



Plymouth Spring Desk Reference

A Portfolio of Spring and Wire Forming Projects

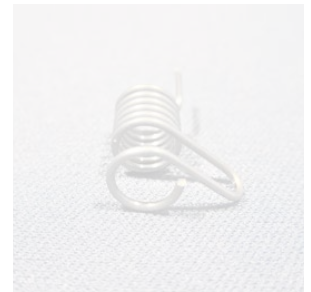




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Manufacturing of a Music Wire Door Handle Springs

A customer from the security industry approached The Plymouth Spring Company, Inc. to manufacture a music wire door handle spring. We manufactured the different parts of the spring, including the coil and bend tabs, using music wire that had a diameter of .085" x .031". We then electropolished and stress relieved the spring. Throughout the manufacturing process, we held tightest tolerances of $\pm .005"$ and $\pm 5^\circ$.

We produced 200,000-250,000 lever handle springs per year for the client.



To learn more about all of our other outstanding services, please contact The **Plymouth Spring**, today.

Manufacturing of a Music Wire Door Handle Springs Project Highlights

Product Description	This Music Wire Door Handle Spring is Used Within a Door Level Handle.	
Capabilities Applied/Processes	Primary: <ul style="list-style-type: none"> • Custom Spring Manufacturing <ul style="list-style-type: none"> • Coil • Bend Tabs • Cut 	Secondary: <ul style="list-style-type: none"> • Stress Relieving • Electropolished
Overall Music Wire Door Handle Spring Dimensions	• Wire Diameter: .085 x .031	• Rectangular wire • I.D.: 2.060"
Tightest Tolerances	• $\pm .005"$	• $\pm 5^\circ$
Material Used	• Music Wire	
In process testing/ inspection performed	• Dimensional Inspection	
Industry for Use	• Security	
Volume	• 200,000-250,000 per year	
Turn Around Time	• 4-6 Weeks Because of Raw Material Lead Time	
Delivery Location	• Indianapolis, Indiana	
Standards Met	<ul style="list-style-type: none"> • Customer Supplied Print • AMS-S-13165 Shot Peening 	
Product Name	• Lever Handle Spring	

Precision Pin Rolling of Stainless Steel Shafts

Plymouth Spring Company, Inc. was approached by a customer from the lawn care industry to pin roll 2 to 4 million stainless steel shafts per year. We started by pin rolling the 1.150" long shafts which had an outside diameter of .0625". Then we tumble polished and heat treated the 302 stainless steel shafts to a Rockwell hardness of 52. Throughout the entire process, we held tight overall tolerances of $\pm .0005$ " and a straightness tolerance of .002". The shafts were dimensionally inspected and then shipped to the clients Riviera Beach, Florida location.



To learn more about all of our other outstanding services, please contact The **Plymouth Spring**, today.

Project Highlights of Precision Pin Rolling

Product Description	These Stainless Steel Precision Pin Shafts Are Used Within a Sprinkler Head	
Capabilities Applied/Processes	Primary: <ul style="list-style-type: none"> • Pin Rolling • Manufacture Pin w/ .005" Radii 	Secondary: <ul style="list-style-type: none"> • Tumble Polishing • Heat Treatment • Full Hard to 52 Rc
Overall Stainless Steel Shaft Dimensions	• Length: 1.150"	• O.D.: .0625"
Tightest Tolerances	• $\pm .0002$ "	• Straightness of .002"
Material Used	• 302 Stainless Steel	
Surface Finish	• 16 Micro Inch or Less	
In process testing/ inspection performed	• Dimensional Inspection	
Industry for Use	• Lawn Care	
Volume	• 2,000,000-4,000,000 Per Year	
Turn Around Time	• 2-3 Weeks	
Delivery Location	• Riviera Beach, Florida	
Standards Met	• Customer Supplied Print	
Product Name	• Stainless Steel Shaft	

Manufacturing of Stainless Steel Buckle Springs

A customer from the military industry came to Plymouth Spring Company, Inc. to manufacture stainless steel buckle springs. To fill the yearly order of 2,400,000 million springs, we began by using a CNC machine to coil, cut and bend the spring's tab. Then we stress relieved the .660" long buckle spring which had a wire diameter of .031", and an inside diameter of .290". After a thorough dimensional inspection, we sent the stainless steel buckle springs to the company's Waterbury, Connecticut location.



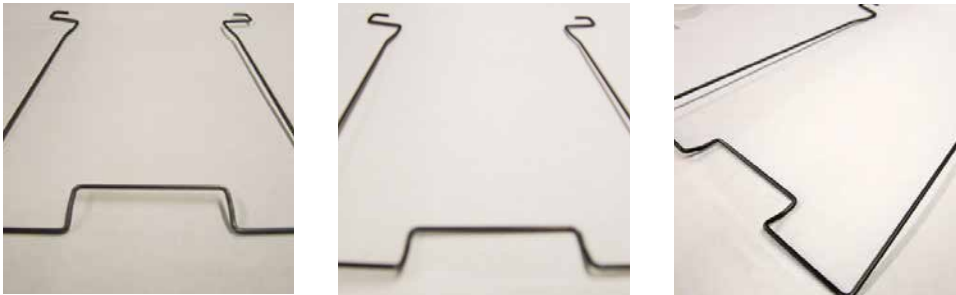
To learn more about all of our other outstanding services, please contact **The Plymouth Spring, today.**

Manufacturing of Stainless Steel Buckle Springs Project Highlights

Product Description	These Stainless Steel Buckle Springs Are Used Within a Buckle Application.	
Capabilities Applied/Processes	Primary: <ul style="list-style-type: none"> • Custom CNC Spring Manufacturing <ul style="list-style-type: none"> • Coil • Bend Tabs • Cut 	Secondary: <ul style="list-style-type: none"> • Stress Relieving
Overall Stainless Steel Buckle Spring Dimensions	<ul style="list-style-type: none"> • Wire Diameter: Ø.031 • Length: .660" 	<ul style="list-style-type: none"> • I.D.: Ø.290"
Tightest Tolerances	• ±.005"	• ±5°
Material Used	• Stainless Steel	
In process testing/ inspection performed	• Dimensional Inspection	
Industry for Use	• Military	
Volume	• 2,400,000 Per Year	
Turn Around Time	• 2-3 weeks	
Delivery Location	• Waterbury, Connecticut	
Standards Met	• Customer Supplied Print	
Product Name	• Stainless Steel Buckle Spring	

Manufacturing of Oil Tempered Wire Forms

A welding industry client approached Plymouth Spring Company, Inc. to manufacture an oil tempered wire form. The wire form, which was to be used as a welding shield retainer within welding helmets, was bent, formed and cut. Throughout this process we were able to hold tightest tolerances of $\pm.005"$. At completion the wire form measured 5.570" long, 5.282" wide and had a wire diameter of .060". Each frame in the yearly order of 10,000-25,000 underwent dimensional inspection.



To learn more about this project, please see the details below. For information about our other services, please contact **Plymouth Spring.**

Manufacturing of Oil Tempered Wire Forms Project Highlights

Product Description	Each Wire Form Is Used As a Welding Shield Retainer Within Welding Helmets.	
Capabilities Applied/Processes	Primary: <ul style="list-style-type: none"> • Wire Forming <ul style="list-style-type: none"> • Bend • Form • Cut 	
Overall Music Wire Door Handle Spring Dimensions	<ul style="list-style-type: none"> • Wire Diameter: $\varnothing.060"$ • Length: 5.570" 	<ul style="list-style-type: none"> • Width: 5.282"
Tightest Tolerances	<ul style="list-style-type: none"> • $\pm.005"$ 	<ul style="list-style-type: none"> • $\pm 5^\circ$
Material Used	<ul style="list-style-type: none"> • Oil Tempered Wire 	
In process testing/ inspection performed	<ul style="list-style-type: none"> • Dimensional Inspection 	
Industry for Use	<ul style="list-style-type: none"> • Welding 	
Volume	<ul style="list-style-type: none"> • 10,000-25,000 Per Year 	
Turn Around Time	<ul style="list-style-type: none"> • 4-5 Weeks 	
Delivery Location	<ul style="list-style-type: none"> • Belmont, Michigan 	
Standards Met	<ul style="list-style-type: none"> • Customer Supplied Print 	
Product Name	<ul style="list-style-type: none"> • Welding Helmet Retainerw 	

Manufacturing of Stainless Steel Compression Springs

A lighting industry customer came to Plymouth Spring Company, Inc. because they needed 80,000 to 120,000 stainless steel compression springs manufactured each year. To fill this order, we coiled, cut and then bent the .70" long spring's ends to a radius of .08". Each of the 302 stainless steel springs, which had 4 active coils and a wire diameter of .040", was dimensionally inspected and then shipped to the client's Norristown, Pennsylvania location.



To learn more about all of our other outstanding services, please contact **The Plymouth Spring**, today.

Manufacturing of Stainless Steel Compression Springs Project Highlights

Product Description	These Stainless Steel Compression Springs Are Used As a Battery Contact In a Flashlight application	
Capabilities Applied/Processes	Primary: <ul style="list-style-type: none"> • Custom Spring Forming Services <ul style="list-style-type: none"> • Coil • Bend Tabs • Cut 	
Overall Stainless Steel Buckle Spring Dimensions	<ul style="list-style-type: none"> • Wire Diameter: \varnothing.040" • Length: .70" 	<ul style="list-style-type: none"> • I.D.: \varnothing .27" - O.D.: \varnothing.50" • Active Coils: 4
Tightest Tolerances	• \pm .010"	
Material Used	• 302 Stainless Steel	
In process testing/ inspection performed	• Dimensional Inspection	
Industry for Use	• Lighting	
Volume	• 80,000-120,000 Per Year	
Turn Around Time	• 3-4 Weeks - Samples 3-4 days	
Delivery Location	• Norristown, Pennsylvania	
Standards Met	• Customer Supplied Print	
Product Name	• Stainless Steel Compression Spring	