



Verify assembly includes items and components as specified. Refer to specification section 226700, 2.2 - paragraph 7 in its entirety.

Quality Products for Quality Water

'MRO-4V' & 'MRO-4H' Reverse Osmosis Systems



Overview

The Marlo MRO Series Commercial and Industrial Reverse Osmosis Systems are engineered to economically produce high purity water by removal of dissolved minerals, bacteria, particles, and organic impurities. Each MRO machine is constructed using the highest quality components and materials for reliable operation and exceptional performance. Standard machines in the MRO-4 Series are available with product water capacities from 2.5–20 GPM (3,600–28,800 GPD). Contact Marlo for larger flow requirements with the MRO-8 Series equipment.

Marlo Reverse Osmosis Systems provide exceptional performance in a wide variety of applications, including:

- Boiler feed
- Research and medical labs
- Spot-free rinse
- Process make-up water
- Icemaking
- Humidification
- Greenhouses
- Ion exchange pre-treatment

Operating Parameters

- Operating Pressure: 200-250 psig
- Nominal Recovery: 65–75%
- Nominal Salt Rejection: 98–99%
- Operating Temperature: 45–85° F
- Design Temperature: 50° F
- Minimum Inlet Pressure: 30 psig
- Inlet Water Quality: Chlorine-Free/Softened
- Control Circuit: 120 VAC, 1-phase, 60 Hz.

Materials of Construction

- Skid Frame: Epoxy-coated carbon steel
- Membrane Elements: Thin-film Composite (TFC)
- Membrane Housings: FRP
- Low pressure piping: Sch 80 PVC
- High pressure piping: 304SS

Pump and Motor

- Pump: 304SS vertical multi-stage centrifugal
- Motor: TEFC, 460 VAC, 3-phase, 60 Hz.

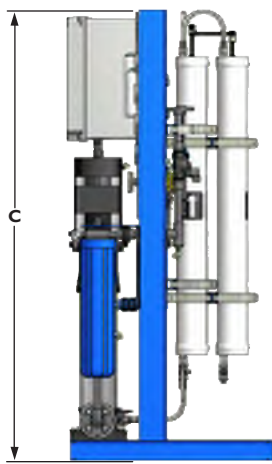
Standard Features

- 4" x 40" High rejection membrane elements
- 5-micron sediment pre-filter housing
- Automatic inlet shut-off valve
- Solid-state digital controller (NEMA-4X)
- Product water conductivity monitor
- Operating pressure gauges
- Product and concentrate flow meters
- Concentrate and recycle flow control valves
- Low inlet pressure switch with shutdown alarm

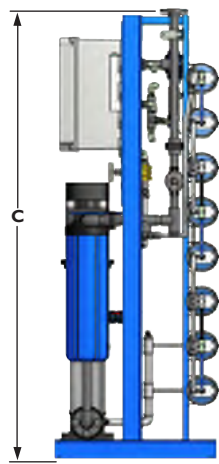
Optional Equipment Available

- Atmospheric storage tanks with level control and repressurization pump
- Water softeners and carbon filter pretreatment
- Pressurized storage vessels
- Skid mounted packages with pre/post treatment equipment
- Membrane clean-in-place (CIP) systems
- Pretreatment chemical injection systems

SPECIFICATIONS MRO-3600-4-V THROUGH MRO-16200-4-H SERIES



4V Design

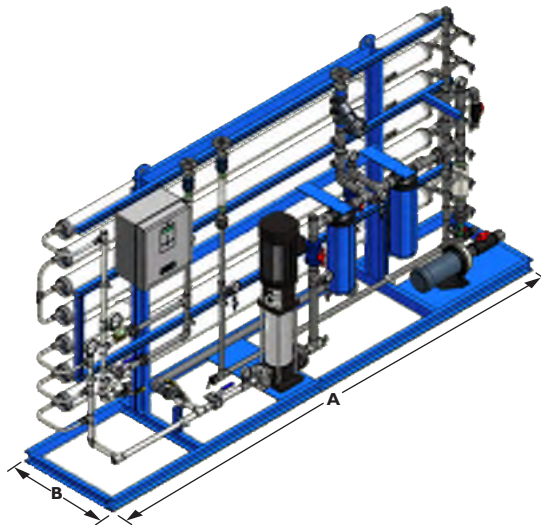
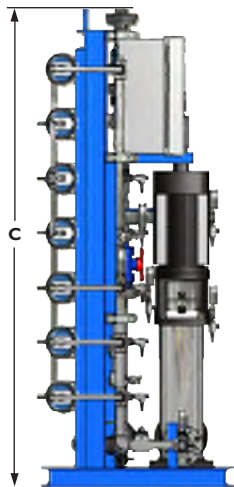


4H Design



Model No.	Design (gpm)	Capacity (gpd)	Element Quantity	RO Feed (gpm)	RO Reject (gpm)	System Piping Connections			Nominal Operating Pressure	Pump Hp	Approx. Ship Wt.	Dimensions		
						Inlet Feed	Product	Reject				Length A	Width B	Height C
MRO-3600-4V	2.5	3,600	2	3.3-3.8	0.8-1.3	3/4" Flange	1/2" Flange	1/2" Flange	251 psi	3.0	425 lb.	36"	24"	68"
MRO-5400-4V	3.8	5,400	3	5.0-5.8	1.2-2.0	3/4" Flange	1/2" Flange	1/2" Flange	242 psi	3.0	475 lb.	36"	24"	68"
MRO-7200-4V	5.0	7,200	4	6.7-7.7	1.7-2.7	3/4" Flange	3/4" Flange	1/2" Flange	235 psi	5.0	525 lb.	36"	30"	68"
MRO-9000-4V	6.3	9,000	5	8.4-9.7	2.1-3.4	3/4" Flange	3/4" Flange	1/2" Flange	230 psi	5.0	575 lb.	36"	30"	68"
MRO-10800-4H	7.5	10,800	6	10.0-11.5	2.5-4.0	1" Flange	3/4" Flange	1/2" Flange	251 psi	5.0	650 lb.	54"	26"	76"
MRO-12600-4H	8.8	12,600	7	11.7-13.5	2.9-4.7	1" Flange	3/4" Flange	1/2" Flange	242 psi	5.0	700 lb.	54"	26"	76"
MRO-14400-4H	10.0	14,400	8	13.3-15.4	3.3-5.4	1" Flange	3/4" Flange	3/4" Flange	234 psi	5.0	750 lb.	54"	26"	76"
MRO-16200-4H	11.3	16,200	9	15.0-17.4	3.7-6.1	1" Flange	1" Flange	3/4" Flange	234 psi	5.0	800 lb.	54"	26"	76"

SPECIFICATIONS MRO-18K-4H THROUGH MRO-29K-4H SERIES



Model No.	Design (gpm)	Capacity (gpd)	Element Quantity	RO Feed (gpm)	RO Reject (gpm)	System Piping Connections			Nominal Operating Pressure	Pump Hp	Approx. Ship Wt.	Dimensions		
						Inlet Feed	Product	Reject				Length A	Width B	Height C
MRO-18K-4H	12.5	18,000	12	16.7-19.2	4.2-6.7	1 1/4" Flange	1" Flange	3/4" Flange	280 psi	7.5	1050 lb.	144"	30"	76"
MRO-22K-4H	15.0	21,600	15	20.0-23.0	5.0-8.0	1 1/4" Flange	1" Flange	3/4" Flange	270 psi	7.5	1200 lb.	144"	30"	76"
MRO-25K-4H	17.5	25,200	18	23.2-26.8	5.7-9.3	1 1/2" Flange	1 1/4" Flange	3/4" Flange	260 psi	10	1350 lb.	144"	30"	76"
MRO-29K-4H	20.0	28,800	21	26.7-30.8	6.7-10.8	1 1/2" Flange	1 1/4" Flange	1" Flange	245 psi	10	1500 lb.	144"	30"	76"

R0 Membrane Elements for Brackish Water

TM700

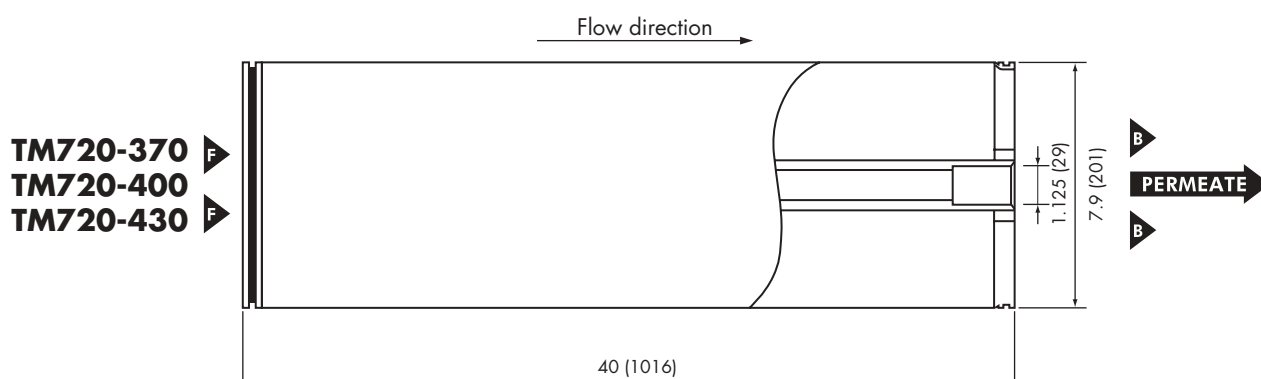
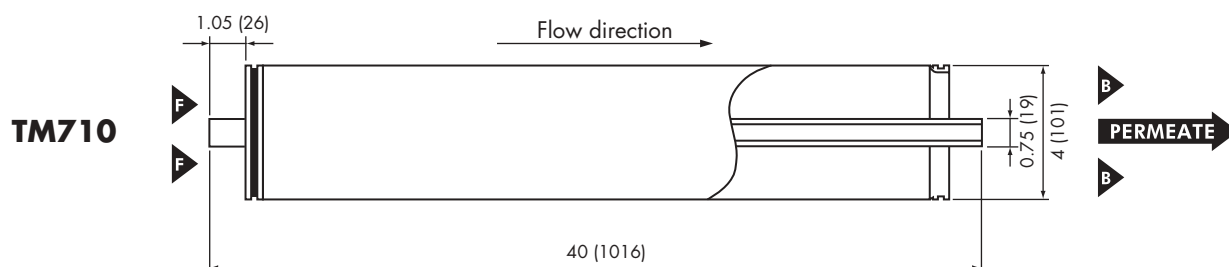
Type	Diameter inch	Membrane Area ft ² (m ²)	Salt Rejection %	Product Flow Rate gpd (m ³ /d)
TM710	4"	73 (7)	99.7	2,200 (8.3)
TM720-370	8"	370 (34)	99.7	9,500 (36)
TM720-400	8"	400 (37)	99.7	10,200 (39)
TM720-430	8"	430 (40)	99.7	11,000 (42)

1. Membrane Type		Cross Linked Fully Aromatic Polyamide Composite
2. Test Conditions	Feed Water Pressure Feed Water Temperature Feed Water Concentration Recovery Rate Feed Water pH	225 psi (1.55 MPa) 77 °F (25 °C) 2,000 mg/l NaCl 15 % 7
3. Minimum Salt Rejection		99.0 %
4. Minimum Product Flow Rate		1,800 gpd (6.7 m ³ /d) (TM710) 7,500 gpd (28 m ³ /d) (TM720-370) 8,200 gpd (31 m ³ /d) (TM720-400) 8,800 gpd (33 m ³ /d) (TM720-430)

Dimensions

All dimensions shown in inches (millimeter).

Feed Water
 Concentrated Brine



Operating Limits

Maximum Operating Pressure	600 psi (4.1 MPa)
Maximum Feed Water Temperature	113 °F (45 °C)
Maximum Feed Water SDI ₁₅	5
Feed Water Chlorine Concentration	Not Detectable
Feed Water pH Range, Continuous Operation	2-11
Feed Water pH Range, Chemical Cleaning	1-12
Maximum Pressure Drop per Element	20 psi (0.14 MPa)
Maximum Pressure Drop per Vessel	60 psi (0.4 MPa)

Operating Information

1. For the recommended design range, please consult the latest Toray technical bulletin, design guidelines, computer design program, and/or call an application specialist. If the operating limits given in this Product Information Bulletin are not strictly followed, the Limited Warranty will be null and void.
2. All elements are wet tested, treated with a 1% by weight percent sodium bisulfite storage solution, and then vacuum packed in oxygen barrier bags. To prevent biological growth during short term storage, shipment, or system shutdown, it is recommended that Toray elements be immersed in a protective solution containing 500 - 1,000 ppm of sodium bisulfite (food grade) dissolved in permeate.
3. Permeate from the first hour of operation shall be discarded.
4. The customer is fully responsible for the effects of chemicals that are incompatible with the elements. Their use will void the element Limited Warranty.

Notice

1. Toray accepts no responsibility for results obtained by the application of this information or the safety or suitability of Toray's products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each product combination for their own purposes.
2. All data may change without prior notice, due to technical modifications or production changes.

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Europe, Middle East and Africa:
Toray Membrane Europe AG

Grabenackerstrasse 8
CH-4142 Münchenstein 1, Switzerland
Tel: +41 61 415 87 10
Fax: +41 61 415 87 20



Submittal

Prepared For:

Webster University, Webster Grove, MO
C/O CW Boiler Supply

October 28, 2016

Description:

High Purity RO/DI Water Skid

Job Number: S-100516001

Submittal pages have been numbered to aid in referencing

All equipment and components shall be sized to fit in the available allocated space with the required working clearances.

All equipment and components shall be sized to fit within the service elevator.

General Specifications

Job Name: Webster University, Webster Grove, MO

Job No.: S-100516001

Items: High Purity RO/DI Water Skid

RO/DI Skid Consisting of the Following:

- MAT-60-1" Twin Alt Softener with SXT Digital Timer
- ACA-10G-1" Single Activated Carbon Filter with SXT Digital Timer/ RO Lockout Switch
- MRO-3600-4V" Deluxe RO System with Digital Conductivity
- 460V/3-Phase/60 Hz , 120V /1phase/60 Hz
- (2) 14" x 47" DI Bottles with 3.6 ft3 Mixed Bed Resin and Reslite (Piped in Series)
- 300 Gallon Polyethylene Conical Bottom Storage Tank, PRV Valve, Float Switches
- 5 GPM Flow Control for Slip Stream Recirculation
- (2) Grundfos CM 316 SS Re-press Pumps with VFD Drives & Sensors
- 35gpm @ 76 psi
- Motor Starter Panel with Disconnect
- Aquafine CSL-4R UV System
- Shelco 5FOS3 316 SS Final Filter with (5) 30" .2 Micron Filter Cartridges
- Master AB 1400 PLC with PV 800 Series 7" HMI Interface
- Ethernet Ports for Modbus Communication to BMS
- PLC to Display the Following Points
- (2) Recirculation Loop Flow Sensors
- (2) Recirculation Loop Resistivity Sensors
- (1) RO Conductivity Sensor
- Complete system less Permeate Tank to be Skid-Mounted, Pre-piped and Wired
- Split Skid Design
- Sch 80 PVC Piping to RO System
- Fused Poly Pro Piping Post RO

All components to be made to fit on service elevator. - icon Mechanical

Reference Drawings:

High Purity Skid General Arrangement Drawing

S-100516001-03-01

High Purity Water Treatment System P&ID

S-100516001-07-01

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: December 20, 2016

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Whitworth (WES)

Project No. WT 14127.01
WES 607

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	226700P01B	(Submittal No.'s:)
		(Cannon #22 6700-006) - (Paric #15051-0389) – (WES #607)
		➤ Processed Water System - Resubmittal

***Remarks: See Submittal Review from Webb Engineering.**

c: Kelvin Patel
Kpatel@cannondesign.com

☒ ***Reviewed**

☒ ***No Exceptions Taken**

☐

☐ *Make Corrections As Noted,
No Resubmittal Required

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.



1400 S. 3rd Street, Suite 201
St. Louis, Missouri 63104
Phone: (314) 588-0600
Fax: (314) 588-0604

Letter of Transmittal

To: **wtashop@wmtao.com**

From: **Mike Whitworth**

Date: **December 20, 2016**

Re: **Webster University ISB**

WES No: **607**

☐ For your Files

☐ For Review

☐ Please Comment

☐ Please Reply

Item No.	Description	No. of Copies	Date
1	Shop Drawing Review – (226700-006 REV002) 226700 Processed Water Systems for Laboratory Facilities	1	12-20-2016

•Signature: Mike Whitworth

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The review of this submittal is limited to the general conformance with the designated design concept and intent of this project and with the general compliance of the information provided in the contract documents. All comments, remarks and notations made on the submittal(s) as a result of this review do not relieve the contractor from full compliance with requirements of the contract documents. Approval for a specific item shall not include approval of an assembly of which the item is not a component. The contractor is solely responsible for rough-in and installation confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordination of this work with that of other trades on this project; and in a safe and satisfactory manner. All work shall be installed in full compliance with the manufacturer's recommendation, Federal, State and Local rules and regulation and the Authority Having Jurisdiction (AHJ) and applicable adopted codes and standards.

PROJECT NAME: Webster University ISBLOCATION: St. Louis MissouriCLIENT PROJ. No.: N/AWES PROJ. No.: 607SPEC SECTION: 22 6700
Processed Water System
for Laboratory FacilitiesSUBMITTAL ITEM:: See Below -CONTRACTOR: ICON Mechanical.CTR. SUBMITTAL # 22 6700-006 REV002SUBMITTAL DATE: December 19, 2016DATE RECEIVED: December 20, 2016RECEIVED VIA: E-MailRECEIVED FROM: WTADATE RETURNED: DECEMBER 20, 2016RETURNED VIA: E-MAILRETRURNED TO: WTASHOP@WMTAO.COM

STATUS KEY:

NEC	MCN	AAR	REJ	REV	NO EXCEPTION TAKEN	
					MAKE CORRECTIONS NOTED, NO RESUBMITTAL:	
					AMEND AND RESUBMIT	
					REJECTED, SEE REMARKS:	
					REVIEWED ONLY	
					ITEM	REMARKS
Submittal pages have been numbered to aid in referencing						
All equipment and components shall be sized to fit in the available allocated space with the required working clearances.						
All equipment and components shall be sized to fit within the service elevator.						
					Page 001 Cover Page	
X					Page 002 Marlo General Specifications	
X					Page 003 Marlo P&I Diagram	
X					Pages 004 - 005 Marlo Skid General Arrangement	
X					Pages 006 – 008 Marlo MAT Series Softener Systems Model – MAT 60M-1	
X					Pages 009 – 011 Marlo MFG Series Media Filter Systems Model – ACG-10G-1 Activated Carbon Filter	
X					Page 012 – 022 Marlo MRO-4V Reverse Osmosis Systems Model – MRO-3600-4V with pump	



X					Pages 023 – 025 Wave Cyber DI Tank Model 14"x47"	
X					Pages 026 – 028 Pentair Pentek Filter Housings Model – Not specified	
X					Page 029 – 031 Water Storage Tank Den Hartog Model – 36" x 325 Gal. Cone Bottom	1. Includes – stand and vent filter assembly
X					Pages 032 – 033 SPDT Pump Switch SJE Rhombus Model – Not Specified	
X					Page 034 - 035 Pressure Relief Valve Plast-O-Matic Model – Not Specified	
X					Pages 036 – 048 PP Piping Georg Fischer	1. Reviewed for uses as shown on submittal page 003
X					Page 049 – 059 Distribution Pumps Grundfos Model – CM 10-3	1. Motor starter control panel not included in submittal.
X					Pages 060 – 062 Pressure Gauges PIC Gauges Model – 301LFW	
X					Pages 063 – 066 UV System Aquafine Model – CSL-4R	
X					Pages 067 – 069 Final Filter Shelco Filters Model – 5FOS3	
X					Pages 070 – 074 Conductivity/Resistivity Sensor Georg Fischer Model Signet 2850	
X					Pages 075 – 079 Flow meter Georg Fischer Model – Signet 2537	
X					Pages 080 – 082 Pressure Sensor Ifm Electronic Model – PX3234	
X					Pages 083 – 085 Micro Drive Yaskawa Model – Not Specified.	
X					Pages 086 – 087 PLC Allen - Bradley	



1400 S. 3rd Street, Suite 201 • St. Louis, Missouri 63104 • 314.588.0600 • *fax* 314.588.0604

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X					Pages 088 – 089 HMI Interface Allen Bradley Model – Pane View 800 (7")	
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REVIEWED BY: Michael R. Whitworth DATE: December 20, 2016

THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SHOP DRAWING REFERENCED ABOVE.



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0389

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 12/19/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: Processed Water System Shop Drawing
and Product Data REV1

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☒ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	SENT VIA:	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☒ Other: Product Data	☐ Separate Cover Via:	☐ Due Date:

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal		226700-006	2		12/19/2016	Processed Water System Shop Drawing and Product Data REV1	Submitted

NOTES:

CC:

Signed: _____
Devin Gates



Mechanical

LETTER OF TRANSMITTAL

TO: Paric Corporation

77 West Port Plaza #250

St. Louis, MO 63146

ATTN: Jason Szachnieski, Devin Gates

DATE: 12/8/16

JOB #: 5768

RE: Webster ISB

We are sending you

☒

Shop drawings

☐ Attached

☐ Prints

☐ Change order

☐ Under separate cover

☐ Plans

☐ Other

☐ Samples

☐ Specifications

☐ Copy of letter

COPIES	DATE	NO.	DESCRIPTION
1	12/8/16	226700	Processed Water System - Resubmittal

These are transmitted as checked below:

☐ For signature

☐ For your use

☐ As requested

☐ For bids due

☒ For review and comment

☐ Approved as submitted

☐ Approved as noted

☐ Returned for corrections

☐ Prints returned after loan to us

☐ Other

☒ Resubmit

☐ Submit

☐ Return

☐ copies for approval

☐ copies for distribution

☐ corrected prints

Remarks: Please return by 12/15/16

RESUBMITTAL WITH HIGHLIGHTED COMMENTS FROM MARLO BELOW WITHIN SUBMITTAL.

COPY TO: file

SIGNED:

Alex Chambers



Mechanical

Webster University ISB Webster Groves, MO

Submittal #:

226700

Submittal Description:

Processed Water System-Resubmittal

Return By:

12/15/16

Please Note: To avoid scheduling delays and equipment release delays, please submit by the "Return By" date.

CHECKED BY:			
DESIGNER:		X	ENGINEER:
X	NO EXCEPTION TAKEN		MAKE CORRECTIONS NOTED
	SUBMIT SPECIFIED ITEM		REVISE AND RESUBMIT
	REJECTED		
Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Equipment supplier is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and satisfactory performance of his work.			
		Job #:	5768
		Date:	12/8/16
		By:	ARC

• 2227 South Street • P.O. Box 044170
• Racine, Wisconsin 53404-7003
• Phone: 262-681-1300 • Fax: 262-681-1318
www.marlo-inc.com



Date: 12-06-16
RE: Webster University RO/DI Skid
TO: CW Boiler

Paul,

The following letter is to confirm that the RO/DI system is designed based on the P&ID supplied. The system proposed meets and exceeds the demands and performance required per the written specification section 226700. The Marlo system proposed is a custom skid mounted system with PLC controls which will deliver the required RO/DI quantity and quality required. Any questions feel free to give me a call.

Thanks,

Erik Stirle
Commercial & Industrial Division
Marlo Incorporated

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: November 22, 2016

Attention: stl-cac@cannondesign.com

Contact Person / WTA Field Inspector:
Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Whitworth (WES)

Project No. WT 14127.01
WES 607

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	226700P01A	(Submittal No.'s:)
		(Cannon #22 6700-006) - (Paric #15051-0319) – (WES #607)
		➤ Processed Water System – (High Purity RO/DI Water Skid)
		(Resubmittal)

***Remarks: See Submittal Review from Webb Engineering.**

c: Kelvin Patel
Kpatel@cannondesign.com

☒ ***Reviewed**

☒ ***No Exceptions Taken**

☒ ***Make Corrections Noted,
No Resubmittal**

☒ ***Amend & Resubmit**

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.



1400 S. 3rd Street, Suite 201
St. Louis, Missouri 63104
Phone: (314) 588-0600
Fax: (314) 588-0604

Letter of Transmittal

To: **wtashop@wmtao.com**

From: **Mike Whitworth**

Date: **November 22, 2016**

Re: **Webster University ISB**

WES No: **607**

☐ For your Files

☐ For Review

☐ Please Comment

☐ Please Reply

Item No.	Description	No. of Copies	Date
1	Shop Drawing Review – Resubmittal 226700 Processed Water Systems for Laboratory Facilities	1	11-22-2016

•Signature: Mike Whitworth



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PROJECT NAME: Webster University ISB
 LOCATION: St. Louis Missouri
 CLIENT PROJ. No.: N/A
 WES PROJ. No.: 607
 SPEC SECTION: 22 6700
Processed Water System
for Laboratory Facilities
 SUBMITTAL ITEM:: See Below -

CONTRACTOR: ICON Mechanical.
 CTR. SUBMITTAL # 22 6700-006
 SUBMITTAL DATE: October 28, 2016
 DATE RECEIVED: November 16, 2016
 RECEIVED VIA: E-Mail
 RECEIVED FROM: WTA
 DATE RETURNED: NOVEMBER 22, 2016
 RETURNED VIA: E-MAIL
 RETRURNED TO: WTASHOP@WMTAO.COM

STATUS KEY:

NEC	MCN	AAR	REJ	REV	NO EXCEPTION TAKEN	
					MAKE CORRECTIONS NOTED, NO RESUBMITTAL:	
					AMEND AND RESUBMIT	
					REJECTED, SEE REMARKS:	
					REVIEWED ONLY	
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X					Pages 006 – 008 Marlo MAT Series Softener Systems Model – MAT 60M-1	
X					Pages 009 – 011 Marlo MFG Series Media Filter Systems Model – ACG-10G-1 Activated Carbon Filter	
		X			Page 012 – 022 Marlo MRO-4V Reverse Osmosis Systems Model – MRO-3600-4V with pump	1. Verify assembly includes items and components as specified. Refer to specification section 226700, Part 2.2 – paragraph 7 in its entirety.



X				Pages 023 – 025 Wave Cyber DI Tank Model 14"x47"	
		X		Pages 026 – 028 Pentair Pentek Filter Housings Model – Not specified	1. Provide manufacturers model/part number and list all accessories as applicable.
X				Page 029 – 031 Water Storage Tank Den Hartog Model – 36" x 325 Gal. Cone Bottom	1. Includes – stand and vent filter assembly
		X		Pages 032 – 033 SPDT Pump Switch SJE Rhombus Model – Not Specified	1. Verify electrical rating of SPDT switch is compatible with electrical characteristics of pump.
		X		Page 034 - 035 Pressure Relief Valve Plast-O-Matic Model – Not Specified	1. Provide manufacturers model/part number.
X				Pages 036 – 048 PP Piping Georg Fischer	1. Reviewed for uses as shown on submittal page 003
		X		Page 049 – 059 Distribution Pumps Grundfos Model – CM 10-3	1. Verify correct size and capacities of pumps and motors. 2. Motor starter control panel not included in submittal. 3. Refer to specification section 226700, Pat 2.2, paragraph 7a.
X				Pages 060 – 062 Pressure Gauges PIC Gauges Model – 301LFW	
X				Pages 063 – 066 UV System Aquafine Model – CSL-4R	
X				Pages 067 – 069 Final Filter Shelco Filters Model – 5FOS3	
	X			Pages 070 – 074 Conductivity/Resistivity Sensor Georg Fischer Model Signet 2850	1. All required patch cords and cables are to be included with sensor. Refer to specification section 226700, Part 2.2, paragraph 7d.
	X			Pages 075 – 079 Flow meter Georg Fischer Model – Signet 2537	1. Include all required patch cords and cables.
X				Pages 080 – 082 Pressure Sensor Ifm Electronic Model – PX3234	
		X		Pages 083 – 085 Micro Drive Yaskawa Model – Not Specified.	1. Provide manufacturers model/part number
		X		Pages 086 – 087 PLC Allen - Bradley	1. Provide manufacturers model/part number



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X					Pages 088 – 089 HMI Interface Allen Bradley Model – Pane View 800 (7")	
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REVIEWED BY: Michael R. Whitworth DATE: November 22, 2016

THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SHOP DRAWING REFERENCED ABOVE.



77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0319

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 11/11/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

RE: Processed Water System Shop Drawing
and Product Data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:		SUBMITTED FOR:	ACTION TAKEN:
☒ Shop Drawings		☒ Approval	☐ Approved as Submitted
☐ Letter		☐ Your Use	☐ Approved as Noted
☐ Prints		☐ As Requested	☐ Returned After Loan
☐ Change Order		☐ Review and Comment	☐ Resubmit
☐ Plans			☐ Submit
☐ Samples		SENT VIA:	☐ Returned
☐ Specifications		☐ Attached	☐ Returned for Corrections
☒ Other: Product Data		☐ Separate Cover Via:	☐ Due Date:

Item	Package	Code	Rev.	Copies	Date	Description	Status
Submittal		226700-006	1		11/11/2016	Processed Water System Shop Drawing and Product Data	Submitted

NOTES:

CC:

Signed: _____
Devin Gates



Mechanical

LETTER OF TRANSMITTAL

TO: Paric Corporation

77 West Port Plaza #250

St. Louis, MO 63146

ATTN: Jason Szachnieski, Devin Gates

DATE: 11/11/16

JOB #: 5768

RE: Webster ISB

We are sending you

☒

Shop drawings

☐ Attached

☐ Prints

☐ Under separate cover

☐ Plans

☐ Samples

☐ Specifications

☐ Copy of letter

☐ Change order

☐ Other

COPIES	DATE	NO.	DESCRIPTION
1	11/11/16	226700	Processed Water System

These are transmitted as checked below:

☐ For signature

☐ For your use

☐ As requested

☐ For bids due

☒

For review and comment

☐ Approved as submitted

☐ Approved as noted

☐ Returned for corrections

☐ Prints returned after loan to us

☐ Other

☐ Resubmit

☒ Submit

☐ Return

☐ copies for approval

☐ copies for distribution

☐ corrected prints

Remarks: Please return by 11/25/16

COPY TO: file

SIGNED:

Alex Chambers



Mechanical

Webster University ISB Webster Groves, MO

Submittal #:

226700

Submittal Description:

Processed Water System

Return By:

11/25/16

Please Note: To avoid scheduling delays and equipment release delays, please submit by the "Return By" date.

CHECKED BY:			
DESIGNER:		X	ENGINEER:
X	NO EXCEPTION TAKEN		MAKE CORRECTIONS NOTED
	SUBMIT SPECIFIED ITEM		REVISE AND RESUBMIT
	REJECTED		
Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Equipment supplier is responsible for: dimensions which shall be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and satisfactory performance of his work.			
		Job #:	5768
		Date:	11/11/16
		By:	ARC