

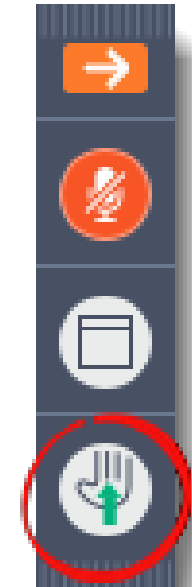
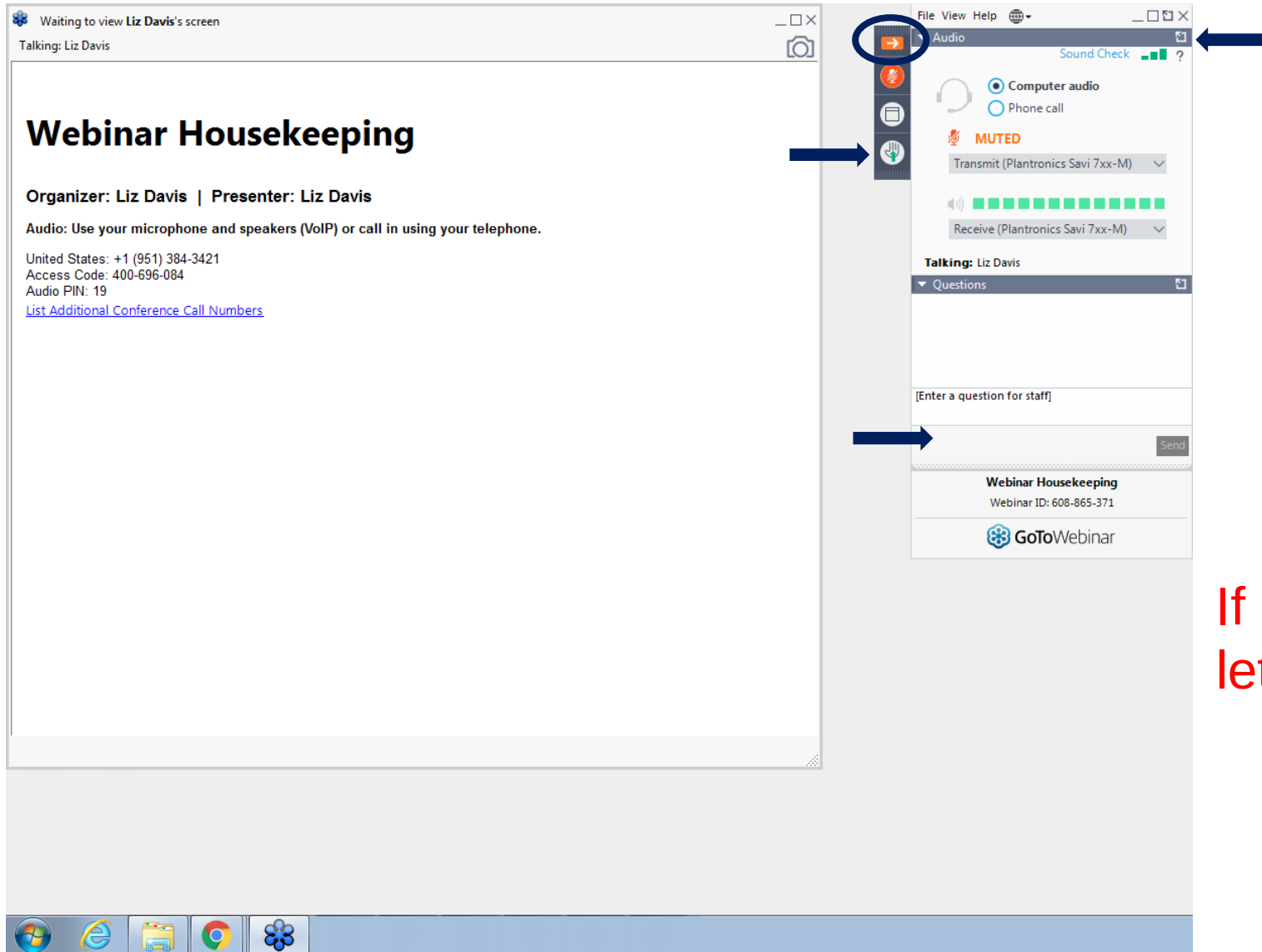
NELES

Product school – Nelprof on/off Sizing

Welcome and thank you for attending this session

In session features

NELES



If experiencing audio issues please let us know in question field.

Introductions

NELES

Presenter / Moderator / Panelist / Guest speaker

- Steven Hocurscak
- Control Valve Product Manager
- With the company for 15 years, predominately involved with control valves.



Agenda

- Opening Nelprof / Initial Setup
- Different Components of Nelprof
- Tricks and Tips
- Information Needed to Size
- Sizing Examples
- Open / Save a File
- Print to PDF
- Contact Information

NELES



Nelprof On/Off

What is Nelprof?

- Nelprof is a software that utilizes process conditions to properly provide the correct actuator / valve size.
- Nelprof is able to output torque values for specific valves and actuators under different ranges of pressure.
- Within Nelprof, we are able to perform an On/Off and or a Control Sizing.

Nelprof On/Off

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<https://valveproducts.neles.com/download/nelprof>

Neles Valve Sizing & Selection Software

Nelprof™ 6.3

Neles valves and automated assemblies improve performance, maximize uptime, and decrease costs. And our valve sizing and selection software, Nelprof 6.3, assures you select the right configuration for the job.

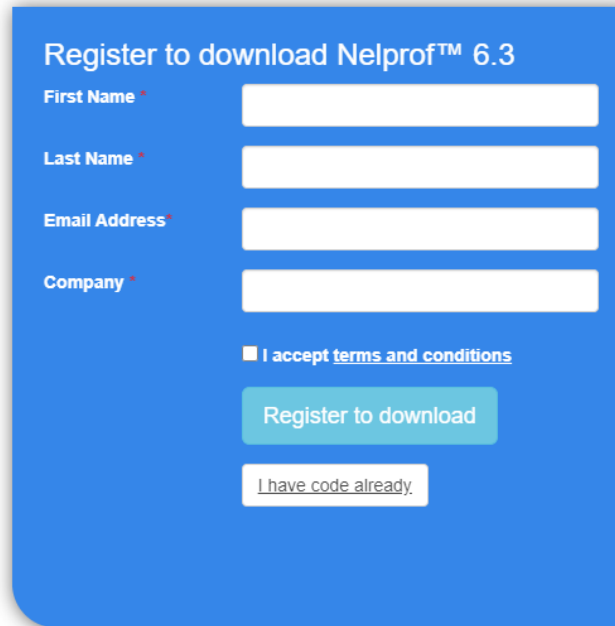
Nelprof 6.3 powerful control valve selection features include:

- Safety valve optimization
- Control valve selection with performance analysis
- Fast and reliable on/off valve selection
- Optimization of safety-critical system components

Get the valves that are reliable today, tomorrow, and every day.

Download your free copy of Nelprof 6.3 today and see for yourself the difference Neles can make. Download size: 86 Mb

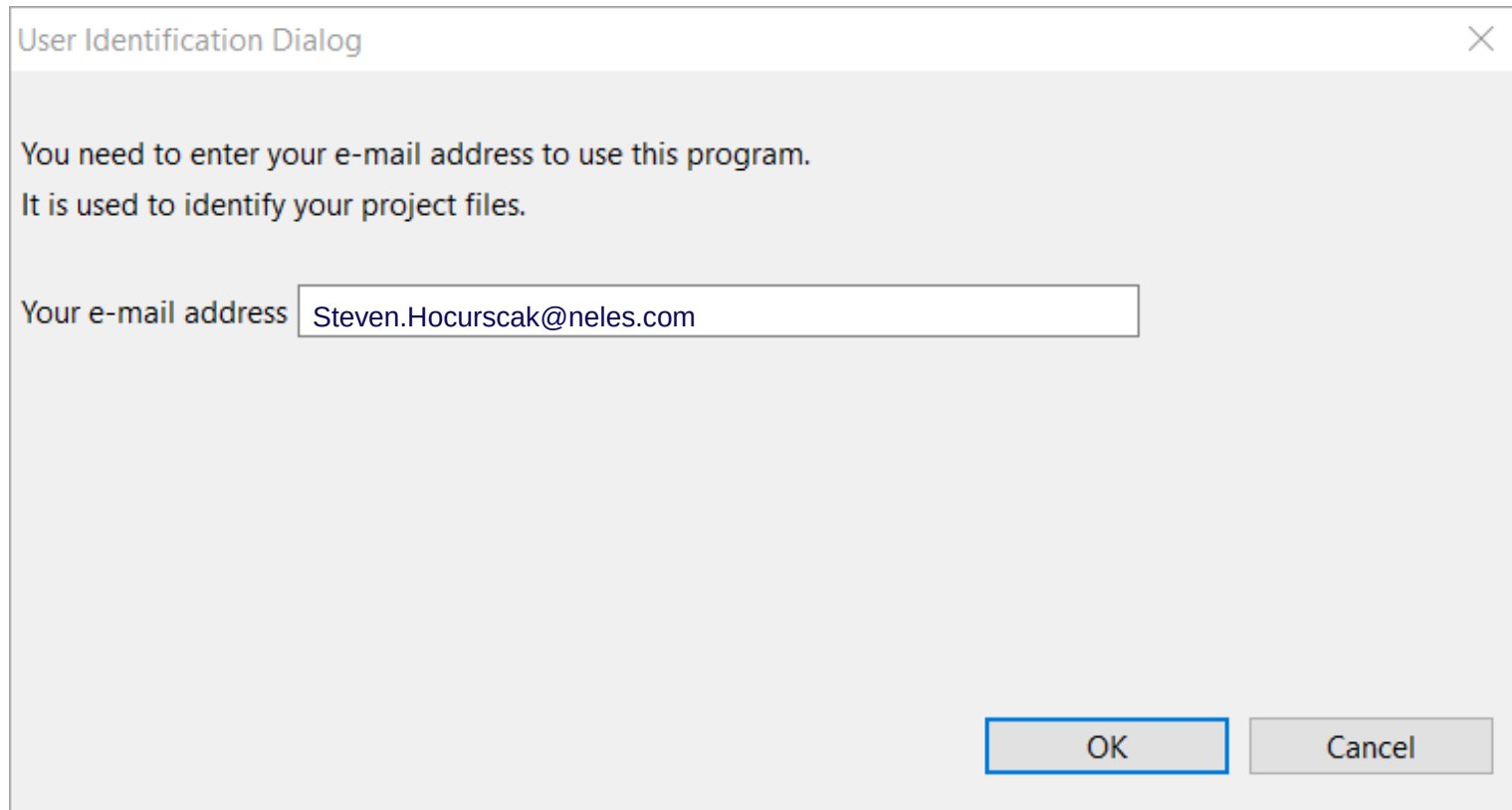
Reliability lives at Neles.

A registration form titled "Register to download Nelprof™ 6.3" on a blue background. It contains four input fields: "First Name", "Last Name", "Email Address", and "Company", each with a red asterisk indicating a required field. Below the fields is a checkbox labeled "I accept terms and conditions" with a link to the terms. A green button labeled "Register to download" is positioned below the checkbox. At the bottom, there is a link that says "I have code already." data-bbox="378 348 618 782"/>

- You can download Nelprof online at the link above.
- If you have issues with the download, please contact me for assistance.

Nelprof On/Off

Opening Nelprof / Initial setup



A screenshot of a 'User Identification Dialog' window. The window has a title bar with the text 'User Identification Dialog' and a close button (X) on the right. The main area contains the following text: 'You need to enter your e-mail address to use this program. It is used to identify your project files.' Below this text is a text input field with the label 'Your e-mail address' to its left. The input field contains the text 'Steven.Hocurscak@neles.com'. At the bottom right of the dialog are two buttons: 'OK' and 'Cancel'.

User Identification Dialog

You need to enter your e-mail address to use this program.
It is used to identify your project files.

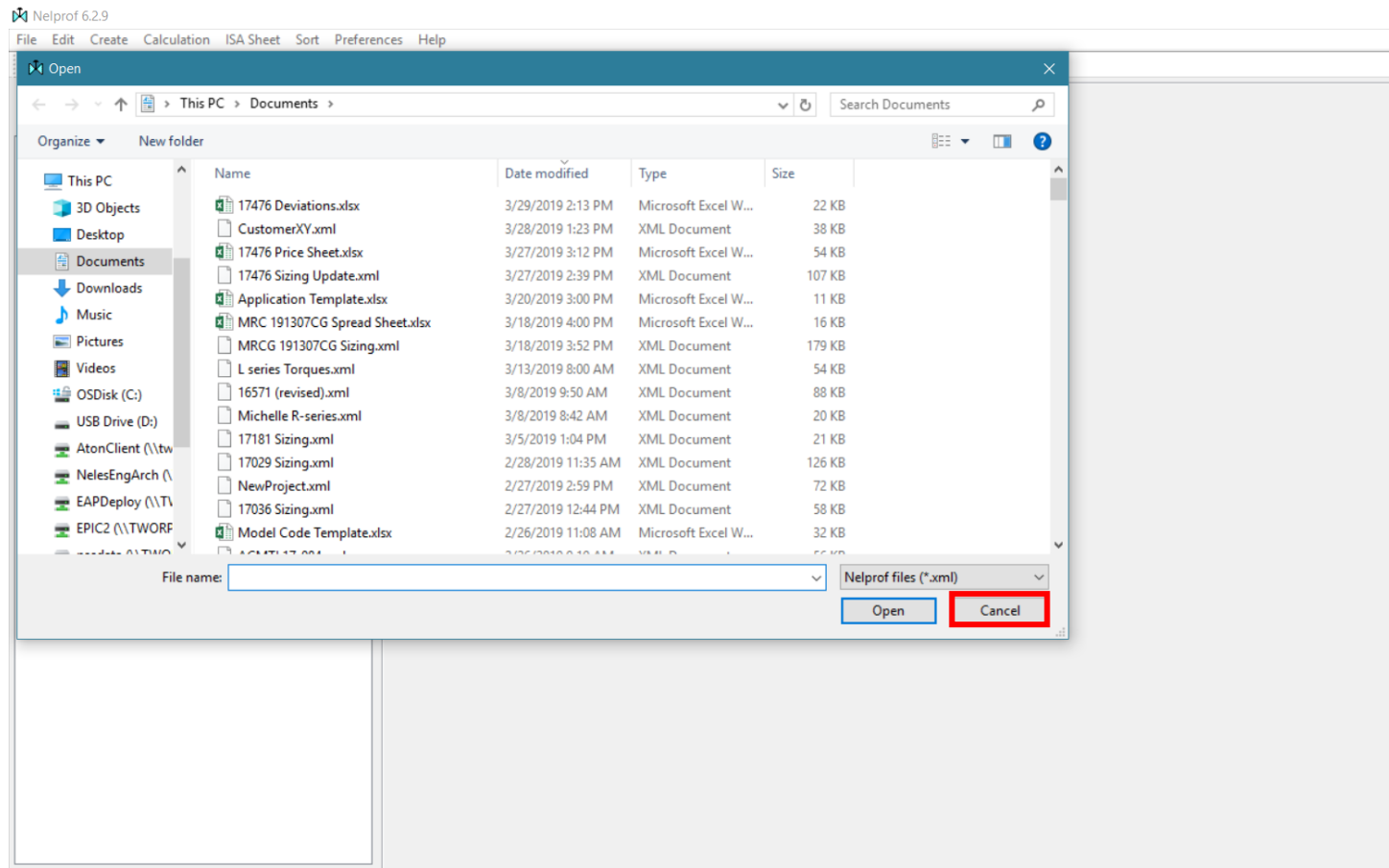
Your e-mail address

OK Cancel

- One of the first screens you will see when loading Nelprof is the “User Identification Dialog”.
- Enter your email address

Nelprof On/Off

Opening Nelprof / Initial setup

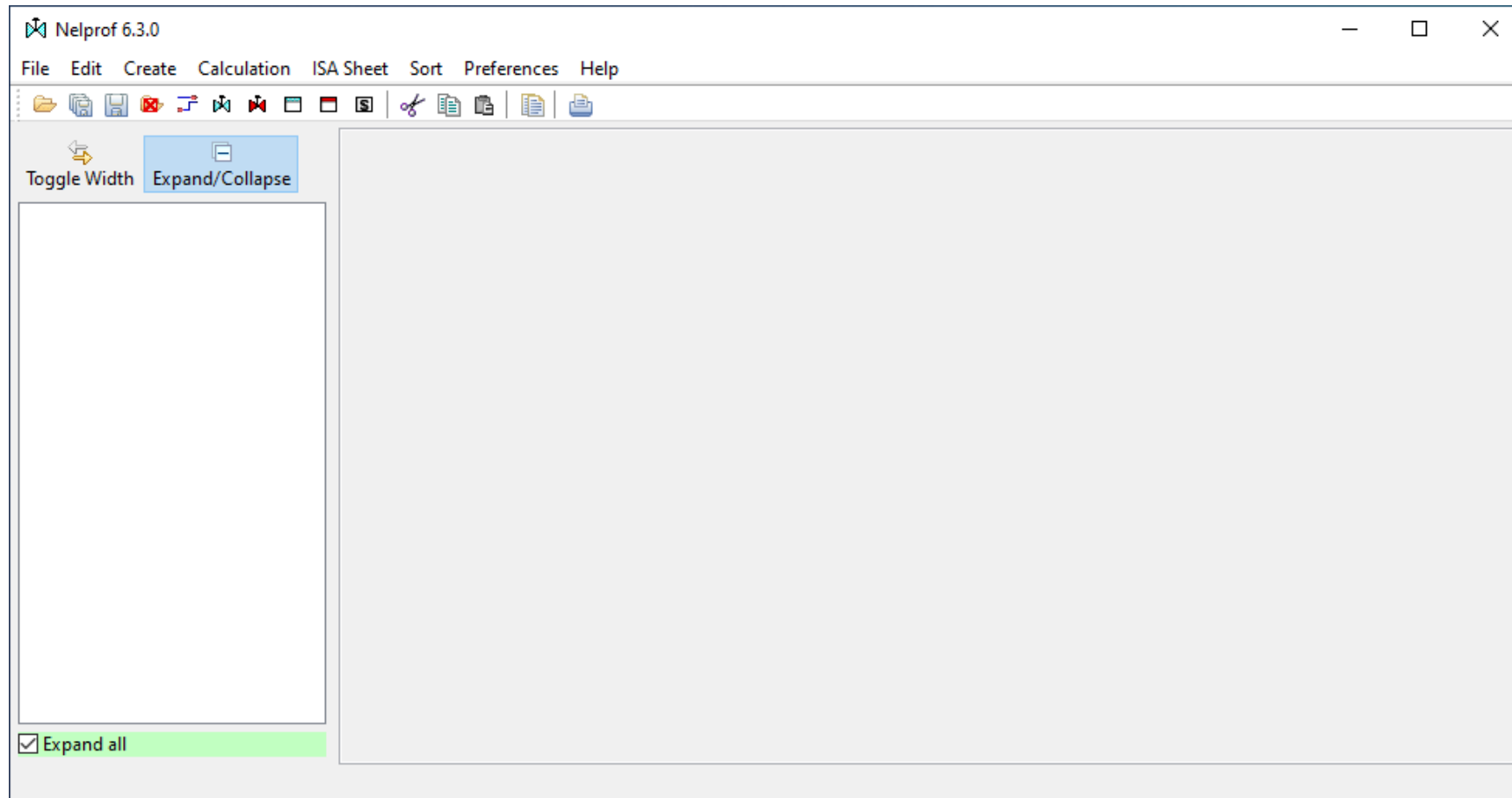


- By default, Nelprof is setup to open a new project at startup. If this screen opens up for you, just close it for the time being.

Nelprof On/Off

NELES

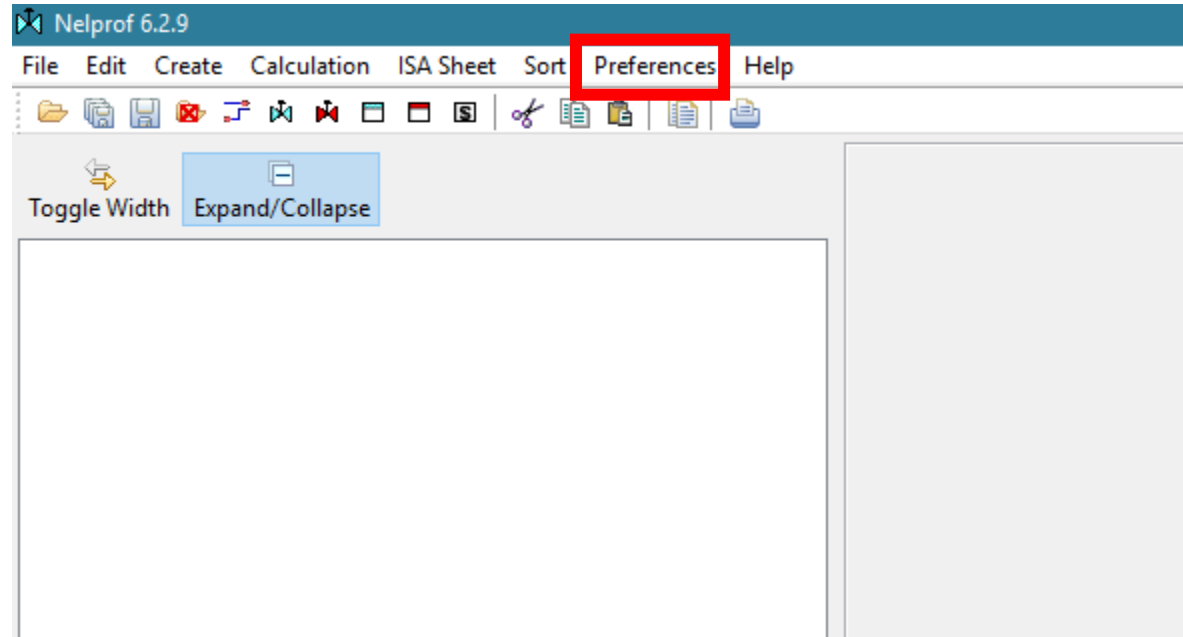
Opening Nelprof / Initial setup



Nelprof On/Off

NELES

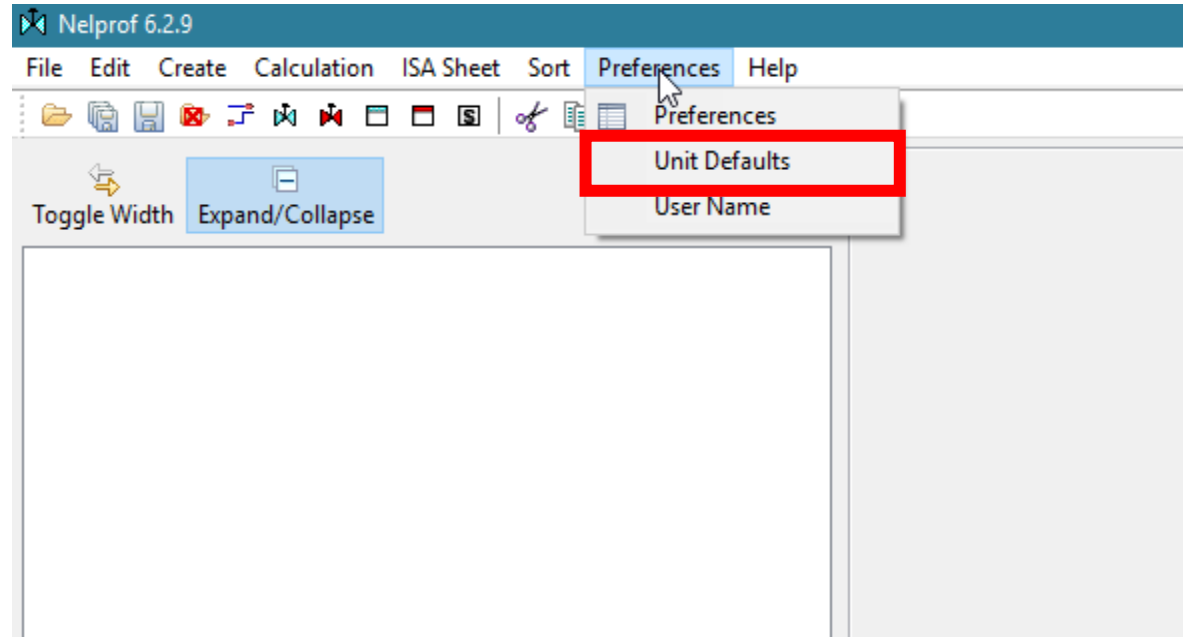
Opening Nelprof / initial setup (unit preferences)



Nelprof On/Off

NELES

Opening Nelprof / initial setup (unit preferences)



Nelprof On/Off

NELES

Opening Nelprof / initial setup (unit preferences)

Default Units for new sizings

Pipe dimension	in
Density	lb/ft3
Critical pressure	psiA
Viscosity	cp
Liquid flow rate	gpm
Gas flow rate	scfh
Steam flow rate	lb/h
Temperature	degF
Pressure	psiA
Vapour pressure	psiA
Shut-off pressure	psi
Liquid velocity	ft/s
Gas velocity	Mach
Terminal DP	psi
Valve size	in

Set unit defaults as SI or US
Use SI units Use US units

Defaults
Supply Pressure
60 psiG

Medium Type
Water

Medium

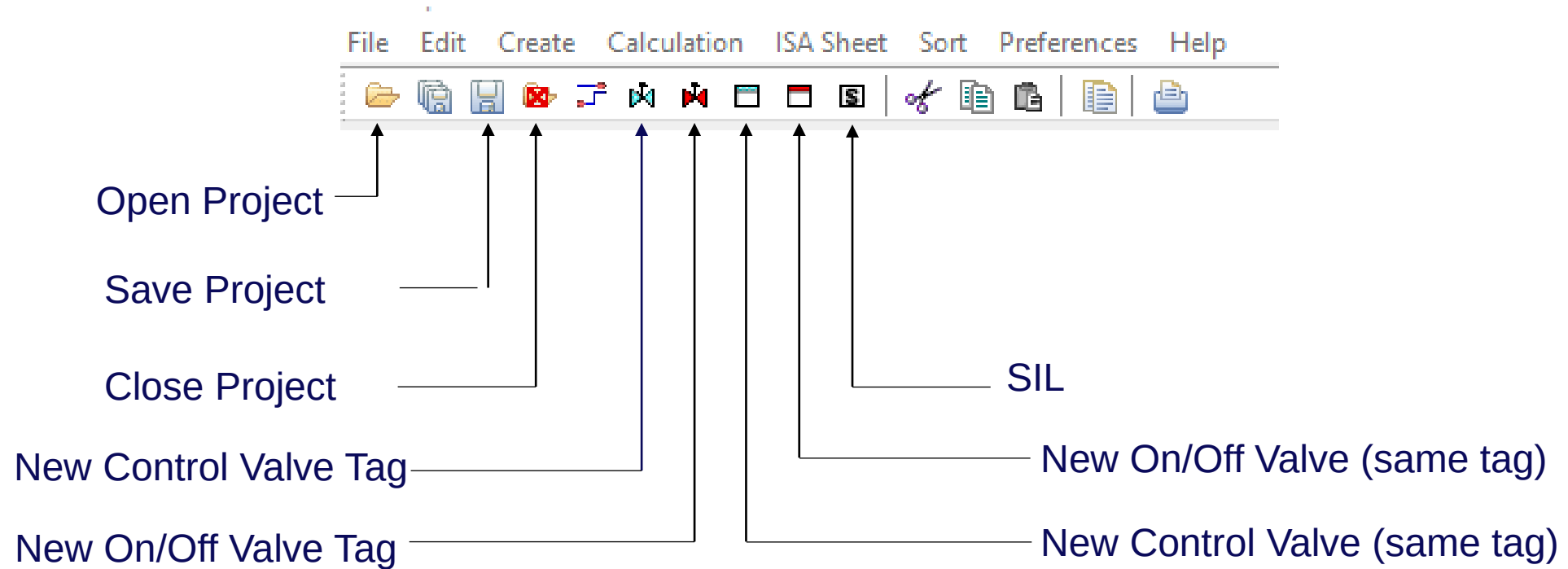
Sizing Type
On-off

Safety factor
1.2

OK Cancel

Nelprof On/Off

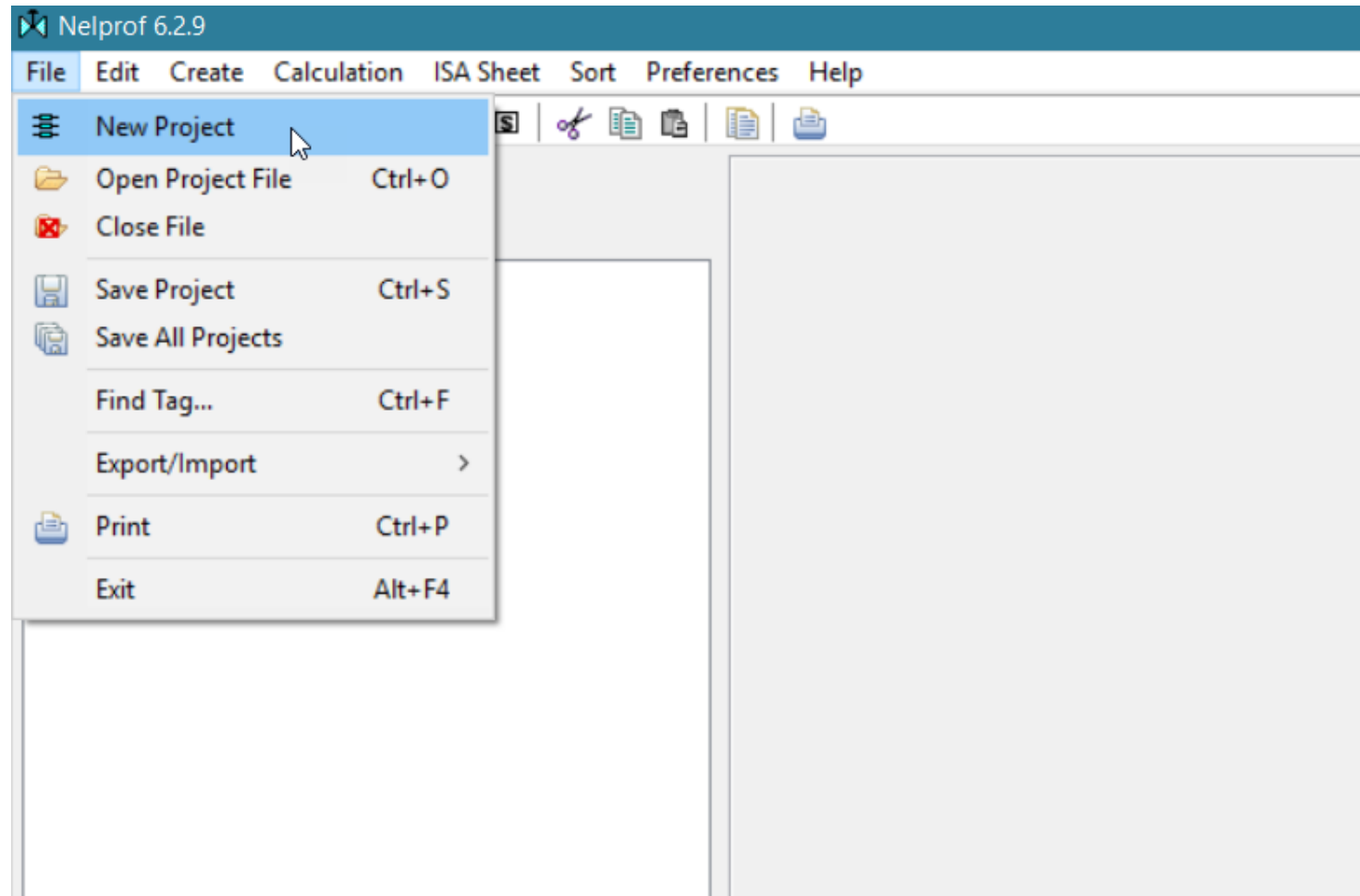
Opening Nelprof / Initial setup (Key items)



Nelprof On/Off

NELES

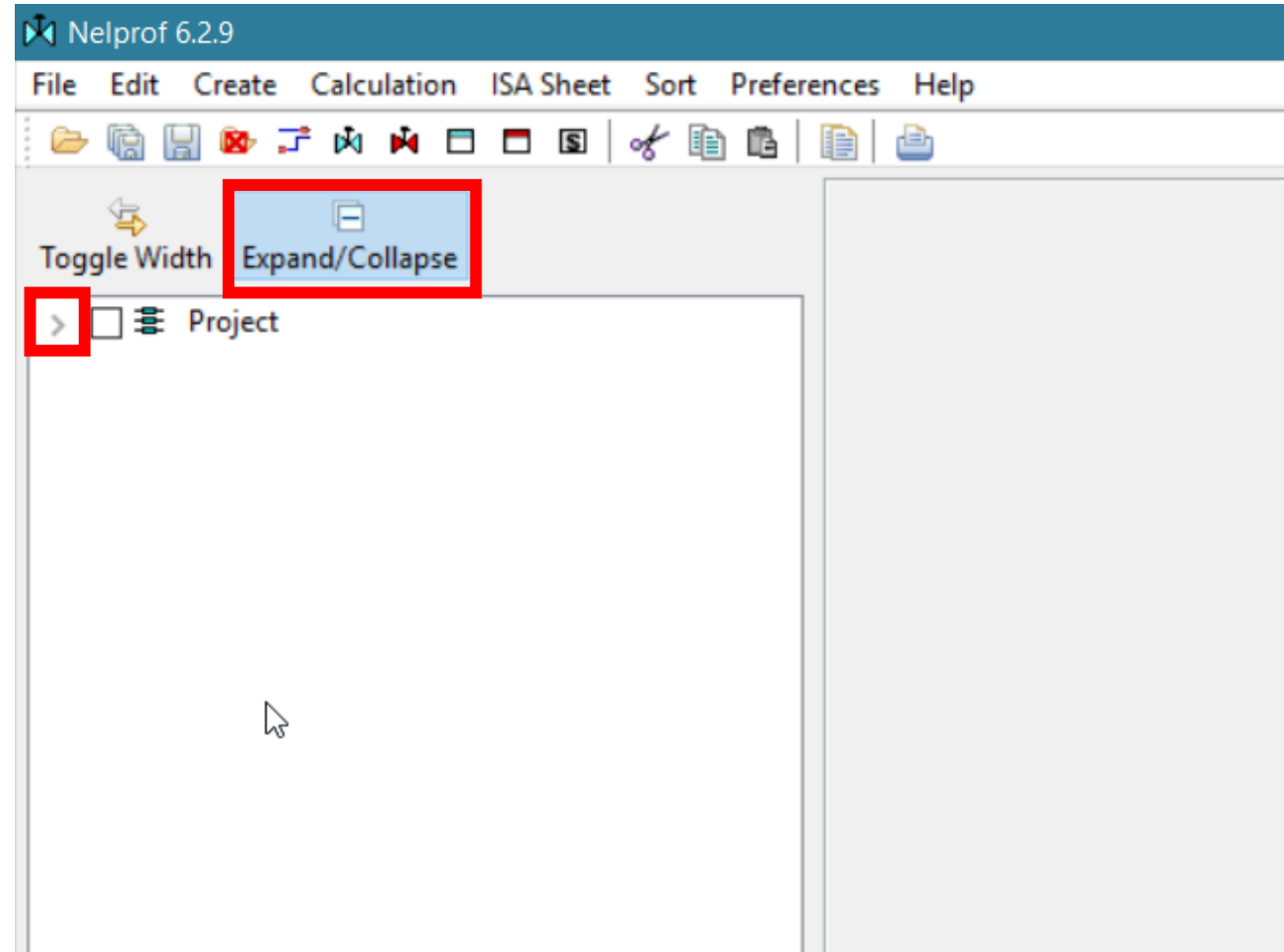
Different components of Nelprof (new project)



Nelprof On/Off

NELES

Different components of Nelprof (new project)



Nelprof On/Off

NELES

Different components of Nelprof (new project)

Nelprof 6.2.9

File Edit Create Calculation ISA Sheet Sort Preferences Help

Toggle Width Expand/Collapse

Project

Area

Tag

On-off

PROJECT INFO

Project name *)

PFF Project no

Revision 0

Project Manager

GENERAL INFO

Quotation number *)

Metso reference

Metso contact

End customer

Invoice customer

Contractor name

Customer reference

Creation date 2019-03-27

Created by joshua.ruiz@metso.com

Remarks

*) Fill in at least Quotation Number or Project Name

Project units and defaults (Note: this project must be SAVED first!)

Create Edit Delete

Tags: 1, Sizings: 1, Calculated: 0, NOT Calculated: 1

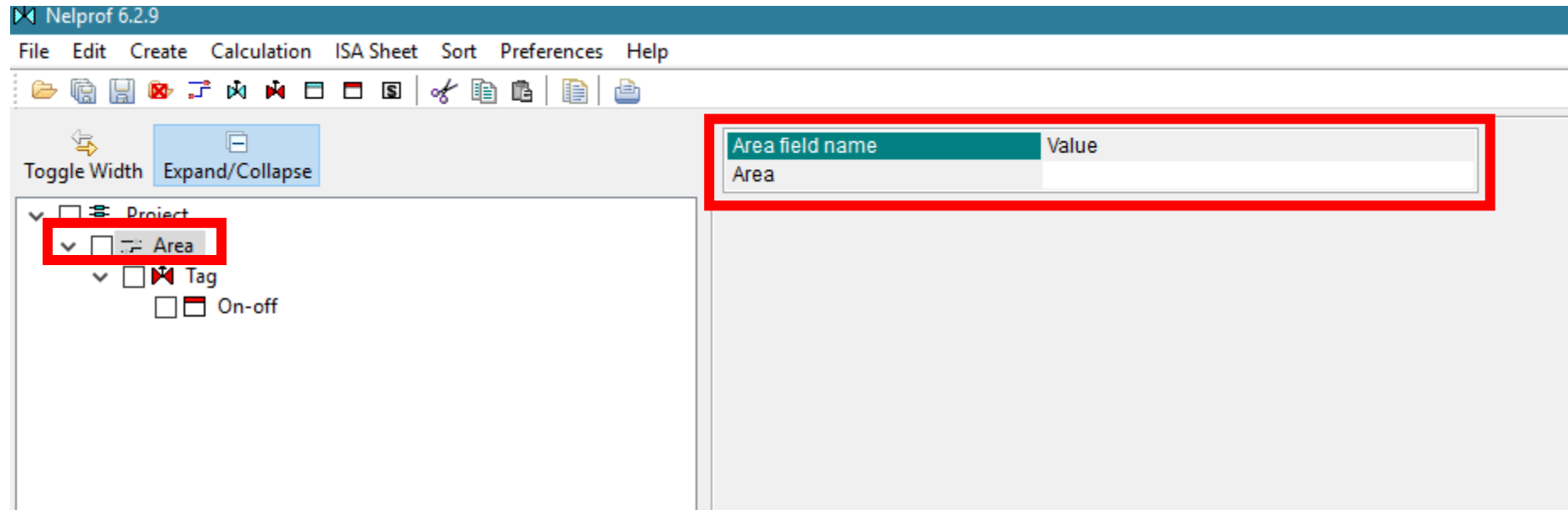
Project file: NewProject

Project default value file:

Nelprof On/Off

NELES

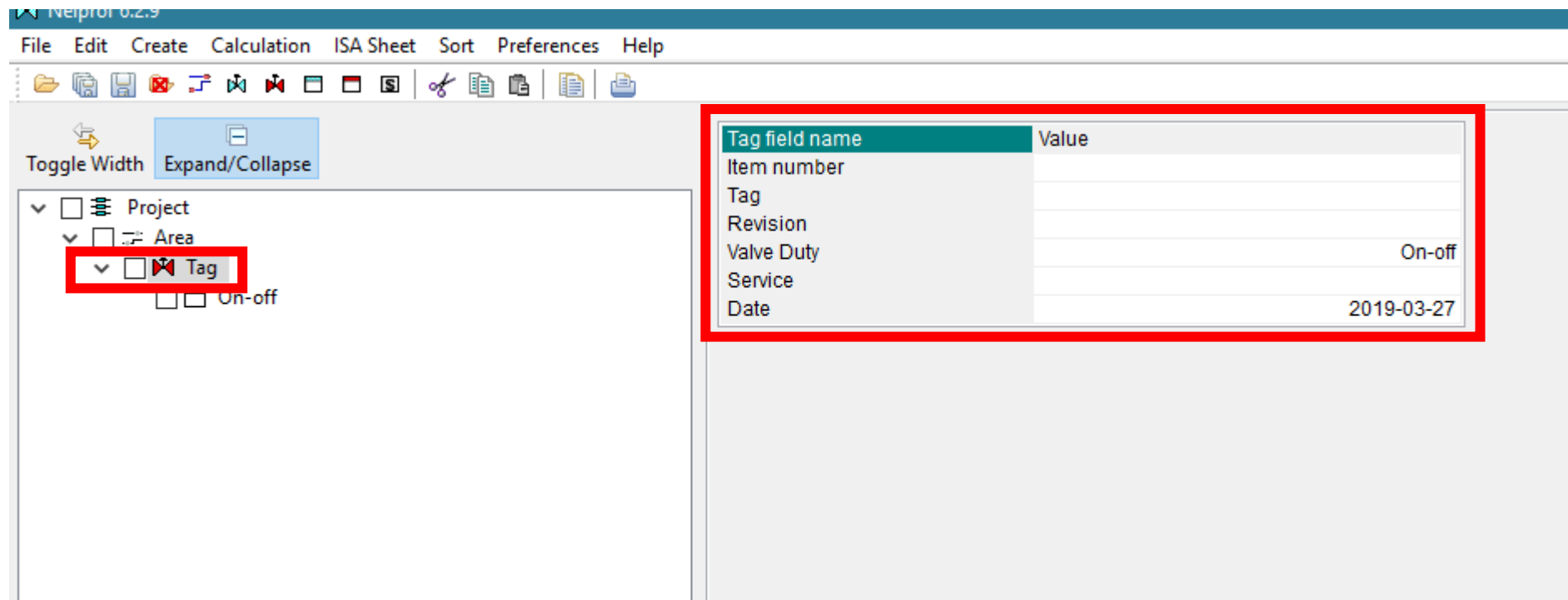
Different components of Nelprof (new project)



Nelprof On/Off

NELES

Different components of Nelprof (new project)



Nelprof On/Off

NELES

Different components of Nelprof (new project)

Nelprof 6.2.9

File Edit Create Calculation ISA Sheet Sort Preferences Help

Toggle Width Expand/Collapse

Project

Area

On-off

Liquid Water Pulp

Gas Steam 2-phase

Crit press psiA 3208.214
Special servi Normal

Design P psiA
DesignTmax degF
DesignTmin degF

☐ Recommended safety factor
☐ Show details

Calculate

Result:
Valve
Actuator
Valve:

On-off Remarks

Pipeline Unit Inlet dia Outlet dia Thickness Schedule

Process data Unit Case 1
Inlet temp degF
DP-shutoff psi

Valve... Unit Type Press rating Code Size
Max capacity FpCv

Construction Material Seat Gland pack Bearings Safety factor
1.2

Actuator... Code Size Unit Supply press Spring rate
AUTOM psiG 60

Valve torques
BTO fltB ETC fltB

Actuator torques
BTO fltB ETC fltB

Safety factors
BTO ETC

Nelprof On/Off

NELES

Different components of Nelprof (On/Off breakdown)

 Liquid	 Water	 Pulp																																																																																																			
 Gas	 Steam	 2-phase																																																																																																			
Crit press psiA 3208.214 Special servi Normal Design P psiA DesignTmax degF DesignTmin degF ☐ Recommended safety factor ☐ Show details Calculate Result: Valve Actuator Valve:																																																																																																					
<table><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr><tr><td></td><td></td><td>in</td><td></td><td></td><td>40</td></tr></table> <table><tr><th>Process data</th><th>Unit</th><th>Case 1</th></tr><tr><td>Inlet temp</td><td>degF</td><td></td></tr><tr><td>DP-shutoff</td><td>psi</td><td></td></tr></table> <table><tr><th>Valve...</th><th>Unit</th><th>Type</th><th>Press rating</th><th>Code</th><th>Size</th></tr><tr><td></td><td>in</td><td>ALL</td><td>ALL ANSI</td><td></td><td></td></tr><tr><td>Max capacity</td><td>FpCv</td><td></td><td></td><td></td><td></td></tr></table> <table><tr><th>Construction</th><th>Material</th><th>Seat</th><th>Gland pack</th><th>Bearings</th><th>Safety factor</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1.2</td></tr></table> <table><tr><th>Actuator...</th><th>Code</th><th>Size</th><th>Unit</th><th>Supply press</th><th>Spring rate</th></tr><tr><td></td><td></td><td>AUTOM</td><td>psiG</td><td>60</td><td></td></tr></table> <table><tr><th colspan="6">Valve torques</th></tr><tr><td>BTO</td><td>ftlb</td><td></td><td>ETC</td><td>ftlb</td><td></td></tr></table> <table><tr><th colspan="6">Actuator torques</th></tr><tr><td>BTO</td><td>ftlb</td><td></td><td>ETC</td><td>ftlb</td><td></td></tr></table> <table><tr><th colspan="6">Safety factors</th></tr><tr><td>BTO</td><td></td><td></td><td>ETC</td><td></td><td></td></tr></table>			Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in			40	Process data	Unit	Case 1	Inlet temp	degF		DP-shutoff	psi		Valve...	Unit	Type	Press rating	Code	Size		in	ALL	ALL ANSI			Max capacity	FpCv					Construction	Material	Seat	Gland pack	Bearings	Safety factor						1.2	Actuator...	Code	Size	Unit	Supply press	Spring rate			AUTOM	psiG	60		Valve torques						BTO	ftlb		ETC	ftlb		Actuator torques						BTO	ftlb		ETC	ftlb		Safety factors						BTO			ETC		
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Nelprof On/Off

NELES

Different components of Nelprof (remarks)



Nelprof On/Off

NELES

Different components of Nelprof (media options)

The screenshot displays the Nelprof software interface. On the left, a red box highlights the media selection area, which includes icons for Liquid, Water, Pulp, Gas, Steam, and 2-phase. Below these, a dropdown menu is open, showing a list of media options: Acetone, Acetylene, Air, Ammonia, and others. The main area of the interface contains several tables for inputting data:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in			40

Process data	Unit	Case 1
Inlet temp	degF	
DP-shutoff	psi	

Valve...	Unit	Type	Press rating	Code	Size
		in	ALL	ALL ANSI	
Max capacity	FpCv				

Construction	Material	Seat	Gland pack	Bearings	Safety factor
					1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
		AUTOM	psiG	60	

Valve torques				
BTO	ftlb		ETC	ftlb

Actuator torques				
BTO	ftlb		ETC	ftlb

Safety factors			
BTO		ETC	

Below the tables, there are checkboxes for "Recommended safety factor" and "Show details", a "Calculate" button, and a "Result:" section with fields for "Valve" and "Actuator".

Nelprof On/Off

NELES

Different components of Nelprof (unit conversion)

On-off ☐ Remarks

 Liquid

 Water

 Pulp

 Gas

 Steam

 2-phase

Crit press psiA 3208.214

Special servi Normal

Design P psiA

DesignTmax degF

DesignTmin degF

☐ Recommended safety factor

☐ Show details

Calculate

Result:

Valve

Actuator

Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in				40

Process data	Unit	Case 1
Inlet temp	degF	
DP-shutoff	degC	
	degF	
	K	

Valve...	in	ALL	ALL ANSI	Press rating	Code	Size
Max capacity	FpCv					

Construction	Material	Seat	Gland pack	Bearings	Safety factor
					1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
		AUTOM	psiG	60	

Valve torques				
BTO	ftlb	ETC	ftlb	

Actuator torques				
BTO	ftlb	ETC	ftlb	

Safety factors				
BTO		ETC		

Nelprof On/Off

NELES

Different components of Nelprof (drop down information)

The screenshot displays the Nelprof On/Off software interface. On the left, there are icons for 'Liquid', 'Water', 'Pulp', 'Gas', 'Steam', and '2-phase'. Below these are input fields for 'Crit press' (psiA, 3208.214), 'Special servi' (Normal), 'Design P' (psiA), 'DesignTmax' (degF), and 'DesignTmin' (degF). There are checkboxes for 'Recommended safety factor' and 'Show details', and a 'Calculate' button. At the bottom left, there are labels for 'Valve', 'Actuator', and 'Valve:' with corresponding input fields.

The main area contains several tables and a dropdown menu. The 'Pipeline' table has columns: Pipeline, Unit, Inlet dia, Outlet dia, Thickness, and Schedule. The 'Process data' table has columns: Process data, Unit, and Case 1. The 'Valve...' table has columns: Valve..., Unit, Type, Press rating, Code, and Size. The 'Construction' table has columns: Construction, Material, and Safety factor. The 'Actuator...' table has columns: Actuator..., Code, and Supply press. The 'Valve torques' table has columns: Valve torques, Unit, and ftlb. The 'Actuator torques' table has columns: Actuator torques, Unit, and ETC. The 'Safety factors' table has columns: Safety factors, Unit, and ETC.

A dropdown menu is open, showing the following options: ALL, BALL, BUTTERFLY, GLOBE, ANGLE, ROTARY, SEGMENT, GENERIC, OBSOLETE, and OWN.

Nelprof On/Off

NELES

Different components of Nelprof (drop down information)

The screenshot displays the Nelprof On/Off software interface. On the left, there are buttons for fluid types: Liquid, Water (selected), Pulp, Gas, Steam, and 2-phase. Below these are input fields for Critical pressure (3208.214 psiA), Special service (Normal), Design pressure (psiA), Design temperature (degF), and Design minimum temperature (degF). There are checkboxes for 'Recommended safety factor' and 'Show details', and a 'Calculate' button. At the bottom left, there are labels for 'Valve' and 'Actuator' with corresponding empty input fields, and a 'Valve:' label with an empty input field.

The main area contains several tables and dropdown menus:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in			40

Process data	Unit	Case 1
Inlet temp	degF	
DP-shutoff	psi	

Valve...	Unit	Type	Press rating	Code	Size
		in	ALL	ALL ANSI	
Max capacity	FpCv				

Construction	Material	Seat

Actuator...	Code	Size
		AUTOM

Valve torques	
BTO	ftlb

Actuator torques	
BTO	ftlb

Safety factors	
BTO	

A dropdown menu is open, showing the following options: ALL PN, ALL ANSI, PN 10, PN 16, PN 25, PN 40, PN 63, PN 100, PN 160, PN 250, PN 420, ANSI 150, ANSI 300, ANSI 600, ANSI 900, ANSI 1500, ANSI 2500, and ANSI 4500.

Nelprof On/Off

NELES

Different components of Nelprof (torque expansion)

Media Selection: Liquid, Water, Pulp, Gas, Steam, 2-phase

Design Parameters:
Crit press: 3208.214 psia
Special servi: Normal
Design P: psia
Design Tmax: degF
Design Tmin: degF

☐ Recommended safety factor
☒ Show details

Calculate

Result:
Valve:
Actuator:
Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in			40

Process data	Unit	Case 1
Inlet temp	degF	
DP-shutoff	psi	

Valve...	Unit	Type	Press rating	Code	Size
	in	ALL	ALL ANSI		
Max capacity	FpCv				

Construction	Material	Seat	Gland pack	Bearings	Safety factor
					1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
		AUTOM	psiG	60	

Valve torques					
BTO	ftlb		ETC	ftlb	
RTO	ftlb		RTC	ftlb	
ETO	ftlb		BTC	ftlb	

Actuator torques					
BTO	ftlb		ETC	ftlb	
RTO	ftlb		RTC	ftlb	
ETO	ftlb		BTC	ftlb	

Safety factors					
BTO			ETC		
RTO			RTC		
ETO			BTC		

Nelprof On/Off

NELES

Different components of Nelprof (seat drop down)

The screenshot displays the Nelprof On/Off software interface. On the left, there are buttons for 'Liquid', 'Water', 'Pulp', 'Gas', 'Steam', and '2-phase'. Below these are input fields for 'Crit press' (psiA, 3208.214), 'Special servi' (Normal), 'Design P' (psiA), 'DesignTmax' (degF), and 'DesignTmin' (degF). There are also checkboxes for 'Recommended safety factor' and 'Show details', and a 'Calculate' button. At the bottom left, there are fields for 'Valve', 'Actuator', and 'Valve:'.

The main area contains several tables and dropdown menus:

- Pipeline table:**

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in				40
- Process data table:**

Process data	Unit	Case 1
Inlet temp	degF	
DP-shutoff	psi	
- Valve... table:**

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 150	XMBV	3
Max capacity	FpCv				
- Construction table:**

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		al, Type P, K, S	P/FE/TFE	PTFE	1.2
- Actuator... table:**

Actuator...	Code	Supply press	Spring rate
			60
- Valve torques table:**

Valve torques			
BTO	ftlb	ETC	ftlb
- Actuator torques table:**

Actuator torques			
BTO	ftlb	ETC	ftlb
- Safety factors table:**

Safety factors		
BTO		ETC

The 'Seat' dropdown menu in the Construction table is highlighted with a red box, showing the following options:

- al, Type P, K, S
- Metal, Type P, K, S
- Metal, Type H, G, E, J
- Soft, Type X, T

Nelprof On/Off

NELES

Different components of Nelprof (new valve tag)

The screenshot shows the Nelprof 6.2.9 software interface. The 'On-off' tab is selected, and the 'Remarks' field is empty. The left sidebar shows a tree view with 'Project', 'Area', 'Tag', and 'On-off' sub-items. The 'On-off' sub-item is highlighted with a yellow box. The main panel displays various input fields and tables for valve specifications.

On-off ☐ Remarks

Process data

Unit	Case 1
Inlet temp	degF
DP-shutoff	psi

Valve...

Unit	Type	Press rating	Code	Size
in	ALL	ALL ANSI		

Max capacity

Unit	FpCv

Construction

Material	Seat	Gland pack	Bearings	Safety factor
				1.2

Actuator...

Code	Size	Unit	Supply press	Spring rate
	AUTOM	psiG	60	

Valve torques

BTO	ftlb	ETC	ftlb

Actuator torques

BTO	ftlb	ETC	ftlb

Safety factors

BTO	ETC

Design P psiA

DesignTmax degF

DesignTmin degF

☐ Recommended safety factor

☐ Show details

Calculate

Result:

Valve

Actuator

Valve:

Nelprof On/Off

NELES

Different components of Nelprof (safety and service factors)

The screenshot displays the Nelprof software interface for valve sizing. It includes input fields for fluid type (Liquid, Water, Pulp, Gas, Steam, 2-phase), pipeline dimensions (Inlet dia, Outlet dia, Thickness, Schedule), process data (Inlet temp, DP-shutoff), valve specifications (Valve..., Unit, Type, Press rating, Code, Size), and actuator details (Actuator..., Code, Size, Unit, Supply press, Spring rate). A dropdown menu for 'Special servi' is open, showing options: Normal, Dirty, Sticky, Nonlubricant, ESD, and PDS polymer. The 'Calculate' button is visible. The results section shows the valve selected as 'XMBV, 3 in' and the actuator as 'B1J10'. The 'Recommended safety factor' is highlighted as 1.2.

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	3	3		40

Process data	Unit	Case 1
Inlet temp	degF	100
DP-shutoff	psi	200

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 150	XMBV	3

Max capacity	Unit	FpCv
		1160

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type P, I	PTFE/TFE	PTFE	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Valve torques	ftlb	ETC	ftlb	
	117	ETC		94
	77	RTC		77
	14	BTC		17

Actuator torques	ftlb	ETC	ftlb	
BTO	266	ETC		138
RTO	152	RTC		125
ETO	121	BTC		164

Safety factors		ETC	
BTO	2.3		1.5
RTO	2		1.6
ETO	8.8		9.6

Recommended safety factor	
Open / Close	1.2

Nelprof On/Off

NELES

Sizing Example 1 (Basic Sizing X-MBV)

- Customer Inquiry:
- Pipe Line Size – 3”
- Media – Dirty Liquid (Size a metal seated and soft seated alternate)
 - Pressure = 200 psi
 - Temperature = 100°F
- Valve – 3” X-MBV Ball Valve with Metal Seats
- Actuator – B1J with 60 psi supply

Nelprof On/Off

NELES

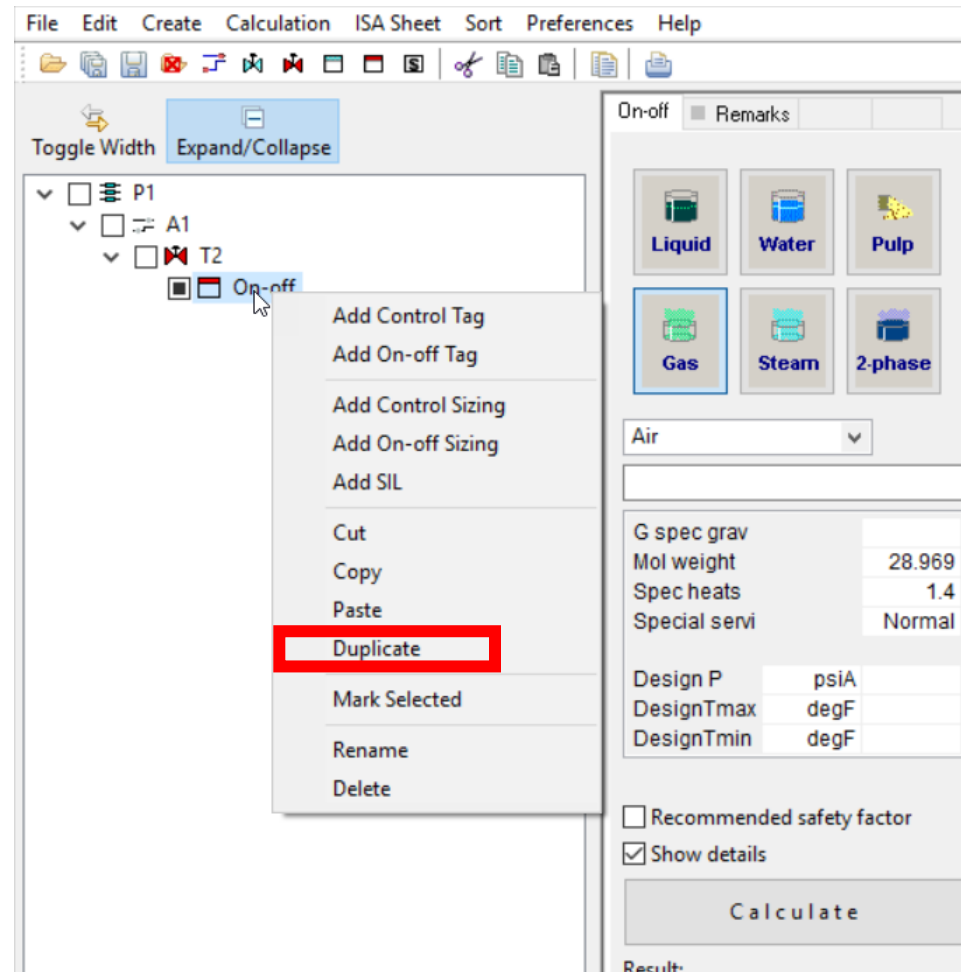
Different components of Nelprof (safety and service factors)

Liquid Water Pulp Gas Steam 2-phase L spec grav Density Crit press Viscosity Sound vel Special servi Design P DesignTmax DesignTmin ☒ Recommended safety factor ☒ Show details Calculate Result: Valve Actuator	<table><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr><tr><td></td><td></td><td>in</td><td>3</td><td>3</td><td>40</td></tr></table> <table><tr><th>Process data</th><th>Unit</th><th>Case 1</th></tr><tr><td>Inlet temp</td><td>degF</td><td>100</td></tr><tr><td>DP-shutoff</td><td>psi</td><td>200</td></tr></table> <table><tr><th>Valve...</th><th>Unit</th><th>Type</th><th>Press rating</th><th>Code</th><th>Size</th></tr><tr><td></td><td></td><td>in</td><td>BALL</td><td>ANSI 150</td><td>XMBV</td></tr><tr><td>Max capacity</td><td>FpCv</td><td>1160</td><td></td><td></td><td>3</td></tr></table> <table><tr><th>Construction</th><th>Material</th><th>Seat</th><th>Gland pack</th><th>Bearings</th><th>Safety factor</th></tr><tr><td></td><td>WCB</td><td>Metal, Type H,</td><td>PTFE/TFE</td><td>Metal</td><td>1</td></tr></table> <table><tr><th>Actuator...</th><th>Code</th><th>Size</th><th>Unit</th><th>Supply press</th><th>Spring rate</th></tr><tr><td></td><td>B1J</td><td>AUTOM</td><td>psiG</td><td>60</td><td></td></tr></table> <table><tr><th colspan="6">Valve torques</th></tr><tr><td>BTO</td><td>ftlb</td><td>151</td><td>ETC</td><td>ftlb</td><td>121</td></tr><tr><td>RTO</td><td>ftlb</td><td>104</td><td>RTC</td><td>ftlb</td><td>104</td></tr><tr><td>ETO</td><td>ftlb</td><td>41</td><td>BTC</td><td>ftlb</td><td>51</td></tr></table> <table><tr><th colspan="6">Actuator torques</th></tr><tr><td>BTO</td><td>ftlb</td><td>529</td><td>ETC</td><td>ftlb</td><td>290</td></tr><tr><td>RTO</td><td>ftlb</td><td>300</td><td>RTC</td><td>ftlb</td><td>264</td></tr><tr><td>ETO</td><td>ftlb</td><td>237</td><td>BTC</td><td>ftlb</td><td>342</td></tr></table> <table><tr><th colspan="6">Safety factors</th></tr><tr><td>BTO</td><td>3.5</td><td>ETC</td><td>2.4</td><td></td><td></td></tr><tr><td>RTO</td><td>2.9</td><td>RTC</td><td>2.5</td><td></td><td></td></tr><tr><td>ETO</td><td>5.8</td><td>BTC</td><td>6.7</td><td></td><td></td></tr></table> <table><tr><th colspan="2">Recommended safety factor</th></tr><tr><td>Open / Close</td><td>1.5</td></tr></table>	Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in	3	3	40	Process data	Unit	Case 1	Inlet temp	degF	100	DP-shutoff	psi	200	Valve...	Unit	Type	Press rating	Code	Size			in	BALL	ANSI 150	XMBV	Max capacity	FpCv	1160			3	Construction	Material	Seat	Gland pack	Bearings	Safety factor		WCB	Metal, Type H,	PTFE/TFE	Metal	1	Actuator...	Code	Size	Unit	Supply press	Spring rate		B1J	AUTOM	psiG	60		Valve torques						BTO	ftlb	151	ETC	ftlb	121	RTO	ftlb	104	RTC	ftlb	104	ETO	ftlb	41	BTC	ftlb	51	Actuator torques						BTO	ftlb	529	ETC	ftlb	290	RTO	ftlb	300	RTC	ftlb	264	ETO	ftlb	237	BTC	ftlb	342	Safety factors						BTO	3.5	ETC	2.4			RTO	2.9	RTC	2.5			ETO	5.8	BTC	6.7			Recommended safety factor		Open / Close	1.5
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Nelprof On/Off

Tricks and tips (duplicate)

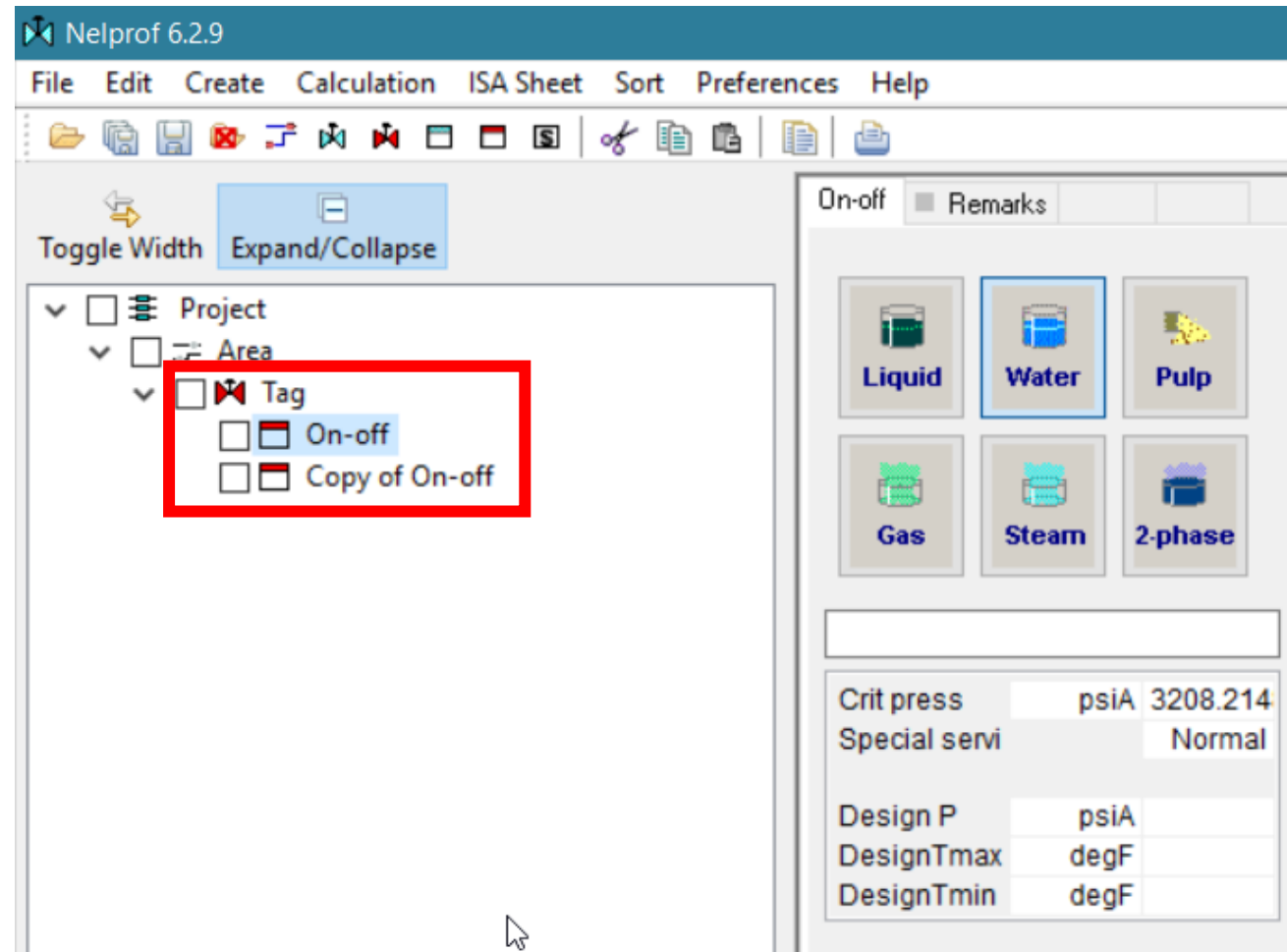
NELES



Nelprof On/Off

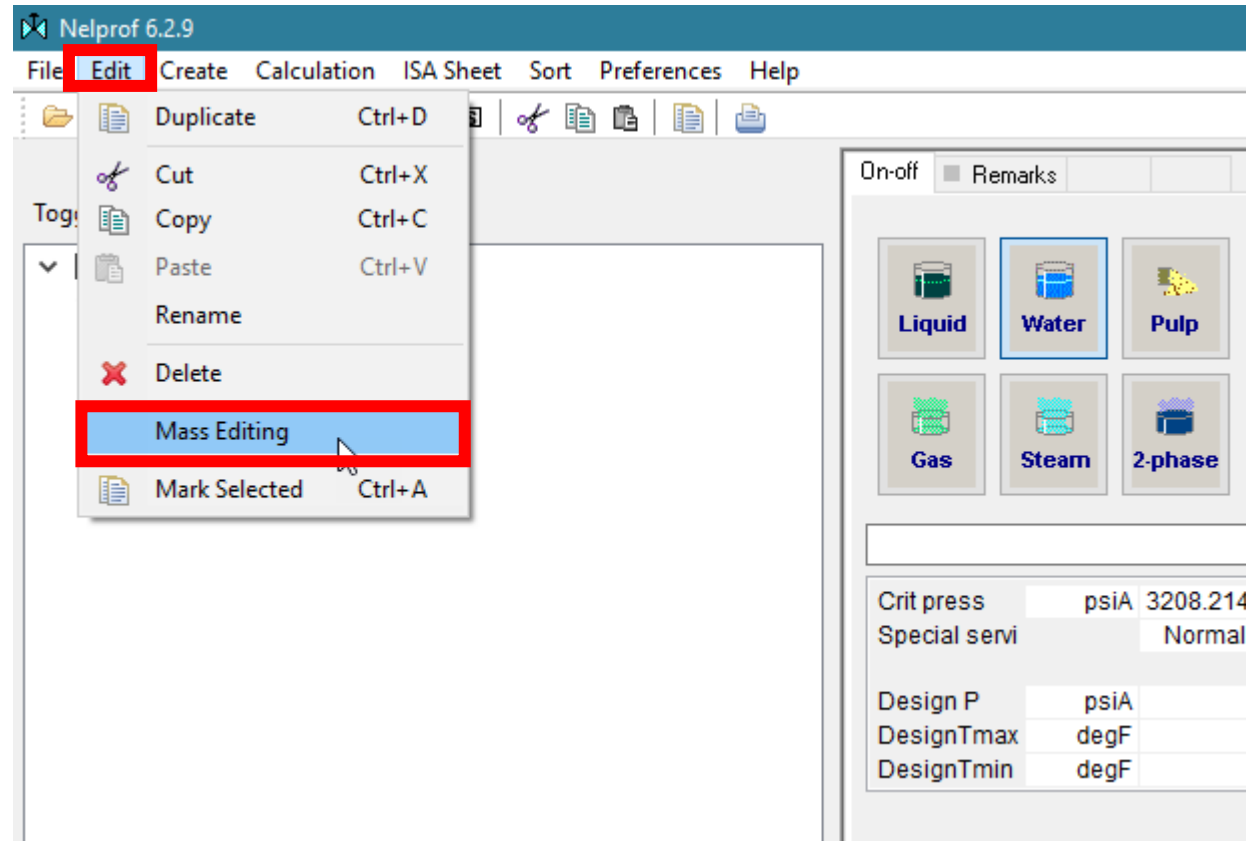
Tricks and tips (duplicate)

NELES



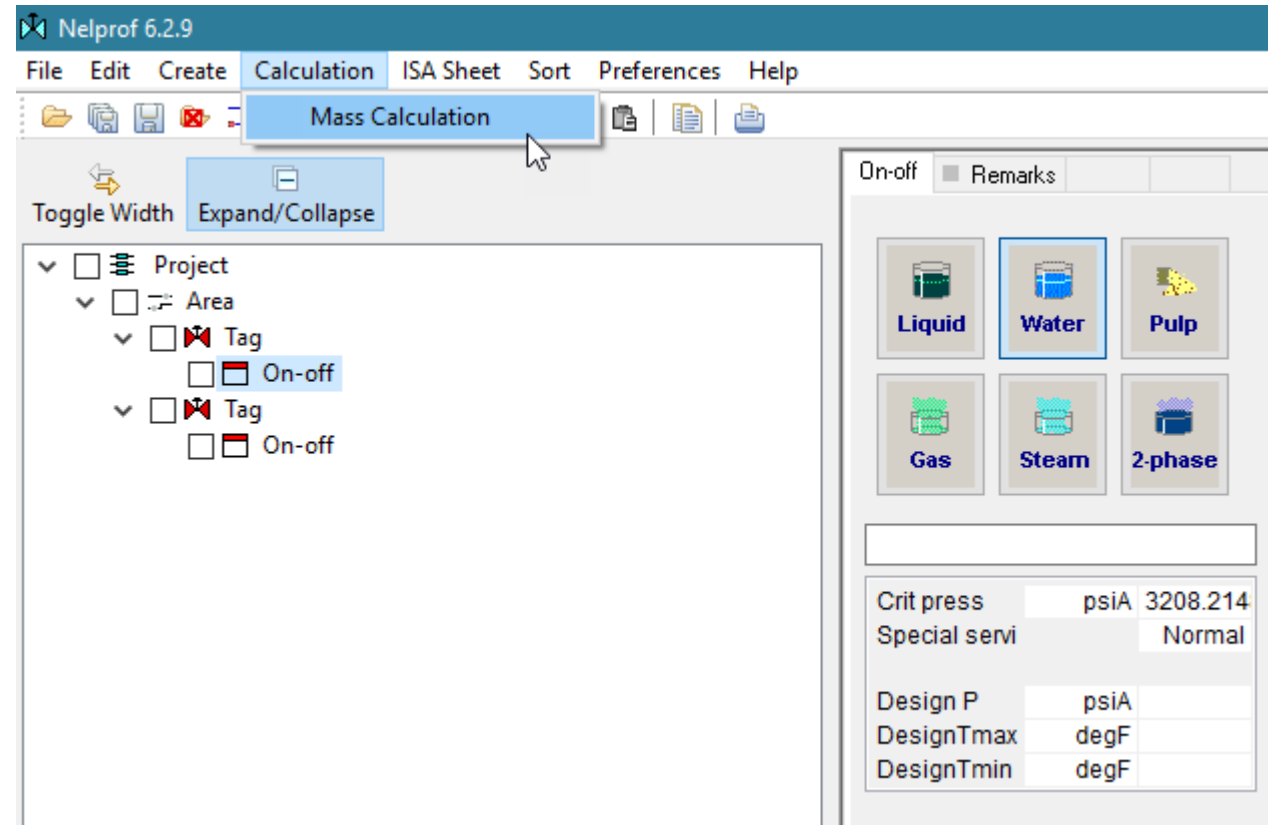
Nelprof On/Off

Tricks and tips (mass edit)



Nelprof On/Off

Tricks and tips (mass calc)



Nelprof On/Off

Tricks and tips (spring rate)

 Liquid	 Water	 Pulp
 Gas	 Steam	 2-phase
Air		
G spec grav 28.969		
Mol weight 1.4		
Spec heats Normal		
Special servi		
Design P	psiA	
DesignTmax	degF	
DesignTmin	degF	
☐ Recommended safety factor		
☒ Show details		
Calculate		
Result:		
Valve		
Actuator		
Valve:		

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	4	4		40

Process data	Unit	Case 1
Inlet temp	degF	600
DP-shutoff	psi	300

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 300	XMBV	4
Max capacity	FpCv				

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type H,	PTFE/TFE	PTFE	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	VPVL SR	200	psiG	60	59.461

Valve torques					
BTO	ftlb		ETC	ftlb	
RTO	ftlb		RTC	ftlb	
ETO	ftlb		BTC	ftlb	

Actuator torques					
BTO	ftlb		ETC	ftlb	
RTO	ftlb		RTC	ftlb	
ETO	ftlb		BTC	ftlb	

Safety factors					
BTO			ETC		
RTO			RTC		
ETO			BTC		

Nelprof On/Off

Tricks and tips (spring rate)

Liquid Water Pulp Gas Steam 2-phase Air G spec grav Mol weight Spec heats Special servi Design P DesignTmax DesignTmin ☐ Recommended safety factor ☒ Show details Calculate Result: Valve Actuator Valve:			<table><thead><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr></thead><tbody><tr><td></td><td></td><td>in</td><td>4</td><td>4</td><td>40</td></tr></tbody></table> <table><thead><tr><th>Process data</th><th>Unit</th><th>Case 1</th></tr></thead><tbody><tr><td>Inlet temp</td><td>degF</td><td>600</td></tr><tr><td>DP-shutoff</td><td>psi</td><td>300</td></tr></tbody></table> <table><thead><tr><th>Valve...</th><th>Unit</th><th>Type</th><th>Press rating</th><th>Code</th><th>Size</th></tr></thead><tbody><tr><td></td><td>in</td><td>BALL</td><td>ANSI 300</td><td>XMBV</td><td>4</td></tr><tr><td>Max capacity</td><td>FpCv</td><td></td><td></td><td></td><td></td></tr></tbody></table> <table><thead><tr><th>Construction</th><th>Material</th><th>Seat</th><th>Gland pack</th><th>Bearings</th><th>Safety factor</th></tr></thead><tbody><tr><td></td><td></td><td>Metal, Type H,</td><td>PTFE/TFE</td><td>PTFE</td><td>1.2</td></tr></tbody></table> <table><thead><tr><th>Actuator...</th><th>Code</th><th>Size</th><th>Unit</th><th>Supply press</th><th>Spring rate</th></tr></thead><tbody><tr><td></td><td>B1J</td><td>12</td><td>psiG</td><td>60</td><td>58.01</td></tr></tbody></table> <table><thead><tr><th>Valve torques</th><th></th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td>BTO</td><td>ftlb</td><td></td><td>ETC</td><td>ftlb</td><td>43.507 (K)</td></tr><tr><td>ETO</td><td>ftlb</td><td></td><td>BTC</td><td>ftlb</td><td>58.01 (STD)</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>79.766 (V)</td></tr></tbody></table> <table><thead><tr><th>Actuator torques</th><th></th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td>BTO</td><td>ftlb</td><td></td><td>ETC</td><td>ftlb</td><td></td></tr><tr><td>RTO</td><td>ftlb</td><td></td><td>RTC</td><td>ftlb</td><td></td></tr><tr><td>ETO</td><td>ftlb</td><td></td><td>BTC</td><td>ftlb</td><td></td></tr></tbody></table> <table><thead><tr><th>Safety factors</th><th></th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td>BTO</td><td></td><td></td><td>ETC</td><td></td><td></td></tr><tr><td>RTO</td><td></td><td></td><td>RTC</td><td></td><td></td></tr><tr><td>ETO</td><td></td><td></td><td>BTC</td><td></td><td></td></tr></tbody></table>						Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in	4	4	40	Process data	Unit	Case 1	Inlet temp	degF	600	DP-shutoff	psi	300	Valve...	Unit	Type	Press rating	Code	Size		in	BALL	ANSI 300	XMBV	4	Max capacity	FpCv					Construction	Material	Seat	Gland pack	Bearings	Safety factor			Metal, Type H,	PTFE/TFE	PTFE	1.2	Actuator...	Code	Size	Unit	Supply press	Spring rate		B1J	12	psiG	60	58.01	Valve torques						BTO	ftlb		ETC	ftlb	43.507 (K)	ETO	ftlb		BTC	ftlb	58.01 (STD)						79.766 (V)	Actuator torques						BTO	ftlb		ETC	ftlb		RTO	ftlb		RTC	ftlb		ETO	ftlb		BTC	ftlb		Safety factors						BTO			ETC			RTO			RTC			ETO			BTC		
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Nelprof On/Off

Information needed to size

NELES

- Inlet and Outlet size of the pipe
- Media
 - Type
 - Phase
 - Specific Gravity or Mol Weight if media is not defined in Nelprof
- Temperature of Media
- Pressure for the system
- Valve Type, Pressure Class, Size and Construction
- Actuator Type, Supply Pressure and Safety Factor*
 - *Default safety factor will be 1.2

Nelprof On/Off

Sizing Example 2 (7150)

- Customer Inquiry:
- Pipe Line Size – 2”
- Media – Air
 - Pressure = 100 psi
 - Temperature = 70F
- Valve – 2” 7150 Ball Valve with Xtreme Seats
- Actuator – VPVL with 60 psi supply

NELES

Nelprof On/Off

Sizing Examples (7150)

File Edit Create Calculation ISA Sheet Sort Preferences Help

Toggle Width Expand/Collapse

☐ Project
☐ Area
☐ Tag
☐ On-off

Liquid **Water** **Pulp**
Gas **Steam** **2-phase**

Crit press psiA 3208.21
Special sei Normal

Design P psiA
DesignTm degF
DesignTmi degF

☐ Recommended safety fact
☐ Show details

Calculate

Result:
Valve
Actuator
Valve:

On-off Remarks

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in				40

Process d	Unit	Case 1
Inlet temp	degF	
DP-shutoff	psi	

Valve...	Unit	Type	Press ratin	Code	Size
	in	ALL	ALLANSI		
Max capacity	FpCv				

Constructic	Material	Seat	Gland pack	Bearings	Safety fact
					1.2

Actuator...	Code	Size	Unit	Supply pre	Spring rate
		AUTOM	psiG	60	

Valve torqu				
BTO	ftlb	ETC	ftlb	

Actuator tor				
BTO	ftlb	ETC	ftlb	

Safety fact			
BTO		ETC	

Nelprof On/Off

Sizing Examples (7150)

NELES

LiquidWaterPulp GasSteam2-phase Air			<table><thead><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr></thead><tbody><tr><td></td><td></td><td>in</td><td>2</td><td>2</td><td>40</td></tr></tbody></table>					Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in	2	2	40				
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Nelprof On/Off

Sizing Examples (7150)

NELES

Liquid Water Pulp Gas Steam 2-phase Air G spec grav Mol weight Spec heats Special servi Design P DesignTmax DesignTmin ☐ Recommended safety factor ☒ Show details Calculate Result: Valve Actuator	<table><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr><tr><td></td><td></td><td>in</td><td>2</td><td>2</td><td>40</td></tr></table> <table><tr><th>Process data</th><th>Unit</th><th>Case 1</th></tr><tr><td>Inlet temp</td><td>degF</td><td>70</td></tr><tr><td>DP-shutoff</td><td>psi</td><td>100</td></tr></table> <table><tr><th>Valve...</th><th>Unit</th><th>Type</th><th>Press rating</th><th>Code</th><th>Size</th></tr><tr><td></td><td>in</td><td>BALL</td><td>ANSI 150</td><td>7150</td><td>2</td></tr><tr><td>Max capacity</td><td>FpCv</td><td>165</td><td></td><td></td><td></td></tr></table> <table><tr><th>Construction</th><th>Material</th><th>Seat</th><th>Gland pack</th><th>Bearings</th><th>Safety factor</th></tr><tr><td></td><td></td><td>Xtreme</td><td></td><td>Non_Trunion</td><td>1.2</td></tr></table> <table><tr><th>Actuator...</th><th>Code</th><th>Size</th><th>Unit</th><th>Supply press</th><th>Spring rate</th></tr><tr><td></td><td>VPVL SR</td><td>AUTOM</td><td>psiG</td><td>60</td><td></td></tr></table> <table><tr><th>Valve torques</th><td></td><td></td><td></td><td></td><td></td></tr><tr><td>BTO</td><td>ftlb</td><td>24</td><td>ETC</td><td>ftlb</td><td>24</td></tr><tr><td>RTO</td><td>ftlb</td><td>17</td><td>RTC</td><td>ftlb</td><td>17</td></tr><tr><td>ETO</td><td>ftlb</td><td>22</td><td>BTC</td><td>ftlb</td><td>22</td></tr></table> <table><tr><th>Actuator torques</th><td></td><td></td><td></td><td></td><td></td></tr><tr><td>BTO</td><td>ftlb</td><td>48</td><td>ETC</td><td>ftlb</td><td>34</td></tr><tr><td>RTO</td><td>ftlb</td><td>38</td><td>RTC</td><td>ftlb</td><td>43</td></tr><tr><td>ETO</td><td>ftlb</td><td>29</td><td>BTC</td><td>ftlb</td><td>53</td></tr></table> <table><tr><th>Safety factors</th><td></td><td></td><td></td><td></td><td></td></tr><tr><td>BTO</td><td>2</td><td>ETC</td><td></td><td>1.4</td><td></td></tr><tr><td>RTO</td><td>2.3</td><td>RTC</td><td></td><td>2.5</td><td></td></tr><tr><td>ETO</td><td>1.3</td><td>BTC</td><td></td><td>2.4</td><td></td></tr></table>	Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in	2	2	40	Process data	Unit	Case 1	Inlet temp	degF	70	DP-shutoff	psi	100	Valve...	Unit	Type	Press rating	Code	Size		in	BALL	ANSI 150	7150	2	Max capacity	FpCv	165				Construction	Material	Seat	Gland pack	Bearings	Safety factor			Xtreme		Non_Trunion	1.2	Actuator...	Code	Size	Unit	Supply press	Spring rate		VPVL SR	AUTOM	psiG	60		Valve torques						BTO	ftlb	24	ETC	ftlb	24	RTO	ftlb	17	RTC	ftlb	17	ETO	ftlb	22	BTC	ftlb	22	Actuator torques						BTO	ftlb	48	ETC	ftlb	34	RTO	ftlb	38	RTC	ftlb	43	ETO	ftlb	29	BTC	ftlb	53	Safety factors						BTO	2	ETC		1.4		RTO	2.3	RTC		2.5		ETO	1.3	BTC		2.4	
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Nelprof On/Off

Sizing Example 3 (830)

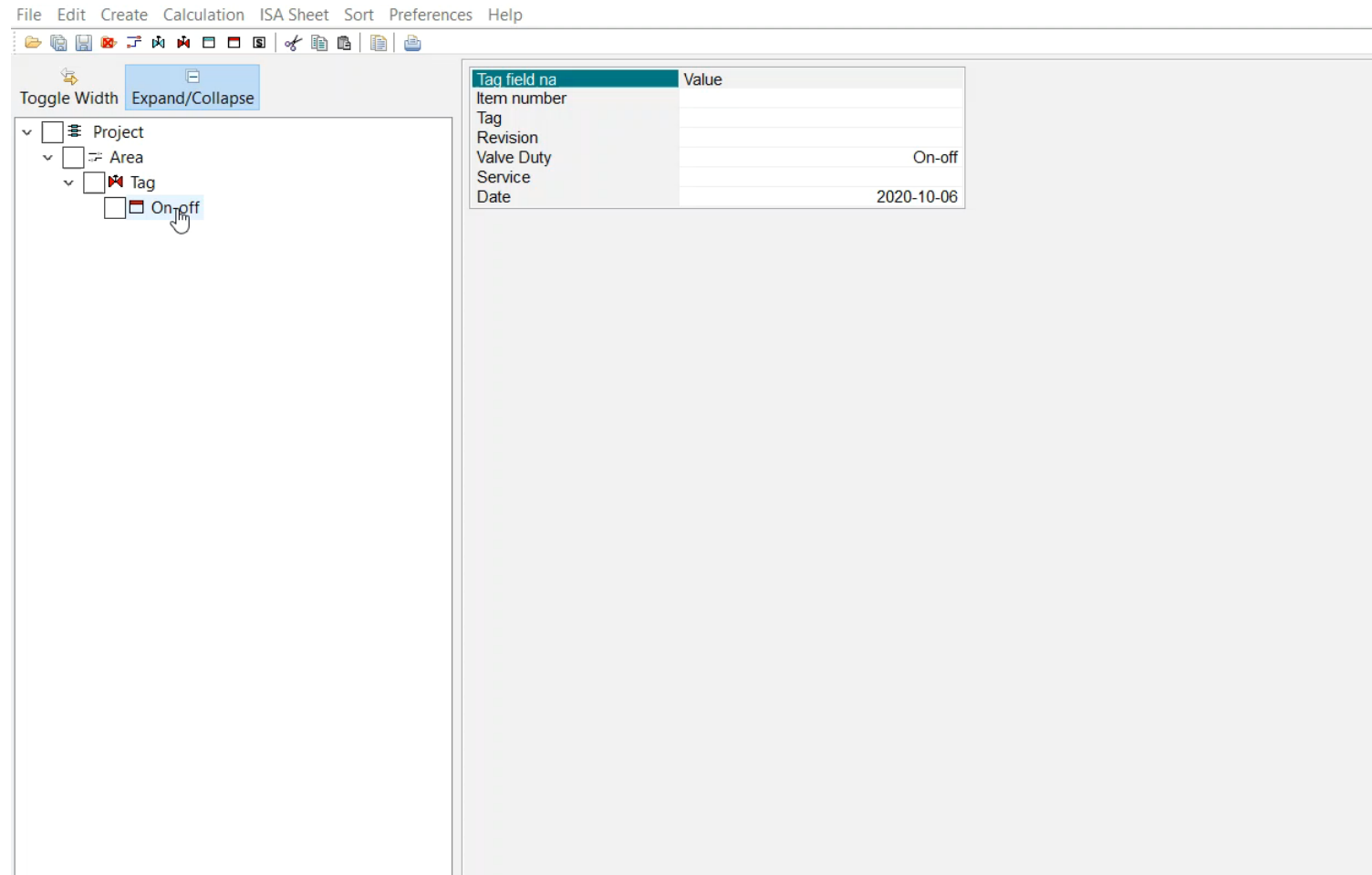
NELES

- Customer Inquiry:
- Pipe Line Size – 6”
- Media – Water
 - Pressure = 200 psi
 - Temperature = 100F
- Valve – 6” 830 SH-DWN with the standard seat option
- Actuator – QPX with 60 psi supply

Nelprof On/Off

Sizing Examples (830)

NELES



Nelprof On/Off

Sizing Examples (830)

NELES

 Liquid	 Water	 Pulp
 Gas	 Steam	 2-phase

Crit press	psiA	3208.214
Special servi		Normal
Design P	psiA	
Design Temp	degF	

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in	6	6	40

Process data	Unit	Case 1
Inlet temp	degF	100
DP-shutoff	psi	200

Valve...	Unit	Type	Press rating	Code	Size
	in	BUTTERFLY	ANSI 300	830-SH-DWN	6
Max capacity	FpCv	1050			

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		std_Soft	PTFE/TFE	PTFE	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	QP	AUTOM	psiG	60	

Nelprof On/Off

Sizing Examples (830)

NELES

 Liquid	 Water	 Pulp
 Gas	 Steam	 2-phase

Crit press	psiA	3208.214
Special servi		Normal
Design P	psiA	
DesignTmax	degF	
DesignTmin	degF	

☐ Recommended safety factor

☒ Show details

Calculate

Result:

Valve: 830-SH-DWN, 6 in

Actuator: QP3C

Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	6	6		40

Process data	Unit	Case 1
Inlet temp	degF	100
DP-shutoff	psi	200

Valve...	Unit	Type	Press rating	Code	Size
	in	BUTTERFLY	ANSI 300	830-SH-DWN	6
Max capacity	FpCv	1050			

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		std_Soft	PTFE/TFE	PTFE	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	QP	AUTOM	psiG	60	

Valve torques					
BTO	ftlb	100	ETC	ftlb	100
RTO	ftlb	30	RTC	ftlb	30
ETO	ftlb	30	BTC	ftlb	30

Actuator torques					
BTO	ftlb	184	ETC	ftlb	116
RTO	ftlb	201	RTC	ftlb	215
ETO	ftlb	104	BTC	ftlb	195

Safety factors					
BTO	1.8	ETC		1.2	
RTO	6.7	RTC		7.2	
ETO	3.5	BTC		6.5	

Nelprof On/Off

Sizing Example 4 (XMBV)

NELES

- Customer Inquiry:
- Pipe Line Size – 4”
- Media – Air
 - Pressure = 300 psi
 - Temperature = 600F
- Valve – 300# XA (XMBV) with graphite packing and metal bearings
- Actuator – B1J with 60 psi supply

Nelprof On/Off

Sizing Examples (XMBV)

NELES

 Liquid	 Water	 Pulp
 Gas	 Steam	 2-phase
Air ▼		
G spec grav		
Mol weight 28.969		
Spec heats 1.4		

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in	4	4	40

Process data	Unit	Case 1
Inlet temp	degF	600
DP-shutoff	psi	300

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 300	XMBV	4
Max capacity	FpCV				

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type H,	Graphite	Metal	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Nelprof On/Off

Sizing Examples (XMBV)

NELES

Liquid **Water** **Pulp**
Gas **Steam** **2-phase**

Air

G spec grav 28.969
Mol weight 1.4
Spec heats Normal
Special servi

Design P psiA
DesignTmax degF
DesignTmin degF

☐ Recommended safety factor
☒ Show details

Calculate

Result:
Valve XMBV, 4 in
Actuator B1J16

Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	4	4		40

Process data	Unit	Case 1
Inlet temp	degF	600
DP-shutoff	psi	300

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 300	XMBV	4
Max capacity	FpCv	2200			

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type H,	Graphite	Metal	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Valve torques					
BTO	ftlb	419	ETC	ftlb	336
RTO	ftlb	283	RTC	ftlb	283
ETO	ftlb	94	BTC	ftlb	117

Actuator torques					
BTO	ftlb	1061	ETC	ftlb	570
RTO	ftlb	604	RTC	ftlb	519
ETO	ftlb	482	BTC	ftlb	670

Safety factors					
BTO	2.5	ETC		1.7	
RTO	2.1	RTC		1.8	
ETO	5.2	BTC		5.7	

Nelprof On/Off

Sizing Examples (XMBV)

NELES

Air

G spec grav: 28.969
 Mol weight: 1.4
 Spec heats: Normal
 Design P: psiA
 DesignTmax: degF
 DesignTmin: degF

☐ Recommended safety factor
☒ Show details

Calculate

Result:

Valve: XMBV, 4 in

Actuator: B1J16

Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	4	4		40

Process data	Unit	Case 1
Inlet temp	degF	600
DP-shutoff	psi	300

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 300	XMBV	4
Max capacity	FpCv	2200			

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type H,	Graphite	Metal	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Valve torques					
BTO	ftlb	419	ETC	ftlb	336
RTO	ftlb	283	RTC	ftlb	283
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Actuator torques					
BTO	ftlb	1061	ETC	ftlb	570
RTO	ftlb	604	RTC	ftlb	519
ETO	ftlb	482	BTC	ftlb	670

Safety factors					
BTO		2.5	ETC		1.7
RTO		2.1	RTC		1.8
ETO		5.2	BTC		5.7

VS

Air

G spec grav: 28.969
 Mol weight: 1.4
 Spec heats: Normal
 Design P: psiA
 DesignTmax: degF
 DesignTmin: degF

☐ Recommended safety factor
☒ Show details

Calculate

Result:

Valve: XMBV, 4 in

Actuator: B1J16

Valve:

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
	in	4	4		40

Process data	Unit	Case 1
Inlet temp	degF	600
DP-shutoff	psi	300

Valve...	Unit	Type	Press rating	Code	Size
	in	BALL	ANSI 300	XMBV	4
Max capacity	FpCv	2200			

Construction	Material	Seat	Gland pack	Bearings	Safety factor
		Metal, Type H,	PTFE/TFE	PTFE	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Valve torques					
BTO	ftlb	400	ETC	ftlb	320
RTO	ftlb	270	RTC	ftlb	270
ETO	ftlb	78	BTC	ftlb	97

Actuator torques					
BTO	ftlb	1061	ETC	ftlb	570
RTO	ftlb	604	RTC	ftlb	519
ETO	ftlb	482	BTC	ftlb	670

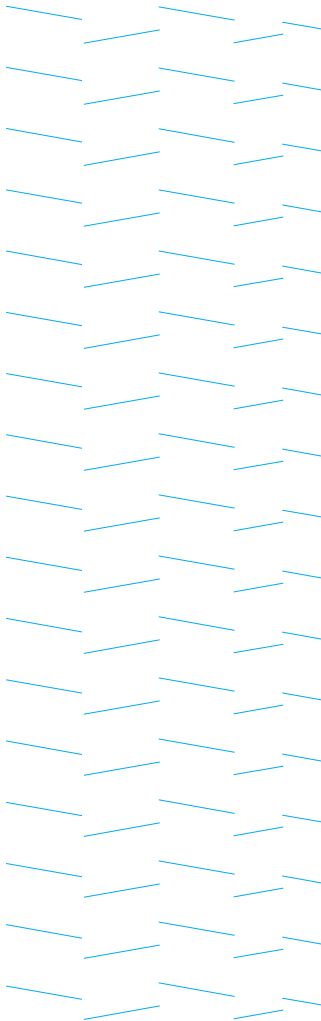
Safety factors					
BTO		2.7	ETC		1.8
RTO		2.2	RTC		1.9
ETO		6.2	BTC		6.9

Nelprof On/Off

Sizing Example 5 (Manual Gear)

NELES

- Customer Inquiry:
- Pipe Line Size – 10”
- Media – Hexane
 - Pressure = 30 psi
 - Temperature = 300F
- Valve – 10” 9150 Trunnion with Xtreme Seats
- Actuator – Manual Gear



Nelprof On/Off

Sizing Examples (Manual Gear)

NELES

 Liquid	 Water	 Pulp
 Gas	 Steam	 2-phase

Hexane

L spec grav		1
Density	kg/m3	659
Crit press	psiA	435.111

Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule
		in	10	10	40

Process data	Unit	Case 1
Inlet temp	degF	300
DP-shutoff	psi	30

Valve...	Unit	Type	Press rating	Code	Size
		in	BALL	ANSI 150	9150-TRUN
Max capacity	FpCv	15200			

Construction	Material	Seat	Grand pack	Bearings	Safety factor
		Xtreme		Trunnion	1.2

Actuator...	Code	Size	Unit	Supply press	Spring rate
	B1J	AUTOM	psiG	60	

Nelprof On/Off

Sizing Examples (Manual Gear)

LiquidWaterPulp GasSteam2-phase Hexane L spec grav1 Density kg/m3659 Crit press psiA435.111 Viscosity cp Sound vel ft/s4593.175 Special serviNormal Design P psiA Design Tmax degF Design Tmin degF ☐ Recommended safety factor ☒ Show details Calculate Result: Valve9150-TRUN, 10 in ActuatorB1J20 Valve:	<table><tr><th>Pipeline</th><th>Unit</th><th>Inlet dia</th><th>Outlet dia</th><th>Thickness</th><th>Schedule</th></tr><tr><td></td><td></td><td>in</td><td>10</td><td>10</td><td>40</td></tr></table> <table><tr><th>Process data</th><th>Unit</th><th>Case 1</th></tr><tr><td>Inlet temp</td><td>degF</td><td>300</td></tr><tr><td>DP-shutoff</td><td>psi</td><td>30</td></tr></table> <table><tr><th>Valve...</th><th>Unit</th><th>Type</th><th>Press rating</th><th>Code</th><th>Size</th></tr><tr><td></td><td>in</td><td>BALL</td><td>ANSI 150</td><td>9150-TRUN</td><td>10</td></tr><tr><td>Max capacity</td><td>FpCv</td><td>15200</td><td></td><td></td><td></td></tr></table> <table><tr><th>Construction</th><th>Material</th><th>Seat</th><th>Gland pack</th><th>Bearings</th><th>Safety factor</th></tr><tr><td></td><td></td><td>Xtreme</td><td></td><td>Trunnion</td><td>1.2</td></tr></table> <table><tr><th>Actuator...</th><th>Code</th><th>Size</th><th>Unit</th><th>Supply press</th><th>Spring rate</th></tr><tr><td></td><td>B1J</td><td>AUTOM</td><td>psiG</td><td>60</td><td></td></tr></table> <table><tr><th>Valve torques</th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>BTO</td><td>ftlb</td><td>709</td><td>ETC</td><td>ftlb</td><td>709</td></tr><tr><td>RTO</td><td>ftlb</td><td>496</td><td>RTC</td><td>ftlb</td><td>496</td></tr><tr><td>ETO</td><td>ftlb</td><td>638</td><td>BTC</td><td>ftlb</td><td>638</td></tr></table> <table><tr><th>Actuator torques</th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>BTO</td><td>ftlb</td><td>2128</td><td>ETC</td><td>ftlb</td><td>1096</td></tr><tr><td>RTO</td><td>ftlb</td><td>1222</td><td>RTC</td><td>ftlb</td><td>999</td></tr><tr><td>ETO</td><td>ftlb</td><td>989</td><td>BTC</td><td>ftlb</td><td>1290</td></tr></table> <table><tr><th>Safety factors</th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>BTO</td><td>3</td><td>ETC</td><td>1.5</td><td></td><td></td></tr><tr><td>RTO</td><td>2.5</td><td>RTC</td><td>2</td><td></td><td></td></tr><tr><td>ETO</td><td>1.5</td><td>BTC</td><td>2</td><td></td><td></td></tr></table>	Pipeline	Unit	Inlet dia	Outlet dia	Thickness	Schedule			in	10	10	40	Process data	Unit	Case 1	Inlet temp	degF	300	DP-shutoff	psi	30	Valve...	Unit	Type	Press rating	Code	Size		in	BALL	ANSI 150	9150-TRUN	10	Max capacity	FpCv	15200				Construction	Material	Seat	Gland pack	Bearings	Safety factor			Xtreme		Trunnion	1.2	Actuator...	Code	Size	Unit	Supply press	Spring rate		B1J	AUTOM	psiG	60		Valve torques						BTO	ftlb	709	ETC	ftlb	709	RTO	ftlb	496	RTC	ftlb	496	ETO	ftlb	638	BTC	ftlb	638	Actuator torques						BTO	ftlb	2128	ETC	ftlb	1096	RTO	ftlb	1222	RTC	ftlb	999	ETO	ftlb	989	BTC	ftlb	1290	Safety factors						BTO	3	ETC	1.5			RTO	2.5	RTC	2			ETO	1.5	BTC	2		
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Nelprof On/Off

Sizing Examples (Manual Gear)

NELES

Valve Torques

Valve torques					
BTO	ftlb	709	ETC	ftlb	709
RTO	ftlb	496	RTC	ftlb	496
ETO	ftlb	638	BTC	ftlb	638

Actuator torques					
BTO	ftlb	2128	ETC	ftlb	1096
RTO	ftlb	1222	RTC	ftlb	999
ETO	ftlb	989	BTC	ftlb	1290

Manual Actuator Torques

Actuator	Operating Values - per API 608 & 609						Operating Values - MAX		
	Approx. Weight	Handwheel Diameter	Turns to Open	Rim Pull	Max. Input Torque	Max. Output Torque	Rim Pull	Max. Input Torque	Max. Output Torque
	lbs	inches	-	lbs	ft-lbs	ft-lbs	lbs	ft-lbs	ft-lbs
MGR5/Q	5	8	10	35	12	111	35	12	111
MGR7/Q	8	8	9	63	21	243	63	21	243
MGR10/Q	8	12	9	64	32	369	64	32	369
MGR12/Q	19	20	9	74	61	738	74	61	738
MGR14/Q	31	32	10	80	107	1408	84	112	1475
MGR15/Q	49	32	14	80	107	2027	95	126	2397
MGR16/Q	53	32	27	75	101	3319	75	101	3319
MGR20/K85	108	24	61	80	80	6480	82	82	6638
MGR30/K105	142	28	81	77	90	12539	77	90	12539
MGR40/K135	296	28	182	78	91	19177	78	91	19177

10" 9150 Max Torque = 709 ft-lbs
Standard Practice 20% Safety Factor

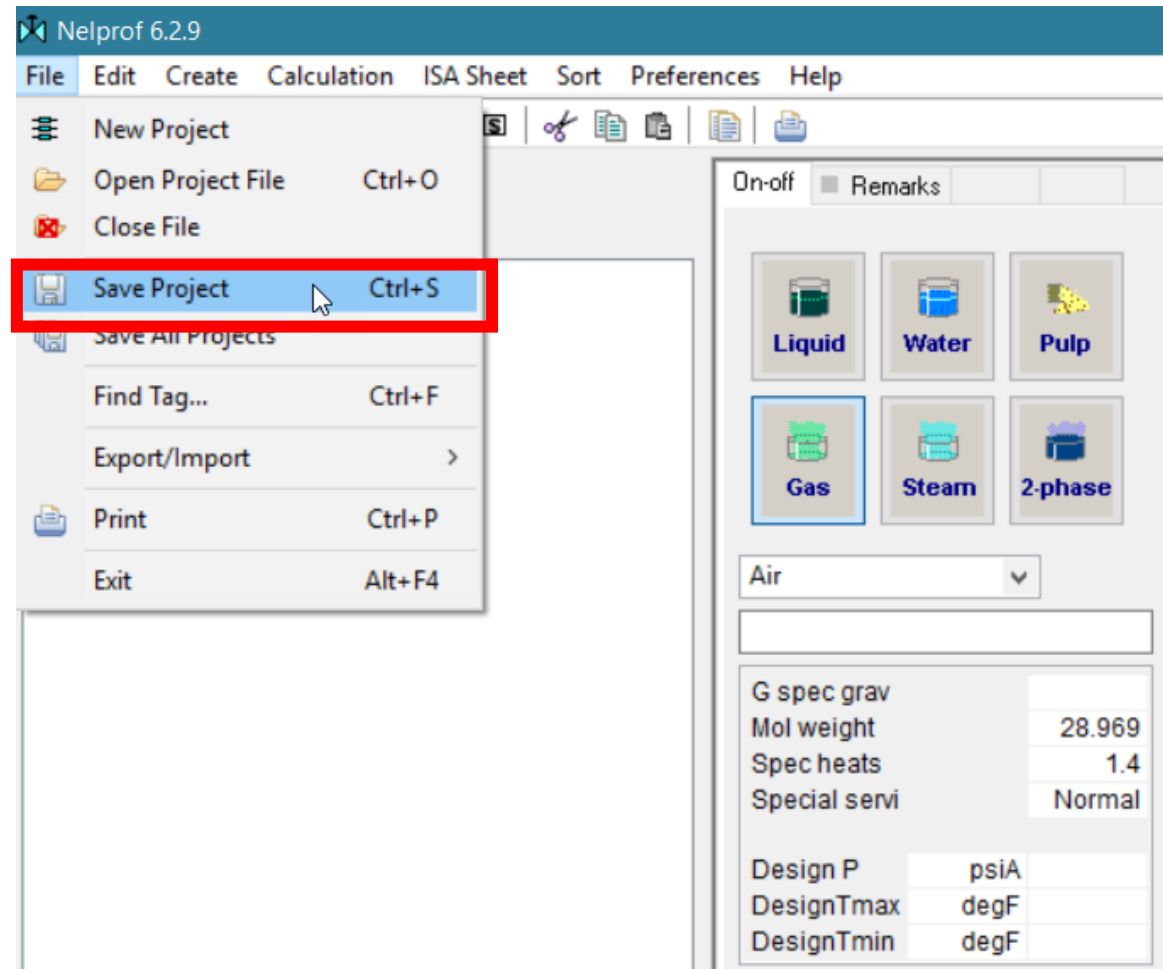
$$709 \times 1.2 = 851 \text{ ft-lbs}$$

The best option would be an
MGR14/QA

Nelprof On/Off

Open / Save a File

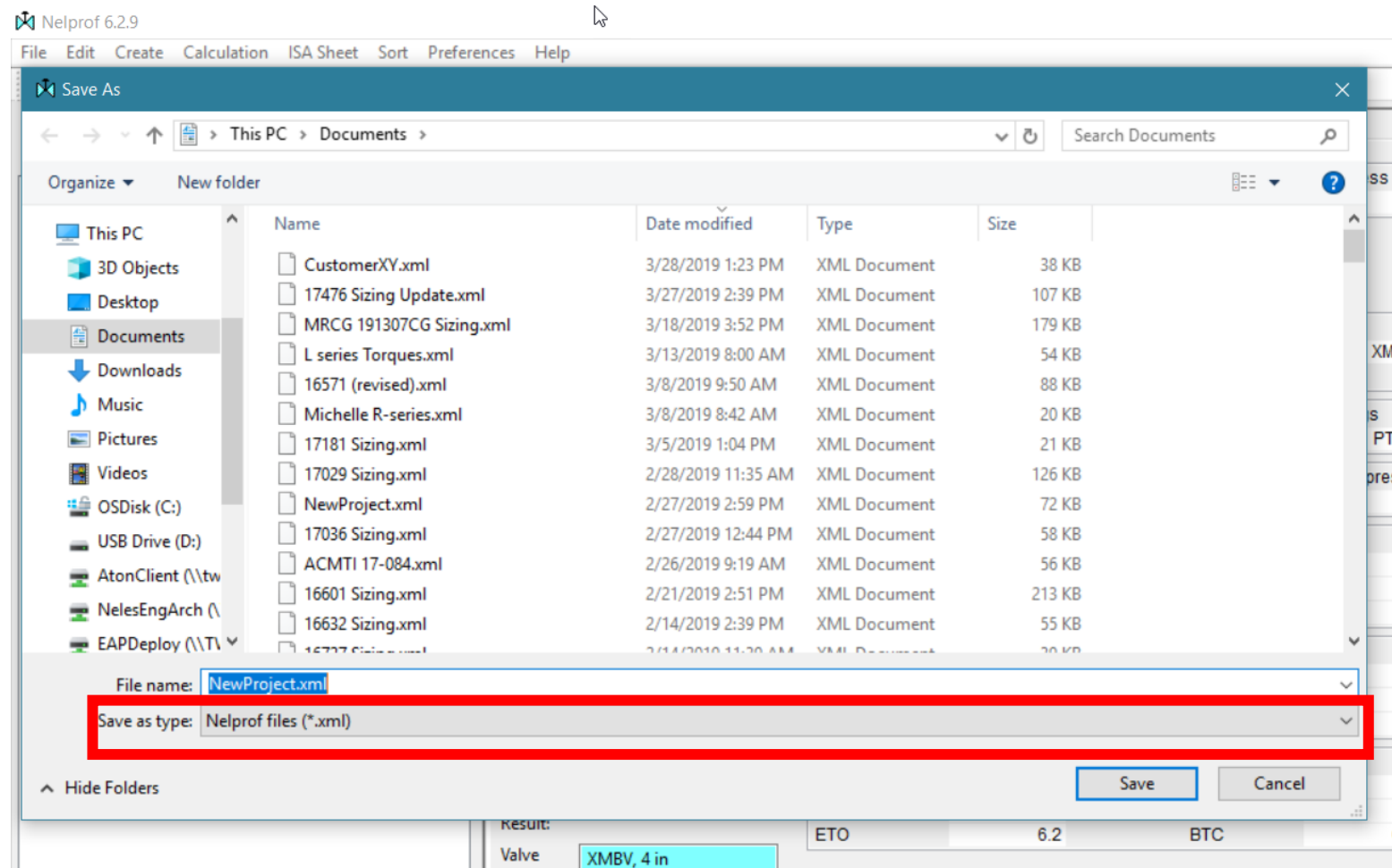
NELES



Nelprof On/Off

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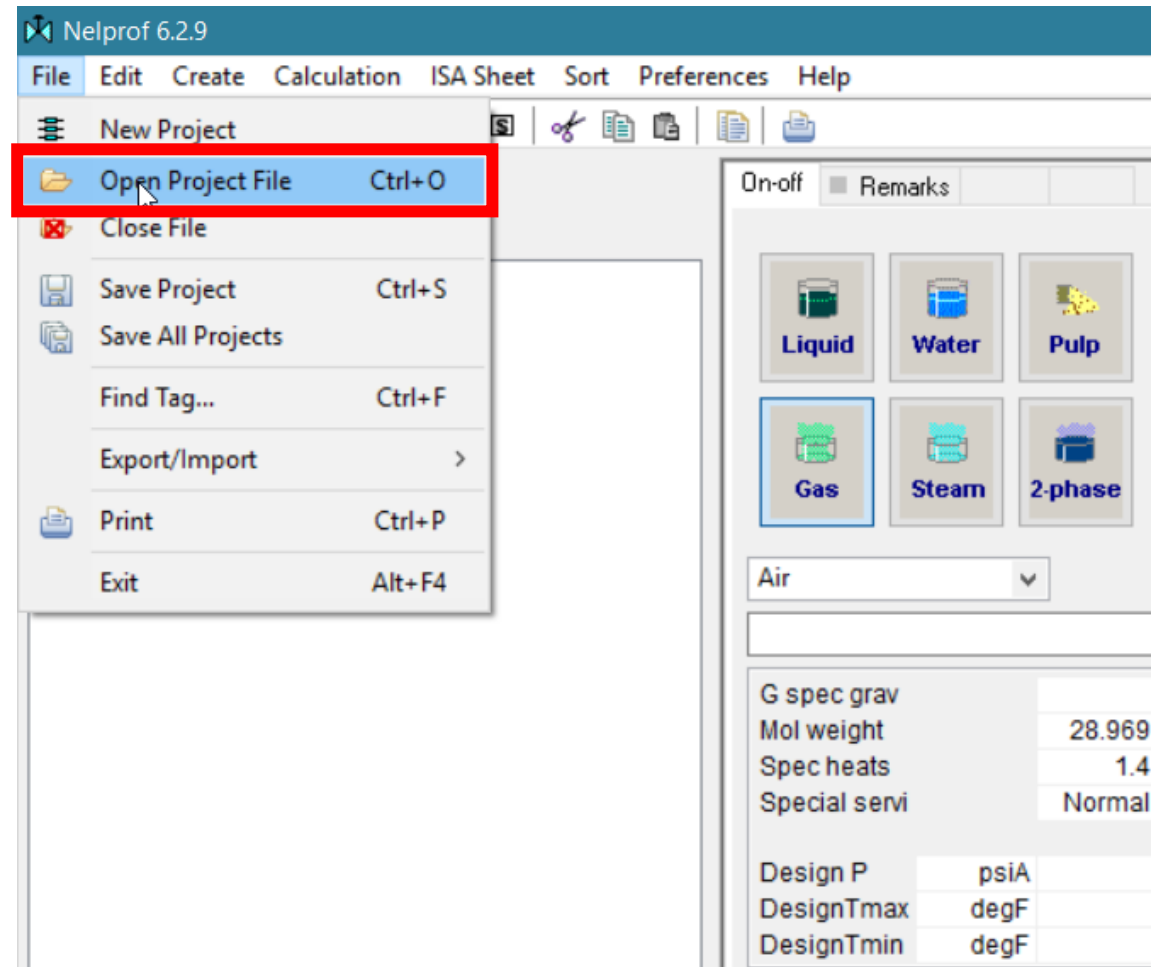
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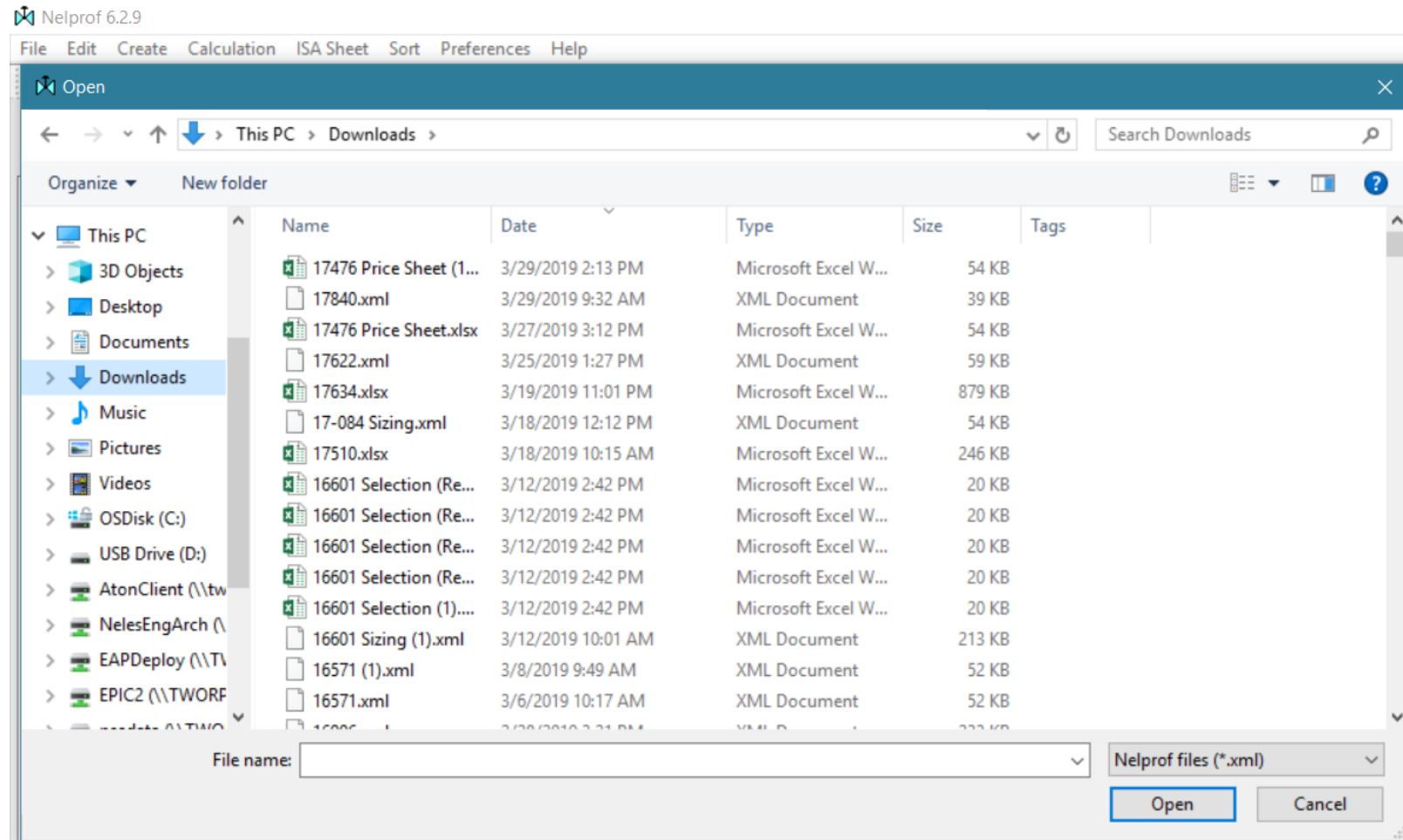
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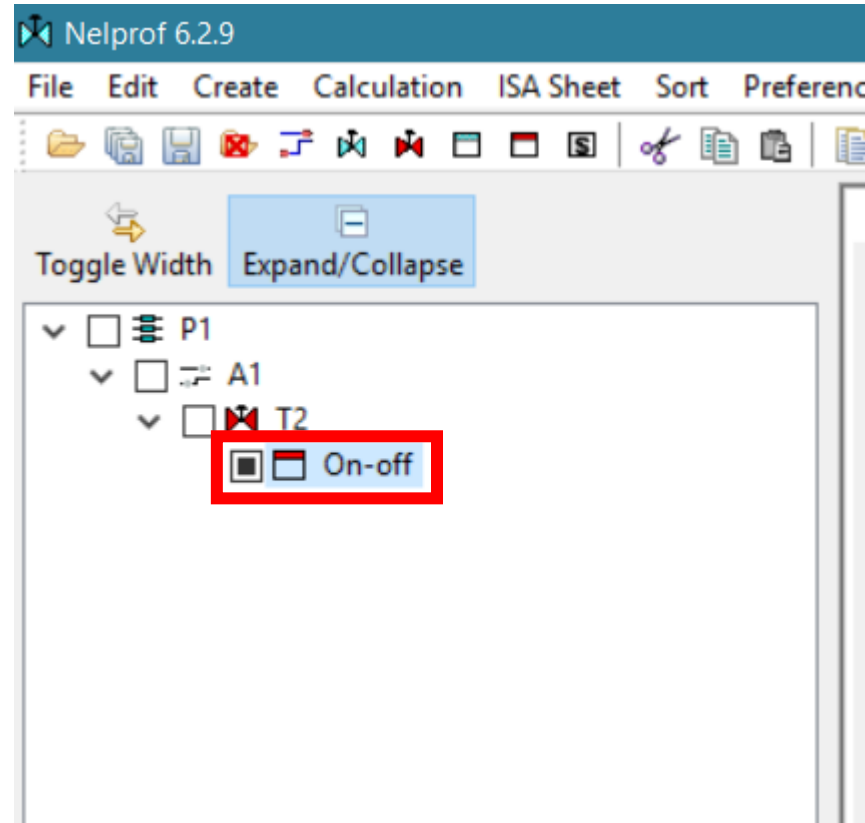
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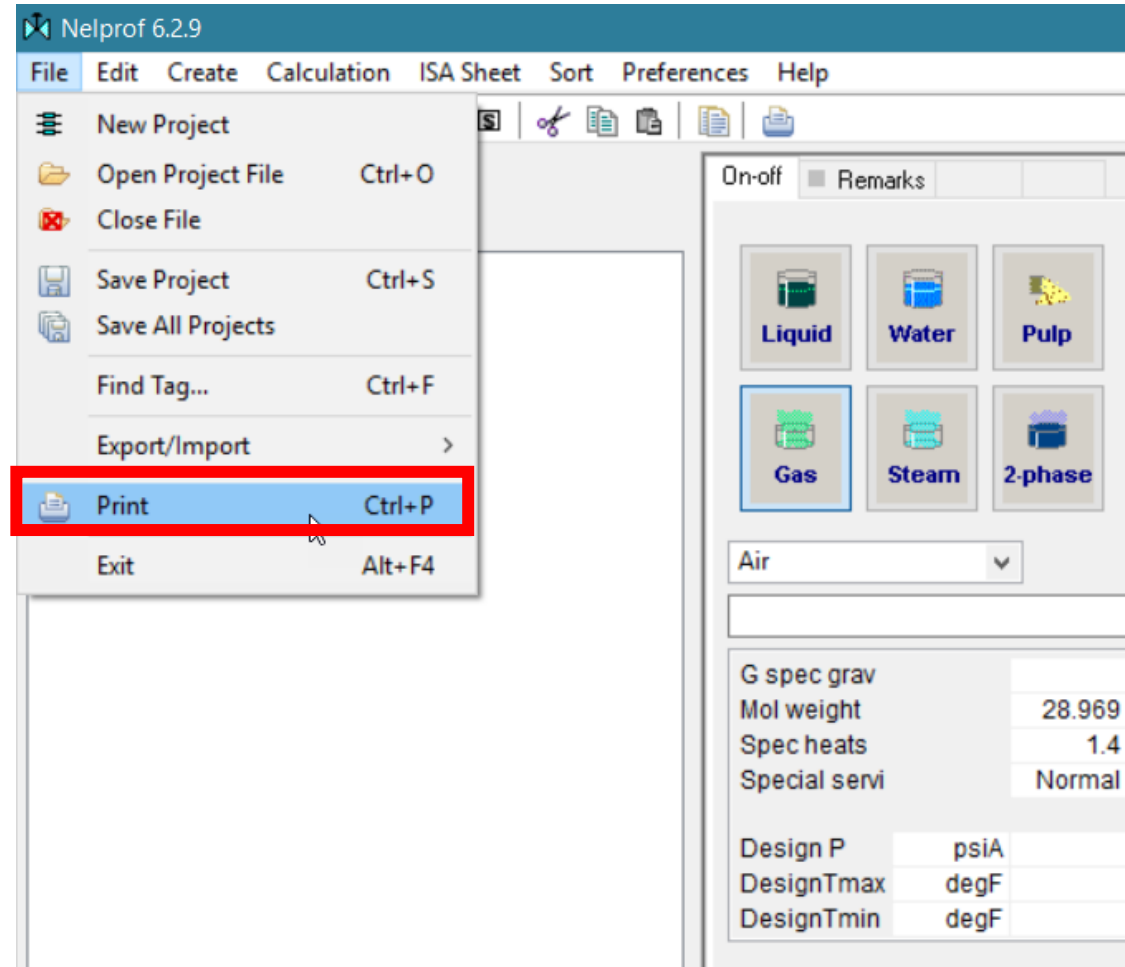
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 - ☒ Gain Curves
 - ☒ Noise Curves
 - ☒ Pressures Curves
- ☒ Notes and Warnings

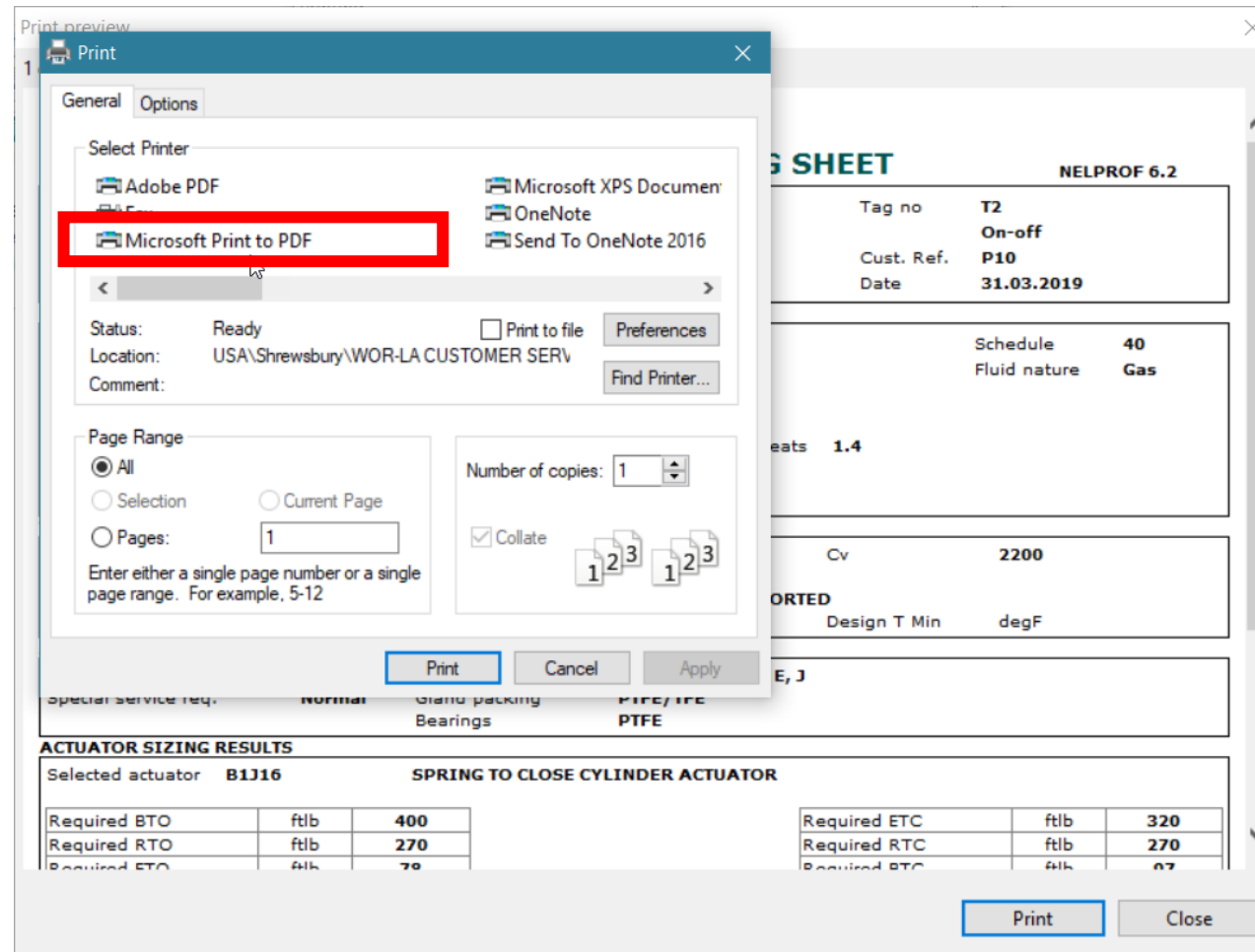
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