDED

Used in conjunction with the Pan to curl the fin strip around the tube. Spindle roll is specific for type of fin and fin height. Machine requires one spindle roll.

FIN HEIGHT X FIN STRIP THICKNESS	SET NO.	RECOMMENDED ORDER QTY.
.421”	3SF363025	8
.438”	3SF363005	8
.496”	3SF363026	8
.5”	3SF363006	8
.563”	3SF363024	8
.625”	3SF363008	8
.630”	3SF363009	8
.807”	3SF363027	8

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL PRIMARY FORMING ROLL (PAN) ASSEMBLY

Used in conjunction with the Spindle Roll to curl the fin strip around the tube. Pan is universal and can be used for Wrap-On, OLFF, Knurled Footed, Edgewound, or Imbedded type fins and is suitable for a range of fin heights for FPIs of 7-11. Inquire for additional pitches. Machine requires one pan assembly.
Note: Pans can be reconditioned at McElroy to offer you continued savings.

NO. 3 AND 3S MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25” - .44” (6.4mm - 11.2mm)	3SF49301	3
.45” - .63” (11.4mm - 16mm)	3SF49302	3
.64” - .81” (16.2mm - 20.6mm)	3SF49303	3
.82” - 1.0” (20.8mm - 25.4mm)*	3SF49304	3

NO. 4 AND 5 MACHINES

FIN HEIGHT	PART NO.	RECOMMENDED ORDER QTY.
.25” - .44” (6.4mm - 11.2mm)	3SF49401	3
.45” - .63” (11.4mm - 16mm)	3SF49402	3
.64” - .81” (16.2mm - 20.6mm)	3SF49403	3
.82” - 1” (20.8mm - 25.4mm)*	3SF49404	3

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

* For Wrap-On and OLFF only

IMBEDDED HELIX

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge (all Imbedded Bridge versions.) Specific for each tube OD and FPI. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.625" X 6	3FH133AA06	5
.625" X 7	3FH133AA07	5
.625" X 8	3FH133AA08	5
.625" X 9	3FH133AA09	5
.625" X 10	3FH133AA10	5
.625" X 11	3FH133AA11	5
.625" X 12	3FH133AA12	5
.625" X 13	3FH133AA13	5
.630" X 8	3FH133AP08	5
.709" (18mm) X 10	3FH133AK10	5
.709" (18mm) X 11	3FH133AK11	5
.709" (18mm) X 13	3FH133AK13	5
.75" X 5	3FH133AB05	5
.75" X 6	3FH133AB06	5
.75" X 7	3FH133AB07	5
.75" X 8	3FH133AB08	5
.75" X 9	3FH133AB09	5
.75" X 10	3FH133AB10	5
.75" X 11	3FH133AB11	5
.75" X 12	3FH133AB12	5
.75" X 13	3FH133AB13	5
.75" X 17	3FH133AB17	5
.761" X 7	3FH133BA07	5
.788" (20mm) X 10	3FH133AC10	5
.788" (20mm) X 11	3FH133AC11	5
.854" (21.7mm) X 8	3FH133AZ08	5
.854" (21.7mm) X 9	3FH133AZ09	5
.854" (21.7mm) X 10	3FH133AZ10	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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IMBEDDED HELIX *continued*

Supports the newly formed fin on its first revolution and is mounted on the face of the Bridge (all Imbedded Bridge versions.) Specific for each tube OD and FPI. Machine requires one helix.

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
.875" X 7	3FH133AU07	5
.875" X 9	3FH133AU09	5
.875" X 11	3FH133AU11	5
.946" (24mm) X 10	3FH133AV10	5
.985" (25mm) X 8	3FH133AL08	5
.985" (25mm) X 9	3FH133AL09	5
.985" (25mm) X 10	3FH133AL10	5
1" X 5	3FH133AD05	5
1" X 6	3FH133AD06	5
1" X 7	3FH133AD07	5
1" X 8	3FH133AD08	5
1" X 9	3FH133AD09	5
1" X 10	3FH133AD10	5
1" X 11	3FH133AD11	5
1" X 12	3FH133AD12	5
1" X 13	3FH133AD13	5
1.125" X 11	3FH133BB11	5
1.25" X 6	3FH133AF06	5
1.25" X 7	3FH133AF07	5
1.25" X 8	3FH133AF08	5
1.25" X 9	3FH133AF09	5
1.25" X 10	3FH133AF10	5
1.25" X 11	3FH133AF11	5
1.25" X 12	3FH133AF12	5
1.25" X 13	3FH133AF13	5
1.32" X 10	3FH133AW10	5
1.32" X 11	3FH133AW11	5
1.375" X 8	3FH133AG08	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

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IMBEDDED HELIX *continued*

TUBE OD X FPI	PART NO.	RECOMMENDED ORDER QTY.
1.375” X 10	3FH133AG10	5
1.5” X 5	3FH133AH05	5
1.5” X 6	3FH133AH06	5
1.5” X 7	3FH133AH07	5
1.5” X 8	3FH133AH08	5
1.5” X 9	3FH133AH09	5
1.5” X 10	3FH133AH10	5
1.5” X 11	3FH133AH11	5
1.5” X 12	3FH133AH12	5
1.5” X 13	3FH133AH13	5
1.75” X 8	3FH133AR08	5
1.75” X 9	3FH133AR09	5
1.75” X 10	3FH133AR10	5
1.75” X 11	3FH133AR11	5
1.9” X 7	3FH133AY07	5
1.9” X 9	3FH133AY09	5
2” X 6	3FH133AJ06	5
2” X 7	3FH133AJ07	5
2” X 8	3FH133AJ08	5
2” X 9	3FH133AJ09	5
2” X 10	3FH133AJ10	5
2” X 11	3FH133AJ11	5

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

HELIX ANGLE SET UP BAR

Used to set the angle of the Overarm to the tangent of the tube for a specific tube OD and FPI. One helix angle set up bar is required per configuration.

TUBE OD X FPI	PART NO.	NO. REQ.
.625” X 6	3FH181P06	1
.625” X 8	3FH181P08	1
.625” X 9	3FH181P09	1

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HELIX ANGLE SET UP BAR *continued*

TUBE OD X FPI	PART NO.	NO. REQ.
.625” X 10	3FH181P10	1
.625” X 11	3FH181P11	1
18mm (.709”) X 9	3FH181AE09	1
18mm (.709”) X 10	3FH181E10	1
18mm (.709”) X 13	3FH181E13	1
25mm (.985”) X 8	3FH181S08	1
25mm (.985”) X 9	3FH181S09	1
25mm (.985”) X 10	3FH181S10	1
25mm (.985”) X 11	3FH181S11	1
25mm (.985”) X 12	3FH181S12	1
25mm (.985”) X 13	3FH181S13	1
.75” X 6	3FH181K06	1
.75” X 8	3FH181K08	1
.75” X 9	3FH181K09	1
.75” X 10	3FH181K10	1
.75” X 11	3FH181K11	1
.75” X 12	3FH181K12	1
.75” X 13	3FH181K13	1
.761” X 7	3FH181AD07	1
21.7mm (.855”) X 8	3FH181AC08	1
.875” X 7	3FH181F07	1
.875” X 9	3FH181F09	1
.875” X 11	3FH181F11	1
1” X 6	3FH181X06	1
1” X 7	3FH181X07	1
1” X 8	3FH181X08	1
1” X 9	3FH181X09	1
1” X 10	3FH181X10	1
1” X 11	3FH181X11	1
1” X 12	3FH181X12	1

PLOW GROOVER

This preferred and more flexible system does not load the tube OD as much as the DT system and can handle thinner tube walls as well as ferrous and non-ferrous tube materials. The plow is fixed and actually plows the metal much as a farmer's plow would do. The metal rises high on each side of the plow tip. No metal is removed. The plow tool has 20 teeth and is mounted on an indexing arbor and overarm which allows the operator to readily index the next tooth into the working position when the first tooth is worn out or broken. Each tooth will produce approximately 3000' (914m) of finned carbon steel tube for a total of approximately 60,000' (18,287m) per 20 tooth tool.* Reference GFTI-11 (pg 97) for minimum tube wall thickness and tube wall hardness. The Shell-pull Test is greater with the plow system.

As a result of the additional raised metal, backfilling and locking only requires flat rolling to lock the fin. Maximum fin strip thickness is .030" (.761mm). Machine requires one plow groover.

FIN STRIP THICKNESS RANGE	PART NO.	RECOMMENDED ORDER QTY.
.009" - .012"	3FH40101	50
.013" - .016"	3FH40102	50
.017" - .020"	3FH40103	50
.021" - .025"	3FH40104	50
.026" - .030"	3FH40105	50

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

*Actual tool performance may vary due to coolant used, tube condition (welded or seamless), tube material and operator experience.

UNIVERSAL BACKFILLING DISCS

These tools flat roll the material displaced by the plow to lock the fin into the groove and ultimately into the tube wall. They must be run in sets which consist of one non-counterbored tool and one counterbored tool. The non-counterbored disc can be reversed when worn for extended tool life. This tooling is capable of running from 5-11 FPI and stock thicknesses from .014" (.355mm) to .020" (.508mm) when used with the Shim Kit. Machine requires one of each universal backfilling disc. These tools are for standard groove depth of .012" (.305mm)

DESCRIPTION	PART NO.	RECOMMENDED ORDER QTY.
Universal CBored Backfilling Disc	A3FH404	42

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

UNIVERSAL BACKFILLER SHIM KIT

These shims are used with Imbedded tooling to properly space backfilling discs for specific pitch and fin strip thickness. Standard shims to be used with Universal Backfillers and Knurled tooling. Allows the disc to be spaced .002" greater than fin strip being run. Various shims required from each kit. Each kit includes shims, color-coded for thickness. Refer to Technical Bulletin TB004 for spacing of backfillers and Operator's Manual.

DESCRIPTION	PART NO.	NO. REQ.
Shim Kit	A3FH403	20

QUICK CHANGE FINNED TUBE RACK (QFTR) SIZING MANDREL SET (RACKS MANUFACTURED AFTER MARCH 1997)

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD.

FINNED OD	SET NO.	NO. REQ.
.985" (25mm)	QFTR04332	1
1.125" (28.56mm)	QFTR04324	1
1.25" (31.7mm)	QFTR04313	1
1.375" (34.9mm)	QFTR04325	1
1.47" (37.3mm)	QFTR04327	1
1.5" (38.1mm)	QFTR04318	1
1.54" (39.1mm)	QFTR04323	1
1.57" (39.8mm)	QFTR04328	1
1.625" (41.2mm)	QFTR04320	1
1.74" (44.2mm)	QFTR04326	1
1.75" (44.4mm)	QFTR04305	1
1.8" (45.7mm)	QFTR04322	1
1.96" (49.7mm)	QFTR04315	1
1.98" (50.3mm)	QFTR04306	1
2" (50.8mm)	QFTR04307	1
2.24" (56.8mm)	QFTR04316	1
2.25" (57.1mm)	QFTR04301	1
2.3" (58.4mm)	QFTR04334	1
2.48" (62.9mm)	QFTR04317	1
2.5" (63.5mm)	QFTR04302	1

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QFTR SIZING MANDREL SET (MANUFACTURED AFTER MARCH 1997) *continued*

FINNED OD	SET NO.	NO. REQ.
2.52" (64mm)	QFTR04314	1
2.56" (65mm)	QFTR04333	1
2.61" (66.24mm)	QFTR04310	1
2.75" (69.8mm)	QFTR04303	1
2.86" (72.6mm)	QFTR04311	1
3" (76.1mm)	QFTR04308	1
3.05" (77.6mm)	QFTR04330	1
3.11" (78.93mm)	QFTR04312	1
3.14" (79.6mm)	QFTR04331	1
3.25" (82.5mm)	QFTR04309	1
3.4" (86.3mm)	QFTR04304	1
3.5" (88.8mm)	QFTR04321	1
3.58" (90.9mm)	QFTR04329	1
3.61" (91.6mm)	QFTR04319	1

LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002)

The lead mandrel precedes and protects the finned tube through the Quick Change Finned Tube Rack (QFTR) rollers.

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.625" X .25" X 1.125"	QFTR11101AT	1
.625" X .375" X 1.375"	QFTR11101AU	1
.625" X .422" X 1.47"	QFTR11101BD	1
.625" X .438" X 1.501"	QFTR11101AS	1
.625" X .473" (12mm) X 1.57"	QFTR11101BB	1
.625" X .5" X 1.625"	QFTR11101AA	1
.630" (16mm) X .433" (11mm) X 1.5" (38mm)	QFTR11101BU	1
.75" X .140" X 1.03"	QFTR11101BH	1
.75" X .25" X 1.25"	QFTR11101AV	1
.75" X .375" X 1.5"	QFTR11101AW	1
.75" X .394" (10mm) X 1.538"	QFTR11101AP	1
.75" X .406" X 1.56"	QFTR11101AY	1
.75" X .438" X 1.626"	QFTR11101AF	1

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LEAD MANDREL ASSEMBLY (RACKS MANUFACTURED AFTER JULY 2002) *continued*

TUBE SIZE X FIN HEIGHT X FINNED OD	SET NO.	NO. REQ.
.75" X .5" X 1.75"	QFTR11101AM	1
.75" X .625" X 2.0"	QFTR11101AR	1
.855" (21.7mm) X .473" (12mm) X 1.801" (45.7mm)	QFTR11101AN	1
.985" (25mm) X .5" X 1.985"	QFTR11101BP	1
.985" (25mm) X .625" X 2.24"	QFTR11101BR	1
.985" (25mm) X .630" (16mm) X 2.25" (57mm)	QFTR11101BT	1
.985" (25mm) X .658" (16.7mm) X 2.30" (58.4mm)	QFTR11101BM	1
1" X 3.13" (7.95mm) X 1.627"	QFTR11101BV	1
1" X .5" X 2"	QFTR11101AK	1
1" X .625" X 2.25"	QFTR11101AC	1
1" X .807" X 2.614"	QFTR11101AG	1
1.125" X .438" X 2.0"	QFTR11101BC	1
1.25" X .5" X 2.25"	QFTR11101AJ	1
1.25" X .625" X 2.5"	QFTR11101AE	1
1.25" X .630" (16mm) X 2.51"	QFTR11101BS	1
1.25" X .807" (20.5mm) X 2.86"	QFTR11101AZ	1
1.315" X .625" X 2.57"	QFTR11101BN	1
1.5" X .5" X 2.5"	QFTR11101BF	1
1.5" X .625" X 2.75"	QFTR11101AD	1
1.5" X .807" (20.5mm) X 3.12"	QFTR11101BA	1
1.5" X 1" X 3.5"	QFTR11101AX	1
1.5" X 1.04" X 3.58"	QFTR11101BE	1
1.75" X .625" X 3.0"	QFTR11101BJ	1
1.81" (46mm) X .623" (15.8mm) X 3.06" (77.6mm)	QFTR11101BK	1
1.89" (48mm) X .623" (15.8mm) X 3.14" (79.6mm)	QFTR11101BL	1
2" X .5" X 3.0"	QFTR11101BG	1
2" X .625" X 3.25"	QFTR11101AH	1
2" X .75" X 3.5"	QFTR11101AL	1
2" X .807" (20.5mm) X 3.62"	QFTR11101AB	1

APPLIED MACHINE REFERENCE GUIDE

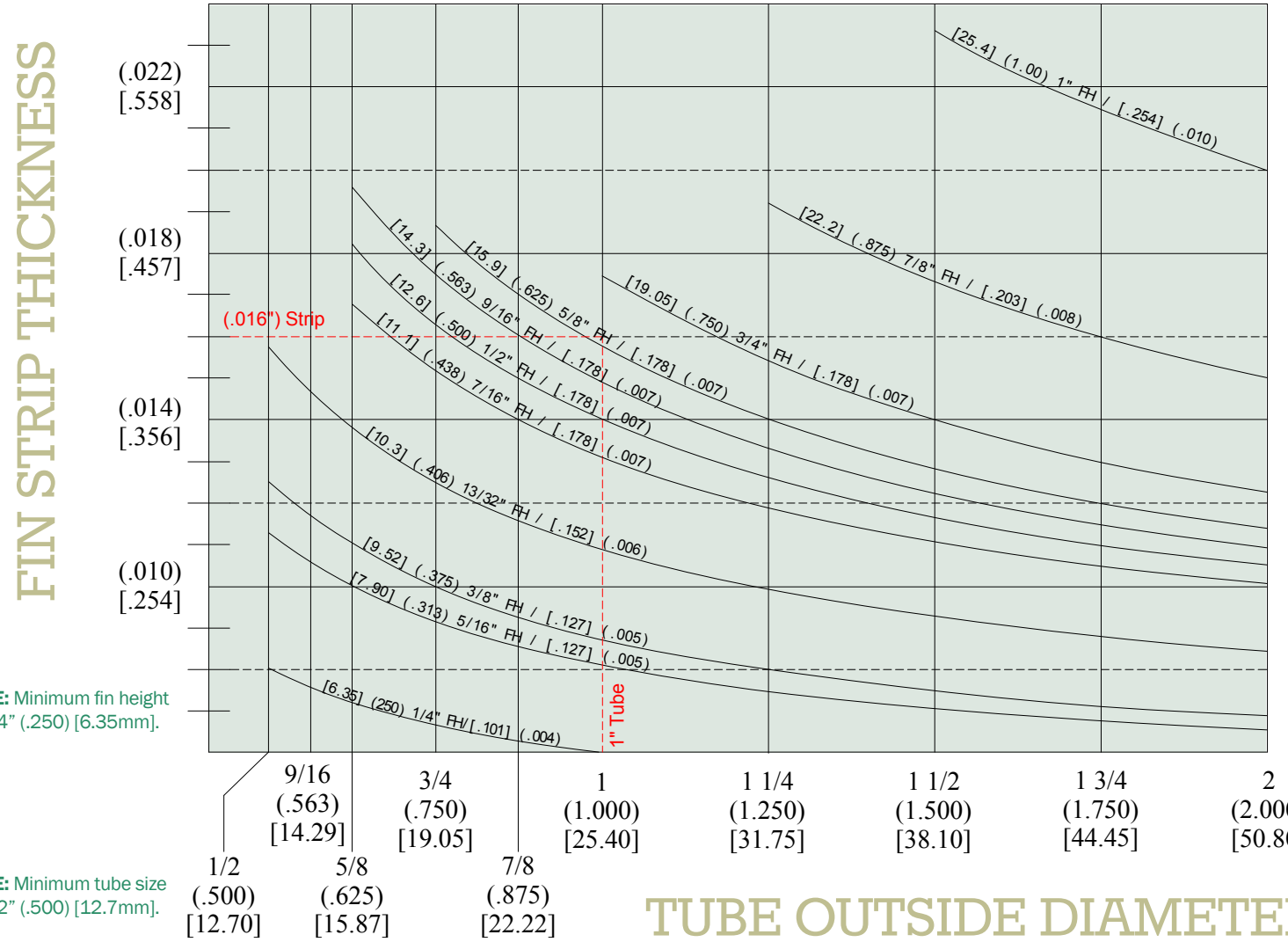
GENERAL FINTUBE INFORMATION GFTI - 1B

Non-ferrous fin strip.
Minimum recommended strip thickness for Wrap-On, Overlapped Footed, and Imbedded fins.

Aluminum Alloy: 1100-O, 1145-O, 1200-O
For copper fin strip: reduce indicated thickness 10%
Copper Alloy: ASTM B152-C-11400 Silver Bearing, Dead Soft
CU ETP Alloy: 110

Theoretical Tip Thickness Shown In Final Parenthesis (.000X)

(INCHES SHOWN IN PARENTHESIS)
[mm SHOWN IN BRACKETS]



NOTE: Maximun fin height is 1" (1) [25.4mm].

NOTE: Minimum fin height is 1/4" (.250) [6.35mm].

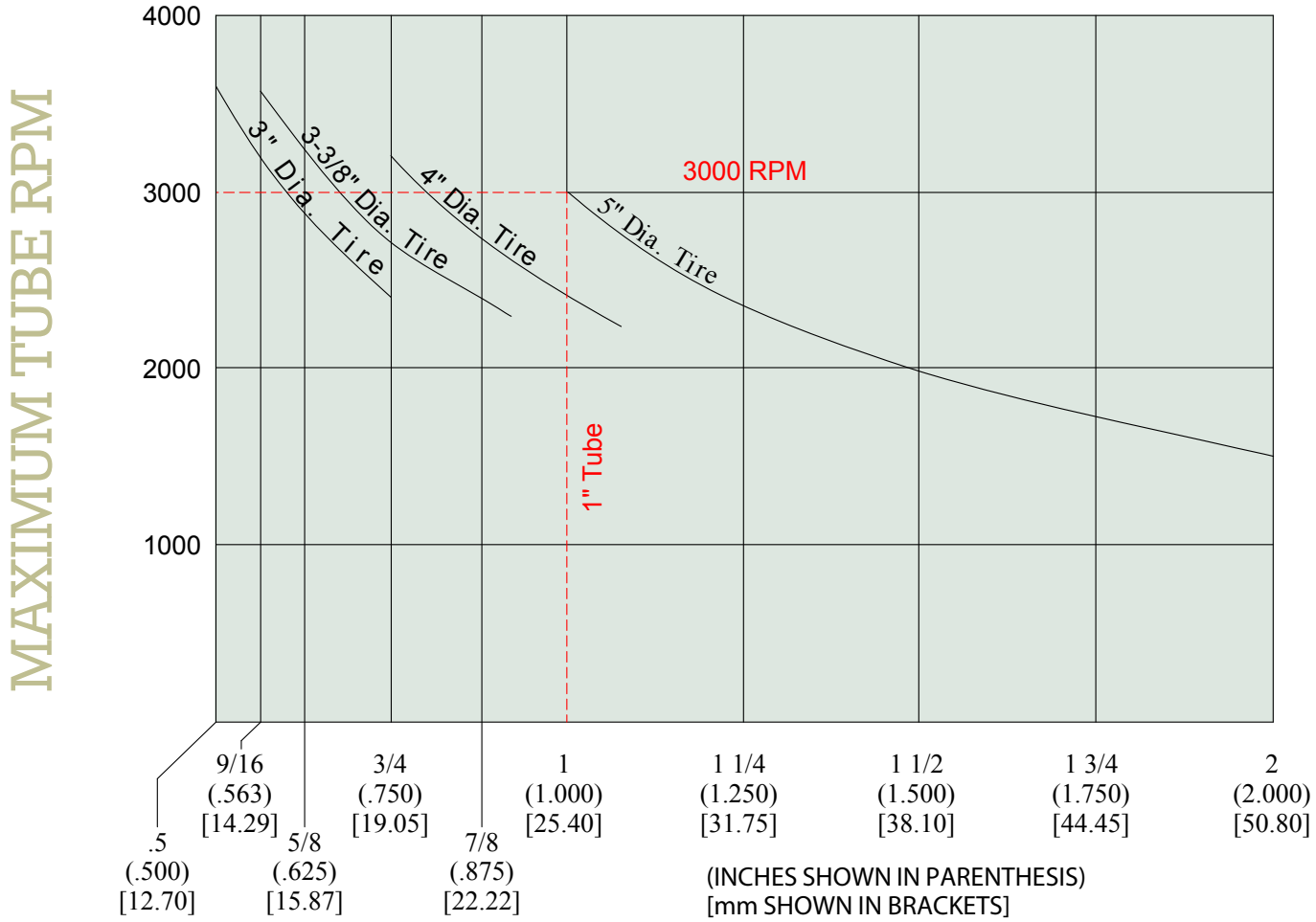
NOTE: Maximum tube size is 2" (2) [50.8mm].

NOTE: Minimum tube size is 1/2" (.500) [12.7mm].

GENERAL FINTUBE INFORMATION GFTI - 5

Tube OD versus Maximum Tube RPM

Note: Left end of each curve represents smallest tube OD for given drive tire diameter.



NOTE: Maximun fin height is 1" [25.4mm].

NOTE: Maximum tube size is 2" [50.8mm].

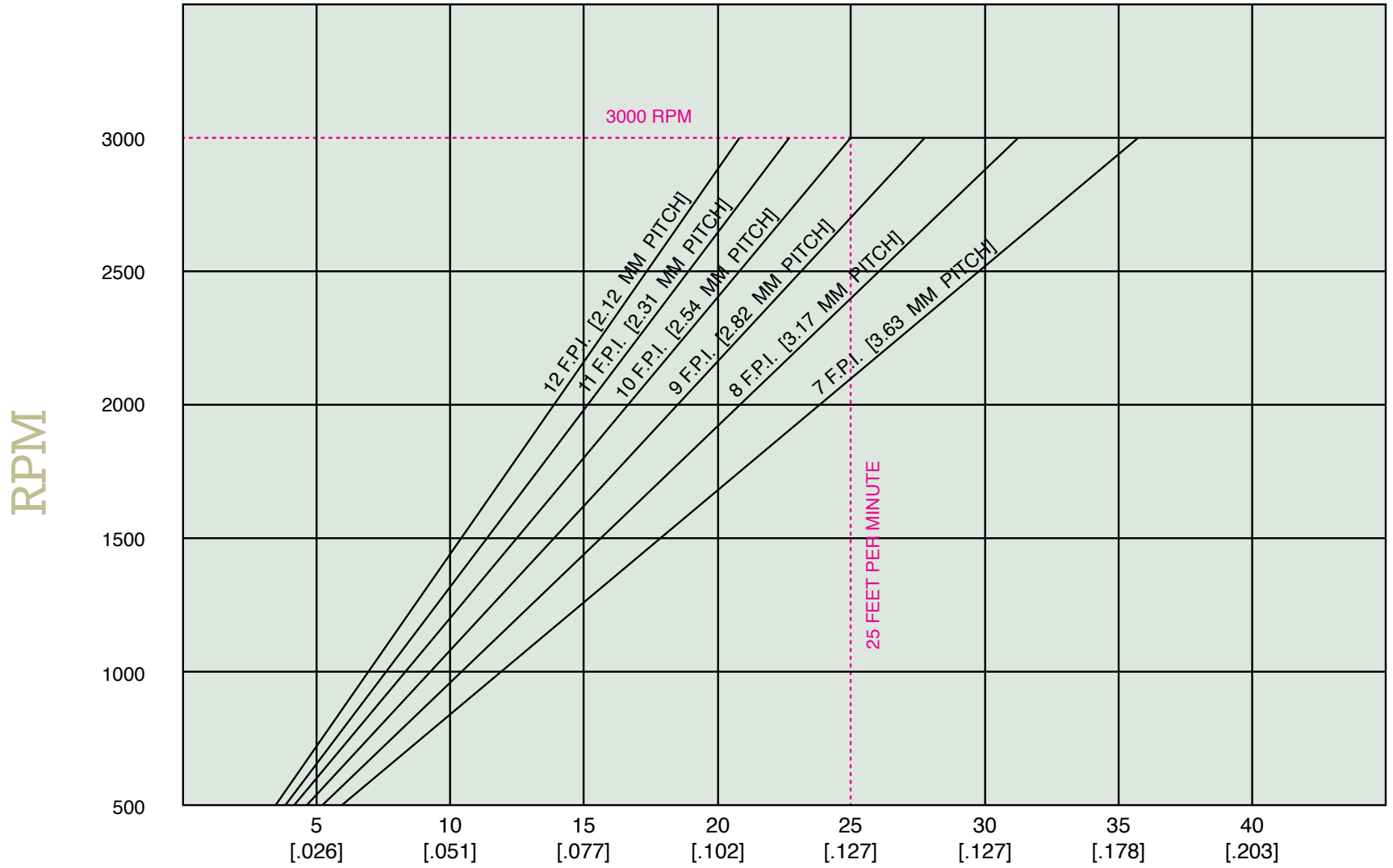
NOTE: Minimum tube size is 1/2" [12.7mm].

NOTE: Minimum fin height is 1/4" [6.35mm].

APPLIED REFERENCE

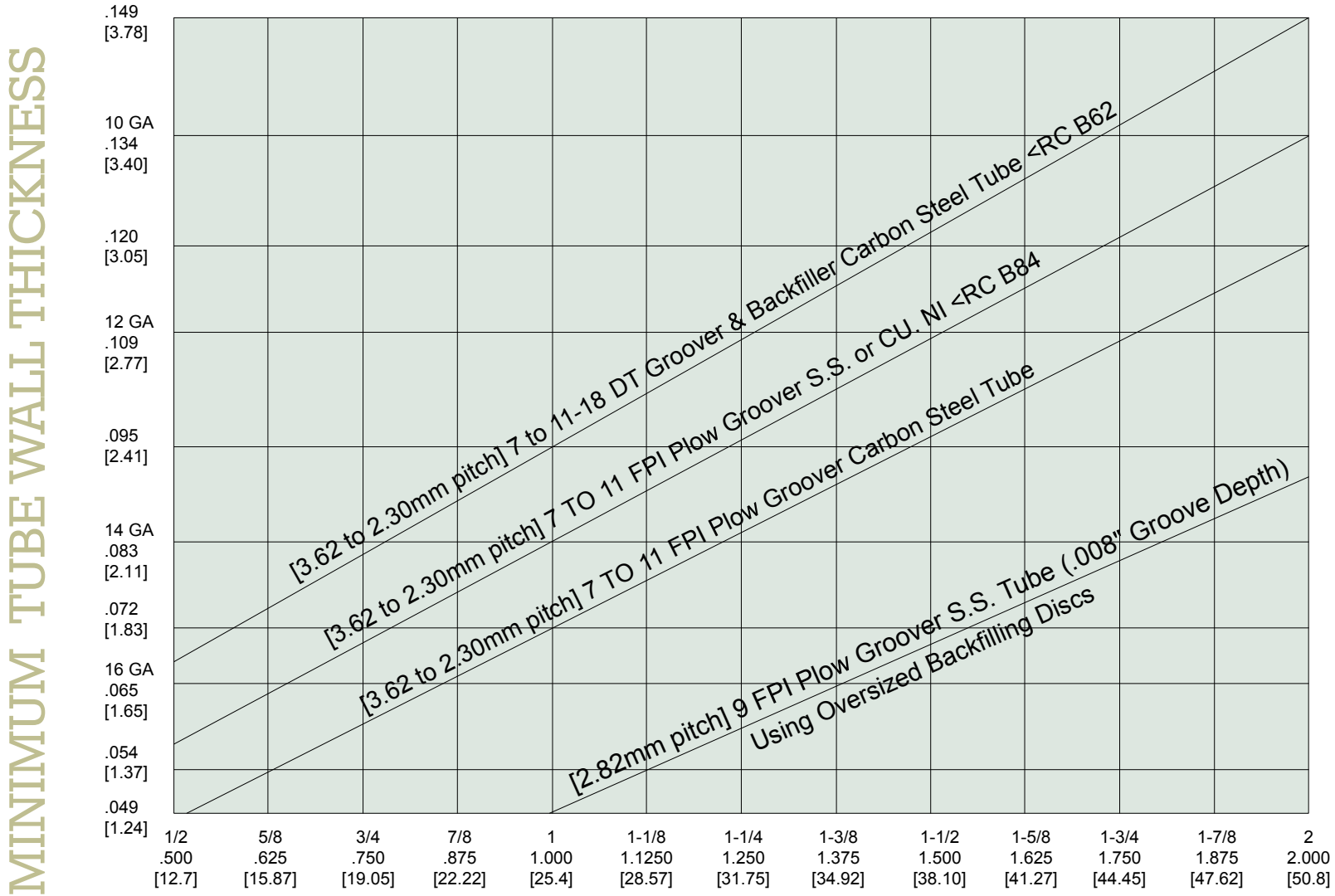
GENERAL FINTUBE INFORMATION GFTI - 8

Machine Production Rate



GENERAL FINTUBE INFORMATION GFTI - 11

Minimum Tube Wall Thickness for Standard Groove Depth (.012")
Imbedded Fins

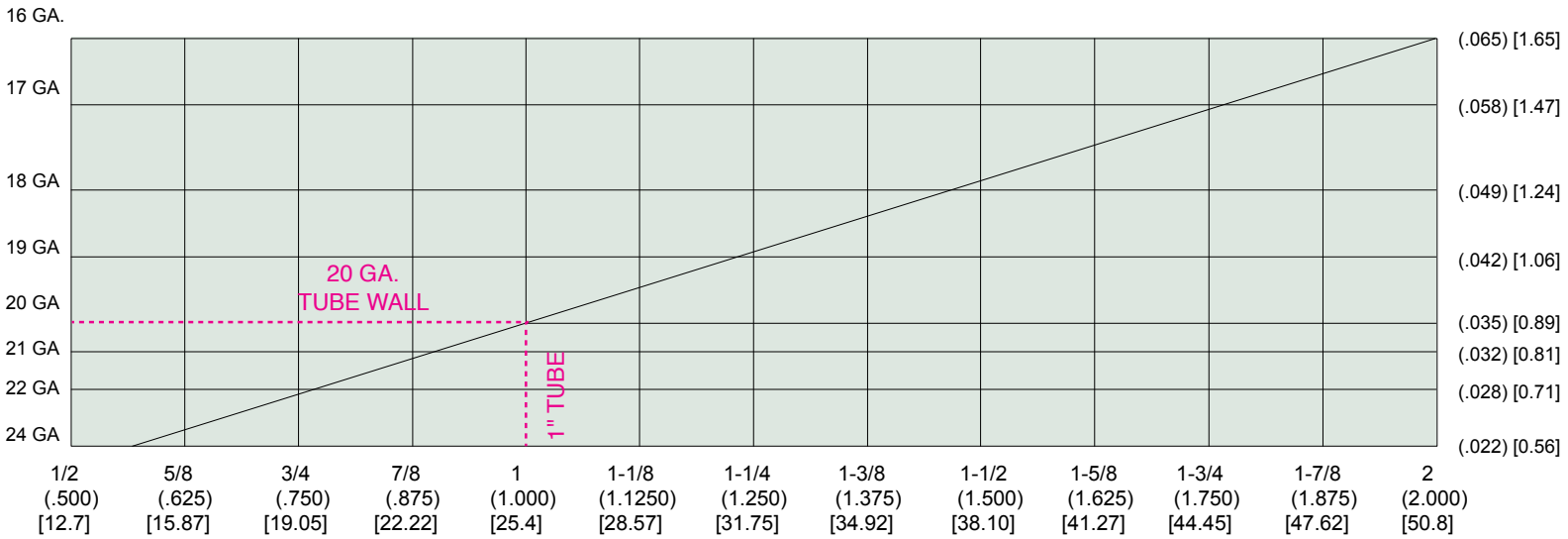


[MM SHOWN IN BRACKETS]
(VP=10.168 DOWN, 20.750 LEFT-REF.)

GENERAL FINTUBE INFORMATION GFTI - 12

Minimum Tube Wall Thickness
Wrap-On and Overlapped Footed Fin

MINIMUM TUBE WALL THICKNESS

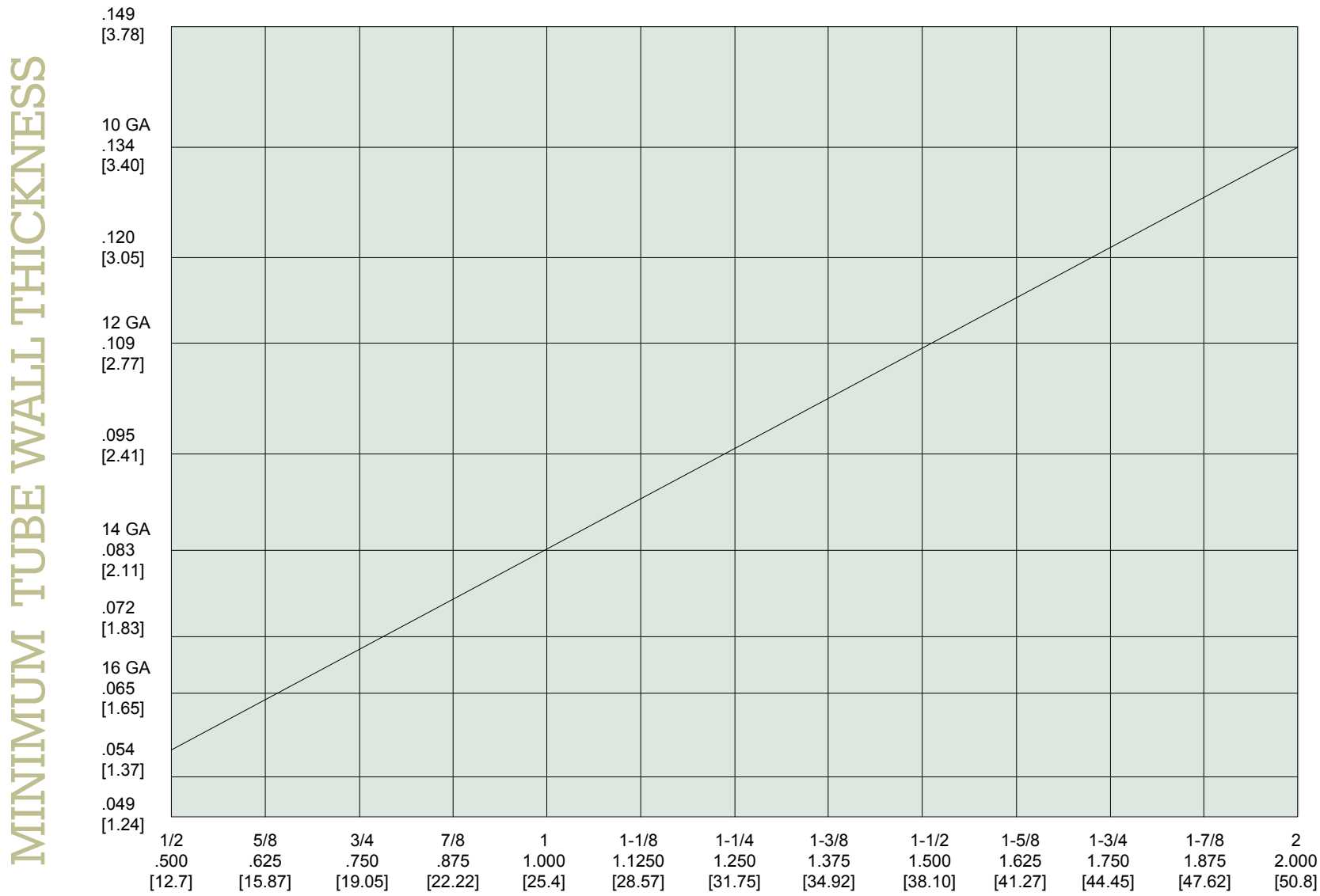


(INCHES SHOWN IN PARENTHESIS)
[mm SHOWN IN BRACKETS]

TUBE DIAMETER

GENERAL FINTUBE INFORMATION GFTI - 13

Minimum Tube Wall Thickness



(INCHES SHOWN IN PARENTHESIS
[mm SHOWN IN BRACKETS]

Note: Wrap-On Knurled Footed Fin.

FREQUENTLY REORDERED PARTS

DESCRIPTION	PART NO.
Digital Speed Meter Kit	A3DH090
Fin Head Replacement No. 3S	A3FH001
Fin Head Replacement No. 4	A4FH001
3 Vert. Spindle Shaft/Bearings	A3FH097
4 Vert. Spindle Shaft/Bearings	A4FH097
3S Torque Limiter (Boston)	A3SPB110
3S Torque Limiter (Louis Allis)	A3SPB11002
4 Torque Limiter (Boston)	A4PB133
4 Torque Limiter (Louis Allis)	A4PB13302
New Computer w/Flash Card	A5EA033SN
Dial Indicator	MJI00003
Drive Wheel Shaft	3DH012
Drive Wheel Arm	3DH01302
Pin Block	3DH014
Pivot Arm	3DH016
Pivot Pin	3DH017
Pitch Adjustment Rod	3DH019
U-Joint Set Screw	3DH02802
U-Joint Modification	3DH02902
U-Joint Spring	3DH031
Split Lock Nut	3DH05401
Drive Wheel Nut	3DH07801
Bridge Housing Cover Plate	3FH011
Vertical Spindle Shaft Brg Spacer	3FH013
Vertical Spindle Shaft Nut Spacer	3FH014
Vertical Spindle Shaft Nut	3FH01501
Overarm Mounting Bracket	3FH021
Overarm King Pin	3FH037
Backfiller Mandrel Nut	3FH04001

DESCRIPTION	PART NO.
Knurled Locknut	3FH041
Indexing Overarm Clamp Washer	3FH043
Pawl	3FH044
Pawl Spring	3FH045
Imbedded Overarm Knurled Nut	3FH061
No. 3S Vertical Spindle Shaft	3FH097
Draw In Bolt	3FH09901
.625” Bushing	3FH129002
.75” Bushing	3FH129005
25mm Bushing	3FH129007
1" Bushing	3FH129008
1.25” Bushing	3FH129010
1.5” Bushing	3FH129012
2” Bushing	3FH129013
1.75” Bushing	3FH129014
King Pin Knob	3FH187
Overarm Bridge Cartridge	3FH19601
Indexing Overarm Shaft Bushing	3FH19701
Indexing Shaft	3FH19801
Plow Tools Overarm	3FH213
Mounting Screw Helix (less than 1")	3FH26301
Mounting Screw Helix (1" & Larger)	3FH26302
1.625” Take Up Unit Assembly	3FH29901
1.75” Take Up Unit Assembly	3FH29902
Overarm Mounting Bracket	3FH39601
King Pin Assembly	3FH39701
Bearing Adapter	3FTR010
Optimount Output Shaft	3PB043
TrimSol Conversion	3SC0014

DESCRIPTION	PART NO.
AL Strip Wiper Oiler Kit (Boston)	3SC0017
AL Strip Wiper Oiler Kit (Louis Allis)	3SC0022
Pan Adjustment Nut	3SF014
Oil Slinger	3SF015
Carbide Insert	3SF01804
Strip Guide Clamp	3SF01805
Pan Shaft Adjustment Nut	3SF141
Strip Wiper Retrofit Assembly	3SF47406
#3 Optimount Assembly	3SPB004
Cover Plate - No. 4	4FH01101
Spindle Shaft Spacer	4FH013
Vertical Spindle Shaft Spacer	4FH014
Spindle Shaft Locknut	4FH01501
No. 4 Vertical Spindle Shaft	4FH097
Optimount Output Shaft	4PB043
Gear Reducer Modified	4PB13701
Oil Slinger	4SF01501
Fin Head Bridge Adapter	4SF12101
Fin Head Bearing Adapter	4SF12102
Laser Alignment Kit	A5SSP02901
10” Adjustment Pulley	MDD00065
March Pump Cov.(Hous/Ryton)	MEA00067
5 Gal. Spindle Oil	MJQ00117
Switch W/Housing	MKD00025
Switch Only	MKD00027
No.3 Replacement Variator Assembly	3PB14001
No.4 Replacement Variator Assembly	4PB14501
ALMR Control Box Kit	AQFTR20701
55Gal Trim EUE206 Coolant Cone	MJR00009

STEEL TUBE SPECIFICATIONS

ASTM A179 & ASTM A214 TUBES:
We offer the following guidelines for the purchase of steel tubes to be supplied to McElroy No. 3, No. 3S, No. 4, & No. 5 machines for imbedded fins:

FINISH:
Bright annealed with a surface hardness not to exceed (HRB62) for best tool life.

SIZE:
Tube size shall be within +/-.003" from lot to lot, but not tube to tube. Ref: ASTM A450 and A513.

OVALITY:
Tubes shall be round within .002".

STRAIGHTNESS:
Tubes shall be as straight as possible even to the extent of requiring special handling to avoid nicks, dents, kinks, etc. Ref: ASTM A450.

TUBE ENDS:
Tubes shall be cut square and deburred on both ID and OD.

TUBE LENGTH:
Tube lengths shall be cut within –0" to +.125".

SURFACE PROTECTION:
Tubes shall be free of rust, scale or heavy rust protection materials such as grease or cosmoline.

TUBE WALL THICKNESS:
Tube wall thickness is dependent upon fin type and material type. Refer to GFTI-11, GTFI-12, or GTFI-13. For example, tube wall thickness shall not be less than .095"(2.41mm) for 1" tube OD for carbon steel tubes to be finned with .016" aluminum strip (DT Tools) and .072"(1.83mm) for 1" tube OD when using plow tools.

ALUMINUM STRIP SPECIFICATIONS

WRAP-ON AND IMBEDDED FIN:
Aluminum strip shall conform to "The Aluminum Standards Association" specifications.

ALLOY:
1100-0, 1145-0, or 1200-0. Note: 1050-0 and 1060-0 alloy is acceptable, but has slower production speeds. Alloy 5005-02 is also acceptable, but will have different physical characteristics than cited below. Please contact McElroy for more specific information.

PHYSICAL CHARACTERISTICS:
Yield strength: 3500 to 6500 PSI.
Elongation: 30% to 40%.

STRIP THICKNESS:
Strip shall be ordered to the nominal thickness dimensions +.001" / -.000".

STRIP WIDTH:
Strip shall be ordered to nominal width +/- .003".

SHEARED EDGE:
The sheared edge shall be as square as possible and free from wire edge, flange, nicks, burrs, etc.

OIL:
The aluminum may have a light coat of lubricating oil or it can be completely dry.

FIN PANCAKE PAYOFF SYSTEM (NO. 4 AND 5 ONLY):
Coils shall be ordered with 10" ID with the maximum diameter not to exceed 59". We recommend using coils of the largest diameter in order to reduce the number of coil changes.

OSCILLATING LEVEL WOUND PAYOFF SYSTEM:
Coils shall be 16" (406mm) ID with a 36" (914mm) OD and either 13.25" (350mm) or 16" (406mm) wide. Maximum coil weight is 1200 lbs. (544 Kg.).

COIL BINDING:
Coils shall be wrapped uniformly tight to facilitate handling and have the OD and ID suitably bound. They shall be stacked on pallets with suitable separators such as polyethylene film, to avoid chafing of the aluminum edges.

STEEL STRIP SPECIFICATIONS

WRAP-ON AND IMBEDDED FIN:
Steel strip shall conform to "American Iron and Steel Institute-Society of Automotive Engineers" specifications.

ALLOY:
AISI (SAE) 1008/1010 Aluminum killed, soft and ductile, low carbon, No. 5 temper.

PHYSICAL CHARACTERISTICS:
Mean tensile strength: 44,000 PSI (3033.69 Bar).
Elongation: 40% Minimum.
Hardness: Rockwell B55 Maximum.
Cold finish bright annealed, commercial finish is acceptable.

STRIP THICKNESS:
Strip shall be ordered to the nominal thickness dimensions +.001" / -.000".

STRIP WIDTH:
Strip shall be ordered to nominal width +/- .003".

SHEARED EDGE:
The sheared edge shall be as square as possible and free from wire edge, flange, nicks, burrs, etc.

OIL:
The steel must have a light coat of lubricating oil to prevent oxidation while in transit or storage.

COIL SIZE:
Coils shall be ordered with 16" (406.4mm) I.D. and the maximum I.D. not to exceed 30" (672mm). We recommend using coils of the largest diameter possible in order to reduce the number of coil changes.

COIL BINDING:
Coils shall be wrapped uniformly tight to facilitate handling and have the O.D. and I.D. suitably bound. They shall be stacked on pallets with suitable seporators, to avoid chafing of the steel edges, and covered with a suitable protective material (such as polyethylene film) to protect coils against the elements. Pallet weight to be betermined by material handling equipment.

COPPER STRIP SPECIFICATIONS

WRAP-ON AND EDGE WOUND FIN:
Copper strip shall conform to "Copper Development Association" specifications.

ALLOY:
ASTM B152-C-11400 Silver Bearing, Dead Soft.

PHYSICAL CHARACTERISTICS:
Yield strength: 10,000 PSI (689.47 Bar) Maximum.
Elongation: 40% Minimum.

STRIP THICKNESS:
Strip shall be ordered to the nominal thickness dimensions +.001" / -.000".

STRIP WIDTH:
Strip shall be ordered to nominal width +/- .003".

SHEARED EDGE:
The sheared edge shall be as square as possible and free from wire edge, flange, nicks, burrs, etc.

OIL:
The copper may have a light coat of lubricating oil or it can be completely dry.

COIL SIZE:
Coils shall be ordered with 10" ID with the maximum diameter not to exceed 59". We recommend using coils of the largest diameter in order to reduce the number of coil changes.

COIL BINDING:
Coils shall be wrapped uniformly tight to facilitate handling and have the O.D. and I.D. suitably bound. They shall be stacked on pallets with suitable seporators, to avoid chafing of the steel edges, and covered with a suitable protective material (such as polyethylene film) to protect coils against the elements. Pallet weight to be betermined by material handling equipment.

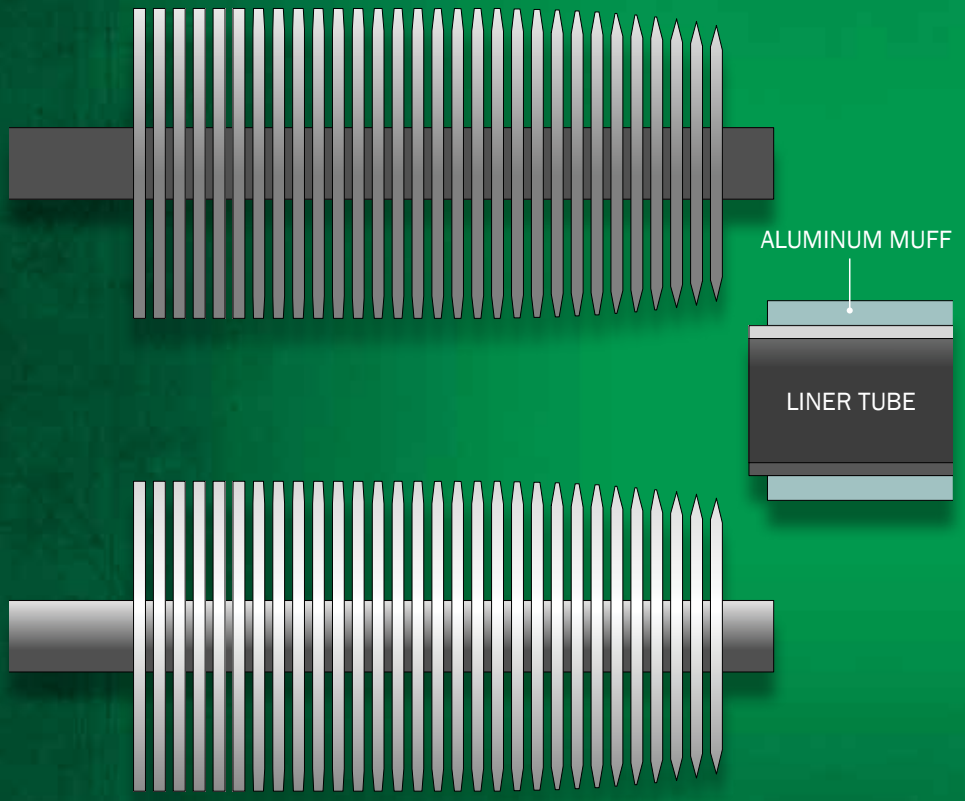
CUSTOM MACHINES

McElroy has an extensive background producing a broad variety of custom-designed special purpose machinery. If you have special machine requirements and need help with the design and production, contact a McElroy representative. We will work on the solution with you.

MODEL B
EXTRUDED FINTUBE

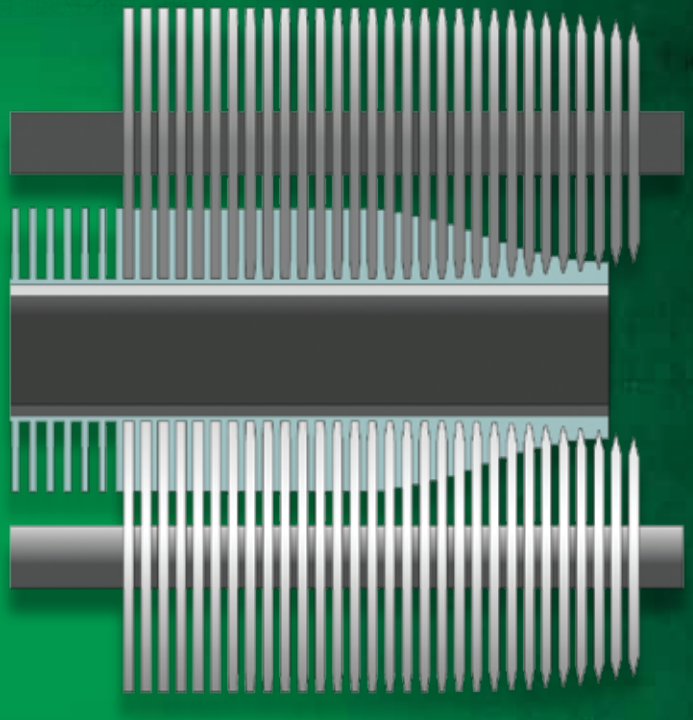
THEORY OF EXTRUDED FINTUBE

1 The extruded fin is formed from a thick walled aluminum tube (muff), which is swaged over a liner tube.



McElroy discs vary in thickness and form and must be stacked carefully to produce the desired pitch. Discs are specific for each FPI. McElroy disc technology makes it possible to fin thinner muff thus offering significant material savings.

2 The two tubes are pushed simultaneously through three arbors with rotating discs that literally squeeze or extrude the aluminum fins up and out of the muff material in a spiral shape in one operation. The resultant fin typically has a base or root thickness of .035" (0.89mm), with a mid-range thickness of .016" (406mm) and a tip of .009" (228mm) with a finished fin height of .625" or 15.9mm. The root thickness serves to form an uninterrupted bond over the entire liner tube length.



TYPICAL CHARACTERISTICS

FINS PER INCH: 5-11 FPI

MUFF MATERIAL: Aluminum 1050F; 6063-0 (Annealed)

MINIMUM TUBE WALL: CS. 072", Stainless Steel .083"

FIN CONTACT: Interference Fit

TYPE OF SERVICE: Severe duties of corrosive environment where thermal cycling is a problem

MAXIMUM TUBE WALL OPERATING TEMPERATURE: 400-600°F (204-316°C)

MAXIMUM TUBE RPM ON 1" TUBE: 3585

ESTIMATED PRODUCTION FEET/HOUR ON 1" TUBE AT 11 FPI AT 2800 RPM CRUISING SPEED: 830 ft/hr or 253 m/hr

MODEL B MACHINE CAPABILITIES

Tube Size: 1" – 1.5" (25mm – 38.1mm)
Fin Heights: 0.5" – 0.625" (12.7mm – 15.8mm)
Fins Per Inch (FPI): 5 – 11
Fin Material: Aluminum
Muff maximum tube RPM on 1" tube: 3585

MODEL B MACHINE SPECIFICATIONS

LENGTH: 50 foot Machines: 33.83 meters (111 feet)
60 foot Machines: 39.93 meters (131 feet)

WIDTH: 9.4 meters (30 feet)

TYPICAL TUBE LENGTH: 15.2 meters (50 feet) Extensions available for up to 18.3 meters (60 foot tube). Other rack lengths available.

POWER REQUIREMENT:

- SUPPLY TYPE: 3-phase, 242 kVA solidly grounded (earthed-type) and protected by 350 Amp Class-J, time-delay fuses with a disconnect conforming to local regulations.
- VOLTAGE: 400V
- FREQUENCY: 50Hz (Other voltages and frequencies evaluated upon request.)

HORSEPOWER: 150 HP AC Motor

MANPOWER: One full-time operator, one disc stacker, and two helpers.

MODEL B MACHINE BENEFITS

COMPLETE SOLUTION

We offer the flexibility to customize fintube production cells to suit customer needs. Through the resources of our sales and engineering departments, we can help you choose the best options for your specific applications. We offer precision components, top quality controls, and a knowledgeable staff dedicated to supporting your needs. For maximum production and efficiency, the following features are included with the standard Model B Extruded fintube machine:

- Liner Tube Rack
- Liner Tube Cleaning and Polishing Station
- Storage Rack for Fin Material and Liner Tubes
- Input Rack
- Finning head
- Inline high pressure cleaner for finned tubes
- Quick Change Finned Tube Rack
- Highly efficient cooling system
- Hydraulically operated end strippers

HIGH SPEED PRODUCTION

McElroy machines offer a maximum production of tubes per man hour, this is due to our high speed operation, a tube cruising speed of 2,800 RPM and a productivity minded design.

QUALITY

McElroy extruded discs are manufactured from high quality materials under exacting conditions to offer you the greatest number of cycles possible.

TECHNOLOGY

Through the technology that McElroy fintube machines offer there is excellent tube to finned material contact surface, thus providing maximum efficiency and long tube life. Our disc technology makes it possible to fin thinner material thus offering significant material savings.

VERSATILITY

McElroy heavy-duty adjustable arbors can be set up for different fintube combinations and depths thus accommodating for different fin material thicknesses. The same extruded discs can be used to produce multiple fin heights. For example, the same disc can produce 0.5" (12.70mm) and 0.625" (15.88mm) high fin.

RELIABILTIY

Our highly efficient cooling system equipped with a high flow centrifugal pump and filter system keeps plenty of clean lubricant flowing for the greatest disc life and reliability.

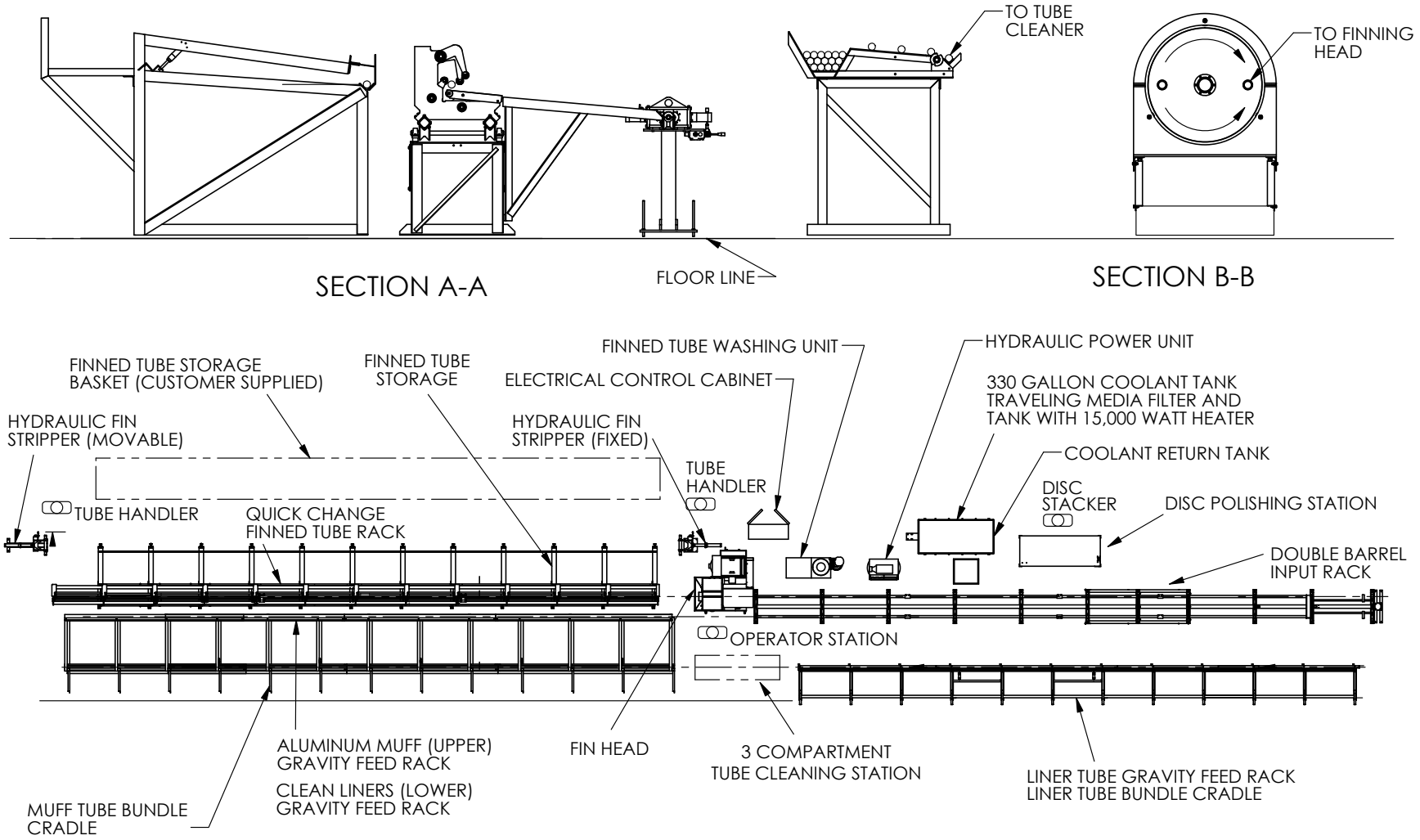
EASY MAINTENANCE

Accessibility to the finning head makes maintenance procedures simple and fast to execute.

MODEL B EXTRUDED MACHINE

The diagram below shows the overall components of the Extruded Model B machine. The equipment offers complete tube processing and handling.

PART NO.	DESCRIPTION	LENGTH (ft/m)	WIDTH (ft/m)
E010007	50' Maximum Tube Length	119'-36.27" (37.19m)	19'-5.79" (5.94m)
E010008	60' Maximum Tube Length	139'-24.36" (42.99m)	19'-5.79" (5.94m)



ADDITIONAL REQUIRED EQUIPMENT

DESCRIPTION	PART NO.	NO. REQ.
Stacking Stool Hold Up	E028801	1
Wrench Assembly	E027901	1
Keyway Alignment Tool	E028001	3
Disc Stacking Stool Assembly	E021101	9
Pusher Feed Adjustment Fixture	E028501	1
Socket Wrench Adapter	MJL00052	1
* Anchor Bolts - 50’ Racks	E000105	1
* Anchor Bolts - 60’ Racks	E000106	1
1.75” Wrench	QBTR05201	1
2” Wrench	QBTR05001	1
2.375” Wrench	QBTR05101	1
3.25” Wrench	E023501	1
3.625” Wrench	E023601	1
Rack Adjustment Bracket Assembly	QFTR04201	1

* Choose one set of anchor bolts based on machine length.

END-USER RESPONSIBILITIES

PRIOR TO INSTALLATION

- The customer is responsible for proper floor preparations, providing for electrical, air supply and other utilities as outlined below and the actual connection of the equipment to incoming plant voltage.
- Power supply should be constant and not inconsistent.
- The machine draws 150 HP at 100% RPM. Adequate horsepower is designed into this equipment to provide for the running of harder materials and larger ODs. It is required that the end user provide adequate electrical service. Customer to provide connection from incoming source to transformer and from transformer to controller. The proper method of electrical connection is described in the manual and must be completed by a licensed electrician.
- **Air requirement:** End user will need to arrange for a compressor to provide 30 CFM at 100 PSI. A dryer on the compressor is required. End user needs to run a .75" (19.05mm) ID line to the machine, fitted with a shop air fitting or quick disconnect.
- **Water for Wash Tank: .625**" (16mm) line with no less than 30 PSI pressure.
- **Floor Drain:** 7 gallons per minute.
- City water, gas line and drain for finned tube cleaning line.
- Gas pressure required is 11" WC (water column inches). Install in accordance with local building and safety codes.
- Vent pipe from steam cleaning unit.
- The machine needs to be laid out off of a centerline (chalk line). Make the layout and drill holes off this centerline for the machine and racks. It is recommended that a drill guide be used to ensure that the holes are straight. It is also necessary to level and align the machine by using a bubble level and laser. Anchor bolts, shields, anchor shield drivers, masonry drills as well as the laser are shipped with the machine. See specific dimensions based on your setting plan which will be provided at the time of order.
- For setup and run in of the machine, the end user will need to provide liner tubes and muff material of a recognized alloy, as specified. Test material is to be provided for final testing at McElroy's facility prior to shipping.
- It is recommended that a team consisting of operations, maintenance, engineering and supervisory management be selected for training. McElroy will be involved in setting up the schedule for training and commissioning prior to dispatch of our technical personnel for installation of the equipment.

HOW WE SHIP

INTERNATIONAL SHIPMENT:
The 60 feet and 50 feet machine and components are skidded for ease of offloading. Machine ships in four (4) high cube, 40 foot containers. Typical weight, of each container is as follows:

Container 1—14,000 lbs (6,350 kg)
Container 2—14,000 lbs (6,350 kg)
Container 3—13,000 lbs (5,897 kg)
Container 4—24,000 lbs (10,886 kg)

Final packing list details each component in each container and is provided at the time of dispatch so you can be prepared to receive each container. Lifting points are also indicated on each skid to facilitate offloading.

DOMESTIC SHIPMENT:
Usually made on 45 foot floats and may require up to four trucks. It is recommended that the truck be tarped or enclosed to protect the equipment during transit.

MANDATORY MACHINE ACCESSORIES AND SPARES

DESCRIPTION	PART NO.	NO. REQ.
Stem kit for Hoke valve	MEI00021	1
Seat kit for Hoke valve	MEI00022	1
Converter/Repeater Modification	E039401	1
I/O Module Modification	E039501	1
I/O Module Modification	E039601	1
I/O Module Modification	E039701	1
Motor Controller PLC Module Modification	E039901	1
Off-Delay Relay	MKB00051	2
Contact Block	MKC00002	2
Limit Switch	MKD00004	2
Proximity Sensor	MKD00018	1
Limit Switch	MKD00026	1
Limit Switch	MKD00035	1
Rotary Selector Switch	MKE00031	1
SPDT (On)-Off-(On) Toggle Switch	MKE00082	2
32A, 120V, 50/60HZ Contactor	MKJ00015	1
Proximity Switch	MKM00022	1
Proximity Switch	MKM00023	1
5.85-6.67 A Overload	MLV000017	3
Mechanical Relay, 2PDT	MKB00007	1
2PDT 24V Relay	MKB00058	2
Float Switch	MKD00037	1
42” X 30” Safety Mat Trim Kit	MKH00123	1

DESCRIPTION	PART NO.	NO. REQ.
18A, 24VDC Contactor	MKJ00019	2
1.6 - 2.5 Amp Overload	MLV00020	1
0.63 - 1 Amp Overload	MLV00023	1
2.5 - 4 Amp Overload	MLV00026	1
17 - 25 Amp Overload	MLV00031	1
5K, 2 Watt Potentiometer	MQH00010	1
1.5” Open End Wrench	MJL00040	1
Seal Kit	MEP00055	2
Spool Kit	MGF00034	3
Flow Control Valve	MEJ00015	1
Seal Kit	MEP00057	2
2 Spool Directional Valve	MEF00174	1
Valve Hand Lever	MEF00077	1
Seal Kit	MEQ00038	5
Seal Kit	MEQ00047	5
Seal Kit	MEQ00039	2
Ball Bearing	MDM00232	15
Seal	MDL00124	3
Seal	MDL00125	3
Seal	MDL00126	2
Seal	MDL00127	3
Seal	MDL00128	2
Seal	MDL00129	2
Tube Drive Wheel Tire	E145105	2
55 Gl Oakite STC Detergent	MJQ00209	1
.375” Dia X .062 Wall Air Hose	MHA00030	60
Pillow Block Bearing	MDM00198	2
Polishing Wheel	MDR00052	6

DESCRIPTION	PART NO.	NO. REQ.
Knob	MJP00015	1
Reverse Phase Relay	MKB00003	1
Push Button	MKC00001	1
24V Illuminated Push Button	MKC00042	1
24V Illuminated E-Stop Switch	MKC00043	1
24V Inductive Proximity Sensor	MKD00030	3
Toggle Switch	MKE00006	1
SPDT 2 Position Locking Toggle Switch	MKE00072	1
SPDT 3 Position Toggle Switch	MKE00073	2
42X30 Yellow QD Safety Mat	MKH00122	1
Terminal	MLM00051	5
24V Green Indicator Light	MLT00002	2
I/O Expansion Module	MQE00095	1
30ft Encoder Cable Assembly	MQG00055	1
Cans Spray Paint	MJQ00351	3
55 Gl Finning Compound	MJQ00212	1
Sumpside Treater	MJQ00213	2
Silicone Antifoam	MJQ00214	2
Filter Element	MED00042	1
1.5 Regular Pattern Box Wrench	MJQ00206	1
Vacuum Bag	MJQ00208	3
Rl. Filter Element Paper	MED00038	2
Timing Belt	MDE00043	1
Tool Box	SW16001	1

MANDATORY MACHINE ACCESSORIES AND SPARES *CONTINUED*

DESCRIPTION	PART NO.	NO. REQ.
.625” Anchor Shield Driver	MAH00118	1
6” Digimatic Caliper	MJI00006	1
1 .0625” Combination Wrench	MJL00041	1
1 .0625” Socket for 1/2” Drive	MJL00042	1
.375” Drive Socket Set	MJQ00103	1
14pc Combo Wrench Set	MJQ00104	1
Feeler Gauge Set	MJQ00107	2
6” Scale	MJQ00108	2
Masonry Drill .625”	MJQ00207	1
Masonry Drill	MJQ00320	1
Micrometer	MJI00009	1
Long Arm Hex Key Set	MJQ00325	1
Refractometer	MJQ00266	1
I/O Module Mod	E039801	1
3VX - 475 V-belt	MDE00027	1
VSDO 5M VLV Solenoid Coil	MEF00293	2
Seal Kit For VSD05M	MEQ00133	2
1-1/2B X 1R Seal Kit for MEB00077	MEQ00135	1
Pump Protector for MJQ00560	MJQ00573	2
Pump Oil for MJQ00560	MJQ00574	12
MV60 Flow Switch for MJQ00560	MJQ00575	1
Snap Switch for MJQ00560	MJQ00576	1
Float Valve for MJQ00560	MJQ00577	2
AX30 Belt for MJQ00560	MJQ00578	1

DESCRIPTION	PART NO.	NO. REQ.
Rupture Disk for MJQ00560	MJQ00579	1
Unloaded for MJQ00560	MJQ00580	1
Washer Pump Seal Kit for MJQ00560	MJQ00581	2
Washer Pump Valve Kit for MJQ00560	MJQ00582	1
Spray Nozzle for MJQ00560	MJQ00583	4
Mechanical Relay	MKB00028	1
SPDT 24VAC Relay	MKB00129	1
18A, 3-Pole Contactor	MKB00164	1
25A, 3-Pole Contactor	MKB00165	1
32A, 3-Pole Contactor	MKB00166	1
115A, 3-Pole Contactor	MKB00167	1
Auxiliary Contact	MKB00168	1
12A, 100VDC Solid State Relay	MKB00170	1
15A DPDT Relay	MKB00172	1
10A CUR-RTG SPDT E-Mech Relay	MKB00175	1
6A CUR-RTG DPDT E-Mech Relay	MKB00176	1
Dual Function Push Button	MKC00008	1
120V Illuminated Push/Pull Button	MKC00021	1
Illuminated Push Button	MKC00022	1
Float Switch	MKD00039	1
Thermoswitch	MKE00014	1
3PDT (On)Off(On) Toggle Switch	MKE00080	1
3-Pole Disconnect Switch	MKE00101	1
A/C Multi-Range Hour Meter	MKH00005	1

DESCRIPTION	PART NO.	NO. REQ.
480W, 24VDC Power Supply	MKH00157	1
Suppressor Module Varistor	MKH00159	1
12A, 110V, 50/60HZ Contactor	MKJ00007	1
265A, 110V, 3-Pole Contactor	MKJ00046	1
Multi-Function Timer SSR	MKK00004	1
Pilot Light	MLN00056	1
Filter & Fan Assembly	MLN00086	1
Out Filter	MLN00087	2
Amber Pilot Light	MLN00343	1
Blue Pilot Light	MLN00344	1
30 AMP Fused Safety Switch	MLN00346	1
White Pilot Light	MLN00352	1
Green Pilot Light	MLN00353	1
15 AMP Fuse	MLN00382	1
4-20MA Graphic LED Panel Meter	MLN00440	1
200A Block IND Fuse HLDR Cover	MLR00052	1
400A Block IND Fuse HLDR Cover	MLR00054	1
4-6 Amp Overload	MLV00035	1
Diode	MQH00011	1
1/2” Anchor Shield Driver	MAH00152	1
Masonry Drill For 1/2” Anchor	MJQ00378	1
Extruded Manual	E010501	1
Scaletrol Cartridge for washer	MJQ00424	1

TYPICAL PRODUCTION RATE
.625" (15.9mm) X 11 FPI ON 1" (25.4mm) TUBE

The following chart offers an overview of the typical production rate you would expect from a Model B Extruded Fintube Machine in terms of tube length at a cruising speed of 2800RPM. This chart represents real data and considers an operator efficiency of 85% to compensate for any down time during a given shift.

	24 FOOT TUBE	30 FOOT TUBE	32 FOOT TUBE	36 FOOT TUBE	40 FOOT TUBE	50 FOOT TUBE	60 FOOT TUBE
Initial Tube Feed (Seconds)	6	6	6	6	6	6	6
Put Thru Disc Stack (Seconds)	15	15	15	15	15	15	15
Acceleration	9	9	9	9	9	9	9
Bal of tube run at production RPM (Seconds)	52	69	75	86	97	126	154
Deceleration (Seconds)	6	6	6	6	6	6	6
Tail Off (Seconds)	8	8	8	8	8	8	8
Rack Out (Seconds)	8	8	8	8	8	8	8
Dump Tube (Seconds)	2	2	2	2	2	2	2
Rack In (Seconds)	5	5	5	5	5	5	5
Total Seconds	111	128	133	145	156	184	212
/.85 Efficiency	130	150	157	170	183	217	250
/60 Minutes per Tube	2	3	3	3	3	4	4
Tubes per Hour	28	24	23	21	20	17	14
Feet per Hour	664	719	735	762	785	831	864
Feet in 8 hour shift	5310	5755	5878	6095	6281	6645	6913
Meters per Hour	202	219	224	232	239	253	263
Meters in 8 hour shift	1618	1754	1791	1858	1914	2025	2107

TUBE CLEANING LINE

TUBE GUIDE

Used for alignment of the tube in the Wash Tank and Polish Station. Machine requires four tube guides.

LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
25mm (.985")	E141204	4
1" (25.4mm)	E141203	4
1.25" (31.7mm)	E141202	4
1.5" (38.1mm)	E141201	4

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

RUBBER WIPER

The wiper is used to reduce the amount of water from the tube when exiting the Wash Tank. Machine requires three rubber wipers.

LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
25mm (.985")	E146901	6
1" (25.4mm)	E146901	6
1.25" (31.7mm)	E146902	6
1.5" (38.1mm)	E146903	6

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

RUBBER FLAP

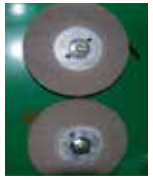
The Flap is used to reduce the amount of water spray lost between tubes in the Wash Tank. Machine requires two rubber flaps.

LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
25mm (.985")	E147001	4
1" (25.4mm)	E147001	4
1.25" (31.7mm)	E147001	4
1.5" (38.1mm)	E147001	4

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

TUBE POLISHING WHEEL

Used in the Polish Cabinet to remove scale or rust from the tube. For previous models, see page 123 "Previous Model Tooling". Machines require four tube polishing wheels.



LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
25mm (.985")	E021203	4
1" (25.4mm)	E021203	4
1.25" (31.7mm)	E021202	4
1.5" (38.1mm)	E021201	4

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

INPUT RACK

QD BUSHING

Secures the tube pusher to the Disc Sizing Mandrel mechanism.

LINER TUBE OD	PART NO.	NO. REQ.
25mm (.985")	MDH00040	2
1" (25.4mm)	MDH00028	2
1.25" (31.7mm)	MDH00034	2
1.5" (38.1mm)	MDH00025	2

INPUT BARREL

Used to hold and align tubes to be finned upstream of the finning head. Barrels are part of base machine and need not be called out at time of original order. Part number for reference and replacement only on Model B machines. For 50- and 60-foot machines.

LINER TUBE OD	PART NO.	50' MACHINE QUANTITY	60' MACHINE QUANTITY
1" (25.4mm)	E118301	4	4
1.25" (31.7mm)	E118302	2	2
1.5" (38.1mm)	E118305	N/A	2

INPUT BARREL LINER

For Model B input rack and machines updated with the newer, universal style input barrels, these liners reduce the size of the inside diameter of the barrel for use with 1.25" (31.7mm) and 1" (25.4mm) size liner tubes. No input barrel liner is necessary for 1.5" (38.1mm) liner tube size. 12 required for 50' machines, 14 required for 60' machines.

LINER TUBE OD	PART NO.	NO. REQ. 50'	NO. REQ. 60'
25mm (.985")	Use same as 1"	N/A	N/A
1" (25.4mm)	E117801	12	14
1.25" (31.7mm)	E117802	12	14
1.5" (38.1mm)	Not Required	N/A	N/A

RETAINERS

For Model B input rack and machines updated with the newer, universal style input barrels, these input liner retainers secure the liners in the barrels. 4 Required. (This is not a wear item.)

Part No. E117901, Qty. 4

FINNING HEAD

TUBE GUIDE BARREL

Used to support and feed the tube into the Fin Head. Size based on Muff Tube OD.

LINER TUBE OD	MUFF TUBE OD	PART NO.	NO. REQ.
25mm	1.372" Muff	E022101	1
1" (25.4mm)	1.422" Muff	E022108	1
1" (25.4mm)	1.473" Muff	E022105	1
1.25" (31.7mm)	1.622" Muff	E022102	1
1.25" (31.7mm)	1.652" Muff	E022104	1
1.25" (31.7mm)	1.726" Muff	E022106	1
1.5" (38.1mm)	1.872" Muff	E022103	1
1.5" (38.1mm)	1.908" Muff	E022109	1
1.5" (38.1mm)	1.979" Muff	E022107	1

DISC SIZING MANDREL

Used to start the rotation of the tube prior to finning.

LINER TUBE OD	PART NO.	NO. REQ.
25mm	E029704	1
1" (25.4mm)	E029701	1
1.25" (31.7mm)	E029702	1
1.5" (38.1mm)	E029703	1

GUIDE BUSHING

Used to aid in alignment of the tube prior to finning and is universal for tube size. Note: used with universal barrels. Machine requires one guide bushing.

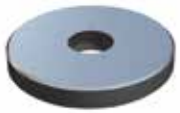
LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
25mm	E118506	2
1"	E118501	2
1.25"	E118504	2
1.5"	E118601	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

FINNED TUBE RACK

SIZING MANDREL SET

Discs used on the Quick Change Finned Tube Rack Adjustment Bracket for setting the clearance between the rack rollers for a specific finned OD. The sizing mandrels are replaceable and specific for each finned OD. Set includes two discs.



FINNED OD	SET NO.	NO. REQ.
2" (50.8mm)	QFTR04307	1
2.25" (57.1mm)	QFTR04301	1
2.5" (63.5mm)	QFTR04302	1
2.75" (69.8mm)	QFTR04303	1

END STRIPPER TOOLING

MUFF END STRIPPER KNIFE

Used to separate the aluminum fin from the steel tube and is specific for liner tube OD. Machine requires 4 stripper knives.

LINER TUBE OD	PART NO.	NO. REQ.
25mm (.985")	E021604	4
1" (25.4mm)	E021601	4
1.25" (31.7mm)	E021602	4
1.5" (38.1mm)	E021603	4

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

END STRIPPER PUSHER GUIDE

For End Trimmers produced after May 2007 and with a maximum strip back of 12" (304.8mm).

LINER TUBE OD	PART NO.	NO. REQ.
25mm	E026904	4
1" (25.4mm)	E026901	4
1.25" (31.7mm)	E026902	4
1.5" (38.1mm)	E026903	4

TUBE STRIPPER ROD END (MANUFACTURED AFTER MAY 2007)

Used to set the stripback. This tooling is sized by liner tube OD, stripback length (amount of fin to be removed from the tube) and wall thickness of the liner tube.

LINER TUBE OD X MIN. WALL THICKNESS X STRIPBACK LENGTH*	PART NO.	NO. REQ.
25mm x .059" x 12"	E022607	2
25mm x .065" x 12"	E022605	2
25mm x .109" x 12"	E022606	2
25mm x 50mm x 2.5mm	E022608	2
1" x .120" x 12"	E022716	2
1" x .134" x 12"	E022715	2
1" x .083" x 12"	E022718	2
1" x .096" x 12"	E022717	2

* Custom sizes available

REQUIRED TO CHANGE PITCH (FPI)

BACK UP RING #1, #2, AND #3

Back Up Ring #1 is used as the baseline for starting the helical pitch of the finning discs. This ring is the same for FPI's from 6 to 11 FPI and is used on arbor #1. Note that 5 FPI requires a special Back Up Ring #1. Back Up Ring #2 and #3 are used to set the helical progression of the arbors and must be used as directed for proper helical setting of the discs on the #2 and #3 arbors. These are specific for FPI.

FPI	DESCRIPTION	PART NO.	NO. REQ.
Back Up Ring #1			
6 - 11	#1	E021901	1
5 Only	#1	E021912	1
Back Up Ring #2 and #3			
5	#2	E021913	1
5	#3	E021914	1
6	#2	E021910	1
6	#3	E021911	1
8	#2	E021906	1
8	#3	E021907	1
9	#2	E021904	1
9	#3	E021905	1
10	#2	E021902	1
10	#3	E021903	1
11	#2	E021908	1
11	#3	E021909	1

BRASS SHIMS

To be used with discs. Order by specific part number.

SHIM THICKNESS	PART NO.	NO. REQ.
.001"	E022401-01	500
.002"	E022402-01	250
.003"	E022403-01	250
.004"	E022404-01	250
.005"	E022405-01	250

NOTE: This is a consumable item.

DISCS

The discs are used to form the fin and are stacked on each arbor in accordance to a stacking sheet. The number of each specific disc may vary in the stack. Discs are identified as follows:

E02631110:	**E02**	**63**	**11**	**10**	**XX**
	(Tooling Prefix)	*(Fin Height)*	*(Disc Number)*	*(FPI)*	*Unique qualifer for disc part number of manufacturing revision*

The family of discs does not wear or fail uniformly. Some are more vulnerable than others. We suggest a weighted assortment of 1,000 discs for each FPI at the time of start up. Minimum reorder quantities of 250 in a variety of assorted discs. See sample stack sheet on page 122.

	8 FPI		9 FPI		10 FPI		11 FPI	
	PART NO.	RECOMMENDED ORDER QTY.	PART NO.	RECOMMENDED ORDER QTY.	PART NO.	RECOMMENDED ORDER QTY.	PART NO.	RECOMMENDED ORDER QTY.
Disc 1	E02630108-1.5	54	E02630109	54	E02630110-1.5	54	E02630111	54
Disc 2	E02630208-1.5	33	E02630209	33	E02630210-1.5	33	E02630211	33
Disc 3	E02630308-1.5	30	E02630309	30	E02630310-1.5	30	E02630311	30
Disc 4	E02630408-1.5	21	E02630409	21	E02630410-1.5	21	E02630411	21
Disc 5	E02630508-1.5	21	E02630509	21	E02630510-1.5	21	E02630511	21
Disc 6	E02630608-1.5	30	E02630609	30	E02630610-1.5	30	E02630611	30
Disc 7	E02630708-1.5	21	E02630709	21	E02630710-1.5	21	E02630711	21
Disc 8	E02630808-1.5	21	E02630809	21	E02630810-1.5	21	E02630811	21
Disc 9	E02630908-1.5	21	E02630909	21	E02630910-1.5	21	E02630911	21
Disc 10	E02631008	21	E02631009	21	E02631010	21	E02631011	21
Disc 11	E02631108	21	E02631109	21	E02631110	21	E02631111	21
Disc 12	E02631208	21	E02631209	21	E02631210	21	E02631211	21
Disc 13	E02631308	21	E02631309	21	E02631310X1	21	E02631311	21
Disc 14	E02631408	32	E02631409	32	E02631410	32	E02631411	32
Disc 15	E02631508	32	E02631509	32	E02631510X1	32	E02631511	32
Disc 16	E02631608	48	E02631609	48	E02631610X1	48	E02631611	48
Disc 17	E02631708	88	E02631709	88	E02631710X1	88	E02631711	88
Disc 18	E02631808	319	E02631809	319	E02631810X1	319	E02631811	319
Disc 19	E02631908	88	E02631909A	88	E02631910X1	88	E02631911A	88
Disc 20	E02632008	57	E02632009A	57	E02632010X1	57	E02632011B	57
Disc 21	E02632108	64						
Total		1064		1000		1000		1000

Other FPI's are available. Please call for more information.


BARREL 1
INPUT RACK
AUTO
BARREL 2
PUSHER
AUTO
OUT
CLOSE
FINISHED RACK
AUTO
OPEN
CLOSE
AUTO
OPEN
WASH
WASHER
AUTO
BYPASS
ON
WASH HEATER
READY
OFF

EXTRUDED MACHINE REFERENCE GUIDE

MUFF TUBE SPECIFICATIONS

To achieve maximum production, specific muff tube and liner tube specifications have been developed. It takes careful planning and communication with the aluminum and tube supplier to insure receipt of product matching these specifications. It is recommended that each supplier provide mill test certificates and that a careful inspection of the materials be made prior to production.

The first chart below references aluminum muff thickness of .180". Muff walls as thin as .168" have been run successfully. Inquire for more information or experience on specific wall thicknesses. Preferred alloy is 1050-F, 1060-F, 6061-O and 6063-O. 6063-O are also possible, but disc life will be reduced due to harder materials. Physical properties can vary greatly and it is recommended that you hold maximum yield to 7500 PSI. Note also that disc life is better with 1050-F material.

DIMENSIONS FOR 0.625" FIN HEIGHT

MUFF LINER OD	.985" (25.0mm)	1" (25.4mm)	1.25" (31.75mm)	1.5" (38.1mm)
MUFF OD = /- .003" (.08mm)	1.381" (35.06mm)	1.400" (35.53mm)	1.646" (41.81mm)	1.897" (48.14mm)
MUFF INSIDE DIAMETER	1.015" (25.76mm)	1.032" (26.19mm)	1.286" (32.64mm)	1.539" (39.06mm)
MUFF WALL THICKNESS	.183" (4.64mm)	.184" (4.67mm)	.180" (4.57mm)	.179" (4.54mm)

DIMENSIONS FOR 0.5" FIN HEIGHT

MUFF LINER OD	.985" (25.0mm)	1" (25.4mm)	1.25" (31.75mm)	1.5" (38.1mm)
MUFF OD = /- .003" (.08mm)	1.333"	1.346"	1.588"	1.848"
MUFF INSIDE DIAMETER	1.015" (25.76mm)	1.032" (26.19mm)	1.286" (32.64mm)	1.538"
MUFF WALL THICKNESS	.159"	.157"	.151"	.155"

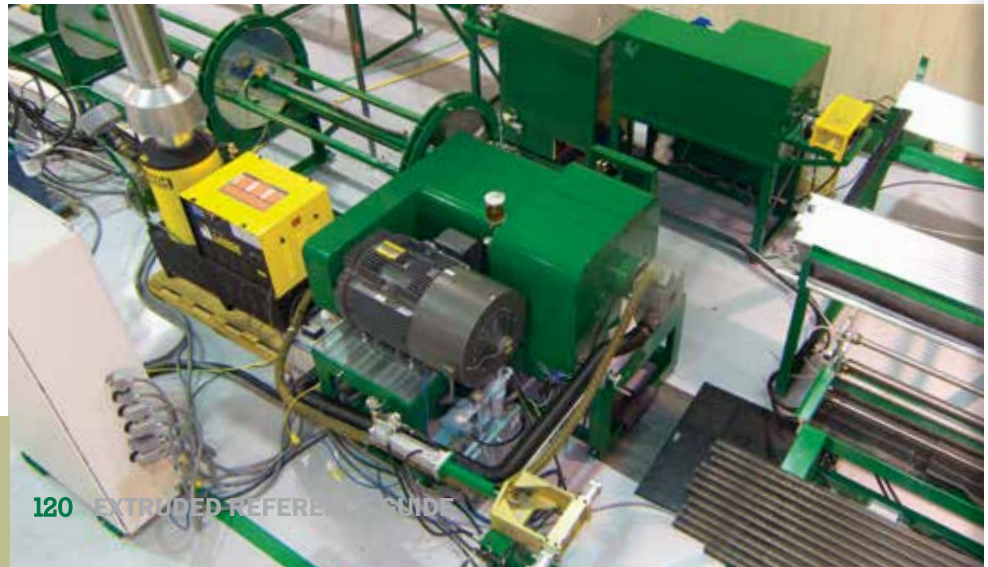
NOTE:

When extruding .625" (15.9mm) high fin, the root thickness will vary with the muff thickness.

Muff wall thickness shall not vary more than .006" (.15mm).

OD shall be round within .006" (.15mm) T.I.R.

Muff material should be handled to prevent bending.



LINER TUBE SPECIFICATIONS

Size: Tube size shall be within +/- .003" from lot to lot, but not from tube to tube. Ref: ASTM A450 & A513.

Ovality: Tube shall be round within .002".

Straightness: Tube shall be straight as possible even to the extent of requiring special handling to avoid nicks, dents, kinks, etc. Ref: ASTM A450.

Length: Tube lengths shall be cut with – 0/+.125" (3.17mm).

CONSUMABLES

Based on 6,645 linear feet on 50 foot tube at 11 FPI with an 8 hour production shift.

DESCRIPTION		PART NO.
Finning Compound	10 Gallon per shift	MJQ00212
Tube Washing Detergent	1 Gallon per shift	MJQ00209
Filter Paper	8 Yards per shift	MED00038
Discs	3.2 per shift	See chart on page 116

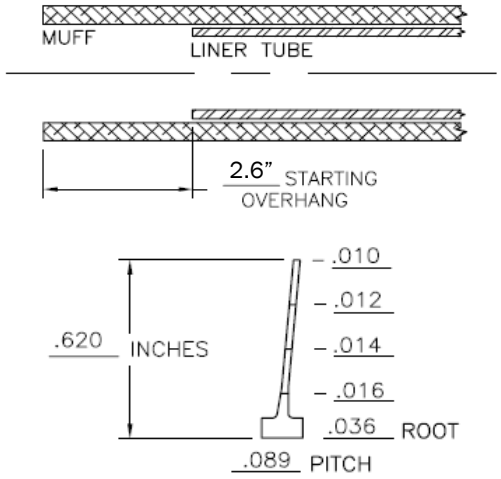
PRODUCTION RATES

The following table lists linear tube speeds for varying tube size and pitch. The numbers listed are calculated based on the maximum speed of the drive motor (1800 RPM). Actual production speed is typically less than maximum due to varying material and tooling conditions. Nominal production rates based on linear tube speed can be expected to average approximately 70% of the values listed in the following table. This number is based on required material handling, material conditions, and minimal wear and tear on the machinery. Higher production rates are possible with improved maintenance and worker experience but will never exceed the values in the table.

TUBE OD (mm)	TUBE RPM (MAX)	FEET/MINUTE (METERS/MINUTES)			
		8 FPI	9 FPI	10 FPI	11 FPI
1" Tube (25.4mm)	3,585	37.2' (11.3m)	33.1' (10.1m)	29.9' (9.1m)	27.1' (8.2m)
1.25" Tube (31.7mm)	3,128	32.6' (9.9m)	28.9' (8.8m)	26.1' (7.9m)	23.6' (7.2m)
1.5" Tube (38.1mm)	2,779	28.9' (8.8m)	25.6' (7.8m)	23.1' (7.0m)	21.0' (6.4m)

E02630111
E02630211
E02630311
E02630411
E02630511
E02630611
E02630711
E02630811
E02630911
E02631011
E02631111
E02631211
E02631311
E02631411
E02631511
E02631611
E02631711
GAP #16
E02631711
GAP #15
E02631711
GAP #14
E02631811
GAP #13
E02631811
GAP #12
E02631811
GAP #11
E02631811
GAP #10
E02631811
GAP #9
E02631811
GAP #8
E02631811
GAP #7
E02631811
GAP #6
E02631811
GAP #5
E02631811
.005 SHIM
E02631911A
E02631911A
E02632011B
E02632011B

TYPICAL DISC STACKING SHEET



11 FPI 1.00 DIA. x .625 x .703 LBS./FT.

1.032 I.D. x .184 Wall 1060F Aluminum Muff, Hardness R15T = -20

NOTE: Helix Angle Setting: .220 Crank Setting: 89 (with counter zeroed. Number may vary.)

All the data on this page are actuals obtained running the above material. Variations due to hardness, disc wear, etc. must be determined by the user.

The estimated length of the fin material (in inches) = (Tube Length" + 11.0") x .855
For example: (480" + 11.0") x .855 = 419.81" muff length

STACK 1			
DESIRED THEORETICAL GAP	FEELER	(+)	(-)
0.008	0.009		-0.001
0.008	0.008		
0.008	0.009		
0.008	0.011		-0.003
0.008	0.008		
0.008	0.008		
0.008	0.005	+0.003	
0.008	0.008		
0.008	0.008		
0.008	0.008		

STACK 2			
DESIRED THEORETICAL GAP	FEELER	(+)	(-)
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.006	+0.002	
0.008	0.008		
0.008	0.008		

STACK 3			
DESIRED THEORETICAL GAP	FEELER	(+)	(-)
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.008		
0.008	0.01		-0.002
0.008	0.008		
0.008	0.008		

INPUT RACK
MODEL A MACHINES ONLY

BARREL INPUT RACK

For Model A machines only. Barrels are sized for tube OD and Muff OD. On the Model A, barrels are changed out when worn. For machines with 50' (15.24m) rack specify part numbers ending in 02, 05 and 06. For 60' (18.288m) racks specify part numbers ending in 02, 04, 05 and 06.

25MM TUBE OD X 1.380 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E115202	2	2
E115204	0	2
E115205	2	2
E115206	2	2

1" TUBE OD X 1.40 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E115602	2	2
E115604	0	2
E115605	2	2
E115606	2	2

1 1/4" TUBE OD X 1.650 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E115702	2	2
E115704	0	2
E115705	2	2
E115706	2	2

1 1/2" TUBE OD X 1.90 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E115802	2	2
E115804	0	2
E115805	2	2
E115806	2	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

...continued in next column

BARREL INPUT RACK *continued*

1" TUBE OD X 1.48 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E116001	2	2
E116002	2	2
E116003	2	2
E116004	0	2

1 1/4" TUBE OD X 1.73 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E116101	2	2
E116102	2	2
E116103	2	2
E116104	0	2

1 1/2" TUBE OD X 1.98 MUFF OD		
PART NO.	50' MACHINE LENGTH	60' MACHINE LENGTH
E116201	2	2
E116202	2	2
E116203	2	2
E116204	0	2

NOTE: This is a consumable item. For maximum uptime and maintenance purposes the recommended order quantity is shown in the chart.

BARREL BUSHING

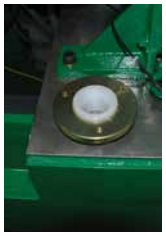
Model A machine only. Holds the barrel in the bulkhead.

LINER TUBE OD	PART NO.	RECOMMENDED ORDER QTY.
2" Bore	E115001	16
2.5" Bore	E115002	16

FINNING HEAD

TUBE GUIDE BUSHING

Guides the assembled liner tube and muff to the fin head. Based on muff tube OD.



MUFF TUBE OD	PART NO.	NO. REQ.
1.473” Muff	E118501	1
1.475” Muff	E021401	1
1.726” Muff	E118504	1
1.979” Muff	E118601	1

FINNED TUBE RACK

GAUGING RING SET

Used to set the rollers on non Quick-Change Finned Tube Racks. Ring is specific for finned OD. Set includes 2 gauging discs for finned OD.

FINNED OD	SET NO.	NO. REQ.
2” (50.8mm)	E028707	1
2.25” (57.1mm)	E028701	1
2.5” (63.5mm)	E028702	1
2.75” (69.8mm)	E028703	1

TUBE STRIPPER ROD END

Used to set the stripback. This tooling is sized by liner tube OD, minimum wall thickness of the liner tube, and stripback length (amount of fin to be removed from the tube.)

LINER TUBE OD X MIN. WALL THICKNESS X STRIPBACK LENGTH	PART NO.	NO. REQ.
1” x .065” x .875”	E022704	2
1” x .065” x 6”	E022713	2
1” x .073” x 1.5”	E022706	2
1” x .083” 1.5”	E022701	2
1” x .083” x 1.81”	E022712	2
1” x .083” x 2”	E022702	2
1” x .083” x 6”	E022709	2
1” x .085” x 2.5”	E022707	2
1” x .096” x 2”	E022705	2
1” x .109” x 1.75”	E022703	2
1” x .109” x 6”	E022710	2
1” x .145” x 3.31”	E022708	2

NOTES

McELROY

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