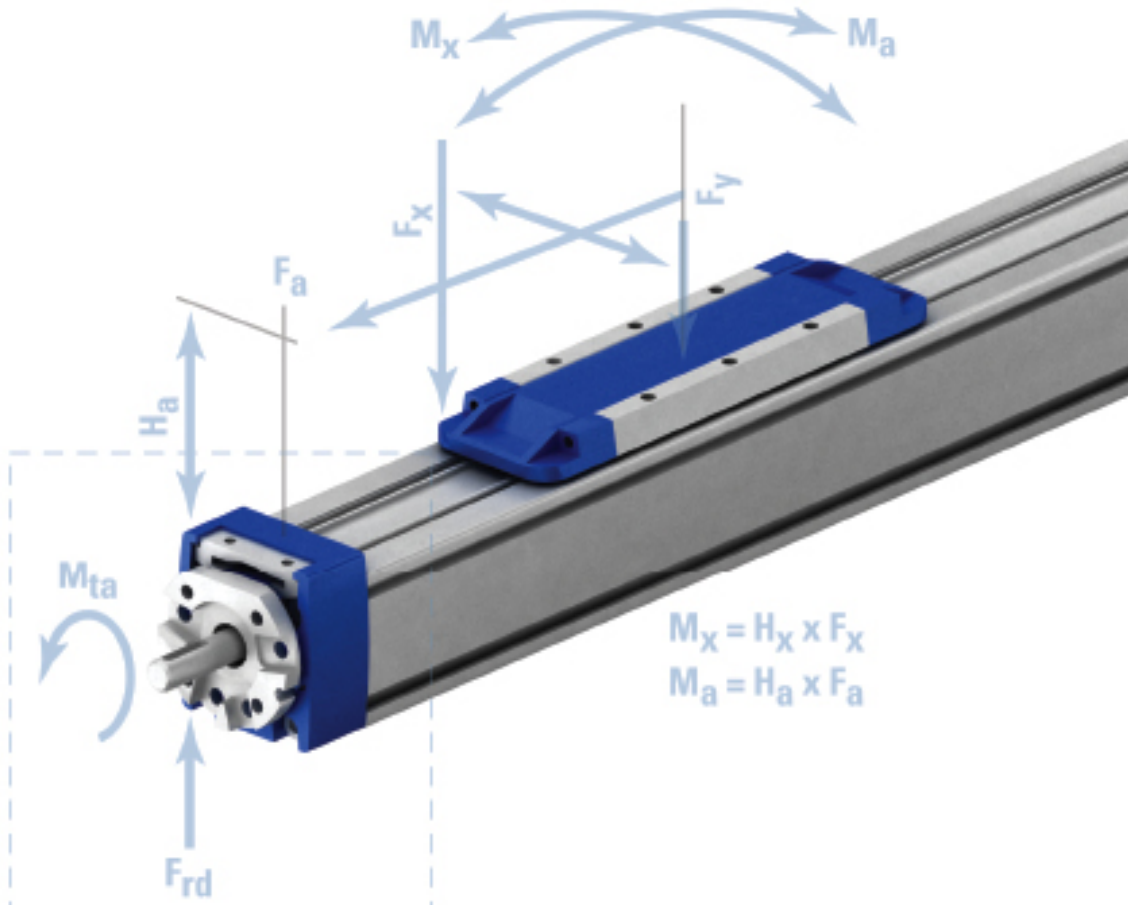


THOMSON

Linear MOTIONEERING®

User's Guide

07/2007

DANAHER MOTION

*Helping you build a better machine, **faster.***

Previous Versions:

Edition	Remarks
07/07	First Edition

Linear MOTIONEERING® is a registered trademark of Danaher Motion

All rights reserved. No part of this work may be reproduced in any form (by printing, photocopying, microfilm or any other method) or stored, processed, copied or distributed by electronic means without the written permission of Danaher Motion.

1 **GENERAL INFORMATION** **4**

1.1 ABOUT THIS USER'S GUIDE 4
1.2 GENERAL NAVIGATIONAL INSTRUCTIONS FOR USING THIS WEB TOOL 4
1.3 SAVING AND MANAGING APPLICATION DATA – MY ACCOUNT SCREEN 4
1.3.1 Log-in Screen *4*
1.3.2 My Account *6*

2 **BEGIN USING LINEAR MOTIONEERING®** **9**

SIZING AND SELECTION 9
2.2 CONFIGURATION AND QUOTING 9
2.3 LINEAR MOTIONEERING® SITE FLOWCHART 10

3 **SIZING AND SELECTION** **11**

3.1 MECHANICAL SYSTEM DESIGN 11
3.1.1 System Orientation (Step 1 Screen 1) *11*
3.1.2 Mounting Configurations (Step 1 Screen 2) *11*
3.1.3 Positioning Requirements (Step 2) *12*
3.1.4 Environmental Condition (Step 3) *14*
3.1.5 Load Requirements (Step 4) *17*
3.1.6 Move Profile (Step 5) *18*
3.1.7 Parameter Review (Step 6) *19*
3.2 CHOOSE YOUR SOLUTION 20
3.2.1 Review Solutions, Edit Requirements and Select System (Step 7) *20*
3.2.2 Review Your System Specifications (Step 8) *20*
3.3 VIEW AND DOWNLOAD SYSTEM MODELS 25

4 **CONFIGURATION AND QUOTING** **26**

4.1 SELECT PRODUCT FAMILY 26
4.1.1 Select the System you wish to configure *26*
4.1.2 Configure your System or select a different system *26*
4.1.3 View and Download System Models *26*
4.1.4 Lookup by Part Number *27*

5 **CONFIGURE YOUR SYSTEM OR SELECT A DIFFERENT SYSTEM** **27**

6 **FURTHER SUPPORT** **28**

6.1 3D CAD MODEL 28
6.2 REQUEST A QUOTE 29
6.2.1 Login ID Required *29*
6.2.2 Request a Quote Screen *29*
6.3 PRINTABLE APPLICATION PAGE 29
6.4 SAVE APPLICATION 29
6.5 EXIT MOTIONEERING 29

7 **APPENDICES** **30**

7.1 APPENDIX A: FREQUENTLY ASKED QUESTIONS 30
7.2 APPENDIX B: PART NUMBER DESCRIPTION 34
7.3 APPENDIX C: ENVIRONMENTAL CONDITIONS CUSTOM OPTIONS 41

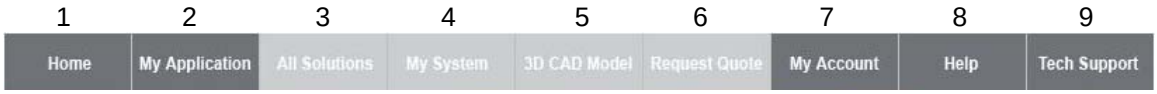
1 General Information

1.1 *About this User's Guide*

This document provides a step-by-step procedure for using the Linear MOTIONEERING® software tool. Each screen of the tool is explained and user response options are clarified.

- This symbol is used throughout this guide to alert the user to helpful information.
- This symbol is used throughout this guide to warn the user of critical information.

1.2 *General navigational instructions for using this web tool*



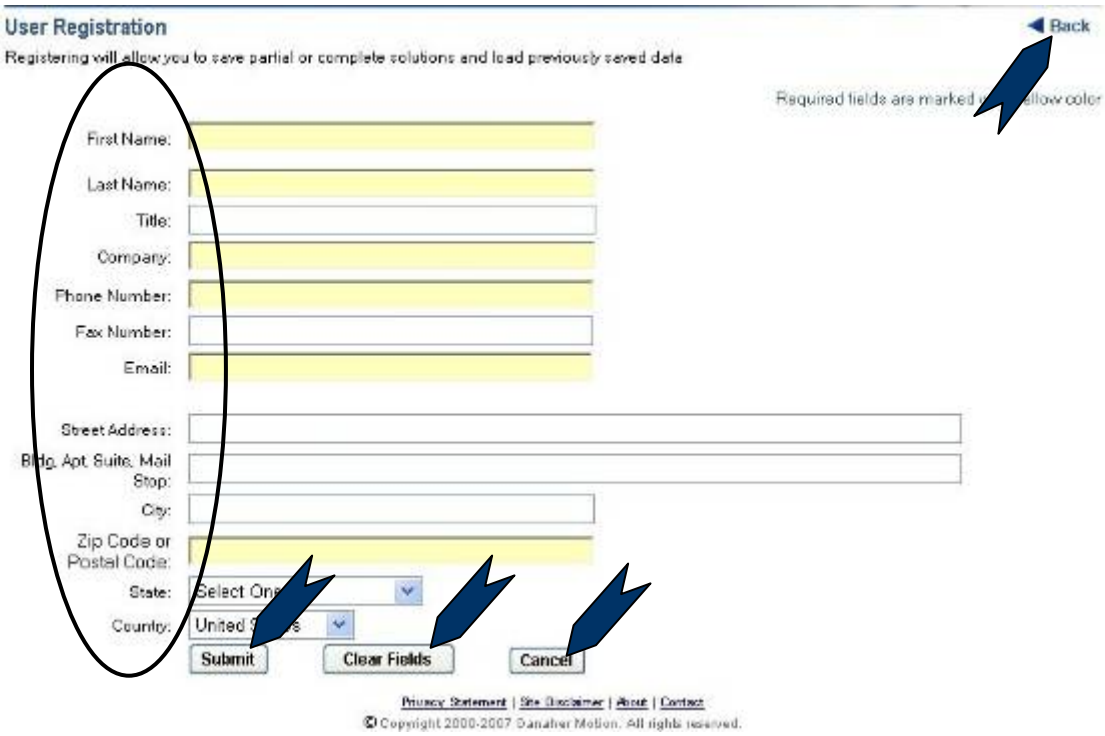
- The navigation bar at the top of your screen can be used to access the 1) Linear MOTIONEERING® Home Page, 2) your application in progress, 3) all the solutions that meet your application requirements, 4) your selected system from the solution set, 7) your account setup and preference configuration, 8) Linear MOTIONEERING® program help, and 9) technical support contact information. Clicking on the various dark gray headers will take you to the desired screen. When headers are light gray, they are unavailable.
- To move to the next screen, click the CONTINUE button. To move back to a previously viewed screen, click the Back button of your web browser or the BACK button in the upper right of the screen (if available).
- If clicking the CONTINUE button does not move you to another screen, check the current screen for an error message. You might have to scroll down to see the message. The error message will prompt you for more information or to correct information entered.
- To use a drop-down list box, click the arrow to the right of the selection box. This will display a list of available options. Select the desired option from the list by clicking on it.
- To select an option from a bulleted list, click on the circle next to the desired option.
- To enter a value in a value box, click on the box to place your cursor inside, then type your desired value. Do not enter units such as "lbf" or "mm" in a value box. These can be selected from drop-down list boxes to the right of the value boxes when applicable.
- When viewing a table list there may be some list items out of view. To view these items, click the arrows on the vertical or horizontal scroll bar or click and drag the bar to the desired location.
- If an option is grayed out it is either unavailable or inapplicable for your chosen system, or it is the only option and may not be modified.

1.3 *Saving and Managing Application Data – My Account Screen*

Application data may be saved any time after the completion of Step 1. To do so, click SAVE CURRENT DATA located at the bottom of the side menu to the left of each step.

1.3.1 Log-in Screen

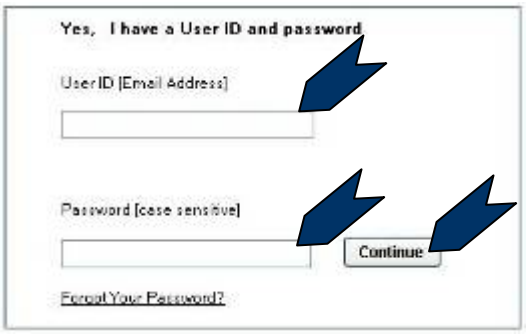
- New accounts: To create an Linear MOTIONEERING® account, click the CONTINUE button in the box headed 'No, I need to create a User ID and Password'.



Enter user information in the appropriate fields. Information in the yellow fields is required. When finished, click SUBMIT. Clicking CLEAR FIELDS will delete all user information from the page. Clicking CANCEL will clear all information and return the user to the log-in screen. To return to the previous screen, use the web browser's Back button, BACK at the upper right of the current screen, or the MY APPLICATION tab.

Linear MOTIONEERING® uses the email address as a UserID and will not allow the creation of duplicate accounts with the same email address. To request a password reminder refer to the instructions below.

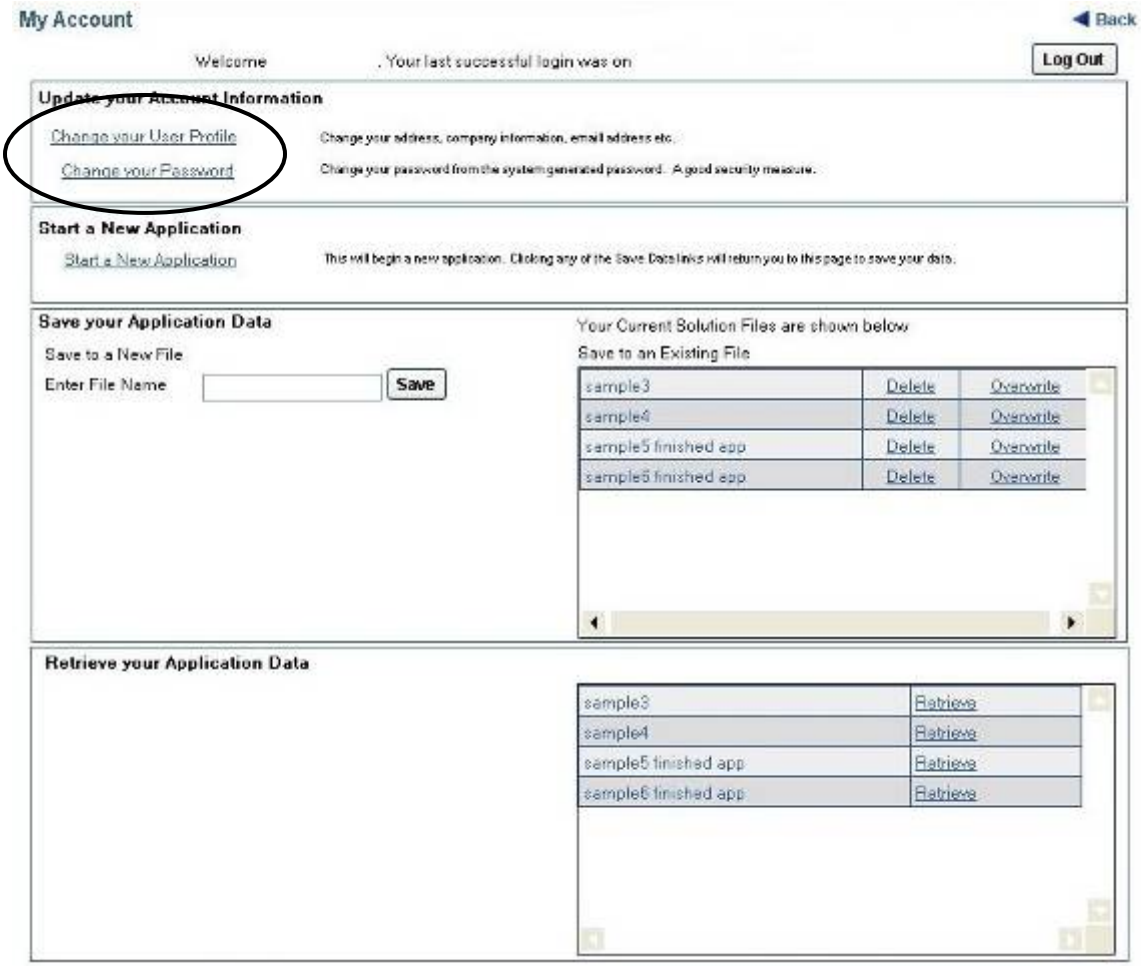
- Existing accounts: Enter UserID (user's complete email address) and password, then click CONTINUE.



Passwords are case sensitive. For a password reminder click FORGOT YOUR PASSWORD? and follow the prompts. Linear MOTIONEERING® will send the correct password to the email address specified. Click RETURN TO LOGIN PAGE to log in.

1.3.2 My Account

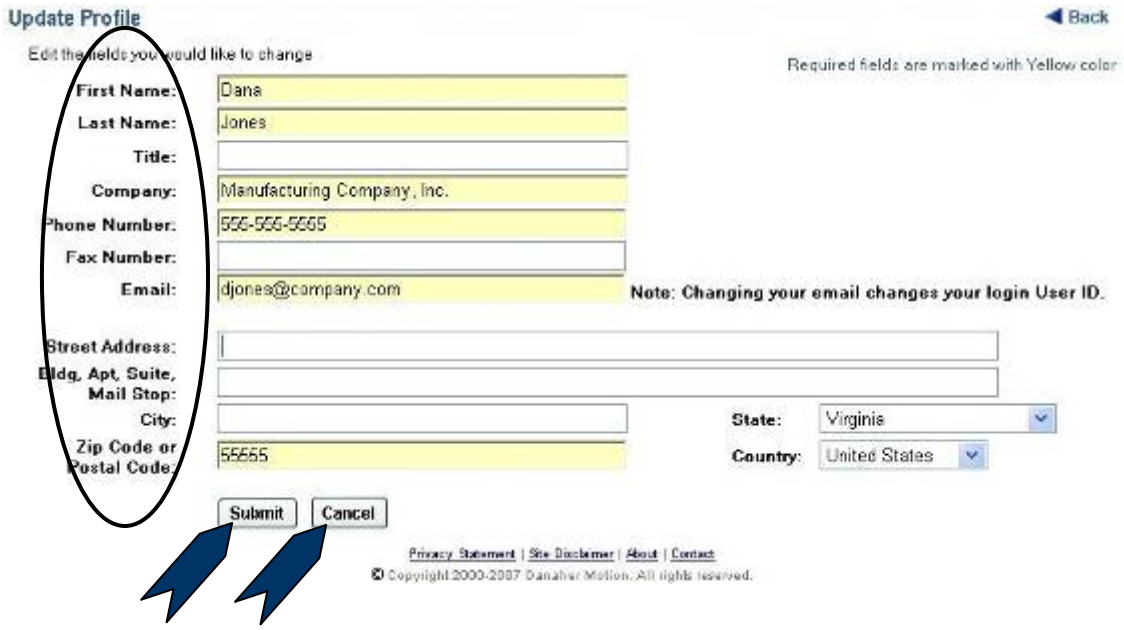
This screen allows users to change account information, start a new application, and save and retrieve application data.



If a session is inactive for 45 minutes Linear MOTIONEERING® will generate an error message. All unsaved data will be lost. Click BEGIN NEW SOLUTION to return to the Linear MOTIONEERING® Home Page.

1.3.2.1 Update your Account Information

- Clicking CHANGE YOUR USER PROFILE will open a screen headed 'Update Profile'. Information in yellow fields is required.

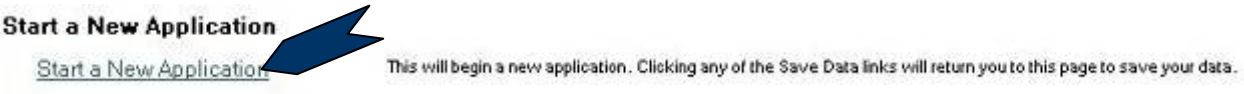


Linear MOTIONEERING® uses the email address as a UserID for the account. Changing the address results in changing the UserID. Account password remains the same.

Click SUBMIT to save changes and return to the 'My Account' page. Click CANCEL to cancel changes and return to the 'My Account' page.

- Click CHANGE YOUR PASSWORD to create a new password. Passwords are case sensitive. Click SUBMIT to save the revised password. To exit without saving the revised password return to the 'My Account' screen by clicking either the Back button on your web browser or BACK at the upper right of the Linear MOTIONEERING® screen.

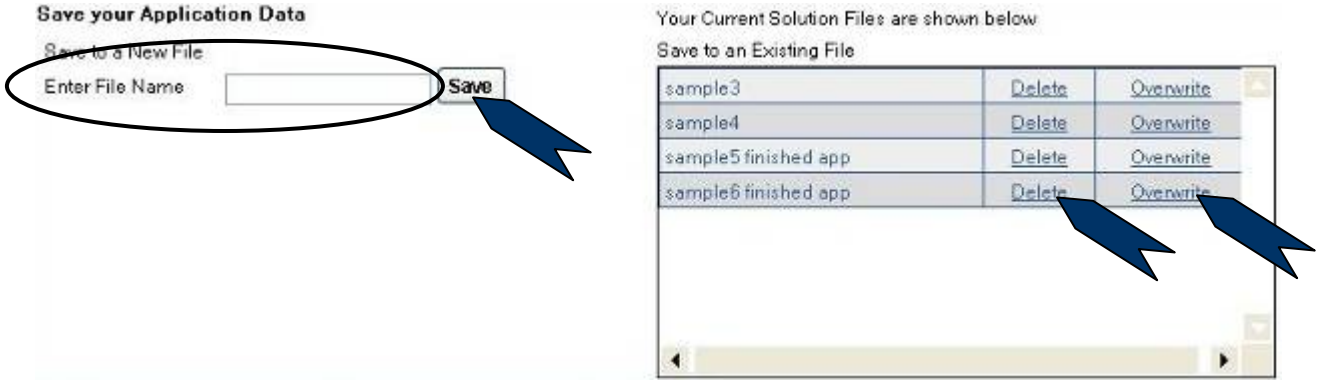
1.3.2.2 Start a New Application



- Clicking START A NEW APPLICATION opens the Linear MOTIONEERING® Home Page. (Refer to section 2 of this user guide for instructions on beginning a new selection process). Applications may be saved after completing Step 1 of the process by clicking SAVE CURRENT DATA or by clicking the MY ACCOUNT tab. This will return you to the 'My Account' screen. Refer to section 1.3.2 of this user guide for details.

1.3.2.3 Save Your Application Data

This section of the 'My Account' screen allows the user either to save an application to a new file or save it as an update to an existing file. Files may also be deleted.



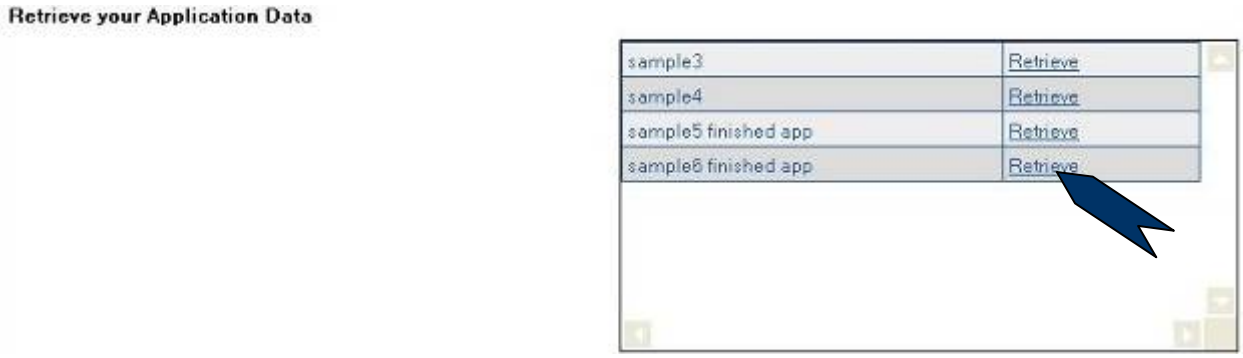
- To save an application to a new file, enter a file name in the value box and click SAVE. The saved application will appear in the list box to the right and a confirmation message will appear below.
- To save an application to an existing file, click OVERWRITE in the row next to the file name. A confirmation message will appear below.

Do NOT enter a File Name in the value box if you wish to overwrite an existing file.

- To delete an existing application file, click DELETE in the row next to the file name.

Linear MOTIONEERING® will NOT prompt for confirmation before deleting the file. After deleting the file a confirmation message will appear below.

1.3.2.4 Retrieve Your Application Data



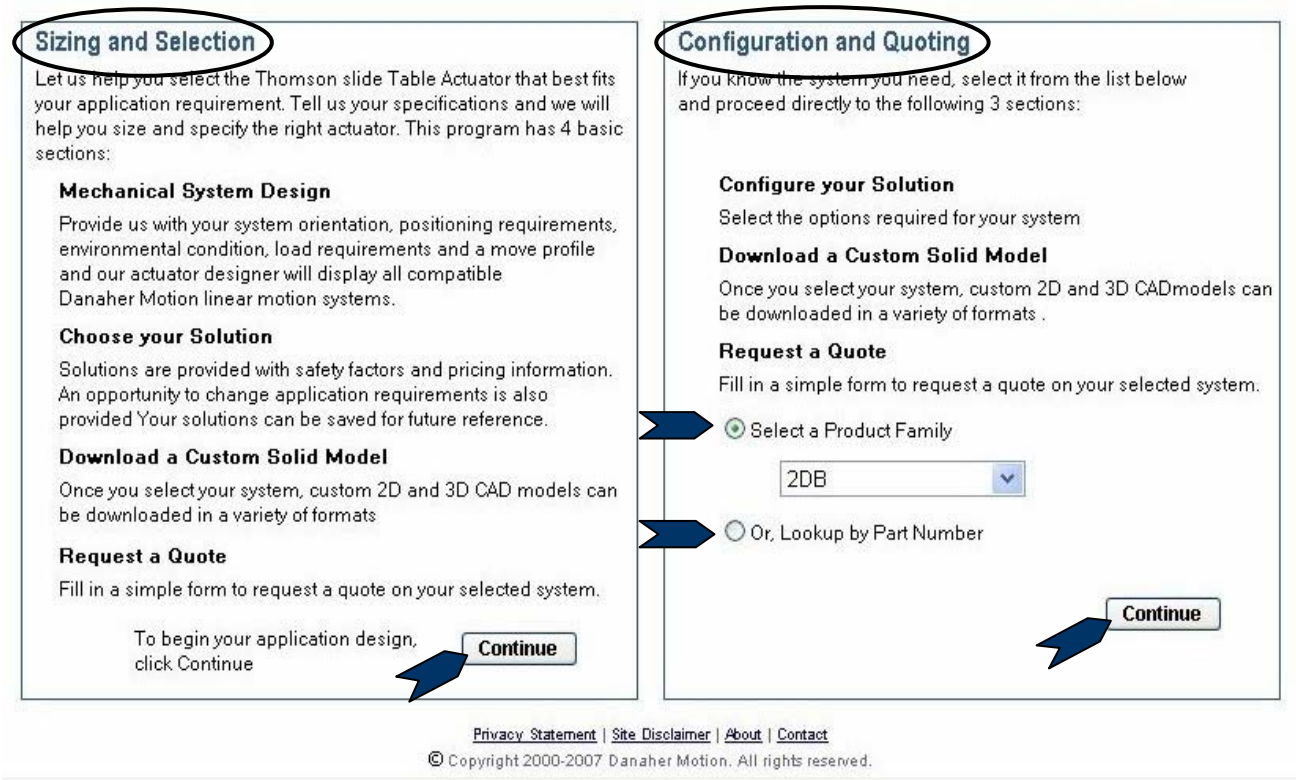
- To retrieve an existing application file, click RETRIEVE in the row next to the file name. Linear MOTIONEERING® will return you either to Step 6 of your application or to the most recently completed screen prior to Step 6.

1.3.2.5 Finish

- To log out and return to the last Linear MOTIONEERING® application design screen, click FINISH.

2 Begin Using Linear MOTIONEERING®

This screen is the starting point for two different selection processes: 1) *Sizing and Selection,* or 2) *Configuration and Quoting*.



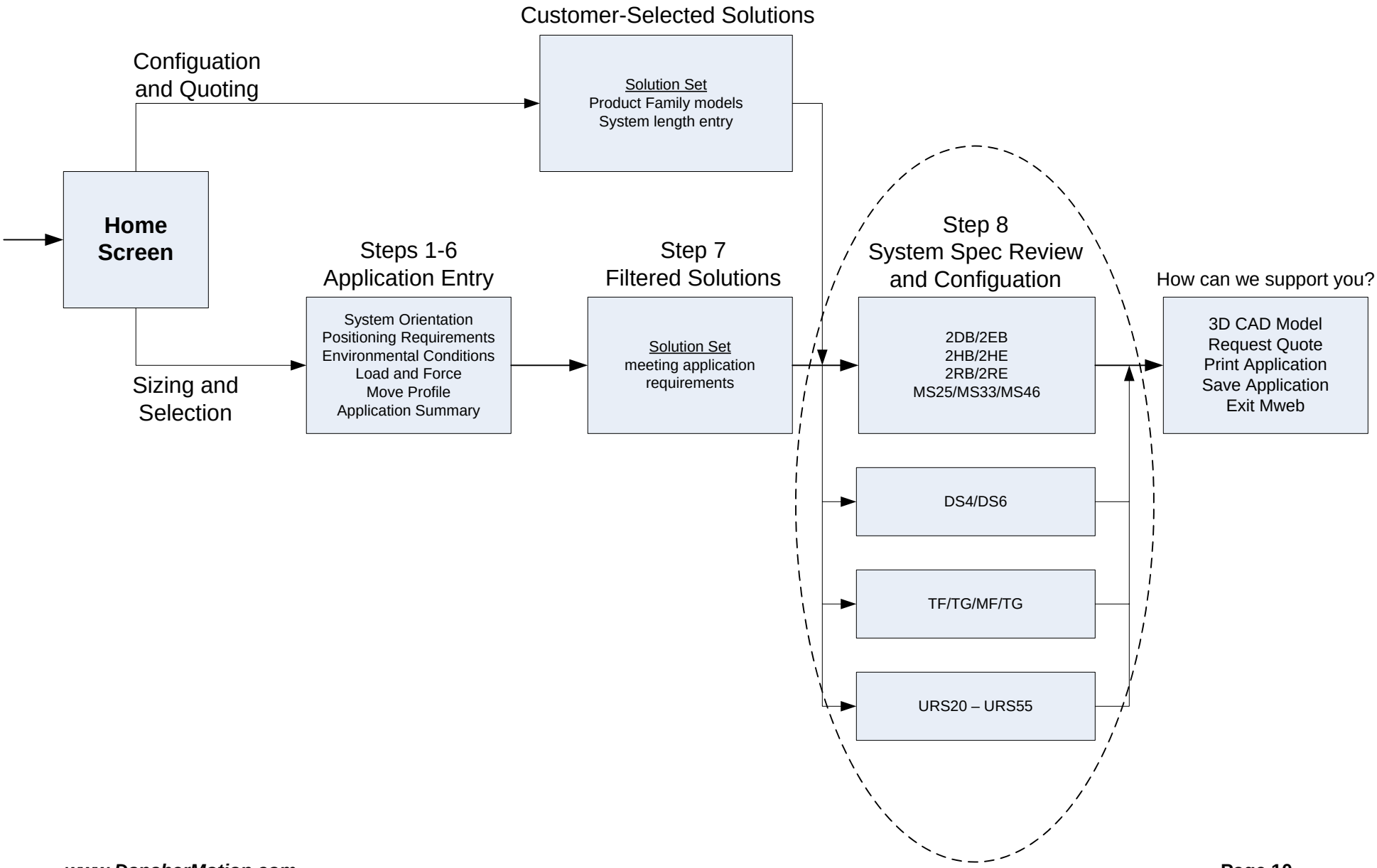
2.1 *Sizing and Selection*

The Sizing and Selection option allows the user to enter application sizing information. Linear MOTIONEERING® filters product choices based on application data entries. Users may choose from a list of applicable products, create and download 2D and 3D CAD drawings, access catalog data, request a quote, save the application for future reference or modification, or print the specifications. To choose this option, click CONTINUE. Refer to section 3 of this user guide for step by step instructions.

2.2 *Configuration and Quoting*

The Configuration and Quoting option is a shortcut for those already familiar with Danaher Motion products. Models can be searched by product family or by part number. This option allows the user to download custom 2D and 3D CAD models in a variety of formats and request a quote. To search from a list of products, select the product family from the drop-down list box, then click CONTINUE. To search by part number, click LOOKUP BY PART NUMBER, then click CONTINUE. Refer to section 4 of this user guide for continued instructions.

2.3 *Linear MOTIONEERING® Site Flowchart*



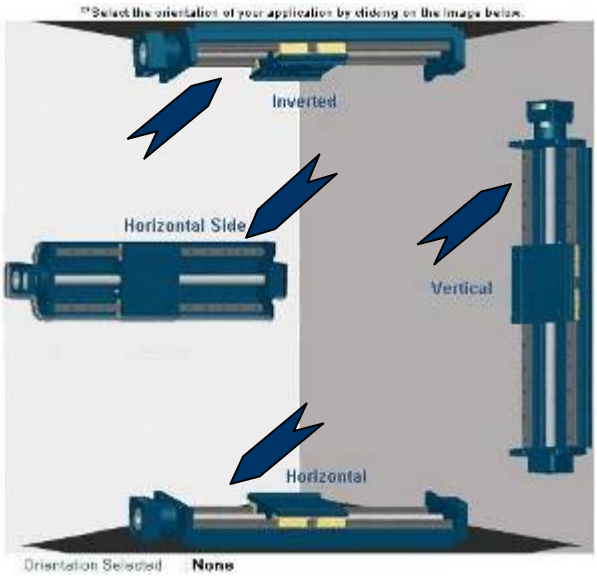
3 Sizing and Selection

3.1 *Mechanical System Design*

3.1.1 System Orientation (Step 1 Screen 1)

Click on one of the four images that best fits the orientation of your application.

Application data can be saved as early as completion of this initial Step 1.

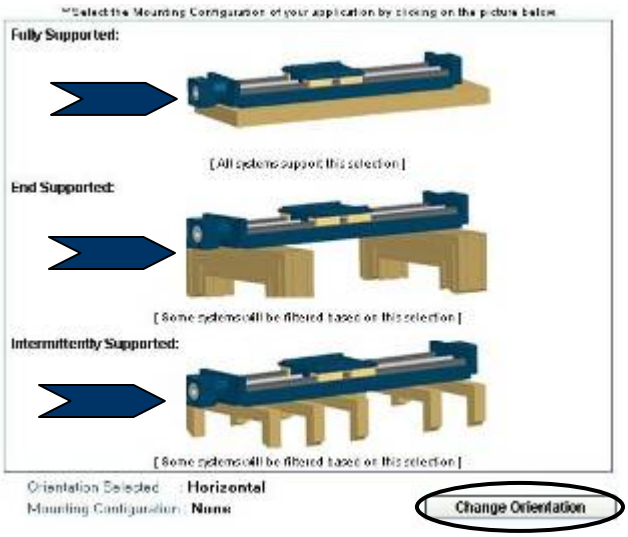


3.1.2 Mounting Configurations (Step 1 Screen 2)

This screen describes up to three possible mounting configurations depending on system orientation:

- Fully Supported: A linear system whose base is continuously supported for its entire slide length. Selecting this option does not filter out any systems.
- End Supported: A linear system supported by only two supports located towards the ends of the slide. This system is designed to span a gap and be self supporting in the application. Clear span distance and end support widths will be required for entry in the steps following.

Only Movopart (TG/TF) and Rapidtrak (MG/MF) units are available in this support type. Selecting this option will remove all other systems from consideration.



- Intermittently Supported: A system usually requiring relatively long lengths where full or end support is impractical. The greatest span distance between any two adjacent supports will be required for entry in the steps following.

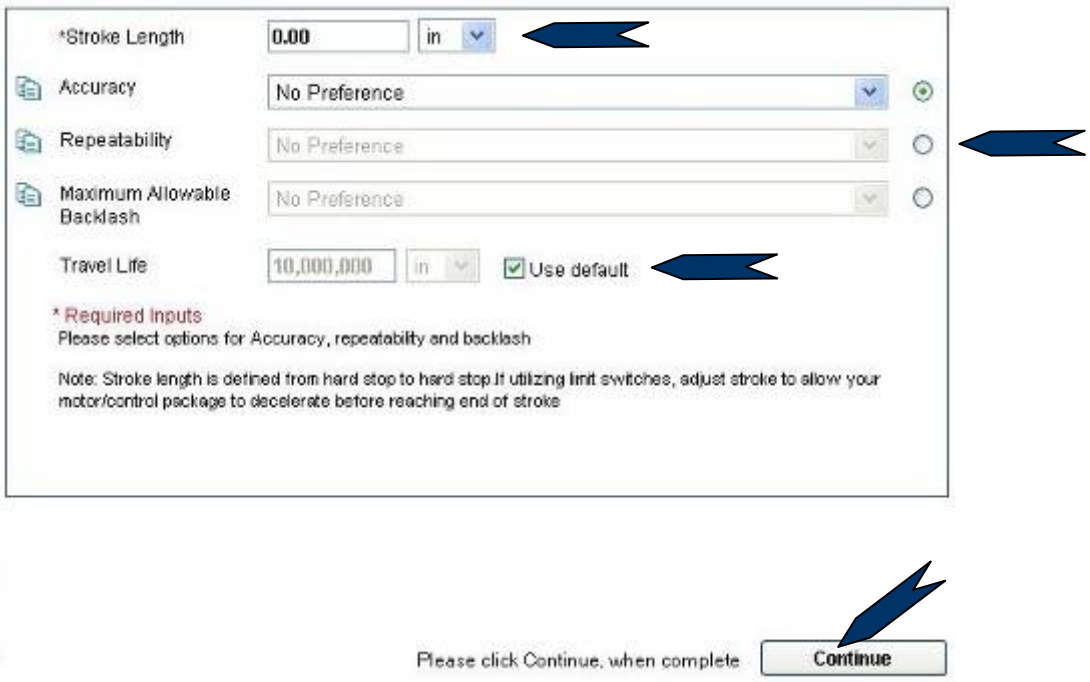
Only Movopart (TG/TF), Rapidtrak (MG/MF), and SuperSlide (RB/RE) units are available in this support type. Selecting this option will remove all other systems from consideration.

Select by clicking on the image that best fits your application or click CHANGE ORIENTATION to return to System Orientation.

Application data can be saved as early as completion of this initial Step 1.

3.1.3 Positioning Requirements (Step 2)

This screen collects information regarding stroke length, accuracy, repeatability, backlash and travel life.



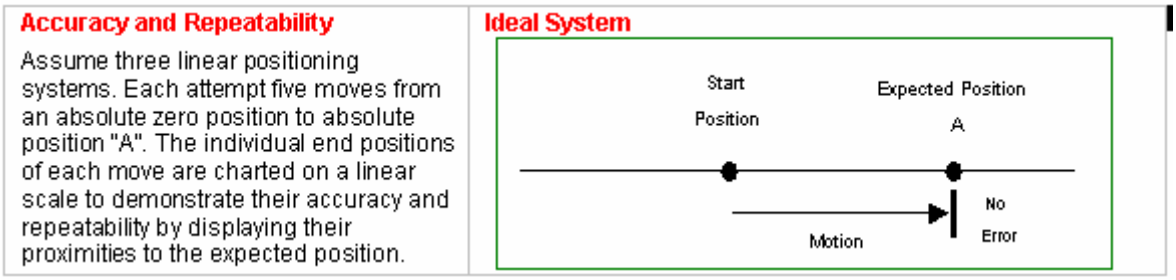
3.1.3.1 Stroke Length

Enter a stroke length and select the unit of measure from the unit selection box. Stroke length is not adjusted for the addition of limit switches or over travel conditions (refer to Appendix A for more details). Adjust stroke length to allow your motor/control package to decelerate before reaching the end of the stroke.

3.1.3.2 Accuracy, Repeatability, Backlash

Decide which of these values is most critical in your application. Select a value range from the selection box. Selecting a range in one box will alter the values in the other two boxes.

- Absolute Accuracy is defined as the maximum error between expected and actual position. Factors include accuracy of the motor/drive system, lead screw pitch error (lead accuracy), and system backlash (drive train, lead screw and nut assembly). See Appendix A for more details.
- Repeatability is defined as the ability of a positioning system to return to a location during operation when approaching from the same direction, at the same speed and deceleration rate. Factors include angular repeatability of the motor/drive system, system friction, and changes in load, speed, and deceleration. See Appendix A for more details.
- Backlash is defined as the amount of play (lost motion) between a set of moveable parts. Factors include lead screw wear (acme), drive train wear, and spaces between moving parts. See Appendix A for more details.

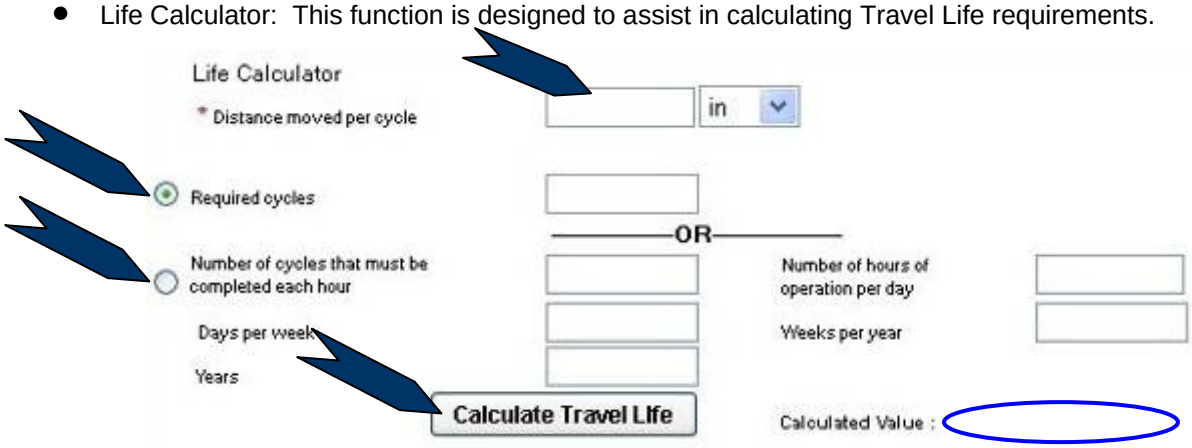


3.1.3.3 Travel

The travel life default setting for all Thomson slides is 10,000,000 inches (255 km). To modify, unclick the check box and enter the desired value. Select the unit of measure from the unit selection box. A LIFE CALCULATOR button (noted below) will also appear for assistance in calculating a value based on known application requirements.

Travel life values below the default will not change the bearing capacities and will yield the same solution set of products as the default. Travel life values above the default cause the program to simulate a bearing capacity change by adjusting your application entries accordingly. This is done internally to the program and will not alter your original entries.

- Life Calculator: This function is designed to assist in calculating Travel Life requirements.

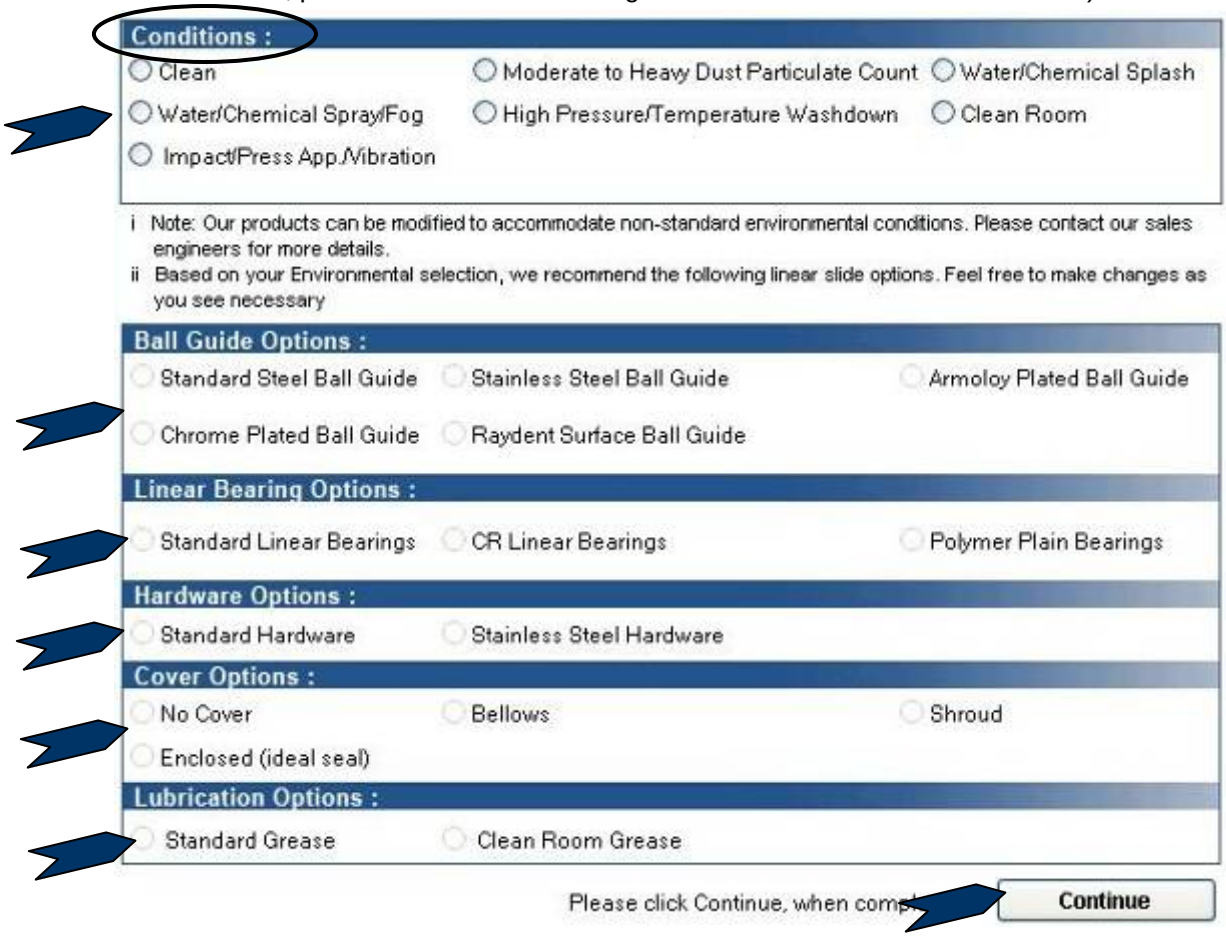


Enter the distance moved per cycle and select the unit of measure from the unit selection box. Enter either a required number of cycles or an hourly number of completed cycles. After these values are entered in the appropriate fields, click CALCULATE TRAVEL LIFE. The calculated value appears in blue towards the right of your screen and is automatically entered in the Travel Life value box above.

To save current data to our database for future retrieval, click SAVE CURRENT DATA in the lower left of the screen. Refer to section 1.3 of this user guide for step-by-step instructions of the saving process. Click CONTINUE to proceed to Step 3 of the Sizing and Selection Process.

3.1.4 Environmental Condition (Step 3)

This screen identifies some of the most common environmental situations that may be encountered and provides option sets based on application environment. (For non-standard environmental conditions other than those shown, please contact our sales engineers for assistance at 540-633-3400).



3.1.4.1 Conditions: Select one of the environmental conditions from the bulleted list. To include all products in the solution set, select the CLEAN condition.

The CLEAN condition is broader in scope than a lab environment setting as it also encompasses a mild shop and production floor environment.

3.1.4.2 Linear Slide Option Sets: Our system pre-selects options based on the environmental condition selected. System defaults may be modified to suit user requirements by clicking on appropriate bullets. Altering selections may change your solution set. The following tables are matrices describing the relationships between the environment conditions, the products, and the options available. Also refer to Appendix A for more information regarding product options.

Options/Environment	Clean	Moderate to Heavy Dust Count	Water Chemical Splash	Water Chemical Spray/Fog	High Pressure / Temperature Washdown	Clean Room	Impact/ Press App/ Vibration ***
Ball Guide Options							
Standard Steel Ball Guide	X	X	X				X
Stainless Steel Ball Guide	X	X	X	X	X	X	X
Armoloy Plated Ball Guide	X		X	X	X	X	X
Chrome Plated Ball Guide	X		X	X	X	X	X
Raydent Surface Ball Guide	X		X	X	X	X	
Linear Bearing Options							
Standard Linear Bearings	X	X	X			X	
CR Linear Bearings			X	X	X	X	
Polymer Plain Bearings		X	X	X	X		X
Hardware Options							
Standard Hardware	X	X	X				X
Stainless Steel Hardware		X	X	X	X	X	X
Cover Options							
No Cover	X				X	X	X
Bellows			X				X
Shroud			X		X	X	X
Enclosed (ideal seal)		X	X	X	X		X
Lubrication Options							
Standard Grease	X	X	X	X	X		X
Clean Room Grease						X	

***Impact/Press App/Vibration column does not apply for Vertical system orientations even though the condition can be selected. A message will occur with No Solution Available.

A green cell denotes the defaults when a condition is selected. A blank cell indicates the option is not available and will be grayed out on the Linear MOTIONEERING® screen.

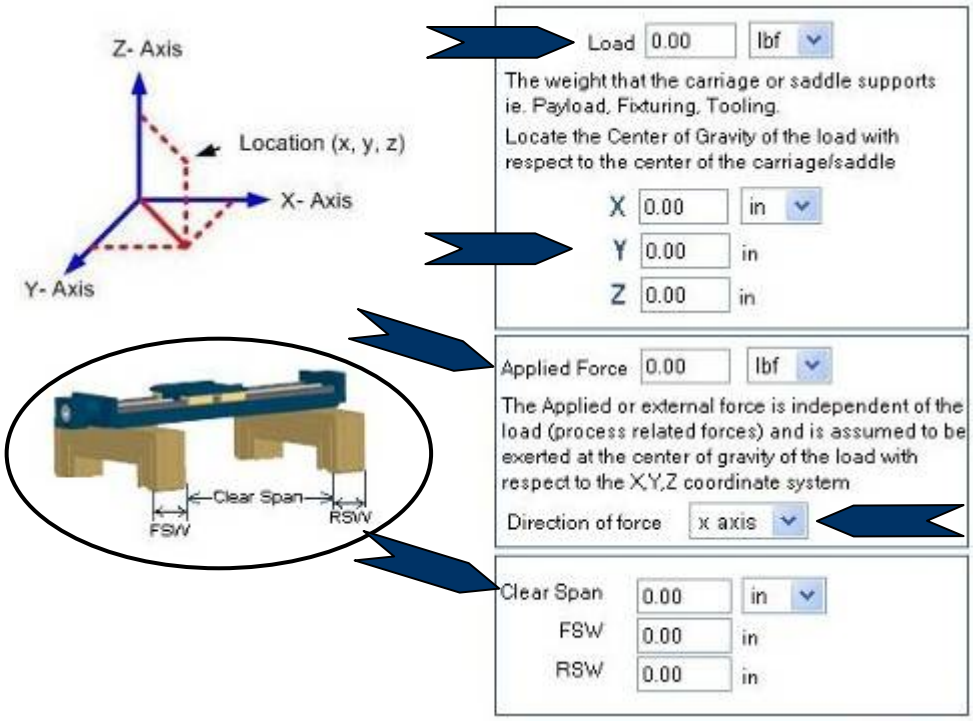
Options/Product Family

	Ball Guide					Linear Bearings			Hardware		Cover				Lubrication	
	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	O14	O15	O16
	Standard Steel	Stainless Steel	Armoloy Plated	Chrome Plate	Raydent Surface	Standard	CR	Polymer	Standard	Stainless Steel	No Cover	Bellows	Shroud	Enclosed	Standard	Clean Room
2DB	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	1
2EB	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	1
MS25	1	1	1	1	0	1	0	0	1	1	1	1	0	0	1	0
MS33	1	1	1	1	0	1	0	0	1	1	1	1	0	0	1	0
MS46B	1	1	1	1	0	1	0	0	1	1	1	0	1	0	1	0
MS46E	1	1	1	1	0	1	0	0	1	1	1	0	1	0	1	0
2RB	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	1
2RE	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	0
2HB	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	1
2HE	1	0	1	0	0	1	0	0	1	1	1	1	1	0	1	0
TF	1	2	0	0	0	1	2	0	1	1	2	2	2	1	1	0
TG	2	2	0	0	0	2	2	1	1	1	2	2	2	1	1	0
MF	1	2	0	0	0	1	2	0	1	1	2	2	1	1	1	0
MG	2	2	0	0	0	2	2	1	1	1	2	2	1	1	1	0
DS4/6	1	1	0	0	0	1	2	0	1	1	2	2	2	1	1	1
URS	1	0	2	2	1	1	0	0	1	1	1	0	1	0	1	1

* Adjustments in calculations will occur in order to accommodate for option fit.
0 – Option not available
1 – Option available
2 – Option not available but selection allowed. A pop-up caution note will occur upon selection of model as shown below:

3.1.5 Load Requirements (Step 4)

This screen requires load and applied force details. End supported or intermittently supported mounting configurations will require maximum support distance entries.



- Load: Enter the weight the carriage or saddle supports in the value box and select the unit of measure from the unit selection box. See Appendix A for more detail.
- Center of Gravity: Locate the center of gravity (or center of mass) of the load with respect to the center of the carriage/saddle (see diagram) and enter the value in the box. Enter the X, Y and Z values in the appropriate boxes and select the unit of measure from the unit selection box.

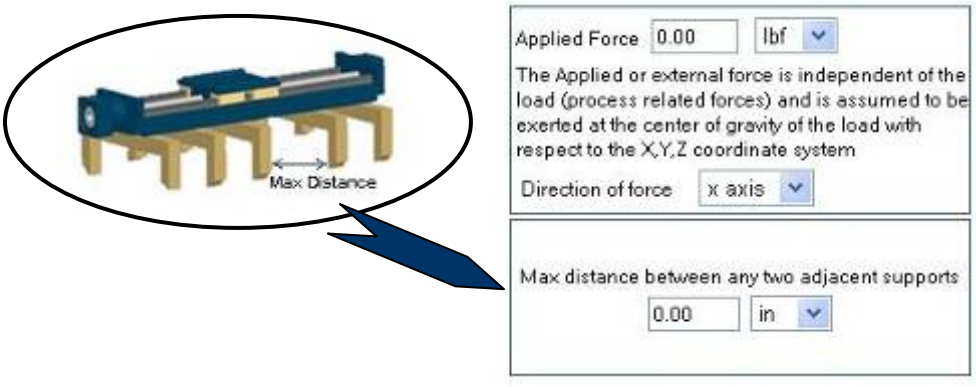
For Horizontal, Horizontal Side, and Inverted System orientations, the X-axis is considered the direction of travel. For the Vertical orientation, the Y-axis extends perpendicular to the face of the carriage while the X-axis is parallel to the face of the carriage.

- Applied Force: Enter the applied force in the value box and select the unit of measure from the unit selection box. The Applied or external force is independent of the load (process related forces) and is assumed to be exerted at the center of gravity (or mass) of the load with respect to the X, Y, Z coordinate system. The system defaults to an X-axis direction of force but can be changed to a Y- or Z-axis by selecting another value from the drop-down list box. Multi-axis applied force must be broken down into its axial components. See Appendix A for more detail.

A negative Applied Force Plane exerts the force toward the center of the Cartesian Coordinate graphic.

Deflection calculations include those generated by the Load and Applied Force (applied in the appropriate force plane). Additionally, deflections occurring from moment loading are considered.

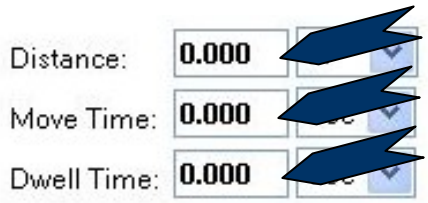
- Clear Span, FSW, RSW: End supported mounting configurations require values for Clear Span, Forward Span Width, and Rear Span Width. Linear MOTIONEERING® calculates System Length in two ways: 1) the stroke entry is added to the combined width of the carriage and both end blocks, and 2) the combined total of the clear span with the FSW and RSW. Only the larger of the two lengths is considered for overall system length.



- Max distance between any two adjacent supports: Intermittently supported mounting configurations require entry of the maximum distance between any two adjacent supports.

To save current data to our database for future retrieval, click SAVE CURRENT DATA. Refer to section 1.3 of this user guide for step-by-step instructions of the saving process. Click CONTINUE to proceed to Step 5 of the Sizing and Selection process.

3.1.6 Move Profile (Step 5)



This screen requires entry of travel distance, move, and dwell times to create an application-specific move profile.

- Distance: Enter travel distance. This value must be smaller than (or equal to) the stroke length entry of Step 3.
- Move Time: Enter move time value. See Appendix A for details on entering a segmented move profile.

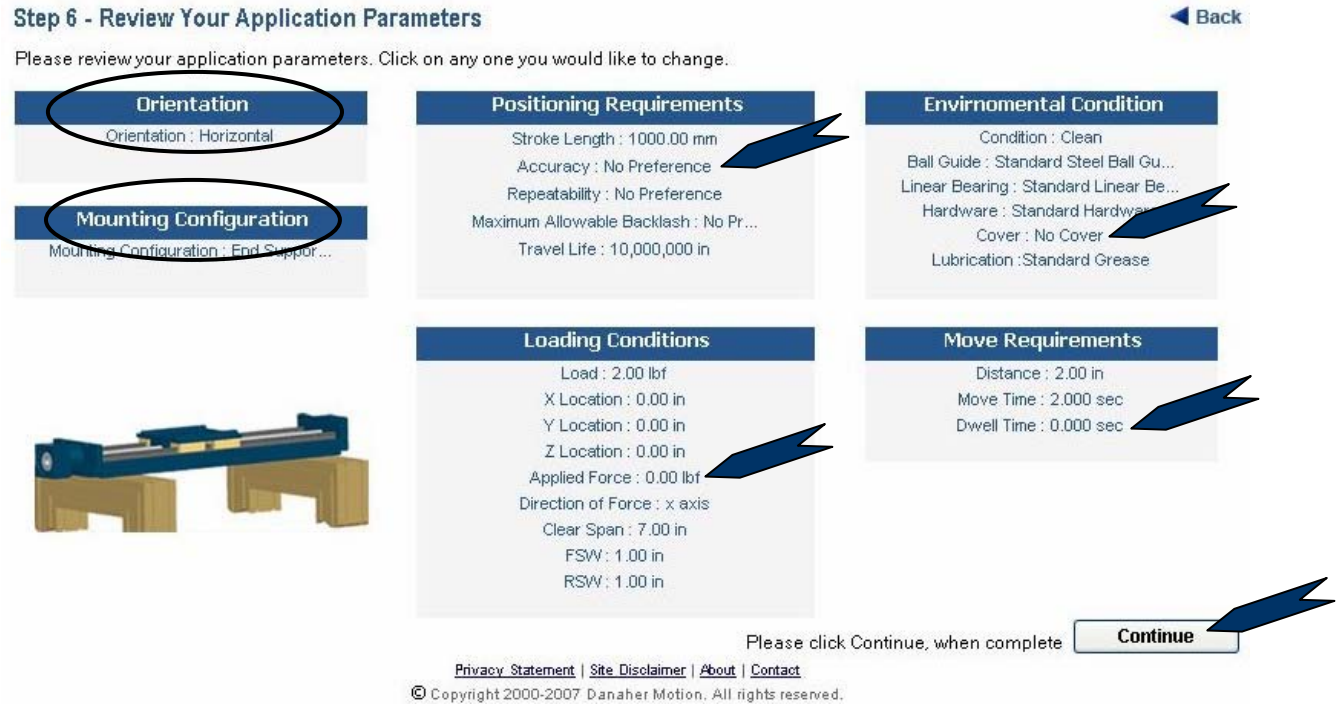
The Distance and Move Time values are not enough information to generate a move profile with a determined acceleration rate. The program will determine an acceleration rate range for each product based on this application data. These calculations also generate maximum and minimum velocities. You will have the opportunity to modify the acceleration rate to fit your application in Step 8.

- Dwell Time: Enter dwell time (i.e., the time the slide is completely at rest). Dwell time is used primarily for motor sizing duty calculations. If left at zero, Linear MOTIONEERING® will assume 100% duty cycle, which will also eliminate some lead screw driven units from the solution set. To assure both lead and ball screw units are a part of the solution set, the duty cycle must be 60% or less.

To save current data to our database for future retrieval, click SAVE CURRENT DATA. Refer to section 1.3 of this user guide for step-by-step instructions of the saving process. Click CONTINUE to proceed to Step 6 of the Sizing and Selection process.

3.1.7 Parameter Review (Step 6)

This screen summarizes application entries and provides an opportunity to make changes.

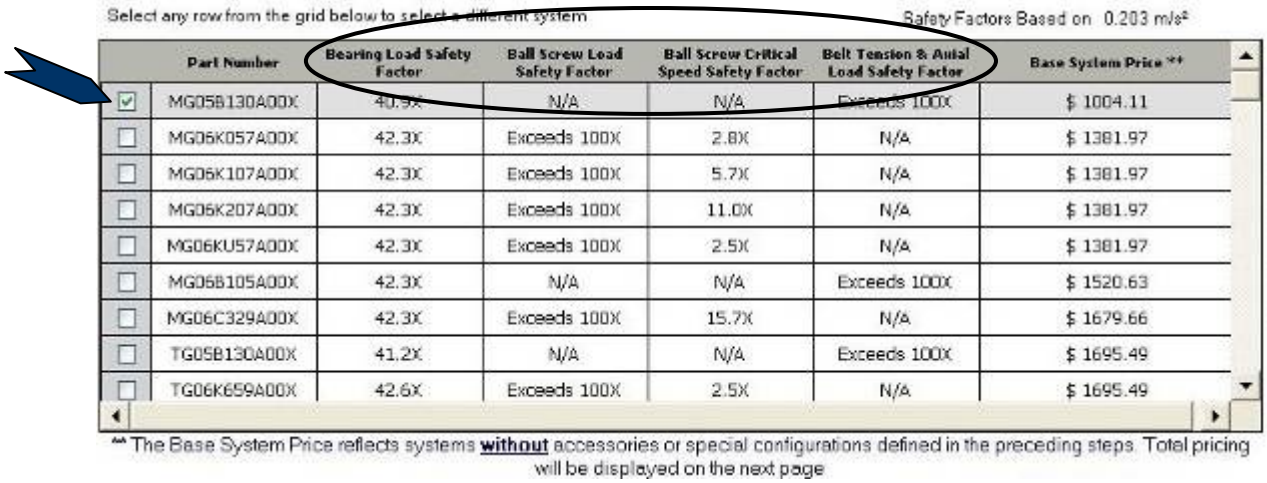


Click on any parameter to return to the relevant screen. Changes to 'Mounting Configuration' or 'System Orientation' require revisiting each remaining screen to modify previous entries. Otherwise, the user is returned directly to 'Parameter Review'. Click CONTINUE when review is complete.

3.2 *Choose Your Solution*

3.2.1 Review Solutions, Edit Requirements and Select System (Step 7)

This screen presents a list of systems meeting previously selected requirements sorted by price.



Select any row from the grid below to select a different system. Safety Factors Based on 0.203 m/s²

	Part Number	Bearing Load Safety Factor	Ball Screw Load Safety Factor	Ball Screw Critical Speed Safety Factor	Belt Tension & Axial Load Safety Factor	Base System Price **
☑	MG05B130A00X	40.9X	N/A	N/A	Exceeds 100X	$ 1004.11
☐	MG06K057A00X	42.3X	Exceeds 100X	2.8X	N/A	$ 1381.97
☐	MG06K107A00X	42.3X	Exceeds 100X	5.7X	N/A	$ 1381.97
☐	MG06K207A00X	42.3X	Exceeds 100X	11.0X	N/A	$ 1381.97
☐	MG06KU57A00X	42.3X	Exceeds 100X	2.5X	N/A	$ 1381.97
☐	MG06B105A00X	42.3X	N/A	N/A	Exceeds 100X	$ 1520.63
☐	MG06C329A00X	42.3X	Exceeds 100X	15.7X	N/A	$ 1679.66
☐	TG05B130A00X	41.2X	N/A	N/A	Exceeds 100X	$ 1695.49
☐	TG06K659A00X	42.6X	Exceeds 100X	2.5X	N/A	$ 1695.49

** The Base System Price reflects systems **without** accessories or special configurations defined in the preceding steps. Total pricing will be displayed on the next page

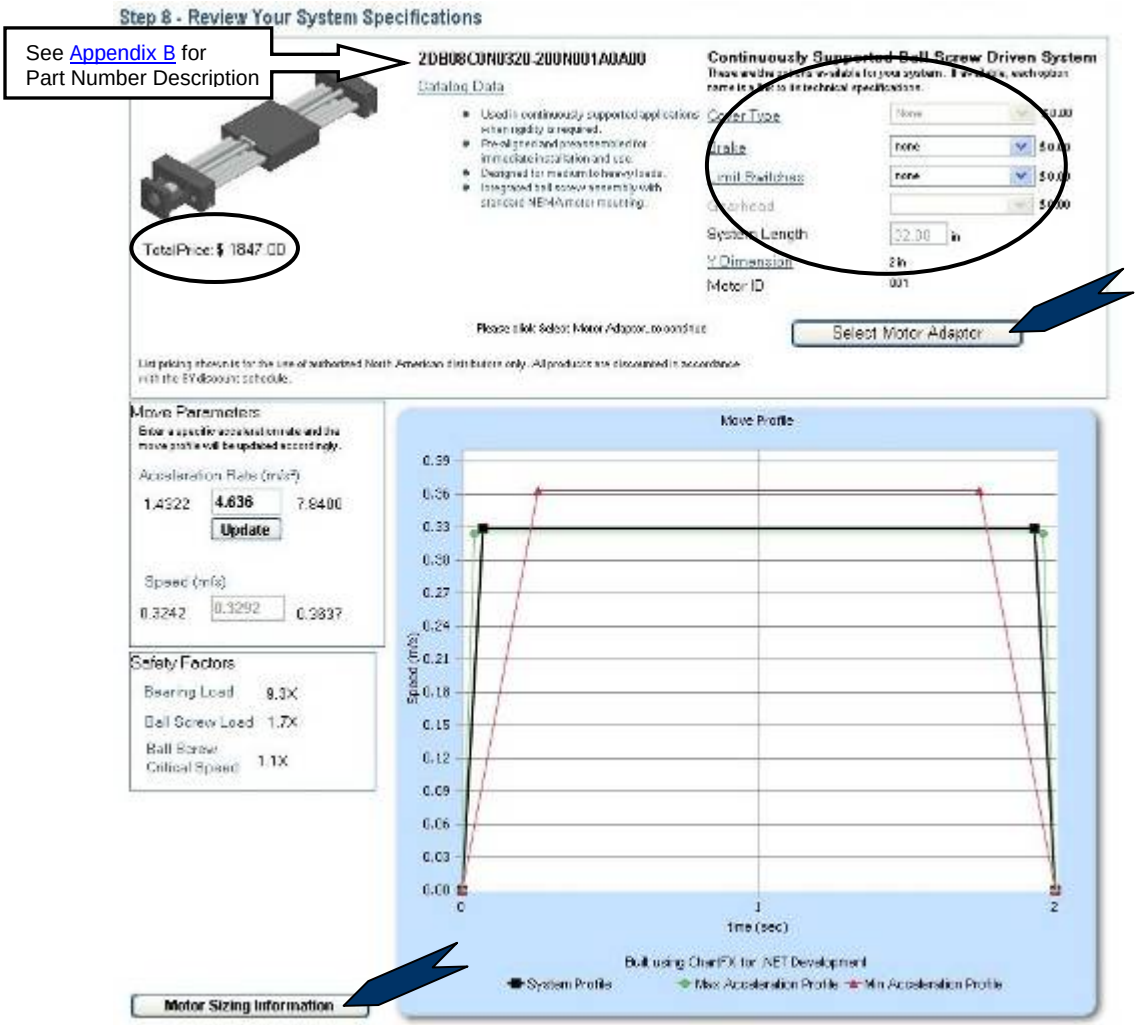
- Safety Factors Definition: A "1x" in a Safety Factor column indicates that the system is at performance capacity. Values above 1x provide the user with a relative value of how much capacity remains, should adjustments to application data need to be made. In most cases, values below 1x eliminate a product model from the solution set.
- Bearing Load Safety Factor: This value represents the total available safety margin for the most heavily loaded bearing in a given slide unit. It is plane specific and considers the results of static load, applied force and acceleration forces generated for appropriate planes and system orientations.
- Ball Screw Load Safety Factor: This value represents the total available safety margin that a ball screw or lead screw driven slide can sustain in an axial plane. Static load, applied force and acceleration forces are considered in the appropriate planes for a given orientation and then compared to radial bearing capacity (axial), ball nut capacity and column loading calculations. The lowest of these three capacities is used to calculate the safety factor.
- Ball Screw Critical Speed Safety Factor: This value represents the available safety margin as framed by the calculation that defines a Ball Screw's critical speed (the point at which it will begin to vibrate and whip [rotationally]. Contributing to this calculation are your requirements as entered in Step 5, the particular units length, lead, diameter and end bearing configuration.
- Belt Tension & Axial Load Safety Factor: This value represents the total available safety margin that a belt driven unit can sustain in an axial direction. Static load, applied force and acceleration forces are considered in the appropriate planes for a given orientation and then compared to that particular unit's Belt Pre-Tension value.

Pricing in this table reflects systems without accessories or special configurations. Select a system from the list and click CONTINUE. There will be opportunities to refine your choice further on the next screen.

3.2.2 Review Your System Specifications (Step 8)

This section of the user guide is arranged by model group based on differences in motor types, slide accessories and pricing associations (refer to the flowchart in section 2.3 for a visual breakdown). Each group has in common a system profile chart based on the user's application entries and the product's performance parameters. To the left of the chart appear the numerical values and ranges from which the chart plots were created. You may choose to vary the acceleration rate to any point within the range and the system plot will change accordingly.

3.2.2.1 2DB, 2EB, 2HB, 2RB, 2HE, 2RE, MS25, MS33, and MS46 Models



3.2.2.1.1 Pricing

For this group of products the total price shown on the screen will update as options are selected (see next point). Motor adapter selections are not included in this total price. Contact Danaher Motion Customer Service (540-633-3400) for motor pricing information.

3.2.2.1.2 Options

Selections can be made from the drop-down lists to the right. A grayed drop-down list indicates that no options are available under that heading for your environmental and application conditions or that there is only one option available and the selection in mandatory. Clicking on active option headings will open an Adobe pdf file in a separate window of the technical specifications.

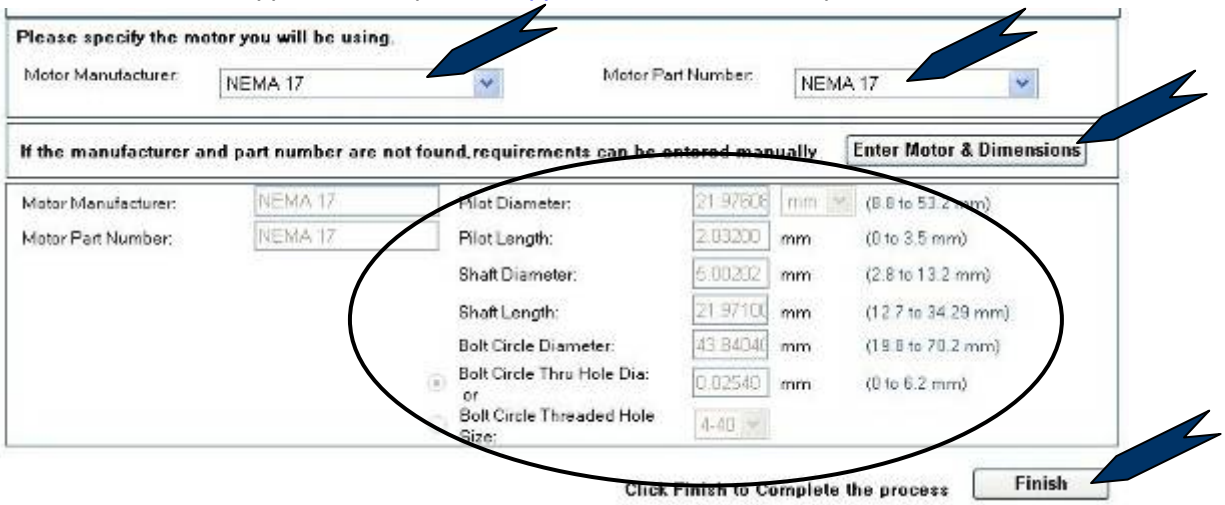
In most cases the System Length will vary somewhat from your application entries by a factor of the Y-Dimension (click to see the Y-Dimension diagram). Linear MOTIONEERING® will adjust the overall length to ensure that the last pair of mounting holes is usable. Refer to Appendix A for more information.

3.2.2.1.3 Motor Sizing Information

For users not selecting a standard optional motor listed in the Select Motor Adapter section, Linear MOTIONEERING® will calculate performance requirements needed for any selected motor based on user application data. To access this feature, scroll down and click the button in the bottom left corner of the screen. Contact Danaher Motion Customer Support (540-633-3400) for further assistance in customer motor sizing.

3.2.2.1.4 Motor Adapter

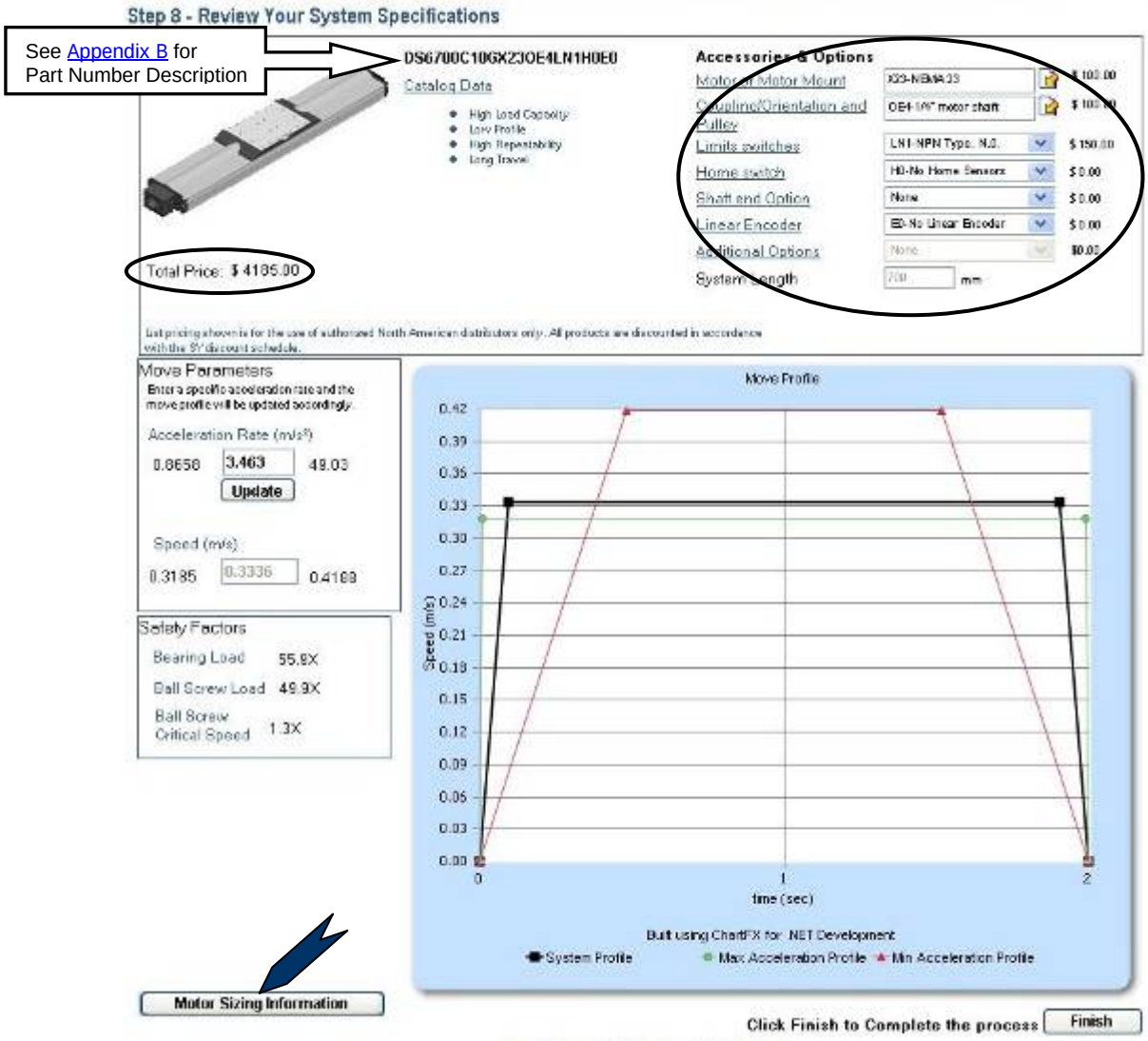
This feature allows the user to select a motor from a list of predetermined motors or to enter specific values for a customer-supplied motor (refer to Appendix A for more detail).



- Select the manufacturer and part number from the drop-down list boxes. The motor and dimensions will appear as grayed values in a list. Click FINISH to complete the process.
- To manually enter values, click ENTER MOTOR AND DIMENSIONS. After all information is entered click VERIFY.

Data must be verified in order to be saved. Saved motor data is not considered application data and will only be retained for your current working session. It will not be saved with the application information.

3.2.2.2 DS4/DS6 Models



3.2.2.2.1 Pricing

For this group of products the total price shown on the screen will update as options are selected (see next section).

3.2.2.2.2 Options & Accessories

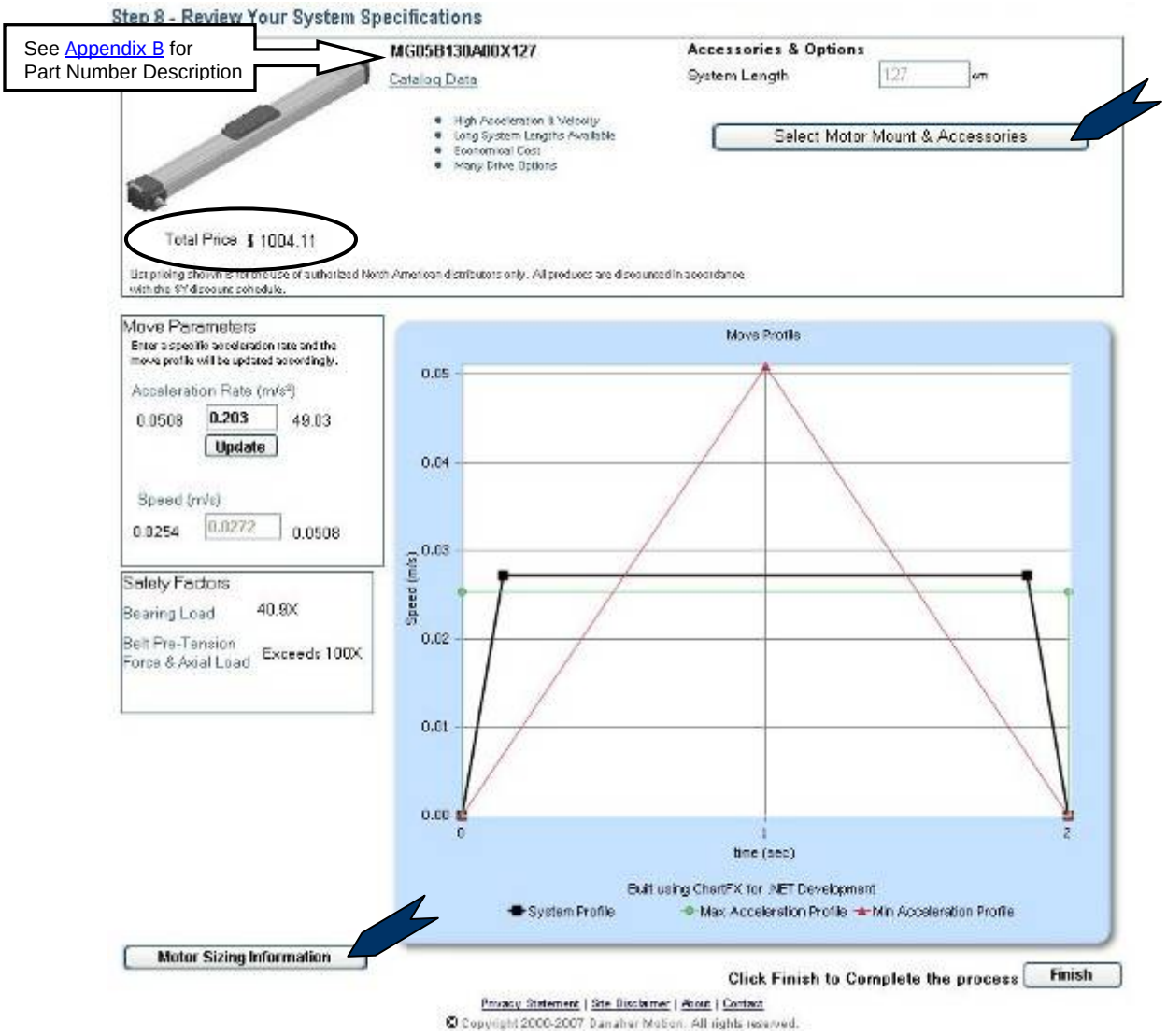
Selections can be made from the drop-down list to the right. A grayed drop-down list indicates that no options are available under that heading for your environmental and application conditions. Clicking on active option headings will open a pdf file of the technical specifications in a separate window.

Clicking this icon will pull up a list of available motors, motor mounts, and couplings.

3.2.2.2.3 Motor Sizing Information

For users not selecting a standard optional motor, Linear MOTIONEERING® will calculate performance requirements needed for any selected motor based on user application data. To access this feature, scroll down and click the button in the bottom left corner of the screen. Contact Danaher Motion Customer Support (540-633-3400) for further assistance in customer motor sizing.

3.2.2.3 TF/TG, MF/MG Models



3.2.2.3.1 Pricing

For this group of products the slide table total price shown on the page will not update as Accessories & Options are selected. The printable application page available at the end of the selection process lists both the slide unit and accessory (per unit) pricing in an itemized format. Contact Danaher Motion Customer Service (540-633-3400) for motor pricing assistance.

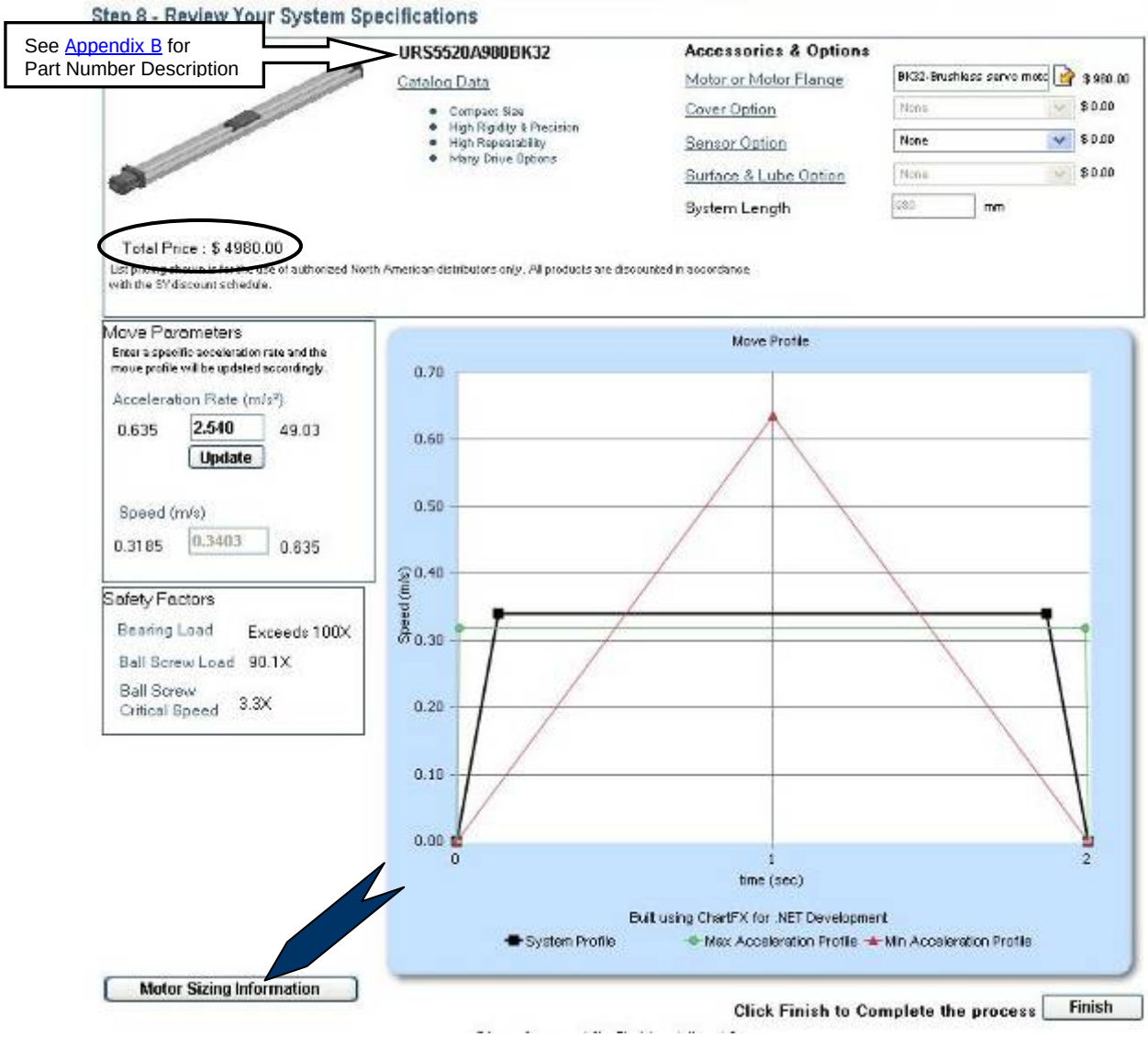
3.2.2.3.2 Options & Accessories

Click the MotorMount & Accessories button to see a page of options and accessories. The number of options available will vary based on the selected unit within this grouping. Make selections by checking boxes or selecting an item from a drop-down list box. Descriptions can be reviewed by clicking next to the name of each option. A grayed drop-down list or empty box indicates that no options are available under that heading.

3.2.2.3.3 Motor Sizing Information

Linear MOTIONEERING® will calculate performance requirements needed for any selected motor based on user application data. To access this feature, scroll down and click the button in the bottom left corner of the screen. Contact Danaher Motion Customer Support (540-633-3400) for further assistance in customer motor sizing.

3.2.2.4 URS20 – URS55 Models



3.2.2.4.1 Pricing

For this group of products the total price shown on the screen will update as options are selected (refer to next section).

3.2.2.4.2 Motor Sizing Information

For users not selecting a standard optional motor, Linear MOTIONEERING® will calculate performance requirements needed for any selected motor based on user application data. To access this feature, scroll down and click the button in the bottom left corner of the screen. Contact Danaher Motion Customer Support (540-633-3400) for further assistance in customer motor sizing.

3.3 ***View and Download System Models - Refer to Section 6.1***

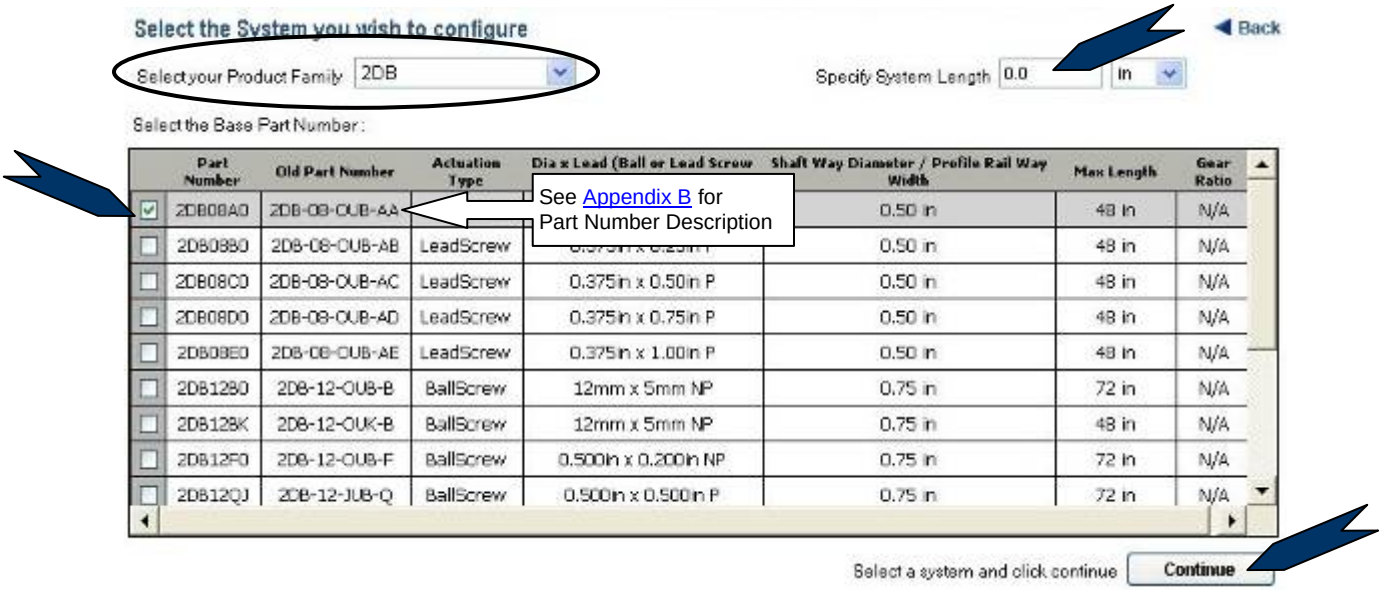
4 Configuration and Quoting

4.1 *Select Product Family*

Select product family from the list and click CONTINUE.

4.1.1 Select the System you wish to configure

This screen requires the user to enter a system length and either choose a system from the list presented or change the original system selection.



Part Number	Old Part Number	Actuation Type	Dia x Lead (Ball or Lead Screw	Shaft Way Diameter / Profile Rail Way Width	Max Length	Gear Ratio
2DB08A0	2DB-08-OUB-AA			0.50 in	48 in	N/A
2DB08B0	2DB-08-OUB-AB	LeadScrew		0.50 in	48 in	N/A
2DB08C0	2DB-08-OUB-AC	LeadScrew	0.375in x 0.50in P	0.50 in	48 in	N/A
2DB08D0	2DB-08-OUB-AD	LeadScrew	0.375in x 0.75in P	0.50 in	48 in	N/A
2DB08E0	2DB-08-OUB-AE	LeadScrew	0.375in x 1.00in P	0.50 in	48 in	N/A
2DB12B0	2DB-12-OUB-B	BallScrew	12mm x 5mm NP	0.75 in	72 in	N/A
2DB12BK	2DB-12-OUK-B	BallScrew	12mm x 5mm NP	0.75 in	48 in	N/A
2DB12F0	2DB-12-OUB-F	BallScrew	0.500in x 0.200in NP	0.75 in	72 in	N/A
2DB12QJ	2DB-12-JUB-Q	BallScrew	0.500in x 0.500in P	0.75 in	72 in	N/A

- Enter system length in the value box (if available).
- Select one system from the list presented.
- If the desired system does not appear in the table, choose a different product family from the drop-down list box. Choosing a different family requires re-entry of system length after Linear MOTIONEERING® refreshes the system list.

System length requirements may not exceed the maximum length of your selected system.

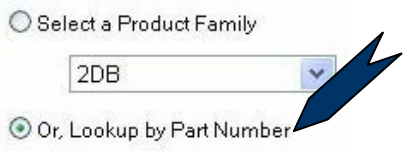
Click CONTINUE to configure your system.

4.1.2 Configure your System or select a different system – refer to section 5

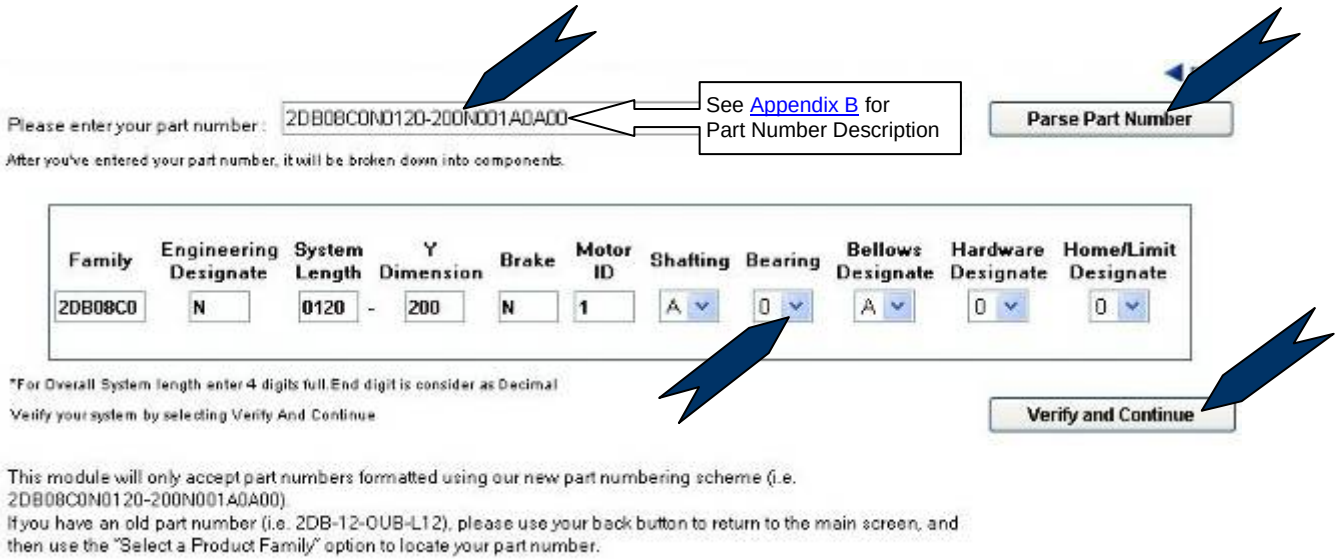
4.1.3 View and Download System Models – refer to section 6.1

4.1.4 Lookup by Part Number

Select LOOKUP BY PART NUMBER and click CONTINUE.



This feature requires part numbers using the new system (i.e. 2DB08C0N0120-200N001A0A00). Refer to Appendix A for information on the benefits of the change. Users with old part numbers (i.e. 2DB-12-OUB-L12) should locate products by using the SELECT A PRODUCT FAMILY option (refer to section 4.1 of this user guide). Refer to Appendix A for more details on locating products with old part numbers.



Enter your part number using the new part numbering system (i.e. 2DB08C0N0120-200N001A0A00), then click PARSE PART NUMBER. Linear MOTIONEERING® will parse the part number to confirm. The part number may then be modified with respect to options and accessories by selecting other options from the drop-down list boxes. Once the part number is correct click VERIFY AND CONTINUE.

5 Configure your System or select a different system

This screen displays a list of features for your chosen system. Systems may be modified to accommodate specific environmental conditions. Users may select from available cover types, brakes, limit switches and gearheads. Cost of the various elements of your system is displayed and catalog data is available. System length may be changed or a different system selected.

- Conditions: Refer to section 3.1.4.1 of this user guide. For details regarding custom options available for environmental conditions refer to Appendix C.
- Linear Slide Option Sets: Refer to section 3.1.4.2 of this user guide.
- For 2DB, 2EB, 2HB, 2RB, 2HE, 2RE, MS25, MS33, and MS46 Models, refer to section 3.2.2.1 for further direction.
- For DS4/DS6 Models, refer to section 3.2.2.2 for further direction.
- For TF/TG, MF/TG Models, refer to section 3.2.2.3 for further direction.
- For URS20 – URS55 Models, refer to section 3.2.2.4 for further direction.

6 Further Support

6.1 *3D CAD Model*

This screen offers several options to print or view your system.

- Linear MOTIONEERING® allows the model to be viewed from all angles. Click the picture of your system to activate the control. Left click and drag to rotate the image. Right click and move mouse up or down to resize the image. To relocate the image on the screen, click and hold both mouse buttons and drag the image to the new location.
- Downloads are available in many formats and software versions.

Click FINISH to exit screen.

6.2 *Request a Quote*

6.2.1 Login ID Required

- To acquire a login ID, refer to section 1.3.1 of this user guide for instructions.
- Users with login IDs may login at this point. Refer to section 1.3.1 of this user guide for instructions.
- If you are already logged in you will not be required to do so again.

6.2.2 Request a Quote Screen

- The top section of this screen displays user selected specifications and accessories.
- The bottom section of this screen displays contact information for review and correction. Include a comment or additional details in the Comment box.

Information in yellow boxes is required. Changes to this information will not change user profile. Please refer to section 1.3.2.1 of this user guide for instructions on editing your user profile.

- Click SUBMIT to send in your quote request. Linear MOTIONEERING® will open the 'Further Support' screen and provide a screen confirmation that a quote request was submitted. An email confirmation with details of the quote request will be sent to the contact email address.
- Linear MOTIONEERING® will generate and email a date stamped, sequence numbered quote valid for 90 days. A duplicate of this email will be forwarded to the Danaher Motion Assistance Center. Please contact the Assistance Center at 540-633-3400 to place your order.

6.3 *Printable Application Page*

This button opens a printable specifications page for the configured system. To return to the previous screen, click either the Back button of your browser or BACK on the Linear MOTIONEERING® screen.

6.4 *Save Application*

If this option is grayed the application may not be saved. Otherwise, refer to section 1.3 of this user guide for a description of the saving process.

6.5 *Exit Motioneering*

Click here to exit Linear MOTIONEERING® and close your browser window. Before exiting, Linear MOTIONEERING® will prompt the user to save the current application. Clicking SAVE requires the user to log in (refer to section 1.3 of this user guide for instructions). Clicking CANCEL exits Linear MOTIONEERING® and closes your browser window.

7 Appendices

7.1 *Appendix A: Frequently Asked Questions*

General

- **How do I get started?** Linear MOTIONEERING® is divided into two modules; "Sizing and Selection" and "Configuration and Quoting". If you already know the Thomson Slide Table you need, choose the "Configuration and Quoting" module to get additional information (pricing, 3D models, etc). Otherwise, use the "Sizing and Selection" module for help in specifying the correct product for your application.

- **What products are included in the software?** The application includes the following product families:

2DB	2EB	2RB	TG
2RE	2HB	2HE	TF
MS25	MS33	MS46	MG
DS4	DS6	URS	MF

- **I have an old Thomson part number (i.e. 2DB-08-0UB-AAL18). Can I get more information on this system?** Pricing, 3D models, accessories, and other information is available through the "Configuration and Quoting" module of Linear MOTIONEERING®. Choose the "Select a Product Family" option, located on the bottom-right portion of the home page, and then press "Continue". Use the information found on this page to locate your old Thomson part number. The following systems now come standard with a RediMount™ motor adapter block and coupling. The RediMount™ feature allows you to mate our systems to most motors with no increase in lead-time or pricing.

2DB	2EB	2RB
2RE	2HB	2HE
MS25	MS33	MS46

- **I have a new Thomson part number (i.e. 2DB08A0N0180-300N001A0A00). Can I get more information on this system?** Pricing, 3D models, and other information is available through the "Configuration and Quoting" module of Linear MOTIONEERING®. Choose the "Lookup by Part Number" option, located on the bottom-right portion of the home page, and then press "Continue". Enter your entire part number (including the "-") and then press "Parse Part Number". If your part number is valid, you will be prompted to continue. For more information please see Appendix B of this document.

Positioning Requirements

- **My application requires limit switches. What accommodations must be made in my stroke length?** Generally speaking, should a limit switch go active a properly sized motor and control package will decelerate the load in less than two revolutions of the motor shaft (direct couple). With that said, extend your stroke a minimum of 4x the lead of the ball or lead screw. It's understood that at this point in the sizing software the systems and their associated leads are not known, therefore estimate. Assume 2-3" initially and then refine your system length after slide table selection.
- **How do you define Accuracy?** Accuracy is defined as the maximum error realized between an expected and actual position. It is the result of an accumulated lead error (ball screw or belt drive mechanism) over any 300 mm length along the linear guide track. In the case of Linear MOTIONEERING only the mechanical drive component(s) contained within the linear slide is taken into account. Motor resolution, encoder resolution, coupling compliance or lash and other drive related accessories are not considered in this callout. (For example: on an Accuracy call out of .127 mm /300mm; a 3000 mm ball screw driven slide will have, over its entire stroke, an Accuracy of 1.27 mm. However, over any 300 mm of length it will be .127mm).

- **How do you define Repeatability?** Repeatability is defined as the ability of a positioning system to return to a location during operation when approaching from the same direction (at the same speed and deceleration rate). Again, Linear MOTIONEERING® only considers the mechanical components within the linear slide system. Angular repeatability of the motor, encoder resolution or any other external device which contributes or reports positional information is not considered.
- **How do you define Maximum Allowable Backlash?** Maximum Allowable Backlash is defined as the total amount of play (lost motion) between the drive components of the linear slide. External drive mechanisms, including motors and mechanical brakes, are not considered by Linear MOTIONEERING®.

Environmental Considerations

- **What is an "Armoloy" Plated Ball Guide?** Armoloy is a proprietary process that deposits a thin dense chrome coating onto the linear guides and is offered as an option for the majority of Thomson Linear slides. It exhibits exceptional corrosion resistance and attains a hardness of 78Rc. This proprietary process is licensed by the Armoloy Corporation.
- **What is "Raydent" Plated Ball Guide?** Raydent is a proven, precisely applied thin rust-preventing film. The surface treatment has exceptional durability (greater than 10 years), and any fine grains of Raydent that do break away from the contact between the rail and the recirculating balls will actually add to the lubricity of the grease.
- **What is a "CR" Linear Bearing?** The "CR" stands for Corrosion Resistant. This bearing option contains 400 series ball bearings supported by chrome plated bearing plates. This combination coupled with the polymer bearing retainer gives this linear bearing exceptional corrosion resistance in harsh environments.
- **What is a "Polymer Plain Bearing"?** In some of our product families plain Polymer linear bearings are installed in lieu of the standard re-circulating linear ball bearing. These are sliding linear bearings with low friction. They are excellent in high vibration, mechanical shock and wash-down applications.
- **What is an "Enclosed, Ideal Seal"?** The enclosed or ideal seal is offered as a standard feature on Rapid Track, MovoPart and DS Series units. It consists of a magnetic cover strip that seals the belt or ball screw from contaminates by completely enclosing the unit. The strip remains stationary while ramp features on each side of the saddle gently lift and subsequently replace the strip as linear motion is initiated.

Loading Information

- **The load in my application is not mounted to the face of the carriage but instead to the base (the carriage is the fixed element). Can I use Linear MOTIONEERING® to help in selecting a Slide Table?** It is slightly more complicated to size an application where the load is not fixed to the face of the carriage. The key consideration will be moment loading on the bearings, which will change as the base traverses. Linear MOTIONEERING® can be very helpful in selecting the right product for these types of applications; however, additional calculations will be required. Contact sales engineering at the Danaher Motion Assistance Center (540) 633-3400 for more assistance.
- **Why can't I enter negative values when locating my load with respect to the carriage?** The bearing geometry within the carriage assembly is symmetrical in two loading planes (the third represents direction of movement for the bearing). In addition, the acceleration and deceleration rates generated in the move profile are calculated as the same. With this in mind, positive values are all that are required to represent load location.
- **What is an Applied Force?** The applied force is any factor, other than the load mounted to the carriage, exerting a force in your application. A common example would be the force exerted by a drill-bit in a drilling operation. Linear MOTIONEERING® assumes that the applied force is exerted at the center of mass of the load.
- **What's the naming convention for Direction of Applied Force?** Positive values are represented by the arrow vectors in the load diagram. A value with a positive Z assignment reflects an Applied Force acting against gravity (up).

- **My Applied Force is not exerted at the center of mass of my load. Can I use Linear MOTIONEERING® to help in selecting a Slide Table?** Linear MOTIONEERING® can accommodate this in two ways. First, if your applied force is significantly greater than the force due to the load on the carriage, you can make a reasonable approximation by using the "X", "Y", and "Z" inputs to reflect the location of the Applied Force. Or, to accommodate both forces, you can manually calculate a single resultant force and location, and use this as the input for the Applied Force and the XYZ inputs.

Enter Your Move Profile

- **My move profile is comprised of several segments. Can I use Linear MOTIONEERING® to help in selecting a Slide Table?** Yes, but there are a few things to keep in mind. Remember, we're sizing a mechanical system here first, so the most aggressive move segment associated with the entered Load/Applied Force values is what we need. However, there may be other move segments in your application which are lightly loaded but run at higher speeds (rapid feeds or rapid returns). In these cases wait until you get to Step 7, then, multiply the Ball Screw Critical Speed Safety Factor by the Linear Speed shown. The product is the highest linear speed this slide table can accommodate. Compare it with your requirement. If your requirement is lower, you're OK. If not, go back a step and find a system with a higher B/S Critical Speed Safety Factor or consider lowering the application requirement. Linear MOTIONEERING® only requires the most aggressive segment of your move profile to size the proper Slide Table. Enter this information as your "Distance" and "Move Time". Remember: Linear MOTIONEERING® later provides information for motor sizing/selection. Since this data will be based solely on this one segment of your profile, be sure to confirm higher unloaded speeds meet with your motor requirements.

Review Application Parameters

- **I'd like to change one of my application parameters. How do I go back?** You can go directly to the page where this parameter is entered by placing your cursor directly over the parameter displayed on this screen, and clicking your mouse button. Remember: Changes made to "System Orientation" and "Mounting Configurations" in Step 1 will require you to confirm all your entries for the succeeding steps.

Review the Solutions that Satisfy Your Application

- **I see several Slide Tables on this screen. Which one should I choose?** Linear MOTIONEERING® has filtered through the entire offering of Thomson Slide Tables and displayed each system that can meet the needs of your application. The systems were then sorted by price, displaying the most economical solution at the top of the list. Pay careful attention to other factors (screw lead, safety factors, available accessories) which may also play into your decision.
- **What do the safety factors tell me?** A safety factor of 1x means you're at capacity for that particular system parameter. Values above 1x represent excess capacity (a good situation) while values below 1x reflect system parameters that fail to meet the application requirements.
- **How do I get more information about a Slide Table on the list?** General information (screw lead, features and benefits, available accessories) can be accessed from the "Step 7" main screen simply by clicking on the appropriate row in the table. The row will be highlighted in green, and the information displayed on the screen will be updated. For more detailed information (3D models, pricing on accessories, request a quote); highlight the appropriate row, and then click the "Continue" button located in the bottom right corner of the screen.

Review Your System Specifications

- **The "Cover Type" option is not available. How do I add bellows or a shroud cover to this system?** The option to add bellows was available in Step 3 of the Environmental Conditions section. To add bellows at this point, click the "My Applications" link on the top tool bar; then click on the "Bellows Required" link, found under the heading "Specifications". On this screen choose the "Bellows Required" option. IMPORTANT!! You must then click "Continue" and then "Continue" again on the following screen.

- **How do I get to CAD models?** The 3D CAD Model tab on the navigation bar will only become active after a motor adapter has been selected from Step 8. Once the motor adapter has been identified, access to 3D and 2D CAD models in several formats becomes available (a login is required).
- **I'd like a formal quote showing lead-times and any applicable distributor discounts off list pricing. How can I get this information?** There are two options. You can select the "Request a Quote" option from the toolbar at the top of this screen (you may be required to login before gaining access to this feature); or, you can call customer service (540-633-3400) with your part number for assistance. Keep in mind that the "Request a Quote" tab on the navigation will only become active after a motor mounting block has been identified in Step 8.
- **What is a "Y-dimension"? Can this dimension be changed?** The "Y-dimension" represents a critical parameter for the base mounting hole pattern on Slide Tables. It represents the distance between the motor endplate and the first mounting hole. Click on the "Y-dimension" link for drawings showing this feature on our systems. There is a default "Y dimension" for each of our systems; however, adjustments must be made in circumstances where the default "Y" would result in a cut hole on the support end of the slide table. Linear MOTIONEERING® will provide a valid "Y Dimension" for all our systems. If your application requires a mounting hole pattern that differs from what is suggested, please contact sales engineering at (540-633-3400) for assistance.
- **I've never seen a part number like this before…what does it mean? Why did you change?** The development of Linear MOTIONEERING® created an opportunity to improve our part numbering system. In the past a customer ordered a slide and its accessories (motor adapter block, coupling, limit switch, etc.) with different part numbers on separate line items. For the complete package, the customer needed several part numbers. Also in the past, many common slide options (i.e. corrosion resistant bearings or stainless steel hardware) were considered non-standard, requiring a special part number which referenced a quote. These problems are eliminated with our new single-line part numbers. Slide tables and accessories configured using Linear MOTIONEERING® have been consolidated into a single 24-digit part number defining the slide and all its accessories. This will remove any potential confusion on whether accessories are to be provided attached to the slide or loose in the box. If the single part number is defined to include accessories then you know the complete unit will be delivered fully assembled. This also makes reordering a slide and its accessories quite simple. The single part number printed on the slide defines everything needed to reorder. For more information please see Appendix B of this document.

Change Motor Adapter

- **I just want to order a Thomson Slide Table that I've ordered before. Why do you need information about my motor?** The following systems now include the new RediMount™ style motor adapter block and coupling (in the past, some of our slides came with NEMA standard motor adapter blocks and couplings, some came with nothing at all).

  2DB, 2EB, 2RB, 2RE, 2HB, 2HE, MS25, MS33, MS46

  RediMount™ allows our slides to be easily mounted to a variety of motors, not just NEMA standards. To make this work, we'll need information about the motor that will be mounted to the slide. You can choose the default RediMount™ (which will work with a standard NEMA motor); or you can provide us with the requested mounting information specific to your motor (pilot diameter, pilot length, etc.); or you can contact a sales engineer (540-633-3400) with your motor manufacturer name and part number and let us find the motor specific information for you.
- **I entered my motor information but got a "999" in the part number. What does this mean?** A "999" in the part number means that we can mate to your motor with RediMount™, but we have not yet assigned a specific motor id. When placing an order, you will need to again provide your motor dimensions; we will assign a specific motor id and update your part number. Note that your pricing and lead-time will not be affected by these changes.

7.2 *Appendix B: Part Number Description*

TG/TF/MG/MF Part Number Description

Please enter your part number : MG06KU57C20X170

After you've entered your part number, it will be broken down into components.

Version	Profile Size	Drive Type & Drive Specifics	Saddle Configuration	Saddle Length	Screw Support/Shaft Drive Option	Length		Wash Down
MG	06	KU57	CXX	20	X	170	cm	None

To change the base system, enter your part number and click Parse Part Number

Version	Profile Size (mm)	Drive Type / Drive Specifics		Saddle Configuration	Screw Support Shaft Drive Option	Length (cm)
MF MG TF TG	05 (50mm) 06 (55mm) 07 (75mm) 10 (100mm)	B: Belt Drive C: Ball Screw w/Composite Nut D: Ball Screw w/Double Nut K: Ball Screw w/Ball Nut	105: 105mm per rev, Belt 130: 130mm per rev, Belt 176: 176mm per rev, Belt 057: B/S 16mm x 5 NP 107: B/S 16mm x 10 NP 109: B/S 25mm x 10 NP 129: B/S 19mm x 12.7mm NP 207: B/S 16mm x 20mm NP 207: B/S 20mm x 20mm NP 208: B/S 16mm x 20mm NP 257: B/S 25mm x 25mm NP 259: B/S 25mm x 25mm NP 329: L/S 16mm x 32mm NP 659: B/S 16mm x 5.08mm NP 729: B/S 19mm x 12.7mm NP U57: B/S 16mm x 5.08mm NP	A00 (Standard Single) C20 (Double, 20cm) C25 (Double, 25cm) C35 (Double, 35cm) Cxx (Lc entry in mm) xx custom length	X – No Screw Support S – Single Support D – Double Support R – Shaft Right Q – Shaft Left X – Shaft both sides	xxx **Wash Down** None S1 S2

Note: part # definition is solely for identification. Do not use to configure a system - for not all combinations are possible.

* S1 – Wash Down Protection, S2 – Chemical Protection

DS4 / DS6 Part Number Description

Please enter your part number : DS450C10GX23OE4L0H0E0

After you've entered your part number, it will be broken down into components.

Family	Travel	Grade	Ballscrew Lead	Motor	Coupling/ Orientation and Pulley	Limits	Home	Shaft Option	Linear Encoder	Additional options
DS4	50	C	10G	X23	OE4	L0	H0	None	E0	None

To change the base system, enter your part number and click Parse Part Number

Family	Travel (mm)	Grade *	Ballscrew Lead	Motor Or Motor Mount **	Coupling Orientation and Pulley**	Limits	Shaft Option
DS4 DS6	50 100 150 200 250 300 350 400 450 500 550 600 700 800 900 1000 1250 1500 1750 2000	C P	5G (5mm) 10G (10mm) 25G (25mm)	X16 X17 X23 X34 X70 P21 T22T T22V T32T T32V BK23 BK23B BK23S BK23SB BK32 BK32B	See Page Below	**L0 -** No Limits **LN1 -** Limits, NPN type NO **LN2 -** Limits, NPN type NC **LP1 -** Limits, PNP type NO **LP2 -** Limits, PNP type NC **Home** **H0 -** No Limits **HN1 -** Home, NPN type NO **HN2 -** Home, NPN type NC **HP1 -** Home, PNP type NO **HP2 -** Home, PNP type NC	Blank **BS** Brake on ballscrew 24VDC Power-off **ES** Rotary encoder on ballscrew 1250 line **Linear Encoder** **E0** No linear encoder **E1** 1 micron res linear encoder **E2** 0.5 micron res linear encoder **E3** 0.1 micron res linear encoder **Additional Options** P1 Std Pinning of x-axis carriage CLN Cleanroom Prep – Class 100

Note: part # definition is solely for identification. Do not use to configure a system - for not all combinations are possible.

* C – Commercial, P – Precision

** Details on following page

DS4 / DS6 Motor & Motor Mount Part Number Identifiers

Code	Description
X16	1.6” Frame Mount
X17	NEMA 17 Frame Mount
X23	NEMA 23 Frame Mount
X34	NEMA 34 Frame Mount
X70	NEO 70mm Frame Mount
P21	Stepper motor, 23 Frame
T22T	Stepper motor, 23 Frame wired in series
T22V	Stepper motor, 23 Frame wired in parallel
T32T	Stepper motor, 34 Frame wired in series
T32V	Stepper motor, 34 Frame wired in parallel
BK23	Brushless servo motor, 23 Frame with 2048 line encoder
BK23B	Brushless servo motor, 23 Frame with 2048 line encoder & brake
BK23S	Brushless servo motor, 23 Frame with SFD feedback
BK23SB	Brushless servo motor, 23 Frame with SFD feedback and brake
BK32	Brushless servo motor, 34 Frame with 2048 line encoder
BK32B	Brushless servo motor, 34 Frame with 2048 line encoder & brake

DS4 / DS6 Coupling or Orientation/Pulley Bore Part Number Identifiers

Coupling		Orientation & Pulley Bore
XC - No Coupling		***(blank)*** - Inline Model (n/a)
Oldham Couplings:	**Bellows Couplings:**	**PRxx*** - Parallel Right[9]
OE3 - 3/16" shaft	**BE3** - 3/16" shaft	**PLxx*** - Parallel Left[9]
OE4 - 1/4" shaft	**BE4** - 1/4" shaft	**Puxx*** - Parallel Under[9]
OE5 - 5/16" shaft	**BE5** - 5/16" shaft	
OE6 - 3/8" shaft	**BE6** - 3/8" shaft	* Select pulley bore below.
OE8 - 1/2" shaft	**BE8** - 1/2" shaft	**xx3E** - 3/16" Pulley Bore
OE10 - 5/8" shaft[8]	**BE10** - 5/8" shaft[8]	**xx4E** - 1/4" Pulley Bore
OE12 - 3/4" shaft[8]	**BE12** - 3/4" shaft[8]	**xx5E** - 5/16" Pulley Bore
OM5 - 5mm shaft	**BM5** - 5mm shaft	**xx6E** - 3/8" Pulley Bore
OM8 - 8mm shaft	**BM8** - 8mm shaft	**xx8E** - 1/2" Pulley Bore
OM9 - 9mm shaft	**BM9** - 9mm shaft	**xx10E** - 5/8" Pulley Bore
OM11 - 11mm shaft	**BM11** - 11mm shaft	**xx5M** - 5mm Pulley Bore
OM14 - 14mm shaft[8]	**BM14** - 14mm shaft[8]	**xx8M** - 8mm Pulley Bore
OM19 - 19mm shaft[8]	**BM19** - 19mm shaft[8]	**xx9M** - 9mm Pulley Bore
		xx11M - 11mm Pulley Bore
		xx14M - 14mm Pulley Bore

URS Part Number Description

Please enter your part number : URS3305D150BK22

After you've entered your part number, it will be broken down into components.

Base Unit	BallScrew Lead	Carriage Type	Rail Length	Grade	Motor Or MotorFlange	Cover Option	Sensor Option	Surface & lube Option
URS33	05	D	150	None	BK22	None	None	None

To change the base system, enter your part number and click Parse Part Number

Base Unit	Screw Lead	Rail Length	Grade*	Motor or Flange **		Cover Option	Sensor Option
URS20 - 20mm x 40mm	01 (1mm)	100	None	X16	T32T	None	None
URS26 - 26mm x 50mm	02 (2mm)	150	P	X17	T32TEM	H	S – Set of 3 adjustable limit
URS33 - 33mm x 60mm	05 (5mm)	200		X23	T32TEM		& home sensors
URS46 - 46mm x 86mm	10 (10mm)	250		X34	K		
URS55 - 55mm x 100mm	20 (20mm)	300		T12	T32V		
		400		T12EM	T32VEM		
		500		T12EMK	T32VEM		
		600		T22T	K		
		340		T22TEM	BK11		
		440		T22TEMK	BK22		
		540		T22V	BK22B		
	Carriage Type	640		T22VEM	BK22S		**Surface & Lube Option**
	A (Std. Single)	740		T22VEMK	BK22SB		None
	B (Std. Dual)	840			BK32		GK – Cleanroom Low Particulate
	C (Single Short)	940			BK32B		RD – Raydent treatment Of rail surfaces
	D (Dual Short)	980					GKRD – combination
		1080					
		1180					
		1280					
		1380					

Note: part # definition is solely for identification. Do not use to configure a system - for not all combinations are possible.

* C – Commercial, P – Precision

** Details on following page

URS Motor & Motor Flange Part Number Identifiers

Motor Mounts	Motors
X16	Motor flange for 16 Frame motor
X17	Motor flange for 17 Frame motor
X23	Motor flange for 23 Frame motor
X34	Motor flange for 34 Frame motor
T12	Stepper motor, 17 Frame
T12EM	Stepper motor, 17 Frame with 500 line encoder
T12EMK	Stepper motor, 17 Frame with 1000 line encoder
T22T	Stepper motor, 23 Frame wired in series
T22TEM	Stepper motor, 23 Frame wired in series, with 500 line encoder
T22TEMK	Stepper motor, 23 Frame wired in series, with 1000 line encoder
T22V	Stepper motor, 23 Frame wired in parallel
T22VEM	Stepper motor, 23 Frame wired in parallel, with 500 line encoder
T22VEMK	Stepper motor, 23 Frame wired in parallel, with 1000 line encoder
T32T	Stepper motor, 34 Frame wired in series
T32TEM	Stepper motor, 34 Frame wired in series, with 500 line encoder
T32TEMK	Stepper motor, 34 Frame wired in series, with 1000 line encoder
T32V	Stepper motor, 34 Frame wired in parallel
T32VEM	Stepper motor, 34 Frame wired in parallel, with 500 line encoder
T32VEMK	Stepper motor, 34 Frame wired in parallel, with 1000 line encoder
BK11	Brushless servo motor, 16 Frame with encoder
BK22	Brushless servo motor, 23 Frame with encoder
BK22B	Brushless servo motor, 23 Frame with encoder & brake
BK22S	Brushless servo motor, 23 Frame with SFD feedback
BK22SB	Brushless servo motor, 23 Frame with SFD feedback and brake
BK32	Brushless servo motor, 34 Frame with encoder
BK32B	Brushless servo motor, 34 Frame with encoder & brake

2DB, 2EB, 2HB, 2HE, 2RB, 2RE, MS25, MS33, MS46 Part Number Description

Please enter your part number : 2DB12BKN0250-300N001A0A00

After you've entered your part number, it will be broken down into components.

Family	Engineering Designate	System Length		Y Dimension	Brake	Motor ID	Shafting	Bearing	Bellows Designate	Hardware Designate	Home/Limit Designate
2DB12BK	N	0250	-	300	N	1	A	0	A	0	0

Family* Screw	**Eng**	**System Length**	**Y Dim** 200=2in**	**Brake**	**Motor ID**	**Shafting**	**Bearing**	**Home/Limit**
2DB08xx 2DB12xx 2DB16xx 2EB08xx 2EB12xx 2EB16xx 2EB24xx 2HB10xx 2HB20xx 2RB12xx 2RB16xx MS25Lxx MS33Lxx MS46Bxx MS46Lxx **Belt** 2HE10xx 2HE20xx 2RE12xx 2RE16xx MS46Exx	E N	2DB, 2EB xxxx 0250 = 25in All other units xxxx 0300=300mm	200 300 **Y Dim** 75mm=075** 039 050 082 075 100	N – no brake B – w/brake	xxx Contact Factory for motor ID listing	A - 60 Case (1566) B - Stainless Steel (440C) C - Chrome Plated E - Armoloy E - Duralloy Coated (2HB only)	0-Std 1-Corrosion Resistance **Bellows** A-none B-bellows C-shroud **Hardware** 0-Alloy Plated 1-Stainless Steel	0 - None 1 - NPN, Home 2 - NPN, End of travel 3 - NPN Home & End of travel 4 - PNP, Home 5 - PNP, Ends of travel 6 - PNP Home & End of travel 7 - Home (dry) 8 - Ends of travel (dry) 9 - Home & End of travel

* xx Refer to Idenifier table on next page. Indicates Screw Diameter and Lead or Belt unit Gear ratio.

**Y-dimension defines the distance from the motor end plate, to the first set of mounting holes. This dimension can be changed to fit your mounting requirements.

2DB, 2EB, 2HB, 2HE, 2RB, 2RE, MS25, MS33, MS46 Family Identifier

Ball and Lead Screw Models				Belt Driven Models	
2DB08	A - .375in x .100in (preloaded)	2RB12	G - 16mm x 5mm (preloaded)	2RE12 2RE16	A - 1:1 Gear Ratio
	B - .375in x .250in (preloaded)		H - 16mm x 10mm (preloaded)		B - 3:1 Gear Ratio
	C - .375in x .500in (preloaded)	2RB16	I - 20mm x 5mm (preloaded)		C - 5:1 Gear Ratio
	D - .375in x .750in (preloaded)		J - 20mm x 10mm (preloaded)		D - 10:1 Gear Ratio
	E - .375in x 1.000in (preloaded)		K - 20mm x 15mm (preloaded)	2HE10	A - 1:1 Gear Ratio
2DB12	B - 12mm x 5mm (non-preloaded)	MS25L	A - .25in x .025in (preloaded)		B - 3:1 Gear Ratio
	F - .500in x .200in (non-preloaded)		B - .25in x .050in (preloaded)		C - 5:1 Gear Ratio
	Q - .500in . 500in (preloaded)		C - .25in x .062in (preloaded)		D - 10:1 Gear Ratio
	V - .500in x .200in (preloaded)		D - .25in x .200in (preloaded)	2HE20	E - 1:1 Gear Ratio
2DB16	D - 20mm x 5mm (non-preloaded)		E - .25in x .250in (preloaded)		F - 3:1 Gear Ratio
	G - .750in x .200in (non-preloaded)		F - .25in x .500in (preloaded)		G - 5:1 Gear Ratio
	L - .631in x 1.0in (preloaded)		G - .25in x 1.000in (preloaded)		H - 10:1 Gear Ratio
	R - .75in x .500in (preloaded)		H - .25in x 1.5mm (preloaded)	MS46E	A – 1:1 reduction
	W - .750in x .200in (preloaded)		I - .25in x 2.0mm (preloaded)		B - 3:1 reduction
2EB08	B - 12mm x 5mm (non-preloaded)		J - .25in x 3.0mm (preloaded)		C - 5:1 reduction
	F - .500in x .200in (non-preloaded)	MS33L	A - .375in x .0625in (preloaded)		D - 10:1 reduction
	Q - .500in . 500in (preloaded)		B - .375in x .100in (preloaded)		
	V - .500in x .200in (preloaded)		C - .375in x .125in (preloaded)		
2EB12	D - 20mm x 5mm (non-preloaded)		D - .375in x .200in (preloaded)		
	G - .750in x .200in (non-preloaded)		E - .375in x .250in (preloaded)		
	L - .631in x 1.0in (preloaded)		F - .375in x .375in (preloaded)		
	U - 20mm x 20mm (preloaded)		G - .375in x .500in (preloaded)		
	W - .750in x .200in (preloaded)		H - .375in x 1.000in (preloaded)		
2EB16	H - 1.00in x .250in (preloaded)		I - .375in x 1.200in (preloaded)		
	T - 1.00in x 1.00in (preloaded)		J - .375in x 2mm (preloaded)		
2EB24	I - 1.50in x .250in (preloaded)	MS46B	P - 12mm x 5mm (preloaded)		
	J - 1.50in x 1.00in (preloaded)		B - 12mm x 5mm (non-preloaded)		
	Z – 1.50in x 1.875in (preloaded)		Q - 12mm x 10mm (preloaded)		
2HB10	G - 16mm x 5mm (preloaded)		R - 12mm x 10mm (non-preloaded)		
	H - 16mm x 10mm (preloaded)	MS46L	K - 12mm x 3mm (pre-loaded)		
2HB20	L - 25mm x 5mm (preloaded)		L - 12mm x 10mm (pre-loaded)		
	M - 25mm x 10mm (preloaded)		M - 12mm x 25mm (pre-loaded)		
	N - 25mm x 15mm (preloaded)				

7.3 *Appendix C: Environmental Conditions Custom Options*

	Ball Guide					Linear Bearings			Hardware		Cover				Lubrication	
	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	O14	O15	O16
	Standard Steel	Stainless Steel	Armoloy Plated	Chrome Plate	Raydent Surface	Standard	CR	Polymer	Standard	Stainless Steel	No Cover	Bellows	Shroud	Enclosed	Standard	Clean Room
2DB	X	X	X	X		X	X		X	X	X	X			X	X
2EB	X	X	X	X		X	X		X	X	X	X			X	X
MS25	X	X	X	X		X			X	X	X	X			X	X
MS33	X	X	X	X		X			X	X	X	X			X	X
MS46B	X	X	X	X		X			X	X	X		X		X	X
MS46E	X	X	X	X		X			X	X	X		X		X	X
2RB	X	X	X	X		X	X		X	X	X	X			X	X
2RE	X	X	X	X		X	X		X	X	X	X			X	X
2HB	X		X			X			X	X	X	X	X		X	X
2HE	X		X			X			X	X	X	X	X		X	X
TF	X					X			X	X				X	X	
TG									X	X				X	X	
MF	X					X			X	X				X	X	
MG									X	X				X	X	
DS4/6	X	X				X				X				X	X	
URS	X					X			X		X		X		X	X