



Eaton Catalog Product Description

Automation Studio™ 5.7

*“With its new functionalities
Automation Studio™
increases engineering productivity
and product deployment cost-savings”*



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Dear users of Automation Studio™

Famic Technologies Inc. is proud to present its first version of Eaton's hydraulic valve catalog. This is the first in a series designed exclusively for use with Automation Studio™ Version 5.7 SR1.

Rapidly changing Hydraulic, Pneumatic and Electrical technologies make it difficult, for manufacturers dependent on such systems, to compete unless they rely on tools such as Automation Studio™. These tools benefit manufacturers involved in the development and implementation of products that incorporate Fluid, Electric and/or Automation Systems, using comprehensive cost effective methodologies, that optimizes the lifecycle of their products and services from design, implementation down to through to maintenance and training. This allows the manufactories to be more competitive by meeting the needs of their clients both quantitatively and qualitatively, respecting strict profitability.

Catalog manager is the tool that meets these objectives. Automation Studio™ provides powerful features of design, simulation and documentation that require little effort, to test, analyze, troubleshoot and validate a system.

The innovative electronic catalog provides all the necessary information and components in one place to implement and monitor manufacturers' multidisciplinary projects. It includes a product's symbols, essential technical information, specifications and more. This makes it very easy to design, simulate and document a project effectively.

And that's not all! Each component has been carefully pre-configured and rigorously bench tested within Automation Studio™ to ensure that the simulation, as closely as possible, meets a manufacturer's typical application and performance specifications. The user therefore becomes the beneficiary of this meticulous work.

To summarize; Eaton's first catalog provides numerous hydraulic components ready to be used in your projects. This will increase your productivity by helping optimize the performance of your team throughout the lifecycle of your projects.

We are constantly assessing the needs and concerns of our customers in order to focus our energies in providing a tool that works in the most innovative and effective ways possible. The Famic Technologies team hopes that you enjoy, like thousands of others for over the last 20 years, the results of our efforts in research and development of Automation Studio™, and the benefit of our software.

We thank you for your confidence and support in our product.

Best regards,

Famic Technologies Inc.



Eaton's Hydraulic Catalog

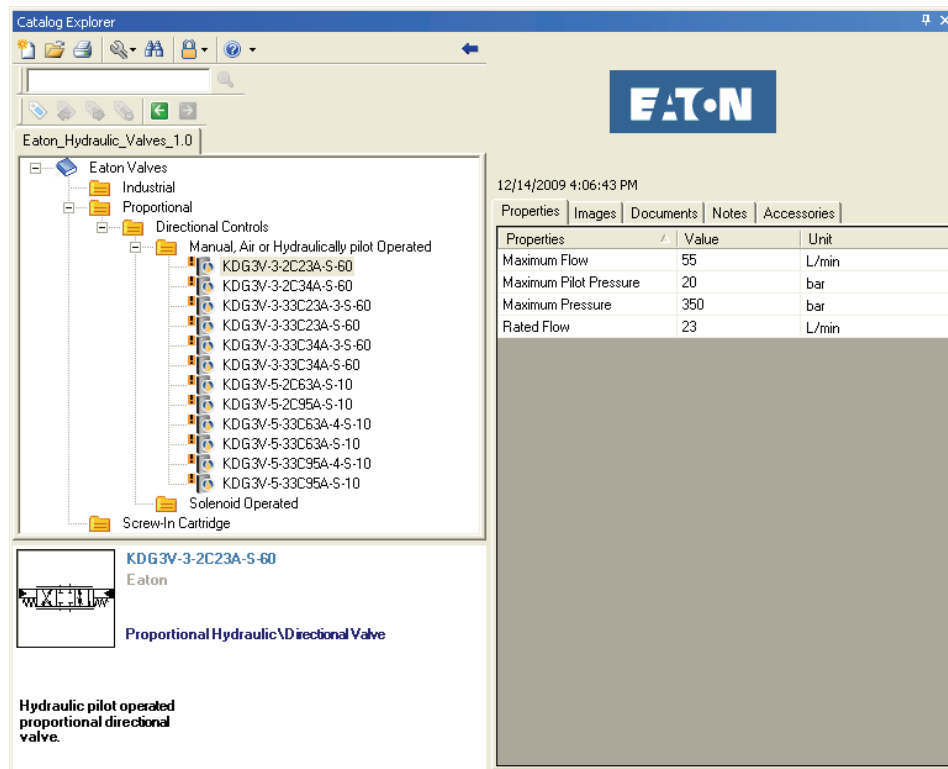


Figure 1 : Overview of the Eaton Catalog

1 Presentation of the Eaton Products

Eaton's hydraulic products are grouped in the following way:

- Accessories
- Accumulators
- Cylinders
- Electronics & Software
- Filtration, PAM
- Motors
- Power Units



- Pumps
- Steering
- Transmissions
- Valves
- Hose, Fittings & Connectors

1.1 Eaton’s Hydraulic Valve Catalog

Eaton’s catalog, made available by Famic Technologies, contains several types of hydraulic valves, classified according to Eaton specifications. The following image describes this structure.

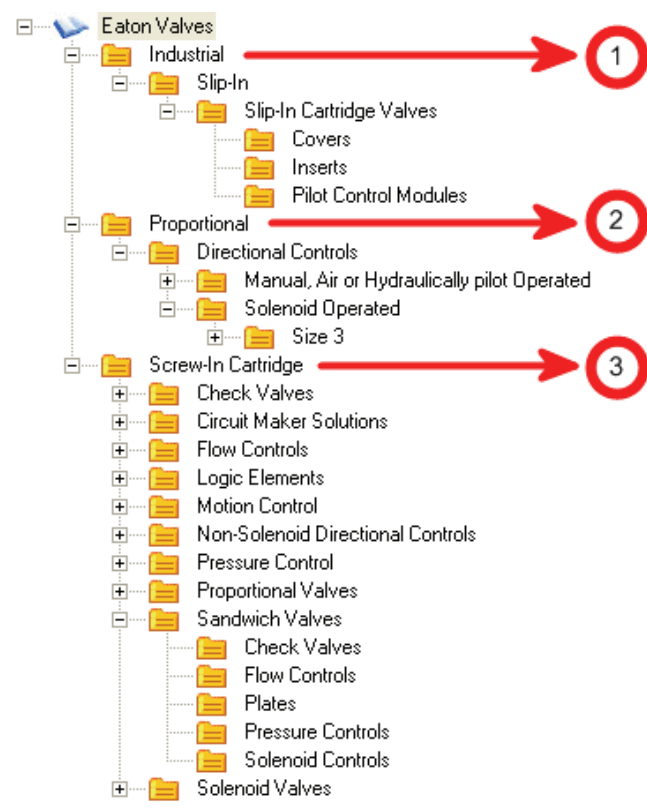


Figure 2 : Catalog structure "Eaton Hydraulic Valves"

	Family	Description of component families
1	Industrial	This family of components includes cartridge valves allowing pressure regulation, check valves, and directional valves. Included are cartridge elements, covers and some internal and external pilot modules.
2	Proportional	This family contains proportional valves accurately modeled by Automation Studio™ version 5.7s new Proportional Valve Configurator. This tool models the precise characteristics of valves using manufacturers’ specifications.
3	Screw-In	This portion of the catalog is the largest one released. Included are valves that can be used to create and configure custom manifolds blocs that can also be in “MCD



Family Description of component families

Manifold Design”.

Families and components that have not been included in this first version of the catalog will be added in future releases planned for early 2010.

1.2 Available Languages

This catalog is only available in English.

1.3 Value Added

1.3.1 Design and Documentation

Eaton’s catalog works using the same principle as Automation Studio™s main library. To select the desired component, simply click on the product category and drag and drop the part on the diagram. Once selected, the dialog supplies a set of tabs providing detailed component information.

When a component is inserted onto a diagram from a catalog (1), it is displayed accordingly on the schematic and its data can be used by the integrated documentation tools (2).

The screenshot shows the Eaton Catalog Explorer interface. On the left, a tree view shows the hierarchy: Eaton Valves > Industrial > Proportional > Directional Controls > Manual, Air or Hydraulically pilot Operated. A component, KDG3V-3-2C23A-S-60, is selected and highlighted with a red box labeled '1'. Below the tree, a small schematic of the valve is shown. On the right, the 'Properties' tab is active, displaying a table of component specifications. A red box labeled '2' highlights the 'Maximum Pressure' row in this table. Below the catalog window, a larger schematic diagram shows the valve symbol inserted into a manifold. To the right of this schematic is a BOM table with the following data:

Manufacturer	Part Number	Maximum Pressure	Quantity
Eaton	KDG3V-3-2C23A-S-60	350.00 bar	1

Figure 3 : Component integration example - Design and Documentation

1.3.2 Manufacturer Specifications

The "Documents" tab in the figure below contains component specification sheets, in PDF format, supplied by



Eaton.

This allows the user to access additional component information.

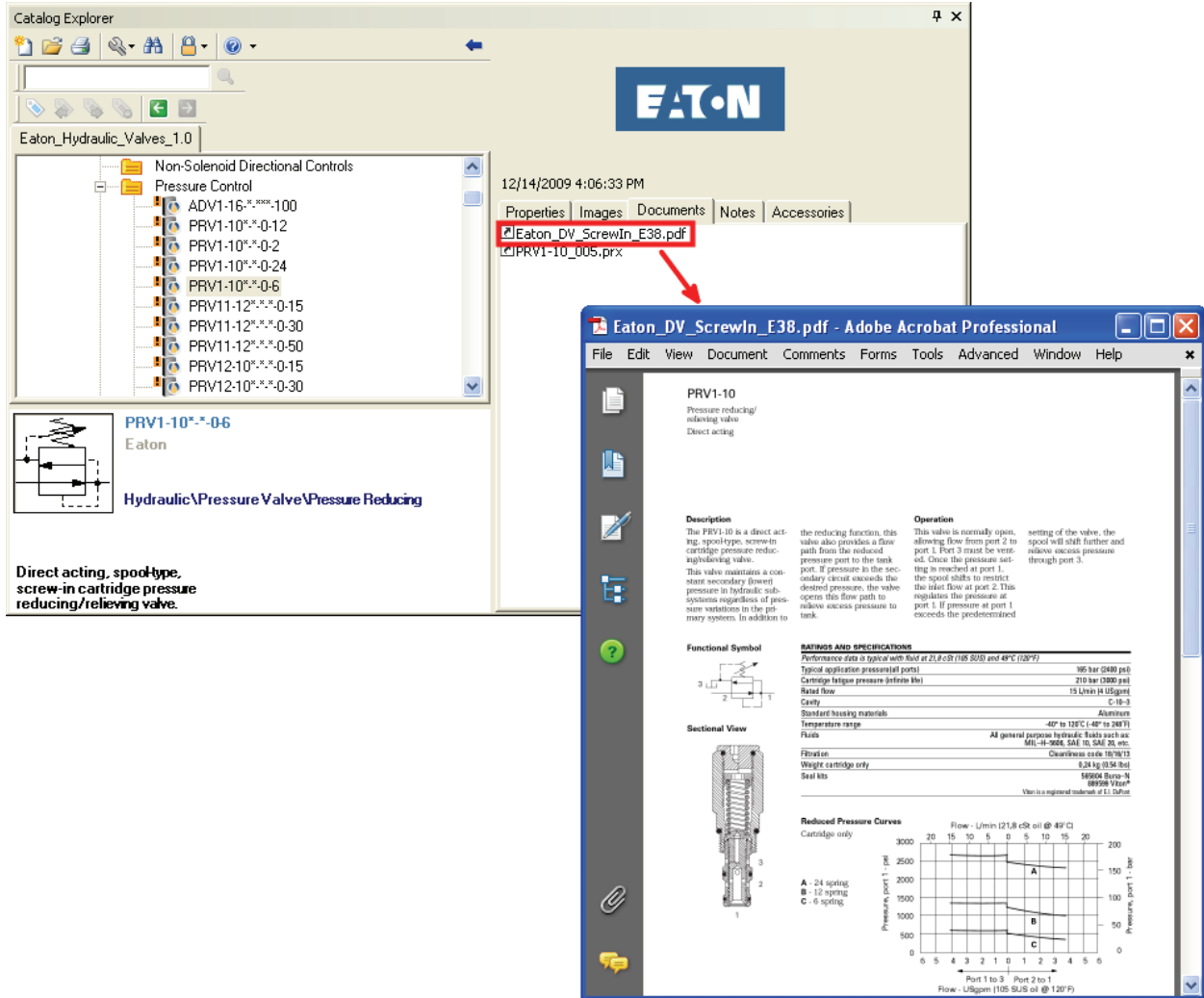


Figure 4 : Attached Documentation

1.3.3 Automation Studio™ Test Files

Most catalog components contain Automation Studio™ test files. These test files allow the user to simulate each component's behavior independently before inserting them into a diagram.

There are two main types of tests:

- Performance tests: Model behavior is verified using simulated manufacturing performance curves.
- Integration tests: Tests a components' generic behavior in a typical application.

1.3.3.1 Pressure drop tests and other

For the following type of test, the user follows the instructions supplied and sees if the desired results are obtained. Normal operating process is to insert the required component into the test (1), run the simulation (2), dynamically



change the available control parameters (3) and verify the accuracy of the proposed level of losses.

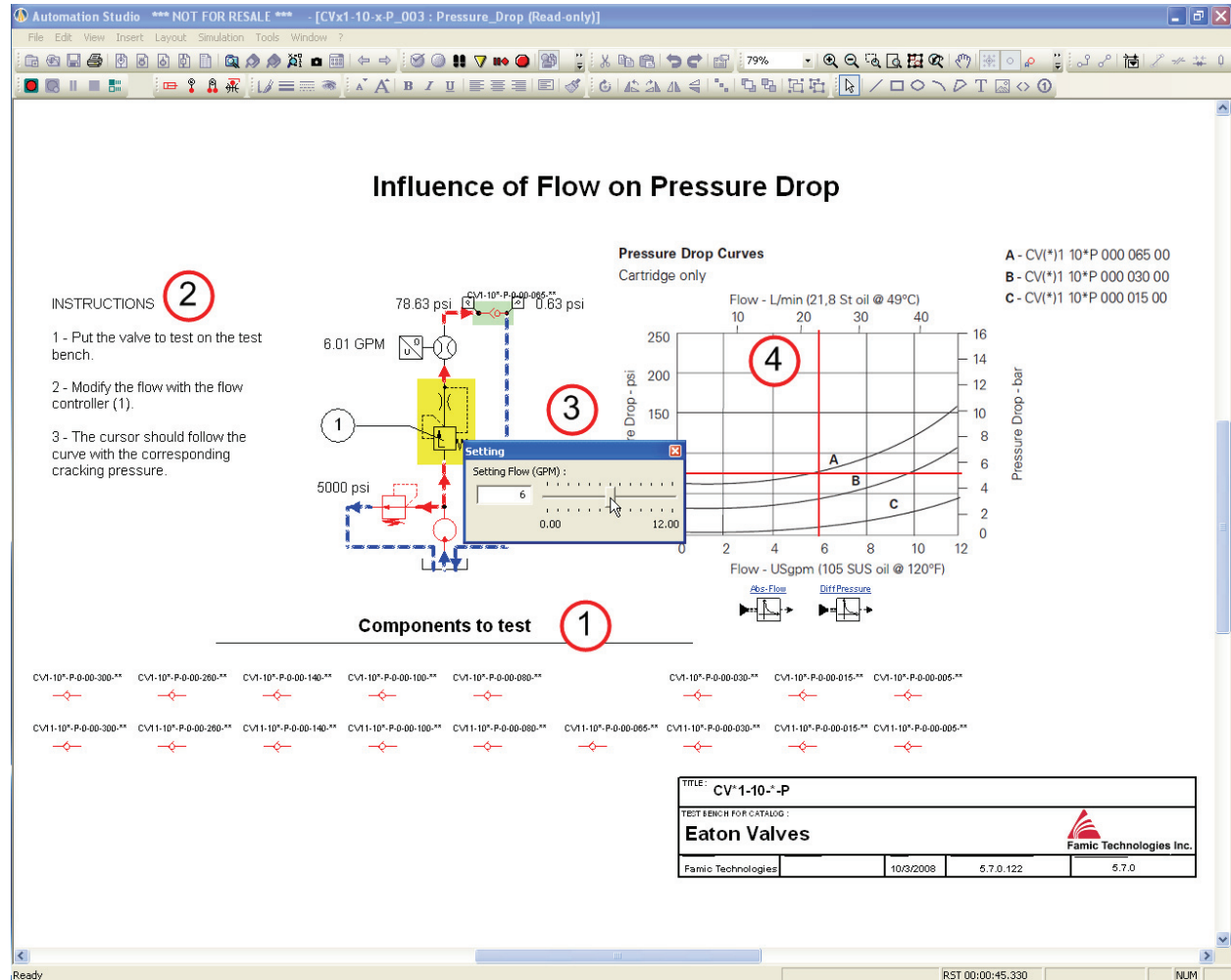


Figure 5 : Pressure drop tests and other

1.3.3.2 Integration Tests

These types of tests duplicate an application as closely as possible to reality. The manufacturer's performance curves can be used if available.



As an example, to test flow control, simply add the component to be tested (1) and run the simulation (2). The supplied instructions indicate to the tester how to change the component's parameters to increase the flow through the control valve and the pressure to the actuator. A successful test will show that the flow remains approximately constant despite rising pressure to the actuator (4).

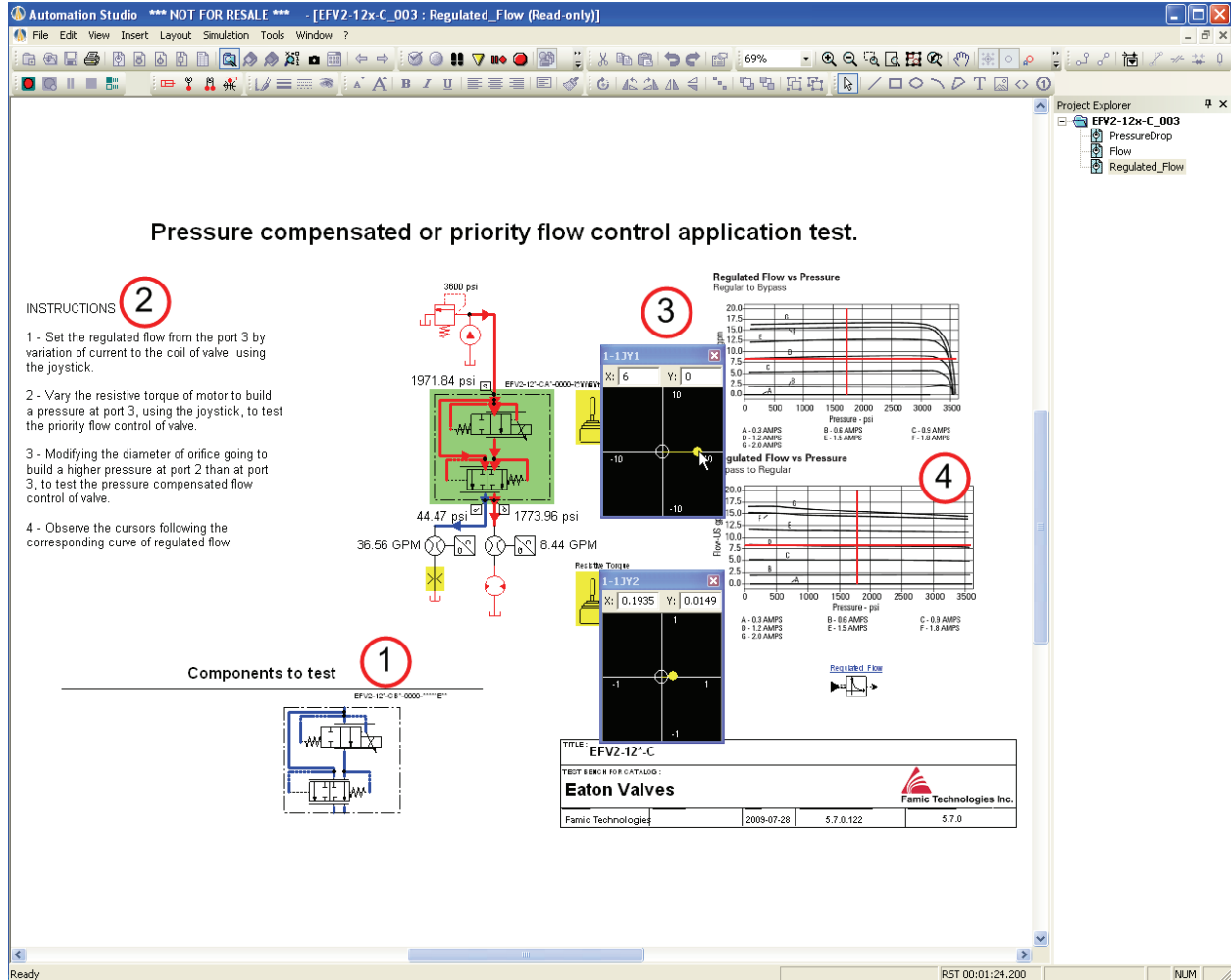


Figure 6 : Integration Schematic

1.3.4 Advanced Design from Generic Components

Another important feature allows a user to search a catalog for components that meet particular specifications. This means that a design can be created in Automation Studio™ using generic components and that afterwards, it will be possible to verify if Eaton components with corresponding design parameters are available.



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This is done by selecting the properties of a component within Automation Studio™ and selecting the attribute “Find Part” button (1) in the “Catalog Information” menu. Once this is done the user can specify multiple commercial and technical search criteria to find the appropriate element within the catalog.

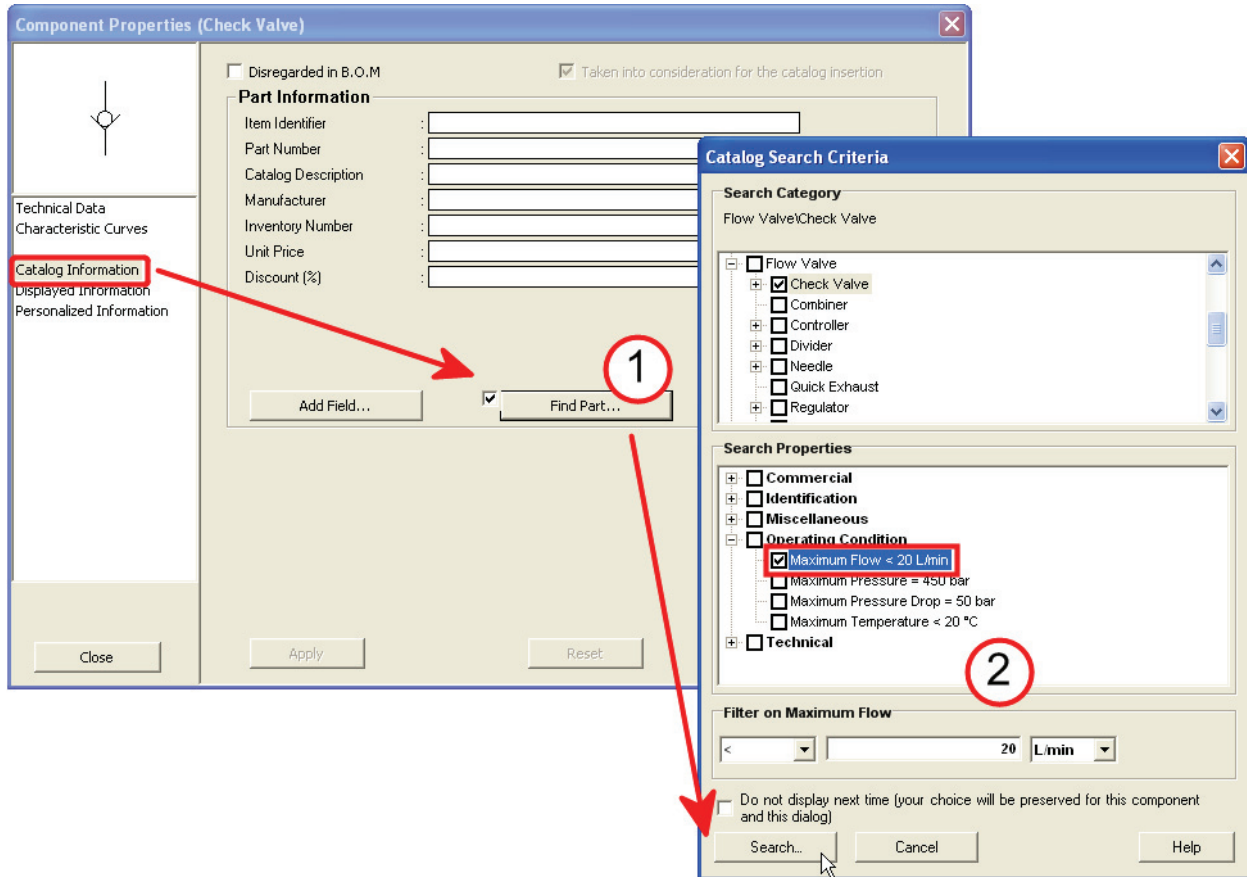


Figure 7 : Search Catalog from Automation Studio™



By reselecting the search button the user can access all additional components that fall within the required specifications of the search. Once the user clicks on the “Select” button (3), the properties found from the current element will be transferred to the generic component.

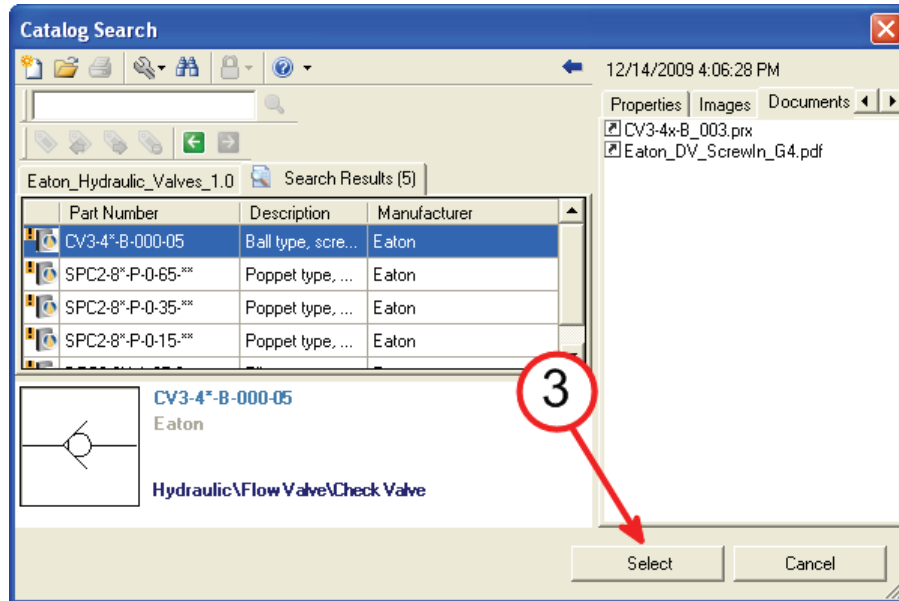


Figure 8 : Jobs and Transfer of Ownership

2 Catalog Updates

The catalog will be continually updated with new and updated components and specifications by our team. New versions of the catalog will be available through the Automation Studio support portal (www.automationstudio.com). Currently unavailable components can be requested by filling out the component request form on our support portal.