Taper Spring Quality… Meeting OEM Specifications

Bulletin #2049

Commitment to Quality

At Dayton Parts we take particular pride in the quality of our Full Taper Springs. Our taper springs benefit from these Dayton advantages:

- Computer-designed taper profile using software developed by Dayton Parts, LLC. This ensures that each design will not only be correct the first time, but every time thereafter.
- Advanced taper rolling equipment operating in North America. With its programmable computer controls, the accuracy of the taper profile and therefore the spring stiffness is assured.
- All leaves are die formed and quenched for consistent spring shape and fit.
- Stress peening of all leaves for truck and tractor tapers; a critical step to provide long spring life.

Critical Specifications

Of the many specifications that must be met to successfully manufacture quality taper springs, four specifications have the greatest impact to the distributor or end user.

- **Free Arch** - This, along with spring rate, will determine if the truck sits at the correct ride height once the springs are installed.
- **Spring Rate** (stiffness) - Along with free arch, this will determine the ride height of the truck. Spring rate also controls the ride quality - too stiff gives a rough ride, too weak and "spongy", a less controlled ride.
- **Load Arch** - This is the spring arch once the spring is at rated load. Improper load arch is caused by incorrect free arch, spring rate or both, and will cause the truck to lean, ride high or ride low.
- **Stress Peening** - This process is essential for achieving good spring life. Unfortunately, it is often impossible to tell by appearance whether a spring has been stress peened or just shot peened.

Comparison Test

For each of these four critical specifications, part numbers 22-402, 62-830, 75-128 and 96-848 were tested and compared against OEM specificatons. The spring suppliers were:

1. Dayton Parts, LLC - Stanley Springs
2. OEM springs from truck dealers.
3. A major competitor of American made taper springs.

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Test Results:

	Free Arch (inches)	Spring Rate (lbs/in)	Load Arch (inches)	Stress Peen (Yes or No)
Part Number 22-402				
OEM Specs	1 1/16" ± 1/8"	535 ± 7%	-1 9/16" ± 1/8"	Yes
OEM Spring	1 3/16" Pass	530 Pass	-1 7/16" Pass	Yes Pass
Dayton Spring	1 1/8" Pass	540 Pass	-1 1/2" Pass	Yes Pass
Competitor	2 1/4" Fail	433 Fail	-1" Fail	Yes? Pass
Part Number 62-830 (62-778)				
OEM Specs	4 5/16" ± 1/8"	1515 ± 7%	3/4" ± 1/8"	Yes
OEM Spring	4" Fail	1585 Pass	5/8" Pass	Yes Pass
Dayton Spring	4 3/8" Pass	1500 Pass	3/4" Pass	Yes Pass
Competitor	4 15/16" Fail	1684 Fail	1 3/4" Fail	Yes? Pass
Part Number 75-128				
OEM Specs	5 7/16" ± 1/8"	1740 ± 7%	2 1/8" ± 1/8"	Yes
OEM Spring	5 3/16" Fail	1780 Pass	2" Pass	Yes Pass
Dayton Spring	5 3/8" Pass	1701 Pass	2" Pass	Yes Pass
Competitor	5 7/16" Pass	2291 Fail	2 15/16" Fail	Yes? Pass
Part Number 96-848				
OEM Specs	4 13/16" ± 1/8"	1515 ± 7%	1" ± 1/8"	Yes
OEM Spring	4 9/16" Fail	1540 Pass	1" Pass	Yes Pass
Dayton Spring	5" Fail	1500 Pass	1 1/8" Pass	Yes Pass
Competitor	4 7/8" Pass	1515 Pass	1 1/16" Pass	Yes? Pass

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Summary:

Part Number	Passes	Fails	Grade
Dayton Parts, LLC			
22-402 62-830 75-128 96-848	4 4 4 3	0 0 0 1	
	15	1	94%
OEM Spring from Truck Dealers			
22-402 62-830 75-128 96-848	4 3 3 3	0 1 1 1	
	13	3	81%
Major Dayton Competitor			
22-402 62-830 75-128 96-848	1 1 2 4	3 3 2 0	
	8	8	50%

In tests comparing various industry Taper Spring Products for adherence to OEM manufacturing specifications, results indicate that Taper Spring Products from Dayton Parts, LLC conform more consistently to these specifications.

Dayton Parts, LLC - The Source for OEM quality aftermarket springs.