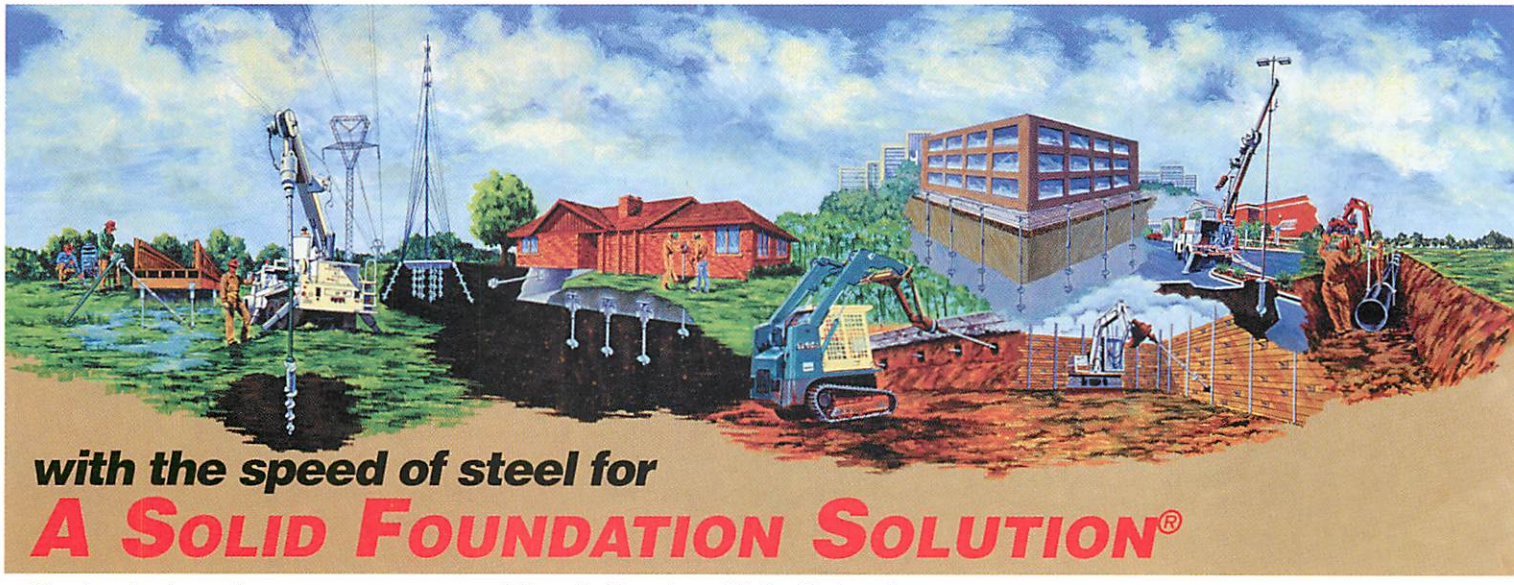
Bulletin 01-9901
Rev. 02/03

HUBBELL POWER SYSTEMS, INC. CHANCE®

World Leader in earth anchoring since 1907

CHANCE®

INSTANT FOUNDATION® Systems for Residential and Commercial Construction and Repairs



with the speed of steel for

A SOLID FOUNDATION SOLUTION®

Protected under one or more of the following U.S. Patents:
5,011,336; 5,120,163; 5,139,368; 5,171,107; 5,213,448; & 5,707,180

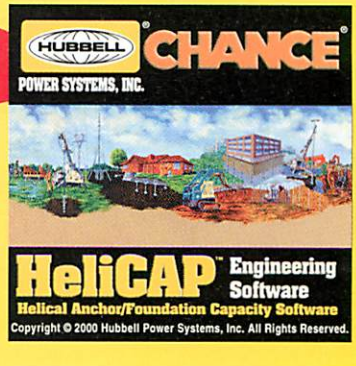
NEW! EXCLUSIVE!

HeliCAP™ Engineering Software

Helical Anchor/Foundation Capacity Software

The only interactive software in the industry that lets you solve your project requirements with helical anchor solutions. Immediately!

Available on CD.
For a FREE demo, visit our web site!



For a FREE demo, visit our web site:
www.hubbell.com/abchance

The standard construction practice to build on — CHANCE® INSTANT FOUNDATION® Systems

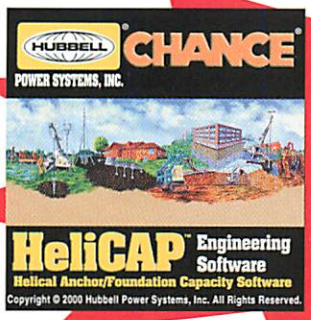
History

We have continually introduced new tension and compression anchor products over the 90 years since founder A. Bishop Chance developed his first patented earth anchor. PISA® (power-installed screw) anchors are among the most significant, developed for electric and telephone utilities, pipeline and construction industries.

Case Histories

On request, briefs about jobs by Chance certified contractors give such details as geotechnical data, loads and anchors used for most types of applications listed.

Computer Assisted Design Package



NEW! EXCLUSIVE! Available on CD!

For a FREE demonstration, visit our web site:
www.hubbell/abchance.com

The only computer program of its kind, Chance® HeliCAP™ Engineering Software is an easy-to-use interactive program that provides helical anchor solutions for foundation and retaining projects. Its graphics simulate "virtual anchoring" on screen in a PC Windows environment. It performs powerful, sophisticated calculations, based on your project parameters, to derive the proper Chance anchor.

Available on CD, it includes Help screens and Reference materials as close as your keyboard. It gives you prompts to maintain control over essential criteria to effect the same process Chance anchor-application engineers employ daily to analyze problems and specify solutions.

You make these inputs:

1. Soil type, layer depths, strength parameters;
2. Anchor length, helix configuration, angle of installation, distance to datum;
3. Load — magnitude and direction.

It gives you this output:

Bearing capacities in tension and compression of an anchor in the given soil conditions.

Bearing-Plate Theory

The bearing calculations are suitable for both compression and tension as long as the soils being loaded are considered.

Foundation design typically can be divided into two steps:

1.Select anchor-helix configuration based on soil characteristics and load.

2.Select shaft configuration based on load and anticipated installation torque.

Capacity Equation

The design procedure utilized by the A.B. Chance Company is based upon the well-known General Bearing Capacity Equation:

$q_u = cN_c + \bar{q}\,N_q$ where

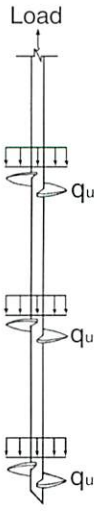
q_u ultimate soil bearing pressure
c cohesion of soil
$\bar{q}$ overburden pressure
N_c, N_q } bearing capacity factors for local shear conditions

The load capacity of a multi-helix anchor is the sum of all individual helix capacities. Individual helix bearing capacity is the product of its projected area (A_h) and the bearing pressure (q_u). Reduction in load capacity should be accounted for in sensitive soils. Allowances should be made when the zone of influence for a helix includes strata of different strengths.

This analysis depends on a "deep bearing" failure mode. This condition is satisfied when the helix depth-to-diameter ratio is a minimum of 5.

Holding Strength related to Installing Torque

Monitoring installation torque helps indicate anchor capacity. The ratio between holding capacity in pounds and installation torque in foot-pounds may range from 7 to more than 20, but the rule-of-thumb value of 10 can be used in many soils. Torque monitors are available from Chance. Their use provides a good method of quality control during installation.



Graphic at left shows individual bearing pressures on multi-helix anchor.

Model in clay, above, illustrates "deep anchorage" failure mode. (Bobbitt, 1968)

The standard construction practice to build on — CHANCE® INSTANT FOUNDATION® Systems

Product Benefits

The standard construction practice using Chance helical anchors comprises round and square steel shafts for the best economies to carry certain loads. To increase product life in aggressive soils, hot-dip galvanizing to ASTM specifications normally is supplied.

For new construction, expansion or repair projects, compression and/or tension loads and soil conditions dictate the Chance anchor solution. In most soils, the steel anchors alone provide the needed performance. Only where extremely troublesome soils exist do Chance anchors and grout need to be combined.

General advantages:

•Predictable results •Lower installed costs
•Achieve design loads in given soils
•Clean – No excavation spoils to remove
•One-trip convenience: No site preparation
•Install in any weather •Easy to store/transport
•Install in limited-access situations

All-steel HELICAL PIER® Foundation Systems INSTANT FOUNDATION® Systems helical-anchor advantage:

•Can be loaded immediately

Grouted HELICAL PULLDOWN™ Micropiles helical-anchor advantage:

•Installs through weak surface soils

Special techniques, tools, designs and sizes derived over 93 years of engineering experience and expertise give Chance helical anchors advantages not easily duplicated. They extend bearing plates into stable strata under expansive surface soils without significant disturbance. For additional load, both friction and end-bearing capacities can be mobilized with the addition of a grout column.

For your assurance of high quality, the Chance Company manufacturing system has earned registration by ISO certification. When you specify Chance anchors, you have selected the highest caliber from leader of the anchor industry.

ISO 9001-1994
Cert. No. 001136

A. B. Chance Co.
Centralia, MO USA

Universe of Products and Applications

• HELICAL PIER® Foundation Systems and HELICAL PULLDOWN™ Micropiles —

Residential & Commercial Repairs 4-6
Lifting and/or stabilizing structures
Seismic-retraint retrofitting foundations
Foundation wall straightening/stabilization

New Commercial & Industrial Foundation Construction & Expansion 4-6
New-construction deepened foundations

Telecom & Power Towers Supports & Guys . . . 6-7
Foundations for self-supporting and guyed structures

Soil Screw® Retention Wall System 8-9
Gravity walls for earth retention, revetments, dams, levees, roadways

Tieback Tension-Anchor System 8-9
Sitework preconstruction tiebacks, revetments, dams, levees, roadways

Geo-environmental Support Systems 12
Environmental walkway supports
Harbor boat and aquaculture moorings
Pipeline and storage tank supports and restraint anchors

• INSTANT FOUNDATION® System ———

Equipment Platform Foundations 7
Such as related to telecom and power towers

Lighting & Construction Uses 10-11
Area, parking, bollard, street and roadway
Solar panels, CATV, telephone callbox and pay stations

Services

For a variety of projects, Chance screw anchors have proven reliable in all soil conditions. This cumulative experience gives Chance unique support resources for:

- Certified installers
  – Training and field supervision
- Design assistance
  – Geotechnical engineering guidance for special cases
- Standard and special designs to match applications and soils.

Capabilities

Because screw anchors are reliable for predictable holding capacities and low installed costs, they are being used in a growing number of applications. Compression loads per anchor as high as 300,000 lb. and tension loads as high as 200,000 lb. can be achieved. Special terminations transfer structure load to the anchors.

Chance engineering expertise, with 1,400,000 sq. ft. of manufacturing facilities, leads the world in anchor development and quality.

• Foundation Repairs — Residential & Commercial
HELICAL PIER® Foundation Systems
HELICAL PULLDOWN™ Micropiles see pages 6 & 7.

Description

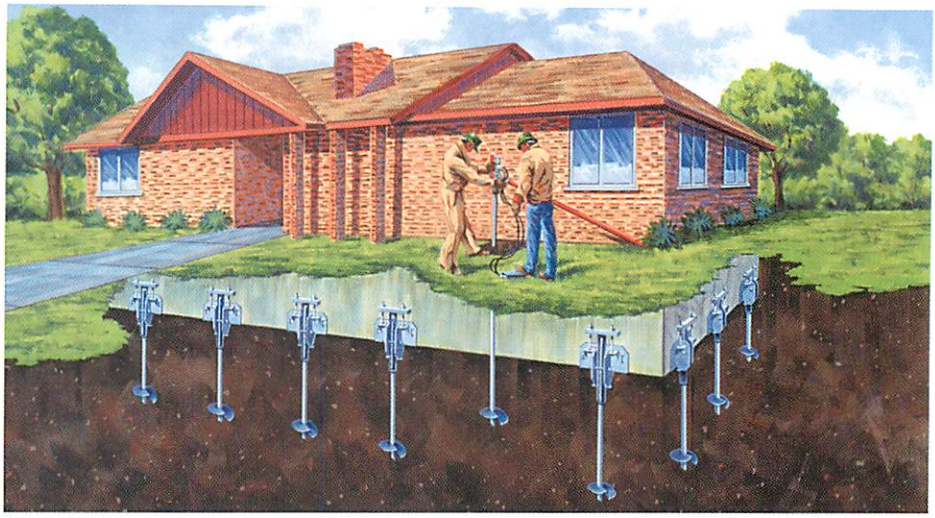
Square-Shaft (SS) HELICAL PIER® Foundation Systems anchors are designed for installation ease and to maximize load capacity of each helix. Shafts and helices are of steel selected for specific installing torques and design loads. Chance screw anchors are effective in compression because soil supports the shafts against buckling.

Only dealers trained and certified by the Chance Company are to install the patented HELICAL PIER® Foundation Systems.

Installing equipment may be a portable rotary tool or a digger motor on a utility truck, caisson drill, backhoe or skid-steer loader with torque motor attached. Important equipment characteristics are torque output, rotational speed, down pressure capability and angle control.

Torque can be monitored during anchor installation for production control. An empirical factor (usually 10 ft.$^{-1}$) is multiplied times the average torque over the final 3 feet of installation to estimate ultimate capacity.

Typical applications are deepened foundation anchors for new construction and stabilizing/lifting repairs of existing foundations.



For retrofit applications, brackets are placed at intervals around the building. Anchor bolts hold brackets to the footing. HELICAL PIER® Foundation Systems anchors install through the brackets. Special tool permits hydraulic jack to transfer load to brackets and foundation anchors. Nuts on each bracket's two vertical bolts lock off load before jack is removed.

For new construction applications, HELICAL PIER® Foundation Systems anchors install at intervals between footing forms and tie into the rebar gridwork prior to pouring concrete.

For such higher loads as commercial and industrial construction or expansion applications, HELICAL PULLDOWN™ Micropiles may be installed in the same manner as above. That is, at intervals between

Engineering Guide Specifications

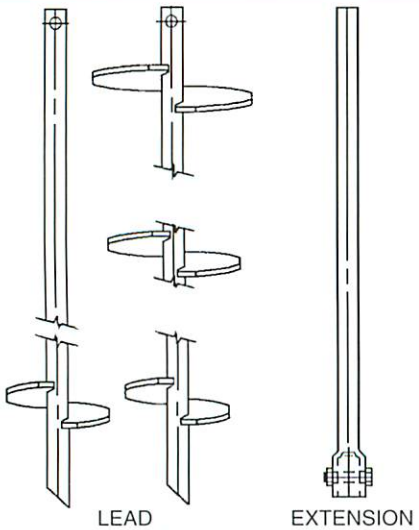
Details on Chance HELICAL PIER® Foundation Systems are available upon request in the three-part section Manu-Spec® format.

Building Code Listings

Building code listings for Chance HELICAL PIER® Foundation Systems include:

- BOCA Report No. 94-27,
- ICBO Report No. ER5110,
- SBCCI Report No. 9504B.

Components, Parts



LEAD SECTIONS

EXTENSION SECTION

LIGHT-DUTY Bracket

C150-0239 for 1½" Shaft
Rated capacity: 5,000 lb.

STANDARD-DUTY Foundation Repair Brackets

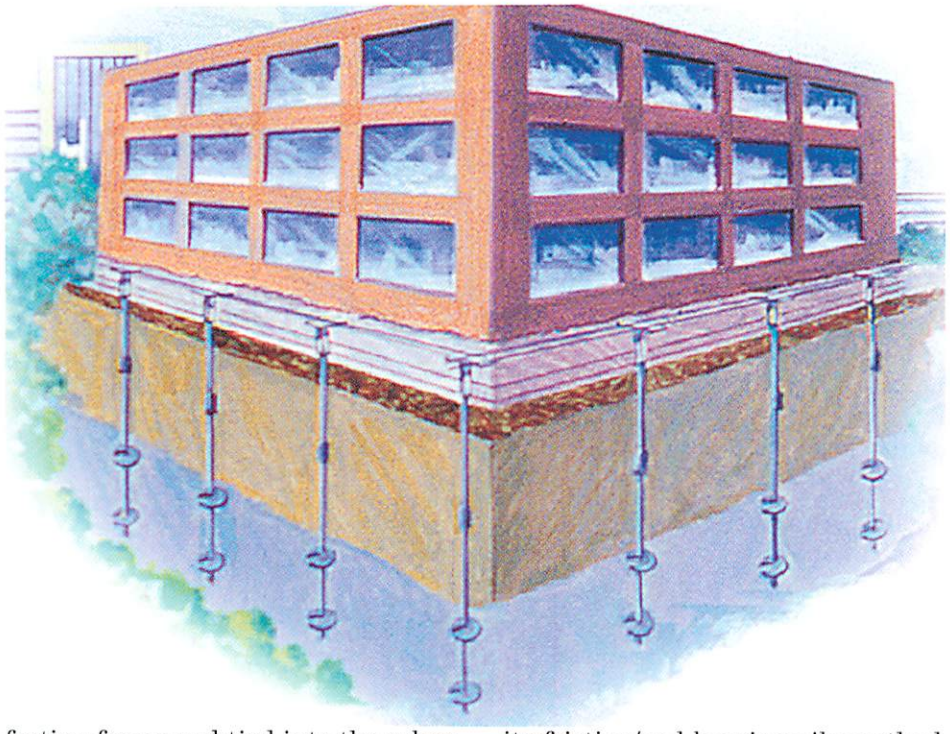
C150-0121 or C150-0298 for 1½" Shaft
Rated capacities:
20,000 lb. with SS5 anchors
25,000 lb. with SS150 anchors

C150-0299 for 1¾" Shaft
Rated capacity: 30,000 lb.

HEAVY-DUTY Foundation Repair Bracket

C150-0147 for 1¾" Shaft
Rated capacity: 40,000 lb.

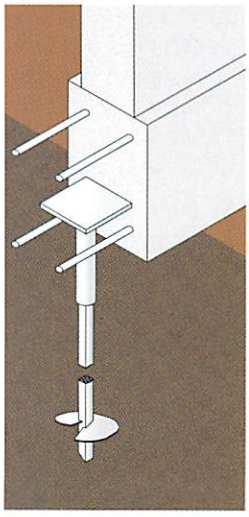
• New Foundation Construction — Residential & Commercial
HELICAL PIER® Foundation Systems
DURA-GRIP™ Wall Repair System and Screw Anchor Wall Kit



footing forms and tied into the rebar gridwork prior to pouring concrete. For more information on this composite friction/end-bearing pile method utilizing screw anchor technology, see pages 6 and 7.

NEW-CONSTRUCTION BRACKET

Brackets for new construction are placed on anchors in between footing forms and tied to rebar before concrete pour.



Catalog No. C150-0458 for 1½" Shafts and C150-0459 for1¾" Shafts

SEISMIC/UPLIFT-RESTRAINT BRACKET KIT

U.S. Patent 5,213,448

Rated Capacity: 7,500 lb.

Fits on Standard Brackets C150-0298 and C150-0299

Catalog No. C150-0227

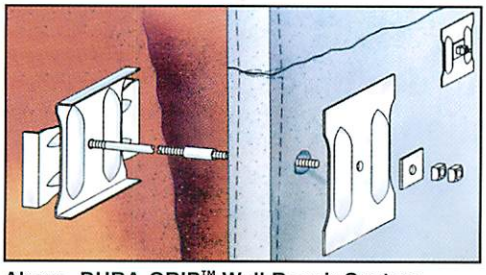
Remedial bracket resists upward forces that can damage foundations and structures.

In seismic areas, locate at the ends of a shear wall. In expansive soils, place around the perimeter.

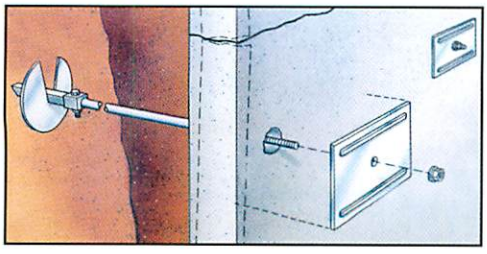
To resist uplift only, Kit may be installed with only T-Pipe E150-0294 or E150-0295 on an anchor.

Kit requires 20" to 24" vertical surface above the bottom of the foundation and concrete with a minimum rating of 2,000 psi.Kit includes bracket, epoxy bond, instructions and anchor bolt/stud requirements.

DURA-GRIP™ WALL REPAIR SYSTEM AND SCREW ANCHOR WALL KIT



Above, DURA-GRIP™ Wall Repair System cross plate anchors tie back retaining and foundation walls.

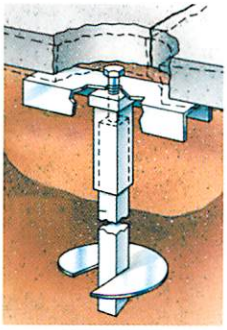


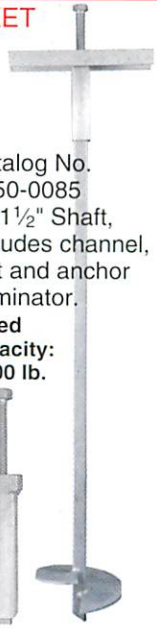
Here are two fast alternatives for saving foundation walls at less expense and trouble than replacement. DURA-GRIP™ Wall Repair System uses cross plate anchors placed in vertical holes in undisturbed soil away from the wall. Rods are driven through holes in the wall and secured to the wall with steel plates, washers and nuts. Torquing the rods stabilizes the wall against further movement. If the wall is to be straightened immediately, first excavating along the entire length and depth of the wall to relieve pressure permits using either the DURA-GRIP System or the Screw Anchor Wall Kit.

At left, screw anchors tie back retaining and foundation walls.

SLAB-REPAIR BRACKET

Slab-repair bracket kit for stabilizing uneven or damaged floors. Bolt adjusts through cap fitting on top of anchor so channel lifts floor.





Catalog No. T150-0085 for 1½" Shaft, includes channel, bolt and anchor terminator.

Rated capacity: 5,000 lb.

- **Underpinning Commercial/Industrial Construction/Expansion**
- **Tower Foundations for Telecom and Power Transmission***

HELICAL PULLDOWN™ Micropiles

*For guying, see SS anchors, pp. 8 & 9.

Description

HELICAL PULLDOWN™ Micropile is a patented composite end-bearing/friction pile well suited for resistance to bending moments and lateral loads in poor soil conditions by transferring load to high end-bearing-capacity helical plates. It consists of a steel screw anchor with a 4" to 10" grout column around the shaft above the helical plates. Design is specified per application and may consist of Type SS (square-shaft, pages 8 & 9), Type HS (page7) or their combination. Displacement plates added at extension joints form void in the soil filled by grout reservoir on grade as anchor is torqued into the soil. Column may be sleeved during installation if required.

Torque monitoring contributes to production control. To estimate ultimate bearing capacity, an empirical factor (usually 10 $ft.^{-1}$) is multiplied times the average torque over the final 3 feet of installation.

Typical applications are construction and expansion of commercial and industrial building foundations, and tower foundations for power and telecommunications. Connections may be by steel fabricated brackets or integration into rebar gridwork of concrete pile cap.

Advantages

- High-capacity: Tested to 300 kips
- Installs in limited access areas
- Cost-effective, proven method
- No excavation, no spoils

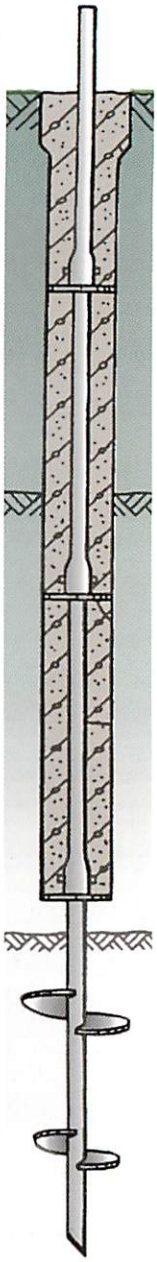







Displacement plates form grout column to design depth.
Measuring grout volume indicates formation of column.
Torque monitoring contributes to field production control.





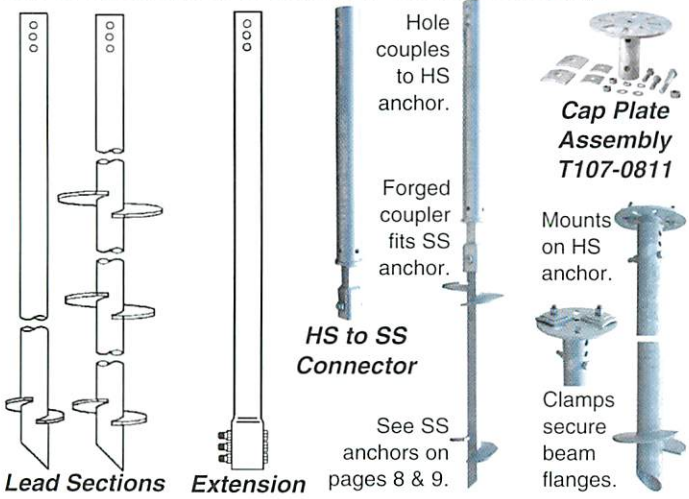
Typical application of HELICAL PULLDOWN™ Micropile usingType SS anchors and grout column above the helical plates.

• Tower Foundations for Telecom and Power Transmission*
• Equipment Platform Foundations *For guying, see SS anchors, pp. 8 & 9.
HELICAL PULLDOWN™ Micropiles & INSTANT FOUNDATION® System

Description

High-Strength (HS) INSTANT FOUNDATION® anchors have 3½-inch-O.D. pipe shafts for resistance to bending moments and lateral loads. Type T/C (Tension/Compression) INSTANT FOUNDATION anchors have lead sections of 3½-inch-O.D. pipe and extensions of 8-inch-O.D. pipe with helical couplers. The lead section and extensions bolt together and have a maximum installation torque rating of 11,000 ft.-lb.

Monitoring installation torque contributes to production control. An empirical factor (usually 7 ft.$^{-1}$) is multiplied times the average torque over the final 3 feet of installation to estimate ultimate capacity.



Type HS INSTANT FOUNDATION® Anchors

Lead Sections Helices & Diameter	Length	Catalog No.
8" & 10"	3½ ft.	C107-0560
10" & 12"	5 ft.	C107-0561
12" & 14"	5 ft.	C107-0562
10"	7 ft.	T107-0813
10" & 12"	7 ft.	C107-0023
10" & 12" & 14"	7 ft.	C107-0564
10" & 12"	10 ft.	T107-0812
10", 12", 14" & 14"	10 ft.	C107-0567
Extension Sections		
N/A	3 ft.	C107-0573
N/A	5 ft.	C107-0574
N/A	7 ft.	C107-0575
HS to SS Connectors (100,000 lb. axial load rating)		
HS to SS175 (1¾" square shaft anchors)		T107-0808
HS to SS200 (2" square shaft anchors)		T107-0809
Cap Plate Assembly for compression loading only		
4 11/16" to 7 5/16" bolt circle on 10"-dia. plate with 8 slots, each 11/16" x 2" @ 45°; plus ¾" through bolt & nut, and 2 clamp plate sets		T107-0811

Typical applications are anchor grillages for guyed and self-supported telecom and power transmission tower and foundations for buildings and platforms. Connections may be by steel fabricated brackets or integration into rebar gridwork of concrete pile cap.

Advantages

- Multi-element pile groups can be designed to match ultra-high loads
- Higher shear capacities
- Cost-effective, proven
- No excavation, no spoils

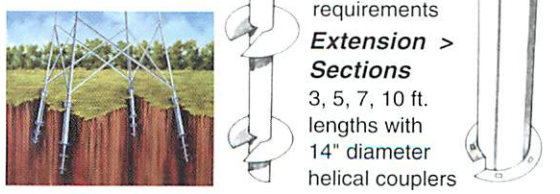
Cap Plate Assembly for Equipment Platform Supports

Steel Grillage for Tower Base Supports

Pile Group in Concrete Pile Cap for Tower Leg Supports

Type T/C INSTANT FOUNDATION® Anchors

Terminations
Bolted, welded or grouted for single elements plus multi-element grillages



< Lead Sections
5, 7, 10 ft. lengths and helices per job requirements

Extension > Sections
3, 5, 7, 10 ft. lengths with 14" diameter helical couplers

CHANCE®

•SOIL SCREW® Retention Wall System
•Tieback Tension-Anchor System

Description

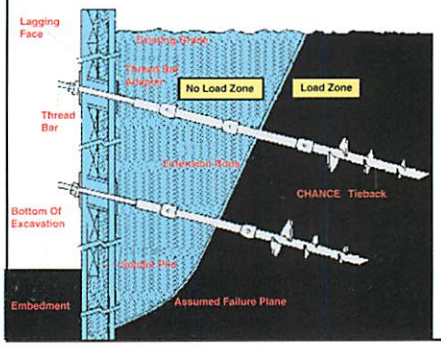
For retaining projects, Chance screw anchors can be matched to soil and heavy tension loads in the same way HELICAL PIER® Foundation Systems anchors are for compression applications.

Soil Nailing – SOIL SCREW® Retention Wall System uses screw anchors as bearing devices as compared to grouted anchors which rely on friction. To construct a gravity wall to reinforce the soil, SOIL SCREW anchors have bearing plates spaced along their entire lengths. Anchor size and grid spacing are designed to local soil conditions and load requirements. A shotcrete-reinforced veneer often is applied to the wall face.

Tieback – Chance screw anchors for tiebacks in soldier-pile/waler walls come with shaft sizes and single- or multi-helix plate diameters selected for job-specific requirements. Applications include building sitework, roadways, retaining walls, levees, dams and revetments.

SOIL SCREW® System: soil nail application

Tieback tension-anchor application

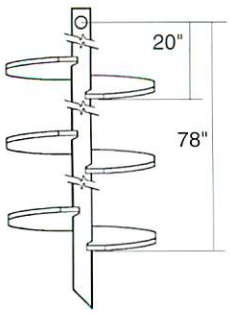


Advantages

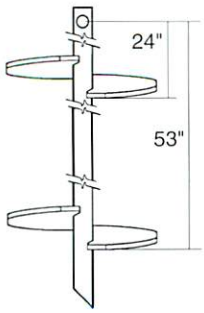
- Competitive installing costs
- Immediate loading
- Installs in any weather
- Speeds site preparation
- No spoils to remove
- Predictable results
- Removable where necessary
- Installs with available equipment
- Labor-saving - keeps crew size small
- True helix installs with ease, minimal disturbance
- Less equipment (no concrete trucks or grout pumps)

Components, Parts — *for SOIL SCREW® uses only on this page*

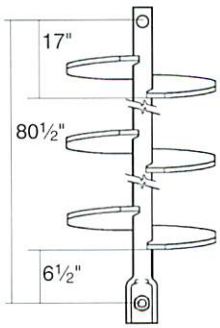
Rated for 5,500 ft.-lb. maximum installation torque and 70,000 lb. minimum ultimate tension strength, SS5 anchors have 1½"-square steel shafts and 8"-diameter helices and are hot-dip galvanized after assembly.



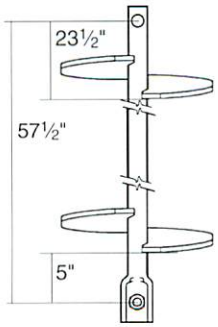
Three-Helix SOIL SCREW® Lead Section C110-0691



Two-Helix SOIL SCREW® Lead Section C110-0692



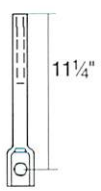
Three-Helix SOIL SCREW® Extension C110-0689



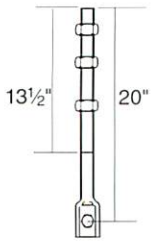
Two-Helix SOIL SCREW® Extension C110-0690

SOIL SCREW® Termination Adapters

Both are hot-dip galvanized steel and fit 1½" square shaft SS5 anchors.

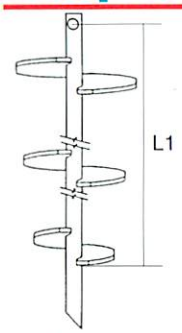


1" Threadbar Adapter C114-0009

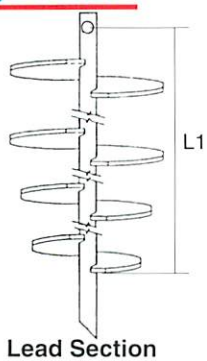


Threaded Adapter C110-0026

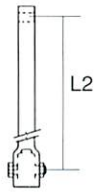
Components, Parts — *for Tieback only on this page*



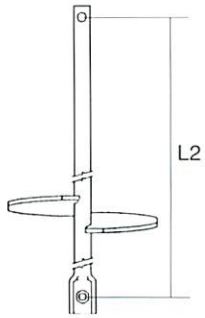
Lead Section



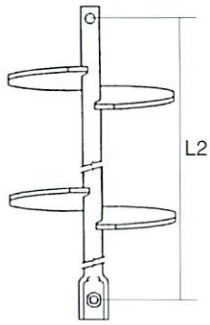
Lead Section



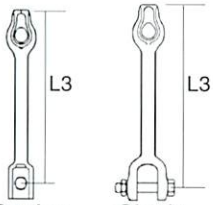
Plain Extension



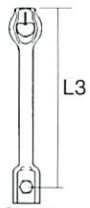
Single-Helix Extension



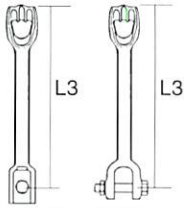
Twin-Helix Extension



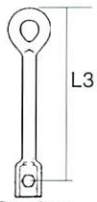
Socket *Clevis*
Thimbleye® Adapter



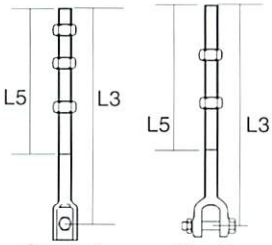
Socket
Twineye® Adapter



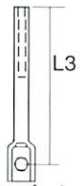
Socket *Clevis*
Tripleye® Adapter



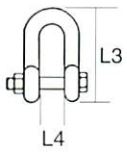
Socket
Ovaleye Adapter



Socket *Clevis*
Threaded Adapter



Socket
Threadbar Adapter



Chain Shackle

Mechanical Ratings	SS 150 1.50" Square Shaft			SS 175 1.75" Square Shaft			SS 200 2.00" Square Shaft			SS 225 2.25" Square Shaft		
Max. Installation Torque	7,000 ft.-lb.			10,000 ft.-lb.			15,000 ft.-lb.			20,000 ft.-lb.		
Min. Ult. Tension Strength	70,000 lb.			100,000 lb.			150,000 lb.			200,000 lb.		
Lead Sections **Helix Configuration and Diameter(s)**	**Catalog Number and Length**											
	SS 150			**SS 175**			**SS 200**			**SS 225**		
	Galv.	**Non-Galv.**	**L1**	**Galv.**	**Non-Galv.**	**L1**	**Galv.**	**Non-Galv.**	**L1**	**Galv.**	**Non-Galv.**	**L1**
8" & 10"	C110-0385	C114-0014	30"	C110-0227	C114-0020	30"	—	—	—	—	—	—
6", 8" & 10"	—	—	—	—	—	—	C110-0569	C114-0214	60"	C110-0543	C114-0187	54"
8", 10" & 12"	C110-0386	C114-0015	57"	C110-0235	C114-0021	60"	C110-0570	C114-0215	60"	C110-0544	C114-0188	75"
10", 12" & 14"	—	—	—	T110-0674	—	77"	—	—	—	—	—	—
14", 14" & 14"	C110-0504	C114-0149	120"	C110-0505	C114-0084	124"	C110-0572	C114-0216	122"	C110-0545	C114-0190	114"
6", 8", 10" & 12"	—	—	—	C110-0571	—	79"	—	—	—	—	—	—
8", 10", 12" & 14"	—	C114-0100	120"	C110-0247	C114-0101	124"	C110-0573	C114-0217	122"	C110-0591	C114-0189	115"
Extension Sections	**Galv.**	**Non-Galv.**	**L2**	**Galv.**	**Non-Galv.**	**L2**	**Galv.**	**Non-Galv.**	**L2**	**Galv.**	**Non-Galv.**	**L2**
None	C110-0388	C114-0016	37"	C110-0136	C114-0022	37"	C110-0563	C114-0209	37"	C110-0645	C114-0243	40"
None	C110-0470	C114-0104	59"	C110-0137	C114-0105	59"	C110-0564	C114-0210	58"	C110-0646	C114-0244	52"
None	C110-0389	C114-0017	80"	C110-0138	C114-0023	80"	C110-0565	C114-0211	80"	C110-0647	C114-0245	72"
None	C110-0440	C114-0080	122"	C110-0140	C114-0081	124"	C110-0566	C114-0212	123"	—	—	—
Single 14" helix	C110-0471	C114-0108	48"	C110-0472	C114-0109	48"	C110-0577	C114-0220	45"	C110-0650	C114-0238	52"
Twin 14" helices	C110-0454	C114-0058	80"	C110-0450	C114-0057	80"	C110-0581	C114-0224	80"	C110-0652	C114-0252	72"
Triple 14" helices	C110-0475	C114-0112	123"	C110-0476	C114-0113	124"	C110-0586	C114-0231	123"	—	—	—
Termination Adapters	**SS 150**			**SS 175**			**SS 200**			**SS 225**		
	Galv.	**L5**	**L3**	**Galv.**	**L5**	**L3**	**L4**	**Galv.**	**L4**	***L3***	**Galv.**	**L4**	**L3**
Thimbleye Adapter (socket)	C102-0023	—	17"	—	—	—	—	—	—	—	—	—	—
Thimbleye Adapter (clevis)	—	—	—	T110-0311	—	17"	—	†T110-0312	—	17"	—	—	—
Twineye Adapter (socket)	C102-0024	—	17"	—	—	—	—	—	—	—	—	—	—
Tripleye Adapter (socket)	C102-0025	—	17"	—	—	—	—	—	—	—	—	—	—
Tripleye Adapter (clevis)	—	—	—	T110-0465	—	17"	—	†T110-0629	—	17"	—	—	—
Ovaleye Adapter (socket)	C110-0041	—	17"	—	—	—	—	—	—	—	—	—	—
Threaded Adapter (socket)	C110-0026	13½"	20"	—	—	—	—	—	—	—	—	—	—
Threaded Adapter (clevis)	—	—	—	T110-0352	36"	48"	—	—	—	—	—	—	—
	—	—	—	C110-0514	13½"	20"	—	—	—	—	—	—	—
Chain Shackle	—	—	—	T110-0134	—	6⅝"	1 13/16"	C110-0557	2¼"	8¼"	C110-0558	2⅜"	9"
1" Threadbar Adapter	C114-0009	—	11¼"	C114-0010	—	11½"	—	C114-0227	—	13½"	—	—	—
1¼" Threadbar Adapter	—	—	—	—	—	—	—	C114-0256	—	13½"	C114-0262	—	16"
1⅜" Threadbar Adapter	—	—	—	—	—	—	—	—	—	—	C114-0250	—	16"

†T110-0312 and T110-0629 each rated 70,000 lb. minimum ultimate tension strength.

Description

Non-extendable INSTANT FOUNDATION® anchors are produced with high-strength pipe shaft for resistance to bending moments and installation torque. They often can be installed through macadam surfaces.

Typical applications are parking lots, street and highway lighting, architectural lighting, sign and column supports and building foundations.

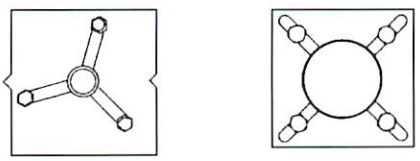
Backhoes and skid-steer loaders fitted with hydraulic torque motors, digger-derrick trucks and other such conventional rotary equipment are ideal for installing these foundation anchors.

For an elevated light standard, anchor penetration is stopped at the desired base height. Power conduit is fed into the side cableway and out the baseplate. A tube-type form of the same above-grade height may be placed around the exposed shaft to encase all but the baseplate in a poured-concrete barrier, as with other methods.

To place a light standard on-grade, drive the foundation to full depth. Excavate to cableway and insert the power conduit up through the baseplate.

Components, Parts

For combinations of bolt circles, base plates, shaft sizes and lengths other than those listed below, consult factory or your distributor.



Variable Bolt-Circle Base Plates
Three-Bolt and Four-Bolt Patterns

For Parking, Area, Site Lighting

Maximum installing torque ratings: 6⅝" O.D. shaft rated for 15,000 ft.-lb.
8⅝" O.D. shaft rated for 20,000 ft.-lb.

Specifications for these anchors include:

- 1 in. x 12 in.-square Base Plate with 4-bolt variable Bolt Circle*
- Four 1 in. x 4 in. Grade 5 Carriage Bolts with nuts and washers
- 2½ in. x 18 in. Cableway on shaft • All hot-dip galvanized to ASTM A153

Foundation Overall Length	Catalog Number		Distance: Bottom of Base Plate to Top of Cableway
	6⅝" Shaft, 12" Helix, *8"-14" B.C.	8⅝" Shaft, 14" Helix, *9½"-14" B.C.	
5 feet	T112-0563	T112-0566	18 inches
8 feet	T112-0564	T112-0567	48 inches
10 feet	T112-0565	T112-0568	48 inches

For Bollard Walkway Lighting

Maximum installing torque rating: 2" NPS pipe rated for 2,500 ft.-lb.

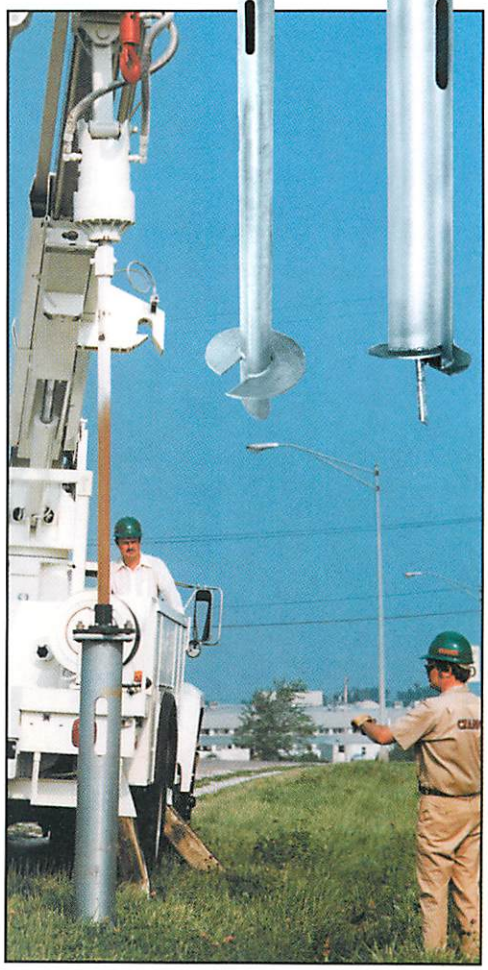
Specifications for these anchors include:

- 3 ft. overall length with 8 in.-diameter helix 3 in. above end of shaft
- Baseplate with semi-circle wiring/conduit cutout & ½"-13-2B tapped hole
- Carriage bolts (3 or 4 as needed) square neck, ½" x 2¼", nuts, washers
- 1½ in.-dia. cableway, both sides of shaft, centered 24 in. below baseplate
- All components are hot-dip galvanized to ASTM A153

Catalog No.	Square Base Plate	Bolt Circle Range and Pattern
T112-0619	5 in. x 5 in.	2½ in. to 4 in. bolt circle, 3-bolt pattern
T112-0620	7 in. x 7 in.	4 in. to 8 in. bolt circle, 4-bolt pattern

• INSTANT FOUNDATION® Anchors for Lighting & Construction Uses

Shaft and helix sizes available to serve various applications



• Telephone stations and bumper posts

INSTANT FOUNDATION® anchors install fast, even through blacktop. Baseplates are available for bolt-up to many phone brands. Bumper Post anchors can be installed at the same time for traffic guards.

• CATV stations, microwave towers, solar-collector panels

On-line immediately after bolt-up to INSTANT FOUNDATION anchors with no concrete or weather delays.

Components, Parts

For combinations of bolt circles, base plates, shaft sizes and lengths other than those listed below, consult factory or your distributor.

For Street Lighting & Construction Uses

8,000 ft.-lb. maximum installing torque for 3½" & 4" shafts

Shaft O.D.	Length & Catalog No.	Helix Dia.	Square Base Plate	Bolt Circle Range & Pattern	Bolt Size & Type	Cableway Size & Dist. from Base Plate	Weight, lb.
3½ in.	64 in. T112-0302	12 in.	¾ x 12 in.	5 - 12 in. & 4-bolt	⅝" x 2½" Carriage	1¼ in. dia. hole & 12 in.	103
4 in.	56 in. T112-0338	10 in.	¾ x 8¾ in.	5 - 8 in. & 4-bolt	*T112-0393	1½ x 3 in. & 18 in.	65
4 in.	56 in. T112-0352	10 in.	¾ x 10½ in.	5 - 8 in. & 3-bolt	*T112-0392	1½ x 3 in. & 18 in.	73

15,000 ft-lb. maximum installing torque for 6⅝" shafts
20,000 ft.-lb. maximum installing torque for 8⅝" & for 10¾" shafts

6⅝ in.	5 ft.	C11232JG4VL†	12 in.	1 x 12 in.	9 - 14 in. & 4-bolt	†1" x 4" Carriage	2½ x 12 in. & 12 in.	137
8⅝ in.	5 ft.	C11242NG4VP†	14 in.	1 x 15¾ in.	11 - 17 in. & 4-bolt	†1" x 4" Carriage	2½ x 12 in. & 12 in.	187
8⅝ in.	7 ft.	C11242QG4VP†	14 in.	1 x 15¾ in.	11 - 17 in. & 4-bolt	†1" x 4" Carriage	2½ x 12 in. & 12 in.	227
10¾ in.	7 ft.	T112-0463	16 in.	1¼ x 17 in.	15 - 17 in. & 4-bolt	1¼" x 4" H.H.	2 x 6 in. & 18 in.	362

* Bolt assembly for T112-0338 and T112-0352 ordered separately.

† Retaining washer for variable baseplates available, ⅝", 1" and 1¼" bolts.

CHANCE® •Geo-environmental Support Systems

• Environment Enhancing Applications

Description

For these applications, anchors principally are specified from the following groups:
•HELICAL PIER® Foundation Systems,
•HELICAL PULLDOWN™ Micropiles and
•INSTANT FOUNDATION® anchors, shown on the preceding pages. Special termination brackets and associated hardware items also are available for certain of these applications.

• Supports and restraints for pipelines and storage tanks

Special bracket and fittings combine with anchors to overcome buoyancy and provide support, considering tension and compression loads.

• Walkway-support system

Beam-Seat bracket with 12"-long steel pipe sleeves a 1½" Square Shaft anchor. Bracket's 7"-wide flanges adjust as wide as 3½" to mount to lateral beams for deck structures.

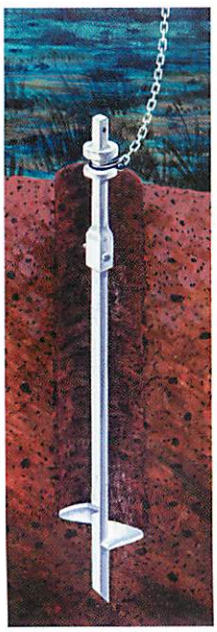
Advantages give access to sensitive wetland areas with minimal disturbance:

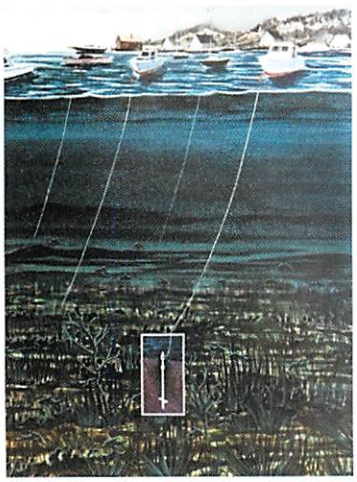
- Transfers loads to bearing stratum,
- Isolates structure from seasonal changes,
- Modular lead and extension sections,
- Portable hand-held driving equipment provides acceptable low-impact installation.

• Moorings for harbors and aquaculture

To keep chains off fragile eco-systems as an alternative to the harmful scouring of habitat by conventional weights, complete system presents other benefits:

- Reduces scoping length of chain,
- Allows more boats per harbor,
- Dependable positioning,
- Installs from water surface,
- Predictable, verifiable capacity,
- Retrievable, reusable.





Anchored fish pens and ice barriers to protect the pens

HUBBELL POWER SYSTEMS, INC.

CHANCE®

www.abchance.com

UNITED STATES
HUBBELL POWER SYSTEMS, INC.
210 North Allen Street
Centralia, MO 65240
Phone: 573-682-8414 Fax: 573-682-8660
e-mail: hpscontact@hps.hubbell.com

CANADA
HUBBELL CANADA, INC.
870 Brock Road South
Pickering, Ontario L1W 1Z8
Phone: 905-839-1138 Fax: 905-831-6353
e-mail: infohps@hubbellonline.com

-RGS-