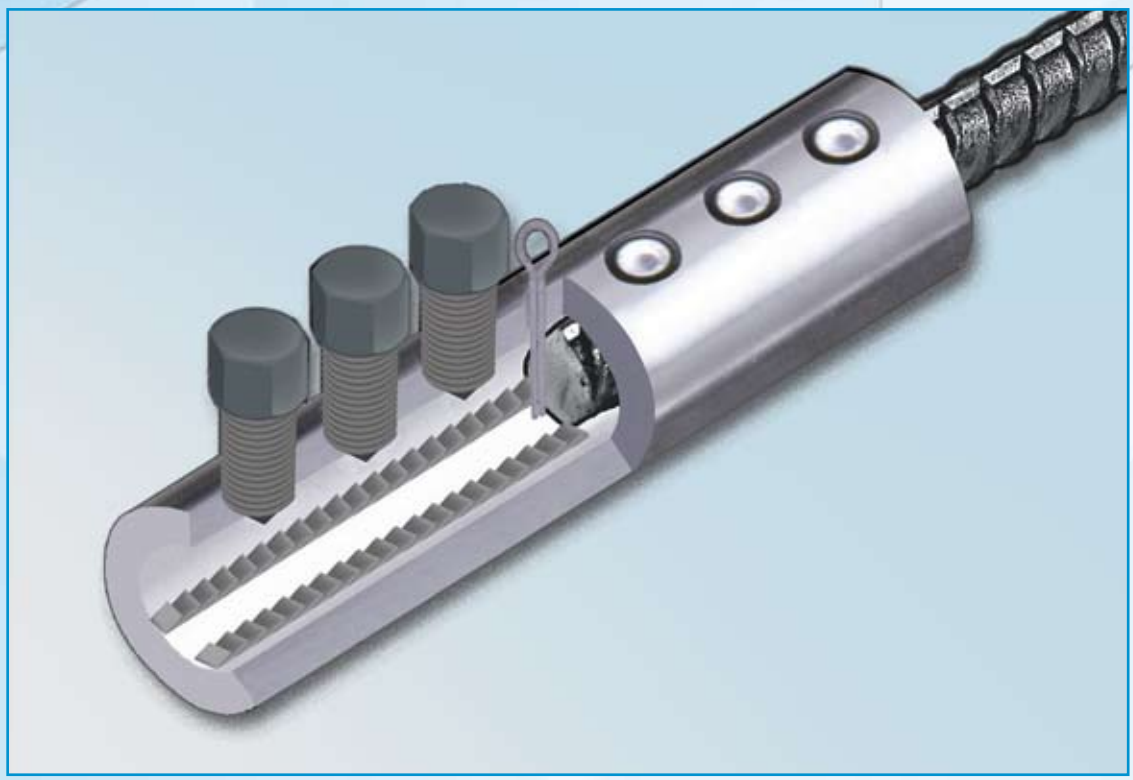
DAYTON SUPERIOR

BAR-LOCK

REBAR COUPLER SYSTEM



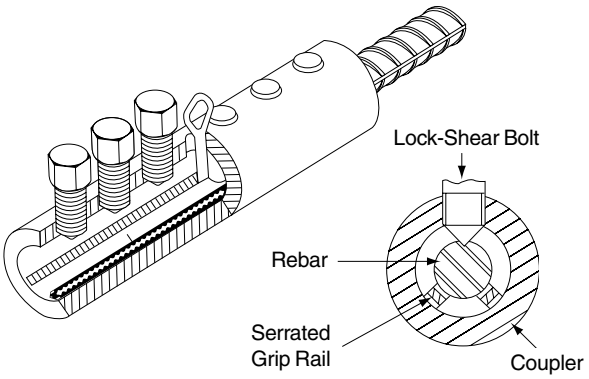
- QUICK AND EASY TO INSTALL
- NO SPECIAL INSTALLATION EQUIPMENT
- HIGH STRENGTH
- EXCELLENT FOR NEW CONSTRUCTION AND REHAB PROJECTS

DAYTON SUPERIOR

Bar-Lock Coupler System*

ICBO Evaluation Report No. 5064

The Dayton Superior Bar-Lock Coupler System provides a simple, quick, cost effective method for splicing smooth or deformed rebar in tension and/or compression applications. Bar-Lock couplers are effective when used as a "positional" coupler when the rebar is fixed in place or when the rebar is free to rotate. Bar-Lock couplers utilize lock-shear bolts and serrated grip rails to mechanically splice the rebar. The serrated grip rails are embedded in the rebar as the lock-shear bolts are tightened. The heads of the lock-shear bolts are designed to shear off at a prescribed torque to ensure proper installation.



*U.S. Patent No. 4,666,326 & 5,046,878

System Advantages

- Quick and easy to install to save time and money.
- Eliminates bar threading or special bar-end treatment.
- No special installation equipment required.
- High strength in tension, compression and seismic applications.
- Available in standard, transition and weldable versions in sizes #4 through #18.
- Ideal for new construction and rehab projects.

System Compliance

Bar-Lock couplers are test-certified to exceed the requirements of, and are pre-qualified, approved or recognized by the following building approval agencies:
State Departments of Transportation
International Conference of Building Officials (ICBO)
Building Officials and Code Administrators (BOCA)
Southern Building Code Congress International (SBCCI)
American Concrete Institute (ACI)
Concrete Reinforcing Steel Institute (CRSI)
City of Los Angeles Department of Building and Safety

System Testing

Bar-Lock couplers are tested by independent, certified testing laboratories in four modes of testing: tension, compression, fatigue and cyclic. All tests are done to the requirements of ICBO and/or Caltrans utilizing grade 60 rebar material. Bar-Lock source materials are fabricated under ISO9000 quality standards.

D-250-SCA Bar-Lock S/CA Series Couplers

The Bar-Lock S/CA Series Couplers (D-250-SCA) are designed for use in most tension and compression applications. They are available in rebar sizes #4 through #18 and exceed 135% of specified yield of Grade 60 rebar. S/CA couplers are an approved Caltrans "Service" splice and are recognized by ICBO, ACI and most State Departments of Transportation. S/CA couplers are available in transitions sizes and weldable half couplers.

D-250-L Bar-Lock L-Series Couplers

The Bar-Lock L-Series Coupler (D-250-L) is similar to the Standard Coupler but is designed for use when higher loads are required, such as extreme tension/compression applications and/or seismic loading conditions. D-250-L couplers are available in rebar sizes #4 through #18 and exceed 160% of specified yield of Grade 60 rebar. L-Series couplers are approved for use by most state DOT's, are recognized as an ICBO Type 2 seismic splice and meet ACI specifications. L-Series couplers are also available in transition sizes and weldable half couplers, and epoxy coated.

Transition Couplers

Bar-Lock Transition Couplers are used to splice two rebars of different diameters. Transition couplers are available in S/CA Series, L-Series and L-Series epoxy coated. Note sizes and other information about the respective couplers versions above.

Structural Steel Connectors

Bar-Lock Structural Steel Connectors (weldable half couplers) are designed to provide welded connections to structural steel members such as piles, weld plates, beams, columns, etc. Structural Steel Connectors are fabricated with a 45° chamfer to facilitate the welding operation. They are available in rebar sizes #4 through #18 in the S/CA Series and the #4 through #14 in the L-Series.

Typical Specifications

A. By specific name: “Bar-Lock mechanical coupler system manufactured by Dayton Superior.”

B. By generic description: “Mechanical butt splices utilizing lock-shear bolts and internal serrated grip rails within the coupling sleeve. They shall exceed the specification requirements for both tension and compression specified by ACI 318 and the Uniform Building Code and be recognized by the International Conference of Building Officials (ICBO).”

Standard Coupler

High Strength Coupler
(Example shown is epoxy coated)

Transition Coupler

Structural Steel Connector

How to Order

Specify: (1) quantity, (2) name, (3) rebar size, (4) style, if other than standard.

Example: 200, D-250-L Bar-Lock Couplers, #8 rebar size, epoxy coated.

D-250-SCA Bar-Lock S/CA-Series Couplers														
Coupler Designation	For Use on Rebar Size US	metric [mm]	CN [M]	Barrel Stamp Identification	Tube Specifications Outside Diameter (in.)	Length (in.)	Weight (lbs)	Bolt Specifications Bolt Qty.	Head Size (in.)	Nominal Shear Torque	Meets or Exceeds Min. %Fy	CAL TRANS Service	ICBO Type 1	ICBO Type 2
4S/CA	#4	[13]	[10]	4S....CA	1.3	3.9	1.0	2	0.5	40	135	✓	✓	
5S/CA	#5	[16]	[15]	5S....CA	1.7	4.5	1.8	2	0.5	80	135	✓	✓	
6S/CA	#6	[19]	[20]	6S....CA	1.9	6.3	3.5	3	0.5	80	135	✓	✓	
7S/CA	#7	[22]	-	7S....CA	1.9	8.0	4.1	4	0.5	80	135	✓	✓	
8S/CA	#8	[25]	[25]	8S....CA	2.2	10.2	7.6	4	0.625	180	135	✓	✓	
9S/CA	#9	[29]	[30]	9S....CA	2.9	9.0	11.4	3	0.75	280	135	✓	✓	
10S/CA	#10	[32]	-	10S....CA	2.9	11.5	15.5	4	0.75	350	135	✓	✓	
11S/CA	#11	[36]	[35]	11S....CA	3.1	14.0	20.5	5	0.75	350	135	✓	✓	
14S/CA	#14	[43]	[45]	14S....CA	3.5	16.5	26.0	6	0.75	350	135	✓	✓	
18S/CA	#18	[57]	[55]	8S....CA	4.3	27.1	60.0	10	0.75	475	135	✓	✓	

D-250-L Bar-Lock L-Series Couplers														
Coupler Designation	For Use on Rebar Size US	metric [mm]	CN [M]	Barrel Stamp Identification	Tube Specifications Outside Diameter (in.)	Length (in.)	Weight (lbs)	Bolt Specifications Bolt Qty.	Head Size (in.)	Nominal Shear Torque	Meets or Exceeds Min. %Fy	CAL TRANS Service	ICBO Type 1	ICBO Type 2
4L	#4	[13]	[10]	4L....	1.3	5.5	1.6	3	0.5	40	160	✓	✓	✓
5L	#5	[16]	[15]	5L...	1.7	6.3	2.8	3	0.5	80	160	✓	✓	✓
6L	#6	[19]	[20]	6L...	1.9	8.0	4.5	4	0.5	80	160	✓	✓	✓
7L	#7	[22]	-	7L....	1.9	9.8	5.5	5	0.5	80	160	✓	✓	✓
8L	#8	[25]	[25]	8L....	2.2	12.3	9.5	5	0.625	180	160	✓	✓	✓
9L	#9	[29]	[30]	9L....	2.9	11.5	15.5	4	0.75	280	160	✓	✓	✓
10L	#10	[32]	-	10L....	2.9	14.0	19.5	5	0.75	410	160	✓	✓	✓
11L	#11	[36]	[35]	11L....	3.1	16.5	24.0	6	0.75	410	160	✓	✓	✓
14L	#14	[43]	[45]	14L....	3.5	19.1	32.0	7	0.75	410	160	✓	✓	✓

NOTES

Bar-Lock Transition Couplers									
S/CA transition Size	Side A (small side)				Side B(large side)				Total Length
	Barrel Size	Length (in.)	Bolt Qty.	Bolt Size	Barrel Size	Length (in.)	Bolt Qty.	Bolt Size	
#4 - #5	#4	2.22	2	0.5	#5	2.53	2	0.5	4.75
#5 - #6	#6	3.15	3	0.5	#6	3.15	3	0.5	6.30
#7 - #8	#7	5.08	3	0.5	#8	5.08	4	0.625	10.16
#8 - #10	#8	5.33	3	0.625	#10	6.00	4	0.75	11.33
#9 - #10	#9	5.75	4	0.75	#10	5.75	4	0.75	11.50
#9 - #11	#11	7.01	5	0.75	#11	7.01	5	0.75	14.02
#10 - #14	#10	6.00	4	0.75	#14	8.52	6	0.75	14.52
#11 - #14	#11	7.26	5	0.75	#14	8.52	6	0.75	15.78
#14 - #18	#14	8.52	6	0.75	#18	13.83	10	0.75	22.35

This table lists commonly ordered transition sizes. Other sizes available.
Transition Couplers are available in S/CA-Series (shown above) sizes #4 - #14 and in L-Series sizes #4 - #14.

Bar-Lock Structural Steel Connectors (Weldable Half Couplers)					
Structural Steel Connector Size	Finished Length with Chamfer (in.)	Coupler Outside diameter (in.)	Structural Steel Connector Size	Finished Length with Chamfer (in.)	Coupler Outside diameter (in.)
#4-SCA	2.7	1.3	#4-L	3.5	1.3
#5-SCA	3.0	1.4	#5-L	3.9	1.4
#6-SCA	3.9	1.6	#6-L	4.75	1.6
#7-SCA	4.75	1.6	#7-L	5.65	1.6
#8-SCA	5.85	2.2	#8-L	6.85	2.2
#9-SCA	5.25	2.6	#9-L	6.5	2.6
#10-SCA	6.5	2.6	#10-L	7.75	2.6
#11-SCA	7.75	3.1	#11-L	9.0	3.1
#14-SCA	9.0	3.5	#14-L	10.3	3.5
#18-SCA	14.3	4.3	--	--	--

DAYTON SUPERIOR

Typical Coupler Installation

Bar-Lock couplers are easy to install and normally do not require any special training or rebar preparation. A typical installation is as follows:

Step 1: Insert the first rebar halfway into the coupler to meet up with the center pin. The bolts should be hand tightened and make contact with the rebar. This signals the installer that the bolt is not cross threaded and it is safe to proceed.

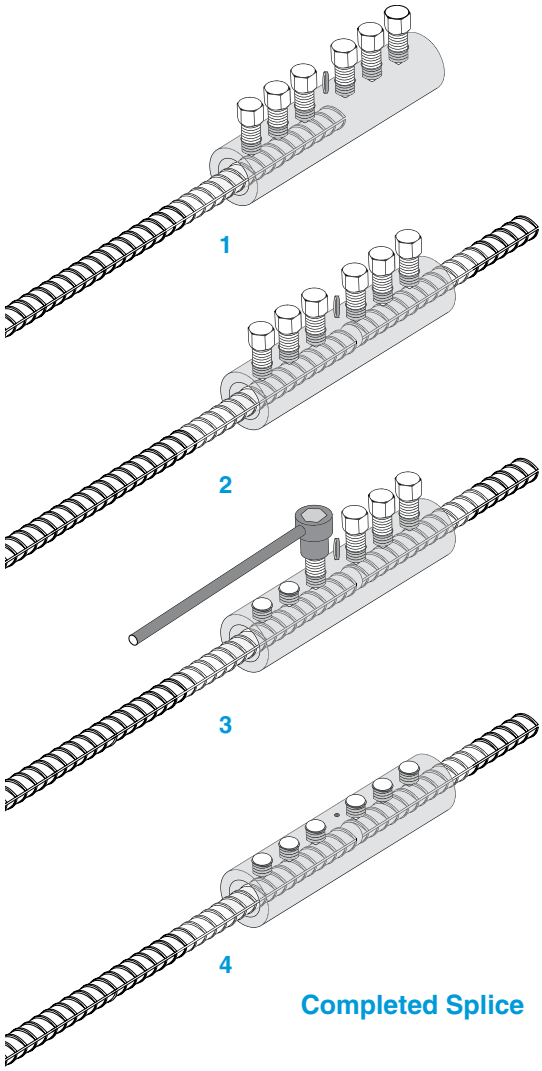
Step 2: Repeat step one for the second bar.

Step 3: A minimum two passes of torque tightening, in a random alternating pattern, are required after hand tightening the coupler and rebar into position. The first pass will snug the bolts' tips into the rebar, while second pass will end with the bolt heads shearing off. If desired, the installer may stop anytime during the second pass and return to make a third pass.

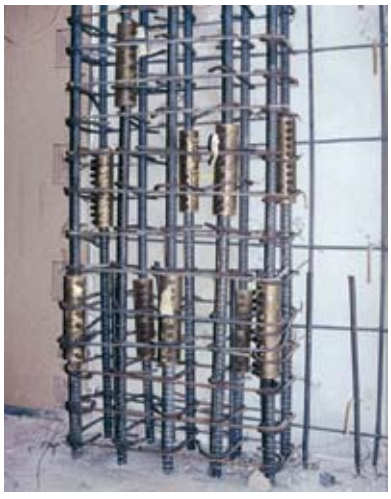
IMPORTANT NOTES:

a: Bolt tightening MUST be done in a *random alternating pattern* similar to tightening the lug nuts on an automobile wheel (i.e. 2 - 4 - 1 - 3). Make at least two passes of tightening each bolt prior to shearing the bolt heads.

b: Serrated rails MUST remain aligned in the same position as they were manufactured. If damaged or knocked out of alignment while positioning, installation MUST cease and a new coupler used to replace damaged coupler.



Typical replacement of corroded or damaged rebar in existing concrete



Recommended Installation Tools

Bar-Lock couplers use lock-shear bolts that require torque to shear the bolt heads off. On coupler sizes #4 through #7 a manual, electric or pneumatic impact wrench can be utilized for installation. On coupler sizes #8 and larger, a high quality pneumatic impact wrench with 1" drive is recommended. Air flow requirements are 100 psi operating pressure and 50 cfm of delivered air to the impact wrench through a 1" air hose.

Answers to often-asked questions:

1. **Approvals?** Bar-Lock couplers exceed the requirements of the Uniform Building Code and state DOT's and are recognized by ICBO report #ER-5064.

2. **Center-pin?** Bar-Lock couplers are manufactured with a removable center-pin for easy reference to the center of the coupler. As each bar in inserted into the coupler it will butt against the center-pin, providing confirmation that the rebar is inserted the proper distance within the coupler. The bar-ends themselves might not actually butt against one another.

3. **Serrated rails?** The internal grip rails are held in place by a simple “positional weld” only. During bolt tightening it is common for this positional weld to break loose, but this will not effect the couplers performance.

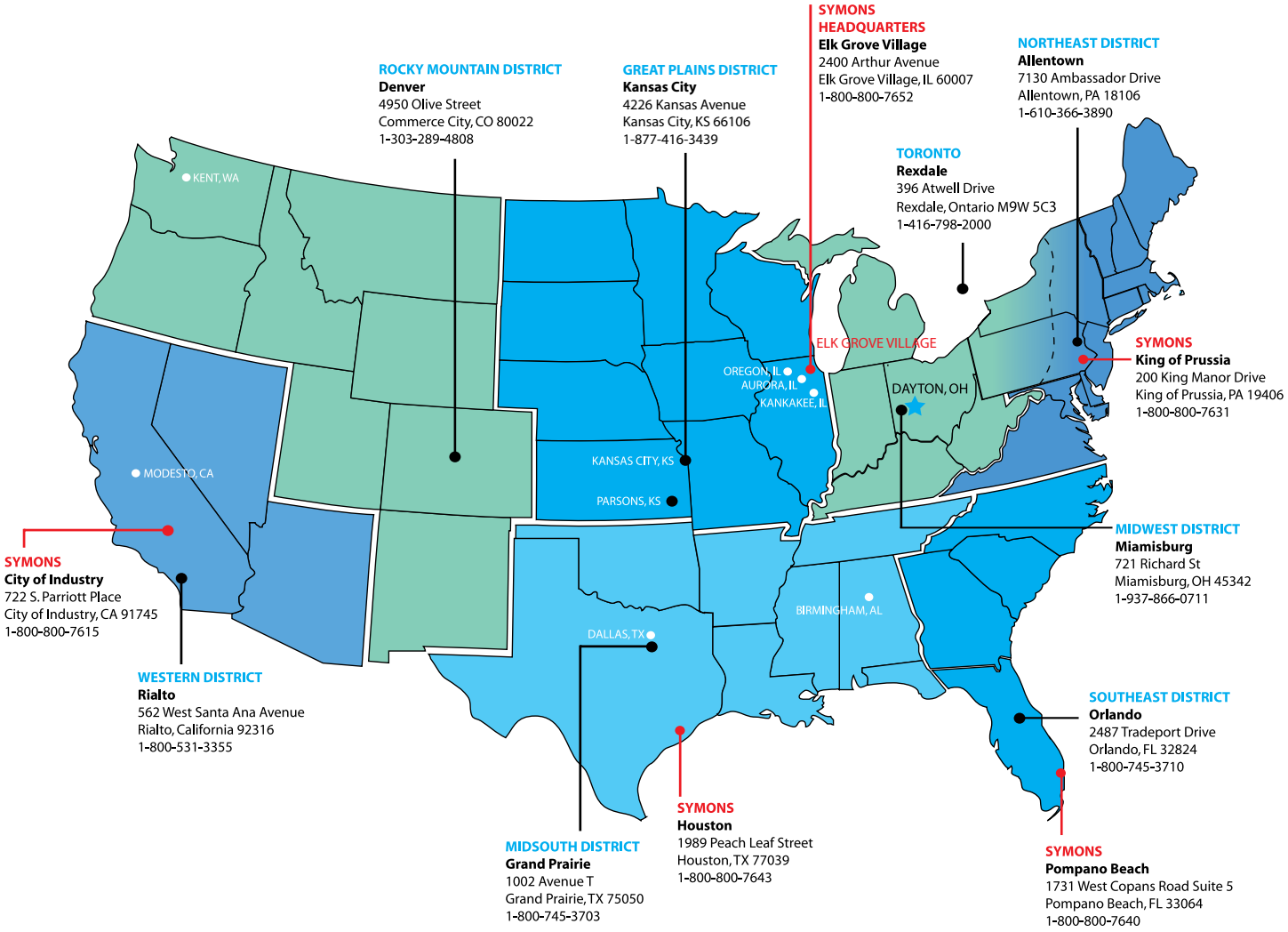
4. **Shear bolts?** The shearing off of the bolt-heads simply confirms adequate torque has been achieved.

5. **Bar-ends?** Rebar may be shear cut, flame cut, or sawn and generally does not require any special bar-end preparation for use with Bar-Lock couplers.

NOTES

DAYTON SUPERIOR | SYMONS BY DAYTON SUPERIOR

We have the most complete dealer network in North America.
For the dealer nearest your project, simply call the office in your region.



SYMONS HEADQUARTERS
Elk Grove Village
2400 Arthur Avenue
Elk Grove Village, IL 60007
1-800-800-7652

ROCKY MOUNTAIN DISTRICT
Denver
4950 Olive Street
Commerce City, CO 80022
1-303-289-4808

GREAT PLAINS DISTRICT
Kansas City
4226 Kansas Avenue
Kansas City, KS 66106
1-877-416-3439

NORTHEAST DISTRICT
Allentown
7130 Ambassador Drive
Allentown, PA 18106
1-610-366-3890

TORONTO
Rexdale
396 Atwell Drive
Rexdale, Ontario M9W 5C3
1-416-798-2000

SYMONS
King of Prussia
200 King Manor Drive
King of Prussia, PA 19406
1-800-800-7631

MIDWEST DISTRICT
Miamisburg
721 Richard St
Miamisburg, OH 45342
1-937-866-0711

SYMONS
City of Industry
722 S. Parriott Place
City of Industry, CA 91745
1-800-800-7615

WESTERN DISTRICT
Rialto
562 West Santa Ana Avenue
Rialto, California 92316
1-800-531-3355

SOUTHEAST DISTRICT
Orlando
2487 Tradeport Drive
Orlando, FL 32824
1-800-745-3710

SYMONS
Houston
1989 Peach Leaf Street
Houston, TX 77039
1-800-800-7643

MIDSOUTH DISTRICT
Grand Prairie
1002 Avenue T
Grand Prairie, TX 75050
1-800-745-3703

SYMONS
Pompano Beach
1731 West Copans Road Suite 5
Pompano Beach, FL 33064
1-800-800-7640

DAYTON SUPERIOR CORPORATION
7777 WASHINGTON VILLAGE DRIVE, SUITE 130
DAYTON, OH 45459
PHONE: 937-428.6360

TOLL FREE CORPORATE: 877-632.9866
TOLL FREE CUSTOMER SERVICE: 888- 977.9600
TOLL FREE TECHNICAL SERVICE: 877-266.7732
FAX: 937-428.9560