SELECTED PRODUCTION HISTORY
HIGH CAPACITY TAYLOR DEVICES
DAMPERS AND ENERGY DISSIPATORS

taylor devices inc.

Table of Contents

taylor devices inc.

SELECTED PRODUCTION HISTORY
TAYLOR DEVICES DAMPERS
AND ENERGY DISSIPATORS
FOR STRUCTURAL USE

A. REPORT DATA:

Taylor Part Number
Customer
Force
Stroke
Year Built
Number Produced
Usage

B. CUSTOMER BASE:

In general, major users of these products include steel mills, airport terminal transporters, and offshore oil drilling rigs.

C. FOR ADDITIONAL INFORMATION, CONTACT:

Douglas P. Taylor, President

Taylor Devices, Inc.
90 Taylor Drive
North Tonawanda, NY 14120-0748

PHONE: 716-694-0800
FAX: 716-695-6015
INTERNET: http://members.aol.com/taydevices

BUILDINGS

taylor devices inc.

TAYLOR P/N 67DP-15729-01

CUSTOMER:	Equity Group/28 State Street
FORCE:	150 kips
STROKE:	2 inches
YEAR BUILT:	1996
NUMBER PRODUCED:	40
USAGE:	28 State Street high-rise office building in downtown Boston, Massachusetts. Dampers are used in diagonal bracing to increase the modal damping of this 1965 vintage structure for reduction of building sway in moderate to high wind conditions. Comfort level improvements eliminate sea sickness in upper floors of this steel/concrete moment frame structure.

taylor devices inc.

TAYLOR P/N 67DP-15616-01

CUSTOMER:	California State University at Sacramento
FORCE:	50 kips
STROKE:	4 inches
YEAR BUILT:	1996
NUMBER PRODUCED:	40
USAGE:	California State University at Sacramento (CSUS) Science II, Phase I Project. Dampers are used with chevron bracing in this five-storey office laboratory building of 60,000 square feet. Dampers provide 20% of critical modal damping to allow elastic behavior of the structural frame during the maximum capable seismic event.

taylor devices inc.

TAYLOR P/N 67DP-15551-01, 67DP-15554-01

CUSTOMER:	Confidential
FORCE:	67DP-15551-01: 1260 kips 67DP-15554-01: 450 kips
STROKE:	4 inches
YEAR BUILT:	Project under development
NUMBER PRODUCED:	67DP-15551-01: 50 67DP-15554-01: 24
USAGE:	Longitudinal and transverse dampers used as part of the seismic design for a new high-rise building under development.

taylor devices inc.

TAYLOR P/N 67DP-15573-01

CUSTOMER:	Woodland Hotel
FORCE:	50 kips
STROKE:	4 inches
YEAR BUILT:	1995
NUMBER PRODUCED:	16
USAGE:	Dampers used as part of a seismic upgrade for the Woodland Hotel in Woodland, California. This historic structure is four stories high, and is of masonry construction. The upgrade consists of concrete reinforcing and an internal steel moment frame with damper installed in Chevron braces.

taylor devices inc.

TAYLOR P/N 67DP-15636-01

CUSTOMER:	Pacific Bell
FORCE:	30 kips
STROKE:	4 inches
YEAR BUILT:	1995
NUMBER PRODUCED:	62
USAGE:	Pacific Bell North Area Network Operations Center in Sacramento, California. Dampers are used as part of the seismic design for this new, three story steel braced frame structure. When completed in 1995, this will be the central "911" facility for Northern California, having 154,000 $ft.^2$ floor space.

taylor devices inc.

TAYLOR P/N 67DTC-14606-010-36-16

CUSTOMER:	Rowan Williams Davies & Irwin Inc.
FORCE:	2 kips
STROKE:	6 inches
YEAR BUILT:	1995
NUMBER PRODUCED:	15
USAGE:	Used as part of a tuned mass damping system in the Supporting legs of a skybridge. The skybridge connects the 42nd floors of two 1475 ft. tall towers of the Kaula Lumpur City Centre. When completed in 1996, the 100 acre complex in Malaysia will feature the tallest building towers in the world, eclipsing the height of Chicago's Sears Tower by 22 ft.

taylor devices inc.

TAYLOR P/N 67DP-15290-01

CUSTOMER:	County of San Bernadino, California
FORCE:	325 kips
STROKE:	48 inches
YEAR BUILT:	1994 - 1995
NUMBER PRODUCED:	188
USAGE:	Used for energy dissipation in junction with elastomer base isolation bearings on all five buildings of this new medical center. The medical center will service the cities of Ontario and San Bernardino, California.

taylor devices inc.

TAYLOR P/N 67DP-15116-01

CUSTOMER:	Erie County, State of New York
FORCE:	10 kips
STROKE:	36 inches
YEAR BUILT:	1993
NUMBER PRODUCED:	12
USAGE:	Wind damper between stadium parapet wall and external light columns at Rich Stadium, home of the Buffalo Bills of the National Football League. Dampers reduce wind pole tower anchor bolt fatigue for up to 85 mph wind cyclic conditions.

taylor devices inc.

TAYLOR P/N 67DP-12862-01

CUSTOMER:	U.S. Air Force, North American Air Defense Command
FORCE:	In excess of 5 kips *
STROKE:	In excess of 6 inches *
YEAR BUILT:	1984
NUMBER PRODUCED:	4 point damping in each of 3 axis *
USAGE:	Used as part of a seismic and nuclear ground motion upgrade on the NORAD Command, Control, and Communication Center at Cheyenne Mountain in Wyoming. This building is essentially located inside of the mountain, and is shock and earthquake isolated in all direction.

* Information restricted, additional data available only to authorized Department of Defense employees and/or contractors.

TAYLOR DEVICES AIRPORT TERMINAL BUFFERS

Taylor Devices has built numerous 36 inch stroke devices for use in airport terminal transport systems. The hydraulic devices are installed inside the terminal (attached to the building columns) and are impacted by a single or multi-car train full of passengers.

The list on the following pages lists the various applications. A total of 67 devices have been built to date.

taylor devices inc.

TAYLOR END OF TRAVEL BUFFERS
FOR AIRPORT TERMINAL TRANSPORT SYSTEMS

PART NUMBER	LOCATION	NUMBER	YEAR	FORCE @ SPEED
4DP-9535-010	Atlanta	6	1977	155 K @ 176"/Sec.
92DP-10173-01	Gatwick (UK)	13	1979	52 K @ 176"/Sec.
92DP-13018-01	Gatwick (UK)	8	1984	67 K @ 67"/Sec.
92DP-12639-01 A	Las Vegas	4	1983	56 K @ 176"/Sec.
92DP-11223-01 A	Miami	5	1980	147-7 K @ 176"/Sec.
67DP-14200-010	Orlando	4	1988	81-5 K @ 88"/Sec.
67DP-14187-01 B	Singapore	2	1988	64 K @ 176"/Sec.
67DP-14188-01 B	Singapore	4	1988	127-8 K @ 176"/Sec.
92DP-13664-01	Tampa	4	1986	67 K @ 127"/Sec.
67DP-14011-01	Las Colinas (Dallas)	2	1987	75 K @ 175"/Sec.
67DP-14848-0 A	Miami	2	1991	67 K @ 128"/Sec.
92DP-10985-01	Orlando	9	1979	104 K @ 176"/Sec.
92DP-14994-01	Cincinnati	4	1992	24 K @ 88"/Sec.

BRIDGES

taylor devices inc.

TAYLOR P/N 67DP-13470-01, 67DP-13471-01

CUSTOMER:	Washington State Department of Transportation
FORCE:	550 kips
STROKE:	67DP-13470-01: 10 inches 67DP-13471-01: 16 inches
YEAR BUILT:	1988
NUMBER PRODUCED:	67DP-13470-01: 1 67DP-13471-01: 2
USAGE:	End of travel damping elements on the deck of the West Seattle Bridge.

taylor devices inc.

TAYLOR P/N 92DP-14800-01

CUSTOMER:	U.S. Army Corps of Engineers
FORCE:	43 kips
STROKE:	36 inches
YEAR BUILT:	1990
NUMBER PRODUCED:	1
USAGE:	Deck damping element on bascule bridge located in Maryland.

taylor devices inc.

TAYLOR P/N 67DP-15296-01

CUSTOMER:	Washington State Department of Transportation
FORCE:	90 kips
STROKE:	27 inches
YEAR BUILT:	1994 - 1995
NUMBER PRODUCED:	5
USAGE:	Dampers for use on the First Avenue South Bridge, a bascule bridge in the Seattle area.

taylor devices inc.

TAYLOR P/N 67DP-15504-01

CUSTOMER:	Washington State Department of Transportation
FORCE:	50 kips
STROKE:	19 inches
YEAR BUILT:	1995
NUMBER PRODUCED:	4
USAGE:	Dampers for use on the Montlake Bridge, a bascule bridge in the Seattle area.

taylor devices inc.

INDUSTRIAL BRIDGES

taylor devices inc.

TAYLOR P/N 4DP-5005-01 A

CUSTOMER:	Alliance Machine for Jones and Laughlin Steel
FORCE:	150 kips
STROKE:	36 inches
YEAR BUILT:	1971
NUMBER PRODUCED:	4
USAGE:	Installed on ore carrying bridges at Alquippa, PA Works. One unit stops a 230,000 lb. structure moving at 120 in/sec. Exposed in outdoor service. Ore bridges and units still in operation to 1986 when the mill closed, still waiting for a buyer today.

taylor devices inc.

TAYLOR P/N 4DP-5512-01 D

CUSTOMER:	Alliance Machine for Republic Steel
FORCE:	136 kips
STROKE:	48 inches
YEAR BUILT:	1974
NUMBER PRODUCED:	8
USAGE:	Installed on ore carrying bridges at Buffalo, NY Works. Two units stop a 313 kip structure moving at 180 in/sec. Exposed in outdoor service. Ore bridges waiting for new buyer, mill closed in 1987.

taylor devices inc.

TAYLOR P/N 4DP-5906-01

CUSTOMER:	Dominion Foundries and Steel Ltd., Hamilton, Ontario CANADA
FORCE:	100 kips
STROKE:	36 inches
YEAR BUILT:	1973
NUMBER PRODUCED:	8
USAGE:	Installed on ore carrying bridges located at Hamilton, Ontario. Two units stop a 242 kip structure moving at 136 in/sec. exposed in outdoor service. Still in service 1994.

taylor devices inc.

TAYLOR P/N 4DP-8533-01 A

CUSTOMER:	Republic Steel Company
FORCE:	95 kips
STROKE:	36 inches
YEAR BUILT:	1976
NUMBER PRODUCED:	4
USAGE:	Installed on ore carrying bridge at Buffalo, NY Works. Two units stop an 80 kip structure moving at 180 in/sec. Exposed to outdoor environment. Ore bridge currently waiting for new buyer, mill closed in 1987.

taylor devices inc.

TAYLOR P/N 96DP-13218-01 B

CUSTOMER:	Alliance Machine, for export
FORCE:	115 kips
STROKE:	36 inches
YEAR BUILT:	1984
NUMBER PRODUCED:	4
USAGE:	Two pieces to stop a 484 kip moving bridge at 75 in/sec. Assumed to still be in service.

taylor devices inc.

TAYLOR P/N 92DP-14791-01

CUSTOMER:	Harnischfeger for West Vaco
FORCE:	211 kips
STROKE:	36 inches
YEAR BUILT:	1990
NUMBER PRODUCED:	2
USAGE:	Used on log handling structure in timbering operation. Two pieces stop a 800 kip moving structure at 100 in/sec. outdoor environment, West Virginia.

taylor devices inc.

TAYLOR P/N 4DP-7769-010

CUSTOMER:	Harnischfeger for Inland Steel Company
FORCE:	550 kips
STROKE:	20 inches
YEAR BUILT:	1976
NUMBER PRODUCED:	6
USAGE:	Two pieces used to stop a 1,000 kip structure moving at 100 in/sec. in a steel mill.

taylor devices inc.

SHIPS

taylor devices inc.

TAYLOR P/N 4DP-4406-01

CUSTOMER:	Avondale Shipyards for Prudential Lines and Pacific Far East Lines
FORCE:	600 kips
STROKE:	17 inches
YEAR BUILT:	1969 - 1970
NUMBER PRODUCED:	38
USAGE:	Installed in the stern structure of the L.A.S.H. Container Ships. Attenuates wave inputs and crash inputs from a crane carrying a barge. Total impacting weight is 1.9 million lbs. at 50 in/sec. into 2 pc. Device is frequently immersed in salt water due to wave action. Most ships still in service today, some of which have been purchased by the U.S. Navy. Used to deploy equipment during the Gulf War.

taylor devices inc.

TAYLOR P/N 4DP-5255-01 B

CUSTOMER:	Alliance Machine for Delta, Waterman, and Central Gulf Steamship Lines
FORCE:	600 kips
STROKE:	17 inches
YEAR BUILT:	1972 - 1973
NUMBER PRODUCED:	30
USAGE:	Second production run of L.A.S.H. Container Ships. Same application as P/N 4DP-4406-01, but impacting weight 2.2 million lbs. at 50 in/sec. All ships still in service.

taylor devices inc.

AEROSPACE STRUCTURES

taylor devices inc.

TAYLOR P/N 67DP-14822-01

CUSTOMER:	Martin-Marietta
FORCE:	10 kips
STROKE:	17 inches
YEAR BUILT:	1990
NUMBER PRODUCED:	13
USAGE:	Wind damper for Atlas Missile. Installed between missile and launch gantry to dissipate wind energy at Kennedy Space Center. Successfully attenuated loads imposed by Hurricane Andrew, without damage to either the Atlas or its gantry.

taylor devices inc.

TAYLOR P/N 4DP-7062-01, 4DP-7063-01, 4DP-8016,02

CUSTOMER:	NASA
FORCE:	10 kips - 50 kips
STROKE:	17 inches - 40 inches
YEAR BUILT:	1976
NUMBER PRODUCED:	40
USAGE:	Wind and blast dampers on the Space Shuttle Launch Pads at the Kennedy Space Center in Florida. Produced on a sole source basis, due to previous successful usage on the Apollo Launch Gantry in the 1960's and early 1970's.

OFFSHORE OIL PLATFORMS

taylor devices inc.

TAYLOR P/N 67SS-13250-010 C

CUSTOMER:	Vetco Offshore for Santa Barbara oil field, Shell Oil
FORCE:	40 kips
STROKE:	10 inches, balanced rod unit
YEAR BUILT:	1985
NUMBER PRODUCED:	4
USAGE:	Used as soft landing system on offshore drilling structure. Four units allow placement of the drill riser onto the ocean floor under wave action inputs. Operates submerged to 3600 ft. water depth on the ocean floor. Directly exposed to sand and marine organisms.

taylor devices inc.

TAYLOR P/N 67SS-13359-01

CUSTOMER:	Royal Norwegian Oil Company
FORCE:	12 kips
STROKE:	10 inches, balanced rod construction
YEAR BUILT:	1985
NUMBER PRODUCED:	12
USAGE:	Multiple units used as soft landing system for oil drilling structure in the North Sea. Operates at up to 550 ft. water depth on the ocean floor. Input is wave action and possible free fall.

taylor devices inc.

TAYLOR P/N 67SS-13419-01 A

CUSTOMER:	Vetco Offshore for Shell Oil
FORCE:	8 kips
STROKE:	10 inches, balanced rod construction
YEAR BUILT:	1985
NUMBER PRODUCED:	4
USAGE:	Used as soft landing system for oil drill riser structure, Santa Barbara fields. Operates submerged to 3400 ft. depth on the ocean floor. Input is wave action and possible free fall.

taylor devices inc.

TAYLOR P/N 67SS-14111-01 A

CUSTOMER:	Cameron Iron for Royal Dutch Shell
FORCE:	175 kips
STROKE:	10 inches, balanced rod construction
YEAR BUILT:	1988
NUMBER PRODUCED:	8
USAGE:	Used as structural damping elements within an oil drilling christmas tree on the ocean floor, submerged to 1000 ft. depth. Used in North Sea oil field. Input is wave action.

taylor devices inc.

TAYLOR P/N 67DP-14443-010 A

CUSTOMER:	Cameron Iron for Shell Oil
FORCE:	45 kips
STROKE:	10 inches, balanced rod construction
YEAR BUILT:	1989
NUMBER PRODUCED:	45
USAGE:	Used as structural damping elements within an oil drilling christmas tree on the ocean floor, submerged to 525 ft. depth. Used in North Sea oil field. Input is wave action and possible free fall.

taylor devices inc.

TAYLOR P/N 67DP-15350-01

CUSTOMER:	ABB Vetco Gray for Shell Oil Company
FORCE:	10 kips
STROKE:	6 inches, balanced rod construction
YEAR BUILT:	1995
NUMBER PRODUCED:	4
USAGE:	Used as soft landing system on offshore drilling structure. Four units allow placement of the drill riser onto the ocean floor under wave action inputs. Operates submerged to 3500 ft. water depth on the ocean floor. Directly exposed to sand and marine organisms.

taylor devices inc.

TAYLOR P/N 67DP-16064-01

CUSTOMER:	Dril Quip for Petro BRAS (Oil Company of Brazil)
FORCE:	2.5 kips
STROKE:	2.0 inches, balanced rod construction
YEAR BUILT:	1999
NUMBER PRODUCED:	24
USAGE:	Used as soft landing system on offshore drilling structure. These compact units allow placement of the drill riser onto the ocean floor under wave action inputs. Operates submerged to a super-depth of 6000 ft. on the ocean floor. Directly exposed to sand and marine organisms.

STEEL MILL BUILDINGS

taylor devices inc.

TAYLOR P/N 4DP-6893-01

CUSTOMER:	Dominion Foundries and Steel Ltd., Hamilton, Ontario CANADA
FORCE:	200 kips
STROKE:	36 inches
YEAR BUILT:	1974
NUMBER PRODUCED:	2
USAGE:	Installed on concrete abutment in coke plant. One unit stops a 190 kip coke quench car at 132 in/sec. Exposed in severe outdoor service, with live steam and acid. Still in service 1994.

taylor devices inc.

TAYLOR P/N 4DP-7695-01 C

CUSTOMER:	Dominion Foundries and Steel Ltd., Hamilton, Ontario CANADA
FORCE:	200 kips
STROKE:	36 inches
YEAR BUILT:	1975
NUMBER PRODUCED:	8
USAGE:	Mounted at end of building in steel mill melt shop. Two pieces attenuate impact shock from a 783 ton crane at 60 in/sec. Exposed to 120 degrees F continuous temperature, plus up to 500 degrees F for short periods when steel is poured. Still in service 1994.

taylor devices inc.

TAYLOR P/N 4DP-9870-01 C

CUSTOMER:	Republic Steel Company, Cleveland Works
FORCE:	400 kips
STROKE:	36 inches
YEAR BUILT:	1978
NUMBER PRODUCED:	4
USAGE:	Two units used to stop a 432 kip coke car at 220 in/sec. Exposed to outdoor environment, live steam, and acid. In 1987, the portion of the mill housing these buffers burned to the ground. Buffers had melted seals after the fire and needed repair.

taylor devices inc.

TAYLOR P/N 92DP-10694-01 A

CUSTOMER:	Kaiser Engineers for Republic Steel
FORCE:	103 kips
STROKE:	36 inches
YEAR BUILT:	1979
NUMBER PRODUCED:	4
USAGE:	Two units to stop a 390 kip car at 80 in/sec. Exposed to outdoor environment at Chicago. Still in service today.

taylor devices inc.

TAYLOR P/N 67DP-10960-05

CUSTOMER:	Republic Steel, Cleveland Works
FORCE:	176 kips
STROKE:	36 inches
YEAR BUILT:	1979
NUMBER PRODUCED:	2
USAGE:	Two units to stop a 490 kip structure moving at 106 in/sec. Exposed to outdoor environment, steam, and acid. Units rendered uneconomical to repair in 1987 when mill burned to the ground.

taylor devices inc.

TAYLOR P/N 92DP-14876-01

CUSTOMER:	Kress Corporation
FORCE:	203 kips
STROKE:	36 inches
YEAR BUILT:	1991
NUMBER PRODUCED:	3
USAGE:	Used in structure of mobile coke battery emissions building weighing 437 kip, which can impact objects at up to 176 in/sec.