



**STANDARD-DUTY CS715SS-316**  
**(US PATENTS 7,237,375 B2 and 7,343,730 B2)**  
**(CANADIAN PATENT 2,519,653)**

Chain materials and design shall meet or exceed ASME B29.21M-1996 standards for 700 Class Cast Chains and Attachments for Water and Sewage Treatment Plants. Collector chain links and chain pins shall be CS715SS series having 6.00" pitch links with an average weight of 3.8 pounds per foot. Chains shall be cast from aerospace-grade precipitation hardening martensitic and austenitic investment cast 17-4pH and 316 stainless steel alloys. Chain links shall have an as-cast hardness of between 170 and 180 BHN; chain pins shall be heat-treated and through hardened to an average of 40 to 44 Rc. Chain links and pins cleaned and passivated per ASTM A380-06 and ASTM A967-05e1. Fabricated and/or welded chain designs are not acceptable. Chain links and pins manufactured from 400 series stainless steel are not acceptable. Chains links and pins shall be smooth throughout, and be free from casting burrs, voids and material defects. All chain links shall maintain a +/- .010" uniform dimensional tolerance between all individual links and link components. Chains shall be suitable for operating on either cast, fabricated or high-grade non-metallic (polymeric) sprockets.

The chain links shall be cast from 316 stainless steel\*, and shall have minimum 1.130" diameter barrels, and .250" thick by 1.50" high sidebars, with a .375" thick by .125" high reinforcing rib running laterally along the chain sidebars from the pin boss (open end of the link) to the chain barrel (closed end of the link). Chain sidebars at the pin boss (open end of the link) shall have a minimum .50" thick by 1.50" high sidebar dimension. The chain shall have a maximum certified ultimate strength of 43,000 pounds, and a maximum ASME working load of not less than 3,300 pounds. The chain shall be assembled with .625" (5/8") diameter investment cast 17-4 stainless steel chain pins, heat-treated to an average of 40 to 44 Rc.

Chain pins shall be cast from 17-4 stainless steel, and shall designed to be fixed (non-rotating), or to rotate both within the chain barrel and chain pin boss (open end) of the link, depending on the application. Chain pins that are press fit into the chain sidebars, or that use T-heads, rivets, or other non-rotational devices to lock the chain pin in place are not acceptable. Chain pins shall be designed to be inserted into the link sidebars without applying mechanical force, and from either side of the chain link. Chain pins and link designs that require the application of mechanical force for assembly, and/or that only allow the chain pin to be inserted into the link sidebars from one side or direction are not acceptable.

All links shall be the P&C design with removable pins and removable cotters; riveted chain pin designs are not acceptable. Cotter pins and washers for the chain pins shall be 316 stainless steel. Chain pin cotters shall be conventional eyelet-type (for C&S Collectors), minimum 3/16" inch diameter and 1" long. Chains will be assembled by the manufacturer and shipped in 4.5 foot (9-link) sections, unless otherwise specified. Attachment links will be standard F-28 series, unitized, one-piece 15-5pH stainless steel investment castings. Attachments links that use bolted, press-fit, fabricated or welded attachment extensions on a standard chain link are not acceptable. Attachment links and pins shall be shipped loose.

Chain materials and design concepts shall have a minimum of 5 years demonstrated experience successfully operating in submerged water and/or wastewater treatment applications within the continental United States. All chain components shall be manufactured and assembled in the U.S.A. Chains shall be DuraMax CS715SS 316 /17-4 stainless steel as manufactured by Environmental Resources, Inc., Pewaukee, WI.

DuraMax Chains shall be free of defects in materials and workmanship FOR A PRORATED PERIOD OF TEN (10) YEARS from the date of final inspection for all applications that are designed, installed, inspected, operated and maintained according to ERx, Inc. and general industry standards. DuraMax Chains shall be properly installed and operated on compatible high-grade DuraMax polymeric sprocket materials (75 Shore D polyurethane, Nylon-6 and UHMW-PE), stainless steel, or other materials that will provide a uniform and balanced wear with the chains, and which will not suffer from spalling, galling, corrosion-erosion, or cold-flow of the sprocket materials during the warranty period.

(\* Or 15-5 stainless steel links with 17-4 pins, or other application specific alloy combinations.)

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**EXTREME-DUTY CS715SS**  
**(US PATENTS 7,237,375 B2 and 7,343,730 B2)**  
**(CANADIAN PATENT 2,519,653)**

Chain materials and design shall meet or exceed ASME B29.21M-1996 standards for 700 Class Cast Chains and Attachments for Water and Sewage Treatment Plants. Collector chain links and chain pins shall be CS715SS series having 6.00" pitch links with an average weight of 3.8 pounds per foot. Chains shall be cast from aerospace-grade precipitation hardening martensitic investment cast 17-4pH and 15-5pH stainless steel alloys\*, heat-treated and through hardened to an average of 40 to 44 Rc, cleaned and passivated per ASTM A380-06 and ASTM A967-05e1. Fabricated and/or welded chain designs are not acceptable. Chain links and pins manufactured from 400 series stainless steel are not acceptable. Chains links and pins shall be smooth throughout, and be free from casting burrs, voids and material defects. All chain links shall maintain a +/- .010" uniform dimensional tolerance between all individual links and link components. Chains shall be suitable for operating on either cast, fabricated or high-grade non-metallic (polymeric) sprockets.

The chain links shall be cast from 15-5pH stainless steel, and shall have minimum 1.130" diameter barrels, and .250" thick by 1.50" high sidebars, with a .375" thick by .125" high reinforcing rib running laterally along the chain sidebars from the pin boss (open end of the link) to the chain barrel (closed end of the link). Chain sidebars at the pin boss (open end of the link) shall have a minimum .50" thick by 1.50" high sidebar dimension. The chain shall have a maximum certified ultimate strength of 48,000 pounds, and a maximum ASME working load of not less than 4,000 pounds. The chain shall be assembled with .625" (5/8") diameter investment cast stainless steel chain pins, heat-treated to an average of 40 to 44 Rc.

Chain pins shall be cast from 17-4 stainless steel, and shall designed to be fixed (non-rotating), or to rotate both within the chain barrel and chain pin boss (open end) of the link, depending on the application. Chain pins that are press fit into the chain sidebars, or that use T-heads, rivets, or other non-rotational devices to lock the chain pin in place are not acceptable. Chain pins shall be designed to be inserted into the link sidebars without applying mechanical force, and from either side of the chain link. Chain pins and link designs that require the application of mechanical force for assembly, and/or that only allow the chain pin to be inserted into the link sidebars from one side or direction are not acceptable.

All links shall be the P&C design with removable pins and removable cotters; riveted chain pin designs are not acceptable. Cotter pins and washers for the chain pins shall be 316 stainless steel. Chain pin cotters shall be conventional eyelet-type (for C&S Collectors), minimum 3/16" inch diameter and 1" long. Chains will be assembled by the manufacturer and shipped in 4.5 foot (9-link) sections, unless otherwise specified. Attachment links will be standard F-28 series, unitized, one-piece 15-5pH stainless steel investment castings. Attachments links that use bolted, press-fit, fabricated or welded attachment extensions on a standard chain link are not acceptable. Attachment links and pins shall be shipped loose.

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DuraMax Chains shall be free of defects in materials and workmanship FOR A PRORATED PERIOD OF TEN (10) YEARS from the date of final inspection for all applications that are designed, installed, inspected, operated and maintained according to ERx, Inc. and general industry standards. DuraMax Chains shall be properly installed and operated on compatible high-grade DuraMax polymeric sprocket materials (75 Shore D polyurethane, Nylon-6 and UHMW-PE), stainless steel, or other materials that will provide a uniform and balanced wear with the chains, and which will not suffer from spalling, galling, corrosion-erosion, or cold-flow of the sprocket materials during the warranty period.

(\* Or 316 stainless steel links with 17-4 pins, or other alloy combinations.)

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Environmental Resources, Inc. — The Equipment Doctors    [www.duramaxchain.com](http://www.duramaxchain.com)

P.O. Box 786 • W278 N2968 Rocky Point Rd. • Pewaukee, WI 53072 • 262-691-0998 • FAX: 262-691-0992 • [erxmwh@aol.com](mailto:erxmwh@aol.com)