Baldor-Dodge Passport: Selecting A Reducer

C.O. Engineering – Enclosed Gearing

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Dodge Passport was launched in an effort to provide customers a helpful tool in selection of Dodge products based on application specifications. Dodge Passport stems from PTWizard where the concept of gearbox selection is the same, but with an upgraded design, images, and selection tools to make reducer selection much easier and informative.

This document provides instructions, through examples, on how to navigate the selection tools for reducers in Passport using the three methods provided on the website. The first option is for people familiar with Dodge products and can pick the reducer they need, and size it based on application specifications. The second option is for people who need to start from scratch, or aren’t as familiar with Dodge reducers to determine what selection is best for them. Lastly, the third option allows you to enter existing part numbers for Dodge reducers and creating an assembly with the unit you selected.
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A. Navigating Passport

1. Login/Sign Up

Dodge Passport can be accessed through https://passport.baldor.com/ or going to the Baldor home page and under the tab “Resources & Support.”
Next you sign in, or if you are new to Passport, you can start a free account by submitting the information in the figure below.

After you have signed up and your account is verified, you can begin using the selection tools from the site.

2. Setting Preferences

From this screen you can set any preferences for future use here. Under “Common” you can select your measurement system, Imperial or Metric, and your temperature units, Fahrenheit or Celsius. Also you can set any specific preferences with belt drives to help with future selection. Currently there are no preferences that can be set for gear reducers.
3. Selecting Type of Dodge Product

From this screen, you can select what specific Dodge product you are looking for. As of now, Passport has a “Gear Reducers” and “Belted Drives” option. Conveyor Pulleys, mounted bearings, and system design selections will be coming soon. The Torque-Arm family of reducers (TXT, TAI, SCXT, MTA) are what occupy the “Gear Reducers” section. Two examples will be used for the “Gear Reducers” section in this paper. Click on “Gear Reducers” to begin selecting a gearbox.
3. Guide Me to a Solution.

Passport has 3 options available after clicking the Gear Reducers button. “Pick a Dodge Reducer” is for people already familiar with Dodge products and knows what type of reducer will be needed for his or her application. “Guide Me to a Solution” starts the selection process from scratch and will select the type of reducer after the specifications have been entered. “Verify Existing Application” can take part numbers you already have and can verify them for selection. This first example will be done using the “Guide me to a Solution” section.
Example 1)

A customer has given us the following specs for his application and needs a speed reducer. He needs a belt driven, shaft mounted reducer to fit the following specs.

Application: Conveyor Belt Drive
Motor HP and Speed: 60hp 1750 RPM, 3ph, 60Hz
Output Speed: 80 RPM
Class 2 Service Factor
Shaft Diameter: 4-7/16 in.
Backstop, Tie Rod Kit, Motor Mount, and Belt Guard needed.

1.) Connection Method

We start by selecting the connection method which based on the example is belt driven.
2.) Specifications

The specifications tab will ask you to specify if the customer will use a NEMA or IEC motor; as well as asking the frequency, horsepower, speed, and frame size of the motor. Based on our example we select 60 Hz, 60 HP, and 1800 RPM. The motor frame size will be automatically selected based on the specs. If a situation occurs where multiple frame sizes are available for the horsepower and motor speed you specified, that will need to be filled in as well.

Next we select our application type, which is shaft mount. Then, we select a service factor. You can either enter the service factor yourself; or under “Select Service Factor,” choose the AGMA Class needed for this application. Our example has a class 2, which makes the service factor 1.4.

Final specifications required are the application environment and output speed. You can select the ambient temperature and altitude for the application for a more quality selection. Also any thermal accessories needed for the reducer can be included by checking the appropriate boxes. Temperature and altitude were not specified in the application, so we will leave the specs in their default settings. Last is the output speed which can be entered manually or through the “Calculate based on belt conveyor requirements” window. We will type 80 RPM for our application.
3.) Selection

You will select imperial or metric units for your reducer unit of measure. After that, Passport will provide you the Dodge options available dependent on the specs provided before. Here we have a choice between two size 7 Torque-Arm 2 reducers. One has a ratio of 15:1 and the other 9:1. If multiple size reducers appear, one way to narrow the search results is to select the bore size of the reducer above the choices to provide the sizes that can work with the customer’s shaft requirements. In this example, we will select the TA7315H15 or Part Number: 907002 because of the higher service factor compared to the 9:1 option.

At this point we have begun selecting products and they will appear on the right hand side of the screen. A list of all the products will accumulate and the total list price will change based on what products are selected in the next sections.
4.) Accessories

Now we begin to select our accessories for our Torque-Arm reducer. The example application requires a Backstop, Tie Rod Kit, Motor Mount, and Belt Guard. We begin by selecting our bushing size, which is 4-7/16”. You may have the option for the standard bushing kit, or the short shaft bushing kit. We check the boxes for a Tie Rod Kit and a Backstop. The magnifying glasses give you a small picture of what the accessory looks like.

Passport gives you the option to select a Baldor motor for your assembly if your customer still needs a motor. The motor drop down will provide you all the Baldor options available based on the specs you provided earlier.

The motor mount drop down gives you a list of options for the mounting position of the reducer, as well as the mounting position with the motor mount kit. You can use the pictures to help with your selection. Our example did not specify mounting position so we will selection Position B, with motor mount Height M2. The motor mount options will give you min, and max, center distances of the reducer and motor shafts.
Next we check off the box for a belt guard and then move on to breathers, bushing covers, and lubrication options. We have the option to select a harsh duty breather, which also comes with a disclaimer and pictures. We won’t select one for our example since it isn’t a harsh environment. Next, you can select closed or open bushing covers, an immersion heater, a lube kit, and a sight gauge or sight tube. Again we won’t select any of these since they aren’t required. Now we have our reducer, bushing kit, tie rod, backstop, motor mount, and belt guard. We finally can move on to belt drive selection.

<table>
<thead>
<tr>
<th>Item</th>
<th>QTY</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAIL Reducer</td>
<td>1</td>
<td>9,570.00</td>
</tr>
<tr>
<td>Bushing</td>
<td>1</td>
<td>650.00</td>
</tr>
<tr>
<td>Tie Rod</td>
<td>1</td>
<td>450.00</td>
</tr>
<tr>
<td>Backstop</td>
<td>1</td>
<td>1,957.00</td>
</tr>
<tr>
<td>Motor Mount</td>
<td>1</td>
<td>1,073.00</td>
</tr>
<tr>
<td>Belt Guard</td>
<td>1</td>
<td>893.00</td>
</tr>
</tbody>
</table>

**TOTAL PRICE**

14,593.00 USD
5.) Drive

Now if you need to select a belt drive for the application, you start by selecting the type of bushing. The bushings provided can be for synchronous or V-Belt drives. We will select all the bushing options to see a wide range of choices that would best fit our application.

Next we can select the type of belt drive by checking the boxes of what we would consider in the customer’s application. Again we will select all the options in this example. Next you can specify the minimum number of belts, center distances range, and the service factor. We will select min. of 1 belt, and a min center distance of 39.7 inches, and a max of 43.7 inches to meet the motor mount requirements. Finally, you can select a service factor manually, or use “Select Service Factor” which provides a table of service factors based on application and hours in service. We will select 1.4 Service Factor again for both synchronous and V-Belt.
Passport will now provide all the Dodge drive options available based on the specs provided. Passport will sort the options out to give you the best available selections on the first page. As we can see, Passport has given us the cheapest options, within the 80 RPM output. We will select the 4-5V7.50SF and 4-5V11.3E Sheaves with 5VX1120 Belt to give us the 80 RPM output.
6.) Summary

After we select a belt drive, we are taken to the “Summary” tab where we are given a full spec sheet of all of the assembly listed, as well as part numbers, weights, and prices of our assembly.

On the right hand side of the screen, we are given our full selection summary of all of the Dodge products the customer will buy. Each product has a quantity and list price, with the Total Price listed below.

At the bottom of the page we offer links to our PartCommunity page where you can download any drawings or models needed for the customer. As well as a link to where you can download any catalogs, manuals, or brochures needed from the Baldor website.

Finally you can save your inquiry in case any future changes need to be made, and you don’t want to start from scratch. The customer may follow up with specific accessories he made need, or a specific center distance for his belt drive. After you name your project, you can reload it at any time to make changes that may be needed. Also, after you have saved your inquiry you can create a pdf for any possible hard copies you may need to print off.

Now we have made our first selection using the “Guide Me to a Solution” option. Now we will look at an example with “Pick a Dodge Reducer.”
C.) **Pick a Dodge Reducer**

This option is for people familiar with the Torque-Arm family of reducers and can make this selection at the beginning. Some specifics can be automatically filled now based on the type of Torque-Arm reducer you select.

Example 2)

A customer is looking for a Screw Conveyor Torque-Arm reducer with the following specs.

- **Application:** Screw Conveyor
- **Motor Specs:** 30hp, 1800 RPM, 60Hz, 3ph
- **Output Speed:** 65 RPM
- **Class 2 Service Factor**
- **Drive Shaft Diameter:** 3 inches
- **Motor Mount and Belt Guard needed.**
1.) Product Family

Here we begin by selecting the appropriate reducer for the customer’s application. In the product family page, our options are a TAI\(\text{I}\), TXT, or MTA, and the Screw Conveyor versions of these reducers. For this application we will select the SCXT (Screw Conveyor Torque-Arm).

2.) Specifications

Now we enter the specs the same way we did previously. We select NEMA Motor, 60Hz, 30HP, 1800RPM, and 1.4 Service factor. Next, we enter an output speed of 65 RPM, and then move on to selection.
3.) Selection

Now we are given our options based on the required specs. Here we have 4 options, 3 SCXT6s with 25:1, 15:1, and 9:1 ratios. You will notice we also have a TAII Screw Conveyor option listed. Passport will show possible options available from other reducers in the Torque-Arm family if they can match the spec requirements and may be more beneficial than your original selection. In this case, the TA5215H25 option has a better service factor and is cheaper than the SCXT6 option. We choose a TAII in our previous example, so in this case we will select the SCXT625A or part number 356058 option.

Just as before, we now see the selection summary on the right hand side of the screen begin to occupy with the Dodge products we select. After selection, the steps for accessories, and drive are the same as the previous example.
4.) **Accessories**

Now we select the accessories needed for the customer’s application. The drive shaft drop down provides all available drive shaft diameters: along with their screw hole amounts, and materials options for the reducer you selected previously. We need a 3inch diameter drive shaft so we will select 3”-3 Hole-Steel. Next for CEMA Adapter, we check the box for 356055 – C6 Adapter Assy.

A screw conveyor drive requires a reducer, drive shaft, and CEMA adapter. Since the reducer doesn’t come with an adapter and drive shaft, it is important to fill these accessories out in order to get a full screw conveyor assembly. The adjustable packing kit can also be checked if the customer has a harsh duty environment.

Again we can select a Baldor motor if necessary, and the motor mount position will need to be selected. We will select Position C; a note is at the bottom stating, “Position C is the most common orientation for screw conveyor applications.” After that, we select our motor mount option, in this case we only have one available option.

Then you can select a harsh duty breather, taconite seal kit, lube kit, and or a sight gauge. These added accessories will begin to populate the selection summary as they are selected.
5.) Drive

Finally we select a belt drive the same way we did in the first example. First you select the type of bushing, type of belt, minimum number of belts, center distance range, and service factors. We will select all the bushings and drive styles, and use a 1.4 service factor again like in example 1. Our motor mount has a min. center distance of 20.5” and a max. center distance of 24.5.” Our options for V-Belt and Synchronous Belt Drives are tabulated. We will select the 3B5V58 B Split Taper SHV and 3B5V64 B Split Taper SHV for our drives; and 5VX650 Belt as our belt to give us the 65 Output RPM the customer needs.
6.) Summary

After we select a belt drive, we receive a summary with specs of the assembly we selected. All the parts that need to be ordered will appear on the right with quantity needed and their respective list prices. Again, you can save this inquiry for any future use or if the customer needs to change something in his setup and you can edit the selection by loading the saved inquiry.
D. Verify Existing Application

1. Verify Part Number

If you have a Torque Arm reducer part number already, you can select “Verify Existing Application.”

From here you can enter the part number and Passport will verify the part number and select the reducer that is assigned the respective part number.
2. Selection and Summary

After you select the reducer, you can fill out the specifications fields to produce a complete assembly similar to the previous examples.

Passport provides a simplistic and linear step by step approach towards selecting a Dodge reducer. If you have any further questions about using passport, there is a contact us button at the bottom of the webpage. You can submit comments or suggestions and can contact Dodge Engineering for technical questions using the phone numbers or email addresses provided under the comments box.