



## **EXTREME-DUTY H78/988 DRIVE CHAINS**

**(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 B29.400-2001 standards for H Type Drive Chains and Sprockets. Drive chains shall be investment cast H78 series 15-5pH precipitation hardening martensitic stainless steel\* alloy, heat-treated and through hardened to an average of 40 to 44 Rc, cleaned and passivated per ASTM A380-06 and ASTM A967-05e1, having 2.609" pitch links with an average weight of 18 oz. per link and 5.1 pounds per foot. Fabricated and/or welded chain designs are not acceptable. Chain links and pins manufactured from 400 series stainless steel are not acceptable. All chain links and pins will be passivated, smooth and free from casting burrs, voids and material defects, and shall maintain a +/- .010" uniform dimensional tolerance between each individual link and link component. Chains shall be interchangeable with all H78, NH78, 988, 488 and 188 drive chains, and shall meet or exceed all American and foreign industry standards for hardness, tensile strength, corrosion resistance and durability in continuous severe duty and extreme duty service.

The chain shall have a 7/8" diameter barrel O.D.'s, and minimum .315" thick by 1.13" high sidebars. Chain sidebars at the pin boss (open end of the link) shall have a minimum .435" thick by 1.13" high sidebar dimension. The drive chain shall have a certified minimum ultimate strength of 34,000 pounds, a design working load of 3,500 pounds, and a maximum working load of 4,300 pounds. Chains shall be suitable for operating on either cast, fabricated or non-metallic sprockets.

The chain shall be assembled with 1/2" diameter investment cast 17-4pH precipitation hardening martensitic stainless steel pins, heat-treated and through hardened to an average of 40 to 44 Rc. Chain pins shall be 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.

Chain cotter pins and washers shall be 316 series stainless steel. All links shall be the P&C design with removable pins and removable cotters; riveted chain pin designs are not acceptable. Chains will be assembled by the manufacturer and shipped in 10 foot long sections.

Drive chains 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 drive chain components shall be manufactured and assembled in the U.S.A. Drive chains shall be DuraMax H78-15-5pH SS 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 DuraMax or equal high-grade sprocket materials, including polymeric 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.

(\*Also available in 316SS links with 17-4 pH pin, and other alloys.)

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



## **EXTREME-DUTY H82/C9103 DRIVE CHAINS**

**(US PATENTS 7,237,375 B2 and 7,343,730 B2)**

**(CANADIAN PATENT 2,519,653)**

Chains shall be investment cast H82 series 15-5/17-4 PH SS alloy\*, having 3.075" pitch links with an average weight of 26 oz. per link and 6.3 pounds per foot. Chain links and pins shall be heat-treated and through hardened to an average of 40 to 44 Rc, and 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. All chain links and pins will be passivated, smooth and free from casting burrs, voids and material defects, and shall maintain a +/- .010" uniform dimensional tolerance between each individual link and link component. Chains shall be manufactured per ASME B29.14M-2001, and shall be interchangeable with all H82, NH82, 4103 and C9103 drive chains, and shall meet or exceed all American and foreign industry standards for hardness, tensile strength, corrosion resistance and durability in continuous water-lubricated severe duty and extreme duty service.

The chain links shall have a 1.25" diameter barrel O.D.'s, and minimum .375" thick by 1.50" high sidebars. Chain sidebars at the pin boss (open end of the link) shall have a minimum .625" thick by 1.50" high sidebar dimension. The chain shall have a minimum ultimate strength of 53,000 pounds, a design working load of 4,400 pounds, and a maximum working load of 6,200 pounds. Chains shall be suitable for operating on either cast, fabricated or non-metallic sprockets.

The chain shall be assembled with 5/8" diameter investment cast 17-4 PH stainless steel pins, heat-treated and through-hardened to an average of 40 to 44 Rc. Chain pins shall be 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.

Chain cotter pins and washers shall be 304 series stainless steel. All links shall be P&C design with removable pins and removable cotters; riveted chain pin designs are not acceptable. Chains will be assembled by the manufacturer and shipped in 10 foot long sections.

Drive chains 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 drive chain components shall be manufactured and assembled in the U.S.A. Chains shall be DuraMax H82 15-5/17-4 PH SS as manufactured for Environmental Resources, Inc., Pewaukee, WI.

DuraMax chains shall be free of defects in materials and workmanship FOR A PRORATED PERIOD OF UP TO TEN (10) YEARS from the date of final inspection for all applications that are designed, installed, inspected, operated and maintained according to the standards of ERx, Inc., and generally accepted industry standards. DuraMax Chains shall be properly installed and operated on DuraMax sprockets, such as high-grade polymeric sprockets (75 Shore D polyurethane, Nylon-6 and UHMW-PE), cast or fabricated 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.

(\*Also with 316SS links and 17-4 pH pins, and other alloys)

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