Cable has become an excellent railing material because of Johnson Architectural Hardware. When the natural beauty surrounding a home or building is too precious to block with an ordinary railing, Johnson's cable railings are the answer. Johnson Architectural Hardware cable railings create an unblocked view and satisfies code. Cable will take any path you make for it but there are some rules to follow in order to satisfy code for railings. The following are answers to frequently asked questions:

Q: What is a Turnbuckle?

A: A turnbuckle is a metal coupling device consisting of right and left hand threaded members screwed into an internally threaded body which when rotated expands or contracts.

Q: What is a Machine Swage Fitting?

A: A machine swage fitting is attached to the cable by a swage machine which cold forms the fitting directly to the cable. A swage fitting should not be confused with Hand Crimp fittings or other hand tool applied fittings. A specialized swaging machine is the only way to attach swage fittings to cable. Swage fittings can not be Hand Crimped, welded, glued, hammered or attached to a cable by any other means other than a swage machine.

Q: What is a Hand Crimp Fitting?

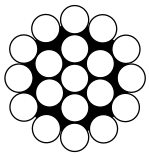
A: Hand Crimp fittings were first designed and manufactured by C. Sherman Johnson Co., Inc. in 1969. Hand Crimp fittings are attached to the cable with a Johnson-made Hand Crimp Tool model #53-210 or #53-215. The only other tool that can be used is the National Telephone Supply Co. #64-CGMP. Hand Crimp fittings should not be confused with Nicopress fittings. Nicopress fittings have sleeves that are made from soft copper alloy and compress very easily. All Johnson Hand Crimp fittings are made from stainless steel and can not be swaged, welded, glued, pressed in a vise or with vise grips or attached to the cable by any means other than the Johnson tool #53-210, #53-215 or NTS Co. #64-CGMP.

Q: What is a Mechanical Fitting?

A: A mechanical fitting is attached to the cable by the fitting compressing the cable with a cone inside the fitting and or the cable. Mechanical fittings are assembled to the cable with simple hand tools. Mechanical fittings are larger in diameter than Swage and Hand Crimp fittings and can be reused with a new cone but carry a hefty price tag.

Q: What type of cable do I use?

A: Generally 1x19 cable should be used for all railing applications. 1x19 cable is stiff and low stretch, perfect for railings with runs up to 50 feet. 7x7 cable is more flexible with more stretch and can be used for railings with very short runs. 7x19 is very flexible and should never be used for cable rails.



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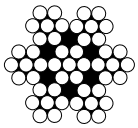

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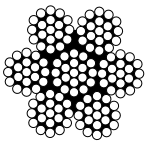


7 x 19

Q: What size cable do I use?

A: 3/16” cable is the most popular size and good for most railing applications. In high traffic applications such as airports, stadiums or amusement parks, 1/4” cable is highly recommended. For residential applications where view and unobtrusiveness are paramount, 1/8” cable works well.

Q: Do I need a turnbuckle in my cable assembly?

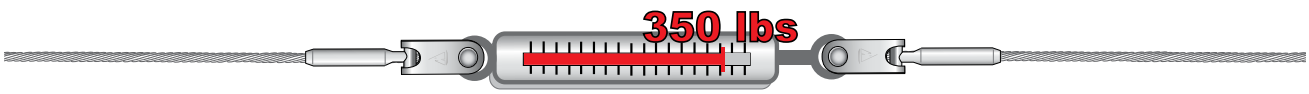
A: Yes. Cable works great for railing but only if you have the ability to tighten it with a turnbuckle or with a through-bolted threaded terminal. Even if you had some way of pre-tensioning the cable and attaching it without a turnbuckle or threaded terminal, the cable would eventually stretch through people leaning against it, children climbing, the building settling, etc... You want the ability to go back six months later and tighten up the cable.

Q: Does Johnson make cable assemblies?

A: No. Johnson manufactures the fittings but does not make complete cable assemblies. Our 50 year history enables Johnson to provide you with a cable fabricator near you from across the country. Please call us for the information you need.

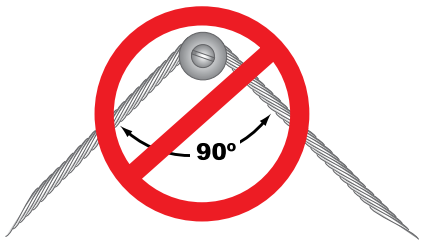
Q: How much tension do I need?

A: Johnson Architectural Hardware recommends 350 lbs. of tension on each cable assembly for a cable railing. 350 lbs. of tension is based on following the guidelines in our Basic Framework section for railing framework (please see page 7). If one follows Johnson's guidelines, Johnson knows through in-field experience and through the Modulus of Elasticity formula that code will be satisfied.



Q: Can I take 90º corners?

A: No. A true 90º corner will tweak the cable no matter what construction of cable is used. The physics of the cable does not allow the tension to be equally transmitted from one side of a corner to the other side. Tension has to be maintained throughout the entire length of the cable run to meet code. Tension in a cable is not like electricity in a wire. An end fitting should be used to make the corner transition and keep the cable tension in a straight line.



Q: What end attachments do I use?

A: End attachments are the designer's personal choice. There are many ways to accomplish the same thing with different fittings. End posts and aesthetics are the most important factors in determining end attachments. See page 28 for end fittings.

Q: Why is Johnson so strict with cable spacing, tension and framework?

A: Johnson is strict with our specifications because we want you to meet code. Cable railing is not a new business to Johnson. Johnson has been manufacturing cable fittings since 1958. Other so-called "cable experts" may tell you that you can get away with this and that, but Johnson has the experience and wants you to meet code the first time. If you follow what we prescribe in this catalog, you can be confident you will meet code.

Q: What are the after swage dimensions?

A: The table below shows the After Swage Dimensions for machine swage fittings.

TERMINAL WIRE SIZE	THREAD DIAMETER	BEFORE SWAGE DIMENSION	AFTER SWAGE DIMENSION
1/8"	10-32, 1/4"	.250	.219
5/32"	1/4", 5/16"	.297	.250
3/16"	1/4", 5/16", 3/8"	.359	.313
7/32"	5/16"	.427	.375
1/4"*	5/16"	.427	.375
1/4"	3/8"	.494	.438
5/16"	1/2", 5/8"	.635	.563
3/8"	5/8"	.703	.625

* with 7/32" die

Q: Can I make my framework out of aluminum?

A: Generally, aluminum is too soft for cable railings. Aluminum and stainless can react and cause electrolysis. If properly insulated and structurally equivalent to the framework described on page 9, an aluminum framework can be used.

Q: What grade of stainless steel does Johnson use?

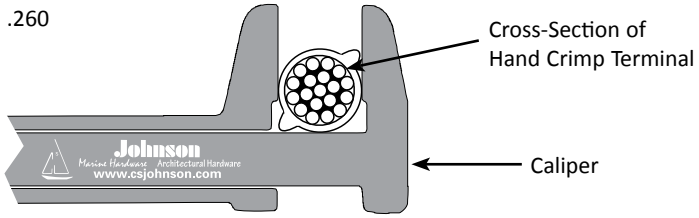
A: For all major components Johnson uses Type 316 stainless steel. Type 316 is low-carbon “18-8” chromium-nickel stainless steel modified by the addition of molybdenum, which greatly increases its corrosion resistance.

Q: Does Johnson offer fittings in steel or galvanized?

A: No

Q: What are the after crimp dimensions for the Johnson 53-215 tool?

A: 1/8” cable = .185; 3/16” cable = .260



Q: How can I tell right hand thread from left hand thread?

A: Threads slope up to right when the stud is held vertically for right hand thread or slope up to the left for left hand thread.

Q: What is the minimum hole size to pass a stud through an intermediate post?

A: 1/8” and 3/16” cable - 3/8” hole
1/4” cable - 1/2” hole